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## Dakota Carrier Network's PBT play

*New technology enhances carrier's ability to deliver services*

by Sean Buckley

Wed, August 1, 2007

Consisting of 15 independent rural telcos serving primarily the State of North Dakota, DCN (Dakota Carrier Network) is probably not the most obvious place where an emerging technology such as PBT (Provider Backbone Transport) or Ethernet would get deployed.

Despite its rural nature, DCN is a savvy Ethernet provider. Currently, DCN offers a mix of ATM/Frame Relay and 10 Gbps Ethernet services, which are overlaid on the operator's DWDM-based fiber network as well as OC-48 SONET ring services throughout North Dakota. In addition, DCN runs an RPR-based network for the State of North Dakota and for its own Ethernet service aspirations. (see Figure 1.) However, Even Haas, general manager for DCN says that customer demand for new Ethernet services is ripe.

"Our goal is to do more of a rollout of Ethernet services because that's what our customers want," said Haas. "Some of our major customers are State of North Dakota, major wireless companies, a lot of regional businesses (banks and medical), and we connect to the tier one providers and resell Internet services."

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To expand its Ethernet vision, DCN decided to deploy Nortel's 8600 metro Ethernet routing switches, a product that enables PBT control over Ethernet.

PBT and the IEEE's PBB-TE (Provider Backbone Bridging-Transport Engineering) standard effort give Ethernet the same deterministic qualities of SONET and traditional circuit switching platforms. PBT and PBB-TE achieves this by disabling the concept of flooding/broadcasting and spanning tree protocol, enabling it to act like a traditional carrier transport technology. (see Figure 2. and [Riding the wave](#))

What sold DCN on the PBT business case was its overall operational aspects.

"What attracted us to PBT was the ease of provisioning, which is a lot simpler than what you would have with some other technologies," said Haas. "Our customers that are looking for Ethernet are also asking for SLAs and we can provide a guaranteed SLA and reports that we are meeting those SLAs."

### Next Steps

Now that DCN has signed an agreement with Nortel, Haas said the next part of the process is to install the Ethernet equipment at various sites on its backbone network, including Fargo, Grand Forks, Bismarck, and Minot.

At these sites, the Nortel gear will interface with its owner telephone companies and provide services to its retail customer base, which would also then interface with the owner companies and possibly use it for Internet transport.

"It's going to be a key part of our network," said Haas.

Of course, the real question for its existing customer base will be how it migrate an existing ATM or Frame customer to Ethernet. DCN is examining how it can upgrade the K-12 customers on its statewide network to Ethernet or some other next-gen protocol.

The biggest challenge to migrate to Ethernet will be to ensure that the technology chosen is interoperable with a customer's existing CPE. But DCN's Ethernet desires does not stop at the retail customer. To expand its overall network footprint, which currently connects to four major service providers, DCN is eyeing potential agreements with other carriers to exchange Ethernet traffic. DCN is discussing with other carriers potential Ethernet NNI (Network to Network Interface) agreements.

"We hope that this will allow us to provide additional connections, but that's still a work in progress," said Haas. "I think the objective would be to have an NNI between us and major carriers and allow us to do routing of circuits on a national basis."

### PBT Rising

At first glance, one could argue the deployment with DCN may be only a microcosm of the larger service provider industry; however, these smaller deals show that carriers are finding value in PBT and Carrier Ethernet Transport (CET).

PBT and the emerging PBB-TE standard got a big endorsement earlier this year when Nortel won a landmark deal to provide British Telecom with its Ethernet switches for 21CN. (see [BT advances carrier ethernet vision](#))

Since then Nortel has been gaining momentum with other larger carriers, including Frontier Communications, one of the largest tier two telcos. And while details were scarce, Frontier will deploy Nortel's 8600 switches to expand its business network services reach.

Analysts are taking notice of how the carriers are looking at PBT. Ray Mota, Chief Strategist and President of Consulting for Synergy Research, who just completed survey of 30 unnamed service providers, says perspectives on PBT varied within every provider.

"What I found was there's separation of state within a lot of these providers is you got the network folks that are MPLS driven and the transport guys that are SONET-based, which are potentially more open to PBT because to them it's something they are familiar with and it's not as disruptive from the point to point technologies," he said.

Still, Mota cautions that the industry overall needs to get a better understanding of the role PBT will play in the network.



Figure  
netw



Figure  
Tran

"The biggest mistake I found out that people are putting out there was that PBT is going is competing and will displace MPLS, but that's totally incorrect," said Mota. "The way the providers are really looking at it is more complementary from a point-to-point metro network."

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