General DataComm
Broadband Division

OCM-2000
Office Communications Manager

Advances in technology and decentralized data processing have allowed companies to improve business efficiency and performance by automating key functions and introducing new electronic applications at the branch office level. As a result, branch offices need to access the backbone communications network in order to electronically exchange information. Today's networks therefore need to integrate the communications requirements of every business location and to support high speed connectivity (often with 56/64 Kbps or more of bandwidth) between the branch office and the backbone network. General DataComm's OCM-2000 is a powerful, cost-effective networking platform that extends the backbone network's capabilities to remote branch office locations.

Overview General DataComm's OCM-2000 Office Communications Manager integrates voice, fax, data, video, image and LAN over common digital facilities. It offers connectivity to a variety of digital carrier services, allowing users to select the one providing the best performance/cost ratio in each location. Service options include: 56/64 Kbps leased line services, fractional T1/E1 services (groomed N x 56/64K services), and T1/E1 services.

The OCM-2000 is ideal for branch office locations. Its modular architecture makes it easy to install and maintain. To guarantee reliable performance, the OCM-2000 offers optional, fully redundant power supplies, common logic and line interface modules (LIMs).

At backbone network locations, the OCM-2000 connects to General DataComm's Transport Management System (TMS-3000) product family. The OCM-2000 is fully channel compatible with the TMS, and all OCM management functions, including configuration, monitoring diagnostics, fault management, and network restoral, are performed from the central TMS controller(s).

OCM-2000 key features include:

- Support for a variety of digital services for easy implementation of global networks
- Integration of both traditional voice and data, video conferencing, and imaging over common digital facilities
- Multi-aggregate capability for resilient mesh networks with diverse routing options
- Configuration and management from a single central-site platform
- Exceptionally high quality voice compression options

Global Networks Many companies want to connect international locations to their networks. Since transmission costs usually increase with distance, optimizing bandwidth is essential to minimizing network costs. The OCM-2000's ability to connect to a variety of digital services allows users to plan and implement global networks that accommodate varied service environments. In addition, the OCM-2000 helps optimize bandwidth use through voice compression capabilities, as well as data compression options.

Application Support The OCM-2000 supports traditional voice and data applications as well as video-conferencing, and imaging. These applications are consolidated and transported across a single communications path to the backbone network.

Voice Modules Users can satisfy virtually any voice application requirement by selecting from numerous OCM-2000 options. The ADPCM module provides voice at user programmable speeds of 64 Kbps, 32 Kbps, 24 Kbps, or 16 Kbps.

Where it is important to maximize the use of available bandwidth, the OCM-2000 offers two low bit rate voice options using advanced compression techniques:

- The CELP Voice Channel Module, which supports 4.8, 6.4 and 9.6 kbps rates and Group III fax bypass at 6.4 and 9.6 Kbps. The module supports 2- or 4-wire analog connections and can be configured for different signaling requirements. Digital echo cancellers enhance performance on satellite and long distance terrestrial links.
- The Dual Private Voice (DPV) card, which supports two analog connections (2- or 4-wire) and compression rates of 9.6 and 8.0 Kbps using the

OCM-2000

CS-ACELP algorithm. In addition, the DPV supports fax and includes an onboard echo canceller.

- The Voice Transcoder Platform (VTP), a single slot module that saves on backbone bandwidth by compressing up to four network circuits (64K PCM voice) to 9.6 or 8.0 Kbps using CS-ACELP. The circuits are then transported as channels in a subaggregate in bit format. Termination of the voice circuit can occur on a GDC Dual Private Voice Module (DPV) or another VTP, digital to analog or digital to digital.

Data Modules The OCM-2000 offers a choice of two data channel modules: A dual data channel module and a single channel, high speed data module. The dual version supports two independent V.24 (EIA-232) data channels at speeds up to 19.2 Kbps. The single channel, high speed data module supports a variety of interfaces and speeds up to 1.92 Mbps.

The OCM-2000 optimizes available bandwidth use without sacrificing network performance or availability. Delay-sensitive applications such as voice, video, and traditional mainframe processing are given dedicated, circuit-switched bandwidth. Compression techniques guarantee that the least amount of bandwidth is used to transmit those data applications that have been allocated fixed bandwidth.

Voice traffic users have a choice of compressed or non-compressed voice technologies, depending on the particular application.

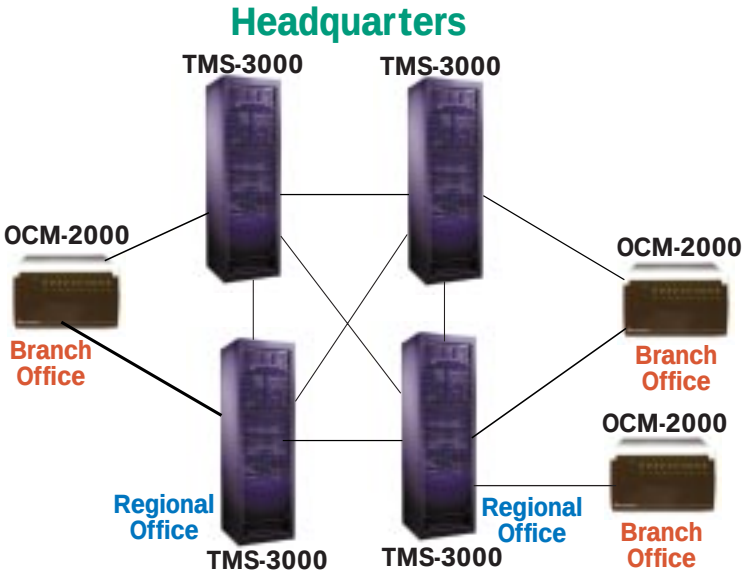
Service Connectivity The two-aggregate OCM-2000 can be equipped with line interface modules (LIMs) to connect to 56/64 Kbps services or N x 56/64 Kbps services. The OCM-2000 supports aggregate rates of up to 2.048 Mbps, making it suitable for full or fractional T1/E1 connection.

The OCM-2000 formats its outbound bitstream for both leased line services (RS-422/V.11, V.35) and network-compatible frame structures (D4/ESF, G.704). This allows users to take full advantage of carrier-provided N x 56/64 Kbps digital services such as fractional T1/E1, where offered. Each OCM-2000 can be connected to two backbone sites.

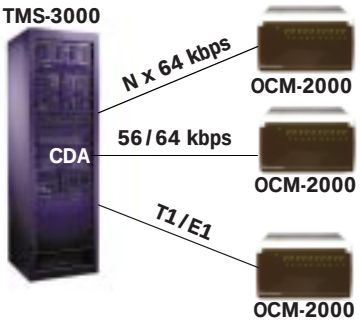
Where digital cross-connect system-based groomed services are available, the OCM-2000 offers connection to them. In this environment, the network "grooms" a number of remote connections into a single 1.544/2.048 Mbps central site connection. These services use a single link into the digital cross-connect network to replace multiple links to several locations and generally offer more economical transport than traditional leased line services.

Integral Access Devices Any GDC SpectraComm modem or CSU/DSU can be installed in an OCM channel slot. Using integrated access devices simplifies and extends the network's management reach, saves valuable rack space, and enhances overall reliability.

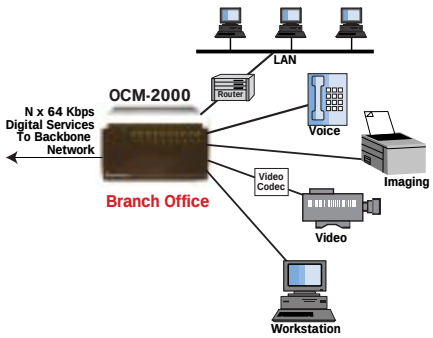
Network Reliability The multi-aggregate capability of the OCM-2000 enables users to create a resilient mesh network with diverse routing options. Where available, ISDN services can provide cost-effective backup bandwidth in the event of a primary service transmission failure. A single ISDN Primary Rate connection



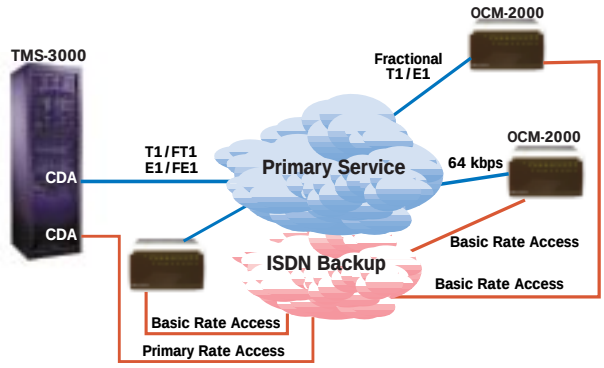
The Extended Network



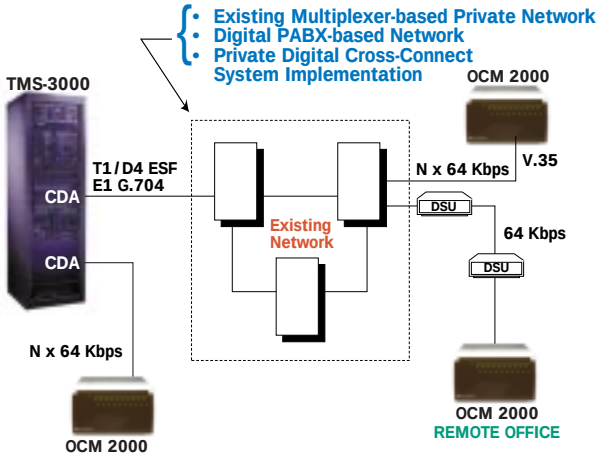
Flexible Service Connectivity



Supporting Varied Applications



Note: External ISDN Terminal Adapters are used for connections into the ISDN network.



Network Reliability

at the central site can support up to 30 (E1) and 24 (T1) remote 56/64 Kbps dial-up connections.

Expanding an Existing Network For existing networks, the OCM-2000 offers a means to add new applications to backbone locations or to extend the network to remote branch locations. The OCM-2000 and TMS can be used in any network environment that supports a public network-compatible frame structure (D4/DS0/ESF, G.704/G.732); this includes networks whose backbones are constructed with other vendors' multiplexers, PABXs or mini-digital cross-connect systems.

Network Management The OCM-2000 is configured and managed by the TMS controller from the backbone network. Up to six controllers can be supported on each network, allowing network management functions to be performed at several locations. The TMS controller provides the user with configuration tools, Intelligent Automatic Rerouting, and the ability to automatically reconfigure the network on a time-of-day basis.

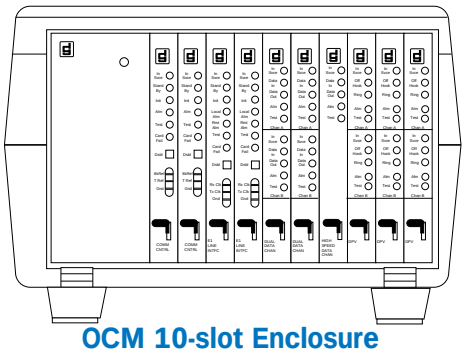
Sophisticated fault diagnostic and resolution capabilities eliminate the need for a trained technical specialist at each network location. Network problems can be diagnosed and quickly resolved with minimal impact to network operation and availability.

Enhancements To protect our customers' investment in network equipment, General DataComm provides a migration path to accommodate changing applications and expanding networks. New features can be easily added via software upgrades and new plug-in modules. Since the OCM-2000 is a part of the TMS family of integrated networking products, expansion can be accomplished without impacting network management functions and application support.

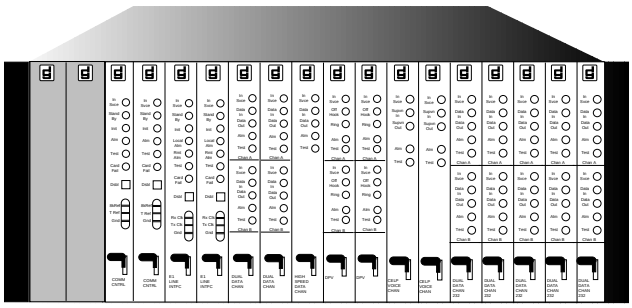
The Extended Network

Packaging The OCM-2000 is available as a standalone enclosure or rackmount shelf unit. All versions use the same common logic, line interface and channel modules. One standalone unit (non-expandable) supports up to 16 data channels (8 voice) and is ideal for smaller locations. A rackmount shelf supports up to 28 data channels (14 voice), and can support up to 60 data channels (30 voice) when an expansion shelf is added. The rackmount shelf and standalone enclosure support redundant common and line interface modules.

The backplane of each unit can be customized with a selection of connectors to support each customer's requirements. The OCM-2000's modular architecture makes it easy to install and maintain. Any upgrades or network changes can be managed from the backbone controller with minimal field assistance.



OCM 10-slot Enclosure



OCM Shelf

General DataComm
Broadband Division

OCM-2000

Specifications

Aggregate Capacity:
Up to 2 logical aggregates supported in various combinations over 1 or 2 physical aggregates

Aggregate Rate:
34 standard rates from 56 Kbps to 2.048 Mbps, including N X 64 Kbps rates (N=1 to 31)

Aggregate Interfaces:
T1/D4/ESF; CCITT G.703, G.704, RS 422/V.11, V.35, Integral T1 CSU, Integral 56K DSU

Channel Capacity (Varies based on specific configuration)

Shelf:	Up to 30 slots available (in the 2 shelf configuration) to support as many as 60 data channels (30 voice)
Enclosure:	Up to 8 slots available to support as many as 16 data channels (8 voice)

High Speed, Single Channel Data Module

Channels:	One
Rates:	300 bps to 19.2 Kbps, asynchronous; 300 bps to 64 Kbps isochronous; 300 bps to 1.92 Mbps synchronous 300 bps to 64 Kbps, transition encoding
Interfaces:	EIA/TIA-232-E/V.24; RS-422/V.11 (RS-530); RS-423; V.35

Dual Channel Data Module

Channels:	Two
Rates:	300 bps to 19.2 Kbps, sync or async
Interface:	EIA/TIA-232-E/V.24

ADPCM Voice Channel Module

Rates:	16, 24, 32 and 64 Kbps
Interface:	2W/4W
Echo Cancellation:	Optional
Signaling:	FXS (loop start and ground start), FXO (loop start only); E&M
Battery & Ring:	Internal or external

CELP Voice Channel Module

Rates:	9.6, 6.4, 4,8 Kbps
Interface:	2W/4W
Echo Cancellation:	Integral
Signaling:	FXS (loop start), FXO (loop start); E&M
Battery & Ring:	Internal or external
Fax Bypass:	Group III at 6.4, 9.6 Kbps

Dual Private Voice Channel Module (CS-ACELP)

Rates:	9.6, 8.0 Kbps
Interfaces:	2W/4W
Echo Cancellation:	Integral
Signaling:	FXS (loop start), FXO (loop starts); E&M
Battery & Ring:	Internal or external
Fax Bypass:	Group III
Number of Ports:	Two

Physical / Environmental

	10-slot Enclosure	16-slot Shelf
Dimensions:		
Height	299 mm (9.0 in.)	178 mm (7.0 in.)
Width	343 mm (13.5 in.)	483 mm (19.0 in.)
Depth	292 mm (11.5 in.)	305 mm (12.0 in.)
Power:	One 100-watt power supply; 100/117 VAC, 220 VAC or 240 VAC	Each shelf accepts one or two 96-watt supplies; 100/117 VAC, 220 VAC, 240 VAC or –48 VDC
Temperature:	0 to 50° C, operating; –40 to 70° C, storage	0 to 50° C, operating; –40 to 85° C, storage
Humidity:	Up to 95% without condensation	
Altitude:	Up to 3000 meters (12,000 feet). Derate 1 degree C per 1000 feet above sea level	

Safety / EMI
Conforms to worldwide standard

World Headquarters
Middlebury, Connecticut USA 06762-1299 • Tel: 1-203-574-1118 • Fax: 1-203-758-9468 • 1-203-758-9518 (GDC International) • www.gdc.com

U.S. Sales Offices
Broadband Systems Division
To locate the Broadband representative nearest you, call: 1-877-298-0819 (toll free in North America)
Network Access Division
To locate the Network Access representative or Distributor nearest you, call: 800-523-1737 • For 24-hour delivery, call 1-800-435-8064
U.S. Government Sales 301-595-0300

Atlanta, GA 770-955-0682 • Chicago, IL 630-261-0670 • Dallas, TX 972-406-4800 • Denver, CO 303-782-3600 • Detroit, MI 248-540-4110
Honolulu, HI 808-235-2319 • Houston, TX 713-779-7879 • Los Angeles, CA 310-348-0017 • Minneapolis, MN 612-935-7381 • New York, NY 212-248-7220
Oakland, CA 510-382-9400 • Washington, DC 301-595-0300 •

Subsidiaries
Canada Tel: 416-498-5100 Fax: 416-499-0248 • France Tel: 33-1-47-62-62-00 Fax: 33-1-47-62-96-96 • Mexico Tel: 52-5-645-2238 Fax: 52-5-645-5976
Russia Tel: 7-812-325-1085 Fax: 7-812-325-1086 • United Kingdom Tel: 44-1189-774868 Fax: 44-1189-774871

International Regional Offices
Asia Singapore Tel: 65-735-2123 Fax: 65-735-6889 Hong Kong Tel: 852-2526-5511 Fax: 852-2525-9944 China Tel: 86-10-6621-1815 Fax: 86-10-6621-1814
Japan Tel: 81-3-5473-7890 Fax: 81-3-5473-7895
Europe/Middle East/Africa Austria Tel: 43-1-599-99-675 Fax: 43-1-599-99-678 Belgium Tel: 32-2-529-5848 Fax: 32-2-529-5911
Italy Tel: 39-06-3987-0265 Fax: 39-06-3987-0287
Latin America Argentina Tel: 54-11-4315-6086 Fax: 54-11-4312-2819 Brazil Tel: 55-11-535-0232 Fax: 55-11-542-0547
Miami, Florida Tel: 1-954-724-3511 Fax: 1-954-724-5397

Printed in U.S.A 00437-1299YA