



IP Telephony

Contact Centers

Mobility

Services

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PAPER

A New Era of Intelligent Communications

Driving Agility Through Business Communications Applications

May 2005



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Section 1: Introduction

A best-selling book released in the spring of 2005 argues that “The world is flat,” a metaphor for the level playing fields that globalization and technology have created for enterprises and entrepreneurs, from Bangalore to Beijing to Boston.¹

The world may not literally be flat, but it’s smaller than ever thanks to a convergence of social, business and technological trends, e.g., inexpensive telecommunications, global trade, open standards, internet technologies. Now a whole new category of business communications applications and services promises to compress the world even further, connecting workers, customers and processes to the right people, at the right time, in the right medium — allowing agile people, countries and enterprises to meet the growing demands for increased speed and precision in global business.

For the first time, organizations of all sizes are able to become more profitable and productive by enabling people, networks and business applications to work together — when they need to — anywhere they happen to be in the distributed enterprise or the world at large. The principle is the same whether one is talking about a three-office trucking firm, a multi-campus hospital, or a multinational corporation with offices in 150 countries: In the new age of intelligent communications, time and distance are largely irrelevant.

Figure 1: Intelligent Communications – Enabled by Business Communications Applications



In this new intelligent communications environment, business value is delivered at the applications level, not the network level. Transport — the network itself — has become a commodity. Any number of infrastructures allow business to tap into both their wired and wireless networks. What makes networks productive is a layer of business communication applications — above the network level — that bring all forms of voice and data communications together, seamlessly extracting value from the network.

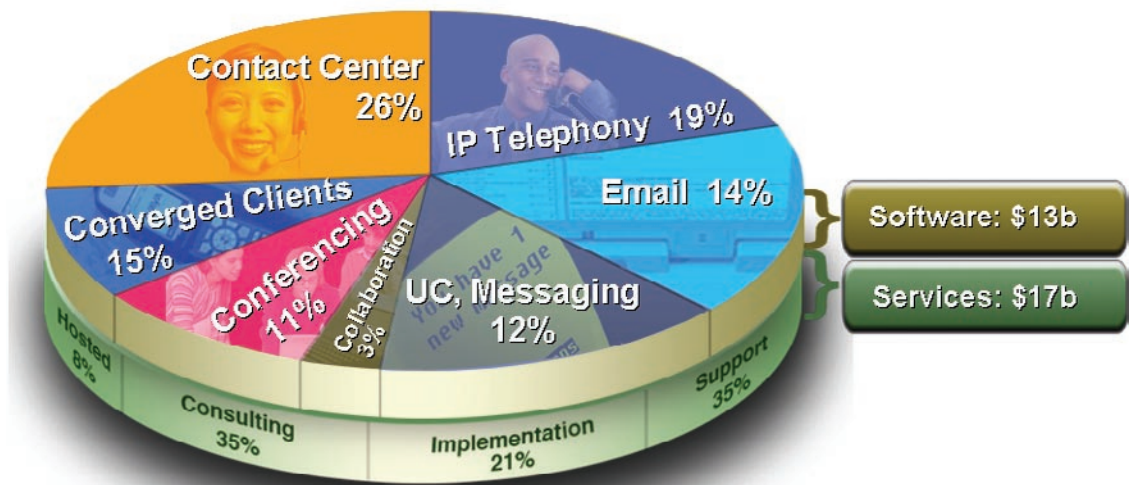
Business communications applications represent a new converged category of software applications and supporting services, running on open multi-vendor infrastructures, that bring together, under a single umbrella, a number of organizational needs and markets — telephony, e-mail, voice messaging, unified communications, conferencing, collaboration, mobility and softphones, instant messaging and contact centers.

These applications create business agility by connecting people and processes across the enterprise, intelligently embedding real-time communications into the fabric of the business in ways that make people more productive, processes more intelligent, and customers more satisfied.

They are the key to success in the global economy, empowering people to unlock business value from the billions of dollars of investment in existing communications and network infrastructure.

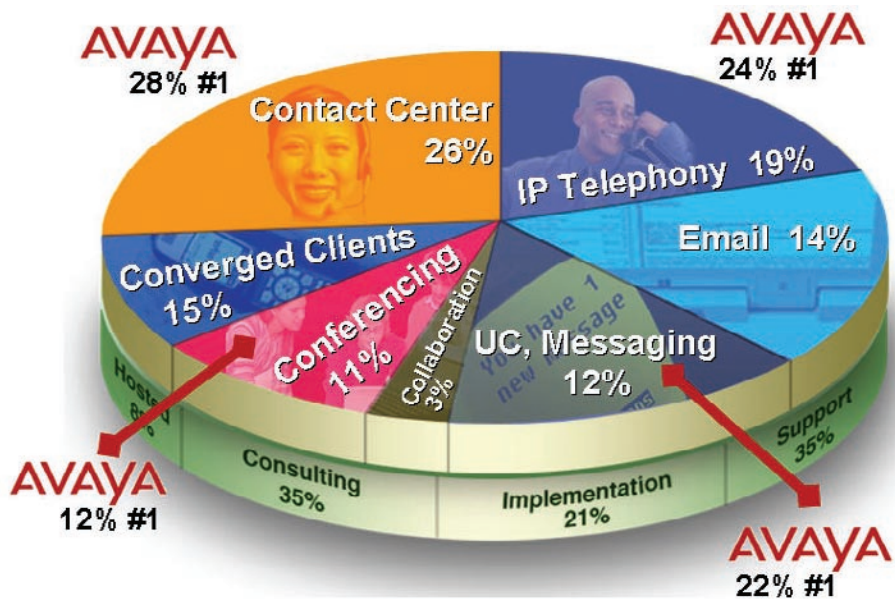
They have the power to change the world for the better.

Figure 2: Business Communications Applications Market



The Business Communications Applications market, including software and surrounding services, will amount to an estimated \$30 billion in 2006. Avaya — which devotes 90 percent of its R&D to these applications — is the clear market leader (see Figure 2).

Figure 3: Avaya share of Business Communications Applications Market



Section 2: Business Agility in the Age of Intelligent Communications

A key driver of the new age of intelligent communications is the increasingly pervasive and multiplying forms of communications supported by the growing adoption of IP-based converged networks that bring voice and data applications together on a single infrastructure and drive an unprecedented variety of smart business tools and processes.

Over the past decade, traditional voice services across the Public Switched Telephone Network (PSTN) have been in decline as enterprise emphasis shifted to a new networking model based on the rise of the internet and using the underlying technologies of Internet Protocol.

Most of this focus at the beginning of this revolution was directed toward building networks to handle the volume and variety of new data enabled by IP. As a result, data has been undergoing a fundamental move to this new architecture for more than a decade while far more mission-critical voice systems and applications have only recently been able to effectively utilize data networks.

As a result, organizations were required to maintain two separate networks; one for conventional telephony, conferencing and voice messaging; another for the enormous flow of enterprise data.

The development and maturation of VoIP (Voice Over Internet Protocol) has made the convergence of voice and data a practical reality and triggered a wave of innovation in Business Communications Applications.

Avaya's Business Communications Applications are delivered with the same level of security and high availability inherent in legacy voice architecture, on a converged data network that allows authorized users to connect to the right applications and services regardless of their physical location. Authorized users who were previously linked to a fixed local voice system with limited capabilities can now access a centralized set of applications that extend full functionality across the network. Branch, remote and mobile workers in a distributed enterprise are now able to work collaboratively in real-time and at the right-time.

IP-based voice products have been quickly gaining market share by offering a host of exciting new applications and capabilities for collaboration, contact centers, instant messaging, unified communications, conferencing, mobility and many other productivity-enhancing uses.

For instance, a power-equipment manufacturer integrated Avaya Business Communications Applications with the order-status system in its service centers, and reduced its average cycle time by 30 percent — even while reducing the administrative staff needed for the operation.

Another Avaya customer uses session initiation protocol (SIP) in its contact center to provide real-time expert attention to difficult incoming inquiries. Any agent in the center, while talking to that company's customers, can see on his or her computer which other agents are online and available to jump in and help solve the caller's problem.

A flooring manufacturer uses Avaya interactive speech-recognition software to allow its customers to place complicated orders over the phone, efficiently and without human latency.

A major airline uses Avaya Business Communications Applications to run its entire customer-service operation without a physical call center — all agents work from their homes, monitored by managers in a central office. Aside from the obvious savings in real-estate costs, the system yields greater employee satisfaction and retention, and requires less hiring and training.

Section 3: Evolving to Intelligent Communications at Your Own Pace

In this unfolding world of intelligent communications, a challenge for IT managers is how to realize the business value offered by IP telephony while leveraging existing applications, user-training and infrastructure investments. Most are understandably reluctant to simply rip and replace equipment that is still functioning well.

At the same time, there is a widespread recognition that IP-based systems are the inevitable wave of the future. Most CIOs and IT managers recognize the need to move in that direction.

The first step a business should take in evolving to converged communications is to choose a vendor that can deliver Business Communications Applications that are not only easy and cost effective to implement, simple to use, highly functional, secure, and offer the promise of continuing innovation, but also interoperate with different types of networks, devices and applications, and offer the promise of continuing innovation and customization through open interfaces and support for third-party developers.

Avaya has become the market leader by offering standards-based applications that allow organizations to extend their existing investments in applications, servers, gateways and phones into a converged solution at their own pace. Its Business Communications Applications and services are based on evolving IP infrastructure and interoperable with virtually any network and any device.

Avaya was among the group of companies that developed the increasingly important Session Initiation Protocol (SIP), which provides standards-based direct IP peering between IP PBXs and VoIP service provider networks. SIP is also used to connect with access devices such as IP phones, gateways, and soft clients, as well as network devices like network gateways, soft switches, proxy servers, and third party application servers and media servers.

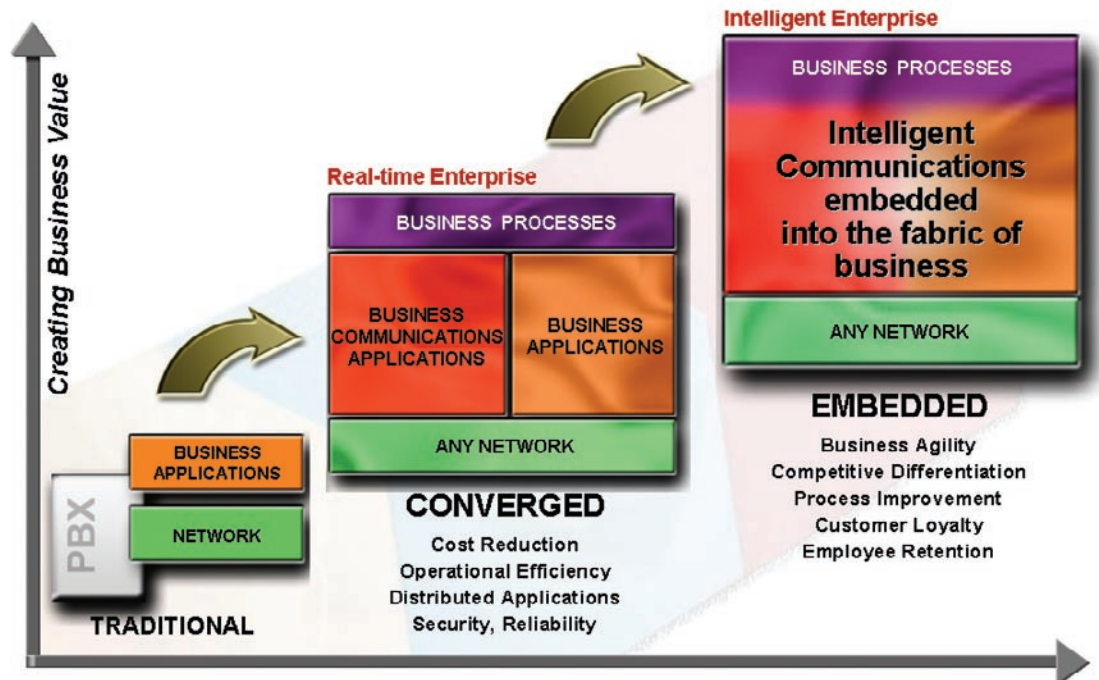
A simplified description of SIP is that it is a universal communications socket that enables a person using one medium to communicate with someone using a different medium. More important, it is fundamentally linked to idea of “presence” — literally, the protocol that “transports” presence of a person and all of his or her communications appliances to a predetermined universe of people, including coworkers, clients, family members and friends. In this way these people can see, at any time, not only who is available for real-time communication but via which media.

In the age of intelligent communications, open, standards-based applications are the key to ability and business value. They allow businesses to protect their investments on a variety of fronts and move forward with new capabilities when it makes sense for them to do so. Avaya Business Communications Applications are designed to allow organizations to evolve to IP at their own path, pace and choice.

Section 4: Building a Customer Roadmap

How do you leverage the power of Business Communications Applications to get to the Intelligent Enterprise? Figure 4 shows three stages in this evolution.

Figure 4: Business Communications Applications Evolution



In the Traditional Stage, the PBX and data network are separate, and connect independently to business applications. Organizationally, companies in this stage may have offices and people in many countries, but they operate more as local-plus-international entities than as globally integrated firms. People and resources are organized mainly by function and location.

The beginning steps for moving to the Converged Stage are the migration to IP telephony, and the addition of unified communications and contact centers on secure, highly-reliable multi-vendor converged networks. The most typical reason for taking these first steps is the ability to reduce costs of toll charges, infrastructure, or administration, such as moves, adds and changes.

In the Converged Stage, companies exploit the power of IP to create a truly global business model that is supply-chain focused, and in which people and resources can be physically located anywhere or, indeed, be accessed while in motion. Business applications are distributed when and where they are needed. The result is greater operational efficiency and responsiveness.

The key to unlocking the business value of The Converged Stage is the layer of Business Communications Applications that sit alongside the organization's business applications and run on any network. Network and applications interoperability is crucial to unleashing the full power and productivity of a company's people and business applications.

Open standards-based business communications applications allow the right people to connect with the right people and resources at the right time. In the real-time enterprise, mobility, conferencing and collaboration tools make time and distance irrelevant. Cost-reduction remains a tangible benefit, but is secondary to revenue growth through customer loyalty and employee productivity.

The Converged Stage will begin to transition to the Embedded Stage as the lines blur between previously compatible — but distinct — business applications and business communications applications. In the

Embedded Stage — the Intelligent Enterprise — business communications are embedded in business applications. This is the Holy Grail of open-standards-based computing and networking. In this phase, Web Services and an architectural approach known as Service-Oriented Architecture (SOA) allow applications and services to “discover” and communicate with each other on the network. This could be something as simple as passing data or it could involve two or services coordinating a major activity, such as logistics planning or supply-chain management.

Web Services and SOA can be thought of as the business access point to communications features, which can be used alone or in combination with other services. So, finding an expert to answer a customer question can be as simple as invoking a FindExpert service, which in turn uses presence, personal rules, and business rules, to locate an appropriate expert, across any mode of communication. The complexity of the IT environment is invisible to business users.

In another scenario, communication applications embedded in an ordering process could automatically sense a disruption and communicate the problem to management before an employee noticed.

For enterprises, this is true agility — the ability to respond to customers at any point and time in the value chain, and to know at all times what people and resources are available to be mobilized. These advanced communications services represent true competitive advantage to any enterprise that can benefit from improvements in speed of communication — reducing the latency in human interaction to compress time.

Section 5: Conclusion

A powerful combination of globalization, technological innovation and social change has ushered in a new era of global competition in which time and physical distance are largely irrelevant. From Sioux City to Shanghai, from Seoul to Sao Paulo, from anywhere to anywhere, people, societies and businesses are leveraging the global communication network and an array of open standards-based applications and devices to collaborate in real time and at the right time.

To assist individuals and companies in leveraging the benefits of the explosion of communications infrastructure, Avaya is leading the category of intelligent Business Communications Applications, which act as the glue that brings together end-users, networks, and other enterprise business applications. These applications create business agility by connecting workers, customers and business processes to the right people at the right time by the right communication medium.

Business Communications Applications are real-time, mission-critical applications that address fundamental business needs — telephony and conferencing, contact center, unified communication, communication services, and mobility. A fuller discussion of these applications is available in the Avaya white paper “Business Communications Applications on Any Network.”

For businesses that hope to prosper in the global village, Avaya Business Communications Applications are essential building blocks on the road to business agility and competitive success.

For more information on how Avaya can take your enterprise from where it is to where it needs to be, contact your Avaya Client Executive or Authorized Avaya BusinessPartner, or visit us at www.avaya.com.

Section 6: Footnotes

¹ Thomas L. Friedman, “The World Is Flat: A Brief History of the Twenty-First Century,” (Farrar, Straus & Giroux)

About Avaya

Avaya enables businesses to achieve superior results by designing, building and managing their communications infrastructure and solutions. For over one million businesses worldwide, including more than 90 percent of the FORTUNE 500®, Avaya's embedded solutions help businesses enhance value, improve productivity and create competitive advantage by allowing people to be more productive and create more intelligent processes that satisfy customers.

For businesses large and small, Avaya is a world leader in secure, reliable IP telephony systems, communications applications and full life-cycle services. Driving the convergence of embedded voice and data communications with business applications, Avaya is distinguished by its combination of comprehensive, world-class products and services. Avaya helps customers across the globe leverage existing and new networks to achieve superior business results.

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