Case Study

Ethernet-over-PDH/SDH/SONET

Ukrtelecom, Ukraine

End-to-End Ethernet Service over Existing PDH/SDH Infrastructure

Challenge

To transport Ethernet traffic end-to-end over PDH/SDH infrastructure when no IP network is available.

Solution

- RICi-8E1 Network Termination Units
- Optimux-1551/1553 STM-1/OC-3 High Capacity Terminal Multiplexers
- Egate-100 Channelized Ethernet Gateway

Benefits

- Single vendor solution
- Single management solution for all RAD units in the application
- Very competitive pricing
- Carrier-class solution providing full protection, including over tributaries – a feature unique to the market

Ukraine has steadily modernized and expanded its domestic trunk infrastructure since gaining independence in December 1991. The number of telephone lines in the country, for example, rose from 12.1 million to 17.2 million between 2004 and 2005 alone, an impressive, if not amazing growth of approximately 42 percent in twelve months. During the past several years, moreover, Ukraine has connected five trunk lines to fiber optic cable to link the country to Europe on the west, Asia to the east and the Mediterranean to the south. But great expanses in Europe's second-largest country are not reached by any fiber optic infrastructure whatsoever.

Ukrtelecom, the state-owned telecommunications operator, was determined nonetheless to provide end-to-end Ethernet service throughout the country by taking advantage of their existing PDH/SDH infrastructure. To do so they selected a single-vendor access solution from RAD Data Communications.

By enabling Ethernet over existing PDH/SDH infrastructure, Ukrtelcom's goal was to maximize operational expenses (Opex) by using simple Layer 2 solutions, reduce capital expenses (Capex) by avoiding investment in expensive next-generation SDH equipment and cut both Capex and Opex by deploying a single box solution at their central offices.

At the customer premises, therefore, Ukrtelcom deploys RAD's RICi-8E1 Network Termination Units (NTUs). These devices, owned and operated by the carrier, transport

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RAD data communications

Fast Ethernet LAN, Internet and voice-over-DSL traffic over up to eight bonded E1 lines to an SDH backbone. SDH backbones covering 26 regions around the country, in turn, converge on a central MPLS network. Multiple E1 lines are groomed together onto a single STM-1 link using RAD's Optimux-1551 STM-1 high-capacity terminal multiplexer and then handed to RAD's Egate-100 channelized Ethernet gateway, which interconnects with Gigabit Ethernet traffic on the MPLS network. Together, these RAD products provide a full access solution from Ukrtelecom's central site all the way to each customer's premises.

"This is a very cost-effective solution for a carrier seeking to extend its Ethernet customer base by linking up small cities that do not have fiber infrastructure," explains Alexey Bobrov, of SNT, the RAD Data Communications partner in Ukraine that served as the project's system integrator. "The project has made a substantial contribution towards expanding Ethernet service throughout the country."

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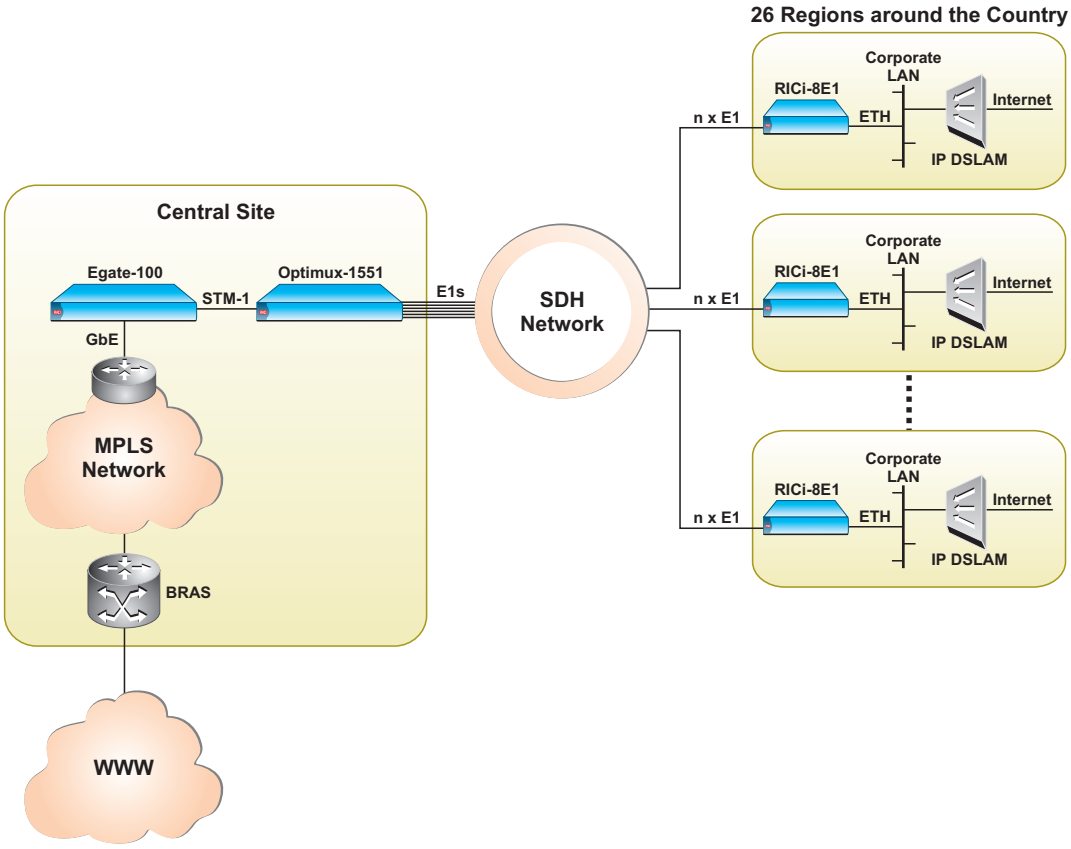

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