



SureReach Application: "Life-Saver" Network Line Power for MDU FTTP

Service providers are building **Fiber-to-the-Premises (FTTP)** networks, offering "triple play" video, data, and voice services not only to homes but also to **multi-dwelling unit (MDU)** premises. MDUs are structures housing two or more residential units. Deploying FTTP to MDU customers has special challenges, including ownership and location. Deployment is complicated by recent FCC rulings that mandate eight-hour emergency back-up batteries for critical outside plant telecom "assets". *SureReach* from Generonix offers a way to power MDU-ONTs using network line power from the provider without expensive premises batteries or complex maintenance, while providing reliable "life-saver" primary line service.

Challenges

Fiber cable can be run to a special 48 VDC **Optical Network Terminal (ONT)** in the MDU, which converts it to copper-based cabling for two, four, or eight or more single family units in the common structure, providing each with primary line phone service, internet access, and television. But there are challenges:

- Where will the equipment be placed?
- Who pays for the power?
- What happens when utility power fails?
- Who monitors the battery for alarms?
- Who provides battery maintenance?

In some cases MDU's have a common area with common power that can house the MDU-ONT. But in smaller separate-entry MDUs such as duplexes and condos, a heated common area may not exist, and the family that houses the MDU-ONT may not be willing to pay for the power used by other units. And to provide emergency "life-saver" primary line service, some sort of battery back up is required.

Many providers power the ONT with a form of Uninterruptible Power Supply (**UPS**) with batteries that must be monitored and periodically replaced. If the UPS is in a utility closet or basement, this may be difficult, and an additional expense for the MDU owner. For some MDUs, the ONT may have to be mounted outdoors, which requires hardened components, special low-temperature batteries, and outdoor AC plugs: this is expensive and is also subject to the proactive maintenance and shared power challenges of the indoor MDU.

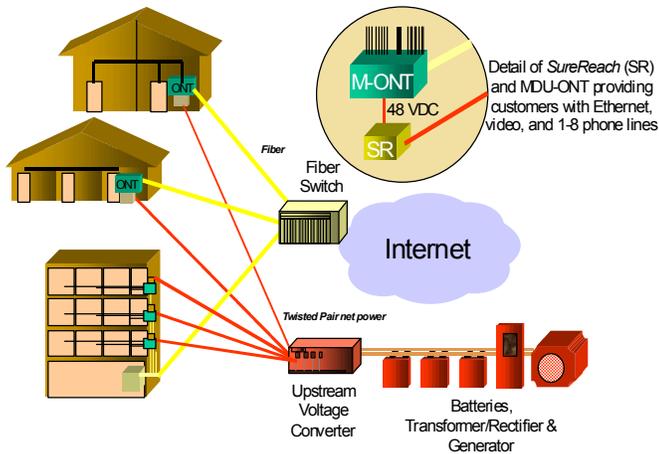
Solution: *SureReach*

SureReach uses the existing copper line network to provide reliable *network line power* to the MDU ONT. Packaged as a small wall-mountable enclosure, it delivers reliable *network line power* to a MDU ONT. With *SureReach* there is no need to rely on premises-based proactive maintenance, local AC power, or batteries to provide "life-saver" services to the residents of the MDU. Power is provided as a network service offering, and can be folded into the service billing for each customer sharing the MDU-ONT. It can be placed indoors or outdoors next to the MDU-ONT using existing copper phone lines. Power can be toggled by operator command to force a reset, avoiding truck rolls and reducing service outages.

Reliable "Zero Complaint" Service

When utility power fails, the first thing people do is pick up a phone. With *SureReach* powering MDU-ONT equipment, power survives grid failure: emergency phone service is available when you need it the most. And the MDU-ONT customer is spared diligent maintenance, battery replacement costs, disposal of toxic batteries, the scheduling of provider visits, and unnecessary truck rolls.

SureReach Supporting FTTP Networks with Network Line Power



SureReach residential DC/DC converters support FTTP by providing reliable power to various types of network termination devices, including the 48 VDC MDU-ONTs shown here. Central Office DC power is derived from redundant connections to the AC utility grid using AC to 48 VDC transformers and rectifiers with parallel lines of lead-acid batteries backed by a generator; these batteries are well maintained, operate under ideal conditions and provide reliable and economical power from a central location. An “upstream” voltage converter boosts this 48 VDC power to a higher voltage as required for low-loss transmission. One or more copper twisted pair lines connect the CO to the *SureReach* unit, mounted next to the MDU-ONT, either inside the structure or on an outside wall. To power the MDU-ONT, each *SureReach*

field node converts the high voltage network line power from the upstream central office voltage converter to 48 VDC, and supplies it to the MDU-ONT device. This eliminates the need for residential or neighborhood batteries and UPSs of any kind, either indoors and maintained by the homeowner, or outdoors on the side of buildings, or outdoors on pole mounted and metered neighborhood battery boxes. The MDU-ONT then-typically- converts the fiber media to multiple Ethernet and multiple phone lines, and either multiple or shared RF coax for video, while adding extra layers of security functions to protect subscriber data. Note that there are many types of MDU-ONTs, each with different power requirements, and each supplying the voice, data, and video in different units and different ways: *SureReach* will power any of them up to its power limit.

Indoor UPS solutions are customer invasive, and may require adding electrical outlets. While all UPSs require supervisory diligence, alarm surveillance, and periodic maintenance, outdoor versions require batteries with wide temperature and extreme weather tolerance with NEMA 4 compliance, filtering and surge protection, maintenance bypass capability, wide AC voltage input windows, automatic voltage regulation, and back-up times of an FCC-mandated eight hours. Periodically, expensive toxic batteries must be purchased, replaced, and disposed of according to Environmental Protection Agency (EPA) regulations. By using the existing CO batteries and copper network, *SureReach* avoids these issues.

FCC 07-177 Oct 4, 2007 ORDER ON RECONSIDERATION *In the Matter of Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks.* “[This Order] requires that certain local exchange carriers (LECs), including incumbent LECs (ILECs) and competitive LECs (CLECs), and commercial mobile radio service (CMRS) providers have an emergency backup power source for all assets that are normally powered from local AC commercial power.” When the hurricane, tornado, flood, or ice storm hits, when the dam or levy breaks, when power fails, the phone becomes the life-saving service. *SureReach* provides a key element for primary line services that meets the need of public safety when you need it the most.

For More Information

www.generonix.com or 1-866-464-4693

This document is for informational purposes only. All information is subject to change without notice. GENERONIX MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS SUMMARY.

© 2008 Generonix Inc. All rights reserved. Generonix, SureReach are either registered trademarks or trademarks of Generonix, Inc. in the United States

GENERONIX