

PassFinder AP2830

Multi-service Router



Aug. 2003

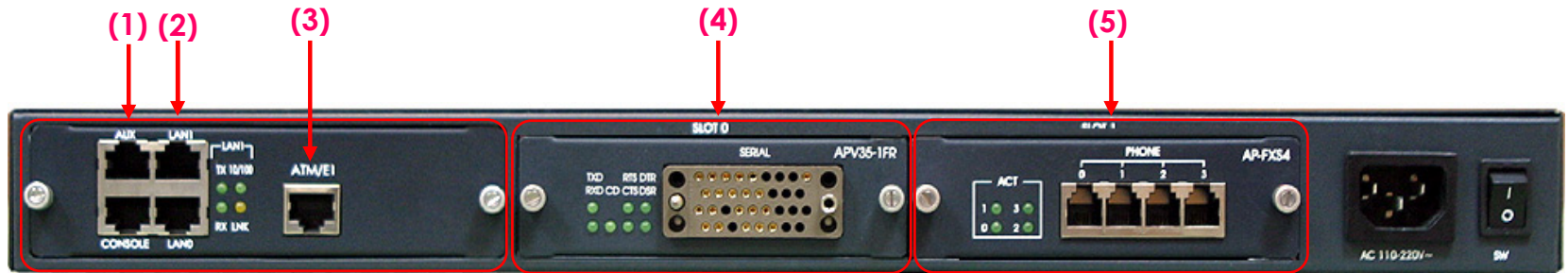
Technical Sales and Marketing

AddPac Technology

www.addpac.com

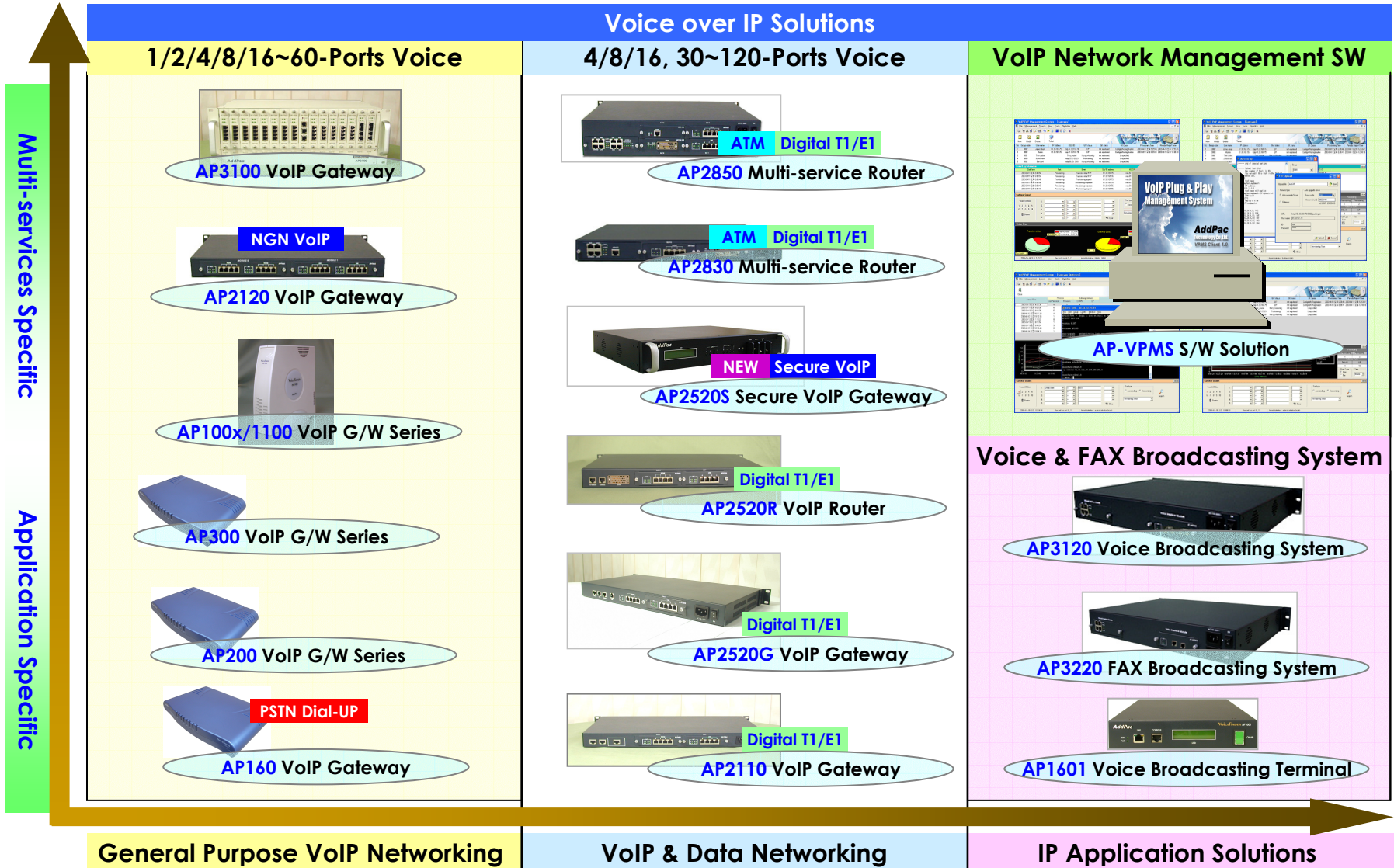
PassFinder AP2830 Multi-service Router

Multi-Service Router Connectivity



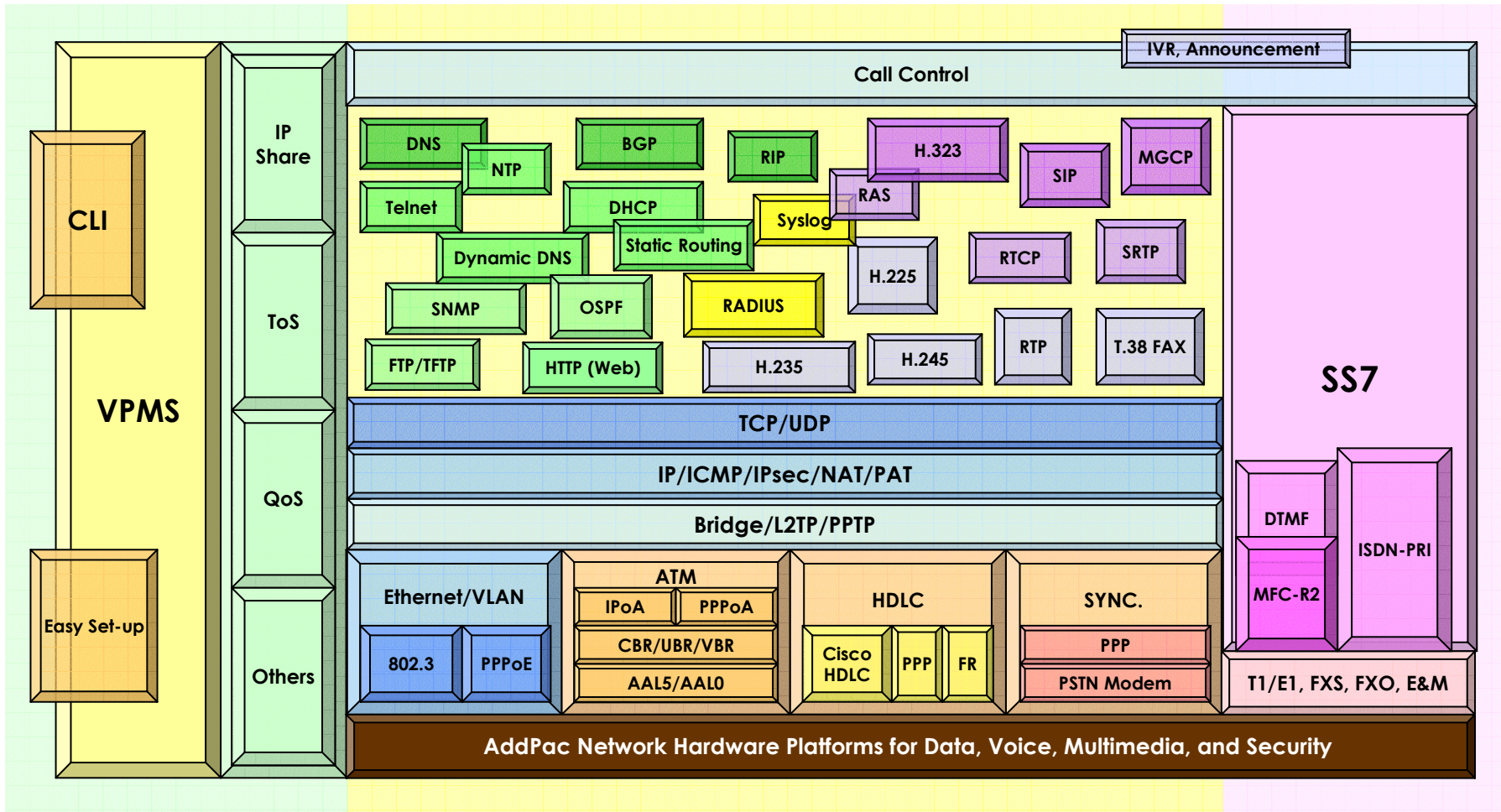
No.	Interface	Explanation
(1)	Asynchronous Serial	Two(2) RS-232C serial ports for Local system management
(2)	Ethernet	Two(2) 10/100Mbps Ethernet Ports for LAN interface
(3)	WAN Interface	1-Port E1 ATM Interface ,4-port Multiple E1/T1 ATM/IMA Interface, ATM-OC3 Metro ATM Interface, Metro Ethernet Interface
(4)	Module Slot 0	4-Port FXS, 4-Port FXO, 4-Port E&M, 1-Port Digital E1/T1, 1Port Frame-Relay Module, Audio, MP3 Module is available
(5)	Module Slot 1	

AddPac VoIP Products Road-Map



AP2830 Multi-service Router Product Overview

APOS Internetworking Protocol Stack

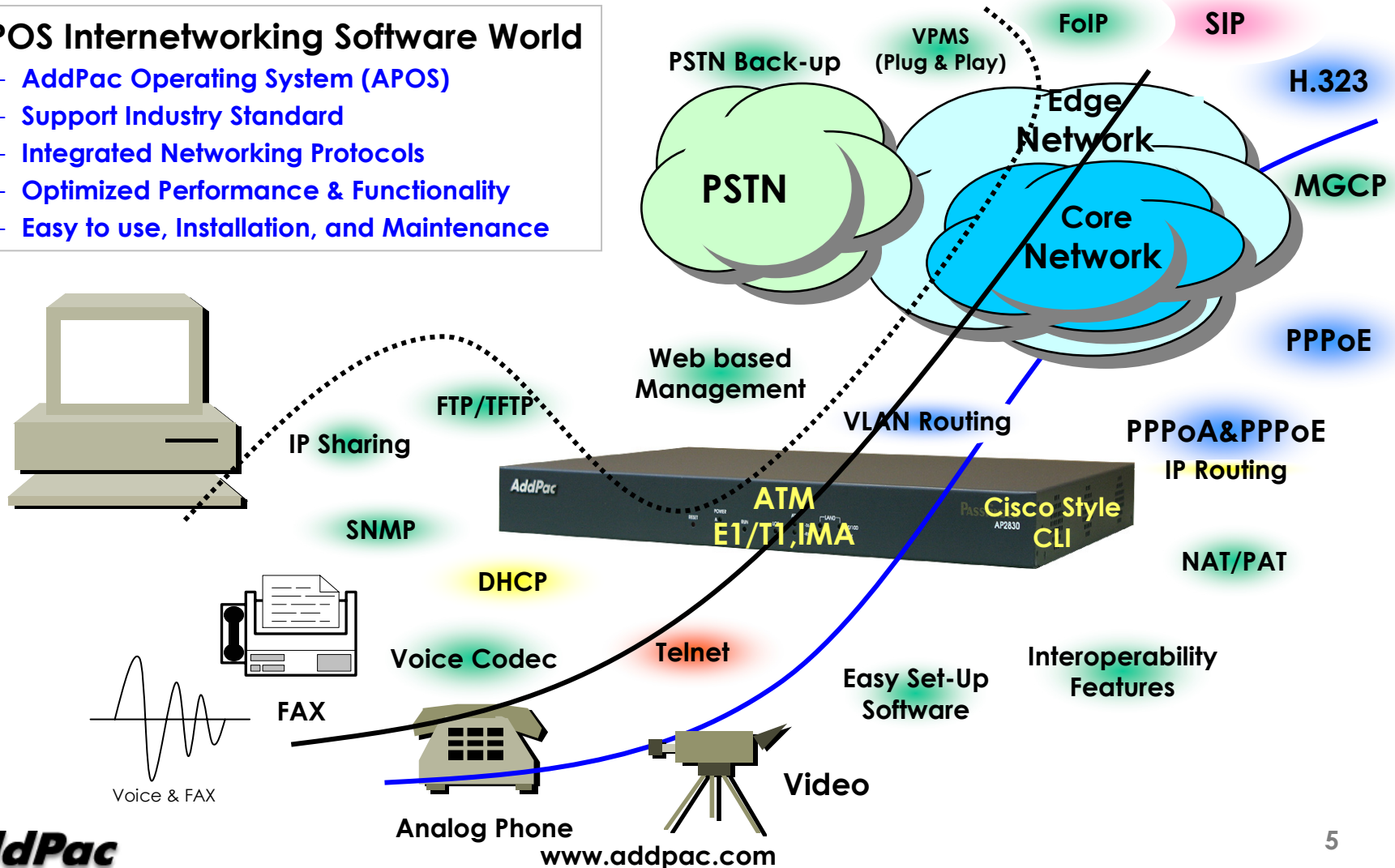


AP2830 Multi-service Router Product Overview

APOS Internetworking S/W World

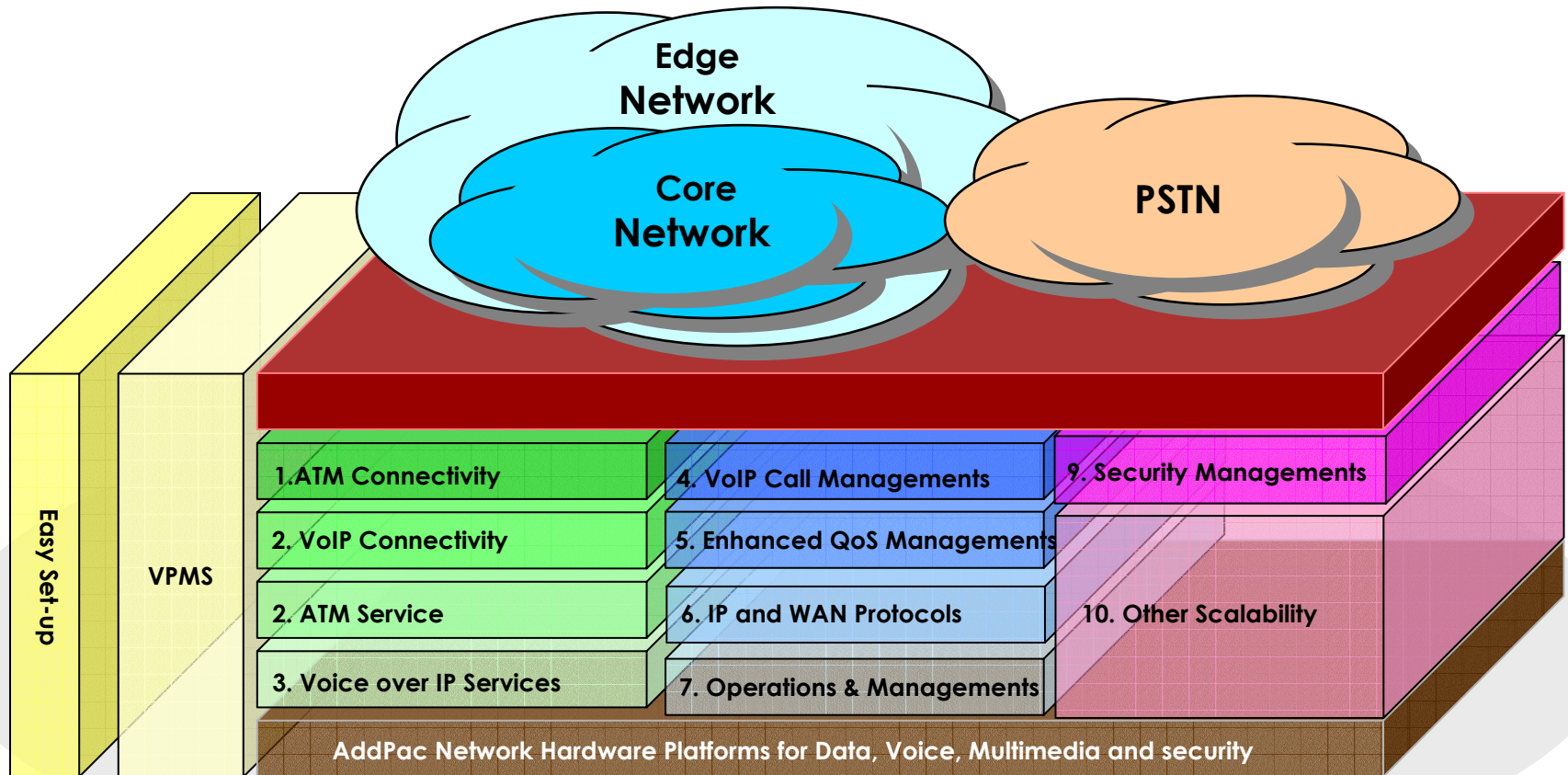
• APOS Internetworking Software World

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



AP2830 Multi-service Router Product Overview

APOS Internetworking S/W World (cont.)



AP2830 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 Port
- 2-Port 10/100Mbps Fast Ethernet Port
- 2-Port RS232C Asynchronous Serial Port

@ 1 E1 ATM Network Interface Module

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

@ ATM-OC3 Network Interface Module

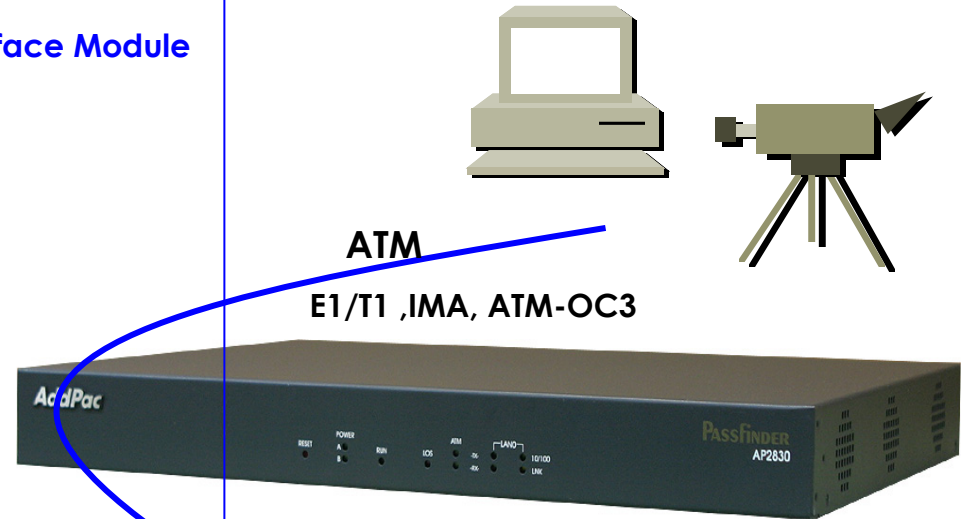
- 1port ATM-OC3 Port
- 2-port 10/100Mbps Fast Ethernet Port
- 2-port RS232C Asynchronous Serial Port

@ Ethernet Network Interface Module

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

• AP-FRV35 (1-port Frame-Relay)

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



AP2830 Multi-service Router Product Overview

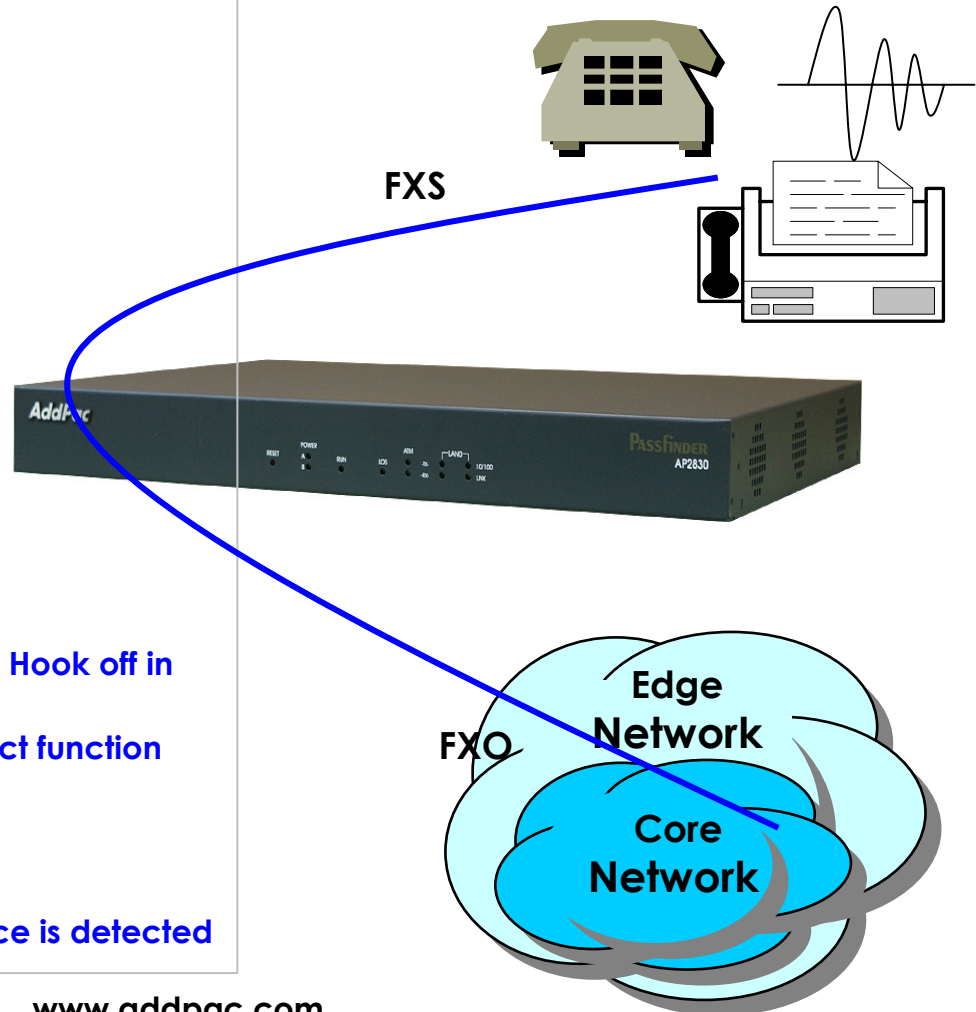
Multi-service Router Connectivity

- 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



AP2830 Multi-service Router Product Overview

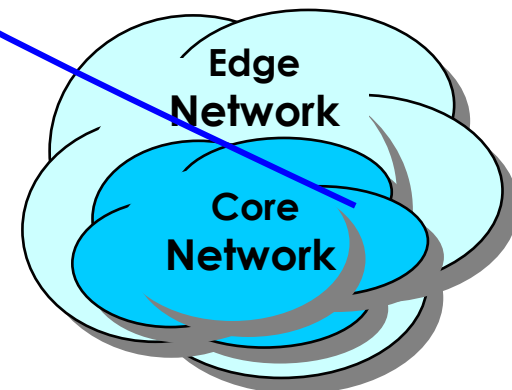
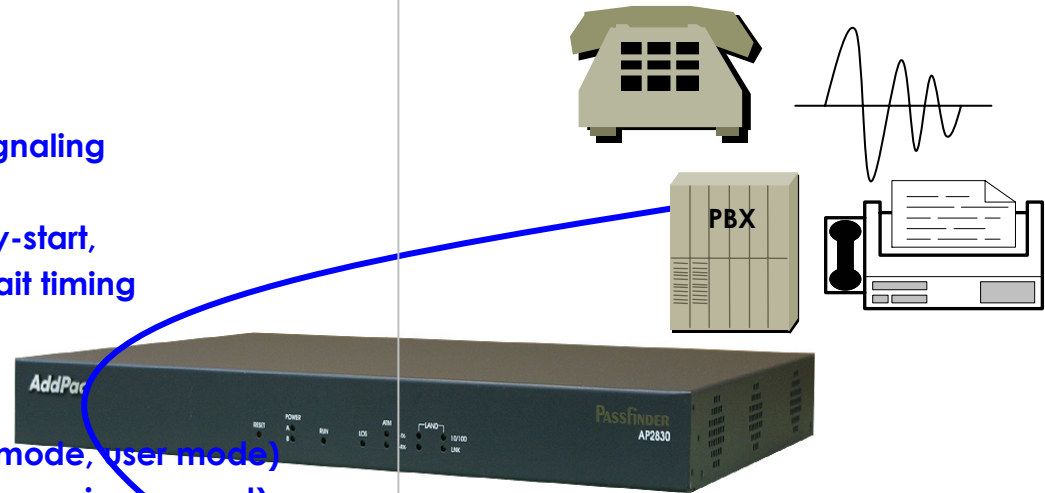
Multi-service Router Connectivity

- 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

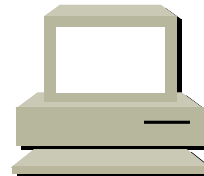
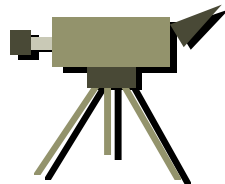
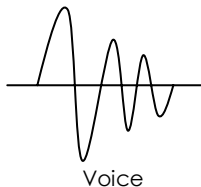
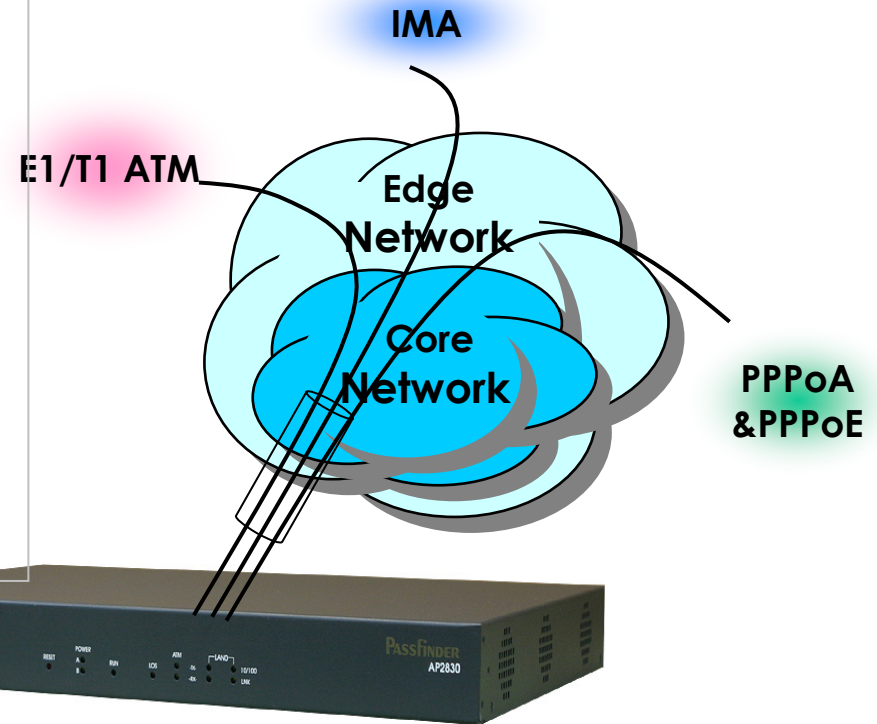
- ISDN PRI signaling support (network mode, user mode)
- R2 signaling support (calling number receive support)
- DTMF signaling support
- Clock source master mode, slave mode support
- In case of channel allocation, ascending / descending random support
- One physical E1/T1 interface can be divided into 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



AP2830 Multi-service Router Product Overview

ATM Service

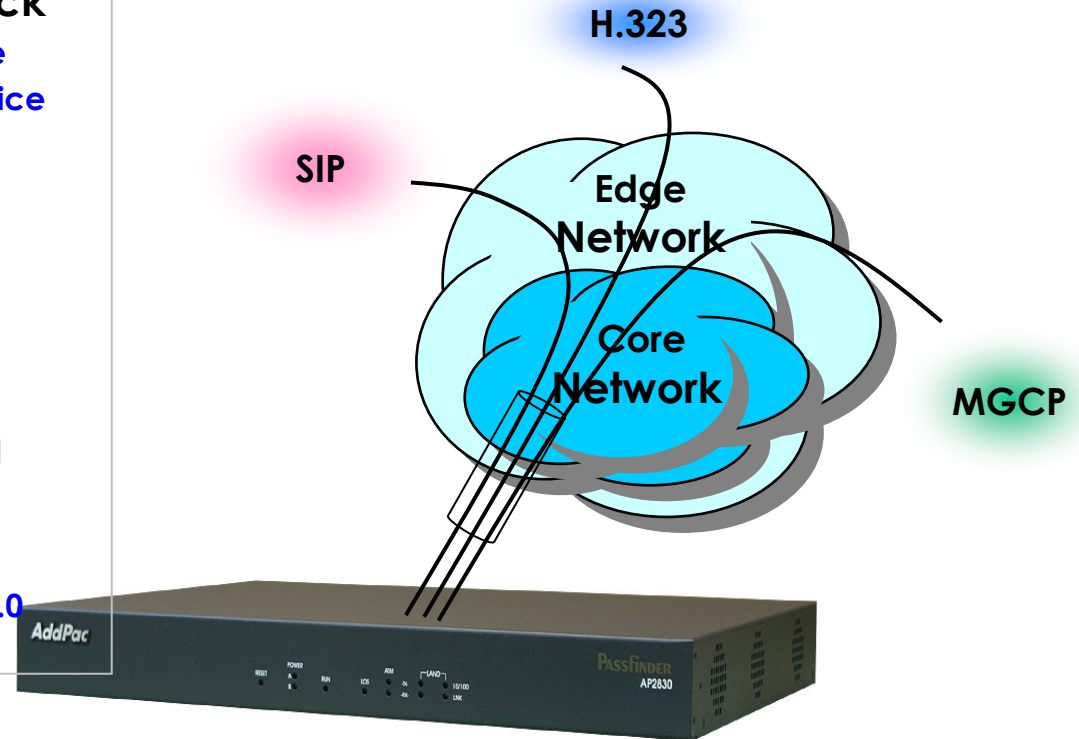
- Inverse Multiplexing over ATM (IMA) service
- ATM PVC UNI3.0, 3.1, 4.0 Support
- RFC1483 and RFC1577 based IPoA Service
- PPPoA and PPPoE Services
- ATM Classes of Service Support
 - ATM PVCs and SVCs Service
 - CBR, rt-VBR, nrt-VBR, UBR, and UBR+ Support
 - AAL0 ,AAL5
- PCR and MCR Service
- ATM Traffic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



AP2830 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



Voice



AP2830 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

AP2830 Multi-service Router Product Overview

Voice over IP Service (cont.)

• Voice Codec

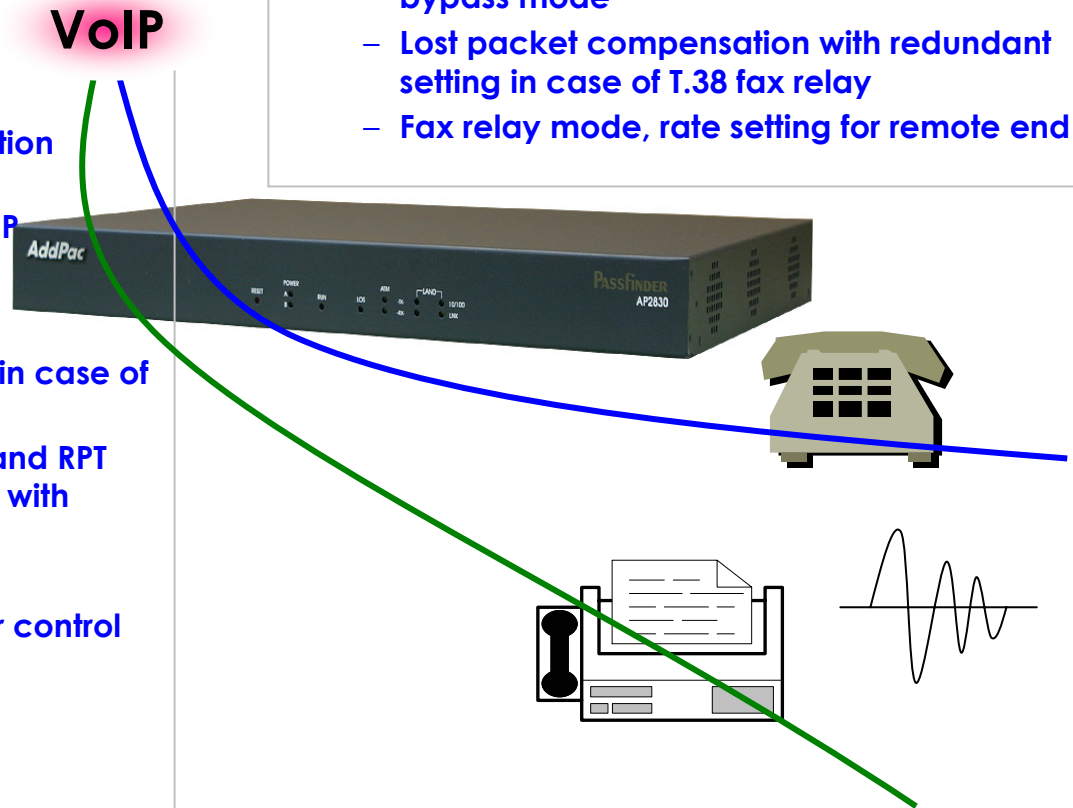
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

• 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



AP2830 Multi-service Router Product Overview

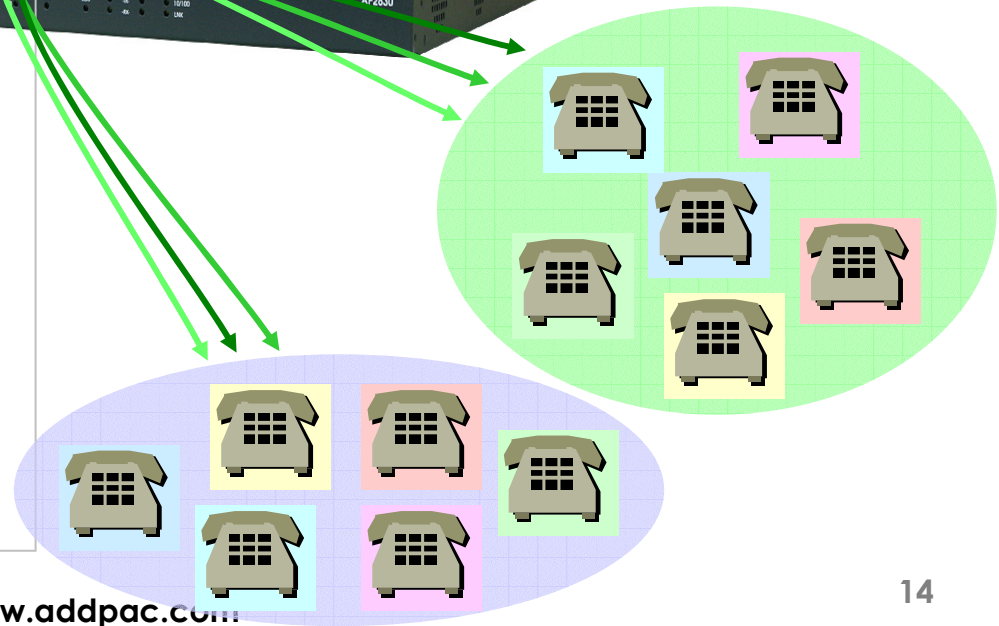
VoIP Call Managements

• 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



AP2830 Multi-service Router Product Overview

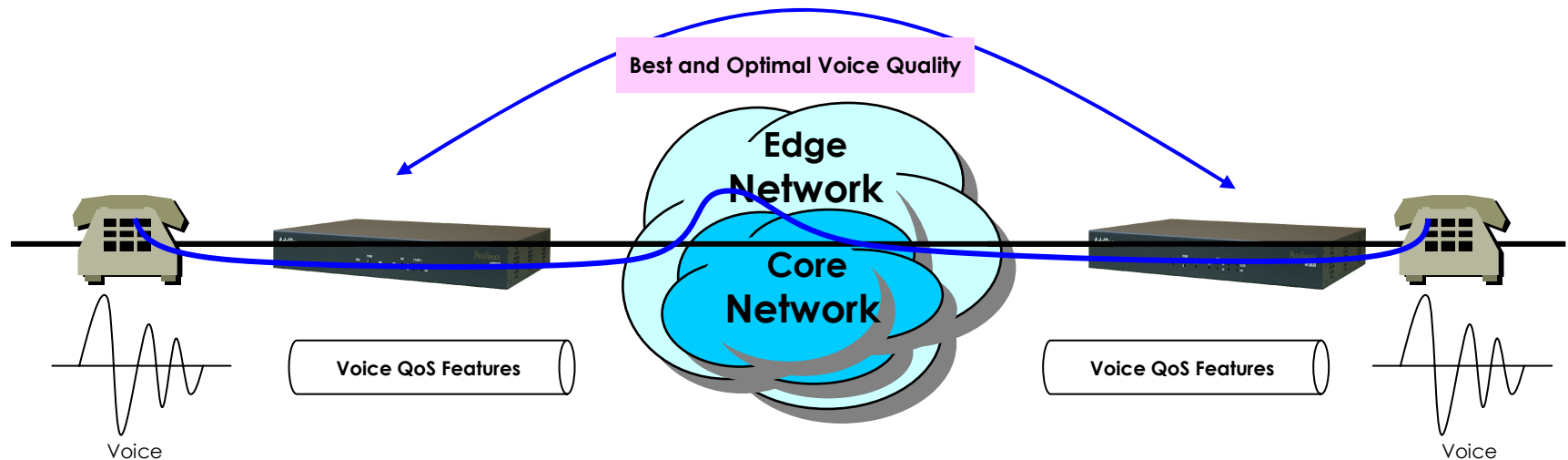
Enhances QoS Managements

• 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

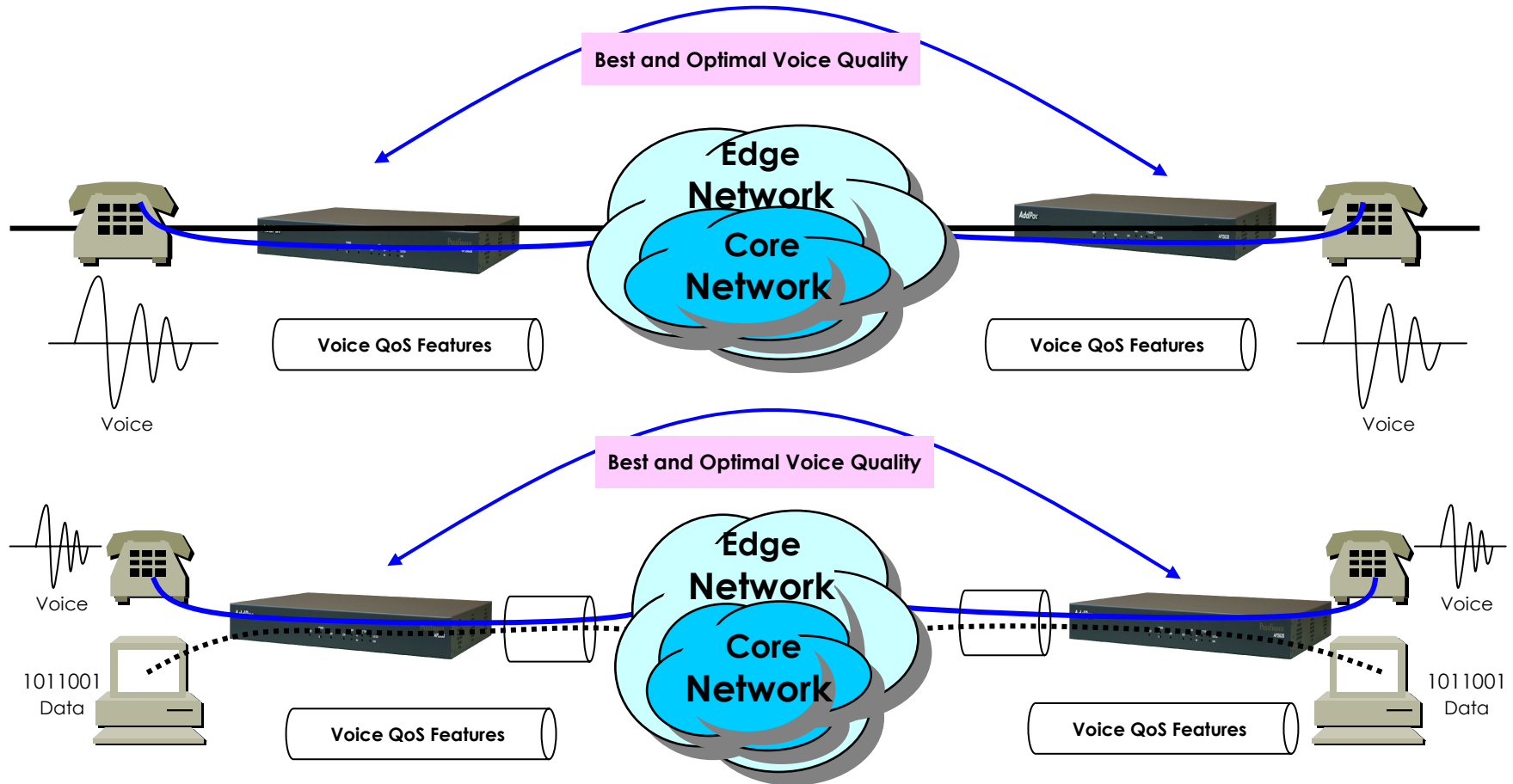
• Enhances **Receive** Voice QoS Features

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



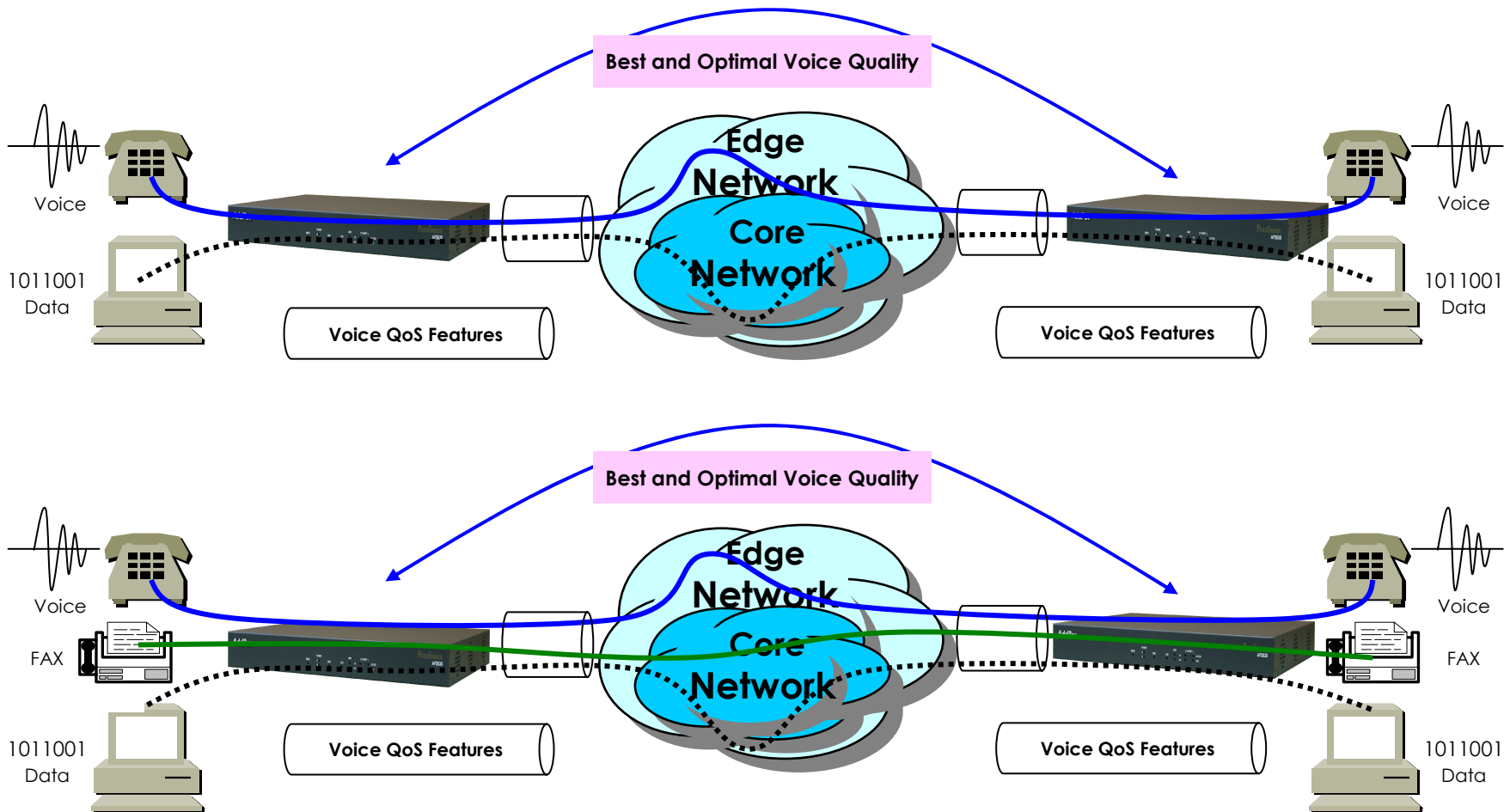
AP2830 Multi-service Router Product Overview

Enhances QoS Managements (cont.)



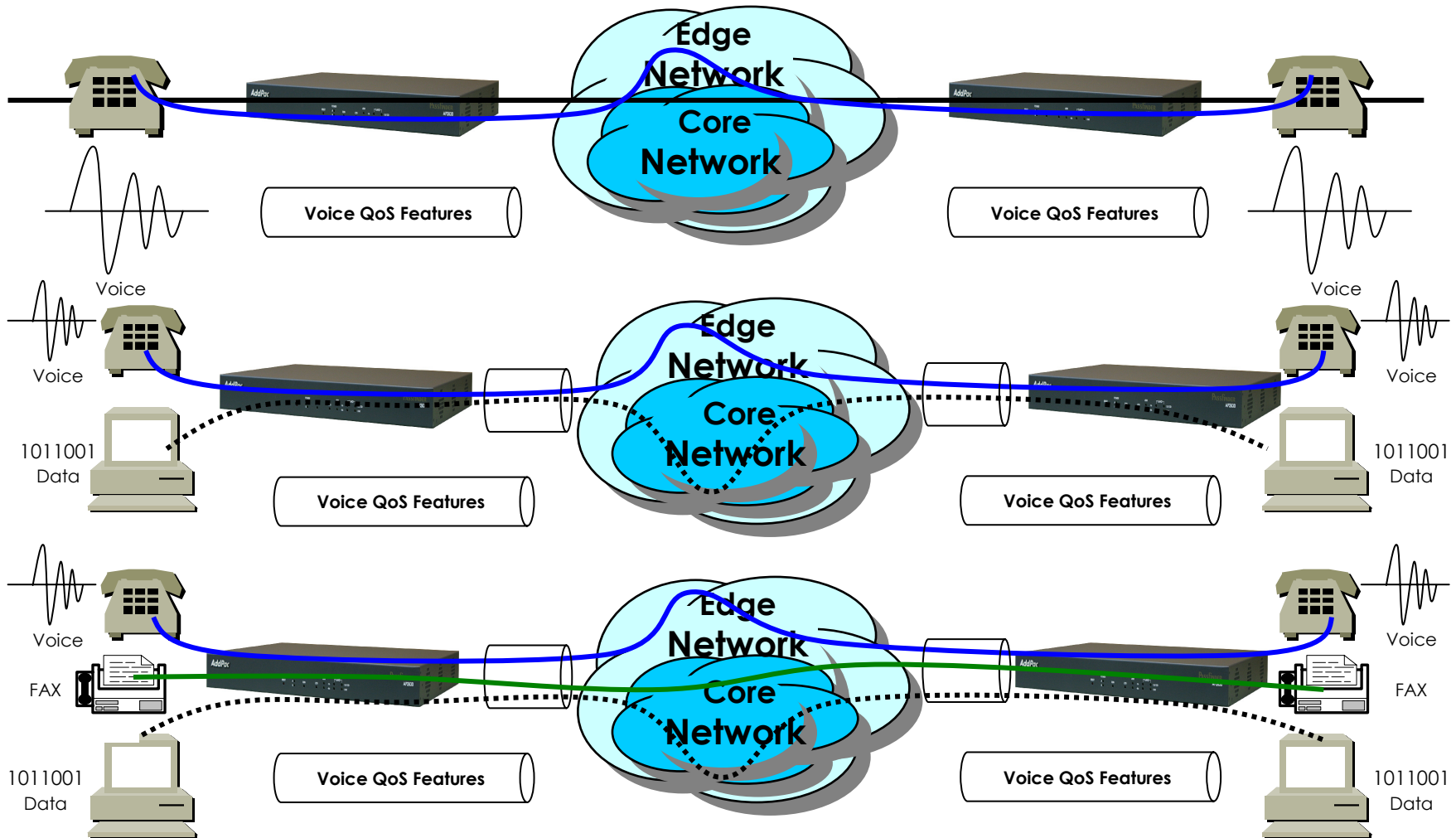
AP2830 Multi-service Router Product Overview

Enhances QoS Managements (cont.)



AP2830 Multi-service Router Product Overview

Enhances QoS Managements (cont.)



AP2830 Multi-service Router Product Overview

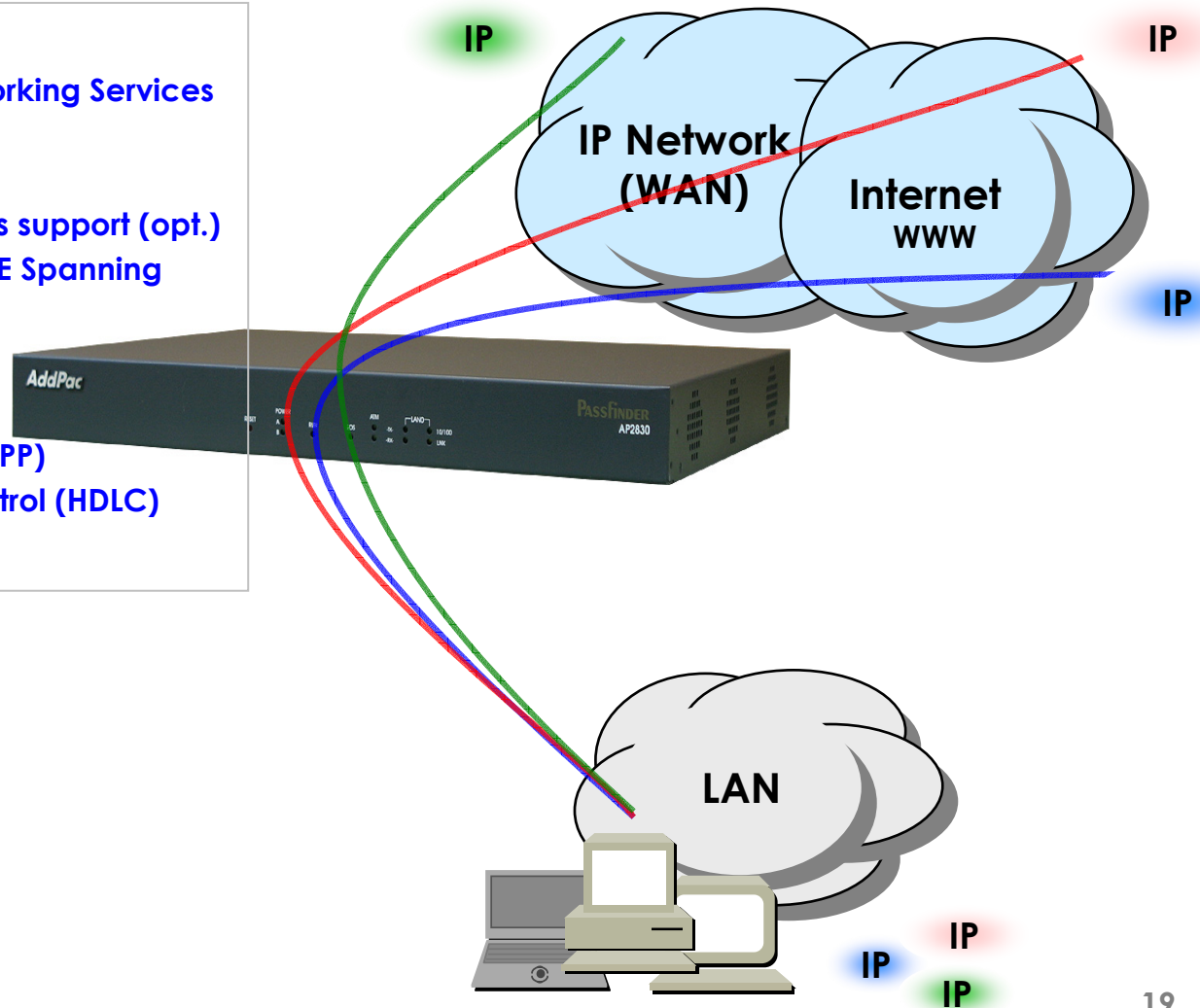
IP and WAN Protocols

- **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



AP2830 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**

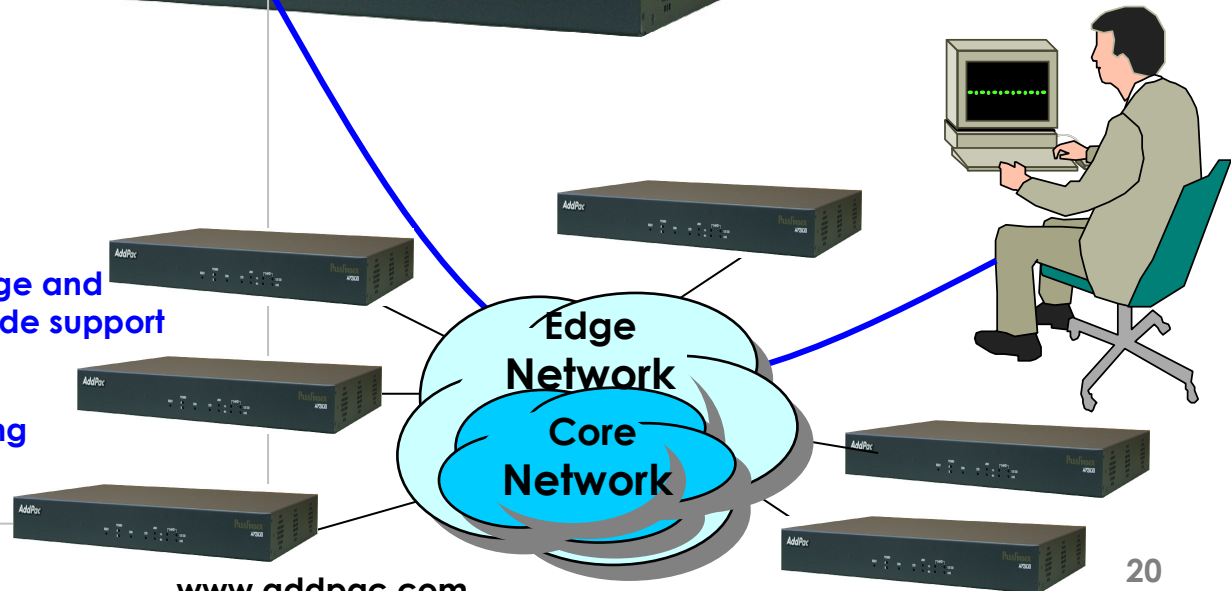
- Text based script downloading

- **Easy Set-up Service**

- MS Windows Graphical User Interface (GUI) based installation Software Solution
- Easy installation Set-up service

- **Interoperable with AP-VPMS Service**

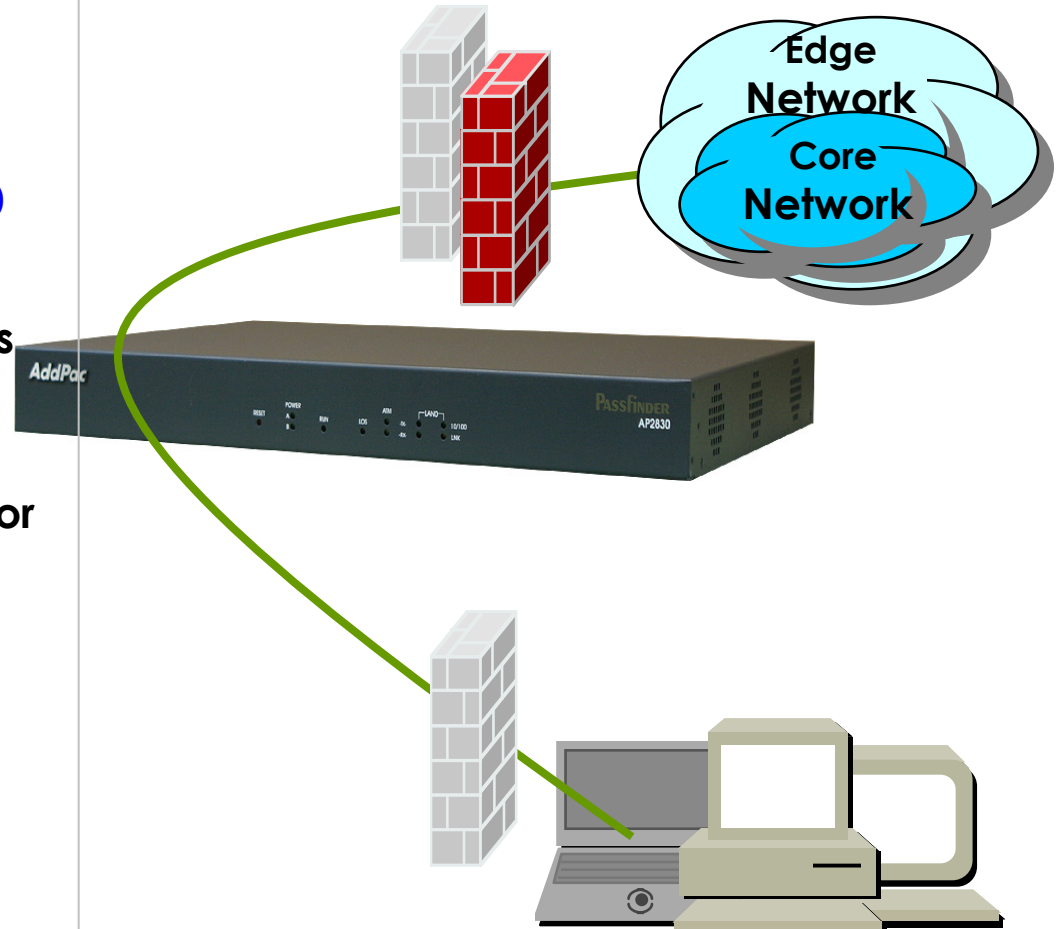
- AddPac VoIP Plug & Play Management System (AP-VPMS)



AP2830 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



AP2830 Multi-service Router Product Overview

Network Scalability

- **IP Sharing Feature**

- Single IP Address, Multiple IP Network Access
- Public IP Address Sharing by VoIP Gateway

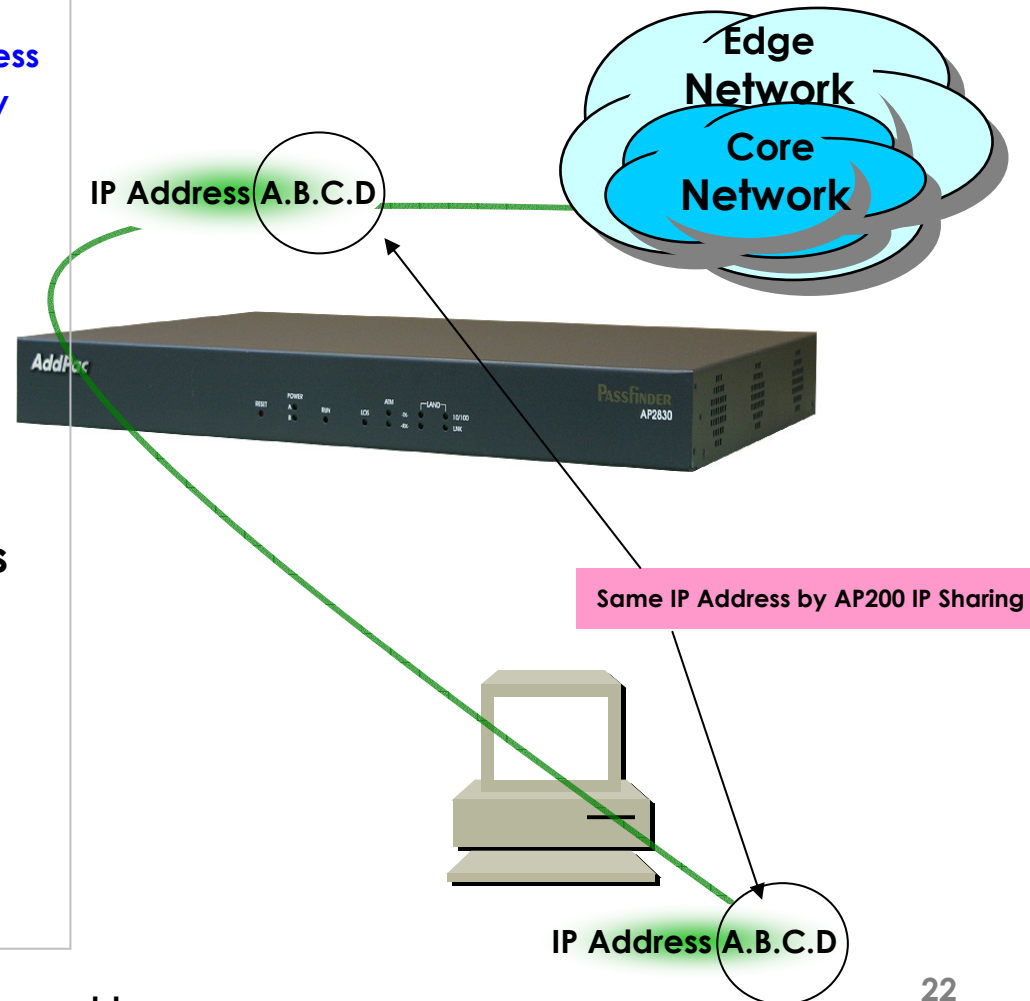
- **IP Sharing Network Environment**

- 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**

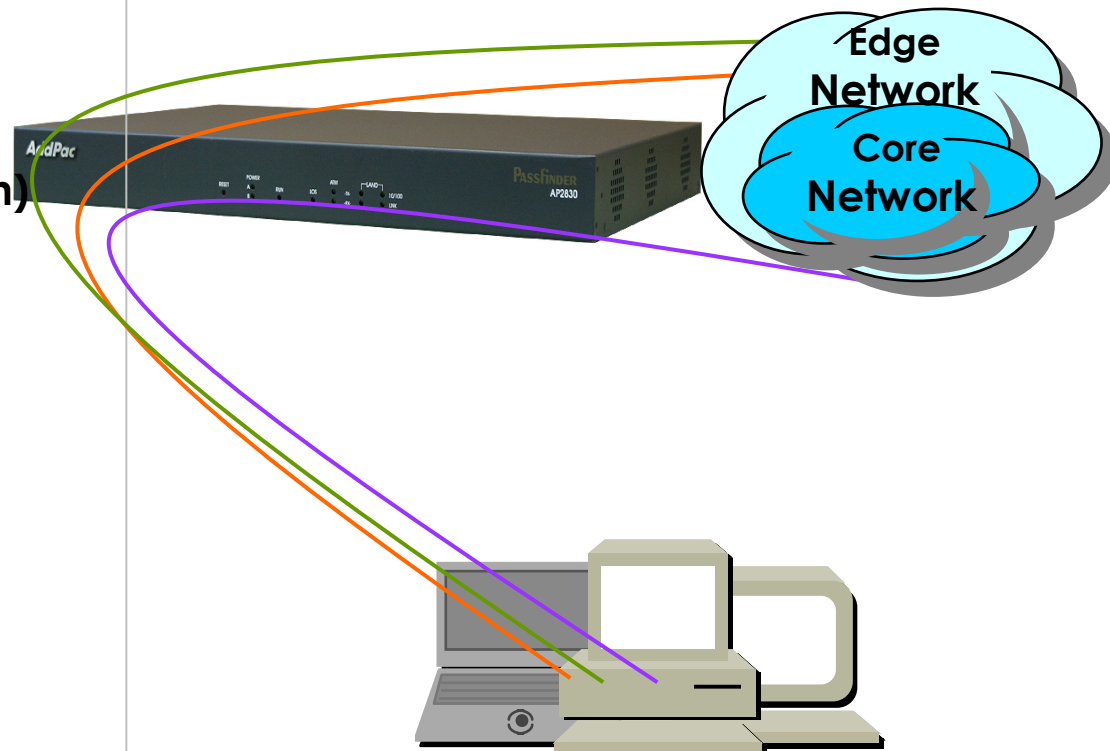
- PPPoE
- PPPTP
- PPPoA
- DHCP



AP2830 Multi-service Router Product Overview

Network Scalability (cont.)

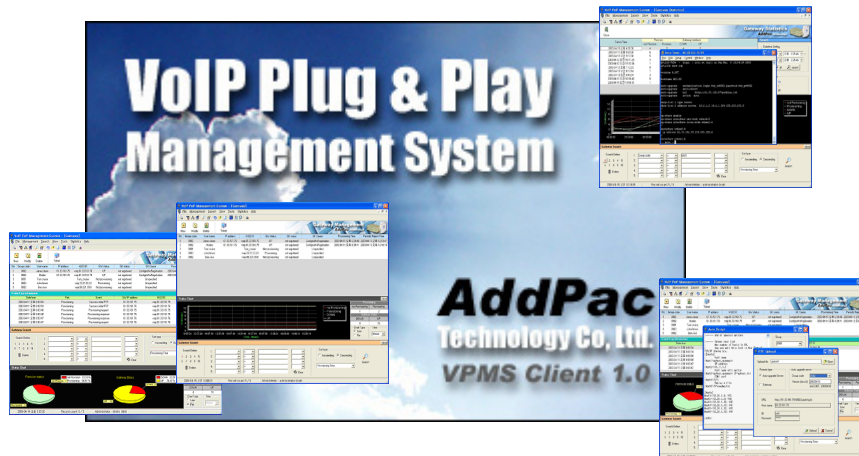
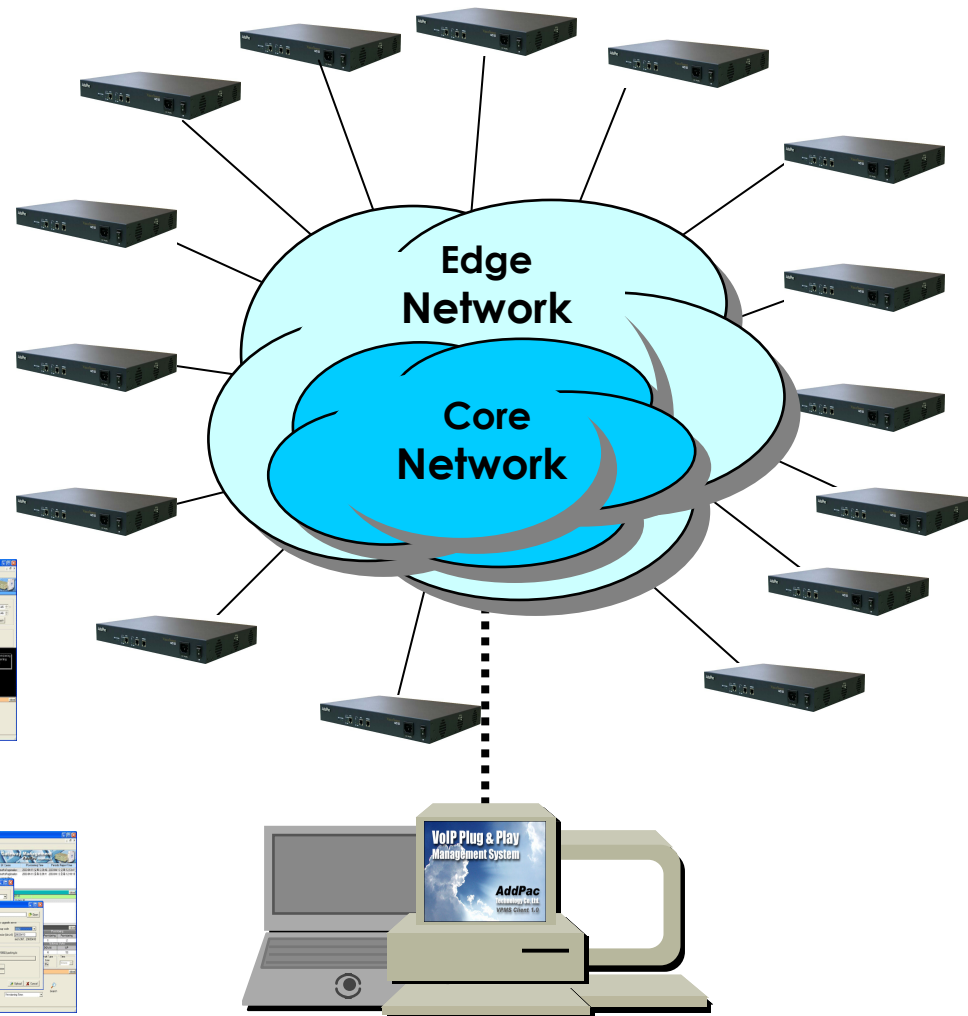
- **Bridging Service**
 - Spanning Tree Bridging protocol (IEEE) support
- **DHCP**
 - Server and Relay
- **IP Accounting**
- **PAT (Port Address Translation)**
- **NAT (Network Address Translation)**
- **Cisco Style CLI (Command Line Interface)**
- **PPTP (Point-to-Point Tunneling Protocol)**
- **NTP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



AP2830 Multi-service Router Product Overview

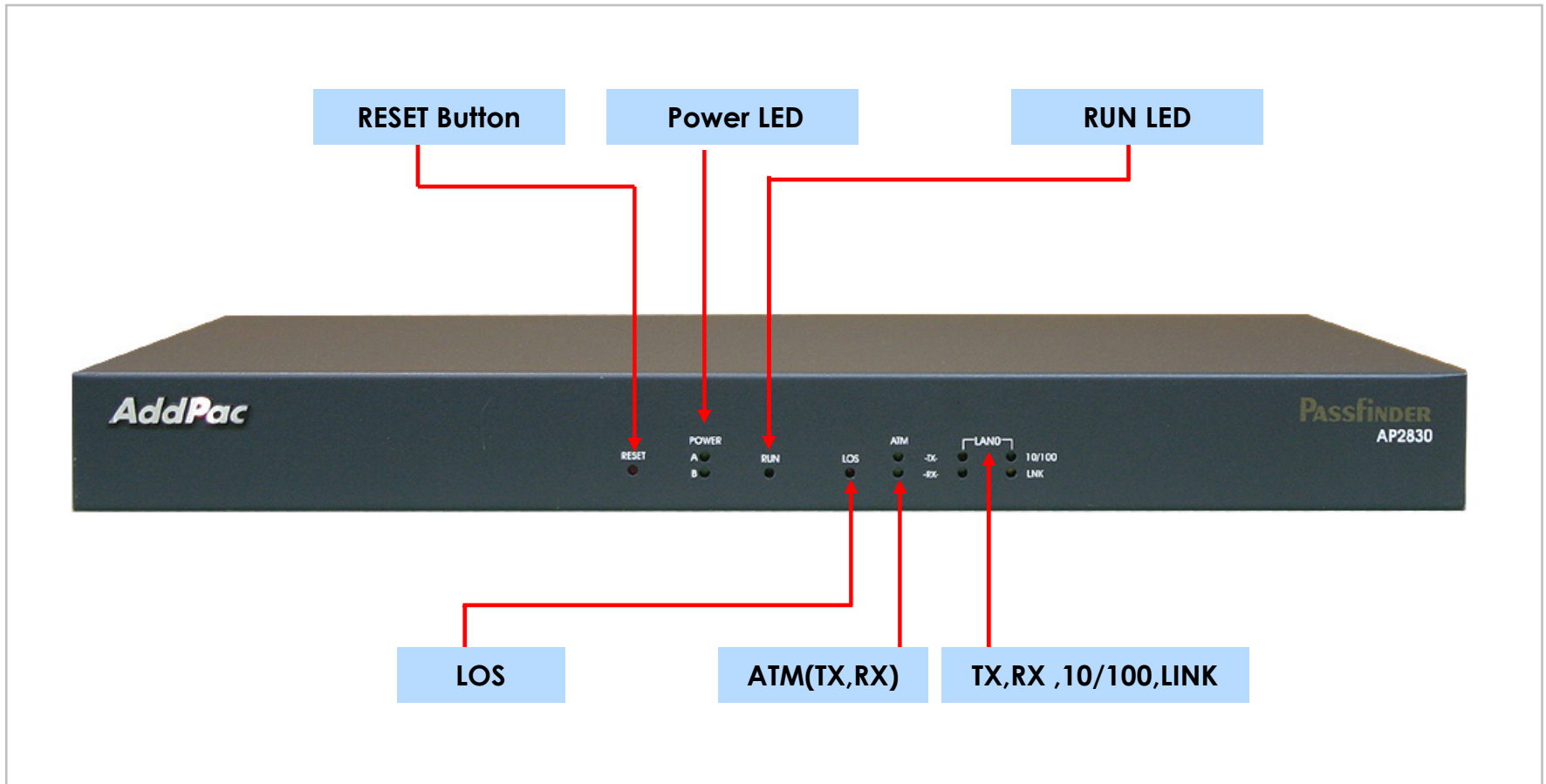
VoIP Plug & Play System (VPMS)

- **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



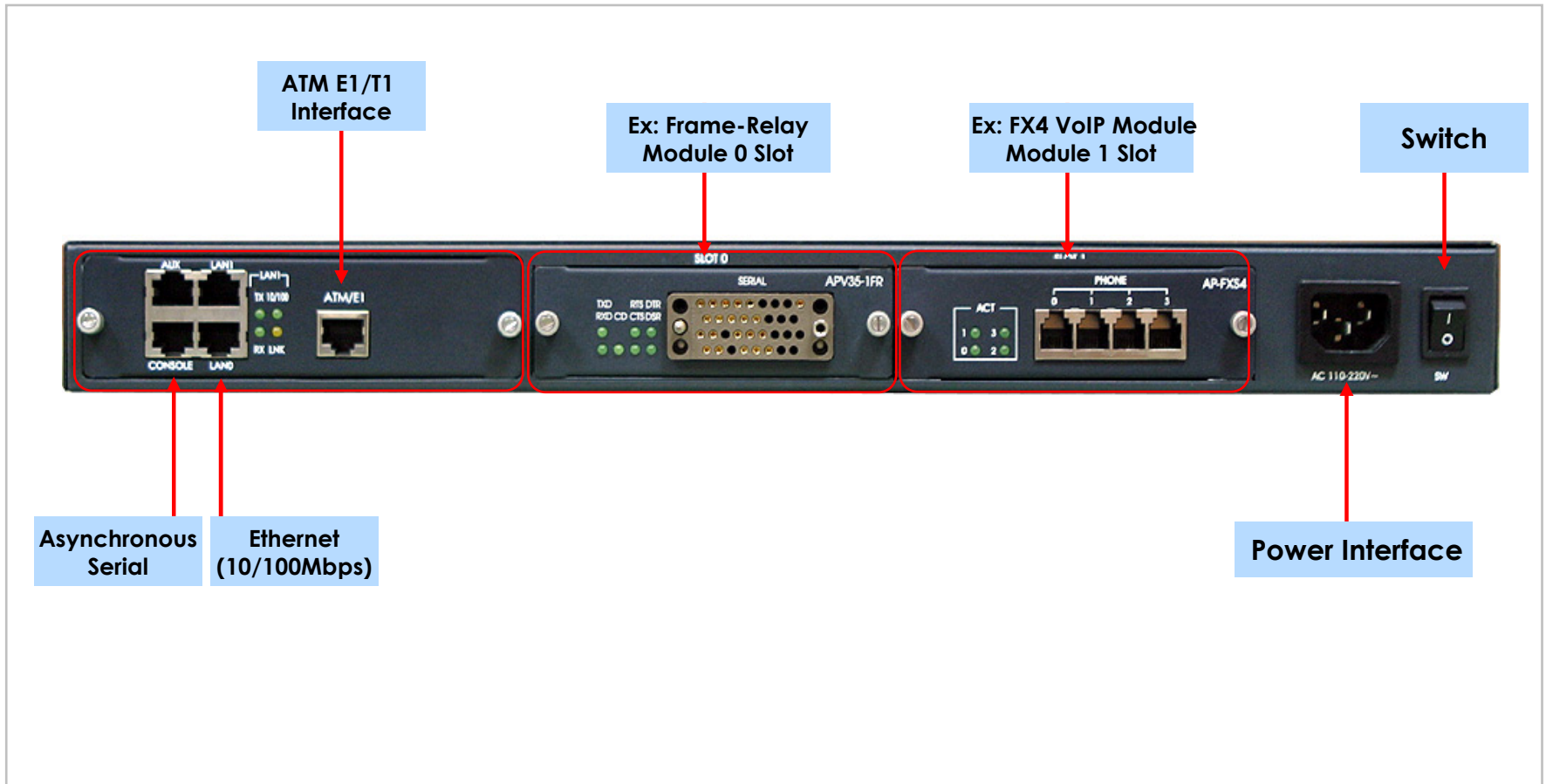
AP2830 Multi-service Router Product Overview

AP2830 Network Configurations



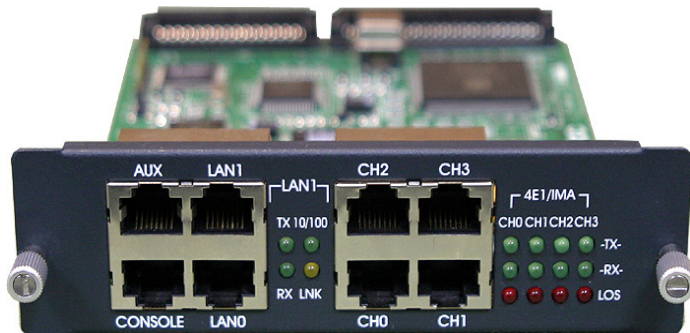
AP2830 Multi-service Router Product Overview

AP2830 Hardware Specification



AP2830 Multi-service Router Product Overview

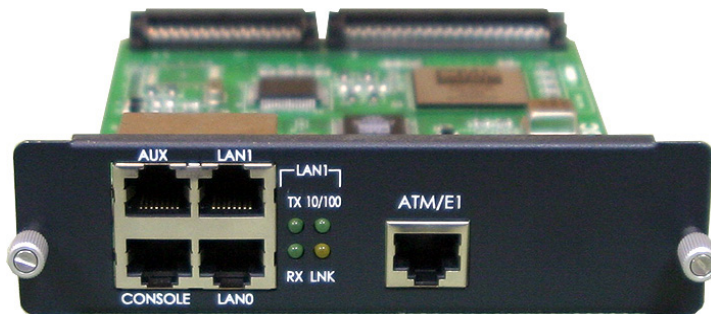
AP2830 Network Interface Module



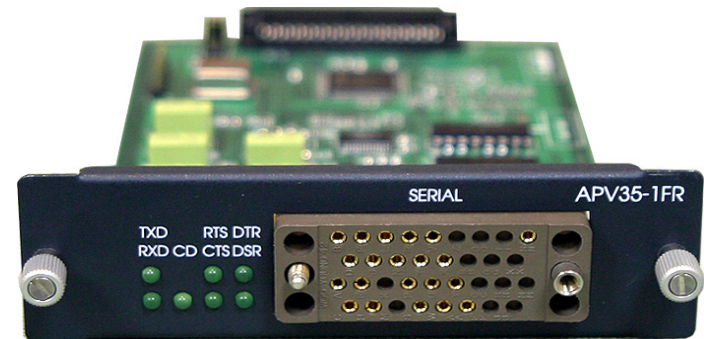
4-Port Multiple E1/T1 ATM Interface / IMA Interface
2-Port 10/100Mbps Fast Ethernet Interface
2-Port Asynchronous Serial Interface



2-Port 10/100Mbps Fast Ethernet Interface
2-Port Asynchronous Serial Interface



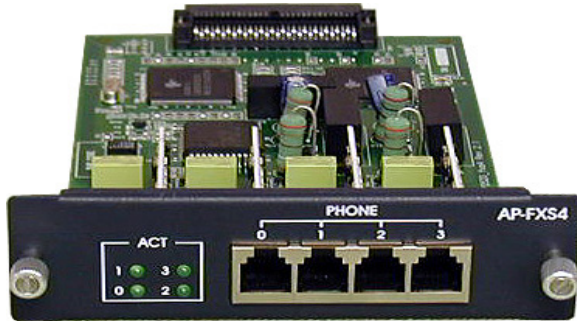
1-Port ATM E1/T1 Interface
2-Port 10/100Mbps Fast Ethernet Interface
2-Port Asynchronous Serial Interface



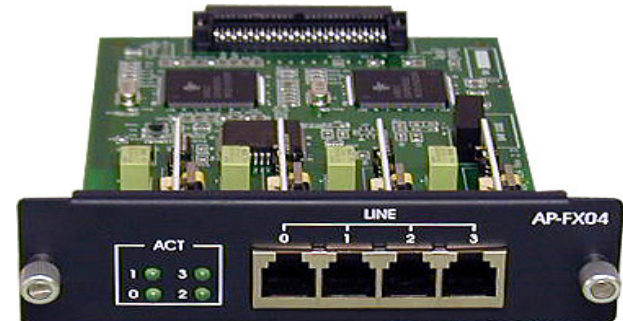
• AP-FRV35 (1-port Frame-Relay)

AP2830 Multi-service Router Product Overview

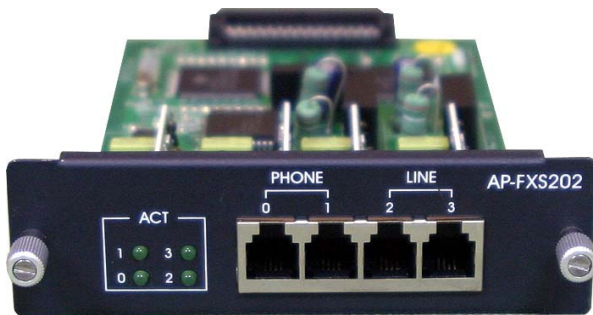
AP2830 Analog Voice Module



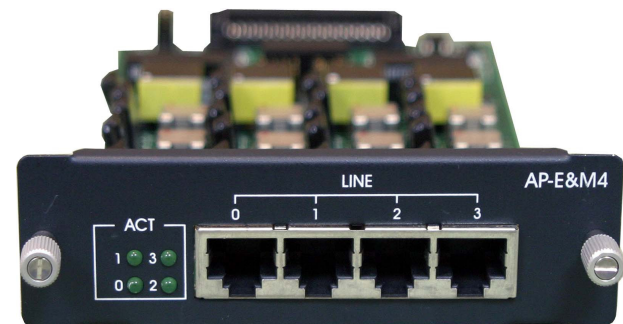
AP-FXS4 Module



AP-FXO4 Module



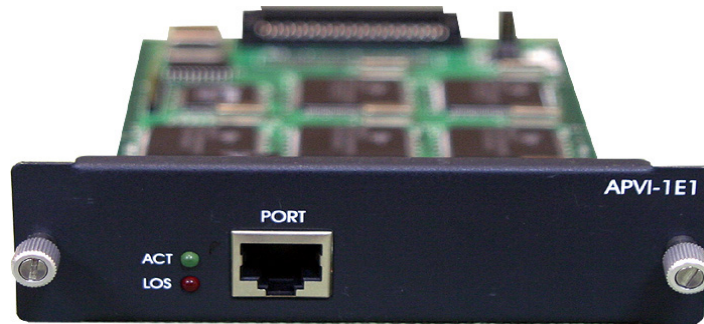
AP-FXS2, FXO2 Module



AP-E&M4 Module

AP2830 Multi-service Router Product Overview

AP2830 Digital Voice Module



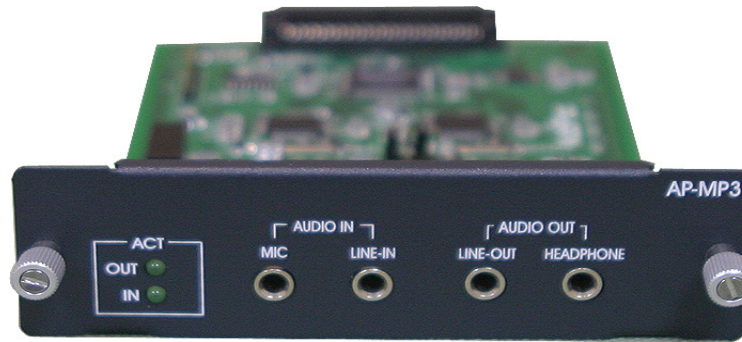
AP-E1 Module



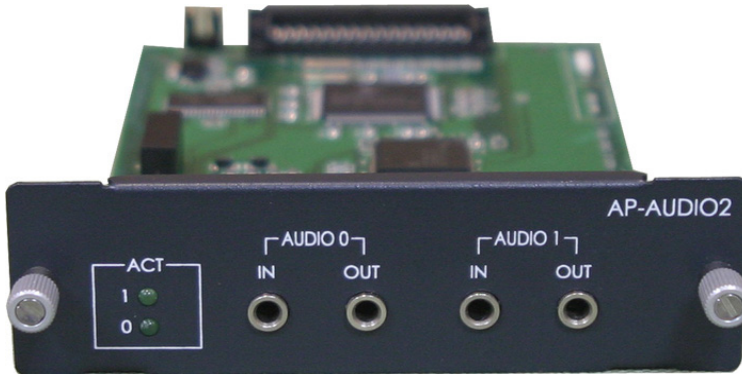
AP-T1 Module

AP2830 Multi-service Router Product Overview

AP2830 IP Broadcasting Module



AP-MP3 Module (High Quality)



AP-AUDIO2 Module



AP-AUDIO1,FXS3 Module

AP2830 Multi-service Router Product Overview

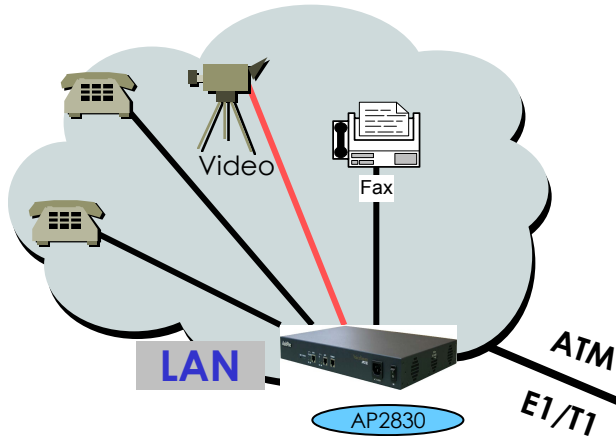
AP2830 Hardware Specification

AP2830 Multi-service Router	Basic Specifications
Microprocessor	Power PC 64Bit RISC Microprocessor
Number of Slot	One(1) Network Module and Two(2) Multi-service Module Slots
Network Interface Module	4-Port Independent E1/T1 or IMA Interface Module 1-Port E1 ATM Interface Module ATM-OC3 Metro ATM Interface Module Ethernet Interface Module
Multi-service Modules	4-Port FXS, FXO, E&M Module s 2-Port FXO & 2-Port FXS Module MP3, AUDIO, AUDIO&FXS Modules 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

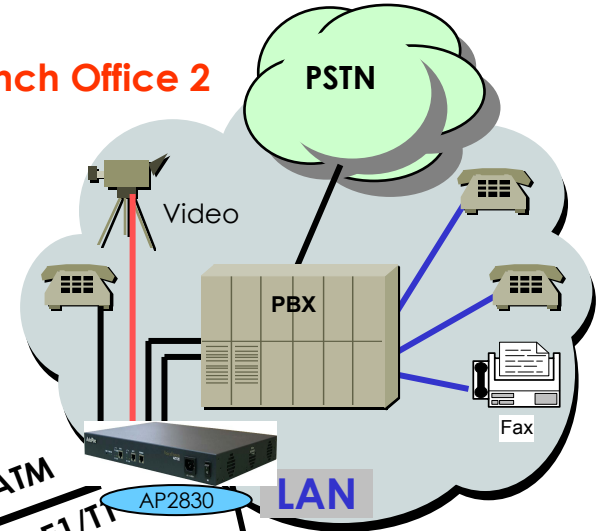
AP2830 Voice Networking Configuration

ATM Multi-Service +Router Application

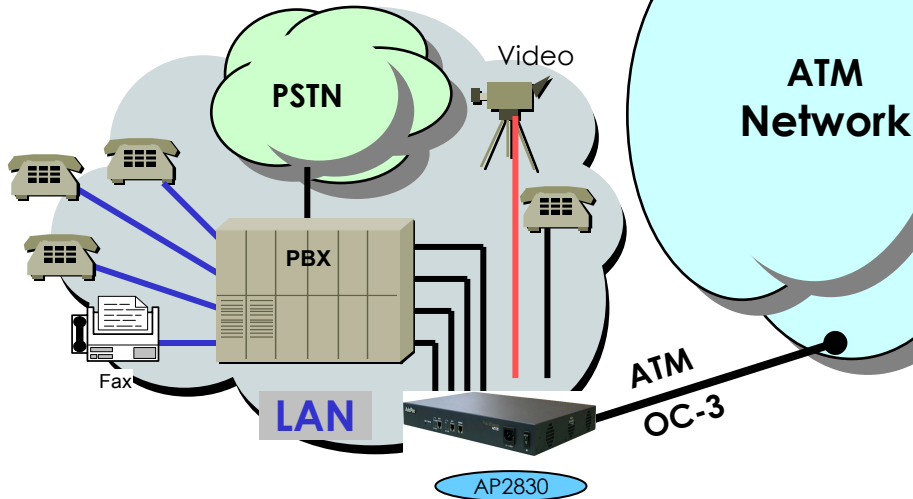
Branch Office 1



Branch Office 2



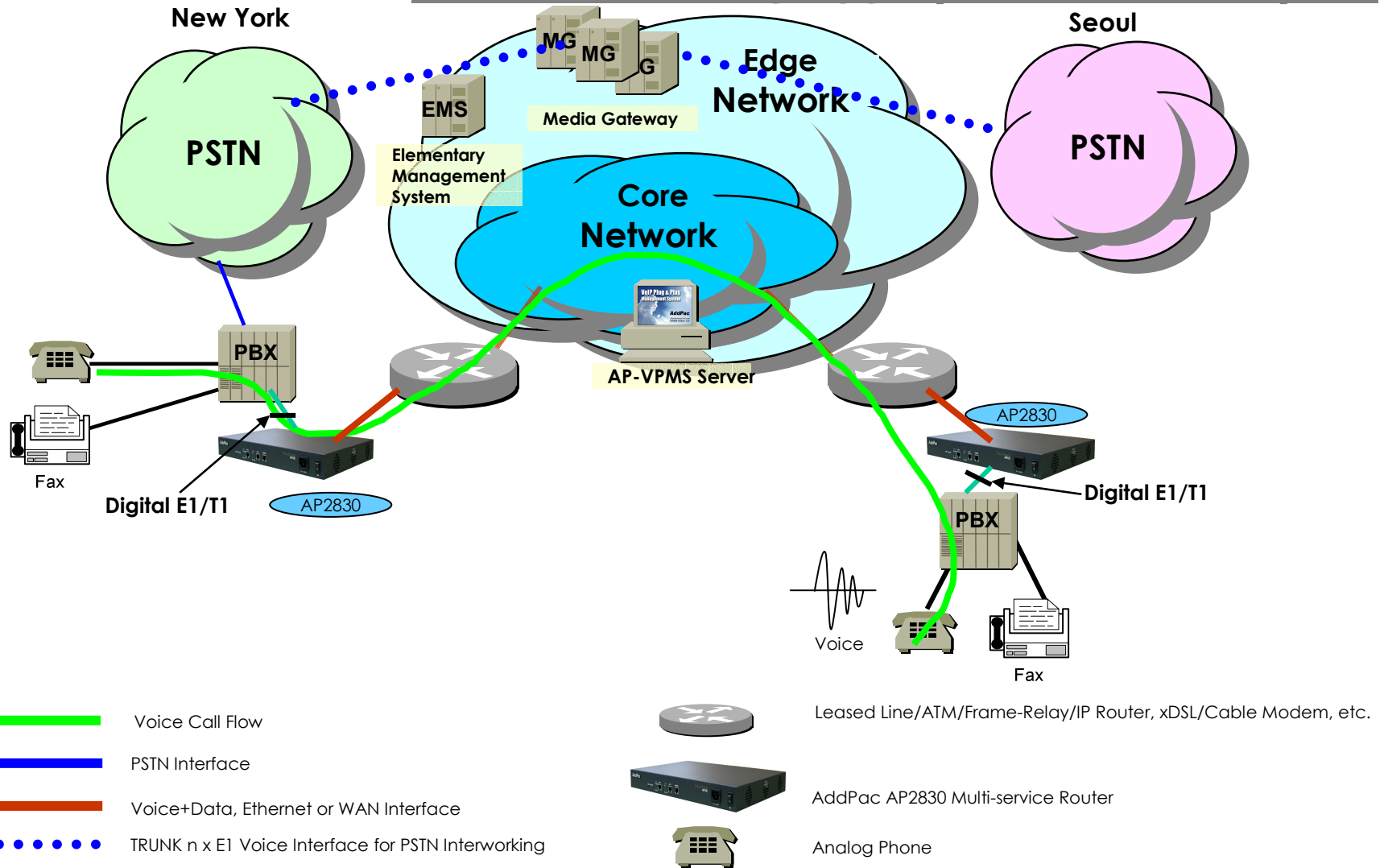
Head Office



Network Managements

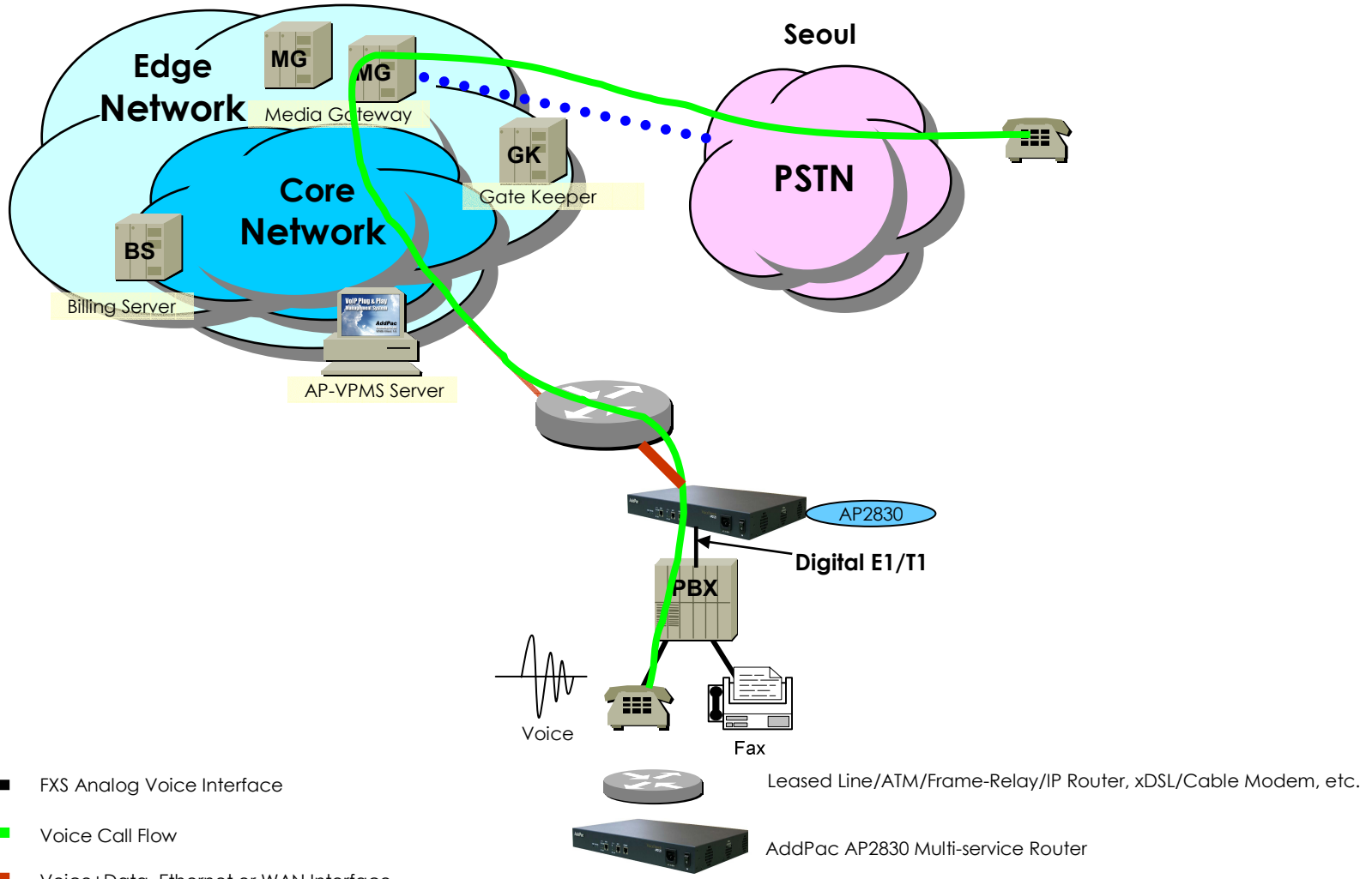
AP2830 Voice Networking Configuration

VoIP Gateway Appl. (Inter-office calls)



AP2830 Voice Networking Configuration

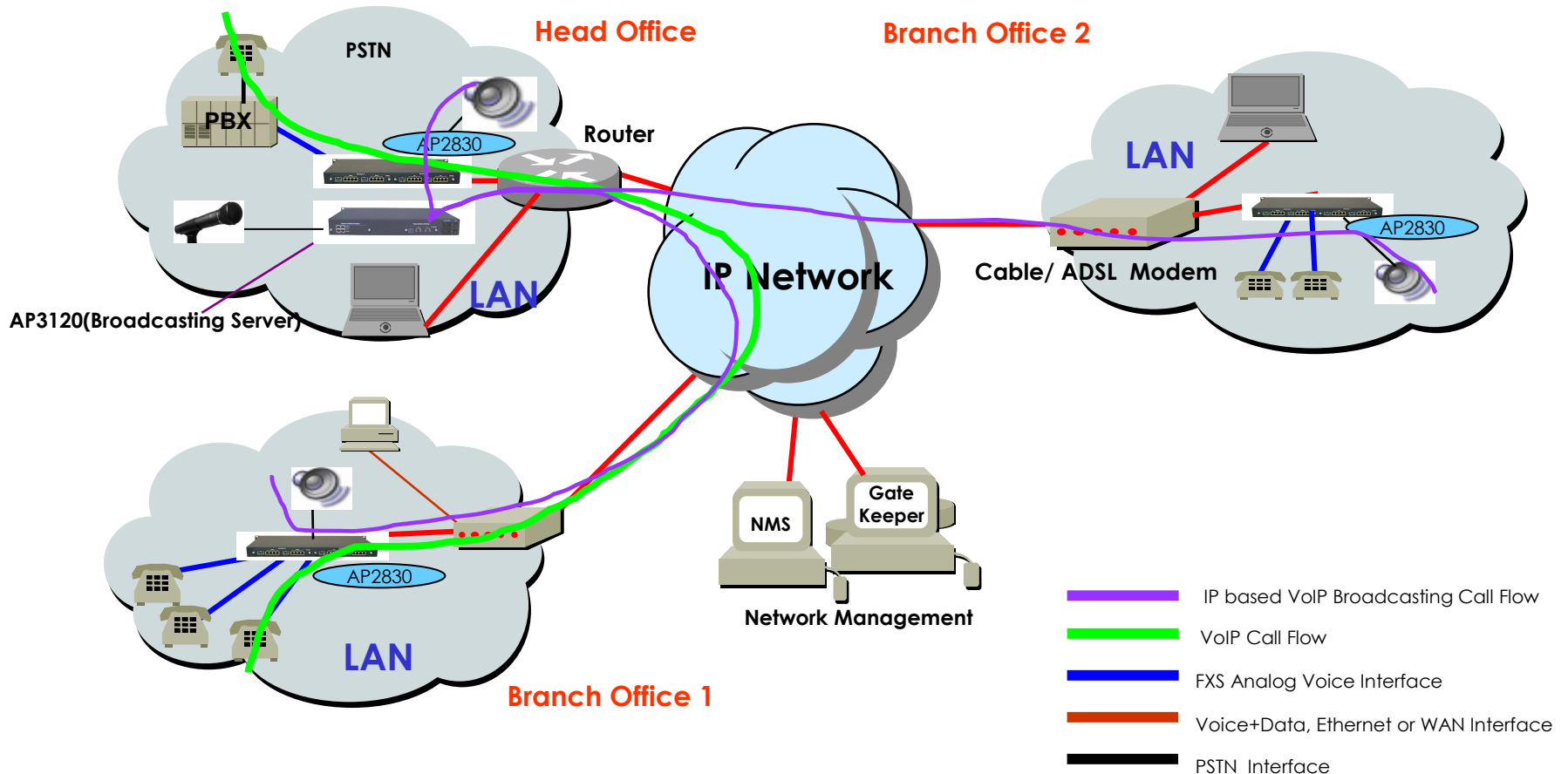
VoIP Gateway Appl.(VoIP to PSTN Inter-working Call Flow)



-  FXS Analog Voice Interface
-  Voice Call Flow
-  Voice+Data, Ethernet or WAN Interface
-  Leased Line/ATM/Frame-Relay/IP Router, xDSL/Cable Modem, etc.
-  AddPac AP2830 Multi-service Router
-  Analog Phone

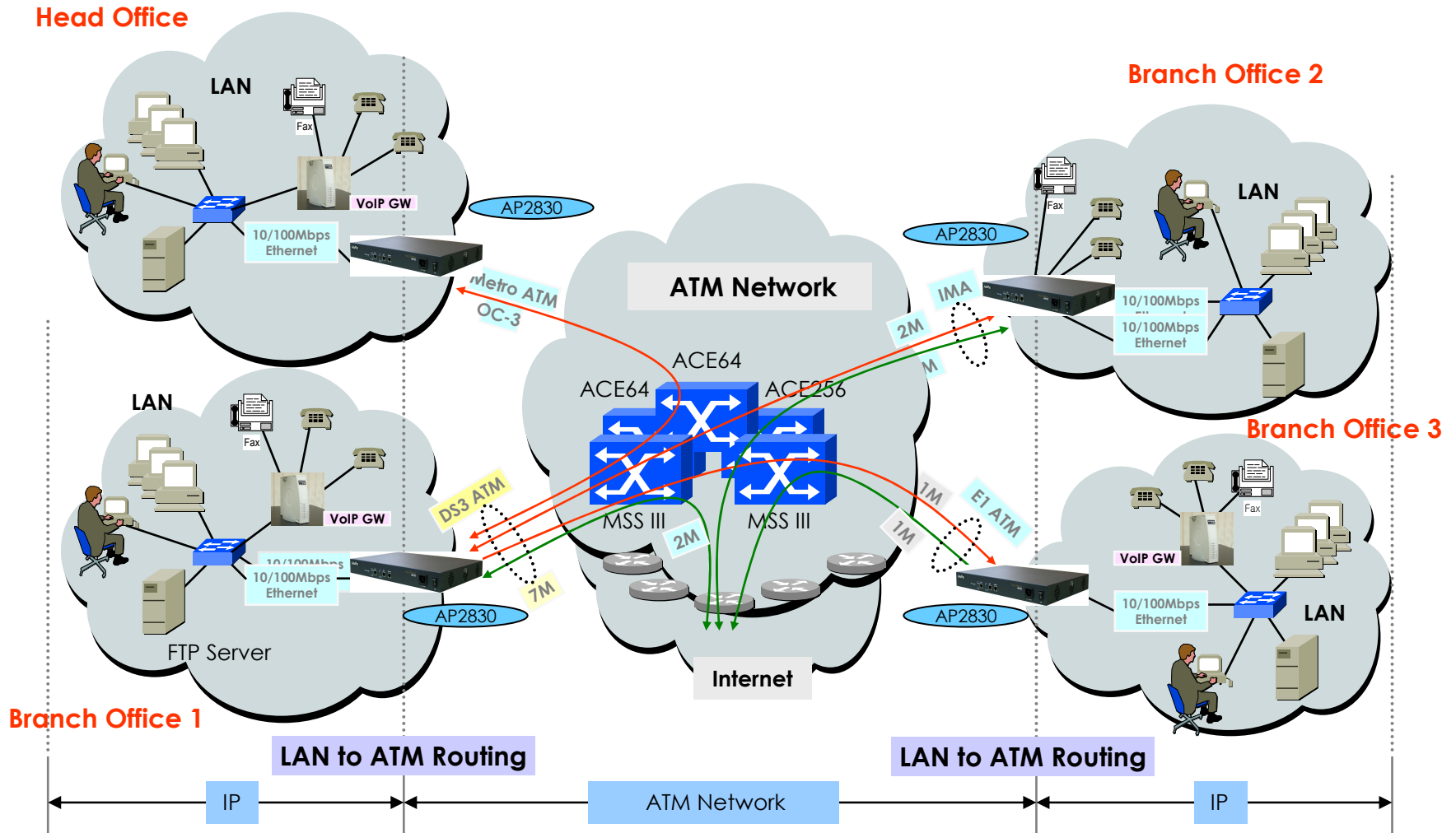
AP2830 Voice Networking Configuration

VoIP Gateway + Broadcasting Terminal Application



AP2830 Voice Networking Configuration

ATM Router Application



AP2830 Multi-service Router Product Overview

AP2830 Ordering and Pricing

• AP2830 Multi-Service Router

– Multi-Service Router

- 64bit RISC CPU, 8MB Flash, 64MB SDRAM, 8MB Local Memory
- APOS v5.xx with Operation Manual
- Including CAB-LAN, CAB-CON

One(1) Network Interface Slot

- 28xx-IMA 4-Port ATM IMA Interface Module
- 28xx-E1 1-Port FXS Interface Module
- 28xx-OC3 1-Port ATM-OC3 Interface Module
- 28xx-LAN LAN Interface Module

Two(2) Multi-Service I/O Slots

- 28xx-FXS4 4Port FXS Interface Module
- 28xx-FXS4 4Port FXS Interface Module
- 28xx-FXO4 4Port FXO Interface Module
- 28xx-E&M4 4Port E&M Interface Module
- 28xx-FXS2O2 2Port FXS & 2Port FXO Interface Module
- AP-MP3 High Quality MP3 Audio Broadcasting Module
- AP-AUDIO2 Voice Band 2-Channel Broadcasting Module
- AP-AUD1S3 Voice Band Audio Port + VoIP 3-Port FXS Module
- APV1-1E1V 1-port Digital E1 ISDN-PRI Network Module
- APV1-1T1V 1-port Digital T1 ISDN-PRI Network Module
- AP-FRV35 1-port Frame-Relay Interface Module



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AP2830 Comparison Table



AP2830 Multi-service Router

▶ Analog VoIP Module	Up to 2
▶ Digital E1 /T1 VoIP Module	Up to 2
▶ 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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