

calls to the fire department warning about potential loss of property.

These types of catastrophes have led the FCC to implement the so-called Katrina Order, mandated in the wake of Hurricane Katrina, when many communities were not able to reach their local emergency responders or others in their community. The pending Katrina Order is a critical regulation requiring local exchange carriers to have an emergency backup power source for all assets that are normally powered from local AC commercial power, including the remote terminals.

While this regulation is important, to be really effective the carriers should take an additional step to protect their communities. In many cases, if the power to a community is shut down due to disaster, the fiber feed to that community will be affected. While the battery backup gives power to the digital loop carrier system in the cabinet, without an ESA switch the community will still not be able to make emergency or local calls. The ESA solution, for less than \$25,000, can give an entire community this local ability to reach emergency responders in case of primary network outages, as shown in Figure 1. The ESA switch is a small (one RU), environmentally hardened device that can be installed in the field cabinet. The ESA switch monitors the network, and if the link to the central office switch goes down, the ESA switch will step in and route all calls within the affected community. The priority calls will be the 911 calls and those calls will be routed to pre-designated emergency responders within the community. The ESA switch will also allow for standard calls within the community to be made.

Emergency stand-alone systems assure uninterrupted local calling capability and access to 911 emergency services. Aztek's ESA solutions are specifically designed to help ensure public safety by continuously maintaining local calling capabilities and subscriber access to emergency 911 services in the event the link to the primary host switch is severed due to an accident or natural disaster.

Northwest Communications Cooperative, an ILEC in North Dakota, selected

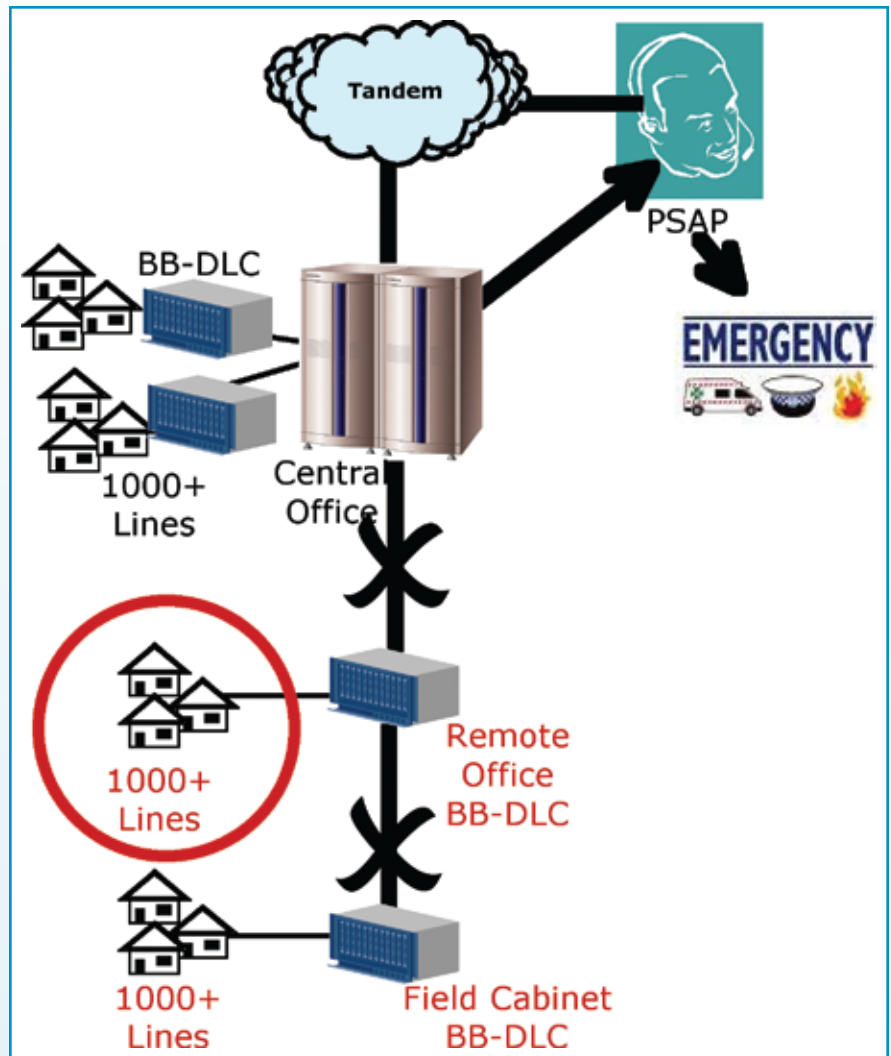


Figure 2. Local network access to emergency communications.

Aztek Network's ESA solution to help ensure uninterrupted network service and improved community safety. With Aztek's family of ESA solutions, rural telecommunications providers know that if the network connection to the host central-office switch is cut or fails, the Aztek ESA solution will detect the loss of signal and assume all local switching duties, including the handling of emergency 911 calls, until the signal from the host central office is re-established. Aztek expects to deploy 10 of its 5000S units in central-office cabinets located throughout NCC's regional network.

VOIP USERS AT RISK

Also at risk are communities that, in order to deploy new VoIP architectures, are replacing their traditional voice-only central-office switches with softswitches

that support triple play services. With VoIP architecture, the carriers are not deploying remote switches and typically are deploying fewer central-office switches, because there is no compelling reason to place the softswitches in proximity to the customers. These carriers may also be using their current central-office switch with new broadband loop carrier (BLC) equipment at the access level. The new BLC systems typically do not have ESA functionality built in, so the communities not served by redundant fiber loops or ESA are at risk. A cut in the fiber either between the central office and remote office BLC or between the remote BLC and the BLC in the field cabinet would cause network outage (Figure 2).

This network evolution has important ramifications for access systems and

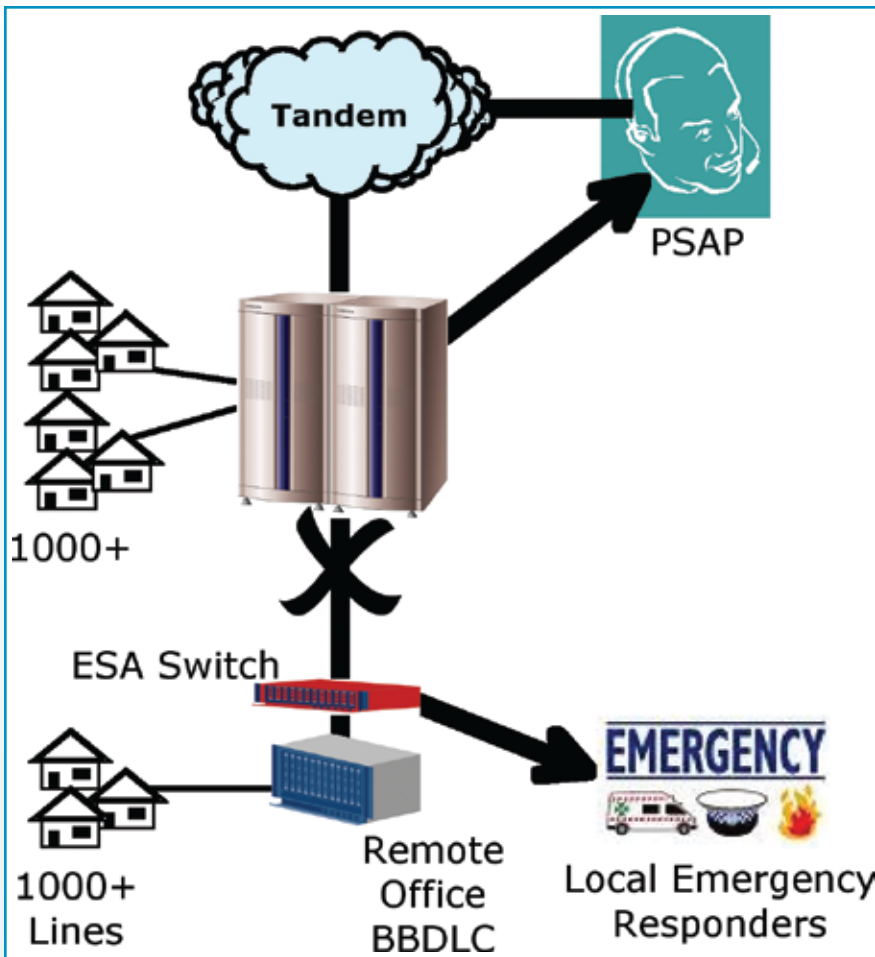


Figure 3. Combining ESA switches (TDM or IP-based) with fiber or DSL replaces legacy switches.

outside plant, in that ESA functionality will commonly reside in field cabinets. Thus, access networks are becoming the de facto replacements for the classical “exchange network.” Also, these neighborhoods are often new developments and have a larger number of subscribers than the rural communities mentioned above. Combining TDM or IP-based ESA switches with fiber to the home or broadband multiservice access systems offers telecommunication carriers reliable and cost-effective solutions for greenfield access applications and the replacement of legacy remote switches (Figure 3).

DOLLARS AND SENSE

This ESA approach significantly reduces operating costs. The ESA switches are far less expensive to maintain than traditional TDM remote switches, which do not support triple play architecture.

So as the carrier migrates its network to a triple play architecture, the locations that used to house the remote switches can be cost-effectively replaced by ESA switches. These switches are simple to install and easy to maintain, and they do not require service from switch technicians. Because they are very compact (one rack unit) they conserve space whether they are deployed in a remote office or in the field cabinet. They also use a fraction of the power of the remote switches and have negligible maintenance fees. Finally, the ESA switches can help protect the carrier from potential lawsuits due to emergency services failure.

ESA switches can also increase revenue for many carriers. Because they are classified as electronic switch costs for NECA settlement purposes, the cost of the ESA switch can be added to the cost basis, and its presence also reclassifies

the remote concentrator equipment as switch equipment. Because switch costs have a higher rate of return for cost carriers with no high-cost loop classification, carriers can often increase revenues per location between \$3,000 and \$8,000 per year. Similar revenue can be generated for average schedule companies if an ESA switch is added to a location that previously had no switch, because the line haul study is increased. All of these revenues can be taken immediately in the month after the ESA switch is installed, so the ROI can be quite good.

THE VALUE OF CUSTOMERS’ LIVES AND PROPERTY

Carriers should assess the conventional business drivers for installing ESA in their networks, but then add the very real value of being a telecom provider that customers can trust. Rural telecom operators are turning to ESA to ensure that their subscribers have the same level of reliability and access to emergency services as subscribers who are connected to traditional hosts or remote switches. The carriers in turn can promote the fact that their networks, whether traditional voice-only networks or the advanced VoIP networks with expanded services, are always available for customers in their time of need.

The telephone carriers’ commitment to provide the most important service they can provide – customer safety – should always be at the top of their features and benefits list. Carriers that install ESA should let their customers know they have invested in ESA technology because they are loyal to their customers’ safety, and they will find that their customers will be loyal to them in turn. **BBP**

About the Author

Steven Bruny is the CEO of Aztek Networks (www.azteknetworks.net). Based in Boulder, Colorado, Aztek Networks is a leader in Emergency Stand Alone (ESA) switching products that enable switch collapse for network migration. The company’s patent-pending True ESA technology is the basis for its open-standard, environmentally hardened and fully redundant ESA switch. You can contact Steven at sbruny@azteknetworks.com.