



Convergence: The Foundation for Unified Communications

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Unified Communications – Anticipation and Reality

The benefits of Unified Communications (UC) have been touted with enthusiasm for quite some time. By integrating disparate communications systems, media, devices and applications, UC promises to free up time, increase productivity, streamline communication channels, and provide better customer experiences. The widespread use of UC applications for collaboration, telecommuting, presence, automated call centers and automated business operations have only begun to materialize, however.

Convergence, on the other hand, has generated proven results and tangible cost savings for several years running. Convergence is essentially the implementation of and migration to IP telephony (IPT) systems that eliminate costly non-digital PBX equipment. It helps to think of convergence as the network architecture that will be required for UC, and, conversely, UC as the set of applications that need a converged infrastructure to perform efficiently. Voice over IP (VoIP) is the most commonly understood converged application. With UC -- VoIP, data and video traffic use the same transport infrastructure (where voice is simply digital data that is routed across the network). Other applications could include unified messaging; presence-aware communications systems; integrated collaboration with office software tools; video conferencing; and more.

Convergence, therefore, is the key to UC, and cost reduction has been driving convergence in the marketplace. By eliminating local loops and optimizing bandwidth utilization for voice and data, converged networks greatly reduce the direct costs associated with phone calls, as well as the indirect costs associated with network management and maintenance. Convergence technologies include Internet Protocol (IP)-PBX and Voice over IP (VoIP) equipment, as well as the software and hardware (like SIP phones) required for IPT. As convergence becomes operationalized and mature, more enterprises will naturally want to leverage the platform and explore UC options to enhance productivity, improve user experiences and create more value.

This solution brief explores this evolving process, offers strategic preparation and deployment guidance, and provides a detailed proof-of-concept based on Global Crossing's experience with convergence and UC.

UC Defined

Unified Communications: The integration of communication and collaboration applications on a converged IP network

Applications include integrated:

- Fixed and mobile voice
- E-mail
- Voice mail
- Fax
- Video/Web conferencing
- Instant messaging
- Presence-aware communications
- Collaboration and white-boarding
- Communication/project portals

The definition of UC changes depending upon the position of a particular vendor or service provider in the marketplace. For example, telephony providers describe UC as a combination of unified messaging and telephony capabilities. Collaboration vendors define UC in terms of adding telephony to collaboration tools. Office productivity suite and OS vendors, such as Microsoft, emphasize the value of presence across multiple applications. This fits their Office Communication Server (OCS) business model.

UC Market Readiness

IP voice and data convergence is an ongoing trend with partial penetration in the marketplace. Although many enterprises have deployed VoIP, the Unified Communications market is still in its infancy. According to a Forrester report published in February, 2008 entitled "Top Unified Communications Predictions for 2008," the demand and interest for UC services continues to gain traction with 16% of enterprises saying they've fully deployed or have a UC upgrade underway, 20% saying they are in the process of rolling out or deploying UC and another 36% of enterprises evaluating or piloting UC. The Forrester report also points out that when asked which type of vendor they prefer for the purchase of a UC solution, 51% said that they would buy from an existing voice solution provider suggesting that buyers trust the voice expertise and experience of the supplier of their IP PBX or managed voice service.

Cost savings continues to be the main business driver for convergence projects and the UC initiatives that follow. Survey respondents consistently cite lower total cost of ownership (TCO) as the main driver for convergence. Very few consider UC benefits, such as automation, presence and collaboration, when asked about motivation. While decision-makers and IT groups know where the migration is headed, they're still focused on practical costs. This is especially true when considering legacy PBX replacement costs. It typically costs \$100 to \$800 per user to replace legacy PBX with new infrastructure and handsets*. This is an important consideration for companies with large investments in existing analog equipment. These per-user costs need to be measured against the toll bypass, maintenance, and management savings realized with convergence. (See proof-of-concept section on page 4.) Thereafter, Unified Communications ROI can be measured as applications come online, productivity increases, and other hard cost savings – such as telecommuting, teleconferencing, and reduced travel – are considered.

Simply put, convergence has to come before extended UC penetration. Any proposal that pushes a solution such as

Office Communication Server before sufficient IPT deployment has been completed is putting the technology cart before the horse. In fact, many recent OCS proposals have stalled because IT teams cannot integrate the platform into their existing business systems.

Convergence Adoption Scenarios

While some enterprises have migrated to VoIP completely, a mixed scenario is often more common. Some organizations offer VoIP for the desktop, while still using TDM trunking for PSTN, for example. Others complement early VoIP deployments with SIP trunking solutions to replace PBX equipment and provide end-to-end VoIP call flow. SIP trunking uses a SIP-based interconnection between IP PBXs in order to replace traditional TDM lines.

At the user level, organizations are using both Ethernet wired and Wi-Fi SIP phones to connect to the VPN and place calls which bypass tolls. Global Crossing's On-Net service enables this type of site-to-site toll bypass scenario. Some remote workers have eliminated land lines completely, using IP softphones to send and receive calls via laptop and internet connection. Services like Skype have gained widespread mainstream usage, for example. Industry trends indicate broader acceptance of SIP phones and software-based solutions like Microsoft's OCS as time goes on.

In addition to toll and trunking savings, a converged network greatly reduces operational costs. Telecom and IT departments used to support three different networking groups. Just 10 years ago, separate LAN, WAN and telecom groups were required. IP convergence, however allowed LAN and WAN to merge. VoIP convergence morphs this network team with the telecom team, treating voice as a network application.

Simple Convergence Initiatives

The convergence process includes two general phase-in/phase-out initiatives. First, organizations need to implement an MPLS network (or equivalent). MPLS networks handle virtually any kind of traffic – voice, video, data, – on a single network infrastructure. MPLS is a secure, reliable workhorse technology designed for mixed traffic. The acronym stands for Multi Protocol Label Switching. It essentially tags or labels packets so they can be analyzed and routed correctly based on Quality of Service (QoS) at the edge of the network. QoS enables efficient support for real-time voice and video, as well as service level agreements (SLAs) that guarantee bandwidth.

Next, organizations need to phase out legacy analog PBX equipment while deploying MPLS, SIP trunking, software-based IP phones, and wired and wireless SIP handsets for VoIP. Equipment deployments and replacement can be gradually phased in over a 12- to 18-month period. A gradual convergence approach ensures a solid foundation for UC initiatives down the line.

One Global Crossing customer in the high tech vertical followed this approach. The IT solutions provider first deployed a converged Global Crossing network and then operationalized the

Global Crossing Savings Summary 2005 - 2006

- \$750,000 – IP telephony and internal voice VPN reduced internal long distance costs
- \$30,000 per month – Ongoing savings from Global Crossing Voice VPN
- \$700,000 – Reduced MACD costs
- \$650,000 – Saved by converting ISDN for IP Video service to IP connections

platform. Global Crossing IP VPN Service securely transports their business-critical voice, data, and videoconferencing traffic over a scalable, flexible, secure IP MPLS network. The network connects 44 locations in Europe, Asia, North and Latin America. Users trained on the new equipment, and the IT staff quickly learned how to make configuration changes.

Proof of Concept: Global Crossing Internal Case Study

Global Crossing conducted a similar transition. The company created a converged VoIP network for corporate-wide communications, saving \$3.6 million in internal telecom costs in the process. \$1.3 million was saved by eliminating voice and Centrex circuits. Monthly savings continue to accumulate.

Global Crossing's Voice VPN keeps worldwide internal calls on the network, which bypasses previous PSTN tolls. The On-Net branded service also allows users to dial fewer numbers for long distance and international calls. On-Net calls can be made from local land lines, wireless devices, and laptops. All contact information is immediately available via a centralized directory that is available to email clients, device-based address books, and any other contact management application. The system continues to provide savings, since external vendors are not required to change or modify a proprietary PBX. Move, Add, Change and Delete (MACD) costs are significantly reduced, because changes can be easily made by IT staff (and even semi-technically proficient office staff).

Global Crossing Convergence Solutions

Global Crossing IP/MPLS Domain

Global Crossing's IP/MPLS convergence solution extends multi-service capabilities in both fully converged, as well as partially converged, environments using both legacy and next generation access transports. Our IP/MPLS platform provides transparency to both the application, as well as the

terminating router, by utilizing multi-access border routers and encapsulating all IP traffic in labels at the core. The solution accommodates legacy interfaces (PSTN), as well as converged, IP interfaces, which enables gradual transitions to converged networks and, eventually, UC applications. QoS features ensure consistent service levels for voice and video over both LAN and WAN facilities, and link optimization manages bandwidth for peak efficiency.

The platform offers a wide array of services and solutions, including:

- Managed network services
- Managed IP VPN
- VoIP services
- Video conferencing solutions
- Meeting and collaboration solutions
- Applications performance management
- Network monitoring
- Media streaming
- And more..

Converge First, Then Deploy UC Applications

The key to a successful UC roadmap is convergence. With the right IP infrastructure in place, you can start realizing significant cost savings and ROI immediately. Productivity-enhancing UC initiatives can then be layered on as new technologies evolve and mature.