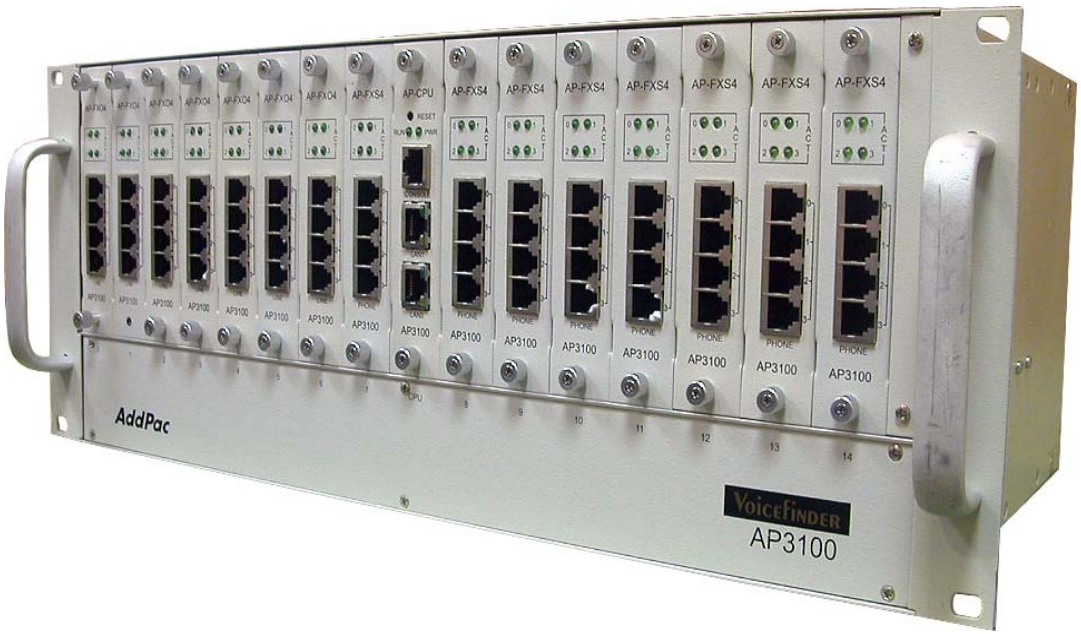


VoIP

AP3100

Mid-Range VoIP Gateway

Technical Sales and Marketing

AddPac Technology

www.addpac.com

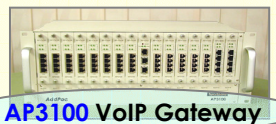
AddPac VoIP Products Road-Map

Multi-services Specific

Application Specific

Voice over IP Solutions

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



AP3100 VoIP Gateway

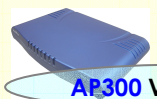
NGN VoIP



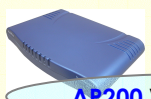
AP2120 VoIP Gateway



AP100x/1100 VoIP G/W Series



AP300 VoIP G/W Series



AP200 VoIP G/W Series

PSTN Dial-UP



AP160 VoIP Gateway

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



ATM Digital T1/E1

AP2850 Multi-service Router



ATM Digital T1/E1

AP2830 Multi-service Router



NEW Secure VoIP

AP2520S Secure VoIP Gateway



Digital T1/E1

AP2520R VoIP Router



Digital T1/E1

AP2520G VoIP Gateway



Digital T1/E1

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

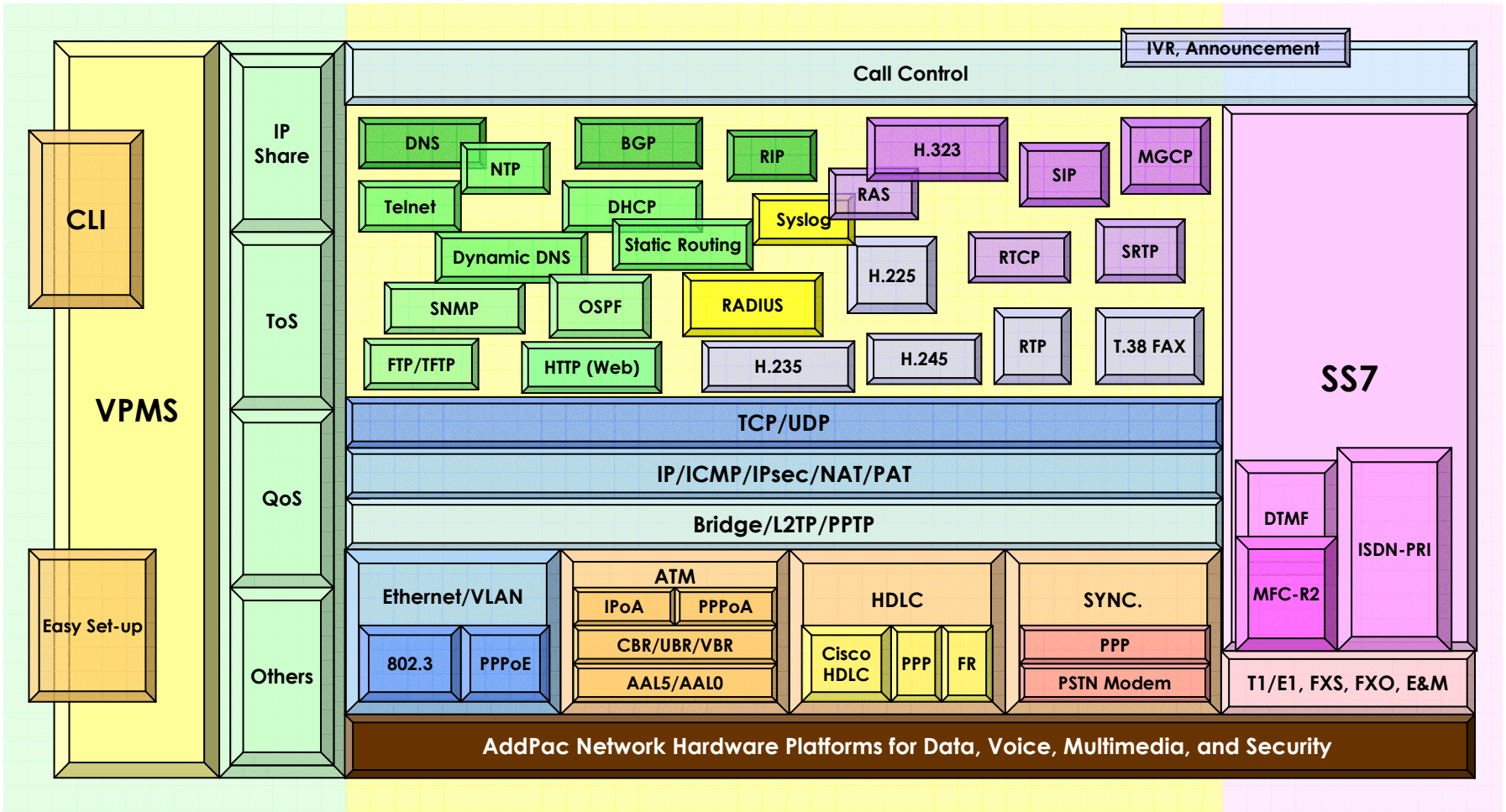
IP Application Solutions

AddPac

www.addpac.com

AP300 VoIP Gateway Product Overview

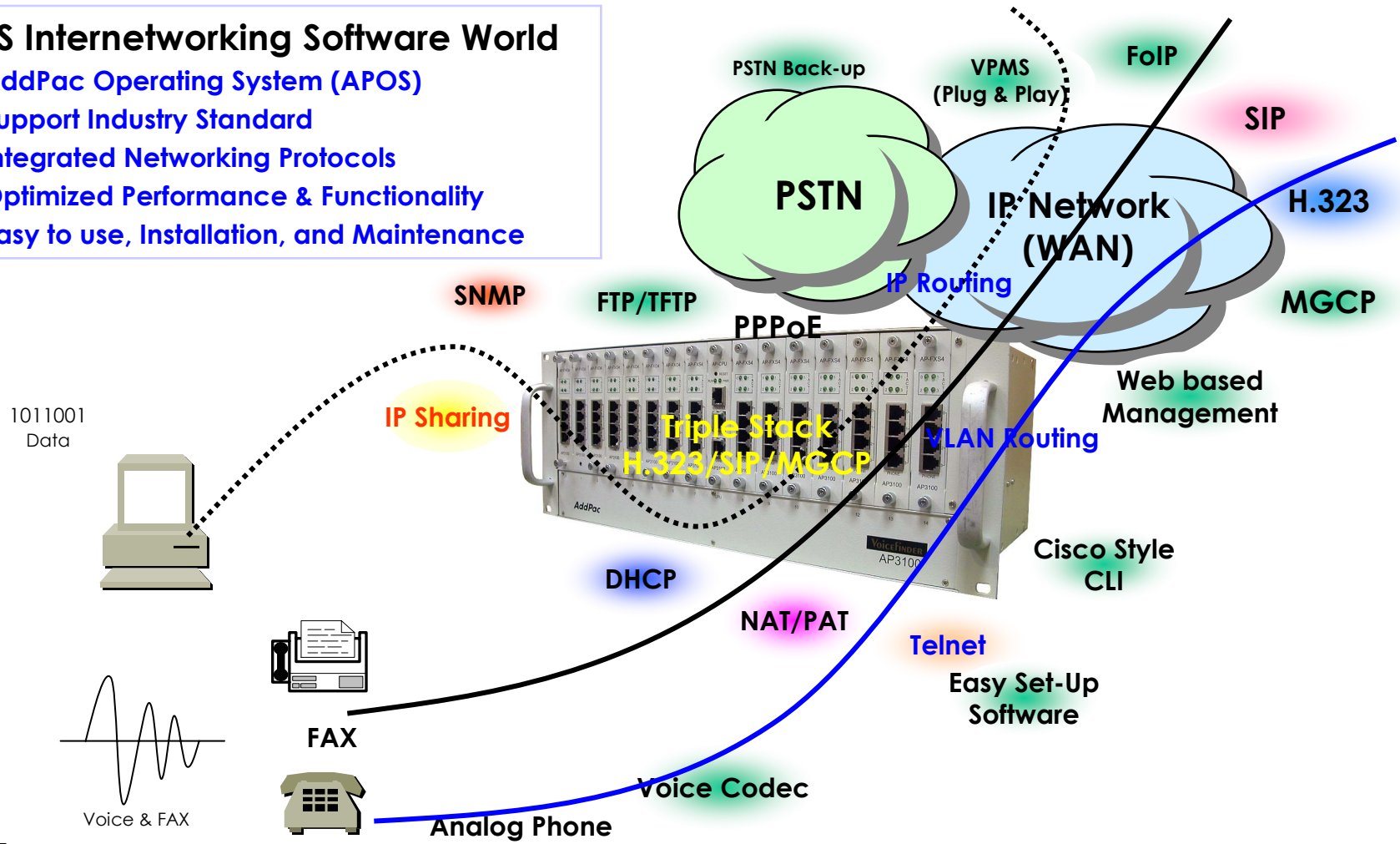
APOS Internetworking Protocol Stack



AP3100 VoIP Gateway Product Overview

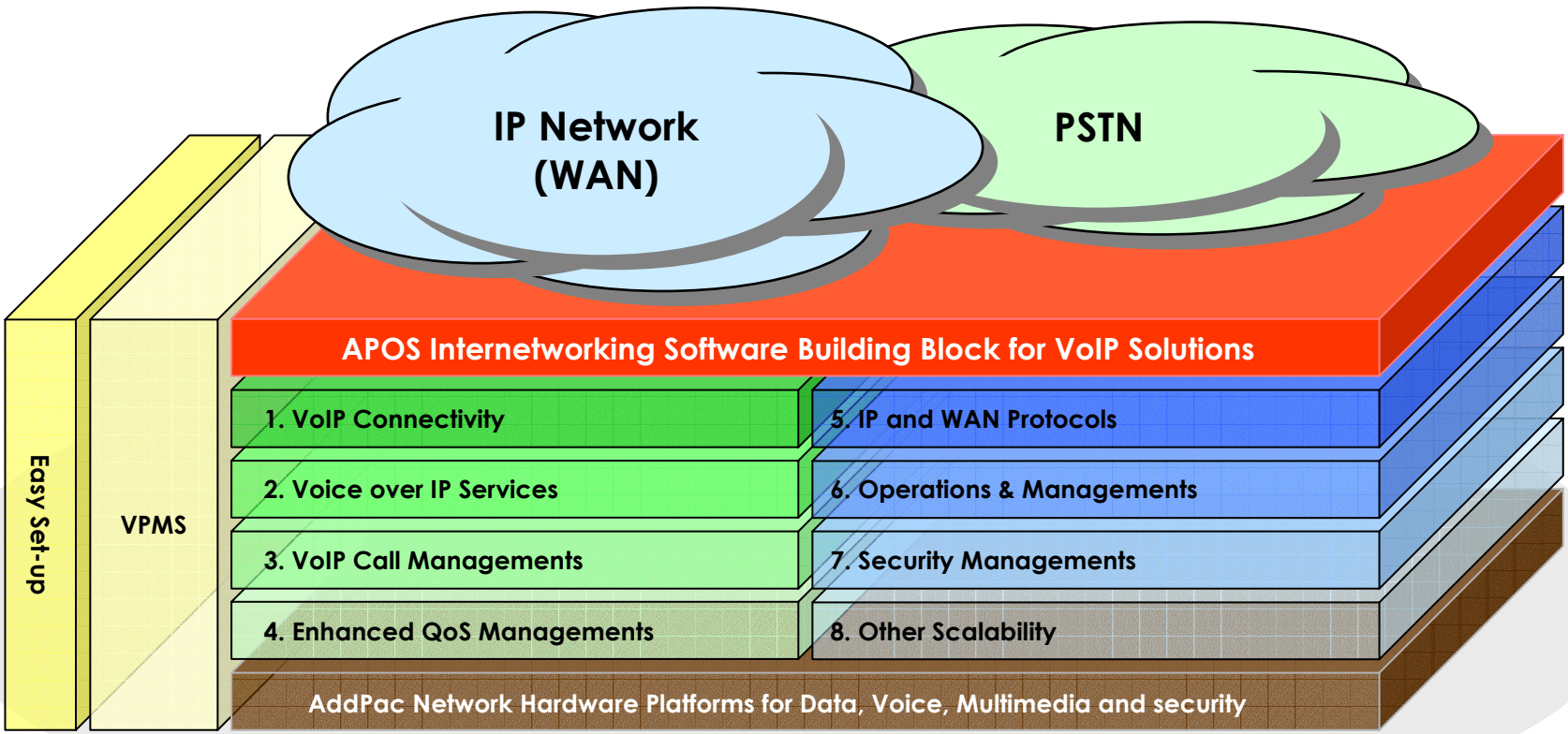
APOS Internetworking S/W World

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



AP300 VoIP Gateway Product Overview

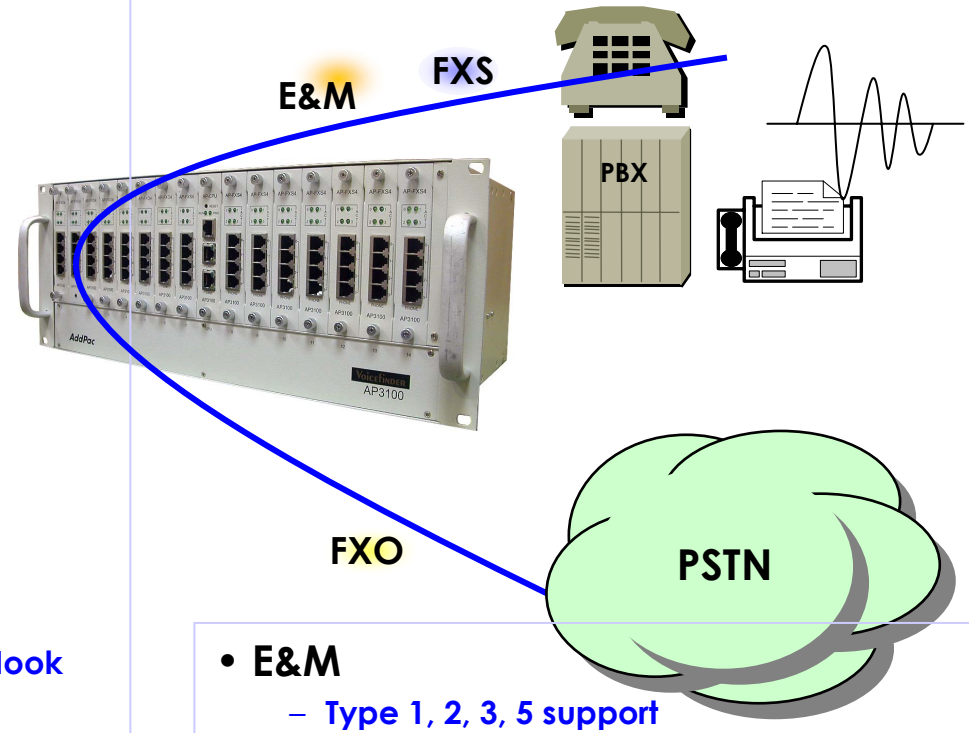
APOS Internetworking S/W World (cont.)



AP3100 VoIP Gateway Product Overview

VoIP Gateway 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

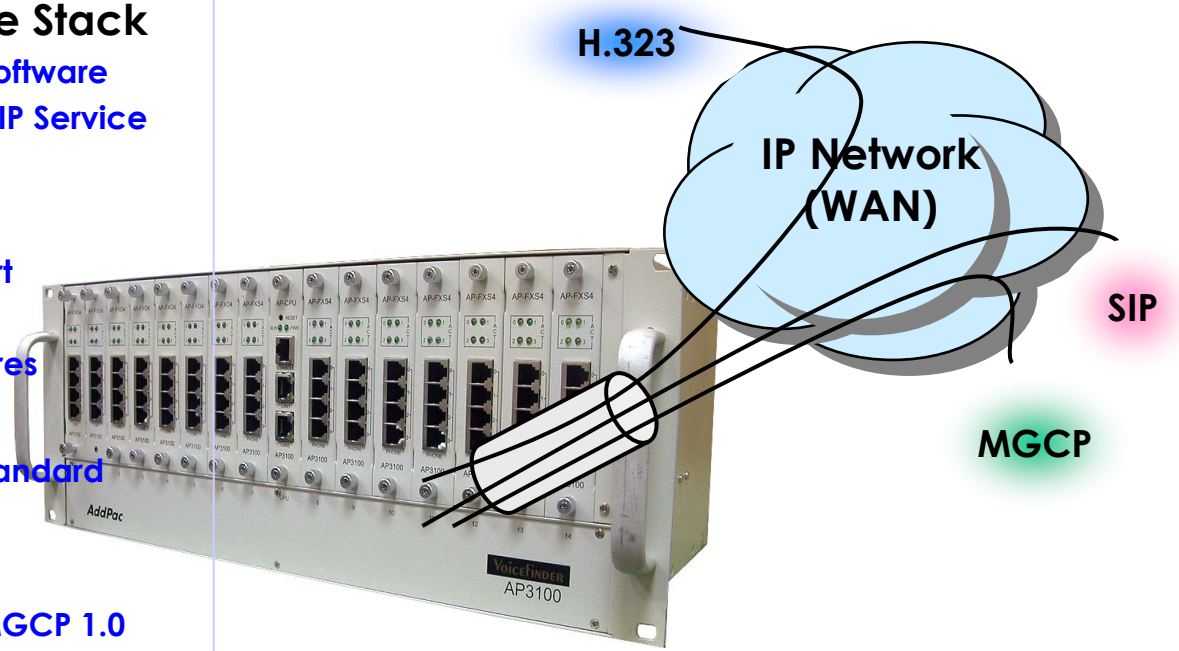


- **E&M**
  - Type 1, 2, 3, 5 support
  - 2-wire, 4-wire support
  - Delay-dial, Immediate, Wink-wait signaling support
  - Dialout-delay, Delay-duration, Delay-start, Wait-wink, Wink-duration, Wink-wait timing setting support

AP3100 VoIP Gateway 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



Concurrent Triple VoIP Stack

AP3100 VoIP Gateway Product Overview

Voice over IP Service (cont.)

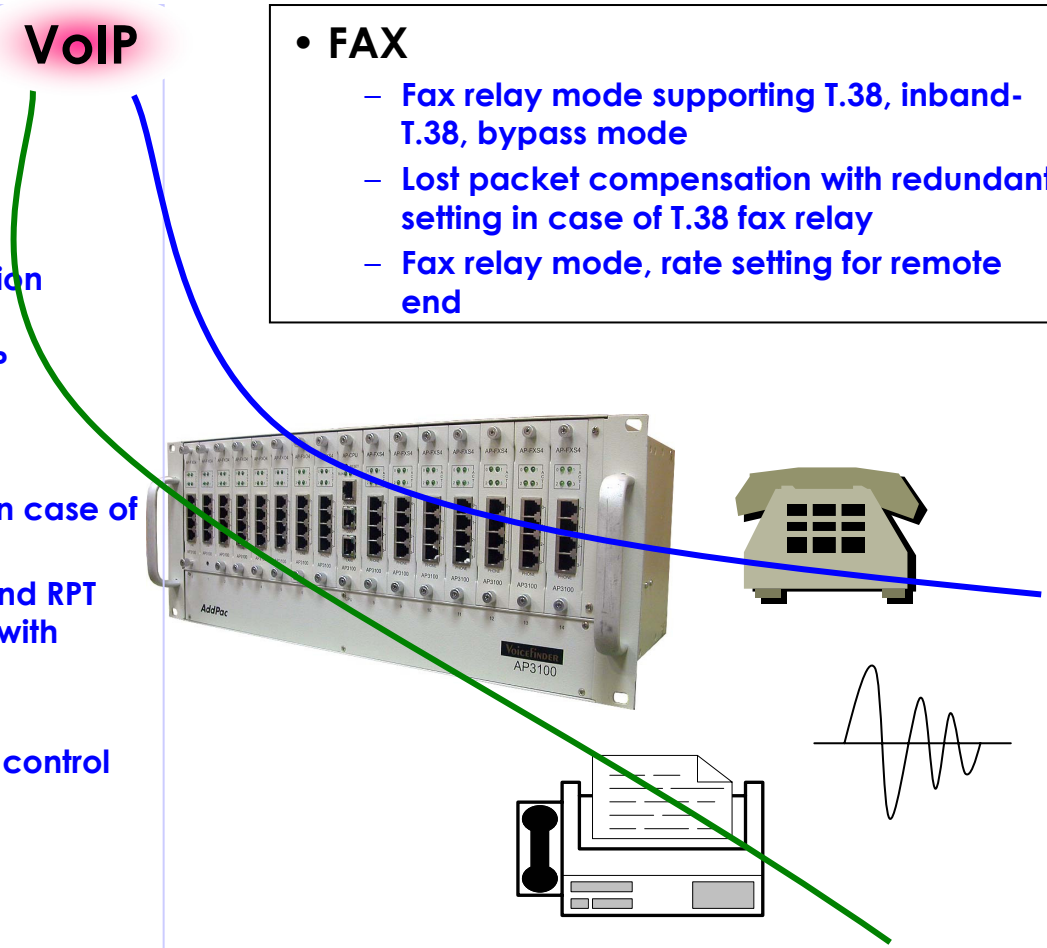
- **H.323**
  - Fast connect, normal connect support
  - H.245 tunneling support
  - Q.931 response message setting for inbound VoIP calls
  - H.245 logical channel open timing selection function
  - Start H.245 procedure support
  - DTMF / Hook flash relay with H.245 alphanumeric / signal
  - Secondary 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

AP3100 VoIP Gateway 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 RPT 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



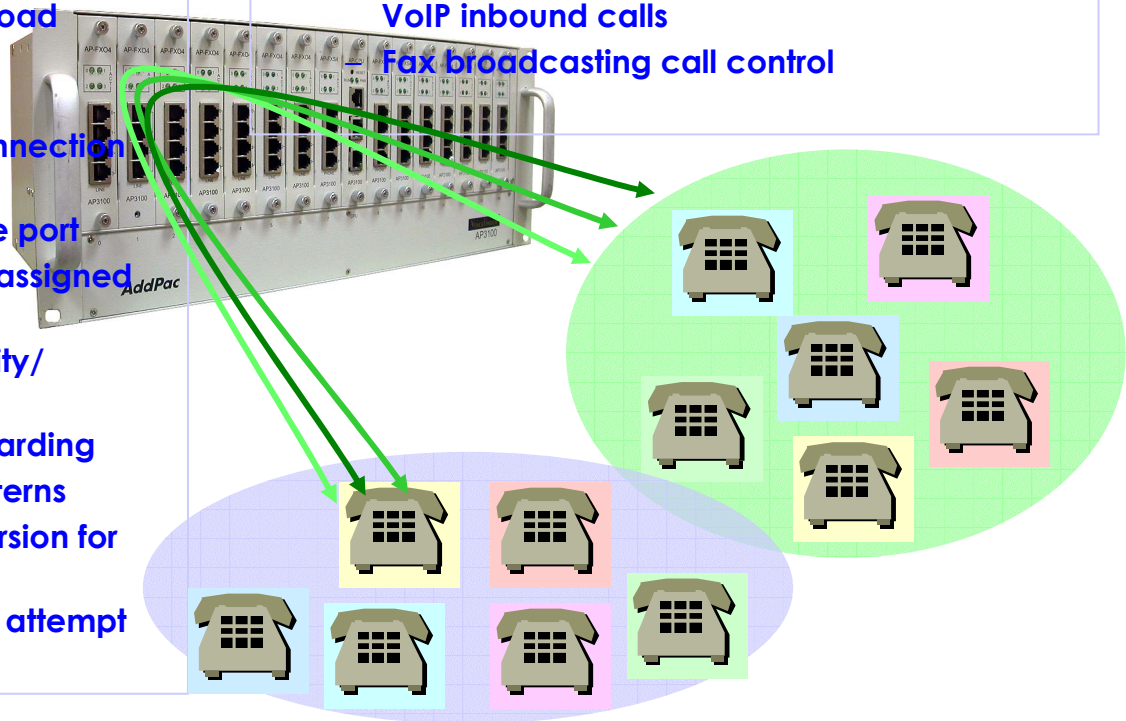
- **FAX**
  - Fax relay mode supporting T.38, inband-T.38, bypass mode
  - Lost packet compensation with redundant setting in case of T.38 fax relay
  - Fax relay mode, rate setting for remote end

AP3100 VoIP Gateway 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

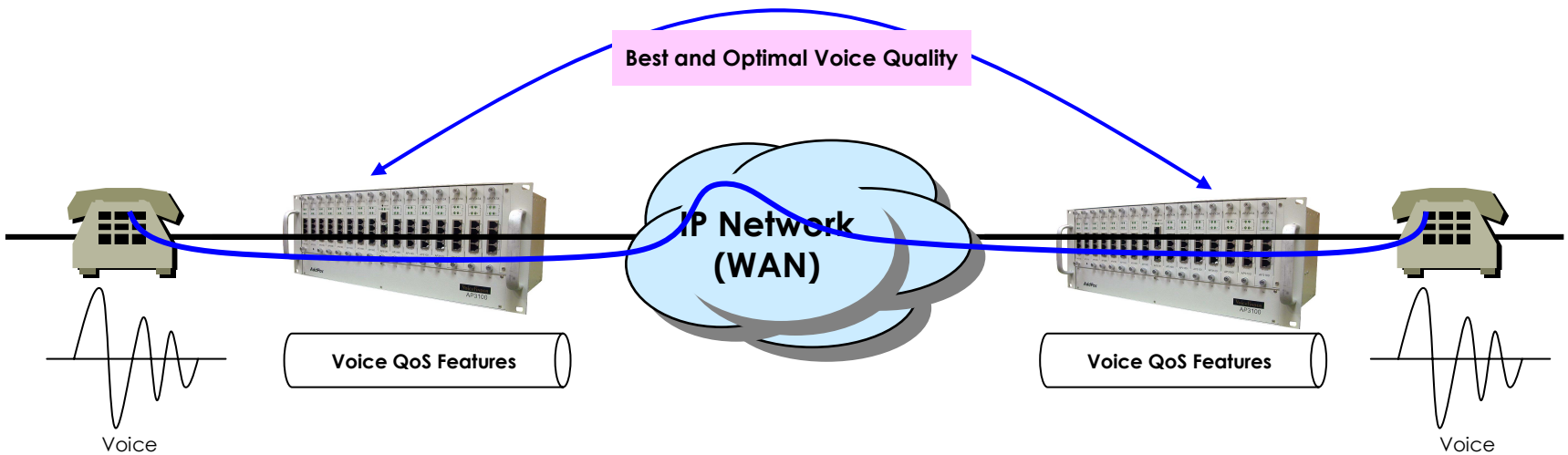


AP3100 VoIP Gateway Product Overview

Enhances QoS Managements

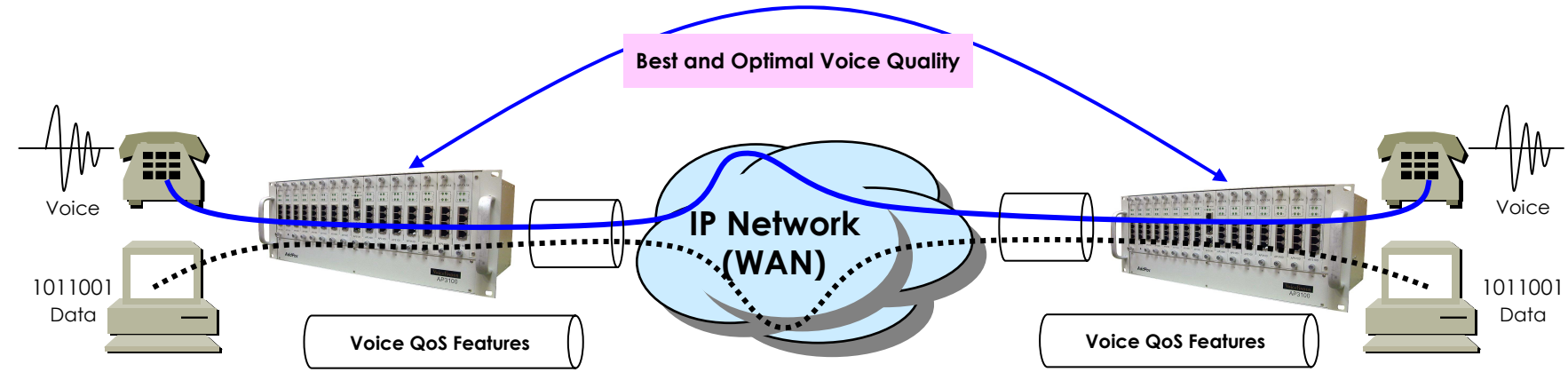
- Enhances **Transmit** Voice QoS Features
  - Voice Traffic Priority Queuing
  - QoS Service Profiling
  - Providing Virtual Network Transmit Algorithm
  - Real-time Voice Traffic QoS Support
  - RTP Packet Transmit Interval Control
  - Supporting RTP Packet Redundancy Scheme
  - IP Header Control such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

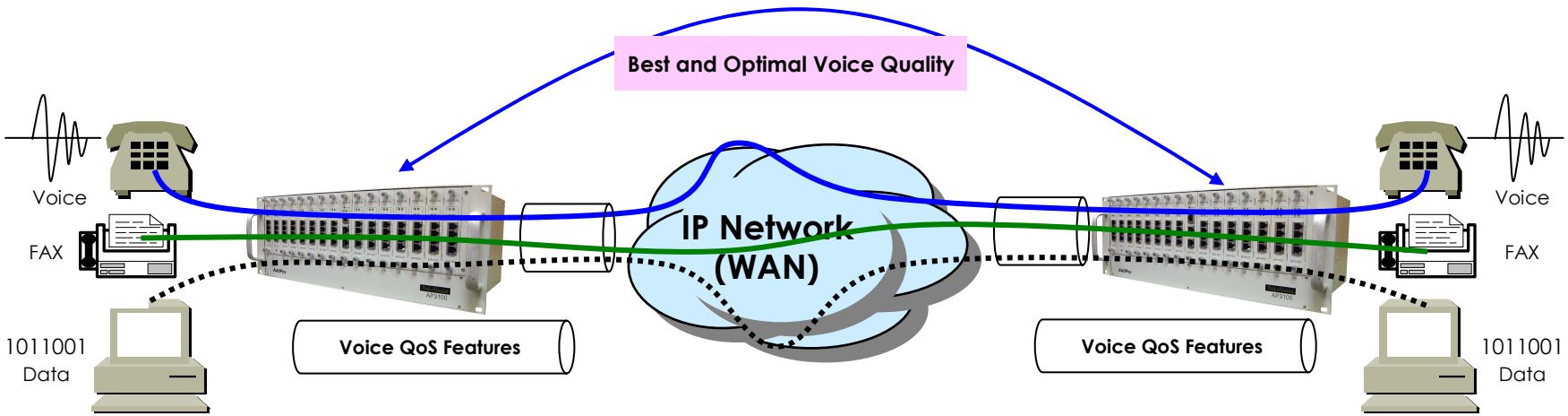
- Enhances **Receive** Voice QoS Features
  - Dynamic Jitter Buffer Management
  - Error Concealment
  - Support T.38 FAX Data Error Recovery Scheme



AP300 VoIP Gateway Product Overview

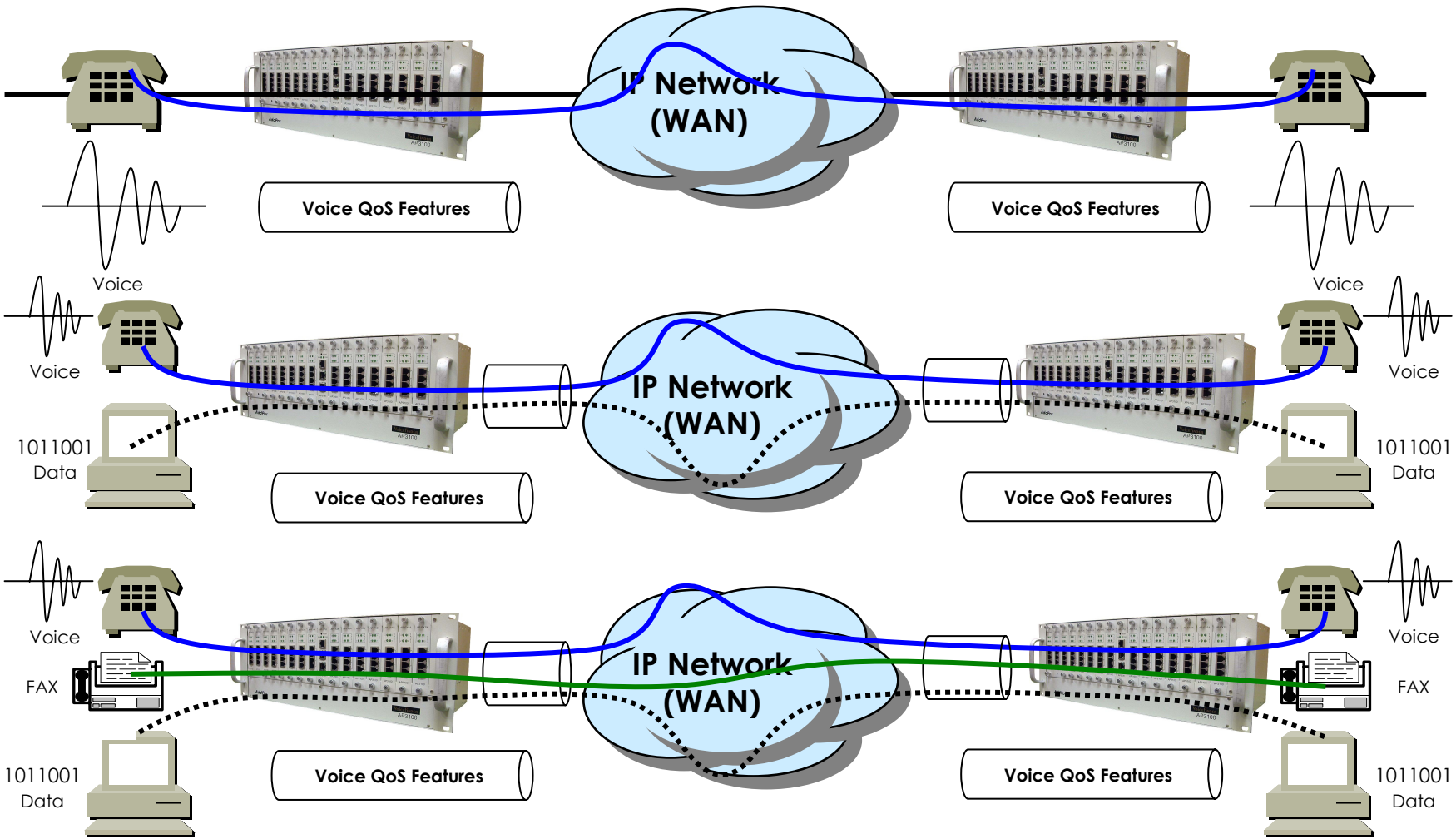
Enhances QoS Managements





AP3100 VoIP Gateway Product Overview

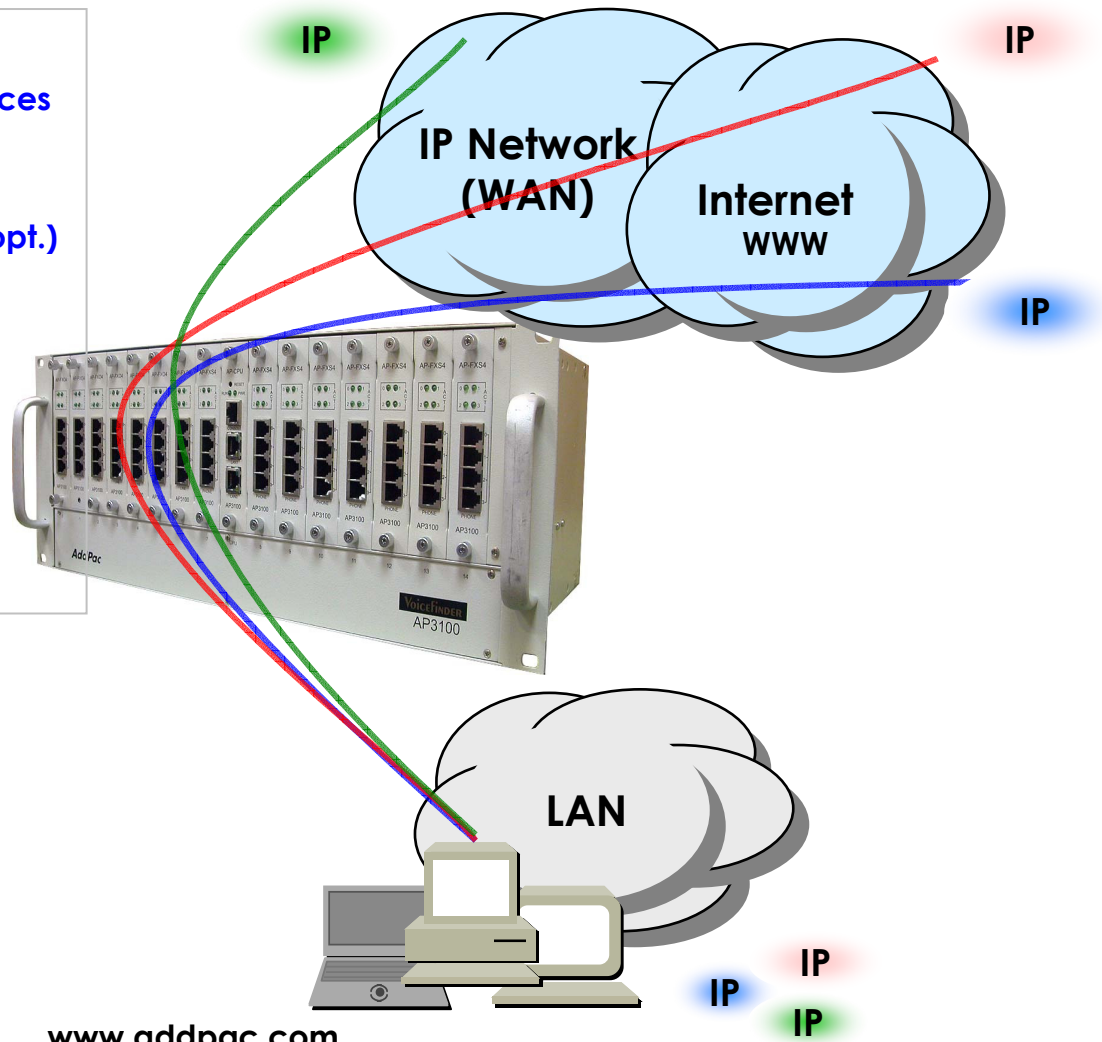
Enhances QoS Managements (cont.)



AP3100 VoIP Gateway 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

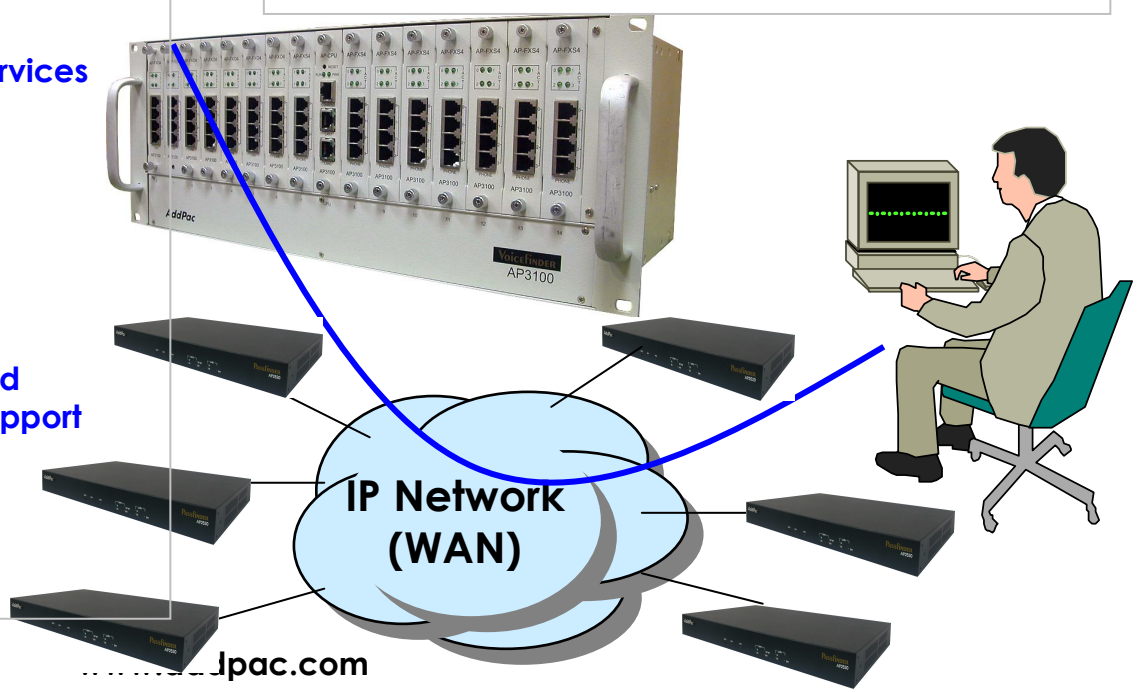


AP3100 VoIP Gateway Product Overview

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

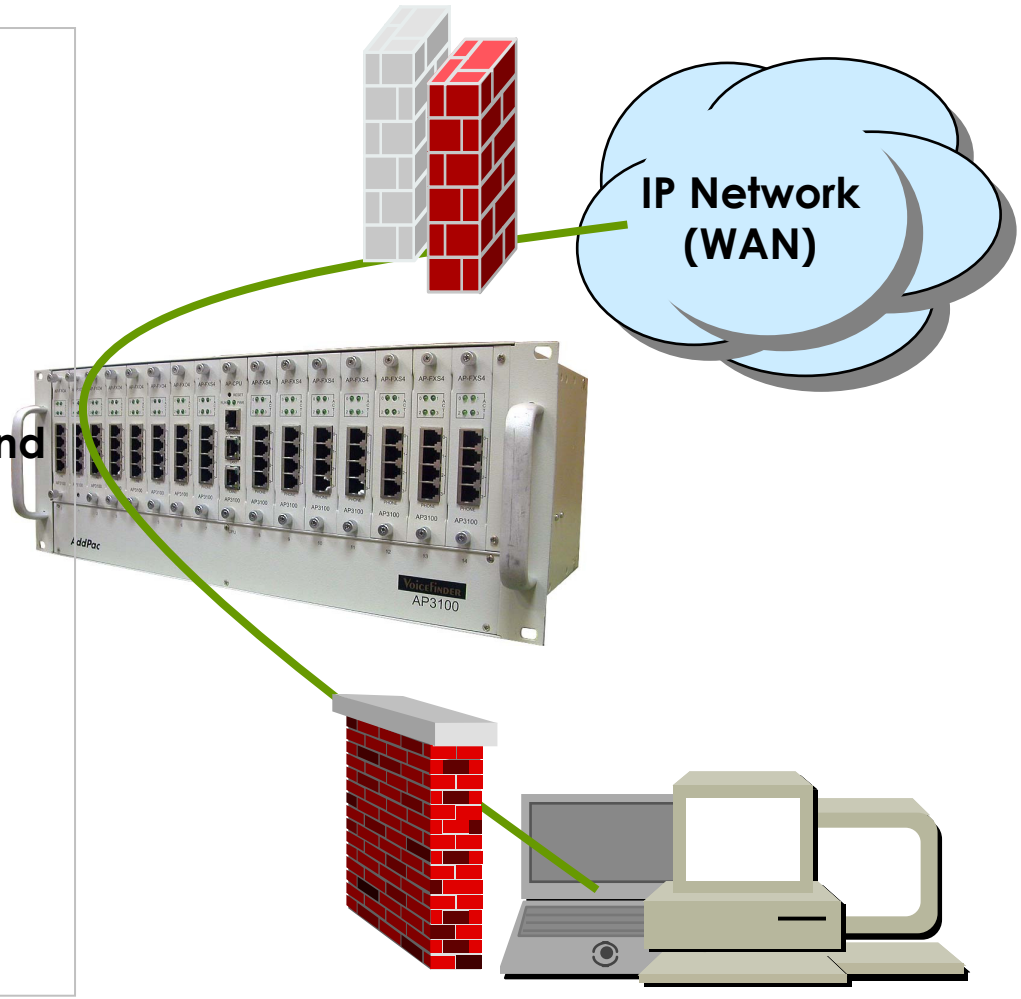
- **Easy Set-up Service**
  - MS Windows Graphical User Interface (GUI) based installation Software Solution
  - Easy installation Set-up service
- **Interoperable with AP-VPMS Service**
  - AddPac VoIP Plug & Play Management System (AP-VPMS)



AP3100 VoIP Gateway Product Overview

Security Managements

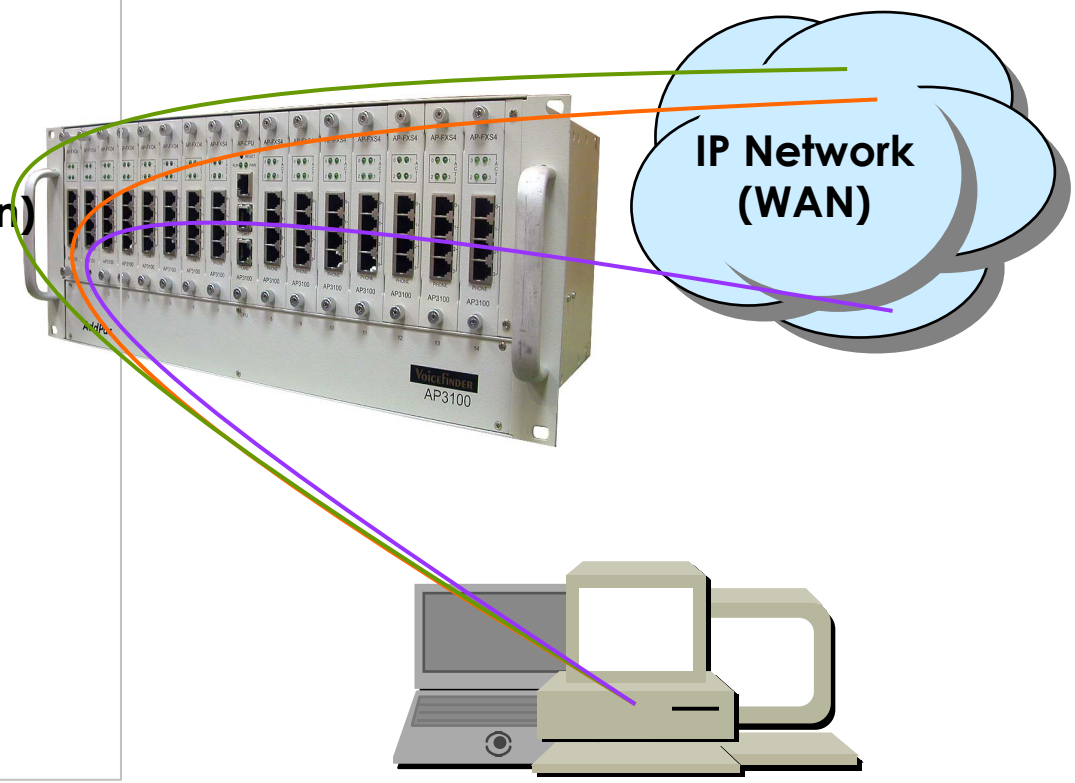
- IP packet filtering
- IP access list
- User authentication function
  - Password Authentication Protocol (PAP)
  - Challenge Handshake Authentication Protocol (CHAP)
- Enable/Disable specific protocols
- Auto-square connect of console and Telnet session
- Account Management function for multi-level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



AP3100 VoIP Gateway 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

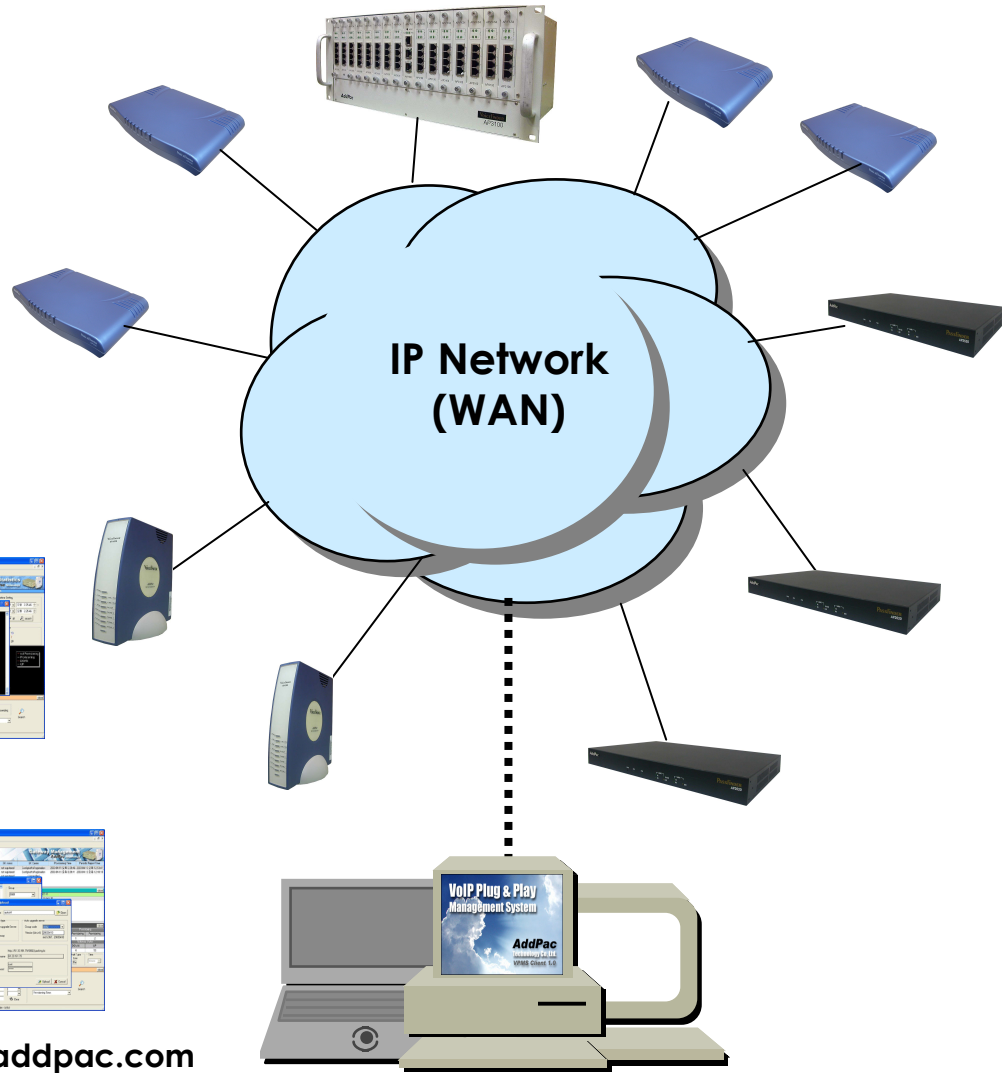


AP3100 VoIP Gateway Product Overview

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





AP3100 VoIP Gateway Product Overview

AP3100 Hardware Specification

Microprocessor

PowerPC 64bit RISC Microprocessor

Memory

Flash Memory	4/8Mbyte
Main Memory	32M/64M High-speed SDRAM
Boot Memory	512Kbyte Flash Memory

Network Interface

Fixed LAN0 Port	One(1)10/100Mbps Ethernet
Fixed LAN1 Port	One(1)10/100Mbps Ethernet
Voice Interface Slot	Fifteen(15)Voice Interface Slots
Console Port	One(1)RS232C Interface



Voice Interface Modules

FXS Voice Module	4Port FXS Voice Interface Module
FXO Voice Module	4Port FXO Voice Interface Module
E&M Voice Module	4Port E&M Voice Interface Module
FXS& FXO Voice Module	2Port FXS & 2Port FXO Module

Power & Operation Environments

Power Requirement	VAC110~220V, 50/60Hz, 20Watt
Operating Temperature	0°C ~ 50°C (32 °F ~ 122°F)
Storage Temperature	-40°C ~ 85°C (-40°C ~ 185°F)
Relative Humidity	5% ~ 95% (Non-condensing)

Dimensions

178mm x 435mm x 260mm (H x W x D)

AP3100 VoIP Gateway Product Overview

AP3100 Support Protocols & Service (1)

IP Routing Protocols

Static and default Routing

IEEE 802.1Q VLAN Routing

WAN Protocols

Point-to-Point over Ethernet Protocol For ADSL

Frame Relay PVC with Inverse ARP

High level Data Link Control(HDLC) Protocol

HDLC Encapsulation(Interoperability with CISCO HDLC)

Voice over IP Service

ITU-T H.323 V3 VoIP Protocol with H.235 Security Feature

SIP Protocol support compliant with IETF RFC3261,2543

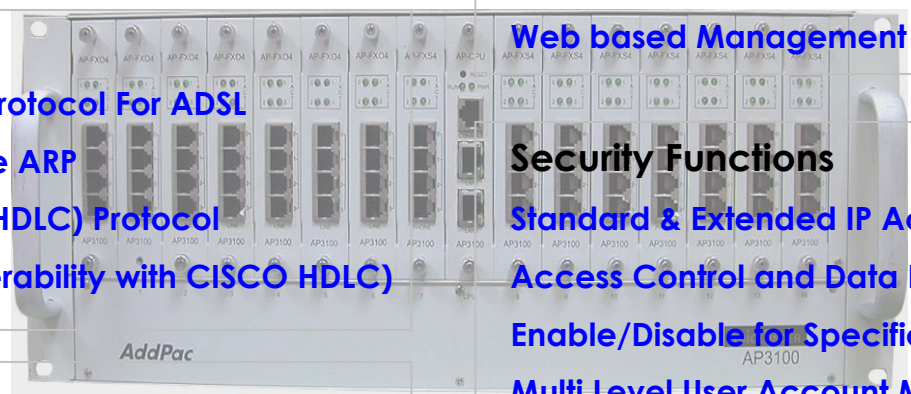
H.323 and SIP dual stack support

G.723.1, G.729.A, G.711 Voice Compressions

Voice Processing Features Supports

-VAD, DTMF, CNG, G.168 and T.38 G3 FAX Relay

Enhanced QoS Management Features for Voice Traffics



Network Managements

Traffic Queuing and Frame Relay Flow Control

Standard SNMP Agent (MIB V2)Support

Remote Management using Console, Telnet, FTP

Web based Management using HTTP Server Interface

Security Functions

Standard & Extended IP Access List

Access Control and Data Protections

Enable/Disable for Specific Protocols

Multi Level User Account Management

Auto disconnect for Telnet/Console Sessions

PPP User Authentication Supports

-Password Authentication Protocol(PAP)

-Challenge Handshake Authentication Protocol(CHAP)

AP3100 VoIP Gateway Product Overview

AP3100 Support Protocols & Service (2)

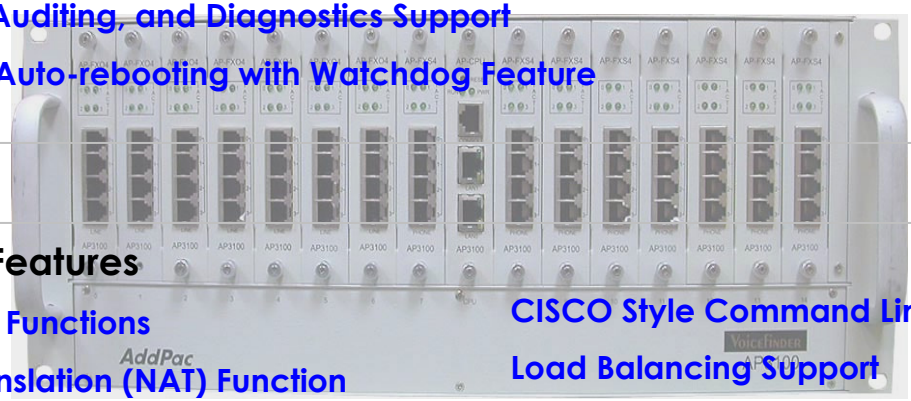
Operation & Managements

System Perfomance Analysis for Process, CPU, Connection I/F

Configuration Backup & Restore for APOS Managements

Debugging, System Auditing, and Diagnostics Support

System Booting and Auto-rebooting with Watchdog Feature



Other Scalability Features

DHCP Server & Relay Functions

Network Address Translation (NAT) Function

Port Address Translation (PAT) Function

Transparent Bridging (IEEE Standard) Function

- -Spanning Tree Bridging Protocol Support
- -Remote Bridging Support
- -Concurrent Routing and Bridging Support

CISCO Style Command Line Interface (CLI)

Load Balancing Support

Network time Protocol (NTP) Support

Remote Upgrade for APOS Management Using FTP / TFTP

AP3100 VoIP Gateway Product Overview



High-End PowerPC CPU Module, Console Port



4-Port E&M Module



4-Port FXS Module



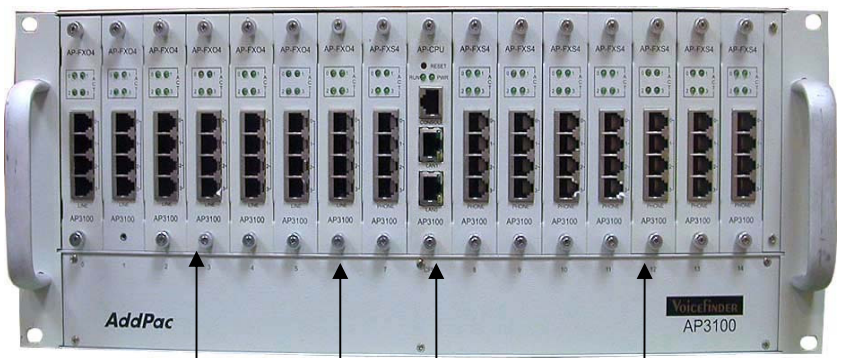
4-Port FXO Module



2-Port FXS and 2-port FXO Module

AP3100 VoIP Gateway Product Overview

Network interface Configurations



FXS Voice Interface

CPU Module

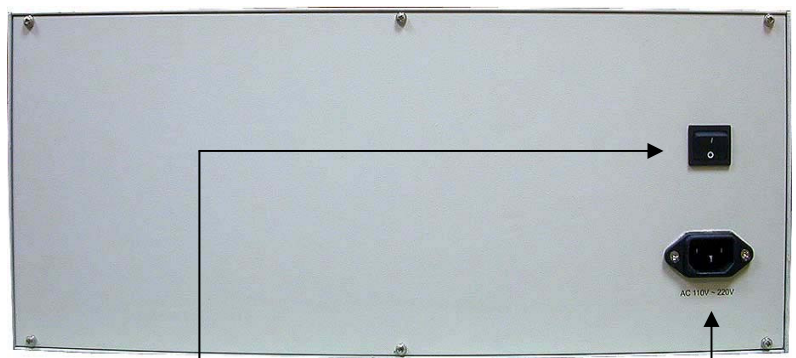
Console Port

LAN 0 10/100Mbps Ethernet

LAN 1 10/100Mbps Ethernet

FXO Voice Interface

E&M Interface

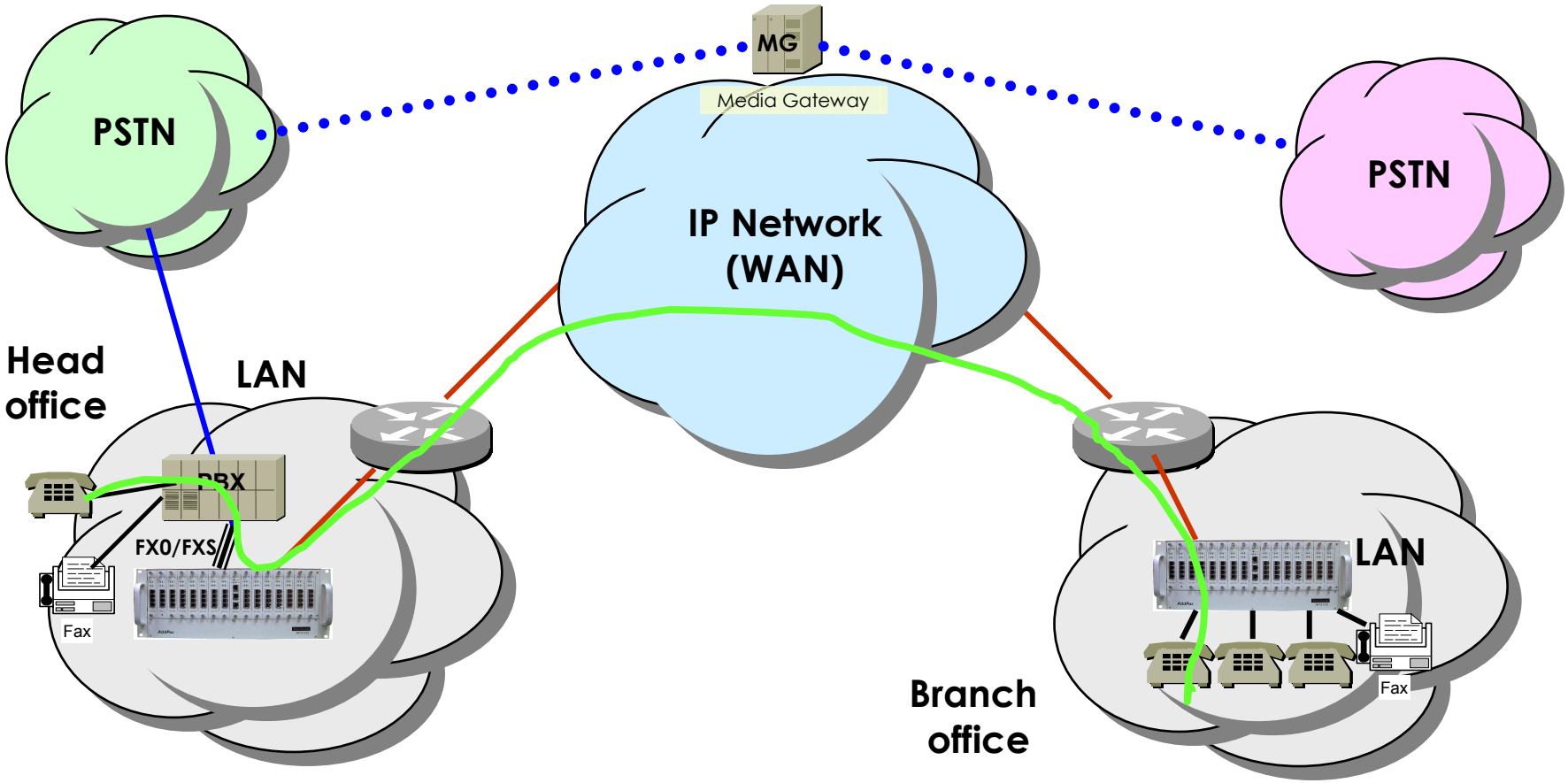


Switch

External Power Interface

AP3100 Voice Networking Configuration

Inter-office calls (VoIP-to-VoIP Call Scenario)



PSTN Analog Voice Interface

Ethernet or WAN Interface

TRUNK n x E1 Voice Interface for PSTN Interworking

Voice Call Flow

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

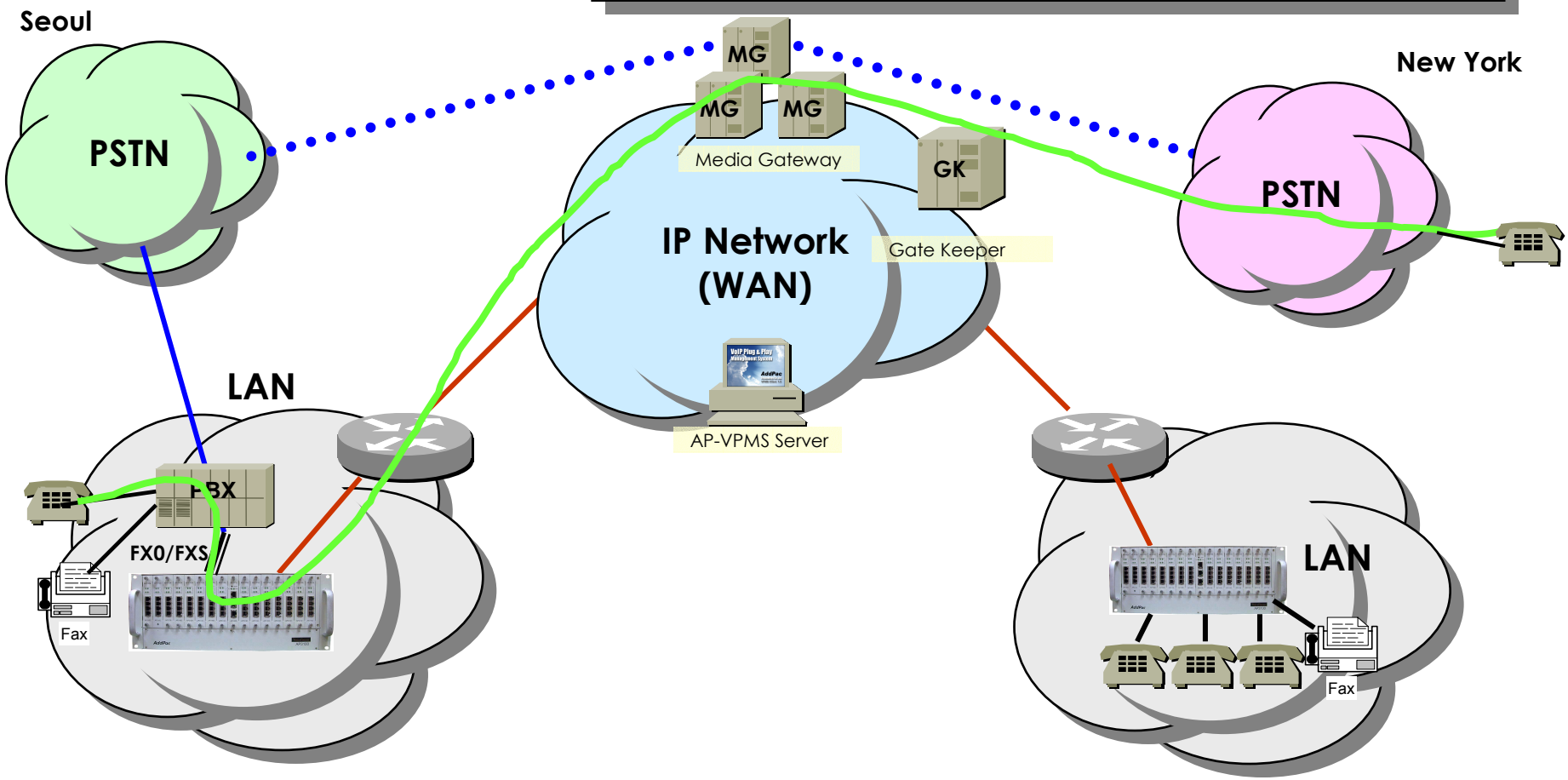
AddPac AP3100 Voice over IP Gateway

AddPac

www.addpac.com

AP3100 Voice Networking Configuration

VoIP to PSTN Call Scenario



PSTN Analog Voice Interface

Ethernet or WAN Interface

TRUNK n x E1 Voice Interface for PSTN Interworking

Voice Call Flow

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

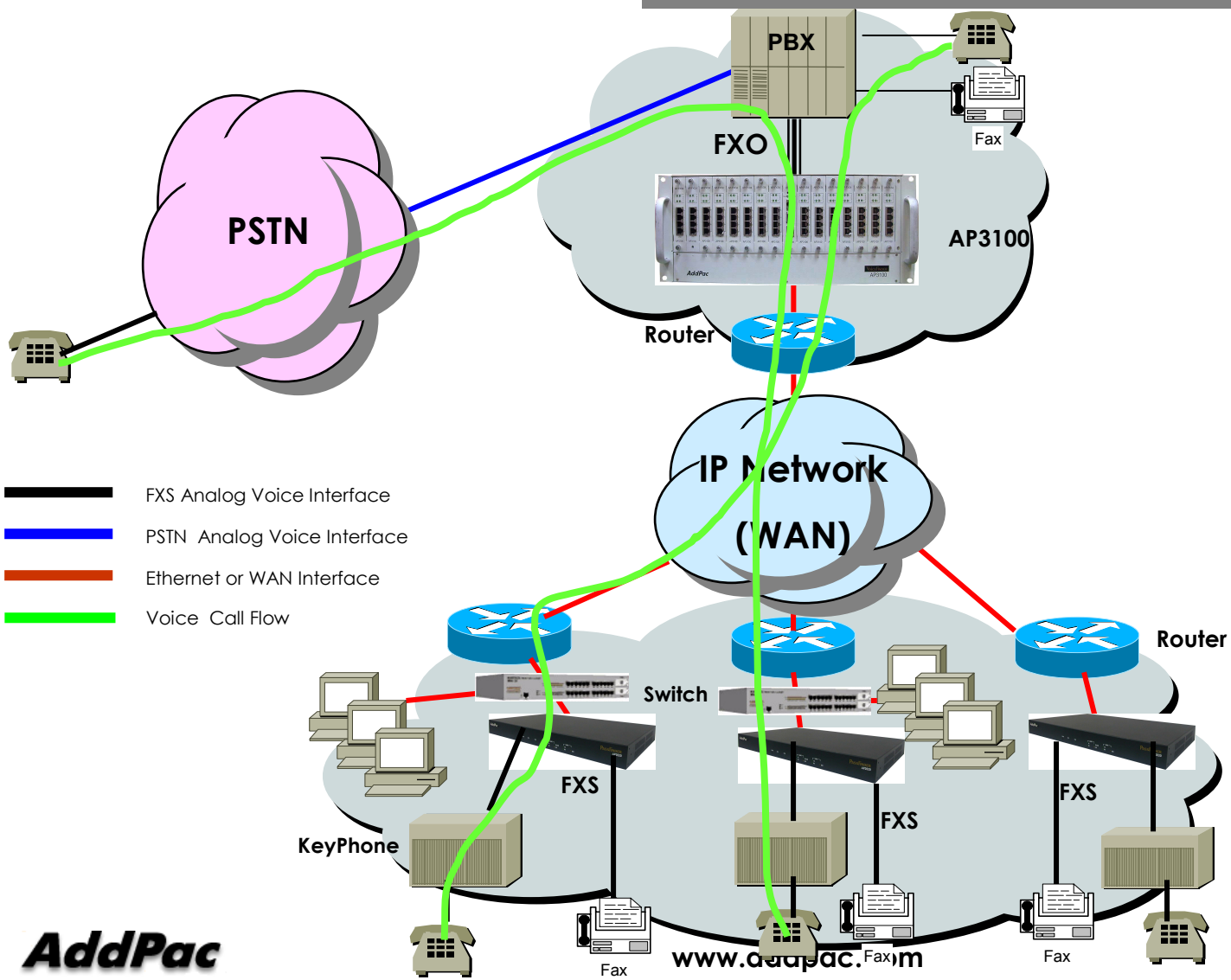
AddPac AP3100 Voice over IP Gateway

AddPac

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AP3100 Voice Networking Configuration

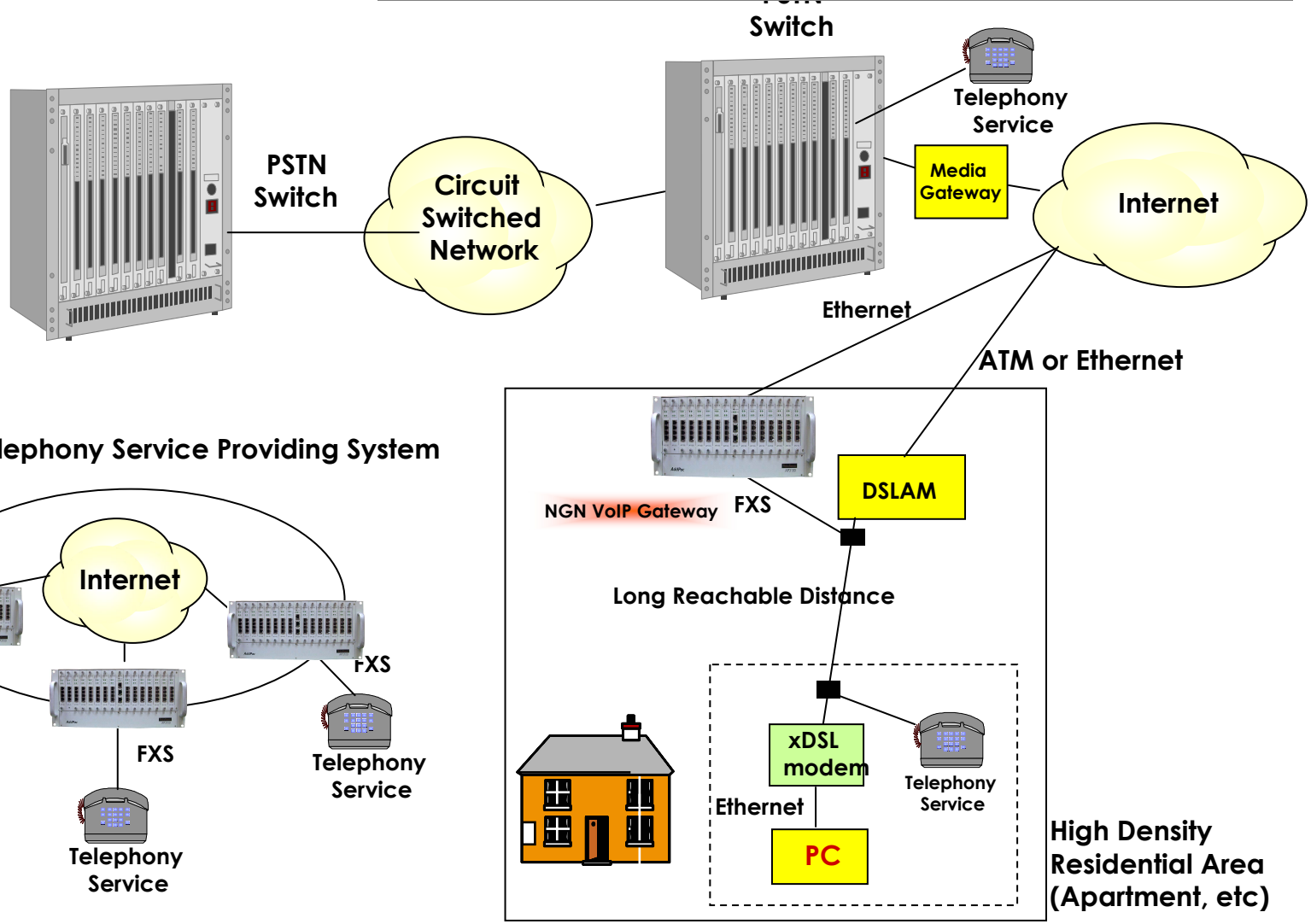
A head office to local branches



AddPac

AP3100 Voice Networking Configuration

NGN Application



AP3100 VoIP Gateway Product Overview

AP3100 Ordering and Pricing

- **AP3100 Ordering Information**

Order No :

AP3100-01 Mid-Range VoIP Gateway

One(1)Fast Ethernet, One(1) Ethernet, Console

PowerPC RISC CPU, 4MB Flash, 32MB SDRAM

APOS v5.xx with Operation Manual

Including CAB-LAN, CAB-CON

AP3100-FXS4

4 Port FXS Interface Module

AP3100-FXO4

4 Port FXO Interface Module

AP3100-FXS2 FXO2

2 Port FXS & 2 Port FXO Interface Module

AP3100-E&M4

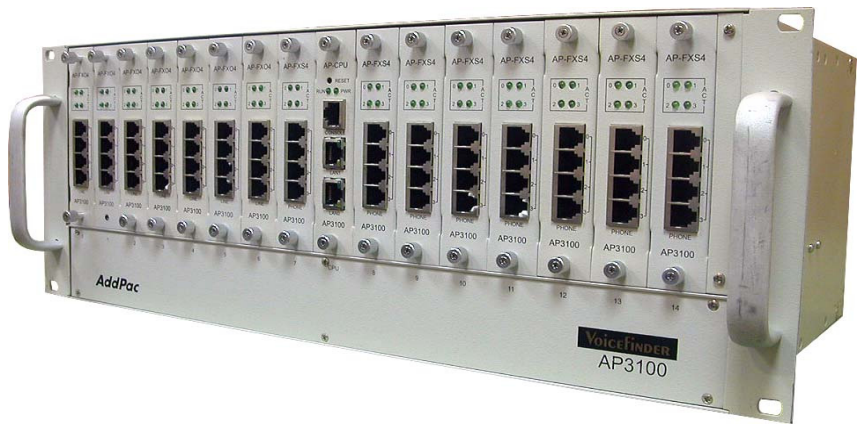
4 Port E&M Interface Module

CAB-LAN

RJ45 Ethernet Cable

CAB-CON

RJ45 RS232 Console Cable



Pricing

- AddPac Technology Regional Sales Managers
- Authorized Sales and Marketing Representatives
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AP3100 VoIP Gateway Product Overview

AP3100 Comparison Table

	AP3100 VoIP Gateway Series
	AP3100
▶ FXS,FXO,E&M Voice Ports (RJ11)	Up to 60
▶ 10/100Mbps Ethernet Ports (RJ45)	2
▶ Console Ports (RJ45)	1
▶ CPU	32Bit RISC
▶ Flash Memory	4/8Mbyte
▶ Main Memory	32M/64Mbyte
▶ Power Requirement	VAC110~220V, 50/60Hz, 20Watt
▶ Internetworking OS	APOS
▶ H.323, SIP VoIP Protocol, T38 FAX, MGCP	YES
▶ PPPoE, PPTP Network Protocols	YES
▶ Enhanced QoS Management Feature	YES
▶ IP Routing Protocols Including NAT	YES
▶ Network Management Protocols	YES
▶ Support Network Environments	ADSL, VDSL, Cable Modem, Leased Line, ATM, Frame-Relay, Including Conventional Broad Band Networking

Thank you !

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