

Market Guide for Communications Platform as a Service

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Business units need to improve operational efficiency and customer experience. Application leaders should embrace CPaaS as part of this digital journey for foundational CPaaS like SMS, A2P and voice, as well as emerging CPaaS like advanced messaging, biometric security, video and digital payments.

Overview

Key Findings

- CPaaS business adoption remains robust despite the pandemic. Organizations leverage their developers to lead a CPaaS-driven digital transformation to stay afloat during the challenges brought on by COVID-19.
- Legacy SMS and A2P services are leading the 2020 CPaaS market. They are simple to deploy, provide a fast ROI, and fulfill easy-to-understand use cases — such as appointment reminders and service renewals.
- As organizations master foundational CPaaS, their development teams advance to richer capabilities such as messaging apps (led by WhatsApp, along with WeChat and Apple Business Chat), omnichannel, video, enhanced security (such as biometrics) and payments.
- Many organizations have IT staff members that can leverage CPaaS tools today. Those lacking such skills can hire third-party consultants or SIs to get them up and running.

Recommendations

Application leaders pursuing CPaaS as part of their digital transformation strategy should:

- Review the full CPaaS product portfolio when selecting a CPaaS provider, along with the provider's scalability and product roadmap plans. Although you may be starting with basic SMS, A2P and voice, your team may soon be adding messaging apps, email, omnichannel, AI, video, security and payments in six months.
- Engage your developers in the CPaaS selection process and educate them on the shift to more advanced and emerging features. Enthusiastic developers translate into productive developers,

who thrive with a rich ecosystem of APIs, SDKs, IDEs, blogs, training, certifications and conferences.

- Hire outside consultants for one to three months if your IT staff lacks the requisite CPaaS skills out of the gate. Consultants can, in turn, train your IT staff to become CPaaS competent while helping build your initial CPaaS solutions.

Strategic Planning Assumption

By 2023, 90% of global enterprises will leverage API-enabled CPaaS offerings as a strategic IT skill set to enhance their digital competitiveness, up from 20% in 2020.

Market Definition

Communications platform as a service (CPaaS) offers application leaders a cloud-based middleware from which they can develop, run and distribute communications software. A CPaaS platform provides developers with APIs, software development kits (SDKs), integrated development environment (IDEs) and documentation to facilitate simplified access to an array of communications tools (spanning voice, SMS, messaging and video). This framework enables developers to build communications solutions — from the simple to complex — to better run their business, enhance customer experience, and improve speed to market of their new products and services.

Market Description

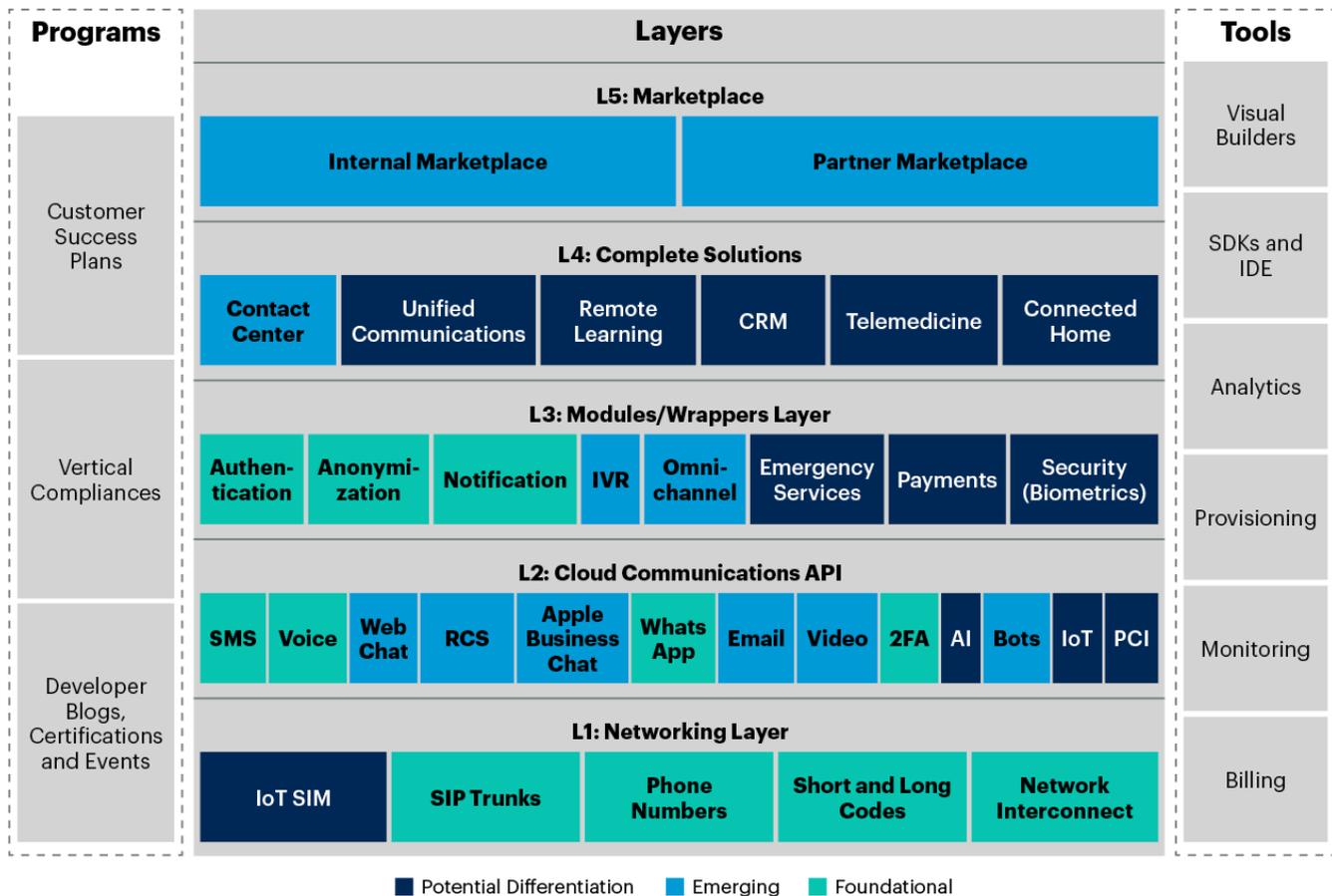
Figure 1 captures the framework of services that can be offered in the CPaaS market. In most cases, a given CPaaS provider only offers a subset of these services. The five layers in the broad middle of Figure 1 represent the communications modules. The color codes are an indicator of market demand and maturity.

- **Foundational** — These communications modules (aqua) are common communications APIs requested by customers today. Gartner believes they represent 90% or more of today's CPaaS revenue. Many of today's users focus on SMS (along with the requisite short code or long codes), where they can build application-to-person (A2P) implementations to tie in their CRM system. Messaging app WhatsApp is on the cusp of entering this group.
- **Emerging** — These communications modules (mid-blue) are receiving increasing customer demand. Video has taken off substantially in 2020 to assist organizations in their response to COVID-19. Users increasingly embrace email and omnichannel communications. A limited number of CPaaS providers now offer their own contact center CPaaS modules.
- **Potential differentiation** — These communications modules (dark blue) represent potential sources of differentiation or nascent market demand. Gartner sees digital payments and biometric security as likely sources of near-term customer adoption. Digital payments facilitate

the emerging cashless economy and e-commerce adoption. Biometrics provide richer security tools now that digital thieves have compromised two-factor authentication (2FA).

Figure 1: Five-Layer CPaaS Architecture

Five-Layer CPaaS Architecture



Source: Gartner
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CPaaS vendors now have programs (left side of Figure 1) to improve their competitive positioning. This includes:

- **Customer success plans** – To help customers get the most out of their CPaaS deployments (often at an additional charge), and in many cases go on to build new CPaaS use cases across business units.
- **Vertical compliances** – Adherence to vertical compliances (for example, Health Insurance Portability and Accountability Act [HIPAA] and General Data Protection Regulation [GDPR]) so that their CPaaS offerings are authorized for use by regulated clients.
- **Developer tools** – Developer blogs, certifications, training and events to build a deeper bond with the developer community. This is in addition to the core developer APIs, SDKs and documentation.

The right side of Figure 1 presents the assortment of tools and capabilities CPaaS providers are expected to bring to the table. Visual builders, which started to gain traction ~2017, are particularly important. They allow business analysts, meaning the vast majority of knowledge workers lacking coding skills, access to the CPaaS toolset. Through a graphical user interface, noncoding business analysts can design business workflows by configuring drag-and-drop communications modules. Some CPaaS providers reveal that well over 50% of their business revenue is derived through visual builders.

Customers equally value analytics, which allows them to visualize, monitor and quantify the status and robustness of their CPaaS deployment.

Market Direction

Gartner believes that the CPaaS market has been growing in the ~33% range when factoring in global expansion, new CPaaS entrants, emerging communications modules and accelerated user adoption. In March 2020, we expected a major market correction faced with global COVID-19.

This correction, however, never manifested. The market did experience attrition from major users such as Uber, Lyft, and Airbnb, along with the airline industry. But this has been compensated with growth in:

- Gig food delivery – such as Deliveroo (U.K.), DoorDash (U.S.) and Swiggy (India)
- Healthcare embracing CPaaS video now that physicians are reimbursed for telehealth by insurance/government
- Education embracing virtual solutions for remote learning
- Utilities sending emergency alerts to notify customers of impending power cutoff

Much of today's CPaaS growth is fueled by old standby SMS, increasingly as part of A2P (see Note 2). Even traditional organizations classified as digital laggards see the practicality of SMS/A2P for generating operational efficiencies. Organizations with even modest IT tech smarts now see the benefits of CPaaS.

Gartner often sees a business unit adopting CPaaS for a particular use case. Then other business units build their own use cases as they become aware of the CPaaS value proposition. This is exemplified in the hospital example portrayed in Figure 2:

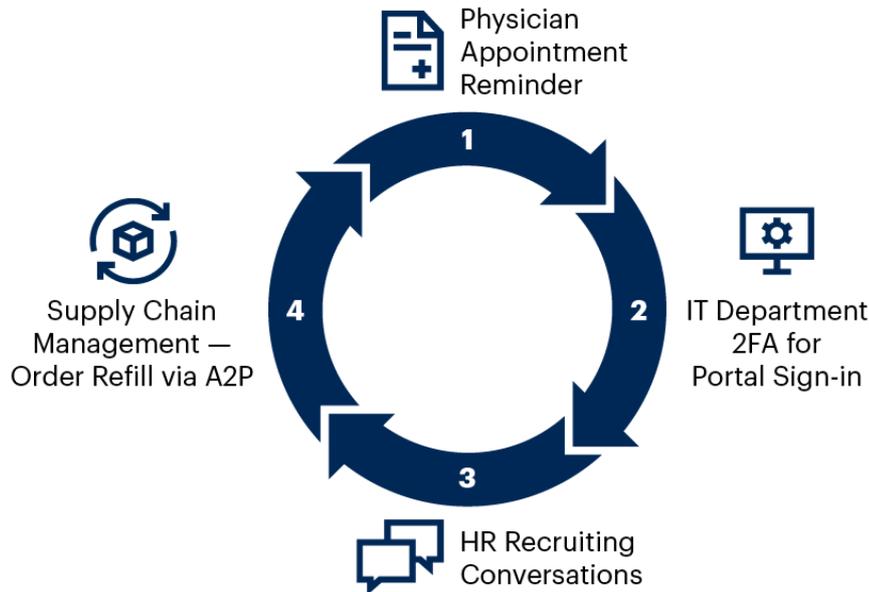
- The original use case is patient reminders
- The IT department adds 2FA for user authentication
- HR leverages CPaaS to recruit new workers

- Supply chain orders new inventory when medicines get low

This exemplifies CPaaS adoption spreading virally across the organization.

Figure 2: Example of How CPaaS Adoptions Can Spread Across Business Units

Example of How CPaaS Adoptions Can Spread Across Business Units



Source: Gartner
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Moving forward, Gartner projects continued growth in the current base of foundational CPaaS, including A2P. But we also see users deploying CPaaS for advanced messaging (such as WhatsApp), video, payments, security, and even contact centers (e.g., for contact agents to be connected to CPaaS-powered chat, voice or video built into a company’s website or applications).

Market Analysis

The CPaaS market arguably started with the emergence of Twilio, which now has an annual run rate exceeding \$1.6 billion. Twilio’s success fueled the emergence of other CPaaS startups such as MessageBird and Nexmo (now Vonage API). Legacy SMS providers, such as Zenvia, Syniverse, IMI mobile and TeleSign, API-enabled their communications services to enter the CPaaS market. AT&T, the only traditional household brand that is active in the CPaaS market, entered in 1Q19.

This Market Guide summarizes 20 CPaaS providers spanning North America, Europe, Asia/Pacific and Latin America. But CPaaS is a fragmented, emerging market. Hence, not all CPaaS vendors are addressed.

Given CPaaS’s market growth, Gartner expects new entrants to emerge. This may include startups, carriers, and even well-known technology vendors. Gartner also expects future mergers and acquisitions.

Just as this Market Guide went to editing, Microsoft announced its new CPaaS offering branded Azure Communications Services. This announcement was made at Microsoft Ignite in September 2020, which was too late to be considered in this Market Guide. Given Microsoft's brand, resources, technical depth and global coverage, its CPaaS solution has the potential to play an important future role in the CPaaS market.

The foundational CPaaS services like SMS, A2P and 2FA will drive the volume of growth for the next two to three years. Many businesses are in the early stages of learning CPaaS and will focus on foundational CPaaS, which is easy to learn and deploy, and can deliver a near-term ROI. Nonetheless, application leaders should be aware of future CPaaS capabilities that we expect to gain prominence in 2021 and beyond.

Emerging CPaaS Tools for 2021

Video

CPaaS video has been around for five-plus years, but experienced a demand to support remote use cases at the onset of the pandemic, notably in healthcare and education (followed by finance and law enforcement). Doctors and nurses are now reimbursed by insurance and government for patient video appointments. Virtual care is useful – in terms of time, costs and resource efficiencies – for keeping connected with patients with chronic conditions and mental health challenges. Virtual care also reduces the risks of spreading infections (like COVID-19) between patients and the medical staff.

CPaaS video provides APIs that integrate with industry-specific applications and platforms (such as electronic healthcare record [EHR] platforms like Epic). Many organizations want embedded video, as opposed to separate video services (from such vendors as Zoom, Cisco Webex and Microsoft Teams). Twilio video integrates with Epic EHR and meets HIPAA and BAA compliances for the U.S. market. Vonage Video APIs are now used by such providers as Maven, among others as part of its telehealth program.

Schools and universities, forced to a remote learning environment by COVID-19, are embracing video CPaaS as well. They are doing this in areas that require special-purpose engagement tools with specific integration to online learning platforms. While many use generic Zoom or Cisco Webex, fit-for-purpose video CPaaS can be tailored (via APIs) specifically for the education use case, yielding a superior customer experience.

Omnichannel

Omnichannel allows businesses to connect with customers across multiple channels, while maintaining context. This is especially important because each customer has his/her preferred communications channel preferences. Rules can be established as to when a customer is contacted via SMS, email, voice, webchat, video, WhatsApp, etc. A conversation can therefore start in one channel, switch to a second, and then be completed in a third (for example, from SMS to

WhatsApp and to video). CPaaS users have shown interest in leveraging visual builders to build out an omnichannel customer experience.

Security

Many CPaaS providers have offered 2FA for a number of years as an enhanced security tool over the traditional username/password combo. But 2FA has been compromised by malicious hackers. Select CPaaS providers are starting to roll out more robust security capabilities, including silent mobile verification (which matches both the device and the phone number for authentication). In addition, there are biometric security tools based on voice recognition, facial recognition, iris scanning, and palm print/fingerprint verification. Application leaders should evaluate CPaaS security tools as a means to address critical application security requirements.

Messaging Apps

Consumers want to converse with their brands on their terms, in their preferred communications modalities. Increasingly, this means messaging apps like WhatsApp, RCS, Apple Business Chat, Facebook Messenger, Telegram, WeChat, Viber, KakaoTalk and LINE. These messaging apps provide richer experiences than basic SMS, including support for QR codes (quick response), emojis, videos and images. Carousels allow an organization to display a menu from which customers can place an order. These messaging apps support such use cases as customer support, retail or food ordering, ticket purchasing, and loan payments, among many others.

WhatsApp is the most prevalent messaging app brought up by Gartner clients, particularly in the financial, public sector and utility industries. Other messaging apps are strong in a particular country market, such as WeChat in China, where smartphone adoption of WeChat is near 100%. We expect increasing adoption of RCS and Apple Business Chat (ABC) as both are native with Android and iOS, respectively. Hence, users do not need to download a separate app.

Payments

COVID-19 has spurred the demand for CPaaS payments. Buyers and vendors are pivoting away from traditional paper currency. Customers instead pay in digital currencies like PayPal, Zelle, iDEAL, Google Pay, Apple Pay, Stripe, Alipay, Amazon Pay, WeChat Pay and Facebook Pay. There is also the need to tie in traditional credit cards – American Express, Mastercard, and Visa. Finally, many users want to pay via a voice call, and there are PCI-compliant methods to accept such payments via DTMF and NLP.

Twilio, Infobip, IntelPeer and CM.com are all building out their CPaaS payment capabilities. CPaaS providers may also partner with or integrate with a third-party payment provider/payment gateway such as Authorize.Net, BillingTree, USAePay, ipSCAPE, Semafone or Eckoh. In many cases, the CPaaS payment module is used as part of a messaging conversation.

CPaaS-CCaaS

CPaaS-contact center as a service (CCaaS) calls for the CPaaS providers to build out a series of communications modules for building out a contact center. Such modules could include IVR,

surveys, routing engine and reporting tools. The customer then assembles these modules via a DevOps team, and builds a secure private, customizable contact center. The most notable CPaaS-CCaaS providers to date are Amazon Connect and Twilio Flex, which are gaining traction with large customers (or midsize tech-savvy customers) with extensive customization requirements. Other CPaaS-CCaaS solutions are available from IntelPeer and Infobip.

CPaaS-CCaaS is a special, complex CPaaS use case. The majority of CPaaS providers do not offer CPaaS-CCaaS. However, many do offer an omnichannel solution that orchestrates multiple channels – such as SMS, email, voice, webchat and WhatsApp, among others.

Pricing

CPaaS providers with a developer focus charge at the micro-service level, with a micro-charge for each sent SMS message (for example, \$0.0075 per SMS), voice call (for example, \$0.01 per minute) or video session (e.g., \$0.0015 per minute per participant plus a monthly fee). Pricing is volume-driven. Often, developers can secure a free trial run to test out the vendor's capabilities. Low-volume users are charged list price (as listed on the website). High-volume users can negotiate significant discounts north of 50%. Pricing has been decreasing over the past 12 to 18 months, especially with large volume discounts. As use cases proliferate in an organization, the volume of SMS, messaging conversations (WhatsApp, RCS and WeChat), voice interactions and security verifications increase accordingly. It is not uncommon to see CPaaS annual bills exceed \$1.2 million.

CPaaS vendors focused on a consultative (co-creator) model charge through a combination of CPaaS usage, platform fee and professional service fees. The CPaaS usage fee can be micro-charges or for a bucket of communications (for example 10,000 SMS messages). The platform fee (typically monthly) is a charge for using the service, customer support, and access to visual builders and analytic tools. Often, there is a separate per-hour fee for professional services devoted to a specific customer.

Representative Vendors

Market Introduction

CPaaS Vendor Roots

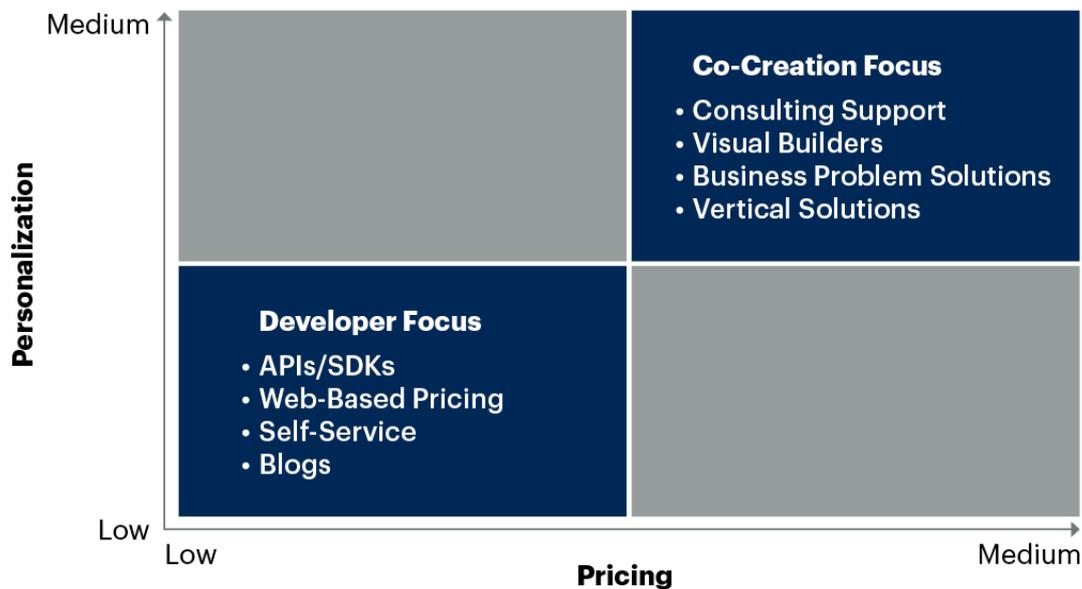
CPaaS has matured from early offerings that solely aimed at users with coding capabilities to the availability of tools that enable access to a wider range of users, such as business analysts and marketing users. These latter user groups don't have deep coding capabilities for a solution approach.

CPaaS vendors tend to focus on one of two broad approaches, as portrayed in Figure 3. The developer vendors emphasize a customer self-serve model with low, transparent pricing. Co-creator vendors (see Note 3) emphasize consulting services, solve business problems and often pursue specific verticals. As vendors get bigger, they tend to extend into the other camp to broaden their

addressable market. For example, Twilio’s initial go-to-market approach emphasized self-service, but it now has customer success teams, consulting partners and visual builders, all co-creator attributes targeted to enterprises.

Figure 3: Developer Versus Co-Creation Vendor Focus

Developer Versus Co-Creation Vendor Focus



Source: Gartner
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Developer-Driven CPaaS

The early CPaaS providers targeted high-growth digital-native customers like Uber, where the developer community plays the lead role. The CPaaS provider builds out API-enabled communications modules, then lets creative developers build to their heart’s content. CPaaS providers court developers with a software environment of APIs, SDKs, IDEs and thorough documentation, in addition to all the communications modules. Pricing should be low and transparent. Further differentiation is attained with developer blogs, certification programs, training material and even events such as Twilio SIGNAL.

Many CPaaS providers are global, or at least span multiple country markets. This is an important CPaaS value differentiator, as a developer builds their application once, and the CPaaS provider masks all the interoperability differences across various carriers and carrier country markets.

Co-Creator-Driven CPaaS

CPaaS is no longer limited to digital natives like Uber, Lyft and Airbnb. Brick-and-mortar organizations, including finance, healthcare, utilities, transportation and retail (followed by all other verticals to some degree), are embracing CPaaS. Although these organizations do possess developers (in most cases), they often seek guidance. Hence, the co-creator approach.

For example, a CPaaS provider will work with an events provider (e.g., concert or soccer/football match) and build an app to support ticket payments, beverage purchasing and parking reservations to go along with the event. Another example is for a CPaaS vendor to help a bank build an app for wealth managers to stay in touch with their clients (while also adhering to vertical and regulatory compliances). These types of use cases require access to CPaaS modules such as SMS, voice, QVR scanning, mobile number authentication, 2FA and payments.

Table 1 shows the representative vendors included in this Market Guide.

Table 1: Representative Vendors in Communications Platform as a Service

Vendor	CPaaS Emphasis
8x8-Wavecell	Developer
AT&T	Developer
Bandwidth	Developer
CM.com	Co-creator
IMImobile	Co-creator
Infobip	Co-creator
IntelePeer	Co-creator
Kaleyra	Co-creator
LINK Mobility	Developer
MessageBird	Developer
Mitto	Developer
Plivo	Developer
Route Mobile	Co-creator

Sinch	Developer
Soprano	Co-creator
Syniverse	Co-creator
TeleSign	Developer
Twilio	Developer
Vonage API Platform	Developer
Zenvia	Co-creator

Source: Gartner

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.

Vendor Profiles

8X8-Wavecell

Wavecell was acquired by U.S.-based 8x8 in 3Q19. The company now supports UCaaS, CCaaS and CPaaS, with a vision of positioning these offerings as integrated solutions (similar to the Vonage model). For now, most CPaaS purchases are delivered separately. Parent 8x8 provides the former Wavecell access to resources in North America and Europe for geographic expansion, in addition to its established presence in APAC.

8x8 promotes easy-to-consume CPaaS, where customers quickly start messaging through an online portal (without integration requirements). The CPaaS solution supports SMS, voice, 2FA, video, omnichannel and numerous messaging apps – beyond the common WhatsApp and RCS – including WeChat, Viber, LINE, Kakao Talk and Zalo. It now also has API-access to 8x8's UCaaS, CCaaS and interactive voice response (IVR) capabilities.

COVID-19 has induced a strong demand for 8x8's CPaaS video, which allows the video to be embedded into a range of applications, websites and workflows. 8x8 expects this demand to continue through 2021, as embedded video results in superior customer experience. 8x8 is also preparing for an increased use of voice for call masking, text to speech and embedded use cases.

Additional adoption of messaging apps for richer, two-way conversations with rich media is projected as well.

AT&T

Publicly held AT&T — based in Dallas, Texas, has a CPaaS offering branded AT&T API Marketplace. AT&T is a global, Fortune 10, communications and entertainment company. The AT&T API Marketplace launched in 1Q19. Since the launch date, AT&T reports significant customer interest in communication APIs. The current business focus is on North America.

AT&T creates solutions with third-party providers of API communications. The opensource AT&T API marketplace allows providers to contribute offerings such as SMS, voice, video, messaging apps, chat, 2FA, biometric security and bots. AT&T's key differentiator is the ability to offer design and network implementation services created by AT&T Integrated Solutions and AT&T Consulting organizations.

The pandemic has resulted in AT&T customers accelerating their digital transformation. This includes increased adoption of: (1) API-enabled video (especially in healthcare and education); and (2) AT&T Click-to-Connect for omnichannel contact center and virtual retail shopping applications. Organizations are enabled to improve their customer experience using voice, messaging, video and chat communication APIs offered on the AT&T API Marketplace.

Bandwidth

Based in Raleigh, North Carolina, Bandwidth, now a public company, focuses on the enterprise-grade aspect of CPaaS. Its lead strength is in voice-related CPaaS in such areas as local number portability, emergency communications, software-centric SIP trunking and toll-free calling. SMS is also a growing part of Bandwidth's business. Bandwidth powers many leading cloud Unified Communications (UC), meetings and contact center providers, along with cloud applications companies in such areas as home monitoring, pet sitting and food delivery.

Bandwidth owns its own network, whereas most CPaaS providers secure capacity via wholesale relationships. To date, Bandwidth has largely focused on the U.S. market, although it is expanding to the larger Western European markets. Bandwidth's wholesale voice service focus has resulted in Bandwidth having limited competition in a narrow market segment. Bandwidth lacks CPaaS brand recognition with most enterprises, but possesses a strong brand with cloud communications vendors.

Bandwidth has experienced a boost in voice business to support consumer and business traffic that has resulted from the pandemic. In addition, Bandwidth has invested heavily into supporting Microsoft Teams, plays a strong role in Microsoft's LNP and has a direct routing (SIP trunking and advanced E911) solution for Teams.

CM.com

CM.com is headquartered in Breda, Netherlands, and became a public company in 1Q20, just before the impact of COVID-19 manifested. Most business is focused in Europe, followed by Asia/Pacific. It has recently opened offices in the U.S., Singapore, Turkey and India for continued global expansion. It offers a good baseline of the most popular SMS, RCS, messaging apps and voice capabilities. CM.com's strategy is focused on conversational commerce and offers a chatbot and tools to help customers build data analytics insights on the characteristics of their business.

CM.com's differentiation lies in payments. This allows customers to pay for goods and services in a dozen-plus digital payment options (such as PayPal, iDEAL, Alipay, Apple Pay and WeChat Pay), along with traditional credit cards (Amex, Mastercard, and Visa). In addition, CM.com supports PCI compliance and enables QR codes to be integrated into workflows. CM.com often works with its customers to build CPaaS solutions that leverage its payment solutions.

COVID-19 has accelerated adoption of CM.com's digital payment capabilities, as society eschews traditional paper currency. Restaurants, food delivery services, and grocery stores are embracing messaging apps and digital payments for a contactless engagement.

IMImobile

Publicly listed, IMImobile is based in London, U.K., with global offices across Europe, North America, Asia/Pacific and Middle-East-Africa. The company focuses on CPaaS for larger enterprises, particularly in finance, retail, logistics, telecom, utilities and government. Many SaaS vendors use IMImobile for SMS and other channels. IMImobile has roots as an enterprise A2P messaging provider using direct carrier connectivity. It has built out its CPaaS platform (IMIconnect) both organically and via acquisitions. Notable acquisitions include 3Cinteractive (RCS functionality and access to the U.S. market) and Rostrvm (contact center).

IMImobile differentiates itself via its visual builder, enabling noncoder access to voice, SMS, RCS, email, push and in-app messaging, and multiple messaging apps (alternatively, developers can also access the communications modules via APIs and SDKs). These tools enable customers to build orchestrated omnichannel solutions. There's a bot builder to deliver messaging and voice bots for automated service. The visual builder also provides an analytics dashboard.

IMImobile reports that COVID-19 has enabled enterprises to transition person-to-person interactions to an assortment of digital channels. This includes home delivery, curbside pickup, video consultations and notifications. Going forward IMImobile seeks to support customers in building richer, two-way communications powered with AI and bots.

Infobip

Infobip is based in London, U.K., although much of the leadership team continues to reside in Vodnjan, Croatia, where the company started. The company leads with a consultative approach, working with enterprises to build digital tools for operational improvement. Infobip leverages its CPaaS tools as part of a digital transformation engagement to build operational competitiveness

and improve customer experience. Infobip emphasizes the capabilities of its visual builder to enable use by noncoding business analysts.

A key differentiator of Infobip is its global reach, particularly in emerging markets that other CPaaS providers do not serve well. This includes the Middle East/Africa, Latin America, emerging Asia/Pacific and the Commonwealth of Independent States (CIS, former republics of U.S.S.R.). Infobip supports customers in these markets with a broad array of messaging apps (beyond the popular WhatsApp) that include LINE, Telegram, Viber and Zalo. Many younger Infobip customers push the technology envelope in messaging app conversations as they lack legacy systems that would otherwise hold them back.

COVID-19 has temporarily damaged Infobip's customers in travel, but this loss has been compensated with expanded demand for food e-commerce. Infobip is investing in its omnichannel experience, particularly by offering rich business conversations that result in customer purchases.

IntelePeer

Privately held IntelePeer is based in San Mateo, California. IntelePeer has a heritage as a global VoIP provider, where it offered a mature SIP solution ahead of most carriers (circa ~2005). It has since evolved its communications stack, along with API support, to enter the CPaaS market. IntelePeer runs its stack in pure cloud environments, including region-specific nodes to fulfill regulatory mandates.

The IntelePeer CPaaS business model centers on its Atmosphere platform. This consists of the Atmosphere SmartFlows visual builder that provides customers drag-and-drop access to communications modules for designing workflows. A complementary Atmosphere Managed Solution assists in customer onboarding, training and custom configurations for databases, web interfaces and NLP. Atmosphere provides AI capabilities embedded into the platform and reporting through Atmosphere Insights. The Atmosphere Engage tool provides prebuilt omnichannel use cases for such roles as campaign management.

Through COVID-19, IntelePeer has been helping enterprises create new revenue opportunities, optimize costs, and improve customer experience. Future investment will focus on the Atmosphere SmartFlows ecosystem, where customers and partners build vertical solutions. IntelePeer's omnichannel capability is expected to play a prominent role in orchestrated communications.

Kaleyra

Publicly listed Kaleyra is headquartered in Milan, Italy, with presence in Asia/Pacific, North America and other EMEA countries. Kaleyra is the result of the consolidation of three companies – Ubiquity (Italy, with roots in banking system integration), Solutions Infini (India, cloud communications platform) and Hook Mobile (U.S., CPaaS platform).

With a foundation in financial services, both traditional and fintech, Kaleyra focuses on delivering end-to-end omnichannel solutions that span authentication, notifications, SMS, voice and email.

Kaleyra has significant experience supporting WhatsApp conversations and has plans to support additional messaging apps in 1H 21. The company is also investing in bots to drive higher levels of automation in customer engagements. Many customers leverage Kaleyra's visual builder, branded as Flowbuilder, for use by noncoders. Kaleyra typically runs on AWS. However, Kaleyra can deliver customized private and hybrid cloud deployments for customers seeking additional privacy or regulatory compliance.

Despite the COVID-19 disruption that hit Italy particularly hard, Kaleyra's business was able to experience modest 2020 growth. Plans for future growth include getting existing customers to adopt more of Kaleyra's CPaaS portfolio, North American expansion and the rollout of WebRTC video/video authentication.

LINK Mobility

LINK Mobility is headquartered in Oslo, Norway, and focuses on the European CPaaS market. It is privately held and owned by U.S. private equity firm Abry Partners. The company has been assembled via a series of acquisitions, including Netsize (France), HSL Mobile (U.K.), Dream Interactive (Hungary) and Global Messaging Solutions (GMS, Spain).

The company emphasizes a high-tough approach tailored to each country served, complete with local language support. Larger customers are supplied with a customer success manager to enhance onboarding. LINK Mobility offers APIs for SMS, RCS, WhatsApp, Viber, Google Verified SMS, email, voice and fax. Its payment API supports e-commerce, food delivery, collections and events use cases. No-code/low-code portals can be built to support notification, marketing and customer care use cases. Over the past year, LINK Mobility has expanded its developer ecosystem with improved APIs, documentation and source code. Developer partners can build their own solutions, powered by LINK Mobility.

While the pandemic has negatively impacted certain verticals LINK Mobility serves, like transportation and hospitality, it has seen continued growth overall with increased demand from e-commerce, logistics, government and healthcare. Many of LINK Mobility's customers are also investing in omnichannel to support richer conversations with customers.

MessageBird

MessageBird is privately held and headquartered in Amsterdam, Netherlands (Bloomberg has reported that MessageBird plans an IPO). The company's largest markets are Europe and Asia/Pacific, and is now starting to branch out into North America and Latin America for broader global coverage.

MessageBird supports a deep base of communications APIs spanning SMS, voice, email and messaging apps, integrated over its network layer tied to hundreds of global carriers. This is complemented with 2FA security, text to speech, AI-enabled virtual assistants and a visual builder for noncoders. Gartner believes that MessageBird's above market revenue growth is tied to its

strong developer ecosystem. This ecosystem includes access to an array of communications APIs/SDKs that are easy to consume (strong self-service), price competitive and well-documented.

The company has seen limited impact from Covid-19. Some larger customers have actually increased CPaaS reliance to stay in touch with remote operations. In addition, more customers now opt for omnichannel communications, connecting across an array of channels. 2021 plans call for a continued focus on its omnichannel consumption.

Mitto

Privately owned Mitto is based out of Zug, Switzerland. Its revenue mix is well-distributed globally. Mitto was founded in 2013 with a focus on wholesale A2P connectivity and telco revenue assurance services. In 2016, it entered the CPaaS market by API-enabling its SMS offering, followed by 2FA and voice products in 2019. Mitto now also supports WhatsApp and RCS. The primary customer base is large enterprises, cloud application providers and mobile network operators that are volume users with global demand for SMS, 2FA and voice.

Mitto differentiates through its constantly monitored, AI-enabled global network. This allows dynamic route prioritization and selection, enabling Mitto to support different class of service (CoS) levels. With CoS, pricing is based on how quickly an SMS message (or any communications media) needs to reach the destination. The CoS tool is valuable to large volume users, as significant cost savings can accrue when the communications delivery withstands a delay. Gartner believes Mitto pricing is cost competitive, with flexibility for negotiated rates on a per-customer basis.

Through COVID-19, Mitto has witnessed expanded A2P adoption from SaaS vendors. Going forward, Mitto expects greater adoption of digital channels, where customers must quickly roll out highly available cost-effective services globally.

Plivo

Privately held Plivo is now headquartered in Austin, Texas, complemented with offices in San Francisco, California and Bangalore, India (R&D and international sales). The company supports SMS and MMS APIs, along with a deep voice API portfolio, including IVR, NLP and speech recognition. The PHLO visual builder allows noncoders to access Plivo's toolsets, typically for making workflow modifications. Plivo plans on adding support of the leading messaging apps starting 1H21.

Customers gravitate to Plivo because of competitive pricing, global coverage, ease of doing business and intuitive tools. Larger customers may opt for Plivo CPaaS as part of a multisourcing strategy where they spread their demand across multiple CPaaS vendors. Smaller customers cite Plivo as easy to work with and that the company helps them get up and going with CPaaS. Some large software providers use Plivo's CPaaS SMS and voice services, representing a major segment of Plivo's business.

COVID-19 has resulted in strong demand in education, digital delivery services, and e-commerce. Users are also expanding their use of CPaaS as a digital means of interacting with their customer base.

Route Mobile

Founded in 2004, Route Mobile is a publicly listed company based in Mumbai, India, with a strong presence in APAC and MEA. Route Mobile's roots are as an SMS provider, but it has expanded into supporting a broad mix of messaging apps and voice solutions, such as contact center and IVR. The company views the depth of messaging apps (including country-specific or regional messaging apps, such as Viber) as a core competency. Route Mobile offers consultative services to help organizations on their digital journey along with a visual builder for noncoders to leverage CPaaS.

Although Route Mobile serves numerous global enterprises, many of its customers are also in emerging markets, and consequently young and unburdened with a heavy IT legacy. These customers focus on customer experience, particularly engaging customers in digital channels, led by WhatsApp, RCS and video. Email is also part of Route Mobile's omnichannel solution. The Route Mobile consulting services team helps facilitate this journey.

Route Mobile reports continued 2020 business expansion throughout the pandemic. Customers continue to leverage SMS A2P and voice for their simplicity and practicality, and are also investing in CPaaS to improve their operational competitiveness post-COVID-19. Messaging apps, video and contact centers are in high demand by this customer base.

Sinch

Publicly held Sinch is based in Stockholm, Sweden. It has made numerous acquisitions over the past three years, with three more completing in 2H20. Notable acquisitions include Wavy in Brazil, ACL in India and SAP Digital Interconnect in Germany. While these acquisitions build Sinch's brand awareness, expand geographical coverage and add new product capabilities, they also require investment and care to pull off a successful integration process. Sinch's management has shown the ability to assimilate previous acquisitions.

Sinch possesses broad geographical coverage, with double-digit market share in Europe, North America, India and Latin America. Sinch promotes its high-volume/high-quality messaging business, reaching 290 billion P2P transactions. Other strengths of Sinch include support of numerous messaging apps, NLP/AI capabilities via Chatlayer and Flow Builder (visual builder). Its customer base is led by large enterprises as well as technology vendors (primarily using SMS via A2P).

Sinch reports that COVID-19 has impacted business in the transportation and retail sectors. But this has been balanced by unexpected growth through digital services, such as food delivery and e-commerce. Sinch is now helping customers with digital transformation engagements so that they will be operationally efficient to pursue growth post-COVID-19.

Soprano

Privately held Soprano is headquartered in Sydney, Australia, with regional offices in North America, Latin America, Asia/Pacific and Europe. With a foundation as an SMS provider, Soprano ventured into the CPaaS market by building an omnichannel experience (branded Soprano Connect) that includes SMS, messaging apps, voice, email, RCS and secure IP messaging. Soprano has its own salesforce, complemented with partnerships with 13 global carriers (including Orange, Vodafone, AT&T, BT, Telstra, StarHub and Smart). Carrier partners white label their offerings as “powered by Soprano.”

Soprano emphasizes a user-friendly portal whereby customers can design industry vertical workflows. A cloud-based user interface provides drag and drop access to visually arrange communications modules, APIs to major cloud applications, a sandbox capability and customized reporting. Soprano’s CPaaS engagements support platform controls for compliance, policy, security and identity management. Soprano works with customers to fulfill vertical-specific regulatory requirements, such as HIPAA (U.S. healthcare). New customers are assigned a customer success manager to promote improved business automation and value.

Carrier channel partners have accelerated their sales support of Soprano through COVID-19 as a means of digitalizing their customers. In addition, verticals like government, healthcare and finance are expanding their use of Soprano CPaaS.

Syniverse

Privately held Syniverse is headquartered in Tampa Bay, Florida. The company has been in existence for 30 years with roots in mobile roaming, interconnection, clearing and SMS messaging. This background gives it today’s global footprint with data centers, personnel and customers throughout North America, Latin America, Asia/Pacific, Europe, the Middle East and India. In addition, Syniverse has existing relationships with most of the 500 largest global organizations.

Syniverse uses the term “co-creation” to describe its CPaaS model. Syniverse teams with customer development teams, often global accounts, to leverage Syniverse CPaaS for improving competitiveness and the customer experience. For example, it can help an airline to notify its customers in real time about gate changes, cancellations and ticket issuance. Much of this is conducted via A2P SMS, but Syniverse supports the major messaging apps as well. Syniverse also builds APIs to integrate with popular enterprise cloud applications (such as Salesforce, Workday or Mailchimp) and with proprietary systems.

Syniverse’s main focus is on supporting traditional brick-and-mortar businesses (aka digital adopters) with new technologies such as RCS, bots and AI for digital customer engagement across all mobile channels using CPaaS with automated orchestration. Such support has increased during COVID-19.

TeleSign

TeleSign is headquartered in Los Angeles, California. The company promotes an intelligent communications platform, emphasizing security and trust. It's international footprint spans Asia/Pacific, Latin America and Europe. The parent company BICs provide global access to the networks of more than one thousand service providers.

TeleSign supports the major global ISPs and offers vertical solutions, including internet, social media, finance, gaming, on-demand services and e-commerce. It is one of the few vendors to offer both communications and global identity solutions. TeleSign is well-known for API tools for security, authentication, fraud detection and compliance scoring. This is complemented with CPaaS APIs for voice, SMS, RCS and WhatsApp. The go-to-market strategy is driven by an internal enterprise sales team complemented with channel partners. Customers also have the option of a self-service portal.

The company reports that COVID-19 has accelerated engagement transformation experiences from offline to online. These new online engagements drive demand for security and fraud detection services. TeleSign continues to leverage and analyze the data it gathers, which drives machine learning for delivering unique fraud insights.

Twilio

Twilio is a San Francisco, California-based public company that pioneered the CPaaS industry in 2008. It now has a substantial global presence, along with a strong brand awareness across Gartner clients. Twilio introduced the concept of web development to telecommunications networks, which was embraced by digital disruptors like Uber and is now deployed by enterprise customers. The company provides a deep suite of API-enabled communications modules. Notable differentiators include support of email (via its SendGrid acquisition), video, contact center (Flex), omnichannel and IoT.

Twilio is deeply entrenched with the developer community, with its APIs, SDKs and developer environment well-suited for onboarding new customers. The company also hosts its SIGNAL customer and developer conference, and offers online training, including live and on-demand content with Twilio TV. As a larger CPaaS provider, Twilio attracts system integrators that can be hired by enterprises for projects as well as learning.

COVID-19 has driven demand for mass alerts and video (notably in healthcare and education). Customers are also accelerating their conversions to digital channels like WhatsApp. The Flex contact center is promoted as an agile way to support work-at-home agents, COVID-19 contact tracing and unemployment benefit hotlines in the public sector.

Vonage API Platform

Vonage is a public company headquartered in Holmdel, New Jersey. Its CPaaS business originated from the 2016 Nexmo acquisition, now branded the Vonage API Platform. Vonage also has cloud unified communications and contact center offerings. The 2018 TokBox acquisition added a programmable video capability. Together these cloud services are delivered globally across the

Americas, EMEA and Asia/Pacific. The Vonage API Platform offers an Accelerate Services program to help customers leverage and implement the suite of available CPaaS capabilities, often for a vertical and enterprise use case.

Vonage's differentiator is an integrated CPaaS-CCaaS-unified communications as a service (UCaaS) capability, improving brand awareness and customer experience across the board. Gartner's experience to date is that many customers purchase CPaaS (Vonage API Platform) separately, but as these markets mature, integrated solutions will become more commonplace. The omnichannel capability enables CPaaS customers to build orchestrated communications across digital and traditional channels and is valuable for UCaaS and CCaaS.

Vonage reports a COVID-19-driven demand spike for CPaaS-video, particularly in healthcare and education. There is also demand for deploying bots, NLP and messaging apps to digitally fulfill customer engagements, which obviates the agent or at least reduces agent fulfillment time.

Zenvia

Privately held Zenvia is based in Porto Alegre, Brazil, and generates most of its revenue from Brazil and Latin America due to its strong presence there. The company started as an SMS aggregator, but has since added more communications channels and developer tools to be classified as CPaaS. In 2020, Zenvia added support for WhatsApp, which has high adoption in Brazil. Support for RCS and Apple Business Chat is planned, 4Q20 and 1Q21, respectively.

Zenvia provides prebuilt solutions for sales teams, customer service and marketing campaigns for SMBs. This includes analytical tools to track progress of these use cases. Zenvia exposes communication modules at the API level for larger organizations with developer staffing, many of whom are interested in WhatsApp. The Zenvia Flow tool is a visual builder that enables orchestrated channel management. Zenvia also supports video, IVR and PBX capabilities.

Zenvia has managed to expand its business despite a challenging Brazilian economy. COVID-19 has hit Brazil particularly hard. Through the pandemic, users have been leveraging Zenvia CPaaS to keep customers informed of operating and safety procedures. Zenvia sees more customers looking for self-service and automation in 2021 as customers emphasize cost optimization.

Other Notable Vendors

Agora is a specialist communications CPaaS provider focusing on low latency, low jitter for many-to-many video streaming.

Alcatel-Lucent Enterprise (ALE) provides Rainbow CPaaS, which connects existing UC and CC platforms with an array of CPaaS communications modalities including voice, video, SMS, bots and third-party software applications.

Amazon Connect offers a scalable and customizable CPaaS-enabled contact center (run on AWS). This is complemented with Amazon's suite of AI, NLP and bot capabilities.

Avaya OneCloud CPaaS allows developers to build CPaaS omnichannel capabilities into Avaya's suite of contact center and unified communications platforms.

EMnify is a German mobile vendor specializing in CPaaS through API-enabled IoT with SIM cards.

Plum Voice provides a cloud-based, programmable IVR capability that supports SMS and advanced voice capabilities.

SAP has a CPaaS offering that is in the process of being acquired by Sinch, a Swedish CPaaS provider.

Tetherfi provides a suite of CPaaS tools to digitalize legacy contact centers. These CPaaS tools can also build a fully native Tetherfi customer experience platform that can support BPO environments.

Zoom has a well-known video for business and consumer usage. It supports API-enabled video, which allows Zoom functionality to be tightly integrated into legacy platforms and digital applications.

Market Recommendations

The CPaaS market is fragmented. Vendors continue to enter into the space while existing vendors improve their portfolios organically and acquire new intellectual property via M&A. COVID-19 has created demand scenarios for agile digital communications to generate greater operational efficiencies at enterprise scale.

While many vendors are expanding their product portfolios in the same direction, some have specific focus areas, as revealed above. For example, most vendors are expanding their messaging app capabilities, notably on WhatsApp, but also adding in support for other advanced messaging communications such as WeChat, Apple Business Chat, Telegram and RCS. Some vendors are placing special emphasis in video API capabilities or are building out payment API capabilities. Omnichannel, customer engagement, and enhanced security are also areas of specialization for some vendors.

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. Assessments should not be based on just price alone. Selection should also be based on a combination of:

- Geographical coverage – not only by country, but also by state or province
- SI and consulting partnerships
- Depth of developer ecosystem
- Visual builders

- Video tools
- Full SaaS solutions
- Payment capabilities
- Omnichannel maturity
- Professional services
- Security capabilities beyond 2FA
- Analytics/advanced analytics AI, ML, NLP and bots
- Product roadmap
- Scalability

Other vendors have particular strength in areas such as UC integration, mobile support, advanced role-based access and emergency support. A vendor may also differentiate on support of specific industry compliances such as HIPAA and business associate agreement (BAA) signatory in the U.S. for healthcare, or PCI compliance.

Note 1: Representative Vendor Selection

The 20 representative vendors addressed in this Market Guide are included because we believe they offer a wide portfolio of CPaaS services of interest to enterprise customers. We also try to ensure that the CPaaS vendors are spread across the major four global continents – North America, Europe, Asia/Pacific and Latin America.

Note 2: Application-to-Person (A2P)

This capability is gaining strong adoption. It calls for CPaaS APIs to be tied to customer applications (such as Salesforce or ServiceNow). When an event is triggered, such as three days before a scheduled delivery, an SMS message is delivered to the customer.

Note 3: Co-creator

Gartner came across the term “co-creator” via discussions with CPaaS provider Syniverse. The term expresses how the CPaaS vendor and customer co-create a customized solution to improve the customer’s business performance.

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