

Ascend



T rue **A** ccess **O** perating **S** ystem





True Access[™] Operating System

The True Access Operating System (TAOS) is Ascend's embedded access software in the MAX[™] and MAX TNT[™] that provides the widest range of solutions for WAN access environments

- **True Access Operating System sets the standard for WAN access solutions**
 - ◆ Founded in Ascend's heritage in WAN access solutions
 - ◆ Offers the industry's most versatile solution set
 - ◆ Represents Ascend's core competency in access concentration
 - ◆ Provides the largest investment among all vendors in WAN access research and development



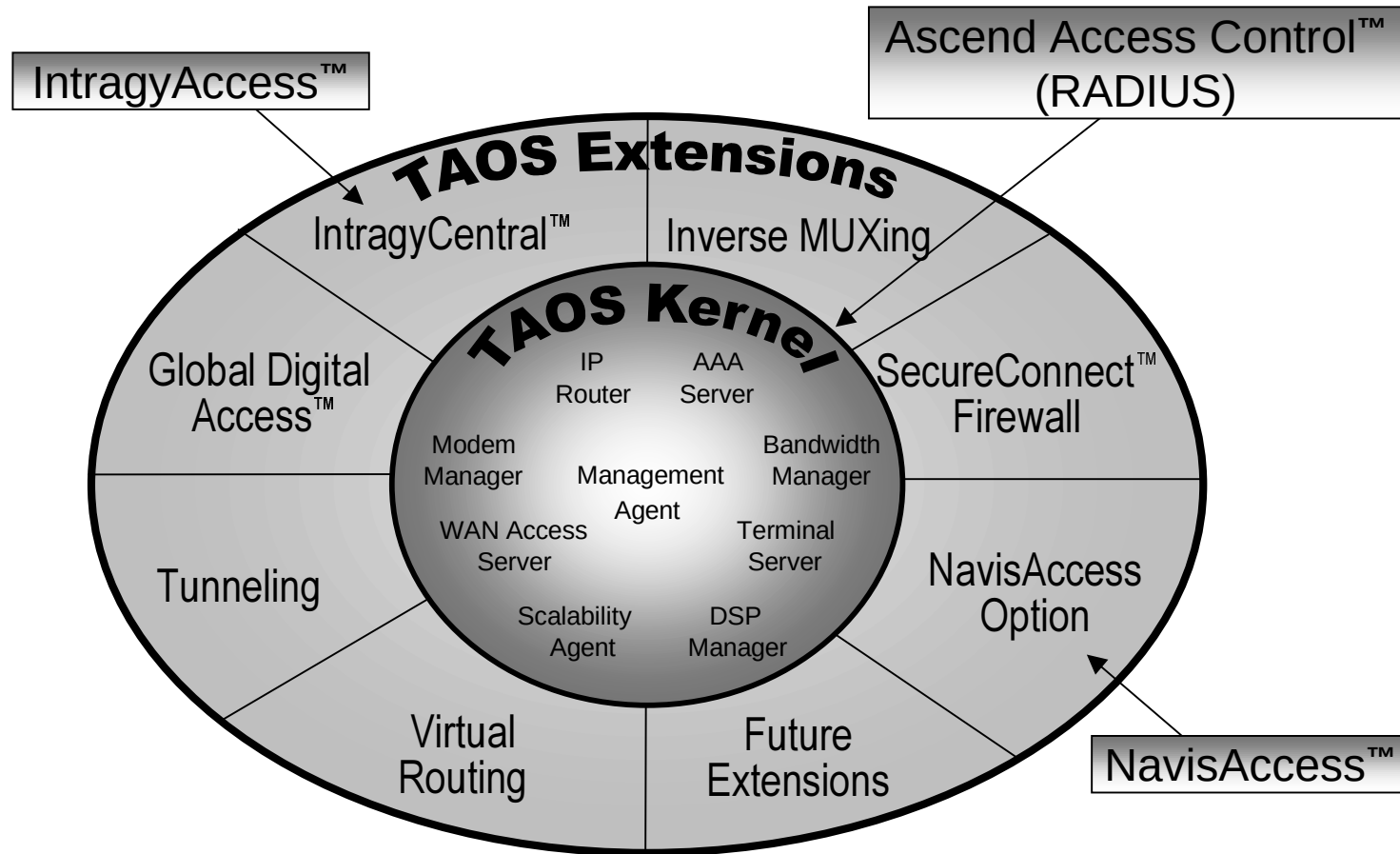
TAOS Encompasses WAN Access

- **Software for every access environment**
 - ◆ Global feature set provides market-leading functionality
 - ◆ Robust TAOS solutions for both service providers and corporate enterprises
- **Increased reliability and stability with kernel-based architecture**
 - ◆ Kernel offers basic functionality for mainstream access environment
- **Customizable architecture for specialized access networks**
 - ◆ Tailor the MAX and MAX TNT into varied access environments using industry's leading feature set



TAOS Architecture

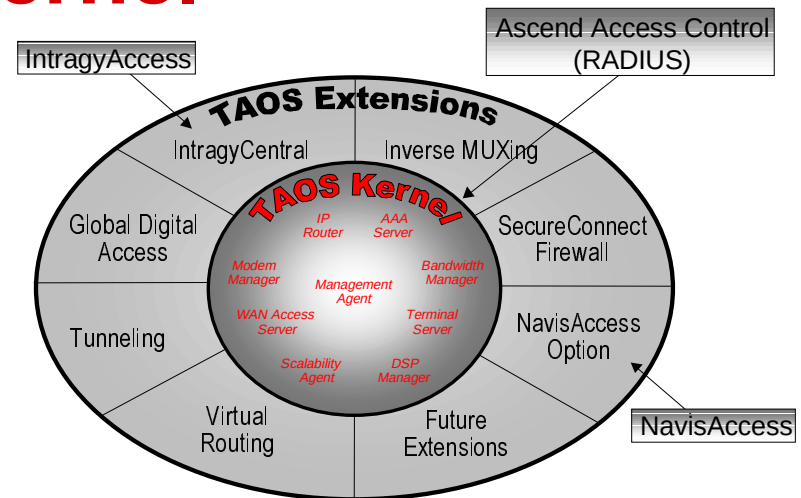
Kernel, Extensions, and Enabled Applications





TAOS Kernel

- **Focused on reliability and stability**
- **Standard access technology for basic functionality**
- **Embedded with every MAX and MAX TNT**
- **IP Router**
 - ◆ RIP v1, RIP v2, OSPF
- **Authentication, Accounting, and Authorization (AAA) Server**
 - ◆ RADIUS, TACACS+, PAP, CHAP, CLID
 - ◆ Token card
- **Modem Manager**
 - ◆ Analog modems (K56flex, V.34, error correction, compression)
- **Management Agent**
- **Bandwidth Manager**
 - ◆ MP, MP+, BACP, STAC compression, Dynamic Bandwidth Allocation™

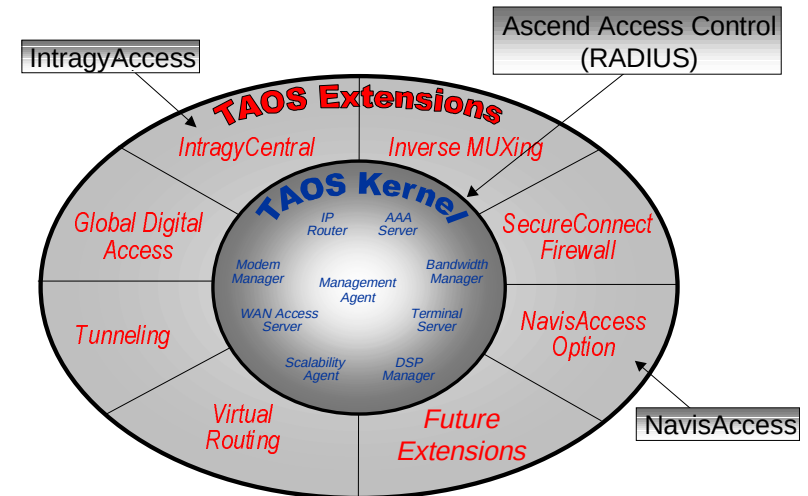


- **WAN Access Server**
 - ◆ T1, E1, T3, IDSL, SDSL, RADSL, BRI, X.25
- **Terminal Server**
 - ◆ PPP, SLIP, C-SLIP
- **Scalability**
 - ◆ MAX Stack for MAX
 - ◆ Multishelf Support with the MAX TNT
- **DSP Manager**
 - ◆ PHS, V.110



TAOS Extensions

- Optional embedded software
- Customized functionality for specific WAN access environments

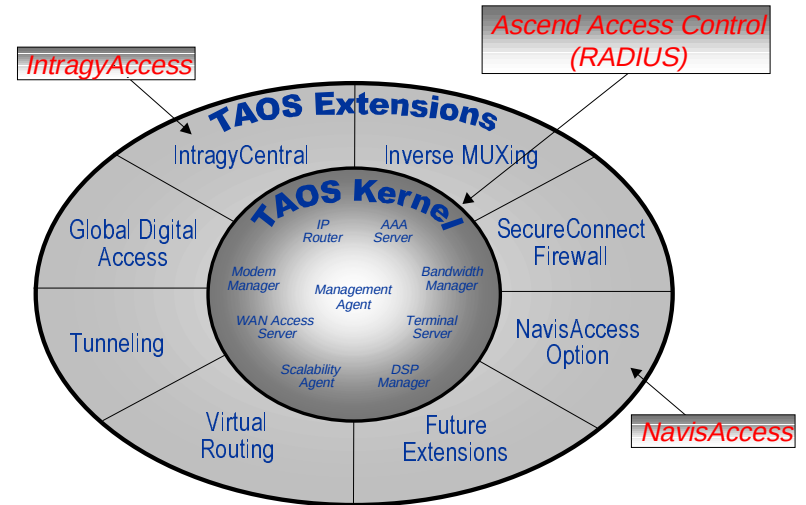


- **IntracyCentral**
 - ◆ Multiprotocol support, bridging
- **Global Digital Access**
 - ◆ ISDN signaling, Frame Relay
- **Tunneling**
 - ◆ ATMP, PPTP, L2TP
- **Virtual Routing**
 - ◆ Separate RIP and OSPF tables
- **Inverse Multiplexing**
 - ◆ AIM, BONDING
- **SecureConnect Firewall**
 - ◆ Integrated dynamic firewall
- **NavisAccess Option**
 - ◆ Comprehensive network management



Enabled External Software

- Software residing outside of MAX/MAX TNT
- Augments embedded TAOS solutions
- Extended functionality via hooks in TAOS
- IntragryAccess
 - ◆ E-mail, FTP, NFS, SNMP
 - ◆ Windows, NT, Macintosh support

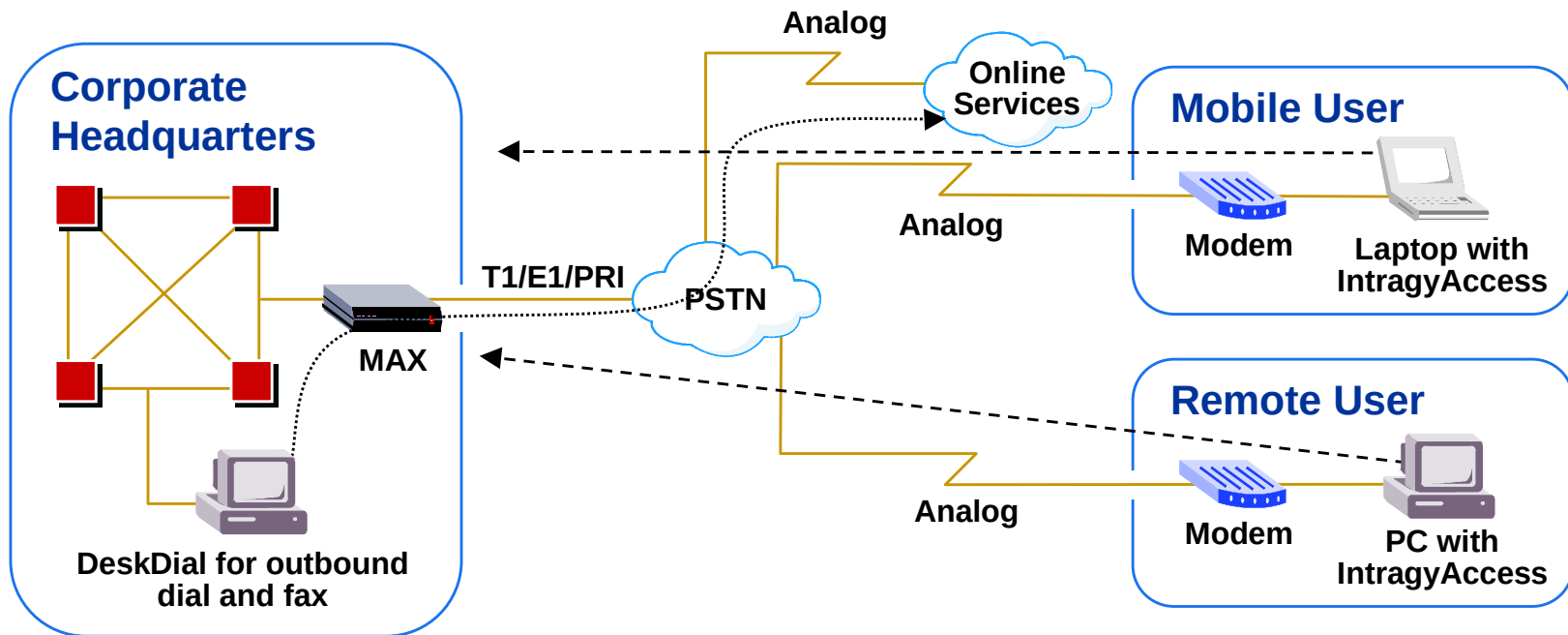
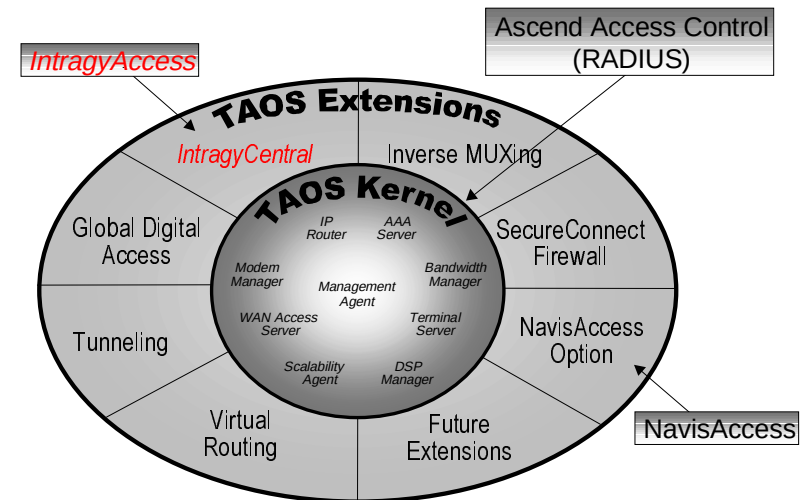


- **Ascend Access Control**
 - ◆ Authorization, Accounting, and Authentication
- **NavisAccess**
 - ◆ Comprehensive network management



Intragy

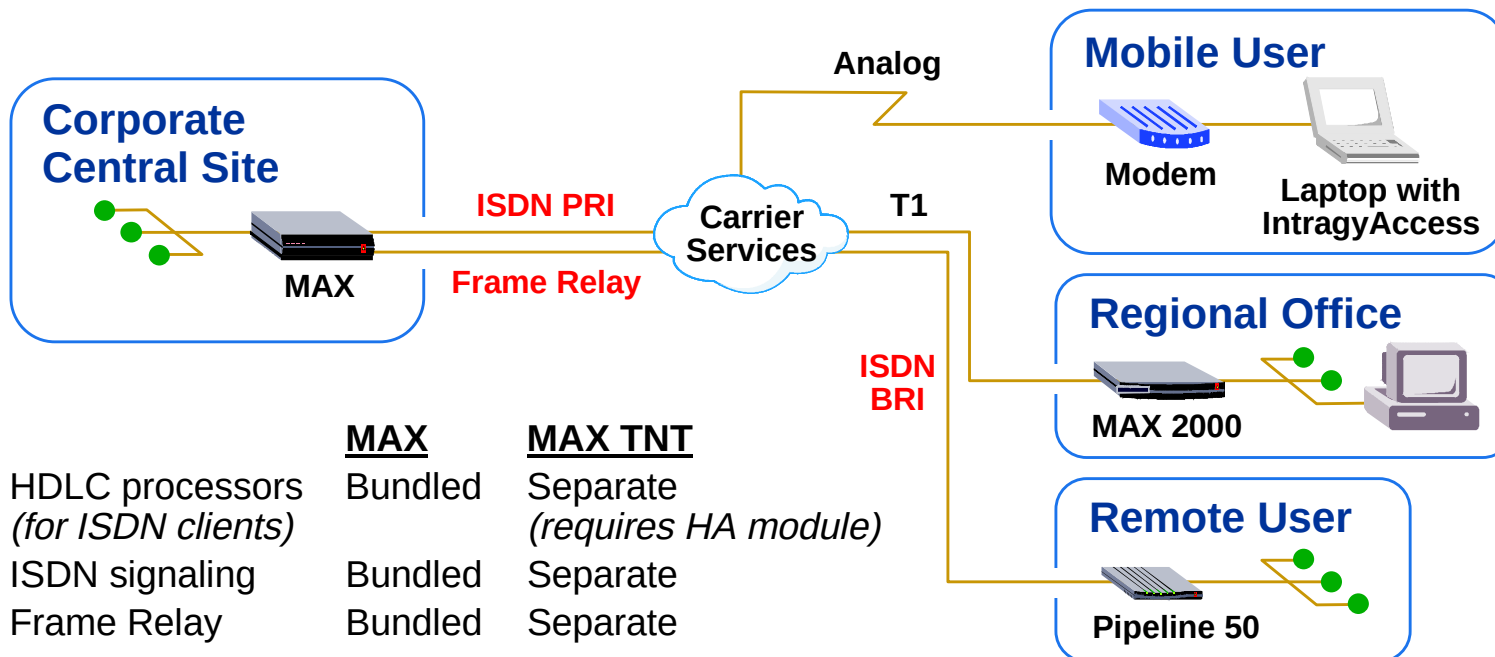
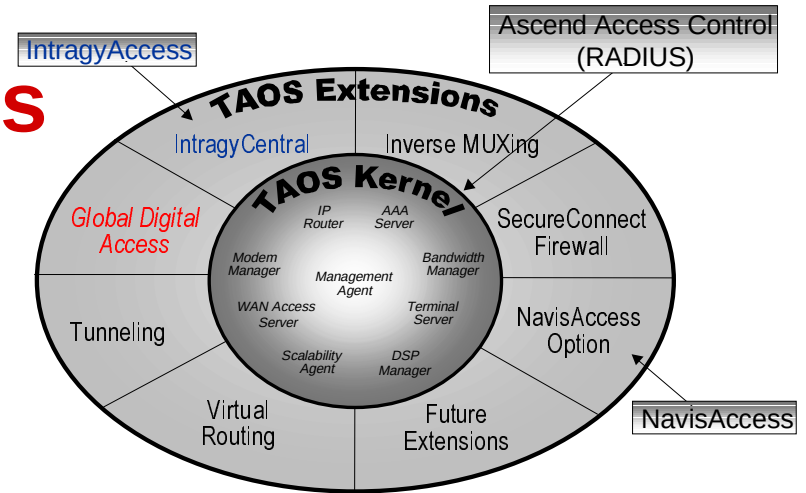
- Multiprotocol support
- Transparent bridging
- Enables client dial software
 - ◆ IntragyAccess for remote-node access
 - ◆ DeskDial for LAN-based dial-/fax-out





Global Digital Access

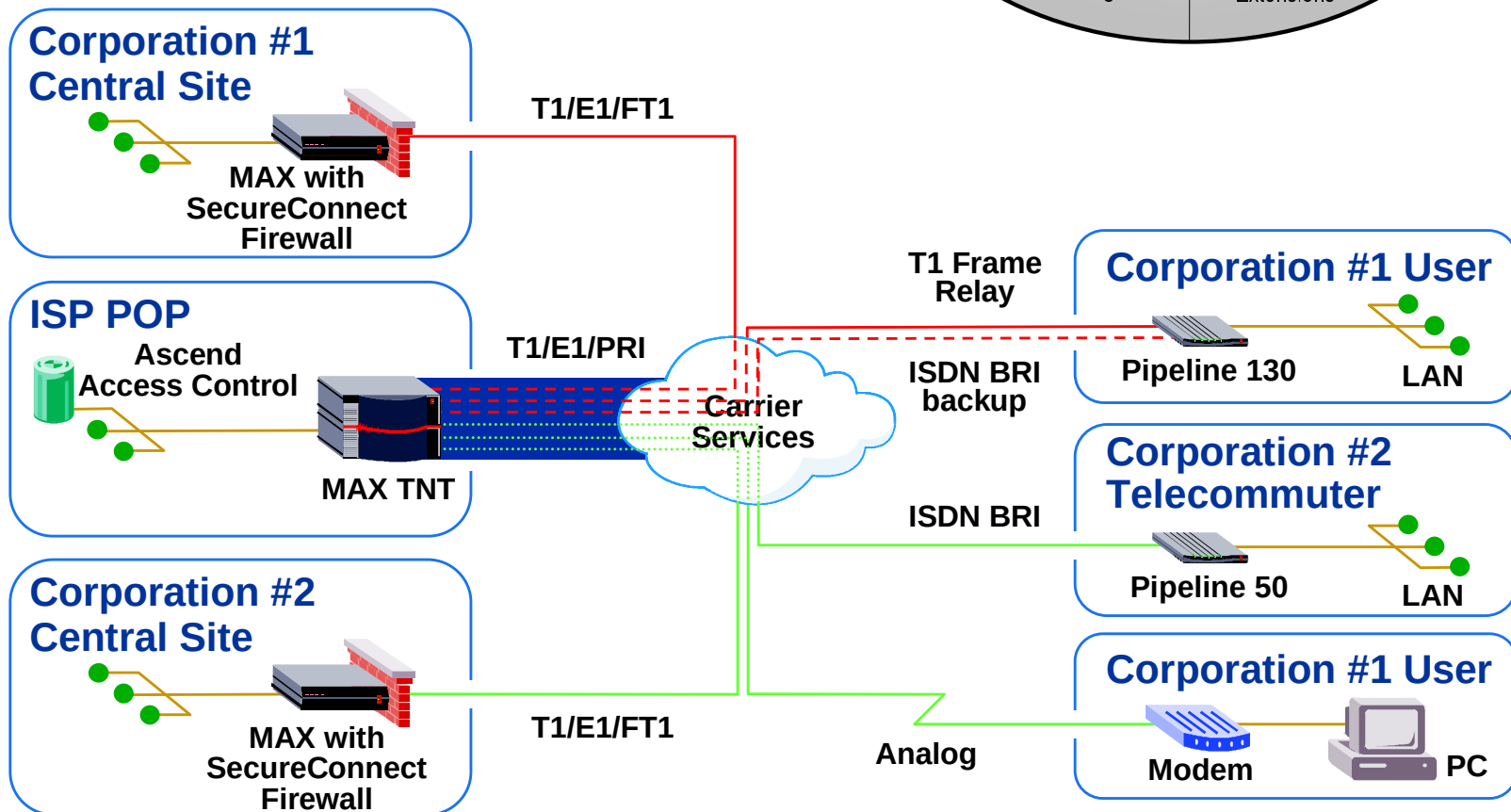
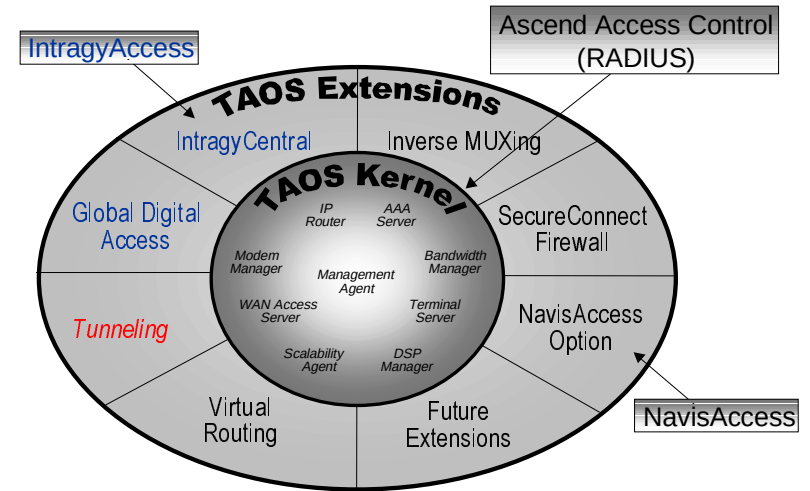
- Formerly Hybrid Access™
2000/4000
- Digital access for ISDN clients
- ISDN PRI signaling
- Frame Relay support





Tunneling

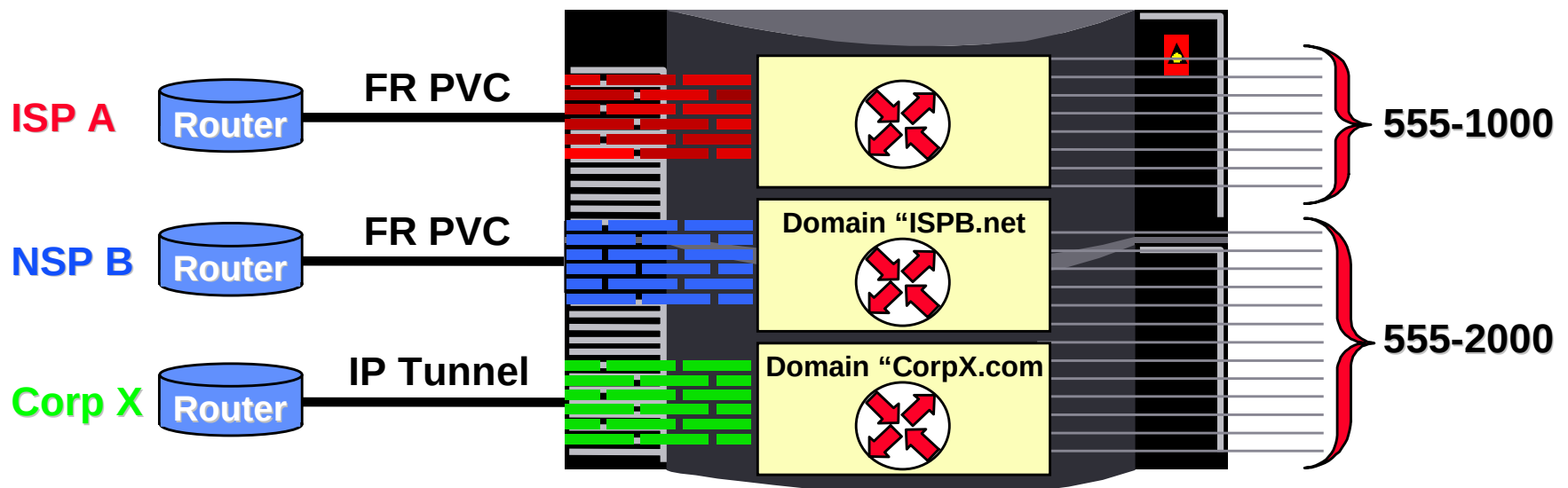
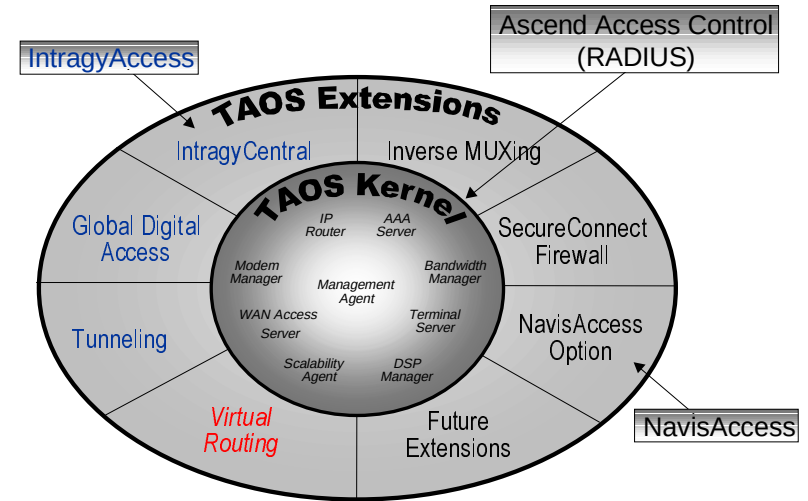
■ ATMP, PPTP, L2TP





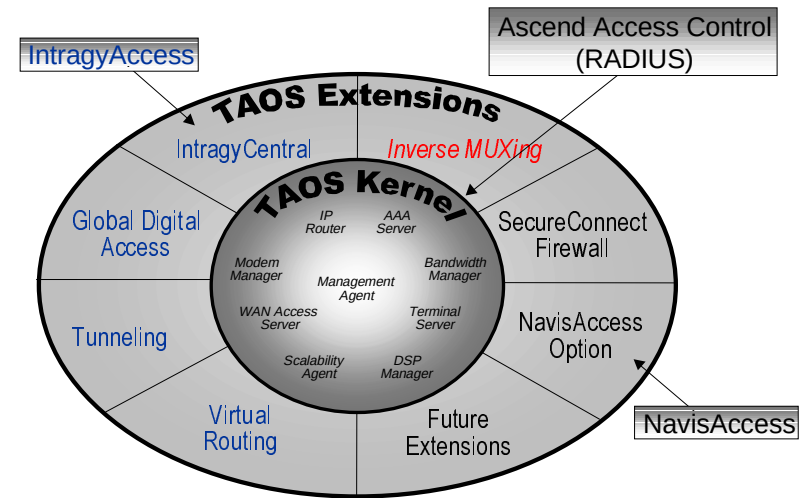
Virtual Routing

- Multiple, separate router engines for RIP and OSPF
- Allows wholesaling of access ports
- Available in v2.1 for MAX TNT

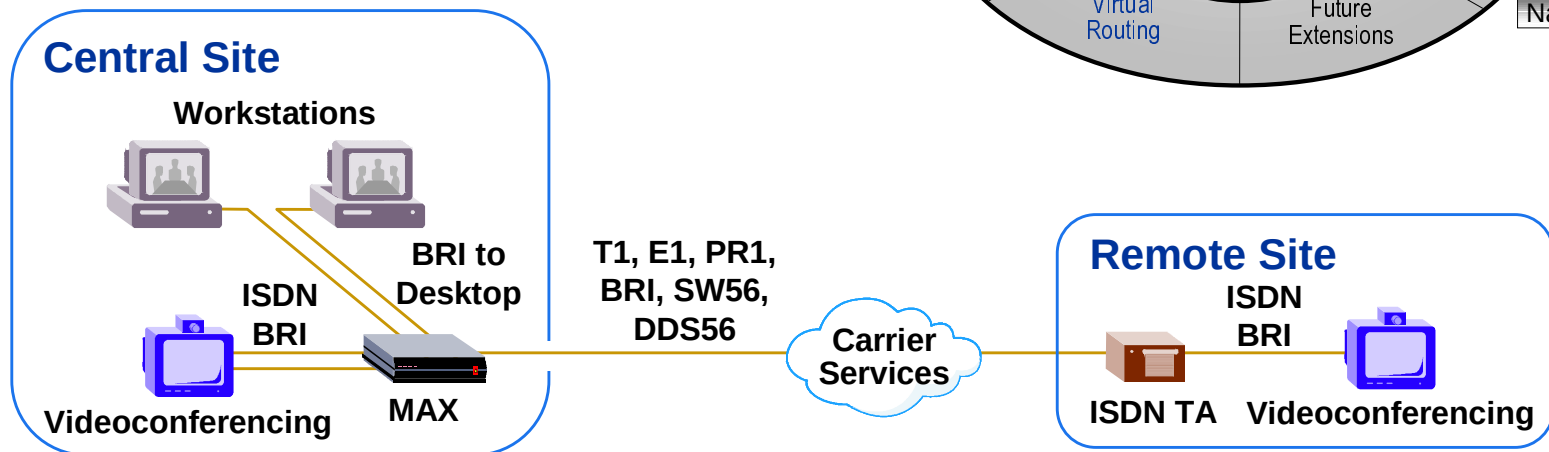




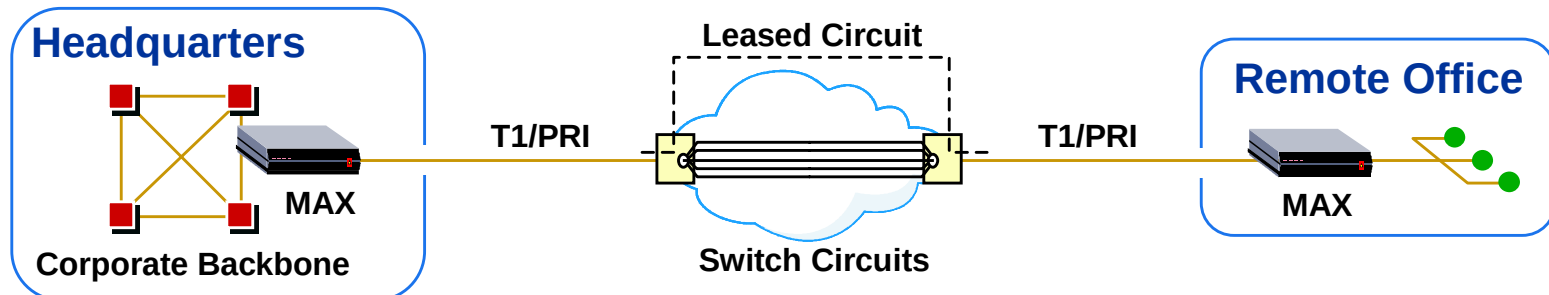
Inverse Multiplexing



Videoconferencing



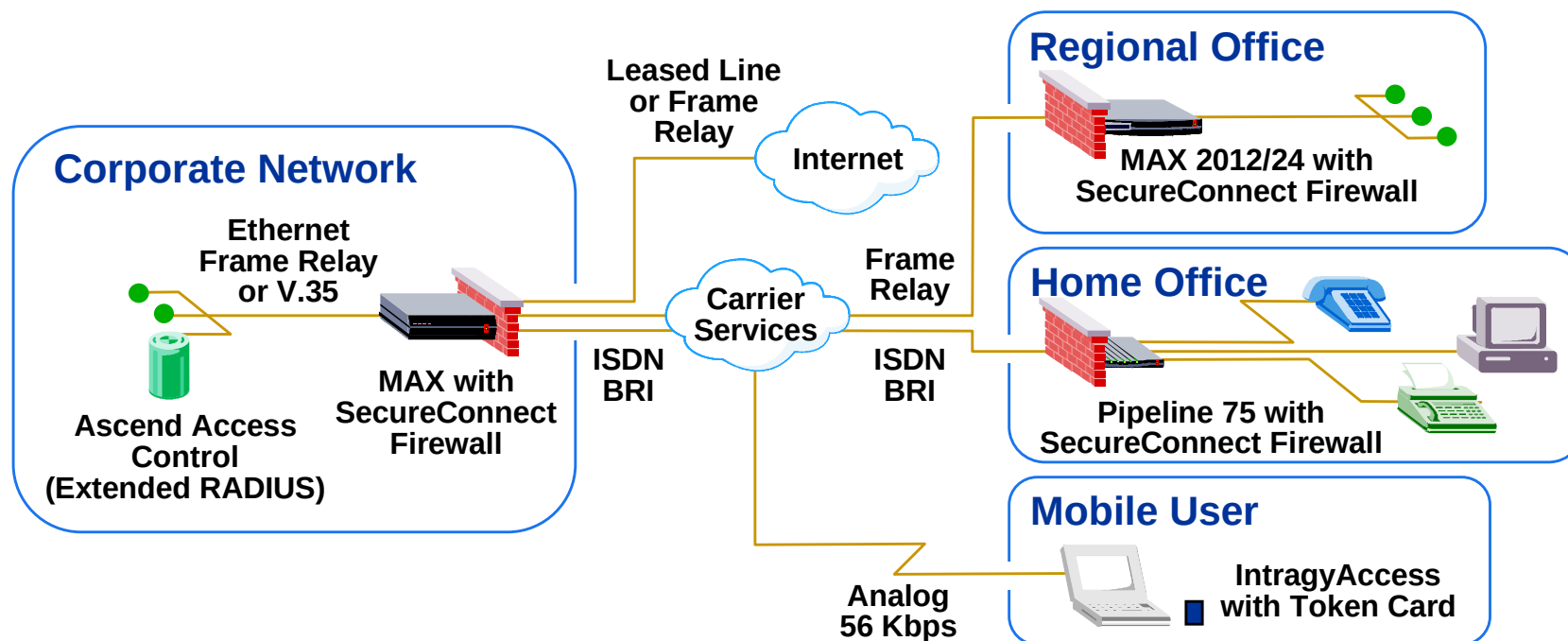
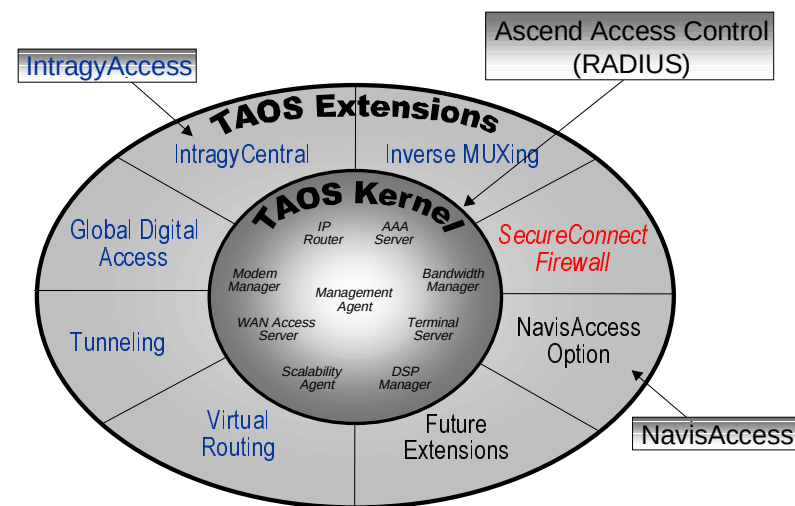
Backup and Overflow





SecureConnect Firewall

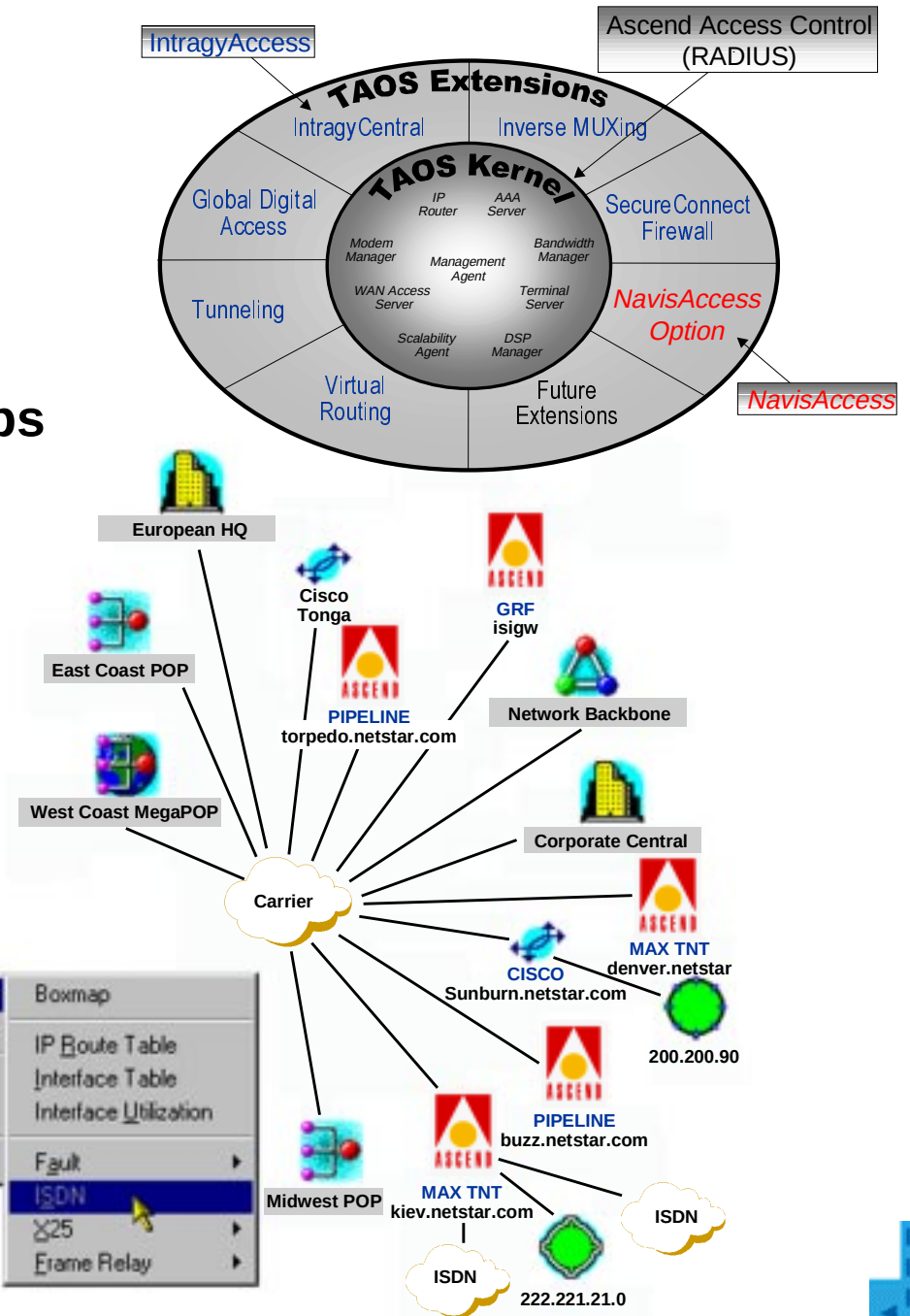
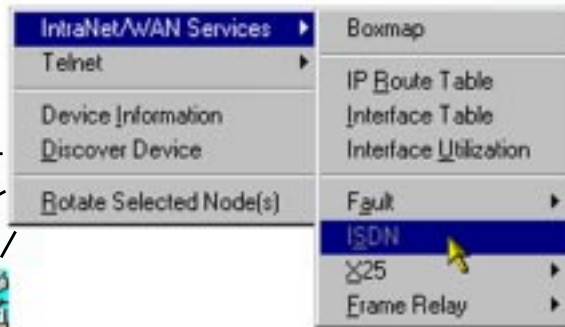
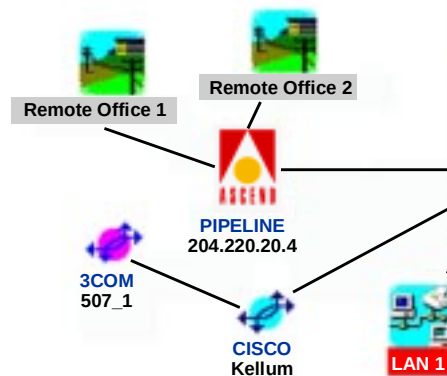
- Dynamic “stateful inspection” firewall





NavisAccess

- Discovery and mapping
- Multi-layer hierarchical maps
 - ◆ Network Layer: IP
 - ◆ Link Layer: Frame Relay, ISDN
 - ◆ Physical Layer: DS1, E1, PRI, BRI, xDSL





Ascend Access Control

- Fully RADIUS compliant
- Comprehensive security management

