



## Unified Communications Primer

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# Unified Communications Primer

## Introduction

As companies today compete in a single, global marketplace, the speed and complexity of business seem to escalate by the minute. The plethora of disparate and unsynchronized communications devices and applications creates an environment of complexity that often prevents companies from improving their communications efficiency and competing effectively. With information and knowledge increasingly commoditized through the Internet and other communications tools, competitive advantage now resides in new capabilities:

- Specialized, “expert” knowledge
- High-context information
- Speed of information sharing

Today’s business communications tools, however, are inadequate for surviving in this new era of specialization, context, and speed.

The solution is Unified Communications (UC). UC is a new business model that enables companies to rise to the next level through a simplified and streamlined, network-based platform for communications. This primer provides an introduction to Unified Communications and discusses the compelling business case for implementing it. For the reader’s convenience, appendices include information about Cisco’s involvement with UC, a glossary of UC terms, case studies, and a rationale for Cisco’s network-based approach versus Microsoft’s software-oriented UC offering.

## Landscape

Today’s businesses are increasingly global and mobile. Employees may be scattered across many countries and time zones—and a growing number of employees work remotely, rarely coming to the office. The trends toward outsourcing and offshoring, combined with increased numbers of teleworkers, compound the complexity of collaborating and communicating across geographies and time zones.

To support this distributed and mobile population, we now have a staggering number of point solutions for communications:

- According to a 2005 study by Sage Research,<sup>1</sup> most workers use an average of 6.4 communications devices (PC, laptop, office phone, IP [Internet Protocol] phone,

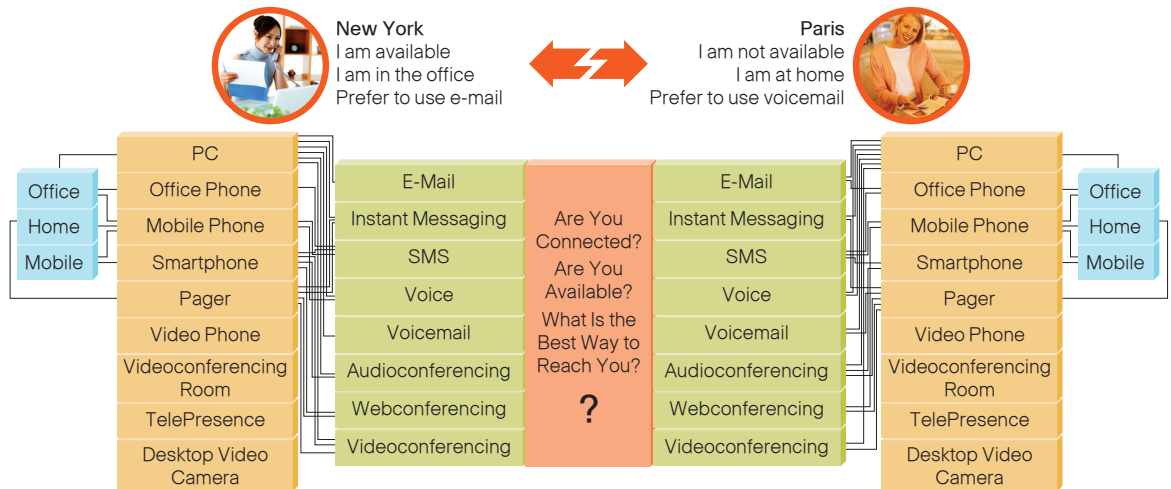
<sup>1</sup>“Cisco IP Communications Applications Survey,” Sage Research, September 2005

mobile phone, pager, teleconferencing equipment) and 4.8 communications applications (voice, voicemail, e-mail, SMS, audioconferencing, fax).

- Fifty-two percent of workers use multiple methods to reach coworkers each day.
- Thirty-five percent are unable to reach coworkers on the first try.

This results in lost time and duplicate messaging. According to Sage Research, workers today spend an average of 1.25 hours per day managing their e-mail, voicemail, and other messages.<sup>2</sup> More important, this leads to missed deadlines, project delays, poor customer response, and supply chain inefficiencies—all impacting business results. Figure 1 shows the complexity of today's business communications environment.

Figure 1. The Current State of Communications Is Inefficient



Source: Cisco IBSG, 2008

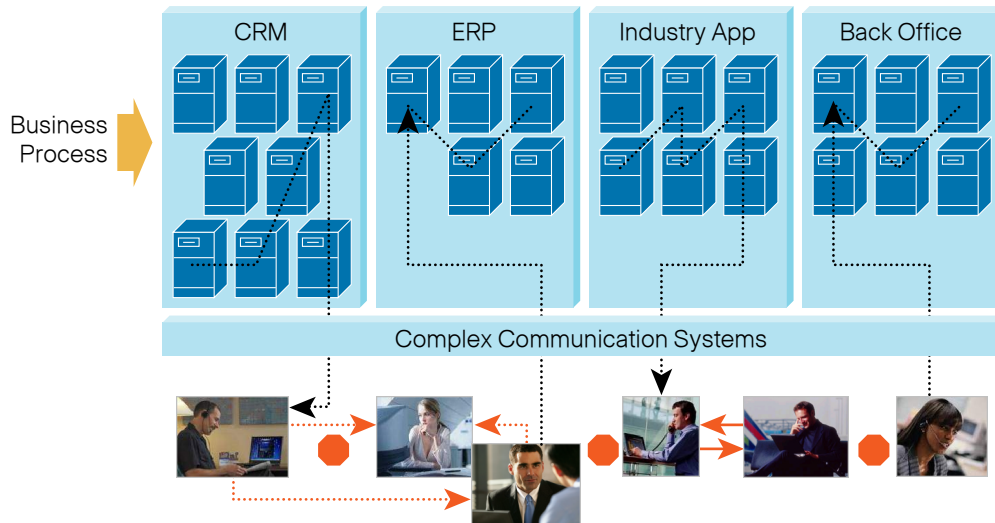
The current complexity of business communications developed through a series of essentially independent technology advances. As new communications technologies became available, they were added on and adopted by consumers and businesses, unguided by any overarching communications strategy. The underlying weakness of this randomly evolving communications patchwork, with its intricacies and lack of interoperability, has become increasingly apparent as businesses globalize.

In addition to this complexity, today's communications processes are not optimized to support business processes. In many ways, communications processes typically are ad hoc and unconnected to the underlying business process. Companies have done a good job of making business processes more efficient and productive through the use of technology, but a poor job of optimizing human communications processes to support business processes (Figure 2). Contact centers are an example of a business process that is increasingly integrated with human communications processes.

2. Ibid

Capabilities such as presence, click to chat, intelligent call routing, and expertise locator are integrated with CRM and ERP applications to improve customer experience and drive value for a contact center.

**Figure 2.** Today's Communications Are Not Optimized for Business Processes



Source: Cisco IBSG, 2008

Although Unified Communications is a developing field, it is steadily gaining ground, demonstrating businesses' growing understanding of the benefits it brings. The global market for UC solutions in 2007 was estimated at \$27 billion; by 2011 it is estimated to be \$33 billion.<sup>3</sup>

## Drivers

- A 2003 study by RoperASW estimated that "inefficient communication represents an annual cost to U.S. businesses alone of a shocking \$297 billion."<sup>4</sup>
- A Forrester Research survey noted that in some cases, the inability to communicate effectively has a serious negative impact on business outcomes: "...the project actually comes to a complete halt, as reported by 25 percent of our survey respondents, when work teams wait to receive necessary approvals. An additional 63 percent of IT decision makers indicated that these delays caused work to slow down, which obviously impacts time to market."<sup>5</sup>
- Businesses are struggling with global integration of all operations. This is especially true when it comes to process. Because communications functions are not integrated with process functions, missed, duplicate, or incomplete communications are the norm, creating project delays.

3. These figures were synthesized from a variety of sources, including research by Dell'Oro, Frost & Sullivan, Gartner, IDC, Synergy, Wainhouse, GMV, and Cisco

4. RoperASW, 2003

5. "Unified Communications Transform Business Communications," Forrester Research, August 2005

- In many companies, knowledge and information are “siloed” within their organizations, so the collective wisdom of a business is not shared across the entire enterprise.
- There is a premium on specialized knowledge and expertise, and the ability to quickly distribute and share that information becomes a competitive advantage.
- Progressive companies are evaluating their organizational models to foster better communications and deeper collaboration across functions, and with their external partner companies. Unified Communications offers businesses the ability to communicate and collaborate easily among widely distributed teams.
- All forms of communication are moving to a unified IP network, increasing demand for network-centric solutions. Meanwhile, investment in legacy TDM and PBX systems is declining. According to the Dell’Oro Group, conversion to voice over IP (VoIP) is the primary reason behind the decline in traditional PBX system sales.<sup>6</sup>

## Business Needs

Given the situation outlined above, businesses need a solution that will:

- Tie all disparate forms of communications together, regardless of location or device
- Allow workers to identify if a given individual is available, and how best to contact him or her
- Enable workers to quickly and easily collaborate, communicate, share information, and contact subject-matter experts
- Integrate business and communications processes

The means for doing this is called Unified Communications: a network-based approach for communicating with anyone, at any time, from any location, via any device.

## Solution

The basic components of Unified Communications are:

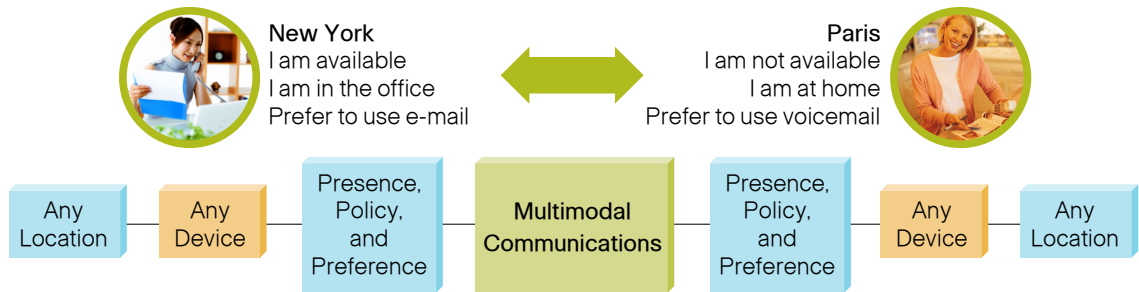
- **Ubiquitous IP network:** a pervasive network that “virtualizes” users, allowing them to connect anywhere, at any time, through wired or wireless devices
- **Policy:** allows users to establish rules for message handling, prioritization of calls, automated responses, and “find me, follow me” capabilities
- **Presence:** the ability to know if someone is available and the best way to contact that person
- **Multimodal communications:** Comprises both “messaging” (e-mail, instant messaging, SMS, voice, voicemail) and rich-media-driven “conferencing” capabilities (audioconferencing, Webconferencing, videoconferencing, telepresence).
- **Seamless migration:** enables users to move easily among communication modes

6. “IP Telephony Enterprise 5-Year Forecast Report,” Dell’Oro Group, January 2006



Unified Communications simplifies and expedites the process of human-to-human communications by giving workers tools to locate others, understand how those people wish to be contacted, and then enable those communications to take place. UC eliminates bottlenecks, allows coworkers to reach each other on the first attempt, results in fewer voicemails and missed calls, and reduces redundant messaging (Figure 3).

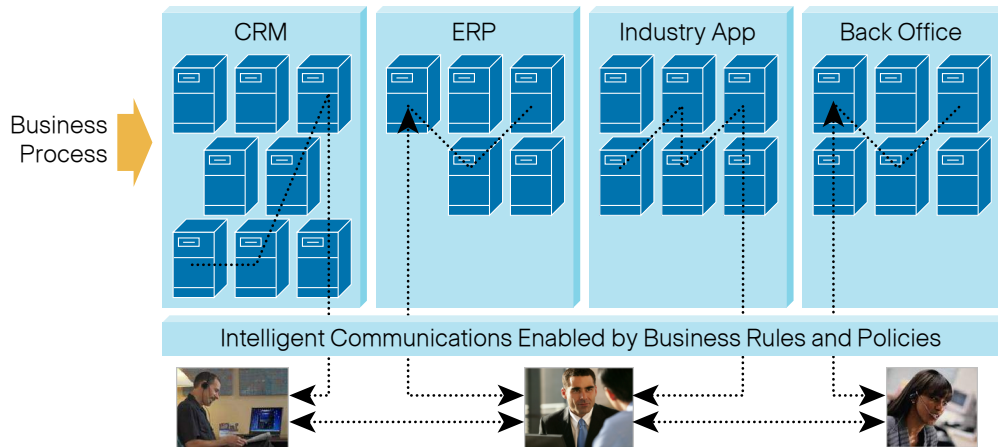
Figure 3. Unified Communications Allows Employees and Customers to Communicate More Efficiently



Source: Cisco IBSG, 2008

UC also allows tighter integration of business and communications processes. By using business rules and policies, UC can enable event-based or contextual communications that accelerate and improve numerous important capabilities such as exception management, customer response time, order fulfillment, or crisis management (Figure 4).

Figure 4. UC Integrates “Smart” Communications with Business Processes



Source: Cisco IBSG, 2008

## Challenges

Although UC is a solution to many of the issues facing today's global industries, there are obstacles to its implementation:

- UC represents a profound change in business communications, shifting from a bundled, point-solution approach to an integrated, network-based communications system. Some organizations, however, are unaware of the negative impact of inefficient communications on their business. They have come to accept the current complexity of their communications as a "cost of doing business."
- Productivity gains and process improvements from UC are typically several times larger than the reduction in total cost of ownership (TCO). CFOs and CIOs, however, frequently tend to focus on hard dollar savings, emphasizing TCO rather than less-tangible benefits such as productivity or process improvements.
- Companies tend to underestimate the benefits of UC. Sage Research reported that when businesses implemented UC, their *actual* gains from cost savings and process improvements were *higher* than their expectations.<sup>7</sup>
- UC can be an IT-led initiative, with little involvement from non-IT business leaders. This approach tends to focus only on the cost reduction benefits of UC, and ignores the larger areas of business value. As a result, this strategy yields only a fraction of the total value opportunity for UC.
- Since UC sometimes requires changes to business processes, change-management procedures and training often become necessary to achieve success.

## Benefits

The benefits of UC are realized across many industries and business activities, and can be grouped into the categories below. For some specific examples, please see the brief case studies in Appendix I, "Unified Communications in Action."

## Revenue

- Increased online and in-store sales (such as cross-selling, up-selling, and on-demand clarification) resulting from collaboration with online/remote experts
- Additional revenue and brand differentiation, with in-store digital signage providing real-time information on special events and promotions
- Increased revenue through faster time to market
- Greater new product revenue through faster training of sales staff
- Improved cross-sell and up-sell opportunities, with real-time customer information delivered to any device
- Improved services revenue through UC-enabled customer support

<sup>7</sup>. "Cisco IP Communications Applications Survey," Sage Research, September 2005

## Cost

- Reduced communications investment by operating a single, converged network for voice, video, and data, as opposed to separate networks for both voice and data
- Lower network management expenses through centralized management and support of applications and network operations
- Decreased expenses for audioconferencing, Webconferencing, and videoconferencing
- Reduced toll costs for fixed-line and mobile communications from least cost routing of calls
- Diminished contact-center staffing costs through distributed call sharing during peak call times
- Reduced business travel through remote communication and collaboration
- Lower training expenses through remote, Web-based training
- Decreased product development costs through reduced cycle time
- Diminished supply chain costs through improved communications
- Improved safety and security, leading to lower risk management expense<sup>8</sup>

## Productivity

- Gartner predicts that UC-enabled processes can deliver an efficiency improvement of up to 50 percent.<sup>9</sup> These improvements come about through increased efficiency and reduced latency in communications.
- Improved ability to collaborate in real time rather than asynchronously
- Cross-functional process automation and control
- Integration of processes and communications, thereby reducing cycle time. Forrester Research<sup>10</sup> found that businesses that deployed communications-enabled business processes (CEBPs) experienced:
  - Decreased project-completion time and increased throughput
  - Improved revenues
  - Accelerated problem resolution
  - More effective support of remote workers through access to multimodal communications
  - Improved emergency response time

8. Henry Dewling, "Communications-Enabled Business Processes," Forrester Research, September 18, 2007

9. "Achieving Agility Through Communications-Enabled Business Processes," Gartner, April 2006

10. Ibid

## Customer Experience

- Enhanced customer experience through intelligent call routing
- Increased customer satisfaction through improved response times, differentiated customer experience, and easier customer access across multiple channels and time zones
- Increased relevance with customers resulting from personalized multimedia communications
- Increased consistency of experience through the ability to manage communications centrally

## Guidelines for Adopting UC Solutions

Organizations beginning to evaluate UC technologies must keep in mind that as their UC needs evolve, their investment must evolve along with it, incorporating new technologies and products in the process. Here are the key criteria for considering any UC technology solution:

- To maximize value, UC solutions must be as extensible as possible across an entire (global) organization, including suppliers, partners, and customers.
- UC solutions must interoperate with multiple applications and devices while providing a secure, end-to-end experience. The agility and intelligence of the network enables the integration of disparate communications applications and devices while providing end-to-end security with business processes.
- UC solutions must support open standards. In the final analysis, proprietary solutions will cost more and inhibit the addition of new services and applications as the organization's needs evolve. For example, open standards make it easier to integrate and interoperate with newly acquired companies or with new, external supply chain partners.
- Solutions must support existing software applications, preserving the organization's current investment.
- User interfaces must be simple, easy to use, and provide a user productivity benefit. Experience has shown that complex user interfaces with no obvious user benefit retard the adoption of new technologies.
- Solutions must connect end users to business knowledge and business data. Communications and business processes cannot be integrated without rapid end-user access to pertinent information.
- Solutions must connect disparate groups, devices, and processes, regardless of location. In the event of a wildfire, for example, on-site firefighters using land-based radio must be able to talk to public health and safety officials using fixed or mobile phones, and they must be able to access satellite data about the fire's progress and real-time location.

### Summary: Key Takeaways

- Today's global, distributed business environment requires a solution that integrates all modes of communication, and connects communications and business processes. This solution, Unified Communications, is a transformative strategy for business communications, not a series of technology tools.
- Today's businesses are increasingly global. The demand for fast and effective communication and collaboration among employees, partners, customers, and other stakeholders continues to grow. Studies suggest that inefficient communication represents an annual cost to U.S. businesses of \$297 billion.<sup>11</sup>
- With globalization, workforces are progressively more distributed. Outsourcing and offshoring add to the broader distribution of workers, as does the trend toward teleworking. All of this multiplies the complexity and difficulty of communicating and collaborating.
- We have multiple modes of business communications—e-mail, IP telephony, VoIP, instant messaging, SMS, videoconferencing, video on demand, podcasts, and more—that add both richness and complexity to communications.
- Successful implementation of Unified Communications requires visionary business leaders who understand how to use communication to differentiate their products or services, increase productivity, and decrease cycle time. It also requires a partnership between IT and business leaders to assure that UC integration is aligned with business goals, and is not just an "IT program."
- An IP network-centric approach to UC is important because:
  - All types of communication (voice, video, and data) are moving to a unified IP network to create a single platform for business communications.
  - The network is the only IT element involved in every business transaction, from a voice call, to order entry, to applications, to videoconferencing.
  - The network is the only element of the IT infrastructure that "touches" every other component—applications, ERP systems, middleware, or devices such as laptops, smartphones, or instruments. Therefore, the network "unifies" disparate technologies to create a single communications platform within or between companies.
  - The network is "smart." Intelligence in the network makes everything else on the network work better. Data, voice, and video rely on the network to provide quality, security, and resiliency. For example, many software applications today rely on intelligent network services for improved performance.
  - The network is based on open standards, is inclusive of all applications, is device-agnostic, and provides end-to-end security.
  - New services and applications such as Web 2.0 tools can be easily added to the network, preserving many existing IT investments.

11. RoperASW, 2003

- The network resolves issues that other UC solutions overlook, including performance, scalability, reliability, security, and extensibility.
- The network enables all forms of communication, allowing anyone to communicate via any device, at any time, from any place.
- Embedded UC network elements provide superior cost savings, performance, scalability, and security, as well as enabling new capabilities such as location services and improved least cost routing of telephone calls.
- By contrast, software-centric UC solutions cannot provide end-to-end connectivity to all endpoints or deliver seamless interoperability across numerous applications and devices. In addition, security is provided only at the application layer in a software-centric approach.
- IP networks, with their built-in quality of service (QoS), have the intelligence, policy engines, and flexibility to assure a stable, dependable, high-quality end-user experience.

## Appendix I: Unified Communications in Action

The best way to understand how Unified Communications creates value is to provide some real-world examples. Following are vignettes of UC technologies applied in each of five benefit categories (as defined by Forrester Research<sup>12</sup>).

### 1. Differentiated Customer Experience

A Japanese department store installed a Cisco IP phone-based solution in the dressing rooms of its high-end jeans department. The solution detects the size and style of jeans a customer is trying on by reading an embedded RFID chip. Bar codes attached to the jeans are read by an application that interfaces with the store's inventory management system, immediately informing the customer of available sizes in that style. Customers use the IP phones to call a store associate and ask for the desired styles and sizes, knowing that they are available. As a result, customers' shopping time has been reduced by 20 percent, and sales in the department have more than doubled.

### 2. Improved Business Process Efficiency

A 20-year-old global healthcare services company had grown largely by acquisition, and housed many older, disparate technologies that did not work together. The firm had 2,400 employees in 23 locations, with more than 400 employees working from home. The company found it increasingly difficult and expensive to keep the patchwork of communications technologies running; networks were failing on a daily basis; and the home-based workers were increasingly dissatisfied because it was so difficult for them to connect to the rest of the organization.

By installing a Cisco Unified Communications Media Module with VoIP, Unified Messaging, call center, and integrated e-mail and voicemail, the company enabled all employees to connect seamlessly with others in the organization, whether they were in the office, at home, traveling, or at a client's bedside. The company's customer ratings are higher because clients are happy with the call center service, employee turnover is down, and the company's telephone charges are significantly lower.

### 3. Better Decision-making Support

A credit union with 850 employees in four states began to feel the difficulty of communications among remote locations. The solution was to install Cisco Unified Messaging, including IP telephony, contact center, and videoconferencing. The credit union experienced an immediate difference, because everybody was now receiving the same information at the same time—critical in an industry where laws, procedures, and policies change frequently. The organization is now far more agile in its decision making, and the Supervisor's Desktop allows managers to convey changes and decisions simultaneously over the network to their team members' desktops.

12. Henry Dewling, "Communications-Enabled Business Processes," Forrester Research, September 18, 2007

#### 4. Enhanced Supplier-Customer Interaction

With more than 200 large enterprise customers, a trade show management firm found that it wasn't responding effectively to customer needs. Customers had to wait to be connected to the right person, calls were dropped, and voicemails were lost. Its mobile employees had no way of knowing if they had voicemail messages without calling the office. As customers in the middle of a trade show were usually calling about urgent problems, this began to hurt customer experience. After deploying a Cisco Unified Communications for Small Business appliance with voice and messaging systems, the company found that the system's sophisticated call attendant routed client calls to the right person swiftly, while outbound call productivity increased by 500 percent—even as the telephone bills dropped. Customers, pleased with the new accessibility, began to perceive this small firm as a much larger company, and customer satisfaction improved dramatically.

#### 5. Protect the Safety and Security of the User Group

Recent events on U.S. college campuses spurred a regional state university to reevaluate its communications systems. The school found that its six-year-old telephone system had never been updated and did not have the capabilities needed to keep the university's 25,000 students and 4,000 staff and faculty safe in an emergency. The university deployed Cisco Unified Communications, including converged network for voice, Cisco Unified Communications Manager, videoconferencing, call center, and Cisco Unified Messaging. Now the school is able to broadcast emergency alerts within seconds to all IP phones and e-mail addresses on its 41-acre campus, ensuring that the university community will be aware and taking appropriate measures if an emergency arises.

### Appendix II: Cisco in Unified Communications

Cisco has more than 10 years of Unified Communications experience. During this time, it has delivered hundreds of large-scale, enterprise-class UC solutions to companies around the world. Below are some recent statistics on Cisco's UC reach:

- More than 70 percent of Fortune 500 companies use Cisco Unified Communications solutions.
- Cisco has more than 50,000 UC customers.
- Cisco is the worldwide market leader in collaboration with WebEx, and holds a leadership position for contact center solutions.
- According to Synergy, Cisco is first in worldwide enterprise voice (26 percent market share).
- More than 250 customers are deploying more than 5,000 Cisco IP phones each.
- Cisco is displacing 16,000 TDM phones every business day.



- Cisco has shipped or sold . . .
  - more than 10 million Cisco Unity seats (Cisco Unity is a flexible platform that delivers voice and unified messaging options for anytime, anywhere collaboration)
  - more than 15 million IP phones—more than 1 million in each of the last five quarters
  - more than 1.3 million contact center seats
  - more than 250,000 MeetingPlace licenses
  - more than 40 million VoIP ports
  - more than 105 million Power over Ethernet ports
  - more than 100,000 Communications Manager Express and UC500 licenses
- Cisco has made a serious, ongoing investment in Unified Communications over the past decade; one in five Cisco engineers works on UC.

### Appendix III: Glossary of Unified Communications Terms

**Asynchronous communication:** Asynchronous communication occurs when the communication does not take place in real time, human to human. If you place a phone call to a colleague, he answers, and you have a conversation, that is synchronous communication. If he is away from his desk and you leave a voicemail, that is asynchronous communication.

**Communications-enabled business processes (CEBP):** Business processes and applications tightly integrated with Unified Communications technologies to enable concurrent or consecutive communications among customers, suppliers, and employees within the context of business transactions.<sup>13</sup>

For example, a chemical factory system senses pressure in a pipe is beyond safe levels. The sensor sends a signal to an application that determines the problem cannot be solved by automatically adjusting a valve, and sends an alarm to an operator. At the same time, the application triggers a message to the plant engineer and initiates a videoconference with the operator to provide expert assistance. The application simultaneously notifies the plant manager of the situation, with pertinent details.

**Desktop video communication:** Live video communication using a built-in camera or camera attached to a desktop computer. Each participant views the others on his or her computer screen, while the participant's image is captured by the built-in or attached camera.

**Identity:** This is the unique designation for an individual used across all Unified Communications systems and solutions.

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13. "Communications-Enabled Business Processes," Forrester Research, September 2007

**IP (Internet Protocol):** Messaging protocol that addresses and sends packets across the network in the TCP/IP stack, offering a connectionless internetwork service. To communicate using IP, network devices must have an IP address, subnet, and gateway assigned to them.

**IP phone:** A telephone that uses voice over IP (VoIP) instead of conventional telephone signals. The analog signals are converted into digital signals, which are then routed across the network as just another form of data. IP phones are programmable, and can be used to access other digital applications and services such as the company directory or the Internet.

**Internet Protocol Telephony (IPT):** See voice over Internet Protocol (VoIP).

**Instant messaging (IM):** An application that allows users to message each other in real time via text. The application shows the user which other users are online and currently available. IM sessions can be conferenced to allow multiple users to communicate with each other.

**Multimodal communications:** Communications employing multiple technologies and devices. Unified Communications is multimodal, allowing users to select and transfer between any of a number of communications modes to suit a given situation.

**Policy:** Allows users to establish rules for message handling, prioritization of calls, automated responses, and “find me, follow me” capabilities.

**Presence:** The ability to identify whether a person is connected to the network. Presence is automatically supplemented with information regarding a person’s availability and his or her preferred mode of contact.

**Rich media:** New multimedia formats (such as video and Web collaboration) that feature interactivity, change (such as a real-time stock market ticker), motion (such as Flash animation), and the ability to capture data from the interaction (for instance, how long the user stayed logged in to the application, and the actions he or she took during the session).

**Softphone:** A PC- or laptop-based client used for VoIP communication.

**Synchronous communication:** Communication in real time (i.e., live) between individuals or groups. The opposite of asynchronous communication.

**Telepresence:** A new videoconferencing category that combines innovative video, audio, and interactive elements to create a unique, “in-person” experience over the network. Cisco TelePresence creates a “room within a room” environment that uses life-size images, high-definition resolution, and spatial and discrete audio to create a live, face-to-face meeting around a single, virtual table.

**Unified Communications:** Cisco defines Unified Communications as “the new model for business communications,” allowing customers, employees, and partners to communicate from any location, using any device, employing presence and policy capabilities to connect through multimodal communications.

**Unified Messaging (UM):** Brings together all forms of messaging (SMS, text messaging, fax, e-mail, voice), allowing users to send and retrieve all messages from a single user interface.

**Video on Demand (VoD):** Prerecorded video content available for viewing on any video-enabled device upon the user’s request—anytime, anywhere.

**Virtualization:** A network capability that allows users to connect anywhere, at any time, through wired or wireless devices—thus, the user’s presence becomes “virtual,” no matter where he or she is physically located.

**Voice over Internet Protocol (VoIP):** The routing of digitized voice over the Internet or other IP-based network.

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### More Information

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco, helps Global Fortune 500 companies and public organizations transform the way they do business—first by designing innovative business processes, and then by integrating advanced technologies into visionary roadmaps that improve customer experience and revenue growth.

For further information about IBSG, visit <http://www.cisco.com/go/ibsg>

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