RURAL AMERICA STANDS ALONE

Jul 11, 2005 12:00 AM, By Tim McElligott

more on the topic

More Related Articles

From the immobile elderly in high-rise urban apartments to the pregnant farmer 5 miles from a helping hand, no one likes to be alone, especially in times of emergency. So as independent telcos such as the Blackfoot Telephone Cooperative in Western Montana and OmniTel in North Central Iowa begin migrating away from circuit-switched networks and toward softswitch architectures, where switching functions become more centralized, one of the more important little details is emergency stand-alone capabilities.

OmniTel thought it had the situation well in hand as the company began replacing its Nortel DMS 10 remote switches, which were fully redundant stand-alone switches in their own right, with Nortel's remote access equipment (AccessNode). Nortel, you see, was promising emergency stand-alone capability when no one else was.

“Unfortunately, I think we were one of the first recipients of the phone call from Nortel saying, ‘Thanks for purchasing our access nodes. By the way, we will no longer support them,’” said Ron Laudner, general manager of OmniTel.

OmniTel has been in the telephone business since 1904 when it was Farmer's Mutual Telephone Co., so it knows a thing or two about stand-alone requirements and recoverability. It knows a bit about customer service as well. And it knows that without that stand-alone capability, it would lose support of the National Exchange Carrier Association (NECA) settlement structure, which is a key revenue component for most rural telcos.

Zhone Technologies acquired Nortel's AccessNode product line in August 2001. Almost immediately afterward, OmniTel got busy installing a Sonet ring and worked with Zhone to advance the emergency stand-alone (ESA) feature.

With the Nortel DMS, Laudner said, his company had to go through voluminous contracts where specific phone numbers had to be programmed into the switches — including police, fire and the gas company — that would get dial tone in the case of an outage.

“We thought, ‘Who are we to determine who lives or dies out there?’” Laudner asked.

Luckily, the company didn't have to answer that question. The AccessNode, relabeled by

Zhone as the AccessNode Universal Edge 9000, provides ESA capabilities not just for 911 calling but also for calling within an isolated zone. OmniTel next will deploy Zhone's Multi-Access Line Concentrator to take IP-based service further out into its rural areas.

Though using different vendors, the situation is not dissimilar at Blackfoot Telephone Cooperative, parent of Blackfoot Communications. The latter is a wireless and CLEC entity as well as an ISP. The former services approximately 17,000 lines through 23 remote exchanges across what Blackfoot Director of Technology Dave Martin calls 6500 square miles of Western Montana mountain (see story on page 22).

Blackfoot uses a MetaSwitch softswitch and has deployed Occam Networks' Broadband Loop Carrier for its remote terminals and ESA capability. It also will use MetaSwitch's 2510 gateways when they are ready later this year. The 2510s will have their own ESA capabilities built in.

Blackfoot tested the Occam products specifically for their ESA needs and is particularly interested in E911.

“In our neck of the wood, with two exchanges and 17,000 lines, there are only four [public-safety answering points], so each community has a designated alternate emergency location, which is decided upon by that community,” Martin said.

As with OmniTel, customers served off a subtending Occam remote device can still place calls to others served off that same remote in the case of a failure deeper in the network.

“We don't feel too strongly about being able to maintain Class features or billing record collection,” Martin said. “If customers are isolated, they can't make toll calls anyway, so being able to collect toll records has no value for us.”

Blackfoot already has migrated nine of its remotes to Occam platforms. Its ultimate goal is to have Ethernet-over-fiber connecting all of its 23 communities served by either Occam end points or MetaSwitch 2510 gateways.

“So far, we are happy with the results,” Martin said. “We've had a few small challenges, but those all come down to integrating new technologies with old ways of doing things.”

So far, Blackfoot has been fortunate and not had to put its ESA capabilities to the test. “The Ethernet WAN has run flawlessly,” Martin said.

MetaSwitch has worked with Occam as well as Zhone and Paradyne to integrate their remote access solutions and ESA capabilities with its Open Packet Host/Remote Architecture, which the company launched in June.

The architecture is designed to help carriers deploy networks across large geographic areas, while centralizing control and administration. The major difference to this approach is a greater emphasis on open protocols rather than proprietary ones that previously handled signaling between the central and remote switches.

“In theory, it works great, but the standards really assume a perfect network where your

central call agent is always in contact with its remote locations," said Andy Randall, vice president of marketing for MetaSwitch. "But when you are talking about very distributed networks, where the underlying transport isn't all that reliable or can be dug up by a tractor, you need a much more distributed approach to backing up that call agent logic."

MetaSwitch is working with its partners to make sure the line configuration is automatically provisioned out of the call agent so that routing and other tables don't have to be manually updated in the event of a network failure. The company will soon release a stand-alone call agent that performs such a function in cases where the access devices don't have that intelligence built in.

Currently, Randall said, there are three levels of ESA in the network — stand-alone ESA call agent for controlling trunk gateways, a stand-alone call agent that controls access gateways (like Occam) and integrated ESA capabilities in the access devices themselves.

"Where we need to work with our partner is to ensure we are synchronizing the configuration information with the access devices so the customer doesn't have to provision the ESA routing tables and access gateways at the same time they are configuring the switch," he said.

ESA is required so that emergency service calls can get through, but it doesn't stop there. For rural environments, sometimes connectivity to a neighbor will do. "The main thing is to ensure people can place calls, not that they can do six-way conferencing or anything," Randall said.

Adding ESA capability, in fact, has become something of a trend this year. Gateway vendor General Bandwidth this past spring announced the addition of ESA capabilities to its product. The Austin, Texas-based company last month released what it calls a Class 5 migration to Class 5 replacement solution called the G6 Universal Media Gateway, which includes an integrated emergency stand-alone module (ESM).

The gateway employs the new ESM to ensure that local and emergency calling continues in the event of a switch failure.

"When a centralized switch is lost, we maintain a database of all the local numbers and 911 locations in our switch so we can route the calls," said Jody Bennett, vice president of marketing for General Bandwidth.

In addition to working with most vendors' softswitches, the gateway interoperates with the leading session initiation protocol feature servers, digital loop carriers and customer premise equipment. It also provides reverse and trunking gateway functions within the same chassis.

Overall, the independent telco is beginning to see a lot of options for ensuring survivability and stopping isolation, a technical term that refers to a break in connectivity between a remote node and the rest of the network. But in human terms, that can mean the difference between life and death or simply between loneliness and a friendly voice.

Check the box to include the list of links referenced in the article.