

Developments Advance Web Conferencing

David Geer

Web conferencing has become an increasingly desirable option for businesses that don't want to spend the time and money it takes to fly employees around the world for meetings that don't require face-to-face contact.

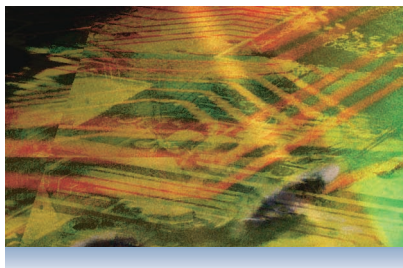
"The real key is reducing the time it takes to make a decision," explained Gerry Kaufhold, principal analyst with In-Stat/MDR, a market research firm.

As Figure 1 shows, global revenue from Web conferencing services increased 70 percent—from \$450 million to \$765 million—between 2002 and 2004 and will reach \$1.5 billion by 2007, according to Kaufhold.

Traditionally, Web conferencing has been offered as a service hosted by a third-party provider. However, three recent developments are changing the face of the technology.

Manufacturers such as eDial, Juniper Networks, Nortel Networks, and Polycom have begun selling Web conferencing server-based software systems that companies can run themselves on their internal network, dedicated servers, or network appliances. This approach enhances security, control over collaborative operations, and integration with existing communications infrastructures.

Vendors such as Cisco Systems, with its MeetingPlace application, are now combining service- and server-based conferencing—with some functions



handled by in-house servers and others by service providers—into hybrid approaches that try to provide the best of both worlds.

Meanwhile, the Internet Engineering Task Force (IETF) is working on Web conferencing protocols that promise greater flexibility, interoperability, and accessibility.

SERVICE-BASED WEB CONFERENCING

Web conferencing enables audio, video, document, and image exchanges among multiple participants over the Internet via technologies such as Webcams; Internet telephony; desktop sharing, which lets users remotely view and control one another's desktops; whiteboarding; text messaging; and chat.

As with instant messaging (IM), with Web conferencing applications, users can determine who is online and available for a meeting via presence technologies.

Web conferencing provides security—via encryption, digital certificates, and authentication—using Secure

Sockets Layer technology; proprietary SSL-based approaches; or transport-layer security, a successor to SSL.

Typically, providers such as Meeting-Bridge and WebEx have offered Web conferencing as a service. With these services, users pay providers for each conference and then call up meetings via a Web browser. The providers supply the bandwidth, interface, and tools such as those for coordinating schedules, sending participation instructions, and checking browser settings for compatibility. They also offer technical support to participants.

Advantages

Participating in a service-based conference costs considerably less than buying a Web conferencing server. Third-party services also eliminate the need for companies to have their own personnel to run, maintain, and fix the conferencing infrastructure.

These factors are ideal for companies that want to test the technology before buying their own server or that have small budgets and little or no IT staff.

Because the services are easily scalable, users can buy as much conferencing as they need at any time, explained Andy Nilssen, senior analyst with Wainhouse Research, a market analysis firm.

In addition, services, with their clearly defined fees, are good for businesses that pass all or some of the conferencing costs on to clients or partners.

Disadvantages

In some cases, frequent users can spend more paying for conferences one at a time than buying their own equipment. In addition, Web conferencing services pose a potential security risk because they bypass the normal security policies that a company's IT personnel establish.

Web conferencing services bypass policies because they require application sharing between participants, which enables system access from the outside. Also, conferencing-system bugs can create security vulnerabilities.

Hackers can exploit these problems to infect systems with malicious software, intercept documents and other files passed during sessions, or gain entry to conference participants' systems and files.

SERVER-BASED WEB CONFERENCING

Avaya's Web Conferencing Server, Juniper's Secure Meeting, and Polycom's WebOffice, shown in Figure 2, are examples of server-based Web conferencing systems.

In server-based approaches, companies operate their own Web conferencing systems. Their conferencing servers create and maintain a tightly coupled, real-time communications infrastructure under their control.

Tightly coupled systems have a central point of control and authorization to enforce conference rules about matters such as who has access to applications, explained Alan Johnston, cochair of the IETF's Centralized Conferencing Working Group and an MCI distinguished technical member.

Client software communicates with the conferencing server in various ways. For example, said Bernadette Golas, Avaya's director of product marketing for conferencing solutions, "Users connect to Avaya Web Conferencing Servers through a Java client that they download through their Web browser."

As with service-based systems, servers automatically check each potential conference participant's availability, identify those who can take part, and record the conference for later use by those who can't attend.

The servers enable a meeting using videoconferencing, Internet telephony, IM, document collaboration, and other communications tools available to participants via their browser-based interface.

Advantages

The server-based approach lets companies, not service providers, decide whether and when to upgrade conferencing systems. Companies also can

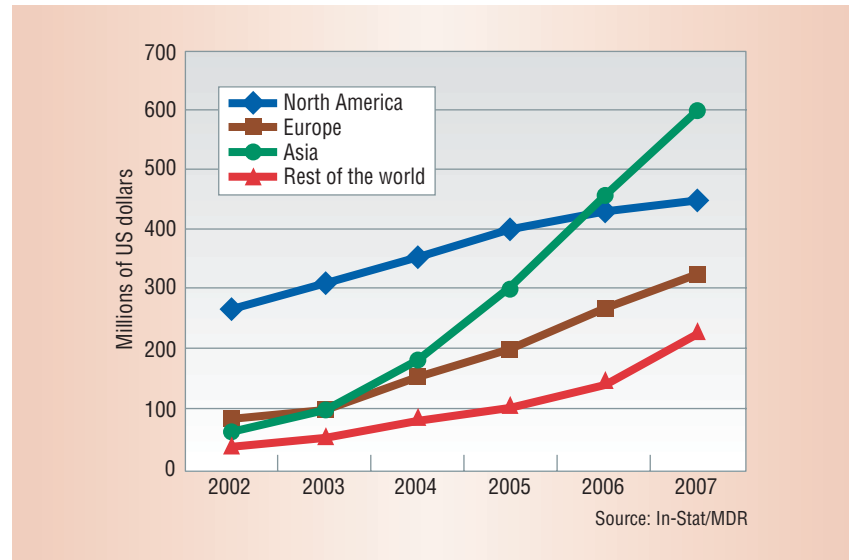


Figure 1. Revenue from Web conferencing services has increased throughout the world, particularly in Asia, and will continue doing so, according to In-Stat/MDR.

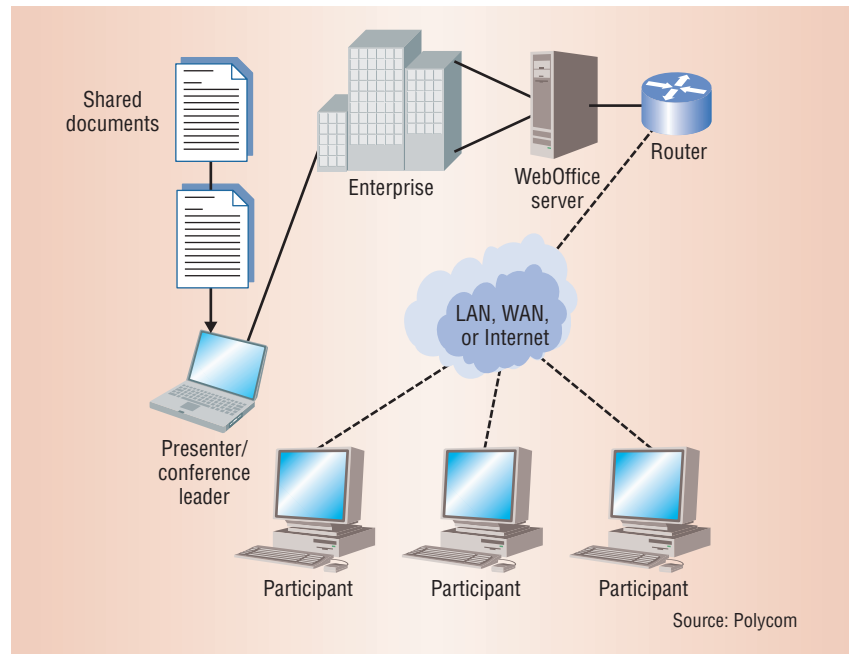


Figure 2. With Polycom's WebOffice server-based conferencing system, a company running its own equipment can start a session on an internal LAN or WAN with participants from inside the organization or over the Internet with participants from outside the enterprise. All participants work over Web browsers. The presenter who is leading the conference is sharing two pages of a document with other participants.

integrate their Web conferencing servers with the rest of their communications infrastructure, which offers multiple benefits.

For example, users could work with their company's single-sign-on capabilities to log in once for multiple network activities, including Web con-

Industry Trends

ferencing. Integration with a company's Web directory lets users easily find and work with in-house participants.

Participants can use existing network tools, and businesses can avoid running and managing multiple infrastructures. Integrating Web conferencing into familiar infrastructures also shortens the IT personnel's learning curve.

Server-based Web conferencing is more secure, in part because companies control the entire system. In addition, operations based on a company's single system result in fewer potential vulnerabilities than operations involving both service providers' and users' systems.

With server-based Web conferencing, companies are aware of security breaches in their own systems more quickly than if third-party providers operate the conferencing application.

Disadvantages

Companies that run their own conferencing servers must use their own bandwidth for group meetings, which can be a problem for small businesses.

Server-based Web conferencing entails software licensing fees and large equipment costs, including servers; load balancers, which determine the switches to which the system should connect new conference participants to balance the overall switch load; multipoint control units to manage multiuser conferences; and audio bridges for those joining a session only by phone.

Also, staff members must learn how to administer and manage server-based systems.

HYBRID SYSTEMS

Some companies are providing hybrid Web conferencing systems designed to let users work with the best of both service- and server-based approaches.

"A carrier might remotely manage a company's onsite server," said eDial CEO Scott Petrack. This could enhance management and keep companies from having to oversee the system.

For example, along with providing service-based conferencing, Raindance Communications will manage servers located in companies' offices, according to Wainhouse's Nilssen.

Some equipment vendors are providing services and servers. For example, Cisco can manage some of a company's conferencing-related servers by moving them outside security applications, including the firewall. The customer manages the servers that are behind its security applications.

Vendors are working together on wider interoperability.

With this approach, people within a company stay on the secure corporate network, and people outside the company, who present more of a security risk, don't get inside the security applications, explained Troy Trenchard, Cisco's director of product management for rich-media communications.

Companies with their own conferencing servers can benefit from working with service providers, who frequently can better tie in participants outside the enterprise and also can offer enhanced reliability and redundancy for some conferencing services.

Along with their advantages, hybrid services can entail both server-based Web conferencing's initial deployment costs and service-based conferencing's ongoing service charges.

STANDARDS

Traditionally, parties to a Web conference have communicated with one another via proprietary application program interfaces. To conduct Web conferences, users on different platforms that don't share APIs must spend considerable time and money making their systems interact.

Providing more interoperability, which will make conferencing available to larger groups of people regardless of platform, will require standards.

IETF Web conferencing standards are based on its Session Initiation Protocol for initiating and managing interactive communication sessions involving multimedia elements. SIP, a software-implemented protocol, sets up sessions, phone-call routing, authentication, call parameters, and call transfer and termination.

The IETF has formed the Centralized Conferencing (XCON) Working Group (www.ietf.org/html.charters/xcon-charter.html)—which includes companies such as Cisco, Lucent Technologies, and MCI—to develop a standardized suite of protocols for tightly coupled server- or service-based or hybrid multimedia conferences that require strong security and authorization. The suite includes the IETF's SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions) and IP telephony standards.

XCON will replace many of the hard-to-use proprietary APIs that currently support multivendor interoperability, said the IETF's Johnston. Instead, the standard would create a few interoperable APIs. In addition to enhancing interoperability, XCON would eliminate the time and money companies spend to develop proprietary APIs.

XCON systems have a standardized client and conferencing server. The server enforces and manipulates media-usage policies, including media-composition rules that govern the union of different media such as voice, video, and IM during a session, according to Johnston.

The IETF's Media Policy Control Protocol defines the controls available to participants and the conference-server administrator for manipulating the media policy applicable to a specific session.

The media server includes mixers that combine and properly mix video, audio, and other streams and distribute them to participants. This is done in either high-capacity digital signal processors or lower-capacity, lower-cost software.

XCON also works with a conference policy, a set of rules that control various aspects of a session, including the access that conference administrators, participants, and applications have to various media and the ways that they can communicate with one another.

For example, for a particular session, XCON can include a list of users authorized to participate in a conference. A node can also use XCON protocols to query a conference server to learn what media types, such as Internet telephony or video, it supports.

Conference administrators or participants could use the IETF's Conference Policy Control Protocol to manipulate the conference policy.

The IETF expects to finish the XCON protocols by later this year or early next year.

Vendors have been working together to offer wider conferencing interoperability. They will probably adopt XCON within the next 12 to 18 months, according to the IETF's Johnston.

In the future, Wainhouse's Nilssen predicted, companies will embed Web conferencing technology in their workflow applications, such as those used with sales or customer-relationship management. This would let users easily initiate conferences if desirable in conjunction with sales or CRM activities.

"I'm bullish," said Nilssen. "I'm very optimistic about Web conferencing as a technology. I think it will become embedded in the base fabric of how we communicate and conduct business."

However, the way people use Web

conferencing could affect its marketplace performance.

Said eDial's Petrack, "If you ask people in the enterprise to identify the least productive thing they do, most will respond 'going to meetings.' Any system or service that is centered on meetings, rather than collaborative work, is always going to be a frustrating niche product." ■

David Geer is a freelance technology writer based in Ashtabula, Ohio. Contact him at david@geercom.com.

Editor: Lee Garber, *Computer*,
l.garber@computer.org

Build Management Skills! Learn Essential Business Strategies!

26 Management & Business Strategy Courses

IEEE members may get low-cost access to 26 management and business courses from renowned sources such as the American Management Association (AMA) and Peter Drucker. Courses include....

- ▶ **AMA – Negotiate to Win**
- ▶ **AMA – Managing Employee Conflict**
- ▶ **Peter Drucker – Permanent Cost Control**
- ▶ **Peter Drucker – The Five Deadly Business Sins**
- ▶ **The Conference Board – How to Build High-Performance Teams**

And more! For details, visit...

www.computer.org/DistanceLearning

