

internet calling

VoIP begins to close in on its big promises of cost savings, convenience and efficiency.

Voice over Internet Protocol (VoIP), at last, is ready to drum up some real excitement.

Since 1997, and increasingly in recent years, a number of voice services have been offered using IP as part of the method for delivery, with several companies offering consumer-grade services. Current services generally fall into one of four categories.

First, consumer-grade PC-to-PC connectivity like Skype, Apple Corp.'s iChat (includes video) and other applications that integrate voice, are advanced PC chat services and do not connect to the traditional phone network.

Second is consumer/SOHO-grade, phone-IP gateway regular phone network service, bundled with broadband connectivity, like Softbank BB Corp.'s BBPhone service. With over one million subscribers, this service is Japan's preeminent consumer IP voice offering.

Third is internal enterprise VoIP.



Many enterprises have used dedicated circuits between offices to reduce the cost of internal communications. Some organizations are now implementing those same circuits over IP, while others are choosing to route internal calls via the Internet.

Fourth is enterprise VoIP. As more service providers add VoIP to conventional telephony connectivity solutions, service providers such as Fusion

Communications Group Inc., Vonage Holdings Corp. and Jens Corp. are applying IP telephony solutions to businesses. Relative to the number of implementations in the business market, however, VoIP technology has received immense amounts of media attention. According to Japan communications industry veteran Robert Kelley, CEO of major VoIP-software vendor Skywave, Inc., the fanfare was more noise than substance until this summer.

"Until now," he says, "the main force in the market has been big corporations, that are focused on utilizing an existing data network for their internal conversations."

Both businesses and consumers are utilizing VoIP, but the question now concerns the unique needs of a global organization.

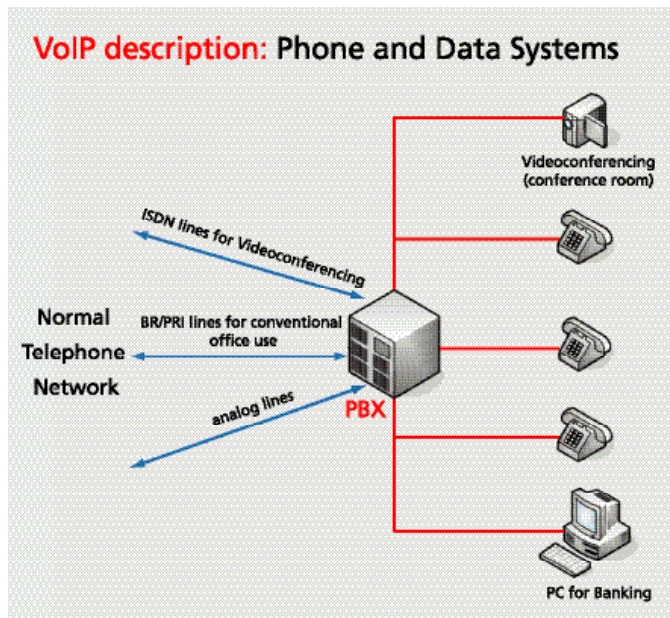
Enterprise requirements

First and foremost, businesses are willing to pay more for quality services than are individuals,

particularly when there may be hundreds, or thousands, of dollars at stake on a given call. Tolerating a busy signal is just not acceptable business practice. Second, while a small percentage of households use services like three-way calling, most businesses of any size have implemented it on every desktop. Finally, most businesses use a PBX/PABX (Private [automatic] Branch eXchange) – a phone switch that allows multiple internal lines to share external line resources.

Compared to computers and servers, a PBX is costly, ¥4 million and rising, depending upon the number of handsets and features installed on the device. Also, PBX prices have not decreased appreciably over the past 10 years. Partly because of this, and partly because of the IP explosion, enterprises are exploring new avenues in telephony. Companies connect PBX systems to IP gateways, enabling regular telephones to make calls using IP. Others implement IP phones internally, giving them flexibility they didn't know was available. This is particularly the case with "soft-phones," computers with an installed IP-telephony application, and user interaction via headset.

One company already using this technology is Merrill Lynch Japan Securities Co., Ltd., which has



implemented a hybrid system for internal communications.

"One of the best things for us about going to IP phones is the ease of management and enhanced features compared to a traditional phone system. This is particularly useful for staff working out of office," says Chim See, vice president for Pacific Rim Data Center Strategy. "The soft phone feature allows us to work off-site but still have access to our office phone." Previously, when a user was overseas, calling in to voice-mail often required a series of phone-system-specific passwords and guidance (as well as a special phone number). It was so cumbersome as to be rarely (or ever, by some people) used. Now, an executive's desk is as portable as his or her laptop computer.

Improved accessibility and potential cost savings are just the

beginning. The inherent interconnection of voice running over a data network means that voice can be added to many computer applications. Too many people focus only on cost reduction related to VoIP, says Skywave's U.S. director, Kevin Nethercott.

"While that is an important benefit of the technology, the integration of computer applications with phone networks staggers the imagination," he adds. "It will start with simple things – address books in Outlook or Notes – and

while we don't know where it will end up, we are amazed by the possibilities."

John Linehan, Director of Alliance Strategy for Oracle Corp., concurs. "VoIP certainly has the potential to radically alter the videoconferencing and e-learning markets," he says. "Using an integrated application suite, voice over IP allows for multi-locale classrooms without expensive setup times and overhead."

With all of these features, it is easy to see why corporations are interested in implementing VoIP. However, providers have been offering VoIP services for the better part of six years and remain merely marginal players in the global telecommunications business. Off the record, vendors cite equipment maturity as an issue, with hybrid solutions still the most practicable.

Tolerating a busy signal is just not acceptable business practice.

Merrill Lynch took advantage of its relocation to new offices in Nihonbashi, Tokyo, to compare 100% conventional, 100% VoIP and a hybrid in arriving at the best voice solution.

"Merrill Lynch decided to implement a hybrid IP/conventional telephony solution," says Bryan MacKinnon, director of Business Continuity Management for the Pacific Rim Regions. "This positions us better in terms of risk mitigation as well as making us better placed to capitalize on new IP telephony features."

Not yet risk-free

No system is 100% safe (articles about hacking into PBXs date back to the 1980s). The technology is still in the early stages, but we see programs like VOMIT (voice over misconfigured Internet telephones), which can be used to record a Cisco Systems, Inc. VoIP conversation

on a compromised network and convert it into a sound file.

Tim Burress, senior security engineer for VarioSecure Networks, Inc., a Japan-based network-security company, points out that because the underlying protocols for VoIP are complex, both from the point of view of implementation and end-user configuration, some risk is inherent in varying interpretations of standards and unpredictable changes of circumstance.

"In addition, there is a web of trust involved here, just as with the Web, e-mail or other network services," he says. "End users need to be aware of these risks and the options available to manage them." This may be especially the case with black-box appliances, whose "plug and play" characteristic can mask the fact that no default configuration is appropriate for every situation.

PBX makers, says Kelley of Skywave, are going through a migration from 100% conventional telephony (and its fat margins) to hybrid systems that incorporate both VoIP and conventional switching.

"Worst case, I believe, is that we won't see significant numbers of conventional PBXs being sold five years from now," he says. It is clear that each of the major PBX makers has been moving to deal with the threat/opportunity posed by IP telephony. The major presence is Cisco, a giant in the networking market with no pre-existing conventional telephony base, which has been moving strongly into VoIP since the late 1990s. Each of the major manufacturers (Avaya Inc., Nortel Networks Ltd. and, in Japan, Fujitsu Ltd. and NEC Corp.) has incorporated VoIP functionality into their products or extended the functionality of existing PBXs with VoIP gateways. These products are by no means inexpensive, and buyers may never directly recoup all of their investment, but cost is not always the main consideration for companies implementing VoIP.

"Cost was one of the drivers for going to VoIP, but not the only factor. Whilst a VoIP solution does require more initial capital, we are confident that with the use of VoIP features, we will benefit from lower running costs," says MacKinnon. Merrill Lynch in Japan deployed VoIP for back-office use. The front office continues to use traditional phone systems.



"Would you mind talking to me for a while? I forgot my cell phone."

Now, an executive's desk is as portable as his or her laptop computer.

Since IP telephones and conventional telephones look and feel about the same, the shift to VoIP within an enterprise is fairly straightforward for the end-user as well as for the IT department (though many, traditionally, do not maintain PBXs). IP Voice service providers, however, have an entirely different level of complexity, as they have to run conventional telephony services as well as provide for IP solutions.

Effects on service providers

Service providers also face the daunting task of maintaining profitability while implementing a new technology. In the consumer market, there are already a number of choices here, ranging from Jen's IP Phone, one of the first international IP calling services to Yahoo's BBPhone. There remain some skeptics about the value of VoIP, however.

To quote AT&T CEO Dan Dorman: "[VoIP] is not going to, like, change my life. This is going to be a couple-of-billion-dollars-a-year product. But you have to put that into the context of a 25-billion-dollars-a-year company."

Takuhiro Nakamura, Cable and Wireless IDC marketing manager for IP convergence, differs, in that VoIP is a key component of customer relationship management.

"Enterprise-grade VoIP presents an excellent opportunity for carriers to strengthen long-term relationships. Customers want to reduce their overall communications costs and carriers want to avoid loss of revenue. To remain profitable in

the long term, carriers will need to do more than just facilitate convergence of data and voice communications," he says. "As we march toward the convergence of communications and computing, they will need to be proficient in the creation of enterprise infrastructures that increase customer agility, enable innovation and cut costs and complexity, while making the most of current systems."

With Japan the world leader in mobile-IP traffic, and with margins that dwarf those of conventional wire-line carriers, mobile telephony providers such as NTT DoCoMo, Inc. (FOMA), KDDI Corp. (au) and Vodafone KK have even more to fear from VoIP. While one might ignore the 3G-based packet systems for the moment, the popularity of wireless LANs poses a threat to which handset makers are starting to respond. NTT DoCoMo, in conjunction with NEC, introduced its first prototype in July. The handset detects whether or not it is within the office, and switches accordingly between the local PBX and the 3G wireless networks.

However, since it will not be able to use any of the many wireless LAN "hotspots" around Tokyo, this decreases potential savings for a business. Enterprises will also have to purchase additional equipment to IP-enable the PBX.

Analysts believe that Softbank's mobile-phone strategy revolves around mobile telephony using broadband-enabled hotspots, as the cost of a wireless LAN-compatible telephony network

would be much lower than conventional 3G-style rollouts.

"Unlike in the U.S., where hotspots are for laptop-toting corporate road warriors, in Japan, hotspots are going to be an on-ramp for mobile handsets," says Ben Miller, an independent broadband consultant and former Yankee Group analyst. "Hotspots are just a step toward Softbank's goal of entering the mobile market." As with every market that Softbank has entered, a price war is bound to follow.

VoIP takes the oldest, most profitable service in the telephony business – voice – and offers the opportunity for a dramatic transformation of service, quality and application integration. By providing businesses with higher flexibility and the ability to route internal voice traffic over existing data networks, VoIP provides material benefits to a business, though these benefits may or may not produce a superior return on investment. Service providers are also adapting to this new paradigm of communication in both traditional and wireless telephony to provide combined offerings that better address customers' needs.

Finally, wireless LAN-enabled hotspots may be the next great thing in mobile communication, but given the strength of the Japanese giants, it looks like the competition has hardly started.

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