

Compressed Voice over Satellite

Case Study



Compressed Voice over Satellite Kcell, Kazakhstan



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Mr. Kakha Kiladze, Technical Director, Kcell

Environment

Very large geographic area with minimal terrestrial infrastructure, requiring extensive use of satellite links

Challenge

Reduce leased line satellite costs when connecting cellular mobile switching centers (MSCs) and base station controllers (BSCs)

Solution

RAD's CVS compressed voice system transports traffic between sites using much less bandwidth than would otherwise be required. It saves hundreds of thousands of dollars per month by reducing the number of E1 leased line circuits over satellite.

Benefits

- Reduces the number of costly E1 lines
- Low cost equipment
- Fast payback

CVS Reduces the Number of Leased Lines in Kazakhstan Mobile Network

Saves Kcell Hundreds of Thousands of Dollars Each Month

Kazakhstan is one of the largest countries in the world, spanning over 2,700,000 sq. km (1,000,000 sq. miles). Lacking a developed copper or fiber infrastructure, most of the communications are sent by satellite.

High Bandwidth Requirements

Kcell, the Kazakh GSM operator, was looking for a cost-effective solution for transmitting cellular traffic over the very long distances between business centers. An E1 satellite link costs Kcell up to \$30,000/month, and Kcell would need to lease many E1 links to accommodate all the traffic between its mobile switching centers (MSCs) and base station controllers (BSCs). It would require 31 E1 lines from Almaty alone, the largest Kazakh city.

Superior Compressed Voice

Newtech Distribution, a RAD distributor in Central Asia, installed RAD's CVS™ high density compressed voice system in each Kcell MSC and BSC, for efficient transmission of cellular traffic. In the first stage of the project, Megaplex-2100™ multiplexers, a component used in CVS systems, were installed on 2 Mbps satellite links between MSCs and BSCs. This enabled transmission of more than 210 concurrent voice calls over a single E1 channel, instead of the normal 30 calls. "We were impressed by the high quality of the compressed voice," says Mr. Kakha Kiladze, Technical Director at Kcell.

Subsequent stages of the project included installation of RAD's Kilomux-2100™ multiplexer, which supports six E1 lines in one box. Using this device, Kcell compresses its traffic between MSCs and between MSCs and BSCs to 6.4 kbps while maintaining high quality voice. "The CVS solution was quite affordable, and it provided extremely fast return on investment, in just one and a half months," states Kiladze. Using CVS, Kcell leases only six E1 lines for its Almaty MSC, instead of the 31 lines that were initially required.



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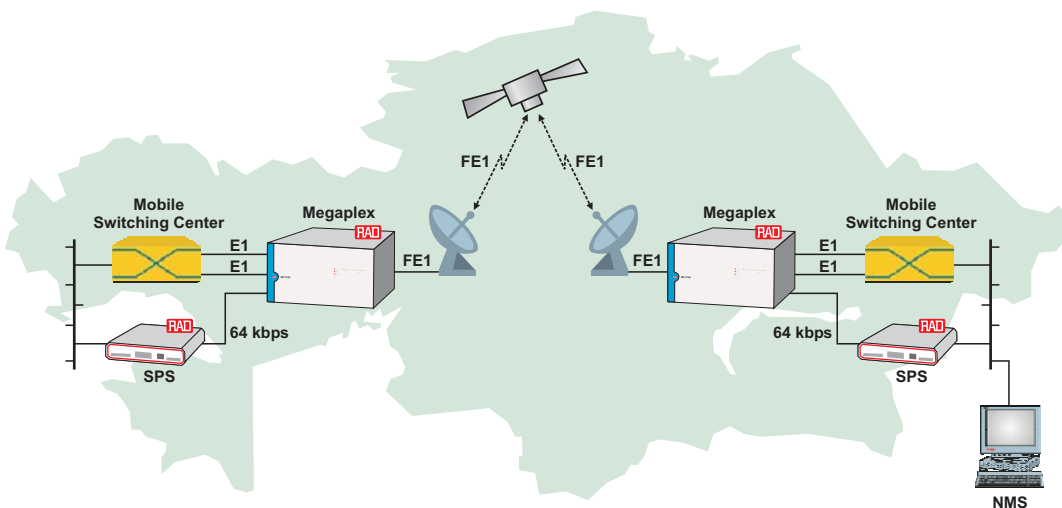
Mr. Kakha Kiladze, Technical Director, Kcell



Network management is accomplished using RAD's compact SPS™ packet switches, installed in each MSC. The SPS receives data from the network management station through its Ethernet port, and transmits it via a low speed port on each Kilomux™ or Megaplex™ multiplexer. The multiplexers send the data to the remote sites over the satellite links.

Smooth Migration to IP

Kcell successfully tested RAD's new Vmux-2100™ voice trunking gateway, which compresses and transports up to 496 E1 channels (16 E1 lines) over a single E1 or IP link. The Vmux™ would provide smooth migration to an IP network (e.g., to support GPRS) and a LAN for management of the MSCs, BSCs and base stations.



data communications

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