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Say Hello to the Next Phone War

Voice-over-IP, a technology that lets phones act like PCs and vice versa, is about to take off

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When a customer walks into any of the 150 branches of Sports Soccer, a retailer of sports clothing and merchandise in Britain and Belgium, he might as well be walking into all of them. If a certain product — say, a soccer jersey — is unavailable in the store he's in, the clerk can check the inventory of all nearby branches through a brief phone query. The clerk doesn't actually talk to anyone, but with a few keystrokes she uses the phone to check a database and locate the nearest store with the shirt.

Welcome to a world in which the phone becomes a computer, and the computer a phone. Sports Soccer is using voice-over-Internet protocol (VOIP) technology, which allows the transport of voice, data and video over the same network. And as the various kinds of communications become intertwined, the sum is greater than the parts. The phone that the clerk uses is an IP phone from Cisco Systems that packs more punch than your old handset could even dream of.

Eight years after its introduction, VOIP is having its moment. Indeed, 2004 is sure to be the year in which the technology hits prime time. While spending on a lot of telecommunications equipment is stagnant, sales of Internet-enabled phone systems to businesses are expected to grow 80% in 2003, to \$1.6 billion, ultimately reaching \$5.3 billion in 2007, according to Synergy Research Group. Some 30% of phone lines shipped are already IP-enabled, and many experts predict that IP shipments will surpass traditional phone lines next year. The opportunity has set off a scramble among equipment makers and service providers that is a welcome respite from their sluggishness of the past few years.

The competition includes such telephone-equipment makers as Avaya, Citel Technologies, Mitel Networks, NEC, Nortel Networks and Siemens, which are all pitching products to move customers from traditional phone systems to a converged voice-and-data network. On the other side, network-equipment makers like Cisco and 3Com are suggesting that companies dump their phone providers entirely and go with IP-enabled systems and phones. IP start-ups like Pingtel, Shoreline Communications,

Sylantro, Veraz Networks and Vertical Networks are pushing both sides to innovate.

As with the wireless revolution, phone companies have to beat 'em or join 'em — at the risk of cannibalizing their own business by pitching VOIP services to their customers. But even if the phone companies' long-distance revenues plummet — Vijay Bhagavath of Forrester Research figures that a company with 10,000 employees can reduce its long-distance bill 70%-- some of that lost revenue can probably be regained over the long term through value-added services that the voice-data combination is just beginning to make possible. For that reason, most of the major phone companies — AT&T, BellSouth, Qwest Communications, Sprint and Verizon — have already announced a VOIP offering of some sort. They too are responding to upstarts like end-to-end IP service provider GoBeam, based in Pleasanton, Calif. Ultimately, residential customers will reap some of the same rewards.

Here's how VOIP works. Instead of using traditional "circuit switched" phone networks, which utilize a dedicated connection between callers, companies can digitize sound waves, divide them into packets of data and send them over a data network the same way you would send e-mail. VOIP first gained prominence in 1995 as geekware. The initial draw: avoiding long-distance charges — a concept known as "toll bypass"--by steering clear of the "public switched-telephone network." The technology was beset by a host of technical glitches, though, so most phone companies and businesses wouldn't go near it.

We're now entering the second phase of IP telephony, one in which companies can not only save money by consolidating voice and data traffic on one network but also reap productivity gains that would have been impossible in the past. Industries with heavier information needs — financial services, health care, retail — have been quicker to adopt the technology, but industry observers say the benefits are just too great for any holdouts to remain that way for long.

The Holy Grail of IP telephony is a new breed of application that will improve information flow within an organization and with its customers and suppliers. When calls come in to customer-service reps at Harley-Davidson, for example, custom IP telephony software from Cisco automatically brings up on the reps' screens information relevant to the callers — such as recent purchasing or repair activity. That has improved the reps' efficiency as well as the quality of customer interaction. Another plus: cost savings. Reid Engstrom, director of information services for the motorcycle maker, which is based in Milwaukee, Wis., predicts savings of \$550,000 a year in staffing costs from that increased productivity and savings of \$1.3 million annually from improvements like reducing warranty costs through earlier resolution of problems.

IP telephony also aims to collapse the proliferation of communications gadgets clogging the pockets and purses of our mobile work force into a single seamless stream of information. "Over the past 20 years, we've seen

the emergence of discrete communication vehicles — like PDAs, cell phones, personal computers and instant messaging," says Sue Spradley, president of the wire-line-networks group at Nortel. "The integration of these devices and media into one communication session will revolutionize the way we interact."

Unified messaging software, for example, allows mobile workers to access all their voice-mail, e-mail and fax messages through one channel — by phone, through an e-mail account or on the Web. To achieve that, companies such as Avaya use text-to-speech software that allows a mobile worker to manage his e-mail over the phone with simple phrases and to check appointments in Microsoft Outlook.

Another new breed of software called presence-aware applications understands where and how to contact employees — at all times. European telecom giant Siemens has just released a product called HiPath OpenScape, which allows, for example, a salesperson who is in an important pitch meeting to find a product specialist immediately, whether the specialist is in the office, in the car or at home. Smaller companies like Sylanro, based in Campbell, Calif., offer to phone companies similar products that they house in their networks and that the phone companies can in turn offer to their customers. "We're helping to usher in a whole new era of usability in communications that people haven't been able to get to in the past," says Laura Thompson, vice president of corporate marketing at Sylanro.

Companies are also excited about the prospects for improved "collaboration," particularly on conference calls. Several browser-based interfaces engendered by VOIP have turned these enduring hassles of corporate life into mere point-and-click exercises. It's now possible to initiate a conference call merely by clicking on contact names in a browser — all over local or wide-area networks.

IP telephony is even making inroads into the wireless industry. For now, most hospitals ban cell-phone use in patient areas because the phones can produce electromagnetic radiation that interferes with hospital monitors. That has forced patients and nurses to rely on archaic paging systems. Evanston Northwestern Healthcare in Evanston, Ill., recently decided to begin using a voice-over-IP-enabled device from Symbol Technologies of Holtsville, N.Y., on wireless networks in its three hospitals. The device, which combines PDA functions with voice, offers several benefits: it doesn't suffer from interference, as cell phones do; it lets patients connect directly to the nurse assigned to them; and it allows doctors, who may be off-site, to contact nurses directly, eliminating the risk that a call will be missed at the nursing station.

Despite obvious benefits, many businesses are reluctant to throw away their current phone systems, especially since they work just fine. Companies like Avaya, Citel, Mitel and Nortel offer equipment running "converged systems," which let companies operate traditional phone systems alongside an IP network. "You only need to migrate those people who actually get

some benefit from having a new device on the desktop," says Donald Peterson, chairman and CEO of Avaya. "For people who sit at the guard station at the back door, you can leave the existing devices there."

The folks at Cisco and 3Com argue, of course, that everyone should get on an IP-based network — at once. Those who wait, they say, will fall behind competitors not only in cost savings but also in learning how to use a converged network as a strategic asset. "There's no question at this point that all communication will ultimately be IP based," says Charles Giancarlo, senior vice president of product development at Cisco. He may be right: most businesses now outfitting new offices for telephony tend to go with VOIP instead of traditional phone lines.

And because no technology story is complete without IBM or Microsoft, rest assured that both companies are muscling in on the competition to provide a platform for application development around IP telephony — IBM through its Lotus Instant Messaging and Web Conferencing product, and Microsoft through Windows XP on the desktop, Windows CE for wireless and its Windows and Live Communications Servers. Many analysts believe that when the dust clears, VOIP hardware will become a commodity, made by a firm like Dell, while a few communications companies will have their hand in the software pie — and that Microsoft and IBM may be calling the shots over the long term.

Want a glimpse of the VOIP future? In mid-January, about two weeks before the Super Bowl, NFL Films plans to set up makeshift offices in about 20 trailers in the parking lot outside Houston's Reliant Stadium and use Cisco IP equipment to get on the NFL Films network. Several dozen employees will be relocated from company headquarters in Mount Laurel, N.J. Call one of them at her New Jersey phone number, and she will pick up a phone in the Houston trailer. Leave her a voice mail, and it will pop up in her e-mail account. And she can still use intracompany four-digit dialing to reach colleagues back home or in the Los Angeles office. "We did the same thing at the Super Bowls in New Orleans and San Diego, and it still blows the users away," says Steve Eager of NFL Films. Your phone too may never be the same again.