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# ETHERNET GOES LONG

BY VINCE VITTORE

Matt Peterson speaks in blunt terms at times, but it comes with the territory. As engineering director of Alaska Communications Systems, Peterson is faced with providing and maintaining service to some of the most rugged terrain in the U.S.

Covering thousands of square miles and roughly 70 towns, ACS' territory is what most people think of when they think about Alaska—remote, small towns separated by vast spaces of open plain and mountain ranges as well as the more cosmopolitan cities of Anchorage and Juneau. But contrary to popular belief, Alaska has several highly competitive markets.

"Anchorage in particular is very competitive," Peterson said, noting that the company's major competitor GCI has taken roughly half the subscriber lines in the city. Add in competition from various cable operators and the market gets even more cutthroat. Among the most contentious markets is Ethernet service, where virtually no company has the advantage of incumbency and the cost of providing service has been plummeting. For ACS, like most other carriers, the move into Ethernet was a no-brainer. Even in cases where customers were moving away from higher-margin services such as T1 or fractional T1s, the costs of providing Ethernet made it worthwhile.

However, given ACS' unique geographic constraints, stringing enough fiber that Ethernet typically travels over would be both physically and economically difficult. "We have the bulk of the population centers in Alaska, but we also have 60 or 70 rural properties," Peterson said.

Instead of stringing fiber to all of those areas, the company is taking advantage of its existing copper infrastructure. By bonding existing T1 circuits, using Paradyne Technologies' network-extending Ethernet technology, ACS is able to serve up Ethernet to virtually its entire service territory. (Note: Paradyne has since been acquired by Zhone Technologies and will be marketing the technology as Ethernet Extender.)

ACS' geographic issue is something faced by many telcos, according to Eric Knapp, product manager for the Ethernet Extend with Zhone.

"The one thing we've been seeing a lot lately is the benefits of Ethernet and IP are really rising to the surface," he said. "But that brings to the surface the problem of not being able to get Ethernet everywhere. You can get it over [Ethernet in the First Mile] if your loops are short enough, but there's this whole slew of companies that have big areas to cover."

As ACS has started to roll out service, it has found that the ability to serve a wide

## In the Spotlight:

**Matt Peterson,**  
*Alaska Communications Systems*



Like many in the industry, Matt Peterson works in a highly competitive market. Unlike most, though, Peterson works in service territory where "the next town over" can be 100 miles or more. As engineering director for Alaska Communications, Peterson is charged with figuring out how to bring the latest and greatest services, including Ethernet, to customers spread out a huge geography. Peterson recently spoke to Telephony about the challenges of competition, the territory and technology.

### On serving the ACS territory:

"Anchorage is pretty much grown out to the edges and Juneau is in a similar situation, maybe even more so. In the smaller areas it's a little more spread out with the business running along the main highway, but there also is suburban sprawl just like anywhere you'd see in other areas of the country.

### On cable competitors:

They don't have the copper plant and coax cable doesn't offer them an easy way to reach businesses, but they can offer fiber-based Ethernet services. We have a big advantage on the copper Ethernet services. We can offer a variety of speeds. If it's a regular customer and it's an inter-exchange service we'd use a LAN service to the MPLS node, for example. We'll also do some layer 2 bonding, but only for internal traffic.

swath of turf as well as use the copper loops already in the ground is a significant competitive advantage.

"Most of the customers we're getting weren't on Ethernet. They [normally] would migrate from fractional T1 to T1," Peterson said. "Even today, we'll migrate a T1 customer to Ethernet and we'll actually use the existing T1 facilities."

Like residential users moving to broadband, once business customers get their hands on Ethernet they don't want to go back. Moreover, as they move into an environment where bandwidth is available in bigger buckets, carriers have to be prepared for increased demands.

"What I try to drive home with people is once you get an organization to move over to Ethernet, they don't want to do it half way," Peterson said. "They want to be able to say 'I want more bandwidth,' and they get it. They want a full mesh of point-to-point circuits and they want Ethernet everywhere. The big advantage of the [Zhone] equipment is that it allows you to bond T1s. For certain customers we've deployed larger systems that bond as many as 14 SHDSL loops."

Bonding, though, is not limited to reaching out to corporate customers. According to Knapp, the same technology can be used to reach residential users with a triple-play offering. In the U.S., there appears to be a consensus building that carriers must be able to deliver enough bandwidth to support at least three

IP video streams, high-speed Internet access and multiple voice lines. Barring a massive deployment of fiber, carriers will be forced to use existing copper, Knapp said.

"The farther out you can get that three channel line up, the easier it is," he said. "The only way we think people are going to get there is with bonding."

Currently, the company is able to bond T1s as well as several flavors of DSL. In the residential market, bonding ADSL2+ is yielding some of the most significant results, though Knapp noted that it's still very early in the technology's lifecycle.

"On a theoretical level, the [ADSL2+ bonding] standard is loosely based on the IMA bonding," he said. "You could theoretically get double the max line rate minus 5 or 6%. The motto today seems to be put more bandwidth in than we'll ever need because we've learned our lessons."

For a company like ACS, throwing tons of bandwidth at the customer is just the beginning. With an aggressive competitor that sells Ethernet over other companies' as well its own facilities, ACS is using Ethernet as a base service to migrate customers into other applications.

"We know that when we get people over to our Ethernet services they rarely leave," Peterson said. "One of the things we try to do is up-sell service like firewalls and management. Or we'll try to get them on more bandwidth to remote offices."



**On migrating customer from T1:**

We do realize we're losing revenue in some cases, but we're also locking them in. They get used to Ethernet, they're no way they want to go back to point-to-point links. We'll provide managed CPE, firewall services. We'll do QOS with VoIP. We'll get these Ethernet deals at the same time they're migrating to a call manager and getting rid of their PBXs.

**On the distance the company can provide Ethernet:**

We'll go to the extent of the serving area. Repeater T1s will go quite a distance. It's really a business decision based on how much you want to spend. Typically we'll see a lot of offices that are easy to serve. But often, especially with the government and school districts they'll have a few locations that are very difficult and costly to service. They're not economic to serve but if you win the deal you win the whole deal and you've got to serve everything."

**On the typical customer configuration:**

Typically they want a fiber-based hub at 10 or 100 Mb/s and lots of smaller sites at 768 k up to 9 meg. We see the wide variety of speeds depending on what the facility needs. We typically have one or two that are on fiber.

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