UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Fiscal Year Ended December 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period from _____ to _____

Commission File Number 000-30141

LIVEPERSON, INC.

(Exact name of registrant as specified in its charter)

Delaware	13-3861628
(State or other jurisdiction of incorporation)	(IRS Employer Identification No.)
475 Tenth Avenue, 5th Floor New York , New York	10018
(Address of Principal Executive Offices)	(Zip Code)

(212) 609-4200
(Registrant's telephone Number, including area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	LPSN	The Nasdaq Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer	☒	Accelerated Filer	☐
Non-accelerated Filer	☐	Smaller Reporting Company	☐
		Emerging Growth Company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the voting common stock held by non-affiliates of the registrant as of June 30, 2019 (the last business day of the registrant's most recently completed second fiscal quarter) was approximately $1,207,203,816 (computed by reference to the last reported sale price on The Nasdaq Global Select Market on that date). The registrant does not have any non-voting common stock outstanding.

On February 24, 2020, 64,108,516 shares of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s definitive proxy statement for the 2020 Annual Meeting of Stockholders, which we plan to file subsequent to the date hereof, are incorporated by reference into Items 10, 11, 12, 13 and 14 of Part III of this Form 10-K.

LIVEPERSON, INC.
2019 ANNUAL REPORT ON FORM 10-K
TABLE OF CONTENTS

CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

STATEMENTS IN THIS REPORT ABOUT LIVEPERSON, INC. THAT ARE NOT HISTORICAL FACTS ARE FORWARD-LOOKING STATEMENTS BASED ON OUR CURRENT EXPECTATIONS, ASSUMPTIONS, ESTIMATES AND PROJECTIONS ABOUT LIVEPERSON AND OUR INDUSTRY. THESE FORWARD-LOOKING STATEMENTS ARE SUBJECT TO RISKS AND UNCERTAINTIES THAT COULD CAUSE ACTUAL FUTURE EVENTS OR RESULTS TO DIFFER MATERIALLY FROM SUCH STATEMENTS. THESE FORWARD-LOOKING STATEMENTS ARE BASED ON OUR CURRENT EXPECTATIONS, WHICH MAY NOT PROVE TO BE ACCURATE. MANY OF THESE STATEMENTS ARE FOUND IN THE “BUSINESS” AND “MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS” SECTIONS OF THIS FORM 10-K. WHEN USED IN THIS FORM 10-K, THE WORDS “ESTIMATES,” “EXPECTS,” “ANTICIPATES,” “PROJECTS,” “PLANS,” “INTENDS,” “BELIEVES” AND VARIATIONS OF SUCH WORDS OR SIMILAR EXPRESSIONS ARE INTENDED TO IDENTIFY FORWARD-LOOKING STATEMENTS. ALL FORWARD-LOOKING STATEMENTS, INCLUDING, WITHOUT LIMITATION, OUR EXAMINATION OF HISTORICAL OPERATING TRENDS, ARE BASED UPON OUR CURRENT EXPECTATIONS AND VARIOUS ASSUMPTIONS. OUR EXPECTATIONS, BELIEFS AND PROJECTIONS ARE EXPRESSED IN GOOD FAITH, AND WE BELIEVE THERE IS A REASONABLE BASIS FOR THEM, BUT WE CANNOT ASSURE YOU THAT OUR EXPECTATIONS, BELIEFS AND PROJECTIONS WILL BE REALIZED. ANY SUCH FORWARD-LOOKING STATEMENTS ARE MADE PURSUANT TO THE SAFE HARBOR PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995. IT IS ROUTINE FOR OUR INTERNAL PROJECTIONS AND EXPECTATIONS TO CHANGE AS THE YEAR OR EACH QUARTER IN THE YEAR PROGRESS, AND THEREFORE IT SHOULD BE CLEARLY UNDERSTOOD THAT THE INTERNAL PROJECTIONS AND BELIEFS UPON WHICH WE BASE OUR EXPECTATIONS MAY CHANGE PRIOR TO THE END OF EACH QUARTER OR THE YEAR. ALTHOUGH THESE EXPECTATIONS MAY CHANGE, WE ARE UNDER NO OBLIGATION TO INFORM YOU IF THEY DO. ACTUAL EVENTS OR RESULTS MAY DIFFER MATERIALLY FROM THOSE CONTAINED IN THE PROJECTIONS OR FORWARD-LOOKING STATEMENTS. IMPORTANT FACTORS THAT COULD CAUSE OUR ACTUAL RESULTS TO DIFFER MATERIALLY FROM THE FORWARD-LOOKING STATEMENTS WE MAKE IN THIS FORM 10-K ARE SET FORTH IN THIS FORM 10-K, INCLUDING THE FACTORS DESCRIBED IN THE SECTION ENTITLED “ITEM 1A — RISK FACTORS.” IF ANY OF THESE RISKS OR UNCERTAINTIES MATERIALIZE, OR IF ANY OF OUR UNDERLYING ASSUMPTIONS ARE INCORRECT, OUR ACTUAL RESULTS MAY DIFFER SIGNIFICANTLY FROM THE RESULTS THAT WE EXPRESS IN OR IMPLY BY ANY OF OUR FORWARD-LOOKING STATEMENTS. WE DO NOT UNDERTAKE ANY OBLIGATION TO REVISE THESE FORWARD-LOOKING STATEMENTS TO REFLECT FUTURE EVENTS OR CIRCUMSTANCES.

PART I

Item 1. Business

Overview

LivePerson, Inc. ("LivePerson", the "Company", "we" or "our") makes life easier for people and brands everywhere through messaging powered by AI and humans. During the past decade, the consumer has made the mobile device the center of their digital lives, and they have made mobile messaging the center of communication with friends, family and peers. Our technology enables consumers to connect with businesses through these same preferred conversational interfaces, including Facebook Messenger, SMS, WhatsApp, Apple Business Chat, Google Rich Business Messenger and Alexa. These messaging conversations harness human agents, bots and Artificial Intelligence (AI) to power convenient, personalized and content-rich journeys across the entire consumer lifecycle, from discovery and research, to sales, service and support, and even marketing, social and brick and mortar engagements. For example, consumers can look up product info like ratings, images and pricing, search for stores, see product inventory, schedule appointments, apply for credit, approve repairs, make purchases or payments - all without ever leaving the messaging channel. These AI and human-assisted conversational experiences constitute the Conversational Space.

LiveEngage, our enterprise-class cloud-based platform, enables businesses to become conversational by securely deploying messaging, coupled with bots and AI, at scale for brands with tens of millions of customers and many thousands of customer care agents. LiveEngage powers conversations across each of a brand's primary digital channels, including mobile apps, mobile and desktop web browsers, short message service (SMS), social media and third-party consumer messaging platforms. Brands can also use LiveEngage to message consumers when they dial a 1-800 number instead of forcing them to navigate interactive voice response systems (IVRs) and wait on hold. Similarly, LiveEngage can ingest traditional emails and convert them into messaging conversations, or embed messaging conversations directly into web advertisements, rather than redirect consumers to static website landing pages.

LivePerson's robust, cloud-based suite of rich messaging, real-time chat, AI and automation offerings features consumer and agent facing bots, intelligent routing and capacity mapping, real-time intent detection and analysis, queue prioritization, customer sentiment, analytics and reporting, content delivery, Payment Card Industry (PCI) compliance, cobrowsing and a sophisticated proactive targeting engine. With LiveEngage, agents can manage all conversations with consumers through a single console interface, regardless of which disparate messaging endpoints the consumers originate from; i.e., WhatsApp, Line, Apple Business Chat, IVR, social, email, Alexa, or WeChat. An extensible application programming interface (API) stack facilitates a lower cost of ownership by facilitating robust integration into back-end systems, as well as enabling developers to build their own programs and services on top of the platform. More than 40 APIs and software development kits are available on LiveEngage.

LivePerson's Conversational AI offerings put the power of bot development, training, management and analysis into the hands of the contact center and its agents, the teams most familiar with how to structure sales and service conversations to drive successful outcomes. The platform enables what we call "the tango" of humans, AI and bots, whereby human agents act as bot managers, overseeing AI-powered conversations and seamlessly stepping into the flow when a personal touch is needed. Agents become ultra-efficient, leveraging the AI engine to serve up relevant content, define next-best actions and take over repetitive transactional work, so that the agent can focus on relationship building. By seamlessly integrating messaging with our proprietary Conversational AI, as well as third-party bots, LiveEngage offers brands a comprehensive approach to scaling automations across their millions of customer conversations.

Complementing our proprietary messaging and Conversational AI offerings are teams of technical, solutions and consulting professionals that have developed deep domain expertise in the implementation and optimization of conversational services across industries and messaging endpoints. We are a leading authority in the Conversational Space. LivePerson's products, coupled with our domain knowledge, industry expertise and professional services, have been proven to maximize the effectiveness of the Conversational Space and deliver measurable return on investment. Certain of our customers have achieved the following advantages from our offerings:

- the ability for each agent to manage as many as 40 messaging conversations at a time, as compared to one at a time for a voice agent and two to four at a time for a good chat agent. Adding AI and bots provides even greater scale to the number of conversations managed;
- labor efficiency gains of at least two times that of voice agents, effectively cutting labor costs by at least 50%;
- improving the overall customer experience, thereby fueling customer satisfaction increases of up to 20 percentage points, and enhancing retention and loyalty;
- more convenient, personalized and content-rich conversations that increase sales conversion by up to 20%, increase average order value and reduce abandonment;
- more satisfied contact center agents, thereby reducing agent churn by up to 50%;
- maintain a valued connection with consumers via mobile devices, either through native applications, websites, text messages, or third-party messaging platforms;

- leverage spending that drives visitor traffic by increasing visitor conversions;
- refine and improve performance by understanding which initiatives deliver the highest rate of return; and
- increase lead generation by providing a single platform that engages consumers through advertisements and listings on branded and third-party websites.

As a “cloud computing” or software-as-a-service (SaaS) provider, LivePerson provides solutions on a hosted basis. This model offers significant benefits over premise-based software, including lower up-front costs, faster implementation, lower total cost of ownership, scalability, cost predictability, and simplified upgrades. Organizations that adopt a fully-hosted, multi-tenant architecture that is maintained by LivePerson eliminate the majority of the time, server infrastructure costs, and IT resources required to implement, maintain, and support traditional on-premise software.

More than 18,000 businesses, including HSBC, Orange, The Home Depot, and GM Financial use our conversational solutions to orchestrate humans and AI, at scale, and create a convenient, deeply personal relationship with their customers.

LivePerson's consumer services offering is an online marketplace that connects independent service providers (Experts) who provide information and knowledge for a fee via mobile and online messaging with individual consumers (Users). Users seek assistance and advice in various categories including personal counseling and coaching, computers and programming, education and tutoring, spirituality and religion, and other topics.

LivePerson was incorporated in the State of Delaware in November 1995 and the LivePerson service was introduced in November 1998. In April 2000, the company completed an initial public offering and is currently traded on the NASDAQ Global Select Market and the Tel Aviv Stock Exchange. LivePerson is headquartered in New York City with U.S. offices in Alpharetta (Georgia), Austin (Texas), San Francisco (California) and Seattle (Washington), and international offices in Amsterdam (Netherlands), Berlin (Germany), Delhi (India), London (United Kingdom), Mannheim (Germany), Melbourne (Australia), Milan (Italy), Paris (France), Ra'anana (Israel), Reading (United Kingdom), Singapore (Singapore), Tel Aviv (Israel), and Tokyo (Japan).

Market Opportunity

LivePerson's proprietary messaging and Conversational AI enable consumers and businesses to use natural language over conversational interfaces such as SMS, Messenger, Apple Business Chat, Google’s Rich Business Messenger, and in-home personal assistants like Alexa, in order to get answers to questions, make purchases and resolve customer care inquiries. These conversational messaging capabilities target lower costs and increased customer satisfaction, retention and revenue by utilizing human agents, AI and bots to provide convenient, personalized and content-rich communication as alternatives to calling a 1-800 number, navigating a website or downloading an app.

Our view is that once a consumer has established their favorite brands as contacts in their preferred messaging app, they will no longer see a need to call that brand’s 1-800 number, visit their website or download their app. Instead, they will simply select the contact, open up the thread with their entire history with the brand, and then renew the conversation. As a result, the billions of dollars previously invested by brands across these legacy channels will be increasingly allocated to experiences powered by our platform.

Historically, brands have predominantly promoted calling the 1-800 number or using email as the primary means of contact with consumers. According to a 2018 IBM report, approximately 270 billion customer service calls are made to contact centers each year. With a median cost per call of approximately $5.60, according to US Contact Center Decision-Makers' Guide, we estimate that businesses spend approximately $1.5 trillion annually to support their 1-800 number call centers. We believe that moving these calls to messaging represents the largest portion of what we estimate is a $60 billion go-to-market opportunity. We estimate that nearly half of this market opportunity is tied to service, and the other half tied to sales, marketing, social and brick and mortar use cases.

LivePerson is already capitalizing on this Conversational Space transformation. We cite the following considerations:

- Consumer preference has already shifted away from calling to messaging in our personal lives. Gartner, a technology research firm, estimates that the proportion of voice-based communication will drop from 41% in 2017 to 12% in 2022. In contrast, WhatsApp and Facebook users combined send more than 65 billion messages a day, and, according to Portio Research, people worldwide were estimated to send an estimated 23 billion text messages a day in 2015. According to Gartner, by 2020, more than 500 million consumers will use voice-enabled conversational AI to purchase on digital commerce platforms, growing from 160 million in 2017. The International Smartphone Mobility Report by mobile data tracking firm Infomate found that Americans spend about 26 minutes a day texting, as compared to six minutes a day on voice calls. A survey by transportation booking app, Hailo, found that making phone calls has dropped to the sixth most popular use of a mobile device, behind sending messages, receiving messages, checking email, surfing the Web, and using the alarm clock. The adoption of messaging has not been constrained to younger generations. According to Experian Marketing Services, adults 55 and older send and receive an average of nearly 500 text messages a month.

- Calling a 1-800 number typically leads to a poor customer experience. Roughly 50% of calls to 1-800 numbers go unresolved, according to IBM, and a 2014 Harris Interactive survey found that “81% of all consumers agree that it is frustrating to be tied to a phone or computer to wait for customer service help.” Research by enterprise analytics firm Mattersight, reinforces this view, with 74% of consumers feeling that call centers are getting worse or at best staying the same. The risk of poor customer service is material, according to Harris Interactive, which found that 89% of consumers will leave and go to a competitor due to bad customer experiences.
- Conversational experiences, which harness the power of human agents, bots and AI over messaging have been demonstrated to provide a superior alternative to voice calls. LivePerson customers typically see contact center agent efficiency increase by at least two times for messaging on our platform versus voice, while fueling higher customer satisfaction and increased sales conversions. According to a RingCentral survey, “at least 78% of consumers who text wish they could have a text conversation with a business.” An Amdocs global consumer survey had a similar finding, with 76% of consumers stating they would rather use a mobile app than call the contact center. According to Forrester Research's Customer Experience Survey, 73% of US online adults say that valuing their time is the most important thing a company can do to provide them with good service.
- We believe the combination of strong alignment to consumer communication preferences, high returns on investment and a growing list of proven referenceable customers have positioned the Conversational Space at an inflection point. Nearly 55% of our enterprise customers had adopted messaging by the end of 2019, up from approximately 40% at the end of 2018 and less than 5% at the end of 2016. In addition, nearly 60% of messaging conversations had automation attached at the end of 2019, up from approximately 25% at the end of 2017. In the first year of its launch, our Conversation Bot Builder was deployed by nearly 300 brands.

In addition to market share opportunities in the legacy 1-800 number call center, we believe that consumer traffic and digital spending will increasingly shift away from websites and mobile apps to conversational engagements on our platform. We think that websites and e-commerce have not lived up to the expectations of businesses and that consumers are likewise frustrated with the navigational experience and the challenges of getting questions answered on websites. In fact, after more than 20 years, e-commerce still only accounts for approximately 11% of total commerce and, in the United States, Amazon.com accounts for approximately half of this share. Even more alarming, is the growing disconnect as consumers go mobile. According to Adobe Analytics, on Cyber Monday in 2018, mobile accounted for approximately 51% of overall website traffic, but accounted for only approximately 31% of total revenue generated.

The low penetration rates of online and mobile e-commerce reflect disappointing website conversion rates, which average less than 5%. Low conversion rates are likely a factor of the trend for websites to be designed for content, as opposed to commerce, so that they can be indexed to show up in web searches. According to Forrester Research, 53% of customers are likely to abandon their online purchases if they can't find quick answers to their questions. This conflict between content and commerce not only impacts revenue, but also drives higher costs, as we estimate that 60%-80% of all calls to 1-800 numbers originate from consumers first visiting a website and then getting confused or not obtaining the answers they seek.

We believe that LivePerson's proprietary messaging and Conversational AI offerings provide a superior alternative. Certain LivePerson customers have demonstrated increases in website sales of up to 20%, while lowering the cost of engagement relative to voice or email. No longer are consumers navigating through clicks and searches to find answers across multiple static web pages. Instead they use natural language to engage conversationally with a brand. These conversations can be personalized to each brand’s unique identity and to each consumer’s unique history and preferences. The engagements are content rich, featuring images, reviews, ratings, and videos, and they are convenient, letting the consumer drive the conversation when it meets their needs, and offering the ability to integrate to credit cards, pay wallets and calendars.

We also believe that the Conversational Space will steadily eliminate the need for investment in branded apps. We conclude that consumers will increasingly opt to connect with brands through their preferred messaging channels, such as Apple Business Chat, WhatsApp, SMS, Messenger, or Twitter, rather than clutter their mobile devices, waste storage, and potentially impact performance by downloading a multitude of individual apps.

Another emerging market opportunity for LivePerson is the leveraging of brick and mortar operations as an extension of the contact center. Retailers, telecommunications companies, and financial services companies, among others, all operate brick and mortar storefronts, where thousands of employees often sit idle during off peak hours. LiveEngage enables our customers to set up campaigns where these employees can connect through messaging to customers in their community, with check-ins, follow ups, and special offers, reinforcing relationships at the local level. For example, a telecommunications company targeted consumers that were local to its storefronts with a trade-in offer. Additionally, our platform can arm employees in the field with the ability to rapidly obtain answers to questions as they engage with customers in the stores. For example, a consumer may have a specific question about a new appliance in a home improvement store, and the employee can engage through our platform with a specialist bot or human agent to obtain detailed information on that appliance.

Strategy

The key elements of LivePerson's business solutions strategy include:

Build awareness and drive adoption of the Conversational Space. LivePerson brought our first customer live on messaging in June 2016. Since that time, we have been focused on building awareness for conversational experiences and driving adoption. We have educated businesses on the financial and operational transformation that occurs when a contact center shifts to an asynchronous messaging environment, where the consumer controls the pace of the conversation, which can last minutes, hours or days, from a synchronous call or chat center, where conversations occur in real-time and have a distinct start and end.

A key component of our industry awareness marketing strategy has been to hold multiple global customer summits each year that target executives from enterprise customers and prospects, and feature a key theme within the Conversational Space, such as Apple Business Chat, Google Rich Business Messenger, IVR deflection or AI. LivePerson customers are the centerpoint of these summits, presenting why they chose LivePerson for conversational experiences, how they achieved success, and what type of ROI they have realized. Each attendee then receives a blueprint for how they can achieve similar outcomes. We have found this strategy to drive strong results for LivePerson, as we have seen a greater than 40% conversion rate on opportunities that were created or advanced as part of the customer summits. By year end 2019, we had brought approximately 300 customers live on messaging and increased adoption within our enterprise customers to nearly 55%. In addition, nearly 60% of messaging conversations had automation attached. We will continue to focus on building awareness for the Conversational Space and driving adoption of messaging and AI across our customer base.

Increase messaging volumes by developing a broad ecosystem, expanding customer use cases, and focusing on AI and automation. Our strategy is to drive higher messaging volumes by going both wide across messaging endpoints, deep across consumer use cases, and focusing on AI and automation as the means to deliver powerful scale. LivePerson offers a platform usage pricing model, where customers are offered access to our entire suite of messaging technologies across their entire agent pool for a pre-negotiated cost per interaction. We believe that over time this model will drive higher revenue for LivePerson by reducing barriers to adoption of new messaging endpoints and use cases.

In order to drive broad messaging adoption, it is imperative that LiveEngage integrates to all of the messaging apps that consumers prefer to use for communication and addresses all key use cases. For example, if a consumer is an avid WhatsApp user, and a brand only offers SMS as a messaging option, that consumer may be reluctant to try messaging the brand. Therefore, a key strategy of ours has been to build one of the industry's broadest ecosystems of messaging endpoints and use cases. In June 2016, we launched with In-App messaging. In 2017, we introduced Facebook Messenger, SMS, Web messaging and IVR deflection integrations. In 2018, we added Apple Business Chat, Google Rich Business Messenger, Line, WhatsApp, Alexa, Google Home, Google Ad Lingo and Twitter. In 2019, we added email, allowing brands to manage emails through the same console they use for messaging, and to convert legacy emails into messaging conversations. We also added social monitoring and conversational tools for Twitter and Facebook, and introduced proactive messaging, allowing brands to transform traditional one-way notifications such as flight cancellations or plan overage alerts into two-way conversations. Finally, we connected to Facebook and WhatsApp digital advertisements, enabling consumers to initiate messaging conversations for marketing and customer care directly within the advertisement.

Each channel and use case added opens the door to hundreds of millions of new consumers, providing brands a greater opportunity to shift share away from their legacy contact center channels into messaging. For example, in 2019, leading airlines launched on WhatsApp and Apple Business Chat with the ability to make secure payments; a baseball stadium launched an automated conversational concierge providing answers to a wide range of questions from restroom locations to player stats; and a multinational telecommunications company used proactive two-way messaging for outbound campaigns.

LivePerson makes the management of all these disparate channels seamless to the brand. AI-based intelligent routing, queuing and prioritization software orchestrates these conversations at scale, regardless of which messaging endpoint they originated from, so that human and bot agents can engage with all customers through just one console.

We believe that this strategy has influenced LivePerson's enterprise and mid-market revenue retention rate, (the trailing-twelve-month change in total revenue from existing customers after upsells, downsells and attrition) which was within our target range of 105% to 115% for 2019. The benefit can also be seen in LivePerson's average revenue per user (ARPU) for our enterprise and mid-market customers, which increased approximately 20% in 2019 to $345,000 from approximately $285,000 in 2018. In fact, in 2019, the ARPU for Enterprise customers on messaging was more than 5 times higher than those on just chat. We believe these ARPU trends are a clear indication of how LivePerson's strategy to drive messaging adoption has successfully influenced our revenue growth by taking share from legacy communication channels. We plan to continue adding new messaging endpoints and use cases, and to drive higher adoption of existing ones within our customer base.

Attract the industry's best AI, machine learning and conversational talent. We believe that AI and machine learning are critical to successfully scaling in the Conversational Space, and that in order to develop the industry's leading technology, we need to attract the industry's best talent. In 2018, LivePerson recruited Alex Spinelli, key architect of the Alexa Operating System at Amazon.com, as our Global CTO. Under Mr. Spinelli's leadership, LivePerson opened an Advanced Technology Center in Seattle, Washington, where the Company now has more than 125 of the industry's brightest data scientists, machine learning engineers and automation engineers, many from firms such as Nike, Amazon.com, Microsoft and Target, that are working exclusively on applying AI to Conversational. LivePerson also expanded its Mannheim, Germany development center, and added key development talent through the acquisitions of BotCentral in Mountain View, California and Conversable in Austin, Texas.

Bring to market best-in-class AI and machine learning technologies designed for the conversational space. We believe that in the last decade many vendors introduced AI and bot offerings that created frustrating experiences for consumers and businesses alike, which in turn has eroded trust in automation. Many of these solutions have proven difficult to build and scale, and have been limited by stand alone implementations that lacked the measurement, reporting and human oversight of conversational platforms such as LiveEngage. In December 2018, LivePerson announced its patent pending AI engine that is designed to overcome these shortcomings and help brands rapidly bring to market conversational AI that can scale to millions of interactions, while increasing customer satisfaction and conversion rates.

Unlike alternative solutions designed solely for IT departments, LivePerson's Conversational AI was built to be used by developers *and* contact center agents. By putting the power of conversational design and bot management in the hands of contact center agents, LivePerson's Conversational AI gives brands the ability to leverage the employees closest to the customer, those who are most versed in the voice of the brand, and with the most expertise in how to craft successful outcomes for customer service and sales journeys.

Some of the key innovations behind LivePerson's Conversational AI include:

- a holistic approach to scaling AI by combining consumer facing bots, agent facing bots, intelligent routing and real-time intent understanding, with an analytics dashboard that helps users focus on the intents that are impacting their business and prioritize which intents to automate next
- bot building software that is based on dialogue instead of workflow or code, so non-technical employees like contact center agents can design automations
- leverage a data moat of hundreds of millions of conversations to feed the machine learning that rapidly and accurately detects consumer sentiment and intents in real-time. Use intent understanding for advanced routing, next-best actions, and to fully contain conversations with automation
- the establishing of contact center agents as bot managers, ensuring that every conversation is safeguarded by a human and that agents are continuously training the AI to be smarter and drive more successful outcomes
- powerful Assist technology that multiplies the efficiency of agents by analyzing intents in real time and then suggesting next best actions, predefined content, and bots that can take over transactional work
- pre-built templates for target verticals that provide out of the box support for the top intents and back-end integrations
- the ability to bootstrap conversations with existing transcripts, reducing design effort and speeding time to market
- third-party AI natural language understanding (NLU) integration, so customers aren't boxed into one vendor
- AI analytics and reporting tailored to the Conversational Space, providing brands with immediate, actionable insights about their businesses and contact center operations

Our strategy is to continue to enhance the Conversational AI engine and related products, leveraging our global R&D footprint and substantial library of mobile and online conversational data, with the aim of increasing agent efficiency, decreasing customer care costs, improving the customer experience and increasing customer lifetime value.

Sustain our leadership position by aligning brands to a vision that transforms how they communicate with consumers and delivers a superior return on investment. We believe that most contact center technology vendors incorrectly view messaging as a feature. They are content with building integrations to a messaging endpoint and offering messaging as just another product in their suite. LivePerson holds the perspective that messaging and AI are the foundation for transforming conversational experiences, disrupting how agents operate and how brands engage with consumers across service, sales, marketing, social and brick and mortar. Brands must adapt their contact centers to an asynchronous messaging environment and leverage a combination of human agents, bots and AI to achieve scale and efficiencies. When done correctly, the entire consumer lifecycle with a brand will be maintained within the Conversational Space, and traffic will steadily shift away from lower returning voice calls, websites, emails and apps to higher returning messaging endpoints.

We believe that LivePerson is uniquely positioned to deliver this transformation due to its technology and expertise:

- The LiveEngage enterprise-class, automation-first, cloud-based platform, was designed for AI-assisted and human-powered messaging in mobile and online channels. The platform offers best-in-class security and scalability, offers the broadest ecosystem of messaging endpoints, is designed for ease of use, and features an AI engine custom built for the Conversational Space, intent recognition, robust real-time reporting, role-based real-time analytics, predictive intelligence, and innovations in customer satisfaction and connection measurement. Additionally, LiveEngage is an open platform with pre-built, enterprise-grade integrations into back-end systems as well as the ability to work across NLU providers.
- The Company has a data moat built on hundreds of millions of conversations across industries, geographies and use cases that is feeding the machine learning engines that power intent understanding.
- The platform has expanded to power conversations across a broad spectrum of channels and use cases, from traditional sales and customer service, to marketing, social, email, advertising and brick and mortar.
- LivePerson has deep domain expertise across verticals and messaging endpoints, a global footprint, referenceable enterprise brands and a team of technical, solutions and consulting professionals to assist customers along their transformational journeys. We are positioned as an authority in the Conversational Space,. We have developed a Transformation Model that is introduced to existing and prospective customers to help guide them on their journeys from legacy and oftentimes inefficient legacy voice, email and chat solutions to modern conversational ones powered by messaging and AI.

We believe that LivePerson's differentiated approach to the Conversational Space, combined with our unique technology and expertise has established us as a market leader, with an ability to deliver superior returns on investment. LivePerson customers manage as many as 40 messaging conversations at a time, as compared to one at a time for a voice agent and two to four at a time for a good chat agent. Adding AI and bots provides even greater scale to the number of conversations managed. Our customers often see labor efficiency gains of at least two times that of voice agents, effectively cutting labor costs by at least 50%. Furthermore, our ability to deliver more convenient, personalized and content-rich conversations often drives increases in customer satisfaction of up to 20 percentage points and increases in sales conversions of up to 20%, while enhancing average order value, customer retention and loyalty.

Strengthen our position in both existing and new industries. We plan to continue to develop our market position by increasing our customer base, and expanding within our installed base. We will continue to focus primarily on key target markets: consumer/retail, telecommunications, financial services, travel/hospitality, technology and automotive within both our enterprise and mid-market sectors, as well as the small business (SMB) sector. In 2019, we made strong inroads into new verticals with key wins in the airline, foodservice and healthcare industries. We are increasingly structuring our field organization to emphasize our domain expertise and strengthen customer relationships across target industries.

Continue to build our international presence. We are focused on expanding our international revenue contribution, which increased to 41% of total revenue in 2019 and 2018, from 37% in 2017. We are generating positive results from our recent investments in the Asia Pacific region, and recently opened an office in Latin America.

Leverage our open architecture to support partners and developers. In addition to developing our own applications, we continue to cultivate a partner eco-system capable of offering additional applications and services to our customers. We integrate into approximately a dozen third-party messaging endpoints including SMS, Facebook Messenger, Apple Business Chat, Google Rich Business Messenger, Line, WhatsApp, Alexa, Google Home, WeChat, Google Ad Lingo and Twitter, multiple IVR vendors and dozens of branded apps. LiveEngage integrates our proprietary messaging and Conversational AI with third-party bot offerings, empowering our customers to manage a mix of different bots, human agents and technologies from one control panel, thereby optimizing contact center efficiency. LivePerson's proprietary and third-party AI/bots enable brands to partially or fully automate communications with their customers.

In addition, we have opened up access to our platform and our products with more than 40 APIs and software development kits that allow customers and third parties to develop on top of our platform. Customers and partners can utilize these APIs to build our capabilities into their own applications and to enhance our applications with their services. In 2019, we launched LivePerson Functions, a serverless integration capability that allows brands to more easily and rapidly customize conversations flows within LiveEngage through functions-as-a-service technology.

Expand sales partnerships to broaden our presence and accelerate sales cycles. We are focused on broadening our market reach and accelerating sales cycles by partnering with systems integrators, technology providers, business process outsourcers, value added resellers and other sales partners. We formalized a relationship with IBM Global Business Services in 2017 and Accenture in 2018. In 2019, we announced strategic partnerships with TTEC, a leading BPO focused on customer experience, and DMI, a digital transformation company, to redefine the customer experience with digital engagement, messaging, and AI-driven automation. LivePerson increased the number of partners focused on SMBs to more than 300 at year-end 2019, from over 150 at year-end 2018, and approximately 40 at the end of 2017. Approximately one quarter of all opportunities were influenced by partners in 2019, and we are focused on driving that contribution toward 40% longer term.

Maintain Market Leadership in Technology and Security Expertise. As described above, we are devoting significant resources to creating new products and enabling technologies designed to accelerate innovation. We evaluate emerging technologies and industry standards and continually update our technology in order to retain our leadership position in each market we serve. We monitor legal and technological developments in the area of information security and confidentiality to ensure our policies and procedures meet or exceed the demands of the world’s largest and most demanding corporations. We believe that these efforts will allow us to effectively anticipate changing customer and consumer requirements in our rapidly evolving industry.

Evaluate Strategic Alliances and Acquisitions When Appropriate. We have successfully integrated several acquisitions over the past decade. While we have in the past, and may from time to time in the future, engage in discussions regarding acquisitions or strategic transactions or to acquire other companies that can accelerate our growth or broaden our product offerings, we currently have no binding commitments with respect to any future acquisitions or strategic transactions.

Products and Services

Business solutions offerings

LivePerson’s hosted platforms harness human, AI and bot-powered messaging on mobile apps, mobile and desktop web browsers, SMS, social media and third-party consumer messaging platforms. Our business-to-business services are all managed from a single user interface. By supplying a complete, unified consumer view, our solutions enable businesses to deliver a relevant, timely, personalized, and seamless consumer experience for heads of digital and customer care, as well as e-commerce, marketing, and contact center executives. In addition to product offerings, LivePerson provides professional services and value-added business consulting to support complete deployment and optimization of our enterprise solutions. Revenue attributable to our monthly hosted Business services accounted for 77% of total revenue for the year ended December 31, 2019, 79% of total revenue for the year ended December 31, 2018 and 82% of total revenue for the year ended 2017. The shift in percentage contribution reflects the heightened demand for LivePerson's expert professional services as customers deploy Conversational solutions for the first time.

LiveEngage. LiveEngage, LivePerson’s enterprise-class, cloud-based platform, enables businesses and consumers to connect through conversational interfaces, such as in-app and mobile messaging, while leveraging bots and AI to increase efficiency. The platform, which is targeted at heads of digital and customer care, as well as e-commerce, marketing, and contact center executives, combines sophisticated mobile and online engagement technology with robust business intelligence and big data to produce compelling, measurable results by intelligently engaging consumers based on a real-time understanding of consumer needs. Rich, contextually aware targeting, actionable insights and personalized experiences, empower businesses to get the most out of their existing online, mobile and social platforms. Potential benefits of LiveEngage include increased agent efficiency, decreased customer care costs, improved customer experiences, higher conversion rates and increased customer lifetime value.

LiveEngage was designed for conversational experiences, enabling businesses to securely deploy messaging, coupled with bots and AI, at scale for brands with tens of millions of customers and many thousands of customer care agents. The platform powers conversations across each of a brand’s primary digital channels, including mobile apps, mobile and desktop web browsers, SMS, social media and third-party consumer messaging platforms. Brands can also use LiveEngage to message consumers when they dial a 1-800 number instead of forcing them to navigate interactive voice response systems (IVRs) and wait on hold. Similarly, LiveEngage can ingest traditional emails and convert them into messaging conversations, or embed messaging conversations directly into web advertisements, rather than redirect consumers to static website landing pages. The platform seamlessly integrates LivePerson’s Conversational AI engine as well as third-party bots, enabling brands to manage both AI-based agents and human agents from a single console.

Our robust, cloud-based suite of rich messaging, real-time chat, AI and automation offerings features consumer and agent facing bots, intelligent routing and capacity mapping, real-time intent detection and analysis, queue prioritization, customer sentiment, analytics and reporting, content delivery, Payment Card Industry (PCI) compliance, cobrowsing and a sophisticated proactive targeting engine. With LiveEngage, agents can manage all conversations with consumers through a single console interface, regardless of which disparate messaging endpoints the consumers originate from; i.e., WhatsApp, Line, Apple Business Chat, IVR, social, email, Amazon Alexa, or WeChat. An extensible application programming interface (API) stack facilitates a lower cost of ownership by facilitating robust integration into back-end systems, as well as enabling developers to build their own programs and services on top of the platform. More than 40 APIs and software development kits are available on LiveEngage.

LiveEngage enables the combination of real time on-site data and off-site behavioral data, with a broad set of historical and operational data. Proprietary analytics utilize this data to target end users with compelling engagement options at any step in the conversion funnel and throughout the customer lifecycle. The platform enables customers to maximize online revenue opportunities, improve conversion rates and reduce shopping cart abandonment by proactively engaging the right visitor, using the right channel, at the right time. Our solution identifies segments of website visitors who demonstrate the highest propensity to convert, and engages them in real-time with relevant content and offers, helping to generate incremental sales. The platform also reduces costs in the contact center relative to voice, by identifying consumers who may be struggling with their self-help experience, and proactively connecting them to a live consumer care specialist via messaging, who can manage several conversations at once. This comprehensive solution blends a proven value-based methodology with an active rules-based engagement engine and deep domain expertise to increase first contact resolution, improve consumer satisfaction, and reduce attrition rates.

LivePerson’s Conversational AI. LivePerson’s Conversational AI, announced in December 2018, operates as the brains behind new LivePerson AI-based products, and was developed using our conversational data set of millions of brand-to-consumer interactions. LivePerson’s Conversational AI was custom designed for the Conversational Space, putting the power of bot development, training and management into the hands of the contact center and its agents, the teams most familiar with how to structure sales and service conversations to drive successful outcomes. The platform enables what we call “the tango” of humans, AI and bots, whereby human agents act as bot managers, overseeing AI-powered conversations and seamlessly stepping into the flow when a personal touch is needed. Through LiveEngage, agents become ultra-efficient, leveraging the AI engine to serve up relevant content, define next-best actions and take over repetitive transactional work, so that the agent can focus on relationship building. By seamlessly integrating LiveEngage with our proprietary AI, as well as third-party bots, the platform provides businesses with a comprehensive view of all AI-based and human-based conversations from a single console. Some of the first products developed on LivePerson’s Conversational AI engine include:

- **Conversation Builder,** which non-technical staff such as contact center agents use to design high-quality automated conversations. The conversations are not built from scratch. Conversation Builder creates the initial versions by mining a brand's existing conversation transcripts. Prebuilt industry templates are also available, providing the dialogue and integrations necessary for common use cases such as billing.
- **Conversation Manager,** a console that suggests automated responses and next best actions to contact center agents, who edit and select from them. Edits and selections dynamically improve the responses and next best actions. When the content reaches a brand-set accuracy threshold, it can be offered to consumers without human intervention. Conversation Manager also includes sentiment monitoring to alert contact center agents to conversations that require their attention. Designed for use in large contact centers, Conversation Manager sends these requests to agents who have the capacity and appropriate skills to respond. A major retail brand that adopted this approach in its sales operation increased agent productivity up to 220% within 12 weeks of launch.
- **Conversation Analytics**, dashboards and reporting which take the true voice of the customer - their direct discussions with a brand, spoken in their natural language - and turn it into actionable sales and service intelligence. A major wireless provider using early versions of Conversation Analytics reported the product identifies the root cause of service issues faster than monitoring software, enabling the provider to accelerate the fix and reduce inbound customer inquiries. A leading hospitality firm used Conversation Analytics to identify and add new, top-selling items to its menu selection.

Professional Services. The mission of our Professional Services team is to help customers optimize the performance of our products in order to drive incremental value through their mobile and online sales and/or service channel(s). This talented group utilizes their deep domain expertise and years of hands-on experience to provide customers with detailed analyses and measurements of their LivePerson deployment that drive strategies and decisions on how to optimize mobile and online messaging, real-time chat, and bot and AI integration. Deliverables of the team include scorecards that measure and chart performance trends, analyses and recommendations for conversational design, web design and process improvement, transcript reviews to discover both voice of the consumer insight and agent improvement opportunities, custom training of call center agents and management, and ongoing management of messaging programs to ensure alignment with current business practices and objectives. The team's value-added methodology and approach to guiding customers towards messaging channel and human/bot agent optimization is an important component of the LivePerson offering, and gives our customers a competitive advantage in the digital world. Revenue attributable to professional services accounted for 14% of total revenue for the year ended December 31, 2019. Revenue attributable to professional services accounted for 13% and 10% of total revenue for each of the years ended December 31, 2018 and 2017, respectively.

Consumer offering

Our consumer services offering is an online marketplace that connects independent service providers (Experts) who provide information and knowledge for a fee via mobile and online messaging with individual consumers (Users). Users seek assistance and advice in various categories including personal counseling and coaching, computers and programming, education and tutoring, spirituality and religion, and other topics. Revenue from our Consumer segment accounted for approximately 8% of total revenue for the years ended December 31, 2019, 2018 and 2017, respectively.

Customers

More than 18,000 customers have deployed our business solutions, including Fortune 500 companies, dedicated Internet businesses, a broad range of online merchants, as well as numerous SMBs, automotive dealers, universities, libraries, government agencies and not-for-profit organizations. Our solutions benefit organizations of all sizes conducting business or communicating with consumers through mobile and online messaging and chat. We plan to continue to focus on key target markets: consumer/retail, telecommunications, financial services, travel/hospitality, technology and automotive, within the United States and Canada, Latin America, Europe and the Asia-Pacific region.

No single customer accounted for or exceeded 10% of our total revenue in 2019, 2018 or 2017.

Sales and Marketing

Sales

We sell our business products and services by leveraging a common methodology through both direct and indirect sales channels.

Our sales process focuses on the perspective that the Conversational Space requires an operational transformation that changes how brands engage with consumers across service, sales, marketing, social and brick and mortar. Brands must adapt their contact centers to an asynchronous messaging environment and leverage a combination of human agents, bots and AI to achieve scale and efficiencies. When done right, the entire consumer lifecycle with a brand will be maintained within the Conversational Space, and traffic will steadily shift away from lower returning voice calls, websites, emails and apps to higher returning messaging endpoints.

Our mobile and online messaging solutions are targeted at business executives whose primary responsibility is optimization of customer care, sales and marketing, or optimizing a consumer's journey across the brand's digital properties. Our solutions enable organizations to provide effective customer service, sales and marketing by deflecting costly phone calls and emails to the more cost efficient mobile and online messaging channel. We focus on the value that our solutions deliver in the form of increased agent efficiency, reduced contact center costs, increased customer satisfaction, improved customer lifetime value, maximized digital consumer acquisition, and optimized website and mobile business outcomes. LivePerson supports any organization with a company-wide strategic initiative to improve the overall mobile and online consumer experience.

Within the business solutions segment we have aligned our field organization to address the different sales strategies of our target markets:

Enterprise and large mid-market. We target large mid-market and enterprise businesses with a combination of direct sales and customer success teams, and partners. Across the globe we are targeting a select group of brands, many of them already customers, that hold the power to transform customer care. These enterprises have thousands of agents in their contact centers and collectively connect with billions of consumers each year. We leverage thought leadership and related events to showcase our strength in messaging and AI, and highlight existing reference customers who share their successes on our platform and how they achieved positive ROIs. Increasingly, we are working with large third-party system integrators, technology providers and business process outsourcers to supplement our direct sales effort.

For our large and more complex customers, our sales methodology often begins with research and discovery meetings that enable us to develop a deep understanding of the value drivers and key performance metrics of a prospective customer. We then present an analytical review detailing how our solutions and industry expertise can affect these value drivers and metrics. Once we validate solution capabilities and prove financial return on investment, we transition to a program management model wherein we work hand-in-hand with the customer, providing detailed analysis, measurements and recommendations that help optimize their performance and ensure ongoing program success.

In 2018, we introduced a pilot accelerator program, where we offer customers the option to test our entire platform, across all messaging endpoints and customer use cases, at an entry level price point for a period of three to nine months. This pilot program is intended to accelerate sales cycles and enable customers to rapidly assess the potential ROI and differentiation of our solutions before committing to a more substantial and extended deployment.

Small business and small mid-market. We target small business and small mid-market customers with a mix of direct, online self-service and third-party partner channels. Our customer acquisition strategy centers on leveraging customer word-of-mouth, our leading brand name, online marketing and partnerships. We also leverage marketing programs and partner resources to promote increased usage and product adoption within these customers.

Indirect Sales. Resources within our organization are focused on developing partnerships to generate revenues via referral partnerships and indirect sales through channel partners. By maximizing market coverage via partners who provide lead referrals and complementary products and services, we believe this channel supports revenue opportunities without incurring the costs associated with traditional direct sales.

Customer Support

Our Professional Services group provides deployment support and ongoing business consulting to enterprise and mid-market customers and maintains involvement throughout the engagement lifecycle. All LivePerson customers have access to 24/7 help desk services through messaging, chat, and technical support ticketing.

Marketing

Our marketing efforts in support of our business operations are organized around the needs, trends and characteristics of our existing and prospective customer base. Our deep relationship with existing customers fosters continuous feedback and critical data analysis, thereby allowing us to develop and refine marketing programs that drive adoption across multiple customer segments. We have a global team, spread across key geographies that is focused on marketing our brand, products and services to executives responsible for the digital channel, the consumer experience, marketing, sales, IT, and consumer service operations of their organization.

Our main focus is on the consumer/retail, telecommunications, financial services, travel/hospitality, technology and automotive industries. Our integrated marketing strategy is focused on driving demand, building customer and consumer advocacy, driving adoption of our platform, and supporting key areas of business, especially large enterprise, but also including mid-sized and small business, partners and international entities. We aim to achieve this by delivering high-touch, small group events for senior executives, to educate them on messaging and the transformational ways that digital communication can help their business. We also market our software via high-level thought leadership campaigns, industry event participation, personalized lead generation campaigns to reach potential and existing customers using mediums such as paid and organic search, direct email and mail, industry- and category-specific tradeshows and events, and telemarketing.

Our marketing strategy also encompasses a strategic communications approach that integrates public relations, social media, and analyst/influencer relations. We are focused on using those channels to communicate our brand value, to those key stakeholders, to increase overall brand and technology awareness. Communications seek to highlight key customer success stories, and promote executive thought leadership via contributed content, speaking opportunities and press interviews, to raise LivePerson’s profile and reinforce our position as an industry leader.

Competition

The markets for mobile and online business messaging, and digital engagement technology are intensely competitive, rapidly changing and characterized by aggressive marketing, pricing pressure, evolving industry standards, rapid technology developments and frequent new product introductions. We believe that competition will continue to increase as our current competitors increase the sophistication of their offerings and as new participants enter the market, which may cause additional pricing pressure. If we are unable to accurately anticipate technology developments and continue to innovate in the markets in which we compete, or our competitors are more successful than us at developing compelling new products and services or at attracting and retaining customers, we may lose revenue and market share and our operating results could be adversely affected.

We believe that most contact center technology vendors incorrectly view messaging as a feature. They are content with building integrations to a messaging endpoint and offering messaging as just another product in their suite. LivePerson holds the perspective that messaging and AI are the foundation for conversational experiences, which transform how agents operate and how brands engage with consumers across service, sales, marketing, and brick and mortar. Brands must adapt their contact centers to an asynchronous messaging environment and leverage a combination of human agents, bots and AI to achieve scale and efficiencies. When done correctly, the entire consumer lifecycle with a brand will be maintained within the Conversational Space, and traffic will steadily shift away from lower returning voice calls, websites, email and apps to higher returning messaging endpoints.

We believe that our differentiated approach to the Conversational Space, combined with our unique technology and expertise, has established the Company as a market leader, with an ability to deliver superior returns on investment:

- The LiveEngage enterprise-class, automation-first, cloud-based platform, was designed for AI-assisted and human-powered messaging in mobile and online channels. The platform offers best-in-class security and scalability, offers the broadest ecosystem of messaging endpoints, is designed for ease of use, and features an AI engine custom built for the Conversational Space, intent recognition, robust real-time reporting, role-based real-time analytics, predictive intelligence, and innovations in customer satisfaction and connection measurement. Additionally, LiveEngage is an open platform with pre-built, enterprise-grade integrations into back-end systems as well as the ability to work across NLU providers.
- The platform has expanded to power conversations across a broad spectrum of channels and use cases, from traditional sales and customer service, to marketing, social, email, advertising and brick and mortar.
- The Company has a data moat built on hundreds of millions of conversations across industries, geographies and use cases that is feeding the machine learning engines that power intent understanding.
- LivePerson has deep domain expertise across verticals and messaging endpoints, a global footprint, referenceable enterprise brands and a team of technical, solutions and consulting professionals to assist customers along their transformational journeys. We are positioned as an authority in the Conversational Space,. We have developed a Transformation Model that is introduced to existing and prospective customers to help guide them on their journeys from legacy and oftentimes inefficient legacy voice, email and chat solutions to modern conversational ones powered by messaging and AI.

We believe this focus on technological innovation, expertise and enterprise-class capabilities is positioning LivePerson as a leader in the Conversational Space. For example, we estimate that LivePerson held an approximate 33% share of Apple Business Chat deployments in 2018, and that the Company at least maintained that position in 2019.

We have current and potential competition from providers of messaging and digital engagement solutions that enable companies to engage and connect with their consumer customers, as well as technology providers that offer customer relationship management and contact center solutions. We have current and potential competitors in many different industries, including:

- technology or service providers offering or powering competing digital engagement, contact center, communications or customer relationship management solutions such as, eGain, Genesys, Nuance, Oracle, Salesforce.com and Twilio;
- service providers that offer basic messaging products or services with limited functionality free of charge or at significantly reduced entry level prices;
- social media, social listening, messaging, artificial intelligence, bots, e-commerce, and/or data and data analytics companies, such as Facebook, Google, and WeChat, which may leverage their existing or future capabilities and consumer relationships to offer competing B2B solutions; and
- customers that develop and manage their messaging solutions in-house

In addition, many of our current and potential competitors have substantial competitive advantages, such as greater brand recognition, significantly larger financial, marketing, and resource and development budgets, access to larger customer and/or consumer bases, larger and more established marketing and distribution relationships, and/or more diverse product and service offerings. As a result, these competitors may be able to respond more quickly and effectively than we can to any change in the general market acceptance of messaging services or any new or changing opportunities, technologies, standards, pricing strategies or customer requirements. Also, because of these advantages, potential customers may select a competitor's products and services, even if our services are more effective. For all of these reasons, we may not be able to compete successfully against our current and future competitors.

Technology

Three key technological features distinguish the LivePerson services:

- We support our customers through a secure, scalable server infrastructure. In North America, our primary servers are hosted in a fully-secured, top-tier, third-party server center located in the Mid-Atlantic United States, and are supported by a top-tier backup server facility located in the Western United States. In Europe, our primary servers are hosted in a fully-secured, top-tier, third-party server center located in the United Kingdom and are supported by a top-tier backup server facility located in The Netherlands. In the Asia Pacific region, our primary and backup servers are hosted in fully-secured, top-tier, third-party server centers located in Australia. Nearly all of our larger customers outside of the United States are hosted within our UK- and Australia-based facilities. By managing our servers directly, we maintain greater flexibility and control over the production environment allowing us to be responsive to customer needs and to continue to provide a superior level of service. Utilizing advanced network infrastructure and protocols, our network, hardware and software are designed to accommodate our customers' demand for secure, high-quality 24/7 service, including during peak times such as the holiday shopping season.
- As a hosted service, we are able to add additional capacity and new features quickly and efficiently. This has enabled us to provide these benefits simultaneously to our entire customer base. In addition, it allows us to maintain a relatively short development and implementation cycle.
- As a SaaS provider, we focus on the development of tightly integrated software design and network architecture. We dedicate significant resources to designing our software and network architecture based on the fundamental principles of security, reliability and scalability.

Software Design. Our software design is based on client-server architecture. Since we are a SaaS provider, LiveEngage customers and visitors to our customers' websites require only a standard Web browser and do not need to download software from LivePerson in order to interact with our customers' operators or to use the LivePerson services. We also provide APIs that enable our customers and third-parties to integrate LiveEngage with custom designed applications.

Network Architecture. The software underlying our services is integrated with scalable and reliable network architecture. Our network is scalable; we do not need to add new hardware or network capacity for each new LivePerson customer. This network architecture is hosted in co-location facilities with redundant network connections, servers and other infrastructure, enabling superior availability. Our backup server infrastructure housed at separate locations provides our primary hosting facilities with effective disaster recovery capability. We comply with security standards such as SOC2 and PCI. For increased security, through a multi-layered approach, we use advanced firewall architecture and industry-leading encryption standards and employ third-party experts to further validate our systems' security. We also enable our customers to further encrypt their sensitive data using more advanced encryption algorithms.

Government Regulation

We and our customers are subject to a number of laws and regulations in the United States and abroad, including laws related to conducting business on the Internet and on mobile devices, such as laws regarding data privacy, data protection, information security, cybersecurity, restrictions or technological requirements regarding the collection, use, storage, protection, disposal transfer or other processing of consumer data, content, consumer protection, internet (or net) neutrality, advertising, electronic contracts, taxation, provision of online payment services (including credit card processing), and intellectual property rights, which are continuously evolving and developing.

U.S. and international privacy laws and regulations are evolving and changing, are subject to differing interpretations, may be costly to comply with, and may be inconsistent among countries and jurisdictions or conflict with other rules. As we expand our operations in these countries, our liability exposure and the complexity and cost of compliance with data and privacy requirements will likely increase. Any failure by us to comply with our posted privacy policies, applicable federal, state or international laws and regulations relating to data privacy and data protection, or the privacy commitments contained in our contracts, could result in proceedings against us by governmental entities, customers, consumers, watchdog groups or others, which could have a material adverse effect on our business, financial condition and results of operations. In addition, the increased attention focused upon liability as a result of lawsuits, investigations, and legislative proposals and enactments could harm our reputation or otherwise impact the growth of our business.

Intellectual Property and Proprietary Rights

We rely on a combination of patent, copyright, trade secret, trademark and other common law protections in the United States and other jurisdictions, as well as confidentiality requirements and contractual provisions, to protect our proprietary technology, processes and other intellectual property. We own a portfolio of patents and patent applications in the United States and internationally and regularly file patent applications to protect intellectual property that we believe is important to our business, including intellectual property related to digital engagement technology and web and mobile based consumer-facing services. We believe the duration of our patents is adequate relative to the expected lives of our products and services. We pursue the registration of our domain names, trademarks and trade names in the United States and in certain locations outside the United States. We also own copyrights, including in our software, publications and other documents authored by us. These intellectual property rights are important to our business and marketing efforts. We seek to protect our intellectual property rights by relying on federal, state, and common law rights, including registration, or otherwise in the United States and certain foreign jurisdictions, as well as contractual restrictions. However, we believe that factors such as the technological and creative skills of our personnel, new service developments, frequent enhancements and reliable maintenance are more essential to establishing and maintaining a competitive advantage. Others may develop technologies that are similar or superior to our technology. We enter into confidentiality and other written agreements (including invention assignment agreements) with our employees, consultants, customers, potential customers, strategic partners, and other third parties, and through these and other written agreements, we attempt to control access to and distribution of our software, documentation and other proprietary information. Despite our efforts to protect our proprietary rights, third parties may, in an unauthorized manner, attempt to use, copy or otherwise obtain and market or distribute our intellectual property rights or technology or otherwise develop a service with the same functionality as our services. Policing unauthorized use of our services and intellectual property rights is difficult, and we cannot be certain that the steps we have taken will prevent misappropriation of our technology or intellectual property rights, particularly in foreign countries where we do business, where our services are sold or used, where the laws may not protect proprietary rights as fully as do the laws of the United States or where enforcement of laws protecting proprietary rights is not common or effective.

Substantial litigation regarding intellectual property rights exists in the software industry. In the ordinary course of our business, our services and/or our customers' use of our services have been and may be increasingly subject to third-party infringement claims as claims by non-practicing entities become more prevalent and as the number of competitors in our industry segment grows and the functionality of services in different industry segments overlaps. Some of our competitors in the market for digital engagement technology and/or web and mobile based consumer-facing services or other third parties may have filed or may intend to file patent applications covering aspects of their technology and have asserted or may assert claims against us. Any claims alleging infringement of third-party intellectual property rights could require us to spend significant amounts in litigation (even if the claim is invalid), distract management from other tasks of operating our business, pay substantial damage awards, prevent us from selling our products, delay delivery of our services, develop non-infringing software, technology, business processes, systems or other intellectual property (none of which might be successful), or limit our ability to use the intellectual property that is the subject of any of these claims, unless we enter into license agreements with the third parties (which may be costly, unavailable on commercially reasonable terms, or not available at all). Therefore, any such claims could have a material adverse effect on our business, results of operations, cash flows and financial condition.

The duration of the protection afforded to our intellectual property depends on the type of property in question, the laws and regulations of the relevant jurisdiction and the terms of its license agreements with others. With respect to our trademarks and trade names, trademark laws and rights are generally territorial in scope and limited to those countries where a mark has been registered or protected. While trademark registrations may generally be maintained in effect for as long as the mark is in use in the respective jurisdictions, there may be occasions where a mark or title is not registrable or protectable or cannot be used in a particular country. In addition, a trademark registration may be cancelled or invalidated if challenged by others based on certain use requirements or other limited grounds. The duration of property rights in trademarks, service marks and tradenames in the United States, whether registered or not, is predicated on our continued use.

Employees

As of December 31, 2019, we had 1,341 full-time employees. Our employees are not covered by collective bargaining agreements. We believe our relations with our employees are satisfactory.

Website Access to Reports

We make available, free of charge, on our website (*www.liveperson.com*), our annual reports on Form 10-K, our quarterly reports on Form 10-Q and our current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Sections 13(a) or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after we have electronically filed such material with, or furnished it to, the Securities and Exchange Commission. *The Company's web site address provided above is not intended to function as a hyperlink, and the information on the Company's web site is not and should not be considered part of this Annual Report on Form 10-K and is not incorporated by reference herein.* The SEC maintains an Internet site that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at www.sec.gov.

Item 1A. Risk Factors

The following are certain of the important risk factors that could cause, or contribute to causing, our actual operating results to differ materially from those indicated, expected or suggested by forward-looking statements made in this Annual Report on Form 10-K or presented elsewhere by management from time to time. The risks described below are not the only ones we face. Additional risks not presently known to us, or that we currently deem immaterial, may become important factors that impair our business operations. Prospective and existing investors are strongly urged to carefully consider the various cautionary statements and risks set forth in this report and other public filings before deciding to purchase, hold or sell our securities.

Risks Related to Our Business

Our quarterly revenue and operating results may fluctuate significantly, which may cause a substantial decline in the trading price of our securities.

We have in the past incurred, and may in the future incur, losses and experience negative cash flows, either or both of which may be significant and may cause our quarterly revenue and operating results to fluctuate significantly. These fluctuations may result from a variety of factors, many of which are outside of our control. Some of the important factors that may cause our revenue and operating results to fluctuate include:

- our ability to attract and retain new customers;
- our ability to retain and increase sales to existing customers;
- demand from customers and consumers for our services;
- our ability to innovate and provide new services to current and future customers;
- our ability to continue to add artificial intelligence, machine learning and automation into our services;
- the introduction of new services by us or our competitors;
- our ability to avoid and/or manage service interruptions, disruptions, or security incidents;
- changes in our pricing models or policies or in those of our competitors;
- our ability to maintain and add integrations with third-party consumer messaging platforms and endpoints;
- continued adoption by companies of mobile and cloud-based messaging solutions;
- investments in growing our sales and marketing programs;
- continued adoption by Experts and Users of web-based advice services;
- exposure to foreign currency exchange rate fluctuations; and
- the amount and timing of capital expenditures and other costs related to operation and expansion of our business, including those related to acquisitions.

Our revenue and operating results may also fluctuate significantly in the future due to the following factors that are entirely outside of our control:

- new laws, regulations or regulatory or law enforcement initiatives;
  economic conditions specific to the web, mobile technology, electronic commerce and cloud computing;
- consequences of unexpected geopolitical events, natural disasters, acts of war or terrorism, outbreaks of contagious disease (e.g., coronavirus) or climate change; and
- general, regional and/or global economic and political conditions.

As a result, comparing our operating results on a period-to-period basis may not be meaningful. You should not rely upon these comparisons or our past results as indicators of our future performance. Due to the foregoing factors, it is possible that our operating results in one or more future quarters may fall below the expectations of securities analysts and investors or below any guidance we may provide to the market. If this occurs, the trading price of our securities could decline significantly.

The markets in which we participate are highly competitive, and we may lose customers and revenue if we are not able to innovate or effectively compete.

The markets for mobile and online business messaging and digital engagement and AI technology are intensely competitive, rapidly changing and characterized by aggressive marketing, pricing pressure, evolving industry standards, rapid technology developments and frequent new product introductions. We believe that competition will continue to increase as our current competitors increase the sophistication of their offerings and as new participants enter the market, which may cause additional pressure. If we are unable to accurately anticipate technology developments and continue to innovate in the markets in which we compete and develop successful integrations with third-party consumer messaging platforms, AI providers and endpoints, or our competitors are more successful than us at developing compelling new products, services and integrations, or at attracting and retaining customers, we may lose revenue and market share and our operating results could be adversely affected.

We have current and potential competition from providers of messaging and digital engagement solutions that enable companies to engage and connect with their consumer customers, as well as technology providers that offer customer relationship management and contact center solutions. We have current and potential competitors in many different industries, including:

- technology or service providers offering or powering competing digital engagement, contact center, communications or customer relationship management solutions, such as eGain, Genesys, Nuance. Oracle, Salesforce.com, and Twilio;
- service providers that offer basic messaging products or services with limited functionality free of charge or at significantly reduced entry level prices;
- social media, social listening, messaging, artificial intelligence, bots, e-commerce, and/or data and data analytics companies, such as Facebook, Google and WeChat, which may leverage their existing or future capabilities and consumer relationships to offer competing B2B solutions; and
- customers that develop and manage their messaging solutions in-house.

In addition, many of our current and potential competitors have substantial competitive advantages, such as greater brand recognition, significantly larger financial, marketing, and resource and development budgets, access to larger customer and/or consumer bases, larger and more established marketing and distribution relationships, and/or more diverse product and service offerings. As a result, these competitors may be able to respond more quickly and effectively than we can to any change in the general market acceptance of messaging services or any new or changing opportunities, technologies, standards, pricing strategies or customer requirements. Also, because of these advantages, potential customers may select a competitor’s products and services, even if our services are more effective. For all of these reasons, we may not be able to compete successfully against our current and future competitors.

The success of our business depends on retention of existing customers and their purchase of additional services, the migration of existing customers to our new platform, and attracting new customers and new consumer users of our consumer services.

Our customers typically subscribe for our services for a twelve month term and may have no obligation to renew their subscription after expiration of the twelve month term. In some cases, our agreements are terminable or may terminate upon 30 to 90 days’ notice without penalty. If a significant number of our customers, or any one customer to whom we provide a significant amount of services, were to terminate services, reduce the amount of services purchased, or fail to purchase additional services, our results of operations may be negatively and materially affected. Dissatisfaction with the nature or quality of our services could also lead customers to terminate our service.

We depend on monthly fees and interaction-based fees from our services for substantially all of our revenue. As part of our strategy, we are increasingly offering customers subscriptions with interaction-based fees. While this interaction-based fee model has demonstrated success in our business to date, it could potentially produce greater variability in our revenue as revenue in this model is impacted by the number of interactions that our customers generate through use of our products. Because of the historically small amount of services sold in initial orders, we depend significantly on the growth of our customer base and sales to new customers and sales of additional services to our existing customers. Our revenue could decline unless we are able to obtain additional customers or alternate revenue sources.

Our business is subject to a variety of U.S. and international laws and regulations regarding privacy and data protection, and increased public scrutiny of privacy and security issues could result in increased government regulation, industry standards and other legal obligations that could adversely affect our business.

We collect, process, store and use personal data and other information generated during mobile and online messaging between brands and consumers and between experts and consumers. We post our privacy policies and practices on our websites and we also often include privacy commitments in our contracts. Our business is subject to numerous federal, state and international laws and regulations regarding privacy, data protection, personal information, security, data collection, storage, use and transfer, and the use of cookies and similar tracking technologies. To the extent that additional legislation regarding user privacy is enacted, such as legislation governing the collection and use of information regarding Internet or mobile users through the use of cookies or similar technologies, the effectiveness of our services could be impaired by restricting us from collecting or using information that may be valuable to our customers and/or exposing us to lawsuits or regulatory investigations. The foregoing could have a material adverse effect our business, results of operations and financial condition.

The scope of U.S. and international privacy laws and regulations is evolving and changing, subject to differing interpretations, may be costly to comply with, and may be inconsistent among countries and jurisdictions or conflict with other rules. As we expand our operations in these countries, our liability exposure and the complexity and cost of compliance with data and privacy requirements will likely increase. Any failure by us to comply with our posted privacy policies, applicable federal, state or international laws and regulations relating to data privacy and data protection, or the privacy commitments contained in our contracts, could result in proceedings against us by governmental entities, customers, consumers, watchdog groups or others, which could have a material adverse effect on our business, financial condition and results of operations. In addition, the increased attention focused upon liability as a result of lawsuits and legislative proposals and enactments could harm our reputation or otherwise impact the growth of our business.

Laws and practices regarding handling and use of personal and other information by companies have come under increased public scrutiny, and governmental entities, consumer agencies and consumer advocacy groups have called for, and in many instances, enacted increased regulation and changes in industry practices. For example, the EU General Data Protection Regulation, which became effective in May 2018, replacing the EU Data Protection Directive, imposes significantly greater compliance burdens on companies that control or process personal data of primarily, users located in the European Union and, for noncompliance, provides for considerable fines up to the higher of 20 million Euros and 4% of global annual revenue. European regulators have issued numerous fines pursuant to the GDPR. One material change is that data processors (as that term is defined by applicable EU data protection law) have direct obligations, including implementing technical and organizational measures, and enhanced notification rules. The GDPR also imposes certain technological requirements that may require us to make changes to our services to enable LivePerson and/or our customers to meet the new legal requirements and may impact how data protection is addressed in our customer and vendor agreements. Ensuring compliance with the GDPR is an ongoing commitment that involves substantial costs, and it is possible that despite our efforts, governmental authorities or third parties will assert that our services or business practices fail to comply. We also must require vendors that process personal data to take on additional privacy and security obligations, and some may refuse, causing us to incur potential disruption and expense related to our business processes. If our policies and practices, or those of our vendors, are, or are perceived to be, insufficient, we could be subject to enforcement actions or investigations by EU Data Protection Authorities or lawsuits by private parties and our business could be negatively impacted.

The European Union has also released a proposed Regulation on Privacy and Electronic Communications (e-Privacy Regulation) to replace the EU's Privacy and Electronic Communications Directive (e-Privacy Directive) to, among other things, better align with the GDPR, to amend the current e-Privacy Directive's rules on the use of cookies and other tracking technologies, and to harmonize across current EU member state e-privacy data protection laws. Compliance with changes in laws and regulations related to privacy may require significant cost, limit the use and adoption of our services, and require material changes in our business practices that result in reduced revenue. Noncompliance could result in material fines and penalties, litigation, regulatory investigation and/or governmental orders requiring us to change our data practices, which could damage our reputation and harm our business.

Additionally, as web and mobile commerce continues to evolve, regulation by federal, state and foreign governments or agencies in the areas of data privacy and data security is likely to increase. For instance, the EU-US Safe Harbor program, which provided a valid legal basis for transfers of personal data from Europe to the United States, was invalidated on October 6, 2015, resulting in a significant impact on the transfer of data from the European Union to U.S. companies, including us. In July 2016, the European Union and the United States agreed to a replacement framework called the EU-US Privacy Shield ("EU Privacy Shield") that provides a mechanism for companies to transfer data from EU member states to the United States and that LivePerson certified to in September 2016. Similarly, a Swiss-U.S. Privacy Shield ("Swiss Privacy Shield") was announced in January 2017 that replaced the former Swiss-U.S. Safe Harbor. The Privacy Shield frameworks are subject to an annual review that could result in changes to our obligations. It could also be disruptive to our business if customers have concerns regarding the transfer of data from the European Union to the United States using the EU Privacy Shield or Swiss Privacy Shield as a transfer mechanism.

The EU Privacy Shield, Swiss Privacy Shield, and other frameworks may be challenged by regulators and/or private parties and reviewed by the European courts, which may lead to uncertainty about the legal basis for data transfers outside the EU. For example, there is current litigation pending that could impact companies' ability to use the "standard contractual clauses" previously approved by the European Commission as a mechanism for data transfers from the EU to the US. Ongoing legal reviews may result in burdensome or inconsistent requirements affecting the location and movement of our customer and internal employee data, as well as the management of that data. Compliance may require changes in services, business practices, or internal systems that result in increased costs, lower revenue, reduced efficiency, or greater difficulty in competing with foreign-based firms. Failure to comply with existing or new rules may result in significant penalties or orders to stop the alleged noncompliant activity.

While there are other legally recognized mechanisms, such as standard Model Contractual Clauses, that we believe allow for the lawful transfer of EU personal data to the United States, these mechanisms have also been subjected to regulatory or judicial scrutiny and may be invalidated or evolve to include new legal requirements that could have an impact on how we move data between and among countries and regions in which we operate, which could affect how we provide our services or adversely impact our financial results.

In addition to the changing regulatory landscape in the European Union, in June 2018, the State of California legislature passed the California Consumer Privacy Act of 2018 ("CCPA"), which came into effect in January of 2020. The CCPA gives California residents new data privacy rights and also allows consumers to opt out of certain data sharing with third parties, and provides a new cause of action for data breaches. We may be subject to additional compliance obligations as other states consider and adopt similar legislation.

In addition to government activity, privacy advocacy and other industry groups have established and may continue to establish new self-regulatory standards that may place additional burdens on us. If our privacy practices are deemed unacceptable by watchdog groups or privacy advocates, such groups may take measures that harm our business by, for example, disparaging our reputation and our business, which may have a material adverse effect on our results of operations and financial condition. In addition, privacy concerns may cause consumers to avoid online sites that collect various forms of data or to resist providing the data necessary to allow our customers to use our services effectively. Even the perception of data security and data privacy concerns, whether or not valid, could inhibit sales and market acceptance of our products and services.

Our business is subject to a variety of U.S. and foreign laws, and existing, new and developing regulatory or other legal requirements could subject us to claims or materially impact our business.

We and our customers are subject to a number of laws and regulations in the United States and abroad, including laws related to conducting business on the Internet or mobile devices, such as laws regarding data privacy, data protection, information security, cybersecurity, restrictions or technological requirements regarding the collection, use, storage, protection, transfer or other processing of consumer data, content, consumer protection, internet (or net) neutrality, advertising, electronic contracts, taxation, provision of online payment services (including credit card processing), and intellectual property rights, which are continuously evolving and developing. Because our services are accessible worldwide, certain foreign jurisdictions may claim that we are required to comply with their laws, even if we do not have a local entity, employees or infrastructure. Foreign data protection, privacy, and other laws and regulations may often be more restrictive than those in the United States. The scope and interpretation of the laws and other obligations that apply to us, including those related to user privacy and data security, are often uncertain and may be conflicting, particularly laws and obligations outside the United States. There is a risk that these laws may be interpreted and applied differently in any given jurisdiction in a manner that is not consistent with our current practices, which could cause us to incur substantial cost and could negatively impact our brand, reputation and business.

Businesses using our products and services may collect data from their users. Various federal, state and foreign government bodies and agencies impose laws regarding collection, use, storage, retention, disposal, transfer or other processing of data from website visitors. We offer our customers a variety of data security procedures and practices, such as encryption for data at rest and masking algorithms for sensitive data prior to transfer to our database, in an effort to protect information. Changes to applicable laws and how they are interpreted relating to privacy and data security could significantly increase the cost to us and our customers of regulatory compliance and could negatively impact our business.

For instance, some states in the United States have enacted legislation designed to protect consumer privacy by prohibiting the distribution of "spyware" over the Internet. Such legislation typically focuses on restricting the proliferation of software that, when installed on an end user's computer, is used to intentionally and deceptively take control of the end user's machine. We do not believe that the data monitoring methods that we employ constitute "spyware" or are prohibited by applicable laws. However, federal, state and foreign laws and regulations, many of which can be enforced by government entities or private parties, are constantly evolving and can be subject to significant changes in application and interpretation. If, for example, the scope of the previously mentioned "spyware" legislation were changed to include web analytics, such legislation could apply to the technology we use and potentially restrict our ability to conduct our business.

Further, various federal, state and foreign government bodies and agencies are highly focused on consumer protection initiatives, particularly in light of the increase in new technologies and services that incorporate or use bots, artificial intelligence and/or machine learning. For example, the new California B.O.T. Act came into effect in July 2019 and requires that companies using bots on platforms with more than 10 million unique monthly visitors from the U.S. use clear and conspicuous disclosure to inform consumers that they are not speaking to a human. Similar bills entitled the "Bot Disclosure and Accountability Act of 2019" were introduced to the U.S. House and Senate in July 2019. Regulation in this area could impact how businesses use our products and services to interact with consumers and how we provide our services to our customers. These new AI tools can also present unique technological and legal challenges, such as the possibility of insufficient data sets, or data sets that contain biased information, which can negatively impact the decisions, predictions or analyses that AI applications produce. Deficiencies such as these could cause us reputational harm and subject us to legal liability, including claims of product liability, breach of warranty or negligence.

In addition, regulatory authorities and governments around the world are considering a number of legislative and regulatory proposals concerning privacy, collection and use of website visitor data, data storage, data protection, the "right to be forgotten," content regulation, cybersecurity, government access to personal information, online advertising, email and other categories of electronic spam, and other matters that may be applicable to our business. Compliance with these laws may require substantial investment or may be technologically challenging for us. For example, some jurisdictions, including in the United States, are considering whether the collection of anonymous data may invade the privacy of website visitors. If laws or regulations are enacted that limit data collection or use practices related to anonymous data, we and/or our customers may be required to obtain the express consent of web visitors in order for our technology to perform certain basic functions that are based on the collection and use of technical data. Requirements that a website must first obtain consent from its web visitors before using our technology could reduce the amount and value of the services we provide to customers, which might impede sales and/or cause some existing customers to discontinue using our services.

It is also likely that, as our business grows and evolves, an increasing portion of our business shifts to mobile, and our solutions are offered and used in a greater number of countries, we will become subject to laws and regulations in additional jurisdictions. We may need to expend considerable effort and resources to develop new product features and/or procedures to comply with any such legal requirements. It is difficult to predict how existing laws will apply to our business and what new laws and legal obligations we may become subject to. If we are not able to comply with these laws or other legal obligations, or if we become liable under them, we may be forced to implement material changes to our business practices, delay release of new and enhanced services and expend substantial resources, which would negatively affect our business, financial condition and results of operations. In addition, any increased attention focused on liability issues, or as a result of regulatory fines or lawsuits, could harm our reputation or otherwise impact the growth of our business. Any costs incurred as a result of this potential liability could harm our business and operating results.

The Company monitors pending legislation and regulatory initiatives to ascertain relevance, analyze impact and develop strategic direction surrounding regulatory trends and developments. Due to shifting economic and political conditions, tax policies or rates in various jurisdictions may be subject to significant change. A range of other proposed or existing laws and new interpretations of existing laws could have an impact on our business. For example:

Government agencies and regulators have reviewed, are reviewing and will continue to review, the personal data handling practices of companies doing business online, including privacy and security policies and practices. This review may result in new laws or the promulgation of new regulations or guidelines that may apply to our products and services. For example, the State of California and other states have passed laws relating to disclosure of companies' practices with regard to Do-Not-Track signals from Internet browsers, the ability to delete information of minors, and new data breach notification requirements. The CCPA, California's new consumer privacy legislation, came into effect in January 2020. Outside the European Union and the United States, a number of countries have adopted or are considering privacy laws and regulations that may result in significant greater compliance burdens. Existing and proposed laws and regulations regarding cybersecurity and monitoring of online behavioral data, such as the proposed "Do Not Track" regulations, regulations aimed at restricting certain targeted advertising practices and collection and use of data from mobile devices, new and existing tools that allow consumers to block online advertising and other content, and other proposed online privacy legislation could potentially apply to some of our current or planned products and services. Existing and proposed laws and regulations related to email and other categories of electronic spam could impact the delivery of commercial email and other electronic communications by us or on behalf of customers using our services.

The FTC in particular has aggressively investigated and brought enforcement actions against companies that fail to comply with their privacy or data security commitments to consumers, or fail to comply with regulations or statutes such as the Children's Online Privacy Protection Act. Any investigation or review of our practices may require us to make changes to our products and policies, which could harm our business. Currently there are many proposals by lawmakers and industry groups in this area, both in the United States and overseas, which address the collection, maintenance and use of personal information, web browsing and geolocation data, and establish data security and breach notification requirements. Further, regulators and industry groups have also released self-regulatory principles and guidelines for various data privacy and security practices. Given that this is an evolving and unsettled area of regulation, the imposition of any new significant restrictions or technological requirements could have a negative impact on our business.

Various governmental bodies and many customers and businesses are increasingly focused on environmental and social issues, which has in the past resulted, and may in the future continue to result, in the adoption of new laws and regulations and changing buying practices. If we fail to keep pace with these developments, our reputation and results of operations could be adversely impacted.

We might unintentionally violate such laws now or in the future; such laws or their interpretation or application may be modified; and new laws may be enacted in the future. Any such developments could subject us to legal liability exposure, and harm our business, operating results and financial condition.

Our operations may expose us to greater than anticipated income, non-income and transactional tax liabilities, which could harm our financial condition and results of operations.

There is heightened scrutiny by fiscal authorities in many jurisdictions on the potential taxation of e-commerce businesses. The Organization for Economic Co-operation and Development (OECD) has issued guidelines, referred to as the Base Erosion and Profit Shifting project (BEPS), to its member-nations aimed at encouraging broad-based legislative initiatives intended to prevent perceived base erosion transactions and income shifting in a tax-advantaged manner. Further, for the past several years, the OECD has had a specific focus on the taxation implications of e-commerce business, generally referred by the OECD as the "digital economy." In the fourth quarter of 2019, the OECD released details on its proposed approach which would, among other changes, create a new right to tax certain "digital economy" income not necessarily based on traditional nexus concepts nor on the "arm's length principle." At this point, there is a lack of consensus among the key members, particularly the United States, with the latest OECD proposal. The United States has expressed that it would generally support a solution along the lines proposed by the OECD only if the solution was in the form of a "safe-harbor" rather than a mandatory requirement. A failure to reach full consensus on an executable plan within the tight timeframe under which the OECD is operating could result in individual jurisdictions legislating digital tax provisions in an uncoordinated and unilateral manner, and further result in greater or even double taxation that companies may not have sufficient means to remedy. For example, a number of jurisdictions, including the UK, France and Italy, have already adopted or have formally proposed legislation to effect the taxation of certain e-commerce business based on differing criteria and metrics. Efforts to alleviate this increased tax burden will increase the cost of structuring and compliance as well as the cost of doing business internationally. Any changes to the taxation of our international activities may increase our worldwide effective tax rate and adversely impact our financial position and results of operations.

Further, the prospective taxation by multiple jurisdictions of e-commerce businesses could subject us to exposure to withholding, sales, VAT and/or other transaction taxes on our past and future transactions in such jurisdictions where we currently or in the future may be required to report taxable transactions. A successful assertion by any jurisdiction that we failed to pay such withholding, sales, VAT or other transaction taxes, or the imposition of new laws requiring the registration for, collection of, and payment of such taxes, could result in substantial tax liabilities related to past, current and future sales, create increased administrative burdens and costs, discourage customers from purchasing content from us, or otherwise substantially harm our business and results of operations. We are currently subject to and in the future may become subject to additional compliance requirements for certain of these taxes. Changes in our exposure to withholding, sales, VAT and/or other transaction taxes could have an adverse impact on our financial condition in the future.

In addition, an increasing number of states have considered or adopted laws that attempt to impose tax collection obligations on out-of-state companies. In June 2018, the Supreme Court of the United States issued its decision in the matter of South Dakota v. Wayfair, Inc. This decision effectively reversed the 25-year-old “physical presence doctrine” previously established by the Supreme Court in Quill Corp. v. North Dakota, which required a minimum level of physical presence within a state before the state could impose an obligation to register and remit sales tax on revenue derived within that state. This decision may significantly increase the effort, resources and costs associated with the sales tax collection and compliance burden. Since the decision, a number of states have enacted sales tax enabling legislation which has had the effect of significantly expanding the liability of e-commerce companies to register, collect and remit state sales taxes from customers. A successful assertion by one or more states requiring us to collect taxes where we presently do not do so, or to collect more taxes in a jurisdiction in which we currently do collect some taxes, could result in substantial tax liabilities, including taxes on past sales, as well as penalties and interest. The imposition by state governments or local governments of sales tax collection obligations on out-of-state sellers could also create additional administrative burdens for us, put us at a competitive disadvantage if they do not impose similar obligations on our competitors, and decrease our future sales, which could have a material adverse effect on our business and results of operations.

Failures or security breaches in our services or systems, those of our third party providers, or in the websites of our customers, including those resulting from cyber-attacks, security vulnerabilities, defects or errors, could harm our business.

Our products and services involve the storage and transmission of proprietary information and personal data related to our customers and their users, as well as experts and consumers, and theft and security breaches expose us to a risk of loss of such information and data, improper use and disclosure thereof, litigation, regulatory investigation, and potential liability. We experience cyber-attacks of varying degrees on a regular basis. Our security measures may also be breached due to employee or other error, intentional malfeasance and other third party acts, and system errors or vulnerabilities, including vulnerabilities of our third party vendors, or customers, or otherwise. Any such breach or unauthorized access, or attempts by outside parties to fraudulently induce employees, users, vendors or customers to disclose sensitive information in order to gain access to our data or data of our customers, users, experts or consumers, including, but not limited to, individual personal information and financial credit or debit card data that is protected by law or contract, could result in significant legal and financial exposure, damage to our reputation, and a loss of confidence in the security of our products and services that could potentially have an adverse effect on our business.

While we continue to expand our focus on this issue and are taking measures to safeguard our products and services from cybersecurity threats and vulnerabilities in desktop computers, mobile phones, smartphones and handheld devices, cyber-attacks and other security incidents continue to evolve in sophistication and frequency. Because the techniques used to obtain unauthorized access, disable or degrade service, or sabotage systems, are constantly evolving in sophisticated ways to avoid detection and often are not recognized until launched against a target, it may be difficult or impossible for us to anticipate or identify these techniques or to implement adequate preventative measures. And while technological advancements enable more data and processes, such as mobile computing and mobile payments, they also increase the risk that cyber-attacks and other security incidents will occur. We engage third parties to review and assist in safeguarding our products and services from such threats. Those parties may identify vulnerabilities, some of which may not be immediately remedied. A significant cyber-attack, or a security incident of any magnitude that is profiled in the media, involving our, our service providers’ or our customers’ systems, could result in material harm to our brand and reputation, our ability to deliver our services or retain customers, and expose us to lawsuits, regulatory investigations, and significant damages, fines or penalties.

In addition, our customers may authorize third party access to their customer data located in our cloud environment. Because we do not control the transmissions between customer authorized third parties, or the processing of such data by customer authorized third parties, we cannot ensure the integrity or security of such transmissions or processing. Because our services are responsible for critical communication between our customers and consumers, any security failures, defects or errors in our components, materials or software or those used by our customers could have an adverse impact on us, on our customers and on the end users of their websites. Such adverse impact could include a decrease in demand for our services, damage to our reputation and to our customer relationships, legal exposure, and other financial liability or harm to our business.

Our business depends significantly on our ability to retain our key personnel, attract new personnel, and manage attrition.

Our success depends largely on the continued services of our senior management team. The loss of one or more members of senior management could have a material adverse effect on our business, results of operations and financial condition. We are also substantially dependent on the continued service of other key personnel, including key sales executives responsible for revenue generation and key development personnel accountable for product and service innovation and timely development and delivery of upgrades and enhancements to our existing products and services. Changes to senior management and key employees could also lead to additional unplanned losses of key employees. The loss of key employees could seriously harm our ability to release new products and services and upgrade existing products and services on a timely basis, and put us at a competitive disadvantage.

In the technology industry, there is substantial competition for key personnel, including skilled engineers, sales executives and operations personnel. We may not be able to successfully recruit, integrate and retain qualified personnel in the future, which could impact our ability to innovate and deliver new or updated products to our customers, which could harm our business. If our retention and recruitment efforts are ineffective, employee turnover could increase and our ability to provide services to our customers would be materially and adversely affected. Furthermore, the requirement to expense stock options may discourage us from granting the size or type of stock option awards that job candidates may require in order to join our company.

In addition, we may not be able to outsource certain functions. We expect to evaluate our needs and the performance of our staff on a periodic basis, and may choose to make adjustments in the future. If the size of our staff is significantly reduced, either by our choice or otherwise, it may become more difficult for us to manage existing, or establish new, relationships with customers and other counter-parties, or to expand and improve our service offerings. It may also become more difficult for us to implement changes to our business plan or to respond promptly to opportunities in the marketplace. Further, it may become more difficult for us to devote personnel resources necessary to maintain or improve existing systems, including our financial and managerial controls, billing systems, reporting systems and procedures. Thus, any significant amount of staff attrition could cause our business and financial results to suffer.

Our results of operations may be adversely impacted due to our exposure to foreign currency exchange rate fluctuations.

We conduct business in currencies other than the U.S. dollar in Europe, Australia, Japan and Israel. As we continue to expand our international operations we become more exposed to the effects of fluctuations in currency exchange rates. As a result of the expanding size and scope of our international operations, our currency rate fluctuation risk associated with the exchange rate movement of the U.S. dollar has increased.

Since we conduct business in currencies other than the U.S. dollar but report our financial results in U.S. dollars, fluctuations in currency exchange rates could adversely affect our results of operations. For example, during 2019 we experienced a foreign currency exchange impact of approximately 2% percent, or approximately $5.6 million if held in constant currency, to our revenue. Fluctuations in the value of the U.S. dollar relative to other foreign currencies could materially affect our revenue, cost of revenue and operating expenses, and result in foreign currency transaction gains and losses. In January 2015, we began hedging a portion of our foreign currency exchange rate exposure; however, significant fluctuations in exchange rates between the U.S. dollar and foreign currencies may nonetheless adversely affect our net income (loss). As of December 31, 2019, we are no longer party to any foreign currency hedging transactions. We may seek to enter into additional hedging transactions in the future or to use financial instruments, such as derivative financial instruments, to mitigate risk, but we may be unable to enter into them successfully, on acceptable terms or at all. Additionally, these programs rely on our ability to forecast accurately and could expose us to additional risks that could adversely affect our financial condition and results of operations. We cannot predict whether or not we will incur foreign exchange losses in the future. To the extent the international component of our revenues grows, our results of operations will become more sensitive to foreign exchange rate fluctuations.

Supporting our existing and growing customer base could strain our personnel resources and infrastructure, and if we are unable to scale our operations and increase productivity, we may not be able to successfully implement our business plan.

We continue to experience significant growth in our customer base and personnel, which has placed a strain on our management, administrative, operational and financial infrastructure. We anticipate that additional investments in our internal infrastructure, data center capacity, research, customer support and development, and real estate spending will be required to scale our operations and increase productivity, to address the needs of our customers, to further develop and enhance our services, to expand into new geographic areas, and to scale with our overall growth. The additional investments we are making will increase our cost base, which will make it more difficult for us to offset any future revenue shortfalls by reducing expenses in the short term.

We regularly upgrade or replace our various software systems. If the implementations of these new applications are delayed, or if we encounter unforeseen problems with our new systems or in migrating away from our existing applications and systems, our operations and our ability to manage our business could be negatively impacted.

Our success will depend in part upon the ability of our senior management to manage our projected growth effectively. To do so, we must continue to increase the productivity of our existing employees and to hire, train and manage new employees as needed. To manage the expected domestic and international growth of our operations and personnel, we will need to continue to improve our operational, financial and management controls, our reporting systems and procedures, and our utilization of real estate. If we fail to successfully scale our operations and increase productivity, we may be unable to execute our business plan and the market price of our securities could decline.

Economic conditions and regulatory changes caused by the United Kingdom's exit from the European Union could negatively impact our business.

On January 31, 2020, the United Kingdom ("U.K.") withdrew its membership from the European Union ("E.U."), which is commonly referred to as "Brexit". While the U.K. has agreed upon the terms of its E.U. departure, the U.K. and E.U. need to continue to negotiate what their future relationship will be during a transition period that is scheduled to end on December 31, 2020. The longer term economic, legal, political and social framework to be put in place between the U.K. and the E.U., remains unclear and may lead to ongoing political, regulatory and economic uncertainty and periods of exacerbated volatility in both the U.K. and in wider European markets for some time. Such uncertainty may have a material adverse effect on our ability to operate in the U.K. and the E.U.

While the U.K. will continue to follow all of the E.U.'s rules and its trading relationship with the E.U. will remain the same during the transition period, Brexit and the continued uncertainty resulting from the ongoing negotiations concerning the U.K's future relationship with the E.U. has resulted in significant volatility in global stock market and currency exchange rate fluctuations that resulted in strengthening of the U.S. dollar relative to other foreign currencies in which we conduct business and global economic uncertainty. The continuing uncertainty may cause our customers to closely monitor their costs and reduce their spending budgets. This could negatively impact our business, including affecting our relationships with our existing and future customers, suppliers and employees, which could have a negative impact on our business, prospects, results of operations, financial condition and cash flows.

Further volatility in exchange rates resulting from Brexit is expected to continue in the short term as the U.K. continues to negotiate its future relationship with the E.U. We translate sales and other results denominated in foreign currency into U.S. dollars for our financial statements. During periods of a strengthening dollar, our reported international sales and earnings could be reduced because foreign currencies may translate into fewer U.S. dollars.

The effects of Brexit will depend on any future agreements the U.K. makes to retain access to E.U. markets following the transition period that currently ends on December 31, 2020. The measures could potentially disrupt the markets we serve and the tax jurisdictions in which we operate and adversely change tax benefits or liabilities in these or other jurisdictions. They may also impact how we deliver our products and services to customers in the U.K. and in the E.U., which may cause us to lose customers, suppliers and/or employees and could result in increased operating expenses. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which E.U. laws to replace or replicate, as well as other adverse effects that we are unable to anticipate. Any of these effects of Brexit, among others, could negatively impact our prospects, business, financial condition and results of operations.

We may be subject to governmental export controls and economic sanctions regulations that could impair our ability to compete in international markets due to licensing requirements and could subject us to liability if we are not in compliance with applicable laws.

Certain of our products and services may be subject to export control and economic sanctions regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls. Exports of our products and the provision of our services must be made in compliance with these laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including: the possible loss of export privileges; fines, which may be imposed on us and responsible employees or managers; and, in extreme cases, the incarceration of responsible employees or managers. Obtaining the necessary authorizations, including any required license, for a particular deployment may be time-consuming, is not guaranteed and may result in the delay or loss of sales opportunities. In addition, changes in our products or services, or changes in applicable export or economic sanctions regulations may create delays in the introduction and deployment of our products and services in international markets, or, in some cases, prevent the export of our products or provision of our services to certain countries or end users. Any change in export or economic sanctions regulations, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons or technologies targeted by such regulations, could also result in decreased use of our products and services, or in our decreased ability to export our products or provide our services to existing or prospective customers with international operations. Any decreased use of our products and services or limitation on our ability to export our products and provide our services could adversely affect our business, results of operations and financial condition. Further, we incorporate encryption technology into certain of our products. Various countries regulate the import of certain encryption technology, including through import permitting and licensing requirements, and have enacted laws that could limit our customers' ability to import our products into those countries. Encryption products and the underlying technology may also be subject to export control restrictions. Governmental regulation of encryption technology and regulation of exports of encryption products, or our failure to obtain required approval for our products, when applicable, could harm our international sales and adversely affect our revenue. Compliance with applicable regulatory requirements regarding the export of our products and provision of our services, including with respect to new releases of our products and services, may create delays in the introduction of our products and services in international markets, prevent our customers with international operations from deploying our products and using our services throughout their globally-distributed systems or, in some cases, prevent the export of our products or provision of our services to some countries altogether.

If we are unable to effectively operate on mobile devices, our business could be adversely affected.

The number of people who access the Internet and complete transactions over the Internet through devices other than desktop computers, including smartphones, handheld tablets and mobile phones, has increased dramatically in the past few years and is projected to continue to increase. To address these developments, we continue to extend our products and services to support messaging on mobile phone and tablet applications belonging to our company and our customers. If the mobile solutions we have developed do not meet our customers' needs or the needs of their website visitors, or are not widely adopted by our customers and consumers, we may fail to retain existing customers and we may have difficulty attracting new customers. Such solutions may also create new risks related to privacy and security, which could subject us to investigations, litigation or reputational harm. If we are unable to rapidly innovate and grow mobile revenue, or if we incur excessive expenses in this effort, our financial performance and ability to continue to grow overall revenue may be negatively affected.

Additionally, our mobile phone and tablet applications and those of our customers depend on their interoperability with popular mobile operating systems, networks and standards that we and they do not control, such as Android and iOS operating systems, and any changes in such systems and terms of service that degrade the functionality of our solutions or give preferential treatment to competitive products could adversely affect our revenue. We may not be successful in developing products that operate effectively with these technologies, systems, networks or standards. As new devices and platforms are continually being released, it is difficult to predict the challenges we may encounter in developing versions of our solutions for use on these alternative devices.

Industry-specific regulation is evolving and unfavorable industry-specific laws, regulations or interpretive positions could harm our business.

Our customers and potential customers do business in a variety of industries, including financial services, the public sector, healthcare and telecommunications. Regulators of various industries have adopted and may in the future adopt regulations or interpretive positions regarding the use of cloud computing and other outsourced services. The costs of compliance with, and other burdens imposed by, industry-specific laws, regulations and interpretive positions may limit our customers' use and adoption of our services and reduce overall demand. For example, some financial services regulators have imposed guidelines for use of cloud computing services that mandate specific controls or that require financial services providers to obtain regulatory approval prior to outsourcing certain functions. If we are unable to comply with these guidelines or controls, or if our customers are unable to obtain regulatory approval to use our service where required, our business may be harmed and we may be unable to conduct business with customers in such industries. In addition, an inability to satisfy the standards of certain third-party certification bodies that our customers may expect, such as the Payment Card Industry (PCI) Data Security Standards, may have an adverse impact on our business. If we are unable in the future to achieve or maintain these industry-specific certifications or comply with other similar requirements or standards that are relevant to our customers, our business and our revenue may be adversely impacted.

In some cases, industry-specific laws, regulations or interpretive positions may also apply directly to us as a service provider. Any failure or perceived failure by us to comply with such requirements could have a material adverse impact on our business and results of operations.

Downturns in the global economic environment or in particular industries in which our sales are concentrated may adversely affect our business and results of operations.

The United States and other global economies have experienced in the past and could in the future experience economic downturn that affects all sectors of the economy, particularly in the financial services and retail industries, resulting in declines in economic growth and consumer confidence, increases in unemployment rates and uncertainty about economic stability. Further, there is increased uncertainty regarding social, political, immigration and trade policies in the United States, which could impact our global operations and our business. Global credit and financial markets have in the past experienced extreme disruptions, including diminished liquidity and credit availability and rapid fluctuations in market valuations. Our business has been affected by these conditions in the past and could be similarly impacted in the future by any downturn in global economic conditions.

Our business is, and will continue to be, dependent on sales to customers in the telecommunications, financial services, retail, automotive, real estate and technology industries. A downturn in one or more of these industries could have a material adverse effect on our business, liquidity, results of operations, financial condition and cash flows. In the event that industry conditions deteriorate in one or more of these industries, we could experience, among other things, cancellation or non-renewal of existing contracts, reduced demand for our products and reduced sales. It could be difficult to predict the timing, strength or duration of any economic slowdown or subsequent economic recovery, either relating to the global economic environment or to the particular industries in which our sales are concentrated, which, in turn, could make it more challenging for us to forecast our operating results, make business decisions and identify risks that may adversely affect our business, sources and uses of cash, financial condition and results of operations.

Weak economic conditions may also cause our customers to experience difficulty in supporting their current operations and implementing their business plans. Our customers may reduce their spending on our services, may not be able to discharge their payment and other obligations to us, may experience difficulty raising capital, or may elect to scale back the resources they devote to customer service and/or sales and marketing technology, including services such as ours. Economic conditions may also lead consumers and businesses to postpone spending, which may cause our customers to decrease or delay their purchases of our products and services. If economic conditions deteriorate for us or our customers, we could be required to record charges relating to restructuring costs or the impairment of assets, may not be able to collect receivables on a timely basis, and our business, financial condition and results of operations could be materially adversely affected.

If we do not successfully integrate past or potential future acquisitions, we may not realize the expected business or financial benefits and our business could adversely impacted.

As part of our business strategy, we have made and will continue to make acquisitions to add complementary businesses, products, technologies, revenue and intellectual property rights. We have made a number of acquisitions in the past, including three in 2018. In October 2018, we acquired AdvantageTec, Inc., a leading provider of texting solutions for service departments of automotive dealerships that helps enable the conversational experience across the entire dealership, including variable and fixed operations. In September 2018, we acquired the employees and technology assets of Conversable, Inc. a SaaS based Artificial Intelligence powered conversational platform. In January 2018, we acquired the employees and technology assets of BotCentral, Inc., a Silicon Valley based startup which has created a number of bot solutions for major brands in banking, insurance, and travel, running on LivePerson's conversational platform.

Acquisitions and investments involve numerous risks to us, including:

- potential failure to achieve the expected benefits of the combination or acquisition;
- inability to generate sufficient revenue to offset acquisition or investment cost;
- difficulties in integrating operations, technologies, products and personnel;
- diversion of financial and management resources from efforts related to existing operations;
- risks of entering new markets in which we have little or no experience or where competitors may have stronger market positions;
- potential loss of our existing key employees or key employees of the company we acquire;
- inability to maintain relationships with customers and partners of the acquired business
- potential unknown liabilities associated with the acquired businesses; and
- the tax effects of any such acquisitions.

These difficulties could disrupt our ongoing business, expose us to unexpected costs, distract our management and employees, increase our expenses and adversely affect our results of operations. Furthermore, we may incur debt or issue equity securities to pay for any future acquisitions. The issuance of equity securities could be dilutive to our existing stockholders.

We may be unsuccessful in expanding our operations internationally and/or into direct-to-consumer services due to additional regulatory requirements, tax liabilities, currency exchange rate fluctuations and other risks, which could adversely affect our results of operations.

In addition to our operations in the United States, we have operations in Australia, Canada, France, Germany, Israel, Italy, Japan, Latin America, Netherlands, Spain, Singapore and the United Kingdom. We have also continued to invest in global messaging initiatives and in acquisitions. Our ability to continue to expand into international markets and in the online consumer market involves various risks, including the possibility that returns on such investments will not be achieved in the near future, or ever, and the difficulty of competing in markets with which we are unfamiliar.

Our international operations and direct-to-consumer services may also fail due to other risks inherent in foreign and/or online consumer operations, including:

- varied, unfamiliar, unclear and changing legal and regulatory restrictions, including different legal and regulatory standards applicable to Internet or mobile services, communications, privacy, and data protection;
- difficulties in staffing and managing foreign operations;
- differing intellectual property laws that may not provide sufficient protection for our intellectual property;
- adverse tax consequences or additional tax liabilities;
- difficulty in addressing country-specific business requirements and regulations, for instance, data privacy laws;
- fluctuations in currency exchange rates;
- strains on financial and other systems to properly administer VAT and other taxes;
- different consumer preferences and requirements in specific international markets; and
- international legal, compliance, political, regulatory or systemic restrictions, or other international governmental scrutiny, applicable to United States companies with sales and operations in foreign countries, including, but not limited to, possible compliance issues involving the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and similar laws in other jurisdictions.

Our current and any future international expansion plans will require management attention and resources and may be unsuccessful. We may find it impossible or prohibitively expensive to continue expand internationally or we may be unsuccessful in our attempt to do so, and our results of operations could be adversely impacted. In addition, violations of any foreign laws or regulations could result in fines, criminal sanctions against us, our officers or our employees, prohibitions on the conduct of our business and damage to our reputation.

We may be liable if third parties access or misappropriate confidential or personal data from our systems or services.

The dialogue transcripts of the text-based chats, email interactions and other interactions between our customers and their users may include information, such as personal contact and demographic information. Although we employ and continually test and update our security measures to protect this information from unauthorized access, it is still possible that our security measures could be breached and such a breach could result in unauthorized access to our customers' data or our data, including our intellectual property and other confidential business information. Because the techniques employed by hackers to obtain unauthorized access or to sabotage systems change frequently and are becoming more sophisticated in circumventing security measures and avoiding detection, we may be unable to anticipate all techniques or to implement adequate preventative measures. Any security breach could result in disclosure of our trade secrets or disclosure of confidential customer, supplier or employee data. If third parties were able to penetrate our network security or otherwise misappropriate personal data relating to our customers' users or the text of customer service inquiries, our competitive position may be harmed and we could be subject to liability. In the event of a security incident, we could be required to comply with a myriad of breach notification laws at the state, federal and international level, which may cause business disruption and extensive notification costs, and could lead to penalties, government investigations and lawsuits for compliance failures. We may as a result of a security incident be deemed out of compliance with United States federal and state laws, international laws, or contractual commitments, and we may be subject to government investigations, lawsuits, fines, criminal penalties, statutory damages, and other costs to respond to breach or security incidents, which could have a material adverse effect on our business, results of operations and financial condition. We may incur significant costs to protect against the threat of security breaches or to mitigate the harm and alleviate problems caused by such breaches. While we currently maintain insurance coverage that may, cover certain cyber security risks, such insurance coverage is subject to certain exclusions and exceptions and may be insufficient to cover all losses.

Furthermore, certain software and services that we use to operate our business are hosted and/or operated by third parties or integrated with our systems. If these services were to be interrupted or their security breached, our business operations could be similarly disrupted and we could be exposed to liability and costly investigations or litigation. The need to properly secure, and securely transmit and store, confidential information online has historically been a significant barrier to e-commerce and online communications, and will become increasingly highlighted as a consumer and regulatory focus and concern. Any publicized compromise of security could deter people from using online services such as the ones we offer or from using them to conduct transactions, which involve transmitting confidential information. Because our success depends on the general acceptance and reputation of our services and electronic commerce, we may incur significant costs to protect against the threat of security breaches or to alleviate problems caused by these breaches.

We provide service level commitments to certain customers. If we do not meet these contractual commitments, we could be obligated to provide credits or refunds or face contract terminations, which could adversely affect our revenue and harm our reputation.

As is common for many cloud service providers, we offer service level commitments in certain of our customer contracts, primarily related to uptime of our service. If we are unable to meet the stated service level commitments or suffer periods of downtime that exceed the periods allowed under our customer contracts, whether due to downtime caused by us or our third-party service providers, we may be contractually obligated to provide these customers with service credits and/or pay financial penalties, which could significantly impact our revenue. In addition, even if our contracts provide otherwise, these customers may attempt to terminate their contracts and/or pursue other legal remedies. Recurring or extended service outages could also cause damage to our reputation and result in substantial customer dissatisfaction or loss, which could adversely affect our current and future revenue and operating results.

We are dependent on technology systems and third-party content that are beyond our control.

The success of our services depends in part on our customers' online services as well as the Internet and mobile connectivity of consumers, both of which are outside of our control. As a result, it may be difficult to identify the source of problems if they occur. In the past, we have experienced problems related to connectivity which has resulted in slower than normal response times to user messaging requests and interruptions in service. Our services rely both on the Internet and on our connectivity vendors for data transmission. Therefore, even when connectivity problems are not caused by our services, our customers or their consumers may attribute the problem to us. This could diminish our brand and harm our business, divert the attention of our technical personnel from our product development efforts or cause significant customer relations problems.

In addition, we rely in part on third-party service providers and other third parties for various services, including, but not limited, to Internet connectivity, network infrastructure hosting, security and maintenance, and software and hardware from a variety of vendors. These providers may experience problems that result in slower than normal response times and/or interruptions in service. If we are unable to continue utilizing the third-party services that support our web hosting and infrastructure or if our services experience interruptions or delays due to third party providers, our reputation and business could be harmed, and we may be exposed to legal and reputational risk, and significant remediation costs.

We also rely on the security of our third party providers to protect our proprietary information and information of our customers. Information technology system failures, including a breach of our or our third party providers' data security, could disrupt our ability to function in the normal course of business by potentially causing, among other things, an unintentional disclosure of customer information or loss of information. Additionally, despite our security procedures or those of our third party providers, information systems may be vulnerable to threats such as computer hacking, cyber-terrorism or other unauthorized attempts by third parties to access, obtain, modify or delete our or our customers' data. Any such breach could have a material adverse effect on our operating results and our reputation as a provider of business collaboration and communications solutions and could subject us to significant penalties and negative publicity, as well as government investigations and claims for damages or injunctive relief under state, federal and foreign laws or contractual agreements.

We also depend on third parties for hardware and software, and our consumer services depend on third parties for content. Such products and content could contain defects or inaccurate information. Problems arising from our use of such hardware or software or third party content could require us to incur significant costs or divert the attention of our technical or other personnel from our product development efforts or to manage issues related to content. To the extent any such problems require us to replace such hardware or software we may not be able to do so on acceptable terms, if at all.

Our products and services may infringe upon intellectual property rights of third parties and any infringement could require us to incur substantial costs and may distract our management.

We have had patent and other infringement lawsuits filed against us claiming that certain of our products and services infringe third party intellectual property rights, and we are subject to the future risk of additional third party claims alleging infringement against us or against our customers for use of our products and services. Many of our customer and partner contracts, including certain suppliers, contain indemnification obligations requiring us to indemnify our customers from certain claims against them or arising from the use of our services. Substantial litigation regarding intellectual property rights exists in the software industry. In the ordinary course of our business, our services and/or our customers' use of our services may be increasingly subject to third-party infringement claims as claims by non-practicing entities become more prevalent and the number of competitors in our industry segment grows and the functionality of services in different industry segments overlaps. Some of our competitors in the market for digital engagement technology, and/or web and mobile based consumer-facing services or other third parties may have filed or may intend to file patent applications covering aspects of their technology and have asserted and may in the future assert claims against us. Any claims alleging infringement of third-party intellectual property rights could require us to spend significant amounts in litigation (even if the claim is invalid), distract management from other tasks of operating our business, pay substantial damage awards, prevent us from selling our products, delay delivery of our services, require the development of non-infringing software, technology, business processes, systems or other intellectual property (none of which might be successful), or limit our ability to use the intellectual property that is the subject of any of these claims, unless we enter into license agreements with the third parties (which may be costly, unavailable on commercially reasonable terms, or not available at all). Therefore, any such claims could have a material adverse effect on our business, results of operations, cash flows and financial condition.

Our business and prospects would suffer if we are unable to protect and enforce our intellectual property rights.

Our success and ability to compete depend, in part, upon the protection of our intellectual property rights relating to the technology underlying our services. We rely on a combination of patent, copyright, trade secret, trademark and other common law protections in the United States and other jurisdictions, as well as confidentiality requirements and contractual provisions, to protect our proprietary technology, processes and other intellectual property. We own a portfolio of patents and patent applications in the United States and internationally and regularly file patent applications to protect intellectual property that we believe is important to our business, including intellectual property related to digital engagement technology, and/or web and mobile based consumer-facing services. We believe the duration of our patents is adequate relative to the expected lives of our products and services. We pursue the registration of our domain names, trademarks and trade names in the United States and in certain locations outside the United States. We also own copyrights, including in our software, publications and other documents authored by us. These intellectual property rights are important to our business and marketing efforts. We seek to protect our intellectual property rights by relying on federal, state, and common law rights, including registration, or otherwise in the United States and certain foreign jurisdictions, as well as contractual restrictions. However, we believe that factors such as the technological and creative skills of our personnel, new service developments, frequent enhancements and reliable maintenance are more essential to establishing and maintaining a competitive advantage. Others may develop technologies that are similar or superior to our technology. We enter into confidentiality and other written agreements (including invention assignment agreements) with our employees, consultants, customers, potential customers, strategic partners, and other third parties, and through these and other written agreements, we attempt to control access to and distribution of our software, documentation and other proprietary information. Despite our efforts to protect our proprietary rights, third parties may, in an unauthorized manner, attempt to use, copy or otherwise obtain and market or distribute our intellectual property rights or technology or otherwise develop a service with the same functionality as our services. Policing unauthorized use of our services and intellectual property rights is difficult, and we cannot be certain that the steps we have taken will prevent misappropriation of our technology or intellectual property rights, particularly in foreign countries where we do business, where our services are sold or used, where the laws may not protect proprietary rights as fully as do the laws of the United States or where enforcement of laws protecting proprietary rights is not common or effective.

The duration of the protection afforded to our intellectual property depends on the type of property in question, the laws and regulations of the relevant jurisdiction and the terms of its license agreements with others. With respect to our trademarks and trade names, trademark laws and rights are generally territorial in scope and limited to those countries where a mark has been registered or protected. While trademark registrations may generally be maintained in effect for as long as the mark is in use in the respective jurisdictions, there may be occasions where a mark or title is not registrable or protectable or cannot be used in a particular country. In addition, a trademark registration may be cancelled or invalidated if challenged by others based on certain use requirements or other limited grounds. The duration of property rights in trademarks, service marks and tradenames in the United States, whether registered or not, is predicated on our continued use.

It is possible that:

- any issued patent or patents issued in the future may not be broad enough to protect our intellectual property rights;
- any issued patent or any patents issued in the future could be successfully challenged by one or more third parties, which could result in our loss of the right to prevent others from exploiting the inventions claimed in the patents;
- current and future competitors may independently develop similar technologies, duplicate our services or design around any patents we may have; and
- effective intellectual property protection may not be available in every country in which we do business, where our services are sold or used, where the laws may not protect proprietary rights as fully as do the laws of the United States or where enforcement of laws protecting proprietary rights is not common or effective.

Further, to the extent that the invention described in any United States patent was made public prior to the filing of the patent application, we may not be able to obtain patent protection in certain foreign countries. We also rely upon copyright, trade secret, trademark and other common law in the United States and other jurisdictions, as well as confidentiality procedures and contractual provisions, to protect our proprietary technology, processes and other intellectual property. Any steps we might take may not be adequate to protect against infringement and misappropriation of our intellectual property by third parties. Similarly, third parties may be able to independently develop similar or superior technology, processes or other intellectual property. Third parties may register marks that are confusingly similar to the trademarks or services marks that we have used in the United States and our failure to monitor foreign registrations or mark usage may impact out rights in certain trademarks or services marks. Policing unauthorized use of our services and intellectual property rights is difficult, and we cannot be certain that the steps we have taken will prevent misappropriation of our technology or intellectual property rights, particularly in foreign countries where we do business, where our services are sold or used, where the laws may not protect proprietary rights as fully as do the laws of the United States or where enforcement of laws protecting proprietary rights is not common or effective. The unauthorized reproduction or other misappropriation of our intellectual property rights could enable third parties to benefit from our technology without paying us for it. If this occurs, our business, results of operations and financial condition could be materially and adversely affected. In addition, disputes concerning the ownership or rights to use intellectual property could be costly and time-consuming to litigate, may distract management from operating our business and may result in our loss of significant rights.

We may be subject to legal liability and/or negative publicity for the services provided to consumers via our technology platforms.

Our technology platforms enable representatives of our customers as well as individual service providers to communicate with consumers and other persons seeking information or advice on the web or via mobile devices. The law relating to the liability of online platform providers such as us for the activities of users of their online platforms is often challenged in the United States and internationally. We may be unable to prevent users of our technology platforms from providing negligent, unlawful or inappropriate advice, information or content via our technology platforms, or from behaving in an unlawful manner, and we may be subject to allegations of civil or criminal liability for negligent, fraudulent, unlawful or inappropriate activities carried out by users of our technology platforms.

Claims could be made against online services companies under both United States and foreign law, such as fraud, defamation, libel, invasion of privacy, negligence, data breach, copyright or trademark infringement, or other theories based on the nature and content of the materials disseminated by users of our technology platforms. In addition, domestic and foreign legislation has been proposed that could prohibit or impose liability for the transmission over the Internet of certain types of information. Our defense of any of these actions could be costly and involve significant time and attention of our management and other resources.

The Digital Millennium Copyright Act, or DMCA, is intended, among other things, to reduce the liability of online service providers for listing or linking to third party web properties that include materials that infringe copyrights or rights of others. Additionally, portions of The Communications Decency Act, or CDA, are intended to provide statutory protections to online service providers who distribute third party content. A safe harbor for copyright infringement is also available under the DMCA to certain online service providers that provide specific services, if the providers take certain affirmative steps as set forth in the DMCA. Important questions regarding the safe harbor under the DMCA and the CDA have yet to be litigated, and we cannot guarantee that we will meet the safe harbor requirements of the DMCA or of the CDA. If we are not covered by a safe harbor, for any reason, we could be exposed to claims, which could be costly and time-consuming to defend.

Our consumer service allows consumers to provide feedback regarding service providers. Although all such feedback is generated by users and not by us, claims of defamation or other injury could be made against us for content posted on our websites. Our liability for such claims may be higher in jurisdictions outside the United States where laws governing Internet or mobile transactions are unsettled.

If we become liable for information provided by our users and carried via our service in any jurisdiction in which we operate, we could be directly harmed and we may be forced to implement new measures to reduce our exposure to this liability. In addition, the increased attention focused upon liability issues as a result of these lawsuits and legislative proposals could harm our reputation or otherwise impact the growth of our business. Any costs incurred as a result of this potential liability could harm our business.

In addition, negative publicity and user sentiment generated as a result of fraudulent or deceptive conduct by users of our technology platforms could damage our reputation, reduce our ability to attract new users or retain our current users, and diminish the value of our brand.

In the future, we may be required to spend substantial resources to take additional protective measures or discontinue certain service offerings, either of which could harm our business. Any costs incurred as a result of potential liability relating to the sale of unlawful services or the unlawful sale of services could harm our business.

In addition to legislation and regulations relating to privacy and data security and collection, we may be subject to consumer protection laws that are enforced by regulators such as the FTC and private parties, and include statutes that regulate the collection and use of information for marketing purposes. Any new legislation or regulations regarding the Internet, mobile devices, software sales or export and/or the cloud or Software-as-a-Service industry, and/or the application of existing laws and regulations to the Internet, mobile devices, software sales or export and/or the cloud or Software-as-a-Service industry, could create new legal or regulatory burdens on our business that could have a material adverse effect on our business, results of operations and financial condition. Additionally, as we operate outside the United States, the international regulatory environment relating to the Internet, mobile devices, software sales or export, and/or the Software-as-a-Service industry could have a material adverse effect on our business, results of operations and financial condition.

Issues in the use of Artificial Intelligence (AI) in our product offerings may result in reputational harm or liability.

We have built, and will continue to build, Artificial Intelligence (AI) into many of our product offerings and we expect this element of our business to grow. We envision a future in which AI operating in our devices, applications and the cloud helps our customers be more productive in their business activities and interactions with consumers. As with many disruptive innovations, AI presents risks and challenges that could affect its adoption, and therefore our business. AI algorithms may be flawed. Datasets may be insufficient or contain biased information. Inappropriate or controversial data practices by us or others could impair the acceptance of AI solutions. These deficiencies could undermine the decisions, predictions, or analysis AI applications produce, subjecting us to competitive harm, legal liability, and brand or reputational harm. Some AI scenarios present ethical issues. If we enable or offer AI solutions that are controversial because of their impact on human rights, privacy, employment, or other social issues, we may experience a material adverse effect on our business, results of operations and cash flows.

Technological or other defects could disrupt or negatively impact our services, which could harm our business and reputation.

We face risks related to the technological capabilities of our services. We expect the number of interactions between our customers' operators and consumers over our system to increase significantly as we expand our customer base. Our network hardware and software may not be able to accommodate this additional volume. Additionally, we must continually upgrade our software to improve the features and functionality of our services in order to be competitive in our markets. If future versions of our software contain undetected errors, our business could be harmed. If third-party content is flawed, our business could be harmed. As a result of software upgrades at LivePerson, our customer sites have, from time to time, experienced slower than normal response times and interruptions in service. If we experience system failures or degraded response times, our reputation and brand could be harmed. We may also experience technical problems in the process of installing and initiating the LivePerson services on new web hosting services. These problems, if not remedied, could harm our business.

Our services also depend on complex software which may contain defects, particularly when we introduce new versions onto our servers. We may not discover software defects that affect our new or current services or enhancements until after they are deployed. It is possible that, despite testing by us, defects may occur in the software. These defects could result in:

- damage to our reputation;
- lost sales;
- contract terminations;
- loss of market share;
- delays in or loss of market acceptance of our products; and
- unexpected expenses and diversion of resources to remedy errors.

We are subject to risks related to corporate and social responsibility and reputation.

Many factors influence our reputation including the perception held by our customers, business partners and other key stakeholders. Businesses face increasing scrutiny related to environmental, social and governance activities. We risk damage to our reputation if we fail to act responsibly in a number of areas, such as diversity and inclusion, sustainability and social responsibility. Any harm to our reputation could impact employee engagement and retention, our corporate culture and the willingness of customers and our partners to do business with us, which could have a material adverse effect on our business, results of operations and cash flows.

Our products are complex, and errors, failures or "bugs" may be difficult to correct.

Our products are complex, integrating hardware, software and elements of a customers' existing infrastructure. Despite quality assurance testing conducted prior to the release of our products our software may contain "bugs" that are difficult to detect and fix. Any such issues could interfere with the expected operation of a solution, which might negatively impact customer satisfaction, reduce sales opportunities or affect gross margins. Depending upon the size and scope of any such issue, remediation may have a negative impact on our business. Our inability to cure an application or product defect, should one occur, could result in the failure of an application or product line, damage to our reputation, litigation and/or product reengineering expenses. Our insurance may not cover or may be insufficient to cover expenses associated with such events.

The non-payment or late payment of amounts due to us from a significant number of customers may negatively impact our financial condition or make it difficult to forecast our revenues accurately.

During 2019, we increased our allowance for doubtful accounts from $2.3 million to approximately $3.1 million. During 2018, we increased our allowance for doubtful accounts from $1.0 million to approximately $2.3 million. We base our allowance for doubtful accounts on specifically identified credit risks of customers, historical trends and other information that we believe to be reasonable. A large proportion of receivables are due from larger corporate customers that typically have longer payment cycles. We adjust our allowance for doubtful accounts when accounts previously reserved have been collected. As a result of increasingly long payment cycles, we have faced increased difficulty in predicting our operating results for any given period, and have experienced significant unanticipated fluctuations in our revenues from period to period. Any failure to achieve anticipated revenues in a period could cause the market price of our securities to decline.

Our services are subject to payment-related risks.

For certain payment methods, including credit and debit cards, we pay interchange and other fees, which may increase over time and raise our operating costs and lower our profit margins. We rely on third parties to provide payment processing services, including the processing of credit cards and debit cards and it could disrupt our business if these companies become unwilling or unable to provide these services to us. We are also subject to payment card association operating rules, certification requirements and rules governing electronic funds transfers, which could change or be reinterpreted in such a way as to make compliance infeasible. If we fail to comply with these rules or requirements, we may be subject to fines and higher transaction fees and lose our ability to accept credit and debit card payments from our customers or facilitate other types of online payments, and our business and operating results could be adversely affected.

Through our consumer-facing platform, we facilitate online transactions between individual service providers who provide online advice and information to consumers. In connection with these services, we accept payments using a variety of methods, such as credit card, debit card and PayPal. These payments are subject to "chargebacks" when consumers dispute payments they have made to us. Chargebacks can occur whether or not services were properly provided. Susceptibility to chargebacks puts a portion of our revenue at risk. We take measures to manage our risk relative to chargebacks and to recoup properly charged fees, however, if we are unable to successfully manage this risk our business and operating results could be adversely affected. As we offer new payment options to our users, we may be subject to additional regulations, compliance requirements, and fraud.

We are also subject to a number of other laws and regulations relating to money laundering, international money transfers, privacy and information security and electronic fund transfers. If we were found to be in violation of applicable laws or regulations, we could be subject to civil and criminal penalties or forced to cease our payments services business.

Delays in our implementation cycles could have an adverse effect on our results of operations.

Certain of our products require some implementation services, including but not limited to, training our customers. As an open platform, we also work with other third parties on implementing a variety of integrations into our platform. We have historically experienced a lag between signing a customer contract and recognizing revenue from that customer. Although this lag has typically ranged from 30 to 90 days, it may take more time between contract signing and recognizing revenue in certain situations. If we experience delays in implementation or do not meet project milestones in a timely manner, we could be obligated to devote more customer support, engineering and other resources to a particular project. If new or existing customers cancel or have difficulty deploying our products or require significant amounts of our professional services, support, or customized features, revenue recognition could be canceled or delayed and our costs could increase, which could negatively impact our operating results.

If our goodwill or amortizable intangible assets become impaired, we may be required to record a significant charge to earnings.

Under accounting principles generally accepted in the United States, we review our amortizable intangible assets for impairment when events or changes in circumstances indicated that the carrying value may not be recoverable. We review our goodwill for impairment at least annually and when events or changes in circumstances indicate that the carrying value may not be recoverable. Factors that may be considered a change in circumstances indicating that the carrying value of our goodwill or amortizable intangible assets may not be recoverable include a decline in stock price and market capitalization, reduced future cash flow estimates, and slower growth rates in our industry. Based on our annual review for 2019, we determined that it is not more-likely than not that the fair value of the reporting units is less than their carrying amount. However, future assessments may yield a different result, and from time to time, we may be required to record a significant charge to earnings in our consolidated financial statements during the period in which any impairment of our goodwill is determined, resulting in a negative impact on our results of operations.

There are inherent limitations on the effectiveness of our controls.

We do not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well-designed and operated, can provide only reasonable, not absolute, assurance that the control system’s objectives will be met. The design of a control system must reflect the fact that resource constraints exist, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of the effectiveness of controls to future periods are subject to risks. Over time, controls may become inadequate due to changes in conditions or deterioration in the degree of compliance with policies or procedures. If our controls become inadequate, we could fail to meet our financial reporting obligations, our reputation may be adversely affected, our business and operating results could be harmed, and the market price of our securities could decline.

In the past, we have experienced losses, we had an accumulated deficit of $283.6 million as of December 31, 2019 and we may incur losses in the future.

We have in the past incurred, and we may in the future, incur losses and experience negative cash flow, either or both of which may be significant. We recorded net losses from inception through the year ended December 31, 2003. We recorded net income for the years ended December 31, 2004 through 2007 and 2009 through 2012, while we recorded net losses for the years ended December 31, 2008, and 2013 through 2019. We recorded a net loss of $96.1 million for the year ended December 31, 2019. As of December 31, 2019, our accumulated deficit was approximately $283.6 million. We cannot assure you that we can sustain or increase profitability on a quarterly or annual basis in the future. Failure to maintain profitability may materially and adversely affect the market price of our securities.

With the recent volatility in the capital markets, there is a risk that we could suffer a loss of principal in our cash and cash equivalents and short term investments and suffer a reduction in our interest income or in our return on investments.

As of December 31, 2019, we had $176.5 million in cash and cash equivalents. We regularly invest excess funds from our cash and cash equivalents in short-term money market funds. We currently hold no mortgaged-backed or auction rate securities. However, some of our investments are subject to general credit, liquidity, market and interest rate risks, which may be exacerbated by any ongoing uncertainty in the United States and global credit markets. In the future, these market risks associated with our investment portfolio may harm the results of our operations, liquidity and financial condition. Although we believe we have chosen a more cautious portfolio designed to preserve our existing cash position, it may not adequately protect the value of our investments. Furthermore, this more cautious portfolio is unlikely to provide us with any significant interest income in the near term.

Capital needs necessary to execute our business strategy could increase substantially and we may not be able to secure additional financing to execute this strategy.

To the extent that we require additional funds to support our operations or the expansion of our business, or to pay for acquisitions, we may need to sell additional equity, issue debt or convertible securities or obtain credit facilities through financial institutions. In the past, we have obtained financing principally through the sale of preferred stock, common stock, warrants and convertible notes. If additional funds are raised through the issuance of debt or preferred equity securities, these securities could have rights, preferences and privileges senior to holders of common stock, and could have terms that impose restrictions on our operations. If additional funds are raised through the issuance of additional equity or convertible securities, our stockholders could suffer dilution. We cannot assure you that additional funding, if required, will be available to us in amounts or on terms acceptable to us. If sufficient funds are not available or are not available on acceptable terms, our ability to fund any potential expansion, take advantage of acquisition opportunities, develop or enhance our services or products, or otherwise respond to competitive pressures would be significantly limited. Those limitations would materially and adversely affect our business, results of operations, cash flows and financial condition.

Failure to license necessary third party software for use in our products and services, or failure to successfully integrate third party software, could cause delays or reductions in our sales, or errors or failures of our service.

We license third party software that we plan to incorporate into our products and services. In the future, we might need to license other software to enhance our products and meet evolving customer requirements. These licenses may not continue to be available on commercially reasonable terms or at all. Some of this technology could be difficult to replace once integrated. The loss of, or inability to obtain, these licenses could result in delays or reductions of our products and services until we identify, license and integrate or develop equivalent software, and new licenses could require us to pay higher royalties. If we are unable to successfully license and integrate third party technology, we could experience a reduction in functionality and/or errors or failures of our products, which may reduce demand for our products and services.

Third-party licenses may expose us to increased risks, including risks associated with the integration of new technology, the impact of new technology integration on our existing technology, open source software disclosure requirements, the diversion of resources from the development of our own proprietary technology, and our inability to generate revenue from new technology sufficient to offset associated acquisition and maintenance costs.

Our reputation depends, in part, on factors which are partially or entirely outside of our control.

Our services typically appear under the LivePerson brand or as a LivePerson-branded icon on our customers' websites. The customer service operators and Experts who respond to the inquiries of our customers' users are employees or agents of our customers or independent consultants rather than employees of the Company. As a result, we are not able to control the actions of these operators or Experts and the impression that such operator or Expert leaves the user with whom they interact. A user may not know that the operator or Expert is not a LivePerson employee. If a user were to have a negative experience in a LivePerson-powered real-time dialogue, it is possible that this experience could be attributed to us, which could diminish our brand and harm our business. Additionally, we believe the success of our business services is aided by the prominent placement of the chat icon on a customer's website, over which we also have no control.

Because we recognize revenue from subscriptions for our service over the term of the subscription, declines in business may not be immediately reflected in our operating results.

We generally recognize revenue from customers ratably over the terms of their subscription agreements, which are typically 12 or more months. As a result, much of the revenue we report in each quarter is the result of subscription agreements entered into during previous quarters. Consequently, a decline in new or renewed subscriptions or cancellations of existing subscriptions in any one quarter may not be reflected in our revenue results for that quarter. Any such decline, however, could negatively affect our revenue in future quarters. Our subscription model also makes it difficult for us to rapidly increase our revenue through additional sales in any period, because revenue from new customers and additional revenue from existing customers is generally recognized over the applicable subscription term, rather than immediately.

Our sales cycles can be lengthy, and the timing of sales can be difficult to predict, which may cause our operating results to vary significantly.

The sales cycle for our products can be several months or more and varies substantially from customer to customer, particularly for sales to enterprise customers. Because we sell complex, integrated solutions, it can take many months to close sales as customers evaluate our product offering against available alternatives and define their requirements. We are often required to expend substantial time, effort, and money educating potential customers them about the value of our offerings. The increasingly complex needs of our customers can contribute to a longer sales cycle.

Additionally, our quarterly sales have historically reflected an uneven pattern in which a disproportionate percentage of a quarter's total sales occur in the last month, weeks and days of each quarter. These patterns make prediction of revenue especially difficult and uncertain and increase the risk of unanticipated variations in our results of operations. As a result, we are not always able to precisely predict the quarter in which expected sales will occur. In addition, historically a large portion of our revenue has derived from large orders from large clients. Consequently, delays in the closing of sales, especially from large clients, could have a material impact on the timing of revenue and results of operations.

Political, economic and military conditions in Israel could negatively impact our Israeli operations

A substantial portion of our product development staff, help desk and online sales support operations are located in Israel. As of December 31, 2019, we had 359 full-time employees in Israel. Although substantially all of our sales to date have been made to customers outside Israel, we are directly influenced by the political, economic and military conditions affecting Israel. Since the establishment of the State of Israel in 1948, a number of armed conflicts have taken place between Israel and its neighboring countries, Hamas (an Islamist militia and political group that controls the Gaza Strip) and Hezbollah (an Islamist militia and political group based in Lebanon). In addition, several countries, principally in the Middle East, restrict doing business with Israel, and additional countries may impose restrictions on doing business with Israel and Israeli companies whether as a result of hostilities in the region or otherwise. Any hostilities involving Israel or the interruption or curtailment of trade between Israel and its trading partners could adversely affect our operations and results of operations.

Parties with whom we do business may sometimes decline to travel to Israel during periods of heightened unrest or tension, forcing us to make alternative arrangements when necessary in order to meet our business partners face to face. In addition, the political and security situation in Israel may result in parties with whom we have agreements involving performance in Israel claiming that they are not obligated to perform their commitments under those agreements pursuant to force majeure provisions in such agreements.

Further, shifting economic and political conditions in the United States and in other countries may result in changes in how the United States and other countries conduct business and other relations with Israel, which may have an adverse impact on our Israeli operations and a material adverse impact on our business.

Our commercial insurance may not cover losses that could occur as a result of events associated with the security situation in the Middle East. Any losses or damages incurred by us could have a material adverse effect on our business. Armed conflicts or political instability in the region could negatively affect our business and could harm our results of operations.

Continued hostilities between Israel and its neighbors and any future armed conflict, terrorist activity or political instability in the region could adversely affect our operations in Israel and adversely affect the market price of our securities. In addition, escalation of tensions or violence might require more widespread military reserve service by some of our Israeli employees and might result in a significant downturn in the economic or financial condition of Israel, either of which could have a material adverse effect on our operations in Israel and our business.

Our reported financial results may be adversely affected by changes in accounting principles generally accepted in the United States.

Accounting principles generally accepted in the United States are subject to interpretation by the FASB, the American Institute of Certified Public Accountants, the SEC, and various bodies formed to promulgate and interpret appropriate accounting principles. A change in these principles or interpretations could have a significant effect on our reported financial results, and could affect the reporting of transactions completed before the announcement of a change.

We cannot assure our stockholders that any stock repurchase programs will be fully consummated or will enhance long-term stockholder value, and stock repurchases could increase the volatility of the price of our common stock and will diminish our cash reserves.

From 2012 through 2018, the Company had a stock repurchase program in place, pursuant to which the Company was authorized to repurchase shares of its common stock, in the open market or privately negotiated transactions, at times and prices considered appropriate by the Board of Directors depending upon prevailing market conditions and other corporate considerations. The timing and actual number of shares repurchased depend on a variety of factors including the timing of open trading windows, price, corporate and regulatory requirements, and other market conditions. The program was discontinued at the end of 2018. We may or may not enter into a new stock repurchase program in the future.

Repurchases pursuant to our stock repurchase program could affect our stock price and increase its volatility. The existence of a stock repurchase program could also cause our stock price to be higher than it would be in the absence of such a program and could potentially reduce the market liquidity for our stock. Additionally, repurchases under a stock repurchase program would diminish our cash reserves, which could impact our ability to pursue possible future strategic opportunities and acquisitions and could result in lower overall returns on our cash balances. There can be no assurance that any stock repurchases will enhance stockholder value because the market price of our common stock may decline below the levels at which we repurchased shares of stock.

Our business is subject to the risks of earthquakes, fires, floods and other natural catastrophic events and to interruption by man-made problems such as terrorism or computer viruses.

Our systems and operations are vulnerable to damage or interruption from earthquakes, fires, floods, hurricanes, other acts of nature, power losses, telecommunications failures, terrorist attacks, acts of war, human errors, break-ins, cyber-attacks or failures, pandemics or other public health crises, or similar events. For example, a significant natural disaster, such as an earthquake, fire or flood, could have a material adverse impact on our business, operating results and financial condition, and our insurance coverage may be insufficient to compensate us for losses that may occur. In addition, acts of terrorism could cause disruptions in our business or the economy as a whole. Our principal executive offices are located in New York City and our largest office is located in Israel, each of which regions has experienced acts of terrorism in the past. Our servers may also be vulnerable to computer viruses, break-ins, cyber-attacks, such as coordinated denial-of-service attacks or ransomware, or other failures, and similar disruptions from unauthorized tampering with our computer systems, which could lead to interruptions, delays, loss of critical data or the unauthorized disclosure of confidential customer data. Although we have implemented security measures and disaster recovery capabilities, there can be no assurance that we will not suffer from business interruption, or unavailability or loss of data, as a result of any such events. As we rely heavily on our servers, computer and communications systems and the internet to conduct our business and provide high quality service to our customers, such disruptions could negatively impact our ability to run our business, result in loss of existing or potential customers and increased expenses, and/or have an adverse effect on our reputation and the reputation of our products and services, any of which would adversely affect our operating results and financial condition.

Our ability to use our net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2019, we had federal net operating loss carryforwards (“NOLs”) of approximately $203.5 million which are available to offset future federal taxable income. In general, under Section 382 of the Internal Revenue Code of 1986, as amended (the “Code”), a corporation that undergoes an “ownership change” (generally defined as a greater than 50-percentage-point cumulative change (by value) in the equity ownership of certain stockholders over a rolling three-year period) is subject to limitations on its ability to utilize its pre-change NOLs to offset post-change taxable income. Under Section 382 of the Code, our existing NOLs may be subject to limitations arising from previous ownership changes, and if we undergo an ownership change in the future, our ability to utilize NOLs could be further limited by Section 382 of the Code, or as a result of a corresponding provision of state law. Future changes in our stock ownership, some of which may be outside of our control, could result in an ownership change under Section 382 of the Code. Federal NOLs generated in taxable years ending on or before December 31, 2017, are eligible to be carried forward for up to 20 tax years (and carried back up to two tax years) following their incurrence. Under the Tax Cuts and Jobs Act (discussed below), federal NOLs generated in taxable years ending after December 31, 2017, are eligible to be carried forward indefinitely, but generally may only offset up to 80% of federal taxable income earned in a taxable year. As of December 31, 2018, approximately $41.2 million of our approximately $203.5 million of federal NOLs were generated in taxable years ending on or before December 31, 2017. If our ability to utilize federal NOLs were limited by Section 382 of the Code, it could result in NOLs generated on or before December 31, 2017, expiring unused. Our ability to utilize our NOLs is conditioned upon our maintaining profitability in the future and generating U.S. federal taxable income. Since we do not know whether or when we will generate the U.S. federal taxable income necessary to utilize our remaining NOLs, our NOLs generated on or prior to December 31, 2017 could expire unused.

Recently enacted changes to the U.S. tax laws may have a material impact on us.

On December 22, 2017, H.R.1 (commonly referred to as the "Tax Cuts and Jobs Act") was signed into law. The Tax Cuts and Jobs Act makes extensive changes to the federal tax laws and includes provisions that, among other things, reduce the U.S. corporate tax rate, introduce a capital investment deduction, limit the interest deduction, limit the use of NOLs to offset future taxable income, and make extensive changes to the U.S. international tax system, including the taxation of foreign earnings of U.S. multinational corporations. Certain provisions of the Tax Cuts and Jobs Act are likely to undergo revisions or are set to expire on certain specified future dates, unless such provisions are further modified in subsequent legislation. Changes in interpretations of the Tax Cuts and Jobs Act, any legislative action to address questions that arise because of the Tax Cuts and Jobs Act and any changes in accounting standards for income taxes or related interpretations in response to the Tax Cuts and Jobs Act may cause uncertainty with respect to the ultimate impact of the Tax Cuts and Jobs Act on our tax provisions. In addition, it is possible that reactionary legislation or regulation may be instituted by one or more foreign authorities that could ultimately adversely affect us and/or negate or minimize some or all of the favorable impacts that we have or may derive from the Tax Cuts and Jobs Act.

Risks Related to Our Industry

Future regulation of the Internet or mobile devices may slow our growth, resulting in decreased demand for our services and increased costs of doing business.

State, federal and foreign regulators could adopt laws and regulations that impose additional burdens on companies that conduct business online or that adversely affect the growth or use of the Internet or mobile commerce. For example, these laws and regulations could discourage communication by e-mail or other web-based communications, particularly targeted e-mail of the type facilitated by our services, which could reduce demand for our services. Laws or regulations that affect the use of the Internet or mobile devices, including but not limited to laws affecting net neutrality could also decrease demand for our services and increase our costs. Some jurisdictions have adopted regulations prohibiting certain forms of discrimination by Internet access providers; however, substantial uncertainty exists in the United States and elsewhere. For example, in the United States, the Federal Communications Commission repealed net neutrality rules effective June 11, 2018, which could lead internet access providers to restrict, block, degrade or charge for access to our products and services. Further, regulatory focus on data privacy, data security and consumer protection continues to expand on a worldwide basis and is becoming more complex, which will increase the risks to our business on reputational, operational, and compliance bases.

The continued growth and development of the market for online services may prompt calls for more stringent consumer protection laws or laws that will inhibit the use of Internet-based or mobile-based communications or the information contained in these communications or the ways in which information may be collected, stored, used and transferred in the course of providing services. For example, in the United States, the CAN-SPAM Act regulates the transmission and content of commercial emails, and, among other things, obligates the sending of such emails to provide recipients with the ability to opt-out or unsubscribe and other requirements; and the Children's Online Privacy Protection Act regulates the ability of certain online services to collect or use certain categories of information from children under age 13 absent parental consent. The adoption of any additional laws or regulations, or changes to existing laws or regulations, may decrease the expansion of the Internet or smartphone usage. A decline in the growth of the Internet or smartphone usage, particularly as it relates to online communication, could decrease demand for our services and increase our costs of doing business, or otherwise harm our business. Any new legislation or regulations, application of laws and regulations from jurisdictions whose laws do not currently apply to our business, or application of existing laws and regulations to the Internet, mobile and other online services could increase our costs and harm our growth.

If we are unable to develop and maintain successful relationships with social media and other third-party consumer messaging platforms and endpoints, our business, results of operations and financial condition could be adversely affected.

We believe that continued growth for companies in our industry depends, in part, on enabling brands to connect with consumers across consumers' preferred conversational interfaces and messaging endpoints, such as SMS, Facebook Messenger, WhatsApp, Apple Business Chat, Google Rich Business Messenger, Line and Alexa. In order to grow our business, we have identified and developed, and maintain, strategic relationships with many key technology partners. As part of our growth strategy, we plan to further develop partnerships and specific solution areas with additional technology partners. If we fail to establish these relationships in a timely and cost-effective manner, or at all, or if we lose any or all of our current relationships, then our business, results of operations and financial condition could be adversely affected. Additionally, even if we are successful at developing these relationships, but there are problems or issues with the integrations, or our ability to scale and onboard our customers onto new endpoints, our reputation and ability to grow our business may be adversely affected.

We may be unable to respond to the rapid technological change and changing customer preferences in the online sales, marketing, customer service, and/or online consumer services industries and this may harm our business.

If we are unable, for technological, legal, financial or other reasons, to adapt in a timely manner to changing market conditions in the online sales, marketing, customer service and/or e-commerce industry or our customers’ or consumers’ requirements or preferences, our business, results of operations and financial condition would be materially and adversely affected. Online business is characterized by rapid technological change. In addition, the market for online sales, marketing, customer service and expert advice solutions is relatively new. Sudden changes in customer and consumer requirements and preferences, frequent new product and service introductions embodying new technologies, and the emergence of new industry and regulatory standards and practices such as but not limited to data privacy and security standards, could render the LivePerson services and our proprietary technology and systems obsolete. The rapid evolution of these products and services will require that we continually improve the performance, features and reliability of our services. Our success will depend, in part, on our ability to:

- enhance the features and performance of our services;
- develop and offer new services that are valuable to companies doing business online as well as consumers; and
- respond to technological advances and emerging industry and regulatory standards and practices in a cost-effective and timely manner.

If any of our new services, including upgrades to our current services, do not meet our customers’ or consumers’ expectations, we could lose customers and our business may be harmed. Updating our technology may require significant additional capital expenditures and could materially and adversely affect our business, results of operations and financial condition.

If new services require us to grow rapidly, this could place a significant strain on our managerial, operational, technical and financial resources. In order to manage our growth, we could be required to implement new or upgraded operating and financial systems, procedures and controls. Our failure to expand our operations in an efficient manner could cause our expenses to grow, our revenue to decline or grow more slowly than expected and could otherwise have a material adverse effect on our business, results of operations and financial condition.

We depend on the continued viability of the infrastructure of the Internet.

To the extent that the Internet continues to experience growth in the number of users and frequency of use by consumers resulting in increased bandwidth demands, we cannot assure you that the infrastructure for the Internet will be able to support the demands placed upon it. The Internet has experienced outages and delays as a result of damage to portions of its infrastructure. Outages or delays could adversely affect online sites, email and the level of traffic on the Internet. The Internet is also subject to continued and ongoing cyber-attacks and related conduct, which affect all online businesses. We also depend on Internet service providers that provide our customers and Internet users with access to the LivePerson services. In the past, users have experienced difficulties due to system failures unrelated to our service. In addition, the Internet could lose its viability due to delays in the adoption of new standards and protocols required to handle increased levels of Internet activity. Insufficient availability of telecommunications services to support the Internet also could result in slower response times and negatively impact use of the Internet generally, and our customers’ sites (including their use of LiveEngage) in particular. If the infrastructure of the Internet does not effectively support the growth of the Internet, we may not maintain profitability and our business, results of operations and financial condition will suffer.

Risks Related to Our Notes

Servicing our future debt may require a significant amount of cash, and we may not have sufficient cash flow from our business to pay our indebtedness.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our Notes or any additional future indebtedness depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional debt financing or equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our current or any future indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations. In addition, any of our future debt agreements may contain restrictive covenants that may prohibit us from adopting any of these alternatives. Our failure to comply with these covenants could result in an event of default which, if not cured or waived, could result in the acceleration of our debt.

We may not have the ability to raise the funds necessary to settle conversions of the Notes in cash or to repurchase the Notes upon a fundamental change, and any future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the Notes.

Holders of the Notes have the right to require us to repurchase all or a portion of their Notes upon the occurrence of a fundamental change before the maturity date at a fundamental change repurchase price equal to 100% of the principal amount of the Notes to be repurchased, plus accrued and unpaid interest, if any. In addition, upon conversion of the Notes, unless we elect to deliver solely shares of our common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we are required to make cash payments in respect of the Notes being converted. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Notes surrendered therefor or pay cash with respect to Notes being converted. In addition, our ability to repurchase Notes or to pay cash upon conversions of Notes may be limited by law, regulatory authority, or any agreements governing our future indebtedness. Our failure to repurchase Notes at a time when the repurchase is required by the indenture or to pay any cash upon conversions of Notes as required by the indenture would constitute a default under the indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing any future indebtedness. If the payment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Notes or to pay cash upon conversions of Notes.

The conditional conversion feature of the Notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the Notes is triggered, holders of the Notes will be entitled to convert their Notes at any time during specified periods at their option. If one or more holders elect to convert their Notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders of Notes do not elect to convert their Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

The accounting method for convertible debt securities that may be settled in cash, such as the Notes, could have a material effect on our reported financial results.

Under Accounting Standards Codification 470-20, *Debt with Conversion and Other Options*, or ASC 470-20, an entity must separately account for the liability and equity components of the convertible debt instruments (such as the Notes) that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer’s economic interest cost. The effect of ASC 470-20 on the accounting for the Notes is that the equity component, net of issuance costs, is required to be included in the additional paid-in capital section of stockholders’ equity on our condensed consolidated balance sheet at the issuance date and the value of the equity component is treated as original issue discount for purposes of accounting for the liability component of the Notes. As a result, we are required to record a greater amount of non-cash interest expense in current periods presented as a result of the amortization of the discounted carrying value of the Notes to their face amount over the term of the Notes. We will report larger net losses (or lower net income) in our financial results because ASC 470-20 requires interest to include both the current period’s amortization of the debt discount and the instrument’s non-convertible coupon interest rate, which could adversely affect our reported or future financial results, the trading price of our common stock and the trading price of the Notes.

In addition, under certain circumstances, convertible debt instruments (such as the Notes) that may be settled entirely or partly in cash may be accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of such Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of such Notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable to use the treasury stock method in accounting for the shares issuable upon conversion of the Notes, then our diluted earnings per share would be adversely affected.

The capped call transactions may affect the value of the Notes and our common stock.

In connection with the transaction in which we issued the Notes, we entered into capped call transactions with certain option counterparties. The capped call transactions are expected generally to reduce the potential dilution to our common stock upon any conversion of Notes and/or offset any cash payments we are required to make in excess of the principal amount of the converted Notes, as the case may be, upon any conversion of Notes, with such reduction and/or offset subject to a cap.

The option counterparties or their respective affiliates are expected to modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our common stock, the Notes or other of our securities or instruments (if any), in secondary market transactions prior to the maturity of the Notes (and are likely to do so during any observation period related to a conversion of Notes occurring on or after November 1, 2023 or following any earlier conversion or any repurchase of Notes by us on any fundamental change repurchase date or otherwise). This activity could also cause or avoid an increase or a decrease in the market price of our common stock or the Notes, which could affect a holder’s ability to convert the Notes and, to the extent the activity occurs during any observation period related to a conversion of Notes, it could affect the amount and value of the consideration that a holder will receive upon conversion of such Notes.

The potential effect, if any, of these transactions and activities on the market price of our common stock or the Notes will depend in part on market conditions and cannot be ascertained at this time. Any of these activities could adversely affect the value of our common stock and the value of the Notes (and as a result, the amount and value of the consideration that a holder would receive upon the conversion of any Notes) and, under certain circumstances, a holder’s ability to convert his or her Notes.

We do not make any representation or prediction as to the direction or magnitude of any potential effect that the transactions described above may have on the price of our common stock or the Notes. In addition, we do not make any representation that the option counterparties or their respective affiliates will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

We are subject to counterparty risk with respect to the capped calls.

The option counterparties to the capped call transactions are financial institutions, and we are subject to the risk that any or all of them may default under the capped calls. Our exposure to the credit risk of the option counterparties is not secured by any collateral. Global economic conditions have in the recent past resulted in, and may again result in, the actual or perceived failure or financial difficulties of many financial institutions. If an option counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor in those proceedings, with a claim equal to our exposure at that time under our transactions with that option counterparty. Our exposure depends on many factors but, generally, an increase in our exposure will be correlated to an increase in the market price and in the volatility of our common stock. In addition, upon a default by an option counterparty, we may suffer more dilution than we currently anticipate with respect to our common stock. We can provide no assurances as to the financial stability or viability of the option counterparties.

Risks Related to Our Common Stock

Our stock price has been, and may continue to be, highly volatile, which could reduce the value of your investment and subject us to litigation.

The price of our common stock has fluctuated significantly in the past and may continue to be highly volatile, with extreme price and volume fluctuations. Our trading price could fluctuate substantially in the future, including in response to the following factors, some of which are beyond our control:

- quarterly variations in our operating results or those of our competitors;
- earnings announcements that are not in line with analyst expectations;
- changes in recommendations or financial estimates by securities analysts;
- announcements or rumors about mergers or strategic acquisitions by us or by our competitors;
- announcements about customer additions and cancellations or failure to complete significant sales;
- changes in market valuations of companies that investors believe are comparable to us;
- additions or departures of key personnel; and
- general economic, political and market conditions, such as recessions, political unrest or terrorist attacks, or in the specific locations where we operate, such as the United States, Israel and the United Kingdom.

In addition, extreme price and volume fluctuations in the stock markets generally, and in the markets for technology companies in particular, could cause the market price for our common stock to decline. In the past, companies that have experienced volatility in the market price of their stock have been the subject of securities class action litigation. We may in the future be the target of similar litigation, which could result in substantial costs and distract management’s attention and resources.

Our common stock is traded on more than one market and this may result in price variations.

Our common stock is currently traded on the NASDAQ Global Select Market and the Tel Aviv Stock Exchange ("TASE"). Trading in our common stock on these markets takes place in different currencies (U.S. dollars on the NASDAQ and New Israeli Shekels on the TASE) and at different times (due to different time zones, trading days and public holidays in the United States and Israel). The trading prices of our common stock on these two markets may differ due to these and other factors. Any decrease in the trading price of our common stock on one of these markets could cause a decrease in the trading price of our common stock on the other market. Differences in trading prices on the two markets could negatively impact our trading price.

If our officers, directors and largest stockholders choose to act together, they may be able to significantly influence our management and operations, acting in their own best interest and not necessarily those of our other stockholders.

As of December 31, 2019, our executive officers, directors and holders of 5% or more of our outstanding common stock and their affiliates in the aggregate beneficially owned approximately 48.1% of our outstanding common stock. As a result, these stockholders, acting together, have the ability to significantly influence all matters requiring approval by our stockholders, including the election of directors and approval of significant corporate transactions. Our executive officers, directors and principal stockholders could also delay or prevent a change in control. The interests of this group of stockholders may not always coincide with the company's interests or the interests of other stockholders, and they may act in a manner that advances their best interests and not necessarily those of our other stockholders.

Future sales of substantial amounts of our common stock may negatively affect our stock price.

If we or our stockholders sell substantial amounts of our common stock, including shares issuable upon the exercise of outstanding options and warrants, or upon the conversion of the Notes, in the public market, or if the market perceives that these sales might occur, the market price of our common stock could fall. These sales also might make it more difficult for us to sell equity securities in the future at a time and price that we deem appropriate. No prediction can be made as to the effect, if any, that market sales of our common stock will have on the market price of our common stock.

Provisions in our charter documents and Delaware law could discourage, delay or prevent a takeover that stockholders may consider favorable.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may have the effect of discouraging, delaying or preventing a change in control or changes in our management that stockholders may deem advantageous. These provisions include the following:

- Our board of directors is divided into three classes, with each class serving three-year staggered terms, which prevents stockholders from electing an entirely new board of directors at any annual meeting.
- Vacancies on our board of directors may only be filled by a vote of a majority of directors then in office, even if less than a quorum.
- Our amended and restated certificate of incorporation prohibits cumulative voting in the election of directors or any other matters. This limits the ability of minority stockholders to elect director candidates.
- Our stockholders may only act at a duly called annual or special meeting and may not act by written consent.
- Stockholders must provide advance notice to nominate individuals for election to our board of directors or to propose other matters that can be acted upon at a stockholders' meeting.
- We require super-majority voting by stockholders to amend certain provisions in our amended and restated certificate of incorporation and to amend our amended and restated bylaws.
- Our amended and restated bylaws expressly authorize a super-majority of the board of directors to amend our amended and restated bylaws.

As a Delaware corporation, we are also subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless certain conditions are met. This anti-takeover provision defenses could discourage, delay or prevent a change in control of our company, whether or not it is desired by or beneficial to our stockholders, which in turn could have a material adverse effect on the market price of our common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters are located in New York City, where we lease approximately 37,000 square feet of office space under a lease that expires in 2021. We also lease office space of approximately 68,000 square feet in Ra'anana, Israel, for research and development, sales and support under leases that expire in 2020, of approximately 40,000 square feet in Alpharetta, Georgia, for sales and support under a lease that expires in 2024; and approximately 38,000 square feet in Seattle, for research and development that expires in 2020.

As of December 31, 2019, we also lease office space for marketing, sales and support of approximately 45,000 square feet in various locations in the United States, Europe, Asia and Australia. In addition, we have data centers in the United States, Europe and Australia pursuant to various lease agreements. We believe that our current facilities properties are in good condition and are adequate to meet our current needs. If required, we believe that we will be able to obtain suitable additional space on commercially reasonable terms.

Item 3. Legal Proceedings

We previously filed an intellectual property suit against [24]7 Customer, Inc. in the Southern District of New York on March 6, 2014 seeking damages on the grounds that [24]7 reverse engineered and misappropriated our technology to develop competing products and misused our business information. On June 22, 2015, [24]7 Customer, Inc. filed suit against us in the Northern District of California alleging patent infringement. On December 7, 2015, [24]7 Customer Inc. filed a second patent infringement suit against us, also in the Northern District of California. On March 16, 2017, the New York case was voluntarily transferred and consolidated with the two California cases in the Northern District of California for all pre-trial purposes. Rulings by both the Court and the United States Patent Office in our favor have invalidated the majority of [24]7 patents that were asserted in the patent cases. Trial for our intellectual property and other claims asserted against [24]7 in the original litigation is currently set for April 27, 2020. Trial for [24]7's patent infringement claims is currently set for March 15, 2021. We believe the claims filed by [24]7 are entirely without merit and intend to defend them vigorously.

We routinely assess all of our litigation and threatened litigation as to the probability of ultimately incurring a liability, and record our best estimate of the ultimate loss in situations where we assess the likelihood of loss as probable.

From time to time, we are involved in or subject to legal, administrative and regulatory proceedings, claims, demands and investigations arising in the ordinary course of business, including direct claims brought by or against us with respect to intellectual property, contracts, employment and other matters, as well as claims brought against our customers for whom we have a contractual indemnification obligation. We accrue for a liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Significant judgment is required in both the determination of probability and the determination as to whether a loss is reasonably estimable. In addition, in the event we determine that a loss is not probable, but is reasonably possible, and it becomes possible to develop what we believe to be a reasonable range of possible loss, then we will include disclosure related to such matter as appropriate and in compliance with ASC 450. The accruals or estimates, if any, resulting from the foregoing analysis, are reviewed at least quarterly and adjusted to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular matter. To the extent there is a reasonable possibility that the losses could exceed the amounts already accrued, we will, as applicable, adjust the accrual in the period the determination is made, disclose an estimate of the additional loss or range of loss, indicate that the estimate is immaterial with respect to our financial statements as a whole or, if the amount of such adjustment cannot be reasonably estimated, disclose that an estimate cannot be made.

From time to time, third parties assert claims against us regarding intellectual property rights, privacy issues and other matters arising in the ordinary course of business. Although we cannot be certain of the outcome of any litigation or the disposition of any claims, nor the amount of damages and exposure, if any, that we could incur, we currently believe that the final disposition of all existing matters will not have a material adverse effect on our business, results of operations, financial condition or cash flows. In addition, in the ordinary course of our business, we are also subject to periodic threats of lawsuits, investigations and claims. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 4. Mine Safety Disclosures

Not Applicable.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Price Range of Common Stock

The principal United States market on which our common stock is traded is The NASDAQ Global Select Market under the symbol LPSN. Our shares of common stock are also traded on the Tel Aviv Stock Exchange under the symbol LPSN TA.

Holders

As of February 11, 2020, there were approximately 148 holders of record of our common stock.

Dividends

We have not declared or paid any cash dividends on our capital stock since our inception. We intend to retain earnings, if any, to finance the operation and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future.

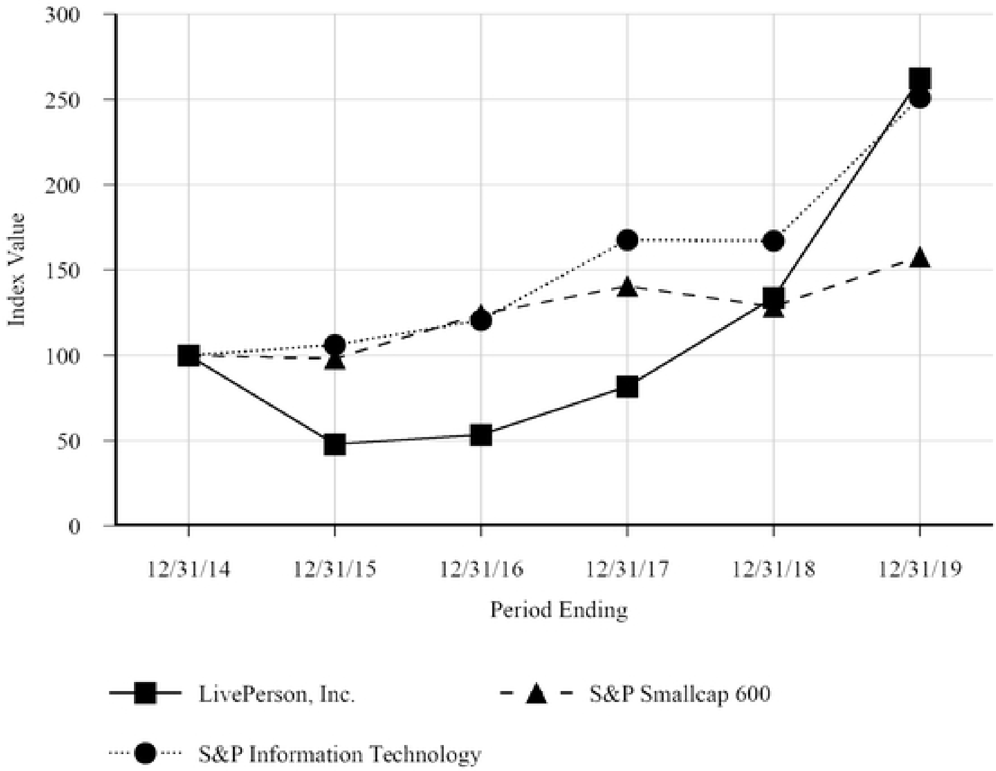
Issuer Purchases of Equity Securities

A summary of the Company's repurchase activity for the three months ended December 31, 2019 is as follows:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
				$ —
10/1/2019 - 10/31/2019	—	$ —	—	—
11/1/2019 - 11/30/2019	—	—	—	—
12/1/2019 - 12/31/2019	5,124	37.82	—	193,790
Total	5,124	$ —	—	$ 193,790

Stock Performance Graph

The graph depicted below compares the annual percentage changes in LivePerson’s cumulative total stockholder return with the cumulative total return of the Standard & Poor’s SmallCap 600 Index and the Standard & Poor’s Information Technology Index.



(1) The graph covers the period from December 31, 2014 to December 31, 2019.

(2) The graph assumes that $100 was invested at the market close on December 31, 2014 in LivePerson’s Common Stock, in the Standard & Poor’s SmallCap 600 Index and in the Standard & Poor’s Information Technology Index, and that all dividends were reinvested. No cash dividends have been declared on LivePerson’s Common Stock.

(3) Stockholder returns over the indicated period should not be considered indicative of future stockholder returns.

Notwithstanding anything to the contrary set forth in any of our previous or future filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, that might incorporate by reference this Annual Report on Form 10-K or future filings made by the Company under those statutes, the Stock Performance Graph above is not deemed filed with the Securities and Exchange Commission, is not deemed soliciting material and shall not be deemed incorporated by reference into any of those prior filings or into any future filings made by us under those statutes, except to the extent that we specifically incorporate such information by reference into a previous or future filing, or specifically request that such information be treated as soliciting material, in each case under those statutes.

Item 6. Selected Consolidated Financial Data

The selected consolidated financial data with respect to our consolidated balance sheets as of December 31, 2019 and 2018 and the related consolidated statements of operations for the years ended December 31, 2019, 2018 and 2017 have been derived from our audited consolidated financial statements which are included herein. The selected financial data with respect to our balance sheets as of December 31, 2017, 2016 and 2015 and the related statements of operations for the years ended December 31, 2016 and 2015 have been derived from our audited financial statements which are not included herein. Due to our acquisitions of AdvantageTec, Conversable, and Bot Central in 2018, we believe that comparisons of our operating results with each other, or with those of prior periods, may not be meaningful. The following selected consolidated financial data should be read in conjunction with the consolidated financial statements and the notes thereto and the information contained in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	Year Ended December 31,				
	2019	2018	2017	2016	2015
	(In Thousands, Except Share and per Share Data)				
Consolidated Statement of Operations Data:					
Revenue	$ 291,609	$ 249,838	$ 218,876	$ 222,779	$ 239,012
Costs and expenses:					
Cost of revenue	78,878	62,479	58,205	63,161	70,310
Sales and marketing	156,814	103,344	90,905	89,529	94,728
General and administrative	56,967	45,873	43,124	43,046	37,171
Product development	82,145	55,707	40,034	40,198	38,974
Restructuring costs	2,043	4,468	2,594	2,369	3,384
Amortization of purchased intangibles	1,794	1,670	1,840	3,885	4,873
Total costs and expenses	378,641	273,541	236,702	242,188	249,440
Loss from operations	(87,032)	(23,703)	(17,826)	(19,409)	(10,428)
Other (expense) income, net					
Interest (expense) income	(7,407)	22	26	5	6
Other income (expense), net	1,213	(493)	110	(535)	(208)
Other (expense) income	(6,194)	(471)	136	(530)	(202)
Loss before provision for income taxes	(93,226)	(24,174)	(17,690)	(19,939)	(10,832)
Provision for income taxes	2,845	858	501	5,934	15,814
Net loss	$ (96,071)	$ (25,032)	$ (18,191)	$ (25,873)	$ (26,646)
Net loss per share of common stock:					
Basic	$ (1.53)	$ (0.42)	$ (0.32)	$ (0.46)	$ (0.47)
Diluted	$ (1.53)	$ (0.42)	$ (0.32)	$ (0.46)	$ (0.47)
Weighted-average shares used to compute net loss per share:					
Basic	62,593,026	59,203,400	56,358,017	56,063,777	56,452,408
Diluted	62,593,026	59,203,400	56,358,017	56,063,777	56,452,408
Other Financial and Operational Data:					
Adjusted EBITDA (1)	$ (13,612)	$ 19,090	$ 18,400	$ 19,198	$ 21,244
Adjusted operating (loss) income (2)	$ (29,978)	$ 4,902	$ 6,042	$ 7,503	$ 9,130

(1) We define adjusted EBITDA as net loss before provision for (benefit from) income taxes, other (expense) income, net, depreciation and amortization, stock-based compensation, restructuring costs, acquisition costs and other charges. Please see "Adjusted EBITDA" below for more information and for a reconciliation of adjusted EBITDA to net (loss) income, the most directly comparable financial measure calculated and presented in accordance with U.S. generally accepted accounting principles, or ("GAAP").

(2) We define adjusted operating income as income (loss) before provision for income taxes excluding amortization, stock-based compensation, restructuring costs, acquisition costs, contingent earn-out adjustments, other charges and other (expense) income. Please see "Adjusted Operating Income" below for more information and for a reconciliation of adjusted operating income to income (loss) before provision for income taxes, the most directly comparable financial measure calculated and presented in accordance with U.S. generally accepted accounting principles or GAAP.

Stock-based compensation included in the statements of operations above was as follows (amounts in thousands):

	Year Ended December 31,				
	2019	2018	2017	2016	2015
Cost of revenue	$ 4,218	$ 996	$ 448	$ 429	$ 1,396
Sales and marketing	10,010	5,374	2,500	2,515	3,088
General and administrative	12,216	4,921	3,691	3,304	3,692
Product development	17,661	3,550	2,305	3,488	3,638
Total stock-based compensation	$ 44,105	$ 14,841	$ 8,944	$ 9,736	$ 11,814

	As of December 31,				
	2019	2018	2017	2016	2015
	(In Thousands)				
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 176,523	$ 66,449	$ 56,115	$ 50,889	$ 48,803
Working capital	107,674	7,873	13,789	17,548	39,122
Total assets	512,710	290,103	232,799	219,638	226,194
Total stockholders' equity	148,535	170,729	140,063	138,476	165,305

Adjusted EBITDA and Adjusted Operating Income

To provide investors with additional information regarding our financial results, we have disclosed adjusted EBITDA and adjusted operating income which are non-GAAP financial measures. The tables below present a reconciliation of adjusted EBITDA and adjusted operating income to net (loss) income, the most directly comparable GAAP financial measures.

We have included adjusted EBITDA and adjusted operating income in this Annual Report on Form 10-K because these are key measures used by our management and board of directors to understand and evaluate our core operating performance and trends, to prepare and approve our annual budget and to develop short and long-term operational plans. In particular, the exclusion of certain expenses in calculating adjusted EBITDA and adjusted operating income can provide a useful measure for period-to-period comparisons of our core business. Additionally, adjusted EBITDA is a key financial measure used by the compensation committee of our board of directors in connection with the payment of bonuses to our executive officers. Accordingly, we believe that adjusted EBITDA and adjusted operating income provide useful information to investors and others in understanding and evaluating our operating results in the same manner as our management and board of directors.

Our use of adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP. Some of these limitations are:

- although depreciation and amortization are non-cash charges, the assets being depreciated and amortized may have to be replaced in the future, and adjusted EBITDA does not reflect cash capital expenditure requirements for such replacements or for new capital expenditure requirements;
- adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- adjusted EBITDA does not consider the impact of acquisition costs;
- adjusted EBITDA does not consider the impact of restructuring costs;
- adjusted EBITDA does not consider the impact of other costs;
- adjusted EBITDA does not reflect tax payments that may represent a reduction in cash available to us; and
- other companies, including companies in our industry, may calculate adjusted EBITDA differently, which reduces its usefulness as a comparative measure.

Because of these limitations, you should consider adjusted EBITDA alongside other financial performance measures, including various pre-tax GAAP loss and our other GAAP results. The following table presents a reconciliation of adjusted EBITDA for each of the periods indicated (amounts in thousands):

	Year Ended December 31,				
	2019	2018	2017	2016	2015
Reconciliation of Adjusted EBITDA:					
Net loss	$ (96,071)	$ (25,032)	$ (18,191)	$ (25,873)	$ (26,444)
Amortization of purchased intangibles	2,932	2,813	4,682	6,673	8,040
Stock-based compensation	44,105	14,841	8,944	9,736	11,814
Contingent earn-out adjustments	—	—	—	—	(3,680)
Restructuring costs	2,043 (1)	4,468 (2)	2,594 (3)	2,369 (4)	3,384 (9)
Depreciation	16,366	14,188	12,358	12,011	12,114
Other litigation and consulting costs	7,974 (5)	5,928 (6)	7,648 (7)	7,818 (8)	—
Provision for income taxes	2,845	858	501	5,934	15,814
Acquisition costs	—	555	—	—	—
Other expense (income), net	6,194	471	(136)	530	202
Adjusted EBITDA	$ (13,612)	$ 19,090	$ 18,400	$ 19,198	$ 21,244

Our use of adjusted operating income has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP. Some of these limitations are:

- although amortization is a non-cash charge, the assets being amortized may have to be replaced in the future, and adjusted operating income does not reflect cash capital expenditure requirements for such replacements or for new capital expenditure requirements;
- adjusted operating income does not consider the impact of acquisition costs;
- adjusted operating income does not consider the impact of restructuring costs;
- adjusted operating income does not consider the impact of other non-recurring costs;
- other companies, including companies in our industry, may calculate adjusted operating income differently, which reduces its usefulness as a comparative measure.

Because of these limitations, you should consider adjusted operating income (loss) alongside other financial performance measures, including various pre-tax GAAP loss and our other GAAP results. The following table presents a reconciliation of adjusted operating income (loss) for each of the periods indicated (amounts in thousands):

	Year Ended December 31,				
	2019	2018	2017	2016	2015
Reconciliation of Adjusted Operating Income (Loss)					
Loss before provision for income taxes	$ (93,226)	$ (24,174)	$ (17,690)	$ (19,939)	$ (10,630)
Amortization of purchased intangibles	2,932	2,813	4,682	6,673	8,040
Stock-based compensation	44,105	14,841	8,944	9,736	11,814
Restructuring costs	2,043 (1)	4,468 (2)	2,594 (3)	2,369 (4)	3,384 (9)
Other litigation and consulting costs	7,974 (5)	5,928 (6)	7,648 (7)	8,134 (8)	—
Contingent earn-out adjustments	—	—	—	—	(3,680)
Acquisition costs	—	555	—	—	—
Other expense (income), net	6,194	471	(136)	530	202
Adjusted operating income (loss)	$ (29,978)	$ 4,902	$ 6,042	$ 7,503	$ 9,130

(1) These costs include severance and associated costs of $2.0 million for the year ended December 31, 2019. As detailed in Note 14 of the Notes to the Consolidated Financial Statements, the Company’s restructuring costs relate to resource reallocation for the Company’s platform transformation.
(2) Includes severance costs of $4.5 million for the year ended December 31, 2018. Please refer to footnote (1) above for additional information related to the nature of these restructuring costs.
(3) Includes wind down costs of legacy platform of $1.9 million and severance costs of $0.7 million for the year ended December 31, 2017. Please refer to footnote (1) above for additional information related to the nature of these restructuring costs.
(4) Includes severance costs of $1.6 million, wind down costs of legacy platform of $1.2 million and a benefit of $0.4 million of cash collected on previously written off bad debt for the year ended December 31, 2016. Please refer to footnote (1) above for additional information related to the nature of these restructuring costs.
(5) Includes other litigation costs of $4.4 million, consulting costs of $3.2 million, and fair value earn-out adjustment of $0.3 million for the year ended December 31, 2019. As detailed in Note 13 of the Notes to the consolidated Financial Statements, the Company's other litigation costs relate to the Company’s intellectual property lawsuit against [24]7 Customer, Inc.
(6) Includes litigation costs of $4.1 million, consulting costs of $1.3 million, executive recruitment costs of $0.3 million, and executive relocation costs of $0.2 million for the year ended December 31, 2018. Please refer to footnote (5) above for additional information related to the nature of these other litigation costs.
(7) Includes litigation costs of $6.2 million, executive one-time compensation payment of $1.0 million, and executive separation cost of $0.5 million for the year ended December 31, 2017. Please refer to footnote (5) above for additional information related to the nature of these other litigation costs.
(8) Includes litigation costs of $4.7 million, write off of technology licenses of $2.6 million, severance costs of $0.5 million, and write off of office facility depreciation of $0.3 million for the year ended December 31, 2016. Please refer to footnote (5) above for additional information related to the nature of these other litigation costs.
(9) Includes approximately $1.7 million of termination costs associated with a large customer contract that ended in 2015 and $1.7 million of severance and other associated costs for the year ended December 31, 2015. Please refer to footnote (1) above for additional information related to the nature of these restructuring costs.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

General

You should read the following discussion of our financial condition and results of operations in conjunction with the financial statements and the notes thereto included elsewhere in this report. The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this report, particularly in “Risk Factors.”

Overview

LivePerson, Inc. ("LivePerson", the "Company", "we" or "our") makes life easier for people and brands everywhere through messaging powered by AI and humans. During the past decade, the consumer has made the mobile device the center of their digital lives, and they have made mobile messaging the center of communication with friends, family and peers. Our technology enables consumers to connect with businesses through these same preferred conversational interfaces, including Facebook Messenger, SMS, WhatsApp, Apple Business Chat, Google Rich Business Messenger and Alexa. These messaging conversations harness human agents, bots and Artificial Intelligence (AI) to power convenient, personalized and content-rich journeys across the entire consumer lifecycle, from discovery and research, to sales, service and support, and even marketing, social and brick and mortar engagements. For example, consumers can look up product info like ratings, images and pricing, search for stores, see product inventory, schedule appointments, apply for credit, approve repairs, make purchases or payments - all without ever leaving the messaging channel. These AI and human-assisted conversational experiences constitute the Conversational Space.

LiveEngage, our enterprise-class cloud-based platform, enables businesses to become conversational by securely deploying messaging, coupled with bots and AI, at scale for brands with tens of millions of customers and many thousands of customer care agents. LiveEngage powers conversations across each of a brand's primary digital channels, including mobile apps, mobile and desktop web browsers, short message service (SMS), social media and third-party consumer messaging platforms. Brands can also use LiveEngage to message consumers when they dial a 1-800 number instead of forcing them to navigate interactive voice response systems (IVRs) and wait on hold. Similarly, LiveEngage can ingest traditional emails and convert them into messaging conversations, or embed messaging conversations directly into web advertisements, rather than redirect consumers to static website landing pages.

Our robust, cloud-based suite of rich messaging, real-time chat, AI and automation offerings features consumer and agent facing bots, intelligent routing and capacity mapping, real-time intent detection and analysis, queue prioritization, customer sentiment, analytics and reporting, content delivery, Payment Card Industry (PCI) compliance, cobrowsing and a sophisticated proactive targeting engine. With LiveEngage, agents can manage all conversations with consumers through a single console interface, regardless of which disparate messaging endpoints the consumers originate from; i.e., WhatsApp, Line, Apple Business Chat, IVR, social, email, Alexa, or WeChat. An extensible application programming interface (API) stack facilitates a lower cost of ownership by facilitating robust integration into back-end systems, as well as enabling developers to build their own programs and services on top of the platform. More than 40 APIs and software development kits are available on LiveEngage.

LivePerson's Conversational AI offerings put the power of bot development, training, management and analysis into the hands of the contact center and its agents, the teams most familiar with how to structure sales and service conversations to drive successful outcomes. The platform enables what we call "the tango" of humans, AI and bots, whereby human agents act as bot managers, overseeing AI-powered conversations and seamlessly stepping into the flow when a personal touch is needed. Agents become ultra-efficient, leveraging the AI engine to serve up relevant content, define next-best actions and take over repetitive transactional work, so that the agent can focus on relationship building. By seamlessly integrating messaging with our proprietary Conversational AI, as well as third-party bots, LiveEngage offers brands a comprehensive approach to scaling automations across their millions of customer conversations.

Complementing our proprietary messaging and Conversational AI offerings are teams of technical, solutions and consulting professionals that have developed deep domain expertise in the implementation and optimization of conversational services across industries and messaging endpoints. We are a leading authority in the Conversational Space. LivePerson's products, coupled with our domain knowledge, industry expertise and professional services, have been proven to maximize the effectiveness of the Conversational Space and deliver measurable return on investment. Certain of our customers have achieved the following advantages from our offerings:

- the ability for each agent to manage as many as 40 messaging conversations at a time, as compared to one at a time for a voice agent and two to four at a time for a good chat agent. Adding AI and bots provides even greater scale to the number of conversations managed;
- labor efficiency gains of at least two times that of voice agents, effectively cutting labor costs by at least 50%;
- improving the overall customer experience, thereby fueling customer satisfaction increases of up to 20 percentage points, and enhancing retention and loyalty;
- more convenient, personalized and content-rich conversations that increase sales conversion by up to 20%, increase average order value and reduce abandonment;
- more satisfied contact center agents, thereby reducing agent churn by up to 50%;
- maintain a valued connection with consumers via mobile devices, either through native applications, websites, text messages, or third-party messaging platforms;
- leverage spending that drives visitor traffic by increasing visitor conversions;
- refine and improve performance by understanding which initiatives deliver the highest rate of return; and
- increase lead generation by providing a single platform that engages consumers through advertisements and listings on branded and third-party websites.

As a “cloud computing” or software-as-a-service (SaaS) provider, LivePerson provides solutions on a hosted basis. This model offers significant benefits over premise-based software, including lower up-front costs, faster implementation, lower total cost of ownership, scalability, cost predictability, and simplified upgrades. Organizations that adopt a fully-hosted, multi-tenant architecture that is maintained by LivePerson eliminate the majority of the time, server infrastructure costs, and IT resources required to implement, maintain, and support traditional on-premise software.

More than 18,000 businesses, including HSBC, Orange, The Home Depot, and GM Financial use our conversational solutions to orchestrate humans and AI, at scale, and create a convenient, deeply personal relationship with their customers.

The key elements of LivePerson’s business solutions strategy include:

Build awareness and drive adoption of the Conversational Space. LivePerson brought our first customer live on messaging in June 2016. Since that time, we have been focused on building awareness for conversational experiences and driving adoption. We have educated businesses on the financial and operational transformation that occurs when a contact center shifts to an asynchronous messaging environment, where the consumer controls the pace of the conversation, which can last minutes, hours or days, from a synchronous call or chat center, where conversations occur in real-time and have a distinct start and end.

A key component of our industry awareness marketing strategy has been to hold multiple global customer summits each year that target executives from enterprise customers and prospects, and feature a key theme within the Conversational Space, such as Apple Business Chat, Google Rich Business Messenger, IVR deflection or AI. LivePerson customers are the centerpoint of these summits, presenting why they chose LivePerson for conversational experiences, how they achieved success, and what type of ROI they have realized. Each attendee then receives a blueprint for how they can achieve similar outcomes. We have found this strategy to drive strong results for LivePerson, as we have seen a greater than 40% conversion rate on opportunities that were created or advanced as part of the customer summits. By year end 2019, we had brought approximately 300 customers live on messaging and increased adoption within our enterprise customers to nearly 55%. In addition, nearly 60% of messaging conversations had automation attached. We will continue to focus on building awareness for the Conversational Space and driving adoption of messaging and AI across our customer base.

Increase messaging volumes by developing a broad ecosystem, expanding customer use cases, and focusing on AI and automation. Our strategy is to drive higher messaging volumes by going both wide across messaging endpoints, deep across consumer use cases, and focusing on AI and automation as the means to deliver powerful scale. LivePerson offers a platform usage pricing model, where customers are offered access to our entire suite of messaging technologies across their entire agent pool for a pre-negotiated cost per interaction. We believe that over time this model will drive higher revenue for LivePerson by reducing barriers to adoption of new messaging endpoints and use cases.

In order to drive broad messaging adoption, it is imperative that LiveEngage integrates to all of the messaging apps that consumers prefer to use for communication and addresses all key use cases. For example, if a consumer is an avid WhatsApp user, and a brand only offers SMS as a messaging option, that consumer may be reluctant to try messaging the brand. Therefore, a key strategy of ours has been to build one of the industry’s broadest ecosystems of messaging endpoints and use cases. In June 2016, we launched with In-App messaging. In 2017, we introduced Facebook Messenger, SMS, Web messaging and IVR deflection integrations. In 2018, we added Apple Business Chat, Google Rich Business Messenger, Line, WhatsApp, Alexa, Google Home, Google Ad Lingo and Twitter. In 2019, we added email, allowing brands to manage emails through the same console they use for messaging, and to convert legacy emails into messaging conversations. We also added social monitoring and conversational tools for Twitter and Facebook, and introduced proactive messaging, allowing brands to transform traditional one-way notifications such as flight cancellations or plan overage alerts into two-way conversations. Finally, we connected to Facebook and WhatsApp digital advertisements, enabling consumers to initiate messaging conversations for marketing and customer care directly within the advertisement.

Each channel and use case added opens the door to hundreds of millions of new consumers, providing brands a greater opportunity to shift share away from their legacy contact center channels into messaging. For example, in 2019, leading airlines launched on WhatsApp and Apple Business Chat with the ability to make secure payments; a baseball stadium launched an automated conversational concierge providing answers to a wide range of questions from restroom locations to player stats; and a multinational telecommunications company used proactive two-way messaging for outbound campaigns.

LivePerson makes the management of all these disparate channels seamless to the brand. AI-based intelligent routing, queuing and prioritization software orchestrates these conversations at scale, regardless of which messaging endpoint they originated from, so that human and bot agents can engage with all customers through just one console.

We believe that this strategy has influenced LivePerson’s enterprise and mid-market revenue retention rate, (the trailing-twelve-month change in total revenue from existing customers after upsells, downsells and attrition) which was within our target range of 105% to 115% for 2019. The benefit can also be seen in LivePerson’s average revenue per user (ARPU) for our enterprise and mid-market customers, which increased approximately 20% in 2019 to $345,000 from approximately $285,000 in 2018. In fact, in 2019, the ARPU for Enterprise customers on messaging was more than 5 times higher than those on just chat. We believe these ARPU trends are a clear indication of how LivePerson's strategy to drive messaging adoption has successfully influenced our revenue growth by taking share from legacy communication channels. We plan to continue adding new messaging endpoints and use cases, and to drive higher adoption of existing ones within our customer base.

Attract the industry's best AI, machine learning and conversational talent. We believe that AI and machine learning are critical to successfully scaling in the Conversational Space, and that in order to develop the industry's leading technology, we need to attract the industry's best talent. In 2018, LivePerson recruited Alex Spinelli, key architect of the Alexa Operating System at Amazon.com, as our Global CTO. Under Mr. Spinelli's leadership, LivePerson opened an Advanced Technology Center in Seattle, Washington, where the Company now has more than 125 of the industry's brightest data scientists, machine learning engineers and automation engineers, many from firms such as Nike, Amazon.com, Microsoft and Target, that are working exclusively on applying AI to Conversational. LivePerson also expanded its Mannheim, Germany development center, and added key development talent through the acquisitions of BotCentral in Mountain View, California and Conversable in Austin, Texas.

Bring to market best-in-class AI and machine learning technologies designed for the Conversational Space. We believe that in the last decade many vendors introduced AI and bot offerings that created frustrating experiences for consumers and businesses alike, which in turn has eroded trust in automation. Many of these solutions have proven difficult to build and scale, and have been limited by stand alone implementations that lacked the measurement, reporting and human oversight of conversational platforms such as LiveEngage. In December 2018, LivePerson announced its patent pending AI engine that is designed to overcome these shortcomings and help brands rapidly bring to market conversational AI that can scale to millions of interactions, while increasing customer satisfaction and conversion rates.

Unlike alternative solutions designed solely for IT departments, LivePerson's Conversational AI was built to be used by developers *and* contact center agents. By putting the power of conversational design and bot management in the hands of contact center agents, LivePerson's Conversational AI gives brands the ability to leverage the employees closest to the customer, those who are most versed in the voice of the brand, and with the most expertise in how to craft successful outcomes for customer service and sales journeys.

Some of the key innovations behind LivePerson's Conversational AI include:

- a holistic approach to scaling AI by combining consumer facing bots, agent facing bots, intelligent routing and real-time intent understanding, with an analytics dashboard that helps users focus on the intents that are impacting their business and prioritize which intents to automate next
- bot building software that is based on dialogue instead of workflow or code, so non-technical employees like contact center agents can design automations
- leverage a data moat of hundreds of millions of conversations to feed the machine learning that rapidly and accurately detects consumer sentiment and intents in real-time. Use intent understanding for advanced routing, next-best actions, and to fully contain conversations with automation
- the establishing of contact center agents as bot managers, ensuring that every conversation is safeguarded by a human and that agents are continuously training the AI to be smarter and drive more successful outcomes
- powerful Assist technology that multiplies the efficiency of agents by analyzing intents in real time and then suggesting next best actions, predefined content, and bots that can take over transactional work
- pre-built templates for target verticals that provide out of the box support for the top intents and back-end integrations
- the ability to bootstrap conversations with existing transcripts, reducing design effort and speeding time to market
- third-party AI NLU integration, so customers aren't boxed into one vendor
- AI analytics and reporting tailored to the Conversational Space, providing brands with immediate, actionable insights about their businesses and contact center operations

Our strategy is to continue to enhance the Conversational AI engine and related products, leveraging our global R&D footprint and substantial library of mobile and online conversational data, with the aim of increasing agent efficiency, decreasing customer care costs, improving the customer experience and increasing customer lifetime value.

Sustain our leadership position by aligning brands to a vision that transforms how they communicate with consumers and delivers a superior return on investment. We believe that most contact center technology vendors incorrectly view messaging as a feature. They are content with building integrations to a messaging endpoint and offering messaging as just another product in their suite. LivePerson holds the perspective that messaging and AI are the foundation for transforming conversational experiences, disrupting how agents operate and how brands engage with consumers across service, sales, marketing, social and brick and mortar. Brands must adapt their contact centers to an asynchronous messaging environment and leverage a combination of human agents, bots and AI to achieve scale and efficiencies. When done correctly, the entire consumer lifecycle with a brand will be maintained within the Conversational Space, and traffic will steadily shift away from lower returning voice calls, websites, emails and apps to higher returning messaging endpoints.

We believe that LivePerson is uniquely positioned to deliver this transformation due to its technology and expertise:

- The LiveEngage enterprise-class, automation-first, cloud-based platform, was designed for AI-assisted and human-powered messaging in mobile and online channels. The platform offers best-in-class security and scalability, offers the broadest ecosystem of messaging endpoints, is designed for ease of use, and features an AI engine custom built for the Conversational Space, intent recognition, robust real-time reporting, role-based real-time analytics, predictive intelligence, and innovations in customer satisfaction and connection measurement. Additionally, LiveEngage is an open platform with pre-built, enterprise-grade integrations into back-end systems as well as the ability to work across natural language understanding (NLU) providers.
- The Company has a data moat built on hundreds of millions of conversations across industries, geographies and use cases that is feeding the machine learning engines that power intent understanding.
- The platform has expanded to power conversations across a broad spectrum of channels and use cases, from traditional sales and customer service, to marketing, social, email, advertising and brick and mortar.
- LivePerson has deep domain expertise across verticals and messaging endpoints, a global footprint, referenceable enterprise brands and a team of technical, solutions and consulting professionals to assist customers along their transformational journeys. We are positioned as an authority in the Conversational Space,. We have developed a Transformation Model that is introduced to existing and prospective customers to help guide them on their journeys from legacy and oftentimes inefficient legacy voice, email and chat solutions to modern conversational ones powered by messaging and AI.

We believe that LivePerson's differentiated approach to the Conversational Space, combined with our unique technology and expertise has established us as a market leader, with an ability to deliver superior returns on investment. LivePerson customers manage as many as 40 messaging conversations at a time, as compared to one at a time for a voice agent and two to four at a time for a good chat agent. Adding AI and bots provides even greater scale to the number of conversations managed. Our customers often see labor efficiency gains of at least two times that of voice agents, effectively cutting labor costs by at least 50%. Furthermore, our ability to deliver more convenient, personalized and content-rich conversations often drives increases in customer satisfaction of up to 20 percentage points and increases in sales conversions of up to 20%, while enhancing average order value, customer retention and loyalty.

Strengthen our position in both existing and new industries. We plan to continue to develop our market position by increasing our customer base, and expanding within our installed base. We will continue to focus primarily on key target markets: consumer/retail, telecommunications, financial services, travel/hospitality, technology and automotive within both our enterprise and mid-market sectors, as well as the small business (SMB) sector. In 2019, we made strong inroads into new verticals with key wins in the airline, foodservice and healthcare industries. We are increasingly structuring our field organization to emphasize our domain expertise and strengthen customer relationships across target industries.

Continue to build our international presence. We are focused on expanding our international revenue contribution, which increased to 41% of total revenue in 2019 and 2018, from 37% in 2017. We are generating positive results from our recent investments in the Asia Pacific region, and recently opened an office in Latin America.

Leverage our open architecture to support partners and developers. In addition to developing our own applications, we continue to cultivate a partner eco-system capable of offering additional applications and services to our customers. We integrate into approximately a dozen third-party messaging endpoints including SMS, Facebook Messenger, Apple Business Chat, Google Rich Business Messenger, Line, WhatsApp, Alexa, Google Home, WeChat, Google Ad Lingo and Twitter, multiple IVR vendors and dozens of branded apps. LiveEngage integrates our proprietary messaging and Conversational AI with third-party bot offerings, empowering our customers to manage a mix of different bots, human agents and technologies from one control panel, thereby optimizing contact center efficiency. LivePerson's proprietary and third-party AI/bots enable brands to partially or fully automate communications with their customers.

In addition, we have opened up access to our platform and our products with more than 40 APIs and software development kits that allow customers and third parties to develop on top of our platform. Customers and partners can utilize these APIs to build our capabilities into their own applications and to enhance our applications with their services. In 2019, we launched LivePerson Functions, a serverless integration capability that allows brands to more easily and rapidly customize conversations flows within LiveEngage through functions-as-a-service technology. .

Expand sales partnerships to broaden our presence and accelerate sales cycles. We are focused on broadening our market reach and accelerating sales cycles by partnering with systems integrators, technology providers, business process outsourcers, value added resellers and other sales partners. We formalized a relationship with IBM Global Business Services in 2017 and Accenture in 2018. In 2019, we announced strategic partnerships with TTEC, a leading BPO focused on customer experience, and DMI, a digital transformation company, to redefine the customer experience with digital engagement, messaging, and AI-driven automation. LivePerson increased the number of partners focused on SMBs to more than 300 at year-end 2019, from over 150 at year-end 2018, and approximately 40 at the end of 2017. Approximately one quarter of all opportunities were influenced by partners in 2019, and we are focused on driving that contribution toward 40% longer term.

Maintain Market Leadership in Technology and Security Expertise. As described above, we are devoting significant resources to creating new products and enabling technologies designed to accelerate innovation. We evaluate emerging technologies and industry standards and continually update our technology in order to retain our leadership position in each market we serve. We monitor legal and technological developments in the area of information security and confidentiality to ensure our policies and procedures meet or exceed the demands of the world's largest and most demanding corporations. We believe that these efforts will allow us to effectively anticipate changing customer and consumer requirements in our rapidly evolving industry.

Evaluate Strategic Alliances and Acquisitions When Appropriate. We have successfully integrated several acquisitions over the past decade. While we have in the past, and may from time to time in the future, engage in discussions regarding acquisitions or strategic transactions or to acquire other companies that can accelerate our growth or broaden our product offerings, we currently have no binding commitments with respect to any future acquisitions or strategic transactions.

Key Metrics

Financial overview of the three and twelve months ended December 31, 2019 compared to the comparable periods in 2018 are as follows:

- Revenue increased 20% and 17% to $79.1 million and $291.6 million in the three and twelve months ended December 31, 2019, respectively, from $65.7 million and $249.8 million in the comparable periods in 2018.
- Revenue from our Business segment increased 20% and 16% to $72.8 million and $267.1 million in the three and twelve months ended December 31, 2019, respectively, from $60.7 million and $230.3 million in the comparable periods in 2018.
- Gross profit margin decreased to 72% in the three months ended December 31, 2019 from 74% in the comparable period in 2018. Gross profit margin decreased to 73% in the twelve months ended December 31, 2019 from 75% in the comparable period in 2018.
- Cost and expenses increased 42% and 38% to $103.6 million and $378.6 million in the three and twelve months ended December 31, 2019, respectively, from $73.0 million and $273.5 million in the comparable periods in 2018.
- Net loss increased to $27.3 million and $96.1 million in the three and twelve months ended December 31, 2019, respectively, from net loss of $6.5 million and $25.0 million for the three and twelve months ended December 31, 2018, respectively.
- Trailing-twelve-month average revenue per enterprise and mid-market customer was approximately $345,000 in 2019, as compared to approximately $285,000 in 2018.
- Revenue retention rate for enterprise and mid-market customers on LiveEngage was within our target range of 105% to 115% in 2019, and at approximately 110% for 2018.

Revenue

The majority of our revenue is generated from monthly service revenues and related professional services from the sale of the LivePerson services. We charge a monthly fee, which varies by service and customer usage. The majority of our larger customers also pay a professional services fee related to implementation and ongoing optimization services. A large proportion of our revenue from new customers comes from large corporations. These companies typically have more significant implementation requirements and more stringent data security standards. Such customers also have more sophisticated data analysis and performance reporting requirements, and are likely to engage our professional services organization to provide such analysis and reporting on a recurring basis.

We determine revenue recognition through the following steps:

- identification of the contract, or contracts, with a customer;
- identification of the performance obligations in the contract;
- determination of the transaction price;
- allocation of the transaction price to the performance obligations in the contract; and
- recognition of revenue when, or as, the Company satisfies a performance obligation.

For more information about our revenue recognition policies, please see "-- Critical Accounting Policies and Estimates -- Revenue Recognition."

Hosted Services- Business Revenue

Revenue attributable to our monthly hosted Business services accounted for 77% of total revenue for the year ended December 31, 2019, 79% of total revenue for the year ended December 31, 2018 and 82% of total revenue for the year ended December 31, 2017.

Professional Services Revenue

Revenue attributable to professional services accounted for 14% of total revenue for the year ended December 31, 2019 and 13% of total revenue for the year ended December 31, 2018 and 10% of total revenue for the year ended December 31, 2017.

Contracts with Multiple Performance Obligations

Some of our contracts with customers contain multiple performance obligations. For these contracts, we account for individual performance obligations separately if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. We determine the standalone selling prices based on our overall pricing objectives, taking into consideration market conditions and other factors, including the value of our contracts, the cloud applications sold, and the number and types of users within our contracts.

Hosted Services- Consumer Revenue

Revenue from our Consumer segment accounted for approximately 8% of total revenue for the years ended December 31, 2019, 2018 and 2017, respectively.

Deferred Revenues

We record deferred revenues when cash payments are received or due in advance of our performance. The increase of $34.0 million in the deferred revenue balance for the year ended December 31, 2019 is primarily driven by cash payments received or due in advance of satisfying our performance obligations, partially offset by $42.4 million of revenues recognized that were included in the deferred revenue balance as of December 31, 2018.

Costs and Expenses

Our cost of revenue consists of:

- compensation costs relating to employees who provide customer support and implementation services to our customers;
- outside labor provider costs;
- compensation costs relating to our network support staff;
- depreciation of certain hardware and software;
- allocated occupancy costs and related overhead;
- the cost of supporting our infrastructure, including expenses related to server leases, infrastructure support costs and Internet connectivity;
- the credit card fees and related payment processing costs associated with the consumer and SMB services; and
- amortization of certain intangibles.

Our sales and marketing expenses consist of compensation and related expenses for sales personnel and marketing personnel, online marketing, allocated occupancy costs and related overhead, advertising, sales commissions, public relations, promotional materials, travel expenses, global customer summits and trade show exhibit expenses.

Our general and administrative expenses consist primarily of compensation and related expenses for executive, accounting, legal, information technology and human resources personnel, allocated occupancy costs and related overhead, litigation, professional fees, provision for doubtful accounts and other general corporate expenses.

Our product development expenses consist primarily of compensation and related expenses for product development personnel, allocated occupancy costs and related overhead, outsourced labor and expenses for testing new versions of our software. Product development expenses are charged to operations as incurred.

During 2019, we increased our allowance for doubtful accounts from $2.3 million to approximately $3.1 million. During 2018, we increased our allowance for doubtful accounts from approximately $1.3 million to approximately 2.3 million. We perform a detailed assessment of the collectability of our accounts receivable. In estimating the allowance for doubtful accounts, management considers, among other factors, the aging of the accounts receivable, historical write-offs and the creditworthiness of each customer. A large proportion of receivables are due from larger corporate customers that typically have longer payment cycles.

Non-Cash Compensation Expense

The net non-cash compensation amounts for the years ended December 31, 2019, 2018 and 2017 consist of (amounts in thousands):

	2019	2018	2017
Stock-based compensation expense	$ 44,105	$ 14,841	$ 8,944

Results of Operations

We are organized into two operating segments for purposes of making operating decisions and assessing performance. The Business segment enables brands to leverage LiveEngage's sophisticated intelligence engine to connect with consumers through an integrated suite of mobile and online business messaging technologies. The Consumer segment facilitates online transactions between Experts and Users seeking information and knowledge for a fee via mobile and online messaging.

The following tables set forth our results of operations for the periods presented and as a percentage of our revenues for those periods. The period-to-period comparison of financial results is not necessarily indicative of future results.

	Year Ended December 31,		
	2019	2018	2017
	(as a percentage of revenue)		
Consolidated Statements of Operations Data: [1]			
Revenue	100 %	100 %	100 %
Costs and expenses:			
Cost of revenue	27 %	25 %	27 %
Sales and marketing	54 %	41 %	42 %
General and administrative	20 %	18 %	20 %
Product development	28 %	22 %	18 %
Restructuring costs	1 %	2 %	1 %
Amortization of purchased intangibles	1 %	1 %	1 %
Total costs and expenses	130 %	109 %	108 %
Loss from operations	(30)%	(9)%	(8)%
Total Other (expense) income, net	(2)%	— %	— %
Loss before provision for income taxes	(32)%	(10)%	(8)%
Provision for income taxes	1 %	— %	— %
Net loss	(33)%	(10)%	(8)%

[1] Certain items may not total due to rounding.

Revenue

	Year Ended December 31,			Year Ended December 31,		
	2019	**2018**	**% Change**	**2018**	**2017**	**% Change**
	(in thousands)			**(in thousands)**		
Revenue by Segment:						
Business	$ 267,129	$ 230,285	16%	$ 230,285	$ 201,426	14%
Consumer	24,480	19,553	25%	19,553	17,450	12%
Total	$ 291,609	$ 249,838	17%	$ 249,838	$ 218,876	14%

Our business revenue growth has traditionally been driven by a mix of revenue from new customers as well as expansion from existing customers. Business Revenue increased by 16% to $267.1 million for the year ended December 31, 2019, from $230.3 million for the year ended December 31, 2018. This increase is primarily attributable to revenue from existing customers of approximately $13.3 million, net of cancellations, revenue from professional services provided to clients in the amount of $8.1 million, revenue from new customers of approximately $15.8 million, and partially offset by a decrease in revenue that is variable based on interactions and usage of approximately $0.2 million.

Business revenue increased by 14% to $230.3 million for the year ended December 31, 2018, from $201.4 million for the year ended December 31, 2017. The increase is primarily attributable to revenue from existing customers of approximately $11.8 million, net of cancellations, revenue from professional services of approximately $10.3 million, revenue from new customers of approximately $5.9 million and revenue that is variable based on interactions and usage in the amount of $0.8 million.

The overall increase in business revenue in 2019 is attributed to the ramping of 2018 sales hires in North America, a renewed focused on SMB sales growth, increasing adoption of our AI and bots, new use cases beyond customer care, and broader deployment of messaging endpoints. The overall increase in business revenue in 2018 is primarily attributable to the Company's renewed selling focus after completing the migration to LiveEngage in 2017.

Consumer revenue increased by 25% to $24.5 million for the year ended December 31, 2019, from $19.6 million for the year ended December 31, 2018. This increase is primarily attributable to an increase in chat minutes and price per minute. Consumer revenue increased by 12% to $19.6 million for the year ended December 31, 2018, from $17.5 million for the year ended December 31, 2017. This increase is primarily attributable to an increase in chat minutes and price per minute.

Cost of Revenue - Business

Cost of revenue consists of compensation costs relating to employees who provide customer service to our customers, compensation costs relating to our network support staff, the cost of supporting our server and network infrastructure, and allocated occupancy costs and related overhead.

	Year Ended December 31,			Year Ended December 31,		
	2019	**2018**	**% Change**	**2018**	**2017**	**% Change**
	($ in thousands)			**($ in thousands)**		
Cost of revenue - Business	$ 74,460	$ 58,420	27%	$ 58,420	$ 54,600	7%
Percentage of total revenue	26%	23%		23%	25%	
Headcount (at period end)	257	228	13%	228	205	11%

Cost of revenue increased by 27% to $74.5 million for the year ended December 31, 2019, from $58.4 million for the year ended December 31, 2018. This increase in expense is primarily attributable to an increase in business services and outsourced subcontracted labor of approximately $7.2 million, in salary and related employee expenses of approximately $4.4 million, in expenses for backup server facilities of approximately $4.0 million and in depreciation expense of approximately $0.5 million.

Cost of revenue increased by 7% to $58.4 million for the year ended December 31, 2018, from $54.6 million for the year ended December 31, 2017. This increase in expense is primarily attributable to an increase in business services and outsourced subcontracted labor of approximately $2.8 million, in salary and related employee expenses of approximately $2.6 million, and in depreciation expense of approximately $0.4 million. This was partially offset by a decrease in amortization of approximately

$1.7 million and in primary and backup server facilities and allocated overhead cost related to costs of supporting our server and network infrastructure of approximately $0.3 million.

Cost of Revenue - Consumer

Cost of revenue consists of compensation costs relating to employees who provide customer service to Experts and Users, compensation costs relating to our network support staff, the cost of supporting our server and network infrastructure, credit card and transaction processing fees and related costs, and allocated occupancy costs and related overhead.

	Year Ended December 31,			Year Ended December 31,		
	2019	2018	% Change	2018	2017	% Change
	($ in thousands)			($ in thousands)		
Cost of revenue - Consumer	$ 4,418	$ 4,059	9%	$ 4,059	$ 3,605	13 %
Percentage of total revenue	2%	2%		2%	2%	
Headcount (at period end)	17	16	6%	16	18	(11)%

Cost of revenue increased by 9% to $4.4 million for the year ended December 31, 2019, from $4.1 million for the year ended December 31, 2018. This is primarily related to an increase in credit card processing fees of approximately $0.3 million.

Cost of revenue increased by 13% to $4.1 million for the year ended December 31, 2018, from $3.6 million for the year ended December 31, 2017. This is primarily related to an increase in depreciation expense of approximately $0.2 million, credit card processing fees of approximately $0.2 million, and salary, outsourced labor, and related employee expenses of approximately $0.1 million. This increase is partially offset by a decrease in expenses for backup server facilities of approximately $0.1 million.

Sales and Marketing - Business

Our sales and marketing expenses consist of compensation and related expenses for sales and marketing personnel, as well as advertising, public relations, trade show exhibit expenses and allocated occupancy costs and related overhead.

	Year Ended December 31,			Year Ended December 31,		
	2019	2018	% Change	2018	2017	% Change
	($ in thousands)			($ in thousands)		
Sales and Marketing - Business	$ 140,880	$ 94,339	49%	$ 94,339	$ 82,420	14%
Percentage of total revenue	48%	38%		38%	38%	
Headcount (at period end)	449	352	28%	352	291	21%

Sales and marketing expenses increased by 49% to $140.9 million for the year ended December 31, 2019 from $94.3 million for the year ended December 31, 2018. This is primarily related to an increase in salary, recruitment, and related employee expenses of approximately $29.5 million, as the Company doubled the number of quota carriers to approximately 100 at year-end 2019 from 50 at year-end 2018. Business services and outsourced labor increased approximately $6.5 million, and marketing events, advertising, public relations, and trade show exhibit expenses increased approximately $5.4 million, Other costs consisted of increases in facilities and allocated overhead of $5.1 million, and in depreciation expense of $0.1 million.

Sales and marketing expenses increased by 14% to $94.3 million for the year ended December 31, 2018 from $82.4 million for the year ended December 31, 2017. This is primarily related to an increase in salary, recruitment, and related employee expenses of approximately $5.5 million, in business services and outsourced labor of approximately $3.8 million, in marketing events, advertising, public relations, and trade show exhibit expenses of approximately $2.2 million, and in facilities and allocated overhead of $0.4 million.

Sales and Marketing — Consumer

Our sales and marketing expenses consist of compensation and related expenses for marketing personnel, as well as online promotion and trade show exhibit expenses and allocated occupancy costs and related overhead.

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
Sales and Marketing - Consumer	$ 15,934	$ 9,005	77%	$ 9,005	$ 8,485	6%
Percentage of total revenue	5%	4%		4%	4%	
Headcount (at period end)	18	13	38%	13	12	8%

Sales and marketing expenses increased by 77% to $15.9 million for the year ended December 31, 2019, from $9.0 million for the year ended December 31, 2018. This increase is primarily attributable to an increase in advertising and online expenses of approximately $6.7 million and an increase in compensation and related costs for additional and existing sales and marketing personnel of approximately $0.2 million.

Sales and marketing expenses increased by 6% to $9.0 million for the year ended December 31, 2018, from $8.5 million for the year ended December 31, 2017. This increase is primarily attributable to an increase in advertising and online expenses of approximately $0.3 million and an increase in compensation and related costs for additional and existing sales and marketing personnel of approximately $0.2 million.

General and Administrative

Our general and administrative expenses consist primarily of compensation and related expenses for executive, accounting, legal, information technology, human resources and administrative personnel, professional fees and other general corporate expenses.

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
General and administrative	$ 56,967	$ 45,873	24%	$ 45,873	$ 43,124	6%
Percentage of total revenue	20%	18%		18%	20%	
Headcount (at period end)	149	128	16%	128	113	13%

General and administrative expenses increased by 24% to $57.0 million for the year ended December 31, 2019 from $45.9 million for the year ended December 31, 2018. This is primarily related to an increase in salaries and employee related expenses of approximately $9.2 million and in business services and outsourced labor of approximately $3.8 million. This was partially offset by a decrease in allocated occupancy costs, related overhead, information technology, and other general corporate expenses of approximately $1.9 million.

General and administrative expenses increased by 6% to $45.9 million for the year ended December 31, 2018 from $43.1 million for the year ended December 31, 2017. This is primarily related to an increase in salaries and employee related expenses of approximately $4.5 million and in business services and outsourced labor of approximately $0.8 million. This was partially offset by a decrease in allocated occupancy costs, related overhead, information technology, and other general corporate expenses of approximately $1.2 million, a net decrease in other costs of approximately $1.1 million, and a decrease of amortization and depreciation expense of approximately $0.2 million. Other costs consisted of a decrease in litigation of approximately $2.0 million and one-time executive compensation paid in 2017 of approximately $1.0 million. This was partially offset by consulting fees relating to cost efficiency analysis of $1.2 million and acquisition costs of approximately $0.6 million.

Product Development

Our product development expenses consist primarily of compensation and related expenses for product development personnel as well as allocated occupancy costs and related overhead and outsourced labor and expenses for testing new versions of our software.

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
Product development	$ 82,145	$ 55,707	47%	$ 55,707	$ 40,034	39%
Percentage of total revenue	28%	22%		22%	18%	
Headcount (at period end)	451	369	22%	369	342	8%

Product development costs increased by 47% to $82.1 million for the year ended December 31, 2019 from $55.7 million for the year ended December 31, 2018. This is primarily related to an increase in compensation, recruitment, and related costs of approximately $15.3 million, as the Company built out its Seattle Advanced Technology Center, ending 2019 with more than 125 data scientists, machine learnings engineers and automation engineers focused on Conversational AI. Business services and outsourced labor increased approximately $5.0 million, primarily tied to supporting demand for technical services. Facility, allocated occupancy costs and overhead related to costs of supporting our server and network infrastructure increased approximately $4.3 million, depreciation expenses increased approximately $1.5 million, and marketing related costs increased $0.3 million.

Product development costs increased by 39% to $55.7 million for the year ended December 31, 2018 from $40.0 million for the year ended December 31, 2017. This is primarily related to an increase in compensation, recruitment, and related costs of approximately $10.2 million, an increase in facility, allocated occupancy costs and overhead related to costs of supporting our server and network infrastructure of approximately $3.4 million, in depreciation expenses of approximately $1.4 million, and in business services and outsourced labor of approximately $0.7 million.

We continue to invest in new product development efforts to expand the capability of LiveEngage. During July 2018, we opened an office in Seattle, for research and development in order to promote continued globalization of our technology operations, drive improvements in quality assurance of existing products and creation of new add-on features to LiveEngage. We recognize that every brand is unique and employs an individualized and complex approach to managing their users. In accordance with ASC 350-40, ‘‘Internal- Use Software’’, as new projects are initiated that provide functionality to LiveEngage platform, the associated development and employee costs will be capitalized. Upon completion, the project costs will be depreciated over five years. During the year ended December 31, 2019 and 2018, $29.1 million and $11.7 million was capitalized, respectively.

Restructuring Costs

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
Restructuring Costs	$ 2,043	$ 4,468	(54)%	$ 4,468	$ 2,594	72%
Percentage of total revenue	1%	2%		2%	1%	

Restructuring costs decreased by 54% to $2.0 million for the year ended December 31, 2019, from $4.5 million for the year ended December 31, 2018. This variance is attributable to a decrease in severance and other associated costs of approximately $2.5 million. Severance costs are associated with re-prioritizing and reallocating resources to focus on areas showing high growth potential.

Restructuring costs increased by 72% to $4.5 million for the year ended December 31, 2018, from $2.6 million for the year ended December 31, 2017. This variance is attributable to an increase in severance and other associated costs of approximately $3.8 million. This was offset partially by wind down costs of approximately $1.9 million related to shutting down the legacy platform in 2017. In 2018, restructuring related primarily to the reorganization of the GPT group in order to promote continued globalization of our technology operations, drive improvements in quality assurance of existing products and creation of new add-on features to LiveEngage.

Amortization of Purchased Intangibles

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
Amortization of purchased intangibles	$ 1,794	$ 1,670	7%	$ 1,670	$ 1,840	(9)%
Percentage of total revenue	1%	1%		1%	1%	

Amortization expense for purchased intangibles increased by 7% to $1.8 million for the year ended December 31, 2019, from $1.7 million for the year ended December 31, 2018 and decreased by 9% to $1.7 million for the year ended December 31, 2018, from $1.8 million for the year ended December 31, 2017. The year over year variance is primarily attributable to the full amortization of capitalized technology and customer relationships related to the past acquisitions of AdvantageTec, Inc. and Conversable, Inc. in 2018.

Other (Expense) Income, net

Other income, net primarily consists of interest income on cash and cash equivalents, investment income and financial (expense) income which is a result of currency rate fluctuations associated with exchange rate movement of the U.S. dollar against the New Israeli Shekel, Pound Sterling, Japanese Yen, AUS dollar and the Euro.

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
Interest (expense) income	(7,407)	22	(33,768)%	22	26	(15)%
Other income (expense)	$ 1,213	$ (493)	(346)%	$ (493)	$ 110	(548)%
Other (expense) income,net	$ (6,194)	$ (471)	1,215 %	$ (471)	$ 136	(446)%

Other (expense) income increased by $5.7 million to an expense of $6.2 million for the year ended December 31, 2019 from an expense of $0.5 million for the year ended December 31, 2018. This was primarily attributable to an increase in interest expense attributable to the 0.750% Convertible Senior Notes due 2024 (the ‘‘Notes’’) partially offset by interest income on cash and cash equivalents and financial income which is attributable to currency rate fluctuations.

Other (expense) income increased by $0.3 million to an expense of $0.5 million for the year ended December 31, 2018 from an income of $0.1 million for the year ended December 31, 2017. This was primarily attributable to a decrease in other financial income and finance hedging income.

Provision for Income Taxes

	Year Ended December 31,		% Change	Year Ended December 31,		% Change
	2019	2018		2018	2017	
	($ in thousands)			($ in thousands)		
Provision for income taxes	$ 2,845	$ 858	232%	$ 858	$ 501	71%

Income tax expense increased by 232% to $2.8 million for the year ended December 31, 2019, from $0.9 million for the year ended December 31, 2018. Our consolidated effective tax rate was impacted by the statutory income tax rates applicable to each of the jurisdictions in which we operate. During 2018, we recognized a benefit of $2.0 million related to a settlement with the Israeli Tax Authority. As a result of the settlement, we recognized a benefit as the recorded liability was less than the final settlement. A benefit was also recorded for U.S. federal tax refunds that were recognized due to increased foreign tax credits and increased federal NOLs from foreign tax deductions. The increase in tax expense was primarily due to these factors.

Income tax expense increased by 71% to $0.9 million for the year ended December 31, 2018, from $0.5 million for the year ended December 31, 2017. Our consolidated effective tax rate was impacted by the statutory income tax rates applicable to each of the jurisdictions in which we operate. As a result of the Tax Cuts and Jobs Act the federal corporate income tax rate decreased from a maximum of 35% to a flat rate of 21%. In addition, federal NOLs incurred after December 31, 2017 will have an indefinite carryforward period and will be available to offset 80% of federal taxable income in future years. During the first quarter of 2018 we recognized a benefit of $2.0 million related to a settlement with the Israeli Tax Authority. As a result of the settlement we recognized a benefit as the recorded liability was less than the final settlement. A benefit was also recorded for U.S. federal tax refunds that were recognized due to increased foreign tax credits and increased federal NOLs from foreign tax deductions. The increase in tax expense was primarily due to these factors.

Net Loss

We had a net loss of $96.1 million for the year ended December 31, 2019 compared to a net loss of $25.0 million for the year ended December 31, 2018. Revenue increased approximately $41.8 million, operating expenses increased by approximately $105.1 million, the provision for income taxes increased approximately $2.0 million, and other (expense) income net increased by $5.7 million, contributing to a net increase in net loss of approximately $71.0 million.

We had a net loss of $25.0 million for the year ended December 31, 2018 compared to a net loss of $18.2 million for the year ended December 31, 2017. Revenue increased approximately $31.0 million, operating expenses increased by approximately $36.8 million, the provision for (benefit from) income taxes increased approximately $0.4 million, and other (expense)income, net decreased by approximately $0.6 million, contributing to a net increase in net loss of approximately $6.8 million.

Quarterly Results of Operations Data

The following table sets forth, for the periods indicated, the Company's financial information for the eight most recent quarters ended December 31, 2019. In the Company's opinion, this unaudited information has been prepared on a basis consistent with the annual consolidated financial statements and includes all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the unaudited information for the periods presented. This information should be read in conjunction with the consolidated financial statements, including the related notes, included herein.

	Dec. 31, 2019	Sept. 30, 2019	June 30, 2019	March 31, 2019	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	March 31, 2018
	(in thousands, except share and per share data)							
Consolidated Statements of Operations Data:								
Revenue	$ 79,073	$ 75,175	$ 70,959	$ 66,402	$ 65,724	$ 64,213	$ 61,660	$ 58,241
Costs and Expenses:								
Cost of revenue	22,060	20,120	18,049	18,649	16,800	15,689	16,036	13,954
Sales and marketing	42,661	41,774	39,343	33,036	27,073	26,748	25,392	24,131
General and administrative	15,079	13,958	13,763	14,167	12,279	11,972	11,499	10,123
Product development	23,213	20,577	20,182	18,173	14,752	13,484	14,219	13,252
Restructuring costs	134	1,425	205	279	1,662	722	1,906	178
Amortization of purchased intangibles	448	447	438	461	398	424	424	424
Total costs and expenses	103,595	98,301	91,980	84,765	72,964	69,039	69,476	62,062
Loss from operations	(24,522)	(23,126)	(21,021)	(18,363)	(7,240)	(4,826)	(7,816)	(3,821)
Other (expense) income	(2,183)	(1,810)	(2,267)	66	(418)	(213)	31	129
Loss before provision for income taxes (benefit from)	(26,705)	(24,936)	(23,288)	(18,297)	(7,658)	(5,039)	(7,785)	(3,692)
Provision for (benefit from) income taxes	617	936	699	593	(1,193)	2,004	536	(489)
Net loss	$ (27,322)	$ (25,872)	$ (23,987)	$ (18,890)	$ (6,465)	$ (7,043)	$ (8,321)	$ (3,203)
Net loss per share of common stock:								
Basic	$ (0.43)	$ (0.41)	$ (0.38)	$ (0.31)	$ (0.11)	$ (0.12)	$ (0.14)	$ (0.06)
Diluted	$ (0.43)	$ (0.41)	$ (0.38)	$ (0.31)	$ (0.11)	$ (0.12)	$ (0.14)	$ (0.06)
Weighted-average shares used to compute net loss per share								
Basic	63,556,205	63,014,802	62,350,787	61,422,227	60,794,252	60,014,246	58,648,195	57,309,707
Diluted	63,556,205	63,014,802	62,350,787	61,422,227	60,794,252	60,014,246	58,648,195	57,309,707

Liquidity and Capital Resources

	December 31,		
	2019	2018	2017
	(in thousands)		
Consolidated Statements of Cash Flows Data:			
Cash flows (used in) provided by operating activities	$ (59,158)	$ 4,779	$ 10,290
Cash flows used in investing activities	(48,506)	(27,773)	(15,320)
Cash flows provided by financing activities	217,851	33,926	7,209

As of December 31, 2019, we had approximately $176.5 million in cash and cash equivalents, an increase of approximately $110.1 million from December 31, 2018. The increase is primarily attributable to cash provided by investing activities relating to issuance of the Notes, as described in Note 7 to the Consolidated Financial Statements, and cash provided by financing activities relating to issuance of common stock and increase in deferred revenue. This was partially offset by purchases of capped calls, as described in Note 7 to the Consolidated Financial Statements, fixed assets for our co-location facilities and capitalization of internally developed software, and debt issuance costs, as well as decreases in accrued expenses and accounts payable and increases in prepaid expenses and accounts receivable.

Net cash used in operating activities was $59.2 million in the year ended December 31, 2019. Our net loss was $96.1 million, which includes the effect of non-cash expenses related to stock-based compensation, amortization of purchased intangibles, depreciation, and provision for doubtful accounts as well as increases in deferred revenue due to more of our customers moving to cash payments in advance on annual billings and in accounts payable and accrued expenses. This was partially offset by increases in prepaid expenses and other current assets and accounts receivable and decrease in deferred tax liability. Net cash provided by operating activities was $4.8 million in the year ended December 31, 2018. Our net loss was $25.0 million, but that net loss was impacted by non-cash expenses related to stock-based compensation, amortization of purchased intangibles, depreciation, and provision for doubtful accounts. Furthermore, there were increases in deferred revenue due to more of our customers moving to cash payments in advance on annual billings and accrued expenses. This was partially offset by increases in accounts receivable and prepaid expenses and other current assets and decreases in accounts payable and deferred tax liability.

Net cash used in investing activities was $48.5 million in the year ended December 31, 2019 and consisted primarily of the purchase of fixed assets for our co-location facilities and capitalization of internally developed software. Net cash used in investing activities was $27.8 million in the year ended December 31, 2018 due primarily to the purchase of fixed assets for our co-location facilities, acquisitions and purchases of intangibles. See Note 8 of the Notes to Consolidated Financial Statements for further details on acquisitions. This was partially offset by a decrease in cash held as collateral.

Net cash provided by financing activities was $217.9 million in the year ended December 31, 2019 and consisted primarily of proceeds from issuance of the Notes and proceeds from issuance of common stock in connection with the exercise of stock options by employees. This was partially offset by purchases of capped calls, debt issuance costs, and repurchase of our common stock. The net proceeds of the Notes was approximately $221.4 million, after deducting initial purchaser debt issuance costs paid or payable by us, from issuance of the Notes, as described in Note 7 to the Consolidated Financial Statements. Net cash provided by financing activities was $33.9 million in the year ended December 31, 2018 and consisted primarily of the proceeds from the issuance of common stock in connection with the exercise of stock options offset partially by the repurchase of our common stock.

We anticipate that our current cash and cash equivalents will be sufficient to satisfy our working capital and capital requirements for at least the next 12 months. However, we cannot assure you that we will not require additional funds prior to such time, and we would then seek to sell additional equity or debt securities through public financings, or seek alternative sources of financing. We cannot assure you that additional funding will be available on favorable terms, when needed, if at all. If we are unable to obtain any necessary additional financing, we may be required to further reduce the scope of our planned sales and marketing and product development efforts, which could materially adversely affect our business, financial condition and operating results. In addition, we may require additional funds in order to fund more rapid expansion, to develop new or enhanced services or products, or to invest in or acquire complementary businesses, technologies, services or products.

Off Balance Sheet Arrangements

We do not have any special purposes entities, and other than operating leases, which are described below we do not engage in off-balance sheet financing arrangements.

Contractual Obligations and Commitments

We lease facilities and certain equipment under agreements accounted for as operating leases. These leases generally require us to pay all executory costs such as maintenance and insurance. Rental expense for operating leases for the years ended December 31, 2019, 2018 and 2017, was approximately $13.0 million, $10.9 million and $9.9 million, respectively.

As of December 31, 2019, our principal commitments were approximately $22.0 million under various operating leases, of which approximately $7.8 million is due in 2020. We currently expect that our principal commitments for the year ending December 31, 2020 will not exceed approximately $10.0 million in the aggregate.

Our contractual obligations at December 31, 2019 are summarized as follows (amounts in thousands):

	Payments Due by Period									
Contractual Obligations	**Total**		**Less Than 1 Year**		**1 – 3 Years**		**3 – 5 Years**		**More Than 5 Years**	
Operating leases	$	22,000	$	7,787	$	10,276	$	3,073	$	864
Total	$	22,000	$	7,787	$	10,276	$	3,073	$	864

Capital Expenditures

Total capital expenditures in 2019 were approximately $47.6 million, primarily related to software capitalization and to the continued expansion of our co-location facilities. Our total capital expenditures are not currently expected to exceed $45.7 million in 2020. We anticipate that our current cash and cash equivalents and cash from operations will be sufficient to fund these capital expenditures.

Indemnifications

We enter into service and license agreements in the ordinary course of business. Pursuant to some of these agreements, we agree to indemnify certain customers from and against certain types of claims and losses suffered or incurred by them as a result of using our products.

We also have agreements whereby our executive officers and directors are indemnified for certain events or occurrences while the officer or director is, or was serving, at our request in such capacity. The maximum potential amount of future payments we could be required to make under these indemnification agreements is unlimited; however, we have a directors and officers insurance policy that reduces our exposure and enables us to recover a portion of any future amounts paid. As a result of our insurance policy coverage, we believe the estimated fair value of these indemnification agreements is minimal. Currently, we have no liabilities recorded for these agreements as of December 31, 2019.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States of America. As such, we are required to make certain estimates, judgments and assumptions that management believes are reasonable based upon the information available. We base these estimates on our historical experience, future expectations and various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for our judgments that may not be readily apparent from other sources. These estimates and assumptions affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the dates of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting periods.

We believe that the assumptions and estimates associated with revenue recognition, stock-based compensation, accounts receivable, the valuation of goodwill and intangible assets, income taxes and legal contingencies have the greatest potential impact on our consolidated financial statements. We evaluate these estimates on an ongoing basis. Actual results could differ from those estimates under different assumptions or conditions, and any differences could be material. For further information on all of our significant accounting policies, see Note 1 of the Notes to Consolidated Financial Statements under Item 8 of this Annual Report on Form 10-K.

Revenue Recognition

The majority of our revenue is generated from monthly service revenues and related professional services from the sale of our services. Revenues are recognized when control of these services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those services.

We determine revenue recognition through the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when, or as, we satisfy a performance obligation.

Total revenue of $291.6 million, $249.8 million, and $218.9 million was recognized during the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

Hosted Services- Business Revenue

Hosted Services Business revenue is reported at the amount that reflects the ultimate consideration expected to be received and primarily consist of fees that provide customers access to LiveEngage, our enterprise-class, cloud-based platform. We have determined such access represents a stand-ready service provided continually throughout the contract term. As such, control and satisfaction of this stand-ready performance obligation is deemed to occur over time. We recognize this revenue over time on a ratable basis over the contract term, beginning on the date that access to the LiveEngage platform is made available to the customer. The passage of time is deemed to be the most faithful depiction of the transfer of control of the services as the customer simultaneously receives and consumes the benefit provided by our performance. Subscription contracts are generally one year or longer in length, billed, monthly, quarterly or annually in advance. There is no significant variable consideration related to these arrangements. Additionally, for certain of our larger customers, we may provide call center labor through an arrangement with one or more of several qualified vendors. For most of these customers, we pass the fee we incur with the labor provider and its fee for the hosted services through to our customers in the form of a fixed fee for each order placed via our online engagement solutions. For these Gainshare arrangements in accordance with ASC-606, ‘‘Principal Agent Considerations,’’ we act as a principal in a transaction if we control the specified goods or services before they are transferred to the customer.

Professional Services Revenues

Professional services revenue primarily consists of fees for deployment and optimization services, as well as training delivered on an on-demand basis which is deemed to represent a distinct stand-ready performance obligation. Professional Services Revenues are reported at the amount that reflects the ultimate consideration we expect to receive in exchange for such services. Control for the majority of our Professional Services contracts passes over time to the customer and is recognized ratably over the contracted period, as the passage of time is deemed to be the most faithful depiction of the transfer of control. For certain deployment services, which are not deemed to represent a distinct performance obligation, revenue will be recognized in the same manner as the fee for access to the LiveEngage platform, and as such will be recognized on a straight-line basis over the contract term. For services billed on a fixed price basis, revenue is recognized over time based on the proportion performed using inputs as the measure of progress toward complete satisfaction of the performance obligation. Professional service contracts are generally one year or longer in length, billed, monthly, quarterly or annually in advance. There is no significant variable consideration related to these arrangements.

Contracts with Multiple Performance Obligations

Some of our contracts with customers contain multiple performance obligations. For these contracts, we account for individual performance obligations separately if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. We determine the standalone selling prices based on our overall pricing objectives, taking into consideration market conditions and other factors, including the value of our contracts, the cloud applications sold, and the number and types of users within our contracts.

Hosted Services- Consumer Revenue

For revenue from our Consumer segment generated from online transactions between Experts and Users, revenue is recognized at an amount net of Expert fees in accordance with ASC 606, “Principal Agent Considerations,” due primarily to the fact that we do not act as a principal in a transaction since we do not control the specified goods or services before they are transferred to the customer. Additionally, we perform as an agent without any risk of loss for collection, and we are not involved in selecting the Expert or establishing the Expert’s fee. We collect a fee from the consumer and retain a portion of the fee, and then remit the balance to the Expert. Revenue from these transactions is recognized at the point in time when the transaction is complete and no significant performance obligations remain.

Stock-Based Compensation

We follow ASC 718-10, “Stock Compensation,” which addresses the accounting for transactions in which an entity exchanges its equity instruments for goods or services, with a primary focus on transactions in which an entity obtains employee services in share-based payment transactions. ASC 718-10 requires measurement of the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award (with limited exceptions). Incremental compensation costs arising from subsequent modifications of awards after the grant date must be recognized.

As of December 31, 2019, there was approximately $22.7 million of total unrecognized compensation cost related to nonvested stock options. That cost is expected to be recognized over a weighted average period of approximately 2.4 years. As of December 31, 2019, there was approximately $76.2 million of total unrecognized compensation cost related to nonvested restricted stock units. That cost is expected to be recognized over a weighted average period of approximately 2.8 years.

Accounts Receivable

We perform ongoing credit evaluations of our customers' financial condition (except for customers who purchase the LivePerson services by credit card via Internet download) and have established an allowance for doubtful accounts based upon factors surrounding the credit risk of customers, historical trends and other information that we believe to be reasonable, although they may change in the future. If there is a deterioration of a customer's credit worthiness or actual write-offs are higher than our historical experience, our estimates of recoverability for these receivables could be adversely affected. Although our large number of customers limits our concentration of credit risk, if we experience a significant write-off from one of our large customers, it could have a material adverse impact on our consolidated financial statements. No single customer accounted for or exceeded 10% of our total revenue in 2019, 2018 or 2017. Two customers exceeded 10% or our total accounts receivable in 2019. No single customer accounted for or exceeded 10% of our total accounts receivable in 2018 or in 2017. During 2019, we increased our allowance for doubtful accounts from $2.3 million to approximately $3.1 million. A large proportion of receivables are due from larger corporate customers that typically have longer payment cycles.

Goodwill

We record goodwill when the consideration paid in a business combination exceeds the fair value of the net tangible assets and the identified intangible assets acquired. Goodwill is not amortized, but instead is required to be tested for impairment annually and whenever events or changes in circumstances indicate that the carrying value of goodwill may exceed its fair value.

We perform testing for impairment of goodwill in our third quarter, or as events occur or circumstances change that would more likely than not reduce the fair value of our reporting units below their carrying amounts. A qualitative assessment is first made to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. This initial qualitative assessment includes, among other things, consideration of: (i) our market capitalization, (ii) past, current and projected future earnings and equity; (iii) recent trends and market conditions; and (iv) valuation metrics involving similar companies that are publicly-traded and acquisitions of similar companies, if available. If this initial qualitative assessment indicates that it is more likely than not that impairment exists, a second analysis will be performed, involving a comparison between the estimated fair values of our reporting unit with our respective carrying amount including goodwill. If the carrying value exceeds estimated fair value, there is an indication of potential impairment, and a third analysis is performed to measure the amount of impairment. The third analysis involves calculating an implied fair value of goodwill by measuring the excess of the estimated fair value of the reporting unit over the aggregate estimated fair values of the individual assets less liabilities. If the carrying value of goodwill exceeds the implied fair value of goodwill, an impairment charge is recorded for the excess.

We evaluate for goodwill impairment annually at the end of the third quarter. At the end of the third quarter of 2019 and 2018 we determined that it was not more likely than not that the fair value of the reporting units was less than our carrying amount. Accordingly, we did not perform the two-step goodwill impairment test.

Impairment of Long-Lived Assets

The carrying amounts of our long-lived assets, including property and equipment, lease right-of-use assets, capitalized internal-use software, costs to obtain customer contracts, and acquired intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable or that the useful lives are shorter than originally estimated. Recoverability of assets to be held and used is measured by comparing the carrying amount of an asset to future undiscounted net cash flows the asset is expected to generate over its remaining life. If the asset is considered to be impaired, the amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset. If the useful life is shorter than originally estimated, we amortize the remaining carrying value over the new shorter useful life. There were no impairments for the years ended December 31, 2019, 2018, and 2017.

Income Taxes

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences are expected to become deductible. In evaluating our ability to recover our deferred tax assets in the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. We include interest accrued on the underpayment of income taxes in interest expense and penalties, if any, related to unrecognized tax benefits in general and administrative expenses. We recorded a valuation allowance as we considered our cumulative loss in recent years as a significant piece of negative evidence. During the year ended December 31, 2019, there was a reduction in the valuation allowance of $19.1 million.

Legal Contingencies

We are subject to legal proceedings and litigation arising in the ordinary course of business. Periodically, we evaluate the status of each legal matter and assess our potential financial exposure. If the potential loss from any legal proceeding or litigation is considered probable and the amount can be reasonably estimated, we accrue a liability for the estimated loss. Significant judgment is required to determine the probability of a loss and whether the amount of the loss is reasonably estimable. The outcome of any proceeding is not determinable in advance. As a result, the assessment of a potential liability and the amount of accruals recorded are based only on the information available at the time. As additional information becomes available, we reassess the potential liability related to the legal proceeding or litigation, and may revise our estimates. Any revisions could have a material effect on our results of operations. See Note 13, Legal Matters, of the Notes to the Consolidated Financial Statements under Item 8 of this Annual Report on Form 10-K for additional information on our legal proceedings and litigation.

Recently Issued Accounting Standards

See Note 1 of the Notes to Consolidated Financial Statements for a full description of recently issued accounting standards.

Recently Adopted Accounting Pronouncements

See Note 1 of the Notes to Consolidated Financial Statements for a full description of recently adopted accounting pronouncements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Currency Rate Fluctuations

As a result of the scope of our Israeli operations, there is currency rate fluctuation risk associated with the exchange rate movement of the U.S. dollar against the New Israeli Shekel (“NIS”). For the year ended December 31, 2019, the U.S dollar appreciated as compared to the NIS by an average of 1% as compared to December 31, 2018. For the year ended December 31, 2019, expenses generated by our Israeli operations totaled approximately $65.9 million. Based on our exposure to NIS exchange rate fluctuation against a dollar as of December 31, 2018, a 1% increase or decrease in the value of the NIS would increase or decrease our income before income taxes by approximately $0.7 million.

We actively monitor the movement of the U.S. dollar against the NIS, Pound Sterling, Euro, AUS dollar and Japanese Yen and have considered the use of financial instruments, including but not limited to derivative financial instruments, which could mitigate such risk. If we determine that our risk of exposure materially exceeds the potential cost of derivative financial instruments, we may in the future enter in to these types of investments. The functional currency of our wholly-owned Israeli subsidiaries, LivePerson Ltd. (formerly HumanClick Ltd.) and Kasamba Ltd., is the U.S. dollar; the functional currency of our operations in the United Kingdom is the Pound Sterling; the functional currency of our operations in the Netherlands, Germany, France and Italy is the Euro; the functional currency of our operations in Australia is the Australian Dollar; and the functional currency of our operations in Japan is the Japanese Yen.

Collection Risk

Our accounts receivable are subject, in the normal course of business, to collection risks. We regularly assess these risks and have established policies and business practices to protect against the adverse effects of collection risks. During 2019, we increased our allowance for doubtful accounts from 2.3 million to approximately 3.1 million. During 2018, we increased our allowance for doubtful accounts by approximately 1.3 million to approximately 2.3 million. A large proportion of receivables are due from larger corporate customers that typically have longer payment cycles. We base our allowance for doubtful accounts on specifically identified credit risks of customers, historical trends and other information that we believe to be reasonable. We adjust our allowance for doubtful accounts when accounts previously reserved have been collected.

Interest Rate Risk

Our investments consist of cash and cash equivalents. Therefore, changes in the market's interest rates do not affect in any material respect the value of the investments as recorded by us.

Inflation Rate Risk

We do not believe that inflation has had a material effect on our business, financial conditions or results of operations. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could harm our business, financial condition and results of operations.

Item 8. Consolidated Financial Statements and Supplementary Data

INDEX

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
LivePerson, Inc.
New York, New York

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of LivePerson, Inc. and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated March 2, 2020 expressed an unqualified opinion thereon.

Change in Accounting Principle

On January 1, 2019, the Company changed its method of accounting for leases due to the adoption of Accounting Standards Codification Topic 842, Leases. The effects of the adoption are described in Note 1 to the consolidated financial statements.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing a separate opinion on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Contracts with Multiple Performance Obligations

As described in Note 1 to the Company's consolidated financial statements, certain of the Company's revenue contracts contain multiple performance obligations primarily relating to the sale of hosted subscription and professional services. For these revenue contracts, the Company accounts for the individual performance obligations separately if they are distinct. The transaction price is allocated to the performance obligations based on their relative standalone selling prices. The Company determines the standalone selling prices based on its overall pricing objectives, taking into consideration market conditions and other factors, including the value of its contracts, the cloud applications sold, and the number and types of users within its contracts.

We identified revenue recognition related to contracts that contain multiple performance obligations as a critical audit matter. The determination of whether multiple services within a contract are distinct performance obligations that should be accounted for separately and the estimates of the standalone selling price for each distinct performance obligation require management to exercise significant judgment that includes a high degree of subjectivity. Auditing these elements involved especially challenging auditor judgment due to the nature and extent of audit effort required to address these matters.

The primary procedures we performed to address this critical audit matter included:

- Testing the design and operating effectiveness of certain controls relating to management's determination of standalone selling prices for each of the performance obligations.
- Evaluating management's technical accounting positions and assessing the reasonableness of management's judgments and assumptions in the determination of whether the products and services are distinct performance obligations and the determination of the standalone selling prices for each of the performance obligations.
- Testing the reasonableness of the identification of distinct performance obligations and determination of the standalone selling prices through review of a sample of revenue contracts and other relevant supporting details and testing the completeness and accuracy of the underlying supporting details.

Convertible Notes

As described in Note 7 to the consolidated financial statements, the Company issued $230.0 million aggregate principal amount of 0.75% Convertible Senior Notes (the "Notes") in a private placement in 2019. In accounting for the issuance of the Notes, the Company separated the Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was determined by deducting the fair value of the liability component from the par value of the Notes.

We identified the accounting evaluation, including the related fair value determinations, of the Notes as a critical audit matter. The principal considerations for our determination were: (i) the evaluation of the potential derivatives that needed to be bifurcated, and (ii) considerations related to determination of the fair value of the Notes and the conversion option including complex valuation models and assumptions utilized by management. Auditing these elements involved especially challenging auditor judgment due to the nature and extent of audit effort required to address these matters, including the extent of specialized skill or knowledge needed.

The primary procedures we performed to address this critical audit matter included:

- Utilizing personnel with specialized knowledge and skill in technical accounting to assist in: (i) evaluating the relevant terms and conditions of the Notes' agreements, and (ii) assessing the appropriateness of conclusions reached by the Company with respect to the accounting for the Notes and identification, assessment and accounting for potential derivatives.
- Utilizing personnel with specialized knowledge and skill in valuation to assist in assessing the appropriateness of the complex valuation models utilized by management to determine the fair value of the Notes and assessing complex assumptions incorporated into the valuation models.

/s/ BDO USA, LLP

We have served as the Company's auditor since 2005.

New York, New York
March 2, 2020

LIVEPERSON, INC.

CONSOLIDATED BALANCE SHEETS
(IN THOUSANDS)

	December 31, 2019	December 31, 2018 (as revised) (Note 1)
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 176,523	$ 66,449
Accounts receivable, net of allowance for doubtful accounts of $3,070 and $2,276, in 2019 and 2018, respectively	87,620	46,023
Prepaid expenses and other current assets	13,964	9,252
Total current assets	278,107	121,724
Operating lease right of use asset	15,680	—
Property and equipment, net	76,236	43,735
Contract acquisition costs	31,965	13,361
Intangibles, net	11,812	13,832
Goodwill	94,987	95,031
Deferred tax assets	2,179	713
Other assets	1,744	1,707
Total assets	$ 512,710	$ 290,103
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Accounts payable	$ 12,302	$ 8,174
Accrued expenses and other current liabilities	62,778	50,662
Deferred revenue	88,751	55,015
Operating lease liability	6,602	—
Total current liabilities	170,433	113,851
Deferred revenue, net of current portion	438	222
Convertible senior notes, net	179,012	—
Other liabilities	72	4,205
Operating lease liability, net of current portion	12,865	—
Deferred tax liability	1,355	1,096
Total liabilities	364,175	119,374
Commitments and contingencies (See Note 9)		
STOCKHOLDERS' EQUITY:		
Preferred stock, $0.001 par value - 5,000,000 shares authorized, none issued	—	—
Common stock, $0.001 par value - 200,000,000 and 100,000,000 shares authorized, 66,543,073 and 63,676,229 shares issued, and 63,833,243 and 60,994,944 shares outstanding as of December 31, 2019 and 2018, respectively	67	64
Additional paid-in capital	436,557	362,590
Treasury stock, at cost; 2,709,830 and 2,681,285 shares respectively	(3)	(3)
Accumulated deficit	(283,562)	(187,491)
Accumulated other comprehensive loss	(4,524)	(4,431)
Total stockholders' equity	148,535	170,729
Total liabilities and stockholders' equity	$ 512,710	$ 290,103

See notes to consolidated financial statements.

LIVEPERSON, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)

	Year Ended December 31,		
	2019	2018	2017
Revenue	$ 291,609	$ 249,838	$ 218,876
Costs and expenses:(1) (2)			
Cost of revenue	78,878	62,479	58,205
Sales and marketing	156,814	103,344	90,905
General and administrative	56,967	45,873	43,124
Product development	82,145	55,707	40,034
Restructuring costs	2,043	4,468	2,594
Amortization of purchased intangibles	1,794	1,670	1,840
Total costs and expenses	378,641	273,541	236,702
Loss from operations	(87,032)	(23,703)	(17,826)
Other (expense) income, net			
Interest (expense) income	(7,407)	22	26
Other income (expense), net	1,213	(493)	110
Total Other (expense) income, net	(6,194)	(471)	136
Loss before provision for income taxes	(93,226)	(24,174)	(17,690)
Provision for income taxes	2,845	858	501
Net loss	$ (96,071)	$ (25,032)	$ (18,191)
Net loss per share of common stock:			
Basic	$ (1.53)	$ (0.42)	$ (0.32)
Diluted	$ (1.53)	$ (0.42)	$ (0.32)
Weighted-average shares used to compute net loss income per share:			
Basic	62,593,026	59,203,400	56,358,017
Diluted	62,593,026	59,203,400	56,358,017
(1) Amounts include stock compensation expense, as follows:			
Cost of revenue	$ 4,218	$ 996	$ 448
Sales and marketing	10,010	5,374	2,500
General and administrative	12,216	4,921	3,691
Product development	17,661	3,550	2,305
(2) Amounts include depreciation and amortization expense, as follows:			
Cost of revenue	$ 8,557	$ 7,831	$ 7,150
Sales and marketing	1,642	1,520	1,625
General and administrative	908	1,083	1,226
Product development	5,259	3,754	2,357
(3) Amounts include amortization of purchased intangibles, as follows:			
Cost of revenue	$ 1,138	$ 1,143	$ 2,842

See notes to consolidated financial statements.

LIVEPERSON, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(IN THOUSANDS)

	Year Ended December 31,		
	2019	**2018**	**2017**
Net loss	$ (96,071)	$ (25,032)	$ (18,191)
Foreign currency translation adjustment	(93)	(1,896)	3,625
Comprehensive loss	$ (96,164)	$ (26,928)	$ (14,566)

See notes to consolidated financial statements.

LIVEPERSON, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(IN THOUSANDS, EXCEPT SHARE DATA)

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total
	Shares	Amount	Shares	Amount				
Balance at December 31, 2016	58,276,447	$ 58	(2,340,105)	$ (2)	289,524	$ (144,944)	$ (6,160)	$ 138,476
Common stock issued upon exercise of stock options	853,885	1	—	—	7,490	—	—	7,491
Common stock issued upon vesting of restricted stock units	363,429	1	—	—	—	—	—	1
Stock-based compensation	—	—	—	—	8,944	—	—	8,944
Common stock issued under Employee Stock Purchase Plan	170,208	—	—	—	1,459	—	—	1,459
Common stock repurchase	—	—	(247,430)	(1)	(1,741)	—	—	(1,742)
Net loss	—	—	—	—	—	(18,191)	—	(18,191)
Other comprehensive income	—	—	—	—	—	—	3,625	3,625
Balance at December 31, 2017	59,663,969	60	(2,587,535)	(3)	305,676	(163,135)	(2,535)	140,063
Common stock issued upon exercise of stock options	3,120,404	3	—	—	32,788	—	—	32,791
Common stock issued upon vesting of restricted stock units	361,539	1	—	—	—	—	—	1
Stock-based compensation	—	—	—	—	14,841	—	—	14,841
Common stock issued under Employee Stock Purchase Plan	150,989	—	—	—	2,480	—	—	2,480
Common stock repurchase	—	—	(93,750)	—	(1,345)	—	—	(1,345)
ASC 606 prior period adjustment	—	—	—	—		676	—	676
Issuance of common stock in connection with acquisitions	379,328	—	—	—	8,150	—	—	8,150
Net loss	—	—	—	—	—	(25,032)	—	(25,032)
Other comprehensive loss	—	—	—	—	—	—	(1,896)	(1,896)
Balance at December 31, 2018	63,676,229	64	(2,681,285)	(3)	362,590	(187,491)	(4,431)	170,729
Common stock issued upon exercise of stock options	1,523,018	2			16,916	—	—	16,918
Common stock issued upon vesting of restricted stock units	1,197,576	1	—	—	999	—	—	1,000
Stock-based compensation	—	—	—	—	25,083	—	—	25,083
Common stock issued under Employee Stock Purchase Plan	146,250	—	—	—	4,142	—	—	4,142
Common stock repurchase	—	—	(28,545)	—	(903)	—	—	(903)
Equity component of convertible senior notes	—	—	—	—	52,900	—	—	52,900
Equity component of convertible senior notes issuance costs	—	—	—	—	(1,986)	—	—	(1,986)
Purchase of capped call option	—	—	—	—	(23,184)	—	—	(23,184)
Net loss	—	—	—	—	—	(96,071)	—	(96,071)
Other comprehensive income	—	—	—	—	—	—	(93)	(93)
Balance at December 31, 2019	66,543,073	$ 67	(2,709,830)	$ (3)	$ 436,557	$ (283,562)	$ (4,524)	$ 148,535

See notes to consolidated financial statements.

LIVEPERSON, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(IN THOUSANDS, EXCEPT SHARE DATA)

	Year Ended December 31,		
	2019	2018	2017
OPERATING ACTIVITIES:			
Net loss	$ (96,071)	$ (25,032)	$ (18,191)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:			
Stock-based compensation expense	44,105	14,841	8,944
Depreciation and amortization	16,366	14,188	12,358
Amortization of tenant allowance	(516)	(326)	(166)
Amortization of purchased intangibles	2,932	2,813	4,682
Amortization of debt issuance costs	956	—	—
Accretion of debt discount on convertible senior notes	7,605	—	—
Change in fair value of contingent consideration	(328)	—	—
Provision for doubtful accounts, net	2,159	1,788	1,895
Deferred income taxes	(1,207)	(309)	(2,397)
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(43,757)	(9,662)	(7,998)
Prepaid expenses and other current assets	(4,712)	(12,993)	9,270
Contract acquisition costs noncurrent	(13,718)	(1,635)	(11,137)
Other assets	(30)	(107)	(38)
Accounts payable	3,808	2,199	(2,743)
Accrued expenses and other current liabilities	(10,882)	(205)	7,838
Deferred revenue	33,953	19,005	8,418
Increase in operating lease liability	388	—	—
Other liabilities	(209)	214	(445)
Net cash (used in) provided by operating activities	(59,158)	4,779	10,290
INVESTING ACTIVITIES:			
Purchases of property and equipment, including capitalized software	(47,582)	(21,938)	(17,390)
Payments for acquisitions and intangible assets, net of cash acquired	(924)	(7,286)	(441)
Cash held as collateral	—	1,451	2,511
Net cash used in investing activities	(48,506)	(27,773)	(15,320)
FINANCING ACTIVITIES:			
Repurchase of common stock	(903)	(1,345)	(1,742)
Proceeds from issuance of common stock in connection with the exercise of options and ESPP	21,060	35,271	8,951
Proceeds from issuance of convertible senior notes	230,000	—	—
Payment of issuance costs in connection with convertible senior notes	(8,635)	—	—
Payment related to contingent consideration	(487)	—	—
Purchase of capped call option	(23,184)	—	—
Net cash provided by financing activities	217,851	33,926	7,209
EFFECT OF FOREIGN EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS	(113)	(598)	3,047
CHANGE IN CASH AND CASH EQUIVALENTS	110,074	10,334	5,226
CASH AND CASH EQUIVALENTS - Beginning of the year	66,449	56,115	50,889
CASH AND CASH EQUIVALENTS - End of the year	$ 176,523	$ 66,449	$ 56,115
SUPPLEMENTAL DISCLOSURE OF OTHER CASH FLOW INFORMATION:			
Cash paid for income taxes	$ 3,304	$ 5,144	$ 1,551
SUPPLEMENTAL DISCLOSURE OF NON-CASH INVESTING AND FINANCING ACTIVITIES:			
Purchase of property and equipment recorded in accounts payable	$ 1,198	$ 190	$ 936
Leasehold improvements funded by landlord	$ —	$ 1,551	$ —
Operating lease right of use asset [(1)]	$ 21,588	$ —	$ —
Operating lease liabilities- short-term and long term	$ (19,467)	$ —	$ —

Issuance of 38,462 shares of common stock in connection with the Conversable transaction on December 13, 2019	$	1,000	$	—	$	—
Issuance of 85,861 shares of common stock in connection with the BotCentral transaction on January 24, 2018	$	—	$	1,000	$	—
Issuance of 115,385 shares of common stock in connection with the Conversable transaction on September 27, 2018	$	—	$	2,850	$	—
Issuance of 178,082 shares of common stock in connection with the AdvantageTec transaction on October 11, 2018	$	—	$	4,300	$	—
Fair value of contingent earn-out in connection with the acquisition of Conversable recorded in accrued expenses	$	—	$	1,496	$	—
Fair value of contingent earn-out in connection with the acquisition of AdvantageTec recorded in accrued expenses	$	—	$	876	$	—

(1) Includes leases that commenced during the year ended December 31, 2019, as well as balances related to leases in existence as of the date of the adoption of Topic 842.

See notes to consolidated financial statements.

1. Description of Business and Summary of Significant Accounting Policies

LivePerson, Inc. (“LivePerson”, the “Company”, “we” or “our”) was incorporated in the State of Delaware in November 1995 and the LivePerson service was introduced in November 1998. In April 2000, the company completed an initial public offering and is currently traded on the NASDAQ Global Select Market and the Tel Aviv Stock Exchange. LivePerson is headquartered in New York City with U.S. offices in Alpharetta (Georgia), Austin (Texas), San Francisco (California) and Seattle (Washington), and international offices in Amsterdam (Netherlands), Berlin (Germany), Delhi (India), London (United Kingdom), Mannheim (Germany), Melbourne (Australia), Milan (Italy), Paris (France), Ra'anana (Israel), Reading (United Kingdom), Singapore (Singapore), Tel Aviv (Israel), and Tokyo (Japan).

LivePerson makes life easier for people and brands everywhere through messaging powered by AI and humans. During the past decade, the consumer has made the mobile device the center of their digital lives, and they have made mobile messaging the center of communication with friends, family and peers. Our technology enables consumers to connect with businesses through these same preferred conversational interfaces, including Facebook Messenger, SMS, WhatsApp, Apple Business Chat, Google Rich Business Messenger and Alexa. These messaging conversations harness human agents, bots and Artificial Intelligence (AI) to power convenient, personalized and content-rich journeys across the entire consumer lifecycle, from discovery and research, to sales, service and support, and even marketing, social and brick and mortar engagements. For example, consumers can look up product info like ratings, images and pricing, search for stores, see product inventory, schedule appointments, apply for credit, approve repairs, make purchases or payments - all without ever leaving the messaging channel. These AI and human-assisted conversational experiences constitute the Conversational Space.

LiveEngage, our enterprise-class cloud-based platform, enables businesses to become conversational by securely deploying messaging, coupled with bots and AI, at scale for brands with tens of millions of customers and many thousands of customer care agents. LiveEngage powers conversations across each of a brand’s primary digital channels, including mobile apps, mobile and desktop web browsers, short message service (SMS), social media and third-party consumer messaging platforms. Brands can also use LiveEngage to message consumers when they dial a 1-800 number instead of forcing them to navigate interactive voice response systems (IVRs) and wait on hold. Similarly, LiveEngage can ingest traditional emails and convert them into messaging conversations, or embed messaging conversations directly into web advertisements, rather than redirect consumers to static website landing pages.

LivePerson's robust, cloud-based suite of rich messaging, real-time chat, AI and automation offerings features consumer and agent facing bots, intelligent routing and capacity mapping, real-time intent detection and analysis, queue prioritization, customer sentiment, analytics and reporting, content delivery, Payment Card Industry (PCI) compliance, cobrowsing and a sophisticated proactive targeting engine. With LiveEngage, agents can manage all conversations with consumers through a single console interface, regardless of which disparate messaging endpoints the consumers originate from; i.e., WhatsApp, Line, Apple Business Chat, IVR, social, email, Amazon Alexa, or WeChat. An extensible application programming interface (API) stack facilitates a lower cost of ownership by facilitating robust integration into back-end systems, as well as enabling developers to build their own programs and services on top of the platform. More than 40 APIs and software development kits are available on LiveEngage.

LivePerson’s Conversational AI offerings put the power of bot development, training, management and analysis into the hands of the contact center and its agents, the teams most familiar with how to structure sales and service conversations to drive successful outcomes. The platform enables what we call “the tango” of humans, AI and bots, whereby human agents act as bot managers, overseeing AI-powered conversations and seamlessly stepping into the flow when a personal touch is needed. Agents become ultra-efficient, leveraging the AI engine to serve up relevant content, define next-best actions and take over repetitive transactional work, so that the agent can focus on relationship building. By seamlessly integrating messaging with our proprietary Conversational AI, as well as third-party bots, LiveEngage offers brands a comprehensive approach to scaling automations across their millions of customer conversations.

LivePerson's consumer services offering is an online marketplace that connects independent service providers (Experts) who provide information and knowledge for a fee via mobile and online messaging with individual consumers (Users). Users seek assistance and advice in various categories including personal counseling and coaching, computers and programming, education and tutoring, spirituality and religion, and other topics.

Principles of Consolidation

The consolidated financial statements reflect the operations of LivePerson and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

1. Description of Business and Summary of Accounting Policies (Continued)

Use of Estimates

The preparation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (“GAAP”) requires the Company’s management to make a number of estimates and assumptions relating to the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the period. Significant items subject to such estimates and assumptions include revenue recognition, stock-based compensation, accounts receivable, the valuation of goodwill and intangible assets, income taxes and legal contingencies. Actual results could differ from those estimates.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash and cash equivalents and accounts receivable which approximate fair value at December 31, 2019 because of the short-term nature of these instruments. The Company invests its cash and cash equivalents with financial institutions that it believes are of high quality, and the Company performs periodic evaluations of these instruments and the relative credit standings of the institutions with which it invests. At certain times, the Company’s cash balances with any one financial institution may exceed Federal Deposit Insurance Corporation insurance limits. The Company believes it mitigates its risk by depositing its cash balances with high credit, quality financial institutions.

The Company performs ongoing credit evaluations of its customers’ financial condition (except for customers who purchase the LivePerson services by credit card via Internet download) and has established an allowance for doubtful accounts based upon factors surrounding the credit risk of customers, historical trends and other information. Concentration of credit risk is limited due to the Company’s large number of customers. No single customer accounted for or exceeded 10% of revenue in 2019, 2018 or 2017. Two customers exceeded 10% of the Company's total accounts receivable in 2019 with a balance of approximately $17.6 million. No single customer accounted for or exceeded 10% of the Company’s total accounts receivable in 2018 or in 2017.

Foreign Currency Translation

The Company’s operations are conducted in various countries around the world and the financial statements of its foreign subsidiaries are reported in the applicable foreign currencies (functional currencies). Financial information is translated from the applicable functional currency to the U.S. dollar (the reporting currency) for inclusion in the Company’s consolidated financial statements. Income, expenses and cash flows are translated at weighted average exchange rates prevailing during the fiscal period, and assets and liabilities are translated at fiscal period-end exchange rates. Resulting translation adjustments are included as a component of accumulated other comprehensive income (loss) in stockholders’ equity. Foreign exchange transaction gain or losses are included in Other Income (Expense), net in the accompanying consolidated statements of operations.

Cash and Cash Equivalents

The Company considers all highly liquid securities with original maturities of three months or less when acquired to be cash equivalents. Cash equivalents, which primarily consist of money market funds, are recorded at cost, which approximates fair value.

Accounts Receivable

Accounts receivable are recorded at the invoiced amount and do not bear interest. The allowance for doubtful accounts is the Company’s best estimate of the amount of probable credit losses in the Company’s existing accounts receivable. The Company determines the allowance based on historical write-off experience. The Company reviews its allowance for doubtful accounts monthly. Past due balances over 90 days and over a specified amount are reviewed individually for collectability. All other balances are reviewed on a pooled basis. Account balances are charged off against the allowance after all means of collection have been exhausted and the potential for recovery is considered remote. The Company does not have any off-balance sheet credit exposure related to its customers. The activity in the allowance for doubtful accounts is as follows (amounts in thousands):

Year Ended December 31,	Beginning Balance	Additions Charged to Costs and Expenses	Deductions / Write-Offs	Ending Balance
2017	$ 1,732	$ 1,895	$ (2,309)	$ 1,318
2018	$ 1,318	$ 1,814	$ (856)	$ 2,276
2019	$ 2,276	$ 2,159	$ (1,365)	$ 3,070

1. Description of Business and Summary of Accounting Policies (Continued)

Property and Equipment

Property and equipment are stated at cost, net of accumulated depreciation, and amortization. Depreciation and amortization is calculated using the straight-line method over the estimated useful lives of the related assets, generally three to five years for equipment and software. Leasehold improvements are amortized using the straight-line method over the shorter of the lease term or the estimated useful life of the asset. Depreciation expense, which includes amortization of internal use software totaled $16.4 million, $14.2 million, and $12.4 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Internal-Use Software Development Costs

In accordance with the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) 350-40, ‘‘Internal-Use Software’’, the Company capitalizes its costs to develop its internal use software when preliminary development efforts are successfully completed, management has authorized and committed project funding, and it is probable that the project will be completed and the software will be used as intended. These costs are included in property and equipment in the Company's consolidated balance sheets and are amortized on a straight-line basis over the estimated useful life of the related asset, which approximates five years. Costs incurred prior to meeting these criteria, together with costs incurred for training and maintenance, are expensed as incurred.

The Company capitalized internal-use software costs of $29.1 million, $11.7 million, and $8.3 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Goodwill and Intangible Assets

The Company records goodwill when the consideration paid in a business combination exceeds the fair value of the net tangible assets and the identified intangible assets acquired. Goodwill is not amortized, but instead is required to be tested for impairment annually and whenever events or changes in circumstances indicate that the carrying value of goodwill may exceed its fair value.

The Company performs testing for impairment of goodwill in its third quarter, or as events occur or circumstances change that would more likely than not reduce the fair value of the Company’s reporting units below their carrying amounts. A qualitative assessment is first made to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. This initial qualitative assessment includes, among other things, consideration of: (i) market capitalization of the Company, (ii) past, current and projected future earnings and equity; (iii) recent trends and market conditions; and (iv) valuation metrics involving similar companies that are publicly-traded and acquisitions of similar companies, if available. If this initial qualitative assessment indicates that it is more likely than not that impairment exists, a second analysis will be performed, involving a comparison between the estimated fair values of the Company’s reporting unit with its respective carrying amount including goodwill. If the carrying value exceeds estimated fair value, there is an indication of potential impairment, and a third analysis is performed to measure the amount of impairment. The third analysis involves calculating an implied fair value of goodwill by measuring the excess of the estimated fair value of the reporting unit over the aggregate estimated fair values of the individual assets less liabilities. If the carrying value of goodwill exceeds the implied fair value of goodwill, an impairment charge is recorded for the excess.

Intangible assets with estimable useful lives are amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment in accordance with ASC 360-10-35, “Accounting for Impairment or Disposal of Long-Lived Assets.”

The Company evaluates for goodwill impairment annually at September 30th and at the end of the third quarter of 2019, and 2018, the Company determined that it was not more-likely that the fair value of the reporting units is less than their carrying amount. Accordingly, the Company did not perform the two-step goodwill impairment test on both the Company's Business and Consumer segments. The Company assessed qualitative facts while summarizing the totality of events and circumstances and considered the extent to which adverse events or circumstances could affect the reporting unit's fair value as well as the consideration of positive and mitigating events and circumstances that would affect the determination of whether it was more likely than not that the fair value of a reporting unit is less than its carrying amount.

Business Combinations

Business combinations are accounted for using the acquisition method and accordingly, the assets acquired (including identified intangible assets), the liabilities assumed and any noncontrolling interest in the acquired business are recorded at their acquisition date fair values. The Company’s acquisition model typically provides for an initial payment at closing and for future additional contingent purchase price obligations. Contingent purchase price obligations are recorded as deferred acquisition consideration on the balance sheet at the acquisition date fair value and are remeasured at each reporting period. Changes in such

1. Description of Business and Summary of Accounting Policies (Continued)

estimated values are recorded in the results of operations. For further information, see Note 8 of the Notes to the Consolidated Financial Statements included herein.

For each acquisition, the Company undertakes a detailed review to identify other intangible assets and a valuation is performed for all such identified assets. The Company uses several market participant measurements to determine estimated value. This approach includes consideration of similar and recent transactions, as well as utilizing discounted expected cash flow methodologies. A substantial portion of the intangible asset value that the Company acquires is the specialized know-how of the workforce, which is treated as part of goodwill and is not required to be valued separately. The majority of the value of the identifiable intangible assets acquired is derived from customer relationships, including the related customer contracts, as well as trade names. In executing the Company's overall acquisition strategy, one of the primary drivers in identifying and executing a specific transaction is the existence of, or the ability to, expand the existing client relationships. The expected benefits of the Company's acquisitions are typically shared across multiple agencies and regions.

Impairment of Long-Lived Assets

In accordance with ASC 360-10, "Accounting for the Impairment or Disposal of Long-lived Assets," long-lived assets, such as property and equipment, and purchased intangibles subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset.

Revenue Recognition

The majority of the Company's revenue is generated from monthly service revenues and related professional services from the sale of the LivePerson services. Revenues are recognized when control of these services is transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those services.

The Company determines revenue recognition through the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when, or as, the Company satisfies a performance obligation.

Total revenue of $291.6 million, $249.8 million, and $218.9 million was recognized during the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

The Company has made the following accounting policy election and elected to use a practical expedient specific to certain revenue streams, as permitted by the FASB, in applying Topic 606. The Company utilizes the right-to-invoice practical expedient with regard to the recognition of revenue upon the invoicing of certain revenue streams, as revenue for those streams are billed monthly.

Under Topic 606, the Company defers all incremental commission costs ("contract acquisition costs") to obtain the contract. The contract acquisition costs, which are comprised of prepaid sales commissions, have balances at December 31, 2019 and 2018 of $32.0 million and $13.4 million, respectively. The Company amortizes these costs over the related period of benefit using the customer expected life that the Company determined to be three to five years which is consistent with the transfer to the customer of the services to which the asset relates. The Company classifies contract acquisition costs as long-term unless they have an original amortization period of one year or less.

1. Description of Business and Summary of Accounting Policies (Continued)

Hosted Services- Business Revenue

Hosted Services Business revenue is reported at the amount that reflects the ultimate consideration expected to be received and primarily consist of fees that provide customers access to LiveEngage, the Company's enterprise-class, cloud-based platform. The Company has determined such access represents a stand-ready service provided continually throughout the contract term. As such, control and satisfaction of this stand-ready performance obligation is deemed to occur over time. The Company recognizes this revenue over time on a ratable basis over the contract term, beginning on the date that access to the LiveEngage platform is made available to the customer. The passage of time is deemed to be the most faithful depiction of the transfer of control of the services as the customer simultaneously receives and consumes the benefit provided by the Company's performance. Subscription contracts are generally one year or longer in length, billed, monthly, quarterly or annually in advance. There is no significant variable consideration related to these arrangements. Additionally, for certain of the Company's larger customers, the Company may provide call center labor through an arrangement with one or more of several qualified vendors. For most of these customers, the Company passes the fee it incurs with the labor provider and its fee for the hosted services through to its customers in the form of a fixed fee for each order placed via the Company's online engagement solutions. For these Pay for Performance (''PFP'') arrangements in accordance with ASC-606, ''Principal Agent Considerations'', the Company acts as a principal in a transaction if it controls the specified goods or services before they are transferred to the customer.

Professional Services Revenues

Professional services revenue primarily consists of fees for deployment and optimization services, as well as training delivered on an on-demand basis which is deemed to represent a distinct stand-ready performance obligation. Professional Services Revenues are reported at the amount that reflects the ultimate consideration the Company expects to receive in exchange for such services. Control for the majority of the Company's Professional Services contracts passes over time to the customer and is recognized ratably over the contracted period, as the passage of time is deemed to be the most faithful depiction of the transfer of control. For certain deployment services, which are not deemed to represent a distinct performance obligation, revenue will be recognized in the same manner as the fee for access to the LiveEngage platform, and as such will be recognized on a straight-line basis over the contract term. For services billed on a fixed price basis, revenue is recognized over time based on the proportion performed using inputs as the measure of progress toward complete satisfaction of the performance obligation. Professional service contracts are generally one year or longer in length, billed, monthly, quarterly or annually in advance. There is no significant variable consideration related to these arrangements.

Contracts with Multiple Performance Obligations

Some of the Company's contracts with customers contain multiple performance obligations. For these contracts, the Company accounts for individual performance obligations separately if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. The Company determines the standalone selling prices based on its overall pricing objectives, taking into consideration market conditions and other factors, including the value of its contracts, the cloud applications sold, and the number and types of users within its contracts.

Hosted Services- Consumer Revenue

For revenue from the Company's Consumer segment generated from online transactions between Experts and Users, revenue is recognized at an amount net of Expert fees in accordance with ASC 606, "Principal Agent Considerations," due primarily to the fact that the Expert is the primary obligor. Additionally, the Company performs as an agent without any risk of loss for collection, and is not involved in selecting the Expert or establishing the Expert's fee. The Company collects a fee from the consumer and retains a portion of the fee, and then remits the balance to the Expert. Revenue from these transactions is recognized at the point in time when the transaction is complete and no significant performance obligations remain.

Deferred Revenues

The Company records deferred revenues when cash payments are received or due in advance of its performance. The increase in the deferred revenue balance for the year ended December 31, 2019 is primarily driven by cash payments received or due in advance of satisfying its performance obligations, partially offset by $42.4 million of revenues recognized that were included in the deferred revenue balance as of December 31, 2018.

1. Description of Business and Summary of Accounting Policies (Continued)

The following table presents deferred revenue by revenue source (amounts in thousands):

	December 31,	
	2019	2018
Hosted services – Business	$ 82,892	$ 51,689
Hosted services – Consumer	687	543
Professional services – Business	5,172	2,783
Total deferred revenue - short term	$ 88,751	$ 55,015
Hosted services – Business	$ —	$ 19
Professional services – Business	438	203
Total deferred revenue - long term	$ 438	$ 222

Disaggregated Revenue

The following table presents the Company's revenues disaggregated by revenue source (amounts in thousands):

	December 31,		
	2019	2018	2017
Revenue:			
Hosted services – Business	$ 225,705	$ 197,474	$ 178,686
Hosted services – Consumer	24,480	19,553	17,450
Professional services	41,424	32,811	22,740
Total revenue	$ 291,609	$ 249,838	$ 218,876

Revenue by Geographic Location

The Company is domiciled in the United States and has international operations in the United Kingdom, Asia-Pacific, Latin America and Western Europe, particularly France and Germany. The following table presents the Company's revenues attributable to domestic and foreign operations for the years ended (amounts in thousands):

	December 31,		
	2019	2018	2017
United States	$ 170,815	$ 146,702	$ 137,433
Other Americas (1)	11,462	7,315	6,987
Total Americas	182,277	154,017	144,420
EMEA (2) (4)	78,301	71,318	56,310
APAC (3)	31,031	24,503	18,146
Total revenue	$ 291,609	$ 249,838	$ 218,876

(1) Canada, Latin America and South America
(2) Europe, the Middle East and Africa ("EMEA")
(3) Asia-Pacific ("APAC")
(4) Includes revenue from the United Kingdom of $50.4 million, $46.5 million, and $38.9 million for the year ended December 31, 2019, 2018, and 2017, respectively. and from the Netherlands of $10.0 million, $8.7 million, and $2.0 million for the year ended December 31, 2019, 2018, and 2017, respectively.

Information about Contract Balances

Amounts collected in advance of services being provided are accounted for as deferred revenue. Nearly all of the Company's deferred revenue balance is related to *Hosted Services- Business Revenue.*

1. Description of Business and Summary of Accounting Policies (Continued)

In some arrangements, the Company allows customers to pay for access to LiveEngage over the term of the software license. The Company refers to these as subscription transactions. Amounts recognized as revenue in excess of amounts billed are recorded as unbilled receivables. Unbilled receivables, anticipated to be invoiced in the next twelve months, are included in accounts receivable on the consolidated balance sheet. The opening and closing balances of the Company's accounts receivable, unbilled receivables, and deferred revenues are as follows (amounts in thousands):

	Accounts Receivable	Unbilled Receivable	Contract Acquisition Costs noncurrent	Deferred Revenue (current)	Deferred Revenue (long term)
Opening Balance as of December 31, 2018	$ 34,211	$ 11,812	$ 13,361	$ 55,015	$ 222
Increase (decrease), net	36,107	5,490	18,604	33,736	216
Ending Balance as of December 31, 2019	$ 70,318	$ 17,302	$ 31,965	$ 88,751	$ 438

As of December 31, 2019, the Company expects to recognize the long term performance obligations in 2020.

Advertising Costs

The Company expenses the cost of advertising and promoting its services as incurred in the sales and marketing expense on the consolidated statement of operations. Such costs totaled approximately $28.6 million, $17.4 million, and $15.8 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Stock-based Compensation

In accordance with ASC Topic 718 -10, ‘‘Stock Compensation’’, the Company measures stock based awards at fair value and recognizes compensation expense for all share-based payment awards made to its employees and directors, including employee stock options.

The Company estimates the fair value of stock options granted using the Black-Scholes valuation model. This model requires the Company to make estimates and assumptions including, among other things, estimates regarding the length of time an employee will retain vested stock options before exercising them, the estimated volatility of its common stock price and the number of options that will be forfeited prior to vesting. The fair value is then recognized on a straight line basis over the requisite service period of the award, which is generally three to four years. Changes in these estimates and assumptions can materially affect the determination of the fair value of the stock-based compensation and consequently, the related amount recognized in the consolidated statement of operations.

Deferred Rent

The Company records rent expense on a straight-line basis over the term of the related lease. The difference between the rent expense recognized for financial reporting purposes and the actual payments made in accordance with the lease agreement is recognized as deferred rent liability included in other liabilities on the Company’s consolidated balance sheets.

Income Taxes

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in results of operations in the period that the tax change occurs. In evaluating our ability to recover our deferred tax assets in the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. We include interest accrued on the underpayment of income taxes in interest expense and penalties, if any, related to unrecognized tax benefits in general and administrative expenses. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized

1. Description of Business and Summary of Accounting Policies (Continued)

Comprehensive Loss

In accordance with ASC 220, ‘‘Comprehensive Income’’, the Company reports by major components and as a single total, the change in its net assets during the period from non-owner sources. Comprehensive income (loss) consists of net income (loss), and accumulated other comprehensive income (loss), which includes certain changes in equity that are excluded from net income (loss). The Company’s comprehensive loss for all periods presented is related to the effect of foreign currency translation.

Recently Issued Accounting Standards

In June 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (‘‘ASU’’) 2016-13, “Financial Instruments-Credit Losses: Measurement of Credit Losses on Financial Instruments,” which changes the impairment model for most financial assets. The new model uses a forward-looking expected loss method, which will generally result in earlier recognition of allowances for losses. In November 2018, the FASB issued ASU 2018-19, “Codification Improvements to Topic 326, Financial Instruments- Credit Losses,” which clarifies that receivables arising from operating leases are not within the scope of Topic 326, Financial Instruments-Credit Losses. Instead, impairment of receivables arising from operating leases should be accounted for in accordance with Topic 842, Leases . In April 2019, the FASB issued ASU 2019-04, ‘‘Codification Improvements to Topic 326, Financial Instruments-Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments,’’ which clarifies treatment of certain credit losses. In May 2019, the FASB issued ASU 2019-05, ‘‘Financial Instruments - Credit Losses (Topic 326): Targeted Transition Relief,’’ which permits an entity, upon adoption of ASU 2016-13, to irrevocably elect the fair value option (on an instrument-by instrument basis) for eligible financial assets measured at amortized cost basis. These ASUs are effective for annual and interim periods beginning after January 1, 2020, and early adoption is permitted. The Company does not expect the adoption of this standard to have a material effect on our consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, ‘‘Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract; Disclosures for Implementation Costs Incurred for Internal-Use Software and Cloud Computing Arrangements’’ (“ASU 2018-15”). This standard aligns the accounting for implementation costs incurred in a hosting arrangement that is a service contract with the accounting for implementation costs incurred to develop or obtain internal-use software under Accounting Standards Codification (‘‘ASC’’) 350-40, in order to determine which costs to capitalize and recognize as an asset. ASU 2018-15 is effective for annual reporting periods, and interim periods within those years, beginning after December 15, 2019, and can be applied either prospectively to implementation costs incurred after the date of adoption or retrospectively to all arrangements. The Company is currently in the process of evaluating the impact of the adoption of ASU 2018-230 on its consolidated financial statements.

In January 2017, FASB issued ASU No. 2017-04, ‘‘Intangibles -Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment’’ (“ASU 2017-04”). This update addresses concerns over the cost and complexity of the two-step goodwill impairment test. The amendments in this update remove the second step of the test. An entity will apply a one-step quantitative test and record the amount of goodwill impairment as the excess of a reporting unit's carrying amount over its fair value, not to exceed the total amount of goodwill allocated to the reporting unit. The new guidance does not amend the optional qualitative assessment of goodwill impairment. ASU 2017-04 is effective for financial statements issued for annual periods beginning after December 15, 2019, and interim periods within those annual periods. The Company does not expect the adoption of ASU 2017-04 will have a material effect on its financial position, results of operations or cash flows.

Recently Adopted Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, “Leases” (“ASU 2016-02”). ASU 2016-02 requires lessees to recognize the following for all leases (with the exception of short-term leases) at the commencement date: a lease liability, which is a lessee’s obligation to make lease payments arising from a lease, measured on a discounted basis; and a right-of-use asset, which is an asset that represents the lessee’s right to use, or control the use of, a specified asset for the lease term. Under the new guidance, lessor accounting is largely unchanged. Lessees (for capital and operating leases) and lessors (for sales-type, direct financing, and operating leases) may apply a modified retrospective transition approach for leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. The modified retrospective approach would not require any transition accounting for leases that expired before the earliest comparative period presented.

1. Description of Business and Summary of Accounting Policies (Continued)

The Company adopted ASU No. 2016-02, ‘‘Leases’’ (Topic 842), as of January 1, 2019 using the modified transition approach. The modified transition approach provides a method for recording existing leases at adoption. As a result, the Company was not required to adjust its comparative period financial information for effects of the standard or make the new required lease disclosures for periods before the date of adoption (i.e. January 1, 2019). For its long-term operating lease, the Company recognized a right-of-use asset and a lease liability on its balance sheet. The lease liability is determined as the present value of future lease payments using an estimated rate of interest that the Company would have to pay to borrow equivalent funds on a collateralized basis at the lease commencement date. The right-of-use asset is based on the liability adjusted for any prepaid or deferred rent. The lease term at the commencement date is determined by considering whether renewal options and termination options are reasonably assured of exercise. Rent expense for the operating lease is recognized on a straight-line basis over the lease term and is included in operating expenses on the statements of operations. Variable lease payments include lease operating expenses. The adoption of the new standard resulted in the recording of additional net lease assets and lease liabilities of approximately $10.0 million. The standard did not materially impact the Company's consolidated net earnings and had no impact on cash flows.

In June 2018, the FASB issued ASU No. 2018-07, ‘‘Compensation -Stock Compensation (Topic 718) - Improvements to Nonemployee Share-Based Payment Accounting’’ (‘‘ASU 2018-07’’). This new standard expands the scope of Topic 718, Compensation-Stock Compensation (which currently only includes share-based payments to employees) to include share-based payments issued to non-employees for goods or services. Consequently, the accounting for share-based payments to non-employees and employees will be substantially aligned. ASU 2018-07 is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. The standard did not materially impact the Company's consolidated net earnings and had no impact on cash flows.

Impact on Previously Issued Financial Statements for the Correction of an Error

During the quarter ended December 31, 2019, the Company identified and corrected an immaterial error that affected previously issued consolidated financial statements for the quarters ended March 31, June 30, and September 30, 2019 and 2018, respectively, and for the year ended December 31, 2018. The error related to the misapplication of U.S. generally accepted accounting principles relating to the classification of its contract acquisition costs for sales commissions. The Company previously recorded contract acquisition costs, a non current asset, as a component of prepaid expenses and other current assets.

The effects of the above correction on the Company’s consolidated balance sheets is as follows (amounts in thousands):

	2019		
	As of March 31,	As of June 30,	As of September 30,
Prepaid expenses and other current assets			
As previously reported	$ 29,290	$ 35,317	$ 41,806
Adjustment	(16,808)	(19,995)	(25,993)
As revised	12,482	15,322	15,813
Current assets			
As previously reported	318,362	311,511	300,746
Adjustment	(16,808)	(19,995)	(25,993)
As revised	301,554	291,516	274,753
Contract acquisition costs			
As previously reported	—	—	—
Adjustment	16,808	19,995	25,993
As revised	16,808	19,995	25,993

1. Description of Business and Summary of Accounting Policies (Continued)

	2018			
	As of March 31,	As of June 30,	As of September 30,	As of December 31,
Prepaid expenses and other current assets				
As previously reported	$ 13,194	$ 16,885	$ 18,722	$ 22,613
Adjustment	(5,539)	(7,852)	(10,880)	(13,361)
As revised	7,655	9,033	7,842	9,252
Current assets				
As previously reported	116,787	124,957	136,800	135,085
Adjustment	(5,539)	(7,852)	(10,880)	(13,361)
As revised	111,248	117,105	125,920	121,724
Contract acquisition costs				
As previously reported	—	—	—	—
Adjustment	5,539	7,852	10,880	13,361
As revised	5,539	7,852	10,880	13,361

2. Net Loss per Share

The Company calculates earnings per share ("EPS") in accordance with the provisions of ASC 260-10 and the guidance of SEC Staff Accounting Bulletin ("SAB") No. 98. Under ASC 260-10, basic EPS excludes dilution for common stock equivalents and is computed by dividing net income or loss attributable to common shareholders by the weighted average number of common shares outstanding for the period. All options, warrants or other potentially dilutive instruments issued for nominal consideration are required to be included in the calculation of basic and diluted net income attributable to common stockholders. Diluted EPS is calculated using the treasury stock method and reflects the potential dilution that could occur if securities or other contracts to issue common stock were exercised or converted into common stock and resulted in the issuance of common stock.

Diluted net loss per common share for the year ended December 31, 2019 does not include the effect of options to purchase 8,848,907 shares of common stock awards as the effect of their inclusion is anti-dilutive. Diluted net loss per common share for the year ended December 31, 2018 does not include the effect of options to purchase 8,957,672 shares of common stock awards as the effect of their inclusion is anti-dilutive. Diluted net loss per common share for the year ended December 31, 2017 does not include the effect of options to purchase 8,831,798 shares of common stock awards as the effect of their inclusion is anti-dilutive.

A reconciliation of shares used in calculating basic and diluted earnings per share follows:

	Year Ended December 31,		
	2019	**2018**	**2017**
Basic	62,593,026	59,203,400	56,358,017
Effect of assumed exercised options	—	—	—
Diluted	62,593,026	59,203,400	56,358,017

3. Segment Information

The Company accounts for its segment information in accordance with the provisions of ASC 280-10, "Segment Reporting." ASC 280-10 establishes annual and interim reporting standards for operating segments of a company. ASC 280-10 requires disclosures of selected segment-related financial information about products, major customers, and geographic areas based on the Company's internal accounting methods. The Company is organized into two operating segments for purposes of making operating decisions and assessing performance. The Business segment enables brands to leverage LiveEngage's sophisticated intelligence engine to connect with consumers through an integrated suite of mobile and online business messaging technologies. The Consumer segment facilitates online transactions between independent service providers ("Experts") and individual consumers ("Users") seeking information and knowledge for a fee via mobile and online messaging. Both segments currently generate their revenue primarily in the United States. The chief operating decision maker, who is the chief executive officer, evaluates performance, makes operating decisions, and allocates resources based on the operating income of each segment. The reporting segments follow the same accounting polices used in the preparation of the Company's consolidated financial statements which are described in the summary of significant accounting policies. The Company allocates cost of revenue, sales and marketing and amortization of purchased intangibles to the segments, but it does not allocate product development expenses, general and administrative expenses, restructuring costs and income tax expense because management does not use this information to measure performance of the operating segments. There are currently no inter-segment sales.

3. Segment Information - (Continued)

Summarized financial information by segment for the year ended December 31, 2019, based on the Company's internal financial reporting system utilized by the Company's chief operating decision maker, follows (amounts in thousands):

	Business	Consumer	Corporate	Consolidated
Revenue:				
Hosted services – Business	$ 225,705	$ —	$ —	$ 225,705
Hosted services – Consumer	—	24,480	—	24,480
Professional services – Business	41,424	—	—	41,424
Total revenue	267,129	24,480	—	291,609
Cost of revenue	74,460	4,418	—	78,878
Sales and marketing	140,880	15,934	—	156,814
Amortization of purchased intangibles	1,794	—	—	1,794
Unallocated corporate expenses	—	—	141,155	141,155
Operating income (loss)	$ 49,995	$ 4,128	$ (141,155)	$ (87,032)

Summarized financial information by segment for the year ended December 31, 2018, based on the Company's internal financial reporting system utilized by the Company's chief operating decision maker, follows (amounts in thousands):

	Business	Consumer	Corporate	Consolidated
Revenue:				
Hosted services – Business	$ 197,474	$ —	$ —	$ 197,474
Hosted services – Consumer	—	19,553	—	19,553
Professional services – Business	32,811	—	—	32,811
Total revenue	230,285	19,553	—	249,838
Cost of revenue	58,420	4,059	—	62,479
Sales and marketing	94,339	9,005	—	103,344
Amortization of purchased intangibles	1,670	—	—	1,670
Unallocated corporate expenses	—	—	106,048	106,048
Operating income (loss)	$ 75,856	$ 6,489	$ (106,048)	$ (23,703)

Summarized financial information by segment for the year ended December 31, 2017, based on the Company's internal financial reporting system utilized by the Company's chief operating decision maker, follows (amounts in thousands):

	Business	Consumer	Corporate	Consolidated
Revenue:				
Hosted services – Business	$ 178,686	$ —	$ —	$ 178,686
Hosted services – Consumer	—	17,450	—	17,450
Professional services – Business	22,740	—	—	22,740
Total revenue	201,426	17,450	—	218,876
Cost of revenue	54,600	3,605	—	58,205
Sales and marketing	82,420	8,485	—	90,905
Amortization of purchased intangibles	1,840	—	—	1,840
Unallocated corporate expenses	—	—	85,752	85,752
Operating income (loss)	$ 62,566	$ 5,360	$ (85,752)	$ (17,826)

3. Segment Information - (Continued)

Geographic Information

The Company is domiciled in the United States and has international operations in the United Kingdom, Asia-Pacific, Latin America and Western Europe, particularly France and Germany. The following table presents the Company's long-lived assets by geographic region for the periods presented (amounts in thousands):

	December 31,	
	2019	2018
United States	$ 177,776	$ 128,647
Israel	16,680	14,140
Australia	13,765	9,529
Netherlands	7,705	7,452
Other [1]	18,677	8,611
Total long-lived assets	$ 234,603	$ 168,379

[1] United Kingdom, Germany, Japan, France, Italy, Singapore, Canada, and Spain

4. Property and Equipment

The following table presents the detail of property and equipment for the periods presented (amounts in thousands):

	December 31,	
	2019	2018
Computer equipment and software	$ 92,493	$ 79,161
Furniture, equipment and building improvements	16,487	14,132
Internal-use software development costs	52,544	19,240
	161,524	112,533
Less: accumulated depreciation and amortization	(85,288)	(68,798)
Total	$ 76,236	$ 43,735

In accordance with its policy, the Company reviews the estimated useful lives of its fixed assets on an ongoing basis. As of December 31, 2019 and 2018, there was approximately $25.3 million, and 7.8 million, respectively, of internal-use software development costs related to projects currently still in development, therefore, are not yet subject to amortization. Aggregate depreciation and amortization expense for property and equipment was $16.4 million, $14.2 million and $12.4 million for the years ended December 31, 2019, 2018, and 2017, respectively.

5. Goodwill and Intangible Assets

Goodwill

The changes in the carrying amount of goodwill for the year ended December 31, 2019 are as follows (amounts in thousands):

	Business	Consumer	Total
Balance as of December 31, 2018	$ 87,007	$ 8,024	$ 95,031
Adjustments to goodwill:			
Foreign exchange adjustments	(44)	—	(44)
Balance as of December 31, 2019	$ 86,963	$ 8,024	$ 94,987

5. Goodwill and Intangible Assets - (Continued)

The changes in the carrying amount of goodwill for the year ended December 31, 2018 are as follows (amounts in thousands):

	Business	Consumer	Total
Balance as of December 31, 2017	$ 72,507	$ 8,024	$ 80,531
Adjustments to goodwill:			
Acquisitions	14,606	—	14,606
Foreign exchange adjustments	(106)	—	(106)
Balance as of December 31, 2018	$ 87,007	$ 8,024	$ 95,031

The total accumulated goodwill impairment charges are $23.5 million through December 31, 2019. No impairment was recognized for the years ended December 31, 2019, 2018, and 2017.

Intangible Assets

Intangible assets are summarized as follows (see Note 8) (amounts in thousands):

	December 31, 2019			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Amortization Period
Amortizing intangible assets:				
Technology	$ 30,413	$ (25,187)	$ 5,226	5.3 years
Customer relationships	16,964	(12,958)	4,006	8.4 years
Patents	3,267	(714)	2,553	12.8 years
Other	262	(235)	27	2.7 years
Total	$ 50,906	$ (39,094)	$ 11,812	

	December 31, 2018			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Amortization Period
Amortizing intangible assets:				
Technology	$ 30,447	$ (23,615)	$ 6,832	5.3 years
Customer relationships	17,219	(11,786)	5,433	8.4 years
Patents	2,074	(534)	1,540	12.4 years
Other	262	(235)	27	2.7 years
Total	$ 50,002	$ (36,170)	$ 13,832	

5. Goodwill and Intangible Assets - (Continued)

Amortization expense is calculated over the estimated useful life of the asset. Aggregate amortization expense for intangible assets was $2.9 million, $2.8 million and $4.7 million for the years ended December 31, 2019, 2018 and 2017, respectively. For the years ended December 31, 2019, 2018 and 2017, a portion of this amortization is included in cost of revenue. Estimated amortization expense for the next five years are as follows (amounts in thousands):

	Estimated Amortization Expense
2020	$ 2,734
2021	2,520
2022	2,155
2023	904
2024	705
Thereafter	2,794
Total	$ 11,812

6. Accrued Liabilities and Other Current Liabilities

The following table presents the detail of accrued liabilities and other current liabilities for the periods presented (amounts in thousands):

	December 31,	
	2019	2018
Payroll and other employee related costs	$ 27,920	$ 19,014
Professional services, consulting and other vendor fees	20,382	17,461
Unrecognized tax benefits	2,053	1,913
Sales commissions	9,654	6,239
Contingent earn-out (Note 8)	557	2,372
Restructuring	314	977
Other	1,898	2,686
Total	$ 62,778	$ 50,662

7. Convertible Senior Notes and Capped Call Transactions

In March 2019, the Company issued $230.0 million aggregate principal amount of 0.750% Convertible Senior Notes due 2024 in a private placement, which amount includes $30.0 million aggregate principal amount of such Notes pursuant to the exercise in full of the over-allotment options of the initial purchasers (collectively, the “Notes”). The interest on the Notes is payable semi-annually in arrears on March 1 and September 1 of each year, beginning on September 1, 2019.

The Notes will mature on March 1, 2024, unless earlier repurchased or redeemed by the Company or converted pursuant to their terms. The total net proceeds from the debt offering, after deducting debt issuance costs, paid or payable by us, was approximately $221.4 million.

Each $1,000 principal amount of the Notes is initially convertible into 25.9182 shares of the Company’s common stock par value $0.001, which is equivalent to an initial conversion price of approximately $38.58 per share. The conversion rate is subject to adjustment upon the occurrence of certain specified events but will not be adjusted for any accrued and unpaid interest. In addition, following certain corporate events that occur prior to the maturity date, the Company will increase the conversion rate for a holder who elects to convert its Notes in connection with such a corporate event. The Notes are not redeemable prior to the maturity date of the Notes and no sinking fund is provided for the Notes. If we undergo a fundamental change (as defined in the indenture governing the Notes) prior to the maturity date, holders may require us to repurchase for cash all or any portion of their Notes in principal amounts of $1,000 or a multiple thereof at a fundamental change repurchase price equal to 100% of the principal amount of the Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

Holders of the Notes may convert their Notes at their option at any time prior to the close of business on the business day immediately preceding November 1, 2023, in multiples of $1,000 principal amount, only under the following circumstances: (1) during any calendar quarter commencing after the calendar quarter ending on June 30, 2019 (and only during such calendar quarter), if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price for the Notes on each applicable trading day as determined by the Company; (2) during the five business day period after any five consecutive trading day period (the "measurement period") in which the "trading price" (as defined in the indenture governing the Notes) per $1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate for the Notes on each such trading day; or (3) upon the occurrence of specified corporate events. On or after November 1, 2023, holders may convert all or any portion of their Notes at any time prior to the close of business on the second scheduled trading day immediately preceding the maturity date, regardless of the foregoing circumstances. Upon conversion, the Company will pay or deliver, as the case may be, cash, shares of its common stock or a combination of cash and shares of its common stock, at the Company's election.

It is the Company's current intent to settle the principal amount of its outstanding Notes in cash and any excess in shares of the Company's common stock.

As of December 31 2019, the conditions allowing holders of the Notes to convert were not met.

The Notes are senior unsecured obligations and will rank senior in right of payment to any of the Company's indebtedness that is expressly subordinated in right of payment to the Notes; equal in right of payment with the Company's existing and future liabilities that are not so subordinated; effectively subordinated to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all indebtedness and other liabilities (including trade payables) of current or future subsidiaries of the Company.

In accounting for the issuance of the Notes, the Company separated the Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was $52.9 million and was determined by deducting the fair value of the liability component from the par value of the Notes. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount, or the debt discount, is amortized to interest expense at an effective interest rate over the contractual terms of the Notes.

In accounting for the transaction costs related to the Notes, the Company allocated the total amount incurred of approximately $8.6 million to the liability and equity components of the Notes based on the proportion of the proceeds allocated to the debt and equity components. Issuance costs attributable to the liability component were approximately $6.6 million, were recorded as an additional debt discount and are amortized to interest expense using the effective interest method over the contractual terms of the Notes. Issuance costs attributable to the equity component were approximately $2.0 million and recorded as a reduction of additional paid in capital in stockholders' equity.

The net carrying amount of the liability component of the Notes was as follows (in thousands):

	As of December 31, 2019
Principal	$ 230,000
Unamortized discount	(45,295)
Unamortized issuance costs	(5,693)
Net carrying amount	$ 179,012

The net carrying amount of the equity component of the Notes was as follows (in thousands):

	As of December 31, 2019
Proceeds allocated to the conversion options (debt discount)	$ 52,900
Issuance costs	(1,986)
Net carrying amount	$ 50,914

The following table sets forth the interest expense recognized related to the Notes (in thousands):

	For the Year Ended December 31, 2019
Contractual interest expense	$ 1,438
Amortization of issuance costs	956
Amortization of debt discount	7,605
Total interest expense	$ 9,999

The remaining term over which the debt discount and debt issuance costs will be amortized is 4.2 years. The effective interest rate on the debt was 5.88% for the year ended December 31 2019. Interest expense of $10.0 million is reflected as a component of interest (expense) income, net in the accompanying consolidated statement of operations for the year ended December 31, 2019.

In connection with the offering of the Notes, the Company entered into privately-negotiated capped call option transactions with certain counterparties (the “capped calls”). The capped calls each have an initial strike price of approximately $38.58 per share, subject to certain adjustments, which corresponds to the initial conversion price of the Notes. The capped calls have initial cap prices of $57.16 per share, subject to certain adjustment events. The capped calls cover, subject to anti-dilution adjustments, approximately 5.96 million shares of common stock. The capped calls are generally intended to reduce or offset the potential dilution to the common stock upon any conversion of the Notes with such reduction or offset, as the case may be, subject to a cap based on the cap price. The capped calls expire on March 1, 2024, subject to earlier exercise. The capped calls are subject to either adjustment or termination upon the occurrence of specified extraordinary events affecting the Company, including a merger event, a tender offer, and a nationalization, insolvency or delisting involving the Company. In addition, the capped calls are subject to certain specified additional disruption events that may give rise to a termination of the capped calls, including changes in law, failure to deliver, and hedging disruptions. The capped calls are recorded in stockholders’ equity and are not accounted for as derivatives. The net cost of $23.2 million incurred to purchase the capped calls was recorded as a reduction to additional paid-in capital in the accompanying consolidated balance sheet.

8. Acquisitions

AdvantageTec Inc.

In October 2018, the Company entered into a stock purchase agreement to acquire the outstanding equity interest of AdvantageTec Inc. (“AdvantageTec”), a leading provider of texting solutions for service departments of automotive dealerships that helps enable the conversational experience across the entire dealership, including both front end/variable operations (new and used vehicle sales) and back end/fixed operations (parts and services). The purchase agreement was for total consideration of approximately $11.2 million, which includes approximately $6.0 million in cash, approximately $4.3 million in shares of common stock, and approximately $0.9 million of potential earn-out consideration in cash and shares of common stock. The earn-out is contingent upon achieving certain targeted financial, strategic and integration objectives and milestones and is included as part of the purchase price. During the year, the Company assessed this earn-out and recorded a $0.2 million fair value re-measurement adjustment, which was recorded in loss from operations as an increase in general and administrative expenses. In 2019, the Company made $0.5 million of payments in earn-out consideration, with potential future earn-out payments of $0.4 million.

The purchase price allocation resulted in approximately $9.1 million of goodwill and approximately $2.2 million of intangible assets. The goodwill will not be deductible for tax purposes. The intangible assets are being amortized over their expected period of benefit. A deferred tax liability for the identified intangibles has been recorded.

AdvantageTec Inc. enhances the Company’s messaging platform available for the automotive industry and is included in the Company's business segment.

Conversable, Inc.

In September 2018, the Company acquired the employees and technology assets of Conversable, Inc. a SaaS based Artificial Intelligence powered conversational platform, headquartered in Austin, Texas, for an aggregate estimated purchase price of $5.7 million. The estimated purchase price consisted of $1.3 million in cash, approximately $2.9 million in shares of common stock of the Company, and a potential earn-out consideration of $1.5 million in cash, which is based on achieving certain targeted financial, strategic, and integration objectives and milestones and is included as part of the purchase price. In 2019 the Company assessed this earn-out and recorded a $0.5 million fair value re-measurement adjustment, which was recorded in loss from operations as a decrease in general and administrative expenses. This transaction was accounted for under the purchase method of accounting and was based upon the estimated fair value of Conversable, Inc.'s net tangible and identifiable intangible assets as of the date of acquisition.

The purchase price allocation resulted in approximately $5.5 million of goodwill and approximately $0.5 million of intangible assets. The goodwill will be deductible for tax purposes. The intangible assets are being amortized over their expected period of benefit. The allocation of the purchase price to net book value of acquired assets and liabilities resulted in a net liability $0.3 million, which includes accounts receivable, property and equipment, accrued expenses, and deferred revenue.

Conversable Inc.’s capabilities will accelerate the ongoing expansion of the Company’s Conversational Space solutions and enhance the Company’s ability to deliver proactive and personalized content and services when and where the customer needs it, helping consumers find immediate service through messaging. Conversable, Inc. will be included in the Company’s business segment. The results of this acquisition were not significant to the results of operations for the year ended December 31, 2018.

BotCentral, Inc.

In January 2018, the Company acquired the employees and technology assets of BotCentral, Inc., a Silicon Valley based startup, for an approximate purchase price of $1.0 million in common stock of the Company. The Company incurred an additional $0.2 million related to acquisition costs. This transaction was accounted for as an asset purchase. The aggregate amount of approximately $0.2 million is included in intangibles on the Company’s consolidated balance sheet. With the team’s expertise and knowledge of LiveEngage platform, the team is bringing valuable insight for the Company’s customers and partners, and enabling the Company to more rapidly optimize its bot deployment capabilities, and grow the ecosystem. BotCentral, Inc. will be included in the Company’s business segment. The results of this acquisition were not significant to the results of operations for the year ended December 31, 2018.

9. Fair Value Measurements

The Company measures its cash equivalents at fair value based on an expected exit price as defined by the authoritative guidance on fair value measurements, which represents the amount that would be received on the sale of an asset or paid to transfer a liability, as the case may be, in an orderly transaction between market participants. As such, fair value may be based on assumptions that market participants would use in pricing an asset or liability. The authoritative guidance on fair value measurements establishes a consistent framework for measuring fair value on either a recurring or nonrecurring basis whereby inputs, used in valuation techniques, are assigned a hierarchical level. The following are the hierarchical levels of inputs to measure fair value:

- Level 1: Observable inputs that reflect quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2: Inputs reflect: quoted prices for identical assets or liabilities in markets that are not active; quoted prices for similar assets or liabilities in active markets; inputs other than quoted prices that are observable for the assets or liabilities; or inputs that are derived principally from or corroborated by observable market data by correlation or other means.
- Level 3: Unobservable inputs reflecting the Company’s assumptions incorporated in valuation techniques used to determine fair value. These assumptions are required to be consistent with market participant assumptions that are reasonably available.

9. Fair Value Measurements - (continued)

Financial Assets and Liabilities

The carrying amount of cash, accounts receivable, and accounts payable approximate their fair value due to their short-term nature. The Company's assets and liabilities that are measured at fair value on a recurring basis, by level, within the fair value hierarchy as of December 31, 2019 and December 31, 2018, are summarized as follows (amounts in thousands).

	December 31, 2019				December 31, 2018			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Cash equivalents:								
Money market funds	$ 2,899	$ —	$ —	$ 2,899	$ 2,828	$ —	$ —	$ 2,828
Total assets	$ 2,899	$ —	$ —	$ 2,899	$ 2,828	$ —	$ —	$ 2,828
Liabilities:								
Contingent earn-out	$ —	$ —	$ 557	$ 557	$ —	$ —	$ 2,372	$ 2,372
Total liabilities	$ —	$ —	$ 557	$ 557	$ —	$ —	$ 2,372	$ 2,372

In determining fair value, the Company utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible as well as considers counterparty credit risk in its assessment of fair value. Observable or market inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company’s assumptions based on the best information available.

The Company’s money market funds are measured at fair value on a recurring basis based on quoted market prices in active markets and are classified as level 1 within the fair value hierarchy. The Company’s contingent earn-out liability is measured at fair value on a recurring basis and is classified as level 3 within the fair value hierarchy. On a nonrecurring basis, the Company uses fair value measures when analyzing asset impairment. Long-lived tangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If it is determined such indicators are present and the review indicates that the assets will not be fully recoverable, based on undiscounted estimated cash flows over the remaining amortization periods, their carrying values are reduced to estimated fair value. The Company uses an income approach and inputs that constitute level 3. During the third quarter of each year, the Company evaluates goodwill for impairment at the reporting unit level. The Company uses qualitative factors in accordance with ASU No. 2011-08 to determine whether it is ‘‘more likely than not’’ that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step goodwill impairment test. This measurement is classified based on level 3 input.

As of December 31, 2019 the fair value of the Notes, as further described in Note 7 above, was approximately $194.3 million. Management determines the fair value by utilizing an independent valuation specialist using the antithetic variable technique and is considered a Level 2 fair value measurement.

The Company recorded a contingent earn-out of $2.4 million in December 2018 in connection with the acquisitions of Conversable, Inc. and AdvantageTec Inc. The contingent earn-out is based on achieving certain targeted financial, strategic, and integration objectives. The unobservable inputs considered are probability factors and the time value of money. During the year ended December 31, 2019, the contingent earn-out decreased by $1.8 million due to a decrease in re-measurement to fair value of Conversable, Inc. of $0.5 million and payments of $0.5 million in cash and $1.0 million in shares, offset in part by an increase of re-measurement to fair value of Advantage, Inc. of $0.2 million.

9. Fair Value Measurements - (continued)

The changes in fair value of the Level 3 liabilities are as follows (amounts in thousands):

	Contingent Earn-Out	
	December 31,	
	2019	2018
Balance, Beginning of year	$ 2,372	$ —
Conversable, Inc. fair value adjustment (see Note 7)	(496)	1,496
AdvantageTec, Inc. fair value adjustment (see Note 7)	168	876
Payments	(1,487)	—
Balance, End of year	$ 557	$ 2,372

Derivative Financial Instruments

The Company is exposed to foreign exchange risks that in part are managed by using derivative financial instruments. The Company entered into foreign currency forward contracts related to risks associated with foreign operations. The Company does not use derivatives for trading purposes. Derivatives are recorded at their estimated fair values based upon Level 2 inputs. Derivatives designated and effective as cash flow hedges are reported as a component of other comprehensive income and reclassified to earnings in the same periods in which the hedged transactions impact earnings. Gains and losses related to derivatives not meeting the requirements of hedge accounting and the portion of derivatives related to hedge ineffectiveness are recognized in current earnings. As of December 31 2019 and 2018, the Company is not party to any foreign currency forward contracts and does not have any restricted cash balance.

The following summarizes certain information regarding the Company's derivatives that are not designated or are not effective as hedges (in thousands):

	Gain (losses) on Derivative Instruments Recognized in the Statement of Operations			
	Statement of Operations Location	December 31, 2019	December 31, 2018	December 31, 2017
Foreign currency derivatives contracts	Other Income (Expense), net	$ —	$ (50)	$ 236

10. Commitments and Contingencies

Contractual Obligations

The Company leases facilities and certain car leases (the ‘‘leases’’) under agreements accounted for as operating leases. The leases have initial lease terms ranging from 1 to 12 years. Payments due under the lease contracts include primarily fixed payments. The lease terms include periods under options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Currently, there are no operating leases where we believe it is reasonably certain that the Company will exercise any option to extend the initial term.

The Company has evaluated its facility leases and determined which leases met the definition of the new standard in accordance with Topic 842. The Company also performed an evaluation of their other contracts with suppliers in accordance with Topic 842 and have determined that, except for the facilities and car leases described above, none of its supply contracts contain a lease. Further, the Company has made an accounting policy election to keep leases with a term of twelve months or less off the balance sheet. This policy applies to all classes of the underlying assets. The Company will recognize those lease payments and associated interest expense in the consolidated statement of operations evenly over the lease term.

The Company elected the "package of practical expedients," which permits the Company not to reassess under ASC 842 its prior conclusions about lease identification, lease classification and initial direct costs. The Company also made a policy election not to separate non-lease components from lease components. Furthermore, the Company elected to not capitalize leases with a term of 12 months or less and recognize the lease expense for such leases generally on a straight-line basis over the lease term.

10. Commitments and Contingencies - (continued)

In connection with the leases, the Company recognized operating lease right-of-use assets of $15.7 million and an aggregate lease liability of $19.5 million in its consolidated balance sheet as of December 31, 2019.

The determination of the discount rate used to calculate the present value of the right-of-use assets and lease liabilities depends on whether an interest rate is specified in the lease or not. If the lease specifies a rate, that rate is used when calculating the present value of lease payments. If the rate is not readily determinable, which is generally the case for the Company, the Company's incremental borrowing rate ("IBR") as of the date of inception of the lease is used (for initial measurement, the IBR was determined as of the adoption date of the standard). The IBR is the rate of interest that the Company would have to pay to borrow on a collateralized basis over a similar term and amount equal to the lease payments in a similar economic environment. The Company used a ratings benchmark report against its peers in the technology sector.

The Company has operating leases for its corporate offices and other service agreements. The Company's leases have remaining lease terms of 1 to 12 years, some of which include options to extend. The Company's lease expense for the year ended December 31, 2019 consisted entirely of operating leases was approximately $13.0 million. Operating lease payments, which reduced operating cash flows for the year ended December 31, 2019 was approximately $7.0 million.

Supplemental balance sheet information related to leases was as follows:

	As of December 31, 2019	
Operating Leases	**(in thousands, except lease term and discount rate)**	
Right-of-use asset, net	$	15,680
Current operating lease liability		6,602
Long term operating lease liability		12,865
Total operating lease liability	$	19,467
Weighted Average Remaining Lease Term		
Operating leases		3.5 years
Weighted Average Discount Rate		
Operating leases		7%

Future minimum lease payments under non-cancellable operating leases (with an initial or remaining lease terms in excess of one year) are as follows (amounts in thousands):

Year Ending December 31,		Operating Leases
2020	$	7,787
2021		6,530
2022		3,746
2023		1,925
2024		1,148
Thereafter		864
Total minimum lease payments	$	22,000
Less: present value adjustment		(2,533)
Total operating lease liability	$	19,467

Rental expense for operating leases and other service agreements was approximately $13.0 million, $10.9 million and $9.9 million for the years ended December 31, 2019, 2018 and 2017 respectively.

10. Commitments and Contingencies - (continued)

Employee Benefit Plans

The Company has a 401(k) defined contribution plan covering all eligible employees. In 2018, the Company provided for employer matching contributions equal to 50% of employee contributions, up to the lesser of 5% of eligible compensation or $6,000. Matching contributions are deposited into the employee's 401(k) account and are subject to 5 year graded vesting. Beginning in 2019, the Company's 401(k) policy was changed to a Safe Harbor Plan, whereby the Company matches 100% of the first 3% of eligible compensation and 50% of the next 2% of eligible compensation. Furthermore, the match is immediately vested. Total Company matching contributions were $3.2 million, $1.6 million, and $1.4 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Indemnifications

The Company enters into service and license agreements in its ordinary course of business. Pursuant to some of these agreements, the Company agrees to indemnify certain customers from and against certain types of claims and losses suffered or incurred by them as a result of using the Company's products.

The Company also has agreements whereby its executive officers and directors are indemnified for certain events or occurrences while the officer or director is, or was serving, at the Company's request in such capacity. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited; however, the Company has a directors and officers insurance policy that reduces its exposure and enables the Company to recover a portion of any future amounts paid. As a result of its insurance policy coverage, the Company believes the estimated fair value of these indemnification agreements is minimal. The Company has no liabilities recorded for these agreements as of December 31, 2019 and 2018.

Non-Income Related Taxes

The Company is in the process of finalizing its sales tax liability analysis for states that it has economic nexus in. Although it is probable that the Company will be subject to sales tax liabilities plus interest in these states, the amount is not estimable at December 31, 2019. The Company expects to finalize its analysis by March 31, 2020.

11. Stockholders' Equity

Common Stock

In November 2019, the Company filed an amendment to its Certificate of Incorporation to authorize an additional 100,000,000 shares of common stock. As December 31, 2019, there were 200,000,000 shares of common stock authorized, and 66,543,073 and 63,833,243 shares issued and outstanding, respectively. As of December 31, 2018, there were 100,000,000 shares of common stock authorized, and 63,676,229 and 60,994,944 shares issued and outstanding, respectively. The par value for common shares is $0.001.

Preferred Stock

As of December 31, 2019 and 2018, there were 5,000,000 shares of preferred stock authorized, and zero shares issued and outstanding. The par value for preferred shares is $0.001.

Stock Repurchase Program

From 2012 through 2018, the Company had a stock repurchase program in place pursuant to which the Company was authorized to repurchase shares of its common stock, in the open market or privately negotiated transactions, at times and prices considered appropriate by the Board of Directors depending upon prevailing market conditions and other corporate considerations. The timing and actual number of shares repurchased depend on a variety of factors including the timing of open trading windows, price, corporate and regulatory requirements and other market conditions. The program was discontinued at the end of 2018. The Company may or may not enter into a new stock repurchase program in the future.

11. Stockholders' Equity - (continued)

Stock-Based Compensation

The Company follows FASB ASC 718-10, "Stock Compensation," which addresses the accounting for transactions in which an entity exchanges its equity instruments for goods or services, with a primary focus on transactions in which an entity obtains employee services in share-based payment transactions. ASC 718-10 requires measurement of the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award. Incremental compensation costs arising from subsequent modifications of awards after the grant date must be recognized.

The per share weighted average fair value of stock options granted during the years ended December 31, 2019, 2018 and 2017 was $12.12, $6.60, and $4.25, respectively. The fair value of each option grant is estimated on the date of grant using the Black-Scholes option-pricing model with the following weighted average assumptions for the years ended December 31, 2019, 2018 and 2017:

	December 31,		
	2019	**2018**	**2017**
Dividend yield	—%	—%	—%
Risk-free interest rate	1.66% – 3.05%	2.5% – 3.1%	1.7% – 2.1%
Expected life (in years)	5.0	5.0	5.0
Historical volatility	43.42% – 44%	43.5% – 48.4%	46.6% – 48.1%

A description of the methods used in the significant assumptions used to estimate the fair value of stock-based-based compensation awards follows:

Dividend yield – The Company uses 0% as it has never issued dividends and does not anticipate issuing dividends in the near term.

Risk-free interest rate – The Company uses the market yield on U.S. Treasury securities at five years with constant maturity, representing the current expected life of stock options in years.

Expected life – The Company uses historical data to estimate the expected life of a stock option.

Historical volatility – The Company uses a trailing five year from grant date to determine volatility.

Stock Option Plans

During 1998, the Company established the Stock Option and Restricted Stock Purchase Plan (the "1998 Plan"). Under the 1998 Plan, the Board of Directors could issue incentive stock options or nonqualified stock options to purchase up to 5,850,000 shares of common stock. The 2000 Stock Incentive Plan (the "2000 Plan") succeeded the 1998 Plan. Under the 2000 Plan, the options which had been outstanding under the 1998 Plan were incorporated in the 2000 Plan increasing the number of shares available for issuance under the plan by approximately 4,150,000, thereby reserving for issuance 10,000,000 shares of common stock in the aggregate.

The Company established the 2009 Stock Incentive Plan (the "2009 Plan") as a successor to the 2000 Plan. Under the 2009 Plan, the options which had been outstanding under the 2000 Plan were incorporated into the 2009 Plan and the Company increased the number of shares available for issuance under the plan by 6,000,000. The Company amended the 2009 Plan (the "Amended 2009 Plan") effective June 7, 2012. The Amended 2009 Plan increased the number of shares authorized for issuance under the plan by an additional 4,250,000. On June 2, 2017, the Company's Board of Directors amended and restated the Amended 2009 Plan effective April 30, 2017. The amended and restated plan increased the number of shares authorized for issuance under the plan by an additional 4,000,000.

On April 11, 2019, the Company's Board of Directors adopted, and on June 6, 2019, the Company's stockholders approved, the 2019 Stock Incentive Plan (''2019 Stock Incentive Plan'') to replace the Amended 2009 Plan, which was set to expire under its terms on June 9, 2019. Under the 2019 Stock Incentive Plan, the number of shares underlying options and other equity awards which remain outstanding, as well as the number of shares that remained available for grant, under the Amended 2009 Plan and under the Amended 2000 Plan were incorporated, as of June 6, 2019, into the 2019 Stock Incentive Plan. In addition, under the 2019 Stock Incentive Plan, 4,250,000 new shares were authorized for issuance. The number of shares authorized for issuance under the 2019 Stock Incentive Plan, the Amended 2009 Plan, and the 2000 Plan is 32,067,744 shares in the aggregate. Options to acquire common stock granted thereunder have 10-year terms. As of December 31, 2019, approximately 4.1 million shares of common stock remained available for issuance under the 2019 Stock Incentive Plan (taking into account all option exercises and other equity award settlements through December 31, 2019).

11. Stockholders' Equity - (continued)

Employee Stock Purchase Plan

In June 2010, the Company's stockholders approved the 2010 Employee Stock Purchase Plan with 1,000,000 shares of common stock initially reserved for issuance. Subject to stockholder approval, which was obtained on June 2, 2017, the Company's Board of Directors amended and restated the 2010 Employee Stock Purchase Plan effective April 30, 2017. The amended and restated plan increased the number of shares authorized for issuance under the plan by an additional 1,000,000, thereby reserving for issuance 2,000,000 shares of common stock in the aggregate.

On April 11, 2019, the Company's Board of Directors adopted, and on June 6, 2019, the Company's stockholders approved, the 2019 Employee Stock Purchase Plan (the ''2019 Employee Stock Purchase Plan'') to replace the Amended and Restated 2010 Employee Stock Purchase Plan which was set to expire under its terms in June 2020. There are 1,000,000 shares authorized and reserved for issuance under the 2019 Employee Stock Purchase Plan. As of December 31, 2019, approximately 0.9 million shares of common stock remain available for issuance under the 2019 Employee Stock Purchase Plan (taking into account all share purchases through December 31 2019).

Inducement Plan

During January 2018, the Company established the Inducement Plan (the "2018 Plan"). Under the 2018 Plan, the Board of Directors can issue nonqualified stock options or other equity-based awards in respect of up to 1,500,000 shares of common stock. On April 25, 2018, the Company's Board of Directors amended and restated the 2018 Plan (the ''Amended 2018 Plan''). The Amended 2018 Plan increased the number of shares authorized for issuance under the plan by an additional 500,000 shares, and subsequently the Board of Directors has approved and ratified, effective as of July 31, 2018, October 29, 2018 and February 13, 2019, increases of the number of shares authorized for issuance under the Amended 2018 Plan by 500,000, 250,000 and 618,048 shares, respectively, constituting 3,368,048 shares of common stock in the aggregate being reserved for issuance pursuant to grants under the Amended 2018 Plan. As of December 31, 2019, approximately 0.8 million shares of common stock remained available for issuance under the Amended 2018 Plan (taking into account all option exercises and other equity award settlements through December 31 2019).

11. Stockholders' Equity - (continued)

Stock Option Activity

A summary of the Company's stock option activity and weighted average exercise prices follows:

	Stock Option Activity			
	Options (in thousands)	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Balance outstanding at December 31, 2016	7,769	$ 10.88		
Granted	2,042	9.87		
Exercised	(854)	8.80		
Cancelled or expired	(998)	11.98		
Balance outstanding at December 31, 2017	7,959	$ 10.71	5.85	$ 14,881
Options vested and expected to vest	7,163	$ 10.75	5.49	$ 13,197
Options exercisable at December 31, 2017	5,163	$ 11.17	4.50	$ 8,648
Balance outstanding at December 31, 2017	7,959	$ 10.71		
Granted	2,033	15.00		
Exercised	(3,120)	10.70		
Cancelled or expired	(606)	10.03		
Balance outstanding at December 31, 2018	6,266	$ 12.13	6.55	$ 43,348
Options vested and expected to vest	5,550	$ 11.89	6.28	$ 39,521
Options exercisable at December 31, 2018	3,278	$ 11.12	4.64	$ 25,367
Balance outstanding at December 31, 2018	6,266	$ 12.13		
Granted	1,425	29.76		
Exercised	(1,523)	11.12		
Cancelled or expired	(369)	14.76		
Balance outstanding at December 31, 2019	5,799	$ 16.57	6.79	$ 119,064
Options vested and expected to vest	5,096	$ 15.29	6.49	$ 110,934
Options exercisable at December 31, 2019	2,901	$ 12.03	4.95	$ 72,424

The total fair value of stock options exercised during the years ended December 31, 2019 and 2018 was approximately $8.0 million and $16.1 million, respectively. As of December 31, 2019, there was approximately $22.7 million of total unrecognized compensation cost related to nonvested share-based compensation arrangements. That cost is expected to be recognized over a weighted average period of approximately 2.4 years.

11. Stockholders' Equity - (continued)

The following table summarizes information about outstanding and vested stock options as of December 31, 2019:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number of Shares Outstanding (in thousands)	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number of Shares (in thousands)	Weighted-Average Exercise Price
$6.23 - $7.6	643	6.37	$ 7.42	392	$ 7.40
$7.95 - $10.05	648	4.83	9.47	604	9.48
$10.13 - $11.95	621	5.93	10.85	476	10.53
$11.96 - $12.32	50	1.51	12.10	50	12.10
$12.45 - $12.45	782	7.91	12.45	287	12.45
$12.46 - $14.3	758	3.62	13.57	628	13.41
$14.5 - $17.88	580	6.44	16.11	271	16.60
$18.09 - $28.18	803	8.89	24.15	193	21.55
$28.23 - $32.37	756	9.38	29.93	—	—
$40.61 - $40.61	158	9.47	40.61	—	—
	5,799	6.79	$ 16.57	2,901	$ 12.03

Restricted Stock Unit Activity

A summary of the Company's restricted stock units ("RSUs") activity and weighted average exercise prices follows:

	Restricted Stock Unit Activity		
	Number of Shares (in thousands)	Weighted Average Grant Date Fair Value (Per Share)	Aggregate Fair Value (in thousands)
Balance outstanding at December 31, 2016	1,188	$ 8.44	$ 8,968
Awarded	332	8.16	—
Released	(363)	8.48	—
Forfeited	(284)	8.46	—
Non-vested and outstanding at December 31, 2017	873	$ 8.29	$ 10,053
Balance outstanding at December 31, 2017	873	$ 8.29	$ 10,053
Awarded	2,568	17.02	—
Released	(361)	9.49	—
Forfeited	(390)	9.49	—
Non-vested and outstanding at December 31, 2018	2,690	$ 15.81	$ 50,756
Balance outstanding at December 31, 2018	2,690	$ 15.81	$ 50,756
Awarded	1,979	30.99	—
Released	(1,197)	14.24	—
Forfeited	(423)	20.28	—
Non-vested and outstanding at December 31, 2019	3,049	$ 24.73	$ 112,848
Expected to vest	2,059	$ 22.97	$ 76,185

11. Stockholders’ Equity - (continued)

RSUs granted to employees generally vest over a three to four-year period, or upon achievement of certain performance conditions. As of December 31, 2019, total unrecognized compensation cost, adjusted for estimated forfeitures, related to nonvested RSUs was approximately $76.2 million and the weighted-average remaining vesting period was 2.8 years.

As of December 31, 2019, the Company accrued approximately $19.0 million in cash awards to be settled in shares of the Company's stock and recorded a corresponding expense, which is included as a component of stock-based compensation expense in the accompanying consolidated financial statements.

Stock-based compensation expense recognized in the Company’s consolidated statements of operations and cash flows was $44.1 million and $14.8 million for the years ended December 31, 2019 and 2018, respectively.

12. Income Taxes

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences are expected to become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. The Company includes interest accrued on the underpayment of income taxes in interest expense and penalties, if any, related to unrecognized tax benefits in general and administrative expenses. The Company recorded a valuation allowance against its U.S. deferred tax asset as it considered its cumulative loss in recent years as a significant piece of negative evidence. Since valuation allowances are evaluated on a jurisdiction by jurisdiction basis, we believe that the deferred tax assets related to LivePerson Australia, LivePerson UK, Kasamba Israel, LivePerson Japan and LivePerson LTD Israel are more likely than not to be realized as these jurisdictions have positive cumulative pre-tax book income after adjusting for permanent and onetime items. During the year ended December 31, 2019, there was an increase in the valuation recorded of $19.1 million.

Under Section 382 of the Internal Revenue Code of 1986, as amended (the ‘‘Code’’), the Company’s use of its federal net operating loss (“NOL”) carryforwards may be limited if the Company experiences an ownership change, as defined in Section 382 of the Code. Such an annual limitation could result in the expiration of the NOL carryforwards before utilization. Corresponding provisions of state law may limit the Company’s ability to utilize NOL carryforwards for state tax purposes. As of December 31, 2019, the Company had approximately $203.5 million of federal NOL carryforwards available to offset future taxable income. Included in this amount is $5.1 million of federal NOL carryovers from the Company’s acquisition of Proficient. Approximately $41.2 million of these federal NOL carryforwards were generated in taxable years ending on or before December 31, 2017 and will expire in various years through 2037. Federal NOL carryforwards generated in taxable years ending after December 31, 2017, do not expire, but generally may only offset up to 80% of federal taxable income earned in a taxable year.

12. Income Taxes - (continued)

The domestic and foreign components of (loss) before provision for income taxes consist of the following (amounts in thousands):

	Year Ended December 31,		
	2019	2018	2017
United States	$ (105,961)	$ (38,078)	$ (25,585)
Israel	2,791	3,163	3,458
United Kingdom	5,377	3,690	2,087
Netherlands	(465)	3,235	1,568
Australia	716	686	(1,979)
Germany	3,854	2,900	2,424
Other [(1)]	462	230	337
	$ (93,226)	$ (24,174)	$ (17,690)

[(1)] Includes Japan, Italy, Singapore, Canada, France, India and Spain

No additional provision has been made for U.S. income taxes on the undistributed earnings of its Israeli subsidiary, LivePerson Ltd. (formerly HumanClick Ltd.), as such earnings have been taxed in the U.S. and accumulated earnings of the Company’s other foreign subsidiaries are immaterial through December 31, 2019.

The provision for income taxes consists of the following (amounts in thousands):

	Year Ended December 31,		
	2019	2018	2017
Current income taxes:			
U.S. Federal	$ (452)	$ (1,932)	$ —
State and local	89	67	47
Foreign	4,415	3,032	2,852
Total current income taxes	4,052	1,167	2,899
Deferred income taxes:			
U.S. Federal	126	(295)	(1,289)
State and local	135	(28)	(1,144)
Foreign	(1,468)	14	35
Total deferred income taxes	(1,207)	(309)	(2,398)
Total provision for income taxes	$ 2,845	$ 858	$ 501

12. Income Taxes - (continued)

The difference between the total income taxes computed at the federal statutory rate and the provision for income taxes consists of the following:

	Year Ended December 31,		
	2019	2018	2017
Federal statutory rate	21.00 %	21.00 %	34.00 %
State taxes, net of federal benefit	2.95 %	3.30 %	4.09 %
Non-deductible expenses – stock based compensation	1.82 %	4.73 %	(0.78)%
Global Intangible Low Tax Income Inclusion	(2.29)%	(7.99)%	— %
Non-deductible expenses – Other	(1.57)%	(2.58)%	(1.19)%
Foreign taxes	(1.86)%	(1.34)%	(1.97)%
Valuation allowance	(26.42)%	(28.91)%	26.12 %
Stock based compensation - excess tax benefit	6.18 %	6.10 %	— %
Effect of new tax legislation	— %	— %	(56.84)%
Other	(2.86)%	2.09 %	(6.26)%
Total provision	(3.05)%	(3.60)%	(2.83)%

The effects of temporary differences and federal NOL carryforwards that give rise to significant portions of federal deferred tax assets and deferred tax liabilities at December 31, 2019 and 2018 are presented below (amounts in thousands):

	Year Ended December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	$ 49,423	$ 18,083
Original Issue Discount	5,201	—
Interest	875	—
Operating lease liability	3,306	—
Accounts payable and accrued expenses	5,934	4,024
Non-cash compensation	4,195	9,597
Intangibles amortization	3,273	5,691
Allowance for doubtful accounts	419	315
Total deferred tax assets	72,626	37,710
Less valuation allowance	(48,451)	(30,185)
Deferred tax assets, net of valuation allowance	24,175	7,525
Deferred tax liabilities:		
Property and equipment	(6,361)	(3,736)
Goodwill amortization and contingent earn-out adjustments	(3,430)	(4,172)
Convertible Notes Issuance	(11,055)	—
Operating lease right of use asset	(2,504)	—
Total deferred tax liabilities	(23,350)	(7,908)
Net deferred tax assets (liabilities)	$ 825	$ (383)

We have income tax NOL carryforwards related to federal and Australian income tax carryforwards of $203.5 million and $5.3 million respectively. The Australian NOLs can be carried forward indefinitely. $162.3 million of the federal NOLs can be carried forward indefinitely. $6.0 million of the federal NOLs will expire between 2023 and 2026, and $34.9 million will expire between 2036 and 2037.

ASC Topic 740-10 clarifies the accounting for uncertainty in income taxes recognized in the financial statements in accordance with other provisions contained within this guidance. This topic prescribes a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For those benefits to be recognized, a tax position must be more likely than not to be sustained upon examination by the taxing authorities. The amount recognized is measured as the largest amount of benefit that is greater than 50% likely of being realized

12. Income Taxes - (continued)

upon ultimate audit settlement. The Company had unrecognized tax benefits of $2 million and $1.9 million as of December 31, 2019 and 2018, respectively. Accrued interest and penalties included in the Company's liability related to unrecognized tax benefits were immaterial at December 31, 2019 and 2018.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	Year Ended December 31,	
	2019	2018
Unrecognized tax benefits balance at January 1	$ 1,921	$ 4,924
Gross increase for tax positions of prior years	—	—
Gross increase for tax positions of current years	584	405
Decrease due to expiration of statue	(452)	(445)
Decrease due to settlement	—	(2,963)
Gross unrecognized tax benefits at December 31	$ 2,053	$ 1,921

The tax years subject to examination by major tax jurisdictions include the years 2015 and forward for U.S states and New York City, the years 2016 and forward for U.S. Federal, and the years 2015 and forward for certain foreign jurisdictions. The decrease of $0.5 million was related to expiration of the statute of limitations.

Tax Reform

The Tax Cuts and Jobs Act makes broad and complex changes to the U.S. federal tax laws that affect fiscal 2017, including, but not limited to requiring a one-time repatriation tax on certain unrepatriated earnings of foreign subsidiaries that is payable over eight years (the ‘‘Repatriation Tax’’). The Tax Cuts and Jobs Act also establishes new tax laws that will affect 2018 and later years, including, but not limited to, a reduction of the U.S. federal corporate income tax rate from a maximum of 34% to a flat rate of 21%, a general elimination of U.S. federal income taxes on certain dividends from foreign subsidiaries and a new provision designed to tax global intangible low-taxed income (‘‘GILTI’’).

The legislation reduced the U.S. corporate tax rate from the current rate of 35% to 21% for tax years beginning after December 31, 2017. Under the Tax Cuts and Jobs Act, the Company’s $32.8 million in federal NOL carryforwards generated as of December 31, 2017 will continue to be carried forward for 20 years following their incurrence and are expected to be available to fully offset taxable income earned in future tax years. Federal net operating losses generated after 2017 will be carried forward indefinitely, but generally may only offset up to 80% of taxable income earned in a tax year. In the quarter ending December 31, 2017, the Company revalued its deferred tax assets and liabilities due to these changes, including (a) revaluing the Company’s federal net deferred tax assets before valuation allowance using the 21% tax rate, resulting in a decreased federal deferred tax provision of $10.1 million; (b) revaluing the Company’s federal valuation allowance using the 21% tax rate, including the impact of tax planning strategies, resulting in a federal deferred tax benefit to continuing operations of $12.6 million; (c) recognizing a federal deferred tax benefit of $2.0 million for 80% of indefinite lived deferred tax liabilities, which are anticipated to be available as a source of taxable income upon reversal of deferred tax assets that would also have indefinite lives; and (d) recognizing a $1.2 million state deferred tax provision unaffected by the changes in the Tax Cuts and Jobs Act. The new legislation requires the Company to pay federal income tax on the unremitted earnings of its foreign subsidiaries though December 31, 2017. Pursuant to SAB 118, the Company estimated the tax on unremitted earnings is zero due to an overall accumulated deficit in earnings and profits. As of the fourth quarter of 2018, the Company has finalized the preparation and analysis of the required information and has not changed from the estimate.

The Tax Cuts and Jobs Act creates a new requirement that certain income earned by a foreign subsidiary must be included in the federal taxable income of the U.S. shareholder. This income (called Global Intangible Low-Taxed Income, or GILTI) is defined as the excess of a foreign subsidiaries income over a nominal return on fixed assets. The Company expects to be subject to this inclusion in future years. Under U.S. GAAP, the Company is allowed to make an accounting policy choice of either accounting for the effects of the GILTI inclusion as a current period expense, when incurred, or factoring such amounts into the Company’s measurement of its deferred taxes. The Company has elected to treat the effects of this provision as a period cost, and therefore, has not considered the impacts of GILTI on its deferred tax liabilities at December 31, 2019.

12. Income Taxes - (continued)

The Company's consolidated financial statements do not provide for any related tax liability on amounts that may be repatriated from foreign operations as the Company intends for these earnings to be indefinitely reinvested in operations outside the U.S. Accordingly, no deferred taxes have been provided for the basis difference in the foreign subsidiaries.

13. Legal Matters

The Company previously filed an intellectual property suit against [24]7 Customer, Inc. (''[24]7'') in the Southern District of New York on March 6, 2014 seeking damages on the grounds that [24]7 reverse engineered and misappropriated the Company's technology to develop competing products and misused the Company's business information. On June 22, 2015, [24]7 Customer, Inc. filed suit against the Company in the Northern District of California alleging patent infringement. On December 7, 2015, [24]7 Customer Inc. filed a second patent infringement suit against the Company, also in the Northern District of California. On March 16, 2017, the New York case was voluntarily transferred and consolidated with the two California cases in the Northern District of California for all pre-trial purposes. Rulings by both the Court and the United States Patent Office in the Company's favor have invalidated the majority of [24]7 patents that were asserted in the patent cases. Trial for the Company's intellectual property and other claims asserted against [24]7 in the original litigation is currently set for April 27, 2020. Trial for [24]7's patent infringement claims is currently set for March 15, 2021. The Company believes the claims filed by [24]7 are entirely without merit and intends to defend them vigorously.

The Company routinely assesses all of its litigation and threatened litigation as to the probability of ultimately incurring a liability, and records its best estimate of the ultimate loss in situations where the Company assesses the likelihood of loss as probable.

From time to time, the Company is involved in or subject to legal, administrative and regulatory proceedings, claims, demands and investigations arising in the ordinary course of business, including direct claims brought by or against the Company with respect to intellectual property, contracts, employment and other matters, as well as claims brought against the Company's customers for whom the Company has a contractual indemnification obligation. The Company accrues for a liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Significant judgment is required in both the determination of probability and the determination as to whether a loss is reasonably estimable. In addition, in the event the Company determines that a loss is not probable, but is reasonably possible, and it becomes possible to develop what the Company believes to be a reasonable range of possible loss, then the Company will include disclosure related to such matter as appropriate and in compliance with ASC 450. The accruals or estimates, if any, resulting from the foregoing analysis, are reviewed at least quarterly and adjusted to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular matter. To the extent there is a reasonable possibility that the losses could exceed the amounts already accrued, the Company will, as applicable, adjust the accrual in the period the determination is made, disclose an estimate of the additional loss or range of loss, indicate that the estimate is immaterial with respect to its financial statements as a whole or, if the amount of such adjustment cannot be reasonably estimated, disclose that an estimate cannot be made.

From time to time, third parties assert claims against the Company regarding intellectual property rights, privacy issues and other matters arising in the ordinary course of business. Although the Company cannot be certain of the outcome of any litigation or the disposition of any claims, nor the amount of damages and exposure, if any, that the Company could incur, the Company currently believes that the final disposition of all existing matters will not have a material adverse effect on our business, results of operations, financial condition or cash flows. In addition, in the ordinary course of business, the Company is also subject to periodic threats of lawsuits, investigations and claims. Regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors.

14. Restructuring Costs

The Company's restructuring costs relate to wind-down and severance costs associated with re-prioritizing and reallocating resources to focus on areas showing high growth potential, as well as the termination of a large customer contract. In 2019, we undertook a restructuring related primarily to a reorganization in order to promote continued globalization of our technology operations, drive improvements in quality assurance of existing products and creation of new add-on features to LiveEngage. The expense associated with this restructuring was approximately $2.0 million, $4.5 million, and $2.6 million during the years ended December 31, 2019, 2018, and 2017, respectively, and is classified in the consolidated statements of operations as restructuring costs. The restructuring liability was approximately $0.3 million and $1.0 million as of December 31, 2019 and 2018, respectively, and is classified as accrued expenses and other current liabilities on the consolidated balance sheets.

The following table presents the detail of the liability for the Company's restructuring charges for the periods presented (amounts in thousands):

	December 31, 2019	December 31, 2018
Balance, Beginning of the year	$ 977	$ 2,338
Severance and other associated costs	2,043	4,468
Cash payments	(2,706)	(5,829)
Balance, End of year	$ 314	$ 977

The following table presents the detail of expenses for the Company's restructuring charges for the periods presented (amounts in thousands):

	December 31, 2019	December 31, 2018	December 31, 2017
Severance and other associated costs	$ 2,043	$ 4,468	$ 648
Wind down costs of legacy platform	—	—	1,946
Total restructuring costs	$ 2,043	$ 4,468	$ 2,594

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

Not Applicable.

Item 9A. Controls and Procedures

Management's Annual Report on Internal Control Over Financial Reporting

Our management, including the Chief Executive Officer and Chief Financial Officer, is responsible for establishing and maintaining adequate internal control over financial reporting, as that term is defined in Rule 13a-15(f) promulgated under the Exchange Act. Our internal control system is designed to provide reasonable assurance to our management and Board of Directors regarding the preparation and fair presentation of published financial statements. Our management, including the Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our internal control over financial reporting as of December 31, 2019 based on the framework established in "Internal Control — Integrated Framework (2013)," issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on its evaluation, our management, including the Chief Executive Officer and Chief Financial Officer, concluded that as of December 31, 2019, our internal control over financial reporting was effective based on those criteria.

The effectiveness of our internal control over financial reporting as of December 31, 2019 has been audited by BDO USA, LLP, an independent registered public accounting firm. Their attestation is included herein.

Limitations of the Effectiveness of Internal Control

A control system, no matter how well conceived and operated, can only provide reasonable, not absolute, assurance that the objectives of the internal control system are met. Because of the inherent limitations of any internal control system, no evaluation of controls can provide absolute assurance that all control issues, if any, have been detected.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2019 identified in connection with the evaluation thereof by our management, including the Chief Executive Officer and Chief Financial Officer, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Evaluation of Disclosure Controls and Procedures

Our management, including the Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our "disclosure controls and procedures," as that term is defined in Rule 13a-15(e) promulgated under the Exchange Act, as of December 31, 2019. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2019 to ensure that the information we are required to disclose in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms, and to ensure that such information is accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
LivePerson, Inc.
New York, New York

Opinion on Internal Control over Financial Reporting

We have audited LivePerson, Inc.'s (the "Company's") internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company and subsidiaries as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and our report dated March 2, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Item 9A, Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, LLP

New York, New York
March 2, 2020

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 is incorporated by reference to the sections captioned “Matters to be Considered at Annual Meeting — Election of Directors,” “Executive Officers,” “Board Committees and Meetings — Audit Committee,” “Codes of Conduct and Corporate Governance Documents” and “Section 16(a) Beneficial Ownership Reporting Compliance” in the definitive proxy statement for our 2020 Annual Meeting of Stockholders.

There have been no changes to the procedures by which stockholders may recommend nominees to our Board of Directors since our last disclosure of such procedures, which appeared in the definitive proxy statement for our 2019 Annual Meeting of Stockholders.

We have adopted a Code of Ethics that applies to our Chief Executive Officer, who is our principal executive officer, and other senior financial officers. Our Code of Ethics is available at: *www.liveperson.com* under “Investor Relations / Corporate Governance.” *The Company’s web site address provided above is not intended to function as a hyperlink, and the information on the Company’s web site is not and should not be considered part of this Annual Report on Form 10-K and is not incorporated by reference herein.* The Company will post on this website any amendments to our Code of Ethics.

Item 11. Executive Compensation

The information required by this Item 11 is incorporated by reference to the sections captioned “Compensation Discussion and Analysis,” “Compensation Committee Report” (which information shall be deemed furnished in this Annual Report on Form 10-K), “Executive and Director Compensation” and “Compensation Committee Interlocks and Insider Participation” in the definitive proxy statement for our 2020 Annual Meeting of Stockholders.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item 12 is incorporated by reference to the sections captioned “Ownership of Securities,” “Potential Payments Upon Termination or Change-in-Control” and “Securities Authorized for Issuance Under Equity Compensation Plans” in the definitive proxy statement for our 2020 Annual Meeting of Stockholders.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item 13 is incorporated by reference to the sections captioned "Certain Relationships and Related Transactions" and "Director Independence" in the definitive proxy statement for our 2020 Annual Meeting of Stockholders.

Item 14. Principal Accountant Fees and Services

The information required by this Item 14 is incorporated by reference to the section captioned "Independent Registered Public Accounting Firm Fees and Pre-Approval Policies and Procedures" in the definitive proxy statement for our 2020 Annual Meeting of Stockholders.

PART IV

Item 15. Exhibits and Financial Statement Schedules

The following documents are filed as part of this Annual Report on Form 10-K:

1. Financial Statements.

Incorporated by reference to the index of consolidated financial statements included in Item 8 of this Annual Report on Form 10-K.

2. Financial Statements Schedules.

None.

3. Exhibits.

Incorporated by reference to the Exhibit Index immediately preceding the exhibits attached to this Annual Report on Form 10-K.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on March 2, 2020.

LIVEPERSON, INC.

By: /s/ Robert P. LoCascio

Name: Robert P. LoCascio

Title: Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated on March 2, 2020.

Signature	Title(s)
/s/Robert P. LoCascio Robert P. LoCascio	Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)
/s/ Christopher E. Greiner Christopher E. Greiner	Chief Financial Officer (Principal Financial Officer)
/s/ Daryl J. Carlough Daryl J. Carlough	Senior Vice President, Global and Corporate Controller (Principal Accounting Officer)
/s/ Peter Block Peter Block	Director
/s/ Kevin C. Lavan Kevin C. Lavan	Director
/s/ Jill Layfield Jill Layfield	Director
/s/ Fred Mossler Fred Mossler	Director
/s/ William G. Wesemann William G. Wesemann	Director

EXHIBIT INDEX

Number	Description
2.1	Agreement and Plan of Merger, dated as of June 22, 2006, among LivePerson, Inc., Soho Acquisition Corp., Proficient Systems, Inc. and Gregg Freishtat as Shareholders' Representative (incorporated by reference to the identically numbered exhibit in the Current Report on Form 8-K filed on June 22, 2006)
2.2	Agreement and Plan Merger, dated as of November 5, 2014, among LivePerson,Inc. Catalyst Lightning LLC, Contact At Once!, LLC and Fulcrum Growth Fund II QP, LLC(incorporated by reference to Exhibit 2.1 to LivePerson's Current Report on Form 8-K filed onNovember 12, 2014 (File No. 000-30141))
3.1(a)	Fourth Amended and Restated Certificate of Incorporation (incorporated by reference to the identically-numbered exhibit to LivePerson's Annual Report on Form 10-K for the fiscal year ended December 31, 2000 and filed March 30, 2001 (the "2000 Form 10-K"))
3.1(b)	Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation effectiveas of November 12, 2019 (incorporated by reference to Exhibit 4.2 to LivePerson's RegistrationStatement on Form S-8 filed on November 13, 2019 (File No. 333-234676))
3.2	Second Amended and Restated Bylaws, as amended (incorporated by reference to the identically-numbered exhibit to the 2000 Form 10-K)
4.1	Specimen common stock certificate (incorporated by reference to the identically-numbered exhibit to LivePerson's Registration Statement on Form S-1, as amended (Registration No. 333-96689) ("Registration No. 333-96689"))
4.2	Second Amended and Restated Registration Rights Agreement, dated as of January 27, 2000, by and among LivePerson, the several persons and entities named on the signature pages thereto as Investors, and Robert LoCascio (incorporated by reference to the identically-numbered exhibit to Registration No. 333-96689)
4.3	Indenture, dated as of March 4, 2019, by and between LivePerson, Inc. and U.S. Bank NationalAssociation, as Trustee (incorporated by reference to Exhibit 4.1 to LivePerson's Current Report onForm 8-K filed on March 5, 2019 (File No. 000-30141))
4.4	Form of 0.750% Convertible Senior Notes due 2024 (included within the Indenture filed as Exhibit 4.3 hereto)
4.5	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934
10.1(a)*	2009 Stock Incentive Plan (incorporated by reference to Exhibit 99.1 to LivePerson's Registration Statement on Form S-8 filed on June 9, 2009) and Forms of Grant Agreements under the 2009 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to LivePerson's Quarterly Report on Form 10-Q filed on May 6, 2011 (File No. 000-30141))
10.1(b)*	2009 Stock Incentive Plan (amended and restated as of June 7, 2012) (incorporated by reference to Exhibit 99.1 to LivePerson's Current Report on Form 8-K filed on June 8, 2012 (File No. 000-30141))
10.2*	LivePerson, Inc. 2010 Employee Stock Purchase Plan (incorporated by reference to Exhibit 99.1 to LivePerson's Registration Statement on Form S-8 filed on August 19, 2010 (File No. 000-30141))
10.3*	Employment Agreement between LivePerson and Robert P. LoCascio, dated as of January 1, 1999 (incorporated by reference to Exhibit 10.1 to Registration No. 333-96689)
10.4*	Agreement between LivePerson and Dan Murphy, dated as of March 27, 2011 (incorporated by reference to Exhibit 10.5 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2011 and filed March 13, 2012)

10.5*	Form of Indemnification Agreement entered into with Executive Officers and Directors of LivePerson (incorporated by reference to Exhibit 10.6 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2011 and filed March 13, 2012)
10.6*	Agreement between LivePerson and Monica L. Greenberg, dated as of October 25, 2006 (incorporated by reference to Exhibit 10.8 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2011 and filed March 13, 2012)
10.7*	Incentive Plan (incorporated by reference to Exhibit 10.1 to LivePerson's Current Report on Form 8-K filed on April 28, 2011)
10.8*	Employment Agreement between LivePerson and Eran Vanounou, dated as of February 22, 2014(incorporated by reference to Exhibit 10.2 to LivePerson's Quarterly Report on Form 10-Q filed onMay 9, 2014) (File No. 000-30141))
10.9*	Separation Agreement General Release between LivePerson and Daniel Murphy, dated as of November 9, 2017 (incorporated by reference to Exhibit 10.5 (B) to LivePerson's Quarterly Report on Form 10-Q filed on November 9, 2017) (File No. 000-30141))
10.10*	Amendment to Separation Agreement General Release between LivePerson and Daniel Murphy, dated as of February 9, 2018 (incorporated by reference to Exhibit 10.11 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018 (File No. 000-30141))
10.11*	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.12 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018 (File No. 000-30141))
10.12*	Form of Restricted Stock Unit Award Agreement for Robert Locascio (incorporated by reference to Exhibit 10.13 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018 (File No. 000-30141))
10.13*	Inducement Plan dated January 19, 2018 (incorporated by reference to Exhibit 10.14 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018 (File No. 000-30141))
10.14*	Amended Employment Agreement between LivePerson and Robert LoCascio, dated as of December 27, 2017 (incorporated by reference to Exhibit 10.15 to LivePerson's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018 (File No. 000-30141))
10.15*	Agreement between LivePerson and Alex Spinelli, dated as of January 12, 2018 (incorporated by reference to Exhibit 10.1 to LivePerson's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, filed May 8, 2018 (File No. 000-30141))
10.16*	Agreement between LivePerson and Chris Greiner, dated as of February 19, 2018 (incorporated by reference to Exhibit 10.2 to LivePerson's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, filed May 8, 2018 (File No. 000-30141))
10.17*	Long Term Incentive Plan dated July 31, 2018 (incorporated by reference to Exhibit 10.1 to LivePerson's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 filed on August 6, 2018 (File No. 000-30141))
10.18*	Separation Agreement General Release between LivePerson and Eran Vanounou, dated as of April 30, 2018 (incorporated by reference to Exhibit 10.2 to LivePerson's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed on August 6, 2018 (File No. 000-30141))
10.19	Form of Capped Call Transaction Confirmation (incorporated by reference to Exhibit 10.1 toLivePerson's Form 8-K filed on March 5, 2019 (000-30141))
10.20	Form of Additional Capped Call Transaction Confirmation (incorporated by reference to Exhibit 10.1to LivePerson's Form 8-K filed on March 14, 2019 (000-30141))
10.21*	Nonstatutory Stock Option Agreement, by and between LivePerson, Inc. and Robert P. LoCascio,dated as of February 21, 2019 (incorporated by reference to Exhibit 10.3 to LivePerson's QuarterlyReport on Form 10-Q for the quarter ended March 31, 2019, filed on May 7, 2019 (File No.000-30141))
10.22*	2009 Stock Incentive Plan Restricted Stock Unit Award Agreement, by and between LivePerson, Inc.and Robert P. LoCascio, dated as of February 21, 2019 (incorporated by reference to Exhibit 10.4 toLivePerson's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, filed on May 7,2019 (File No. 000-30141))

10.23*	LivePerson, Inc. 2019 Stock Incentive Plan (incorporated by reference to Exhibit 99.1 to LivePerson's Registration Statement on Form S-8 filed on November 13, 2019 (File No. 333-234676))
10.24*	LivePerson, Inc. 2019 Employee Stock Purchase Plan (incorporated by reference to Exhibit 99.2 toLivePerson's Registration Statement on Form S-8 filed on November 13, 2019 (File No. 333-234676))
21.1	Subsidiaries
23.1	Consent of BDO USA, LLP, an Independent Registered Public Accounting Firm
31.1	Certification by Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification by principal financial officer pursuant to Exchange Act Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1**	Certification by Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2**	Certification by principal financial officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS†	Inline XBRL Instance Document - The instance document does not appear in the interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH†	Inline XBRL Taxonomy Extension Schema Document
101.CAL†	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF†	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB†	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE†	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL)

* Management contract or compensatory plan or arrangement

** The certifications attached as Exhibit 32.1 and Exhibit 32.2 accompany the Annual Report on Form 10-K pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and shall not be deemed "filed" by the Company for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

† Pursuant to applicable securities laws and regulations, the Registrant is deemed to have complied with the reporting obligation relating to the submission of interactive data files in such exhibits and is not subject to liability under any anti-fraud provisions of the federal securities laws as long as the Registrant has made a good faith attempt to comply with the submission requirements and promptly amends the interactive data files after becoming aware that the interactive data files fail to comply with the submission requirements. These interactive data files are deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, as amended, are deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and otherwise are not subject to liability under these Sections.

Exhibit 4.5

DESCRIPTION OF the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934

Our common stock, par value $0.001 per share, is registered under Section 12 of the Securities Exchange Act of 1934, as amended, and listed on the Nasdaq Global Select Market under the symbol "LPSN".

The following is a description of our capital stock and the material provisions of our amended and restated certificate of incorporation, as amended, and amended and restated bylaws. The following is only a summary and is qualified by applicable law and by the provisions of our amended and restated certificate of incorporation, as amended, and our amended and restated bylaws.

GENERAL

Our authorized capital stock consists of 200,000,000 shares of common stock, par value $0.001 per share, and 5,000,000 shares of preferred stock, par value $0.001 per share.

COMMON STOCK

As of February 26, 2020, there were [64,240,362] shares of our common stock outstanding held of record by [141] stockholders, without giving effect to the conversion, if any, of our Convertible Senior Notes due 2024.

Voting Rights. Holders of common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Accordingly, holders of a majority of the shares of common stock entitled to vote in any election of directors may elect all of the directors standing for election.

Dividend Rights. Holders of common stock are entitled to receive ratably those dividends, if any, as may be declared by our board of directors out of funds legally available therefor, subject to any preferential dividend rights of any outstanding preferred stock.

Right to Receive Liquidation Distributions. Upon our liquidation, dissolution or winding up, our common stockholders are entitled to receive ratably our net assets available, if any, after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock.

Assessability. The outstanding shares of our common stock are fully paid and nonassessable.

Other Rights. Holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may designate and issue in the future.

PREFERRED STOCK

There are no shares of preferred stock outstanding. Our board of directors is authorized, without further stockholder approval, to issue from time to time up to an aggregate of 5,000,000 shares of preferred stock in one or more series and to fix or alter the designations, preferences, rights and any qualifications, limitations or restrictions of the shares of each series thereof, including the dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, including sinking fund provisions, redemption price or prices, liquidation preferences and the number of shares constituting any series or designation of series. The issuance of preferred stock could decrease the amount of earnings and assets available for distribution to holders of common stock or adversely affect the rights and powers, including voting rights, of the holders of common stock. Such issuance could also have the effect of delaying, deferring or preventing a change in control of our company.

OPTIONS

We have 5,020,349 shares of our common stock reserved for issuance, upon exercise of stock options, under our 2000 Stock Incentive Plan, 2018 Inducement Plan and 2019 Stock Incentive Plan. As of February 26, 2020, there were outstanding options to purchase a total of 5,632,516 shares of common stock, of which options to purchase approximately 2,952,261 are currently exercisable.

LIMITATIONS ON LIABILITY

Our amended and restated certificate of incorporation, as amended, limits or eliminates the liability of our directors to us or our stockholders for monetary damage to the fullest extent permitted by the Delaware General Corporation Law. As permitted by the Delaware General Corporation Law, our amended and restated certificate of incorporation, as amended, provides that our directors shall not be personally liable to us or our stockholders for monetary damages for a breach of fiduciary duty as a director, except for liability:

- for any breach of such person’s duty of loyalty to us or our stockholders;
- for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of law;
- for payment of dividends or approval of stock repurchases or redemptions that are prohibited by Section 174 of the Delaware General Corporation Law; and
- for any transaction resulting in receipt by such person of an improper personal benefit.

Our amended and restated certificate of incorporation, as amended, also contains provisions indemnifying our directors and officers to the fullest extent permitted by the Delaware General Corporation Law. We currently have directors’ and officers’ liability insurance to provide our directors and officers with insurance coverage for losses arising from claims based on breaches of duty, negligence, errors and other wrongful acts.

We have also entered into agreements to indemnify our directors and executive officers, in addition to the indemnification provided for in our amended and restated certificate of incorporation, as amended. We believe that these agreements are necessary to attract and retain qualified directors and executive officers.

ANTI-TAKEOVER EFFECTS OF PROVISIONS OF DELAWARE LAW AND OUR CERTIFICATE OF INCORPORATION AND BYLAWS

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. Subject to some exceptions, Section 203 prohibits a publicly-held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced (excluding certain shares); or
- on or subsequent to such date, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders by the affirmative vote of a least 66.67% of the outstanding voting stock that is not owned by the interested stockholder.

A “business combination” includes mergers, asset sales and other transactions resulting in a financial benefit to the interested stockholder. Except as otherwise specified in Section 203 of the Delaware General Corporation Law, an interested stockholder is defined to include (x) any person that owns (or, within the prior three years, did own) 15% or more of the outstanding voting stock of the corporation, or is an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of the corporation at any time within three years immediately prior to the date of determination and (y) the affiliates and associates of any such person. This statute could prohibit or delay the accomplishment of mergers or other takeover or change in control attempts with respect to us and, accordingly, may discourage attempts to acquire us.

In addition, various provisions of our amended and restated certificate of incorporation, as amended, and our amended and restated bylaws, which provisions are summarized in the following paragraphs, may be deemed to have an anti-takeover effect and may delay, defer or prevent a tender offer or takeover attempt that a stockholder might consider in its best interest, including those attempts that might result in a premium over the market price for the shares held by stockholders.

Staggered Board. Our amended and restated certificate of incorporation, as amended, provides for division of our board into three classes, with each class as nearly equal in number as possible. Each class must serve a three-year term. The terms of each class are staggered so that each term ends in a different year in the three-year period.

Board of Director Vacancies. Our amended and restated certificate of incorporation, as amended, authorizes our board of directors to fill vacant directorships or increase the size of the board of directors. This may deter a stockholder from removing incumbent directors and simultaneously gaining control of our board of directors by filling the vacancies created by this removal with its own nominees.

Stockholder Action; Special Meeting of Stockholders. Our amended and restated certificate of incorporation, as amended, provides that stockholders may not take action by written consent, but only at duly called annual or special meetings of stockholders. Our amended and restated bylaws further provide that special meetings of our stockholders may be called only by the chairman of the board of directors, our president or at the request of two-thirds of the board of directors.

Advance Notice Requirements for Stockholder Proposals and Directors' Nominations. Our amended and restated bylaws provide that stockholders seeking to bring business before an annual meeting of stockholders, or to nominate candidates for election as directors at an annual meeting of stockholders, must provide us timely notice thereof in writing. To be timely, a stockholder's notice must be delivered to or mailed and received at our principal executive offices, not less than 90 days nor more than 120 days prior to the first anniversary of the date of the preceding year's annual meeting provided with respect to the previous year's annual meeting of stockholders; provided, however, that if no annual meeting of stockholders was held in the previous year or the date of the annual meeting of stockholders has been changed to be more than 30 calendar days earlier than or 70 calendar days after this anniversary, notice by the stockholder, to be timely, must be so received not more than 120 days prior to the annual meeting of stockholders nor later than the later of:

- 90 days prior to the annual meeting of stockholders; and
- the close of business on the 10th day following the date on which notice of the date of the meeting is made public.

Our amended and restated bylaws also specify certain requirements as to the form and content of a stockholders' notice. These provisions may preclude stockholders from bringing matters before an annual meeting of stockholders or from making nominations for directors at an annual meeting of stockholders.

Authorized But Unissued Shares. The authorized but unissued shares of our common stock and preferred stock are available for future issuance without stockholder approval, subject to various limitations imposed by the Nasdaq Global Select Market. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could make more difficult or discourage an attempt to obtain control of us by means of a proxy context, tender offer, merger or otherwise.

Our amended and restated certificate of incorporation, as amended, requires the affirmative vote of not less than 66.67% of the outstanding shares of our capital stock entitled to vote generally in the election of directors (considered for this purpose as a single class) cast at a meeting of our stockholders called for that purpose, to repeal, alter, amend or rescind the provisions in our amended and restated certificate of incorporation, as amended, relating to:

- directors;
- stockholder meetings;
- limitations on director liability;

- indemnification;
- amendment of our bylaws; or
- business combinations.

Our amended and restated certificate of incorporation, as amended, requires the affirmative vote as specified in the Delaware General Corporation Law to amend any other provision of our amended and restated certificate of incorporation, as amended,.

To repeal, alter, amend or rescind our amended and restated certificate of incorporation, as amended, and our amended and restated bylaws require the affirmative vote of not less than 66.67% of the outstanding shares of our capital stock entitled to vote generally in the election of directors (considered for this purpose as a single class) cast at a meeting of our stockholders called for that purpose, or the affirmative vote of at least 66.67% of our board of directors. This provision may have the effect of making it difficult for a third party to acquire us.

EXHIBIT 21.1

SUBSIDIARIES OF LIVEPERSON, INC.

LivePerson Ltd. (formerly HumanClick Ltd.) — Israel
Kasamba Inc. — Delaware
LivePerson Germany GmbH — Germany
LivePerson (UK) Ltd. — United Kingdom
LivePerson Netherlands B.V. — Netherlands
Contact At Once!, LLC — Georgia

EXHIBIT 23.1

Consent of Independent Registered Public Accounting Firm

LivePerson, Inc.
New York, New York

We hereby consent to the incorporation by reference in the Registration Statements on Forms S-3 (No. 333-112019, 333-112018, 333-136249 and 333-147929) and Forms S-8 (No. 333-234676, 333-229495, 333-224059, 333-34230, 333-147572, 333-159850, 333-168945, 333-194590 and 333-219573) of LivePerson, Inc. of our reports dated March 2, 2020, relating to the consolidated financial statements and the effectiveness of LivePerson, Inc.'s internal control over financial reporting, which appear in this Form 10-K.

/s/ BDO USA, LLP

BDO USA, LLP
New York, New York

March 2, 2020

Exhibit 31.1

CERTIFICATIONS

I, Robert P. LoCascio, certify that:

1. I have reviewed this Annual Report on Form 10-K of LivePerson, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date:	March 2, 2020	By:	/s/ ROBERT P. LOCASCIO
		Name:	Robert P. LoCascio
		Title:	Chief Executive Officer (principal executive officer)

CERTIFICATIONS

I, Christopher E. Greiner, certify that:

1. I have reviewed this Annual Report on Form 10-K of LivePerson, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date:	March 2, 2020	By:	/s/ Christopher E. Greiner
		Name:	Christopher E. Greiner
		Title:	Chief Financial Officer (principal financial officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Robert P. LoCascio, Chief Executive Officer of LivePerson, Inc. (the "Company"), certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) the Annual Report of the Company on Form 10-K for the period ended December 31, 2019, as filed with the Securities and Exchange Commission (the "Report"), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date:	March 2, 2020	By:	/s/ ROBERT P. LOCASCIO
		Name:	Robert P. LoCascio
		Title:	Chief Executive Officer (principal executive officer)

This certification shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that section, nor shall it be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent the Company specifically incorporates it by reference.

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Christopher E. Greiner, Chief Financial Officer of LivePerson, Inc. (the “Company”), certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) the Annual Report of the Company on Form 10-K for the period ended December 31, 2019, as filed with the Securities and Exchange Commission (the “Report”), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date:	March 2, 2020	By:	/s/ Christopher E. Greiner
		Name:	Christopher E. Greiner
		Title:	Chief Financial Officer (principal financial officer)

This certification shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that section, nor shall it be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent the Company specifically incorporates it by reference.