

IP Telephony:

The Vision, the Reality,
and the Captaris Role in
this Emerging Market

 Captaris
CallXpress

WHAT IS IP TELEPHONY?

When the concept of IP telephony first emerged, it represented a revolution in the way long distance telephone calls could be conducted. Today, however, IP telephony embodies much more than cheaper long distance calls for friends and families. By textbook definition, IP telephony (Internet Protocol telephony) is a general term for the technologies that use the Internet Protocol's packet-switched connections to exchange voice, fax, and other forms of information that have traditionally been carried over the dedicated circuit-switched connections of the public switched telephone network (PSTN). Using the Internet or a corporate local or wide area network, calls travel as packets of data on shared lines, avoiding the tolls of the PSTN. The challenge in IP telephony is to deliver the voice, fax, or video packets in a dependable flow to the user. While most consider IP telephony to be the movement of real-time voice over IP (VoIP), IP telephony actually embodies much more than that. IP telephony also delivers application value in non-real time, packet-switched communication—namely the transport of voice and fax messages. This white paper examines the three key applications of IP telephony and the Captaris role in these areas: IP-based switching, IP faxing, and Voice Profile for Internet Mail (VPIM).

THE MARKET

As with any new technology, industry analysts are watching this technology closely and providing various predictions as to how quickly the technology will be deployed. Of course, mainstream deployment of IP telephony is dependent upon a number of drivers moving it forward and challenged by a number of inhibitors as well. Whether it is bottom-line cost savings, improved productivity of the information systems staff, or the sheer corporate forces behind this technology, there is no question IP telephony will soon be the defacto standard in telecommunications technology. Once implemented, IP Telephony will provide:

- Reduced total cost of ownership (TCO)
- Leveraged Infrastructure
- A higher level of application integration

TECHNOLOGY INHIBITORS

While certainly a number of factors are driving the mainstream deployment of IP telephony, a number of technology inhibitors exist as well.

Quality of Service – The ability to route the content packets in a timely manner, both within the enterprise as well as on the public network.

Scalability – IP Telephony solutions currently don't scale to the size required to support a corporate-wide implementation.

Lack of Converged Management Systems– Today, when IP Telephony systems are deployed they generally can't be managed by the existing management systems in already use.

MARKET INHIBITORS

While these technology inhibitors certainly pose a challenge, overcoming these obstacles alone won't spark the IP telephony revolution. A number of issues exist in the market as well.

Existing Investments – Many companies have made significant investments in circuit-based telephone networks and are not likely to abandon these products overnight, particularly if they are fully functional and not fully depreciated.

Limited Applications – Most companies will not deploy new technology without a compelling business reason to justify the cost. While there are some applications that will benefit from IP telephony today, such as unified messaging, these applications are available using a company's existing circuit-based switch infrastructure. Few applications have evolved which require IP telephony and provide a tangible business benefit today.

Lack of a Converged Channel and Support Model – The diametrically opposed telephone interconnect channel and data communications channel differ not only in their products, knowledge, and expertise, but also in their pricing models, service levels, and maintenance programs. Before IP telephony becomes a mainstream technology, there must be a channel structured to sell it—offering the data expertise of the data communications channel and the service and support model of the interconnect channel.

THE TECHNOLOGIES

IP telephony includes a number of key technologies designed to facilitate the movement of traditional voice and fax data across a data network. These applications include IP-based switching, Internet faxing, voice profile for Internet mail (VPIM).

IP-Enabling Circuit-Based Switches

One of the driving motivations for IP telephony is the ability to send standard voice calls across a data network for the purposes of toll bypass. Many traditional telephone system equipment manufacturers have come up with a solution to IP-enable legacy, circuit-based switches through special hardware.

This solution is a type of gateway card that allows telephone calls made from the proprietary telephone systems to be routed over an IP network. The user places an outgoing call in the normal fashion. The telephone system software recognizes from the dialing pattern that this call could be routed over the available IP network and routes the call out through an IP trunk card. There must be some type of device at the far end to bring the call off of the data network and deliver it to the far end recipient. This solution allows for the existing circuit switch and all of its investment to be utilized while providing IP-based solutions when needed.

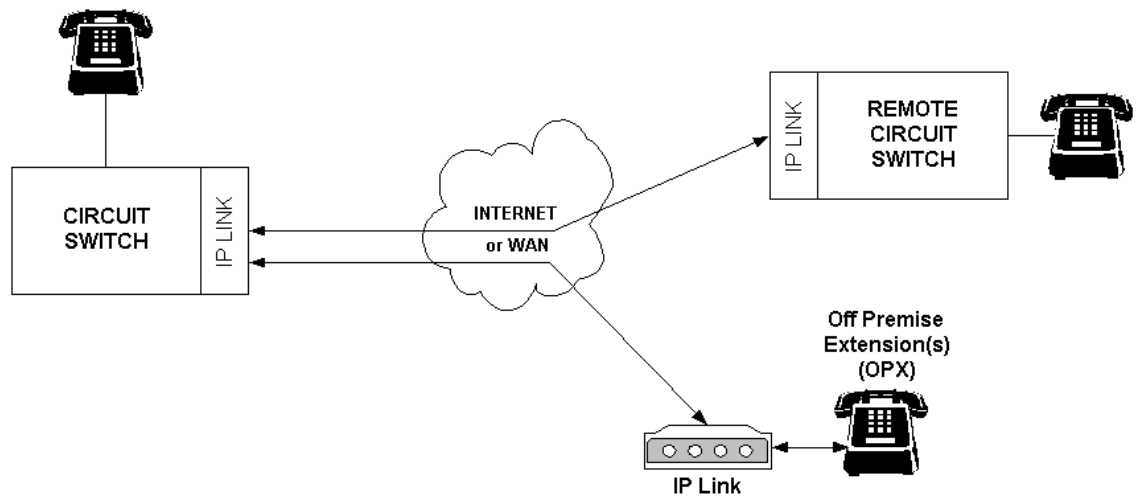


Figure 1 — IP Trunk Card

IP Telephony Gateways

Gateways bridge the gap between the IP network and the PSTN. Gateways allow traditional telephones on the PSTN to connect over an IP backbone. The function of the IP telephony gateway is to digitize analog voice and fax signals, break the digitized transmission into IP packets and then hand the packets off to the IP

network. Gateways at the receiving end of the transmission do just the opposite to deliver to IP packets to the PSTN.

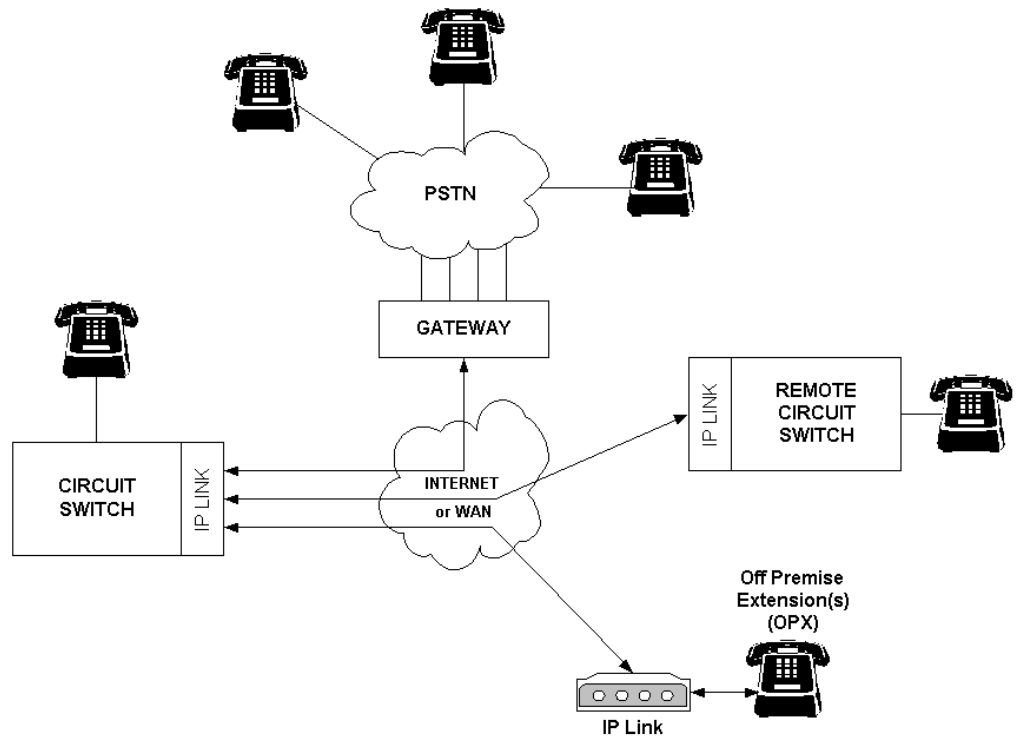


Figure 2 — IP Telephony Gateway

Packet-Based Switches

Packet-based switches are built from the ground up to move packetized voice over a data network. These switches are built on open, standards-based hardware and software components and connect into a data network as seamlessly as any other data application. These telephone systems often support traditional, analog telephony integrations as well as IP integrations such as H.323.

It is widely believed companies will deploy one, two, or possibly all three of these solutions as part of the migration to IP telephony. The key to successfully introducing IP telephony into the organization is ensuring no disruption in any of the applications surrounding the voice infrastructure. Most notably, voice messaging, automated call answering and routing, unified messaging, and fax applications are likely to be the most impacted by the move to IP telephony. How these applications are affected depends on how they interact and integrate with the IP-based switching components.

IP-Based Faxing

IP fax has gained attention as a way to leverage public and private IP networks to improve fax communication with increased control, higher efficiency and lower costs. IP fax transports faxes over the Internet and/or private corporate intranets for at least part of the journey to their destinations, bypassing the traditional public switched telephone network (PSTN). In addition to transporting faxes, IP faxing also lets users gain access to the faxes over the Internet and corporate intranets, using Web browsers.

THE ADVANTAGES OF IP FAX

IP fax offers two major and compelling benefits. First, it allows companies to leverage IP-based network infrastructures to achieve more effective and efficient fax communications. Second, it offers the potential to lower fax costs. By integrating fax communication with its IP network infrastructure, a company can realize a number of important advantages including more effective management of their fax processes, easier access to faxes for their users and increased integration of electronic document and messaging systems. IP Fax also the opportunity to reduce fax telephone charges, particularly those associated with intra-company faxes. Faxes can be sent over the IP network infrastructure, bypassing the PSTN.

Voice Profile for Internet Mail

Voice Profile for Internet Mail (VPIM) is an international standard allowing the exchange of voice and fax messages between disparate messaging systems using the Internet or corporate intranet. This type of message transmission speeds message delivery, saves money, and improves the quality of the received message, while using a company's existing IP infrastructure for transport.

VPIM formats compressed voice and fax messages in the established Multipurpose Internet Mail Extensions (MIME) protocol and uses Enhanced Simple Mail Transfer Protocol (ESMTP) to send these messages via Transmission Control Protocol/Internet Protocol (TCP/IP). By utilizing TCP/IP as its transmission vehicle, VPIM is guaranteed to run on virtually all existing data networks. VPIM offers a number of compelling benefits to companies including improved message delivery speed, more cost effective transmission medium (IP network), improved voice message quality and vendor independence within the enterprise network.

CAPTARIS AND IP TELEPHONY

IP telephony is not new to Captaris. With a broad portfolio of applications that leverage the Internet today, Captaris is in the unique position of having both the telephony and data expertise required to take advantage of the true power that IP telephony has to offer.

IP TELEPHONY SYSTEM INTEGRATION

Captaris has developed a broad range of over 150 telephone system integrations in its industry-leading unified messaging server, CallXpress. With this vast portfolio of products, Captaris is able to deliver sophisticated unified messaging solutions to virtually any customer, regardless of the type of telephone system installed.

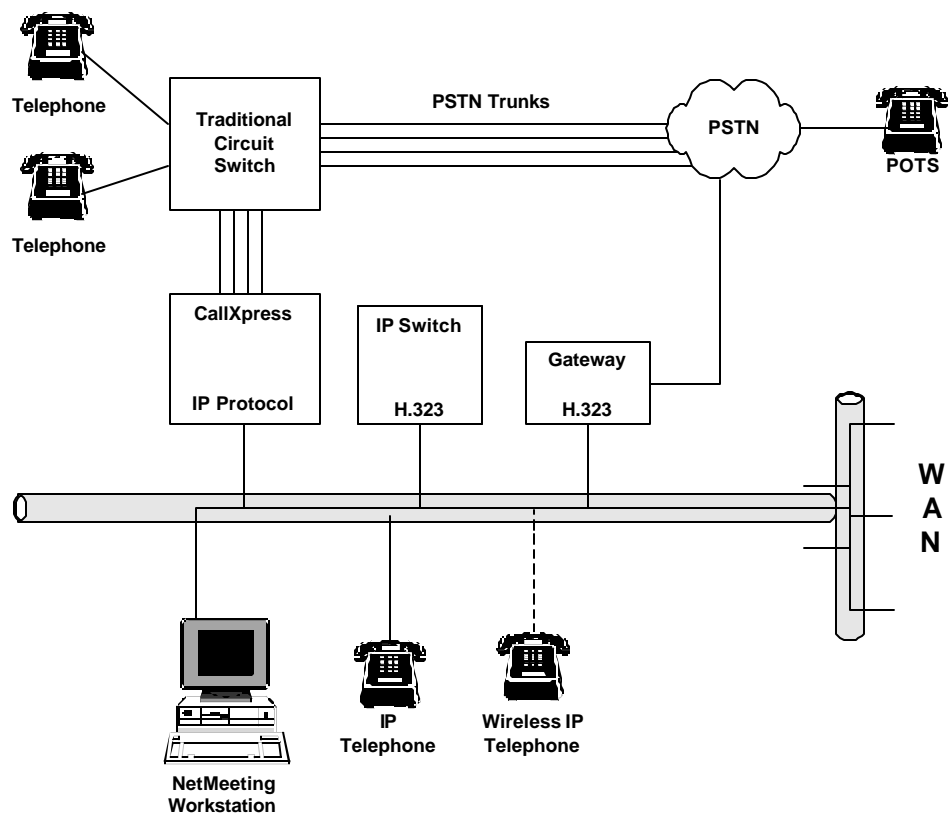


Figure 3 — CallXpress IP Telephony Integration

With the increasing presence and value of packet-based telephone systems, companies are faced with the prospect of migrating their legacy, circuit-based telephone systems to an IP PBX. Captaris offers tremendous value with the ability to bridge the gap between traditional circuit-based switches and IP-based telephone systems. This approach allows companies to make a phased migration to IP telephony—retaining their traditional PBX equipment and service while implementing IP telephony systems departmentally or in branch offices—protecting their investment in, and ensuring no loss of service to, their CallXpress unified messaging applications.

IP FAXING

As part of its fundamental architecture, The Captaris industry-acclaimed RightFAX network and production fax server offers a comprehensive array of IP fax capabilities. These capabilities let customers leverage IP fax technology to enhance the control and management of document delivery, both internally and externally. They both help speed document delivery and control costs related to fax communications. The Captaris fax products include a wide range of IP capabilities including least-cost routing over the Internet, browser-based access to faxing services, integration with Internet e-mail and high-volume fax delivery service over the Internet through direct connectivity to the Captaris MediaLinq network.

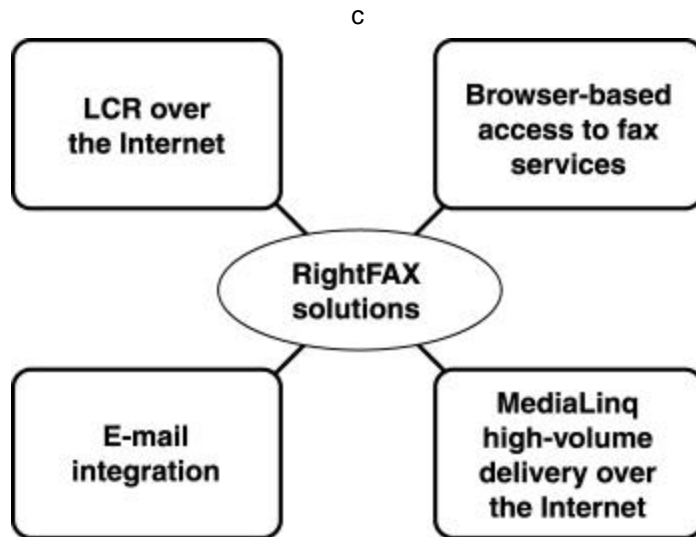


Figure 4 — RightFAX IP-focused capabilities

VOICE PROFILE FOR INTERNET MAIL

The Captaris award-winning CallXpress unified messaging solution was one of the first messaging products to support the VPIM networking standard. CallXpress not only employs the VPIM standard for networking among disparate messaging systems, it also uses the foundation of VPIM to provide a very feature-rich and robust IP-based networking scheme within homogenous Captaris networks.

Companies with multiple locations can use CallXpress to exchange voice and fax messages with users in different locations over the Internet, a local area network, or wide area network as quickly and efficiently as if the users were in the same building. Furthermore, powerful system management features ensure that multiple CallXpress systems within a network can be centrally managed from a single administrative interface and that all nodes on the network are automatically updated with any directory modifications.

The sophisticated IP-based networking features of CallXpress ensure multi-site organizations are able to seamlessly exchange messages by simply leveraging the data infrastructure already in place.

POWERFULLY POSITIONED TODAY AND TOMORROW

Captaris has a long history of technological innovations and product “firsts.” With the introduction of the first desktop- and telephone-based unified messaging solutions, the first integrations with external email systems, the first unified messaging solution built on the Windows NT operating systems and one of the firsts products to support IP -based faxing and VPIM, Captaris is a proven technology leader.

OUR PRODUCTS

Captaris is IP active today and IP ready for tomorrow. With leading products and applications today such as IP faxing, VPIM-compliant messaging, and IP-based call management, Captaris has consistently leveraged the power of the Internet in tangible applications that increase productivity, improve customer service, and dramatically reduce costs.

Building on our strength as technology innovators, Captaris is poised to deliver cutting edge solutions that extend the power and reach of the Internet. Focusing on the evolution of packet-based telephone systems, Captaris is committed to easing the transition of companies migrating from traditional circuit-based switches to IP -based telephone systems by providing hybrid integration solutions in our unified messaging products which service both circuit-based and packet-based systems simultaneously. And, focusing on the needs of the mobile professional, Captaris will deliver an Internet-based suite of applications designed to facilitate call handling, personal information management, and document exchange from wireless, handheld devices.

OUR PARTNERS

Captaris is aligned with some of the most powerful forces in the IP telephony and data industries. With strategic alliances with Ericsson, NEC, Fujitsu, Ascom, and Sphere Communications, Captaris is in very good company in the world of IP telephony. As a Lotus Global Strategic Alliance Partner for unified messaging, and a key partner in Microsoft’s unified messaging initiatives, Captaris unified messaging solutions have been recognized and validated by the industry giants. And, our OEM partnerships with Xerox and Oracle further validate the Captaris products and technologies.

OUR VISION

Captaris has a proven track record of consistently delivering real applications, with tangible benefits, based on emerging technologies. With our products, our partners, and our keen vision of the future, Captaris is in the unique and powerful position to lead the industry in new applications and innovative technology that leverage the power of IP telephony. Captaris offers the clear solutions for today’s technologies and tomorrow’s innovations.