Compressed Voice System

Enabling Cost-Effective Voice Services

CVS

- Provision specialized voice services with minimal initial investment
- Point-to-point and point-to-multipoint applications over leased lines, microwave, satellite and Gigabit Ethernet networks
- Maximizes bandwidth utilization over TDM or IP networks

High Density Voice Compression
for Incumbent and Competitive Carriers

Deregulation in the public telephony and leased line markets has opened the way for alternative operators and service providers to offer traditional and value-added services at very attractive prices. Facing this increased competition, incumbent operators are focusing their marketing efforts on retaining high-value corporate customers through special price plans and reductions in leased line and telephony rates. In such a business environment, it is imperative for incumbent and competitive carriers to cut infrastructure and operating costs in order to sustain profitability.

To help carriers succeed in this competitive environment, RAD Data Communications offers the CVS™ Compressed Voice System. CVS enables voice resellers, international service providers and incumbent carriers to increase utilization of existing infrastructures and reduce operational costs while maintaining high quality voice services. RAD's scalable solution allows carriers to generate revenues and grow their businesses through the provision of specialized voice services with minimal initial investment.

The CVS Solution

CVS is based on the Kilomux-2100™ and Kilomux-2104™ modular voice compression devices. These products can be used individually or as part of a broader system to customize a network for a large number of voice and data channels. The system supports up to 345 voice channels over a single E1 link or 288 voice channels over a single T1 link, with voice compression as high as 12:1 at 4.8 kbps. CVS is an excellent solution for extending the PSTN over leased lines, IP or wireless links. SNMP-based centralized network management integrates easily with backbone management platforms.

Benefits to the Carrier

❯ Boosts capacity of an E1/T1 line by up to 12 times (TDM) or 16 times (VoIP)

❯ Reduces operating costs and optimizes price performance for voice/fax services

❯ Centralized SNMP network management compatible with backbone platforms

❯ Rapid return on investment

❯ Scalability facilitates system expansion

❯ Suitable for both TDM and IP networks

Market Segments

The CVS Compressed Voice System

Voice resellers

Long distance/
international carriers

Satellite providers

Call centers

Rural telephony

Calling card operators

Large corporations/governments
with private networks

Kilomux Family of Integrating Multiplexers

The Kilomux™ family compresses digital and analog voice/fax services over TDM or IP networks at data rates of up to 1,536 kbps. The Kilomux-2100 holds 12 modules and supports up to 180 digital or 96 analog voice channels. For smaller applications, RAD offers the compact, 4-module Kilomux-2104.

Implementing the G.723.1 voice algorithm, these devices compress a standard PCM voice channel at a rate of 12:1, providing high quality voice at 4.8 kbps and toll quality voice at 6.4 kbps. When operating at 4.8 kbps (12:1 compression), one Kilomux-2100 unit can compress six full E1 or T1 lines. For large-scale applications with over six E1/T1 lines, two Kilomux units can be stacked and their output can be groomed by a separate device to go over an E1/T1 main link. The Kilomux also provides built-in support for E1 opposite T1 for international point-to-point applications. For applications requiring data or LAN traffic, there are numerous high and low speed data modules that can be combined with the voice modules. All Kilomux units can be managed by the RADview™ UNIX-based SNMP management station.

Kilomux-2100/Kilomux-2104

The Kilomux comprises the following high performance voice compression modules for maximum utilization of the main link bandwidth:

• The KVF.4 and KVF.4/N modules provide toll quality compression of two analog or ISDN BRI voice/fax channels.

• The KVF.5 module compresses four voice channels from an E1/T1 trunk of a PBX. To compress more than four channels, several KVF.5 modules can be cascaded to operate as a group.

• The KVF.6 module compresses a half or full E1/T1 trunk, enabling up to 180 digital voice channels to be compressed in a single Kilomux chassis. This module supports CAS and CCS signaling methods.

• The KVF.8 module compresses up to eight analog voice channels at selectable rates, enabling up to 96 analog voice channels in a single Kilomux chassis.

Meeting Voice Compression Requirements
in Diverse Environments

Voice Resellers and Satellite Providers

The Kilomux supports point-to-point solutions for digital and analog voice compression over TDM or IP networks. Using the KVF.6 digital compression module, a single Kilomux compresses up to six E1/T1 lines (180 voice channels). This efficient solution enables service providers, such as voice resellers and satellite providers, to optimize bandwidth utilization and achieve quick payback without compromising voice quality.

TDM over Satellite
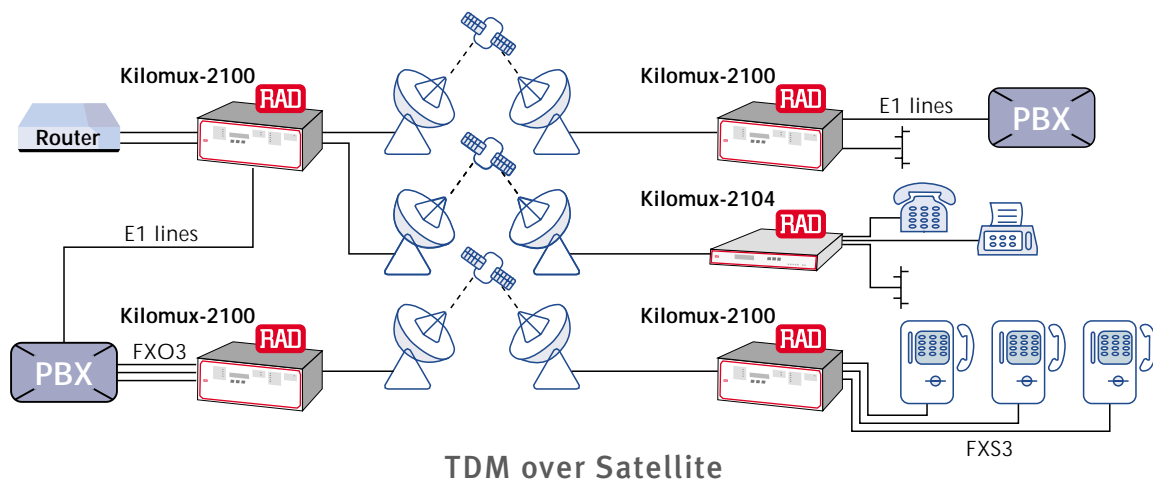
Alternative Carriers and Long Distance Providers

RAD's solution for transporting TDM traffic over IP enables alternative local carriers and long distance providers to reduce their infrastructure and operational costs and to provide competitively priced services. Using the KML.11 main link card, the Kilomux compresses up to 180 voice channels, while encapsulating the TDM and signaling information for transparent transmission across the IP network.


TDM over IP
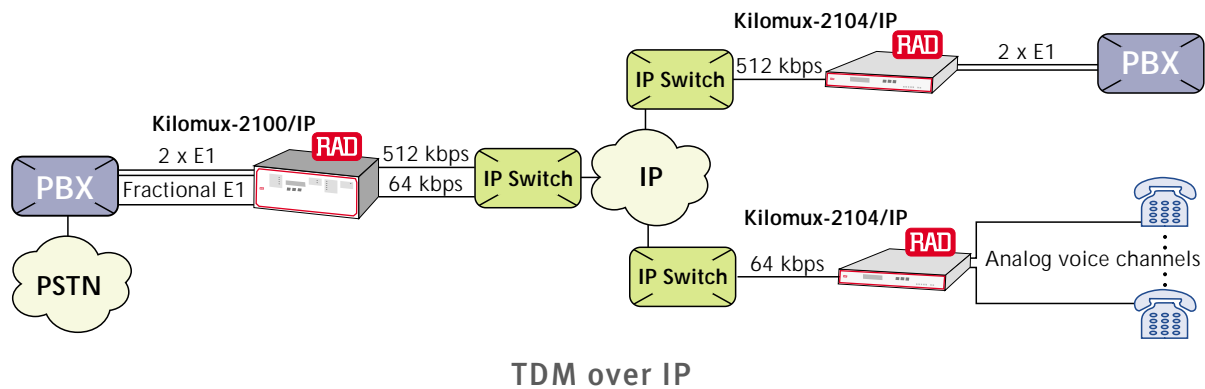
Call Centers

When equipped with the KVF.8 module, the Kilomux-2100 supports compression of up to 96 analog channels per box. This is an excellent solution for call centers that maintain numerous analog lines without a PBX.

High Volume Voice Traffic

RAD's CVS provides a cost-effective, scalable solution for high volume voice traffic based on cascaded Kilomux-2100 units with a separate grooming device to consolidate the traffic onto a single TDM or IP link.

RAD's FCD™, Megaplex™ or DXC™ multiservice access products can be used as the grooming device for TDM (according to specific application needs), while the IPmux™ TDM over IP gateway can be used as the grooming device for IP.
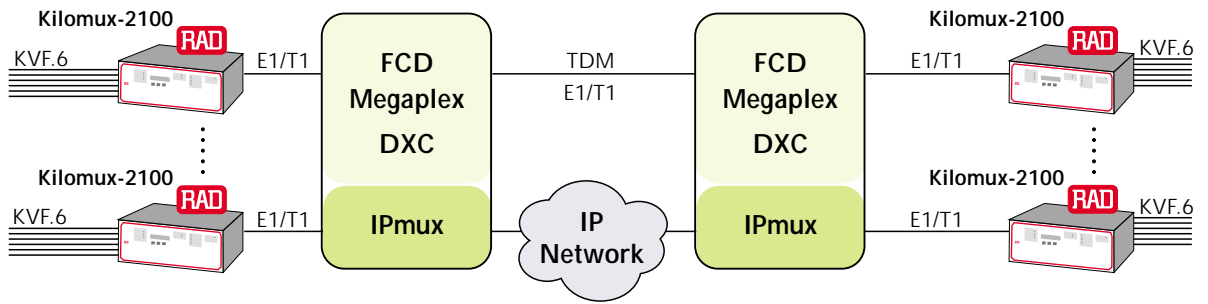
CVS Using Grooming Device

Compression of Cellular Voice Traffic

CVS is a cost-effective voice compression solution for cellular providers that operate over large distances within a given territory or wish to compete with traditional long distance service providers. CVS compresses the cellular traffic coming out of the

Mobile Switching Center (MSC) and grooms it over a single E1/T1 link for satellite transmission. By minimizing the bandwidth required to connect distant MSCs, cellular operators can substantially reduce long distance transmission costs and hence offer attractive long distance rates to their subscribers.
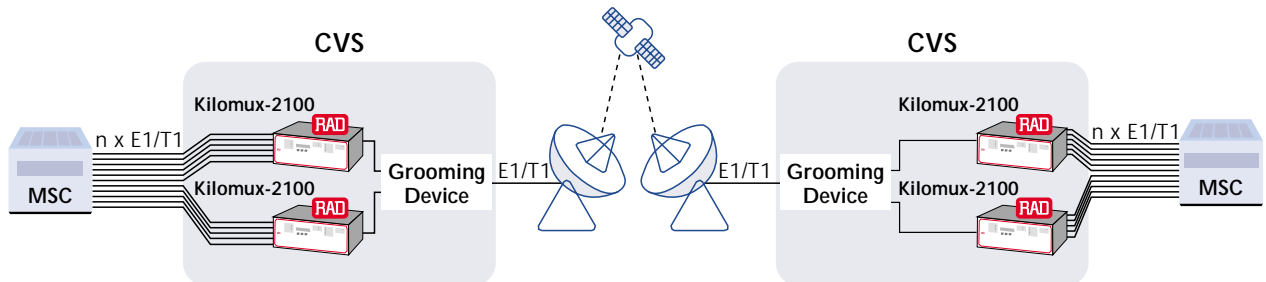
Long Distance Cellular

International Call Termination

RAD offers an H.323.V3-compliant VoIP gateway for compressing voice traffic over IP-based networks. This open solution enables international carriers to locally terminate voice calls in one country and route them across private or public IP or Frame Relay networks. RAD's VoIP application uses the Megaplex-2100H™ hybrid multiplexer which compresses up to two E1 or three T1 lines in one box. These units can be stacked to support a capacity of up to 480 compressed voice channels per E1 link or 384 compressed voice channels per T1 link.

Megaplex-2100H

Frame Relay

RAD

Megaplex-2100H

PBX RAD

Router

IP phone

IP

Megaplex-2100H RAD

Compressed Voice over IP
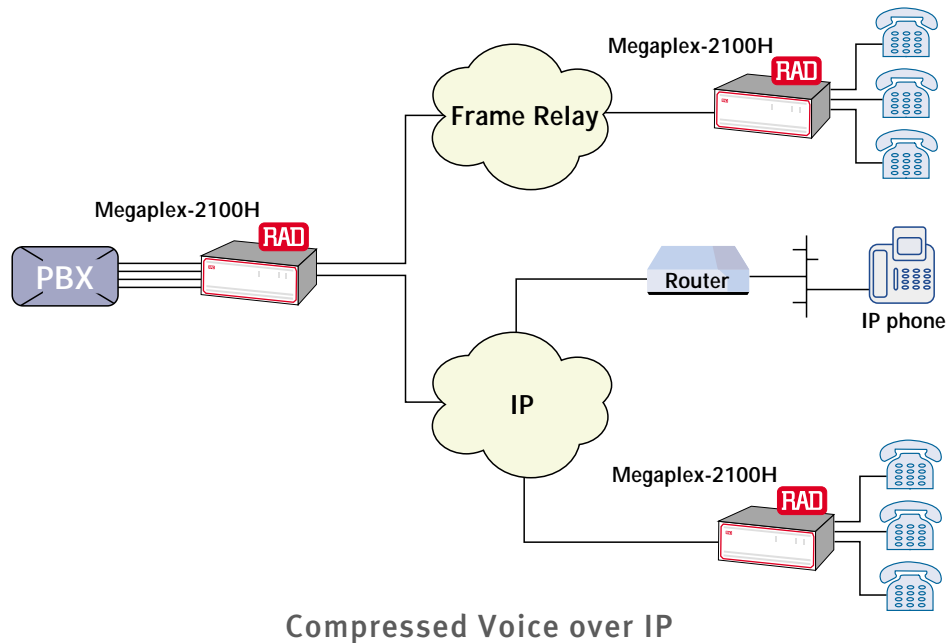
Network Management

CVS, like all of RAD's E1/T1 solutions, is managed and controlled by the RADview™ SNMP network management system, a total management and performance analysis solution. This graphical, open system enables the complete monitoring and control of WANs from a central management station.

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