

# Market Guide for Communications Platform as a Service

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CPaaS vendors are expanding the scope of their products and services to target more use cases focused on customer service, Internet of Things and marketing. Application leaders responsible for choosing CPaaS vendors must use this research to select who has better alignment with their requirements.

## Key Findings

- Communications platform as a service (CPaaS) vendors are heavily focusing on customer engagement capabilities by adding more communication and messaging channels, modules and solutions related to them, although some are still at a very early stage.
- The incremental penetration of CPaaS on the customer engagement market is bringing the attention of new profiles of users — such as business analysts or IT architects. These types of users don't usually possess the skills to handle coding, so require some graphical and intuitive interfaces to create use cases.
- Coding is still the best approach to get the most from CPaaS platforms. Since many companies don't have in-house skills and CPaaS vendors are limited on their resources, CPaaS vendors are partnering with larger organizations such as service providers and system integrators (SIs) to acquire a stronger service offering.

## Recommendations

Application leaders planning or selecting customer services and support technologies, as well as other CPaaS use cases, should:

- Leverage CPaaS vendors' capabilities to deliver innovation on customer experience use cases. CPaaS offerings can also fill gaps in existing legacy solutions, such as contact centers or CRM platforms.
- Select CPaaS vendors that offer visual builders to support users with limited coding skills. Where possible, use the modules, wrappers or full SaaS solutions offered by CPaaS vendors to simplify the deployment and accelerate the time to market.

- Seek CPaaS vendors that can offer — either by themselves or via channel partners — a broad set of professional and developer services. Contemplate the cost of these services as part of the new total cost of ownership (TCO) to evaluate these vendors.

## Market Definition

CPaaS offers application leaders a cloud-based multilayered middleware on which they can develop, run and distribute communications software. The platform offers APIs/integrated development environments (IDEs) that simplify the integration of communications capabilities (for example, voice, messaging and video) into applications, services or business processes.

## Market Description

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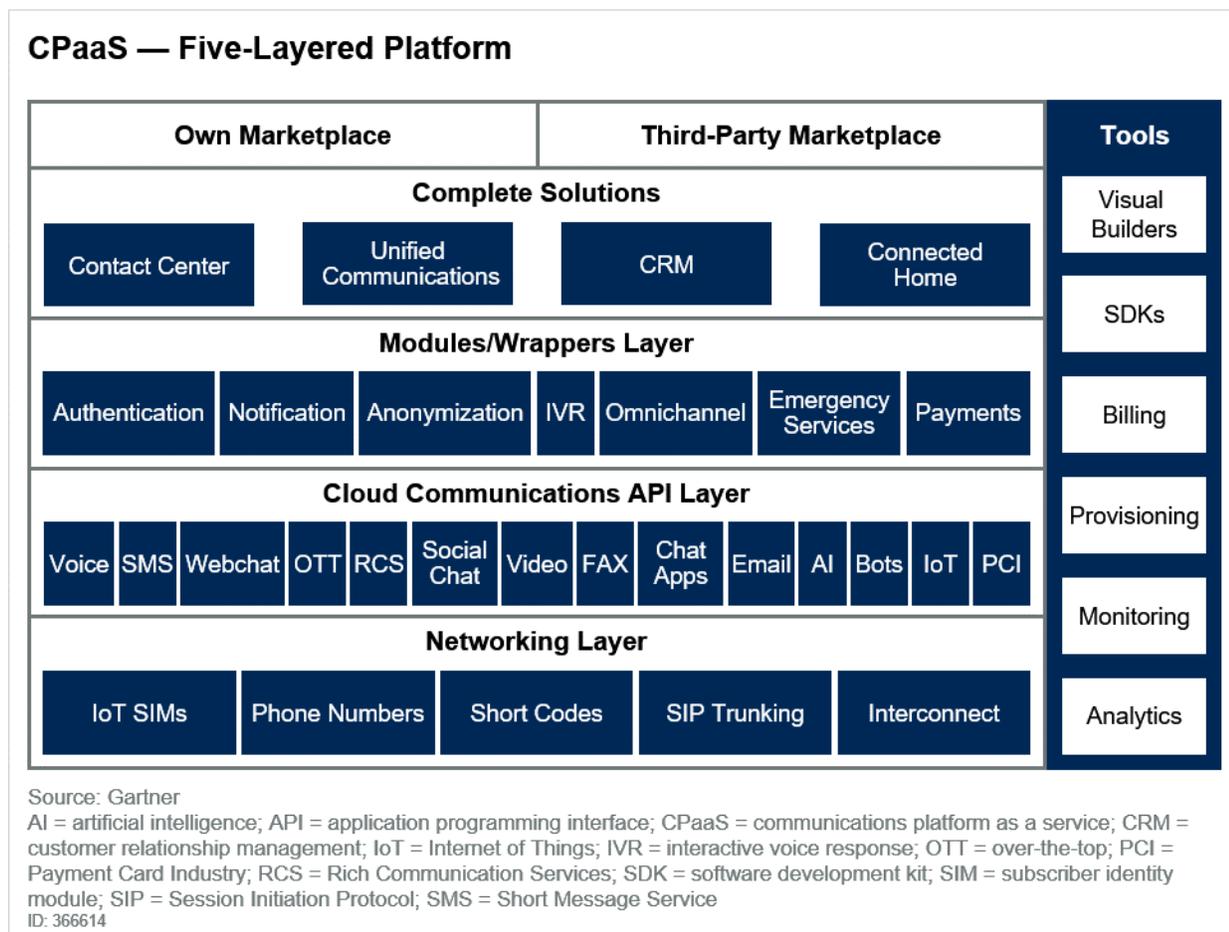
At its core, a CPaaS offering comprises a cloud-based middleware on which developers can build and deploy communications software and services. Developers can write applications on the platform using web languages and libraries (such as Ruby, Node.js, Python, C#, among others) as well as non-code-based methods. CPaaS providers offer tools and documentation — either complete software development kits (SDKs) or individual libraries, APIs and integrated development environments (IDEs) — to facilitate the process.

In addition to communication APIs, a CPaaS vendor may also offer modules and wrappers as programmable components. These help to accelerate the cycle time for developing products and optimizing them. They may originate from the platform owner or from third parties and can be purchased from an online marketplace. CPaaS can be deployed on a public cloud or private cloud infrastructure and can usually be consumed on a self-service basis using a pay-as-you-go model.

They are also increasing and improving the tools provided to their customers related to management, provisioning, configuration, programming and monitoring. SDKs, visual builders and analytics are key components of this layer.

Figure 1 is a graphical representation of a comprehensive CPaaS offering.

Figure 1. CPaaS — Five-Layered Platform



## Market Direction

This market is still experiencing a “gold rush” and attracting even more vendors with different backgrounds and different business models. This includes:

- Consolidated pure-play vendors such as Infobip, MessageBird, Plivo, Sinch, Twilio and Vonage-Nexmo. These vendors have been in the market for a while and their offerings exceed the foundational CPaaS offering of SMS and voice APIs, supporting other communications channels, extended APIs, modules and a broad set of management tools.
- Traditional SMS aggregators, application-to-person (A2P) and person-to-application (P2A) vendors that have expanded into the CPaaS space. These vendors can support other channels and modules, but they are still at an early stage due to the recent move into this market or consolidation of different solutions. Here we find vendors such as Kaleyra, Soprano Design, TeleSign and Zenvia.

- Enterprise communications and collaboration vendors with focus on integrating or augmenting existing collaboration or voice solutions — such as Alcatel-Lucent Enterprise (ALE), Avaya OneCloud, IntelPeer, Plum Voice and Ytel.
- Communications service providers (CSPs) and voice network providers such as AT&T and Bandwidth that can leverage their advanced network capabilities and some unique APIs — such as the one related to emergency services.
- Mobile-centric software providers such as CM.com (also known as CM) and IMImobile.

## CPaaS Adoption and Use Cases

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Initially, CPaaS adoption was predominantly driven by digital native companies, such as on-demand economy players (for example, Airbnb, Lyft, Uber), the over-the-top (OTT) players (for example, LINE, Snapchat, Twitter, WhatsApp) and the hyperscale cloud companies (for example, Amazon, Facebook, Google). However, over the past couple of years, as a large number of traditional enterprises embark on their digital transformation journey, the adoption of CPaaS in such organizations has ramped up. Notable users of CPaaS today include Daimler Group, ING, Goldman Sachs, Morgan Stanley, Nike and Nordstrom, among others. The use cases for which CPaaS is being utilized by enterprises can be roughly segmented into four main categories as shown in Table 1 (please also see “Market Trends: Using Communications Platform as a Service to Drive Digital Business Success” for more details).

In addition, while messaging is at the core of many of CPaaS use cases (outlined in Table 1) followed by voice, we find that as enterprises become more conversant with CPaaS, they are keen to explore and experiment with a broader range of CPaaS capabilities. These include video, chat, Internet of Things (IoT) and artificial intelligence (AI), chatbots and natural language processing. Similarly, the availability of software development shortcuts from vendors in the form of sample code, modules, visual builders and even complete — yet customizable — solutions is helping democratize the CPaaS market. This means that enterprises that do not have a strong software development contingent are not precluded from leveraging CPaaS. However, there is still limited awareness of CPaaS among a large segment of traditional enterprises, and often, the CPaaS vendors cannot afford the marketing dollars necessary to drive such awareness. Building a strong ecosystem of channel partners can help vendors mitigate this issue to some extent.

In addition, while operational use cases are still relevant and generate a significant portion of their revenue, CPaaS vendors are primarily focusing on APIs and modules to deliver customer engagement and experience use cases.

Table 1. CPaaS Use Cases

| CPaaS Use Case Categories  | CPaaS Use Cases   |
|--|---|
| Customer engagement and customer experience  | <ul style="list-style-type: none"> <li>■ Omnichannel customer support via voice, SMS, chat, RCS, video, social, email and bots</li> <li>■ Next-generation contact center with intelligent call routing and AI</li> <li>■ Alerts and notifications to keep customers informed and updated on orders/deliveries, booking confirmations, among others</li> <li>■ Marketing and advertising campaigns</li> <li>■ Voice of the customer — polls, voting, surveys</li> </ul>  |
| Operational efficiency and security  | <ul style="list-style-type: none"> <li>■ Process automation and optimization-automated ticket booking systems; automated intelligent call queuing and routing</li> <li>■ Fraud management, for example, using two-factor or out-of-band authentication</li> <li>■ Asset, fleet and staff-management resource scheduling and optimization in real time</li> <li>■ Rapid scaling of a phone network to enable fast international expansion</li> </ul>   |
| New products and services, and new business models   | <ul style="list-style-type: none"> <li>■ Product extension or augmentation by adding communications capabilities (e.g., e-commerce, online dating, online gaming)</li> <li>■ Upsell and cross-sell of existing products and services through reordering and click-to-call buttons</li> <li>■ Gig economy and marketplace services such as cab, handyman, take-away or apartment bookings</li> <li>■ IoT services such as connected home, fleet management and predictive maintenance</li> <li>■ AR and VR products, such as remote collaboration on virtual 3D assets and real-time embedding of subtitles/translations into media streams</li> </ul> |
| Agile, innovative and collaborative workplace  | <ul style="list-style-type: none"> <li>■ Rapid expansion of the portfolio of digital workplace tools with services developed using CPaaS as add-ons to existing systems</li> <li>■ Creating innovative digital workplace experiences using video, AI and AR</li> <li>■ Developing ideation and collaboration platforms where employees contribute, rate, discuss and vote on ideas</li> </ul>   |
| <p>AI = artificial intelligence; AR = augmented reality; CPaaS = communications platform as a service; IoT = Internet of Things; RCS = Rich Communication Services; SIP = Session Initiation Protocol; SMS = Short Message Service; VR = virtual reality</p> |   |

Source: Gartner (August 2019)

## Market Analysis

The strong growth rates reported by public vendors in the CPaaS market have attracted a large plethora of vendors with varied backgrounds. In order to shortlist the vendors included in this research, Gartner established a set of foundational and advanced attributes for a vendor to be considered as a CPaaS provider. We examine these attributes in Table 2 through Table 6 and demonstrate whether the shortlisted vendors meet these requirements. In this section, we discuss some attributes in more detail, capture some of the key market trends and describe the ways in which vendors are differentiating themselves.

### Basic CPaaS Versus Advanced Programmable Capabilities

The continuous hype around CPaaS has seen several companies coming from different backgrounds — SMS aggregators, voice aggregators, email security companies — rebranding themselves as “CPaaS providers.” However, they often do not exhibit all the attributes of a true platform-as-a-service provider. In particular, the provisioning of a middleware on which enterprises can build, run and distribute applications using a set of tools and documentation provided by the platform owner. Instead, the aforementioned providers often only offer a small set of APIs.

At a minimum, Gartner expects a CPaaS vendor to support at least voice and messaging APIs, underpinned by a development environment. Some CPaaS providers already offer a much broader range of communication APIs (which can include voice, messaging, video, chat, social media, email and fax). In addition, some of the more innovative vendors are also supporting AI, IoT, augmented reality (AR)/virtual reality (VR) capabilities on their CPaaS platforms while others, such as CM.com, are making headway in the mobile payment area.

### Simple APIs Versus Modules/Visual Builders Versus Full SaaS Solutions

While all the providers featured in this Market Guide support a basic set of communication APIs, it is not uncommon for them to also offer capabilities higher up the stack. These can include:

- **Modules** — frequently used functionalities (such as authentication, notification, anonymization, sentiment analysis and task routing) that are available either from the platform owner or from third parties. These modules can accelerate the time for enterprises to develop a complete solution.
- **Visual builders** — graphical tools, which enable nontechnical users to build new workflows or use cases by connecting a set of building blocks.
- **Full SaaS solutions** — built on a CPaaS platform (such as unified communications or contact center as a service) are built in a modular way and still offer opportunities for deep levels of customization.

The availability of the software development building blocks such as modules and visual builders — as well as the full SaaS solutions — can make it easier for enterprises with few development resources to be able to leverage some of the innovative capabilities that usually come with CPaaS. However, as CPaaS providers advance higher up the stack, they face a delicate balance due to co-

competition dynamics with some of the users of their platform. This may deter some producers of value that are developing innovative apps and services on top of the platform.

Many companies are also using CPaaS as part of their existing solutions or application, with the requirement to integrate them into their business support system (BSS) and operations support system (OSS), platform for services such as provisioning, billing and monitoring.

## Local Versus Regional Versus Global Players

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Most CPaaS vendors are expanding their footprint to deliver global — or at least regional — capabilities, however not all support the same features universally. In the context of this research, we have considered vendors that can either deliver messages and calls in many regions or deliver in specific countries or regions. While there are many multinational corporations (MNCs) that require services globally, other types of verticals (such as public sectors) will be very focused in one country or region. The reach and number of interconnections can often be an indicator of pricing, quality and performance. The larger the number of interconnect routes in a given market, the higher a CPaaS vendor's ability to guarantee SLAs — particularly on voice and video. Similarly, the larger the number of direct interconnections with carriers, the more competitive pricing that the vendor can offer due to improved margins. However, some innovative vendors can compensate for fewer direct interconnections with carriers by leveraging an artificial-intelligence-based system, which determines the most optimized route, based on cost or performance.

## Pricing Models

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CPaaS providers should offer pay-as-you-go or usage-based pricing as a foundational pricing model. In addition, we are seeing some providers starting to offer customers greater choice and flexibility with pricing models. Some examples include:

- **Freemium** — You do not pay for the APIs up to a certain threshold.
- **Volume-based discounts** — As you move into higher volume tiers, the price is automatically reduced to reflect that.
- **Committed use discounts** — The enterprise gets a special price if it commits to consuming a certain minimum volume of APIs over a one- or two-year period and pays in advance.
- **Risk-reward model** — The pricing is based on the successful achievement of predefined key performance indicators (KPIs) or business outcomes.
- **Per user or seat** — Typically offered for full SaaS solutions such as unified communications (UC) or contact center.

The features provided on the bottom layer of the CPaaS architecture are leading to significant commoditization, particularly in the case of SMS APIs. Nonetheless, the more innovative vendors that have a broader portfolio of CPaaS capabilities, stronger customer references, enterprise-grade platforms and professional services are still able to command a price premium.

## Innovation and Developer Ecosystem

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The size of the developer ecosystem and the pace of innovation are areas where we see the largest delta between CPaaS providers. The cloud-native, pure-play CPaaS vendors have been able to attract a large developer community by offering the right technical and commercial incentives.

Technical incentives include:

- High-quality and easy-to-use APIs, SDKs and documentation
- Intelligence features or capabilities offered as programmable components to optimize app design and performance
- Modules that accelerate the time to develop the end solution
- Standard web service model and tooling, which reduce specialized skills and limit vendor lock-in
- A high level of technical support offered through multiple channels

Commercial incentives include:

- Flexible pricing models
- The ability to experiment at zero cost
- Access to a large addressable market
- A marketplace to distribute products and services

In terms of innovation capabilities, this is demonstrated by the breadth of the portfolio, the types of advanced features and functionalities on the platform, the level of modularity (being able to pick-and-choose the relevant building blocks and also mix-and-match with capabilities from third parties) as well as the pace at which the CPaaS vendor introduces new features/functionalities and fixes bugs in the platform.

## Professional and Development Services

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Due to the expansion on their capabilities from CPaaS vendors, use cases are becoming more complex and complicated. Visual builders can be used to reduce the complexity; however, the workflows can still exceed the knowledge of the end user to create and handle them over time. For this reason, CPaaS vendors by themselves or using partners, should be able to offer professional and development services to assist customers on the configuration and change management of their use cases whether the customer is using visual builders or not.

## Enterprise-Grade Capabilities

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In a bid to meet some of the more stringent enterprise requirements regarding privacy, security, service quality and reliability, admin, policy and control, CPaaS vendors are spending significant resources to comply with these requirements. This can include support for features such as data encryption, single sign-on from an active directory, customizable role-based access control, auditing, public key client validation, segmented billing and usage, International Organization for

Standardization (ISO) certification, and compliance with General Data Protection Regulation (GDPR)/Financial Industry Regulatory Authority (FINRA)/Health Insurance Portability and Accountability Act (HIPAA)/Payment Card Industry (PCI), among others.

Some providers can also enable end users to access a CPaaS platform from a private cloud environment, hybrid or on-premises deployments or a VPN/Multiprotocol Label Switching (MPLS) connection to the public cloud. Quite a few vendors also offer guaranteed SLAs — particularly for services such as voice and video. In addition to basic self-service support, most of the vendors profiled in this research provide a broad range of support plans — some of which, may come at an additional cost.

While most CPaaS vendors allow customers to purchase and consume APIs in self-service mode, they also choose to invest in a broad range of assisted sales channels, including telesales, field sales teams and channel partners, among others.

## Representative Vendors

*The vendors listed in this Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.*

### Market Introduction

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In this section, we provide a short profile of the representative vendors in the CPaaS market that meet most of the key attributes of a CPaaS provider (see Note 1). Table 2 through Table 6 outline how the shortlisted vendors meet the relevant CPaaS attributes.

Table 2. Representative Pure-Play Vendors in CPaaS

| CPaaS Attribute Category   | Infobip       | MessageBird | Plivo | Sinch (CLX Communications) | Twilio | Vonage-Nexmo |
|--|---------------|-------------|-------|----------------------------|--------|--------------|
| Platform hosted on scalable cloud infrastructure. Global reach, presence and SMS and voice routing.  | Private Cloud | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Global reach, voice routing (including the provisioning of local numbers) and APIs.  | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Global reach, SMS routing (including local numbers and codes) and APIs.  | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| A broad range of messaging APIs (apart from SMS).  | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| A broad range of communication APIs (apart from voice).  | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| A broad range of extended APIs (AI, NLP, IoT).   | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Off-the-shelf modules.   | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Full SaaS solutions.   | X             | X           | X     | X                          | ✓      | X            |
| Public APIs, development tools and documentation. Ability to develop using web languages and noncode methods. Support for third-party IDEs and SDKs. | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Large and engaged developer ecosystem. Strong developer support and evangelism.  | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Visual builders.   | ✓             | ✓           | ✓     | ✓                          | ✓      | ✓            |

| CPaaS Attribute Category   | Infobip | MessageBird | Plivo | Sinch (CLX Communications) | Twilio | Vonage-Nexmo |
|--|---------|-------------|-------|----------------------------|--------|--------------|
| Strong and diverse partner program.  | ✓       | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Enterprise-grade security, privacy, compliance, control, policy and admin capabilities.  | ✓       | ✓           | ✓     | ✓                          | ✓      | ✓            |
| PAYG pricing model as foundational. Flexible pricing options.  | ✓       | ✓           | ✓     | ✓                          | ✓      | ✓            |
| The ability to purchase and consume APIs, purely in self-service mode.   | X       | ✓           | ✓     | ✓                          | ✓      | ✓            |
| Self-service and assisted support.   | ✓       | ✓           | ✓     | ✓                          | ✓      | ✓            |
| <p>AI = artificial intelligence; API = application programming interface; CPaaS = communications platform as a service; IDE = integrated development environment; IoT = Internet of Things; NLP = natural language processing; PAYG = pay-as-you-go; SaaS = software as a service; SDK = software development kit; SMS = Short Message Service</p> |         |             |       |                            |        |              |

Source: Gartner (August 2019)

Table 3. Representative Traditional SMS Vendors in CPaaS

| CPaaS Attribute Category   | Kaleyra    | Soprano Design | TeleSign      | Zenvia      |
|--|------------|----------------|---------------|-------------|
| Platform hosted on scalable cloud infrastructure. Global reach, presence and SMS and voice routing.  | ✓          | ✓              | Private Cloud | ✓           |
| Global reach, voice routing (including the provisioning of local numbers) and APIs.  | Only India | ✓              | ✓             | ✓           |
| Global reach, SMS routing (including local numbers and codes) and APIs.  | ✓          | ✓              | ✓             | Only Brazil |
| A broad range of messaging APIs (apart from SMS).  | ✓          | X              | ✓             | ✓           |
| A broad range of communication APIs (apart from voice).  | ✓          | ✓              | X             | ✓           |
| A broad range of extended APIs (AI, NLP, IoT).   | X          | X              | X             | X           |
| Off-the-shelf modules.   | ✓          | ✓              | ✓             | X           |
| Full SaaS solutions.   | X          | X              | X             | X           |
| Public APIs, development tools and documentation. Ability to develop using web languages and noncode methods. Support for third-party IDEs and SDKs. | ✓          | ✓              | ✓             | ✓           |
| Large and engaged developer ecosystem. Strong developer support and evangelism.  | X          | ✓              | ✓             | ✓           |
| Visual builders.   | ✓          | Limited        | X             | ✓           |
| Strong and diverse partner program.  | X          | ✓              | ✓             | ✓           |
| Enterprise-grade security, privacy, compliance, control, policy and admin capabilities.  | ✓          | ✓              | ✓             | ✓           |
| PAYG pricing model as foundational. Flexible pricing options.  | ✓          | ✓              | ✓             | ✓           |
| The ability to purchase and consume APIs, purely in self-service mode.   | Limited    | X              | ✓             | ✓           |
| Self-service and assisted support.   | ✓          | ✓              | ✓             | ✓           |

| CPaaS Attribute Category  | Kaleyra | Soprano Design | TeleSign | Zenvia |
|---|---------|----------------|----------|--------|
| AI = artificial intelligence; API = application programming interface; CPaaS = communications platform as a service; IDE = integrated development environment; IoT = Internet of Things; NLP = natural language processing; PAYG = pay-as-you-go; SaaS = software as a service; SDK = software development kit; SMS = Short Message Service |         |                |          |        |

Source: Gartner (August 2019)

Table 4. Representative Enterprise Communications Vendors in CPaaS

| CPaaS Attribute Category   | Alcatel-Lucent Enterprise | Avaya OneCloud (Zang Cloud) | IntelePeer | Plum Voice | Ytel      |
|--|---------------------------|-----------------------------|------------|------------|-----------|
| Platform hosted on scalable cloud infrastructure. Global reach, presence and SMS and voice routing.  | ✓                         | ✓                           | ✓          | ✓          | ✓         |
| Global reach, voice routing (including the provisioning of local numbers) and APIs.  | Only Singapore and U.K.   | ✓                           | ✓          | Only U.S.  | Only U.S. |
| Global reach, SMS routing (including local numbers and codes) and APIs.  | ✓                         | ✓                           | ✓          | Only U.S.  | ✓         |
| A broad range of messaging APIs (apart from SMS).  | X                         | ✓                           | ✓          | X          | ✓         |
| A broad range of communication APIs (apart from voice).  | X                         | X                           | ✓          | X          | ✓         |
| A broad range of extended APIs (AI, NLP, IoT).   | ✓                         | X                           | ✓          | ✓          | X         |
| Off-the-shelf modules.   | ✓                         | ✓                           | ✓          | Limited    | ✓         |
| Full SaaS solutions.   | ✓                         | X                           | X          | ✓          | ✓         |
| Public APIs, development tools and documentation. Ability to develop using web languages and noncode methods. Support for third-party IDEs and SDKs. | ✓                         | ✓                           | ✓          | ✓          | ✓         |
| Large and engaged developer ecosystem. Strong developer support and evangelism.  | ✓                         | ✓                           | ✓          | ✓          | ✓         |
| Visual builders.   | Limited                   | Limited                     | ✓          | Limited    | ✓         |
| Strong and diverse partner program.  | ✓                         | ✓                           | ✓          | ✓          | ✓         |
| Enterprise-grade security, privacy, compliance, control, policy and admin capabilities.  | ✓                         | ✓                           | ✓          | ✓          | ✓         |

| CPaaS Attribute Category   | Alcatel-Lucent Enterprise | Avaya OneCloud (Zang Cloud) | IntelePeer | Plum Voice | Ytel |
|--|---------------------------|-----------------------------|------------|------------|------|
| PAYG pricing model as foundational. Flexible pricing options.          | ✓                         | ✓                           | ✓          | ✓          | ✓    |
| The ability to purchase and consume APIs, purely in self-service mode. | ✓                         | ✓                           | ✗          | ✗          | ✓    |
| Self-service and assisted support.                                     | ✓                         | ✓                           | ✓          | ✓          | ✓    |

AI = artificial intelligence; API = application programming interface; CPaaS = communications platform as a service; IDE = integrated development environment; IoT = Internet of Things; NLP = natural language processing; PAYG = pay-as-you-go; SaaS = software as a service; SDK = software development kit; SMS = Short Message Service

Source: Gartner (August 2019)

Table 5. Representative CSPs and Voice Network Carrier Vendors in CPaaS

| CPaaS Attribute Category   | AT&T          | Bandwidth     |
|--|---------------|---------------|
| Platform hosted on scalable cloud infrastructure. Global reach, presence and SMS and voice routing.  | Private Cloud | Private Cloud |
| Global reach, voice routing (including the provisioning of local numbers) and APIs.  | Only U.S.     | Only U.S.     |
| Global reach, SMS routing (including local numbers and codes) and APIs.  | Only U.S.     | Only U.S.     |
| A broad range of messaging APIs (apart from SMS).  | X             | ✓             |
| A broad range of communication APIs (apart from voice).  | ✓             | X             |
| A broad range of extended APIs (AI, NLP, IoT).   | X             | Specific E911 |
| Off-the-shelf modules.   | ✓             | ✓             |
| Full SaaS solutions.   | X             | X             |
| Public APIs, development tools and documentation. Ability to develop using web languages and noncode methods. Support for third-party IDEs and SDKs.   | ✓             | ✓             |
| Large and engaged developer ecosystem. Strong developer support and evangelism.  | X             | X             |
| Visual builders.   | Limited       | X             |
| Strong and diverse partner program.  | X             | X             |
| Enterprise-grade security, privacy, compliance, control, policy and admin capabilities.  | ✓             | ✓             |
| PAYG pricing model as foundational. Flexible pricing options.  | ✓             | ✓             |
| The ability to purchase and consume APIs, purely in self-service mode.   | ✓             | Limited       |
| Self-service and assisted support.   | ✓             | ✓             |
| AI = artificial intelligence; API = application programming interface; CPaaS = communications platform as a service; CSP = communications service provider; IDE = integrated development environment; IoT = Internet of Things; NLP = natural language processing; PAYG = pay-as-you-go; SaaS = software as a service; SDK = software development kit; SMS = Short Message Service |               |               |

Source: Gartner (August 2019)

Table 6. Representative Mobile-Centric Vendors in CPaaS

| CPaaS Attribute Category  | CM.com           | IMobile      |
|---|------------------|--------------|
| Platform hosted on scalable cloud infrastructure. Global reach, presence and SMS and voice routing.   | ✓                | ✓            |
| Global reach, voice routing (including the provisioning of local numbers) and APIs.   | ✓                | ✓            |
| Global reach, SMS routing (including local numbers and codes) and APIs.   | ✓                | ✓            |
| A broad range of messaging APIs (apart from SMS).   | ✓                | ✓            |
| A broad range of communication APIs (apart from voice).   | ✗                | ✓            |
| A broad range of extended APIs (AI, NLP, IoT).  | Specific Payment | Specific IoT |
| Off-the-shelf modules.  | ✓                | ✓            |
| Full SaaS solutions.  | ✗                | ✓            |
| Public APIs, development tools and documentation. Ability to develop using web languages and noncode methods. Support for third-party IDEs and SDKs.  | ✓                | ✓            |
| Large and engaged developer ecosystem. Strong developer support and evangelism.   | ✓                | ✓            |
| Visual builders.  | ✓                | ✓            |
| Strong and diverse partner program.   | ✓                | ✓            |
| Enterprise-grade security, privacy, compliance, control, policy and admin capabilities.   | ✓                | ✓            |
| PAYG pricing model as foundational. Flexible pricing options.   | ✓                | ✓            |
| The ability to purchase and consume APIs, purely in self-service mode.  | ✗                | ✗            |
| Self-service and assisted support.  | ✓                | ✓            |
| AI = artificial intelligence; API = application programming interface; CPaaS = communications platform as a service; IDE = integrated development environment; IoT = Internet of Things; NLP = natural language processing; PAYG = pay-as-you-go; SaaS = software as a service; SDK = software development kit; SMS = Short Message Service |                  |              |

Source: Gartner (August 2019)

## Vendor Profiles

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### Consolidated Pure Players

#### Infobip

Founded in Vodnjan, Croatia, but now headquartered in London, U.K., [Infobip](#) started out as an SMS aggregator. It has since expanded into the CPaaS market, offering a broad range of cloud communication APIs and modules. It also enables other service providers, for example, CSPs to white-label its platform. The company has an extensive global sales force with local presence in over 50 countries, including North America, Asia/Pacific and Latin America.

Infobip's CPaaS platform is hosted on its private cloud which runs on 15 global data centers. The company's key proposition comprises off-the-shelf modules (Target, Analyze, Mobile Identity) and visual builders (Flow) to accelerate the deployment of an omnichannel solution. The company offers a broad range of communication APIs including messaging apps, Rich Communication Services (RCS), WebRTC, voice and email. The company is particularly strong in the financial services sector and it has invested to meet the stringent security and compliance requirements for this vertical. It offers message encryption, granular password policies, Secure Sockets Layer (SSL) endpoints with hosted certificates and key exchanges, auditing for account activities, among others.

The company has a strong direct sales force and offers three tiers of assisted support. However, it currently does not support API purchasing and consumption in a pure self-service model. Currently, it is building an IoT connectivity product to be launched before the end of 2019.

#### MessageBird

Founded in 2011 and headquartered in Amsterdam, Netherlands, privately held [MessageBird](#) is still undergoing rapid expansion. The company initially gained traction in Europe and Asia/Pacific, it has expanded its presence in the U.S. by opening an office and hiring local people there.

MessageBird has a broad portfolio of CPaaS products, which includes SMS, voice (circuit-switched and WebRTC), RCS, chat (Facebook, LINE, Telegram, WeChat, WhatsApp), chatbot and AI. It also offers off-the-shelf modules for two-factor authentication (2FA) and omnichannel in addition to prebuilt integrations to increase the speed of deployment. The company offers global reach with more than 220 direct CSP interconnections and local phone numbers in over 150 countries. MessageBird's CPaaS platform is hosted via a combination of Amazon Web Services (AWS) and Google Cloud Platform (GCP). A key sales focus is on digitally enabling medium to large enterprises with access to CPaaS, particularly those with multicountry requirements.

Its roadmap includes some full SaaS development along with customer experience solutions, the addition of more channels such as video, push messaging and voice assistance and the expansion of its AI and machine learning (ML) capabilities. The company still has limited brand equity outside Europe, but it has improved since last year due to some marketing activities and its physical presence in the U.S.

## Plivo

Based in San Francisco, California, U.S., with offices in Bangalore, India, [Plivo](#) is a private company with global reach. The company provides inbound voice and SMS in 190 countries, and provides local phone numbers in more than 100 countries. Plivo's CPaaS portfolio extends beyond voice and SMS to include Internet Protocol (IP) messaging, Multimedia Messaging Service (MMS) and AI capabilities such as natural language processing (NLP), chatbots and sentiment analysis.

In order to help customers accelerate their cycle time to design, develop and take solutions to market, Plivo offers "Plivo High Level Objects (PHLO)" — a drag-and-drop designer that can be used to model common use cases such as two-factor authentication, marketing automation and audioconferencing.

The company differentiates itself by providing assisted support to its customers. All customers have access to 24/7 email support and anytime emergency response at no additional cost. To date, Plivo has often been perceived as a more economical alternative to other pure players (like Twilio). However, it still has a very limited offer in communication channels, which can prove challenging when a customer wants to leverage omnichannel use cases.

## Sinch (Formerly CLX Communications)

Founded in 2008, headquartered in Sweden (and formerly known as CLX Communications), [Sinch](#) has its roots in SMS aggregation. The company's revenue in the past 12 months was about \$443 million and its compound annual growth rate (CAGR) is 60%. Some years back, the company chose to expand its product portfolio, geographical reach, skill set and customer base inorganically and embarked on an acquisition spree that saw it acquire six companies in just three years.

The "Sinch" name has recently been adopted as the shared name of the group. It is still in the process of consolidating some of the management tools and APIs of these companies. Sinch has a broad portfolio of offerings, which includes voice (circuit-switched, WebRTC), messaging (SMS, Multimedia Messaging Service [MMS], chat, Rich Communication Services [RCS], WhatsApp), and video. The company has 300 direct interconnections to carriers and is able to provide direct dial-in (DDI) numbers in 80 countries. It also has a strong partner program and well-developed direct sales capabilities, with several local and regional offices, as well as dedicated account managers for all customers.

Off-the-shelf modules are limited to a few modules and it doesn't have a complete solution offer. The company is expecting to add Facebook Messenger and Apple Business Chat during the second half of 2019 and a single API integration endpoint in 2020. Over the last year, the company worked to consolidate many of the systems from its various acquisitions, however some administration portals and billing systems still have a lack of integration which can affect the user experience. The company expects to complete the consolidation of these systems by the end of 2019.

## Twilio

Headquartered in San Francisco, California, U.S., [Twilio](#) is a publicly traded company that generated \$650 million in revenue in 2018, making it the largest pure-play CPaaS provider. The company reported first-quarter 2019 revenue of \$233 million, up 81% year over year and is expecting to deliver around \$1,100 million revenue for the full year — making it the first CPaaS company to cross the billion-dollar barrier.

The company provides networking services via the Twilio Super Network; a broad set of APIs (for example, voice, messaging, video, email, IoT, chat, AI) off-the-shelf modules. For example:

- Identity (Authy; Verify)
- Intelligence (TaskRouter, Autopilot [beta])
- Conversations (Conversations API; Proxy)
- Full SaaS Solutions (Twilio Flex and Marketing Campaigns)

Twilio offers a development environment with tools that include visual builders (Studio). The company provides transparent pricing on its website. Preintegrated add-ons — built by third parties using Twilio APIs — can be accessed via the company's marketplace.

Twilio is particularly known for its breadth of API offerings. The company is proving their fast pace innovation by introducing new products across their different layers. Examples include Twilio Super SIM and Narrowband IoT on its Super Network layer to provide global cellular connectivity for IoT, Autopilot for AI, Pay for payments over the voice channel as off-the-shelf modules, and Twilio Flex, a contact-center-focused solution.

Twilio is also expanding its portfolio through acquisitions. The company acquired Ytica and added historical reporting capabilities to Twilio Flex. Another company acquired by Twilio was SendGrid. The company now offers email marketing as a SaaS solution, and also the option to use email APIs as a stand-alone.

Twilio has grown its partner ecosystem and now has more than 200 system integrators (SIs) and independent software vendors (ISVs) building and collaborating on the Twilio platform.

## Vonage-Nexmo

[Vonage](#) is headquartered in Holmdel, New Jersey, U.S., with offices globally. Vonage acquired [Nexmo](#) in 2016 and its CPaaS business generated revenue of \$215 million in 2018. Nexmo has access to Vonage's global network infrastructure, which grants it more control over performance, quality and reliability of communications. Elsewhere, the company operates through partnerships with CSPs and aggregators, using its patented adaptive routing algorithm to ensure similar quality of service when providing phone numbers in 71 countries across North America, EU, Middle East and Africa, Asia/Pacific and Latin America.

The platform is hosted in multiple public cloud providers including AWS, Google and IBM SoftLayer. In addition to the foundational communication APIs for SMS and voice, it also offers MMS,

WhatsApp, Facebook Messenger, Viber, Video, Webchat and email. Its WebSocket capability, launched in 2016, allows developers to embed machine learning and AI capabilities from third parties (for example, Google Assistant and IBM Watson) into its communication apps. It offers developer tools, SDKs and sample code across its APIs to improve developer productivity and reduce the time it takes to build and then deploy new communications features into production. It provides visual builders through Node-RED, an open-source, flow-based programming tool.

The Vonage acquisition expanded Nexmo's access to new resources, however Gartner believes it has spent time aligning the Nexmo and Vonage culture and business. Vonage offers full SaaS solutions but using other platforms, which the company developed or acquired, whereas Nexmo is used to augment functionalities within them.

## Traditional SMS Players

### Kaleyra

Headquartered in Milan, Italy with offices in North America, Asia/Pacific and other EMEA countries, [Kaleyra](#) is the result of the merging of three companies, Ubiquity (Italian company with roots in banking system integration), Solutions Infini (cloud communications platform with strong presence in India) and Hook Mobile (an American-based CPaaS platform).

The platform is hosted in a mixed environment between AWS and private cloud/on-premises (mostly for financial services customer requirements for secure messaging). It offers SMS, voice, email, push notification, WhatsApp and RCS APIs. While phone numbers for SMS are available globally, provisioning of phone numbers for voice is only supported in India (which can be considered a differentiator due to the complexity of delivering this service in this country). The company focuses on enterprise-grade security and compliance capabilities. It also provides off-the-shelf modules for customer engagement and campaigns. The company recently released its visual builder called "Hexa" which supports 100% of features currently supported by APIs.

Due to the limited geographic footprint of its developer community and partners, the company's ability to execute could be restricted. Given Kaleyra's focus on security and compliance for regulated industries, not all APIs can be consumed in a self-service mode. Kaleyra does not yet provide any extended APIs such as AI, IoT or video. Once the company completes integration of its recent acquisitions, we expect to see a more clearly defined product portfolio to fulfill its goal of being a consolidated pure-play vendor.

### Soprano Design

[Soprano Design](#) is a privately held company headquartered in Sydney, Australia. With its roots based in SMS brokering, it has progressively introduced more capabilities to become a CPaaS company. It currently has approximately 140 employees with regional offices in Asia/Pacific, EU, North America and Latin America.

The Soprano CPaaS platform is hosted over geographically diverse private cloud data centers across Asia/Pacific, EU and U.S., partnering with 13 mobile network operators (MNOs) in four regions and its APIs offer support for SMS, MMS, voice, email. Soprano provides voice phone numbers in 60 countries. It has off-the-shelf modules ready to deploy designed with a heavy focus on identity management, privacy, security and compliance. Some of its off-the-shelf modules include 2FA, inbound SMS campaigns and emergency management. Soprano CPaaS is sold directly or via a channel partnership, although developers can use the sandbox on the same day of the initial inquiry.

Soprano provides a cloud-based user interface for API setup and configuration. The company also has limited brand recognition outside of Australia.

## TeleSign

[TeleSign](#) is a security-focused cloud communications company based in greater Los Angeles, California, U.S. The company was recently acquired by the Belgian CSP BICS, which granted it access to its own network infrastructure as well as direct interconnections to hundreds of CSPs globally. Besides voice and messaging, the company provides advanced analytics for fraud detection and phone number intelligence with machine learning. The company's CPaaS platform also supports communications with machines (IoT).

The company's partner program is diverse and includes reseller partners (for example, system integrators [SIs], OEMs), referral partners (for example, consultants and independent software vendors [ISVs]) and platform as a service (PaaS) partners (for example, SaaS companies). The company also emphasizes its comprehensive set of enterprise-grade security, admin, control and compliance capabilities — including data encryption, GDPR compliance, fraud detection, auditing, customized role-based access control, public key client validation and segmented billing and usage.

Even though the company appears to be accelerating its developer outreach through hackathons and the appointment of developer evangelists, its developer community is still fledgling.

## Zenvia

[Zenvia](#) is based in Sao Paulo, Brazil and was founded in 2003. The company focuses on the Brazilian market being the only South American-headquartered CPaaS vendor competing against global providers Twilio and Infobip, along with local providers Movile and TWW. Zenvia offers the foundational CPaaS functionality spanning SMS, voice and security (number masking and authentication). Customers typically pay a baseline monthly fee, plus a microcharge for each message/minute of use.

The SMS functionality has expanded to a broader messaging capability, with support for WhatsApp (high consumer adoption in Brazil), Facebook Messenger and WebChat. There is also a chatbot capability that can be added across the various messaging channels to help automate predictive parts of the user experience. Users have traditionally been developers building B2C applications, particularly in the retail, finance and utility sectors. A new visual builder is designed to bring in business analysts that lack coding skills.

Many Zenvia customers deploy the omnichannel capability as a front end for a voice-based, contact center. Other common use cases include promotions, lead qualification, debt collection and e-commerce. Its plans for the next 12 months include improved support in English and Spanish to expand to country markets outside of Brazil (where Portuguese is the national language); new channels such as email, RCS, Twitter and Instagram; an NLP training tool; improved support for noncoders; and global payment tools.

## Enterprise Communications Players

### Alcatel-Lucent Enterprise (ALE)

[Alcatel-Lucent Enterprise \(ALE\)](#) is a private company owned by China Huaxin, however it is still headquartered in Colombes, France. ALE is a spinoff of the former Alcatel-Lucent now acting under Nokia, which is focused on enterprise communications products and services.

[Rainbow](#), its [CPaaS platform](#), is hosted on public cloud between OVH Cloud and IBM Cloud with presence in North America, Latin America, Europe and Asia/Pacific and its focus is on SMS, voice, video and AI APIs. While the company is deploying voice by leveraging the recent acquisition of [Sipwise](#), it allows customers to integrate their CPaaS platform into the existing UC infrastructure or one of their current UC offers. APIs can be consumed via self-services and paid via credit card; they can also be project-based or via a channel partner. Rainbow CPaaS supports visual builder, however it is limited to a few use cases and most implementations use coding. Regarding complete solutions, ALE has developed a unified communications as a service (UCaaS) solution leveraging Rainbow APIs. The company has a partnership with IBM Watson to provide AI and also SDKs for Amazon Lex, Dialogflow and Microsoft Language Understanding (LUIS).

Rainbow CPaaS does not support messaging applications, social or email channels. Integration with Sipwise is still at an early stage, so from the management perspective they are still working as two separate platforms. Its DDI provisioning is limited only to Singapore and the United Kingdom, however it will be rolling this out to more countries over the next 12 months.

### Avaya OneCloud

[Avaya OneCloud](#) (previously called Zang Cloud) is a CPaaS offering from the unified communications and contact center vendor Avaya, headquartered in Santa Clara, California, U.S. OneCloud CPaaS is hosted on Google Cloud Platform, offering a set of APIs that includes SMS; chat; voice (circuit-switched and WebRTC); video; AI and chatbot. It also offers modules and visual builders to accelerate the cycle time to develop end solutions.

OneCloud CPaaS can be used by existing Avaya unified communications (UC) and contact center (CC) customers as well as users with no legacy UC/CC investments that can expand the functionality of their platforms and leverage OneCloud CPaaS for business process improvement. Local phone numbers can be provided across an extensive amount of countries worldwide. The company also provides off-the-shelf modules such as call recording and transcription, interactive voice response (IVR), call tracking, call masking/unmasking.

OneCloud CPaaS also provides developers and companies with an online visual builder called “Workflow” that enables a vast variety of use cases via the task elements in the builder. Workflow also provides free public open-source templates for a variety of use cases to help customers get started.

The change in its product name might cause some confusion since the company continues to use the [Zang website](#), so there are some inconsistencies between accounts inside and outside the U.S. The company still doesn’t provide messaging apps such as WhatsApp or Apple Business Chat, however, it is starting to offer some limited WhatsApp capabilities as a trial.

## **IntelePeer**

Headquartered in San Mateo, California, U.S., [IntelePeer](#) initially provided Session Initiation Protocol (SIP) business voice network services and integration with most of the IP PBX vendors. Leveraging the voice capabilities and adding new ones, the company released its CPaaS product called Atmosphere CPaaS, supporting programmable voice, messaging, APIs, visual builders, AI, and analytics. It has a global service footprint, and sells via channel partners focused on North America, EU, and Latin America.

The Atmosphere platform is hosted in a mix between its private cloud and IBM cloud for the U.S. and it leverages AWS and IBM Cloud for customers outside the U.S. It can also support hybrid environments if required by its customers. The company supports off-the-shelf modules through partners and some prebuilt application templates on platform. Even though it supports coding, it targets customers with limited coding skills by investing heavily on the development of its visual builder and offers a unique fix-pricing model for its usage.

IntelePeer currently supports global SMS and WhatsApp messaging, and its roadmap for the next 12 months includes the support of new channels such as Facebook Messenger, WeChat, Twitter and Apple Business Chat. In addition, it will provide some extended APIs related to AI.

## **Plum Voice**

[Plum Voice](#) is a privately held company with headquarters in New York City, New York, U.S. The company was founded in 2000 as an IVR service provider and has expanded its capabilities providing access to voice and SMS APIs. Most Plum Voice customers leverage the service for IVR functionality.

Plum Voice is hosted on a private cloud with three data centers based in the U.S. and one in the U.K. Its communications channels are limited to SMS and voice. The company can offer phone numbers for voice in 100 countries, but SMS is only supported in the U.S. It also provides APIs for speech recognition, voice transcription and voice biometrics. Its visual builder is only designed to build use cases related to its IVR module and voice apps. The company is heavily focused on compliance, particularly on the voice channel supporting also PCI and other payments regulations. Direct sales or self-service are the models supported for sales and delivery. The company doesn’t have a partner program.

IVR nonrelated use cases are very limited due to the lack of support for other channels, its limited footprint support for SMS and the shortage of off-the-shelf modules — apart from IVR (specifically, it supports 2FA but only in the U.S.).

## Ytel

[Ytel](#) is a privately held company headquartered in Lake Forest, California, U.S. The company initially began with a focus on the U.S. market, and this year it's in the process of expanding its footprint to 40 additional countries across the EU, Asia/Pacific and Latin America. It offers a broad set of capabilities that includes — apart from the foundational CPaaS features — messaging apps, off-the-shelf modules, visual builders and complete solutions.

The majority of its platform is hosted in GCP having some telecommunications and contact center services running in an on-premises environment. The company also offers communications APIs for voice, SMS, MMS, Facebook Messenger, RCS and email, alongside some extended APIs and off-the-shelf modules. It provides visual builder capabilities at no extra cost. It also provides complete solutions, such as contact center, broadcast messaging and campaign builders. APIs can be purchased and consumed in self-service modules, but professional services can be provided itself or via one of its partners. It offers premium support to all customers as standard.

The company is also planning to increase the number of supported channels as well as add some new capabilities such as AI.

## CSPs and Voice Carrier Players

### AT&T

[AT&T](#) is a public company headquartered in Dallas, Texas, U.S. AT&T provides communications and digital entertainment services in the U.S., Mexico and Latin America; it is a global network service provider.

Its CPaaS offering is called the [AT&T API Marketplace](#) launched in 1Q19. The Marketplace uses a combination of Kandy white-labeled platform hosted privately and integrated with numerous AT&T capabilities. It offers SMS, voice, video, chat, social APIs for communications channels. The provisioning for phone numbers is limited to U.S. The company has initially deployed off-the-shelf modules for two-factor authentication, field support scheduling, omnichannel and chatbots under the name of “turnkey applications.” AT&T is expanding its Marketplace by adding third-party APIs and is continuously developing its portfolio. Today, visual builders are available to configure existing turnkey applications. Customers can procure CPaaS services digitally through AT&T API Marketplace or can work directly with AT&T sales teams to procure solutions.

In the second half of 2019, a set of existing AT&T capabilities such as NarrowBand-IoT, AI, NLP and SIP trunk services with 911 and lawful interception support are expected to be added to the AT&T API Marketplace. It will also increase the footprint to provide phone numbers. AT&T intends to fully utilize its API platforms for the core networking, IoT, mobility and AI areas of its business with the

API Marketplace. AT&T has an active developer community of thousands of developers it will enable to use this platform.

## Bandwidth

U.S.-based [Bandwidth](#) became a public company at the end of 2017 and its total revenue in 2018 was around \$200 million. Their initial coverage was in the U.S. market, but it is now expanding internationally initially with Europe and is expecting to complete its first deployment by the end of 2019. Voice and SMS are the company's primary focus and current areas of strength. It is also one of the very few CPaaS providers to offer APIs for 911 access.

Bandwidth's key differentiator is that it has its own network infrastructure (albeit, currently only in the U.S.). Consequently, it combines the speed, simplicity and flexibility of a CPaaS provider with the scale, quality, reliability and cost advantage of a network infrastructure owner.

Many of Bandwidth's CPaaS customers are leading UCaaS, contact center as a service (CCaaS) and cloud meetings' providers, where communications are mission-critical to the business. These cloud service providers value Bandwidth for its carrier-grade scalability in direct inward dialing (DID) management, voice minutes and E911 support. Bandwidth has also multiple IoT use cases. Currently, the company is mainly relying on a direct sales force and does not have a channel partner program. This may hinder its growth and the development of innovative solutions on top of the platform.

Bandwidth does not offer visual builders, but it offers an enterprise approach with premium support for all customers. The company is offering RCS messaging and WebRTC in beta testing.

## Mobile-Centric Players

### CM.com

Headquartered in Breda, Netherlands, with multiple offices globally, [CM.com](#) is a self-funded, private company with its roots in mobile platforms and services. The company expanded into the CPaaS space, offering a range of products, which includes extensive communication APIs (SMS, chat, voice, push messaging apps and RCS), modules and visual builders (two-factor authentication, landing pages and messaging campaigns).

The company has direct interconnection to over 60 carriers and operates its own ISO-certified private cloud platform to support SLAs. It also offers real-time analytics for individual services. The company also runs services on AWS, based on customer requests. It also offers real-time analytics for individual services. CM.com is the only CPaaS provider in this research that offers an outcome-based business model (it does not get paid unless the KPIs are met).

CM.com's portfolio of communication APIs is currently more limited than that of many competitors. Despite this, it offers the unique ability to integrate payment with communications capabilities. This supports the company's strategy to enable conversational commerce from the CM.com platform.

The company is licensed as a payment provider and digital identity service provider. It also offers a GDPR-compliant messaging environment. CM.com's revenue predominantly derives from Europe. The company has limited visibility outside Europe.

## IMImobile

Headquartered in London, U.K. with offices globally, [IMImobile](#) has its roots in the development of mobile platforms and services. The company launched a CPaaS platform ([IMIconnect](#)) utilizing its experience of working with enterprises; and predominantly serves large financial services, telecom, retail, logistics and utility companies in the U.K. and internationally. It also enables other service providers, for example, CSPs to white-label its platform.

IMImobile hosts its platform on AWS in North America, Europe and Asia/Pacific and leverages a private cloud for banking customers in the U.K. The company provides inbound call and messaging in over 84 countries; and besides voice and SMS, also supports email, push, in-app messaging and a wide range of messaging apps such as WhatsApp Business, Messenger, Apple Business Chat, RCS and omnichannel chat. IMImobile's visual builder offers prebuilt integrations with enterprise CRM, marketing automation and contact center systems. It provides some off-the-shelf modules related to virtual customer assistants and marketing campaign management. The visual builder also includes natural language processing (NLP) nodes to parse customer response and identify contextual intent, and it supports enterprise features such as role-based access control (RBAC), flow versioning, reports and dashboards, custom logs and secure personal data handling.

The company has strong enterprise-grade security, admin, control, compliance, sales and support capabilities, and it counts some prominent CSPs as channel partners.

## Market Recommendations

The CPaaS market is still very fragmented, with more vendors entering in this space and the existing ones evolving their current portfolio. Even those vendors that are expanding their products in the same direction, our research reveals that the specific focus can vary from one vendor to another. For example, most vendors are expanding their messaging apps capabilities, yet some are focusing on WhatsApp, some others in RCS and others in social media such as Facebook Messenger. The best approach to assess the most suitable vendor is to start by creating a vision of the use cases to be delivered alongside relevant capabilities, such as:

- Geographical coverage — not only by country, also by state or province (particularly at the moment to look for phone numbers, types and prefixes)
- Partnerships
- Professional and developer services offered
- Enterprise-grade features
- Off-the-shelf modules

- Full SaaS solutions

Consolidated pure-play vendors will be able to address most of the use cases and capabilities. However other vendors show particular strengths on specific capabilities, such as payments, emergency services, unified communications integration, mobile app support, advanced role-based access or hybrid environment support.

### Acronym Key and Glossary Terms

|              |   |
|--------------|---|
| <b>2FA</b>   | two-factor authentication                           |
| <b>A2P</b>   | application-to-person                               |
| <b>AI</b>    | artificial intelligence                             |
| <b>ALE</b>   | Alcatel-Lucent Enterprise                           |
| <b>API</b>   | application programming interface                   |
| <b>AR</b>    | augmented reality                                   |
| <b>AWS</b>   | Amazon Web Services                                 |
| <b>B2C</b>   | business-to-consumer                                |
| <b>BSS</b>   | business support system                             |
| <b>CAGR</b>  | compound annual growth rate                         |
| <b>CC</b>    | contact center                                      |
| <b>CCaaS</b> | contact center as a service                         |
| <b>CPaaS</b> | communications platform as a service                |
| <b>CRM</b>   | customer relationship management                    |
| <b>CSP</b>   | communications service provider                     |
| <b>DDI</b>   | direct dial-in                                      |
| <b>DID</b>   | direct inward dialing                               |
| <b>EMEA</b>  | Europe, the Middle East and Africa                  |
| <b>EU</b>    | European Union                                      |
| <b>FINRA</b> | Financial Industry Regulatory Authority             |
| <b>GCP</b>   | Google Cloud Platform                               |
| <b>GDPR</b>  | General Data Protection Regulation (EU)             |
| <b>HIPAA</b> | Health Insurance Portability and Accountability Act |

|               |  |
|---------------|--|
| <b>IDE</b>    | integrated development environment             |
| <b>IoT</b>    | Internet of Things                             |
| <b>IP</b>     | Internet Protocol                              |
| <b>IP PBX</b> | Internet Protocol private branch exchange      |
| <b>ISO</b>    | International Organization for Standardization |
| <b>ISV</b>    | independent software vendor                    |
| <b>IVR</b>    | interactive voice response                     |
| <b>LUIS</b>   | Language Understanding (Microsoft)             |
| <b>ML</b>     | machine learning                               |
| <b>MMS</b>    | Multimedia Messaging Service                   |
| <b>MNC</b>    | multinational corporation                      |
| <b>MNO</b>    | mobile network operator                        |
| <b>NLP</b>    | natural language processing                    |
| <b>OEM</b>    | original equipment manufacturer                |
| <b>OSS</b>    | operations support system                      |
| <b>OTT</b>    | over-the-top                                   |
| <b>P2A</b>    | person-to-application                          |
| <b>PaaS</b>   | platform as a service                          |
| <b>PAYG</b>   | pay-as-you-go                                  |
| <b>PCI</b>    | Payment Card Industry                          |
| <b>PHLO</b>   | Plivo High Level Objects (Plivo)               |
| <b>RBAC</b>   | role-based access control                      |
| <b>RCS</b>    | Rich Communication Services                    |
| <b>SaaS</b>   | software as a service                          |

|               |                                     |
|---------------|-------------------------------------|
| <b>SDK</b>    | software development kit            |
| <b>SI</b>     | system integrator                   |
| <b>SIM</b>    | subscriber identity module          |
| <b>SIP</b>    | Session Initiation Protocol         |
| <b>SLA</b>    | service-level agreement             |
| <b>SMS</b>    | Short Message Service               |
| <b>SSL</b>    | Secure Sockets Layer                |
| <b>TCO</b>    | total cost of ownership             |
| <b>UC</b>     | unified communications              |
| <b>UCaaS</b>  | unified communications as a service |
| <b>VPN</b>    | virtual private network             |
| <b>VR</b>     | virtual reality                     |
| <b>WebRTC</b> | Web Real-Time Communications        |

## Gartner Recommended Reading

*Some documents may not be available as part of your current Gartner subscription.*

“Four Growth Drivers for Fourth-Generation Communications Platform as a Service”

“Magic Quadrant for Industrial IoT Platforms”

“Adopt a Pace-Layering Application Approach to Evaluate Your Cloud Contact Center Options”

“The Future of the Contact Center”

“Platform as a Service: Definition, Taxonomy and Vendor Landscape, 2019”

### Note 1 Representative Vendor Selection

Vendors included in this Market Guide are those that support foundational CPaaS capabilities for example:

1. SMS

2. Voice
3. Two-factor-authentication APIs

We also include whether they host their platforms on public or private clouds. The vendors must provide APIs and SDKs, as well as optional IDEs to their customers. In addition, we are considering vendors that exceed these capabilities by providing other components, such as messaging apps, video and/or other communication APIs, off-the-shelf modules, full SaaS solutions, extended APIs (IoT, AI, NLP), visual builders and management tools.

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