

PassFinder

AP2850

Multi-service Router



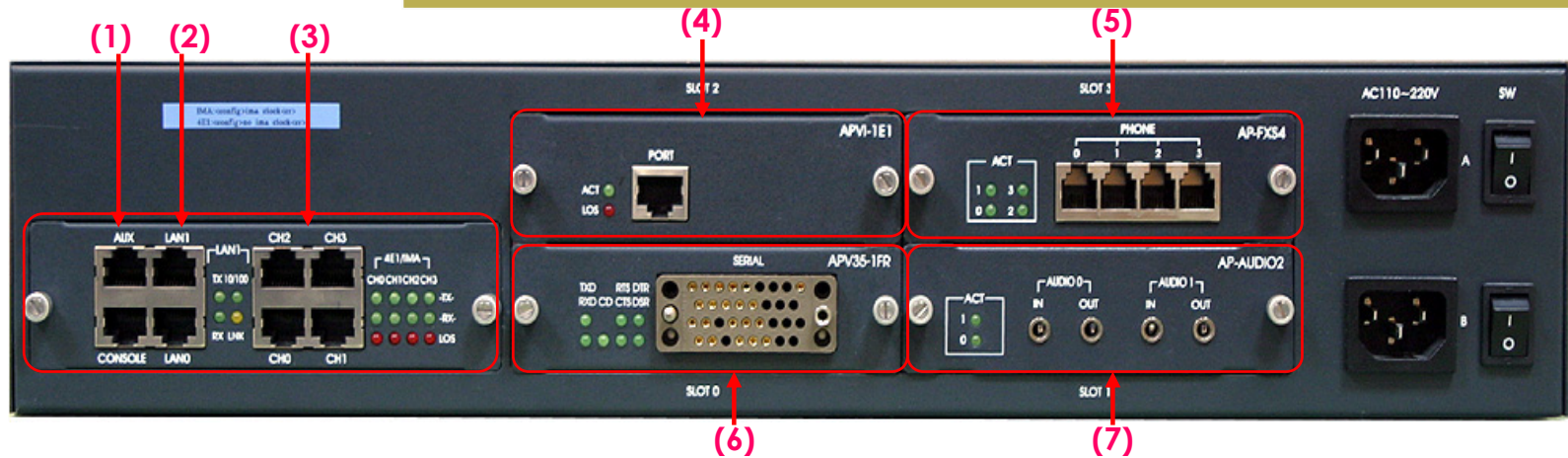
Technical Sales and Marketing

AddPac Technology

www.addpac.com

PassFinder AP2850 Multi-service Router

Multi-Service Router Connectivity



No.	Interface	Explanation
(1)	Asynchronous Serial	Two(2) RS-232C serial ports for Local system management
(2)	Ethernet	Two(2) 10/100Mbps Ethernet Ports for LAN interface
(3)	ATM Multiple E1/ IMA Interface	4-Port Multiple E1/T1 ATM Interface / IMA Interface
(4)	Module Slot 0 (Digital E1/T1 VoIP Module)	4Port FXS, 4Port FXO, 4Port E&M, 1Port Digital E1/T1, 1Port Frame-Relay Module is available
(5)	Module Slot 1 (FXS VoIP Module)	
(6)	Module Slot 2 (Frame-Relay Module)	
(7)	Module Slot 3 (AUDIO 2 Module)	

AddPac VoIP Products Road-Map

Multi-services Specific

Application Specific

1/2/4/8/16~60-Ports Voice



AP3100 VoIP Gateway



AP2120 VoIP Gateway



AP100x/1100 VoIP G/W Series



AP300 VoIP G/W Series



AP200 VoIP G/W Series



AP160 VoIP Gateway

Voice over IP Solutions

4/8/16, 30~120-Ports Voice



AP2850 Multi-service Router



AP2830 Multi-service Router



AP2520S Secure VoIP Gateway



AP2520R VoIP Router



AP2520G VoIP Gateway



AP2110 VoIP Gateway

VoIP Network Management SW



AP-VPMS S/W Solution

Voice & FAX Broadcasting System



AP3120 Voice Broadcasting System



AP3220 FAX Broadcasting System



AP1601 Voice Broadcasting Terminal

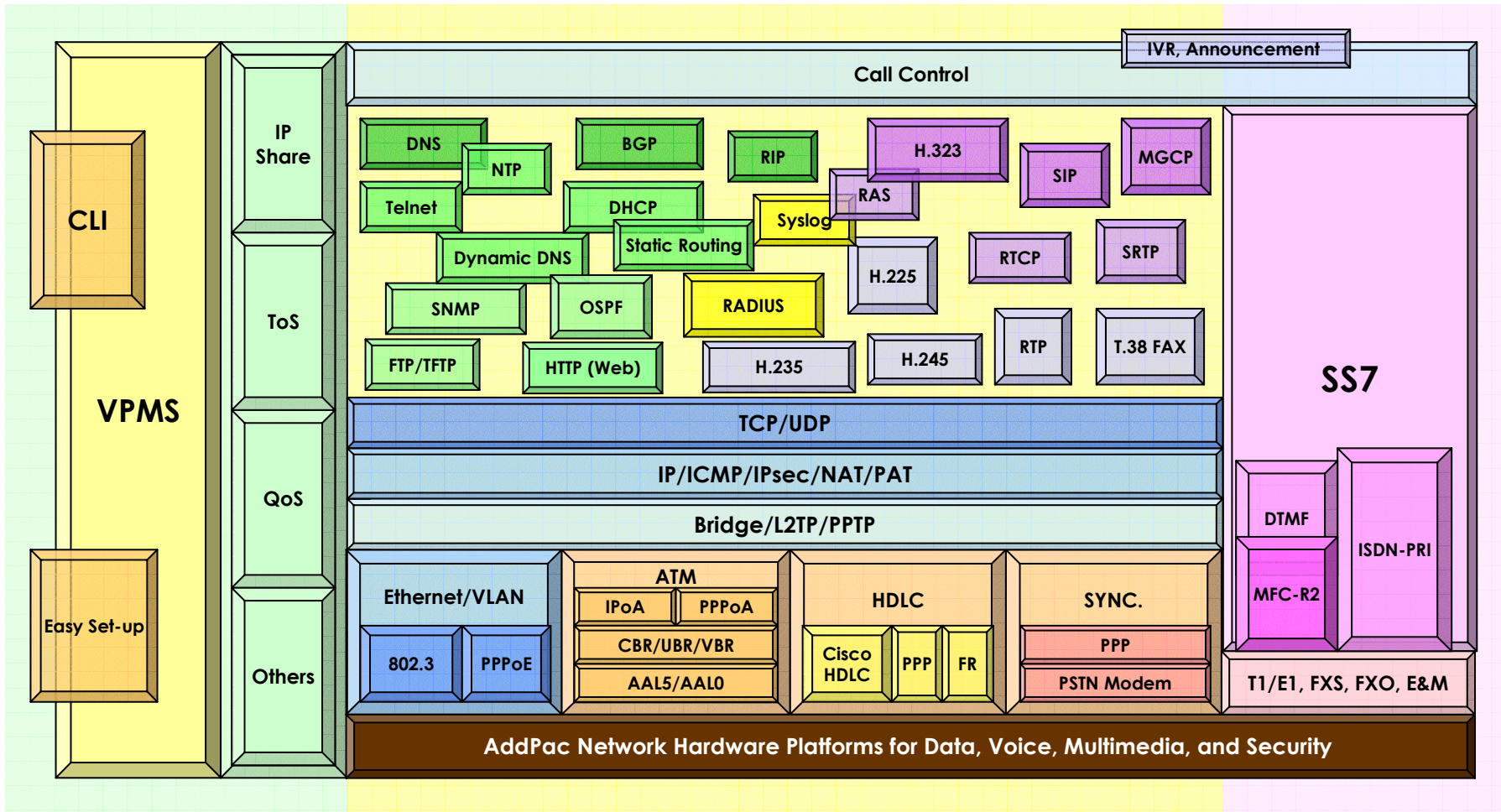
General Purpose VoIP Networking

VoIP & Data Networking

IP Application Solutions

AP2850 Multi-service Router Product Overview

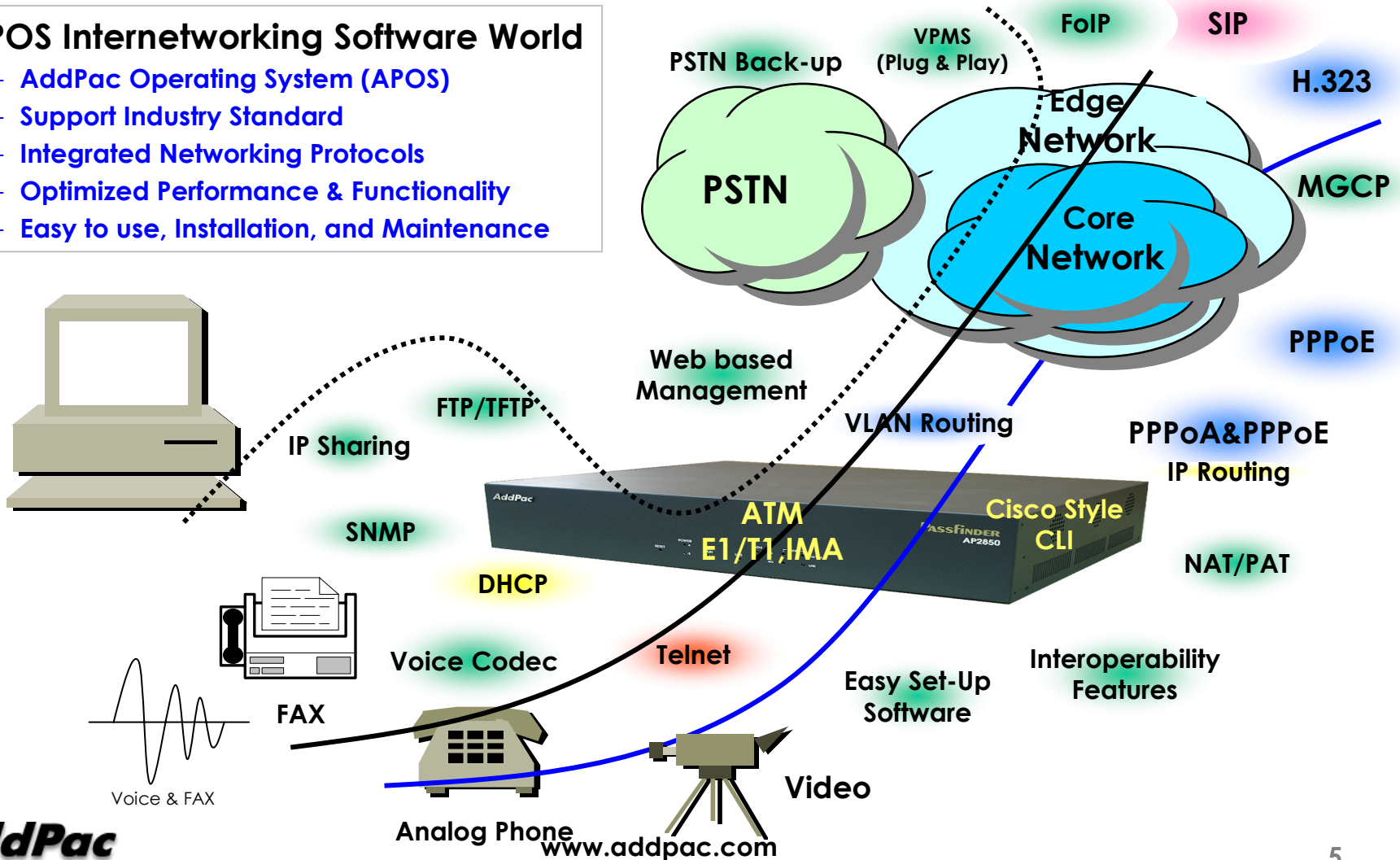
APOS Internetworking Protocol Stack



AP2850 Multi-service Router Product Overview

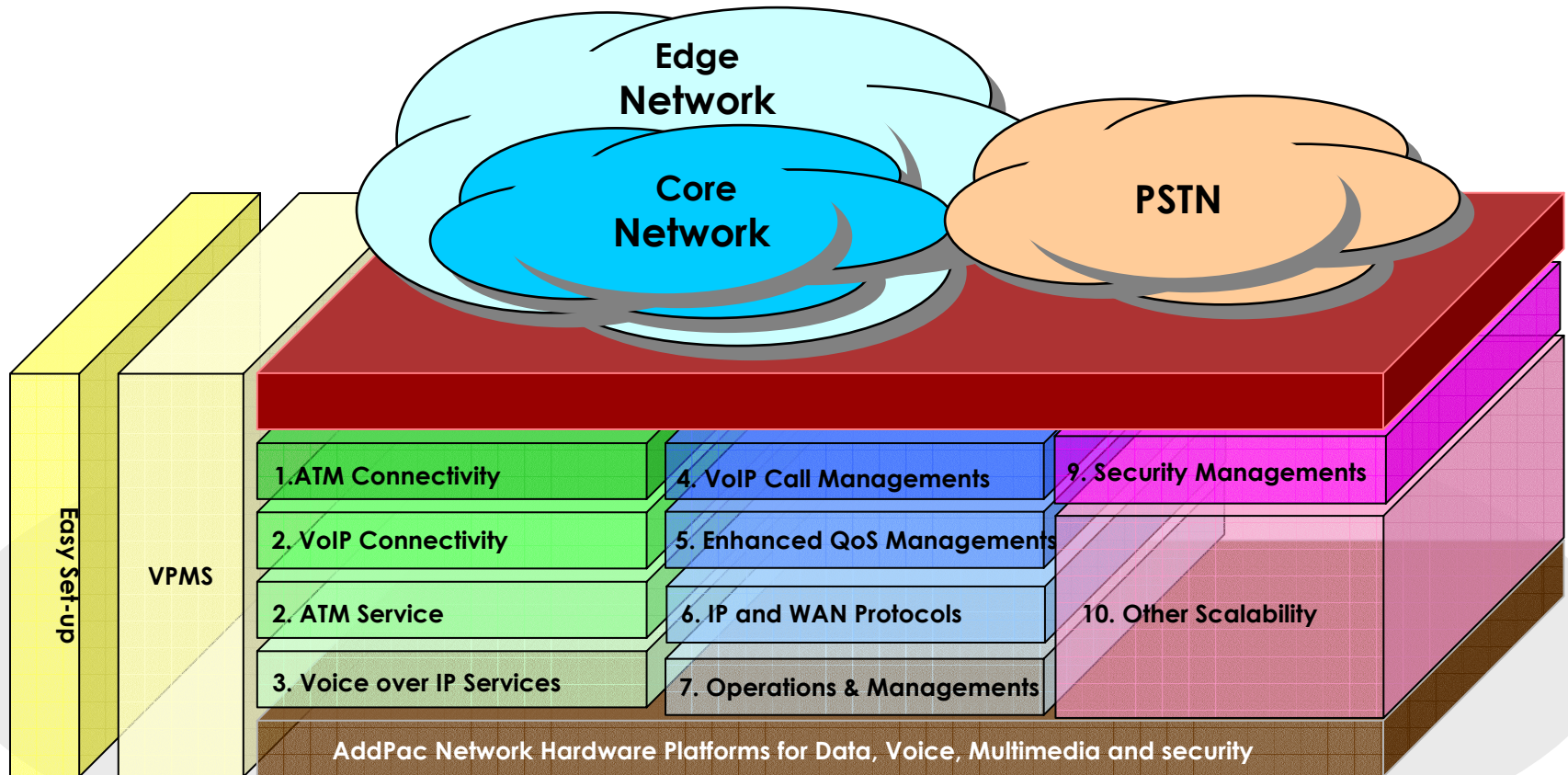
APOS Internetworking S/W World

- APOS Internetworking Software World
 - AddPac Operating System (APOS)
 - Support Industry Standard
 - Integrated Networking Protocols
 - Optimized Performance & Functionality
 - Easy to use, Installation, and Maintenance



AP2850 Multi-service Router Product Overview

APOS Internetworking S/W World (cont.)



AP2850 Multi-service Router Product Overview

Multi-Service Router Connectivity

• Network Interface Modules

@ 4 E1 ATM(IMA,Independent E1)Network Interface Module

- 4-port ATM Multiple E1/T1, IMA Interface Card
- 2-Port 10/100Mbps Fast Ethernet Card
- 2-Port RS232C Asynchronous Serial Card

@ 1 E1 ATM Network Interface Module

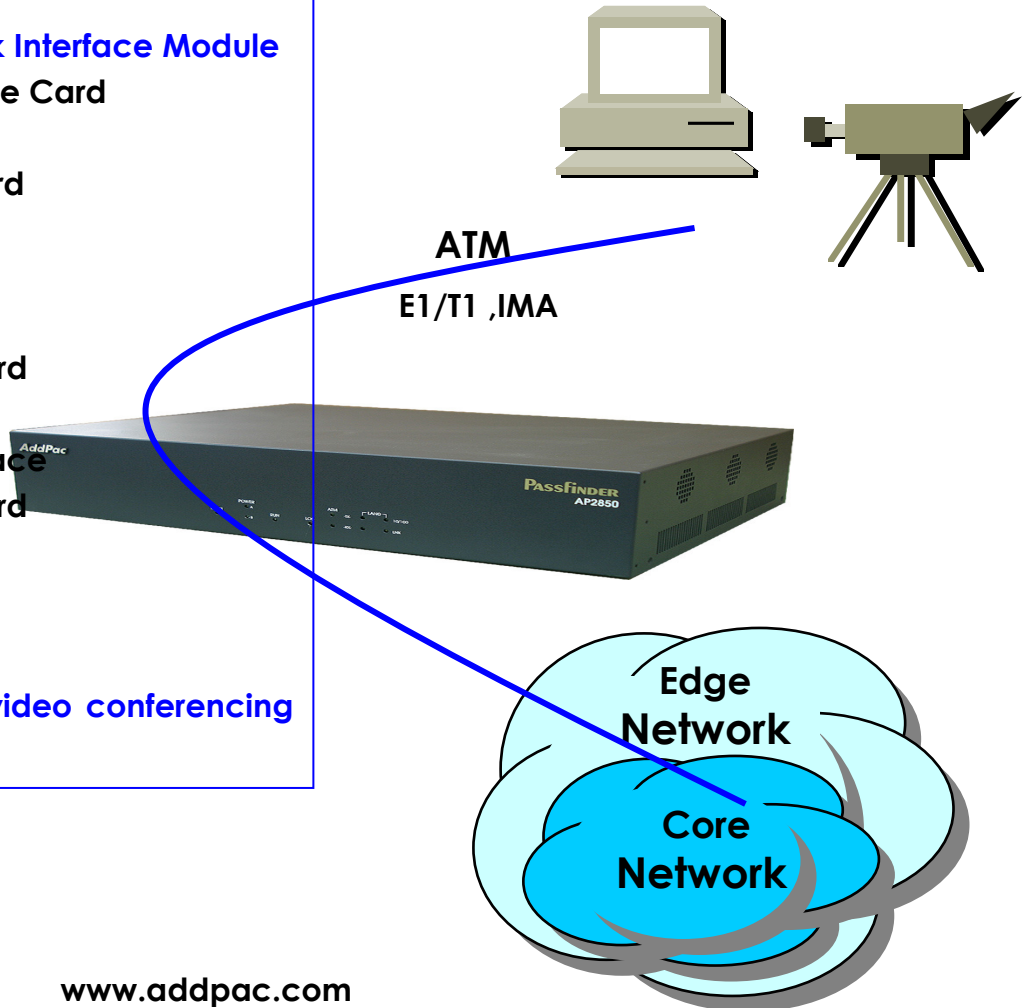
- 1port E1/T1 ATM Card
- 2-port 10/100Mbps Fast Ethernet Card
- 2-port RS232C Asynchronous Serial Card

@ Ethernet Network Interface Module

- 2-port 10/100Mbps Fast Ethernet Interface
- 2-port RS232C Asynchronous Serial Card

• AP-FRV35 (1-port Frame-Relay)

- 1-port Frame-Relay Network Card
- Support various application such as video conferencing solutions



AP2850 Multi-service Router Product Overview

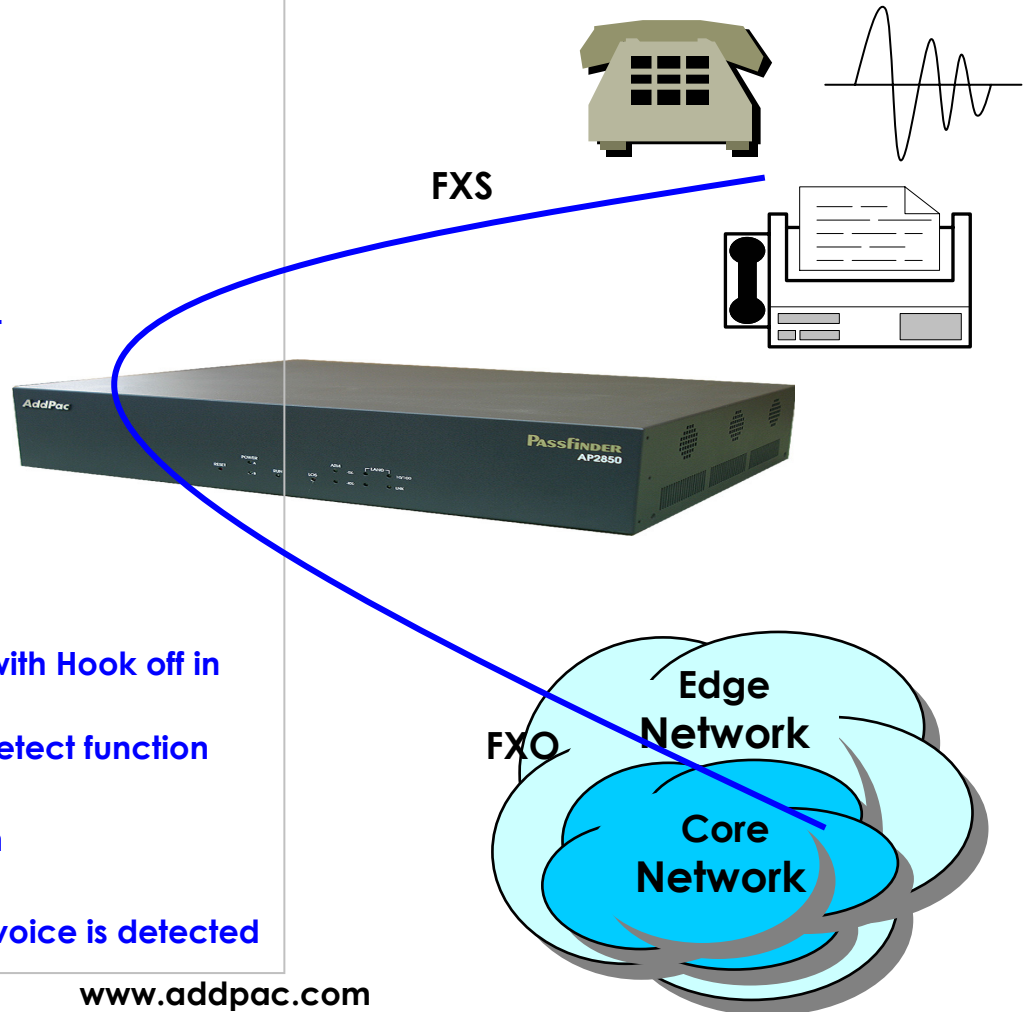
Multi-service Router Connectivity

• FXS

- RJ-11 Hardware interface
- Polarity inverse generation function
- Caller-id generation function
- Busy-out function support
- Ring cadence setting function
- Ring frequency setting function
- European type II telephone support
- Surge protect support

• FXO

- RJ-11 Hardware interface
- Polarity inverse detection function
- Caller-ID detection function
- Busy-out function support
- PSTN backup or busy-out function with Hook off in case of power down
- Clear down tone registration and detect function
- Hook flash timing setting function
- Ring detect timeout setting function
- Ring number setting function
- For outbound calls, connect when voice is detected



AP2850 Multi-service Router Product Overview

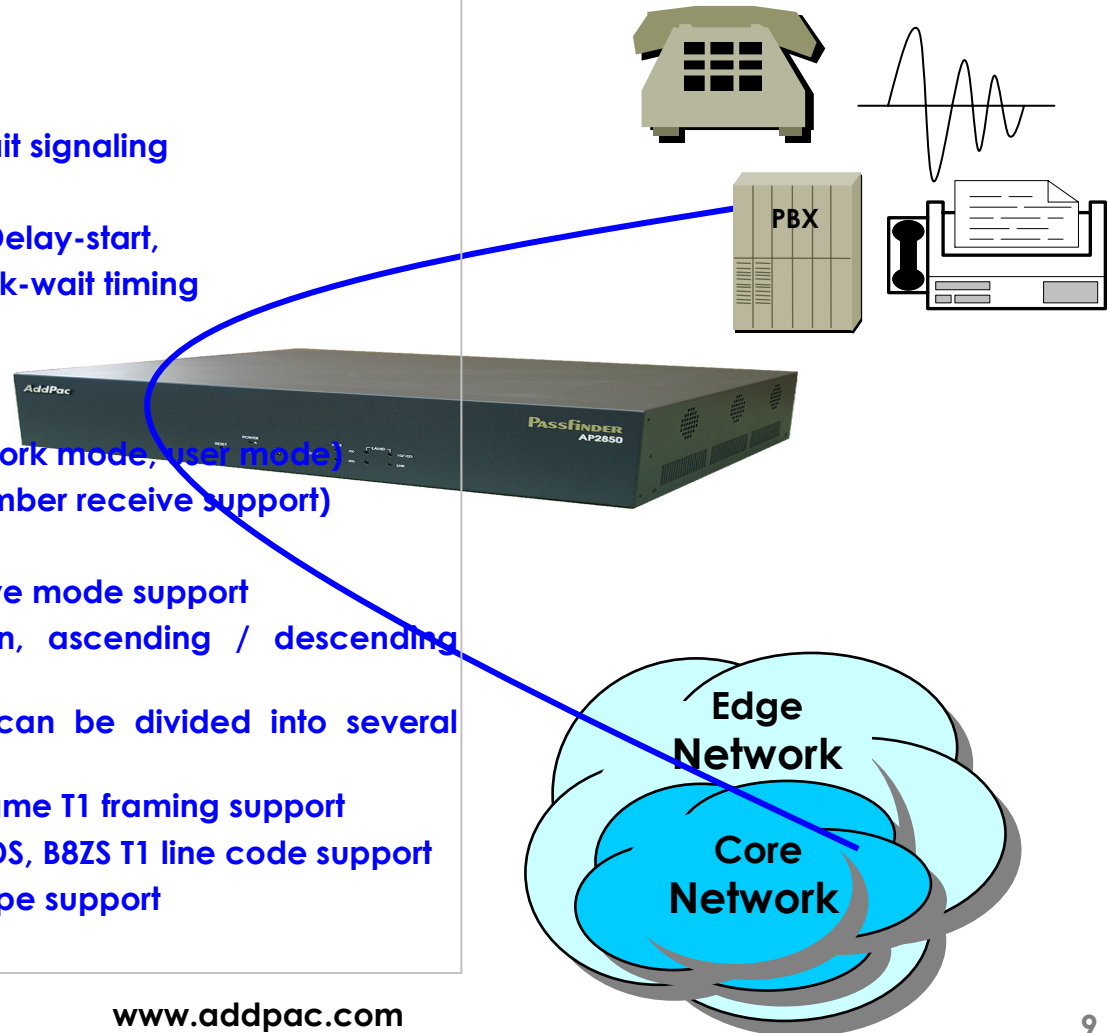
Multi-service Router Connectivity

• E&M

- Type 1, 2, 3, 5 support
- 2-wire, 4-wire support
- Delay-dial, Immediate, Wink-wait signaling support
- Dialout-delay, Delay-duration, Delay-start, Wait-wink, Wink-duration, Wink-wait timing setting support

• E1/T1

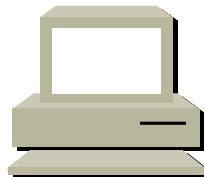
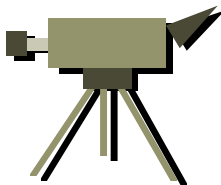
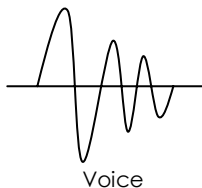
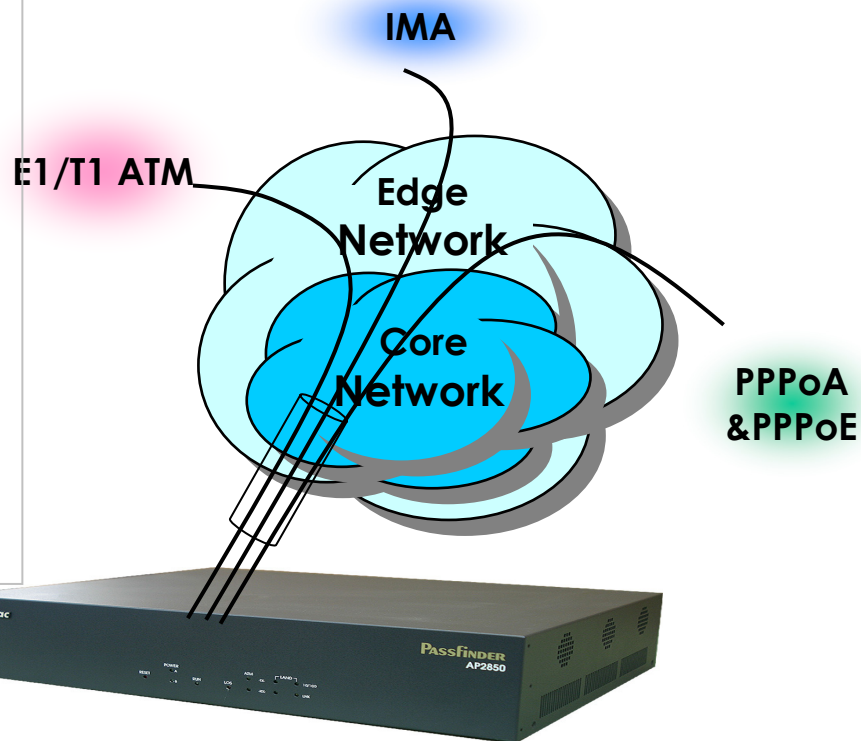
- ISDN PRI signaling support (network mode, user mode)
- R2 signaling support (calling number receive support)
- DTMF signaling support
- Clock source master mode, slave mode support
- In case of channel allocation, ascending / descending random support
- One physical E1/T1 interface can be divided into several logical channel groups
- Super frame, extended super frame T1 framing support
- AMI, AMI-BELL, AMI-GTE, AMI-DDS, B8ZS T1 line code support
- Immediate, Wink-start T1 CAS type support



AP2850 Multi-service Router Product Overview

ATM Service

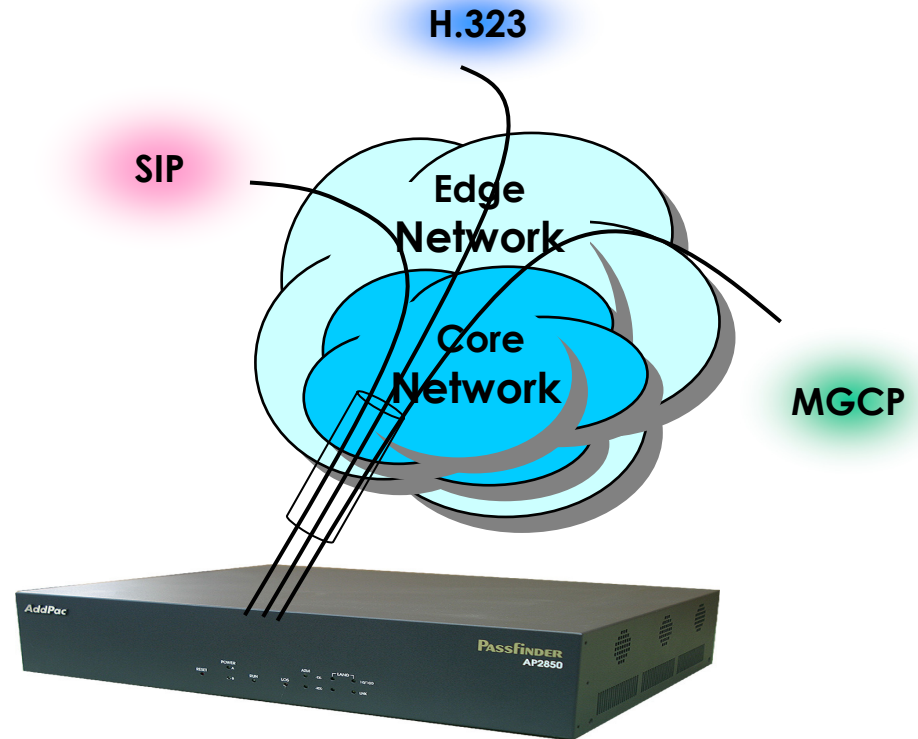
- Inverse Multiplexing over ATM (IMA) service
- ATM PVC UNI3.0, 3.1, 4.0 Support
- RFC1483 and RFC1577 based IPoA Service
- PPPoA and PPPoE Services
- ATM Classes of Service Support
 - ATM PVCs and SVCs Service
 - CBR, rt-VBR, nrt-VBR, UBR, and UBR+ Support
 - AAL0 ,AAL5 and AAL2
- PCR and MCR Service
- ATM Traffic Management Support
- provide Priority Level of 8-layer with ATM Pace Control
- Traffic shaping on a per-VC basis



AP2850 Multi-service Router Product Overview

Voice over IP Service

- **H.323, SIP, and MGCP Triple Stack**
 - Concurrent Triple VoIP Stack Software
 - Single Hardware with Three VoIP Service
 - New APOS-NX Version
- **H.323**
 - ITU-T Standard H.323 v3 Support
 - Support H.245 Tunneling
 - Including H.235 Security Features
- **SIP**
 - IETF RFC3261 or RFC2543 SIP Standard
- **MGCP**
 - IETF RFC2705bis-02 Standard MGCP 1.0



AP2850 Multi-service Router Product Overview

Voice over IP Service (cont.)

• H.323

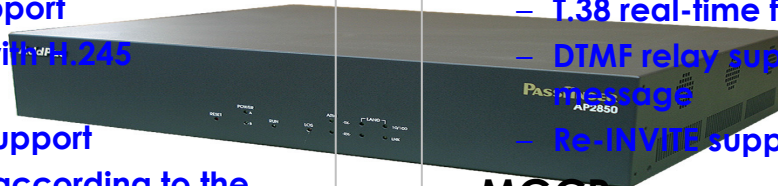
- Fast connect, normal connect support
- H.245 tunneling support
- Q.931 response message setting for inbound VoIP calls
- H.245 logical channel open timing selection function
- Start H.245 procedure support
- DTMF / Hook flash relay with H.245 alphanumeric / signal
- Secondary gatekeeper support
- Gatekeeper assignment according to the domain name
- Gatekeeper discovery with multicast
- Lightweight RRQ support
- Signaling TCP port assignment
- Resource threshold setting with RAI
- H.235 clear-token, crypto-token support
- canMapAlias support
- Technical prefix (supported prefix) support
- Public IP assignment in NAT environment

• SIP

- Gateway-based / Endpoint-based registration support
- Secondary proxy-server assignment function
- SIP signaling port change function
- SIP proxy server assignment according to the domain name
- T.38 real-time fax relay support
- DTMF relay support with RFC2833 / OPTION message
- Re-INVITE support

• MGCP

- Secondary call agent assignment function
- Default package assignment
- Announcement Server Package, Generic Media Package, Handset Package, Line Package, Trunk Package support
- MGCP call agent assignment according to the domain name
- T.38 real-time fax relay support
- DTMF relay support based on RFC2833



AP2850 Multi-service Router Product Overview

Voice over IP Service (cont.)

• Voice Codec

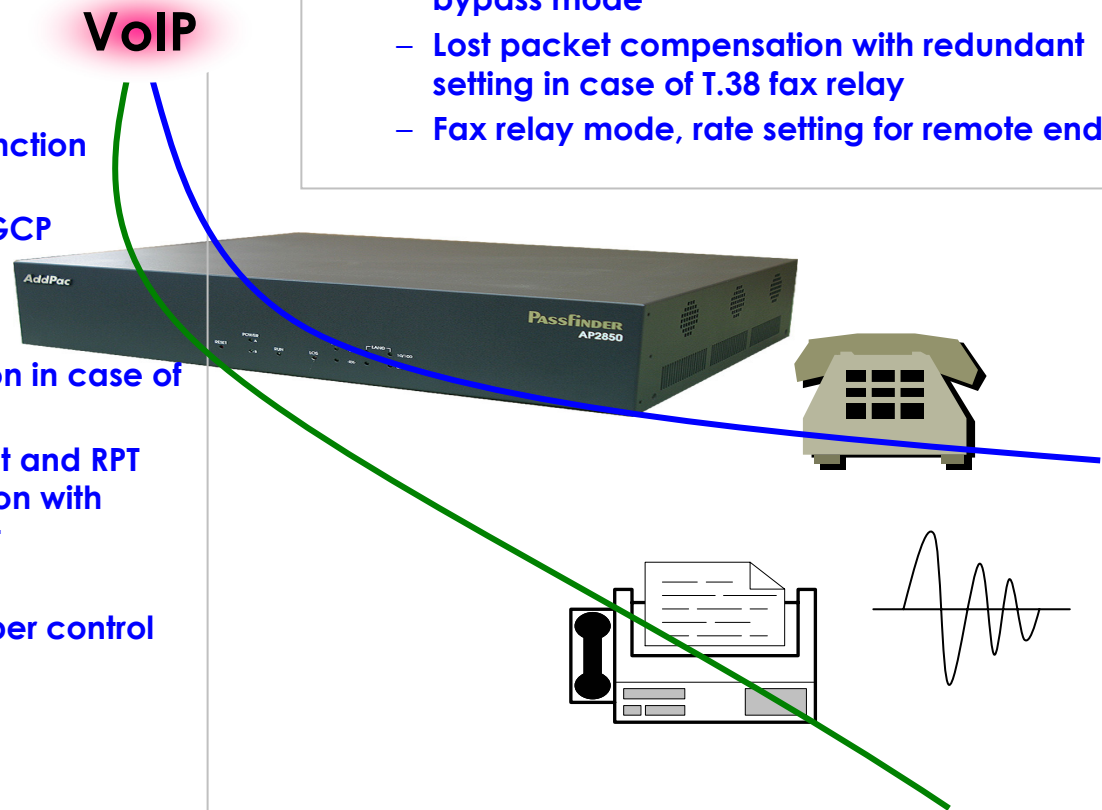
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

• RTP

- Redundant RTP packet transmission in case of severe packet loss
- Dynamic jitter buffer management and RTP packet jitter and loss compensation with heuristic & DSP error concealment
- Static jitter buffer setting support
- Voice frame per RTP packet number control for each codec
- In-band ring-back tone support
- Virtual ring-back tone support
- Tone parameter change support

• FAX

- Fax relay mode supporting T.38, inband-T.38, bypass mode
- Lost packet compensation with redundant setting in case of T.38 fax relay
- Fax relay mode, rate setting for remote end



AP2850 Multi-service Router Product Overview

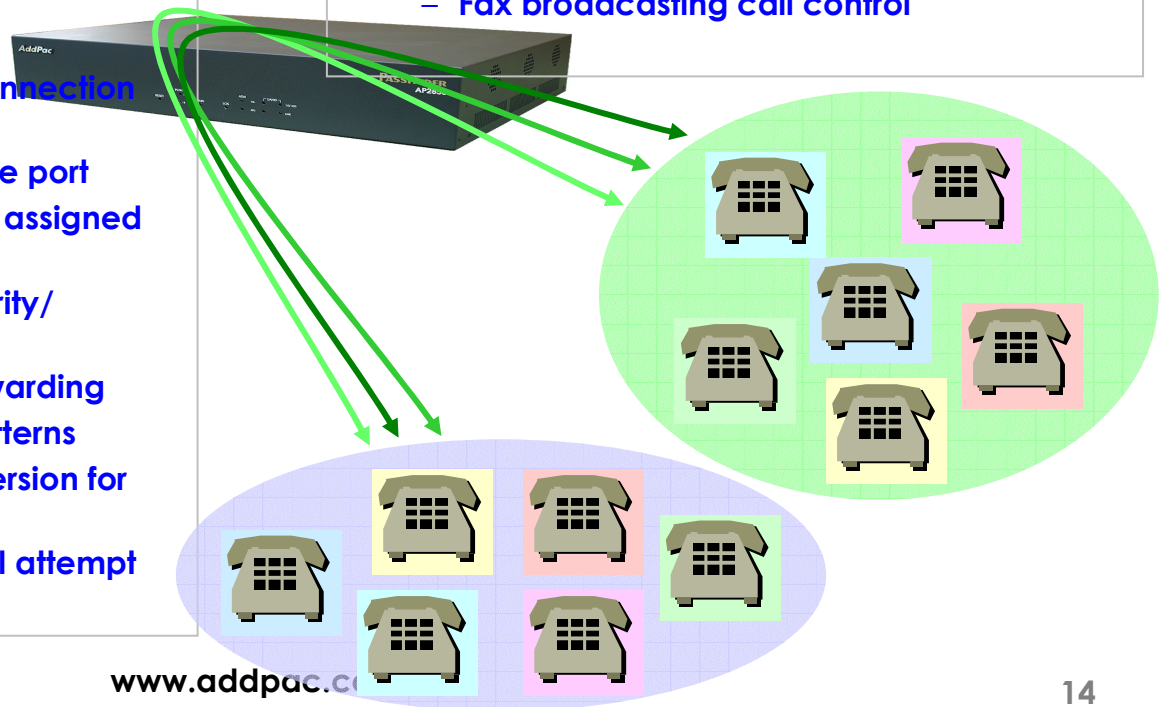
VoIP Call Managements

• VoIP Call Controls

- Hot line connection function with PLAR (Private Line Auto Ring Down)
- Leased line emulation function
- Connection monitoring function
- Fault tolerant with Redundancy and Call Distribution among Gateways for load balancing
- Call attempt with IP address
- H.323, SIP, MGCP inbound call connection for each voice port
- Multiple E.164 setting for one voice port
- One E.164 or digit pattern can be assigned to more than one voice port
- Hunting with Longest match/ priority/ sequence/ random
- One stage call setup by Digit forwarding
- Call barring with specific digit patterns
- Calling and called number conversion for PSTN outbound calls
- PSTN rerouting in case of VoIP call attempt failure

• VoIP Call Controls (cont.)

- Call transfer for internal calls
- Call pickup for internal calls
- Calling and called number conversion for VoIP outbound calls
- Calling and called number conversion for VoIP inbound calls
- Fax broadcasting call control



AP2850 Multi-service Router Product Overview

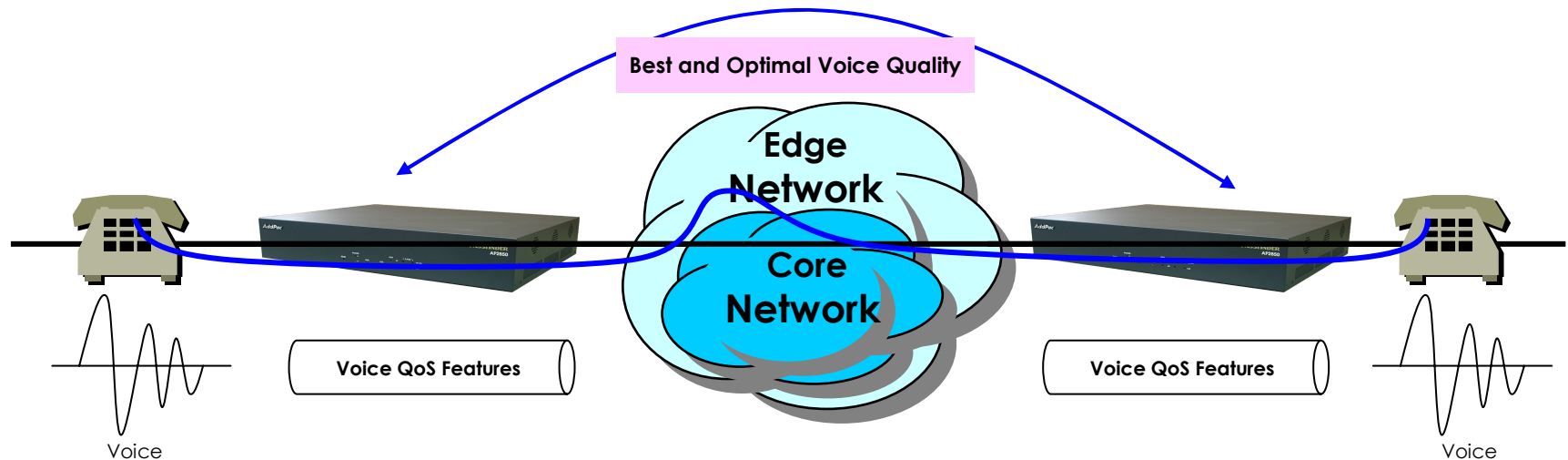
Enhances QoS Managements

• Enhances **Transmit** Voice QoS Features

- Voice Traffic Priority Queuing
- QoS Service Profiling
- Providing Virtual Network Transmit Algorithm
- Real-time Voice Traffic QoS Support
- RTP Packet Transmit Interval Control
- Supporting RTP Packet Redundancy Scheme
- IP Header Control such as ToS, Diffserv

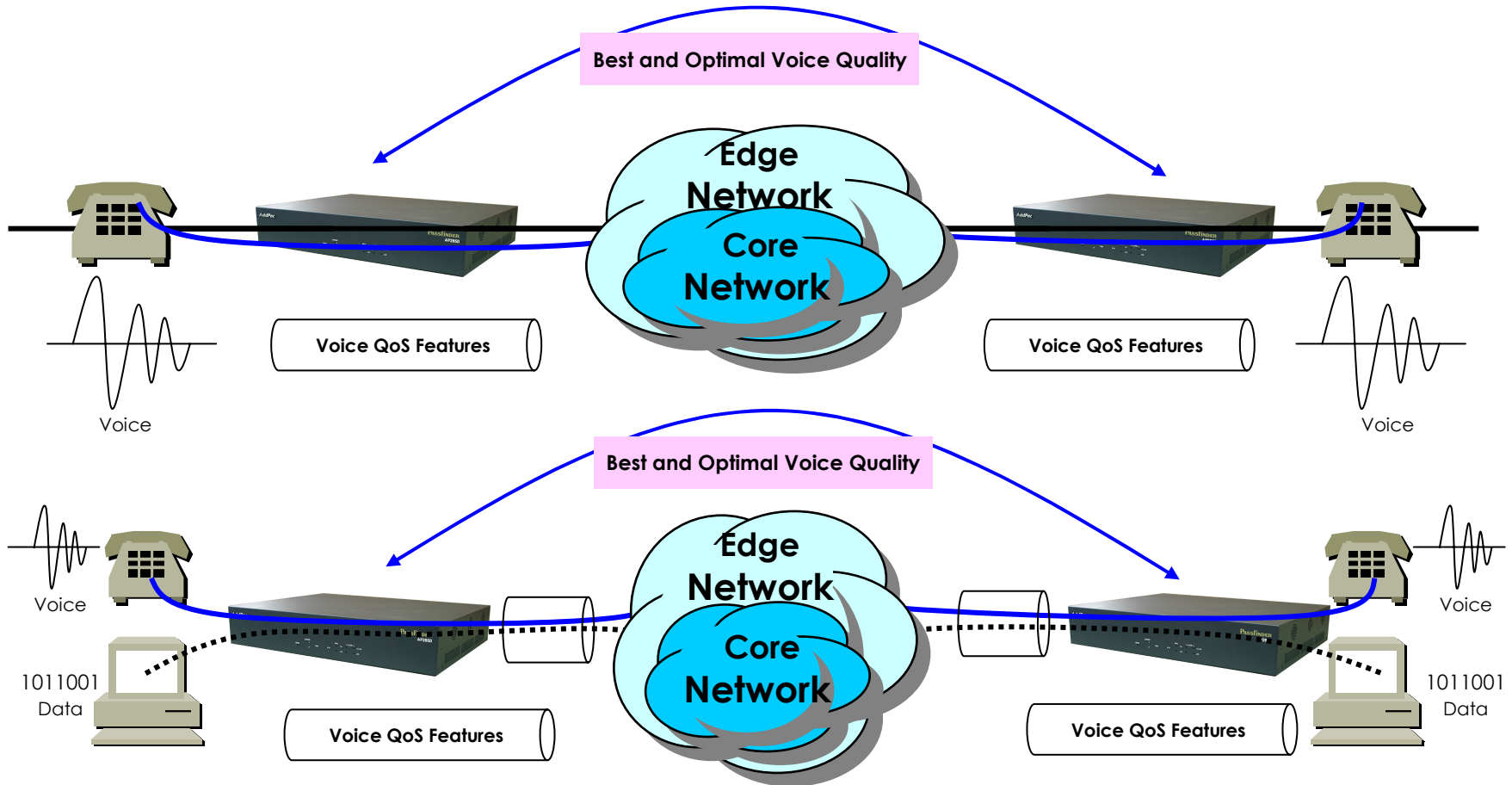
• Enhances **Receive** Voice QoS Features

- Dynamic Jitter Buffer Management
- Error Concealment
- Support T.38 FAX Data Error Recovery Scheme



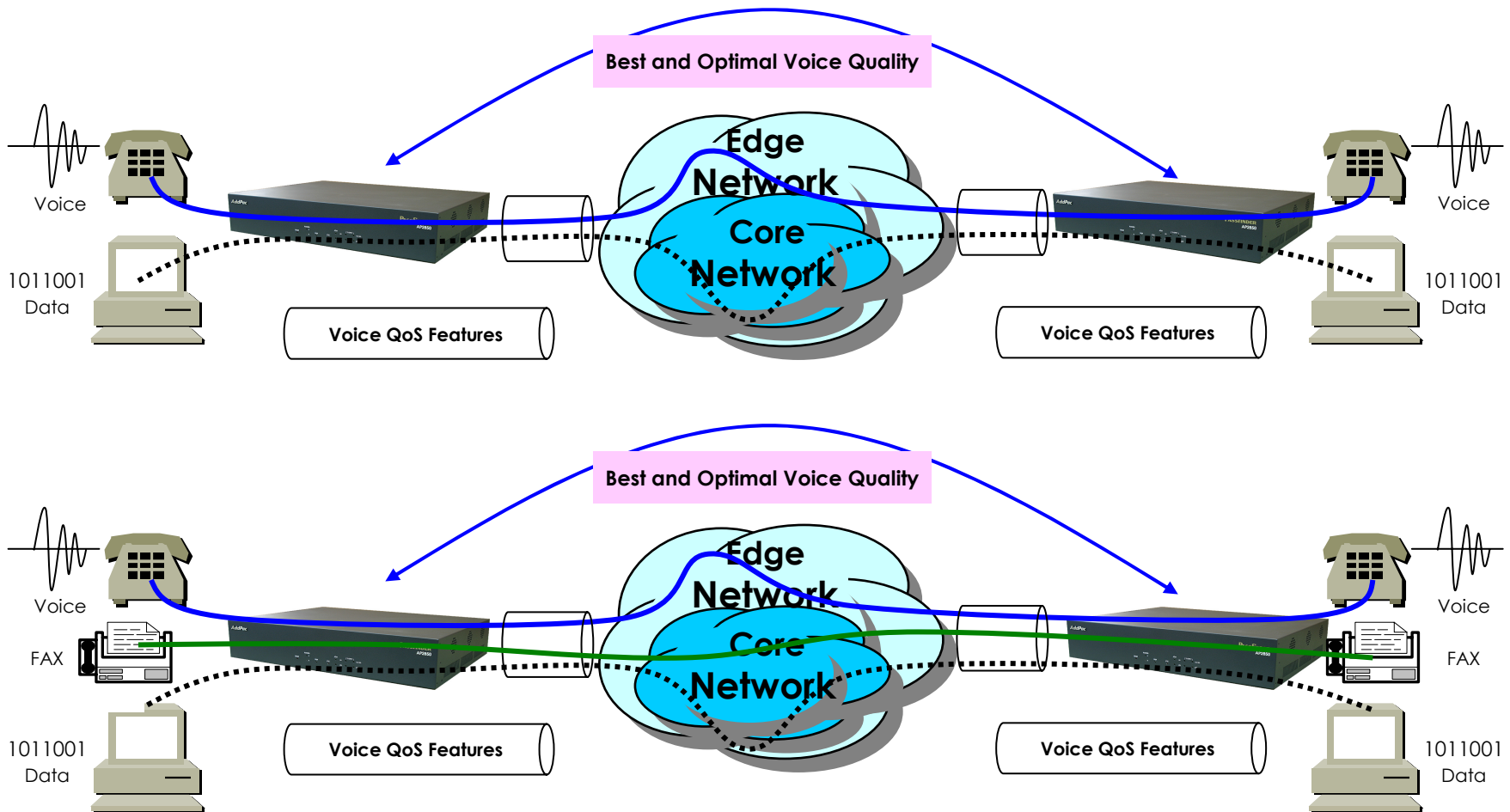
AP2850 Multi-service Router Product Overview

Enhances QoS Managements (cont.)



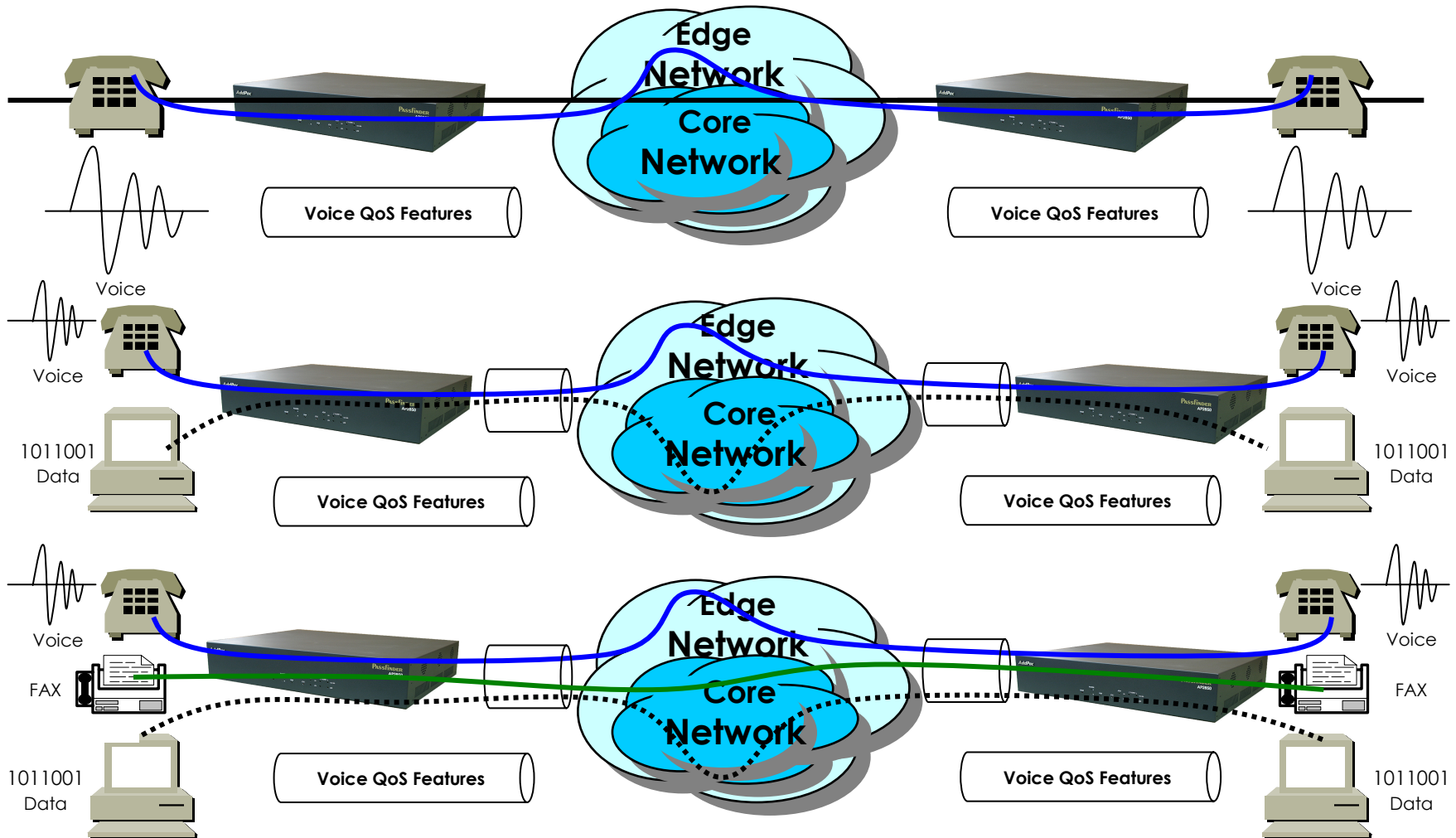
AP2850 Multi-service Router Product Overview

Enhances QoS Managements (cont.)



AP2850 Multi-service Router Product Overview

Enhances QoS Managements (cont.)



AP2850 Multi-service Router Product Overview

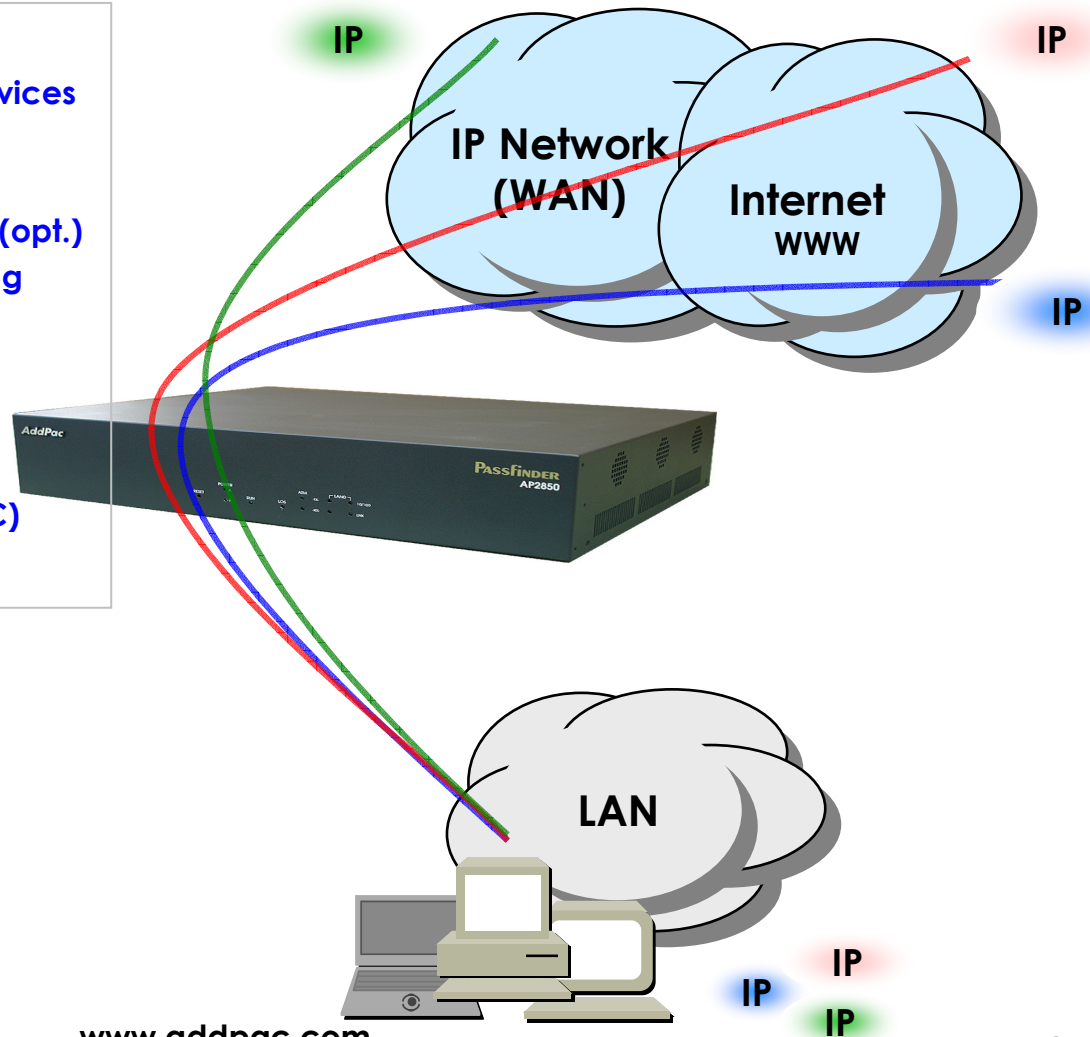
IP and WAN Protocols

- IP Routing Protocols

- Multi-protocol Internetworking Services
- Static IP routing
- RIP v1/v2 (opt.)
- OSPF v2 routing protocols support (opt.)
- Transparent Bridging (IEEE Spanning Tree Protocol)

- WAN Protocols

- Point-to-Point Protocol (PPP)
- High-level Data Link Control (HDLC) Protocol

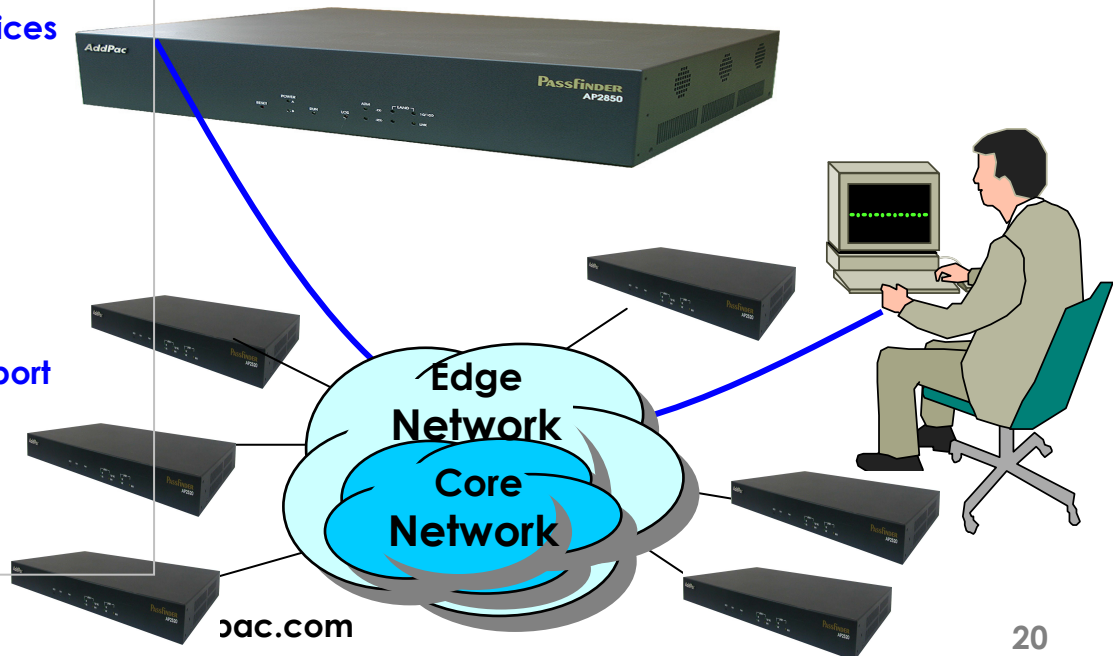


AP2850 Multi-service Router Product Overview

Network Managements

- **SNMP**
 - Standard Simple Network Management Protocol(SNMP) Agent support
 - MIB v1 and v2 Support
- **Web-based Management**
 - Standard Voice Interface
 - Standard PSTN Back-up Interface
- **Watch-dog Function**
 - Hardware, Software watch-dog services
- **Remote Management**
 - Telnet
 - Rlogin
 - Console
- **Auto Upgrade Service**
 - HTTP server based APOS image and configuration file auto-upgrade support
- **Batch Job Function**
 - Text based script downloading

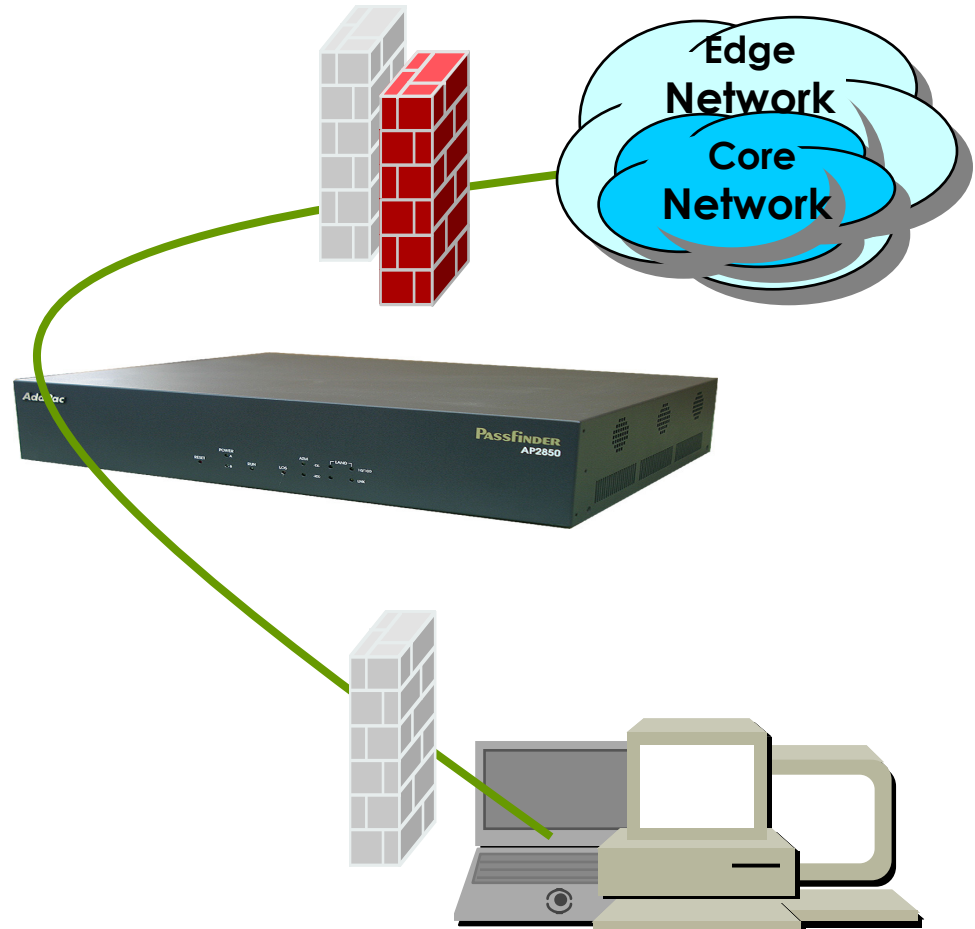
- **Easy Set-up Service**
 - MS Windows Graphical User Interface (GUI) based installation Software Solution
 - Easy installation Set-up service
- **Interoperable with AP-VPMS Service**
 - AddPac VoIP Plug & Play Management System (AP-VPMS)



AP2850 Multi-service Router Product Overview

Security Managements

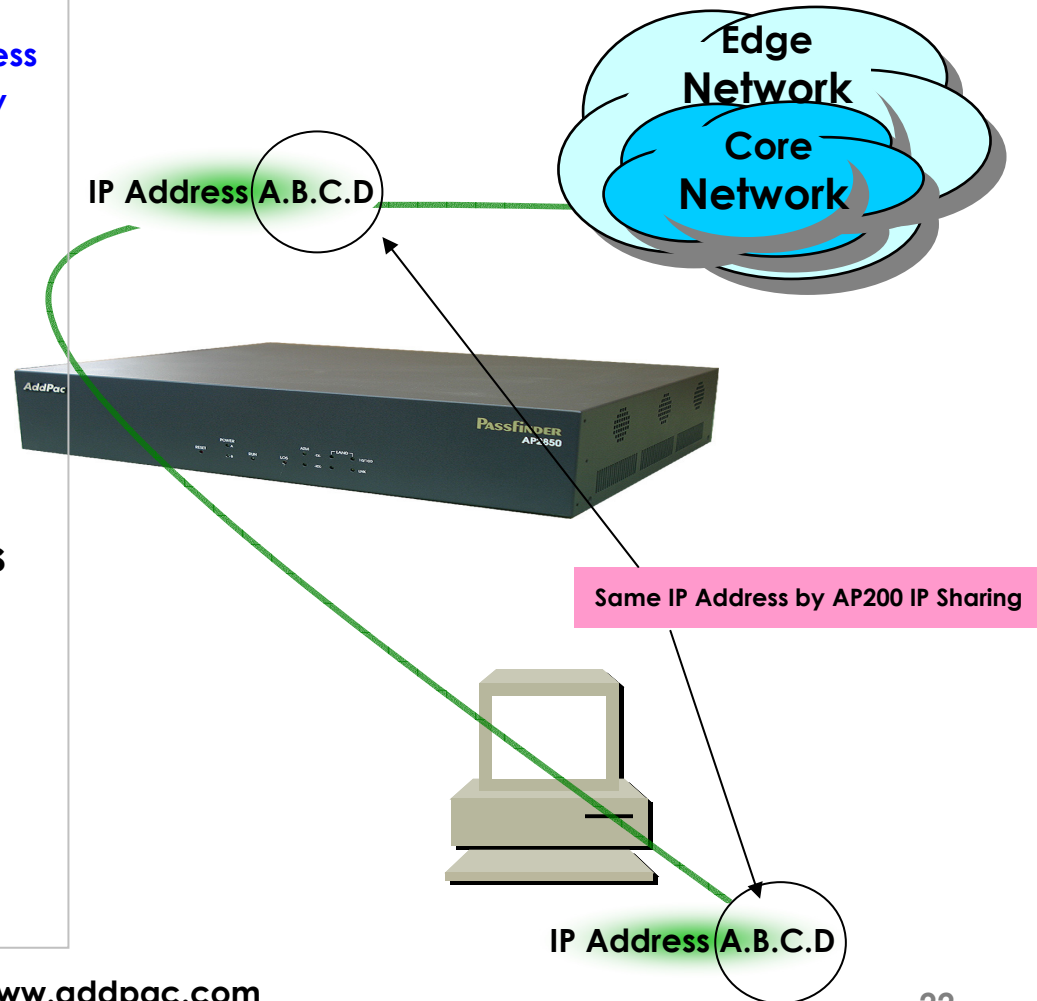
- IP packet filtering
- IP access list
- User authentication function
 - Password Authentication Protocol (PAP)
 - Challenge Handshake Authentication Protocol (CHAP)
- Enable/Disable specific protocols
- Auto-square connect of console and Telnet session
- Account Management function for multi-level user
- SNMP/TELNET/FTP/HTTP/TFTP port assignment function
- SNMP/TELNET/FTP access list management
- Boot mode security checking function



AP2850 Multi-service Router Product Overview

Network Scalability

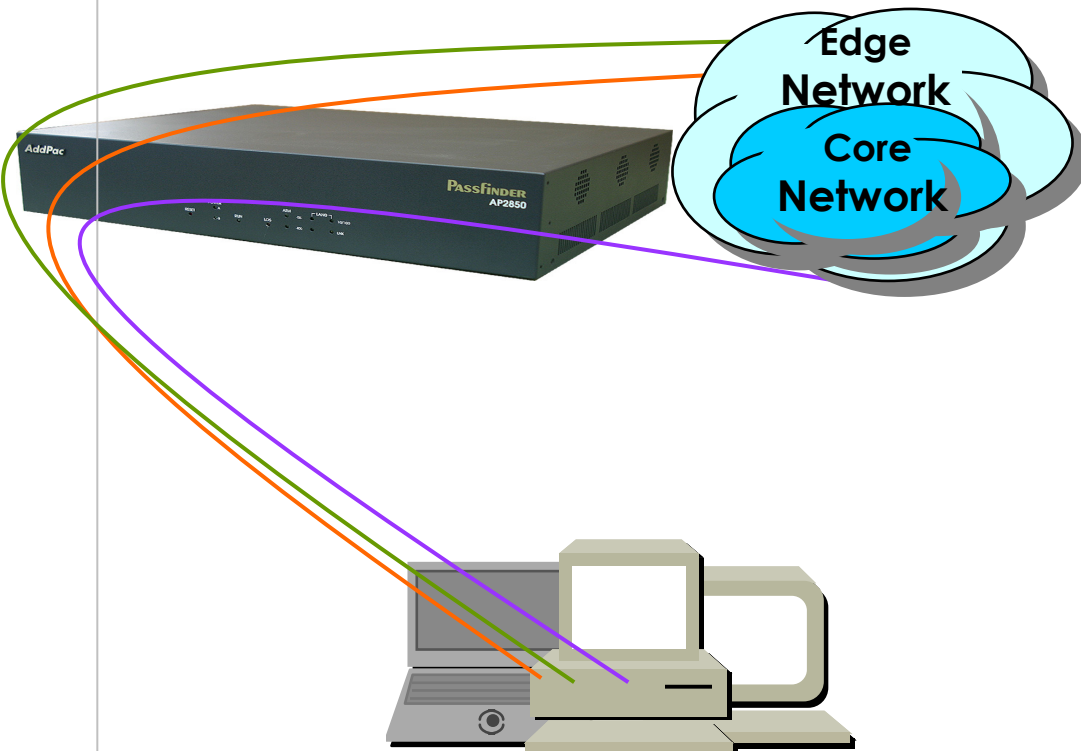
- **IP Sharing Feature**
 - Single IP Address, Multiple IP Network Access
 - Public IP Address Sharing by VoIP Gateway
- **IP Sharing Network Environment**
 - Support Legacy Network Environment
 - xDSL Modem based Broadband Network
 - Cable Modem based Broadband Network
 - Leased line Network Environment
- **Both support Fixed and Dynamic IP**
- **Support Standard Network Protocols**
 - PPPoE
 - PPPTP
 - PPPoA
 - DHCP



AP2850 Multi-service Router Product Overview

Network Scalability (cont.)

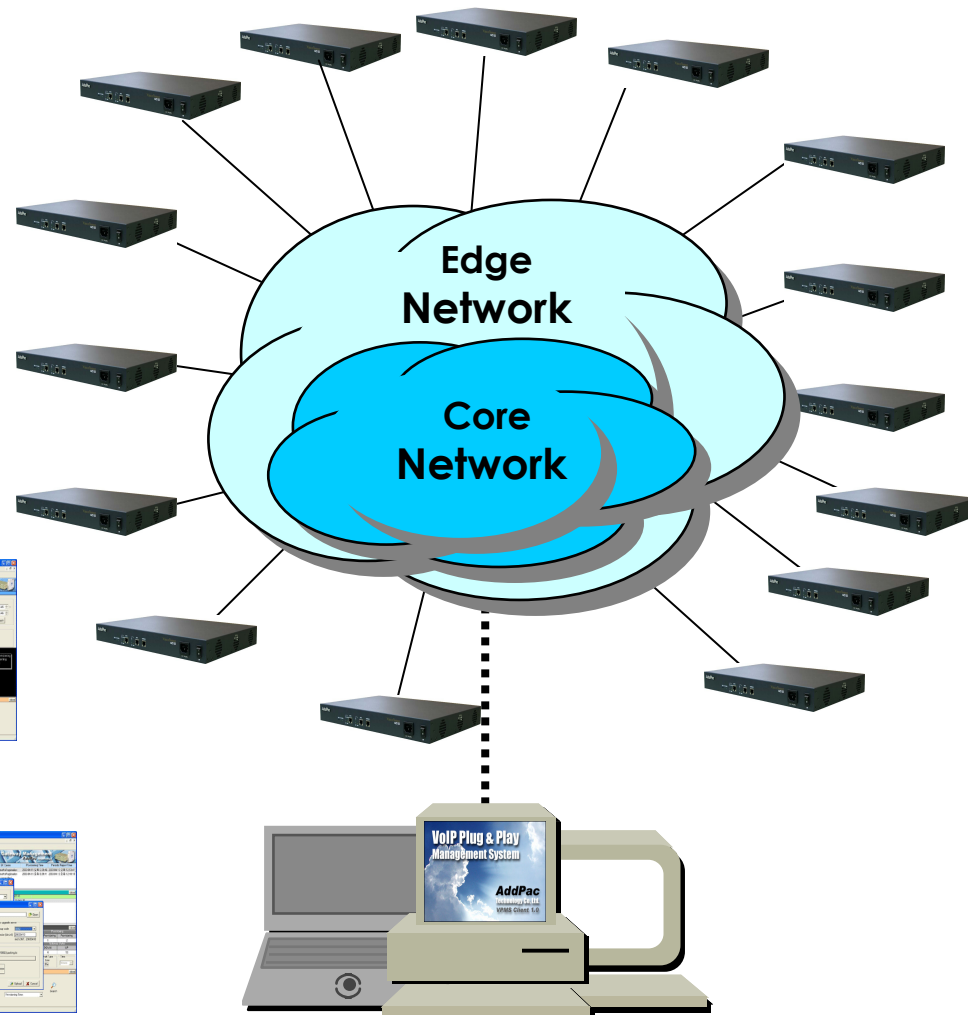
- **Bridging Service**
 - Spanning Tree Bridging protocol (IEEE) support
- **DHCP**
 - Server and Relay
- **IP Accounting**
- **PAT (Port Address Translation)**
- **NAT (Network Address Translation)**
- **Cisco Style CLI (Command Line Interface)**
- **PPTP (Point-to-Point Tunneling Protocol)**
- **NTP (Network Time Protocol)**
- **FTP/TFTP**
 - Server and Client support
- **DNS**
 - Dynamic DNS Client support



AP2850 Multi-service Router Product Overview

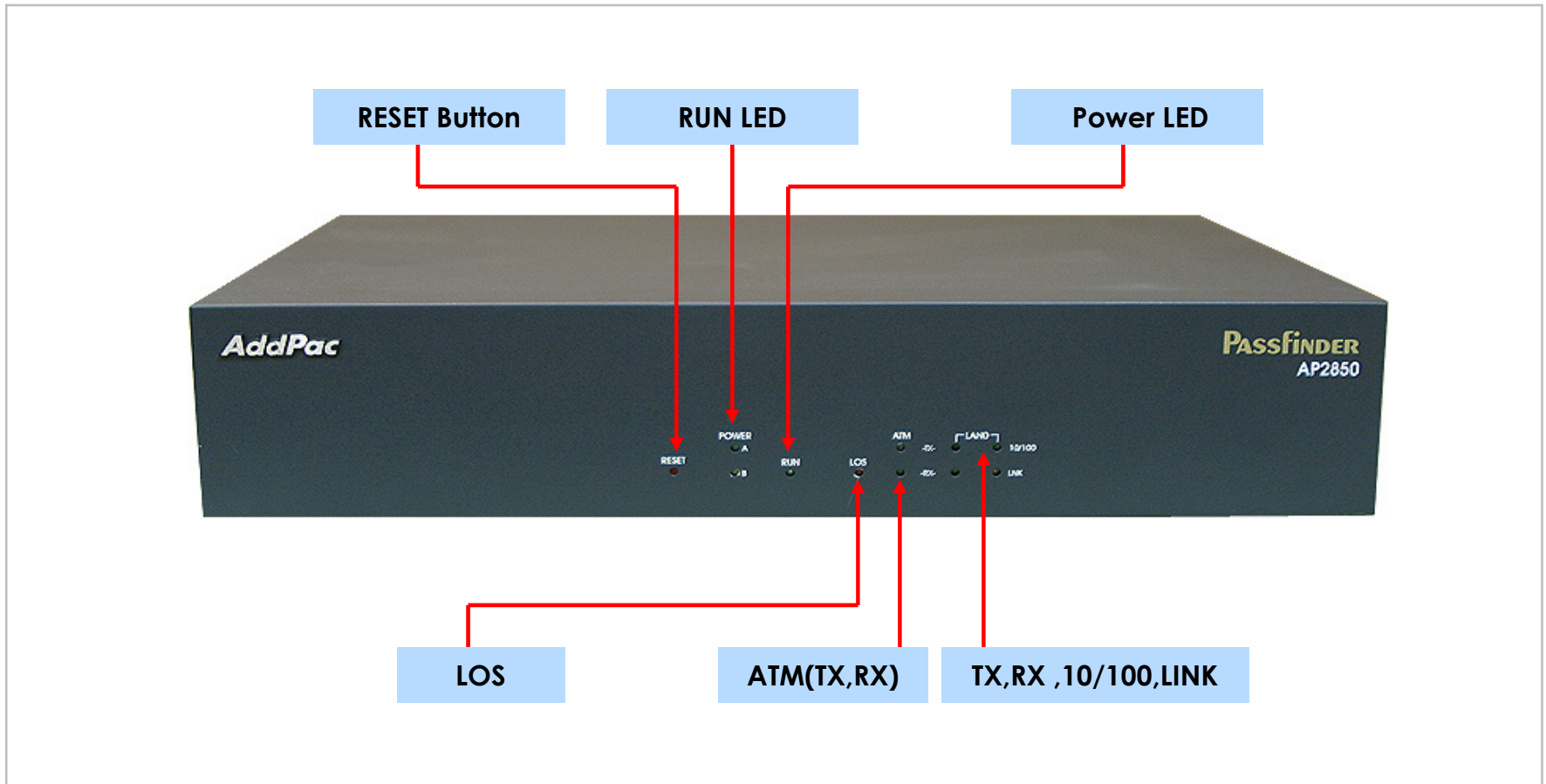
VoIP Plug & Play System (VPMS)

- **AddPac AP-VPMS Support**
 - AddPac VoIP Plug & Play System (VPMS)
 - Best EMS Solutions for AddPac VoIP G/W
- **Requirements Hardware Platform**
 - Over 1GHz Intel Pentium 4 Machine
 - Over 1GB Main Memory
 - Over 40GB Hard Disk Memory
 - Microsoft Windows Advanced Server or Windows 2000 Server or Windows XP Professional
 - DBMS : Microsoft MS-SQL Server 2000



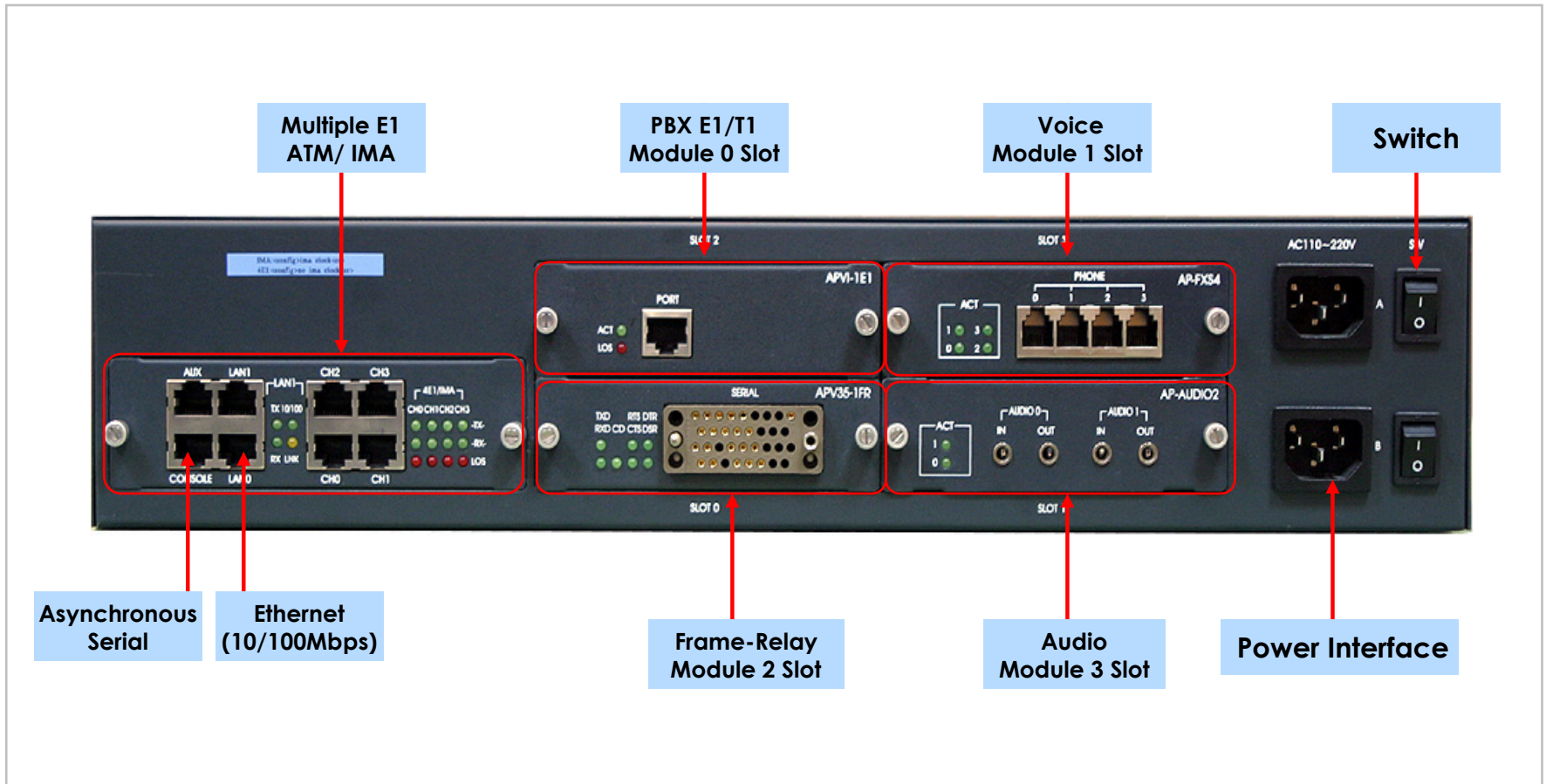
AP2850 Multi-service Router Product Overview

AP2850 Network Configurations



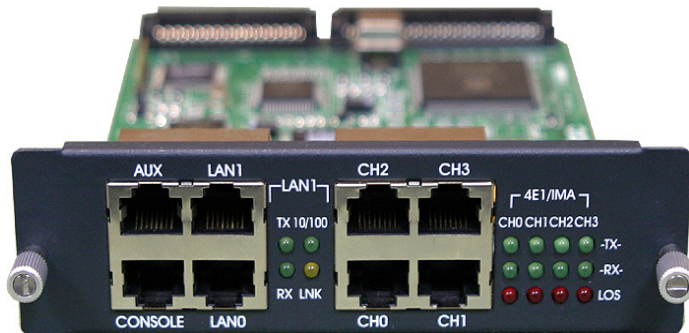
AP2850 Multi-service Router Product Overview

AP2850 Hardware Specification



AP2850 Multi-service Router Product Overview

AP2850 Network Interface Module



4-Port Multiple E1/T1 ATM Interface / IMA Interface

2-Port 10/100Mbps Fast Ethernet Interface

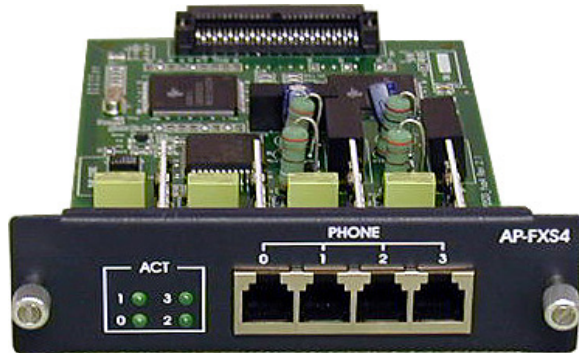
2-Port Asynchronous Serial Interface



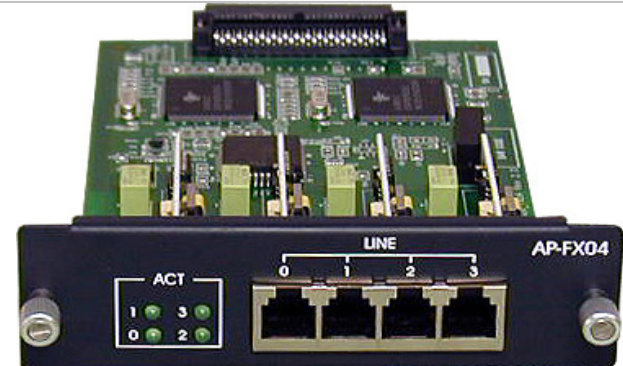
• AP-FRV35 (1-port Frame-Relay)

AP2850 Multi-service Router Product Overview

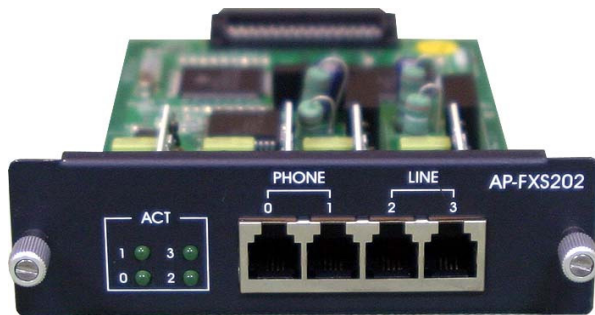
AP2850 Analog Voice Module



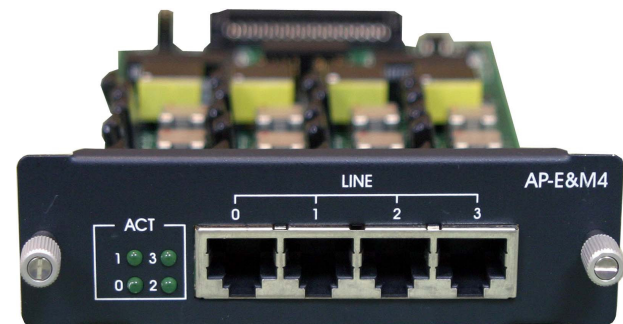
AP-FXS4 Module



AP-FXO4 Module



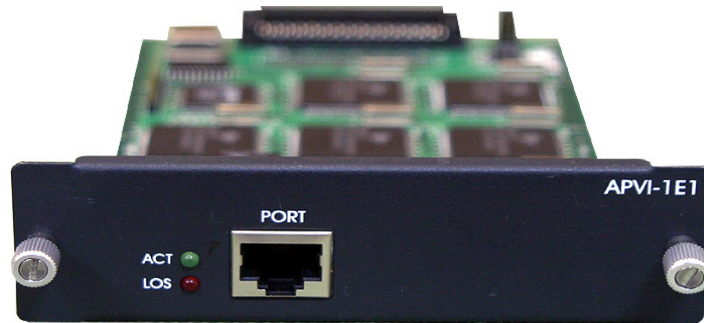
AP-FXS2, FXO2 Module



AP-E&M4 Module

AP2850 Multi-service Router Product Overview

AP2850 Digital Voice Module



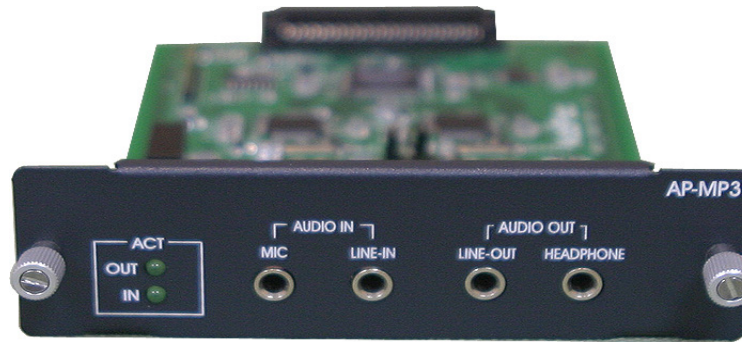
AP-E1 Module



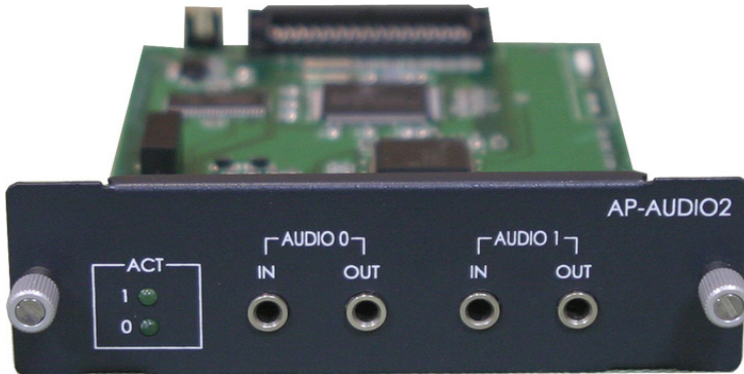
AP-T1 Module

AP2850 Multi-service Router Product Overview

AP2520G IP Broadcasting Module



AP-MP3 Module (High Quality)



AP-AUDIO2 Module



AP-AUDIO1,FXS3 Module

AP2850 Multi-service Router Product Overview

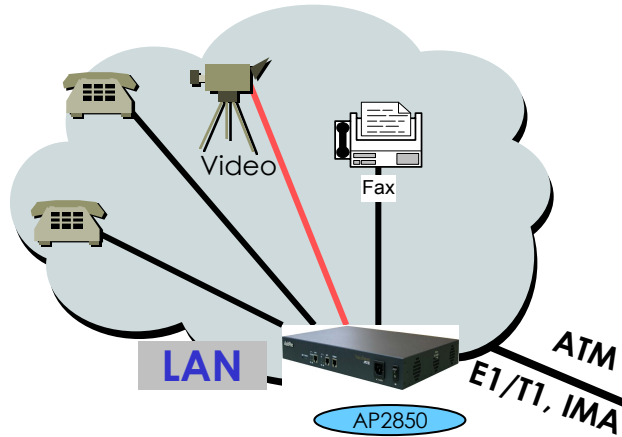
AP2850 Hardware Specification

AP2850 Multi-service Router	Basic Specifications
Microprocessor	Power PC 64Bit RISC Microprocessor
Number of Slot	One(1) Network Module Slot and Four(4) Multi-Service Module Slots
Network Interface Module	4-Port Multiple E1/T1 ATM / IMA Interface Module 1-Port E1 ATM Interface Module Ethernet Interface Module
Multi-service Modules	4-Port FXS, FXO, E&M Module 2-Port FXO & 2-Port FXS Module MP3, AUDIO, AUDIO&FXS Module 1-Port Digital E1 Module 1-Port Digital T1 Module 1-Port Frame-Relay Module
Memory	8MB Flash Memory, 64MB SDRAM Main Memory, 8MB ATM Local Memory, 512KB Boot Memory
Power Input	VAC 110~220V Free Voltage, 50/60Hz,Dual Power Supply Unit
Operating Temperature	0°C ~ 55°C
Storage Temperature	-40°C ~ 85°C
Width x Depth x Height	435 mm x 248 mm x 43 mm ,2U x 19" Rack Mountable Chassis

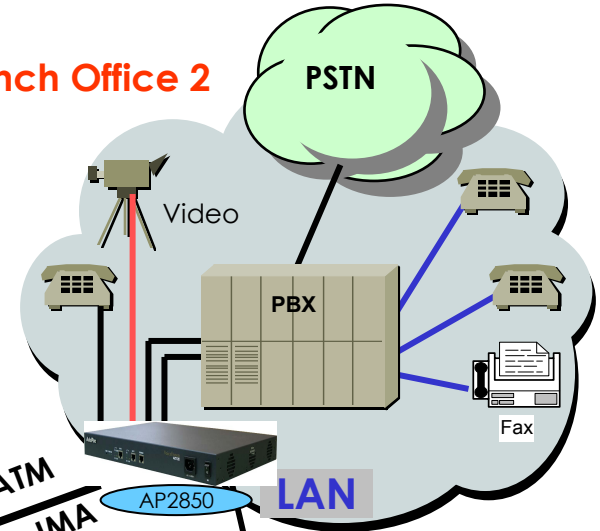
AP2850 Voice Networking Configuration

ATM Multi-Service +Router Application

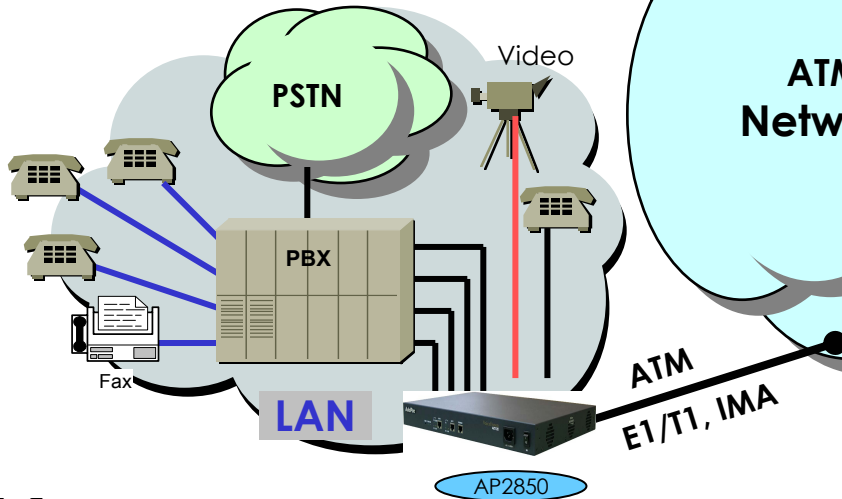
Branch Office 1



Branch Office 2



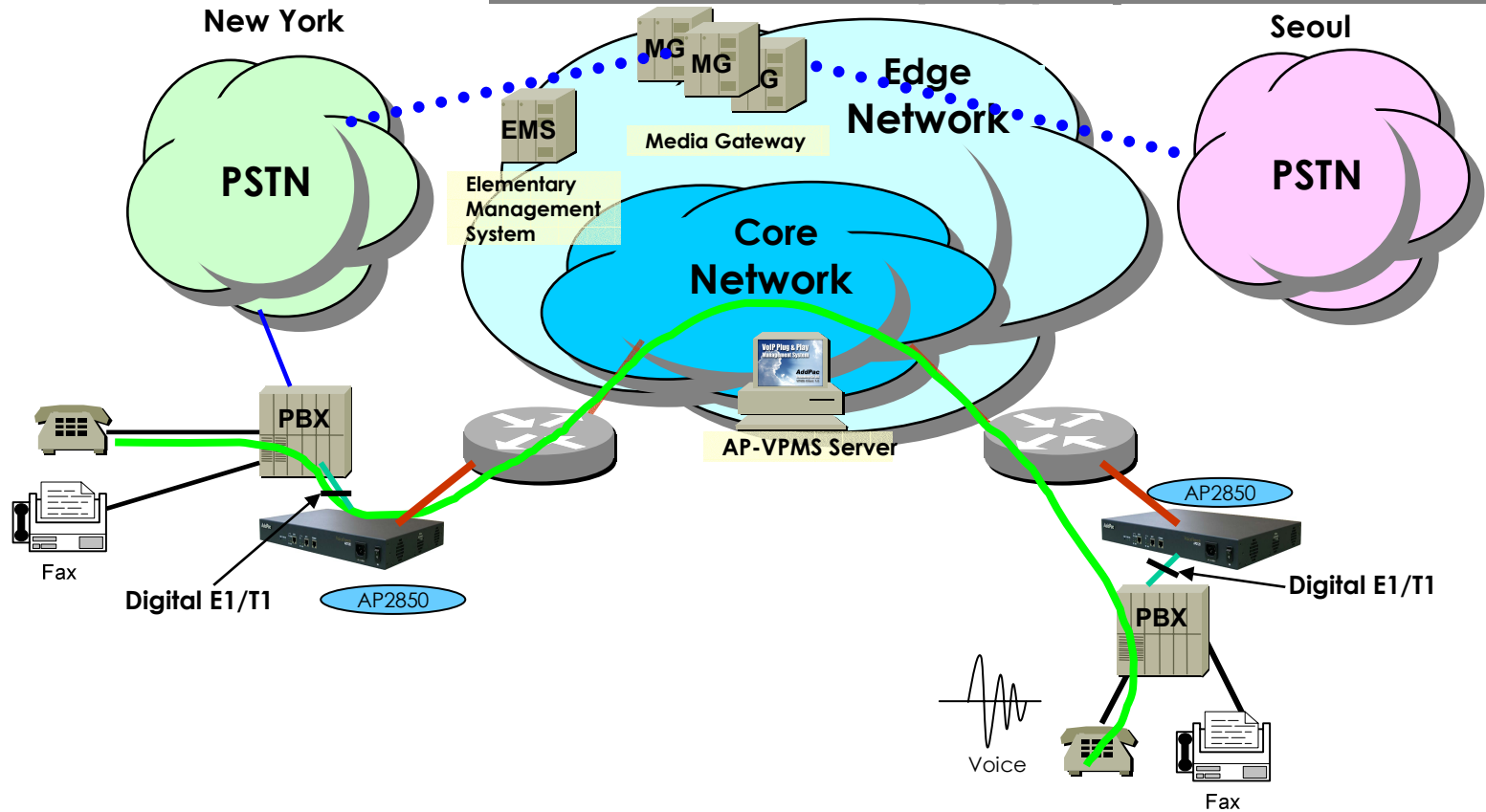
Head Office



Network Managements

AP2850 Voice Networking Configuration

VoIP Gateway Appl. (Inter-office calls)



 Voice Call Flow

 PSTN Interface

 Voice+Data, Ethernet or WAN Interface

 TRUNK n x E1 Voice Interface for PSTN Interworking



Leased Line/ATM/Frame-Relay/IP Router, xDSL/Cable Modem, etc.



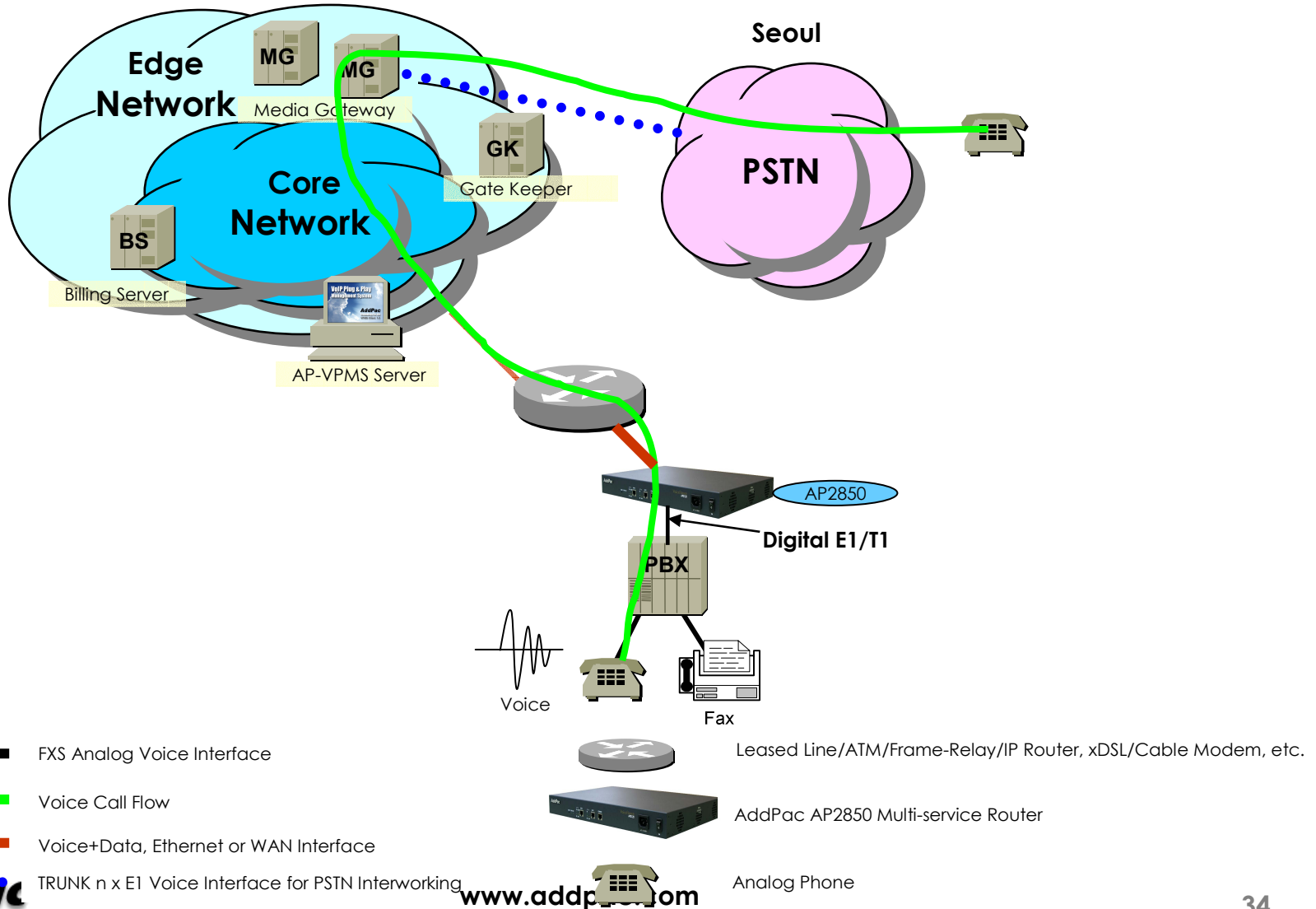
AddPac AP2850 Multi-service Router



Analog Phone

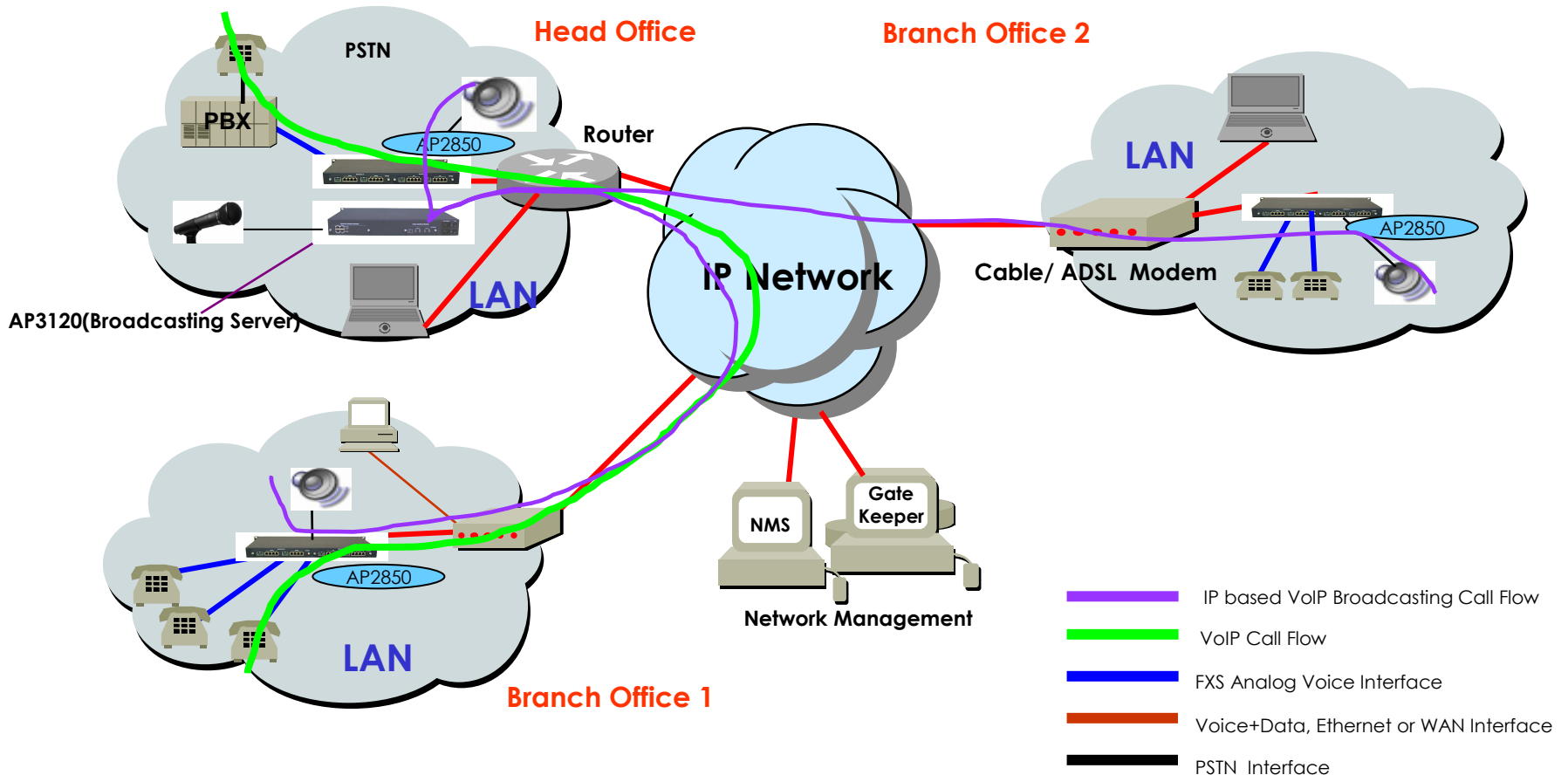
AP2850 Voice Networking Configuration

VoIP Gateway Appl.(VoIP to PSTN Inter-working Call Flow)



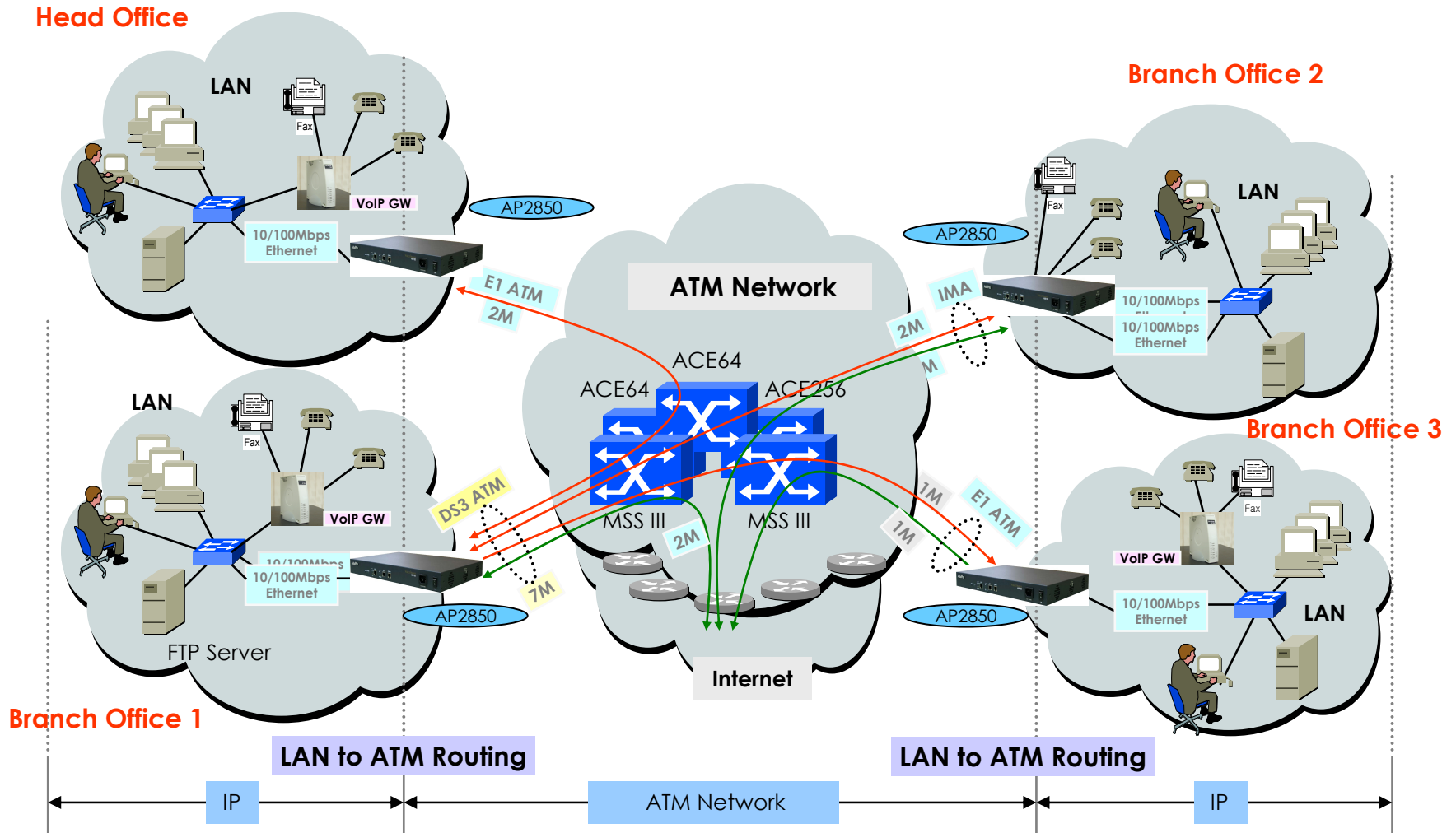
AP2850 Voice Networking Configuration

VoIP Gateway + Broadcasting Terminal Application



AP2850 Voice Networking Configuration

ATM Router Application



AP2850 Multi-service Router Product Overview

AP2850 Ordering and Pricing

• AP2850 Multi-Service Router

– Multi-Service Router

- ATM Interface, Two(2)Fast Ethernet, One(1) Console, One(1) Async Port
- 64bit RISC CPU, 8MB Flash, 64MB SDRAM
- APOS v5.xx with Operation Manual
- Including CAB-LAN, CAB-CON


- 2850-FXS4 4Port FXS Interface Module
- 2850-FXO4 4Port FXO Interface Module
- 2850-E&M4 4Port E&M Interface Module
- 2850-FXS2O2 2Port FXS & 2Port FXO Interface Module
- AP-MP3 High Quality MP3 Audio Broadcasting Module
- AP-AUDIO2 Voice Band 2-CH Broadcasting Module
- AP-AUD1S3 Voice Band Audio Port + VoIP 3-Port FXS Module
- APV1-1E1V 1-port Digital E1 ISDN-PRI Network Module
- ~~PRICING~~ APV1-1T1V 1-port Digital T1 ISDN-PRI Network Module
- AP-FRV35 1-port Frame-Relay Interface Module



- AddPac Technology Regional Sales Managers
- Authorized Sales and Marketing Representatives
- Please Contact www.addpac.com

AP2850 Multi-service Router Product Overview

AP2850 Comparison Table

	<p align="center">AP2850 Multi-service Router</p>
▶ Analog VoIP Module	Up to 4
▶ Digital E1 /T1 VoIP Module	Up to 4
▶ Asynchronous Port	1
▶ 1-port Frame-Relay Real-time	1
▶ 10/100 Mbps Ethernet Ports	2
▶ Console Port	1
▶ CPU	Power PC 64Bit RISC
▶ Flash Memory	8Mbyte
▶ Base Memory	64Mbyte
▶ Internetworking OS	APOS
▶ H.323, SIP, MGCP VoIP Protocol, T38 FAX	YES
▶ PPPoE, PPTP Network Protocols	YES
▶ Enhanced QoS Management Feature	YES
▶ IP Routing Protocols Including NAT	YES

Thank you !

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