

Unified Collaborative Communications for the Real-Time Enterprise

Executive Summary

According to a Yankee Group enterprise IT survey, more than 60 percent of respondents have migrated to an IP network; another 30 percent plan to do so within the next 12 to 24 months. IT managers understand that migrating to an IP infrastructure can immediately improve the manageability, performance and reliability of the IT infrastructure. But they also understand that an integrated IP infrastructure serves as a foundation for future applications and real-time communications solutions.

Standardized IP infrastructure makes unified collaborative communications (UCC) possible—integration of voice, video and Web or data conferencing. UCC for the real-time organization will be one of the key technological innovations of the next few years. Beyond increasing productivity, it will change the way people work, and enable people to work smarter, make faster decisions and transfer and access knowledge across the extended organization in real-time. The challenge for IT managers is to deliver a solution that leverages existing technology investments and offers a scalable platform for the future that adapts and grows as the organization's infrastructure evolves.

Exhibit 1

The Communications Needs of the Extended Organization

Source: The Yankee Group, 2004

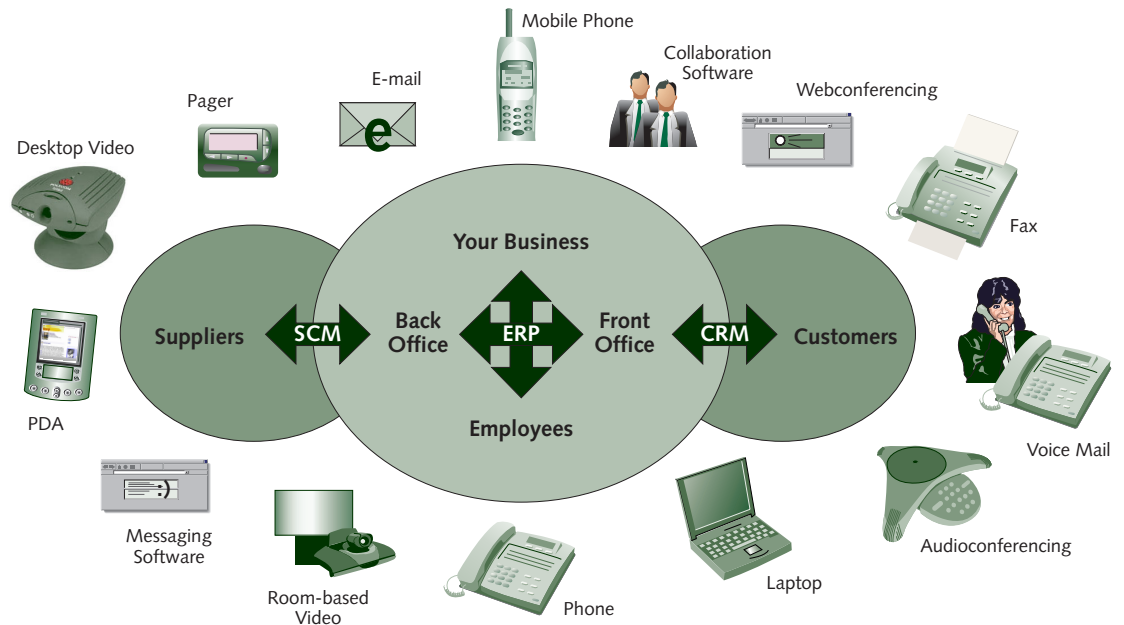


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I. Introduction

Many organizations today are extended enterprises: global, networked organizations comprised of employees, suppliers, partners and customers. These dynamic, distributed organizations have a flexible structure designed to move quickly in the face of global competitive pressures. Highly structured, vertically integrated, hierarchical organizations often cannot respond to increasingly shorter windows of opportunity. Project teams in extended organizations are quickly assembled from disparate parts of the organization, many times in multiple locations, even across geographies, then disassembled and reallocated as opportunities arise. Decision-making is distributed and dynamic, and communications must also be. To allow all users within the extended enterprise to communicate and collaborate with each other, organizations deploy a variety of communications platforms (see Exhibit 1). So far, however, organizations do not realize their true potential. Collaboration is still too difficult at a time when effective, real-time collaborative communications critical to the business.

How critical? Competitive advantage is no longer about a single core capability: It is about the knowledge of workers versus the knowledge of the competitor's workers, the effectiveness of the supply chain versus the effectiveness of the competitor's supply chain, and productivity and responsiveness of sales and support staff versus the competitor's. The quality of the entire extended organization, and how well each component collaborates with others in real-time is the basis for competitive advantage. Collaboration is more difficult with the distributed, global nature of the enterprise. UCC improves the manageability and effectiveness of real-time communications, makes the organization more agile and responsive, and enables global problem-solving and new product deployment.

This research examines the emerging UCC market for the real-time organization. It highlights the major challenges facing organizations, and how current communications technologies help and hurt the goals of the business. It offers a definition of UCC and its business value. It provides an overview of The Polycom Office UCC solution and how one company, Dow Chemical, uses it to reap the benefits of UCC today. Yankee will profile other vendors that offer solutions for UCC, and offer recommendations for organizations as they develop strategies for evaluating and implementing a UCC solution.

II. Organizational Challenges

The goal of IT managers is to make people more productive through better use of technology. However, they face significant obstacles in putting the power of collaboration into the hands of end users. The most significant challenges include:

- **The management challenge of the extended enterprise:** Organizations have invested millions of dollars in collaborative communications technologies such as voice, video and data and Web conferencing. These collaborative communications run on separate platforms and networks (video, local area network (LAN), wide area network (WAN), carrier-managed services) and are often supported by different IT and telecom departments. Some communications services are outsourced while others are supported in-house. This deployment environment places a management burden on IT and causes frustration among end users, who struggle to use and obtain technical support for the services. Instead of increasing productivity, collaborative applications are cumbersome and costly—they deliver good return on investment (ROI), but not to its full potential.
- **Make collaborative communications real-time:** The Internet led to dramatic improvement in user productivity, but is still not a real-time person-to-person communications medium. This is changing, as evidenced by the near ubiquity of instant messaging and increasing adoption of IP telephony. However, collaborative communications deploy as standalone applications in the IT domain, and need IT support to schedule and invoke. To realize the value of collaborative communications, end users must be given the ability to find participants and invoke services in real-time.
- **Empower mobile and distributed decision-makers:** The people responsible for the most revenue in organizations are typically the most mobile, and often travel 40 to 50 percent of the time. Yet, they have poor access to corporate resources and no efficient way of collaborating with others. Key decision-makers often reside in many locations, which makes real-time communications critical to the decision-making process. Faster decisions can mean the difference between winning or losing a deal, or getting to market within days instead of weeks.

These are significant challenges; however communications technology can help overcome them, driving more revenue while lowering management and administrative costs. Vertical industries such as healthcare, government and education—typically cost-conscious industries—successfully deploy UCC. To understand how UCC can solve these challenges, it's helpful to understand today's collaborative communications technologies and their role within the extended enterprise.

III. Today's Communications Market

The 1990s saw rapid technological change in communications technology, and the market is still in transition. The Internet introduced new ways of communicating, but IP networks were not initially designed for real-time communications such as voice and video. Because of nearly universal access and lower cost relative to the public telephone network, IP networks are evolving to support every communications requirement of the organization. Different standards and platforms necessitate multiple client devices connected to multiple networks and information resources. Getting platforms to interoperate is the goal of unified communications. How each platform can facilitate collaboration is described below.

Communications Platforms

- **The desktop:** The desktop is the key integration point for convergence, and can serve as a central hub for UCC. Portals will offer aggregated corporate information, messaging, and presence information (location and accessibility of people and devices). The desktop's significant bandwidth, multipoint technology, messaging and multimedia applications make the desktop the intelligent starting point for true collaborative multimedia applications. The desktop has the potential for integrating instant messaging with video and voice over IP (VoIP) for real-time collaboration.
- **Phone:** IP telephony delivers increased functionality to the phone such as online directories, "find me, follow me" tools and automated call routing, which increase productivity with new standards such as Session Initiation Protocol-B (SIP-B). Virtual presence capabilities let users locate people in real-time. As organizations extend deployment of VoIP, more interest is generated in video over IP.
- **Video:** Videoconferencing has traditionally been thought of as a way to reduce travel costs. The value proposition is changing, however, from a cost-saving technology to a productivity tool. Important decision-makers spend less time away from the office, simultaneously increasing face-to-face time with clients. Sales teams find that follow-up sales calls and product overviews by video increase customer satisfaction with vendor responsiveness. As a result of video sales calls, customers are well-briefed and the decision to purchase occurs faster. Everyone involved is able to make better-informed decisions faster as participants can read body language and facial expressions and adjust their responses accordingly to address resistance and/or confusion. E-learning initiatives use videoconferencing to rapidly train workers in multiple locations at a fraction of the cost of on-site classes. Even more important than costs, however, is the fact that people retain more knowledge when information is presented visually. University studies demonstrate that users consider video "more like being there," with retention rates 38 percent higher than voice conferencing (source: Polycom, 2004). More information can be disseminated and absorbed with videoconferencing than with audio conferencing alone (see Exhibit 2).

Exhibit 2 Benefits of Videoconferencing

Source: *The Yankee Group, 2004*

Increased Learning	Attendees learn 200% more in face-to-face meetings than with audio alone (Source: University of Wisconsin)
Improved Rate of Absorption	Attendees absorb information up to 40% faster than with audio alone (Source: Wharton School of Business)
Augmented Content Retention	Attendees in face-to-face meetings retain 38% more information than attendees in audio-only meetings (Source: Harvard University & Columbia University.)
Enhanced Persuasiveness	Face-to-face meetings increase the power of persuasion by 43% over audio-only meetings (Source: 3M Co.)
Improved Impact of Communication	55% of the impact of communications comes from facial expressions and body language, versus 38% from vocal inflection (Source: UCLA)

Barriers to Adoption

Barriers to adoption are different today than they were five years ago. Previously, the major barrier to adoption was the separation of IT and telecommunications departments in the organization. Video and audio conferencing was the domain of the telecommunications staff while IT managed business applications and e-mail. Network managers in IT departments were not confident in their ability (or the network's ability) to support applications such as voice and video, and therefore would outsource it. Communications and collaboration technologies became proprietary platforms that did not integrate with the existing network infrastructure. The technologies became difficult to use and manage. For example, each videoconference often required 20 to 30 minutes of IT department time to set up. It was too complex for end users to do themselves.

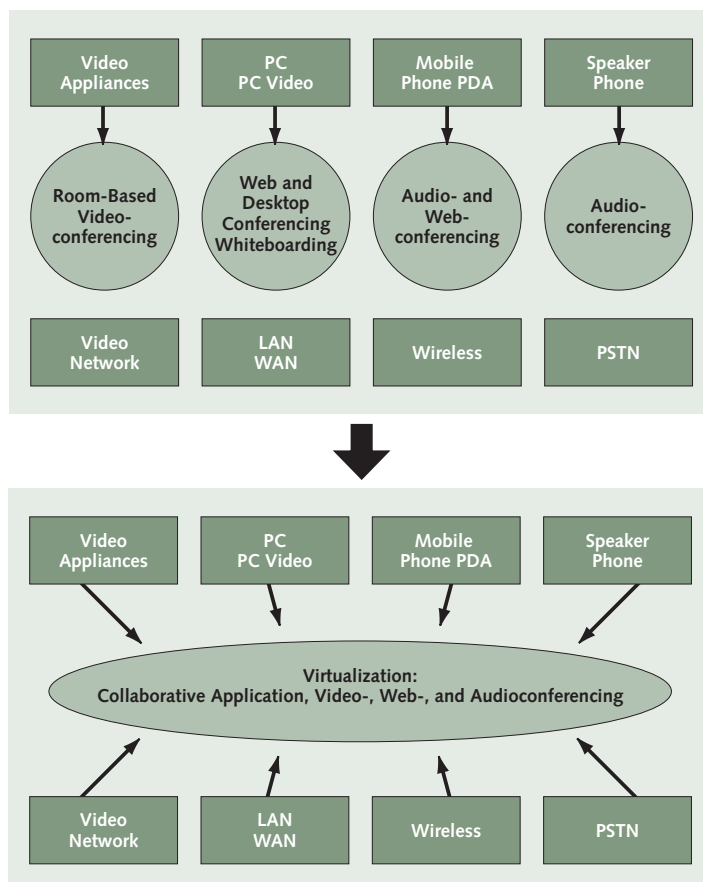
Today, there is a great deal more interaction between data, voice and video network managers. There are two key challenges facing technology managers: First, delivering collaborative communications in a way that is comfortable to learn and use. Second, IT managers must build and manage the IP infrastructure to guarantee performance. Being able to invoke videoconferencing and audio conferencing from a variety of endpoint devices and integrate with instant messaging and enterprise applications addresses usability. Putting the technology in the hands of end users and current technology platforms facilitates adoption. However, UCC adoption still depends on the underlying network infrastructure delivering a quality end-user experience. Enterprise network infrastructures are migrating from collections of proprietary, single-purpose networks to one converged multipurpose infrastructure that supports all of the organization's application and communications needs. The challenge becomes managing the converged infrastructure so real-time applications such as voice and video have priority over less time-sensitive application such as Web surfing and e-mail. Quality-of-service networks fill this void well.

IV. UCC for the Real-Time Enterprise

The Yankee Group defines UCC as a user experience for audio, video and Web and data collaboration that breaks down all distance, time, and media barriers, and allows people to communicate with one another anywhere, anytime, and across any medium from multiple endpoints (see Exhibit 3). Conferencing and collaboration are individual productivity applications; UCC ties the applications together as one integrated communications medium. Alone, the applications offer marginal productivity benefits. Brought together as integrated communications, they change how business gets done. UCC focuses on real-time collaboration capabilities, the key enabler of the real-time enterprise. It also enables business process automation. A great deal of the complexity in today's business processes can be attributed to the multiple technology and media platforms business processes rely on. Integrating platforms creates an opportunity to streamline processes and map them to business processes rather than to underlying technology and communications infrastructure. Business process automation transformed the back office and front office with enterprise resource planning (ERP) and customer relationship management (CRM) applications, and is transforming IT today through business technology optimization (BTO). UCC will have the same impact on day-to-day business. It will transform enterprise communications from a latent, inbox-focused approach to a dynamic, real-time global environment.

Exhibit 3 UCC Defined

Source: The Yankee Group, 2004



UCC Overview

The components of UCC include the voice and data network infrastructure, handsets, endpoints, enterprise audio, video and Web conferencing, and the software and services for integration and collaboration (see Exhibit 3). Organizations have the functional components and endpoints for communications, such as IP infrastructure, servers, desktops and other endpoint appliances. Software and services that enable communications platforms to behave as a unified system make UCC possible.

A typical large organization has separate systems for voice conferencing, videoconferencing, and Web and data conferencing. UCC will make all collaborative communications platforms available to workers on one common interface from multiple endpoint devices. It incorporates videoconferencing, audio conferencing, messaging and access in corporate applications. It also leverages IP telephony features, such as presence: Presence, or virtual presence as it is sometimes called, means availability of a person's location and current preferred method of contact. This is a powerful capability in an age where a typical business card may list four or five distinct methods of contact.

UCC hides the complexity of collaborative communications from the end-user and simplifies management for IT. With UCC, end-users can locate and invite attendees, invoke the communications without IT involvement, and conduct virtual meetings in real-time. This end-user self-sufficiency also makes IT management's job easier. Most importantly, UCC leverages existing IT infrastructure. Organizations can finally realize ROI from many communications platforms and collaborative applications. Regardless of how IT infrastructure evolves—particularly migration to IP—UCC will continue to support the real-time collaboration and communications requirements of the extended organization.

The Business Case for UCC

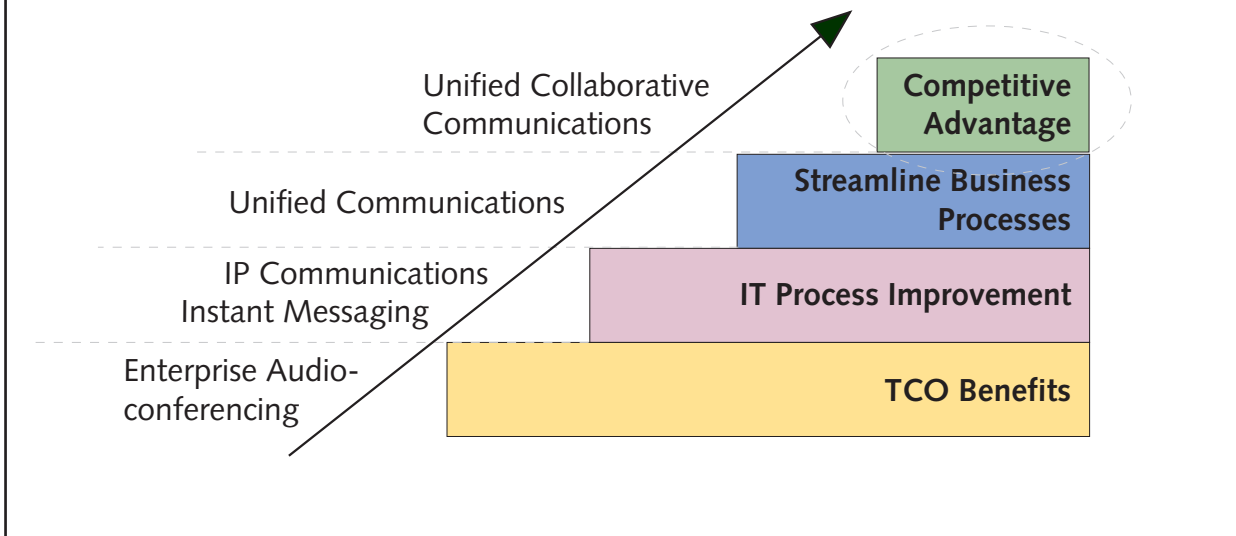
The value proposition for UCC is evolving. Initially, the value focused on cost savings. Videoconferencing was expected to reduce travel costs, but manageability and complexity issues often offset those costs. Though it still introduces costs savings, its real potential is as a foundation for fundamentally changing business and building competitive advantage (see Exhibit 4). UCC is a major technological innovation that will enable competitive differentiation.

Organizations can measure productivity benefits with both hard and soft costs. As an example of hard costs, consider a salesperson that saves 20 percent of their time each week by virtue of UCC—an extra day per week. If UCC enables the company to close two more deals per month at an average deal size of \$10,000, UCC will generate an additional \$240,000 per year. Multiply this among 100 salespeople and the organization generates nearly \$2.5 million in additional revenue per year. This example illustrates the potential costs savings as well. That extra day, coupled with videoconferencing capabilities, enables a salesperson to conduct more face-to-face meetings (which have higher close rates) over a larger geographic territory. The organization can maintain sales coverage with fewer salespeople, fewer sales engineers and smaller travel expenses.

Soft costs include maintaining better relationships with customers, job satisfaction and better distribution of knowledge. These metrics are more difficult to measure, but are no less important for creating an agile, competitive company.

Exhibit 4 UCC Value Proposition

Source: The Yankee Group, 2004



No other technology has the potential to have such a positive impact on both the bottom and top line of the business, and organizations can realize the benefits today. With the correct planning of the network infrastructure and a careful evaluation of the technology, organizations can deploy UCC and see immediate business benefits. One example of a solution that can deliver UCC today is The Polycom Office.

V. Solution Overview: The Polycom Office

The Polycom Office is an integrated voice, video, data and Web communications solution for the UCC market. It offers customer-specific solutions for integrating endpoints, real-time applications and various enterprise networks. It supports standards-based media types, is transport and protocol-agnostic, and can be supported in-house or by a service provider.

The key enabling technology for The Polycom Office is the Polycom Accelerated Communication (PAC) architecture. PAC is the underlying software and service that enables unification of collaborative communications components.

PAC Overview

PAC is the unifying architecture that enables The Polycom Office. PAC overlay architecture connects to the multilayer routing and switching network. It works with all standards-based, communications, media and transport protocols and optimizes them for use by various end points and real-time applications. While many organizations are migrating to IP, this overlay architecture enables organizations to deploy UCC with existing network infrastructure and insulates them from technological change. PAC solutions architecture includes:

- Software for scheduling, call processing, Web conferencing (can be portal, Microsoft Outlook, Web-based)
- Software for management and directory services
- End points (hardware and software)
- Standards such as H.323, H.320, SIP, ISDN, IP
- Media processing hardware (conferencing bridges and gateways)

Because PAC is based on standards, is protocol and transport agnostic and is modular in nature, it can be leveraged by other UCC solution providers for heterogeneous environments. This allows organizations to add various solutions that work with what is place, as business needs change. PAC provides a scalable, flexible foundation for UCC.

UCC Competitive Landscape

The increasing number of solutions becoming available is evidence of the increasing importance of integrating collaborative applications. Solutions such as Lotus Workplace, Microsoft Live Meeting and Live Communications Server, Tandberg, and WebEx integrate voice with Web and data conferencing and are working towards integrating video. Today, however, Polycom is the only end-to-end solution based on open standards that truly integrates all components of UCC (see Exhibit 5).

There is a growing trend towards UCC becoming a market segment; a number of partnerships, acquisitions and other announcements were made during the past 18 months. The past year saw significant development in the offerings and intent for collaborative communications, for example:

Exhibit 5

Polycom Accelerated Communications (PAC)

Source: Polycom, Inc., 2004

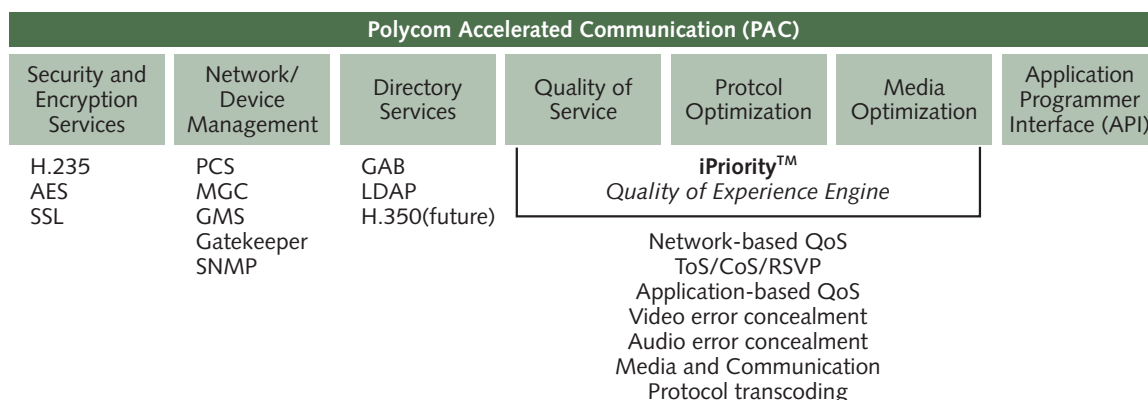


Exhibit 6 UCC Competitive Landscape

Source: *The Yankee Group, 2004*

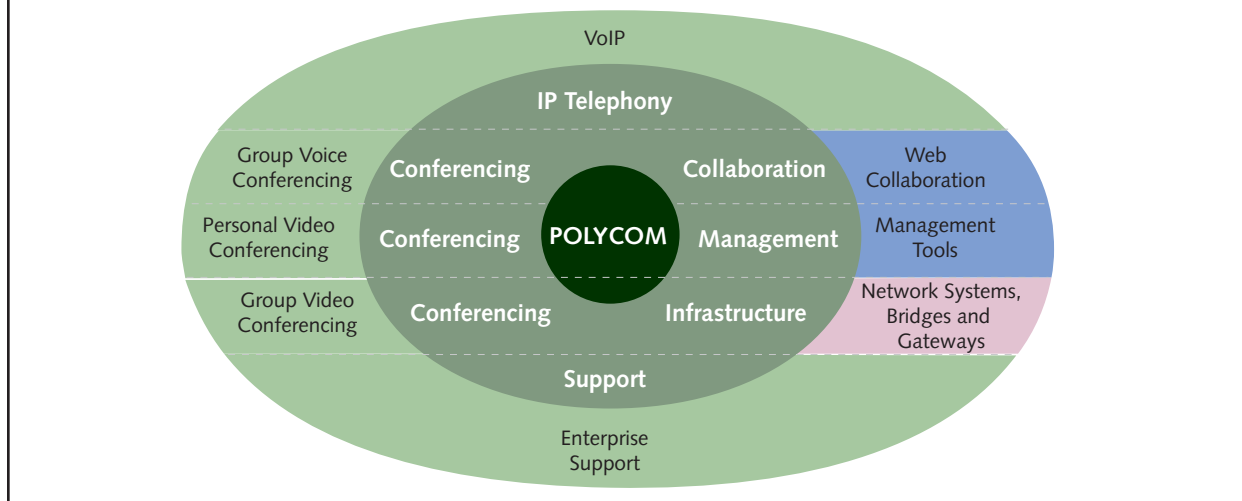
	WAN	LAN	PBX / IP PBX	Voice Handset	Collaborative Applications	Video Applications	Video Endpoints	Web-conferencing	Video-conferencing
3Com	✓	✓	✓	✓					
Avaya	✓	✓	✓	✓		✓			✓
Cisco Systems	✓	✓	✓	✓		✓			✓
Lotus					✓				
Microsoft/PlaceWare					✓			✓	
Nortel Networks	✓	✓	✓	✓					
Polycom				✓	✓	✓	✓	✓	✓
Raindance									✓
Sony							✓		
Spectel								✓	✓

- December 17, 2003: WebEx Communications acquires CyberBazaar, India's leading conference provider.
- December 8, 2003: Avaya and Polycom partner to develop an IP-based solution to make video communications as simple as a phone call.
- November 21, 2003: Polycom acquires Voyant Technologies, Inc.
- November 12, 2003: Cisco acquires Latitude Communications.
- November 11, 2003: BroadVision and Spectel partner to deliver a universal access collaboration portal.
- August 25, 2003: 3Com and Aspect partner to deliver feature-rich IP telephony solutions.
- May 22, 2003: Mitel partners with NewHeights Software to enhance enterprise communications.
- April 28, 2003: Tandberg partners with WebEx to expand collaborative communications.
- July 22, 2003: Raindance and ViewCentral form a strategic alliance to provide integrated collaboration management.
- January 21, 2003: Microsoft acquires PlaceWare.

The trend to deliver all components of UCC in one integrated platform will continue as the UCC market matures. Polycom's PAC architecture and The Polycom Office are examples of a UCC solution delivered from a single vendor. The case study below best demonstrates how PAC architecture and The Polycom Office deliver business value.

Exhibit 7**The Polycom Office**

Source: Polycom, Inc., 2004

**Case Study: Dow Chemical**

Dow Chemical provides chemical, plastic and agricultural products and services to consumer markets. With annual sales of \$28 billion, Dow is a truly extended enterprise. It serves customers in more than 170 countries and employs approximately 50,000 employees. Historically, Dow employees collaborated with members of its extended enterprise by traveling around the globe. This corporate culture proved costly and negatively impacted the work-life balance. Operational excellence is also embedded in the corporate culture; Six Sigma is a company-wide standard.

The Challenge

Dow initially implemented videoconferencing to save on travel costs. Videoconferencing quickly became part of the culture as employees saw it as a way to maintain productivity and improve their work-life balance. Videoconferencing enabled Dow to align all 170 countries according to functional responsibilities rather than by geographic region, an excellent example of business processes being improved by technology.

With growing demand from end users, Dow needed to scale its conferencing services. Voice, video and data conferencing applications were not integrated and ran on different network infrastructures. This required many resources to support, including on-site resources. Since Dow wanted to better leverage these applications, it made sense to converge on an IP infrastructure, which would manage costs, simplify and standardize the services.

Dow understood IP is cost-effective, but presents performance and security concerns. For example, they wanted to converge data and videoconferencing on the same network infrastructure; however, they were traditionally separate functions with dedicated networks, and both require substantial bandwidth. Dow also needed a solution for securing the network, particularly to bridge gaps between secure internal networks and external public networks. Finally, they needed a solution for managing bridging services internally, behind the firewall.

The Solution

Dow evaluated vendors based on three important criteria:

- **Ability to integrate with other products:** Dow needed true collaboration and required a standards-based approach to enable them to add more applications in the future.
- **Centralized management:** The ability to centralize management of all locations is critical to Dow. Standardizing the platform for the services made it easier to manage remotely, reducing costs and the need for on-site resources.
- **Global experience:** Dow has a presence in 170 countries and required close vendor support as they rolled out services to remote locations internationally.

Dow chose Polycom as its UCC solution provider, and implemented Polycom group systems in 560 conference rooms in 170 countries. Dow has desktop conferencing on 100 desktops and will deploy another 3,000 desktops once IP is deployed to smaller regions. Because Polycom's architecture is PC-based, infrastructure components can be managed as network elements, which enables more flexibility, broader deployment and remote management.

The Result

Dow has used Polycom's services since early 2000 and seen tremendous benefits including:

- **Faster decision-making:** Dow is a research organization and has a critical need to foster collaboration among project teams. The biggest benefit is the ability to make faster decisions. Everything is live, 24 hours per day; Dow can reach whomever they need to, whenever and wherever they are.
- **Better resource management:** Because it is a standard PC-based system, Dow can manage remote locations centrally. Standardization makes services easier to use and requires fewer, if any, site resources. This also makes it easier to deploy broadly, a key requirement for a global organization.
- **Better acceptance of collaborative applications:** Since they can move from ISDN to IP, the quality of voice, video and data applications is better and more consistent. Also, centralized management makes it easier to invoke the services. These factors contribute to a high acceptance level of the applications.
- **Better work-life balance:** A tremendous amount of travel was part of Dow's culture. Project teams and research associates could be 2,000 miles apart. The ability to reach people and make decisions without hopping on a plane makes workers more productive and improves overall job satisfaction.
- **Reduced training costs:** Dow deployed iTraining, an internal program that trains workers on how to develop, deploy and use collaborative services. Since service is consistent across locations, Dow only needed one training course.

Dow is also confident about future applications and services. It plans to deploy streaming video to each desktop and mesh collaborative applications with wireless initiatives. It has a vision of virtual employees and remote users able to use mobile phones to join videoconferences. Polycom's solution for UCC gives Dow confidence that its infrastructure not only will deliver measurable benefits today, but also will evolve to support the company's vision of a real-time, collaborative, global organization.

VI. Conclusions & Recommendations

Organizations have not fully leveraged communications technology investments, because of the considerable time and expense needed to deploy and manage different communications platforms. UCC enables organizations to maximize the value and utility of communications technology investments. It gives key employees the same information and communications flow whether they are in the office, working from home, or traveling.

With IT being asked to do more with less, UCC will be the key technological innovation that will simultaneously improve the bottom and top lines of the business. Organizations should:

- **Start with a small set of users.** If the organization has not begun to deploy UCC, start with a small set of technically advanced users or one department, such as research and development, customer service or field sales. This will allow the IT department to develop training programs and understand the impact on the user community.
- **Develop business-related benchmarks and key performance metrics.** The impact UCC will have on the business will depend on the ability to correlate use to productivity gains. Develop key performance metrics around use and productivity.
- **Develop a collaborative communications strategy.** As evidenced by Dow Chemical, distributed enterprises already realize the benefits of UCC. Enterprise managers must develop strategy that includes whether to outsource or manage it in-house, which applications and communications technologies to deploy first, and how they will support the applications and technology.
- **Collaborative communications applications are becoming mainstream.** Those that delay will play catch-up and risk being consistently beaten to new market opportunities.

VII. Further Reading

Yankee Group Enterprise Computing & Networking Reports

IP PBXs and IP Centrex: Market Update, Sales Drivers, and Inhibitors, December 2001

Unified Communications Leverages Existing Technology to Improve Productivity,
July 2003

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