

CHOOSING THE BEST FTTP POWER MANAGEMENT STRATEGY

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Service providers are deploying fiber-to-the-premises (FTTP) networks because of the many potential advantages those networks offer to both carriers and their customers. The most important advantages of FTTP deployment are increased revenue to the carrier and increased functionality to the customer. Ultimately, carriers desire higher customer satisfaction and lower operating costs, both of which lead to increased revenues. FTTP networks help to accomplish these goals because they enable carriers to improve existing services and introduce many new ones.

According to Render, Vanderslice & Associates LLC, the three FTTP-based services and capabilities that customers are most excited about include viewing video-intensive Web sites, receiving multiple HDTV channels, and improving throughput to rates that facilitate working from home. The consultancy reports that FTTP networks have passed more than 2.7 million homes in North America to date, and more than 323,000 of those homes have connected to FTTP networks. The three largest deployments, in terms of connected homes, are being executed by Verizon in the Dallas metro area, by Jax Energy in Jackson, TN., and by SureWest in Sacramento, CA.

Give and take

While FTTP networks give end users more power in terms of services and applications, they also take some "power" away. Unlike legacy copper-based networks, pure fiber networks are not able to power telephones at the customer premises because fiber does not conduct electricity. Therefore, telephones and other devices connected to FTTP networks must operate using electrical service available at the premises. In the event of a power failure, batteries connected to the customer's optical network terminal (ONT) provide power locally. Battery back-up power provides dial tone, powers lasers for upstream voice communications, and powers receivers for downstream voice communications. To keep lifeline service available for customers, these batteries must be replaced every three to five years, or as necessary.

Clearly, battery management is a critical requirement for FTTP network operators. All FTTP systems are capable of remotely monitoring the voltage level of batteries at the customer premises to help determine when they need to be replaced. Just who should take responsibility for replacing them is the question. Because these batteries technically are customer premises equipment (CPE), service providers could leave the burden of their replacement in customers' hands.

However, carriers that are committed to building reliable networks that deliver optimal customer satisfaction are choosing to continue to take primary responsibility for making sure that their customers have lifeline telephone service when power outages occur. Therefore, the most complete and reliable FTTP deployment strategies must include a strategy that offers a simple and cost-effective means of replacing the batteries at the ONT when necessary.

Always-on

Battery back-up, which typically lasts up to eight hours in the ONT, is pressed into action during power failures of any duration. Longer outages usually occur during powerful storms or other infrastructure-crippling events such as black-outs, brown-outs or homeland security breaches. Whatever the cause, the inability to dial 911 during an outage could mean the difference between life and death for an FTTP customer.

In an always-on world, outages of any duration at any time of day are simply unacceptable. Carriers are deploying FTTP networks for one primary reason: to deliver services and applications that will delight their customers and significantly diminish customer churn as a result. For this reason alone, a solid, cost-effective strategy for maintaining optimal battery back-up at the customer premises is important. A good plan can keep battery power issues from becoming the Achilles' heel of FTTP deployment.

This paper outlines the choices available to carriers for battery maintenance and replacement as well as the types of reports and notifications that must be generated to maintain reliable back-up power at the customer premises. With the proper power strategy in place, service providers can keep network maintenance costs down so they can focus their energies and resources on delivering reliable top-notch services and applications to their customers.

When different is good

In addition to the FCC requirements that they provide lifeline connectivity to their customers, FTTP providers have another good reason to offer user-friendly programs for battery back-up rather than leave the job to their customers. Ensuring that their customers have eight hours of back-up power at the ready differentiates FTTP providers from their competitors: wireless providers, multiple service operators (MSOs) with hybrid fiber coax networks, and third-party voice over IP (VoIP) providers.

While wireless operators are committed to providing battery back-up at their cell sites, their customers are responsible for keeping their phones charged up, and for purchasing extra batteries that can be used during lengthy power outages when their chargers are of no use. MSOs are not required to provide lifeline connectivity because their hybrid fiber coax networks do not deliver power to the premises. And third-party VoIP providers, which do not own or maintain the networks they use to deliver service to their customers, do not take any responsibility for back-up power issues.

While all carriers agree that differentiation is an important advantage, some carriers might believe that the challenge and expense of ensuring battery back-up power at the premises is not worthwhile. However, when considering the tremendous investment they are making in their FTTP network deployments, carriers ultimately will realize the wisdom in deploying the most reliable end-to-end network they can build.

Power to choose

Carriers have several choices when it comes to creating a battery maintenance strategy:

- Send technicians out to replace batteries for customers.
- Leave the job of purchasing a new battery and replacing and recycling the old battery to the customer.
- Leave the job to the customer, but team up with a retailer to ensure that customers properly purchase approved quality batteries and recycle their old batteries.
- Partner with a third-party battery specialist that provides the carrier with cost-effective turnkey battery maintenance and replacement services.

Each solution has its own challenges and advantages. Sending technicians out to replace spent batteries ensures that the job gets done and done right. However, this solution is too expensive. Why pay \$150 to replace a \$20 battery? This solution also consumes precious resources that could be used to tackle other important FTTP deployment and network maintenance jobs.

Carriers could do the next best thing by monitoring their customers' batteries and shipping fresh ones to them when replacement is needed. The batteries could be sent complete with easy to follow installation instructions. This solution saves costly truck rolls, but it requires the carrier to manage battery inventories - both new and spent batteries - and to implement a complete recycling program. Additionally, the carrier would need to use valuable customer service resources to interact with people that have questions or concerns regarding battery replacement. And, if a carrier offers this level of service, customers may expect or demand that the carrier go the extra yard and perform the installation as well.

Leaving the job entirely in the hands of the customer has the potential to alienate customers who are already fatigued by the demands of maintaining other home equipment, such as computers and home networks. This strategy also could result in batteries not being replaced and recycled, or worse. Customers could be tempted to replace their spent batteries with cheapest batteries they can find rather than with batteries certified by the carrier. Cheap batteries might not provide them with the performance they are expecting and require. Or, as has happened in the cellular phone world, customers could end up purchasing counterfeit batteries unwittingly. In addition to delivering poor performance, counterfeit batteries can pose a potentially serious safety hazard to unsuspecting end users.

Teaming with a retailer could be a more cost effective solution for carriers looking to help their end users to replace and recycle their old batteries. However, carriers that do not have a proven relationship with the retailer they choose to work with could suffer if the service the retailer provides them is below par. And, once a contract has been signed and all the logistics have been negotiated, it would be difficult for a carrier to team with another retailer, or salvage its reputation after damage caused by poor service has already been done. In addition, this solution also requires carriers to allocate resources to monitor the partner and the program. There could be multiple resources required on a regional basis that could be better used elsewhere during the first few years of FTTP deployment.

Choosing wisely

While the above options are all feasible, the best overall solution is to outsource the task to a battery maintenance specialist.

Five key advantages of taking this approach include:

- Optimal customer satisfaction
- More reliable network
- Increased safety and battery performance
- Increased likelihood of proper recycling processes and procedures
- Cost-effective monitoring, inventory and logistical support

An experienced third-party battery specialist offers carriers a cost-effective, user-friendly, turnkey replacement battery program. The third-party specialist monitors all batteries at the customer premises and takes charge of replacing them before they are spent with high-quality, certified batteries. The process includes an automated e-mail that directs customers to a secure Web page where they pay for a new battery online. The new battery is shipped directly to the end user, along with detailed installation instructions. The customer receives the new battery and sends the old one back using the same postage paid packing container. The old batteries are tracked to the turnkey provider's recycling facility, ensuring that they will be recycled properly. For an additional fee the end customer can opt in to a maintenance agreement or for installation services.

An added advantage that a turnkey provider offers carriers is cost-effective support for battery maintenance and replacement procedures and process. The battery specialist provides customer support resources, keeps records of all transactions, and regularly issues reports to the carrier that summarize and detail battery replacement activity. Service level agreements offered in the contract between the carrier and the battery specialist ensure that professional quality service is provided to both the carrier and its customers.

In addition to working closely with carriers' consumer customers, the turnkey provider manages batteries used to serve multiple dwelling units and multiple tenant units (MDUs/MTUs). The battery specialist offers contact people at MDUs/MTUs all of the same services it offers consumers with the addition of sending a truck and technician to replace the battery. MDUs/MTUs require on-site service because the batteries used in ONTs at these locations are larger than those used by individual consumers and because these batteries impact service provided to multiple customers.

Prime time to plan

With all the complexity and challenges served up by FTTP deployment, carriers often put the task of creating a battery replacement strategy at the bottom of their "to do" list. This is because they believe they will have time to address the issue before the batteries begin to fade. Unfortunately, by the time they get around to developing their back-up power strategy, batteries at the premises may already be failing. To avoid power-related trouble early on, carriers must map out a strategy sooner rather than later. That strategy must address quality of service, customer satisfaction, recycling programs and product liability as it pertains to replacement batteries.

Carriers that are deploying FTTP networks are going to great lengths and great expense to deliver a highly reliable, high-quality next-generation networking and communications experience to their customers. These carriers want very much to ensure the best possible outcome of their FTTP deployments and differentiate themselves from their competitors. They can take a giant step toward this goal by embracing a battery maintenance and replacement strategy that goes the extra mile to ensure that their most valued customers will have lifeline service when they need it most.