



Ascend MAX 4048 and 4060 WAN Access Switch

MAX 4048 and 4060

Table of Contents

- **Introduction**
- **Product Overview and Architecture**
- **Bundled Software**
- **Extensive Management Capability**
- **Security Options**
- **Remote Networking Software Option**
- **Applications**
- **Pricing and Availability**

MAX 4048 and 4060

Introduction

▲ **Fully-featured WAN access switches for:**

- Carrier and Internet Service Provider POPs
- Corporate remote and Internet access

▲ **Ideal platform for small-to mid-sized ISPs**

- Low entry price with high-end feature set
- Easy set-up using Java configurator
- Extensive network design flexibility as network grows

▲ **Well-suited for corporate and business applications**

- Fixed-configuration, easy-to-install
- Multiprotocol routing support
- Extensive access functionality/flexibility

MAX 4048 and 4060

Product Overview

▲ Fixed-configuration systems for T1- and E1-based networks

- MAX 4048: two T1, 1 V.35, three 16-port Series56™ Digital Modems
- MAX 4060: two E1, 1 V.35 , four 16-port Series56 Digital Modems

▲ Utilizes Series56 Digital Modems

- K56flex and V.34 support

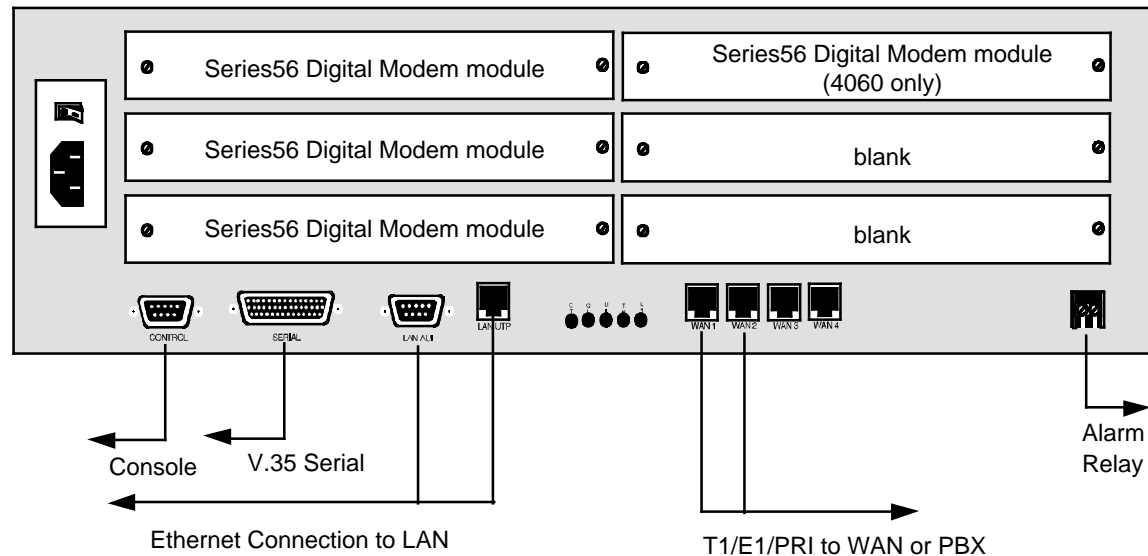
▲ Complete Ascend access feature set

▲ Includes Hybrid Access 4000 for ISDN PRI signaling, Frame Relay support and digital access

▲ Unprecedented price point

MAX 4048 and 4060

Hardware Configuration



▲ Pre-configured expansion slots

- MAX 4048 - three 16-port Series56 Modem Modules
- MAX 4060 - four 16-port Series56 Modem Modules

▲ Two T1/E1/PRI Ports with Integral CSU

▲ 8 Mbps V.35 serial WAN interface

▲ High-performance operation

- High-speed RISC processor
- STAC coprocessor chip

▲ LAN Connectivity with Ethernet

- 10Base-T
- AUI

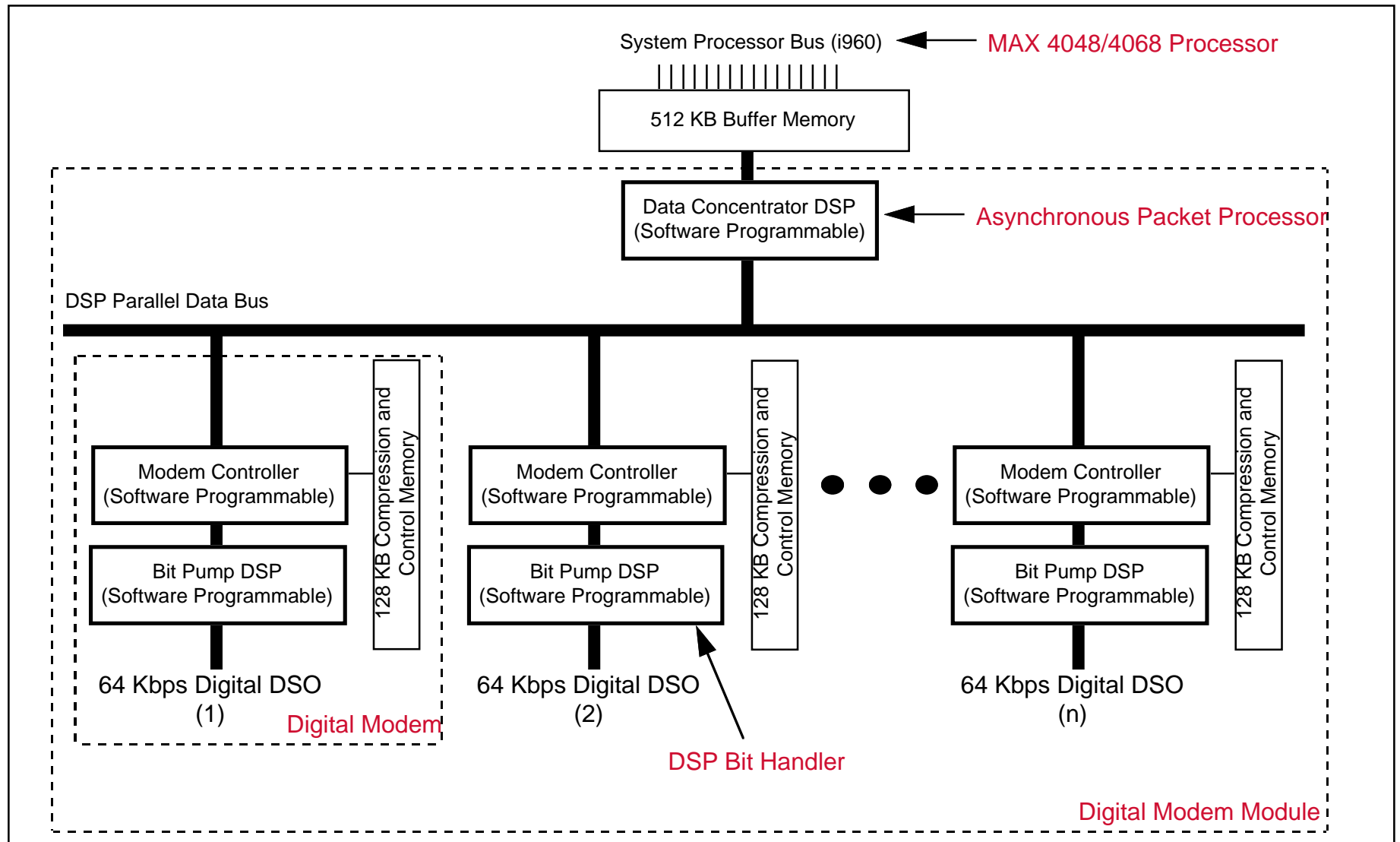
MAX 4048 and 4060

Series56 Digital Modem Technology

- ▲ Digital modems designed with Rockwell K56flex technology**
- ▲ Simultaneous 33.6 Kbps and 56 Kbps access speeds**
- ▲ High-performance DSP-based hierarchical processing**
- ▲ V.42 Error Correction and V.42*bis* Compression**
- ▲ MNP10 EC and GSM for cellular calls**
- ▲ Software upgradable for long-term hardware viability**
 - Upgrade to any 56K standard as current standards evolve
 - Series56 hardware investment protection

Series56 Digital Modems

Architectural Overview



MAX 4048 and 4060

Enhanced System Architecture

▲ **New hierarchical three-processor architecture**

- Layer-3: MAX 4048 and 4060 system processor
 - Handles packet forwarding and routing
- Layer-2: Asynchronous packet processor
 - Dedicated DSP per digital modem module
 - Significantly unburdens main system processor
- Layer-1: DSP bit-pump
 - Dedicated DSP per digital modem for bit handling
 - Dedicated microcontroller for modem control functions

MAX 4048 and 4060

Ultimate Access Functionality

▲ **Bundled Software**

- Hybrid Access™ 4000
 - Digital Access
 - ISDN PRI signaling
 - Frame Relay support
- MAX Stack

▲ **Extensive management capability**

▲ **Security options**

- RADIUS and Ascend Access Control (extended RADIUS)
- Secure Access Firewall
- Virtual Private Networking

▲ **Remote networking software option**

MAX 4048 and 4060

Bundled Software

Hybrid Access 4000

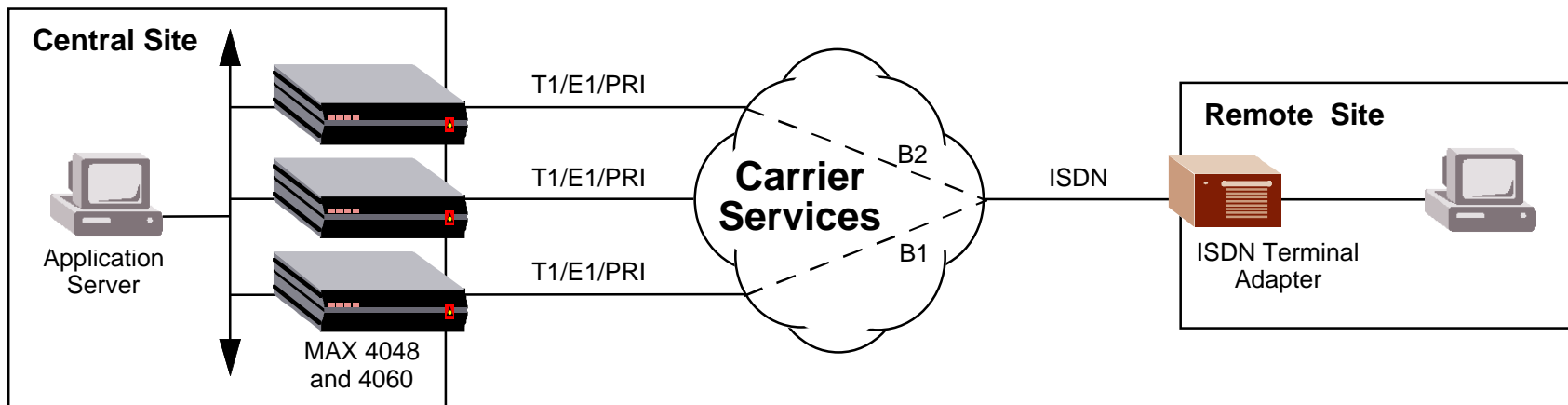
- Digital Access
 - 56/64 Kbps B-channels for ISDN
 - 56/64 Kbps Frame Relay
 - Up to 48 or 60 remote sessions, either analog or digital
- ISDN PRI signaling
 - Enables PRI signaling for both T1/E1 ports
- Frame Relay support
 - Enables Frame Relay connectivity
 - Up to 4096 PVCs with RADIUS authentication

MAX Stack

- Allows scalability with MAX products

MAX 4048/6060

MAX Stack



- ▲ **Multiple MAX system operating as single logical unit**
- ▲ **Shared-resource operation**
 - Shared IP pools
 - MP, MP+ and BACP calls span stack
 - Single virtual Network Access Switch

MAX 4048 and 4060

Extensive Management Capability

▲ **Java-based Configurator**

- Java-based management and configuration

▲ **SNMP-based Management**

- SNMP MIB-2 with exhaustive set of extensions

▲ **Easy-to-Use Menu Interface**

- Accessible via Telnet (Intranet/Internet or Dial-up), Local RS-232
- Setup and monitor from same screen

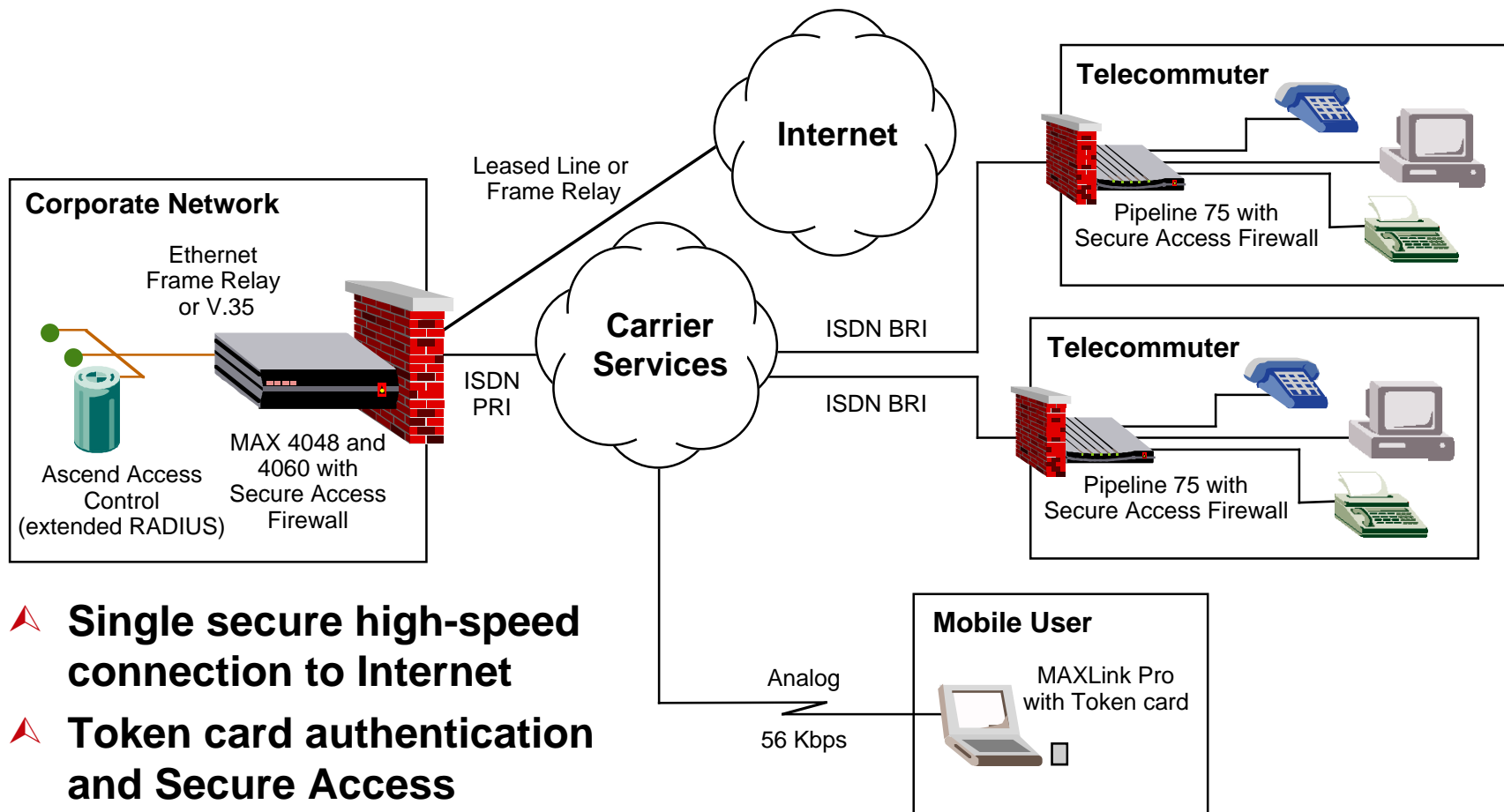
MAX 4048 and 4060

Security Options - Optional Secure Access Firewall

- ▲ **Dynamic “stateful inspection” firewall**
- ▲ **Explicit permit and deny**
- ▲ **Rules adapt to type of traffic**
 - Network address, host names, UDP, TCP, ICMP, source/destination ports, send/receive direction, TCP session state, time, application port number, etc.
- ▲ **Eliminates need for proxy application gateway**
- ▲ **Secure Access Manager (configuration utility)**
- ▲ **Comprehensive audit trails for tracking**

MAX 4048 and 4060

Security Options - Corporate Internet Gateway



- ▲ **Single secure high-speed connection to Internet**
- ▲ **Token card authentication and Secure Access Firewall and Extended RADIUS Capabilities**

MAX 4048 and 4060

Security Options - Virtual Private Networking

▲ **Ascend Tunneling Management Protocol (ATMP)**

- GRE tunneling
- Mobile-IP
- IPX protocol spoofing

▲ **Frame Relay Direct**

▲ **Point-to-Point Tunneling Protocol (PPTP)**

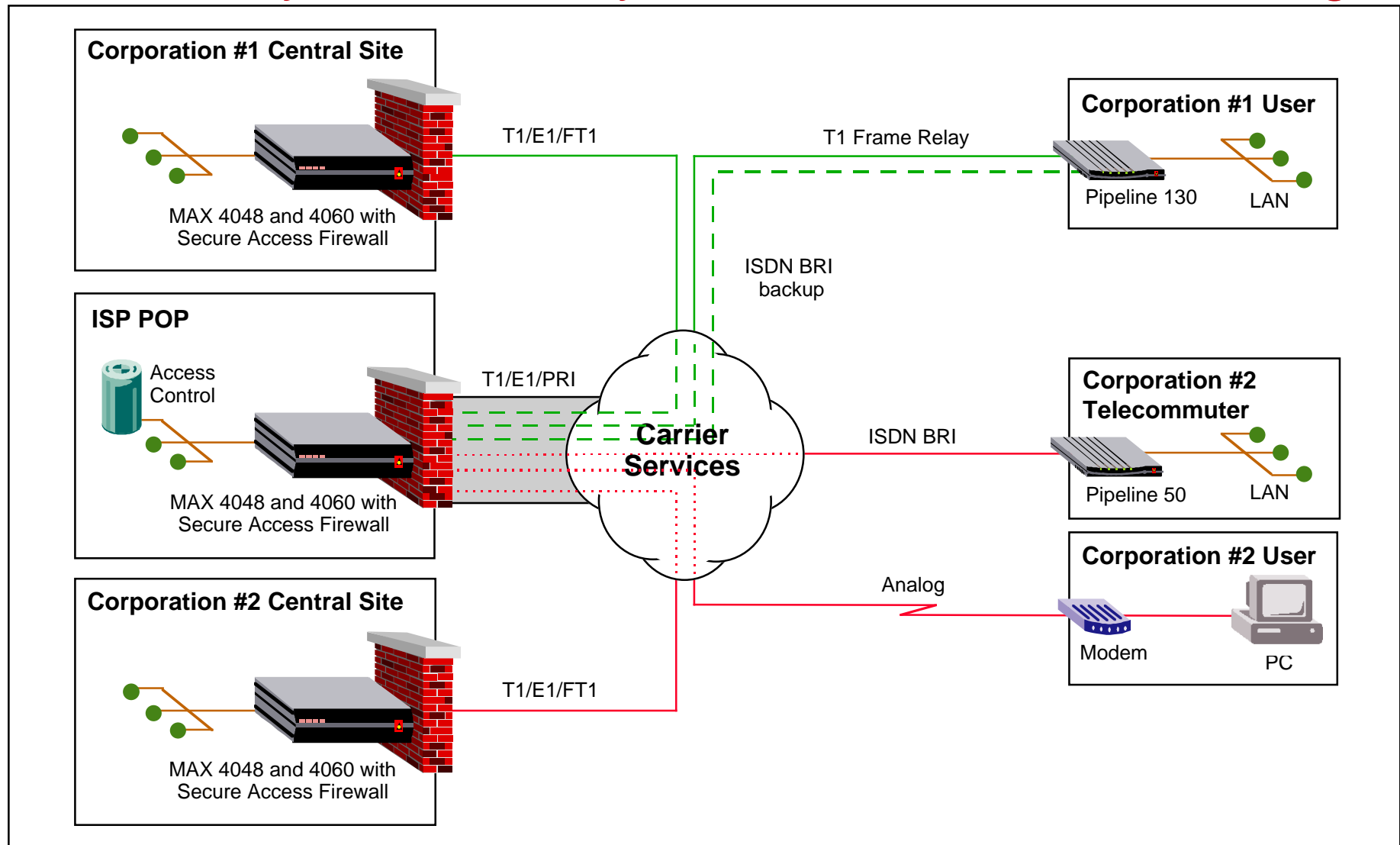
▲ **Raw TCP tunneling**

▲ **IP Direct**

▲ **Extended RADIUS authentication and profile management**

MAX 4048 and 4060

Security Functionality - Virtual Private Networking



MAX 4048 and 4060

Remote Networking Software Option

▲ Multiprotocol Routing

- IP
- AppleTalk
- AppleTalk Remote Access
- IPX (with local spoofing)

▲ MAXDial

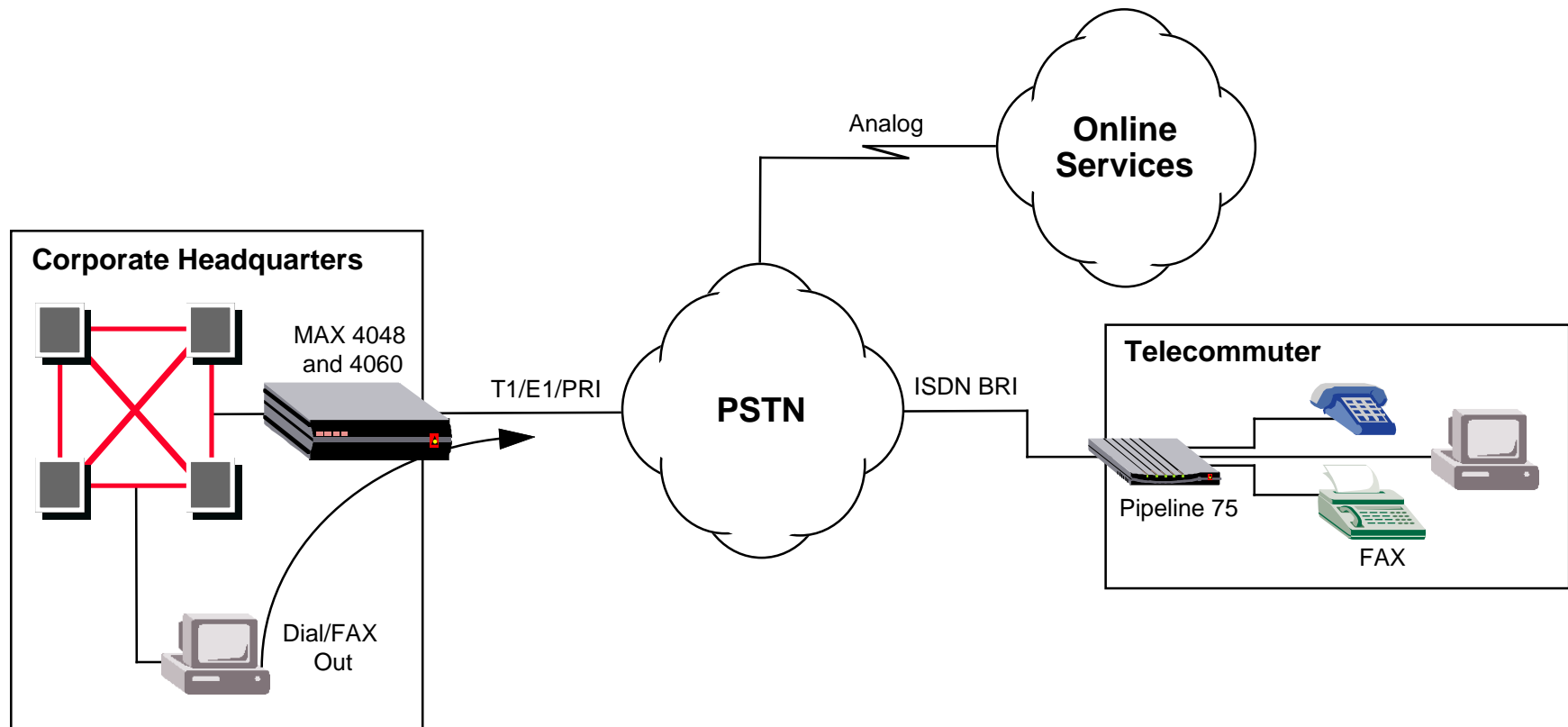
- LAN-based data / class 3 fax out-dial
- Win 3.X, Win95 support
- AT command support

▲ MAXLink Pro

- Remote node access client
- Award-winning software package included

MAX 4048 and 4060

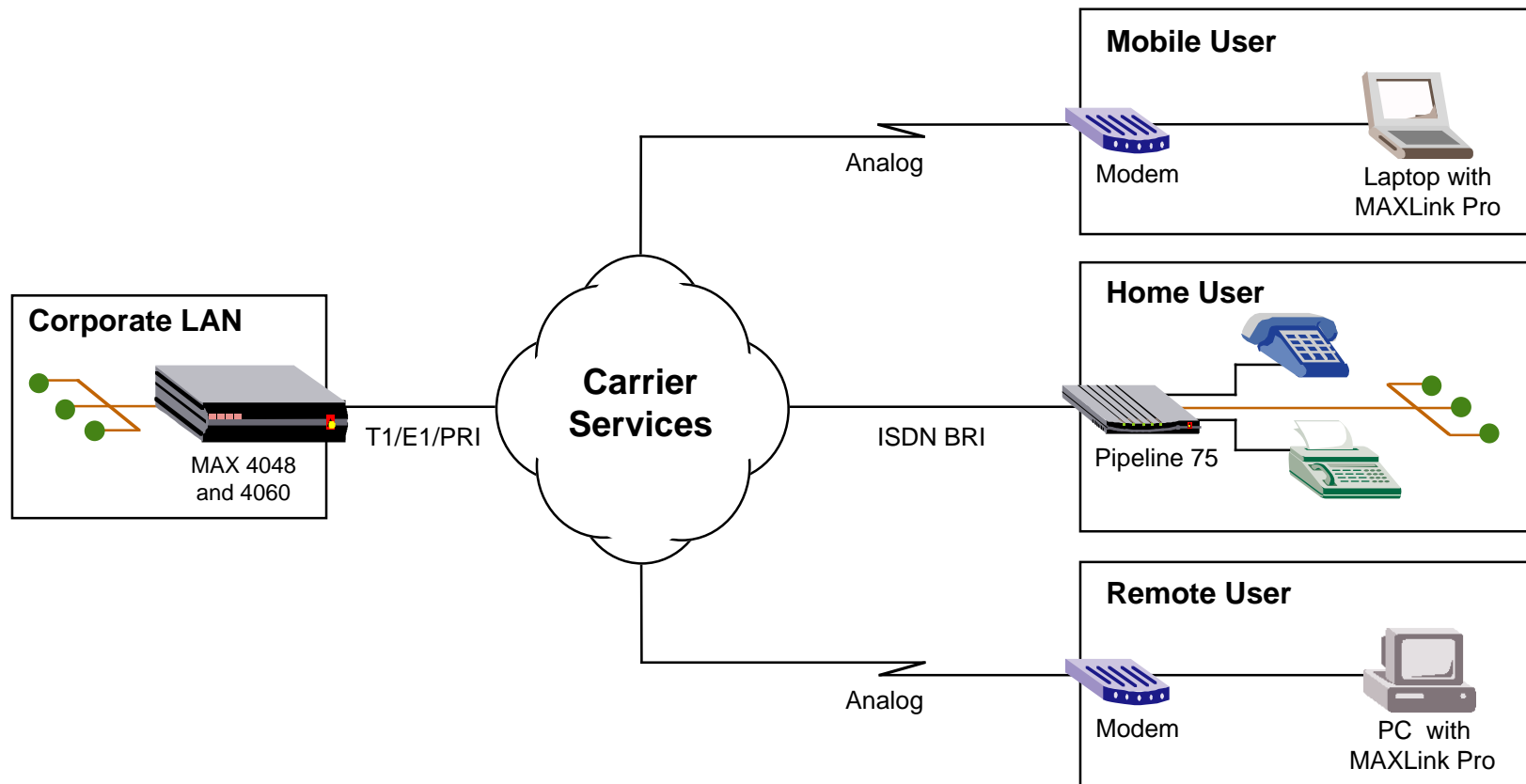
Remote Networking Software - MAXDial



- ▲ **LAN access to online services (AOL, MSN, etc.)**
- ▲ **Group 3 fax from LAN-based workstation**

MAX 4048 and 4060

Remote Networking Software - MAXLink Pro



- ▲ Seamless access to network resources from remote location
- ▲ Award-winning complement of software included

MAX 4048 and 4060

Protocol Support

▲ Routed LAN protocols

- TCP/IP via RIP, RIP2, OSPF

▲ WAN protocols

- PPP, SLIP, C-SLIP, Async PPP, Sync PPP, X.25 PAD, X.25 over B-channel, V.120, D4 framing (T1/E1), G703/732 framing (R1), Frame Relay PVC, PPP-FR gateway, Frame Relay NNI, ISDN signaling

▲ Modem support

- K56flex, MNP 10-EC, MNP, V.42bis, V.34, fax modem dial-out to 14.4 Kbps

▲ Bandwidth management

- Multilink PPP, Multilink Protocol Plus, BACP, TCP header compression, data compression (Ascend/Microsoft/STAC V9)

MAX 4048 and 4060

Protocol Support (continued)

Security

- Secure Access Firewall (optional), Ascend Access Control (extended RADIUS, optional), RADIUS, TACACS, TACACS+, Password Authentication Protocol (PAP), Challenge Authentication Protocol (CHAP), token card, Calling Line ID (CLID), packet filtering, SNMP, console management (VT-100), PPP callback, user authentication, ATMP (optional), PPTP (optional)

Remote Networking Software (optional)

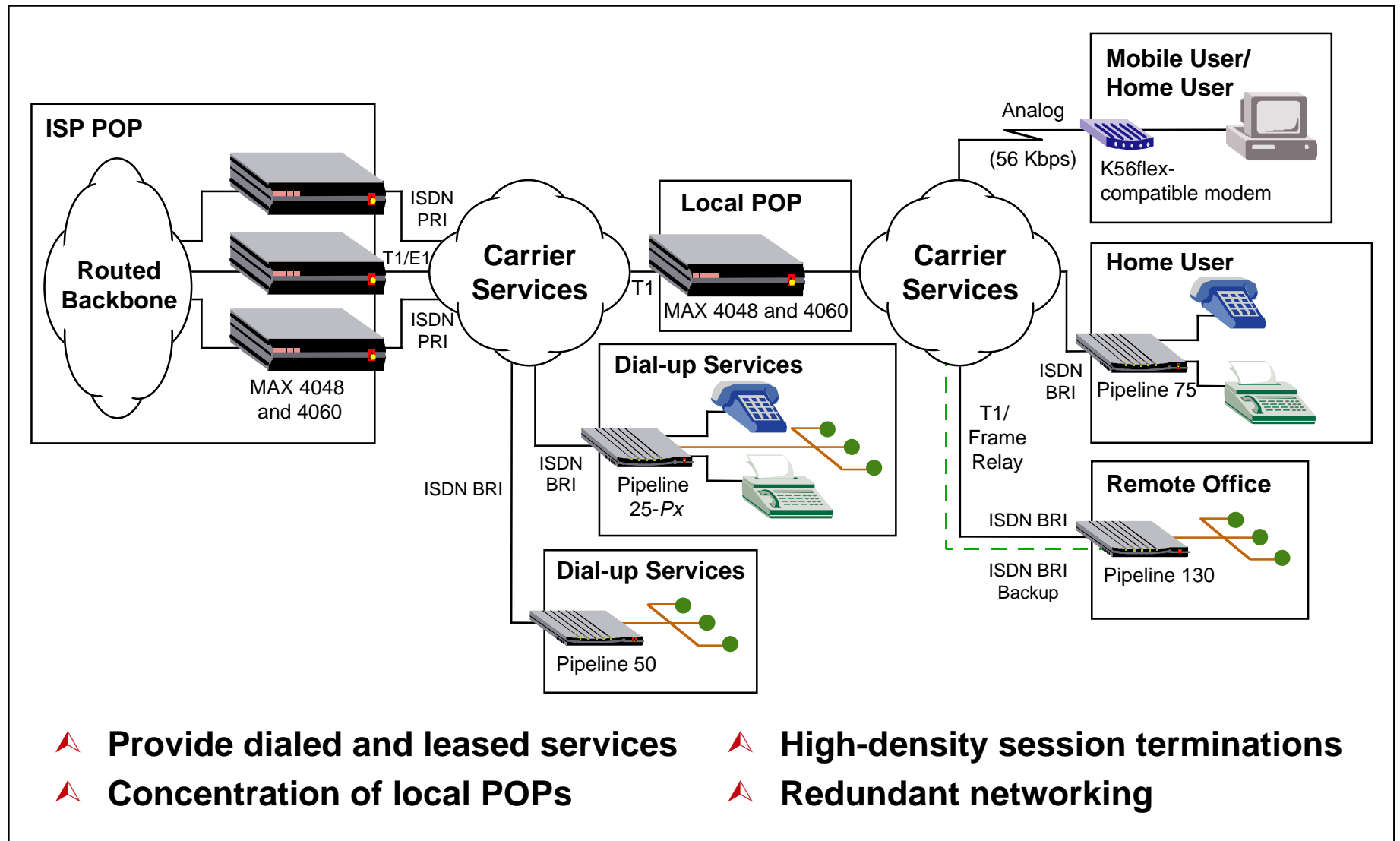
- Multiprotocol Call Routing adds: Bridging, IPX and Async IPX with local spoofing, AppleTalk and AppleTalk Remote Access 1.0 & 2.0
- MAXDial
- MAXLink Pro

Management

- Java Configurator, Telnet, NASI, SNMP MIB-2, PPP LQM, Frame Relay Annex D, Frame Relay ITU Annex A, Frame Relay ANSI Annex D

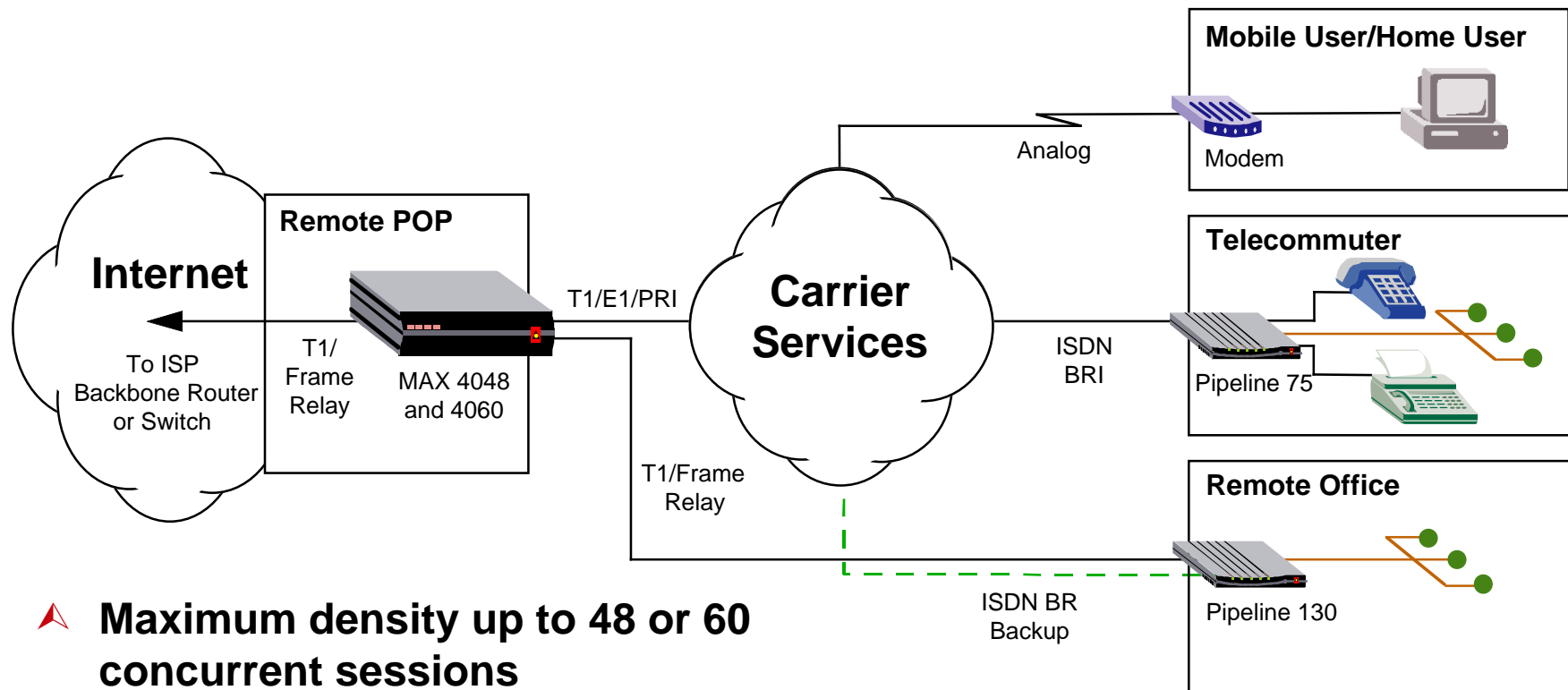
MAX 4048 and 4060

Application - ISP POP Concentration



MAX 4048 and 4060

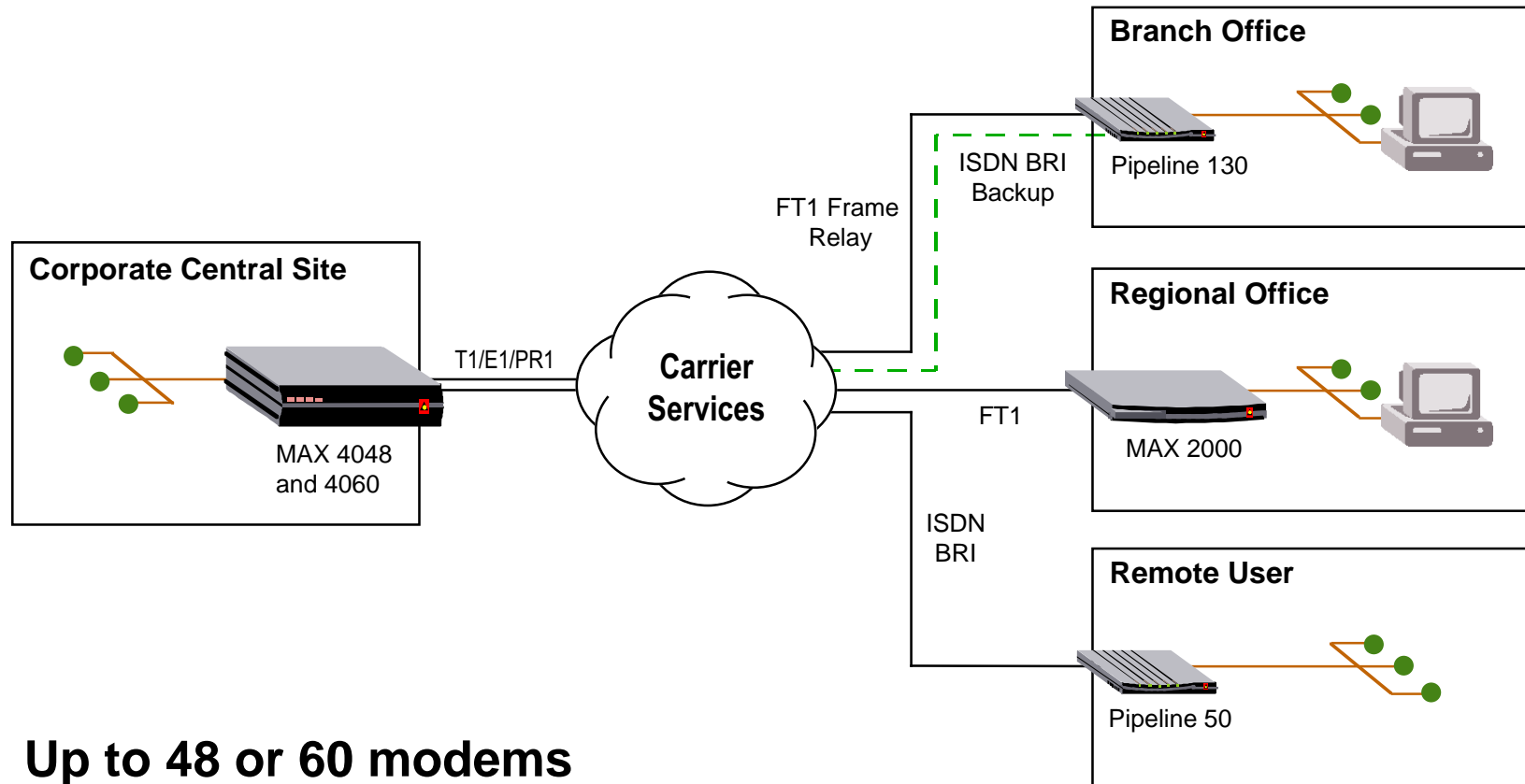
Application - ISP Remote POP



- ▶ **Maximum density up to 48 or 60 concurrent sessions**
- ▶ **Provide dialed and leased services**
- ▶ **Analog and digital sessions**
- ▶ **K56flex / V.34 modems, ISDN and Frame Relay**

MAX 4048 and 4060

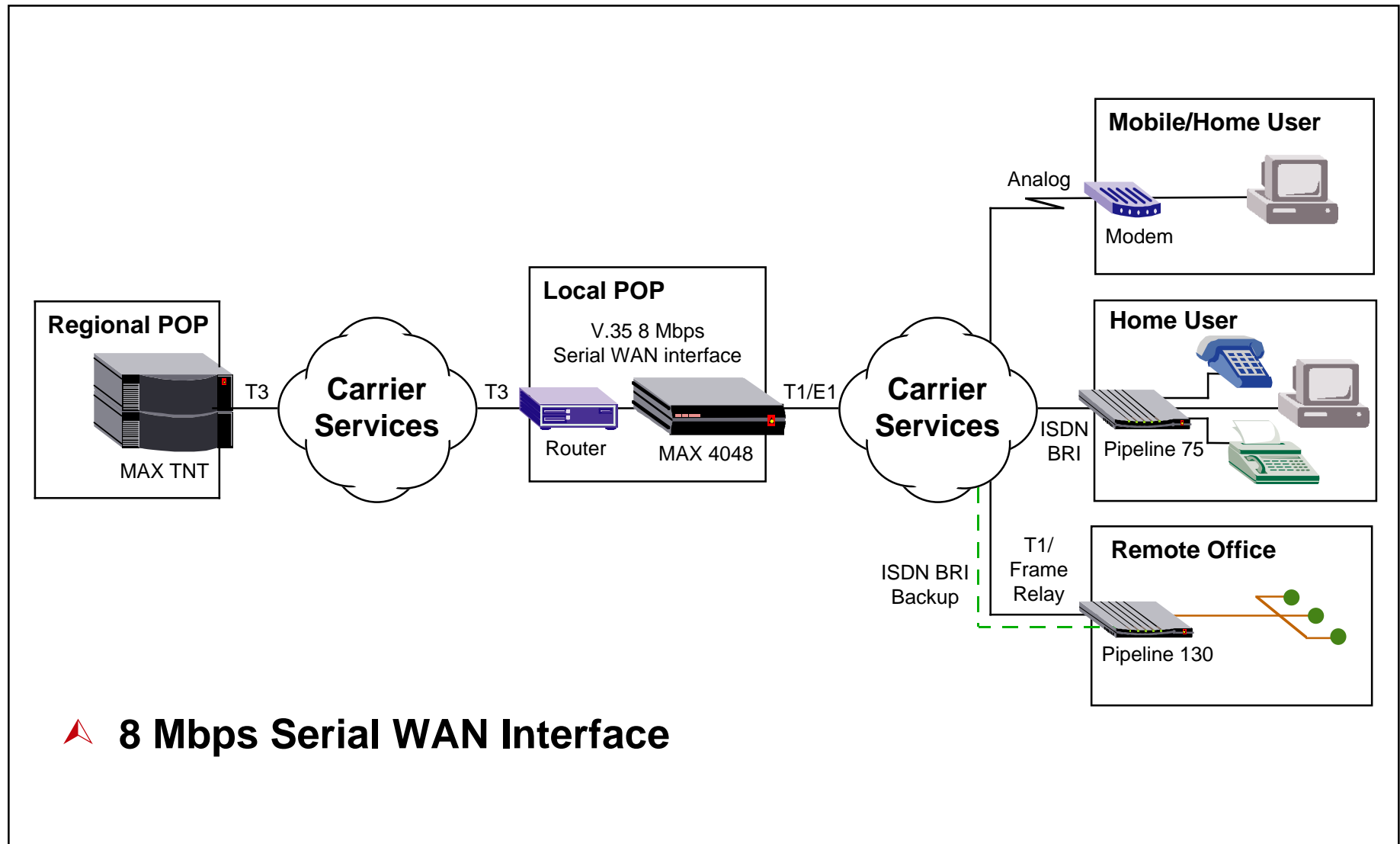
Application - Corporate Remote Access



- ▲ Up to 48 or 60 modems
- ▲ Integrated authentication

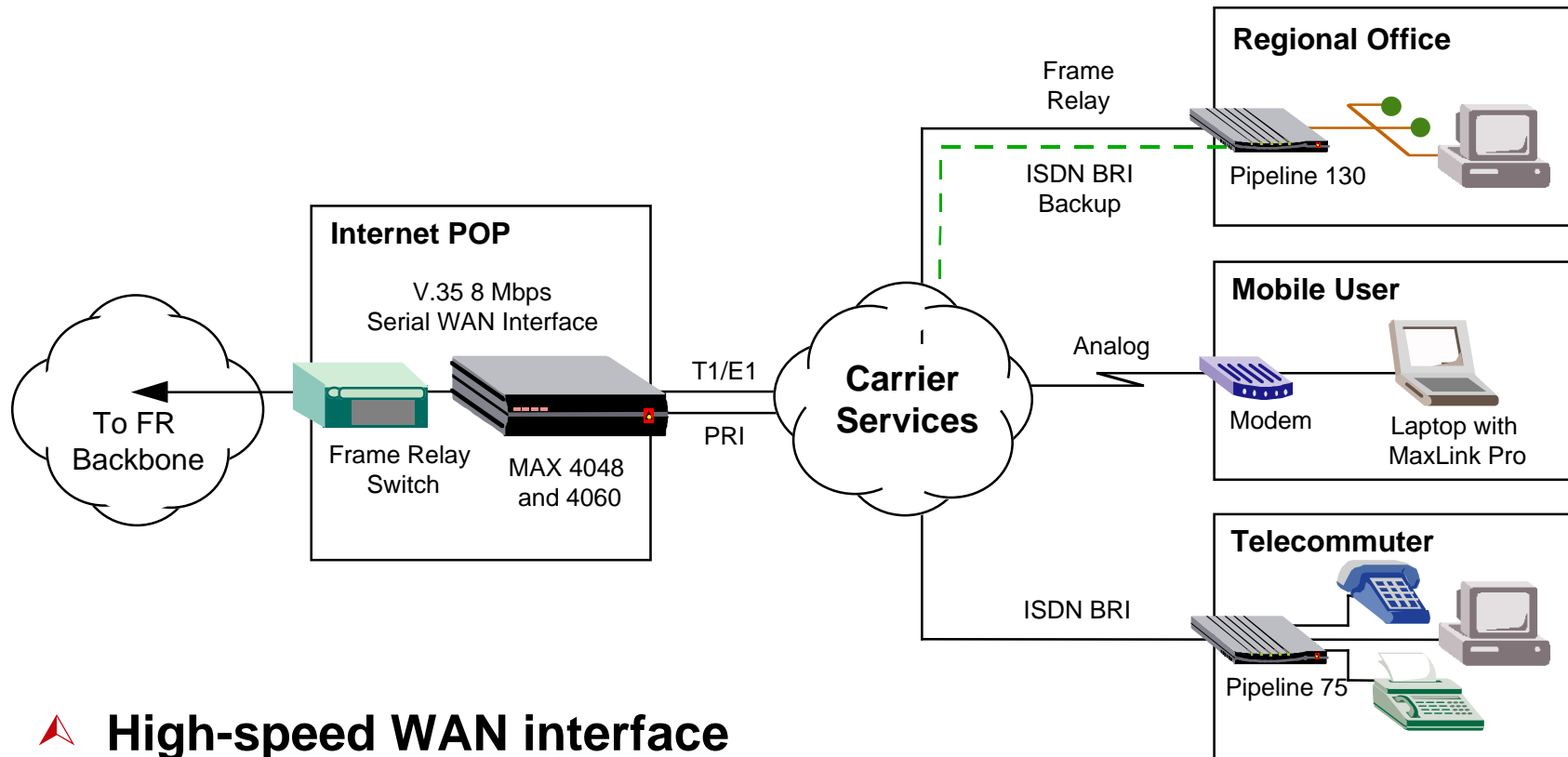
MAX 4048 and 4060

Application - Frame Relay Backhaul via V.35 Interface



MAX 4048 and 4060

Application - Frame Relay Switching



- ▲ **High-speed WAN interface**
- ▲ **UNI and NNI standard**

MAX 4048 and 4060

Available Now

Model Number	Product Description	List Price
MXHP-2T1-48-NA	MAX 4048 system with two T1 interfaces with integrated CSUs and 48 Series56 Digital Modems. Includes Hybrid Access 4000—ISDN PRI signaling for T1s, Frame Relay support and digital access for 48 channels Support for North American ISDN PRI signaling	\$26,400
MXHP-2E1-60-IX MXHP-2E1-60-R2	MAX 4060 system with two E1 interfaces with integrated CSUs and 60 Series56 Digital Modems. Includes Hybrid Access 4000—ISDN PRI signaling for E1s, Frame Relay support and digital access for 60 channels Support for International ISDN PRI signaling Support for R2 ISDN PRI signaling	\$31,850
MXHP-SO-ASA	Secure Access Firewall—enables dynamic firewall software	\$ 4,000
MX-SO-RNS	Remote Networking Software Option—includes: <ul style="list-style-type: none"> • Multiprotocol Call Routing—enables IPX and AppleTalk support • MAXDial—enables dial-out functionality for Windows 3.1x and Windows 95 clients (includes client software) • MAXLink Pro—enables dial-in connectivity for Macintosh- and Windows-based clients (includes client software) 	\$ 4,000
MX-SO-VPN	Virtual Private Networking Software Option—enables ATMP and PPTP support	\$ 1,500
AAC-CD	Ascend Access Control—enables extended RADIUS support	\$ 3,000