# Hype Cycle for Contact Center Infrastructure, 2011

**Published:** 13 December 2011

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Many companies are reviewing their contact center operational goals to match changing economic environments. This Hype Cycle helps you to match your contact center investment planning with your operational goals.

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# Analysis

## What You Need to Know

The technologies on this Hype Cycle have a wide range of maturity levels.

To the left are the less mature technologies, including video chat for customer support, social feedback management, virtual assistants and audio mining/speech analytics.

In the middle are the somewhat mature technologies, such as Web customer service suites, universal queue management, contact center quality management and contact center all-in-one suites.

To the right are the more mature telephony technologies, such as Internet Protocol (IP)-based contact centers and virtual contact centers.

In the course of reviewing contact center operational goals and evolving corporate priorities, contact center technology and operational planners should look to the left for technologies that could differentiate their contact center business in the short term or that are strategic to their enterprise's longer-term differentiation and so justify the earlier adoption. Look in the middle for important new opportunities that will improve operations in the one-to-three-year term. And look to the right for technologies that offer immediate operational and tactical value with a clear ROI.

## The Hype Cycle

Gartner defines contact center infrastructure as the products (equipment, software and services) needed to operate telephony-based call centers and multichannel contact centers. This type of infrastructure is used by customer and employee service/support centers, inbound and outbound telemarketing services, help desk services, government-operated support centers, and other types of structured communications operation. The interactions supported by these call and contact centers include self-service transactions, live-agent-assisted transactions, and a combination of the two. Channels for interaction include voice, email, instant messaging, Web chat, social media, video and mobile devices.

The technologies included in this Hype Cycle were chosen for their impact on corporate contact center investment and deployment strategies worldwide. Their positions on the Hype Cycle represent averages that take into account several factors, including technology maturity, market penetration, the extent to which solutions are "packaged" rather than relying heavily on professional services to deploy a one-off solution, alignment with existing processes and strategies, and customer demand. Vertical and geographic markets differ, so some of the technologies shown on this Hype Cycle could have different positions in other contexts. Gartner analysts can advise on these variances to increase the relevance of this document to your environment and needs.

Overall, the contact center infrastructure space includes several very mature technologies, while others are still in the infancy of their development. Indeed, some technologies, such as automatic call distributors (ACDs) and interactive voice response (IVR) systems, are mature enough that they

no longer warrant coverage on the Hype Cycle, while others are leading-edge, if not bleeding-edge, technologies requiring significant professional services to deploy and very little in the way of industry best practices to establish their effective use. While there is significant industry hype regarding "all things social," a common refrain from clients during inquiry calls is, "I know social networking is important, but I have no idea why." As such, social CRM: community peer-to-peer support appears at the very peak of the Hype Cycle. Interestingly, two technologies — virtual assistants and contact center all-in-one suites — were moved backward along the Hype Cycle curve. In both cases, this was because the breadth of solutions covered had expanded, resulting in fewer solutions in the market being able to clear the raised bar for compliance.

The following technology analyses are new to this Hype Cycle:

- Social CRM: social feedback management

- Social CRM: community peer-to-peer support

- Video chat for customer support

- Recorded video customer support

- Contact center interaction analytics

- External community platforms

- Speech recognition for contact center applications

Figure 1. Hype Cycle for Contact Center Infrastructure, 2011



**expectations**

Social CRM: Community Peer-to-Peer Support

Virtual Assistants

Presence-Based Contact Routing
Customer Interaction Hub
Contact Center Interaction Analytics

Wireless Devices in Contact Centers
Audio Mining/Speech Analytics
Outsourced Contact Center Infrastructure
Contact Center Performance Management
Contact Center Workforce Optimization
Proactive Communications Applications
and Services

Speech Recognition
for Contact Center
Applications
Contact Centers

Recorded Video Customer Support
Emotion Detection
Social CRM: Social Feedback
Management
Video Chat for Customer Support

External Community Platforms
Knowledge Management for
Customer Self-Service

Virtual Contact Centers
Contact Centers: IP-Based

Contact Center All-in-One Suites
Contact Center Workforce Management

SIP-Enabled Contact Centers

Video Content Management
and Delivery

SIP Communications
Contact Center Quality Management

Universal Queue Management

Mediated Interaction Matching

Web Customer Service Suites

As of December 2011

| Technology Trigger | Peak of Inflated Expectations | Trough of Disillusionment | Slope of Enlightenment | Plateau of Productivity |

**time**

**Years to mainstream adoption:**

○ less than 2 years   ○ 2 to 5 years   ● 5 to 10 years   △ more than 10 years   ⊗ obsolete before plateau

Source: Gartner (December 2011)

## The Priority Matrix

Technologies relating to the routing and prioritization of interactions, contact centers, IP-based contact centers, virtual contact centers, and speech recognition for contact center applications are mature. Those related to operational optimization — such as workforce management, quality assurance and knowledge management — are still gaining strength. Some technologies, such as customer interaction hub, presence-based contact routing, video chat for customer support, and recorded video customer support, hold promise for improved levels of customer service but currently lack the maturity for mainstream adoption (see Figure 2). It is notable that technologies on this Hype Cycle nearly all have high or moderate benefit levels, none being classified as of low benefit. Only mediated interaction matching, which radically departs from traditional queuing methods, rates as transformational. Although many providers will position their solutions as transformational, even technologically aggressive end-user companies will typically take an evolutionary approach to implementing customer service technologies in an effort to mitigate the risks of "getting it wrong." Indeed, customer adoption, though often touted as cutting-edge, rarely lives up to the hype, and thus reduces the likelihood of any technology providing truly transformational benefit to contact centers, particularly in the short term. Equally, though, because of their inherent focus on improving customer service and lowering costs, technologies in this sector are unlikely to have a "low benefit" technology profile.

Figure 2. Priority Matrix for Contact Center Infrastructure, 2011

| benefit | years to mainstream adoption | | | |
|---|---|---|---|---|
| | less than 2 years | 2 to 5 years | 5 to 10 years | more than 10 years |
| transformational | | | Mediated Interaction Matching | |
| high | Contact Center Quality Management<br><br>Contact Centers<br><br>SIP-Enabled Contact Centers<br><br>Virtual Contact Centers | Customer Interaction Hub<br><br>External Community Platforms<br><br>Proactive Communications Applications and Services<br><br>SIP Communications<br><br>Social CRM: Community Peer-to-Peer Support<br><br>Video Chat for Customer Support<br><br>Web Customer Service Suites | Audio Mining/Speech Analytics<br><br>Contact Center Interaction Analytics<br><br>Contact Center Workforce Optimization<br><br>Knowledge Management for Customer Self-Service<br><br>Virtual Assistants | |
| moderate | Contact Center All-in-One Suites<br><br>Contact Center Workforce Management<br><br>Contact Centers: IP-Based<br><br>Speech Recognition for Contact Center Applications | Contact Center Performance Management<br><br>Outsourced Contact Center Infrastructure<br><br>Presence-Based Contact Routing<br><br>Universal Queue Management<br><br>Wireless Devices in Contact Centers | Emotion Detection<br><br>Recorded Video Customer Support<br><br>Social CRM: Social Feedback Management<br><br>Video Content Management and Delivery | |
| low | | | | |

**As of December 2011**

Source: Gartner (December 2011)

## Off the Hype Cycle

The following technologies have been dropped from the Hype Cycle:

- Video in contact centers

- Interaction analytics

- Expertise location and management

- Social CRM: customer service

- Video telepresence

- Voice verification for call center customer authentication

- Work-at-home remote agent

- Customer service contact center software

- Phone-based voice verification of workforce-facing applications

- Natural language speech recognition

- VoiceXML

- Directed dialogue speech recognition for contact center applications

## On the Rise

### Mediated Interaction Matching

*Analysis By:* Drew Kraus; Steve Blood

*Definition:* Mediated interaction matching (MIM) is a new approach to managing the distribution of contacts in an enterprise, which differs from the approach that has been used in call and contact centers for the past 30 years or more. MIM breaks the traditional automatic call distribution (ACD) queuing principles by introducing new metrics. These metrics could include personality matching to determine the best employees to handle a specific customer inquiry. Another method for routing customers is to allow the customers themselves the option to select a specific advisor — based on input such as prior experience, agent performance ratings posted by other customers, and/or estimated wait times for specific agents to become available — rather than relying on the automated queuing principle.

Initially, it was associated with enhancing the more formal front-office customer contact processes. We anticipate that MIM will be extended to managing more-effective distribution of contacts to a broader audience outside the more formal contact center. We expect MIM to be leveraged by tools such as skills-based routing, analytics and presence to achieve the best match between customer and employee or self-service platform to fulfill the transaction.

*Position and Adoption Speed Justification:* MIM is likely to require some time to achieve mainstream adoption. The principles for customer service in the contact center are mature and well-understood. Few organizations will want to radically change their approaches to contact management for fear of disrupting the process and service level. Consequently, we expect MIM to first be introduced as an add-on to the contact center routing model. It will then be tested by organizations looking to enhance contact between small groups of customers and employees, or looking to differentiate their value proposition with the customer service process. As the methodology becomes better understood, we expect broader adoption in the five- to 10-year time frame.

*User Advice:*

Contact center planners should consider different ways of bringing together integrated multichannel service, improved self-service interfaces, analytics, new metrics and personalization to improve the overall customer experience, and to develop pilot groups in their customer service organizations to test new ideas and operating models. Understanding the broader adoption of unified communications (UC) will introduce tools such as MIM without necessarily having to increase the size of the contact center or extend licenses for contact center infrastructure.

*Business Impact:*

Matching the personalities of customers and employees has proved to reduce call resolution duration and improve customer satisfaction (see "Contact Centers Are Hooked on Queuing Model"). Although many organizations monitor and measure their staff for quality of interaction, including compliance with company policies, few organizations have a policy for profiling customers. The concept of using this data to proactively match employees and customers is embryonic. MIM is most likely to be used in the contact center initially; however, with tools such as presence being adopted as part of UC more broadly across the enterprise, the opportunity to use MIM principles for customer contact handling could be a primary contributor to differentiating customer service quality.

*Benefit Rating:* Transformational

*Market Penetration:* Less than 1% of target audience

*Maturity:* Embryonic

*Sample Vendors:* TRG SATMAP

*Recommended Reading:* "Contact Centers Are Hooked on Queuing Model"

## Video Content Management and Delivery

*Analysis By:* Whit Andrews

*Definition:* Video content management and delivery is software, hardware or software-as-a-service (SaaS) offerings plus associated network services intended to manage and facilitate the delivery of one-to-any video across Internet protocols in an on-demand and possibly live fashion. Products must also provide at least for workflow, storage, search and integration (into other user-facing products).

*Position and Adoption Speed Justification:* Companies and governments are fascinated by YouTube, which captures the attention of consumers and leads the popular online video segment. Gartner client interest is swelling from organizations seeking to unify their video strategies for live and on-demand one-to-any capabilities. The interest is still emerging, and consolidation is only beginning to stitch together the various valuable areas of functionality.

*User Advice:* Organizations should establish pilots that allow them to explore ways video can uniquely enhance communication, learning and training. Waiting until end-to-end solutions are

commonly available will result in workers making their own decisions without support, turning to online video sharing to provide value to customers — which may be the best strategy for some.

Social features such as allowing users to sort by popularity and adding comment streams, user ratings and recommendations make video sharing tools more effective. There is a broad and deep body of literature on what to do to create videos. In general, opt for short vignettes on video instead of standard lectures.

**Business Impact:** Videos make highly effective vehicles for the communication of knowledge and emotion. They can improve audience empathy and the sense of value. Video has value in its ability to transcend language and skills, and it narrows the gap between novice and expert for visually complex tasks. Videos will be extremely important for customer service (and self-service) in visually complex task communication, and will prove increasingly valuable in providing a channel for emotional, impactful conversation.

**Benefit Rating:** Moderate

**Market Penetration:** Less than 1% of target audience

**Maturity:** Emerging

**Sample Vendors:** Accordent; Adobe; Brightcove; Cisco; iStreamPlanet; Ignite Technologies; Kaltura; Kit Digital; Kontiki; KZO Innovations; Limelight Networks; Ooyala; OpenText; Qumu; Ramp; Rayzz; Reality Digital; Sonic Foundry; VBrick Systems; ViewCast; Vitreo Internet Video

**Recommended Reading:** "Toolkit: Internal Video Sharing Site Utility Package"

"Four Means of Improving Video for User and Customer Experiences"

"Video Content Management and Delivery Wants: You Need These Five Things in Your Organizational 'YouTube'"

"MarketScope for Video Content Management and Delivery"

"Analyze Video Usage to Support Business Goals and Document Success"

"Pursue Four Goals With Video"

"Overview for Video Content Management Projects: You Can Have a YouTube Too"

"Beyond Videodrome: Managing and Valuing Enterprise Video Content in the YouTube Era"

## Video Chat for Customer Support

**Analysis By:** Michael Maoz

**Definition:** Live video chat with customer service and support agents will be broadly available over mobile devices, on websites and at kiosks to assist with a wide range of capabilities, from

installation instructions for field technicians to diagnostics support and location services for consumers.

**Position and Adoption Speed Justification:** Video-chat-based customer support's Hype Cycle position has matured during the past 12 months. The cost and availability of tablet computers is driving interest, as are studies indicating that customers are favorably impressed by the presence of a live agent on the computer screen. The new generation of smartphones and tablets, such as the iPad, has mobile video capabilities. The price of delivery for users, and the cost of production and maintenance of video chat and the content for the enterprise, will be more in line with their benefits during the next three years.

**User Advice:** Organizations should track the speed of adoption of smartphones and handheld computers (in particular, the spread of Apple iPad and Samsung tablet adoption) equipped with wireless and video capabilities. They should also plan when and with whom (that is, which users or consumers) they might run a pilot during the next three years.

**Business Impact:** The impact on businesses is potentially high, because video is a media that will please consumers, as well as serve as a useful tool for field technicians.

**Benefit Rating:** High

**Market Penetration:** Less than 1% of target audience

**Maturity:** Adolescent

**Sample Vendors:** Apple; HTC; Microsoft; Nokia; Research In Motion; Samsung

## Social CRM: Social Feedback Management

**Analysis By:** Jim Davies

**Definition:** Social feedback management aligns social media monitoring (SMM) and community with enterprise feedback management (EFM) to optimize the capture of the social voice. Organizations can either listen to comments posted on social sites, identify the comments that require action using text analytics, and then respond directly with a targeted survey, or they can adopt a community-based approach and gather feedback directly from its members.

**Position and Adoption Speed Justification:** Listening to the voice of the customer is an important business priority. However, the social voice often lacks sufficient granularity for the organization to glean useful market insight or to help an individual customer. A variety of approaches can be adopted to resolve this. For example, a customer who tweeted "I hate company X" obviously has an issue with that company, but unless the company can uncover why that customer posted that comment, it cannot act on the complaint. By interjecting into the social thread and asking that customer to click on a link to complete a short survey, the company can capture a more-detailed view of that customer's issue and then respond appropriately. The adoption of SMM platforms is rapidly increasing, but the ability to align this unstructured voice with a more-structured approach to feedback gathering is still in its infancy. In addition, the ability to create a private community and

survey its members or create a Facebook fan site and do the same is an alternative, and increasingly popular, approach. Incorporating the inherent sophistication of an EFM platform within this environment provides the company with a far more intelligent approach to capturing customer feedback. Companies can obtain far deeper and more relevant feedback by enabling quantitative and qualitative surveys with advanced targeting and segmentation capabilities based on a Facebook profile, CRM and all other available data sources. These EFM-based social solutions also provide tools for the control, privacy and ongoing management of a community honed from many years of panel management experience. Many of the leading EFM survey vendors are extending their solutions to embrace this social dimension, but most currently rely on third-party SMM platforms and text-mining engines.

*User Advice:* Categorize the comments captured via this project and highlight the magnitude of the gap in associated knowledge. Determine what type of additional questioning and information would provide the most business value. Approach your survey vendor to determine its social strategy and evaluate socially enabled EFM solutions from the leading vendors, if merited. If an automated EFM option is not available, then consider a manual approach triggered by applying text mining to captured social comments and alerting an employee to pose the additional questions, or send a link to a Web survey.

*Business Impact:* By using social feedback management, companies can understand what customers are thinking and saying about them. This, in turn, will assist with taking actions or developing strategies to reduce customer churn and drive upsell revenue. In addition, by capturing this quantitative data originating from an unstructured social comment, organizations can monitor brand perception, market trends and other important business interests.

*Benefit Rating:* Moderate

*Market Penetration:* Less than 1% of target audience

*Maturity:* Emerging

*Sample Vendors:* Allegiance; Globalpark; MarketTools; Vovici

## Emotion Detection

*Analysis By:* Jim Davies

*Definition:* Emotion detection is the task of recognizing a person's emotional state — for example, anger, confusion or deceit. The most common technique analyzes the characteristics of the voice signal, with word use as an additional input, if available.

*Position and Adoption Speed Justification:* Emotion detection is primarily used in call centers to identify angry or abusive customers (or agents) and alert a supervisor. In an audio recording, emotion is detected based on the analysis of what was said and/or how it was said (e.g., changes in pitch, tone, frequency and volume). It's not necessary to understand what was said to determine a change in emotion. Analysis of written communications, such as email and chat, can also highlight emotion. Truth verification is being used in some call centers for fraud detection and deterrence —

for example, in insurance claims. However, this is perceived as a low-priority, luxury item for many organizations, and the change management implications are too great for broad adoption.

As organizations begin to explore and understand the customer experience across multiple channels, the online emotional state will become an important dimension to consider. Web analytics and text-mining tools will begin to piece this together, based on keystroke/mouse actions and electronic communications. Ultimately, it will be possible to determine an emotional state by body movement, as part of a gestural/three-dimensional interface, although these technologies are now associated mainly with the gaming industry.

*User Advice:* Organizations should examine whether call center applications of emotion detection could significantly improve customer service or reduce fraud. Undertake a pilot to help determine appropriateness. Contact centers that are already doing speech analytics in some form should investigate the cost, impact and feasibility of adding an emotional dimension to the insights obtained from their solution provider.

*Business Impact:* Emotion detection can affect the customer experience enhancement in call centers; fraud detection in intelligence, law enforcement and insurance claims; and user interface improvement. Within contact centers, once supervisors have been alerted to emotional calls that are in progress, they can join the live calls and just listen in on mute, become part of the calls, or wait until the calls are over and then call the customers back. Highly emotional call recordings can be targeted for evaluation to assess how an agent dealt with the situation, and to identify any potential training needs. As the technology matures, agents will able to alter the interaction flow based on the automatic detection of the elevated emotion and application of analytics to determine the next action, which could be anything from a refund to the escalation of the call to a supervisor.

*Benefit Rating:* Moderate

*Market Penetration:* Less than 1% of target audience

*Maturity:* Emerging

*Sample Vendors:* Autonomy; CallMiner; Nemesysco; Nexidia; Nice Systems; Utopy; Verint Systems

## Recorded Video Customer Support

*Analysis By:* Johan Jacobs

*Definition:* Increased bandwidth to homes and to mobile devices via new generations of mobile networks has combined with the consumer acceptance of YouTube to make video an increasingly important aspect of customer experiences. Using prerecorded video clips to support customer service or training requests has the potential of reducing interactions with the contact center. Phone or Web chat agents can also provide customers with a URL to a recorded video clip to deal with or solve a particular problem.

*Position and Adoption Speed Justification:* Videos are particularly effective at capturing and recording deep and broad applications of various processes. Manipulative acts for mechanics,

development logic for software workers, and lengthy time-lapsed processes for workers of all kinds are just a few of the "task families" that video can capture and educationally present to customers and employees to support learning activities. Whether using a "how to" video (e.g., for changing a battery for a vehicle, a torch or a laptop) or using video as a demonstration tool, you gain the ability to deflect interactions into the contact center. These video clips can form part of an organization's knowledge repository or can be indexed from social networks like YouTube and accessed using either a search tool for internal knowledgebases or a social media listening tool for social networks.

**User Advice:** The popularity of video illustrating the use, maintenance and repair of various products, or the use of services, demands that organizations respect their customers' and constituents' desires for this emerging channel. Customer support managers, product managers and website managers should use this channel to enhance their customer service offerings. Start by identifying the most frequently asked questions in the contact center and focus on producing how-to videos for these issues before moving on to the lower prioritized issues.

**Business Impact:** The impact on businesses is potentially high, because video is a media that will please consumers, as well as serve as a useful tool for training employees.

**Benefit Rating:** Moderate

**Market Penetration:** Less than 1% of target audience

**Maturity:** Emerging

**Sample Vendors:** RightNow; salesforce.com

## Contact Center Interaction Analytics

**Analysis By:** Jim Davies

**Definition:** Interaction analytics solutions provide a holistic understanding of customer-agent interactions through the combined analysis of multiple data streams associated with the interaction. The data analyzed includes the dialogue (i.e., the audio or text, such as email or Web chat), call flow dynamics (such as speaking at the same time or pauses in the conversation), emotion (customer and agent), operations (such as call length or transfers or Web chat durations), screen (i.e., what the agent was doing on his or her desktop) and customer feedback (through the capture of postinteraction survey data).

**Position and Adoption Speed Justification:** Interaction analytics solutions are beginning to appear in the market, but adoption within contact centers is less than 1%. The solutions lack maturity, and many have functional omissions, such as support for multiple channels (e.g., chat and email). These problems are likely to be overcome during the next two years. The insights obtained from analyzing customer-agent interactions provide new perspectives on customer understanding and organizational feedback. Early deployments have delivered high value, fueling accelerated adoption during the next few years.

**User Advice:** Calculate the potential value-add of this integrated analytical technology suite above and beyond the siloed technologies, such as speech analytics or performance management. Pay

particular attention to the technical architecture and ensure alignment with the organization's overall customer analytics strategy.

***Business Impact:*** Deployment in a contact center may uncover a diverse range of insights that can be used to improve the performance of the contact center and its agents, as well as provide customer and departmental insights (such as customer perceptions of a marketing campaign or a new product pricing strategy). The challenge is in building the business case, because the insights (and, therefore, the ROI potential) won't be known until the investment has been made.

***Benefit Rating:*** High

***Market Penetration:*** Less than 1% of target audience

***Maturity:*** Emerging

***Sample Vendors:*** Autonomy etalk; Nice Systems; Verint Systems

## At the Peak

### Customer Interaction Hub

***Analysis By:*** Johan Jacobs; Michael Maoz

***Definition:*** The customer interaction hub (CIH) is a multichannel infrastructure that includes voice, video, Web chat, email, fax, self-service, interactive voice response (IVR), collaborative browsing and social feeds like Twitter and Facebook. It focuses on centralized processing for external customer interactions, and is integrated with back-end CRM, ERP and supply chain management (SCM) systems. The key functions are centralized business rules, aggregated integration points, channel independence and customer experience management. The primary objective of a CIH is to solve as many transactions as possible in an automated manner, or to provide operators with the necessary information and tools in one interface to resolve an interaction request at the first point of contact. The CIH must ensure that every interaction is understood (analyzed) and dealt with in an optimal manner (priority, agent, channel, automated or manual, etc.). For example, an inbound fax might trigger an outbound phone call if the content is important. Master data management and customer data solutions will be key to the emergence of a CIH, because they will be the operational data stores.

***Position and Adoption Speed Justification:*** The goal of an integrated CIH remains quixotic. Vendors such as Microsoft, Oracle and salesforce.com have invested heavily in the direction of integrated process and communication. Automation, self-service, and the consolidation of the contact center and Web customer services are some of the top issues for customer interactions (or any interaction). Reducing the cost of solving inquiries, while delivering a consistent experience across all the channels, is high on the priority list for customer service organizations, because customer satisfaction increases when problems are resolved faster and better. Therefore, bringing in and supporting new channels at minimal cost will be a key focus area for the next five years.

This integrated framework or hub can be used for providing a real-time, thorough view of the customer across all channels to all relevant customer-facing employees and partners currently and for the future, and will consist of solutions from many different service providers. Until the business processes of the organization become more integrated and customer-centric, the CIH will be considered a Technology Trigger for consolidation and integration toward a single-source solution, which is expected in five to eight years.

**User Advice:** Establishing an infrastructure deployment requires several technology solutions to be integrated, with few vendors currently promising a complete solution. Therefore, focus on the existing customer service technology stack to leverage what you already have, or integrate new solutions without breaking down or doing away with working solutions. Focus also on extending into new channels, and on aggregating processing for all existing and new channels through the hub, while delivering a consistent customer experience across all channels.

**Business Impact:** The CIH can help centralize interaction resolution, automate transaction execution, reduce the cost of operations, and leverage existing efforts and modules into new channels.

**Benefit Rating:** High

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Emerging

**Sample Vendors:** eGain; Interactive Intelligence; Microsoft; RightNow; salesforce.com; SAP

## Presence-Based Contact Routing

**Analysis By:** Bern Elliot

**Definition:** In presence-based contact routing, contact center routing software is integrated with enterprisewide unified communications (UC) presence services. This enables routing rules to be applied to any employee, based on that person's specific presence state and the application of relevant routing rules or skills assessments, thus extending the reach and capabilities of existing skills-based routing solutions.

**Position and Adoption Speed Justification:** Enterprisewide adoption and awareness of presence and UC is increasing — Gartner research indicates that instant messanging/presence (IM/P) is adopted in 50% to 60% of enterprises. Leveraging presence for routing offers benefits, including the ability to more easily enlist a broad range of skills and to increase the general pool of agents on short notice.

However, there are technical and social barriers to integrating UC presence tightly with contact center functions. Technically, two complex solutions from different vendors must be integrated, and the contact center must properly manage not only the routing of calls, but also the effective allocation, recording and monitoring of the calls. Additionally, practices for leveraging this approach, as well as for managing nontraditional agents, are not defined. For instance, a different approach for

compensation, supervision and training are often needed. These barriers result in slower direct integration of contact center functions with UC presence for contact routing.

In addition to solutions that use UC presence, there are other approaches for enterprisewide contact routing that extend contact center capabilities to any employee in the enterprise. These solutions require that employees login to the contact center as "occasional agents" or some other special agent status to allow the routing of customer contacts to them. This approach is effective for integrating specific Tier 2 and Tier 3 subject matter experts, as it is essentially an extension of established contact center approaches to agent status and skills.

*User Advice:* Consider presence-based contact routing for extending Tier 2 and Tier 3 support, and for including field support more directly in the customer support function.

*Business Impact:* Presence-based contact routing enables contact centers to access a significantly different and larger population. When fully integrated, presence-based contact routing enables a new paradigm for supporting customers, effectively enlisting all areas of the corporation into the support operation, as needed.

*Benefit Rating:* Moderate

*Market Penetration:* Less than 1% of target audience

*Maturity:* Embryonic

*Sample Vendors:* Aspect Software; Avaya; Cisco; Genesys; Interactive Intelligence; Siemens Enterprise Networks

*Recommended Reading:* "Prioritizing Contact Center Technology Investments"

"Achieving Agility Through Communication-Enabled Business Processes"

## Social CRM: Community Peer-to-Peer Support

*Analysis By:* Michael Maoz

*Definition:* Social CRM tools, in particular those that facilitate crowdsourced answers, involve software that is designed to engage, support and manage a Web (or online) community as the community identifies problems and creates solutions to the problems. The system includes knowledge management, content creation, search, voting tools and user profiling tied to case management and problem management systems. These systems aid in creating better methods of engaging customers during service interactions. They also enable end users to populate a business's self-service knowledge database, with all the overhead that involves.

*Position and Adoption Speed Justification:* During the next 24 months, 40% of leading companies will extend the goals of their online community activities from marketing to design-enhanced service processes (or social CRM). In 2011, only 10% of organizations will take advantage of social/collaborative customer action to improve service processes; however,

customer demand and heightened business awareness are making this a top issue among customer service managers. This will be part of a broader social CRM suite offering within five years.

*User Advice:* Factor in the advances in tablet computers like the iPad, kiosks and community sites, and how these might impact crowdsourcing of support solutions. Organizations already using online community management should begin discussing current successes with their customer service organizations. Together, they should identify the types of service interactions that might be improved through dialogue with the community. Make plans to integrate questions and activities the community can undertake to solve the problems of poor service. Look at specific opportunities to measure process improvement.

*Business Impact:* Customers expect to have a voice in improving customer service processes. Advanced computer techniques and analytic tools are essential to detect trends in customer service needs, and once available the business impact will be high. These needs are more easily and rapidly captured in greater detail through the direct interaction of customers in online communities. The results are lower customer service costs per customer, greater customer satisfaction and an increased focus on the more critical service processes to improve.

*Benefit Rating:* High

*Market Penetration:* 1% to 5% of target audience

*Maturity:* Emerging

*Sample Vendors:* Attensity; Jive; Lithium; RightNow; salesforce.com

## Virtual Assistants

*Analysis By:* Johan Jacobs

*Definition:* A virtual assistant (VA) is a conversational, computer-generated character that simulates a conversation to deliver voice- or text-based information to a user via a Web, kiosk or mobile interface. A VA incorporates natural-language processing, dialogue control, domain knowledge (for example, about a company's products on a website) and a visual appearance (such as photos or animation) that changes according to the content of the dialogue. The primary interaction methods are text-to-text, text-to-speech, speech-to-text and speech-to-speech. Search is often intent-based, with semantic understanding.

*Position and Adoption Speed Justification:* The evaluation criteria for the VA has changed following the publication of "Key Considerations for Virtual Assistant Selection." In 2010, the VA was just seen as one single entity. In the published research, five different generations of VAs have been identified. VA has been repositioned earlier in the Hype Cycle to reflect the fact that Generations 4 and 5 are the most sought after by customers, but are the least mature.

Computer-generated characters have limited ability to maintain an interesting dialogue with users; they need a well-structured and extensive knowledge management engine to become efficient, self-service productivity tools. As organizational knowledge engines become increasingly well-

structured and intelligent, self-service deployments relying on this source for knowledge are increasing. VAs in service, sales and education is starting to be adopted, with deployment from some Fortune 1000 companies.

End-user acceptance of VAs, driven mainly by their larger presence, is becoming less of a challenge than it was a few years ago. Growth in the art of image rendering has also seen increasingly sophisticated humanlike forms take over from the cartoon-type characters associated with Generation 1 and Generation 2 VAs. Generation 4 VAs are more easily accepted by many users, as opposed to the Generation 1 VA depictions as cartoon-based characters. The organizations that successfully deploy VAs often support implementation through the use of artificial-intelligence engines that assist natural-language dialogues.

Generation 1 VAs were stationary, with little visual appeal. Generation 2 VAs brought animation and generated customer interest. Generation 3 VAs look like humans and have excellent visual appeal, with responses to questions becoming increasingly accurate. Generation 4 VAs not only look human, but also are embedded with speech and text interactions. The Generation 5 VAs, which are just emerging, have excellent humanlike image qualities, are able to understand multiple questions and have highly developed natural-language support. Generation 1 through Generation 3 VAs are mature, but the technologies for Generation 4 and, especially, for Generation 5 are emerging.

*User Advice:* To use VAs successfully in customer service, focus the VA on one specific area, and do not apply the VA to all of your organization's products and services. Use VAs to differentiate your website and increase the number of self-service channels available to your target market. Support VAs with a strong knowledge management engine for self-service to create meaningful and productive interaction, and focus on delivering a similar experience in this and other self-service channels. In addition, support VAs through invisible Web chat agents, once the knowledge delivery of the VAs drops below an 85% relevance-of-response rate.

*Business Impact:* Effective use of a VA can divert customer interactions away from an expensive phone channel to a less expensive, self-service channel. The use of a VA that is voice-enabled in a kiosk or an automated teller machine can alleviate the need for typed interventions, and can assist in creating an interesting interaction for a nontraditional audience.

*Benefit Rating:* High

*Market Penetration:* 5% to 20% of target audience

*Maturity:* Emerging

*Sample Vendors:* Alicebot; Anboto; Artificial Solutions; Cantoche; Creative Virtual; eGain; Icogno; Umanify

*Recommended Reading:* "Self-Service and Live Agents Work Together"

"Gartner's Strategic CRM Framework for Web Customer Service, 2011"

## Wireless Devices in Contact Centers

*Analysis By:* Bern Elliot

*Definition:* Wireless devices, such as smartphones and tablets, have become more capable and now, in addition to standard voice, support visual interactions such as video and image displays on the device. This capability is being leveraged by contact centers in two different ways. First, customers are using these devices so the options and approaches to supporting these customers change. The second way is for back-office use, often for Tier 2 and Tier 3 support personnel who are not at a desk. In both cases, the use goes beyond simply using the audio channel, which while useful, is not new.

*Position and Adoption Speed Justification:* Enabling contact centers to offer users rich interactions over mobile devices is useful for supporting many segments. Examples include:

- Sending video instructions to customers showing how to replace a part may be more useful than having an agent send (or speak) a text description of how to replace the part.

- Sending customers an image of a map in addition to directions.

- Enabling clients to download specialized clients from an app store for their mobile device, which then allows visual information for common functions, thus acting as a visual interactive voice response (IVR).

- Allowing agents who also serve customers on the retail floor to take calls and see client records even though they are not at a standard agent position.

Note that some deployments may require customized solutions, infrastructure investments, and new work processes, which together make the deployment of these solutions complex and limits the number of users for any one solution. The maturation of mobile enterprise application platforms (MEAPs) and applications contained in mobile devices, as well as the increased capabilities of mobile browsers, will increase the speed of adoption.

*User Advice:* If the contact center is serving customers who have wireless devices, then investigate methods for supporting those devices. If many customers have common brand or device models, the best approach often is to work directly with the manufacturer. If the devices or OSs are of different types, then investigate mobile portals, wireless application gateways, or mobile application gateways. However, some of these technologies that allow portability are at an early stage; therefore, while they may allow some application portability, some application recoding for each device and release may be required. Contact center managers may also wish to investigate whether mobile devices may be useful in improving internal processes and agent flexibility.

*Business Impact:* Wireless devices in contact centers provide the ability to support mobile clients or individuals. This is particularly applicable for contact centers with clients that are often on smartphones or tablets, or in support centers with mobile service agents.

*Benefit Rating:* Moderate

*Market Penetration:* Less than 1% of target audience

*Maturity:* Embryonic

*Recommended Reading:* "Magic Quadrant for Mobile Enterprise Application Platforms"

"MarketScope for Packaged Mobile Application Platforms"

"Key Issues for Mobile Applications, 2009"

## Sliding Into the Trough

### Audio Mining/Speech Analytics

*Analysis By:* Jim Davies

*Definition:* Audio mining/speech analytics embraces keyword, phonetic or transcription technologies to extract insights from prerecorded voice streams. This insight can then be used to classify calls, trigger alerts/workflows, and drive operational and employee performance across the enterprise.

*Position and Adoption Speed Justification:* Although the technologies are more accurate and scalable than they were a few years ago, speech analytics solutions have not yet become widely adopted. Due to the potential to uncover insights that can enhance operational efficiency, understand the customer experience and reduce churn, organizational interest is high. The availability of software-as-a-service (SaaS)-based solutions is reducing the barrier to entry for what is commonly viewed as a "luxury" contact center technology investment area. Technological advancement will provide further improvements to accuracy and scalability. Organizational investment will gradually increase, as part of a holistic corporate analytics strategy.

*User Advice:* Organizations should use pilot projects to evaluate whether this technology can provide significant business value. Focus on call classification; the impact on quality management; and the hypothetical value of insights that can be fed back to sales (such as pricing sensitivity), marketing (such as campaign awareness and competitive deals) and product development (such as current issues/needs and competitive products). Determine the technology stack (keyword/phrase, phonetic or transcription) that best suits your organizational needs, because each has its own strengths and weaknesses. Choose a deployment model (SaaS, in-house or managed service) that best aligns with your short- and long-term financial plans, as well as your internal resource availability/expertise.

*Business Impact:* Audio-mining/speech analytics solutions:

- Improve call center agent performance and compliance

- Increase customer satisfaction by identifying issues and taking the appropriate actions

- Enable better understanding of customer needs and issues

- Provide insights into product feedback, pricing issues and market campaign effects

- Improve access to previously unsearchable audio information and assets, such as analyst calls or educational materials

*Benefit Rating:* High

*Market Penetration:* Less than 1% of target audience

*Maturity:* Emerging

*Sample Vendors:* Autonomy; BBN Technologies; CallMiner; Nexidia; Nice Systems; StreamSage; Utopy; Verint Systems

## Outsourced Contact Center Infrastructure

*Analysis By:* Drew Kraus

*Definition:* Outsourced contact center infrastructure includes shared-tenant, contact center as a service (CCaaS)-based services, and dedicated services using infrastructure located at the customer's (enterprise's) premises or in a third party's data center and managed by that third party.

Generally, CCaaS solutions target small to midsize contact center operations (those with five to 100 agents), although some implementations support several thousand agents. Likewise, dedicated solutions, whether running on the customer's premises or in the provider's data center, typically are deployed in contact centers with more than 100 agents (often with many more) but can scale down to smaller contact centers.

Enterprises pay for these services based on usage, agent licenses or a combination of these. They commonly pay for system setup and integration, in addition to usage and per-agent charges.

Providers range from telephone companies (telcos) and point solution specialists to multiapplication suite providers.

*Position and Adoption Speed Justification:* Despite CCaaS solutions having been available for more than 10 years, these solutions remain an "early adopter" approach to obtaining technology. This is largely because a perceived lack of security, customizability, flexibility and compelling savings on total cost of ownership (TCO) is inhibiting broader adoption. Companies with established contact centers that they themselves own, operate and locate will require a significant change in the operating model to shift to CCaaS solutions. This further inhibits adoption in mature markets, such as North America and Western Europe. In emerging markets, less-than-stable LAN and WAN environments inhibit adoption.

At present, CCaaS solutions are mainly adopted by smaller, "greenfield" operations or in new operations of existing mature businesses, in which upgrading existing infrastructure is too disruptive. They are also used for "bounded" contact center activities, such as internal help desks and outbound credit and collection activities, in which functionality needs can be less-complex and the risks of customer dissatisfaction are less problematic.

Hosted and managed service deployments, running in the service provider's data center or on the customers' premises, respectively, are more commonplace in larger contact centers than are CCaaS solutions. These solutions are dedicated to individual clients and are customized to the client's specific environment. This can help to address concerns about the ability of the solution to address a company's specific operational needs, as well as addressing many of the customer security issues that can come up in shared-tenancy platforms. The location-independent nature of Internet Protocol (IP)-based solutions makes the physical location of the servers less important in the overall solution evaluation process. As such, the selection of these solutions is often more of an issue of defining IT support responsibilities and structuring the contract to meet the client's needs (by spreading costs out over a defined contract period rather than a single, upfront cost) than about the physical location of the servers.

The global economic downturn that began in late 2008 has helped to increase awareness of alternative delivery models for applications, including communications applications, and its effects will help to drive adoption during the coming years. Furthermore, the trend toward centralizing the IT budget will also help to drive adoption, as core IT operations look to reduce head count for support and to cover shortfalls in existing IT knowledge for supporting these complex and specialized technologies. Companies that are looking to launch new contact center operations, or that need to replace out-of-maintenance systems, but that still have to reduce capital expenditure, are likely to find outsourced contact center infrastructure offerings a good "fit." This is especially true if they vet the provider's security practices and ability to provide customized solutions integrated with their enterprise CRM software, and conduct a thorough TCO analysis.

*User Advice:* Obtaining contact center solutions using outsourced infrastructure has the advantages of requiring limited initial capital investment and offering flexible access and, in some instances, rapid deployment and fast scalability. But there are also risks, including dependence on external services, possible reliability issues and, in some cases, lack of control over application functions.

Adopters migrating applications from premises-based solutions should work closely with their provider as the transition to a new contact center environment proceeds to minimize disruption to established business processes. When the evaluation process is being driven by the business unit, they should also work closely with their company's core IT function responsible for delivering WAN quality of service and resilience to ensure network readiness. Different providers will target customers with differing requirements for integration and customizability. Enterprises considering these solutions must check the match between their requirements and the provider's capabilities, as well as the long-term cost of ownership relative to premises-based solutions.

Enterprises should consider outsourced contact center infrastructure solutions particularly for greenfield deployments and when re-evaluating infrastructure investments as part of consolidation and virtualization projects.

*Business Impact:* Outsourced contact center infrastructure provides an alternative business model for addressing an enterprise's contact center requirements, particularly those needing to support rapid growth requirements, or staff-size fluctuations in response to seasonal business demands.

**Benefit Rating:** Moderate

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Adolescent

**Sample Vendors:** 8x8; AT&T; BT; Cable&Wireless Worldwide; Computer Talk Technology; Content Guru; Dimension Data; eLoyalty; Echopass; Five9; inContact; IBM Global Business Services; Interactive Intelligence; LiveOps; NewVoiceMedia; Qwest; SPS Commerce; Telefonica; TeleTech; Transera; Verizon Business; West Interactive

**Recommended Reading:** "SaaS-Based Contact Center Infrastructure: Four Questions Key to the Selection Process"

"Best Practices for Comparing Total Cost of Ownership for Contact Center as a Service vs. Premises-Based Solutions"

"Critical Elements of Cloud-Based Contact Center Services: Pricing, Service-Level Agreements and Service Integration"

"Forecast: Contact Center as a Service Market, North America, 2009-2014"

## Contact Center Performance Management

**Analysis By:** Jim Davies

**Definition:** Contact center performance management (PM) solutions collect, aggregate and report on data linked to agents (such as adherence, call volume, upsell ratio and quality scores) and overall contact center performance (such as call abandonment, interaction volume, first-call resolution percentage and shrinkage). These solutions do not measure the specific performance of individual applications or networks. The gathered information is used to populate role-based dashboards/reports and to trigger alerts/workflows.

**Position and Adoption Speed Justification:** Significant return on investment is achievable and the technology is proven, but the high costs associated with best-of-breed solution adoption and ongoing vendor consolidation have slowed investment. In-house, IT-department-driven initiatives have also slowed investment in these solutions, despite their usually inferior capabilities. When an investment is made, organizations are beginning to favor PM solutions from vendors with which they already have a relationship, such as workforce management (WFM) or call recording vendors. This will help accelerate adoption during the next three years.

**User Advice:** All contact centers must reach beyond basic measurement and reporting to leverage more-advanced analytics, which, in turn, will optimize performance and improve customer service. Leading-edge technology adopters, for which the contact center is the main channel to the customer, should invest in contact center PM. Organizations can determine vendor suitability by balancing the depth and breadth of requirements with viability, commitment to established relationships, strength of internal IT resources and degree of customer focus. Contact centers must strive to incorporate a mix of operational, customer and agent metrics. Adding an interaction

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context to the metrics and exploring more-subtle aspects, such as the physiological well-being of agents, will maximize the value.

**Business Impact:** Call center PM solutions enhance a company's ability to monitor, motivate and improve agent and call center performance.

**Benefit Rating:** Moderate

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Emerging

**Sample Vendors:** Aspect; Databeacon; Enkata; HardMetrics; Merced Systems; Nice Systems; Verint Systems

## Contact Center Workforce Optimization

**Analysis By:** Jim Davies

**Definition:** Contact center workforce optimization is the unification of complementary quality monitoring, workforce management, e-learning, performance management and speech analytics tools.

**Position and Adoption Speed Justification:** Although adoption within larger contact centers is still less than 5%, a growing number of viable solutions are available for contact center workforce optimization. Rapid progress is being made through a combination of internal developments, mergers and partnerships, but further integration and development are required to accelerate workforce optimization. Adoption is common in business-to-consumer (B2C) industries, such as healthcare, financial services and telecommunications, where the contact center is becoming a key business department, and where having optimally trained, motivated and deployed agents is a critical factor. These solutions should form an integral part of an organization's CRM strategy, so that the impact of sales, marketing and service initiatives is accounted for in the contact center. For example, the launch of a new marketing campaign should automatically impact activities such as agent scheduling, training, incentives and performance assessments.

**User Advice:** During a workforce management or quality management investment project, explore the opportunity to source this capability from a complementary call center technology vendor with whom you have a relationship. Ask for the vendor's R&D plans, and assess the merits of a unified workforce optimization suite from a single vendor across multiple, best-of-breed, siloed applications.

**Business Impact:** This technology primarily affects the call/contact center by delivering efficiency and effectiveness gains. It integrates and, ideally, unifies multiple traditionally siloed call/contact center applications to deliver incremental value. This technology suite ensures that the right number of motivated and appropriately trained and rewarded agents is deployed in the contact center at any time. However, workforce optimization should, ultimately, be viewed as an enterprisewide

performance-enhancing technology, theoretically being deployed in any department where more than one employee is performing a task on the phone, or on his or her desktop.

**Benefit Rating:** High

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Emerging

**Sample Vendors:** Aspect Software; Calabrio; Envision; inContact; Interactive Intelligence; LiveOps; Nice Systems; OnviSource; Verint Systems

## Proactive Communications Applications and Services

**Analysis By:** Drew Kraus

**Definition:** The term "proactive communications applications and services" refers to the use of outbound communications to provide wholly or partly automated interactions with established customers, prospective clients and other interested parties via a variety of channels.

Interactions may be based on receiver-selected opt-in preferences for the types of scenarios to be contacted about and the channels to use. Channels for interactions include voice self-service, email, SMS, Web pages and social channels such as Twitter and Facebook. These represent the communications component of proactive communications applications and services solutions. The business rule engine, workflow and analytics tools used to execute these applications and services may be additional and separate components to the application stack.

Proactive communications applications and services extend beyond simple "alerting and notification" interactions to provide avenues for two-way communications and transaction completion. As such, they exclude marketing campaigns that deliver unsolicited messages (spam) to recipients who have not opted to receive communications or who have no prior relationship with the company sending them.

Proactive communications applications and services can be provided using premises-based applications, services from third-party specialists, or a combination of these.

**Position and Adoption Speed Justification:** Proactive communications applications and services are in the early phases of adoption. Companies are evaluating them to determine how they can increase customer satisfaction and retention, while reducing operating costs for contact centers.

As consumers become more Web- and mobility-savvy, they will expect their preferred providers to "know" them and to provide better service by anticipating their needs. Here the ability to add GPS data to the analytical mix can help by enabling the creation of context-aware, location-based applications.

Proactive communications applications and services can already provide competitive differentiation. They will reach mainstream adoption within five years and will be expected of companies that do repeat business with customers.

**User Advice:** Companies looking to differentiate by using innovative technologies to strengthen customer loyalty while reducing customer service head count should investigate proactive communications applications and services. During the next five years, these applications and services will become more common and less of a differentiator, but their associated cost savings will help to increase adoption by companies fitting the "mainstream" and "late adopter" profiles of technology adoption. Many companies look to cloud-based solutions to provide packaged, multichannel applications rather than trying to build them themselves.

**Business Impact:** Proactive communications applications and services can enable faster responses to events and conditions. They can also improve sales, customer service and customer loyalty by anticipating customers' desire to be communicated with under select conditions.

**Benefit Rating:** High

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Adolescent

**Sample Vendors:** Alcatel-Lucent; Altitude Software; Aspect Software; Avaya; Cisco; Content Guru; Eliza; Envox Worldwide; Interactive Intelligence; LiveVox; Nuance; Silverlink Communications; SoundBite Communications; Tellme; Varolii; Voxeo; Voxify; West Interactive

**Recommended Reading:** "Emerging Technology Analysis: Proactive Contact Applications and Services, Contact Center Infrastructure"

## External Community Platforms

**Analysis By:** Jeffrey Mann

**Definition:** External communities create virtual places for collaboration among people and organizations in the market "ecosystem" outside the enterprise, including prospects, customers, suppliers, partners, influencers and even competitors, occasionally. People participate in external communities because of common interests and commitments. They develop trust within the community (or leave). Participants can include employees of the sponsoring enterprise acting on their own or with employer support, but the bulk of participants (and the sense of community ownership) comes from outside the enterprise. External community sites utilize a variety of social-software tools that enable community members to interact online to share ideas, provide support for other members, offer suggestions and comment on others' ideas. Common external community features include:

- Wikis

- Blogs

- Discussion boards

- Analytics

- Job boards

- Moderation

- Member directories with profiles

- Polling

The functionality needed to support external communities for partners and suppliers is fairly similar to that needed for internal communities, especially when the number of participants is low. Except for a greater emphasis on security and member management, requirements are largely the same. When starting to support small-scale external partner and supplier communities, many organizations simply provide limited access to their internal community sites.

However, external communities for customers or large-scale partner networks are usually quite different. These types of interactions require more structure and are generally managed by different lines of business. Branding, marketing, integration with purchasing, CRM and other back-office applications are much more important when dealing with these types of communities. For example, a company that uses its external community site to ask for customer input on new product development ideas will want to ensure that there is integration between the community site and the applications it uses for product life cycle management. We will see more specialized products, or at least specific projects to develop platforms to support these types of interactions. The social CRM market is developing to address these requirements.

***Position and Adoption Speed Justification:*** Communities are one of the evolving ways to improve interactions with other organizations in the ecosystem (prospects, alumni, customers, suppliers, partners, influencers and competitors). As internal communities increasingly become widely adopted, more organizations will look to create communities that extend beyond the firewall. Current product offerings are in the early stages of development, generally focusing on wide platform support and offering a variety of base capabilities or narrow process support aimed at specific parts of the customer interaction cycle. As customers and partners spend more time using social networking sites, they will expect and demand to use this type of channel to interact with the organizations they buy from and cooperate with.

***User Advice:*** Organizations need to include external communities in some form in their plans for developing and managing relationships with other organizations in the ecosystem, particularly partners and customers. Use cases go beyond relationship (and reputation) management. The use of external communities in social media campaigns, often orchestrated by external advertising and marketing agencies, is showing a dramatic increase. Most organizations will need to differentiate efforts aimed at small groups (up to 100 generally) of partners and suppliers, and those intended for large partner networks and customers. As organizations design their external communities and engage with users, they need to be willing to release control and let the community go in the direction the members want to take it. They should assign a community manager who can employ the right level of guidance to ensure that the community continues to evolve to meet the needs of members, without imposing the company's will on it. They should also enlist the support of community leaders and content contributors to ensure that the community has a constant stream of fresh information, thereby enticing members to frequent the community site and become active participants themselves.

**Business Impact:** Marketing and sales are the obvious areas where external communities will have the most impact, which will range from marginal to transformational, depending on the industry and market segment. When constructed to let members share their experiences and interact with each other, external communities can be a useful means for reducing support costs, increasing product usage and garnering new product development ideas. Consumer markets and industries with high levels of interactivity among partners will find external communities to be the most valuable, although success with these segments will be the most difficult to achieve. Extending internal communities to partners who function almost as virtual team members will have far less impact, but will also be much easier to implement.

**Benefit Rating:** High

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Adolescent

**Sample Vendors:** Acquia; INgage Networks; Jive Software; Lithium Technologies; Microsoft; Qontext

**Recommended Reading:** "The Business Impact of Social Computing on CRM Processes"

"Case Study: EMC Rallies Its Partner Community to Increase Sales"

## Knowledge Management for Customer Self-Service

**Analysis By:** Johan Jacobs

**Definition:** Knowledge management for self-service includes corporate knowledge, agent knowledge, social knowledge, hosted community knowledge and partner knowledge. It is the accumulation and management of a knowledge repository and the delivery of that knowledge through a self-service interface or the integration of that interface with a Web chat or email response management solution. It involves a process for maintaining and expanding the collection and categorization of knowledge to enable faster retrieval through a Web-based interface of the appropriate data elements, at the proper time, to reduce dependence on a human operator.

**Position and Adoption Speed Justification:** Knowledge management, as an enterprise initiative, has been available since the early 1980s. What is new is the rapid expansion into the areas of social Web communities. Within Web customer service (WCS), the knowledge database needs to be well-structured to allow at least an 85% relevance of responses to searches and questions asked. Organizations that successfully exploit this self-service option have their knowledge databases supported by dedicated knowledge workers who constantly update and fine-tune the knowledge engine to allow an increasingly accurate level of responses.

The increased focus on social and community knowledge and authoring from external sources directly into the corporate knowledge repository has renewed the focus on knowledge management for self-service, resulting in a slow move across the Slope of Enlightenment. Organizations will use knowledge collection tools to harvest information that is being written about a company's products

and services. These collection tools will bring the information in-house, where it is reviewed and analyzed. If the information is valuable, then the knowledgebase is updated with the information. If the information is not usable, then it is discarded; and if the information is inflammatory or a complaint, then a decision is needed on how best to respond.

**User Advice:** A knowledge repository takes six to eight weeks to structure well, and six additional months to mature enough to allow an 85% resolution on first request. Appoint a dedicated team of knowledge workers to continuously evolve and expand the knowledge engine and provide feedback, or an "unresolved" facility on the self-service website, so that the user can notify the knowledge team when his or her query is not resolved. Implement an SLA of 24 hours for the knowledge team to capture a resolution to all unresolved items. Make sure that all the channels (i.e., Web self-service) and agents in the contact center and Web chat use the same knowledge repository to ensure a consistent and accurate response, irrespective of which channel the person uses to ask the question.

**Business Impact:** This technology affects creating, acquiring, storing and maintaining corporate knowledge, information and data in a format that a Web-based, self-service application can easily access, as well as the collection of knowledge from websites and hosted communities.

**Benefit Rating:** High

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Early mainstream

**Sample Vendors:** Consona; Convergys; InQuira; Kaidara Software; Neocase Software; Parature

## Climbing the Slope

### Web Customer Service Suites

**Analysis By:** Johan Jacobs

**Definition:** Web customer service (WCS) suites are considered a collaborative CRM component and provide customer-enabling technologies via multiple Web and mobile phone channels (excluding voice). They support email response management systems (ERMSs), Web chat, knowledge management for self-service, virtual assistants, multimodal communications, video service, collaborative browsing and social channel interactions. Multichannel self-service is increasingly becoming the driving factor for WCS suite implementations that also focus extensively on reducing operating costs and delivering a consistent service across all channels. WCS assumes that the customer is interested in Web self-service. Once self-service is engaged, the customer could escalate the problem to an assisted contact center channel.

**Position and Adoption Speed Justification:** Seldom does the introduction of a WCS channel face customer adoption issues. Often, the adoption problems lie within the organization, as the organization is not ready to expose its data and systems to an external audience for self-service or does not have the staff ready to deal with customer issues that might be posted on a social network

or other channel. Internal adoption efforts must, therefore, be focused on organizational readiness, data preparation, expanding staff competencies and the development of WCS business processes. Functionality is expanding as WCS vendors' maturity increases, with some WCS vendors starting to cross over into the telephony and contact center space in an attempt to capture more channels. The technology is mature, and the ROI business case is focusing on moving services to a less-expensive channel.

*User Advice:* Spend time building your knowledgebase for use across multiple WCS channels (such as self-service, Web chat and ERMS). Best-of-breed, single Web-channel e-customer service solutions (excluding voice) are in the minority, with most vendors' and buyers' spending on multichannel suite-based approaches. When looking at a single-channel business requirement, focus on the ultimate multichannel, multifunction solution, and procure a multichannel product suite that enables a phased channel implementation approach. When looking at a multichannel solution, focus on a solution that can be integrated with your established technology choices. Set realistic expectations, and dedicate staff to only a few channels at a time, because true, fully blended multichannel environments still have a very low adoption rate. Link this to customer-centric Web strategies.

*Business Impact:* The benefits associated with the deployment of WCS channels are call avoidance, reduced average handle time, increased channel availability and customers helping each other in hosted communities, which all help reduce the cost of service. When procuring a WCS vendor's solution, get access to all the functionality of the suite. If you are only implementing, for example, an ERMS as a first stage, then the additional channels can be implemented from the same vendor at a later stage, alleviating the necessity for costly and difficult integration with point-based solutions. WCS suite technology will affect lead management (marketing), sales automation, customer service and self-service. It will also expose new channels to a new market, enabling the engagement of different clients.

*Benefit Rating:* High

*Market Penetration:* 20% to 50% of target audience

*Maturity:* Early mainstream

*Sample Vendors:* Avaya; eGain; Genesys; Kana; RightNow

*Recommended Reading:* "Magic Quadrant for Web Customer Service"

"Gartner's Strategic CRM Framework for Web Customer Service, 2011"

"Not All Customer Service Channels Are Created Equal"

## Universal Queue Management

*Analysis By:* Drew Kraus

**Definition:** Universal queue management is the capability to integrate single control and management of contact queuing and routing for all contact center channels, including voice, email, Web chat, Web collaboration, social media and video. The inclusion of voice channels is critical to the definition of universal queue, as unified queuing devoid of voice routing is covered under the eServices Suites technology profile.

**Position and Adoption Speed Justification:** Universal queue management technology has been promoted by contact center infrastructure vendors for many years; with the concept appealing to end-user decision makers and being frequently asked for in RFPs. However, many contact centers fitting a "mainstream" or "late adopter" technology adoption profile lack the flexibility in their business processes to utilize the capability if it were deployed. Furthermore, the responsibility for purchasing and operating Web, social media, and email routing and management systems is often owned by different groups than the telephony-based call center. In addition, even when these functions are owned by a centralized contact center function, many contact center agents do not write as well as they speak, resulting in written-type channels being kept separate from speaking-type channels. As a result, many companies separate call center and e-service systems and operations.

Despite these barriers to adoption, some contact centers fitting an "aggressive" technology adoption profile, and with sufficiently skilled agents, are able to more consistently apply business-rule-based routing across multiple channels.

**User Advice:** Companies should evaluate the opportunities to use universal queuing to leverage consistent routing and prioritization rules across all contact types, while considering the skills of the agents to deal with more than one channel type. Enterprises that are undergoing contact center infrastructure consolidation and virtualization may find these to be opportune times to evaluate universal queuing, as current business processes are re-evaluated as part of these projects. Contact center managers should also review the changing skill sets of their agent pools, because many millennials now entering the workforce are more comfortable supporting multiple simultaneous interactions than their more-seasoned counterparts, although writing proficiency must be included in their skills evaluation.

**Business Impact:** Consolidated and unified support of multiple channel interactions enables better integration of contact routing with business channels, better use of resources and clearer reporting.

**Benefit Rating:** Moderate

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Adolescent

**Sample Vendors:** Alcatel-Lucent; Aspect; Avaya; Cisco; Echopass; Huawei; inContact; Interactive Intelligence; LiveOps; NEC; SAP; Siemens Enterprise Communications; Syntellect; Transera; Vocalcom; West Interactive

**Recommended Reading:** "Magic Quadrant for Contact Center Infrastructure, Worldwide"

## Contact Center Quality Management

**Analysis By:** Jim Davies

**Definition:** Quality assurance includes record service interaction (voice and screen) for compliance and quality.

**Position and Adoption Speed Justification:** This is a mature market with high penetration. However, the gradual transition from time division multiplexing (TDM) to voice over Internet Protocol (VoIP) as the preferred communications infrastructure within call centers is causing some technical challenges for those who want to record these electronic conversations. In addition, the ability to record, play back and evaluate other forms of communications, such as email, chat and co-browse, is far less mature.

**User Advice:** Organizations that haven't invested in call/interaction recording, or are simply performing compliance recording, should determine the potential business benefits of embracing a quality program. They should emphasize architecture and support during vendor selection. As call centers evolve to support multiple communications channels, such as email and Web chat, the ability to record and evaluate these channels is just as important as it is for the phone channel. In addition, organizations that handle credit card information over the phone should assess the vendor's support for emerging Payment Card Industry (PCI) guidelines.

**Business Impact:** The call/contact center plays an important role in many businesses' strategies, and quality assurance (QA) is a critical component of an optimized environment. The ability to record (for compliance) and evaluate (on playback) agent-customer audio/screen interactions can significantly improve agent performance.

Vendors are enhancing the value of their offerings through speech analytics, e-learning, surveying and performance management analytics. As organizations try to become more effective, increase customer satisfaction and drive revenue, hard-working, high-performing agents are a key consideration, and an optimized QA/management implementation is critical to achieving this.

**Benefit Rating:** High

**Market Penetration:** More than 50% of target audience

**Maturity:** Early mainstream

**Sample Vendors:** Aspect; ASC; Autonomy; Cacti; Calabrio; CallCopy; CyberTech International; dvsAnalytics; Envision; HigherGround; inContact; Interactive Intelligence; KnoahSoft; LiveOps; Magnetic North; Nice Systems; Oaisys; OnviSource; TantaComm; Telrex; Verint Systems; VirtualLogger; VPI; Zoom International

**Recommended Reading:** "Strategic Framework for Contact Center Workforce Optimization"

"Contact Center Call-Recording and Quality Management Vendor Landscape, 2010"

"Contact Center Call-Recording Market Trends"

## SIP Communications

*Analysis By:* Bern Elliot

*Definition:* Session Initiation Protocol (SIP) is a communication protocol specified by the Internet Engineering Task Force. It's the first communication protocol to enable multiuser sessions, regardless of media content. SIP will enable a new generation of communication services across the Internet, as well as over fixed and mobile IP networks. SIP enables communication to be initiated and managed, and its key channels include voice, video and instant messaging.

SIP has three key components: user agents (UAs), a SIP registrar and SIP proxies. UAs include devices (such as phones, PCs and PDAs), as well as, in some cases, applications, that initiate or receive SIP-initiated communication sessions. The SIP registrar server is a database that registers the location of all UAs within a domain. It also passes participant Internet Protocol (IP) addresses and other information to the SIP proxy server. The proxy server accepts session requests made by UAs, and queries the SIP registrar for the recipient's address before forwarding the session invitation directly to the recipient. This enables peer-to-peer communication among UAs, where sessions are established or modified using Session Description Protocol.

*Position and Adoption Speed Justification:* Standards and applications are still evolving, but it's clear that SIP will be the default open protocol for communication. It is widely supported by leading communication vendors; however, some implementation differences remain, so portability is not ensured and must be validated. Many enterprise communication vendors prefer to offer their own proprietary protocols or a proprietary variation of SIP. Best practices for SIP deployments are not fully defined for many environments.

*User Advice:* SIP is a useful way to enable interoperability among products. It is useful in contact centers, as well as in unified communications deployments, where multiple vendor communication products must be integrated.

SIP trunking allows all-software connectivity to public switched telephone network (PSTN) carriers, and are often less expensive than PRI trunks. In many cases, the broadband used for the SIP trunks is shared with the data that also arrives via the broadband connection. In some cases, enterprises will consider also installing a session border controller (SBC) at the point where the broadband enters the enterprise network. This provides an additional level of security that can complement the SBC that the service providers usually include with SIP trunk deployments. Having your own SBC ensures that your security policies and priorities are addressed, while the service provider's SBC is focused on its own security priorities.

Ensure that vendors offer SIP as a contact control option in their platforms, and ask vendors to specify what interoperability testing they have performed. This will make it more likely that different vendors' SIP products will interoperate.

*Business Impact:* SIP enables communications to be integrated with each other and with business applications more easily. The result is that communications-enabled business processes can be developed in which the applications initiate and control communication sessions. The result will be more-effective work processes, better use of collaborative and multimedia applications, and more agile enterprise communications infrastructure.

Gartner, Inc. | G00219242

**Benefit Rating:** High

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Early mainstream

**Sample Vendors:** Alcatel-Lucent; Avaya; Cisco; IBM; Microsoft; NEC; Polycom; Siemens

**Recommended Reading:** "Why Your SIP Trunking Design Needs Ethernet"

"Top 10 Planning Considerations for SIP Trunking"

"SIMPLE: Extending SIP for IM and Presence"

"SIP: Unlocking the Promise of Open Communications"

"How to Leverage SIP Trunks, Session Border Control and Session Management for Cost Savings and UC Deployment"

"Q&A for SIP Trunking Security: How Much Is Enough?"

## SIP-Enabled Contact Centers

**Analysis By:** Daniel O'Connell

**Definition:** Session Initiation Protocol (SIP) is a signaling protocol used for establishing, supporting and terminating Internet Protocol (IP)-based multimedia communications, such as voice over IP (VoIP), video, conferencing, presence and instant messaging, typically over a converged transport "pipe." The vast majority of SIP implementations to date have been in support of VoIP communications.

SIP is particularly well-suited to support corporate communications over IP Multiprotocol Label Switching networks with class of service distinction for supporting real-time application requirements. A segment of cost-sensitive businesses, usually from the small and midsize sector (fewer than 1,000 employees), run SIP over the Internet (without quality of service).

SIP has two primary roles in the contact center. First, on the network side, it supports VoIP calls via "SIP trunks" from the contact center to the communications service provider (CSP). Market adoption in this capacity is gaining momentum as there is a solid business case for replacing voice-based T1 Primary Rate Interface (PRI) services. SIP trunks are particularly beneficial for connecting distributed virtual contact centers with multiple sites. They also provide a valuable failover capability to a backup location should the primary location experience an outage.

The second, and less mature, SIP contact center role is in the back end — that is, within the enterprise. This occurs in two areas. First, SIP can replace computer-telephony integration (CTI), which has for years been the standard-bearer for connecting the intra-contact center environment, including automatic call distributors (ACDs), interactive voice response (IVR) units, customer databases, automated dialers and queuing devices. CTI is viewed as an expensive, complex, yet

effective tool for connecting proprietary contact center elements. SIP is envisaged as the eventual successor to CTI, where it is also expected to play a greater multimedia role in connecting the contact center with other enterprise functions. The second role for SIP in contact centers is as a way to simplify multimedia contact routing. As such, contact center vendors are also pushing their users to adopt a multimedia experience, where the voice functionality is integrated with email, chat, presence and video.

*Position and Adoption Speed Justification:* SIP network trunks are increasingly commonplace. Tier 1 and Tier 2 service providers are now experienced in SIP interoperability with the IP contact center vendors. Selected CSPs allow users to "pool" trunks at the corporate level, which can result in significant cost savings. SIP trunks are then dynamically provided to each site as required. Larger enterprises prefer SIP trunks from the large CSPs that they have confidence in, while smaller businesses, usually more cost-sensitive, will show a greater willingness to work with Tier 2 SIP trunk providers.

SIP trunks can be deployed over high-capacity Ethernet access as well as traditional T1/E1 loops. A business typically rolls out SIP trunks for its PBX environment, followed by a contact center rollout (some six to 12 months later). Through 2011 we have witnessed mainstream adoption of SIP trunks, particularly in midsize to larger contact center deployments of over 100 agents. Businesses now routinely upgrade to SIP trunks when they refresh their network or infrastructure. Most SIP trunk concerns relative to reliability and security have been alleviated.

As a potential CTI replacement, SIP theoretically offers a more scalable, feature-rich and flexible option. But CTI remains the glue for connecting the contact centers with corporate databases, and a migration to SIP requires costly database and infrastructure upgrades. Most enterprises are delaying these upgrades in today's stretched economy, giving further legs to the legacy CTI approach. SIP is, however, starting to secure adoption in the back-end for voice-related communications. Newer platforms now commonly use SIP to communicate between ACDs, IVR systems and outbound dialers.

We can expect SIP adoption in the back-end when businesses deploy a more multimedia (integration of VoIP, video, email and so on) environment for their agent base. This functionality is actively marketed by the technology vendors. However, actual market adoption of multimedia continues to be limited, and R&D efforts are now diffused to social networking. Most contact center offerings remain voice-centric, which continues to mute multimedia SIP adoption.

*User Advice:* Enterprises are encouraged to deploy network SIP trunks from their network provider. They are particularly beneficial for IP contact centers, but can also be integrated with time division multiplexing environments via an intermediary gateway. Users should verify that their provider offers lab-certified SIP trunks that are interoperable with their enterprise contact center vendor (as well as the particular vendor product and even software release). As an extra precaution, a four-week trial phase to ensure smooth operations in a live environment will reduce risk. This will include parallel operations of both the T1 PRI (typical) and SIP trunk environments. Additional levels of security can be obtained via session border controllers, which help mask the enterprise VoIP environment to the outside environment.

SIP substitution of CTI for internal contact center service should focus on "step events," such as a new installation or office move. Here, SIP is not replacing CTI, but rather serving as the selected tool for "greenfield" environments, often with a new contact center platform.

Contact center users should proceed cautiously with proposed "steady state" upgrades (CTI to SIP), and ensure that there is a supporting business case. Connecting IVRs, ACDs, databases, autodialers and related elements via SIP requires licensing, customization and integration costs. In many cases, these conversion costs may be similar to those of the CTI environment that SIP is designed to replace, thereby removing the upgrade incentive. Gartner is, however, starting to witness SIP costs become more price competitive as vendors mature their SIP licensing models and the technology platforms become more mature.

*Business Impact:* SIP trunks are increasingly commonplace in IP-based contact center environments. They are now a proven tool to reduce costs and increase flexibility.

SIP replacement of CTI will take longer to manifest than SIP trunks. However, this transition will have a more substantial long-term impact on the call center environment. It will provide the contact center with greater reach across the enterprise, as well as enabling a more media-enriched exchange of information between agents and customers.

Expect SIP for multimedia to gain moderate traction in 2012. But many contact center environments are not expected to become multimedia-enabled for some time (that is, they will remain voice-focused).

*Benefit Rating:* High

*Market Penetration:* 20% to 50% of target audience

*Maturity:* Early mainstream

*Sample Vendors:* AT&T; Avaya; Cisco; inContact; LiveOps; Microsoft; Paetec; Transera; Verizon

*Recommended Reading:* "Toolkit: RFP Template for SIP Trunking Services"

"Magic Quadrant for Contact Center Infrastructure, Worldwide"

"Best Practices for Comparing Total Cost of Ownership for Contact Center as a Service vs. Premises-Based Solution"

"Market Trends: The CSP's Value-Add With Managed SIP Trunking for Unified Communications and Collaboration, 2011"

"Why Your SIP Trunking Design Needs Ethernet"

"Forecast: Contact Centers, Worldwide, 2006-2015, 3Q11 Update"

## Contact Center Workforce Management

**Analysis By:** Jim Davies

**Definition:** Workforce management (WFM) solutions plan, forecast and schedule agent staffing requirements across teams and sites, accounting for skills, tasks, performance and channels to meet service-level requirements.

**Position and Adoption Speed Justification:** WFM tools have been significantly affecting call center efficiency for decades. Recent developments include the addition of agent empowerment features, better outbound scheduling and enhanced support for multichannel scheduling (for example, email and chat) and performance-based scheduling. Agents can automatically adjust or swap schedules with colleagues, book holidays and sick leave without supervisor intervention, and enter shift preferences — all from their own Web-based clients. This empowerment can have a significant effect on employee and customer satisfaction.

Adoption is high in large organizations, making replacement the primary sales model, but the small or midsize business (SMB) market is less saturated, and is fueling associated innovation and commitment from the vendor landscape. WFM features are increasingly being integrated into contact center infrastructure vendors' application stacks, providing a simplified investment option.

**User Advice:** Organizations with more than 75 agents should calculate the potential financial benefits of installing a WFM tool. Organizations with established solutions should investigate replacing their outdated tools, because newer versions can do more than just schedule agents based on automatic call distribution statistics.

**Business Impact:** Call centers promote efficiency and improve agent morale via empowerment.

**Benefit Rating:** Moderate

**Market Penetration:** More than 50% of target audience

**Maturity:** Early mainstream

**Sample Vendors:** Aspect Software; Calabrio; Genesys Telecommunications Laboratories; GMT; Holy-Dis; inContact; Interactive Intelligence; InVision Software; ISC; Monet Software; Nice Systems; Openwave; Pipkins; Portage Communications; QMax; Teleopti; Verint Systems; WFM Software Group; XLScheduler

**Recommended Reading:** "Contact Center Workforce Management Market Trends"

"Contact Center WFM Vendor Landscape, 2010"

## Contact Center All-in-One Suites

**Analysis By:** Drew Kraus

**Definition:** All-in-one contact center suites integrate automatic call distribution, universal queuing, computer-telephone integration, interactive voice response and Internet contact channels such as

email response management and Web chat into a single application stack. They may also include dialer, workforce management and contact recording capabilities. These solutions use a single, consistent set of application development, system administration and reporting tools across all applications, and call flow can be managed and reported as a single thread from acceptance in voice response through to call completion. All-in-one contact center suites are differentiated from single-vendor portfolio offerings, which can be acquired as a package through a single vendor, but lack the common underlying toolsets.

*Position and Adoption Speed Justification:* Adoption of all-in-one contact center suites has traditionally been limited to small and midsize organizations, due both to the scalability limitations of these solutions and a tendency for larger contact centers to prefer best-of-breed solutions optimized to support their individual functions. This has changed in recent years, as scalability issues have largely been resolved with greater processing power provided by commercial-grade processors and technologies such as virtualization. Larger contact centers are recognizing the operational efficiencies of tightly bundled suites that enable them to apply business rules more consistently across applications, as well as the IT efficiencies, as these solutions can have noticeably smaller data center footprints and more-efficient licensing models.

We have moved all-in-one contact centers further back on the Hype Cycle curve than it was in previous years. The change is due to the level of sophistication required in the individual subcomponent applications (e.g., workforce optimization capabilities) as these solutions become adopted into larger contact center environments. Basic feature capabilities that may be "good enough" for many midsize contact centers are frequently insufficient for larger environments. As such, we consider all-in-one contact center solutions less mature for meeting the needs of large contact centers than they were when targeting primarily small to midsize centers.

*User Advice:* Although once found mainly in small and midsize environments, bundled solutions should now be considered for contact centers of all sizes, especially in "greenfield" scenarios, or where a contact center technology refresh is planned. Near-term advantages are found in the tight integration of automatic call distribution, interactive voice response, computer-telephony integration, outbound dialing and, in some cases, contact recording and workforce management. Longer-term advantages can also be found as multichannel queuing becomes more widely accepted. Reduced IT footprint and potential efficiencies in licensing and administration should also be evaluated when considering all-in-one contact center suites, as they may result in a lower total cost of ownership. Organizations with smaller integration and testing teams that want more out-of-the-box capabilities, rather than investing in integration testing, will favor suites.

Over time, the adoption of hypervisors, such as VMware, will likely make bundled suites ubiquitous and they will lose their distinction from best of breed. This is because formerly separate server solutions, which characterized best of breed, can now be operated on a single virtualized environment. However, integration of reporting and application development tools will likely lag these common administrative tools by several years.

*Business Impact:* Bundled contact center suites can result in improved integration of contact center components, lower costs and easier administration. They can also reduce the amount of preintegration required by the customer in software upgrades of competing vendor technologies.

**Benefit Rating:** Moderate

**Market Penetration:** 20% to 50% of target audience

**Maturity:** Early mainstream

**Sample Vendors:** Aastra; Aspect; Genesys; Huawei; Interactive Intelligence; Presence Technology; SAP (Wicom); Syntellect

**Recommended Reading:** "Business Benefits Drive the Alignment Between Contact Center Infrastructure and Workforce Optimization Software"

"Magic Quadrant for Contact Center Infrastructure, Worldwide"

"Forecast: Contact Centers, Worldwide, 2006-2015, 3Q11 Update"

"Forecast Analysis: Enterprise Communications Applications, Worldwide, 2006-2015, 3Q11 Update"

## Entering the Plateau

### Contact Centers: IP-Based

**Analysis By:** Drew Kraus

**Definition:** Internet Protocol (IP) contact centers are those that use IP networks, rather than circuit-switched networks, to deliver customer contacts (including voice calls) to agents' desktops and/or phones. The location-independent nature of IP-based solutions also makes them better-suited to support contact center virtualization and centralization projects, which can serve to lower contact center infrastructure, staffing and support costs. Further, these deployments better-enable disaster recovery practices by allowing agent staff positions to be redeployed at other locations due to an outage or weather incident that would make the primary site inaccessible. IP-based architectures are also better-equipped to integrate multimedia when looking to incorporate broader Web customer service suites and/or unified communications functionality for enhancing the caller's experience and improving corporate productivity.

**Position and Adoption Speed Justification:** IP contact center infrastructure is being successfully deployed in contact centers of all sizes. IP agent license shipments represented more than half of all agent shipments in 2010, although they represent only about 20% of the total installed base. Many companies recognize that contact center infrastructure vendors are focusing their R&D efforts on IP-based solutions, including those using Session Initiation Protocol (SIP), rather than older, circuit-switched solutions, and, in some cases, those vendors have announced end-of-life timing for their time division multiplexing (TDM) solutions. As such, companies are increasingly looking at IP-based solutions as the safer long-term choice for their contact center infrastructure. While IP contact center infrastructure is the architecture of choice for most new contact centers in North America, Western Europe and mature markets within other regions, some companies choose to invest in TDM infrastructure either to continue existing investments in these systems, or to provide more

dependable solutions in environments in which LAN and WAN architectures are not capable of reliably supporting voice signaling.

**User Advice:** Successful deployment of these solutions requires LAN and WAN environments that have been optimized to support voice-over-IP traffic. Companies that have not yet undergone network evaluation and, where needed, upgrades may find adoption of IP contact centers considerably more costly than initially anticipated, as network upgrade costs may exceed contact center hardware and software costs. Fortunately, most manufacturers of these systems have developed tools to assist their channel partners in evaluating network environments to ensure that the systems do not fail as a result of underconfigured networks upon installation.

The vast majority of IP contact center installations are traditional premises-based solutions. However, a number of communications service providers and application specialists now leverage the location-independent nature of IP to offer alternative outsourced contact center infrastructure solutions in a "pay as you go" software-as-a-service model, hosted dedicated model or remotely managed service model.

**Business Impact:** IP contact centers can result in improved contact center operations, especially in distributed and multichannel environments and for business continuity.

**Benefit Rating:** Moderate

**Market Penetration:** 20% to 50% of target audience

**Maturity:** Mature mainstream

**Sample Vendors:** Aastra Technologies; Alcatel-Lucent; Altitude Software; Aspect; Avaya; Cisco; Genesys; Huawei; Interactive Intelligence; Mitel; NEC; Oracle; Presence Technology; SAP; Siemens Enterprise Communications; Syntellect; Vocalcom; ZTE

**Recommended Reading:** "Magic Quadrant for Contact Center Infrastructure, Worldwide"

"Forecast: Contact Centers, Worldwide, 2006-2015, 3Q11 Update"

"Forecast Analysis: Enterprise Communications Applications, Worldwide, 2006-2015, 3Q11 Update"

"Key Issues for Contact Center Infrastructure, 2011"

## Virtual Contact Centers

**Analysis By:** Drew Kraus

**Definition:** Virtual contact centers employ technologies to enable multiple physical locations to operate as a single logical center, and to be able to have agents within a single functional group reside at different physical locations. This may include, but is not synonymous with, "work at home agents" and "contact center infrastructure as a service." Calls and other contacts are routed independently of agents' physical locations.

*Position and Adoption Speed Justification:* Enterprises operating contact centers across multiple sites are increasingly leveraging the location-independent nature of Internet Protocol (IP)-based contact center infrastructure to enable queues to span multiple physical contact center locations. This benefits customers by enabling their queries to be answered more quickly and giving them access to agent resources companywide. It also enables companies to more effectively staff agents to support companywide contact center volumes, rather than having to overstaff at individual sites to meet contact handling targets. In some cases, companies are also using "virtualization" to deploy contact center infrastructure centrally, yet still allow remote centers to have localized control over the administration of "their portion" of the centralized infrastructure. Doing so can result in savings associated with reduced or eliminated redundancies in infrastructure components, agent staffing, IT staffing, system integration and customization efforts, and maintenance contracts. Virtualization can also help to integrate operations at offshore centers as well as provide disaster recovery capabilities if one or more centers become inoperable. Contact center infrastructure consolidation and virtualization projects have become increasingly popular as companies look to lower operating costs while providing equivalent or improved customer service.

*User Advice:* Companies operating contact center infrastructure across multiple sites should evaluate whether agents across separate sites can or do support similar contact types, including contacts with similar content and using similar media (for example, phone, email and Web chat), and whether operating efficiencies can be found in sharing workloads companywide. Companies with multiple contact centers that are not ready to take advantage of staffing efficiencies from virtualized contact center operations can still benefit from reducing infrastructure, maintenance and IT redundancies by moving to a centralized contact center infrastructure while leaving individual contact center operations decentralized.

*Business Impact:* Virtualizing contact centers often results in improved contact center operations. Benefits include improved staff use, better operating metrics and more-effective leveraging of infrastructure investments.

*Benefit Rating:* High

*Market Penetration:* 20% to 50% of target audience

*Maturity:* Mature mainstream

*Sample Vendors:* Aastra; Altitude Software; Aspect; Avaya; Cisco; Echopass; Genesys; Huawei; inContact; Interactive Intelligence; LiveOps; Mitel Networks; NEC; Presence Technology; SAP; Siemens Enterprise Communications; Syntellect; Transera; Vocalcom; West Interactive

*Recommended Reading:* "Centralizing Contact Center Infrastructure Lowers Costs and Drives Innovation"

## Contact Centers

*Analysis By:* Drew Kraus

*Definition:* Contact centers support customer interactions across a range of channels, including phone calls, email, Web chat, Web collaboration, and the emerging adoption of social media

interactions, and they are distinct from telephony-only call centers. Although contact centers support more than one channel, they do not necessarily involve the use of universal queuing. Instead, they may support multiple channels but use separate systems and, in some cases, business processes to do so. Key underlying technologies include automatic call distribution, computer-telephony integration, interactive voice response and outbound dialers. However, a large number of additional technologies can be used to enhance effectiveness. These include quality assurance, workforce management, e-learning, analytics and performance management. Contact centers are also increasingly interested in integrating technologies and operations with enterprise unified communications solutions to allow broader integration of contact center functionality and capabilities throughout the broader employee base, and, in some cases, extending capabilities to key business partners.

Types of centers include customer service and support, telemarketing, collection and help desk. CRM applications are often used in customer service and support centers, and are usually specific to the business or to a particular industry, such as energy or financial services.

The strong surge in consumers and businesses using Internet-based self-service tools will reduce some of these interactions and divert them to online transaction systems supported by self-service knowledgebases and Web chat.

*Position and Adoption Speed Justification:* Telephony-only call centers are a mature technology with well-known and documented business practices for operating services based on these systems. Many of the concepts for designing and operating multichannel contact centers are carried over from call centers, resulting in the relatively smooth adoption of contact centers, particularly where the support of different channels remains separate within a discrete center.

*User Advice:* Enterprises should consider contact center technology whenever a high volume of contacts across multiple contact channels is involved, and when these contacts can be handled by multiple individuals, thus making a contact queuing approach useful. Enterprises should evaluate vendor offerings in the context of the company's specific operational needs to ensure that they purchase only the capabilities needed, rather than "complete bundles" offered by vendors if the full bundle isn't needed.

*Business Impact:* Contact centers allow for effective, high-volume interactions with customers and prospects across multiple contact channels. They are generally considered an essential part of customer support for midsize and large organizations. In addition to customer support, contact centers are used for telemarketing, collections and help desk functions.

*Benefit Rating:* High

*Market Penetration:* 20% to 50% of target audience

*Maturity:* Early mainstream

*Sample Vendors:* Aastra Technologies; Alcatel-Lucent; Aspect; Avaya; Cisco; Computer Talk Technology; Echopass; Genesys; inContact; Interactive Intelligence; LiveOps; Mitel; NEC; Oracle; SAP; Siemens Enterprise Communications; Transera

***Recommended Reading:*** "Magic Quadrant for Contact Center Infrastructure, Worldwide"

## Speech Recognition for Contact Center Applications

***Analysis By:*** Steve Cramoysan

***Definition:*** Speech recognition technology is used for contact center applications, such as customer call routing, commands for navigation, data entry and transactional self-service functions. Directed dialogue, in which the system prompts the caller through a series of questions, and a menu of answers, is the most commonly used and proven approach. Directed dialogue speech recognition is more limited, compared with natural-language phrase recognition in which the user can respond freely to an open-ended question and the system routes the call accordingly.

The prompts and responses in natural-language speech recognition are far less constrained than in directed dialogue speech recognition. For instance, callers can express their request in their own words, rather than be constrained to a limited dialogue. An example would be "How may I help you?" applications at the front end of a call center. Natural-language speech recognition can also be applied alongside directed dialogue call routing approaches where there are points in the call routing tree where recognition rates are challenged. The natural-language technique can often make the corrections needed to allow more of the call to be managed by the interactive voice response (IVR) application, rather than transferring the call prematurely to a call center agent.

Speech recognition is just one key part need for a call center solution, which will consist of an IVR platform, speech recognition engine, tools, application development and system integration.

Speech recognition is also used in auto-attendants to displace or augment switchboard operators, and in other applications to provide access to telephony features such as voice dialing and voice mail.

***Position and Adoption Speed Justification:*** The benefits of speech recognition are well-established in some applications, particularly those that require the user to select from a large number of predefined items, such as city names or transaction types. Improvements in recognition rates, design tools and technology standards are driving the adoption of speech recognition technologies in these applications. Natural language speech recognition expands the range of applications that can be addressed. Although there are many customer deployments, these applications tend to have higher purchase and implementation costs, take a long time to deploy, and have high ongoing maintenance costs. Best practices for managing these applications are evolving. The business case for speech recognition-enabled applications needs to be considered relative to alternative approaches limited to DTMF (touch tone) capabilities of the IVR platform, and agent-managed interactions. For this reason, speech recognition is more strongly adopted in North America and Western Europe than it is in other regions in which the business case is weaker and there is lower acceptance of automated applications in the phone channel for customer service.

***User Advice:*** The most critical factors influencing success and reducing risk are properly identifying the application (some areas and demographics work better than others), proper design of the voice user interface, selection of the appropriate speech engine, selection of the optimal development approach and tools, and thorough ongoing tuning and evaluation. Natural language permits menu

systems to be collapsed, enabling the caller to reach the service required faster and thus reducing call duration. They can be used for call routing in call centers, account inquiries, and other simple service or routing requests such as, "I've been charged for a call I didn't make." The technology can also be applied to improve containment and automation rates within existing directed dialogue applications.

The strongest business case tends to be in high-volume call center environments, and adoption is seen most frequently in business-to-consumer organizations such as retail, financial services, and telecommunications companies. For transactions requiring multiple predefined pieces of information from the caller (such as a ticket purchase), a directed dialogue approach may be a more-effective solution.

Plan for ongoing maintenance of speech-recognition-enabled applications. Using professional services that are experienced in speech recognition technology is the best way to start a project. Organizations wishing to bring parts of a development in-house should work closely with proven third-party professional services teams on several applications to develop the skills and competences.

Select products that support standards such as Media Resource Control Protocol (MRCP), which allows greater portability between speech recognition engines.

**Business Impact:** Well-designed and deployed speech recognition for telephony and contact center applications enables enterprises to build an automated service to allow callers to access functions such as travel reservations, order status, ticketing, call routing, directory services, auto-attendants and name dialing. Banking applications include account inquiries, fund transfers, bill payment and stock trading. Additionally, it is used to enable staff to access and control communication systems, such as telephony, voice mail, email and calendaring applications, using their voice.

**Benefit Rating:** Moderate

**Market Penetration:** More than 50% of target audience

**Maturity:** Mature mainstream

**Sample Vendors:** Loquendo; LumenVox; Microsoft; Nuance; Telisma

**Recommended Reading:** "MarketScope for IVR Systems and Enterprise Voice Portals"

"Create a Company-Wide Plan for Automated Speech Recognition"

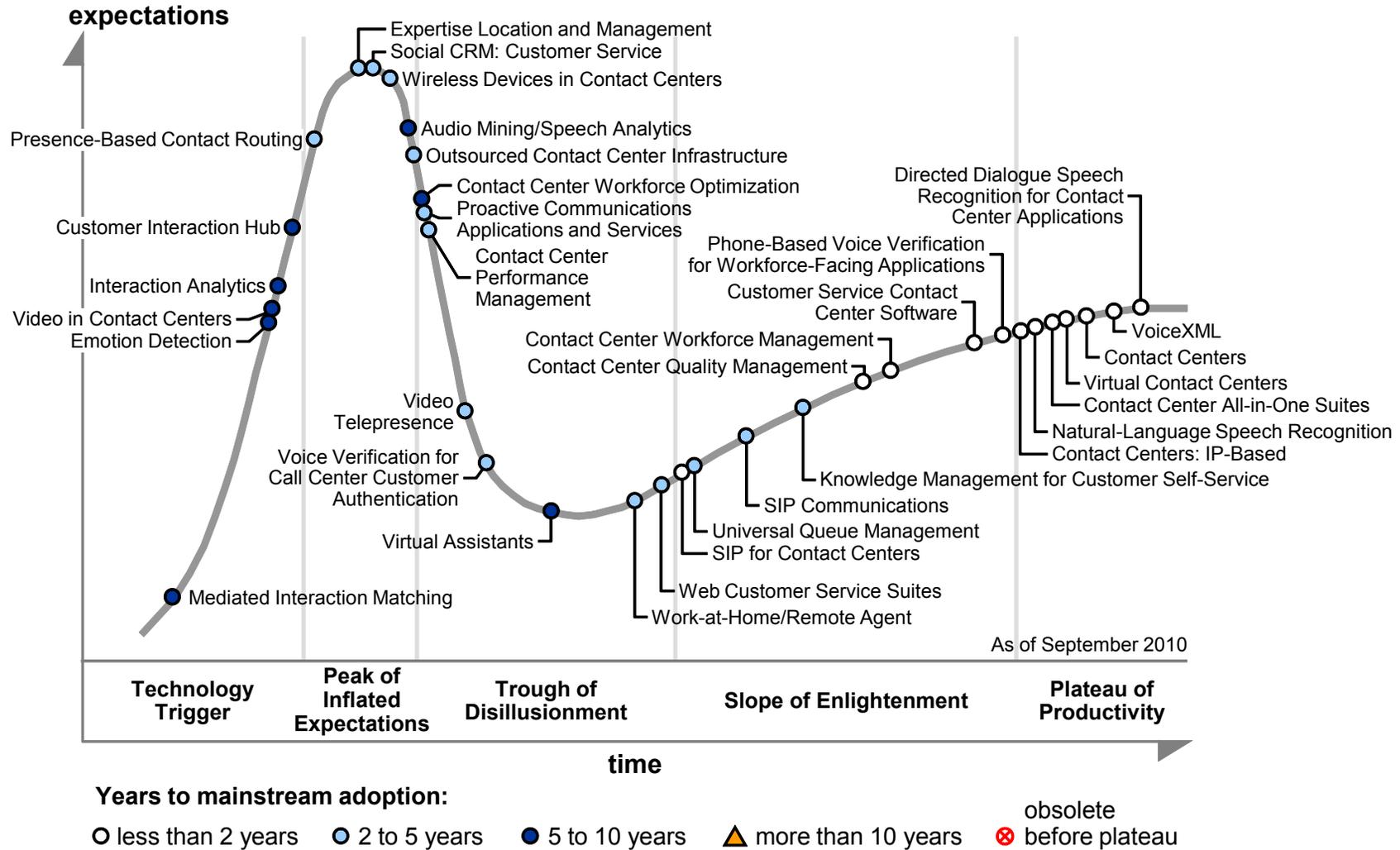"Contact Center Analytics: Engines and Use Cases"

"Most Valuable Technologies: Survey Results for Emerging-Technology Adoption and Management"

"Forecast: Speech Recognition Telephony Software, Worldwide, 2002-2011"

## Appendixes

Figure 3. Hype Cycle for Contact Center Infrastructure, 2010



Source: Gartner (September 2010)

## Hype Cycle Phases, Benefit Ratings and Maturity Levels

### Table 1. Hype Cycle Phases

| Phase | Definition |
|---|---|
| *Technology Trigger* | A breakthrough, public demonstration, product launch or other event generates significant press and industry interest. |
| *Peak of Inflated Expectations* | During this phase of overenthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the technology is pushed to its limits. The only enterprises making money are conference organizers and magazine publishers. |
| *Trough of Disillusionment* | Because the technology does not live up to its overinflated expectations, it rapidly becomes unfashionable. Media interest wanes, except for a few cautionary tales. |
| *Slope of Enlightenment* | Focused experimentation and solid hard work by an increasingly diverse range of organizations lead to a true understanding of the technology's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools ease the development process. |
| *Plateau of Productivity* | The real-world benefits of the technology are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. Growing numbers of organizations feel comfortable with the reduced level of risk; the rapid growth phase of adoption begins. Approximately 20% of the technology's target audience has adopted or is adopting the technology as it enters this phase. |
| *Years to Mainstream Adoption* | The time required for the technology to reach the Plateau of Productivity. |

Source: Gartner (December 2011)

### Table 2. Benefit Ratings

| Benefit Rating | Definition |
|---|---|
| *Transformational* | Enables new ways of doing business across industries that will result in major shifts in industry dynamics |
| *High* | Enables new ways of performing horizontal or vertical processes that will result in significantly increased revenue or cost savings for an enterprise |
| *Moderate* | Provides incremental improvements to established processes that will result in increased revenue or cost savings for an enterprise |
| *Low* | Slightly improves processes (for example, improved user experience) that will be difficult to translate into increased revenue or cost savings |

Source: Gartner (December 2011)

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Table 3. Maturity Levels

| Maturity Level | Status | Products/Vendors |
|---|---|---|
| *Embryonic* | ▪ In labs | ▪ None |
| *Emerging* | ▪ Commercialization by vendors<br>Pilots and deployments by industry leaders | ▪ First generation<br>High price<br>Much customization |
| *Adolescent* | ▪ Maturing technology capabilities and process understanding<br>Uptake beyond early adopters | ▪ Second generation<br>Less customization |
| *Early mainstream* | ▪ Proven technology<br>Vendors, technology and adoption rapidly evolving | ▪ Third generation<br>More out of box<br>Methodologies |
| *Mature mainstream* | ▪ Robust technology<br>Not much evolution in vendors or technology | ▪ Several dominant vendors |
| *Legacy* | ▪ Not appropriate for new developments<br>Cost of migration constrains replacement | ▪ Maintenance revenue focus |
| *Obsolete* | ▪ Rarely used | ▪ Used/resale market only |

Source: Gartner (December 2011)

## Recommended Reading

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

"Magic Quadrant for Contact Center Infrastructure, Worldwide"

"Hype Cycle for CRM Customer Service and Support, 2011"

"Magic Quadrant for CRM Customer Service Contact Centers"

"Understanding Gartner's Hype Cycles, 2011"

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