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ETHERNET COMES FULL CIRCLE

BY VINCE VITTORE

At the height of the telecom boom, many analysts were predicting that enterprise users would be using optical wavelengths at will to replace the capacity in frame relay networks, that fiber would be plentiful everywhere and that bandwidth would be cheaper than air. The reality, of course, is that only a few enterprises are ordering colors of light, and fiber isn't exactly plentiful in most locations. Bandwidth, on the other hand, is relatively cheap, so at least one prediction turned out to be true.

However, over the last several years, carriers' adoption of Ethernet is bringing some of those prognostications closer to reality.

Yipes Enterprise Services in many ways epitomizes the change from hype to reality. While the company certainly benefited from the high-flying market of the late 1990s, its more recent history has been marked by a slow, almost methodical expansion of services from metro to global.

"What's selling well is [local area network] transparent services, whether that be on the metro area or the national area," said Kamran Sistanizadeh, chief technology officer and co-founder of Yipes. "In area of priority, it's [metro area networks] nationally, then in the metro, and third in the emerging area of Ethernet on a global basis."

Ethernet, in fact, has been the one constant through all

the changes in the industry, he added.

"The important features are scalability as well as ease of use and the fact that LAN technology lends itself to being used in the metro area network—that's the beauty of Ethernet," Sistanizadeh said.

Indeed, the carrier is starting to see analysts' first prediction come to fruition with a significant increase in enterprise users replacing their legacy services. However, it wasn't until the last 12 months that many end users had enough confidence in the technology to port over significant numbers of services to Ethernet. It also helps that the technology essentially erases local and national boundaries, and—perhaps most significantly—the economics of Ethernet are becoming too compelling to ignore. That's particularly true as bandwidth requirements increase and carriers begin implementing various forms of wave division multiplexing (WDM).

"If you're feeding a building with a legacy OC-3 [155 Mb/s], if you use WDM, you effectively deliver multiple Gigabit Ethernet [1 Gb/s] pipes for around the same cost," said Chris Garcia, optical product manager for Zhone Technologies, which last month announced a contract to provide its GigaMux 50 platform to

In the Spotlight: Kamran Sistanizadeh, *Yipes Enterprise Services*

Kamran Sistanizadeh, CTO and co-founder of Yipes Enterprise Services, has ridden the wave of the telecom boom—in both directions. Now, the company and Sistanizadeh are making a comeback of sorts thanks to a booming Ethernet services market. Sistanizadeh recently spoke with Telephony's Vince Vittoire about the technology, the company and the market.

On Ethernet's increased popularity:

We've seen a big up-tick in the transformation of legacy services. Ethernet can deliver a lot of capacity, and other technologies like frame relay and ATM are somewhat limited. The other reason is that literally the boundary [between metro and national networks] becomes unimportant.

On targeting vertical markets with Ethernet:

We specifically focus on financial, legal and education markets with some exposure to the government market. The financial market is very important because the complexity of applications and the quality of service required in terms of latency and jitter loss has placed a lot of requirements on the network. We see a lot of growth in electronic exchanges. We are literally connecting all of the major hubs to each other between Chicago and New York. We are now in Tokyo and Hong Kong, too.

On the cost of providing Ethernet:

The RBOCs and IXC's are adopting it, but adopting from the perspective of wanting to provide video services in the residential market. That helps us to bring the cost down because the same chip vendors that are going to help the RBOCs deliver TV into a

Yipes. "The economics are all there. The optics costs are all coming down."

Yipes is using coarse WDM (CWDM) to provide multiple services over a single fiber, thereby reducing the number of fibers required. At the same time, WDM is increasingly being used to satisfy the needs of customers who want to start off with an entry-level product but anticipate growing quickly. With the GigaMux product, the company can carry up to 2.5 Gb/s per service over a distance of up to 70 kilometers.

"In the NFL cities where we have fiber loops, it's relatively easy and operationally inexpensive to deliver CWDM," Sistanizadeh said. "It's roughly around 250 Mb/s to 300 Mb/s, and above that we start looking at it. When you're talking a few hundred Megs per second and above, and it's between data centers, then it's better to do capacity planning and go to CWDM."

Where the technology also is beginning to make a lot more sense is in replacing frame relay networks, which simply run out of capacity when enterprises add too

many services to the same infrastructure. In particular, if an end user wants to add multicasting services, frame relay hits a wall, Sistanizadeh said.

"In terms of scale, frame relay in no way can match Ethernet," he said. "Our customers are thinking about the next network they will build. They literally run into an impasse on a frame relay network. When you're dealing with 10 Mb/s multicasting, it runs out fast."

Yipes is selling more than just the ability to deliver capacity, though. In fact, according to Sistanizadeh, if carriers are selling only big pipes to enterprise users, they risk becoming commodity dealers. To avoid that trap, Yipes has been using its management capabilities and its relationships with users as differentiators. At the core, though, is Ethernet.

"Ethernet, not only as a transport technology but as a service concept, is becoming a main part of the portfolio offering," he said. "We need to be always innovating in terms of what value we offer. Literally it's not a pipe issue. It's a managed services issue."

residential area can be used to deliver the same technology that is being used to deliver enterprise services.

On using WDM and CWDM: It's more efficient in certain cases to deliver applications on a wavelength. When you are delivering applications on a wavelength, the economy of operation becomes a lot more palatable from a business perspective.

On monitoring services: The level of granularity and the level of attention to detail has increased by an order of magnitude. It's challenging for us, but it's very interesting, and it also in some ways forces us to build the best network from a performance and availability perspective. When you are dealing with transaction-based services, streaming, multicasting and applications that the intranet and extranet use, then you get down to the level of bits and bytes. We get involved down to the level of measuring packet loss, latency and jitter within a user community. They provide real-time streaming of information that is of mission-critical importance to the end customer.

On the company's low churn level: I'm very proud of that. When people get on this kind of network, they get addicted to it. Customers see the value of it. People don't come to us and buy 20 Mb/s and then go down to 5 Mb/s.

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