General DataComm

Metroplex® 6000/E1

Global E1 Access Multiplexer

Highlights:

- *Up to two E1 interfaces using the latest wideband technology*
- *Modular, scalable architecture reduces equipment investment and field repair time*
- *Supports a variety of both voice and data channel interfaces on one platform*
- *Provides VT-100 craft port control plus Telnet or SNMP management*

Overview General DataComm's Metroplex® 6000/E1 represents a new generation of intelligent access multiplexers designed for cost-effective and efficient customer premises E1 termination. The Metroplex 6000 replaces older wideband multiplexing technology with a compact, high channel density system that organizes branch office 64 Kbps and fractional wideband data along with voice traffic. It provides standards-based E1 access to wideband services, multiplexing data and/or voice channels onto one or two wideband lines.

Data and voice traffic can be integrated at the branch office level and bandwidth can be shared by combining data with PBX applications via a true "drop and insert" capability. Customers gain increased control of services that once resided in the telephone exchange, while achieving increased levels of supervision — ranging from management via a craft port interface or Telnet to sophisticated SNMP management via GDC's HP OpenView-based, TEAM 6000 application.

Effective Service Provisioning Metroplex 6000 helps service providers introduce a host of products that provision data and voice on one platform. With Metroplex 6000, migration to a premises-based solution, where the familiar wiring closet serves as the access point to wideband services, allows savings on loop maintenance, central office space and equipment. The Metroplex 6000 paves the way for E1 service delivery based on new Digital Subscriber Line technologies (such as High bit rate Digital Subscriber Line or HDSL) that increase copper loop capacity and quality of service (QoS).

Diverse Applications A sampling of the Metroplex 6000's extensive range of applications include:

- Service provider termination of voice and data using E1 on the customer premises
- Point-to-point E1 multiplexing over private facilities with the added benefit of consolidated voice and data
- Interfaces with GDC APEX® switches for effective delivery of E1/FE1 services via an ATM network

Candidates for Metroplex 6000 flexibility and savings include: companies searching for ways to reduce network access costs for remote locations; service providers looking for the most cost-effective way to deliver services in shared tenant facilities; and utilities seeking to get the most out of the facilities along their own right-of-ways.

Modular Design The Metroplex 6000 is the first multiplexer located on the customer premises that is designed as a fully modularized and scalable wallmount as well as a rackmount. As a result, it can be easily optioned for specific applications. System components include the Platform Basecard, and a versatile mix of data and voice Basecards housed in either a Metropak or a 483 mm (19-in.) rackmounted Universal System Shelf (USS).

The Metropak is a wallmount enclosure that allows for easy installation and access. One Platform Basecard and up to five channel basecards can be housed in the Metropak, enabling a variety of data/voice configurations. The Metropak features a universal AC power

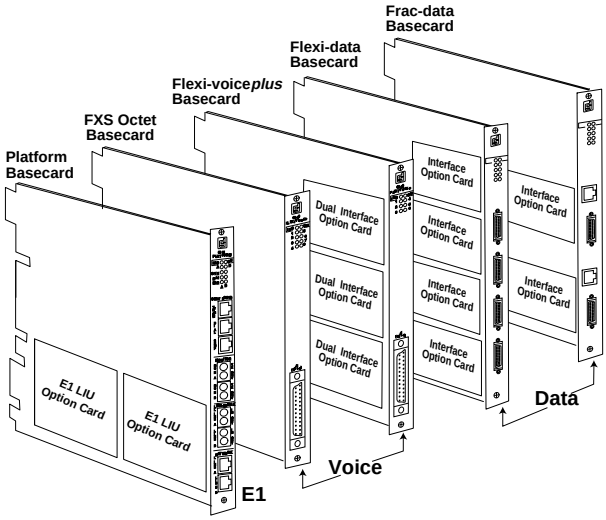

Figure 1 — Metroplex Basecards

supply plus an optional, external AC power supply for redundancy. Figure 1 shows Metroplex Basecard profiles and Figure 2 a typical Metropak application.

Up to two 6-slot Metropak configurations can also be rackmounted using an optional rackmount kit, enabling installation in standard 483 mm (19-in.) or 584 mm (23-in.) wide cabinets. Rackmounting six-slot Metropaks using this method also allows powering from –48 VDC or +24 VDC supplies as well as AC sources.

For higher density applications, AC or DC versions of the USS, equipped with Metroplex 6000 backplanes, can house up to four Metroplex 6000 systems, each with one Platform Basecard and three voice and/or data Basecards. If two backplanes are linked together, shelf capacity is two eight-slot systems each with one Platform Basecard and up to seven data or voice cards.

The result is high aggregate and channel capacity. For example, in an typical fractional E1 configuration, one USS can support up to twenty-four, 640 Kbps channels feeding up to eight E1 circuits for a total aggregate capacity of 15.36 Mbps. Figures 3 and 4 show typical Metroplex Rackmount applications

Unified System Architecture All basecards follow a standard Metroplex form factor, which means there is only one card style and outline for all enclosures. The Flexi-data and Flexi-voice*plus* basecards accept various plug-in option cards that provide a selection of channel interfaces. Network, business equipment, and diagnostic interfaces appear on the basecard front panels, allowing convenient cabling and installation. Standard connectors (50-pin for voice and 64K G.703 data, 8-pin modular for E1 line, and EIA/TIA-232-E Alt A for DTE) are used throughout for easy plug-in re-arrangement.

64 Kbps Data Capabilities Using the Flexi-data Basecard and the appropriate interface card, V.24, X.21 and V.35 are supported at 64 Kbps. Each Flexi-data Basecard can support up to four data interfaces. The Frac-data Basecard enables even more flexibility by handling all N x 64 Kbps rates up to the full 1.92 Mbps payload.

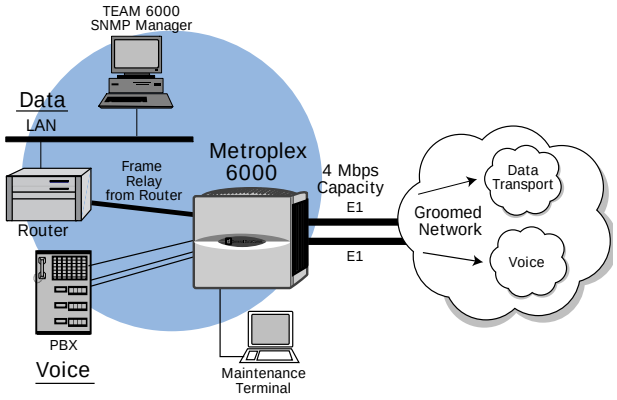

Figure 2 — Voice and Data Integration Using Metropak

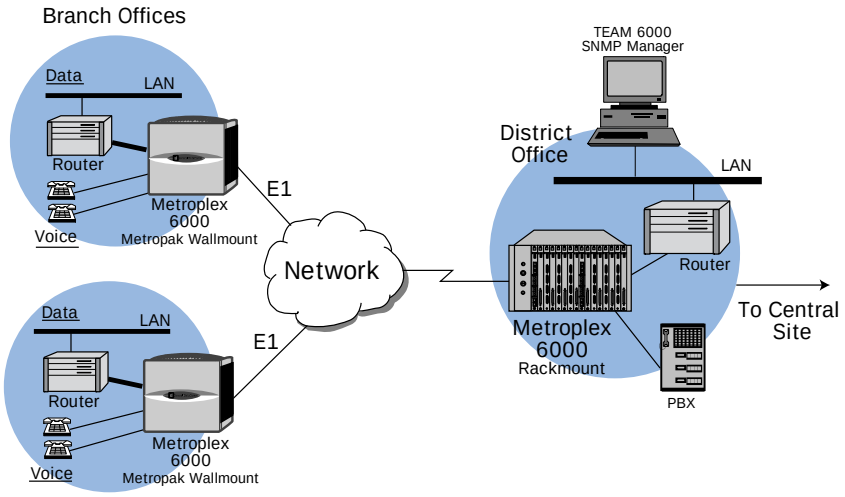

Figure 3 — Metropak Combined with Higher Density Rackmount

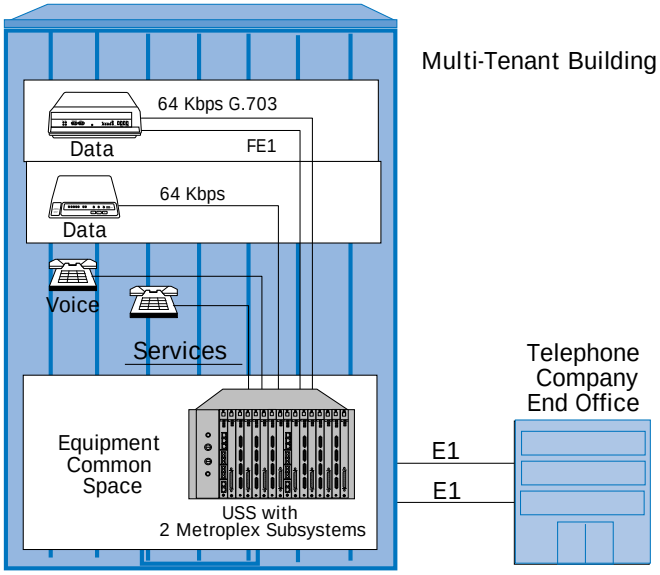

Figure 4 — Service Provisioning, Multi-Tenant Building

Flexible Voice Interfaces The Metroplex 6000 is ideal for voice, providing local telephone service from a telephone exchange to the subscriber's exchange area. Its Flexi-voice*plus* Basecard can be equipped with the appropriate dual voice interface option cards—an OB (Originate Battery) card supporting FXS and a TB (Terminate Battery) card supporting FXO.

A 4-wire E&M Dual Interface Option Card supports E&M signaling, the most common interface signaling method for interconnecting PBXs with transmission signaling systems. Each Flexi-voice*plus* Basecard can handle up to three dual voice interface cards for a total mixed voice channel capacity of 30 in the Metropak and 84 in the USS.

Voice Plus Data A Dual 64K G.703 option card is available for distribution of digital data at 64 Kbps to equipment located within the same facility, but at an extended distance from the Metroplex 6000.

The Flexi-voice*plus* Basecard also supports a Dual 4-Wire TO (Transport Only) option card that handles voice circuits typically used to deliver private line modem data to remote locations.

As a result, the same Flexi-voice*plus* Basecard can be used to transport analog modem data, 64K G.703 data, as well as voice.

Aggregate Capabilities On the network side, the Metroplex 6000 Platform Basecard allows flexible interfaces to wideband services. Each Platform Basecard has room for one or two E1 LIU (Line Interface Unit) option cards, supporting delivery of two E1s per Basecard for added network access, drop and insert functions, or diverse routing. A future HDSL interface will increase the power and flexibility of Metroplex 6000 by maximizing copper loop bandwidth capacity.

In applications where wideband signals must be cascaded to E1 equipment, a second LIU provides for full drop and insert capabilities. The flexibility of the Metroplex 6000's dual wideband circuit design also facilitates diverse routing through two different access loops. Metroplex 6000 can be optioned to move its composite wideband signal from one E1 LIU card (LIU-A) to a second E1 LIU (LIU-B) in the event that the primary E1 connection fails. Power supply redundancy is also available. The net result is a more secure and effective operating environment.

Traditional, Telnet or SNMP Management Front panel LED indicators on all Metroplex 6000 basecards provide key functions for monitoring network and channel interfaces. A diagnostic interface on the Platform Basecard allows for traditional local craft port supervision via a VT-100 terminal interface and the ASCII screens familiar to many operators.

The Metroplex 6000 can also be optionally equipped for Telnet management using the DIAL interface, a PPP link into the 6000's SNMP port, or directly over Ethernet via the SNMP interface.

And finally, Metroplex 6000 architecture has been designed to provide for centralized standards-based, network management. The SNMP port will accept communications using either Ethernet or PPP from any SNMP manager, or from GDC's TEAM 6000, an HP OpenView-based management application with an intuitive custom graphical user interface.

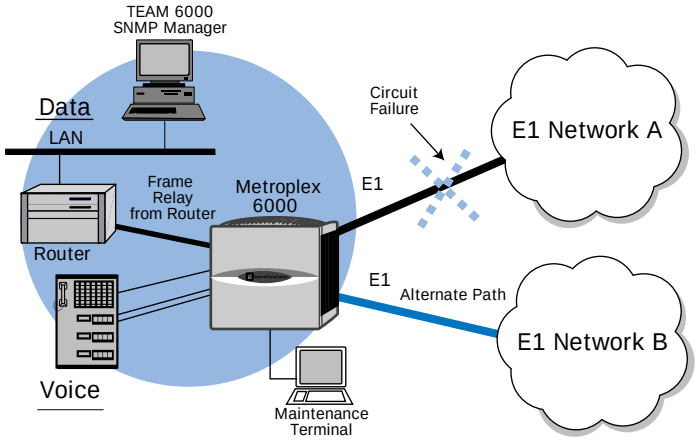

Figure 5 — Diverse Traffic Routing

Metroplex® 6000/E1

General DataComm

I.S. EN ISO 9001

Specifications

Service Compatibility:	E1 and fractional E1	
Network Interfaces	Platform Basecard	
Aggregate Capacity:	Up to two E1s, each at 2.048 Mbps	
Aggregate Interfaces:	Integral E1 interface	
Physical Interface:	G.703	
Line Code:	HDB3	
Framing:	G.704 framing, supports CAS and CRC-4	
Channel Interfaces	Channels Per Card	Interface Types
Flexi-voice*plus* Basecard:	Up to 6	FXS, FXO; 4-wire 64K G.703 ;4-wire E&M; or 4-wire TO (Transport Only), via dual interface cards
FXS Octet Basecard:	Up to 8	FXS only; no interface cards required
Flexi-data Basecard:	Up to 4	9.6, 56, 64 Kbps data; X.21, V.35, V.24
Frac-data Basecard:	Up to 2	N x 64 Kbps "super-rate" channels from 64 Kbps to 1.92 Mbps
Maximum Channel Capacity:		
Metropak:	Mixed Voice – Five Flexivoiceplus Basecards for a total of 30 voice channels with any mix of interface types	
	64K/G.703 Data – Five Flexivoice*plus* Basecards with 64K G.703 option cards for a total of 30 data channels	
	FXS Only – Five FXS Octet Basecards for a total of 40 FXS voice channels	
	Data (9.6, 56, 64 Kbps) – Five Flexi-data Basecards for a total of 20 data channels	
	Super-rate Data (N x 64 Kbps) – Five Frac-data Basecards for a total of 10 data channels	
Universal System Shelf:	Mixed Voice – 14 Flexi-voice*plus* Basecards for a total of up to 84 voice channels	
	FXS Only – 12 FXS Octet Basecards for a total of 96 FXS voice channels	
	Data (9.6, 56, 64 Kbps) – 14 Flexi-data Basecards for a total of 56, 64K digital data channels	
	Super-rate Data (N x 64 Kbps) – 14 Frac-data Basecards for a total of 28 data channels	
Diagnostics:	Local loopback; digital milliwatt test tone; 511 and 2047 BERT pattern Frac-data – PN127 loop up/down code	
Management Interface:	VT-100 craft port, DIAL, and SNMP	
SNMP Compatibility:	Compliant with Simple Network Management Protocol (SNMP), Version 1 agent RFC 1213 MIB II, RFC 1406 DS1 MIB, and MIB for Metroplex 6000 features	
Physical/Environmental	Metropak	USS
Height::	362 mm (14.25 in.)	267 mm (10.5 in)
Width:	356 mm (14 in.)	483 mm (19.0 in.)
Depth:	190 mm (7.5 in.)	343 mm (13.5 in.) - AC Version
		305 mm (12 in.) - DC Version
Operating Temperature:	0° to 50° C (32° to 122° F)	
Humidity:	Up to 95% relative humidity without condensation	
Electrical	Metropak	USS
Power:	90 W maximum	200 W maximum (includes transformer losses)
Voltages:	100 to 240 VAC; –48 and +24 VDC (using optional rackmount kit)	230 VAC; –48 VDC
Approvals:		
Safety	EN60950	
EMC	EN55022 Class A	
EC:	CE Mark	

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Printed in U.S.A 00578-1297YA