



Cloud-Based Contact Center Infrastructure Product and Market Report Reprint

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Table of Contents

1.	Cloud-Based Contact Center Infrastructure Market Trends	1
2.	Cloud-Based Contact Center Infrastructure Customers and Seats.....	3
3.	Twilio, Inc.....	6

1. **Cloud-Based Contact Center Infrastructure Market Trends**

Enterprises large and small, worldwide, are changing. Digital transformation is on every organization's agenda – and if it isn't, it should be. On the surface, it may not seem that formidable – move some technology into the cloud and support a few digital channels. However, a digital transformation done well touches almost every aspect of an enterprise, not just on the technical side of a business but the human resources as well.

The emergence of AI technologies that work – and are actually being used – are at the core of much of the change. AI enables expanded self-service capabilities such as IVAs that have become more conversational and RPA solutions that handle a greater portion of the repetitive work that is a large part of many entry-level positions. As a result, jobs are changing in front and back offices alike. But the transformation doesn't stop there. Analytics, including the increased presence of predictive analytics, is changing how enterprises route interactions, perform quality management, determine customer satisfaction, and forecast and schedule their resources. The transformation is wide-ranging and there is no going back.

One of the most prevalent changes is the move to a “digital-first” servicing model. No, voice is not going away; it remains the go-to channel for many interactions, including the ones customers deem most important, e.g., when the matter is urgent or emotionally charged. However, based on volume, digital channels are taking the lead. This doesn't necessarily mean that digital channels are “preferred” – although they may be – but it does mean there are many more digital options, including chat, email, SMS, and numerous social media and multimedia messaging service (MMS) channels. Simple math suggests it would be hard for a single voice channel to keep up. A result of the growing number of channels is an increased customer expectation to seamlessly move from one to another (and potentially another and another) during one interaction.

Support for digital transformation is driving innovation in the cloud-based contact center infrastructure market. Leading – and some contending – vendors are developing capabilities to support a growing number of digital channels, including the ability to pivot from one channel to any number of others within the same contact, using the same unified agent desktop, while a supervisor live-monitors all portions of the omni-channel interaction from one screen. These interactions are frequently enhanced through deep integrations with leading CRM and KM solutions. Enterprises of all sizes are taking notice of the new and enhanced capabilities available in this market, and larger organizations are making the move to the cloud – maybe not all at once, but it is the ultimate destination. Figure 1 provides an overview of the trends that are driving the cloud-based contact center infrastructure solutions and the market, in general, in 2019.

Figure 1: Cloud-Based Contact Center Infrastructure Market Trends for 2019

CBCCI Trends	AI is driving innovation in the CBCCI market – customers demand it and vendors are increasingly delivering it, e.g., intelligent routing, conversational IVAs for customer and employee self-service, etc.
	CBCCI vendors are able to support a “digital-first” model to address the rapid expansion of non-voice channels.
	Messaging (multimedia messaging service, not SMS) is becoming a foundational channel because it can support longer messages and richer content, including video and audio attachments.
	Voice is not going away – especially for service organizations.
	Supporting end-to-end conversations across multiple channels is key, requiring CBCCI vendors to deliver omni-channel agent desktops that can seamlessly pivot from channel to channel.
	Integrations with CRM systems (including homegrown solutions) and WFO applications (especially WFM and QM) are growing in importance for customers.
	Large enterprises are moving to the cloud; they no longer need to be convinced of the benefits.
	Cloud-based contact center infrastructure is expanding rapidly globally; vendors need to provide international connectivity.
	IT departments are championing the migration to the cloud to free up their data centers, but they want to do it on their terms – gradually – not a flash-cut from all on-premise to all cloud-based.
	Customers want their CBCCI vendors to help them solve problems, not merely sell them additional tools or software; this includes increased interest in managed services, due to the complexity of products.
	Softphones are less commonly provided by CBCCI solutions; dependence has shifted to WebRTC capabilities.
	CBCCI vendors are increasingly delivering PCI-compliant payment processing capabilities, both natively and via third-party partnerships.
	Native knowledge management capabilities and/or out-of-the-box integrations with third-party solutions are gaining importance because they enable IVAs to deliver customer and employee self-service capabilities.
	Unified communications as a service (UCaaS) deals are increasingly being tied to the sale of a CBCCI solution, instead of the other way around.
	Sales of outbound solutions and capabilities have slowed down but are not “dead”; outbound vendors have modified their solutions to comply with the many regulations around the world.

Source: DMG Consulting LLC, November 2019

2. Cloud-Based Contact Center Infrastructure Customers and Seats

Figure 2 shows cloud-based contact center infrastructure market activity for customers and seats/agents (named/licensed) as of July 2019. This Figure is sorted based on seats/agents, from highest to lowest. The total seat count for the cloud-based contact center infrastructure market, as of the end of July 2019, was 3,257,832, an increase of 20.1% from 2,712,110 in the prior year.

In recent years DMG has focused on reporting the activity of a larger number of the cloud-based contact center infrastructure vendors who sell on an indirect basis, rather than including the carriers, service providers, outsourcers, etc. who sell these services directly to enterprises on the vendors' behalf. When overlap does exist, as is the case with TTEC, who sells Cisco's HCS-CC solution, and white-labels Bright Pattern, DMG has attributed the market activity to both vendors, and then removed the double count from the totals.

As reflected in the double count shown in Figure 32, indirect sales by partners, resellers, VARs, etc. continues to account for a substantial portion of the cloud-based contact center infrastructure market. This analysis shows that 21,324 customers and 1,470,594 seats were sold on an indirect basis as of July 2019, representing 31.1% of the reported seats. As the number of partner relationships continues to grow, DMG expects indirect sales to be an important channel for the cloud-based contact center infrastructure market for several years to come.

Cisco was estimated to have been in first place for sales of cloud-based contact center infrastructure based on seat count as of July 2019. DMG estimates that Cisco had 680,475 hosted contact center seats as of July 2019. These hosted contact center infrastructure seats include those sold by BroadSoft (acquired by Cisco in February 2018), WebEx Contact Center (Cisco's multi-tenant public cloud offering) and HCS-CC (Cisco's single-instance private cloud solution).

Twilio is estimated to have been in second place with 548,492 cloud-based contact center infrastructure seats. Twilio, who offers its Flex cloud-based contact center infrastructure product as well as an API-based platform that companies can use as the foundation for their own CBCCI solution, does not utilize a traditional methodology to account for customers or seats. As a result, DMG estimates their market activity using a formula we created for them.

NICE inContact was in third place with 495,000 cloud-based contact center infrastructure seats. NICE inContact sells on both a named agent and concurrent seat basis. inContact is a dedicated CBCCI vendor that was acquired by NICE in November 2016.

Enghouse was estimated to have been in fourth place with 281,518 cloud-based contact center infrastructure seats. Enghouse offers their CBCCI solution almost exclusively through a global network of partners and resellers many of whom are telcos and BPOs.

Content Guru, based in the UK, was in fifth place with 267,820 cloud-based contact center infrastructure seats as of the end of July 2019. Content Guru primarily sells in Europe and Asia and is planning to begin competing more aggressively in the US in the near future.

Genesys is estimated to have been in sixth place with 211,200 PureCloud, PureConnect Cloud, and PureEngage Cloud seats hosted in Genesys data centers. Serenova came in seventh place with 140,183 cloud-based contact center infrastructure seats as of the end of July 2019, up two positions from ninth place for the same period the previous year. BT, a carrier that primarily sells their cloud-based contact center infrastructure offerings in Western Europe, is estimated to have been in eighth place with 124,740 seats.

Figure 2: 2018 Cloud-Based Contact Center Infrastructure Customers and Seats, as of July 2019

Vendor	Number of	
	Customers	Seats/Agents
Cisco ¹	18,929	680,475
Twilio ^{2,3}	5,500	548,492
NICE inContact ⁴	3,350	495,000
Enghouse ^{2,5}	1,886	281,518
Content Guru ⁶	1,000	267,820
Genesys ^{4,7}	1,586	211,200
Serenova	573	140,183
BT ²	242	124,740
Five9 ^{4,8}	2,400	115,000
RingCentral ^{9,10}	3,060	89,750
Aspect ^{4,11,12}	210	73,500
8x8 ⁴	1,700	65,000
Vonage ^{4,13}	759	54,217
Verizon ²	568	49,433
Puzzel	800	43,000
TTEC (formerly eLoyalty) ²	56	40,250
West ²	365	24,840
Bright Pattern ¹⁴	400	23,000
Noble ²	220	17,057
Altitude Software ²	69	7,984
3Clogic ²	227	7,392

Figure 2: 2018 Cloud-Based Contact Center Infrastructure Customers and Seats, as of July 2019

Vendor	Number of	
	Customers	Seats/Agents
USAN ²	82	7,010
Verint (Contact Solutions) ⁴	40	5,500
AVOXI ²	135	3,726
Sharpen ¹⁵	34	1,360
Other ¹⁶	17,676	1,350,979
Subtotal	61,867	4,728,426
Less Double Count ¹⁷	(21,324)	(1,470,594)
Totals ¹⁸	40,543	3,257,832

Notes:

- DMG’s method for tracking Cisco’s contact center seats has been changed for 2018. The market activity data includes contact center seats sold by BroadSoft, WebEx Contact Center (multi-tenant public offering), and HCS-CC (single instance private cloud). As Cisco no longer provides guidance, these numbers are DMG Consulting estimates.
- DMG Consulting estimate.
- Twilio completed the acquisition of SendGrid, an email API platform provider, on February 1, 2019.
- DMG Consulting estimate with company guidance.
- Enghouse sells primarily on an indirect basis through a worldwide network of partners.
- Content Guru offers both named and concurrent licenses. Total seats/agents is the combination of named and concurrent agents.
- PureCloud, PureConnect Cloud, and PureEngage Cloud customers are hosted in Genesys’s data centers. Genesys also has cloud seats available through partners. The seats sold by their partners are not included in the Genesys market activity number, as it would be double-count.
- Does not include Five9 seats sold by their resellers.
- DMG Consulting estimate; includes seats from RingCentral Contact Center, Engage Digital, Engage Voice and LiveReports solutions.
- RingCentral announced their acquisition of Connect First in January 2019.
- Aspect has 3 cloud-based contact center infrastructure offerings: Aspect Zipwire, Aspect VIA and Aspect UIP Hosted.
- Aspect was acquired by private equity firm Vector Capital on February 4, 2019.
- Vonage acquired NewVoiceMedia in September 2018.
- Bright Pattern provided guidance for 2018, which includes the activity of their partners. Bright Pattern is striving to provide clarity on their market activity.
- Sharpen’s lower customer and seat numbers are due to improvements in the company’s tracking methodology.
- There are more cloud-based contact center infrastructure vendors than are identified by name in this analysis. Therefore, we have included an additional 40% of the named vendor totals for customers and seats in 2018 to cover the unnamed vendors in the “Other” category.
- Customer and seat double-count were removed from the analysis: 95% of Cisco and Enghouse, 85% of Bright Pattern, 20% of NICE inContact, 10% of Content Guru, and for Twilio 75% of seats and 8% of customers.
- Rounding errors may occur.

Source: DMG Consulting LLC, November 2019

3. Twilio, Inc.

Twilio, Inc. is a global cloud-based communications platform provider. In February 2019, Twilio completed the acquisition of SendGrid, a cloud-based transactional email platform. Twilio’s cloud-based contact center infrastructure strategy is “to provide a programmable contact center platform that fits customers’ businesses by giving them complete control to define, build and test customer and agent experiences that maximize operational productivity, customer satisfaction and time to feature delivery.”

Twilio Flex is a fully programmable application programming interface (API)-based cloud contact center application hosted on Amazon Web Services (AWS) or available for private cloud connection via Twilio Interconnect. Inbound/outbound/blended omni-channel capabilities include: voice, interactive voice response (IVR), intelligent virtual agent (IVA), voice personal assistant (Alexa, Google Home, etc.), chat, email, short message service (SMS), voicemail, video, messaging, and custom channels such as social media, business object or brick-and-mortar interactions. Twilio Flex can be internationalized in any left-to-right language and supports 119 speech-to-text and 26 text-to-speech languages and dialects.

Flex Agent Desktop is a programmable omni-channel unified interface that enables agents to work on multiple concurrent interactions. Capacity- and channel-aware routing capabilities regulate the volume of agent interactions based on user-designated limits for all agent types, including channel-blended agents. Agent Desktop supports Twilio-provided and third-party channels, and allows agents to pivot among multiple channels during a single interaction. Agent Desktop includes an integrated WebRTC softphone and also provides access to customizable agent dashboards and reports. The agent interface can be embedded in customer relationship management (CRM) solutions or Flex can embed multiple systems of record (in entirety or specific fields) within Agent Desktop. Flex Supervisor Desktop provides customizable views of real-time and historical agent, queue and contact center performance. Supervisors can live-monitor concurrent voice- and text-based interactions, and whisper-coach or barge into active contacts. A native chat function supports bi-directional communication between supervisors and agents. Mobile access is supported on iOS and Android devices.

Customers can procure additional licenses or reduce licenses as needed, via self-service. Twilio Flex offers two pay-as-you-go pricing models: per active user/hour (consumption model); or per named seat/month. Customers can monitor and track real-time usage through Twilio Console.

Company Overview

Founded: 2008

Ownership: Public
(NYSE: TWLO)

HQ: San Francisco, CA

of employees: 2,369

Sales model: Direct, indirect

Sweet spot: N/A

Key verticals: Finance, insurance, retail, digital marketing, high-tech

Product Profile

Product name:

Twilio Flex

Deployment models:

Cloud-based

Functional Overview

Core infrastructure

TaskRouter provides centralized management of routing logic and customizable threshold-based alerting. Flex supports skills-based, attribute-based, conditional, adaptive real-time, service-level and value-based routing. Routing can be driven by multiple integrated third-party applications, e.g., a CRM and proprietary supplier management system. Customers can also extend Twilio TaskRouter to provide additional routing strategies.

Workforce optimization (WFO) capabilities

Fully integrated IVRs can be built in two ways: Twilio Studio offers a visual drag-and-drop user interface for interaction flow design and development; or clients can use TwiML to build IVRs by implementing a Web Service that responds to calls by Twilio’s API (webhooks). Additionally, TwiML and Twilio Studio can be used to build IVAs.

Customers can build and operate IVAs in Twilio Autopilot. Autopilot is a conversational artificial intelligence (AI) platform for the development and deployment of omni-channel IVAs for IVR, messaging, web and mobile chat, and voice personal assistant (e.g., Alexa, Google Assistant, etc.) channels. Users can leverage pre-built models and also create custom models trained to specific customer needs. Autopilot supports contextual hand-offs between IVAs and agents for interactions in voice or digital channels.

Twilio integrates with third-party CRMs and home-grown servicing solutions via APIs. Twilio Flex is natively packaged for Zendesk’s marketplace adapter using the Zendesk application framework; and for Salesforce with an OpenCTI adapter available through AppExchange. Additionally, Zendesk Talk, Salesforce Lightning Voice, and Hubspot’s calling product support the use of their native agent interface within Flex.

Artificial intelligence (AI)/ automation

Audio and digital channel recording and quality management (QM) capabilities are offered natively through Twilio Flex or can be partner-provided by Calabrio. Additional WFO capabilities provided via partners include: gamification (Teleopti), contact center performance management (Calabrio), surveying/voice of the customer (Calabrio), workforce management (Calabrio, Teleopti, UWFM, Verint, AssembledHQ), interaction (speech and text) analytics (CallMiner, VoiceBase, Gridspace), desktop analytics (Calabrio), and customer journey analytics (Calabrio). Twilio Flex integrates with third-party knowledge management systems via APIs.

Twilio Autopilot is a conversational AI platform that provides automated speech recognition (ASR) and real-time speech-to-text transcription. Output is fed into a natural language understanding (NLU) engine that performs intent recognition and entity extraction, and leverages supervised and unsupervised machine learning technologies. In addition, customers can use their own machine learning models to influence interaction routing with Twilio TaskRouter.

Security

Twilio Flex and Console natively support SAML for single sign-on. TLS 1.2 is utilized to secure authentication data during transmission. Twilio broadly uses whole-disk encryption. For

Compliance

Amazon S3 storage, Twilio uses S3’s server-side encryption, including Amazon KMS to manage keys. Twilio also offers public-key encryption to limit decryption solely to the customer.

Network access is available only to customers using Twilio Interconnect. Application/data layer separation is based on API requests, which are authenticated with generated secure credentials (API key). Audit Events logs every action taken through the API by a user in Twilio Console or by a Twilio employee. Basic browsing and filtering of audit data is supported in the console; more detailed reporting is accessed by using Twilio’s API to retrieve the audit log.

Twilio’s infrastructure is housed in AWS data centers, which are protected by a professional security staff and a variety of physical controls at the perimeter and building ingress points. Intrusion detection and prevention systems (IDS/IPS) are employed at AWS data centers.

Twilio maintains an incident response program in accordance with NIST SP 800-61. Twilio’s Security Incident Response Team assesses the threat of all relevant vulnerabilities or security incidents, classifies, triages, and establishes remediation and mitigation actions for all events. Twilio notifies customers within 48 hours of a confirmed breach via email. Twilio is accredited to ISO 27001 (by Bureau Veritas) for information security management and SOC2 compliance for Twilio’s authentication infrastructure.

Twilio <Pay> is an end-to-end PCI-compliant process for handling IVR payments, including payment processor integration. Twilio provides marketplace add-ons for do-not-call (DNC) lookups to support TCPA compliance, and tools to enable enterprises to architect their Twilio solution to be HIPAA compliant.

Twilio is a PCI DSS 3.2.1 Level 1 Service Provider (assessment conducted by Coalfire in October, 2018). Twilio is also GDPR Privacy Shield compliant.

Service-level agreements (SLAs)

Twilio provides two SLAs: a standard SLA of 99.95% uptime; and an enterprise SLA of 99.99%. 24/7/365 technical support is a standard offering. Twilio files incidents publicly, and proactively alerts impacted users via email, call or text, according to customer preference.

Disaster recovery/business continuity

Twilio’s voice and messaging infrastructure is distributed across multiple fault-independent AWS regions in Australia, Brazil, Germany, Ireland, Japan, Singapore, and the US (Virginia and Oregon), and is present in multiple physical data centers in each region. Twilio also has four physical points of presence (PoPs)

globally to allow clients to connect to Twilio privately through Interconnect.

Twilio Flex operates in an active/active configuration and maintains redundant inbound and outbound connectivity with multiple network carriers. Incremental database back-ups are performed daily and are retained for 30 days.

Future

Twilio issues product releases continuously; new customer-facing features or capabilities are available every 1.5 business days, on average. Planned enhancements during the next 12 – 18 months include:

- HIPAA support – platform compliance with HIPAA regulations and the ability to sign business associate agreements (BAAs) for certain products
- Enhanced real-time reporting – additional statistics, views and visualizations; more programmability to allow developers to integrate real-time statistics into their applications
- Twilio conversations integration – improved cross-channel orchestration and handoffs, with data, transcript and reporting continuity
- REST API and Subflow support for Twilio Studio - ability to deploy and manage IVR/IVA flows through continuous integration; ability to break out complex IVR/IVA flows into reusable and composable subflows for improved usability and access management
- Flex SDK - unified high-level software development kit (SDK) for customers that white-label resell and build products on top of Twilio Flex.

About Twilio, Inc.

Millions of developers around the world have used Twilio to unlock the magic of communications to improve any human experience. Twilio has democratized communications channels like voice, text, chat, video, and email by virtualizing the world’s communications infrastructure through APIs that are simple enough for any developer to use, yet robust enough to power the world’s most demanding applications. By making communications a part of every software developer’s toolkit, Twilio is enabling innovators across every industry — from emerging leaders to the world’s largest organizations — to reinvent how companies engage with their customers.

About DMG Consulting LLC

DMG Consulting LLC is a leading independent research, advisory and consulting firm specializing in contact centers, back-office and real-time analytics. DMG provides insight and strategic guidance and tactical advice to end users, vendors and the financial community. Each year, DMG devotes more than 10,000 hours to producing primary research on IT sectors, including workforce optimization, workforce management, interaction analytics, desktop analytics, robotic process automation, customer journey analytics, surveying/VoC, performance management, knowledge management, gamification, voice biometrics, cloud-based contact center infrastructure, dialing, interactive voice response systems, intelligent virtual agents and proactive customer care. Our actionable solutions are proven to deliver a lasting competitive advantage, and often pay for themselves in as little as three months.

This reprint is excerpted from the *2019 – 2020 Cloud-Based Contact Center Infrastructure Market Report*, which was released in December 2019 with the permission of DMG Consulting LLC. More information about this Report and DMG Consulting is available at www.dmgconsult.com.

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