Presence: The Case for Adopting a Converged Network

By Michael J. Vincent

Senior Network Systems Consultant

INS

Presence: The Case for Adopting a Converged Network

By Michael J. Vincent, SNSC (CCDP, CCNP, CISSP)

Introduction

With instant messaging usage on the rise in both home and business networks, users are embracing the technology as the next generation email. Whether corporate standards exist for an instant messaging service or not, many enterprise users are making use of instant messaging clients to quickly contact co-workers when they appear online. This quick view of when a user becomes available is known as "presence."

Presence is best described as the "online" or "offline" view of contacts that an instant messaging contact window provides. In the future, presence technology will migrate away from just instant messaging and become the de facto network "super-software" that integrates applications and devices to provide location services and seamless end-user connectivity.

Whether an enterprise chooses to have an instant messaging solution or not, the idea of a network presence service in the not too distant future is almost unavoidable. As business demands drive newer and more diverse ways of interaction between staff and customers, presence technology will become more and more important to determine where a user is and how best to reach them. Presence-enabled applications will provide the underlying location service, while a converged network – not a presence service – will be the technology that makes the communication paths possible.

This white paper looks at the emerging technology of presence and its role in future communications. It discusses the difference between presence – a location service – and a converged network – the design, equipment and protocols that make the next generation of end-user connectivity a reality. Finally, a case study examines a converged network and the ease with which it is positioned for presence technologies.

The User Perspective

There are two user types that presence will accommodate: the calling party (those initiating the initial communication) and the called party (those receiving the initial communication request). With presence, the calling party will no longer need to worry about the best way to contact someone. Presence will know if they are in the office or working from home, if they read their email regularly or are away from their computer, or even if they are at a meeting where they can't answer their cellular phone. Likewise, the called party does not need to update their office phone voicemail with an away message, set an out-of-office reply on their email, forward their calls to their cell phone while they're in the car on the way to an offsite meeting, and then, finally, catch up on all their emails at the hotel after hours.

The Calling Party

Cellular phone users currently can contact their online friends with text messaging that can be accessed through their cell phone's web browser. Cisco Unity provides for email and voicemail integration. A user trying to contact a colleague has many options to pick from that knowing where the called party is located greatly simplifies the choices and saves time. Trying the "laundry list" of available contact points can be slow and inefficient.

With presence-enabled applications, the calling party uses their presence interface to contact the called party. The presence service determines the best means of reaching the called party by their location and personally set preferences, and facilitates the communication channel. Ideally, this is done transparently to the calling party.

The Called Party

From the called-party point of view, a user is tracked by the presence service and the best method of contact is published to a presence directory. A user can set rules based on time of day or integrate with their calendar for busy times. Future enhancements to existing applications can help provide presence data to the presence directory.

The called party can have a telephone, a desktop computer, a laptop computer, a videoconferencing terminal, a wireless phone, a cellular phone, a pager, a BlackBerry, and a PDA, and presence will track where the user is located based on what devices or applications they are currently using.

Convergence Revisited

Although presence technology promises the essential location service to determine where a user is located at a given point in time in relation to devices and applications used to contact them, a converged network is required to provide the infrastructure and protocols to unite the disparate contact points.

Convergence defines the design principles of integrated data, voice, and video over a single network infrastructure. A converged network improves efficiency, flexibility and cost optimization through:

▸ A single infrastructure and cabling plant for data, voice, and video

▸ Easier integration of data and voice for computer telephony applications (call centers, information gathering)

▸ Redundancy and resiliency through fault-tolerant devices and distributed systems

▸ Lower support costs for legacy PBX maintenance

▸ Less time to implement adds, moves and changes

Also, from a user perspective, a converged network improves service delivery through enabling the integration of contact points and providing enhanced services such as:

▸ Feature- and service-rich IP telephones

▸ Integration of voicemail and email

▸ Seamless desktop video capabilities

A lengthy return on investment (ROI) is the largest drawback to deploying a converged infrastructure in anything other than a "greenfield" scenario. Although costs are dropping, there is a high initial capital cost associated with acquiring IP telephones, call servers, and network switching gear to support data, voice, and video with a Quality of Service (QoS) guarantee. However, the case for a converged network will be built upon enhanced services and improving the customer experience, not by potential cost reductions.

Presence is not the cure all for ROI on a converged network. But foregoing a converged network rollout in hopes that presence will unify your end users is a mistake. Presence and convergence are not competing technologies – they are complementary, so much so that without convergence, presence may not provide the expected service and customer experience improvements that are envisioned.

The Converged Network

A converged network implies the deployment of Voice over IP (VoIP) at the very least. Video over IP can be integrated with a properly designed converged network, although it is not a requirement at the outset. This ease of application integration demonstrates the first major advantage of a converged network.

From a data network perspective, the bits carried are from many different applications. They could be Telnet or FTP traffic, a word processing document, or spreadsheet copied from a server or sent via email. In a converged network, there is no fundamental difference – the bits carried are just data from applications, although voice is now an application. Adding new services such as video, wireless, or even voice over wireless, is as simple as adding a new application. As with any new application one must provide the proper servers, ensure there is bandwidth, configure proper QoS guarantees, and provide access to the end users.

A converged network requires the consolidation of network infrastructure and the integration of as many applications and contact endpoints as possible. This provides users with the flexibility to use several different types of communication devices or applications transparent to other end-users preferences.

Convergence and Presence Together

Taking the previous example of a user with multiple communications devices, a converged network not only provides the infrastructure for the devices to connect with each other, but the back-end applications and protocols to make this interoperability a reality.

In Figure 1, User 1 has several different devices and applications at his disposal: a VoIP wireless phone that shares a line with his IP phone, a desktop PC with video integrated to his IP phone number, and a tablet PC that can be used throughout the enterprise wireless network. User 2 is at a remote site connecting to the converged enterprise network through a VPN client on her laptop. She has an IP software phone on her laptop that shares her in-office desk phone number, and she has a cellular phone.

Figure 1: Presence in the Converged Network
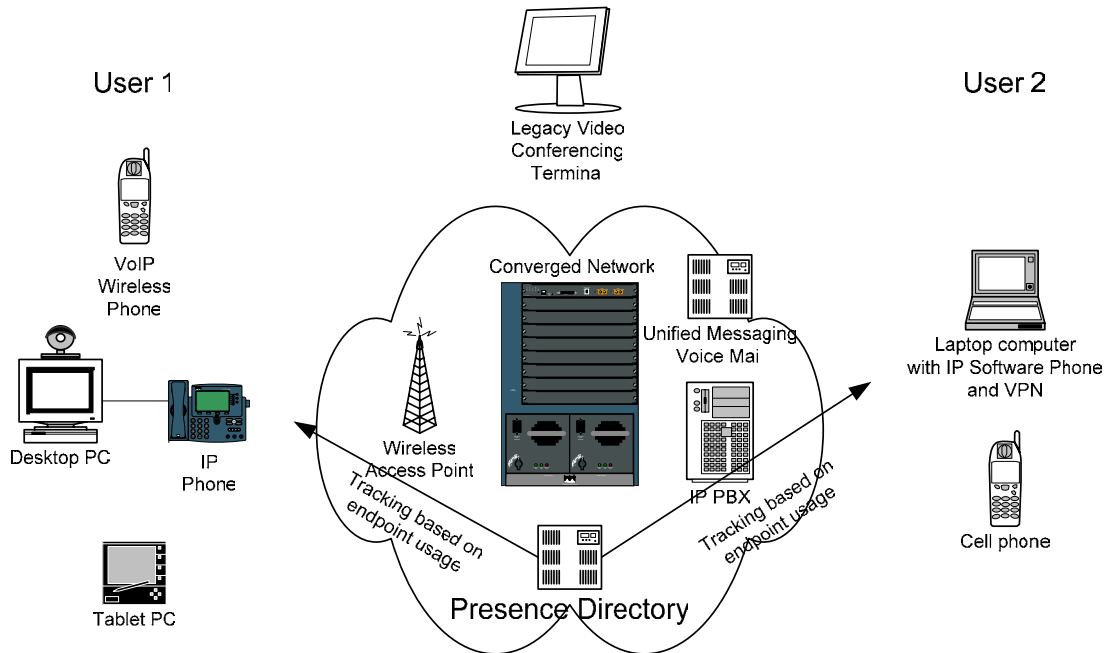
Depending upon vendor implementation, presence services track User 1 by the devices he uses. If he is active on his desktop PC, the presence directory logs his IP phone and email as the best possible communication methods. Likewise, when User 2 connects her laptop via a VPN and launches her software IP phone, it is published to the presence directory in lieu of her fallback presence status – her cellular phone – if all other contact endpoints are not online.

The converged network enables cross-platform/device/application connectivity with standardized protocols like Session Initiation Protocol (SIP). SIP unites diverse IP-enabled endpoints by a common signaling language. The abstraction of physical device addresses by SIP addresses allows directories to provide the lookup functions for user location. This endpoint transparency permits converged services such as unified messaging and desktop video to be deployed with common dial plans and directory services.

Presence is the final piece that enables end users to determine, not how to reach their colleagues phone or electronic mailbox, but how to reach them wherever they are via whatever device or application is at their disposal. Centralized presence servers track end-user availability as they log onto services and use applications. Integration with a user's unified messaging rulesets, preferences and calendar application allows presence to determine the best path to a given end user at any time.

Case Study: Preparing for Presence with Convergence

When a biotechnology firm asked INS to design and deploy the IT infrastructure for a new research campus, the challenge was to align the network design considerations with the client's business goals. The client's mission statement details the desire to understand the mechanisms of disease in order to develop better products for the worldwide community. To this end, they strive for:

▸ A seamless interaction between scientists both within the company and to its external partners

▸ The development of strategic alliances with both partner companies and research institutions

▸ The utilization of cutting edge science and technologies

INS deployed a converged network utilizing Cisco Call Manager as the IP PBX, Cisco core and access switches for both data and voice, dark fiber for high-speed metro connectivity, and access points for blanket wireless coverage. Video was delivered by merging an H.323 videoconferencing network with desktop video integrated to users' IP telephones. A unified messaging platform was chosen to allow transparency between traditional voicemail and email systems.

The converged network design provides the scientists several choices for both fixed and mobile communications while maintaining a concise and accurate directory for end users through the integrated applications the client chose to deploy. Collaboration between scientists and their counterparts both local and worldwide is simplified by a core set of IP enabled endpoints and applications on the converged network. Cost savings are realized by IP software phones limiting cellular phone roaming charges. Costs are further lowered while efficiency is increased by desktop video conferencing replacing face-to-face meetings for business groups dispersed between North America and Europe. Users now have the flexibility to work in the office, on the road, or at home and still remain productive by themselves or with their teams.

With projects on the horizon aimed at the deployment of a global numbering plan and directory integration and consolidation, the client is positioning for technologies like SIP to further abstract the communication initiation process from end users and allow them to interact and collaborate through diverse endpoints.

Finally, presence will complete the equation by delivering the real-time collaboration between scientists regardless of their location. While lab work must still done in-house, research, data sharing, administration, and team collaboration can all be done anywhere, anytime.

Conclusion

Converged networks provide the integration of multiple vectors of communication for end users. Presence establishes where a user is at a given time and the appropriate communication vector to that user. Presence is the smart contact application for a converged network.

Presence-aware applications on a converged network solve the problem of locating users. A user's interface to the network becomes transparent regardless of location allowing the deployment of traditionally centralized services to remote locations. Virtual call centers, mobile sales staff, and true telecommuting become possible with a converged network through VPNs, IP software phones and IP telephony integrated ACD and IVR systems. Finally, presence technology allows these geographically dispersed user groups to communicate and collaborate in real time providing productivity in a truly mobile workforce environment.

Together, converged networks with presence technology will provide for better collaboration between users. It will no longer matter where a user is located – in the cube next to you, in the headquarters office overseas, or at home. Presence will determine the user's location, and a converged network will provide the infrastructure and protocols to connect the end parties.

Positioning for presence today by designing and deploying converged networks that support unified messaging and integrated directory services will ease the adoption of presence technology when it becomes the next "super-application."

About INS

INS offers a comprehensive set of business and technology consulting services and software solutions to help organizations reduce operational risk, increase productivity, and support-revenue growth. Our IT Infrastructure Consulting Services deliver secure, business-centric infrastructures that integrate network, security, and storage technologies with best-practice operational frameworks. Our Immedient Business Solutions streamline and enhance business processes for enterprise project management and collaboration and analytics. And our Diamond IP Software provides flexible and scalable software solutions for managing today's complex IP networks. We have delivered tens of thousands of successful engagements

worldwide over more than a decade of operation. INS is headquartered in Santa Clara, Calif., and has offices in the U.S., Europe, and SE Asia. For additional information, please contact INS at 1-888-767-2788 in the U.S., +44 1628 503000 in Europe, +65 6549 7188 Asia, or +1-408-330-2700 worldwide.