



Application Brief

SpectraComm 2000

Answering The Call for Cost-Effective, NEBS Compliant Management Access At the POP

Given today's distributed LAN-based internetworking, to provision and maintain access services, CLECS and other service providers require remote management access to devices such as routers, servers, switching and access equipment at the POP, the end distribution point for service access. For example, dial-in access to the supervisory port of a router is a fast and easy way to establish such supervisory control. However, there are few analog access solutions today that can cost-effectively support multiple POPs and deliver the NEBS compliance required by carrier collocation specifications. One of the few systems being deployed today to answer the call is General DataComm's high density, NEBS Level III compliant SpectraComm 2000 (SC 2000) shelf, supporting up to four supervisory ports.



Introduction The SC 2000 is part of GDC's SpectraComm family of modems and CSU/DSU access products designed specifically for integrating local and wide area data networks. A compact, NEBS-compliant shelf system, the SC 2000 accepts one or two GDC analog and/or digital access products, including either the V.F. 28.8 Dial Only or Dual V.34 modem. These devices can also be mixed and matched with a GDC SpectraComm 553 FT1/T1 CSU/DSU or SpectraComm 521A DDS/GDS DSU. The result is a flexible blend of dial-up and, if required, digital access up to T1 speeds.

Now this combination has been bundled as a cost-effective management access solution, in an off-the-shelf configuration packaged for easy deployment by the service provider at the Customer Premises. In this application brief, we will look at specific scenarios for such deployment and their unique advantages.

Solution Requirements To maximize revenues in today's competitive service provisioning environment, the ideal management access system at

the POP must deliver:

Cost-effectiveness — a convenient package that does not put a burden on the cost of initial equipment investment, installation costs, or maintenance costs.

Maximum Density in a Small Footprint — support for more than one port without sacrificing the compactness needed in the crowded common equipment room at the customer premises.

Room for Expansion — a start-up solution that has space for growth.

NEBS Compliance — Level III to satisfy carrier collocation regulations.

Power Redundancy — to ensure reliability in hard to reach remote sites.

The SC 2000 is one of the few products on the market that can deliver all of these essentials.

Solution Components

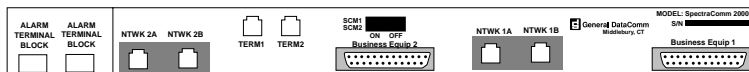
The SpectraComm Shelf Figure 1 shows the front and rear views of a typical SC 2000 installation. In compliance with Level III NEBS specifications, the SC 2000 measures 19 inches (482.6 mm) wide X 1.75 inch-



SC 2000 Shelf with Dual V.34 Modems (Four Port Capacity)



SC 2000 Shelf with V.34 Dial Only Modems (Two Port Capacity)



SC 2000 Shelf Rear View

Figure 1 — SpectraComm Shelf Components

SpectraComm 2000

es (44.45 mm) high X 10.6 inches (269.2 mm) deep. Each shelf supports:

- Maximum of two SpectraComm plug-in cards. Modules are hot-swappable, allowing service or hardware upgrades without interrupting system operation.
- A single power supply or two independent power supplies, supporting both 24 VDC and -48 VDC input options. An external AC "all range" power supply is also available. The twin supplies perform load sharing during normal operation and one supply will power the whole shelf if the other fails. Replacement of a failed power supply can be done without service interruption.
- Mounting per EIA-310E specifications, with a choice of wall mounting, front or center-of-gravity rackmounting.
- Front panels with status indications and easy to read connect speed display for modems
- Conveniently located rear panel DCE, DTE and WAN connectors

Modem Cards

Dial-up management access is supplied by a SC 2000 Shelf equipped with one or two of the following:

NEBS Compliance

A requirement for Central Office equipment located in North American Public Switched Network centers, the rigorous NEBS (Network Equipment Building Standards) requirements are a universal measure of network product excellence for carriers. NEBS includes criteria for operational continuity, protection of property, and personnel safety. Bellcore has grouped the criteria into three functional groups or levels. While the latest carrier specifications are to Level I, less than Level III compliance can restrict deployment in certain carrier environment applications. By meeting the Level III requirements, GDC products can be deployed in all interior carrier environments.

SpectraComm Dual V.34 — Delivering two, high performance, high reliability V.34 modems on a single card for a total of four modems per SC 2000 Shelf.

SpectraComm V.F 28.8/33.6 — A single port V.34 modem for lower density requirements.

Both the Dual V.34 and the V.F 28.8/33.6 can transmit synchronous or asynchronous data at speeds up to 33.6 kbps. With advanced compression techniques, they can achieve an effective throughput of up to 64 kbps in synchronous and 128 kbps in asynchronous applications.

In addition to their outstanding access features, both modems are NEBS Level III compliant, the most stringent of the NEBS certification levels.

Applications

Dial-up Management Access for Up to Four Devices

The SC 2000 can be configured with two SC Dual V.34 modem cards, enabling supervisory access to up to four devices. In Figure 2, for example, one SC 2000 — occupying one rack unit of space at the

CLEC POP — is all that is needed to support dial-up management access to up to four routers. Each of the four routers is connected to a DCE port on the dual V.34 modems. When a remote dial-up connection is made to a modem, administrators at the network operations center have access to the router for remote control, monitoring, and diagnostics.

Managed Dial Backup plus FT1/T1 Access

When configured with a V.34 modem and any SpectraComm DSU/CSU, the SC 2000 provides not only supervisory access but digital access with dial backup. In Figure 3, for example, a SpectraComm 553 in the second slot provides access to FT1/T1 services. A Dual V.34 modem in the first slot is connected to the console and auxiliary ports of the router, enabling both supervisory access and circuit restoral. An optional cascade port supports a DSX-1 interface, if required.

Managed Dial Backup (Router with Internal CSU/DSU)

If the router has an internal T1 interface (Figure 4), a SC 2000 equipped with two

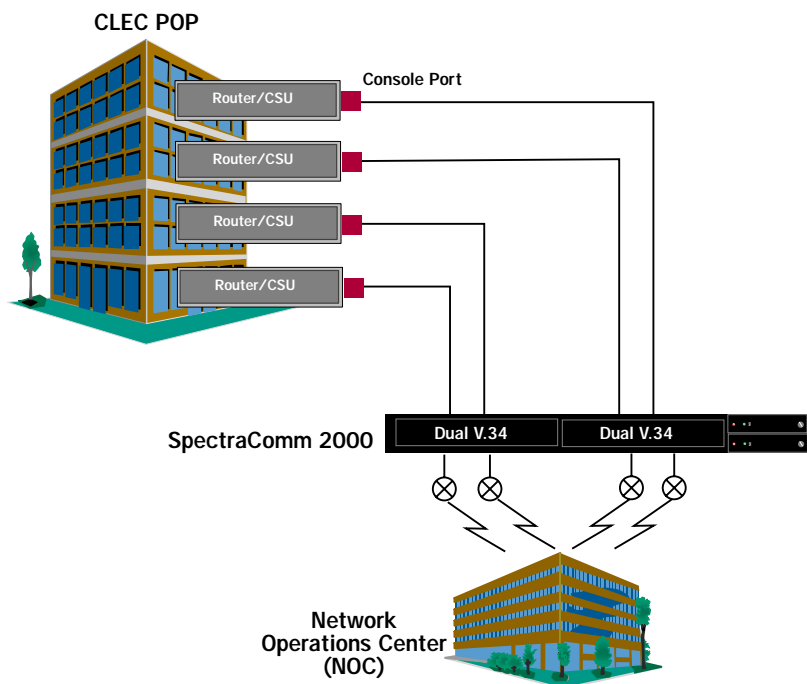


Figure 2 — Management for Four Routers in One Rack Unit

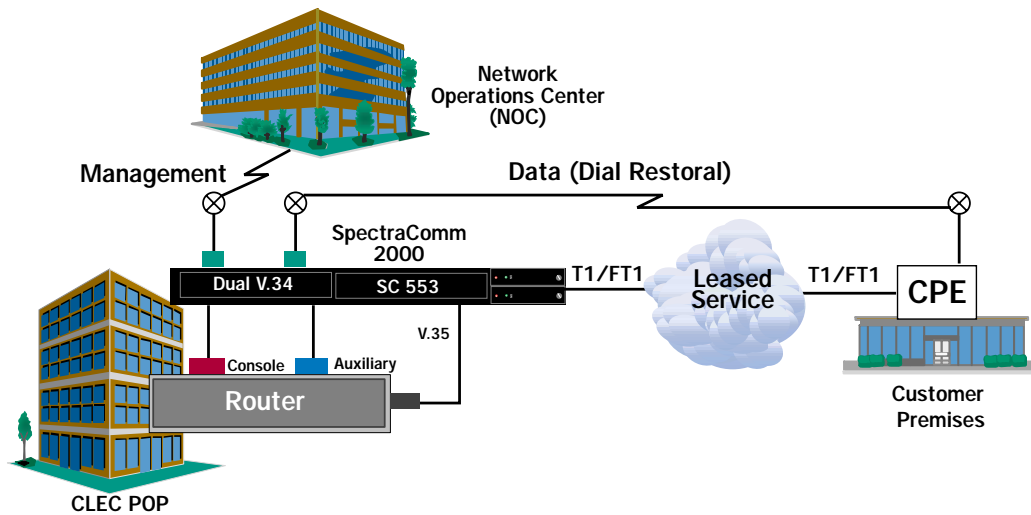


Figure 3 — Managed Dial Backup: Dual V.34 Card and SC 553

single port V.34s can support the same management and dial restoral functions as in Figure 3.

Centralized SNMP Management

Depending upon the existing management system and the degree of control and sophistication required at the central site, the service provider can use a number of SNMP-based remote management approaches. Since the V.34 modems support SNMP, and contain GDC enterprise MIBs, any SNMP MIB browser can be used on the central management station,

or the administrator can gain access via a Telnet session. Installing a high-density SpectraComm 5000 at the central site not only provides for integrated access to T1 services but also allows management via the SCM shelf controller and network management interface. The SCM, acting as an agent for all local and remote network elements, can be paired with GDC's TEAM HP OpenView based network management software application, with a high visibility GUI.

Conclusion

The SpectraComm 2000 is now available in several different bundled configurations designed specifically for dial-in management access at the carrier POP. Each of these packages allows the service provider to deploy economical supervision and control of routers, servers, switching and access equipment. Table I lists the configurations and their part numbers.

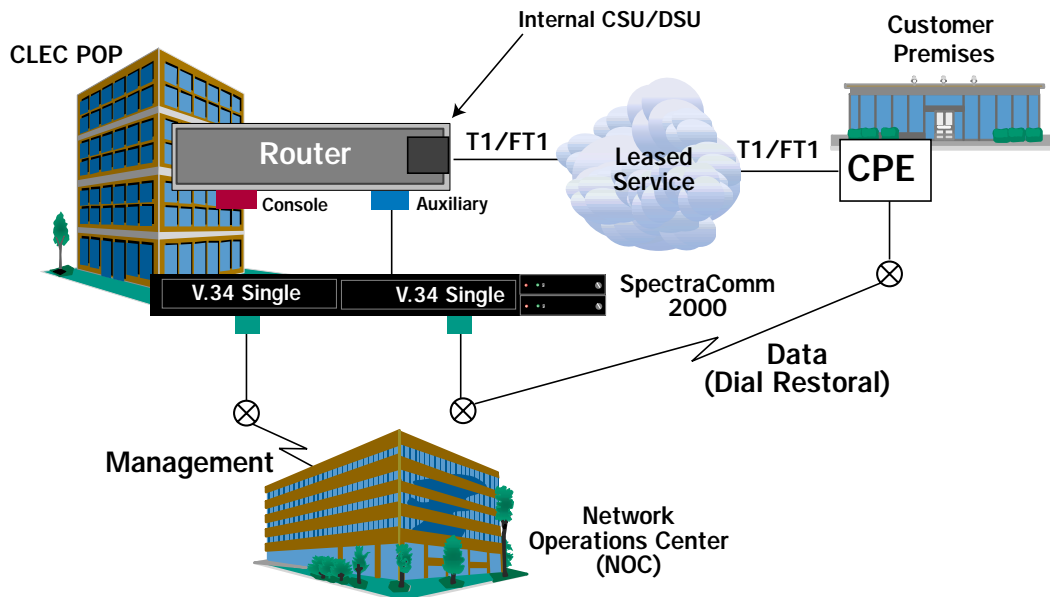


Figure 4 – Managed Dial Backup: Single V.34s

SpectraComm 2000

Table I — SpectraComm 2000 Bundled Configurations

Description	Part Number
SC 2000 Redundant, equipped with two V.34 Dial Only Modems	010M226-002
SC 2000 Non-redundant, equipped with one V.34 Dial Only Modem	010M226-005
SC 2000 Redundant, equipped with one V.34 Dial Only Modem	010M226-006
SC 2000 Redundant, equipped with one Dual V.34 Modem	010M226-003
SC 2000 Redundant, equipped with two Dual V.34 Modems	010M226-004
SC 2000 Redundant, equipped with one Dual V.34 Modem and one SC 521A/V.35 DSU	010M200-001
SC 2000 Redundant, equipped with one Dual V.34 Modem and one SC 521A/530 DSU	010M201-001
SC 2000 Redundant, equipped with one Dual V.34 Modem and one SC 553/V.35 CSU/DSU	010M202-001
SC 2000 Redundant, equipped with one Dual V.34 Modem and one SC 553/530 CSU/DSU	010M203-001
SC 2000 Redundant, equipped with one Dual V.34 Modem and one SC 553/Cascade/530	010M204-001
SC 2000 Redundant, equipped with two SC 553/V.35 CSU/DSUs	010M205-001
SC 2000 Redundant, equipped with one V.34 DBU Modem and one SC 521A DSU	010M206-001
SC 2000 Redundant, equipped with one V.34 DBU Modem and one SC 202 Modem	010M207-001

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