Market Forecast

U.S. Video Communications Platform-as-a-Service Forecast, 2016-2020

Mark Winther

IDC MARKET FORECAST FIGURE

FIGURE 1

U.S. Video Communications Platform-as-a-Service Revenue Snapshot

2015–2020 Revenue ($M) with Growth (%)

Selected Segment Growth Rate

- Communications and collaboration CAGR 77.2%
- Show me CAGR 127.8%
- Education, social, and media CAGR 109.2%

Total Market CAGR 107.1%

Source: IDC, 2016
EXECUTIVE SUMMARY

This study provides a forecast for the U.S. video communications platform-as-a-service (PaaS) market. Video PaaS makes it dead easy to embed real-time video into a mobile app, a website, or a business process. The market is poised for takeoff driven by applications in video-aided telehealth, field services, education, and social media. IDC forecasts the U.S. video communications PaaS market to grow from $44 million in 2015 to $1.7 billion in 2020, at a 107% CAGR from 2015 to 2020.

With video PaaS, web developers can work in the language of their choice, prototype in hours, and stand up a production run of real-time video in days. There are no up-front hardware and software costs, no contracts or commitments, and no subscription fees. Payment is based on microbilling tied to actual usage.

In contrast to traditional video room systems and cloud-based video services, video PaaS is a radical new approach to building communications applications. Its simplicity and low cost allows developers to create potentially millions of niche communications applications. This study analyzes that potential by structuring the opportunity in 3 application categories subdivided into 10 industry-specific use cases.

This IDC study provides a forecast for the U.S. video communications platform-as-a-service market for the 2016-2020 period.

"The video PaaS market consists of a patch work of individual use cases and specialized applications. Separately, they are fascinating applications serving important business needs but do not justify rampant attention and investment. The fact that the developers can build any visual interaction they want on video PaaS makes it a persuasive, far-reaching growth opportunity," says Mark Winther, group VP and consulting partner, Worldwide Telecommunications at IDC.

ADVICE FOR TECHNOLOGY SUPPLIERS

The video communications platform-as-a-service market is forecast to experience dramatic growth during the forecast period. The primary barrier will be convincing buyers that an API-driven approach to real-time video makes sense. Buyers need help to bridge the gap between API platform technology and actual use cases and business models. To accelerate growth and make it easier for buyers, video PaaS providers should consider the following:

- **Market the platform, not the API.** Nearly every vendor today has APIs. These are positioned as the tools by which vendors' products can be connected or integrated into third-party applications. But APIs are only a part of the story. The way to differentiate APIs is by the strength and richness of the platform surrounding APIs. This includes developer tools (sandbox, dashboards, and sample code), proof points (showcase of customer/partner use cases), platform quality (scalability and SLAs), support commitment (response times and escalations), and developer evangelism.

- **Establish an exchange or app store to create a network effect.** Some developers that build a solution using the video PaaS want a market to show their products. This is an opportunity for the developers to broaden their market reach, outsource their billing, and simplify the customer onboarding process. The video PaaS providers benefit from increased usage of their platform and exposure to markets they cannot reach via their own efforts.

- **Make it simple as pie for developers to sign-up, build, integrate, and activate.** Developers should not have to talk to the video PaaS providers to register, explore, and build solutions
with the APIs. It should be a completely self-service solution with a safety net available when a customer needs support.

- **Hand off as much information as possible about the interaction.** Enterprises are hungry for analytics features to support business decisions, and communication is not an exception. The details of communication session length and frequency, as well as location, identity, network type, device type, and battery consumption, are valuable inputs for management decisions and operational efficiency improvements. API communications platforms are designed to collect mountains of minute data. The ability to create the “Fitbit of communications” and enable new levels of visibility and transparency are important strengths of video PaaS.

- **Provide higher-level APIs bundled into solutions.** There are many companies that have developers, with time and expertise, to work with “primitive” APIs and build their own real-time video solutions. But there are also many companies that either do not have developers or need developers to work on things other than real-time communications. This creates demand for easy plug-and-play solutions that can be integrated and updated with minimal coding.

- **Create pricing packages and metrics relevant to industry use cases.** Video PaaS vendors generally think of their services in terms of minutes of use. That is because their cost structure is based on that. But minutes are not a relevant metric for many buyers. Instead, buyers may think about a fixed cost per agent per month or per telehealth visit or per tutoring session. The burden of mapping cost to an application use case should be shouldered by the video PaaS vendor, not the buyer.

**MARKET FORECAST**

The U.S. video communications PaaS market is forecast to grow from $44 million in 2015 to $1.7 billion in 2020, at a 107% CAGR from 2015 to 2020. There are 3 categories of applications driving growth of video PaaS: communications and collaboration, show me, and education, social, and media. The 3 application categories are further broken out into 10 vertical or specialized horizontal segments (see Figure 2). 

**FIGURE 2**

Video Platform-as-a-Service Applications and Segments

<table>
<thead>
<tr>
<th>Communications and collaboration</th>
<th>Show me</th>
<th>Education, social, and media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unified communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video-assisted sales</td>
<td>Field service</td>
<td>Education</td>
</tr>
<tr>
<td>Video banking</td>
<td>Insurance claims</td>
<td>Social</td>
</tr>
<tr>
<td>Telehealth</td>
<td>Customer support</td>
<td>Media and entertainment</td>
</tr>
</tbody>
</table>
Communications and collaboration is forecast to grow from $15 million in 2015 to $256 million in 2020, at a CAGR of 77% (see Table 1). This application has use cases in collaboration (adding video to unified communications solutions), in retail and ecommerce for video-assisted sales, in financial services for video banking, and in healthcare for telehealth virtual patient-doctor visits.

The fastest-growing segment is show me, which is forecast to increase from $11.5 million in 2015 to $704 million in 2020, at a CAGR of 128% (see Table 2). Show me applications have use cases in field forces (video-aided field technicians), insurance (video claims submission), and video customer support applied in consumer electronics and home appliances.

Education, social, and media is the largest category in the early years of the forecast period. This is forecast to grow from $18 million in 2015 to $725 million in 2020, at a CAGR of 109% (see Table 3). The size reflects the large number of mobile apps for education and tutoring, for social media, and for on-demand marketplaces that have integrated or will integrate video chat capability. It also reflects the shift of traditional sports and entertainment broadcasting to interactive broadcasting.
### TABLE 1

<table>
<thead>
<tr>
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<tr>
<td><strong>Unified communications</strong></td>
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</tr>
<tr>
<td>Volume (minutes million)</td>
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<td>375</td>
<td>563</td>
<td>956</td>
<td>1,913</td>
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<td>Price per minute ($)</td>
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<tr>
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<td>–</td>
<td>2.9</td>
<td>3.8</td>
<td>5.2</td>
<td>7.9</td>
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<td><strong>Video-assisted sales</strong></td>
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<td></td>
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<td>Volume (minutes million)</td>
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<td>960</td>
<td>1,344</td>
<td>2,688</td>
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<td>0.008</td>
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<td>9.6</td>
<td>10.9</td>
<td>13.8</td>
<td>24.8</td>
<td>55.8</td>
<td>150.8</td>
<td>73.5</td>
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<td><strong>Video banking</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (number of tellers/financial advisors)</td>
<td>5,000</td>
<td>5,500</td>
<td>6,050</td>
<td>7,865</td>
<td>15,730</td>
<td>31,460</td>
<td>44.5</td>
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<tr>
<td>Monthly fee per teller/advisor ($)</td>
<td>25.0</td>
<td>23.8</td>
<td>22.6</td>
<td>21.4</td>
<td>20.4</td>
<td>19.3</td>
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<tr>
<td>Revenue ($M)</td>
<td>1.5</td>
<td>1.6</td>
<td>1.6</td>
<td>2.0</td>
<td>3.8</td>
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<td><strong>Telehealth</strong></td>
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<td></td>
</tr>
<tr>
<td>Volume (telehealth visits per year)</td>
<td>300,000</td>
<td>480,000</td>
<td>816,000</td>
<td>1,550,400</td>
<td>3,100,800</td>
<td>7,752,000</td>
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<td>Fee per visit ($)</td>
<td>12.0</td>
<td>11.8</td>
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<td>-2.0</td>
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<tr>
<td>Revenue ($M)</td>
<td>3.6</td>
<td>5.6</td>
<td>9.4</td>
<td>17.5</td>
<td>34.3</td>
<td>84.1</td>
<td>87.8</td>
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<td>Total revenue ($M)</td>
<td>14.7</td>
<td>21.0</td>
<td>28.7</td>
<td>49.5</td>
<td>102.0</td>
<td>256.5</td>
<td>77.2</td>
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</table>

Source: IDC, 2016
TABLE 2

U.S. Video Communications Platform-as-a-Service Volume and Revenue by Show Me, 2015-2020

<table>
<thead>
<tr>
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<tr>
<td>Field service</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Volume (number of users)</td>
<td>8,000</td>
<td>11,000</td>
<td>33,000</td>
<td>99,000</td>
<td>297,000</td>
<td>1,039,500</td>
<td>164.7</td>
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<tr>
<td>Monthly fee per user ($)</td>
<td>85.0</td>
<td>80.8</td>
<td>72.7</td>
<td>61.8</td>
<td>58.7</td>
<td>52.8</td>
<td>-9.1</td>
</tr>
<tr>
<td>Revenue ($M)</td>
<td>8.2</td>
<td>10.7</td>
<td>28.8</td>
<td>73.4</td>
<td>209.2</td>
<td>658.8</td>
<td>140.7</td>
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<tr>
<td>Insurance claims</td>
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<td></td>
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<tr>
<td>Volume (number of users)</td>
<td>1,500</td>
<td>2,025</td>
<td>2,268</td>
<td>2,948</td>
<td>4,128</td>
<td>6,192</td>
<td>32.8</td>
</tr>
<tr>
<td>Monthly fee per user ($)</td>
<td>85.0</td>
<td>80.8</td>
<td>76.7</td>
<td>72.9</td>
<td>69.2</td>
<td>65.8</td>
<td>-5.0</td>
</tr>
<tr>
<td>Revenue ($M)</td>
<td>1.5</td>
<td>2.0</td>
<td>2.1</td>
<td>2.6</td>
<td>3.4</td>
<td>4.9</td>
<td>26.1</td>
</tr>
<tr>
<td>Customer support</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (number of users)</td>
<td>3,000</td>
<td>3,300</td>
<td>3,630</td>
<td>7,260</td>
<td>21,780</td>
<td>87,120</td>
<td>96.2</td>
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<tr>
<td>Monthly fee per user ($)</td>
<td>50.0</td>
<td>47.5</td>
<td>45.1</td>
<td>42.9</td>
<td>40.7</td>
<td>38.7</td>
<td>-5.0</td>
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<tr>
<td>Revenue ($M)</td>
<td>1.8</td>
<td>1.9</td>
<td>2.0</td>
<td>3.7</td>
<td>10.6</td>
<td>40.4</td>
<td>86.3</td>
</tr>
<tr>
<td>Total revenue ($M)</td>
<td>11.5</td>
<td>14.5</td>
<td>32.8</td>
<td>79.7</td>
<td>223.2</td>
<td>704.2</td>
<td>127.8</td>
</tr>
</tbody>
</table>

Source: IDC, 2016
### TABLE 3

U.S. Video Communications Platform-as-a-Service Volume and Revenue by Education, Social, and Media, 2015-2020

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
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<tbody>
<tr>
<td><strong>Educational</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Volume (minutes million)</strong></td>
<td>1,000</td>
<td>1,250</td>
<td>1,688</td>
<td>2,531</td>
<td>4,303</td>
<td>8,606</td>
<td>53.8</td>
</tr>
<tr>
<td><strong>Price per minute ($)</strong></td>
<td>0.0120</td>
<td>0.0114</td>
<td>0.0103</td>
<td>0.0092</td>
<td>0.0083</td>
<td>0.0075</td>
<td>-9.0</td>
</tr>
<tr>
<td><strong>Revenue ($M)</strong></td>
<td>12.0</td>
<td>14.3</td>
<td>17.3</td>
<td>23.4</td>
<td>35.8</td>
<td>64.4</td>
<td>39.9</td>
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<tr>
<td><strong>Social</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Volume (minutes million)</strong></td>
<td>1,000</td>
<td>3,000</td>
<td>9,000</td>
<td>36,000</td>
<td>144,000</td>
<td>720,000</td>
<td>272.8</td>
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<tr>
<td><strong>Price per minute ($)</strong></td>
<td>0.0001</td>
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</tr>
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<td><strong>Revenue ($M)</strong></td>
<td>0.1</td>
<td>0.3</td>
<td>0.9</td>
<td>3.6</td>
<td>14.4</td>
<td>72.0</td>
<td>272.8</td>
</tr>
<tr>
<td><strong>Media (sports, entertainment, and gaming)</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Volume (minutes million)</strong></td>
<td>500</td>
<td>875</td>
<td>1,750</td>
<td>5,250</td>
<td>15,750</td>
<td>78,750</td>
<td>175.1</td>
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<td><strong>Monthly fee per user ($)</strong></td>
<td>0.0120</td>
<td>0.0114</td>
<td>0.0103</td>
<td>0.0092</td>
<td>0.0083</td>
<td>0.0075</td>
<td>-9.0</td>
</tr>
<tr>
<td><strong>Revenue ($M)</strong></td>
<td>6.0</td>
<td>10.0</td>
<td>18.0</td>
<td>48.5</td>
<td>130.9</td>
<td>589.0</td>
<td>150.3</td>
</tr>
<tr>
<td><strong>Total revenue ($M)</strong></td>
<td>18.1</td>
<td>24.5</td>
<td>36.2</td>
<td>75.5</td>
<td>181.1</td>
<td>725.4</td>
<td>109.2</td>
</tr>
</tbody>
</table>

Source: IDC, 2016
MARKET CONTEXT

Video PaaS delivers live, two-way video with business-grade performance using an API-first product strategy centered on mobile endpoints. Video PaaS is important because it makes it dead easy to embed video into a mobile app, a website, or a business process. Web developers can work in the language of their choice (e.g., Node.js, Ruby, PHP, .NET, Java, and Python), prototype in hours, and stand up a production run in days. There are no up-front hardware and software costs, no contracts or commitments, and no subscription fees. Payment is based on microbilling tied to actual usage.

In today’s business market, there are three ways for companies to set up business-grade interactive video communications:

- **Infrastructure or room systems** are large-scale expensive capital investments ($25,000–250,000). These include systems such as Cisco TelePresence, Polycom RealPresence Group, Lifesize Icon, and Huawei MAX PRESENCE Immersive. These systems have high quality but lack simple procedures for communicating with desktop computers, tablets, or smartphones. These usually run on proprietary endpoints and proprietary networking hardware and can require special WAN services like leased lines, which requires an IT department to manage the infrastructure and train and support users.

- **Cloud-based video services or video software-as-a-service (SaaS) solution** do not require hardware or software purchase, installation, or maintenance. These include services from companies such as Blue Jeans Network, Vidyo, Vidtel, StarLeaf, Zoom, Lifesize Cloud, Videxio, and Talk & Vision. Pricing is based on a fee per host or room per month, which is in the range of $10-50 per month depending on features and options. The services generally support interoperability, with a wide range of room systems and software clients. Cloud services reduce the burden of maintaining onsite servers and multipoint control units (MCUs).

- **Video platform as a service** is an attractive alternative to these traditional solutions because it simplifies the customization and integration of two-way video into mobile apps, web apps, and business processes. By leveraging cloud economics, video PaaS drives a much lower cost compared with premises infrastructure and SaaS solutions.

**Video PaaS: A Common Cloud Platform for Multiple Use Cases**

The video communications platform-as-a-service market consists of a patch work of individual use cases and specialized applications. Pricing models range from price-per-participant minute to monthly subscription fee per host. The video service may be free, such as a video sales assistant in customer service or a video banking application, or the end user pays or subscribes to the service such as a video-based telehealth physician visit. Some of the segments are consumer oriented such as customer service and telehealth; others are strictly business to business, such as video-based field technician support. The question can be raised, is this a single market or a collection of independent vertical applications?

The video PaaS opportunity is not limited to a single solution for a specific industry need. Rather the opportunity is to enhance existing B2B or B2C interactions via a uniform visual platform. Video PaaS vendors tend to focus their efforts on a limited set of applications. But this does not take away from the fundamental platform proposition that developers can build anything they want on it.
Underlying the applications, segments, and use cases, there are five common elements of a video PaaS offering:

- **API-first strategy.** An API-first business model facilitates embedding or integrating video into mobile apps, websites, and business processes. Most vendors of video solutions today have some form of APIs. But few emphasize this as their mainstream core product offering. An API-first strategy is the critical enabler of embedded, customized, and real-time video setups. This drives the diversity of use cases and enables new markets and new processes where the use cases were previously not possible.

- **Live, real-time, and two-way video focus.** This excludes one-to-many streaming video experiences and non-real-time video delivery. The core attributes of video include two-way, interactive, and live video. Broadcast or streaming video experiences such as is common with broadcast TV, and YouTube contents are not considered video PaaS.

- **Enterprise-grade capabilities.** Enterprise-grade interactive video platforms require business features as well as business quality and reliability. Business features include capabilities such as recording and archiving; ability to pause video and draw on screen, take a snapshot directly from the live video, capture metadata like geolocation to know where a video stream originates, and use the data channel to transfer data between two points; and far-end camera control (zoom in and start/stop flashlight of phone). Business quality means delivering high-resolution video over less than perfect networks. It masks network variability by adjusting media flows based on network conditions to ensure a reliable user experience. This is in contrast to consumer-centric services such as Skype, FaceTime, ooVoo, Periscope, Meerkat, and Blab. These are intended for social, rather than professional, interactions and are linked to social network features such as contact lists or profiles that can open users up to unwanted interactions. These are generally not fit for business-grade solutions.

- **Centrality of mobile.** Mobile is increasingly the main channel of interaction between buyers and sellers and between coworkers. The majority of interactive video applications involve at least one endpoint on a wireless network. Some of the applications, such as equipment field service in remote locations or rural telehealth visits, may be in locations with poor or unpredictable bandwidth. Services need to work even in the most extreme low-bandwidth networks and enable scalability over mobile.

- **Multitenant cloud-based configuration.** A multitenant cloud-based configuration requires no onsite servers and little IT effort to deploy and has zero management overhead. Users do not need to purchase expensive network infrastructure, such as communications circuits, gateways, video routers, or firewall traversal systems. They do not need to hire specially trained audio visual or IT experts. These functions are delivered as a service from the cloud.

### Video PaaS Vendors

The vendors of video PaaS API offerings include Agora.io, GENBAND (Kandy), Respoke, SightCall, Sinch, TokBox, Twilio, Vidyo, and Xura:

- Vidyo is based in Hackensack, New Jersey. It is a venture-backed firm, has 5,000+ customers, millions of users worldwide, and counts as clients the U.S. Department of Defense, Rackspace, Alibaba, NCR, Bloomberg, Xiaomi, and Mozilla, and many others. Vidyo is a video leader in telehealth with the only embedded video in the leading electronic health records (EHR) system, the top healthcare app on the App Store for the past two years, and a $10 million investment in December 2015 from Kaiser Permanente Ventures, the investment arm of the giant healthcare consortium. Other investors in the company are Menlo Ventures, Rho Ventures, Sevin Rosen Funds, and QuestMark Partners. Vidyo has focused on HD-quality
multipoint video since its founding in 2005. Vidyo's patented VidyoRouter technology continuously adapts the video streams to deliver the highest quality and scalability over the public internet and wireless network connections. Vidyo's product strategy has been focused on a licensed premise-based solution. To broaden the market for its high-quality real-time video, Vidyo introduced a developer-friendly API cloud platform in early 2016. This makes Vidyo one of the first companies to enable comprehensive enterprise-grade multiparty video via an open API delivery system.

- SightCall was founded in Paris in 2008 under the name Weemo. The company relocated to San Francisco in 2013 and rebranded to SightCall in 2014. Rather than video calling, SightCall focuses on the visual interaction market, which consists of "see what I see" applications in field services, insurance claims submission, and telehealth. A vertically integrated company, SightCall built its own video stack and a global internet protocol (IP) network optimized for real-time video. SightCall has raised $12.7 million in three funding rounds, including a July 2015 round of $8.4 million led by Idinvest Partners. SightCall offers APIs and SDKs for developers to integrate real-time video and audio into applications, as well as a set of preconfigured solutions for target industry applications.

- Agora.io was founded in January 2014 and is based in Santa Clara, California. It has raised $25.9 million through two rounds of financing from SIG, Morningside, GGV, ShunWei, and IDG. Agora has built a global IP network optimized for real-time web services such as voice, video, gaming, and interactive broadcasting. Agora's mission is based on the premise that the internet infrastructure is not fit for real-time communications and that real-time web quality of experience cannot be met with normal peer-to-peer internet connections. To overcome this, Agora has created a specialized real-time overlay network. It does this with proprietary audio and video codecs deployed in 70 datacenters around the world. Agora's technology is designed to ensure end-to-end quality of experience for real-time communications regardless of delays and congestion on the underlying network. Agora provides APIs and SDKs for Apple iOS, Android, Mac OS, JavaScript, and Windows to make it easy to integrate quality real-time functionality into apps and websites.

- Twilio is the world's biggest API communications platform. Founded in 2007, based in San Francisco, Twilio's mission is to simplify how businesses make and receive phone calls and video calls and send and receive text messages. After raising $237 million in VC funding, Twilio made an initial public offering in June, raising approximately $150 million. Twilio has had a video calling API since early 2015. This is a peer-to-peer video calling API and has gained traction in healthcare, education, contact center, and collaboration applications. While Twilio has not put priority emphasis on video, its status as the largest API platform and massive 1+ million developer community makes it an important player in video PaaS.

- TokBox is a San Francisco-based cloud communication platform provider focused on multiparty video communications. Founded in 2007, TokBox was funded with start-up capital from Sequoia Partners, Bain Capital, and DAG Ventures. TokBox was acquired by Telefonica in October 2012. OpenTok has been used to add video communications to more than 100,000 services by companies including Mozilla, Major League Baseball, Valspar, Bridgestone Golf, Diet Coke, Ford, Doritos, and Double Robotics.

It is worth noting that many of the application segments identified are using real-time video based on non-API-centric solutions such as:

- Premise-based systems licensed from infrastructure vendors such as Cisco, Polycom, Lifesize, Huawei, or Avex
Horizontal SaaS videoconferencing services from providers such as Blue Jeans, Google Hangouts, StarLeaf, VEEDEEO, Videxio, Vidtel, and Zoom

Consumer-oriented services such as FaceTime, ooVoo, and Skype

Proprietary homegrown system

There are also several providers with a vertical or application-specific focus. Most of these are configured around a cloud-based SaaS delivery model. These include:

- **Video banking.** CafeX (New York)
- **Video-aided field technician services.** Librestream Technologies (Winnipeg, Manitoba, Canada)
- **Video-assisted sales.** iAdvise (Nantes, France), Logmein (Boston), Verishow (Framington Hills, Michigan), VideoDesk (New York), and Vee24 (Boston)
- **Video insurance claims submission.** Livegenic (Philadelphia) and Symbility Solutions (Toronto, Canada)

Existing non-API solutions provide valuable details of use cases, benefits, and adoption patterns. This research analyzes how, where, and why the cloud API platform is a superior solution that displaces alternatives and makes new markets, which were not previously possible because of limitations of alternatives.

**Pricing Assumptions for the Forecast**

The video PaaS forecast is built on assumptions about price and volume. Volume can be either metered minutes or a fixed rate per month, per host, or per user. This market is poised between telecom on one side and software on the other, and pricing reflects that. Over time, it is likely to adopt more standard flat rate models similar to Salesforce or Microsoft Office as more and more enterprise budgets are structured that way. However, the metered option will not disappear.

Fixed rates per month are applied to video banking, telehealth, field service, insurance claims, and customer support. The assumption is that the user is an employee whose business has equipped him/her with the live video communications facility (i.e., a portal) with which he/she visually interacts with customers (or patients) or with colleagues (i.e., remote experts). The fixed-rate-per-month metric is applied as the most relevant volume to the application. The 2015 monthly fee ranges from $12 to $90, reflecting the range of enhanced features involved. Few applications use only videos. Most of them also use other features (e.g., record and transcribe; ability to pause video and draw on screen, take snapshot directly from live video, capture geolocation [get to know where video stream come from], and use the data channel to transfer data between two points; and far-end camera control [zoom in and start/stop flashlight of phone]).

Metered minutes are applied to unified communications, video-assisted sales, and education, social, and media. Here the metric is defined by the volumes generated by end customers. The 2015 price is $0.012 cents per minute. The metered minute price depends on the type of video call: peer-to-peer one-to-one call versus centrally mediated multiparty calls. It also depends on the underlying network. It may be the general internet, or it could be using a purpose-built video-optimized network. A peer-to-peer video call using the open internet is priced at $0.0001 per minute. In contrast, a multiparty video call using a video-optimized network overlay is priced at $0.01 per minute. We assume that most business applications require high-quality multiparty calling minutes. Even though most applications are one-to-one calling, multiparty calling is an attractive option, and most enterprises will want to have
that available when needed. In contrast, low-cost peer-to-peer calling will suffice for social applications that want to add video chat as a free feature but don't require SLAs.

In all cases, the forecast assumes a decline in price and an increase in volume.

**A Use Case-Driven Forecast: Applications and Segments**

There are 3 broad categories of applications for video communications. These are communications and collaboration, show me, and education, social, and media. Within each of the 3 application categories, there are 10 subcategories by vertical or specialized horizontal segments. Refer back to Figure 2 for the overall market structure.

**Communications and Collaboration**

Communications and collaboration incorporates video calls, multiparty calls, and collaboration features for both intra-enterprise and inter-enterprise applications. Intra-enterprise applications are enhancements to unified communications services that bring real-time video to primarily voice communications environments.

Inter-enterprise communications are dominated today by customer service applications. Live video assistance is being applied on ecommerce websites and in high-touch use cases such as video banking for virtual face-to-face meetings with financial advisors and telehealth for doctor-to-patient visits via interactive video. IDC's model breaks out video banking services and telehealth from the video-assisted sales category because these are premium services requiring access to specialized expertise and often involve a redefinition of the customer-provider experience.

**Unified Communications**

As business communications systems have embraced unified communications, their value proposition has been to unify communications into a single seamless user experience accessible on any device. It is logical for the evolution to continue and add real-time video — both one-to-one and multiparty videoconferencing. In addition, there is a need to integrate video into other collaborative environments such as Microsoft Office 365, Google Apps, Slack, and Avaya for work groups to share and collaborate in real time. The objective is to empower employees to use videoconferencing and online collaboration from any device over all types of connections while providing a rich videoconferencing experience.

In general, unified communications services providers either do not offer real-time video or position it as an optional premium-priced service. One-to-one video calling, if available, is a feature of the high-end "platinum" tier. Multiparty videoconference calling, if available, is offered as a special quote. This limits the market. If real-time videos were to be included at no additional charge in the standard package, the market potential would scale significantly. It is a business decision to accept lower margin for broader market diffusion. Video is expected to continue as a premium offering, so a price-based breakout is not anticipated.

**Video-Assisted Sales**

Video-assisted sales are associated with the evolution of contact center services to more personalized services and more options for communications channels and modes. In ecommerce applications, this is adding video chat so that the customer can see the agent who is providing support and expertise. The classic use case here is Amazon's Mayday video chat capability. Mayday enables users of Amazon Fire phone and Kindle Fire HDX to click a button and have a live video connection to a human being who can answer questions, share the screen, and solve problems in person. Live video
combines the convenience and ease of online shopping with more personalized assistance. Customers can see the sales representative (rep) on the screen, ask questions, see the product range close up, and even see the product being used. Sales reps assist website visitors directly through live video engagement. With live video assistance, fewer shopping baskets are abandoned, customer service scores increase significantly, and average order value increases.

**Video Banking**

Video banking has emerged as bank branches have become underused cost centers, while online and mobile banking accounts are increasingly relevant. As consumers shift from branches to digital, banks are closing or downsizing branches and morphing themselves into lower-cost, more digital institutions. But customers still have open-ended financial needs that cannot be met in a pure digital experience. For requirements such as private banking/wealth management, mortgages/loans, savings accounts/investments, and opening new accounts, there is often a need for access to subject matter experts. Video banking is a way to inject the personal experience into digital and serve customers wherever they are. A multiparty video capability is important for a variety of use cases — get a supervisor on the call, get a currency expert, add a spouse to the call for finalizing a mortgage loan, and so forth. Video banking services even add value to existing branch locations because it lets institutions centralize specialists instead of having one specialist in each branch.

Adoption of video banking is not happening as fast in the United States as it is in Europe and Asia. In Europe, the largest banks such as Barclays, RBS, and Santander have initiated broad scope of video banking programs. Large U.S. banks have experimented but so far have made no strategic commitments. Citigroup released a report in March 2016 titled *Digital Disruption: How FinTech is Forcing Banking to a Tipping Point*, which shows that video banking adoption varies widely by country, and that the United States lags behind other regions.

In the United States, most video banking use cases are found in small regional banks and credit unions. The use cases involve interactive teller machines (ITMs), which are ATMs with a live video link to a teller in a remote location. There are two predominant applications:

- In-branch video kiosks where customers can chat with offsite mortgage, wealth management, and other specialists
- ITMs in drive-through windows where customers can interact with a live teller via real-time video any time of day or night

Manufactured by companies like NCR and Diebold, interactive teller machines have been installed in approximately 300 banks and credit unions around the United States. Banks and credit unions taking this approach include BluCurrent Credit Union in Springfield, Missouri; Bank Midwest in South Dakota; Extraco Banks of Temple in Texas; Bank of Colorado in Fort Collins, Colorado; Mountain America Credit Union in Utah; SunTrust in Atlanta, Georgia; Bank of America; and BBVA Compass in Texas.

**Telehealth**

Telehealth applications are in demand as costs are on the rise, there is growing difficulty to access healthcare, medical specialists are in short supply, and consumers increasingly want access to quality healthcare without leaving work or home or while on the go. On the providers’ side, many health systems are adopting it, and health plans are reimbursing for it. By using interactive video, healthcare delivery is adapted to the way providers and patients live and work. Hospitals, urgent care centers, and private practice physicians can visually connect their patients with healthcare professionals for everything from routine checkups and home health services to telestroke assessments and surgical
consults. The driver is to improve healthcare quality through the use of video communications where access to medical professionals is restricted.

The success of telehealth platforms such as Teladoc, MDLIVE, American Well, Doctor On Demand, HealthTap, and MeMD point to growing momentum in live video visits. These four companies combined for about 800,000 telehealth visits in 2015. Since voice only is an option, IDC conservatively estimates 250,000 video telehealth visits in 2015. Teladoc, the largest telehealth provider in the United States, with 576,000 visits in 2015, is growing in excess of 50% per year. According to the Centers for Disease Control and Prevention, there are 1.25 billion ambulatory care visits per year in the United States. According to vendors and providers in the space, estimates of doctor visits converting to telehealth visits range from 20% to 80%. With a conservative assumption of 10% conversion rate to video telehealth, the market is registering over 100 million visits per year.

There is an interesting intersection of Internet of things (IoT) and video in the healthcare sector. The increase in home and personal medical devices for health monitoring can also be linked into this system. By integrating the data from monitoring devices with a real-time communications system, medical professionals can remotely share and explain data in context.

**Show Me**

Show me applications occur when a user shares the camera on his/her mobile device, tablet, or smart glasses with a remote expert who can provide better assistance by seeing what the user sees. Use cases for show me fall into three categories: field services, customer support, and insurance claims appraisals.

**Video-Assisted Field Services**

Video-assisted field services support nondesk workers with better communications. These are workers who spend their day in the field and not in front of a desk computer. In this application, centralized desk experts can see and coach field service technicians through complex repairs, perform inspections, and safety audits and consult with other experts anywhere around the globe. Real-time video collaboration capability can represent the difference between solving a problem in minutes and solving it in days, with a second or third dispatch required. At a cost of $300–700 per truck role, any means of improving first-time resolution has the potential for huge cost savings.

Video-assisted field service is used by companies in many industries including energy, manufacturing, utilities, home installation, and the public sector. For example, Fluke Networks, manufacturer of network performance monitoring and diagnostics tools, created Fluke Connect with ShareLive video call. This is a smartphone app that allows users of Fluke tools to share measurement data (i.e., temperature, mechanical, electrical, and vibration measurements for equipment) and have real-time voice and video conversation between field techs and experts back in the central office.

According to the U.S. Department of Labor, Bureau of Labor Statistics, there are 5.3 million installation, maintenance, and repair technicians in the United States. IDC estimates that 40% or just over 2 million of these are mobile field service technicians. 2015 was a year for pilot trials and small-scale rollouts of video-assisted field services. IDC's industry checks reveal that in 2016, dozens of RFPs have been issued for video-assisted field service deployments scaled to thousands of technicians, including several scoped for real-time video deployment to more than 10,000 technicians. Librestream is a leader in providing video collaboration solutions to field service applications. In October 2015, Librestream announced that its platform connected over 10 million devices worldwide.
**Video-Aided Customer Support**

Video-aided customer support is a business-to-consumer application where a customer support representative uses the camera on a customer's iOS or an Android device to troubleshoot a problem as if the customer was in the room and could see the physical product in front of him/her. This eliminates the tiresome and often stupid or irrelevant questions that are required for diagnosing a problem in traditional telephone support — Is it plugged in? What color are the blinking lights? Have you tried turning it on and off again? Video-assisted support applies to virtually any home gadget: TVs, printers, home theater setups, set-top boxes, wireless routers, smart thermostats and other "connected" home items, computers, kitchen gadgets, appliances, and smart toys. It is most effective for products requiring complicated setup and where it is hard to describe the problem over a voice phone call. In addition to the real-time visual image, collaboration tools such as drawing and annotation (i.e., circles and arrows) and pointers and the ability to open supporting documentation on the user's device make it easy to come to a resolution quickly and more efficiently than before. Valuable additional features include the ability to support things like speakerphone access and text-based chat so that the customer can continue to communicate while showing the support rep the problem or attempting to fix it.

Video-aided customer support is an important feature to meet the new service and support needs of the smart home and the Internet of things. With IoT, all devices are connected, and connected devices tend to be more complicated than standalone devices. Traditional phone-based or email customer service is less practical for the complicated support required by connected products. Video-aided customer support is also referred to as the "support of things" (SOT), indicating a need to reinvent customer experience in the era of connected devices of IoT.

**Video Claims Appraisal**

Insurance companies are implementing "video estimating" to allow a remote claims appraiser/adjuster to see the damage in real time and make the claims process easier, faster, and more personalized. For example, policyholders who are in a car accident can video chat with an appraiser. That appraiser can use the camera on the policyholder's smartphone or tablet to determine services needed and complete the estimate, sometimes in real time. The insurance company saves money by using a "desk" adjuster to resolve the claim instead of sending a field adjuster onsite to examine and photograph the loss. Esurance, an Allstate company that specializes in direct-to-consumer online insurance, launched a video appraisal service in 2014, and USAA, the giant veterans' insurance and financial services company, introduced a similar service in early 2015. But generally, the U.S. insurance industry has been slow to innovate. Outside of Esurance and USAA, there is little activity with video claims in property, casualty, and automotive insurance. U.S. insurance companies appear reluctant to disrupt the field inspection process. Based on the current environment, there is no clear evidence of current or future triggers to accelerate adoption. IDC assumes continued low adoption levels and modest growth on the current, very small base.

**Education, Media, and Social**

**Education**

Educational institutions and learning management systems use video to create rich online learning experiences by allowing students and teachers to connect face to face from anywhere. K-12s, community colleges, and universities are investing in HD video collaboration and on-demand learning solutions to bring students, teachers, and outside experts together for richly collaborative educational experiences. This is a well-developed market for multipoint video and one of the top sectors for
traditional videoconferencing platforms, especially cloud-based solutions like Blue Jeans and Zoom. Here the role for video PaaS is supplementary, and it will find opportunities where there is a need for customized or highly integrated solutions.

A bigger education market opportunity for video PaaS solutions are mobile apps for tutoring and language learning, which are important use cases. These emerging expert knowledge transfer platforms apply technology to improve the effectiveness of student-instructor interaction. The combination of video chat and mobile-centric learning apps makes it easy for students and professionals to get one-on-one help whenever needed. As mobile apps and digital natives, these companies are comfortable with APIs and are attracted to pay-as-you-go pricing model of video PaaS. Examples include:

- **Chegg Tutors**, where students can request a tutoring session and use a combination of a webcam, instant messaging, and a collaborative whiteboard to go over homework and other lessons
- **Cambly**, which is a language learning app that connects nonnative English speakers to English tutors worldwide
- **Varsity Tutors**, a live learning platform that provides access to 20,000 experts, that launched a mobile application for live video chat-based one-on-one sessions with instructors
- **LinGoChat**, which is a one-on-one Mandarin tutoring app and provides access to live Chinese tutors who teach through built-in video and voice calling

**Social Networks**

On-demand apps are defined by the fulfillment of anything you can imagine in an instant. Everyone is familiar with Uber and Airbnb – two of the biggest on-demand apps. There are hundreds of other sharing economy apps creating on-demand marketplaces. Examples include:

- Caring (Care.com, A Place for Mom, and Tutor.com)
- Laundry (Washio, Cleanly, Rinse, Boomerang, and Clothespin)
- Learning (WyzAnt)
- Entertainment (GigSalad)
- Food and alcohol delivery (Instacart, Postmates, DoorDash, Saucey, Munchery, and Sprig)
- Flowers (BloomThat)
- Tasking (Handy, TaskRabbit, and Helpling)
- Handyman (Porch, Angie’s List, Pro.com, and HomeAdvisor)
- Freelancer (Upwork, Fiverr, Textbroker, Staff.com, Guru, and LinkedIn ProFinder)
- Health and beauty (StyleSeat)
- Housing (HomeSuite and HomeAway)
- Parking (JustPark and Luxe)
- Pet sitters (Rover, DogVacay, and Wag It)
- Car sharing (Turo)
- Bicycle sharing (Spinlister)
- Package shipping (Roadie, Shyp, and Doorman)
- Inspection (WeGoLook)
Mini storage (SpareFoot, MakeSpace, Box Butler, and Clutter)

Real-time communications is an important feature ensuring the on-demand app works properly, and the transaction is completed. Many of these on-demand apps will be sufficiently served with voice chat. But real-time video can be an important attribute for verification, context setting, and getting the buyer and seller comfortable with each other.

Growth of interactive video experience platforms like Facebook Live, Periscope, and Meerkat is changing how people consume and engage with content. Video chat apps such as ooVoo, FaceTime, fring, Tango, Messenger, Camfrog, Hangouts, and WeChat have increased awareness and proven the appeal of real-time video. Adding real-time videos to apps, whether they are communities of interest or on-demand marketplaces, increases the virility of the app. In-app video allows the app to be heavily used and engaging enough to return to many times. Not all apps need video, and it is logical to assume that at least some of the biggest apps will do it themselves. That leaves a very long tail of apps for which real-time video will increase users and usage but have no interest in building their own interactive video solution. The key to successful in-app video is to make it as easy and lightweight as text messaging.

**Media**

Media encompasses gaming, sports, and entertainment applications. Video PaaS is applied to combined traditional video broadcast with the interactive power of online experiences so that the viewer experience shifts from merely watching to active participation. Sports leagues, music and video producers, and media companies use interactive live streaming video to connect with and add value to fan/audience bases. This represents a digital transformation of the broadcast TV industry.

**Drivers and Inhibitors**

**Drivers**

**The Power of API Platforms to Deliver Real-Time Video**

- **Assumption:** APIs are important because web developers have little experience with the demanding needs for quality and reliability in real-time communications. Thus when confronted with creating innovative communications applications, most developers don't get very far. Video PaaS changes that. With video PaaS, nonspecialist "citizen developers" can control a video switch and a media server with familiar XML, JSON, and RESTful commands. Video PaaS providers manage the telephony infrastructure, carrier connectivity, and telephony number sourcing in a virtual scalable cloud.

- **Impact:** This moves all the mundane tasks out of the way of the developers and adds functionality that delights and inspires them to do their best work. Using the API platform, developers can quickly test and develop communications applications and move speedily from concept to production stage.

**Bring-Your-Own-App Momentum**

- **Assumption:** The rapid market growth is not dependent on IT department priorities or procurement cycles. Web developers are found through an organization in marketing, sales, customer care, logistics, and other departments. They are creating their own mobile apps and websites and embedding communications in them.

- **Impact:** Video PaaS APIs enable developers to work in a very familiar environment with minimal costs and large support communities. This makes it easy for them to build and test a real-time video application in short order. They can then demo the application, and launch it for
minimal cost, all without requiring IT resources. If, and when, the real-time application goes mainstream, it is easy to hand responsibility over to IT for ongoing operation. Most video PaaS providers are prepared to meet IT expectations of governance procedures, security audits, structured support, and contracts.

**The World Is Moving to Video**

- **Assumption:** Video has been a niche application in the world of communications. Not long ago, videoconferences and virtual meetings were only available to large enterprises that could invest in expensive infrastructure and technology and in trained or IT people to operate them. Today, every laptop, smartphone, and tablet has a built-in camera and microphone. The modern workforce is diverse in geography, technology, and mobility.

- **Impact:** Having the ability to watch or listen from a computer, a room system, or a mobile device is important to provide access for everyone, no matter where they are. There is a rising comfort level with being seen live. On the consumer side, many of the chat apps (Facebook Messenger, WhatsApp, Viber, LINE, WeChat, etc.) have live video chat features. In the business environment, workers have increasing access to videoconferencing tools. The combination of APIs and real-time video represents a multiplier effect. It is not clear that video will ever become as ubiquitous as voice dial tone, but the low penetration today presents an enormous runway before the market reaches anywhere close to saturation.

**Inhibitors**

**Lack of a Business Case for Real-Time Communications**

- **Assumption:** Many industries will be slow to adopt video PaaS because they lack a vision or an incentive to integrate real-time video into their applications and workflow. For example, large U.S. banks and insurance companies have been reluctant to implement widespread video banking and video-assisted claims submission. This reflects a lack of competitive forcing factors and absence of government regulations incentivizing digital initiatives such as video banking.

- **Impact:** This will play a role in video PaaS investments and vendor strategies. However, lack of a market opportunity in the United States does not mean the same conditions exist in Europe or Asia. Most vendors are global and will be able to balance industry/regional opportunities to gain the greatest exposure. In addition, a multimarket strategy will insulate vendors from individual sector dynamics that may hinder real-time video adoption.

**Quality**

- **Assumption:** A lot has been made of the importance of quality in real-time video. User expectations, especially in business applications, will not be tolerant of substandard video quality. Moreover, growing familiarity with high-definition and 4K video continues to raise the bar for quality. There is a risk that substandard video quality will tarnish the experience such that users will reject participation and find alternate means of interacting.

- **Impact:** The industry has a huge emphasis on quality and is well aware of the heterogeneous network environments (3G/4G wireless, WiFi, open internet, etc.) that must be accounted for in real-time communications. Video PaaS vendors have made and will continue to make significant investments in real time-optimized network architectures. This includes incorporating numerous techniques such as forward error correction, compression, acoustic echo cancellation, background noise suppression, active conference mixing, and anti-howling feedback suppressors.
Significant Market Developments

The video PaaS market is gaining momentum. It is still a relatively small market, with less than $100 million revenue in 2016-2017. But growth is expected to be rapid, driven by compelling applications for virtual face-to-face meetings and the ease/cost efficiency of cloud APIs. Video-assisted sales, field technician support, and interactive broadcasting will be the first breakout markets. Success in those applications will be significant market developments.

Changes from Prior Forecast

There is no prior forecast for video communications platform-as-a-service market.

MARKET DEFINITION

Video platform as a service (PaaS) delivers live, two-way video with business-grade performance using an API-first product strategy centered on mobile endpoints. Video PaaS makes it dead easy to embed video into a mobile app, a website, or a business process. Web developers can work in the language of their choice (e.g., Node.js, Ruby, PHP,.NET, Java, and Python), prototype in hours, and stand up a production run in days. There are no up-front hardware and software costs, no contracts or commitments, and no subscription fees. Payment is based on microbilling tied to actual usage.

METHODOLOGY

IDC analyzed the business strategies, product offers, pricing, partnerships, and customer cases for dozens of vendors, including video platform-as-a-service providers such as Agora.io, GENBAND (Kandy), Respoke, SightCall, Sinch, TokBox, Twilio, Vidyo, and Xura.

The focus of this study is on video platform-as-a-service offerings that make it easy and cost effective for developers to build their own solutions, incorporating voice and messaging communications. To understand the differentiation and value propositions of cloud communications platforms, IDC reviewed traditional providers of video solutions. These include:

- Premise-based systems licensed from infrastructure vendors such as Cisco, Polycom, Lifesize, Huawei, or Avex
- Horizontal SaaS videoconferencing services from providers such as Blue Jeans, Google Hangouts, StarLeaf, VEEDEEO, Videxio, Vidtel, and Zoom
- Consumer-oriented services such as Blab, FaceTime, ooVoo, Periscope, Meerkat, and Skype

There are also several providers with a vertical or application-specific focus. Most of these are configured around a cloud-based SaaS delivery model. These include:

- **Video banking**, CafeX (New York)
- **Video-aided field technician services**, Librestream Technologies (Winnipeg, Manitoba, Canada)
- **Video-assisted sales**, iAdvise (Nantes, France), Logmein (Boston), Verishow (Framington Hills, Michigan), VideoDesk (New York), and Vee24 (Boston)
- **Video insurance claims submission**, Livegenic (Philadelphia) and Symbility Solutions (Toronto, Canada)

*Note: All numbers in this document may not be exact due to rounding.*
RELATED RESEARCH

- **Twilio IPO Aims to Raise $150 Million** (IDC #lcUS41552316, June 2016)
- **Twilio – The Biggest Communications API Platform Hits 1 Million Developers, Releases APIs for Wireless IoT and Integrated IP Messaging** (IDC #lcUS41345316, May 2016)
- **CLX Acquires Mblox: Two of the World's Largest A2P Messaging Providers Join Forces to Accelerate Growth** (IDC #lcUS41288516, May 2016)
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- **Communications APIs: What Are They? Where Are They Going? And How to Pick a Vendor?** (IDC #US41147416, March 2016)
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Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com

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