EXECUTIVE SUMMARY

As enterprises increasingly are discovering, Internet Protocol (IP) technology enables more than cost-effective telephony. It also facilitates a range of new capabilities that enhance business operations and reduce expenses. Among the more intriguing is the IP-enabled contact center, a more flexible, cost-effective and scalable variation of the traditional call center. By leveraging a converged voice and data infrastructure to IP-enable their contact centers, businesses can reduce expenses, streamline communications, more efficiently, distribute and manage call center resources and provide new enhanced services, plus a host of other benefits.

A major factor driving development of the IP contact center has been the maturation of three enabling protocols. These standards – including Multiple Protocol Label Switching (MPLS), Session Initiation Protocol (SIP) and Voice eXtensible Markup Language (VXML) specifications – are the fundamental technologies necessary for a next-generation contact center. By utilizing a standards-based architecture enabled by these protocols, enterprises derive enormous value, including the agility to operate effectively in an increasingly competitive business environment.

It is this value that drives enterprises to seek a better understanding of the standards at the heart of the IP-enabled contact center. The first in a series, this white paper explores the three key enabling protocols and how they are transforming the contact center industry.

Overview

Most contact center managers fully realize just how complicated their infrastructure has become. Many if not most contact centers rely on a complex amalgam of proprietary systems, legacy equipment, disparate applications with different interfaces and separate infrastructure for voice and data. In addition, a typical contact center comprises thousands of devices, including Automatic Call Distributor (ACD), Interactive Voice Response (IVR) and Private Branch Exchange (PBX) platforms, as well as sundry routers, gateways, servers and PCs. And the addition of each new proprietary “closed” element into the works usually makes the situation more convoluted, not less.

Compounding matters is the very nature of the telephone network. Because calls are routed through an intricate maze of public and private networks, information regarding calls is extremely limited and hard to pass from one voice network to another.
Moreover, databases and applications that utilize this information have grown highly complex, making it difficult to effectively manage contact center operations.

Indeed, the task for most enterprise contact center managers is only growing more difficult. With rapid call volume growth, the ongoing need for improving customer satisfaction and the increasing challenge of retaining valuable contact center agents, the complications of managing are significant. As Elizabeth Herrell of Forrester Research, Inc. stated in a recent report, “Contact centers that continue supporting customers with aging technology risk falling behind competitors in delivering first-class services.”

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Elizabeth Herrell
Forrester Research, Inc.

Enterprises that leverage IP technology gain valuable benefits beyond the contact center. The access savings accrued from consolidating both voice and data traffic onto a common infrastructure cannot be understated. And savings are multiplied when enterprises utilize the global footprint of a communications service provider.

**Unlocking the Value of MPLS, SIP and VoiceXML**

An IP contact center with the agility to support rapid growth and new applications and business processes must be interoperable and scalable as well as easy to deploy and manage. Three major protocols – MPLS, SIP and VoiceXML – provide the foundation for such an architecture. Each of these standards offers unique capabilities and yields numerous benefits for enterprise contact center operations. By understanding them, organizations can better appreciate the value of IP enabling their contact centers.

**MPLS – Multi-Protocol Label Switching**

For IP contact center applications, MPLS provides the means to send voice and data traffic between multiple contact center locations securely and cost effectively. In an MPLS network, an incoming packet is labeled by an edge router and then...
Point of View: IP Enabled Contact Centers

forwarded along a label switch path (LSP) provisioned across an IP network. On an IP network, each LSP contains traffic from a single source and remains separate and therefore secure from users on other LSPs in an IP infrastructure.

MPLS labels can be configured to ensure packets take the most appropriate path to guarantee service quality or to avoid network congestion. This makes it possible to send Voice over IP (VoIP) traffic with high Quality of Service (QoS) and minimal impact from impairments such as delay, packet loss and jitter. In addition, MPLS labels can be used to create VPN tunnels, making it possible to send voice calls securely across an IP infrastructure.

MPLS technology can be used to send voice calls securely between all locations in an enterprise. It can also be used to connect calls between multiple MPLS VPNs. In a legacy VPN environment, accomplishing this is difficult, time consuming and expensive. However, in an MPLS network, calls can be switched between the MPLS VPN of one organization and another (or between multiple organizations) without using additional intermediary equipment or extranet capability, or fashioning complex agreements. Thus, organizations can interconnect their contact centers with those of partners and suppliers easily and cost effectively.

Moreover, MPLS networks utilize capacity more efficiently than traditional transport methods due to the use of dynamic bandwidth allocation. During periods of low call volumes, MPLS networks can allocate additional capacity for data traffic. When call volumes increase, this extra bandwidth is switched back to support voice calls. This allows organizations to satisfy bandwidth requirements with a single transmission link instead of purchasing extra capacity to support applications needed for short durations.

Organizations that use MPLS networks also gain from operational simplicity. Because voice and data service traverse the same physical network, IT managers can perform operations for maintenance, configuration and repair using a single consolidated management platform. This reduces the complexity, cost and time associated with managing separate systems for individual services.

SIP – Session Initiation Protocol

This next-generation standard enables tremendous cost savings, flexible call routing, plus many exciting new features for IP contact center applications. SIP establishes interactive communications between two or more people over an IP network. With SIP, the signaling traverses the network separately from the call media. This enables information about the call (and caller) to be routed throughout the network before the call reaches its final destination, providing wide flexibility regarding where to end the call.

For example, companies that utilize SIP along with a network-based IP contact center solution (see sidebar on Page 6) do not have to terminate the call on a premises-based ACD and then either perform a transfer-connect or route the call over their own private network for completion at
another location. With a network-based solution, call termination requires only one DSO of access, saving considerable transport costs over premises-based solutions that effectively require twice the access capacity.

Another major advantage of SIP is its ability to send information about the caller along with signaling data. Such capability presents a variety of intriguing new opportunities for enterprises, including the ability to provide consistent and historical information about customers to all call center agents, across all departments. This makes it possible to provide a consistent user experience and eliminate the need to ask for repeat information, leading to improved customer service.

In addition, the ability to send data independently of the media stream enables traditional PBX-like features, such as hold, transfer, and multiple-line appearances, plus new Web-enabled features such as click-to-talk on any standards-based client device. Elizabeth Herrell of Forrester Research, Inc. states, “SIP contact centers also support new applications that extend the reach of contact centers beyond customer service reps to external experts within an organization and enable a closer relationship with customers by integrating collaboration applications such as advanced conferencing, presence, and interactive video kiosks.”

Voice XML

This next-generation protocol is spurring a revolution in self-service. Similar to HTML, the standard language used to create and retrieve Web pages, VXML enables telephone access to Web services using a combination of technologies, including audio files, text-to-speech, or speech recognition. Based on an open, platform-independent standard rather than proprietary technology, VXML plugs into the Internet and that’s its strength. Because it leverages the ubiquity of the Internet and easy service creation environment used for the Web, VXML eliminates the need for proprietary IVR software, reducing equipment costs for enterprises.

Used for contact center applications, VXML enables enterprises to provide the same consistent and convenient user experience regardless of whether the caller seeks help over the Internet or the phone. Callers dialing into a VXML-powered contact center can fill out forms on the phone instead of using a paper or online form, or they can request and receive services now only provided by live operators, as well as other transactions.

Combined with the flexible call routing capabilities offered by SIP, VXML can be harnessed to provide a cost-effective alternative to traditional IVR.

| MPLS | Supports highly-secure VPN tunnels within an enterprise
|      | Simplifies maintenance, configuration and repair with consolidated voice/data management |
| SIP  | Saves money by reducing call transport costs
|      | Supports traditional PBX-like features, as well as new web-based features
|      | Improves customer service by providing a consistent experience |
| VXML | Enables telephone access to web services, with speech recognition, audio interfaces and text-to-speech technology
|      | Eliminates need for proprietary IVR software
|      | Provides consistent, convenient service for web and phone customers |
systems. Using VXML coupled with SIP, enterprises can reduce the number of expensive IVR farms and consolidate IVR operations in a central location. Similarly, businesses could leverage VXML for call recording and playback, greatly reducing costs.

**Interoperability Issues**

Unfortunately, there always is a “gotcha” when it comes to emerging standards. It’s rare when a product claiming plug-and-play compatibility works as smoothly as advertised. Moreover, a standards compliance stamp of approval provides no guarantee that a particular vendor’s protocol implementation will interoperate with every network element.

This situation has arisen partially by design. Many standards are purposely left open so developers can revise them in response to new requirements and demands. For example, while SIP’s core “trunking” specifications are relatively stable, many of its advanced features remain fluid and undefined.

Given the complexity of today’s contact center, enterprise contact center managers face a significant challenge ensuring that all platforms, equipment, systems and collection of protocols work together. With that said, a provider also plays a pivotal, if not central, role in the process of certifying and ensuring interoperability of all elements in a enterprise IP contact center network.

**The Power of the Network-Based Contact Center**

A second factor businesses should consider before IP-enabling their contact centers involves physical location. Placing devices on each enterprise site can be highly expensive from a Cap-ex/Op-ex perspective. The continuing addition of new capabilities and services to meet changing requirements and demand can also drive up costs further. Plus the process of deploying, operating and managing each device consistently can be extremely complex.

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The call abandon rate has been reduced by 60 percent, which means potential customers now abandon their calls less than one percent of the time.

Jess Reed  
CIO, GEICO

By “virtualizing” functions and harnessing solutions offered by a service provider, contact center deployment becomes much more cost effective and trouble free. Features and new capabilities can be added and subtracted as needed; agent pools can be shaped and altered in response to changing requirements; equipment, operations and real estate costs become less of a burden and maintenance and management become much less daunting of a task.

GEICO, one of the fastest growing insurers in the U.S. is experiencing the benefits of utilizing network-based services within its contact center. Utilizing AT&T Resource Manager, an advanced call routing solution, GEICO now answers more than 90 percent of its calls within 20 seconds, an appreciable increase over the previous service levels.

According to Jess Reed, GEICO CIO, the call abandon rate has been reduced by 60 percent, which means potential customers now abandon their calls less than one percent of the time.

“We believe this service level has helped us to increase customer satisfaction,” he said.
Benefits of Network-Based Communications

Businesses gain substantial benefits from utilizing a service provider’s infrastructure instead of their own, including:

• **Lower Capital Costs** – With equipment and applications residing within the provider’s infrastructure, enterprises can shift from fixed costs to variable expenses and respond to changing business conditions with greater agility.

  • **Higher Availability** – With built in redundancies and a larger number of circuits available to reroute traffic when unexpected events occur, a service provider’s network is much more reliable and accessible than a typical enterprise infrastructure.
• **Improved Quality** – With the capacity, equipment and resources necessary to engineer the highest possible voice quality, service providers consistently outperform solutions maintained by enterprises.

• **Enhanced Visibility and Control** – With visibility into layer 2 and layer 3 traffic, network-based solutions enable IT managers to shape and monitor the call traffic in real time with much greater precision and control.

• **Improved Security** – With the resources and expertise to proactively and predictively monitor the network to stop potential threats before they occur, network-based solutions provide a much higher level of protection for all connected users.

• **Global Reach** – The vast global infrastructure of a service provider enables enterprise customers to design an IP contact center solution that fits their exact needs.

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**The Value of AT&T**

AT&T’s Contact Management Services deliver a broad range of integrated capabilities that enable agents to interact with customers and suppliers across multiple communication channels. Whatever the medium – voice, data or through the web – AT&T Contact Management Services can help businesses take advantage of the opportunities outlined in this paper.

Look to AT&T’s Contact Management Services to help your business:

• Evolve to an IP environment at your own pace
• Prepare for anticipated business growth and change
• Optimize agent productivity
• Leverage existing investments
• Integrate multimedia services to ensure a consistent client experience

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**Other Resources**

For more information please go to the following site:
http://www.business.att.com/

Forrester Research, Inc. “Why Contact Centers Need To Evolve: Connectivity, Collaboration Represent Next-Gen Applications” May, 2005

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