

RAIS

xDSL

CSU/DSU... xDSL... High Speed Internet Access...

Radius... TCP/IP... Dial-up Internet Access...

# Network Access Solutions Guide

## ***Dial-Up and Dedicated Access***

### ***Dedicated Access***

- ***Interface Converters***
- ***Network Termination & Extension Units***
- ***xDSL Modems & Concentrators***

### ***Dial-Up Remote Access Servers***

- ***Enterprise Solutions***
- ***Service Provider Solutions***

# T1/E1 FIBER

Our network termination units and fiber extension products can be deployed in a wide range of applications on a variety of media, at data rates from 64 kbps to 2.048 Mbps.



## CONVERTERS

Think of Patton when you need serial (RS-232, V.24, V.35, RS-530, X.21, and RS-449), HSSI, and Ethernet interface converters, and G.703 baluns. We've been in the Datacom connectivity business since 1984.



a c c e s s . p a t t o n . c o m

## xDSL

Patton has a complete line of high-speed xDSL modems with 10Base-T Ethernet, T1/E1, G.703/G.704, voice, and serial (X.21, V.35, EIA-530, and V.24) interfaces.



# RAS



Our dial-up remote access servers terminate up to 120 analog (V.90, V.34+, K56Flex) and digital (ISDN) modem calls from T1/E1 or PRI lines. Plus, they're available in scalable packaging and your choice of *Ultra Red, Black Ice, and Cool White* colors.

## DEDICATED NETWORK ACCESS **P1**

*Delivering flexible leased-line services*

Interface Converters **P1**

Network Termination Units **P3**

Network Extension Products **P7**

xDSL Modems and Concentrators **P9**

## DIAL-UP REMOTE ACCESS **P15**

*Your dial-up on-ramp to the Internet*

Enterprise Solutions **P15**

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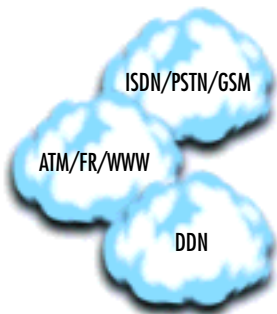
## ORDERING INFORMATION **P25**

Remote Access **P25**

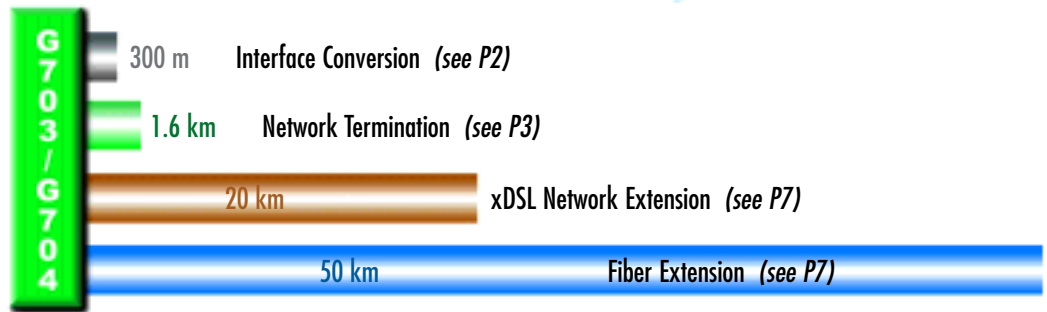
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xDSL Modems **P26**

Interface Converters **P27**



Network Services



Network Access Technologies for Termination and Extension

Connecting networks using leased-line technologies

## Connecting

### Digital Networks

...using leased-line technologies

Whether you own the circuit, lease it from the incumbent, or just terminate it, the NetLink series of transmission products deliver the right services with maximum performance.

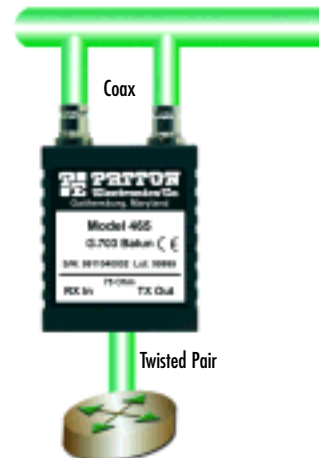
These products can be deployed in a wide range of applications on a variety of media, at data rates from 64 kbps, to n x 56/64 kbps, to 1.544/2.048 Mbps (T1/E1) rates. NetLink products have the interfaces you need and comply with the necessary standards for safe deployment worldwide.

### Selecting Your Network Access Solution

High-speed access delivers the right connectivity to support the latest Intranet applications and interconnect those new remote offices. Our NetLink Interface Converters, T1, E1, xDSL and fiber transmission equipment make all this possible. With NetLink products, service providers can use transmission equipment to interconnect corporate offices by deploying:

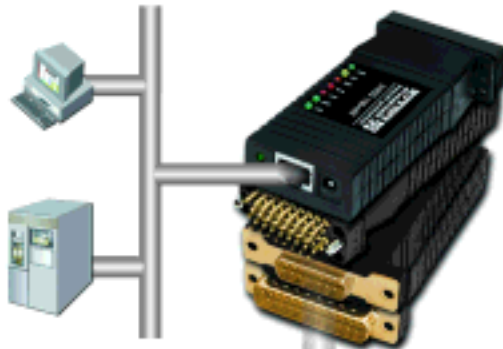
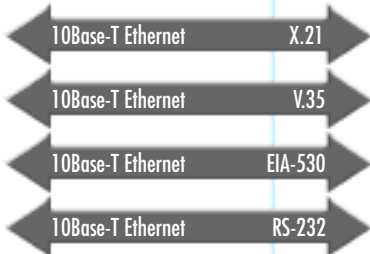
- **Interface converters** that present serial or Ethernet interfaces to access devices (see P2).
- **Network termination** units (and CSU/DSUs) that deliver T1/E1 and n x 56/64 kbps services (see P3).
- **xDSL/Fiber extension** devices. xDSL devices increase the network's reach up to 20 km (12 miles). Fiber devices extend networks up to 50 km (31 miles) (see P7).

### G.703 Baluns



# INTERFACE CONVERTERS

## Ethernet Converters



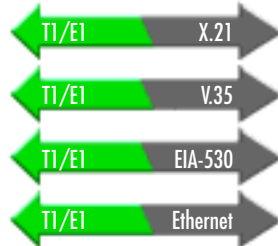
## T1/E1, Serial, and Ethernet

Our NetLink devices provide bi-directional interface conversion to standard serial (V.35, X.21/V.11, V.24, RS-232, and EIA-530) or Ethernet interfaces.

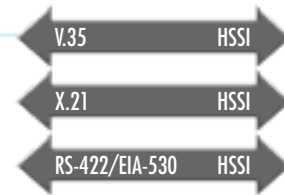
In corporate enterprise or service provider networks, many devices use a wide variety of interfaces, which is why users will always need interface converters.

PATTON's converters connect to just about any combination of T1/E1, Ethernet, HSSI, and serial interfaces. Our converters provide standard electrical interfaces, connector type, and DTE/DCE orientation you require. *Select a PATTON interface converter to solve your interface compatibility issues.*

## T1/E1 Converters








## HSSI Converters



## Serial Converters

Serial Converters Selection Guide

	RS-232 (V.24) DTE	V.35 DTE	RS-449/V.36 DTE	X.21 DTE	RS-530 DTE
RS-232 (V.24) DCE	Cable	2020	2022	2021	2014 • 2020
V.35 DCE	2020	Cable		2020	2014 • 2014N
RS-449/V.36 DCE	2022	2015	Cable	2022	2015
X.21 DCE	2021	2016 • 2066		Cable	Cable
RS-530 DCE	2014 • 2020	2014		Cable	Cable
					
	Model 2020	Model 2066	Model 2022	Model 2021	Model 2014N



## DDS/T1 & G.703/E1

### Network Termination

*Providing last-mile, leased-line services has never been easier.*

NTUs are installed at the customer's premise to terminate standard network services and to present DTE interfaces to user devices.

Patton's NTUs support 56/64 kbps DDS and T1/FT1 network technologies used in the United States and Canada.

They also support the G.703/G.704 (E1/FE1) used by the global market.

The NTUs also support flexible network terminations, including: 10BaseT Ethernet, analog voice, and G3 fax.



### Model 2500 56/64 DDS CSU/DSU

- ✓ Terminates a standard 56/64 kbps DDS network
- ✓ Provides twisted-pair 100-ohm RJ-48C connections
- ✓ Transmits up to 1.6 km/1.0 mile
- ✓ Provides both V.24 and V.35 interfaces
- ✓ Supports Switched-56 and all-rate DDS



### Model 2710 T1/FT1 CSU/DSU

- ✓ Terminates a standard T1 network interface
- ✓ Supports n x 56/64 kbps networks
- ✓ Serial V.35 port supports speeds up to 1.544 Mbps
- ✓ Transmits up to 1.0 mile
- ✓ Supports VT100 management



### Model 2073 64K/G.703 NTU

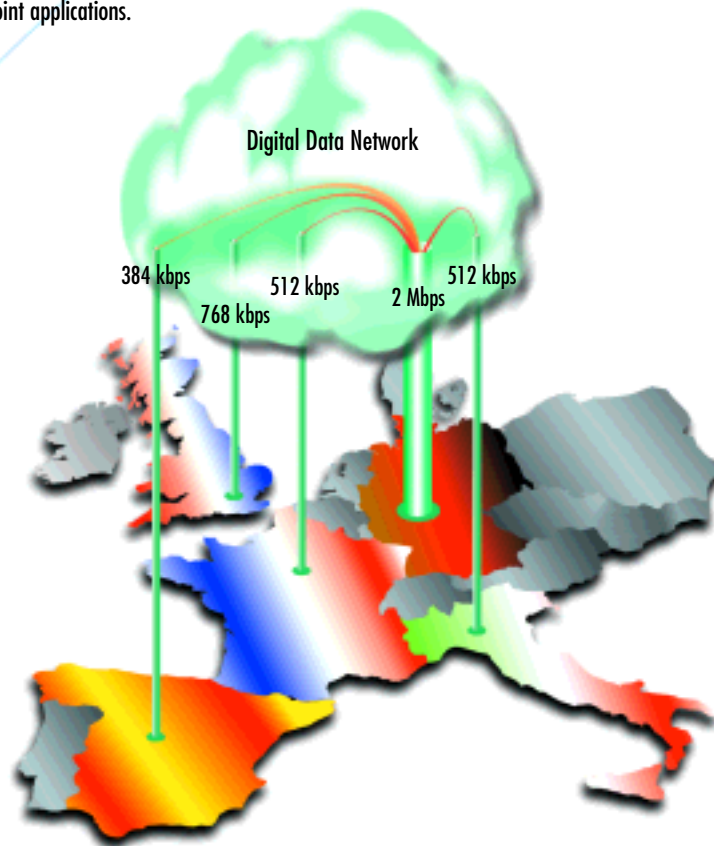
- ✓ Terminates Co-directional 64k/G.703
- ✓ Provides twisted-pair 120-ohm RJ-48C connections
- ✓ Transmits up to 1.6 km/1.0 mile
- ✓ Uses two pair of copper wires
- ✓ Offers user-selectable interface for DTE devices

### 56/64 to T1/E1 Leased-Line Network Termination

A typical point-to-point leased-line network consists of multiple dedicated connections from branch offices to the central site. For maximum flexibility and efficiency, portions of the bandwidth available to the central site (2 Mbps, as shown in the diagram below) can be allocated to each branch office according to the traffic needs of that office.

Whether the requirement is for 64 kbps or 2 Mbps, corporate customers connecting to a digital data network can use our Network Termination Units (NTUs) at their branch offices and central site to terminate the network connection and deliver a serial or Ethernet interface to the customer's equipment.

Our family of NTUs can be used in multi-point (switched) leased-line applications (see diagram at right) as well as point-to-point applications.



## Network Termination Units

These devices terminate the transmission interface and convert the signals to serial or Ethernet data. The models include:

### 56/64 kbps DDS CSU/DSU

- Model 2450—Standalone with fixed serial interfaces
- Model 2500—Standalone with both V.35 and RS-232 interfaces

### T1/Fractional T1 (Channelized) CSU/DSU

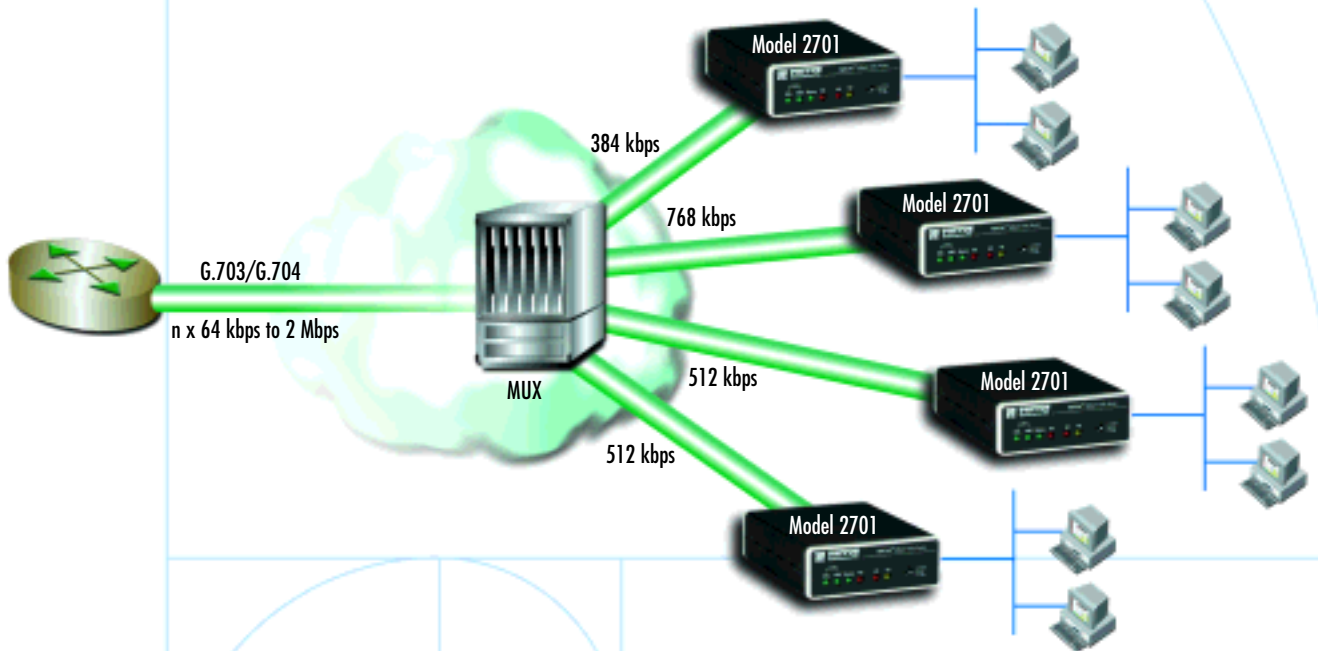
- Model 2710—Micropackage with V.35 interface and management
- Model 2711—Micropackage with DIP-switch management

### 64 kbps/G.703 NTU

- Model 2070—Micropackage with V.24, V.35 and X.21 interfaces
- Model 2073—Standalone with modular QuikConnect interfaces

### E1/G.703 & G.704 (Channelized E1) NTU

- Model 2701—Standalone with serial and Ethernet interfaces.
- Model 2703—Standalone with X.21/V.35 and other serial interfaces
- Model 2715—Micropackage with V.35 interface and management



### Model 2703 E1/G.703 NTU

- ✓ Terminates clear-channel G.703 at 2.048 Mbps
- ✓ Provides dual-BNC 75-ohm coax and twisted-pair 120-ohm RJ-48C connections
- ✓ Transmits up to 300 meters/984 feet
- ✓ Provides standard X.21, V.35, EIA-530 interfaces



### Model 2701 G.703/G.704 NTU

- ✓ Terminates G.703 and G.704
- ✓ Provides dual-BNC 75-ohm coax and twisted-pair 120-ohm RJ-48C connections
- ✓ Transmits up to 1.6 km/1.0 mile
- ✓ Provides standard 10Base-T Ethernet, X.21, V.35 and EIA-530 interfaces



## G.703/G.704

### Get more for less with Network Termination

Adopt a new strategy for connecting remote offices to the central site. Deploy our G.703/G.704 NTUs today.

The Model 2703 terminates an E1/G.703 2-Mbps network and connects to V.24/V.35/X.21 serial devices.

The Model 2715 supports Channelized E1 (G.703/G.704) services and DTE devices with a V.35 serial interface.

The Model 2701 is a full-featured G.703/G.704 NTU with serial or Ethernet interfaces.

All our NTUs are standards-based and have permission to connect to networks worldwide. They are the right G.703/G.704 solution—no matter where you are.

### E1/G.703 Point-to-Point Networking

Cost per remote location  
**\$5,000**

When PTT/Telcos introduced high-speed leased lines, they did so with 64-kbps service. This was followed by 2.048-Mbps (G.703) service. PATTON's Model 2070 connects to 64kbps/G.703 networks, while our Model 2703 supports E1/G.703 networks. These NTUs terminate the PTT/Telco leased lines and convert G.703 to serial (V.35, X.21, V.24, and EIA-530) interfaces.

Corporate Network Managers used these NTUs to connect their workstations at remote sites to servers across point-to-point leased lines at the central site. This approach has proven successful and is still being used to bring new remote sites on line. However, point-to-point G.703 leased lines do not take advantage of the latest PTT/Telco service: *Channelized G.703/G.704 point-to-multipoint leased lines.*

### Channelized E1 (G.703/G.704) Networking

**\$3,000**



Channelized E1 is a lower-cost solution for connecting central and remote sites using point-to-multipoint leased lines. With channelized E1, a central site router with *one* built-in G.703/G.704 NTU can interface with *up to 30* remote sites, each running at  $n \times 64$  kbps speeds.

Thinking about adding new remote sites? First, integrate a G.703/G.704 NTU into your central site router. Then use the PTT/Telco's point-to-multipoint network. Finally, install our Model 2715 (V.35) or Model 2701 (X.21, V.35, and EIA-530) at your remote sites. Doing this will save you up to **40%** off the cost of installing new remote sites, *and that's a lot of €•\$•¥ in your pocket!*

### Ethernet and Channelized E1 Networking

**\$1,000**



Now that you've integrated a G.703/G.704 NTU into your central site router, think about reducing equipment costs at new remote sites by up to **80%**!

Deploy a G.703/G.704 NTU with a built-in Ethernet LAN interface.

The Model 2701 NTU connects to a G.703/G.704 network and terminates IP traffic onto an Ethernet LAN. Installation is *fast*—just set the DIP switches. It's *easier* to manage and support—no remote routers to program. And it's *much less expensive*.

As your network grows and your telecom budget doesn't, you'll need faster, easier, and less expensive solutions to get your remote sites on line. *The Model 2701 G.703/G.704 NTU is an elegant solution that saves you real money!*

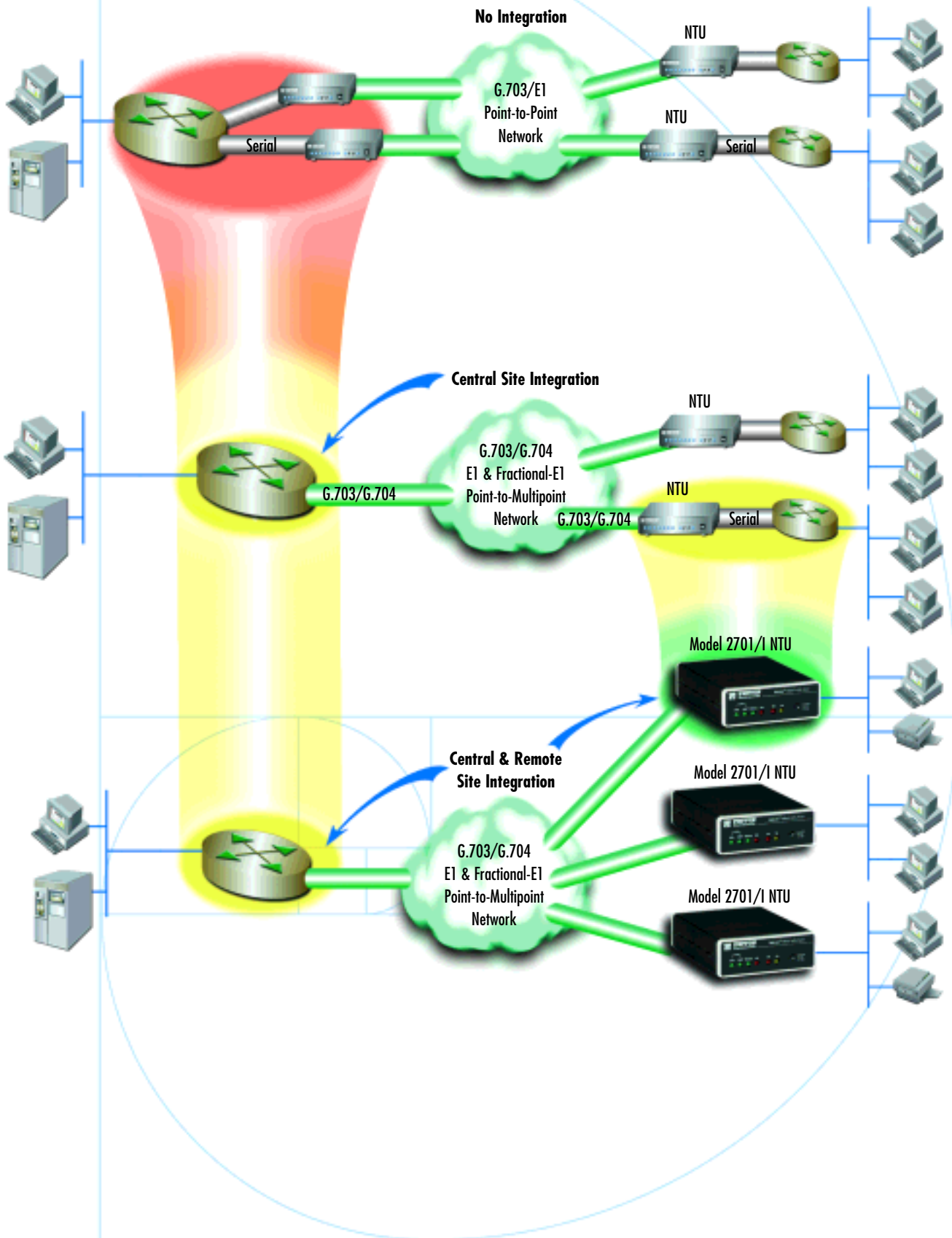
Central Site Integration

Central & Remote Site Integration



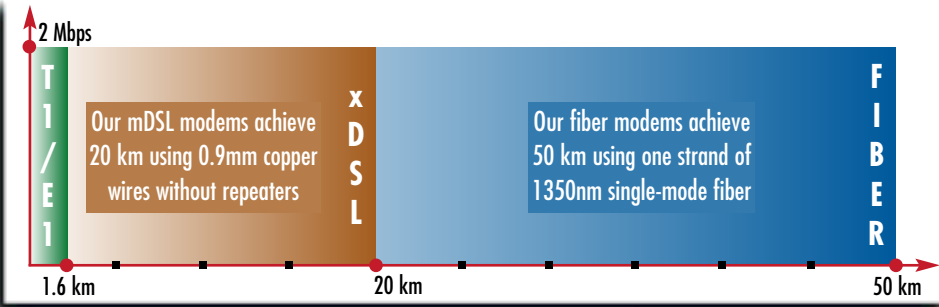
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# T1/E1 NETWORK EXTENSION



T1/E1 Network Termination and xDSL/Fiber Network Extension

## T1/E1

### Network Extension

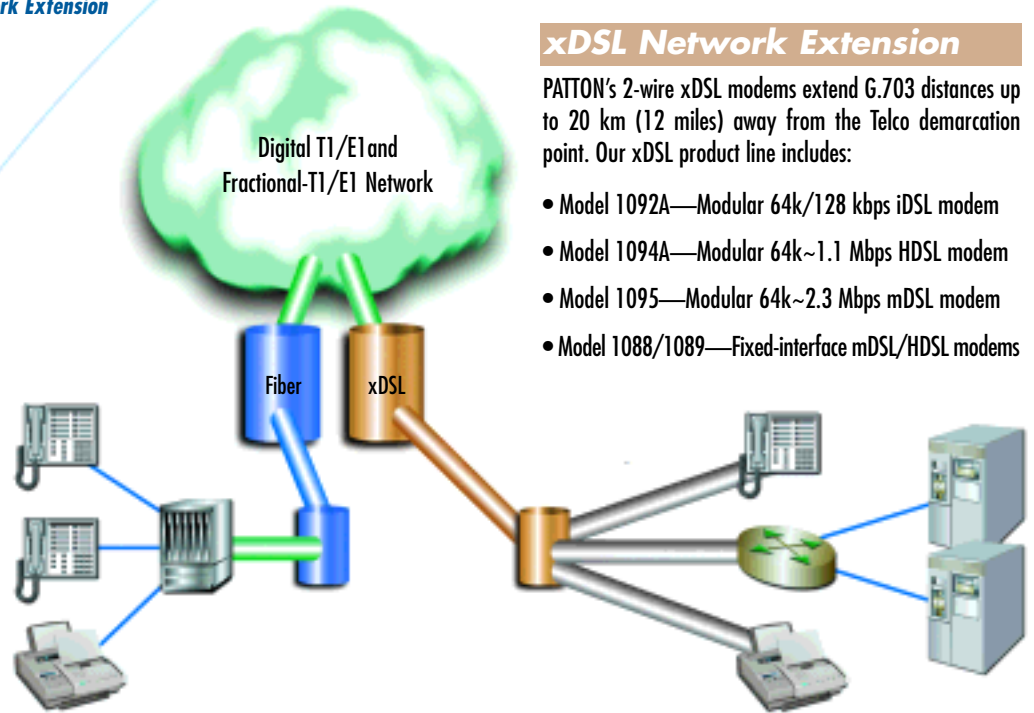
*Providing last-mile, leased-line services has never been easier.*

T1 and E1 NTUs transmit signals up to 1.6 km/1.0 mile. When the customer is further away, use our xDSL/Fiber Network Extension products

The Model 1088 mDSL and Model 1193 Single-Mode Fiber modems extend T1/E1 networks to user devices across 20 km and 50 km, respectively.

All our termination and extension devices connect E1/G.703 and channelized E1/G.704 network services at  $n \times 64$  kbps data rates to 2 Mbps. They provide both 75-ohm dual coax & 120-ohm twisted-pair G.703 network connections, and EIA-530, V.35, X.21, and Ethernet user interfaces.

Whether you require a single NTU or a full rack of xDSL/NTU/fiber modems, PATTON's NetLink products deliver leased-line services to the last mile.



### T1/E1 Network Extension

When your customers are farther away than 1.6 km (1.0 mile) from the Telco exchange (Central Office), use our NetLink xDSL and fiber modems to deliver your high-speed traffic. Our multi-rate DSL modems extend G.703/G.704 distances to 20 km (12 miles) over copper, while our single mode fiber modems extend these distances to 50 km (31 miles).

### xDSL Network Extension

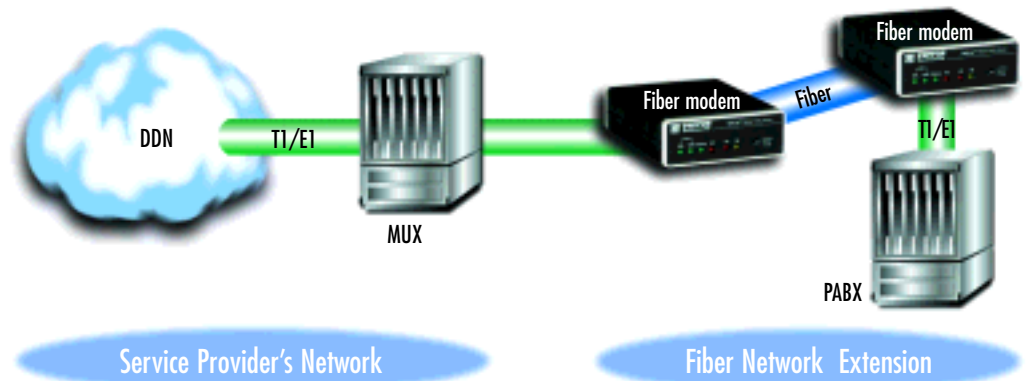
PATTON's 2-wire xDSL modems extend G.703 distances up to 20 km (12 miles) away from the Telco demarcation point. Our xDSL product line includes:

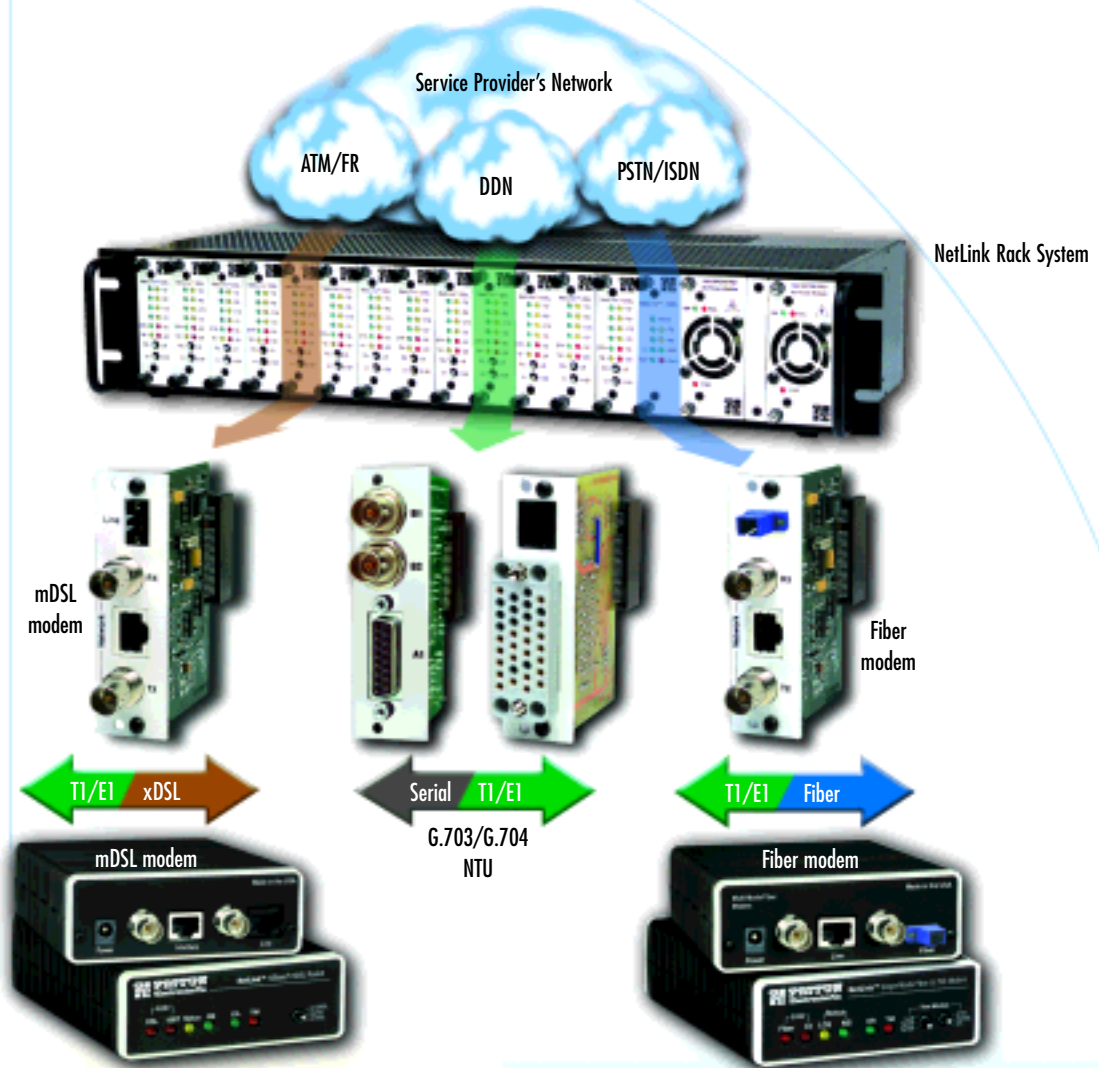
- Model 1092A—Modular 64k/128 kbps iDSL modem
- Model 1094A—Modular 64k~1.1 Mbps HDSL modem
- Model 1095—Modular 64k~2.3 Mbps mDSL modem
- Model 1088/1089—Fixed-interface mDSL/HDSL modems

### Fiber Network Extension

PATTON's fiber modems use just one fiber (single or multi-mode) to extend G.703 distances to 50 km (31 miles) away from the Telco demarcation point. Our product line includes:

- Model 1185—256 kbps multi-mode fiber modem
- Model 1186—2 Mbps multi-mode fiber modem
- Model 1193—2 Mbps single-mode fiber modem





## Model 1088 2.3 Mbps mDSL Modem

- ✓ Extends G.703 and G.704
- ✓ Provides both dual-BNC 75-ohm coax and twisted-pair 120-ohm RJ-45 connections
- ✓ Connects to G.703/G.704 equipment
- ✓ Up to 20 km (12 miles) range
- ✓ Uses **one pair** of copper wires
- ✓ Works on 0.4, 0.5, 0.6, 0.8, and 0.9 mm (26, 24, 22, 20, and 19 AWG) lines

## Model 1193 Single-Mode Fiber Modem

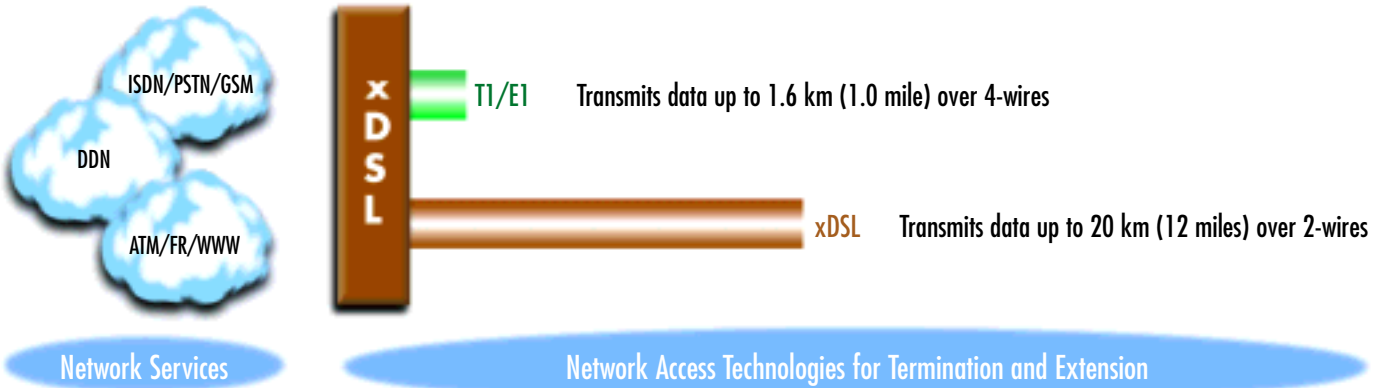
- ✓ Extends G.703 and G.704
- ✓ Provides both dual-BNC 75-ohm coax and twisted-pair 120-ohm RJ-45 connections
- ✓ Connects to G.703/G.704 equipment
- ✓ Up to 50 km range (31 miles)
- ✓ Uses one single-mode fiber line (our Model 1186 modem supports multi-mode fiber)



Network Termination and Interface Conversion

xDSL Network Extension

# DSL TECHNOLOGY OVERVIEW



*xDSL transmits data farther than traditional T1/E1 equipment*

## What is xDSL

**Digital subscribe line**  
 ...the most economical way to deliver  
 high-speed services over copper

Digital subscriber line is a lower-cost method of delivering T1/E1, ISDN, Frame Relay, ATM, and Internet access services over longer distances using the existing Telco copper wiring and Telco-compatible line coding. In recent years, new types of DSL have been introduced that deliver higher speeds over even longer distances. These various DSL standards are referred to collectively by the term *xDSL*.

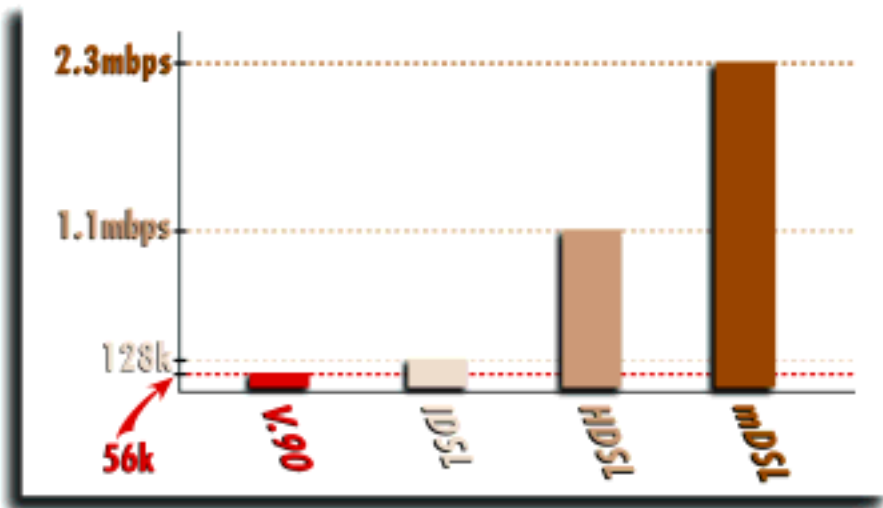
PATTON's xDSL includes *iDSL* (64/128 kbps), *HDSL* (n x 64 kbps up to 1.1Mbps), and *mDSL* (n x 64 kbps up to 2.3 Mbps).

All our NetLink DSL products use just **two** wires (one copper pair) to provide the highest speeds over the longest distances in the industry.

## Why Use xDSL?

As Telecommunication and Internet Service Providers have been expanding their Internet backbones, many of them have asked for a high-speed, long-distance modem in standalone and rackmount packaging. At the same time, corporations expanding their use of the Internet to pursue additional sources of revenue or simply to improve their customer service are looking for high speed modems that will work with their legacy equipment. For both requirements the telecommunications industry will use standards-based modems that leverage existing infrastructures to deliver high-speed, dedicated circuits. Only DSL technology satisfies *both* business goals and technical requirements.

Digital Subscriber Line (DSL) technology has become the standard by which service providers deliver T1/E1 leased lines, ISDN PRI access, Frame Relay, Internet Access and low-speed ATM. xDSL technology enables high speed access through normal, unconditioned copper circuits. PATTON's xDSL modems deliver the most cost-effective solution for service providers *and* corporate network managers.

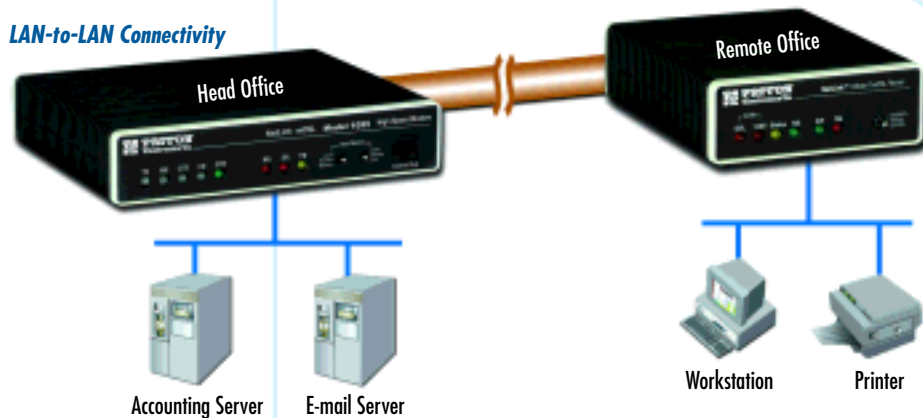


*DSL technology vs. linespeeds using existing un-conditioned copper circuits*

# xDSL NETWORK SOLUTIONS

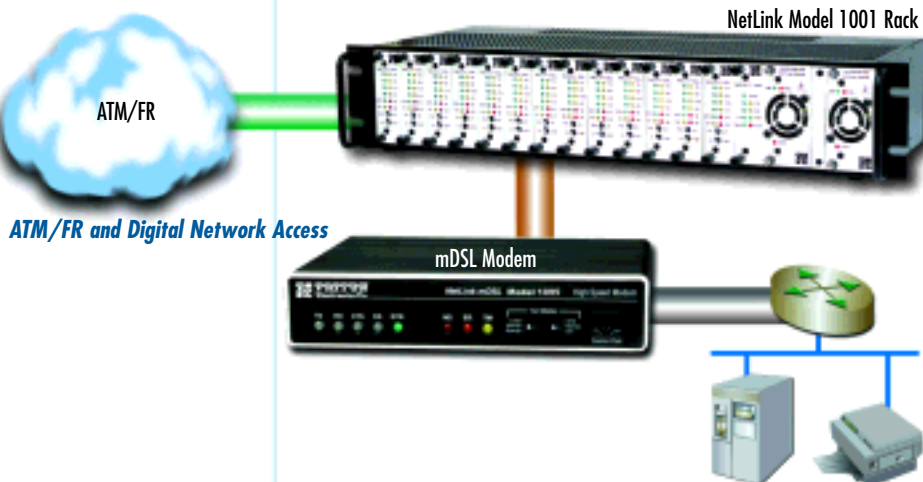
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## LAN-to-LAN Connectivity



## A Single-Box DSL Solution

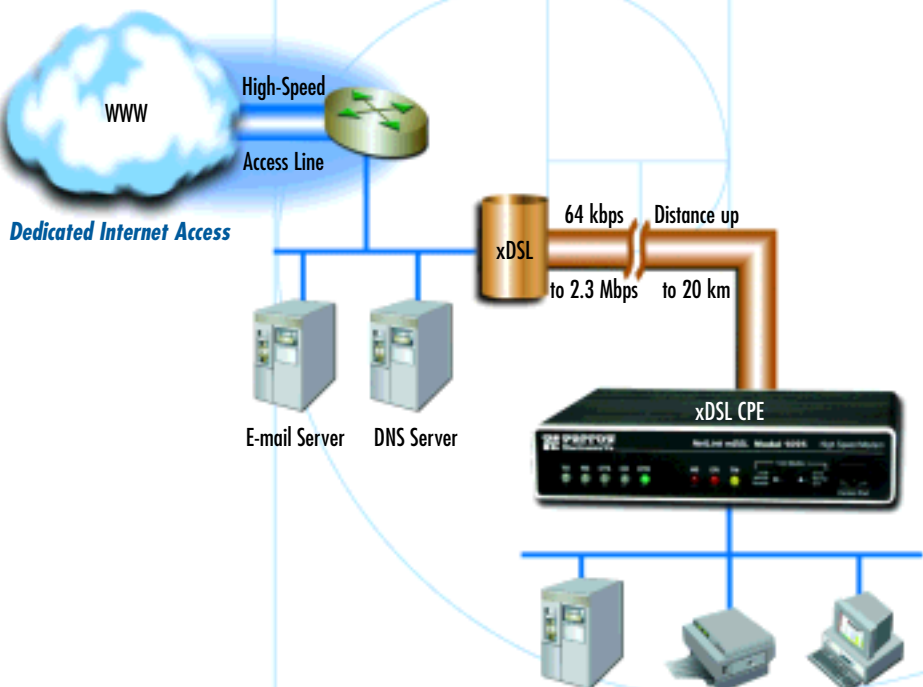
In many environments around the world, end-users and service providers are installing DSL in point-to-point campus configurations to extend Intranets, connect off-site offices or simply to interconnect LANs. Instead of requiring transmission *and* networking equipment, our NetLink mDSL transmission products incorporate the desired network terminations: (10Base-T Ethernet, analog voice, and G3 fax) *directly into the transmission device*. Now, customers can deploy a single-box solution that integrates transmission and networking functions.



## A Variety of Terminations

When building a wide area network of ATM/Frame Relay switches, T1/E1/Voice switches, or IP backbone routers, include xDSL modems to provide high speed access circuits. Deploy our xDSL modems because, at 2.3 Mbps line speeds they are very fast, and because they come in a wide array of interfaces.

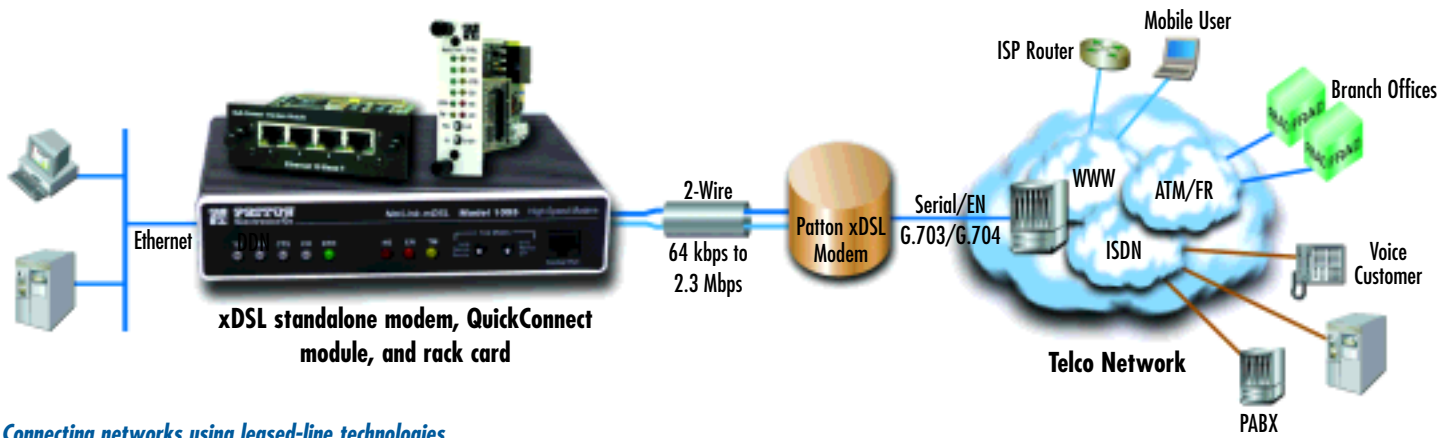
Our xDSL modems have serial terminations for FR/ATM/PPP traffic; T1/E1 terminations for ISDN/DDN/G.703/G.704 traffic; and 10-Mbps Ethernet terminations for IP/LAN traffic.



## 2.3 Mbps Over Two Wires

ISPs provide dial-up access using remote access servers. When customers using these 28.8 to 64kbps modems outgrow their dial-up access connections, their next logical step is a dedicated access connection using  $n \times 64$ kbps speeds. ISPs will want those dial-up customers to upgrade to their new high-speed dedicated offerings.

Our mDSL modems deliver dedicated access over just two wires at speeds from 64 kbps to 2.3 Mbps. ISPs will find that our mDSL modems are the price-performance leader for delivering high-speed dedicated Internet access.



Connecting networks using leased-line technologies

## Connecting Digital Networks ... using leased-line technologies

The NetLink DSL product line supports a wide range of speeds, user interfaces, and distances. With easy-to-use SNMP/HTTP network management and a host of other *standard* features, our DSL modems are the most flexible, affordable, and reliable in the industry.

PATTON's xDSL modems help keep your network up-to-date with today's latest technologies while staying within your ever-shrinking equipment budgets.

## Selecting Your Access Solution

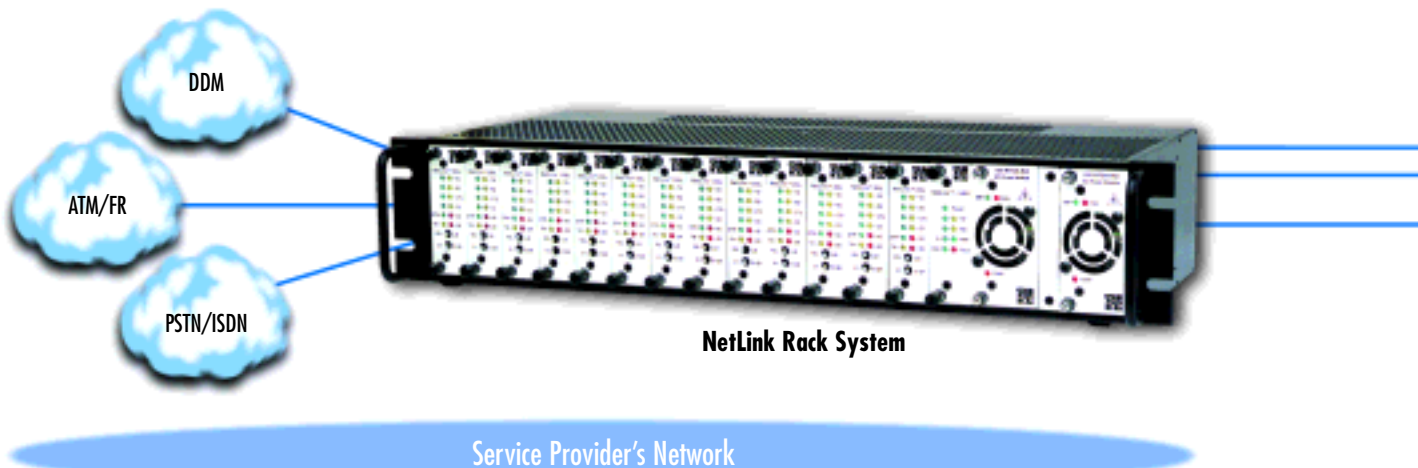
The NetLink xDSL system consists of modular components that combine to form a low-cost, high density transmission system. Various symmetric line coding schemes are used to provide high-speed access across standard copper circuits. NetLink modems are available as standalone units or 19-inch rack cards that support the following DSL technologies:

- iDSL—Model 1092/1092A supporting data rates up to 64/128 kbps
- HDSL—Model 1094A/1089 supporting data rates up to 1.1 Mbps
- mDSL—Model 1095/1088 supporting data rates up to 2.3 Mbps

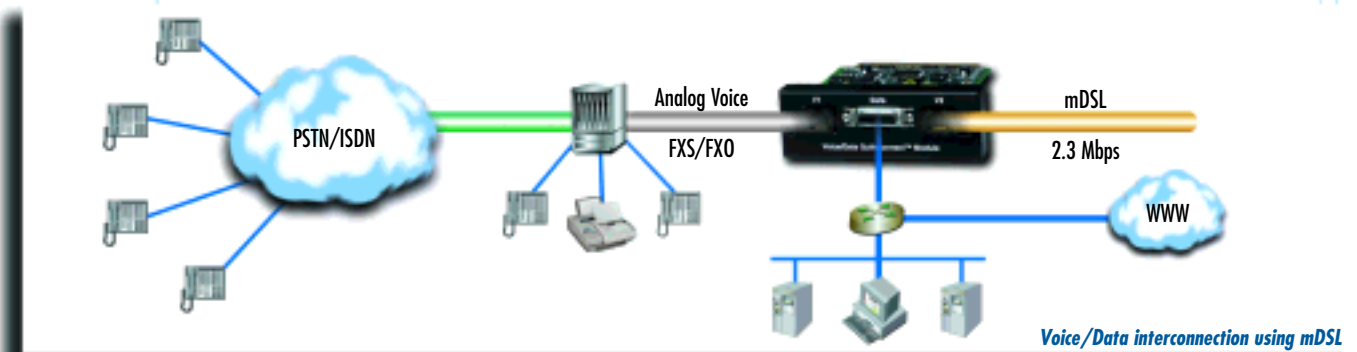
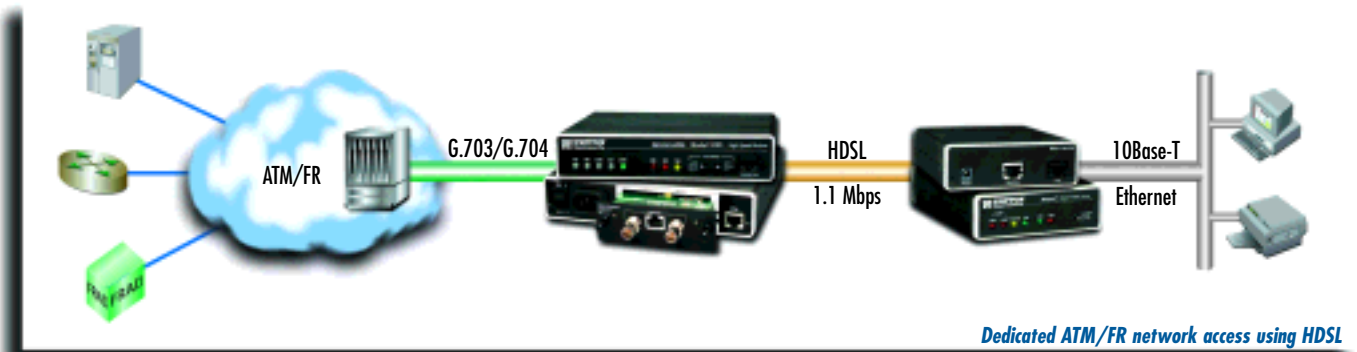
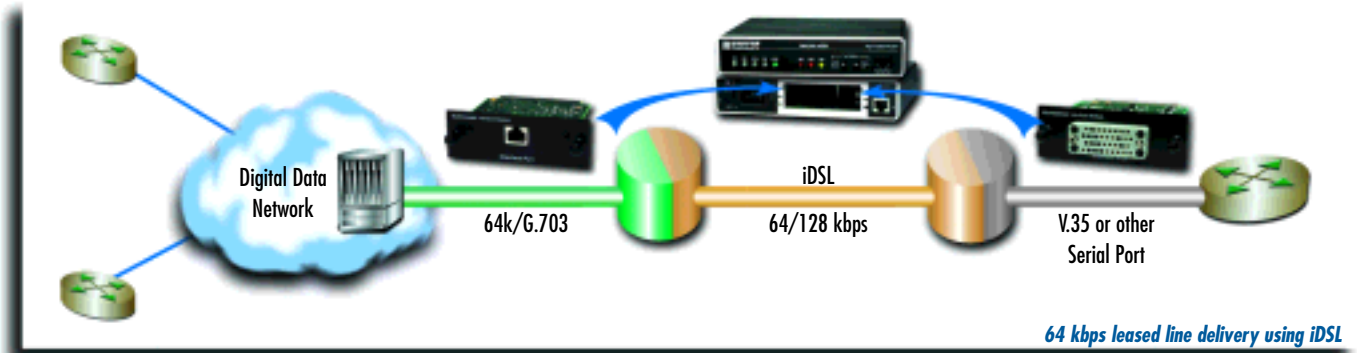
All NetLink xDSL standalone models (1095 mDSL, 1094 HDSL, and 1092/1092A iDSL) support 10Base-T Ethernet, T1/E1, G.703/G.704, voice, and serial (X.21, V.35, EIA-530, and V.24) QuickConnect interfaces.

NetLink xDSL rack cards support 10Base-T Ethernet, G.703, and serial (X.21, V.24, and V.35) interfaces.

The standalone modems and line cards can be powered using 90–264VAC supplies or -48VDC (for Telco environments).



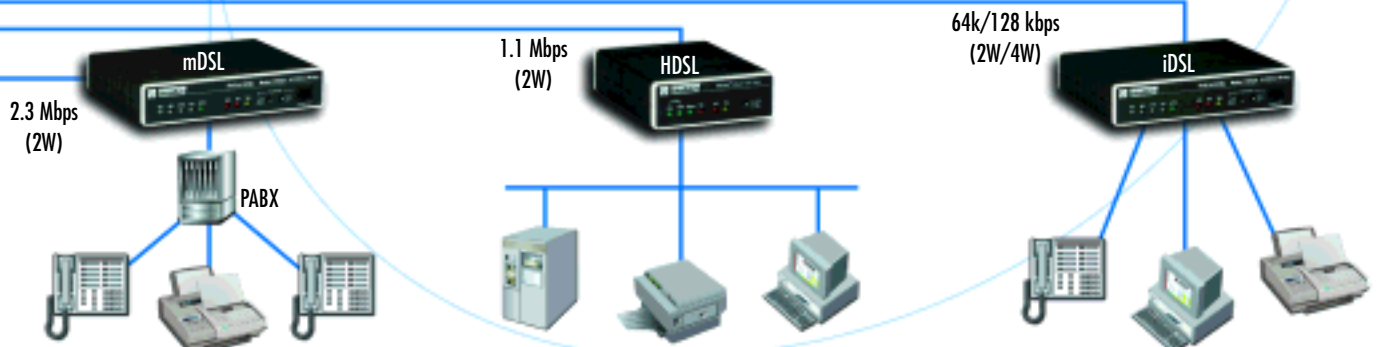
# DSL APPLICATIONS OVERVIEW



Regional Office

Branch Office

Remote Office



# STANDALONE DSL MODEMS



Model 1088

## NetLink DSL

### Standalone and Rackmount Modems

Managing network connectivity can be a complex and frustrating chore. With so many interface types and data formats to support, you'll be relieved to learn that PATTON's Model 1095 mDSL standalone/rackmount modems use interchangeable QuikConnect modules to support a variety of interfaces (see diagram). For simpler networking options (such as providing DSL services to branch offices) there is our popular Model 1088 series of fixed-interface modems that support V.35, X.21, G.703/G.704, and 10Base-T Ethernet.

### Fixed or Selectable Interfaces

Maybe you already know exactly which interface you'll need for the life of your network installation. That's fine, PATTON's low-cost fixed-interface Model 1088 will meet your requirements. But what if you want to upgrade your modems as your needs change without having to bust your budget? Then you need our Model 1095 standalone modem with its interchangeable QuikConnect interface modules. Or use a mixed strategy of installing our modular 1095 standalone/1095 rack card modems at your central site and low-cost 1088 modems at your remote branch offices. That way you can't lose.

**LED Indicators**  
Enable Visual Monitoring of DSL Line Status and Test Modes

**Test Mode Switches**  
Initiate Local and Remote Loopback Tests from the Front Panel

**Control Port**  
Allows Configuration and Management via VT100 (RS-232) Interface

**2.3 Mbps DSL Port**  
Supports data rates from 64 kbps to 2.3 Mbps over just two wires.

**Integrated Power Supply**  
An autosensing 90–260 VAC or -48 VDC power supply is standard. Just plug it in and get connected.

**Optional QuikConnect Modules**  
Support any of nine standard serial, G.703, or Ethernet interfaces

**Model 1095**  
NetLink mDSL Model 1095 High Speed Modem

**G.703/G.704 Module**

**V.24/RS-232**

**64k/G.703**

**V.35**

**4-port Ethernet Hub**

**X.21**

**Ethernet Bridge**

**EIA-530**

**Data, Voice & Fax**

### Why Use Patton's mDSL Modems ?

Key Selling Points Base Features

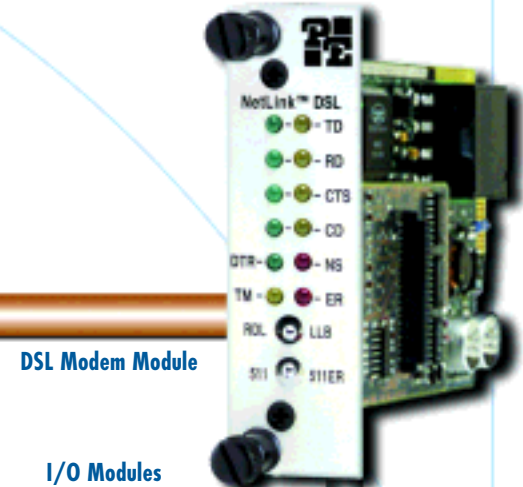
	Patton mDSL	Other HDSL	BaseBand Modems
Maximum Linespeed	2.3 Mbps	1.1 Mbps	128 kbps
No. of Wires	2	4	2/4
Wide range of Linespeeds	YES	NO	NO
Selectable DTE interfaces	YES	NO	NO
Maximum Distance	20 km	7 km	7 km
SNMP/HTTP Web Mgmt	YES	NO	NO
DSL/E1/BBM in one rack	YES	NO	NO



# RACKMOUNT DSL PRODUCTS

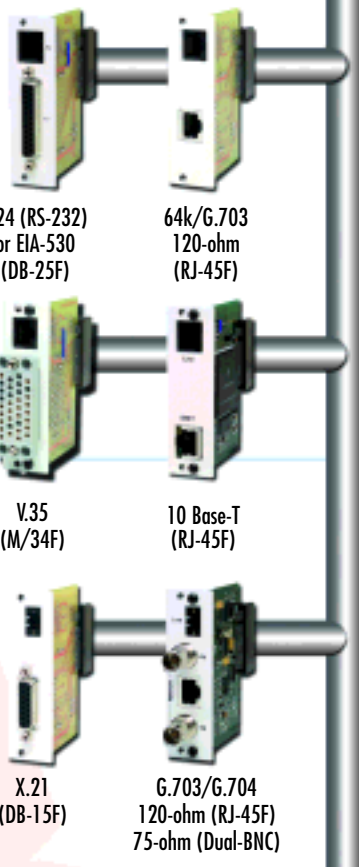
Distance Table Model 1095/1088 mDSL Standalone and Rack Card Modem

Line	DTE Rates	NO NOISE														
		26g (0.4mm)			24g (0.5mm)			22g (0.6mm)			20g (0.8mm)			19g (0.9mm)		
Rate	kbps	feet	miles	km	feet	miles	km	feet	miles	km	feet	miles	km	feet	miles	km
kbps	64,128	21400	4.0	6.6	30700	5.8	9.4	42980	8.1	13.2	55260	10.4	17.0	64470	12.2	19.8
144	192,256	20300	3.8	6.2	30600	5.8	9.4	42840	8.1	13.2	55080	10.4	16.9	61200	11.6	18.8
272	320,384	18600	3.5	5.7	29100	5.5	9.0	40740	7.7	12.5	52380	9.9	16.1	55290	10.5	17.0
400	448,512	17400	3.3	5.4	26100	4.9	8.0	36540	6.9	11.2	46980	8.9	14.5	49590	9.4	15.3
528	576,768	15800	3.0	4.9	22600	4.3	7.0	29380	5.6	9.0	38420	7.3	11.6	42940	8.1	13.2
784	832-1024	15500	2.9	4.8	22100	4.2	6.8	28730	5.4	8.8	37570	7.1	11.6	41990	7.9	12.9
1040	1088-1536	13600	2.6	4.2	19200	3.6	5.9	24960	4.7	7.7	32640	6.2	10.0	34560	6.5	10.6
1552	1600-2048	12200	2.3	3.8	17200	3.3	5.3	22360	4.2	6.9	29240	5.5	9.0	30960	5.9	9.5
2064	2112-2304	11500	2.2	3.5	15800	3.0	4.9	20540	3.9	6.3	26860	5.1	8.3	28440	5.4	8.8



DSL Modem Module

I/O Modules  
Serial/G.703/Ethernet



V.24 (RS-232)  
or EIA-530  
(DB-25F)

64k/G.703  
120-ohm  
(RJ-45F)

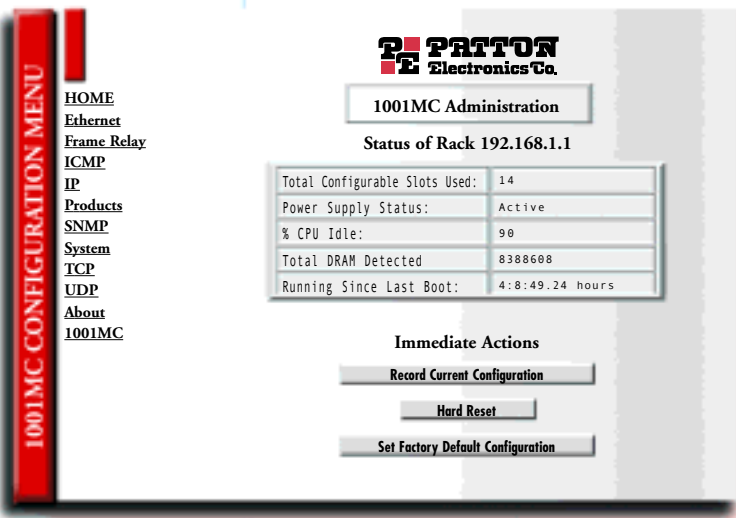
V.35  
(M/34F)

10 Base-T  
(RJ-45F)

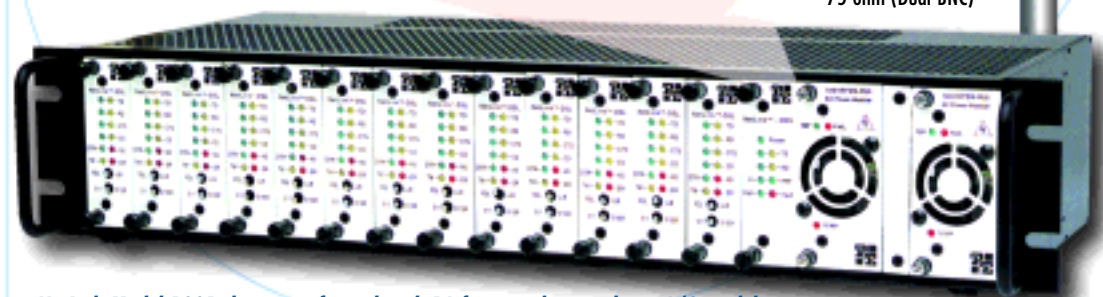
X.21  
(DB-15F)

G.703/G.704  
120-ohm (RJ-45F)  
75-ohm (Dual-BNC)

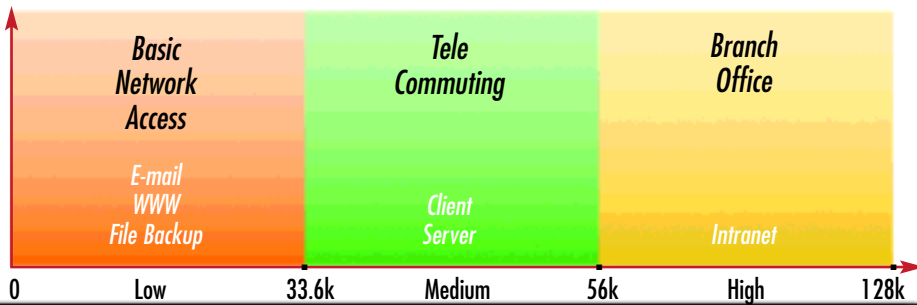
Distance table for NetLink mDSL modems



SNMP/HTTP network management display



NetLink Model 1001 chassis configured with 16 front modems and rear I/O modules



Dial-Up Access Speeds/Applications

## Enterprise

### Remote Access Services

The new corporate office is quickly being defined as "any place where work gets done." Legislative mandates, highway traffic and employee retention issues are speeding the growth of telecommuting.

As more companies respond to this trend, reliable remote access equipment becomes a necessity.

PATTON's newest remote access servers have no moving parts and use convection cooling for maximum reliability. Our remote access servers provide dial-up access to company e-mail, to the corporate Intranet, and to other resources needed by telecommuters and remote users. PATTON's family of RAS products deliver the right solution for small, medium, and large offices.

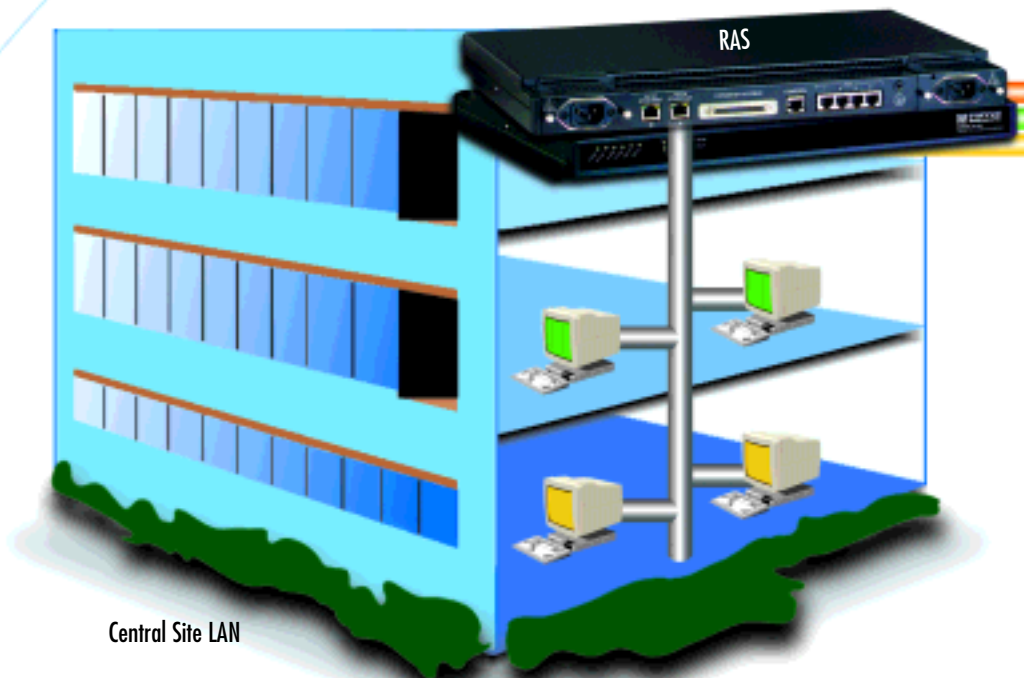
### "QUOTES"

"...Patton's web interface makes setting up the boxes a breeze. Everything is point-and-click and menu driven."

-Larry Sanford, CEO, Sanford Industries

### Still Using Modems?

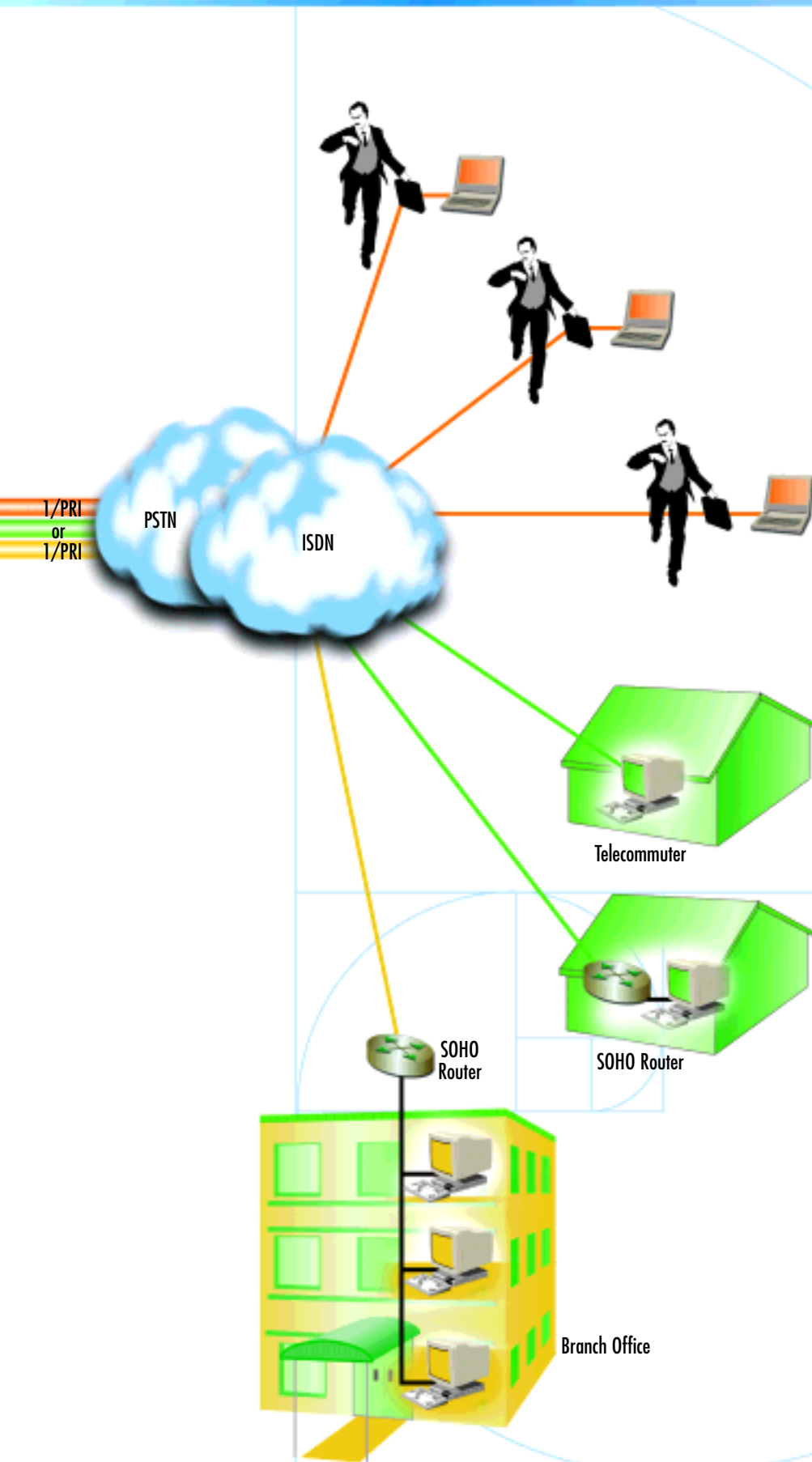
Some offices continue to use dial-up modems, terminal servers, and external routers to address their remote access requirements. Our RAS includes integrated routing and digital signal processing to answer up to 120 digital ISDN or analog V.90 modem calls in a 1U high chassis. This integrated solution saves on equipment costs, installation, technical support, maintenance, and day-to-day network management.



Central Site LAN

### Why Corporations Deploy PATTON's RAS

- 1 Saves On Office Costs**  
 Maintaining common work areas for flex-time staff saves money. Employers spend an average of \$10,000 per employee providing basic office space, insurance and other infrastructure. Remote staff costs less.
- 2 Helps Retain Employees**  
 Most corporations spend 30% of an employee's salary to recruit the employee. Offering even a little relief to sitting in traffic and providing your employees with more-flexible work hours pleases your work force and promotes employee retention.
- 3 Extends Geographic Reach**  
 Offering network access and telecommuting programs makes your company more competitive and attractive. Now employees and business partners can access the intranet from anywhere.
- 4 Environmentally Responsible**  
 Fewer employees jamming the roads at rush hour means less pollution.
- 5 It Just Makes Sense**  
 The number of telecommuters continues to grow as businesses realize that telecommuting is fiscally sound, good for employees and environmentally responsible.



## Remote Access

On the road, users want to get online quickly, send their reports, and get their e-mail. The NetLink RAS offers fast V.90/ISDN/Mobile connections. By providing a built-in modem pool, users won't get busy signals either, because the next available modem will answer.

The NetLink RAS includes built-in analog and digital modems, support for new services like the Wire Access Protocol (WAP) and support for well-known services like V.42bps compression. If the goal is to get users on the network quickly, we offer the fastest turnaround time.

## Telecommuting Access

Rather than fight traffic, telecommuters do their work from home each day. They require client-server Intranet Access and the greater bandwidth this application demands. The NetLink RAS provides for this through integrated ISDN support and by combining services that use standards-based Multichassis and MultiLink. With MultiLink, the bandwidth available from two or more calls is combined to provide the dial-up user a blazingly-fast connection. It's just like being at the office—without the stress of road rage!

## Branch Office Access

In some offices, where direct contact with customers or other employees is a must, telecommuting may not be the answer, but a satellite office is. In that case, corporate network managers can outfit a small office with a remote access server so users can access their e-mail, check status reports on the Intranet and upload projects to their colleagues at headquarters.

Just install a PATTON NetLink RAS at the site and your satellite office is ready for business!



## Dial-Up

### Remote Access Server

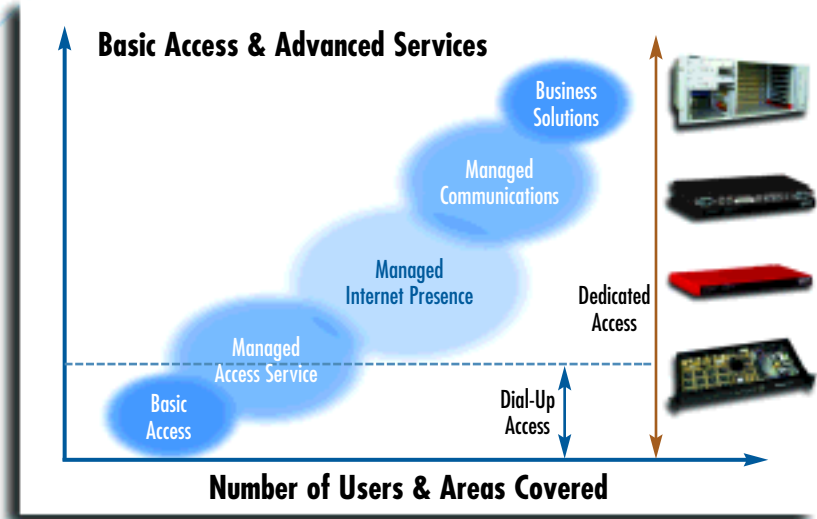
Service Providers are expanding their dial-up access systems as more users connect to the WWW for entertainment, education, and e-commerce. Dial-up is also the method used to terminate virtual private networks (VPNs) for Corporate Intranet access.

Our family of remote access servers connect these dial-up users to your network using high-density, fully-redundant, cost-effective systems.

### Dial-Up: Your Foundation

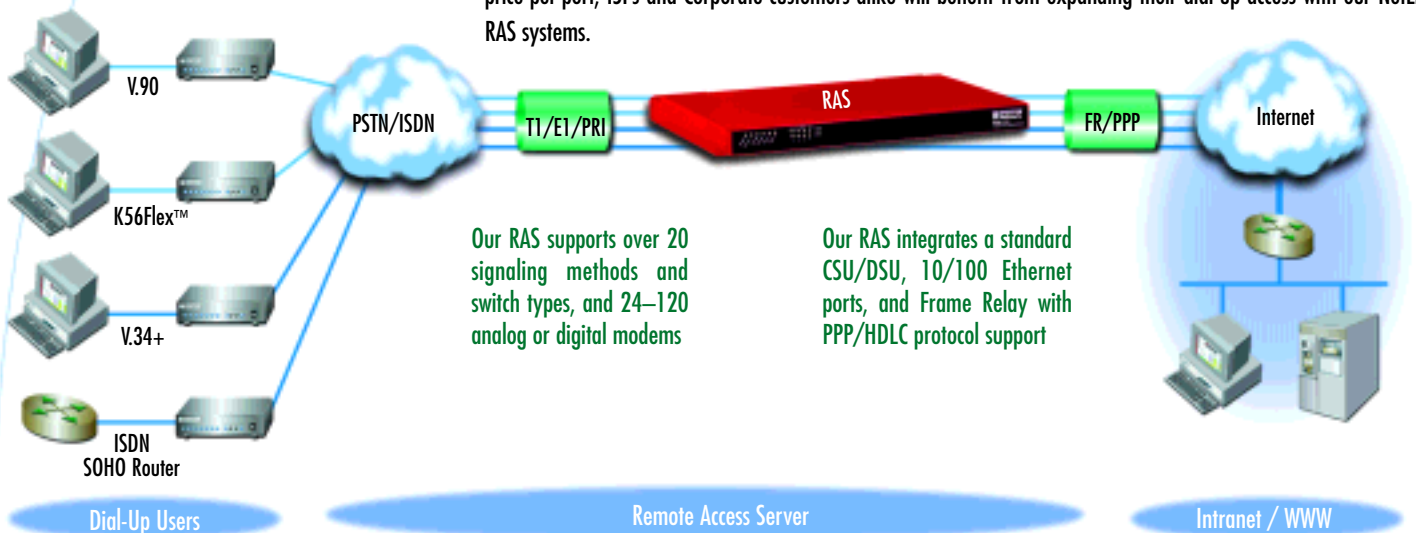
RAS systems are the foundation of the Internet Service Provider's (ISP) business because they ensure that customers can dial up when a dedicated connection is either unavailable or unaffordable.

Every telecommuter, mobile user, and consumer wanting to temporarily access the Internet or an Intranet does so through a dial-up connection between an analog modem or ISDN terminal adapter and a remote access server.



### Use High-Density Dial-Up Access

Dial-Up RAS systems have come a long way since the days of 1200 bps modems, terminal servers and bulletin boards. The NetLink RAS uses the latest in digital signal processor (DSP) technology to terminate analog (V.90, K56Flex, V.34+, etc.) and digital (ISDN BRI) modem calls. This architecture provides the highest density and ensures the highest connection speeds at the lowest possible costs. With technology advances driving the continued reduction in price-per-port, ISPs and Corporate customers alike will benefit from expanding their dial-up access with our NetLink RAS systems.



Our RAS supports over 20 signaling methods and switch types, and 24-120 analog or digital modems

Our RAS integrates a standard CSU/DSU, 10/100 Ethernet ports, and Frame Relay with PPP/HDLC protocol support

## Access Network

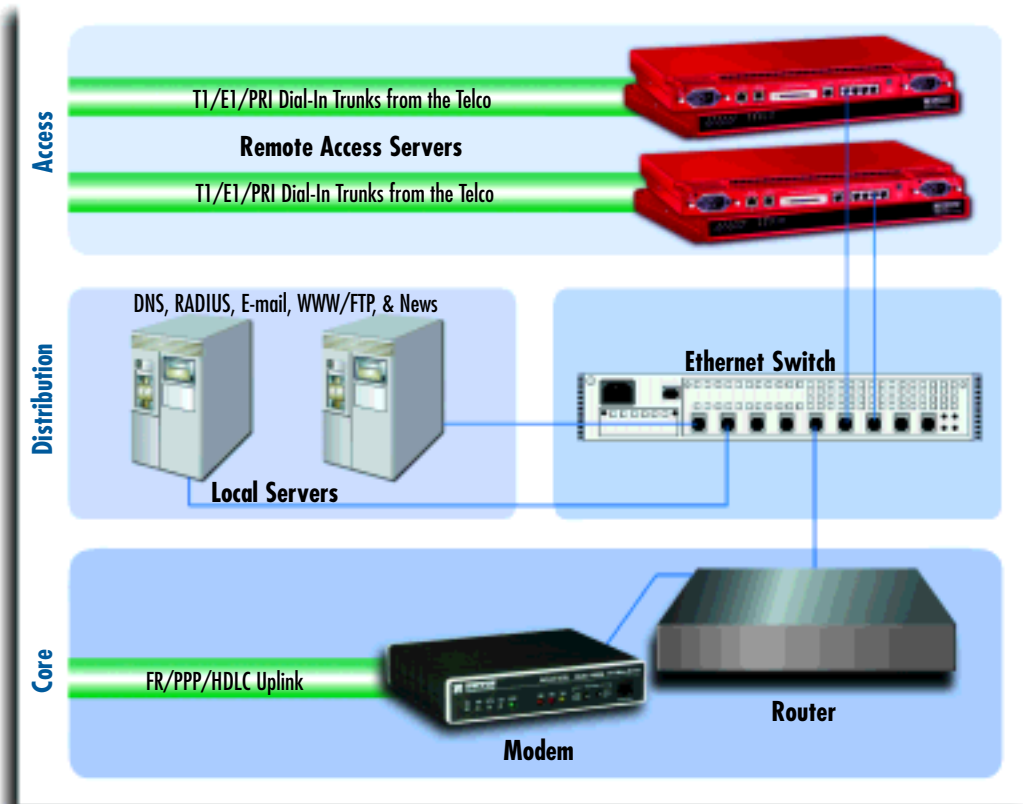
This is where access services are added. For example, these can be remote access servers for terminating dial-up modems or DSL modems for leased-line connections.

## Distribution Network

This is where your access services connect to your backbone network. Ethernet defines the ISP's network and glues everything together.

## Core Network

This is the backbone connection to the Wide-Area-Network. As the Internet is a network-of-networks, this connection is to another ISP.



## An Overview of Dial-Up...

The RAS connects to the local phone company through a T1/E1 or PRI line and to your local Ethernet switch. When users call to get on-line, the RAS is the box that will answer the call with a modem. After a dial-in user connects, the RAS will take IP packets and send them off to the Internet. Here is how a remote access server works:

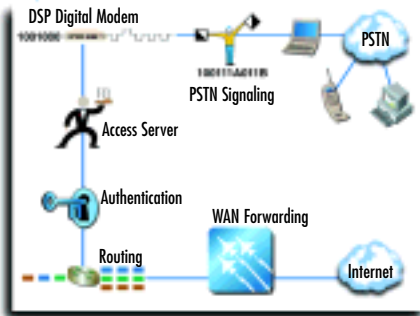
- A user dials the ISP's access phone number using their Modem/Terminal Adapter and Windows Dial-Up Networking. The call is answered by the RAS with a modem.
- Once the modems connect, a PPP session begins between the user and the RAS.
- Through PPP, the RAS obtains the username and password. This is the same username and password that was typed in by the user before dialing the ISP.
- The RAS queries a RADIUS server and asks to authenticate the user.
- Assuming the user is valid, the RAS will automatically issue an IP address to the user and finish setting up the connection. The user is now connected and can access any of the ISP's local servers (E-mail, News, etc.) or any Internet-connected Server.

## ...And Our RAS Product Family

The PATTON family of Remote Access Servers provide a standard feature set for Internet and Intranet Access. Our RAS products fit a variety of user environments:

- A start-up ISP will prefer the lower-cost 24/30 port Model 2800 and grow one T1/E1 at a time.
- An established ISP expanding into a new location would need the Model 2960 to answer 48/60 calls.
- A PTT/Telco building high-density POPs would use our Model 3120 to answer 96/120 dial-up connections and deliver DSL/T1/E1 dedicated connections too.

PATTON's family of RAS products **support more calls**, come equipped with **more uplink ports**, and provide **greater reliability** in a **smaller package** than any of our competitors.



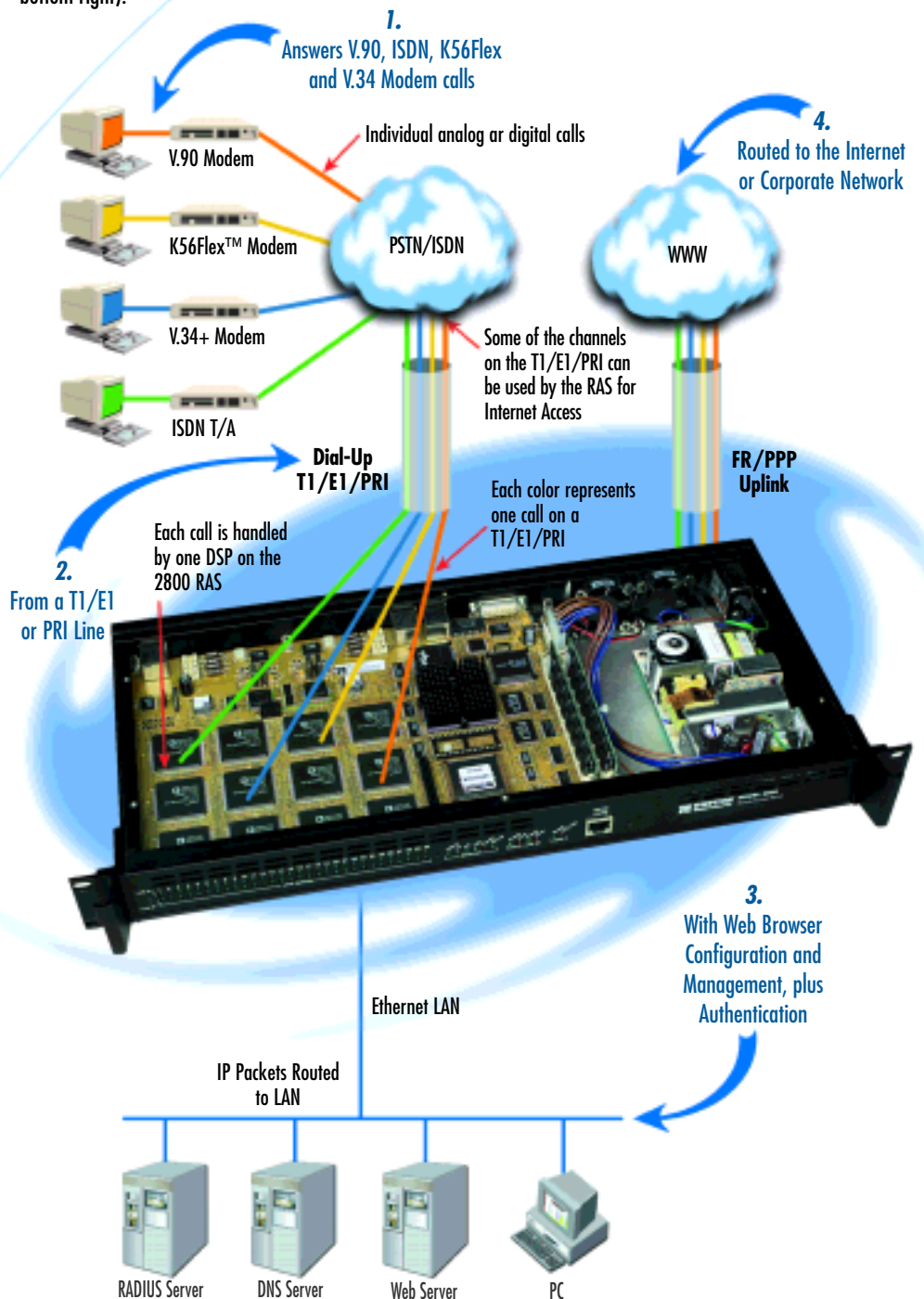
## Use 3rd Generation RAS

The NetLink Model 2800 Remote Access Server can answer a maximum of 30 dial-in modem calls from V.90, K56Flex™, ISDN, V.34+ and legacy modems—all through its built-in T1/E1/PRI ports. Once the user is authenticated, the IP data is processed by a RISC CPU that is connected to an Ethernet LAN or a Frame Relay/PPP WAN port. Our unique architecture ensures that the NetLink RAS can scale to meet the demanding requirements of any application including: Call Centers, Web advertising, ISP access, and traditional Corporate remote access. The NetLink RAS serves many applications, including: ISP Dial-Up, Corporate Intranet Access, and Hotel Dedicated Internet Access (see diagram at bottom right).

## NetLink RAS Technical Summary

Legacy solutions using analog-to-digital conversion result in lower connection speeds. These legacy devices also require separate analog modems and ISDN terminal adapters.

The NetLink RAS' significant advantage is its use of digital signal processors (DSPs) as dynamic communications processors. The 24/30 DSPs terminate both analog and ISDN connections within the same hardware and using the same T1/PRI or E1/PRI trunk. This solution provides the fastest connections and allows linear growth—one T1/E1 port at a time.



## “QUOTES”

*"Just wanted to let you know I'm pleased with the 2800. Connections are very sound and it seems to be less aggressive than the PM3 in negotiating speeds which results in more solid connects. The detail information in the web administration is superior to the Lucent unit as well..."*

-Michael Colucci, CoyoteNet

## ISP Dial Access

The NetLink Remote Access Server can be managed by a variety of local and remote methods, simultaneously. Each RAS has a built-in SNMP agent, an embedded HTTP web server, and a TELNET management interface.

All forms of management are available through the Internet, any dial-up port, the RS-232 console port, or the Ethernet port. Operators can configure, control, monitor, or receive status from any interface.

2800 CONFIGURATION MENU

Patton Home Page

HOME

Import/Export

---

Authentication

Dial In

Dial Out

Drop and Insert DSP

Ethernet

Filter IP

Frame Relay

ICMP

Interface

IP

MFR Version 2

RIP Version 2

SNMP

System

System Log

T1/E1 Link

TCP

UDP

---

About

License

### AUTHENTICATION Configuration

Remote Access Server

Validation:

Host Address:

Secondary Host Address:

Hopst Port:

Timeout:

Retries:

Secret:

NAS Identifier:

Accounting Address:

Secondary Accounting:

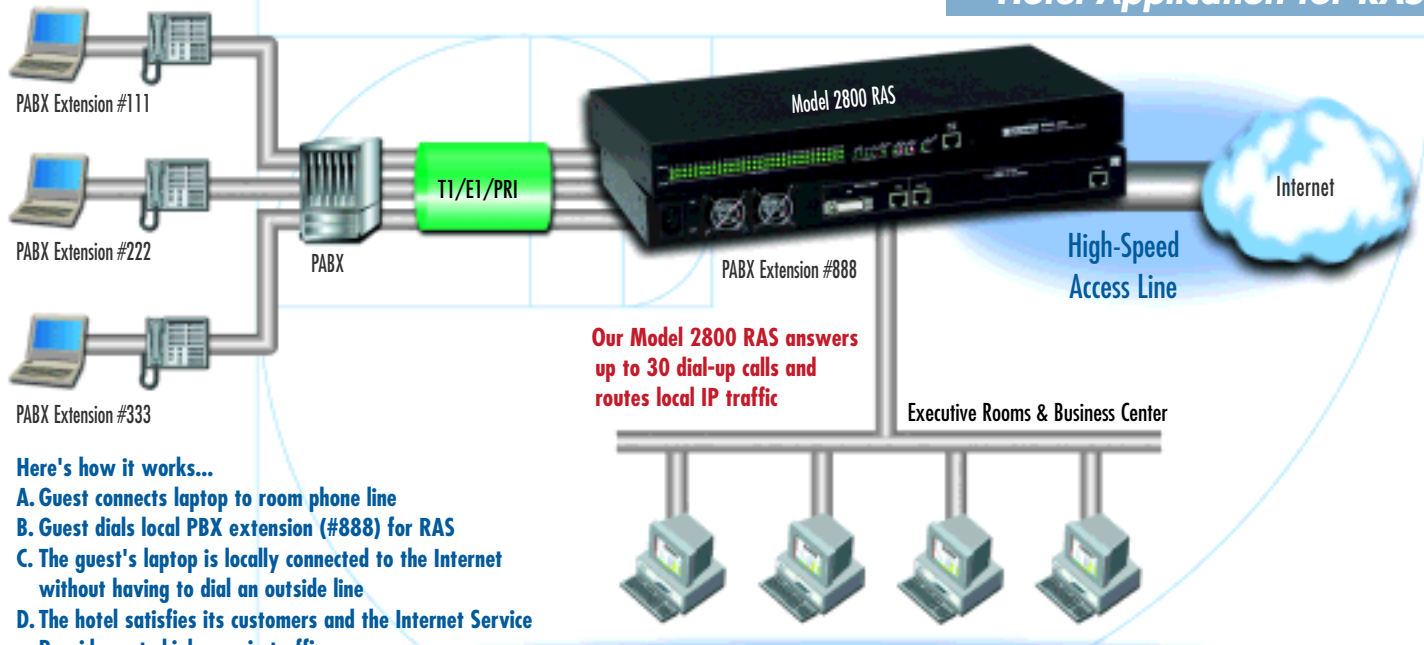
Accounting Port:

Accounting Enable:

RADIUS Packet Format:

To edit specific static users go back and click on the username.

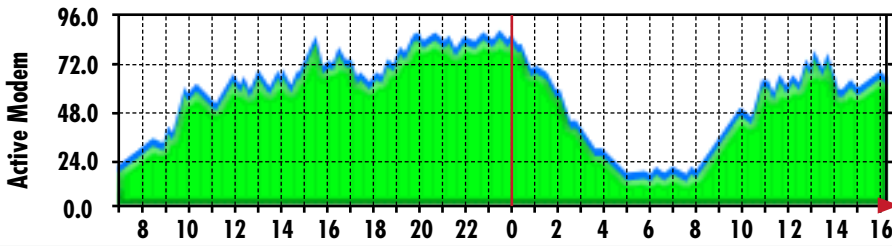
## Hotel Application for RAS



Here's how it works...

- A. Guest connects laptop to room phone line
- B. Guest dials local PBX extension (#888) for RAS
- C. The guest's laptop is locally connected to the Internet without having to dial an outside line
- D. The hotel satisfies its customers and the Internet Service Provider gets high margin traffic

2800 Remote Access Server Configuration in an Internet-Ready Hotel



## Reporting the Performance

Performance reporting is built into every NetLink RAS. With our integrated HTTP Web Server software, the operator can check on user traffic, examine the statistics, upload new software, or simply change the RADIUS server's IP Address from anywhere in the world—using the Internet.

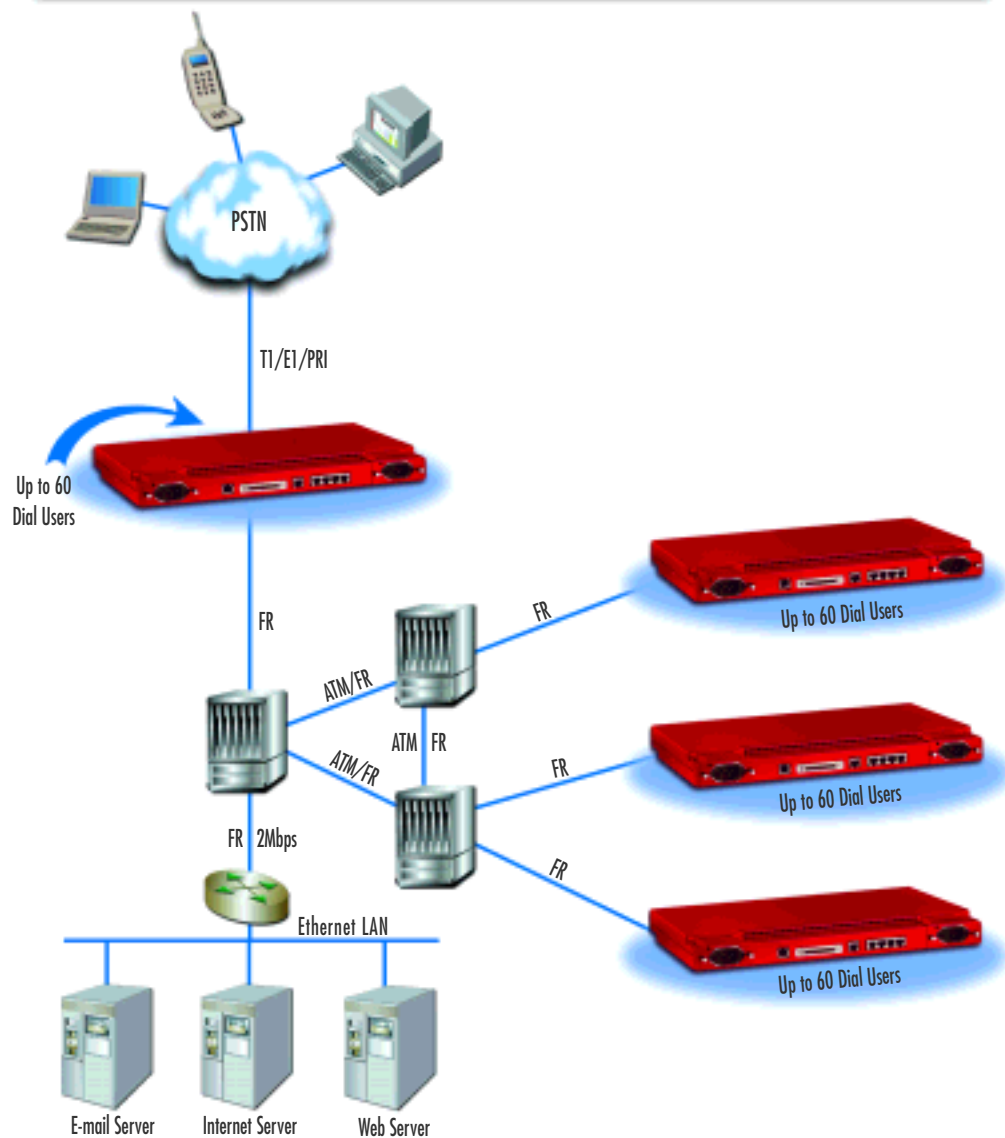
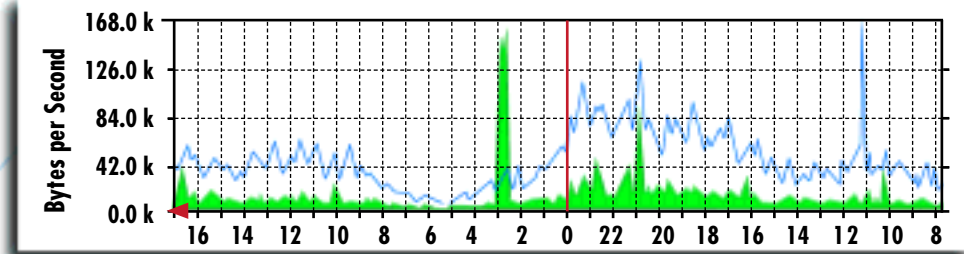
## Model 2960

### Remote Access Server

The 48/60 port Model 2960 is the latest addition to our NetLink RAS family. Expanding ISPs will be delighted by its dual-redundant power supply, redundant DSPs, no cooling fans, and FR/PPP uplink ports.

The Model 2960 supports 48 or 60 digital ISDN or analog (V.90, K56Flex, V.34+, etc.) modem connections in a single 1U-high (1.75 in./4.45 cm), 19-inch wide rackmount chassis.

Its standard features include a 10/100 Ethernet port, four T1/E1/PRI ports with built-in CSU/DSUs, and Frame Relay or PPP protocol support. The 2960 is the ideal product for high-density ISP environments.

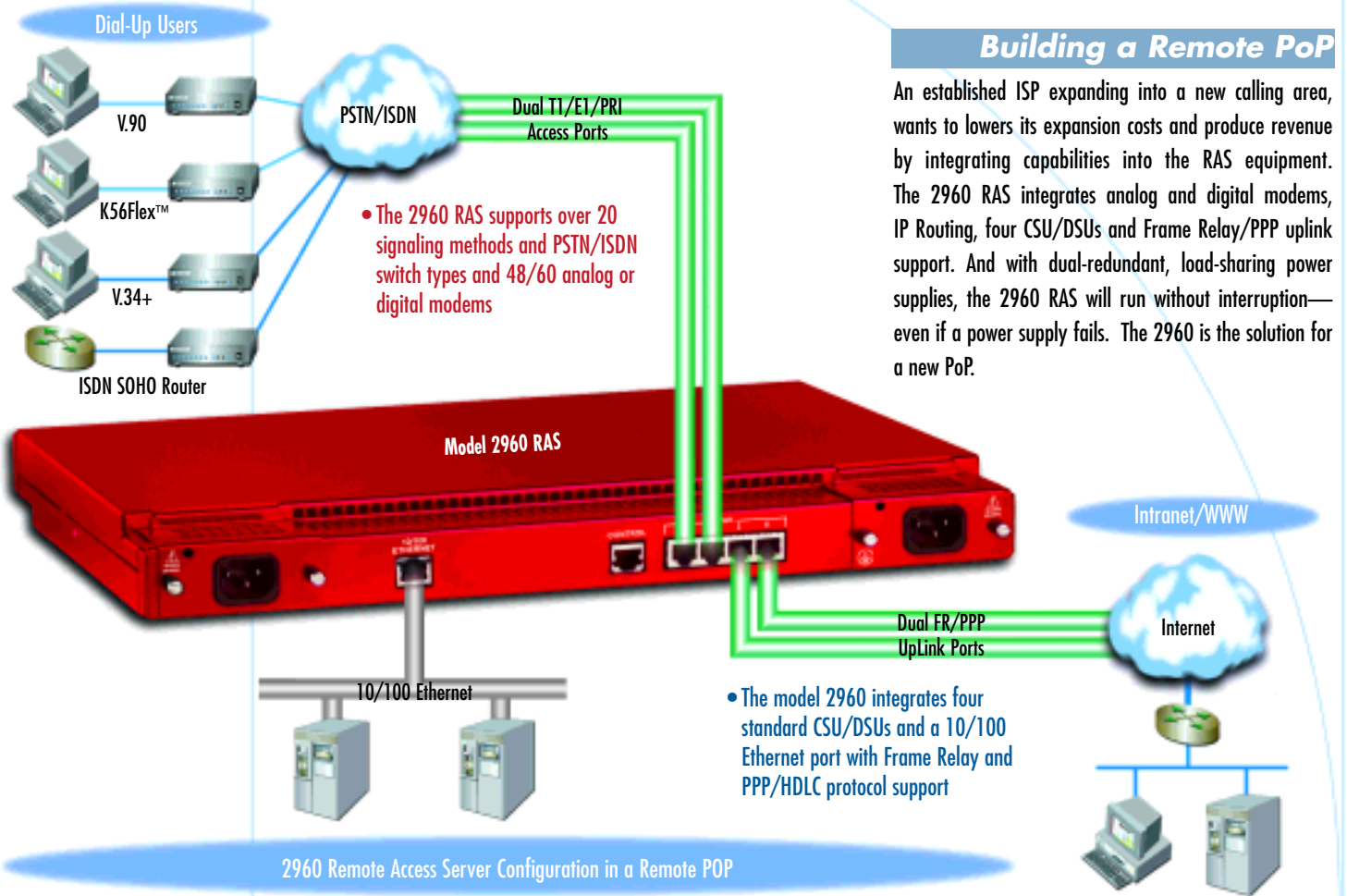


## “QUOTES”

*"I've had one in production for about 3 weeks now. Yes, Patton's support is phenomenal... Kudos guys, and if you want more particulars from a non-biased type. Drop me a line :)"*

-Sean Kearns, Catskill Online





## Building a Remote PoP

An established ISP expanding into a new calling area, wants to lower its expansion costs and produce revenue by integrating capabilities into the RAS equipment. The 2960 RAS integrates analog and digital modems, IP Routing, four CSU/DSUs and Frame Relay/PPP uplink support. And with dual-redundant, load-sharing power supplies, the 2960 RAS will run without interruption—even if a power supply fails. The 2960 is the solution for a new PoP.

## Why use our Model 2960 RAS?

From HTTP management, to dual-redundant power supplies, to FR/PPP uplink integration, the NetLink Model 2960 provides an all-in-one package for the expanding ISP. Featuring:

- Integrated T1/E1 uplink ports with Frame Relay and PPP.
- A temperature sensor-driven convection cooled system (no fans) and dual-redundant power supplies.
- The lowest cost-of-ownership for an ISP or Telco building a Remote PoP for 48/60 ports.

The Model 2960 requires half the space of existing RAS solutions. With greater reliability and a smaller package than any of its competitors, the Model 2960 is the cost leader in the industry.

## 2960 Competitive Positioning

	Patton 2960	Lucent MAX 4000	Lucent PM3
Base Features	Number of V.90 calls	48/60	48/60
	T1/E1/PRI ports	2	2
	Backhaul/Uplink ports	2	2
Key Selling Points	Built-in HTTP/WEB Mgmt	YES	NO
	100Base-T Ethernet ports	YES	NO
	Self Cooling	YES	NO
	Rack Height	1U	2U
	Dual Redundant Power	FREE	Add'l SSS
	Tech Support	FREE	Add'l SSS
	Software Upgrades	FREE	Add'l SSS



**A** Hot-Swap Dual-Redundant Supplies  
**Standard**—Supports two AC, two DC, or a mix of AC and DC power supply modules



**B** Dual 10/100 Ethernet Ports  
 Flexible integration options for your high-performance network



**C** PMC Expansion Port  
 The PCI Mezzanine Card (PMC) provides network expansion to enable the 3120 to offer additional revenue opportunities using the same box

## Model 3120

### Remote Access Server

*The next generation of our popular RAS family is the 3120—a modular platform with more standard features and functions than any of the competition.*

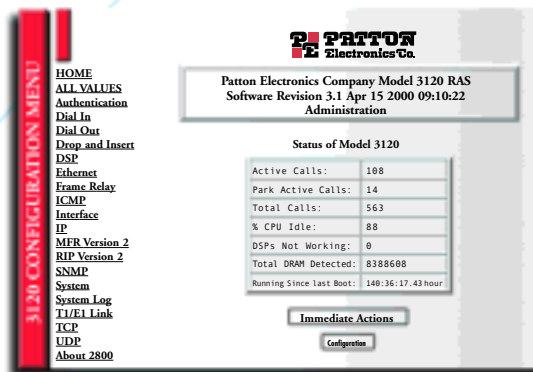
The 3120 supports up to 120 digital ISDN or analog (V.90, K56Flex, V.34+, etc.) modem connections in a 1U-high (1.75-in./4.45-cm), 19-inch wide rackmount chassis.

Standard features include hot-swap dual-redundant power supplies, dual 10/100-Mbps Ethernet ports, and an expansion slot. By using the expansion slot for DSL/T1/E1 access, service providers can increase their revenue by providing always-on, dedicated access ports.

### “QUOTES”

*"I've switched to Patton Electronics for RAS boxes. \$1500 less and FREE SUPPORT!"*

- Paul Farber, Farber Technology



**D** Web-Based SNMP/HTTP management

An embedded HTTP server provides complete configuration and control using standard web browsers

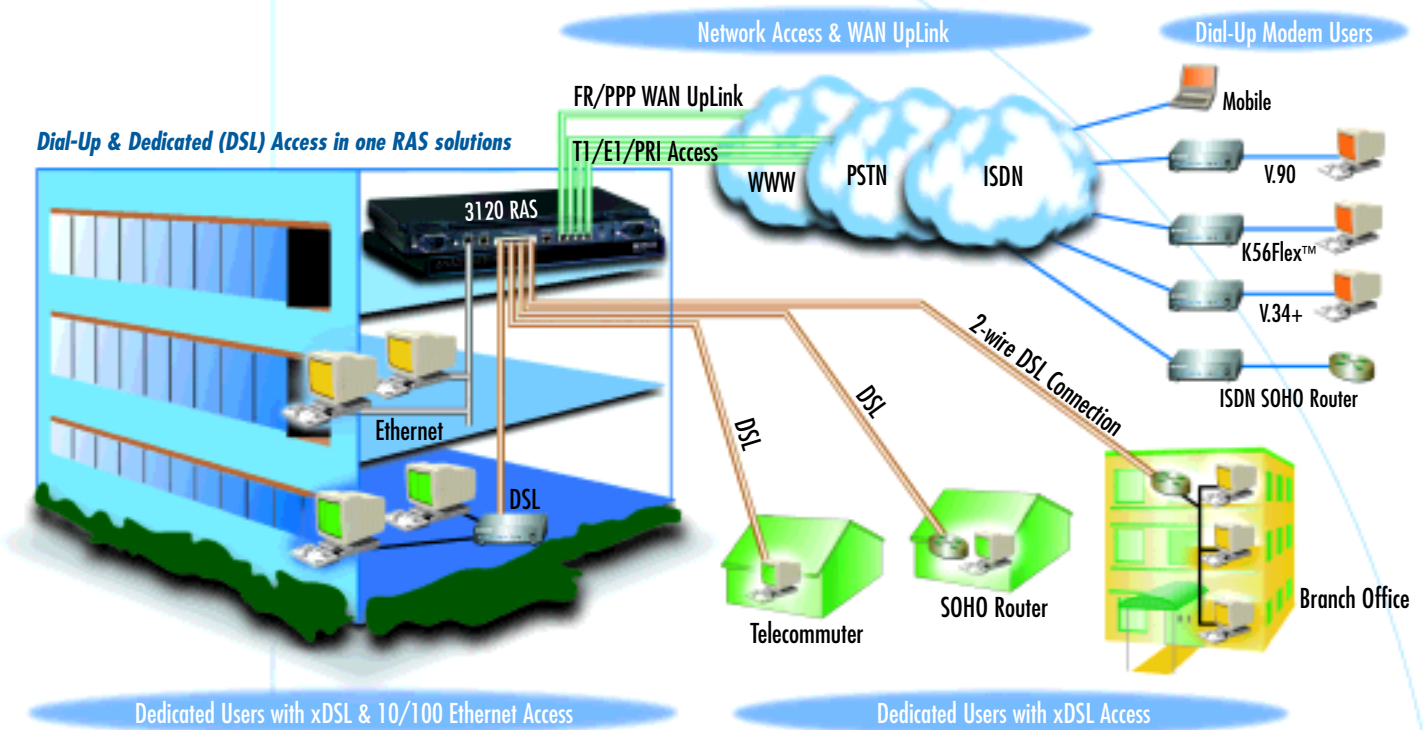


**E** Quad T1/E1/PRI Ports

Terminate any combination of 120 V.90/ISDN connections, and expand into remote locations using the 3120 as a complete PoP solution

### 3120 Products Highlights

120 connections in a 1U high chassis	Web-based HTTP and SNMP management
Simultaneous Analog/Digital Modems	Dual 10/100-Mbps Ethernet connections
Redundant fans for cool operation	Quad T1/E1/PRI PSTN connections
Redundant AC or DC power supplies	Up to 128 DSPs & 32 Mbytes of DRAM
Dedicated and Dial-up access in one chassis	FLASH download via LAN or WAN ports



## The 3120 RAS, now available in color—collect all three...



### 3120 Competitive Positioning

	Patton 3120	Lucent MAX 6000	Cisco AS 5300	3COM TCH 1000
Base Features				
Number of V.90 calls	120	96	120	120
T1/E1/PRI ports	4	4	4	4
Backhaul/Uplink ports	4	1	4	0
Access Expansion ports	16+	NONE	NONE	NONE
10/100 Ethernet ports	2	1	1	2
Built-in HTTP/WEB Mgmt	YES	NO	NO	NO
Rack Height	1U	2U	2U	6U
Dual Redundant Power	FREE	Add'l \$\$\$	Add'l \$\$\$	Add'l \$\$\$
Tech Support	FREE	Add'l \$\$\$	Add'l \$\$\$	Add'l \$\$\$
Software Upgrades	FREE	Add'l \$\$\$	Add'l \$\$\$	Add'l \$\$\$
Key Selling Points				

### 3120—Dedicated & Dial Access

The 3120 RAS is designed to scale with your customer's requirements—from dial-up V.90 analog to ISDN 128 kbps to dedicated xDSL and fractional T1/E1. Its modular expansion slot can be used for three basic applications:

- Dedicated access using integrated xDSL modems
- Advanced services like Virtual Private Networking (VPN)
- Wide area network uplinks and serial ports, like V.35

And modular expansion means more customers, larger billings for newer Managed Access Services and an overall faster return on your RAS equipment investment. The 3120 RAS delivers a tightly-integrated dial and dedicated access platform that your future requires.

## Ordering Information



	Model 2800			Model 2960/ Model 2996			Model 3120				
<b>Model Number</b>	2800	2810	2860	2960/48	2960/60	2996/96	3120/48	3120/60	3120/72	3120/96	3120/120
<b>Number of Connection</b>	12	24	30	48	60	96	48	60	72	96	120
<b>Power Supplies</b>	Single AC			Dual Redundant (Fixed) AC			Dual-Redundant (Hot Swap) AC or DC				
<b>Ethernet Ports</b>	One 10Base-T/AUI			One 10/100Base-T			Two 10/100Base-T				
<b>WAN Ports</b>	2			4			4 to 20				
<b>2800/UI</b>	Two T1/E1 ports, 12 digital signal processors (DSPs), 90–260 VAC supply			<b>3120/48/UI</b>			Quad T1/E1/PRI, 48-port, expandable RAS; dual redundant AC power				
<b>2810/UI</b>	Two T1/E1 ports, 24 digital signal processors (DSPs), 90–260 VAC supply			<b>3120/60/UI</b>			Quad T1/E1/PRI, 60-port, expandable RAS; dual redundant AC power				
<b>2860/UI</b>	Two T1/E1 ports, 30 digital signal processors (DSPs), 90–260 VAC supply			<b>3120/72/UI</b>			Quad T1/E1/PRI, 72-port, expandable RAS; dual redundant AC power				
<b>2960/48/UI</b>	Dual T1/PRI, 48-port RAS; load-sharing, dual redundant 90–260 VAC supplies			<b>3120/96/UI</b>			Quad T1/E1/PRI, 96-port, expandable RAS; dual redundant AC power				
<b>2960/60/UI</b>	Dual E1/PRI, 60-port RAS; load-sharing, dual redundant 90–260 VAC supplies			<b>3120/120/UI</b>			Quad T1/E1/PRI, 120-port, expandable RAS; dual redundant AC power				
<b>2996/96/UI</b>	Quad T1/E1/PRI, 96-port RAS; load-sharing, dual redundant 90–260 VAC supplies										

# T1/E1 FIBER

## Ordering Information

### T1/Fractional-T1 CSU/DSU

<b>2710/CM/xx</b>	T1/FT1 Micropackage CSU/DSU with V.35 Interface and Control Port
<b>2711/CM/xx</b>	T1/FT1 Micropackage CSU/DSU with V.35 Interface (DIP-switch only)
<b>2710RC/B/B</b>	T1/FT1 CSU/DSU Rack Card; EIA-530 Interface
<b>2710RC/A/I</b>	T1/FT1 CSU/DSU Rack Card; V.35 Interface
<b>2710RC/D/V</b>	T1/FT1 CSU/DSU Rack Card; X.21 Interface
<b>2710RC/IA</b>	T1/FT1 CSU/DSU Rack Card; 10Base-T Interface

### Fiber Modems (Single and Multi Mode)

<b>1193/FC/UI</b>	Single-Mode FC; G.703 dual-BNC and RJ-48C Interface
<b>1193/SC/UI</b>	Single-Mode SC; G.703 dual-BNC and RJ-48C Interface
<b>1193RC/FC</b>	Single-Mode FC rack card; G.703 dual-BNC and RJ-48C Interface
<b>1193RC/SC</b>	Single-Mode SC rack card; G.703 dual-BNC and RJ-48C Interface
<b>1186/ST/UI</b>	Multi-Mode ST; G.703 dual-BNC and RJ-48C Interface
<b>1186/SMA/UI</b>	Multi-Mode SMA; G.703 dual-BNC and RJ-48C Interface
<b>1186RC/ST</b>	Multi-Mode ST rack card; G.703 dual-BNC and RJ-48C Interface
<b>1186RC/SMA</b>	Multi-Mode SMA rack card; G.703 dual-BNC and RJ-48C Interface

### G.703/G.704 Standalone NTU

<b>2701/B/xx</b>	G.703/G.704 Standalone NTU with EIA-530 (DB-25F) interface
<b>2701/C/xx</b>	G.703/G.704 Standalone NTU with V.35 (M/34F) interface
<b>2701/D/xx</b>	G.703/G.704 Standalone NTU with X.21 (DB-15F) interface
<b>2701/I/xx</b>	G.703/G.704 Standalone NTU with 10Base-T (RJ-45F) interface
<b>2703/xx</b>	E1/G.703 Standalone NTU with Universal interface on a UD-26F connector
<b>2703-X.21/xx</b>	E1/G.703 Standalone NTU with an X.21 interface on a DB-15F connector
<b>2715/CM/xx</b>	G.703/G.704 Micropackage NTU with V.35 (M/34F) interface

### G.703/G.704 Rack Card NTUs

<b>2701RC/A/I</b>	Rack card NTU; RJ-48C line and V.35 (M/34F) interface
<b>2701RC/B/B</b>	Rack card NTU; RJ-48C line and RS530 (DB-25F) interface
<b>2701RC/D/D</b>	Rack card NTU; dual BNC line and X.21 (DB-15F) interface
<b>2701RC/D/V</b>	Rack card NTU; RJ-48C line and X.21 (DB-15F) interface
<b>2701RC/IA</b>	Rack card NTU; RJ-48C line and Ethernet/10Base-T (RJ-45F) DTE interface
<b>2703RC-45</b>	Rack card NTU; RJ-48C line and EIA-530 (DB-25F) DTE interface
<b>2715RC/x/y</b>	Please order Model 2701RC, which is identical to a 2715RC.

\*Power supply options (xx): UI = Universal interface 90–260 VAC; 48 = -48 VDC

Standalone Modem with External Supply



Micropackage Modem with External Supply



Model 2703

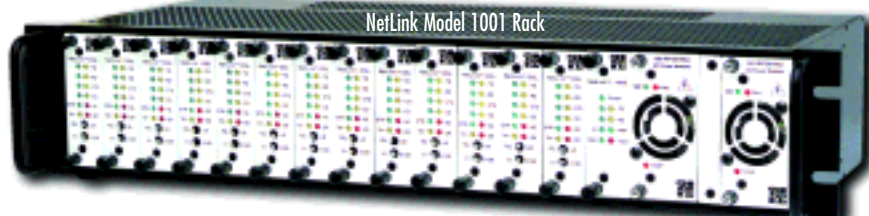


Standalone Modem with Internal Supply

Rackmount Modem (Front Card)



NetLink Model 1001 Rack



Rackmount Modem I/O Module (Rear Card)



See Next Page for NetLink 1001 Rack System Ordering Information

### xDSL Modem Base Units with Fixed Interfaces

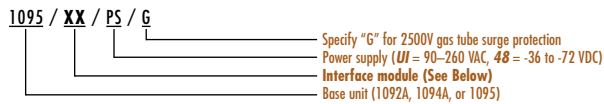
<b>1088/C/xx*</b>	2.3 Mbps mDSL modem; V.35 (M/34F) interface
<b>1088/D/xx*</b>	2.3 Mbps mDSL modem; X.21 (DB-15F) interface
<b>1088/I/xx*</b>	2.3 Mbps mDSL modem; Ethernet (RJ-45F) interface
<b>1088/K/xx*</b>	2.3 Mbps mDSL modem; G.703/G.704 interface with Dual-BNC and RJ-48C

\*Power supply options (xx): UI = Universal interface 90–260 VAC; 48 = -36 to -72 VDC

### xDSL Modem Base Units with Selectable Interfaces (see below)

<b>1095/xx/PS</b>	2.3 Mbps mDSL modem with selectable interface modules
<b>1095/xx/PS</b>	2.3 Mbps mDSL modem with selectable interface modules
<b>1092A/xx/PS</b>	64/128kbps iDSL modem with selectable interface modules
<b>1092A/xx/PS</b>	64/128kbps iDSL modem with selectable interface modules

Use the following key to order the 109x standalone units with QuikConnect interface modules:

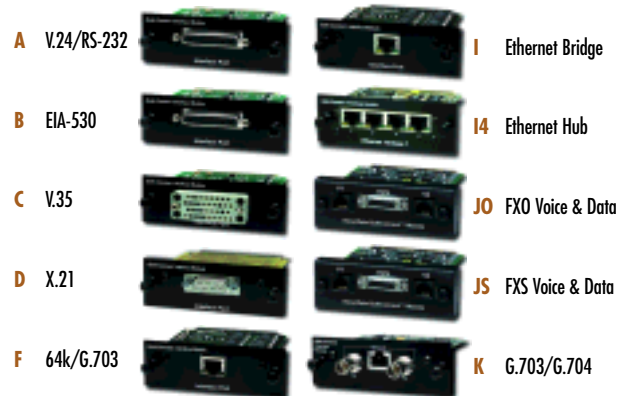


### Interface Modules

<b>A</b>	V.24/RS-232 serial interface on a DB-25F connector
<b>B</b>	EIA-530/RS-422 serial interface; DB-25F connector
<b>C</b>	V.35 serial interface on a M/34F connector
<b>D</b>	X.21 serial (DTE/DCE) interface on a DB-15F connector
<b>F</b>	Co-directional 64K/G.703 interface on an RJ-48C connector
<b>I</b>	10Base-T Ethernet interface on an RJ-45F connector
<b>I4</b>	Four 10Base-T interfaces each on an RJ-45F connector
<b>JO</b>	Dual FXO interface ports on an RJ-11F and a serial port on a UD26F connector
<b>JS</b>	Dual FXS interface ports on an RJ-11F and a serial port on a UD26F connector
<b>K</b>	G.703/G.704 interface on dual-BNC & RJ-48C connector



G.703/G.704

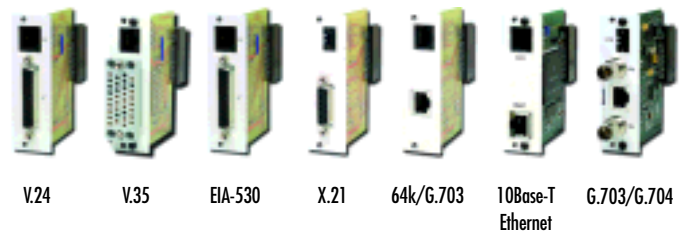


### xDSL Rack Cards and I/O Modules

#### 1095/1088 mDSL Rack Cards and Interface Modules

<b>1095RC/A/B</b>	2.3 Mbps mDSL Modem with V.24 interface on a DB-25F connector
<b>1095RC/A/I</b>	2.3 Mbps mDSL Modem with V.35 interface on a M/34F connector
<b>1095RC/B/B</b>	2.3 Mbps mDSL Modem with EIA-530 interface on a DB-25F connector
<b>1095RC/D/V</b>	2.3 Mbps mDSL Modem with X.21 interface on a DB15F connector
<b>1095RC/C/O</b>	2.3 Mbps mDSL Modem with 64kbps G.703 interface on a RJ-48C
<b>1095RC/IA</b>	2.3 Mbps mDSL Modem with 10Base-T Ethernet interface on a RJ-45F
<b>1095RC/K/K</b>	2.3 Mbps mDSL Modem with G.703/G.704 interface on dual-BNC and RJ-48C

\*When ordering rackcards for Model 1094A standalones, specify the 1094ARC instead of the 1095RC.



#### 1092A iDSL Rack Cards and Interface Modules

<b>1092ARC/A/B</b>	64/128 kbps iDSL Modem with V.24 interface on a DB-25F connector
<b>1092ARC/A/I</b>	64/128 kbps iDSL Modem with V.35 interface on a M/34F connector
<b>1092ARC/B/B</b>	64/128 kbps iDSL Modem with EIA-530 interface on a DB-25F connector
<b>1092ARC/D/V</b>	64/128 kbps iDSL Modem with X.21 interface on a DB15F connector
<b>1092ARC/C/O</b>	64/128 kbps iDSL Modem with 64 kbps G.703 interface on a RJ-48C
<b>1092ARC/IA</b>	64/128 kbps iDSL Modem with 10Base-T Ethernet interface on a RJ-45F

\*The Model 1092A rackcard supports Models 1092A, 1092, and 1082 standalone iDSL modems.

### NetLink 1001 Rack System

<b>1001R16P/48V</b>	16-slot rack; one -48VDC power supply & rear power entry module
<b>1001R16P/UI</b>	16-slot rack; one 90–260VAC power supply with an IEC-320 connector
<b>1001R14P/R48V</b>	14-slot rack; two -48VDC power supplies operating in a load-sharing, dual-redundant mode.
<b>1001R14P/RUI</b>	14-slot rack; two 90–260VAC power supplies operating in a load-sharing, dual-redundant mode.
<b>1001R14P/RUI48</b>	14-slot rack; one -48VDC & one 90–260VAC power supply operating in a load-sharing, dual-redundant mode.
<b>1001MC</b>	SNMP/HTTP management module (requires one slot).
<b>1001CC</b>	Control module for daisy-chaining additional racks (requires one slot).

# CONVERTERS

## Ordering Information

### Serial, HSSI & Ethernet Converters

#### Serial Converters (Cable)

2014 xy-xy	RS-530 (DB-25) to V.35 (M/34)
2015 xy-xy	RS-449/422 (DB-37) to V.35 (M/34)
2016 xy-xy	X.21 (DB-15) to V.35 (M/34)
2020 xy-xy	RS-232 (DB-25) to V.35 (M/34)
2021 xy-xy	RS-232 (DB-25) to X.21 (DB-25)
2022 xy-xy	RS-232 (DB-25) to V.36 (DB-37)



Model 2021

#### Serial Converters (No Cable)

2014N xy-xy	RS-530 (DB-25) to V.35 (M/34)
2020N x-x	RS-232 (DB-25) to V.35 (M/34) (DCE/DTE)



Model 2014N

#### HSSI Interface Converters

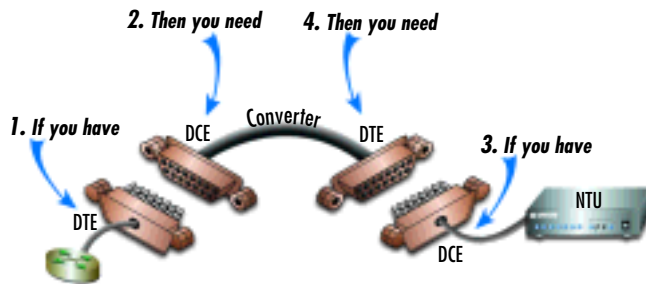
2040 xy-My	V.35 (M/34) to HSSI Male (HD-50)
2041 xy-My	X.21 (DB-15) to HSSI Male (HD-50)
2042 xy-My	RS-530 (DB-25) to HSSI Male (HD-50)



Model 2040

x= Gender of the coax connector [male (M) or female (F)]

y= DCE (C) or DTE (T) Interface.



Model 20NN x y - x y specify items 2 and 4

- DCE/DTE interface (for item 4)
- Male/Female gender (for item 4)
- DCE/DTE interface (for item 2)
- Male/Female gender (for item 2)

#### Example:

2021MT-FC= RS-232 to X.21 converter with DB-25 Male, DTE to DB-15 Female DCE

#### Ethernet Interface Converters

2121/DM-*/UI	10Base-T Ethernet to X.21 (DB-15M)
2124/AM-*/UI	10Base-T Ethernet to V.24/RS-232 (DB-25M)
2130/BM-*/UI	10Base-T Ethernet to EIA-530 (DB-25M)
2135/CM-*/UI	10Base-T Ethernet to V.35 (M/34M)

\* S= 6-inch (15cm) serial port cable, L= 6 ft (2m) serial port cable



Model 2135

#### Serial Converters (Rack Card)

2065RC	RS-232 to X.21 (UD-26 adapter cables required)
2066RC	V.35 to X.21 (UD-26 adapter cables required)
2065-26M/15X	Cable, UD-26 Male to DB-15
2065-26M/25X	Cable, UD-26 Male to DB-25
2065-26M/34X	Cable, UD-26 Male to M-34



Model 2065RC

### G.703 Baluns

Baluns convert the G.703 interface from 75 Ω to 120 Ω. Our G.703 Balun rack-mount equipment includes 16 dual BNC or 1.6/5.6 coax female connectors for 75 Ω connections and 16 Shielded RJ48C plugs for 120 Ω connections. The models 460RC and 464RC use dual BNC connectors while the 465RC and 466RC use dual 1.6/5.6 connectors. The models 464RC and 466RC also feature one 64 pin Telco connector and 16 RJ-48C plugs for 120 Ω connections.

Model 460/465RC



#### G.703 Balun Rack-Mount Modular Panel

460RC/16/F	Modular 16-Port, 19-inch, 2U (8.9cm) Rackmountable balun panel
465RC/16/F	Modular 16-Port, 19-inch, 2U (8.9cm) Rackmountable balun panel

Model 464/466RC



#### G.703 Balun Rack-Mount Chassis

464RC	High density 16-Port, 19-inch, 1U (4.44cm) Rackmountable balun chassis
466RC	High density 16-Port, 19-inch, 1U (4.44cm) Rackmountable balun chassis



#### G.703 Balun

460x	(E1) 2 Mbps, 75 Ω dual coax (BNC) to 120 Ω UTP (RJ-48C)
462x	(E2) 8 Mbps, 75 Ω dual coax (BNC) to 120 Ω UTP (RJ-48C)
463x	(E3) 34 Mbps, 75 Ω dual coax (BNC) to 120 Ω UTP (RJ-48C)
465x	(E1) 2 Mbps, 75 Ω dual 1.5/5.6 coax connectors to 120 Ω UTP (RJ-48C)

x=gender of the coax connector [male (M) or female (F)]

#### G.703 Balun 460/465 Options

MC	Two male (6-inch/15.25cm) coax cable connectors for 75 Ω connection
TB	Terminal block for 120 Ω connection
PT	RJ-45 male (6-inch/15.25cm) cable connector for 120 Ω connection

Example: 460F-PT= Female dual coax to male RJ45 6-inch/15.25 cm pig-tail connector

PATTON

is known for our connectivity product line and our catalogs which we have continuously grown since 1984. As the definition of "connectivity" has expanded to include Internet and Intranet access, PATTON has expanded its focus to include T1/E1, xDSL and remote access servers. These network access products provide solutions for a wide range of service provider and corporate applications as we've described in this *Network Access and Solutions Guide*.



Since 1984...



All of our network access and connectivity products are manufactured at our ISO9001 facility in Gaithersburg, Maryland, USA. For additional information, please browse our website (<http://access.patton.com>), order our new catalog, or contact us by e-mail at [marketing@patton.com](mailto:marketing@patton.com)

2000

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NTU

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