HOW DO I MIGRATE FROM 4-WIRE LEASED LINES TO A LEASED T1 OR ETHERNET SERVICE?

THE SCENARIO
Telephone companies will no longer support 4-Wire audio leased lines starting as early as 2015. This presents an issue for utilities currently operating their line voltage protection or SCADA equipment via 4-Wire analog leased line communications. In some scenarios, full or fractional T1 leased digital data service lines are available for a nominal monthly fee. In other scenarios, leased Ethernet service lines are available at a lesser monthly fee than T1 leased lines. Utilities are looking for a path forward that minimizes operational impact, requires little engineering, and assures comparable security and dependability for their protection and SCADA signaling. See figure 1.

THE SOLUTION
For leased T1 lines, RFL® offers a T1 multiplexer with various interfaces including 4-Wire audio that will allow utilities to continue to operate their protection and SCADA equipment with the same security and dependability. Other options include the replacement of the 4-Wire analog interface with an RS-449, V.35 or C37.94 digital interface to work over the same T1 multiplexer. See figure 2.

For leased Ethernet lines, RFL® offers an IP Access Multiplexer with various interfaces including 4-Wire audio, RS-449, V.35 or C37.94 interfaces for the operation of legacy services over Packet-Switch Networks. The IP Access multiplexer will allow the operation of the protection and SCADA equipment with either 4-Wire analog interface or digital interface over the leased Ethernet service. The IP Access multiplexer solution offers a unique redundant communications path feature. This feature allows TDM data to go over two different Telco Internet Service Providers (ISP) for 100% data survivability. See figure 3.

THE RESULTS
Both the T1 multiplexer and the IP Access Multiplexers allow the migration of the protection and SCADA equipment to a digital communications link. This improves tolerance to analog noise that can disrupt operation, thereby improving the dependability of the protection and SCADA system.

These field-proven substation solutions ensure out-of-box performance without the need to replace the units or rewire peripheral devices connected to the protection or SCADA equipment.

Figure 1: Before Migration: 4-Wire Leased Lines Communications

Figure 2: After Migration: T1 Leased Lines Communications

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Because RFL and Hubbell® have a policy of continuous product improvement, we reserve the right to change designs and specifications without notice.
The RFL® eXmux 3500 is a substation-hardened IP Access Multiplexer engineered to modernize substation communications infrastructure. Using high-speed IP transport, the eXmux platform is designed to seamlessly converge legacy Time Division Multiplexing (TDM) devices with IP-based voice, video and data between substations and control centers, guaranteeing mission-critical traffic signals arrive on time, every time.

The RFL® IMUX 2000 T1 Multiplexer is a communications platform designed to transport mission-critical signals reliably between substations and control centers. Designed for harsh environments and mission-critical infrastructures, the IMUX 2000 family of products enables power utilities to deliver power safely, reliably and cost effectively, guaranteeing mission-critical traffic signals arrive on time, every time.

ABOUT RFL®

RFL® Electronics Inc., a subsidiary of Hubbell Power Systems, Inc. designs and manufactures a comprehensive line of highly-reliable, mission-critical, cost-effective communications and protection solutions for a wide range of markets including electric utility, transportation, oil and gas in addition to government agencies and engineering consulting firms.

For more information on RFL® or our products, please visit www.rflelect.com or call 973.334.3100.