General DataComm
Best Connections in the Business

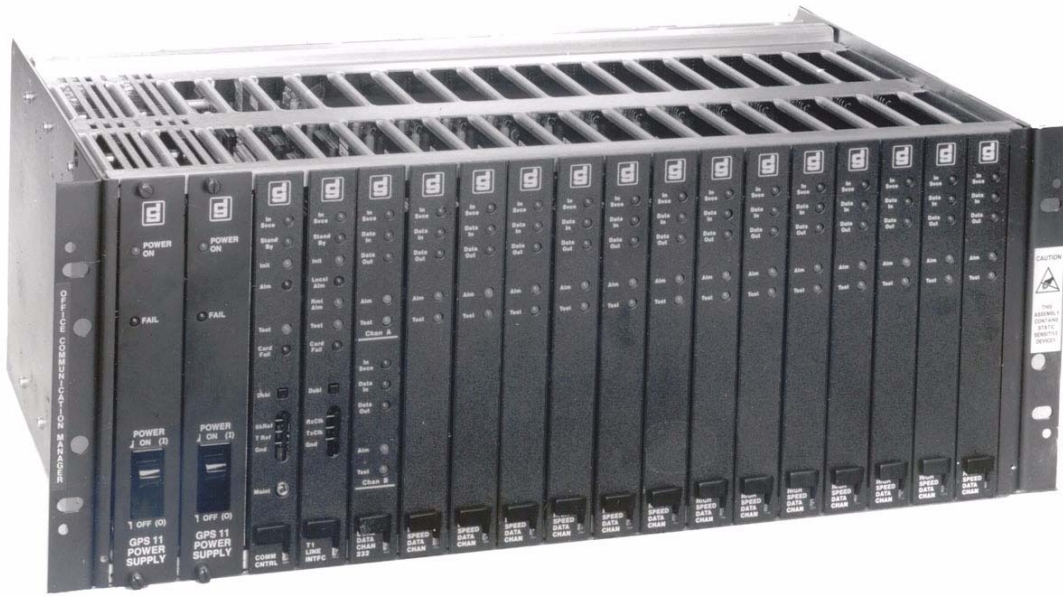# OCM-1000

Multiple Aggregate Multiplexer for Small Private Networks

Figure 1: Office Communications Manager (OCM-1000)

OCM-1000 OVERVIEW

General DataComm's OCM-1000 is a hybrid access networking device that consolidates and transports a comprehensive range of voice and data applications across a single communications path between OCM-1000 units in point-to-point, point-to-multipoint, and point-to-network applications.

OCM-1000 offers connectivity to a variety of carrier services, allowing users to select the configuration with the best cost/performance ratio for their network environment. Service options include:

- 9.6 to 28.8 Kbps analog services
- 56/64 Kbps leased line services
- Fractional T1/E1 services (groomed N x 56/64 Kbps services)
- T1/E1 services.

Aggregate Diversity

In mission critical applications requiring fail-safe operation, the OCM-1000 protects against line failure by means of an aggregate diversity feature. In the event of primary line failure, the OCM 1000 automatically transfers all traffic to an alternate physical path.

Features & Benefits

- Hybrid public network access
- Flexible interconnection speeds to 2 Mbps
- Powerful PC-based network management supports up to 93 OCM-1000 units.
- Offers a smooth migration path to more advanced networking features.
- Integrates voice & data over common digital facilities.
- Provides very high quality voice compression options.
- Employs Common Control Modules (CCM) and a variety of voice and data Line Interface Modules (LIMs).

Flexible Scalable Architecture

OCM 1000 is housed in a 16-slot, 19-inch wide and 7-inch high rack-mount shelf that can be expanded to include up to a total of 32 card slots with the OCM Expansion Shelf. The shelf supports redundant power supplies, CCMs and LIMs. This flexible architecture supports up to two full E1 (2.048 Mbps) or T1 (1.544 Mbps) aggregates and accommodates both circuit and packet switched operation.

Plug-in cards use the backplane architecture to implement various circuit and packet capabilities. As the network grows, the OCM-1000 system can be upgraded to participate in a large Transport Management System (TMS) backbone network by simply reoptioning the common logic module.

Public/Private Network Access

In a public network, OCM-1000 providesT1/E1 bandwidth provisioning service, delivering up to 24 (T1) or 31 (E1) 56/64 Kbps channels for cross-connection at a carrier's central office. A channel from one T1/E1 interface may be cross-connected to another wideband interface, or provisioned as a narrowband circuit terminating on a CSU or DSU. Channels can also be cross-connected to the carrier's frame relay service.

In small private networks, OCM-1000 serves as a multiple aggregate network multiplexer. It can be configured to access the private network over public or private transmission facilities via either narrowband or wideband circuits.

Voice Applications

 Users can satisfy virtually any voice application by selecting from numerous OCM-1000 options.

* The ADPCM module provides voice at user programmable speeds of 64, 32, 24 or 16 Kbps.

* The Dual Private Voice (DPV) Module is a two-channel analog voice compression module that operates at speeds of 4.8, 6.4, 8 or 9.6 Kbps.

* The DPV module is designed so that all signaling is performed in-band, with no hidden bandwidth costs.

Each voice channel supports 2- and 4-wire analog connections and can be configured for different signaling requirements. Digital echo cancellers enhance performance on satellite and long distance terrestrial links.

GDC's voice compression techniques provide excellent voice quality using as little as 4.8 Kbps of bandwidth, and near toll-quality using only 9.6 Kbps. In addition, automatic full rate Group III fax bypass ensures that the voice channels can be used for both voice and fax transmission without manual intervention or reconfiguration.

Data Applications

The OCM-1000 supports a dual data channel module and a single, high speed data channel module. The dual version supports two independent EIA/TIA-232E/V.24 data channels at speeds up to 38.4 Kbps. The single channel, high speed data module supports a variety of interfaces, including V.35, V.11, RS-422 and X.21 and speeds up to 1.920 Mbps.

User Connections

To facilitate rapid deployment of services and simplified maintenance, all user cables are connected to the rear of the OCM via standard connectors. T1/E1, analog voice, and LAN connections are made via industry standard RJ-45 modular jacks. Data connections are made via industry standard DB-25 connectors.

Network Management

The OCM 1000 is managed by GDC's OCM Management System (OMS), which runs on a standard Windows-based PC. The OMS provides intuitive configuration, alarm reporting, diagnostics, and full management of up to 93 OCM 1000s (up to 31 local and 62 remote OCM 1000s). The OCM performs all management functions in-band, eliminating the need for external communication paths or dial-up modems. All functions, including performance measurements and alarm reporting, are transported between OCM 1000s using a small, user-configurable overhead channel. The OMS is used to enter all operation parameters, network configuration data, channel types, channel routing data, and alarm thresholds. Configuration parameters for all OCM 1000s in the network are automatically stored on the PC's hard drive by the OMS, and backup copies of the configuration can be saved on a compact disk.

Diagnostics & Maintenance

The network operator can rapidly isolate network or equipment faults through OCM Management System's the comprehensive network diagnostics. OMS can command data channels to launch a variety of Bit Error Rate Tests (BERT) by placing a remote channel in loopback and generating a data pattern. Voice channels can be commanded to perform remote loopback while a local module launches a test tone and the OMS displays send and receive audio levels measured in decibels. OMS also supports common local and remote loopback functions for all channel cards.

Maintaining software in OCM networks is efficient and cost effective, by design. The OCM-1000 software and configuration parameters can be downloaded to all units. This important feature eliminates the need to dispatch technicians to remote locations to perform upgrades as new OCM-1000 software becomes available.

OCM-1000

Physical & Environmental Specifications

16-slot Shelf Dimensions

Height: 178 mm (7.0 in.)

Width: 483 mm (19.0 in.)

Depth: 305 mm (12.0 in.)

Weight (includes two power supplies, no cards): 46 kg (21 lbs)

Shipping Weight: 55 kg (25 lbs)

Environmental Requirements

Operating Temperature: 0º to 50º C (32° to 122° F)

Storage Temperature: -40° to 85° C (-40° to 168° F)

Humidity: Up to 95% without condensation

Altitude: Up to 3000 meters (12,000 ft.)

Electrical Specifications

Each 16-slot OCM-1000 shelf accepts one or two 96-watt power supplies; 100/117 VAC, 220 VAC, 240 VAC or -48 VDC

Channel Cards

Dual Data Card

Application: Low Speed Sync/Async
No. of Channels: 2
Supported Rates: 300 bps to 38.4 Kbps
Interfaces: EIA/TIA-232-E, V.24

High Speed Data Card

Application: High Speed Data
No. of Channels: 1
Supported Rates: 300 bps to 1.920 Mbps
Interfaces: EIA/TIA-232-E, 422, 423 and V.35, X.21

ADPCM Voice

Application: Analog Voice
No. of Channels: 1
Supported Rates: 16, 24, 32 and 64 Kbps
Interfaces: 2/4 Wire E&M, FXS, FXO

CELP

Application: Voice and Group 3 Fax
No. of Channels: 1
Supported Rates: 9.6, 6.4 and 4.8 Kbps
Interfaces: 2/4 wire E&M, FXS, FXO

DPV

Application: Voice and Group 3 Fax
No. of Channels: 2
Supported Rates: 9.6, 8.0, 6.4 and 4.8 Kbps
Interfaces: 2/4 wire E&M, FXS, FXO

Operational Specifications

Aggregate Specifications

Aggregate Capacity: Up to two

Aggregate Rates: From 9.6 Kbps to 2.048 Mbps, including N x 64 Kbps

Aggregate Interfaces:
T1/D4/ESF, CCITT G.703, G.704, V.11, V.35, V.28, EIA/TIA-232-E

Line Interface Specifications

T1 CSU
Application: T1/D4/ESF with Integral CSU applications
No. of Ports: 1
Supported Rate: 1.544 Mbps
Interfaces: D4/ESF - 8 Pin Modular

T1
Application: T1/D4/ESF
No. of Ports: 1
Supported Rate: 1.544 Mbps
Interfaces: D4/ESF - 8 Pin Modular

E1
Application: G.703/G.704
No. of Ports: 1
Supported Rate: 2.048 Mbps
Interfaces: G.703/G.704 - 8 Pin Modular

V.11/X.21
Application: N x 56/64 Kbps Digital Service
No. of Ports: 1
Supported Rates: N x 56/64Kbps to 1.984 Mbps
Interfaces: ITU-T V.11/X.21

V.35
Application: N x 56/64Kbps Digital Service
No. of Ports: 1
Supported Rates: N x 56/64Kbps to 1.984 Mbps
Interfaces: ITU-T V.35

Subrate
Application: Analog Services
No. of Ports: 1
Supported Rates: N x 2.4 Kbps: from 9.6 Kbps to 45.6 Kbps
                  N x 8 Kbps: from 16 Kbps to 64 Kbps
Interfaces: EIA/TIA-232-E

Channel Capacity

Up to 30 slots are available in the two shelf configuration, supporting up to 60 channels. (Channel capacity varies based on specific configurations.)