

## RACING TO WIN IN A TOUGH VOIP MARKET

**Design chain optimization helps IP telephony vendors Mitel and 3Com cope with intense price competition and rapid product obsolescence.**

By Karen D. Schwartz

Ask any industry analyst specializing in Internet protocol-based telephony what he or she thinks of the potential of selling switches and other gear that enable voice over IP (VoIP), and they'll say that it will likely become one of the largest and most competitive markets in the electronics sector.



Survival in this tough market depends on constant innovation. The winners will be the ones that keep up with demand and continually increase the potential customer base. Doing everything right—all while reigning in costs, decreasing time to market, maintaining quality and managing internal resources—is a tall order.

These realities have taught vendors that to develop the products they need to succeed, they must divvy up the design effort with one or more partners, even if it means relinquishing some control over the design cycle.

"Ultimately, you don't really have a choice," says Jim Davies, vice president of research and development at Mitel Networks Corp., in Ottawa. "It's the price of admission. In terms of financing, it allows you to share some of the financial risks while managing bust and boom. If we had hired a bunch of engineers and developed everything internally, we would have had a lot of employees we didn't need anymore when the project was finished. That does a lot of damage to the integrity of the organization," he adds.

Two competitors in the VoIP switch market, Mitel Networks and 3Com Corp., took radically different approaches to their design chain partnerships, based on their specific situations.

### Short of Cash

With finances in short supply, Mitel Networks, a systems maker spun out last year from Mitel Corp., sought to leverage its multimillion-dollar R&D investment in the VoIP market. It turned to partners and, in some cases, developed a unique profit-sharing arrangement that made sense for all parties. Mitel Networks' overall goal was simply to keep product introductions flowing in an effort to retain customer loyalty. To accomplish that, it partnered with a litany of well-known companies, each of which contributed industry-standard components.

For Mitel Networks, its decision to turn to a series of partners made the most

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sense. To develop what would become the company's 3300 Integrated Communications Platform (ICP), an enterprise telephony system with a switched IP core that supports digital and traditional circuit-switched analog trunking with a broad range of capabilities (like data switching, routing and call control), executives chose to partner with several companies in each of three areas—application design, development of the core switching module and telephone set design.

### Recognizing Your Strengths

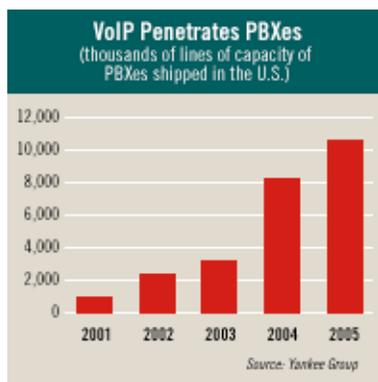
No matter what role finances played in the decision, partnering made sense in its own right, Davies insists. "For some of these efforts, you realize you need partners only when you realize what other companies can do," he says. "Once you understand that, you have to bend around what you are and do a certain amount of soul-searching, realizing what you're actually good at. Sometimes it's clear—obviously, we aren't going to make processors. On the other hand, the telephone sensor that's so key to the cost point of our system calls for very specialized do-main knowledge" that only a company like his can provide.

After much deliberation, Davies and the development team he assembled chose two design chain partners for the telephone handsets. For the two core processors of the system, which are based on Mitel Networks' Data Integrated Voice Applications architecture, they decided to partner with Zarlink Semiconductor Inc. of Ottawa and Geneva-based STMicroelectronics.

The processor co-developed with Zarlink was a system-on-a-chip (SoC) containing an ARM 7 core, an OAK DSP, a 10/100 Ethernet switch and several media-access controllers (MACs). STMicroelectronics was responsible for a mixed-signal SoC consisting of high-speed analog processing circuitry, an ARM 7 core, a MAC, codecs and other functions.



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In 2005, 60 percent of new systems sold in the United States, providing 10.7 million lines, will be capable of managing voice calls over IP networks.

Although the three companies worked to build chips for Mitel Networks' use initially, both Zarlink and STMicroelectronics will be able to begin selling them commercially in the midterm. The processor developed with Zarlink is designed for high-end VoIP telephone sets; the simpler but more integrated mixed-signal device developed with STMicro-electronics is used in low-end VoIP telephone sets.

"The deal we struck with both of them was that we would develop some key cores, and they would bring in some of their technology blocks around them," Davies says. "It gave us an interesting model in which we got a faster time to

market and a complement of skills that would have taken a long time to develop and probably never would have been as good as they could provide."

### Taking a Different Tack

For 3Com, innovation was the major issue. The Santa Clara, Calif., company found a small, tightly focused partner with specific engineering expertise to solve its problem.

The partner, 40-employee CITELE Technologies, based in Seattle and Nottingham, England, first approached 3Com about a joint VoIP project in the summer of 2000. Although 3Com wasn't interested in that idea, the meeting made executives think about other ways they could form a synergistic relationship with the small telephony company that would help drive their VoIP business.

In early 2001, 3Com contacted CITELE to discuss reworking its flagship CITELELink IP Handset Gateway to connect Nortel Networks Ltd.'s Norstar phones to 3Com's NBX family of IP-based business telephone systems. Although 3Com could have gone it alone, executives chose to partner with CITELE for both economic and practical reasons. Like all businesses, 3Com has a limited quantity of people, skills and dollars, making decisions of where to allocate resources relative to competing projects difficult, notes Greg Zweig, a product manager in 3Com's Communications Solutions division.

"Our business goal is for [CITELE] to make a fortune, because if they do, they've connected thousands of users to our product who we might otherwise not have tapped into," he says. "And by providing this solution, we're offering a broader set of choices to our customers, so the net we can cast into the marketplace gets wider."

For CITELE, partnering with organizations like 3Com is a key part of the company's corporate strategy. "As a relatively small company, making these deals and partnerships with more established companies is a great way to go," notes CITELE's President, Alan Law. The strategy is so important to the company's long-term growth, in fact, that Law says the partnership with 3Com is just the first of many similar partnerships.

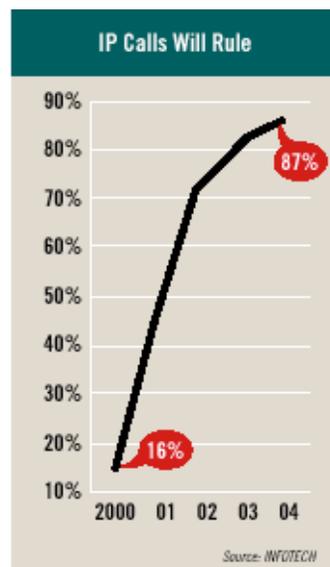
### Sharing the Wealth

Financial considerations were very different for the two companies. CITELE financed much of the project in return for all the revenue, minus a royalty paid to 3Com for each unit sold. 3Com, on the other hand, contributed very little funding but had to provide proprietary technical information to CITELE, gaining a potentially larger future customer base in return.

CITELE also got much needed access to the telephony marketplace through 3Com's existing channel, giving the company a ready-made market for its CITELE-branded gateways. In addition, the company received valuable advice on creating many of the development and testing processes 3Com had fine-tuned in previous efforts, something Zweig says was invaluable to the smaller company.

"They had a lot of informal testing processes, and we drove them very hard to put in place a more structured, automated testing process with more automated equipment," he explains. "It allowed CITELE to learn from the mistakes we had made when we were a smaller organization and had used a lot of those same informal processes—and suffered the consequences of them."

One example involved UL safety testing, where 3Com's staff had an existing relationship with an efficient and skilled third-party testing lab. Because of that relationship, 3Com felt comfortable recommending the lab to CITELE. "It would be bad business not to share this type of information," Zweig says. Doing it allows



According to a survey of 335 telecom and IT professionals, most businesses are starting to deploy IP telephony in some form.

"both companies to bring the product to market sooner."

The synergistic approach clearly worked. "It's partly a reflection of the complexities of sharing detailed information about the NBX protocol and operation of the gateway and partly a reflection of what it's like to build a new kind of product that has never been built before," notes Mike Robinson, chief technology officer at CITELE.

### **Different Means to an End**

Because Mitel's project was so complex, Davies created a core team with a senior technical lead whose job was to ensure that all pieces fit together. The team includes representatives from groups in charge of downstream manufacturing, documentation, customer support, marketing and product line management. In all, it consisted of about 50 people from Mitel Networks, 20 from Zarlink and up to 10 from STMicroelectronics. The team met its time-to-market goal, but with little time to spare, Davies says.

Keeping everything on track involved significant coordination, with "lots of Gantt charting and owned responsibility," he notes. "We tend to make sure we have a critical path highlighted and make sure it gets an unfair amount of attention from day one. We also work to break things up in a logical fashion so people feel they have enough of what they need on their team to make it work."

In the case of 3Com and CITELE, the lines of demarcation were more clearly set. 3Com provided guidance on how to properly integrate its IP phone system into the Norstar phone system, documentation and engineering support concerning its proprietary H3 Internet protocol, and permission to access proprietary parts of 3Com's existing products. In return, CITELE provided the bulk of the day-to-day engineering work as well as the funding.

Although both design chain arrangements succeeded in their goals of delivering VoIP switches to market, they took very different routes to get there. But no matter how Mitel Networks and 3Com reached the end point, both came to the same conclusion—partnership was a necessity.

And that's the way it should be, according to Joe Gagan, senior analyst in the Enterprise Computing and Networking division of Boston-based The Yankee Group, both in terms of competitiveness and survival for vendors and in terms of choice and lower price points for consumers. He adds, "This formerly very competitive, proprietary industry has opened itself up to work with different partners."

### **ABOUT THE AUTHOR**

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