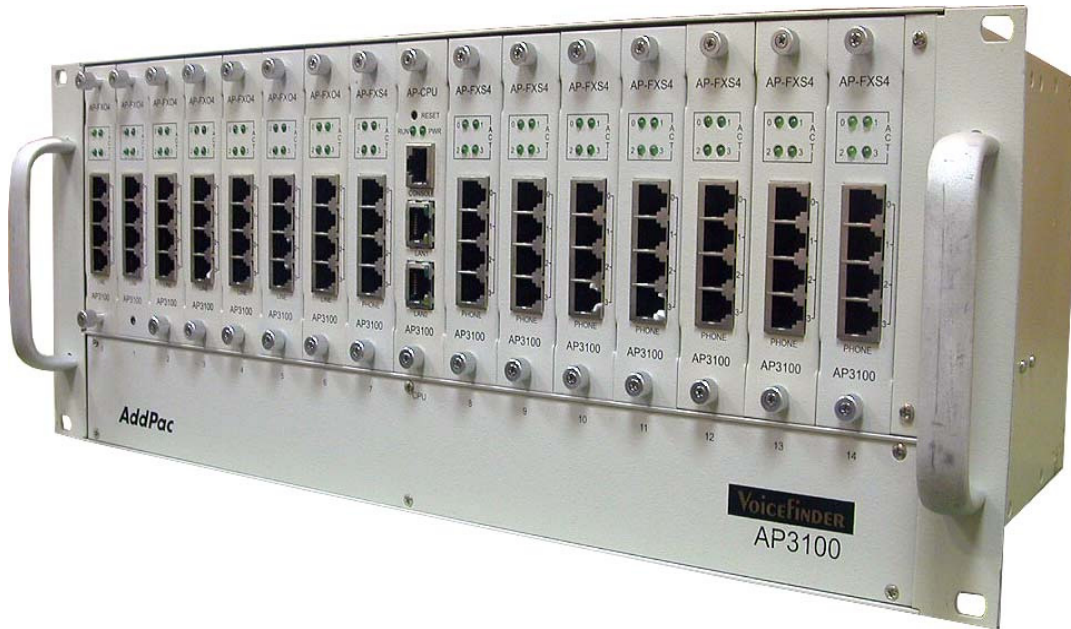


# VoIP

## AP3100

Mid-Range VoIP Gateway

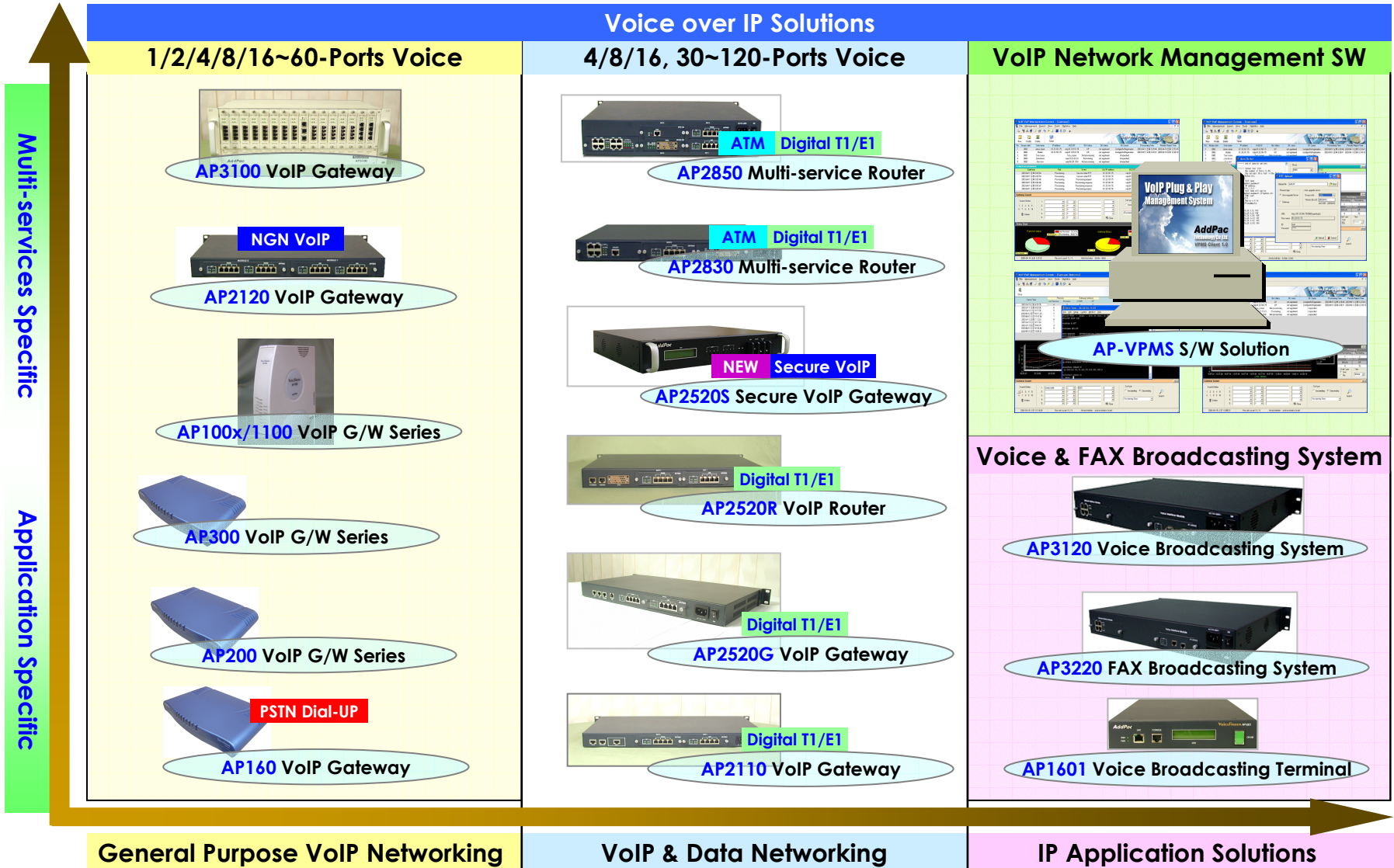


Technical Sales and Marketing

AddPac Technology

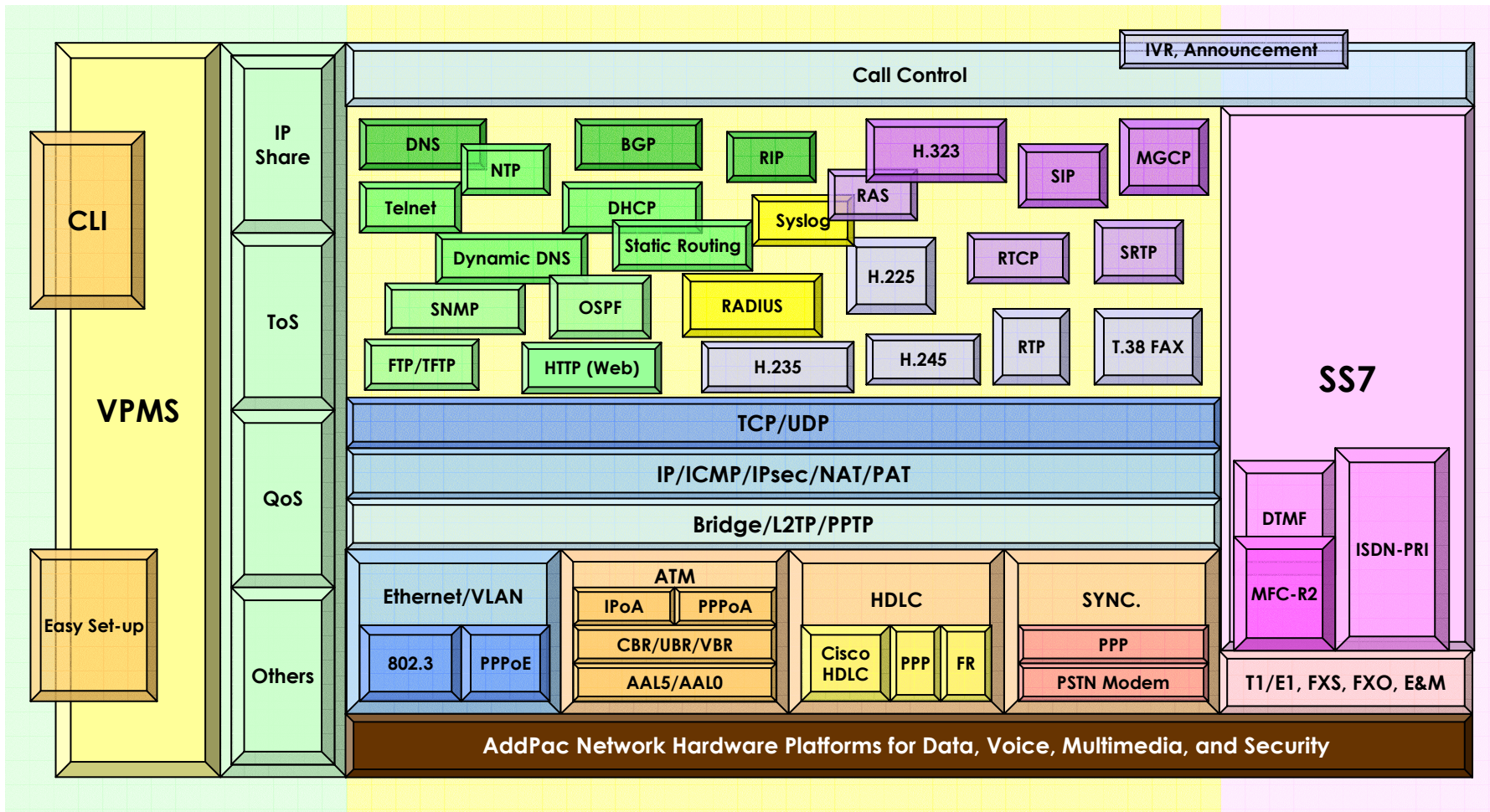
[www.addpac.com](http://www.addpac.com)

# AddPac VoIP Products Road-Map



# AP300 VoIP Gateway Product Overview

## APOS Internetworking Protocol Stack

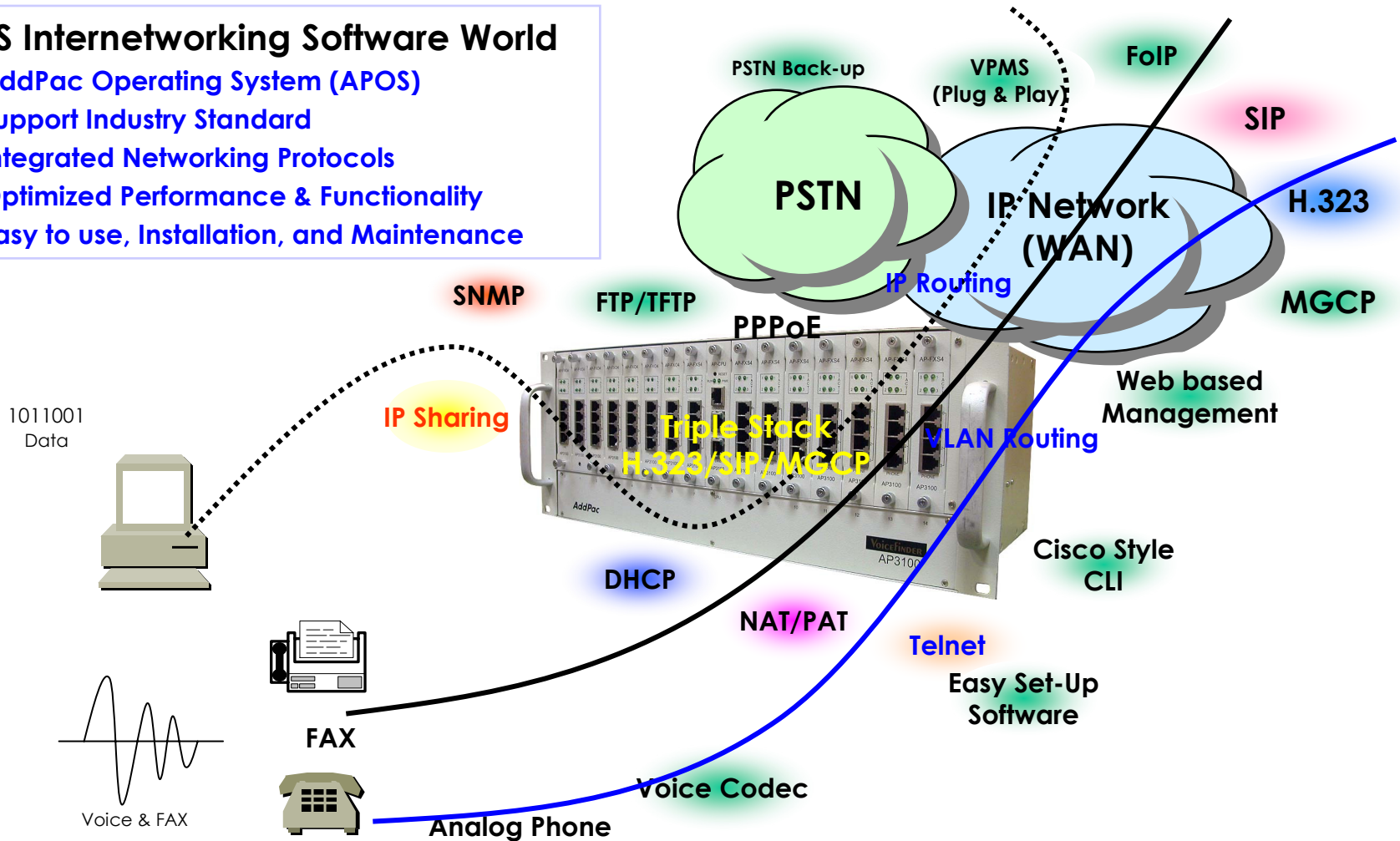


# AP3100 VoIP Gateway Product Overview

## 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

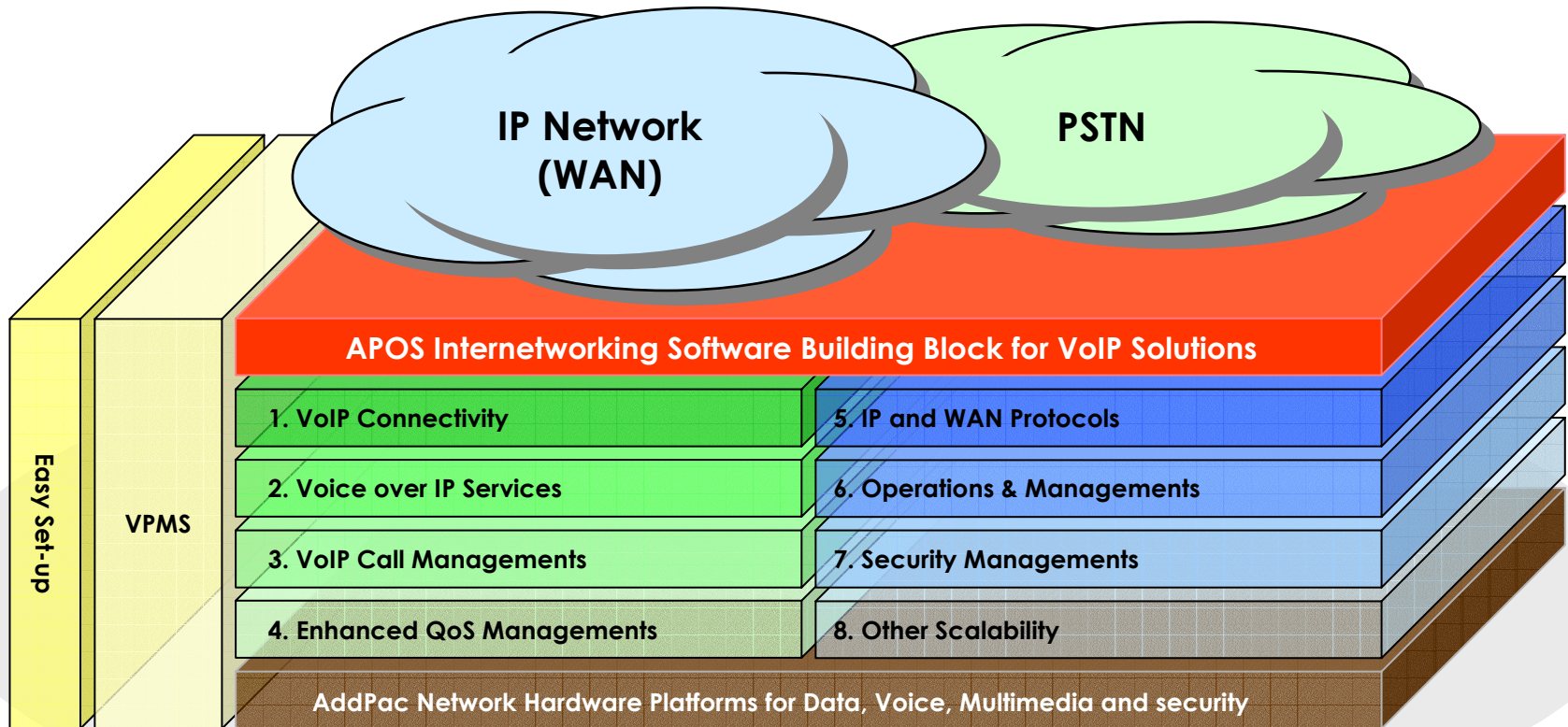


**AddPac**

[www.addpac.com](http://www.addpac.com)

# AP300 VoIP Gateway Product Overview

## APOS Internetworking S/W World (cont.)



# AP3100 VoIP Gateway Product Overview

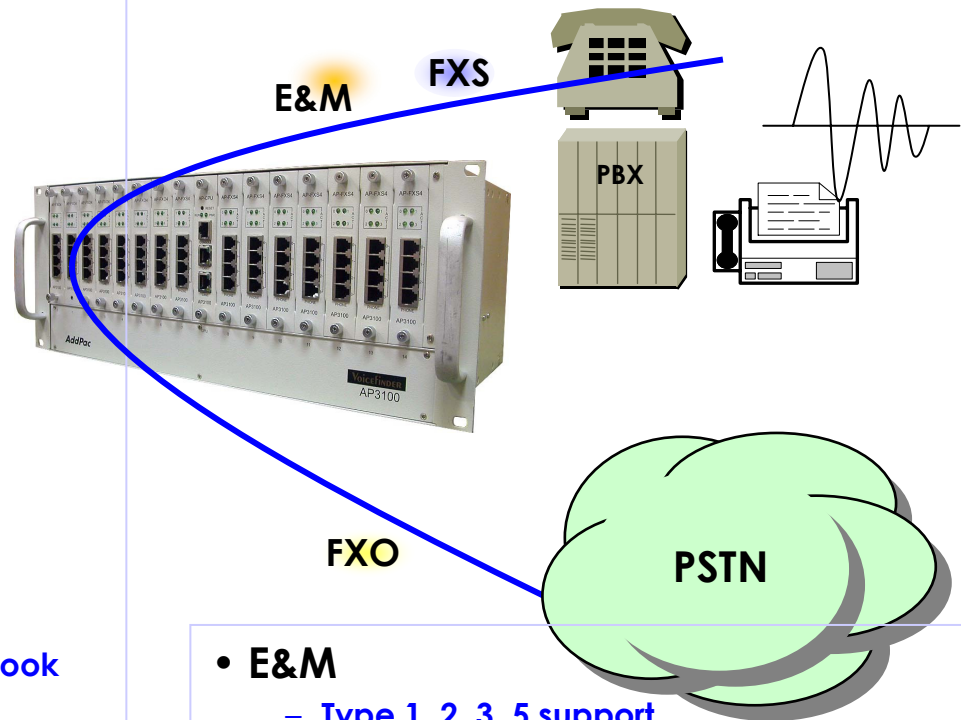
## VoIP Gateway Connectivity

### • 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



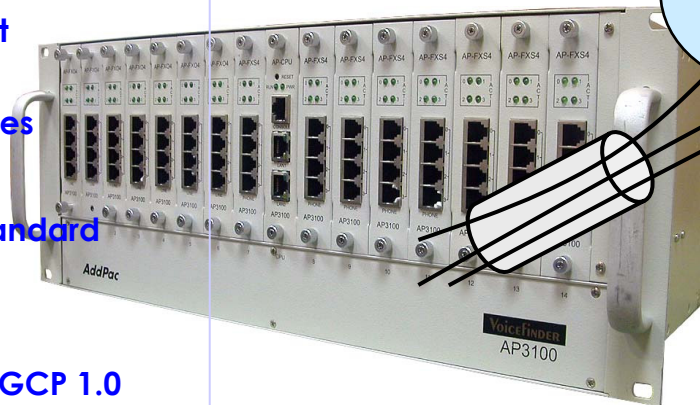
### • E&M

- 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

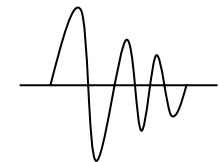
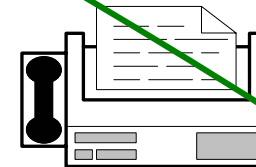
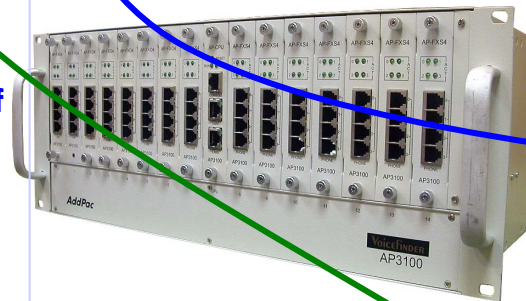
### • RTP

- Redundant RTP packet transmission in case of severe packet loss
- Dynamic jitter buffer management and 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

VoIP



# AP3100 VoIP Gateway Product Overview

## VoIP Call Managements

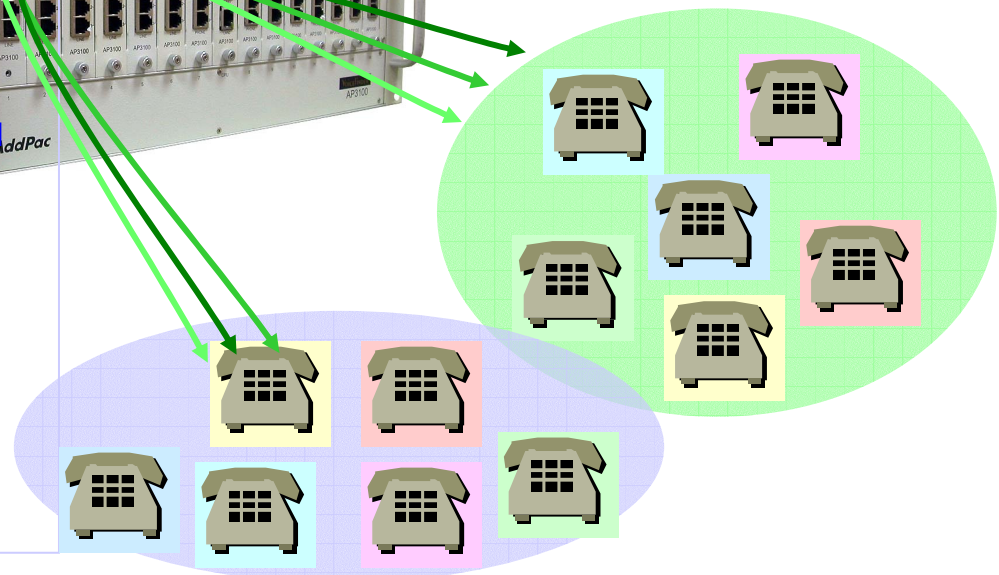
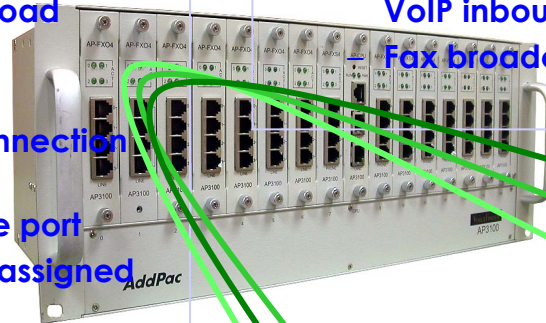
### • VoIP Call Controls

- 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

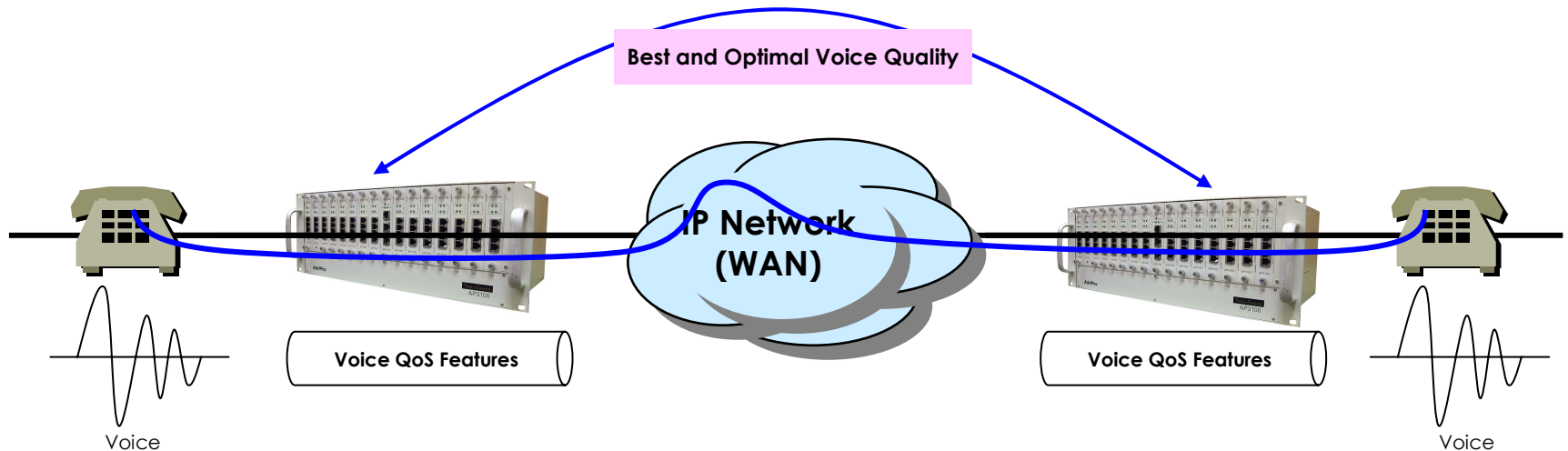
## Enhances QoS Managements

### • 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

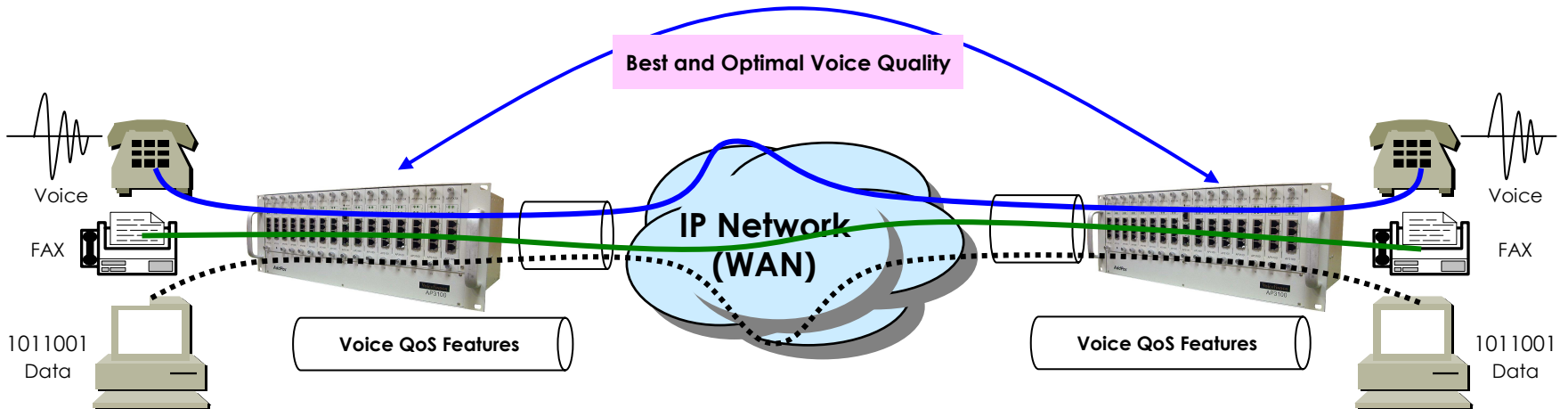
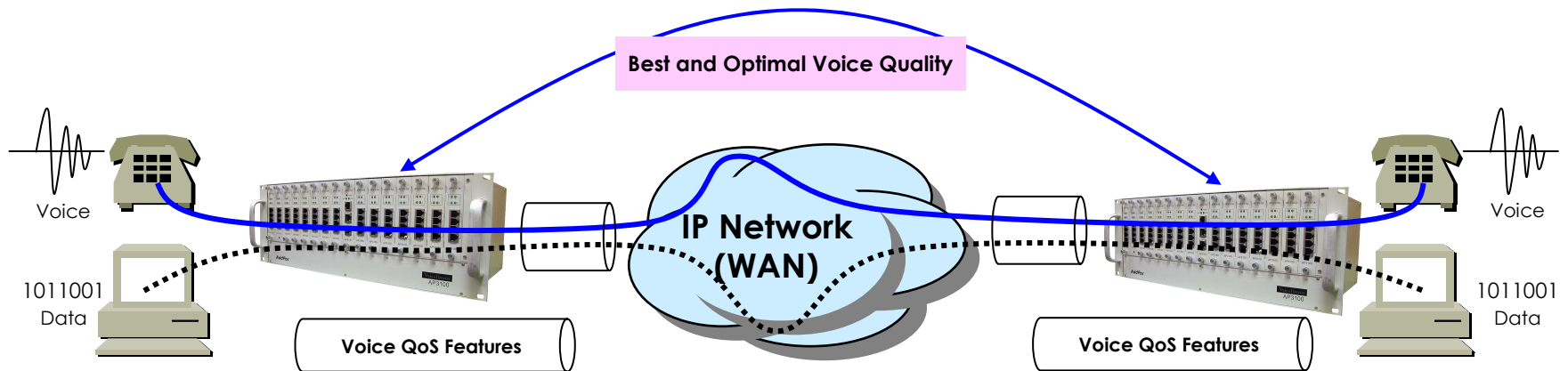
### • Enhances **Receive** Voice QoS Features

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



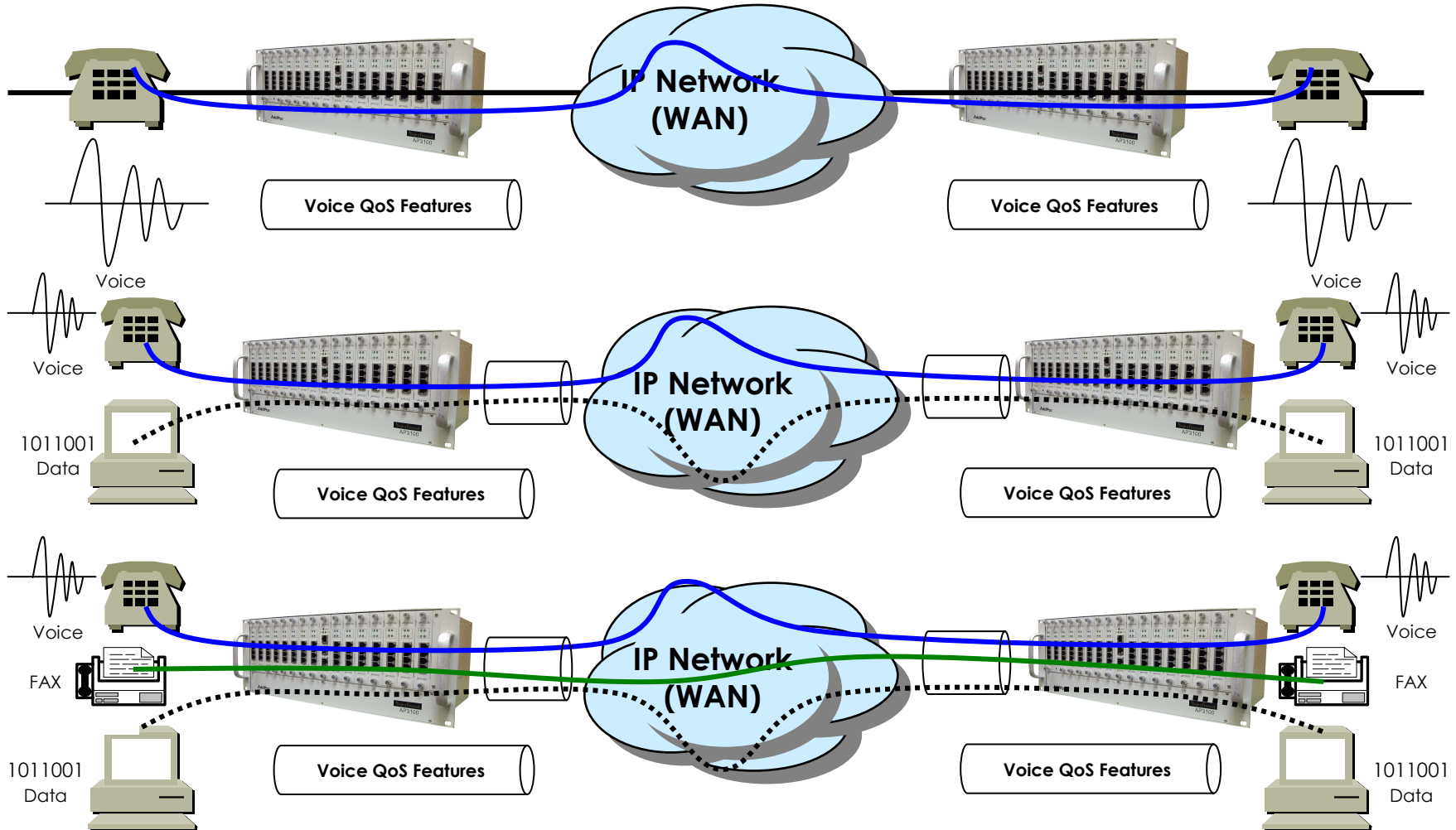
# AP300 VoIP Gateway Product Overview

## Enhances QoS Managements



# AP3100 VoIP Gateway Product Overview

## Enhances QoS Managements (cont.)



# AP3100 VoIP Gateway Product Overview

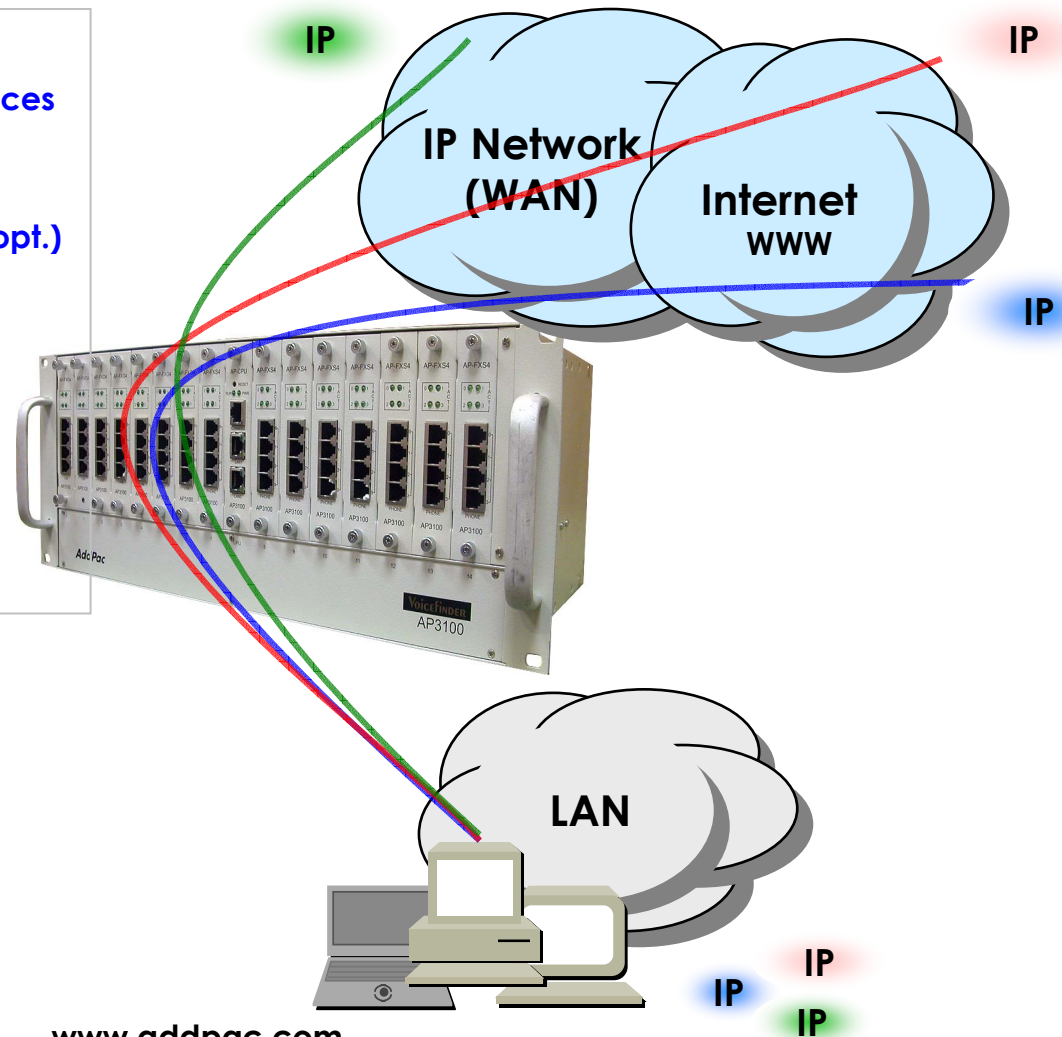
## IP and WAN Protocols

- **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**

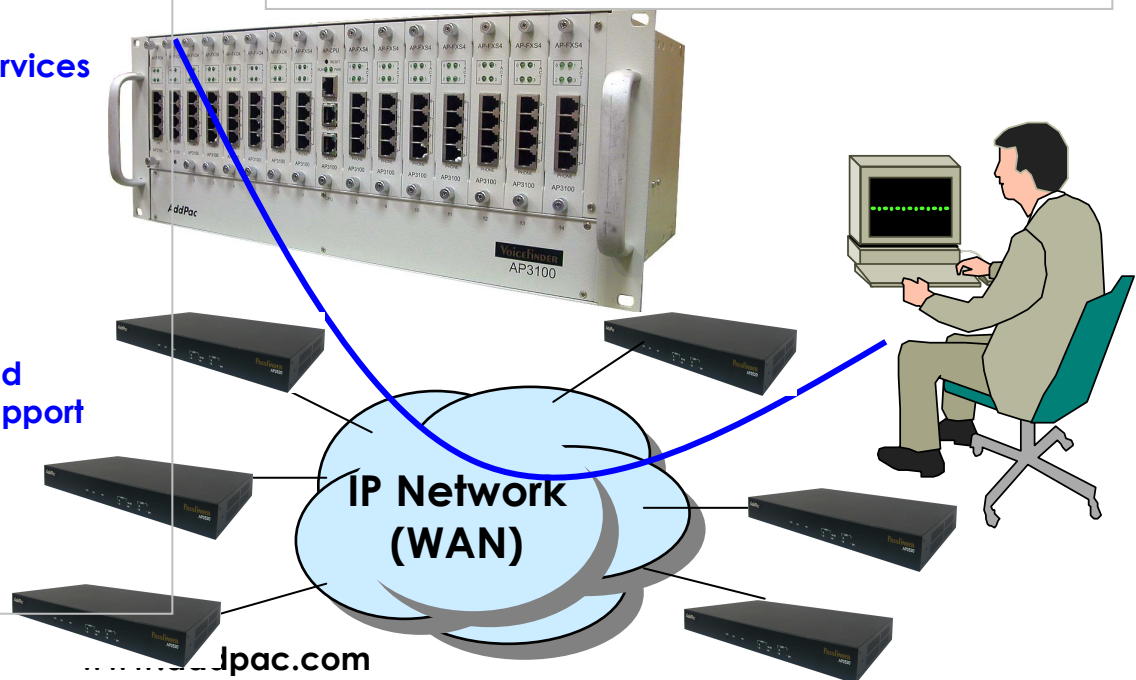
- Text based script downloading

- **Easy Set-up Service**

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

- **Interoperable with AP-VPMS Service**

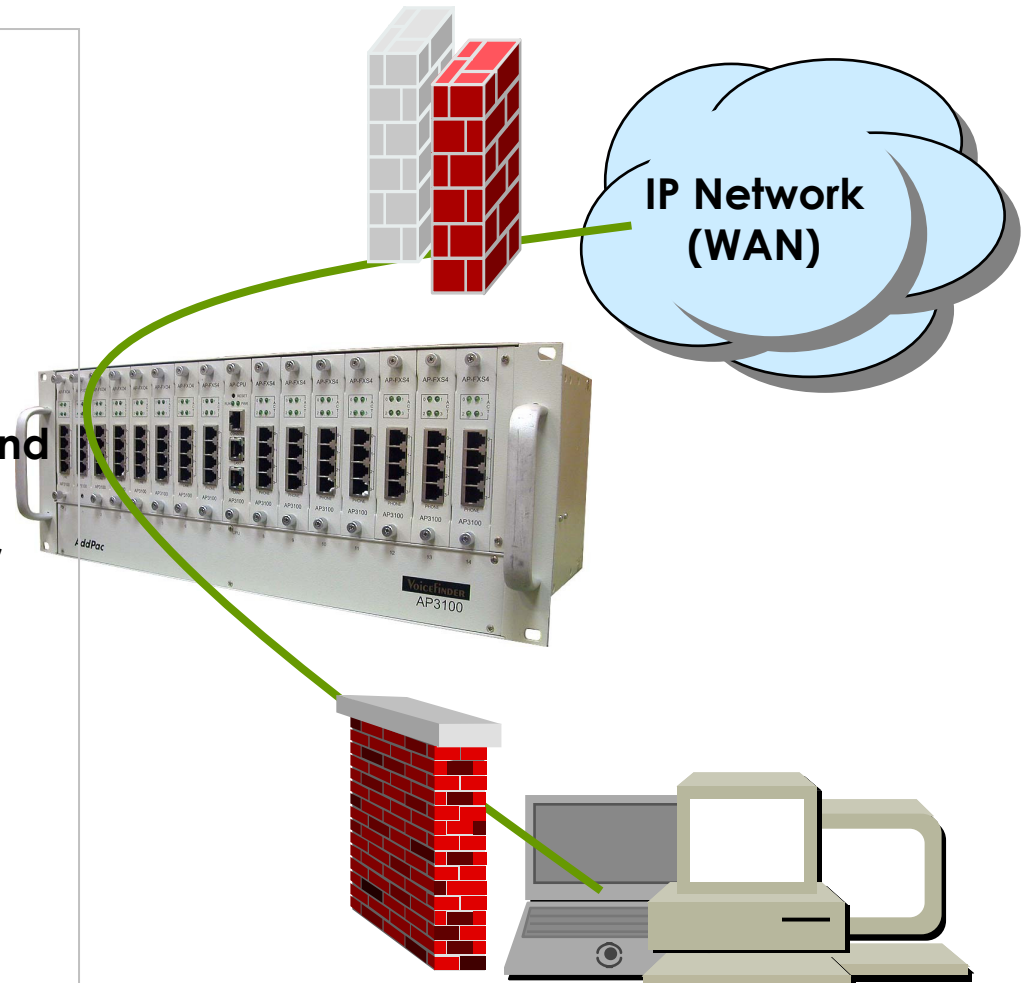
- AddPac VoIP Plug & Play Management System (AP-VPMS)



# 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

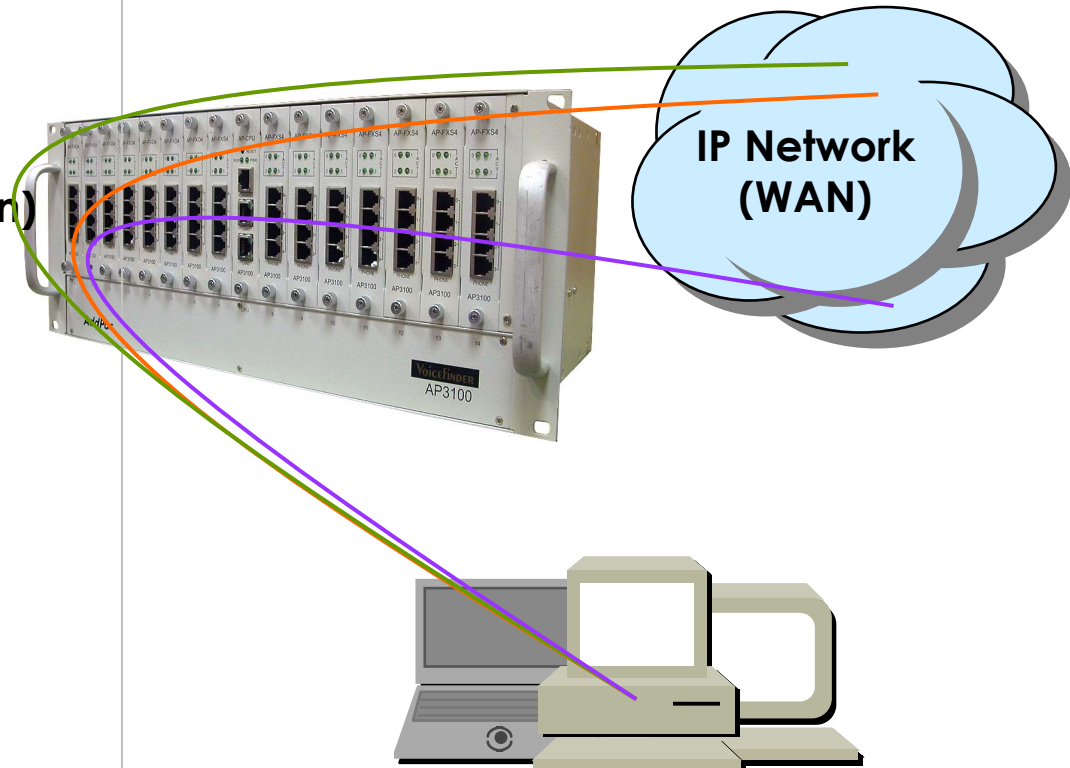




# AP3100 VoIP Gateway Product Overview

## Network Scalability (cont.)

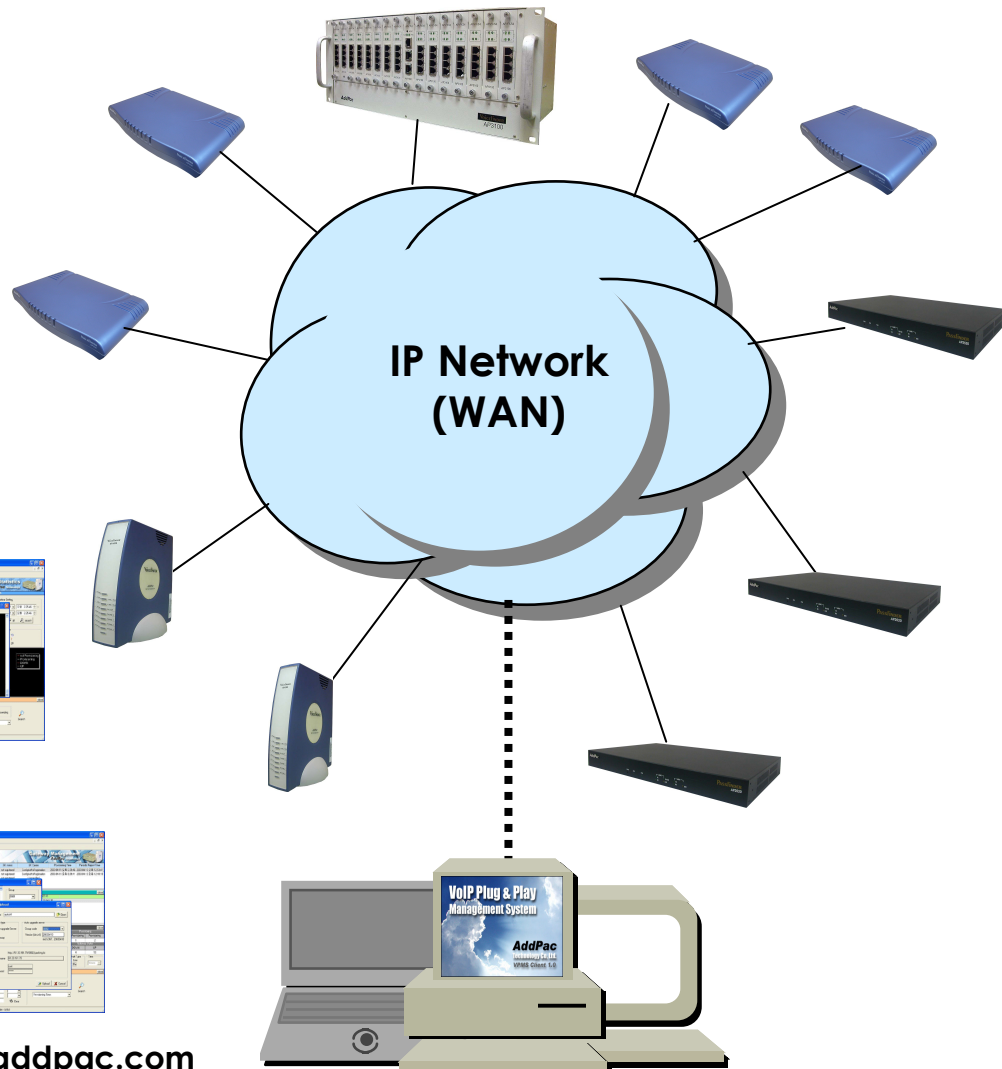
- **Bridging Service**
  - Spanning Tree Bridging protocol (IEEE) support
- **DHCP**
  - Server and Relay
- **IP Accounting**
- **PAT (Port Address Translation)**
- **NAT (Network Address Translation)**
- **Cisco Style CLI (Command Line Interface)**
- **PPTP (Point-to-Point Tunneling Protocol)**
- **NTP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



**AddPac**

[www.addpac.com](http://www.addpac.com)

# 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

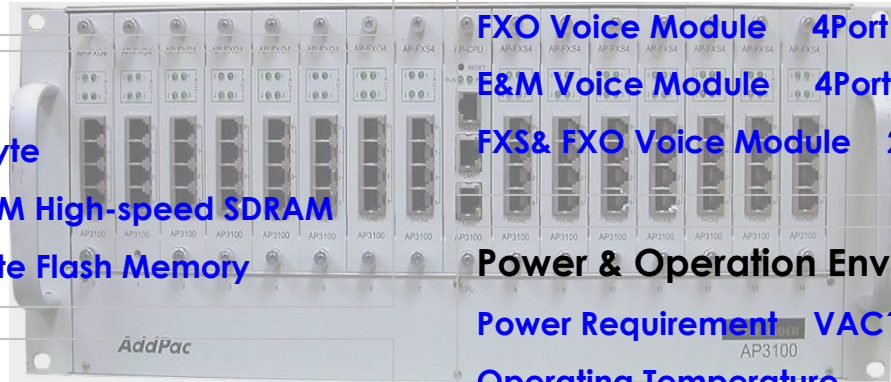
FXS Voice Module 4Port FXS Voice Interface Module  
FXO Voice Module 4Port FXO Voice Interface Module  
E&M Voice Module 4Port E&M Voice Interface Module  
FXS& FXO Voice Module 2Port FXS & 2Port FXO Module

### 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 Traffic

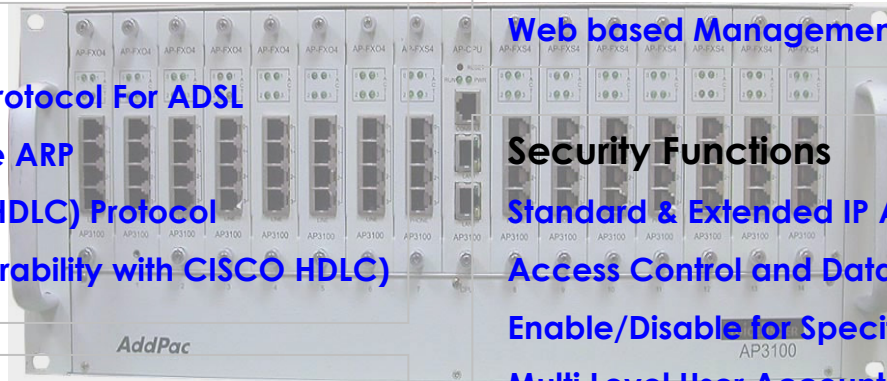
### Network Managements

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)

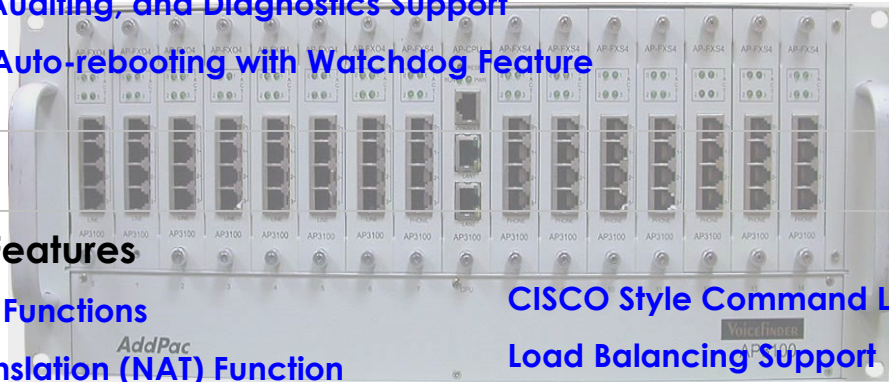
### Operation & Managements

System Performance 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

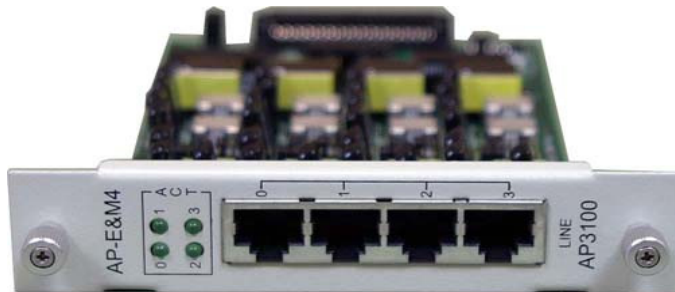
Remote Upgrade for APOS Management Using

FTP / TFTP

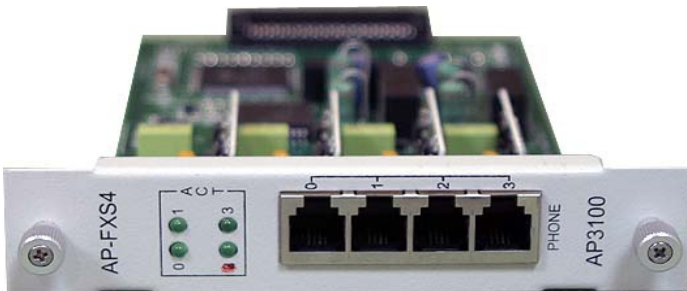
# AP3100 VoIP Gateway Product Overview



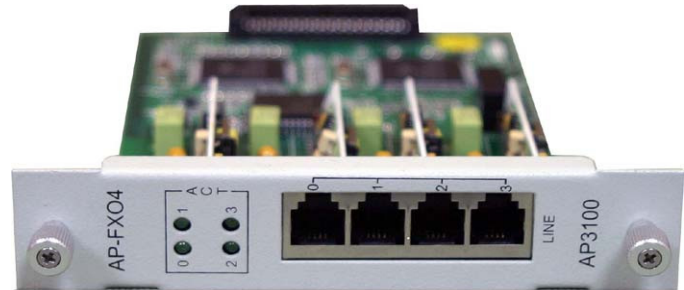
High-End PowerPC CPU Module, Console Port



4-Port E&M Module



4-Port FXS Module



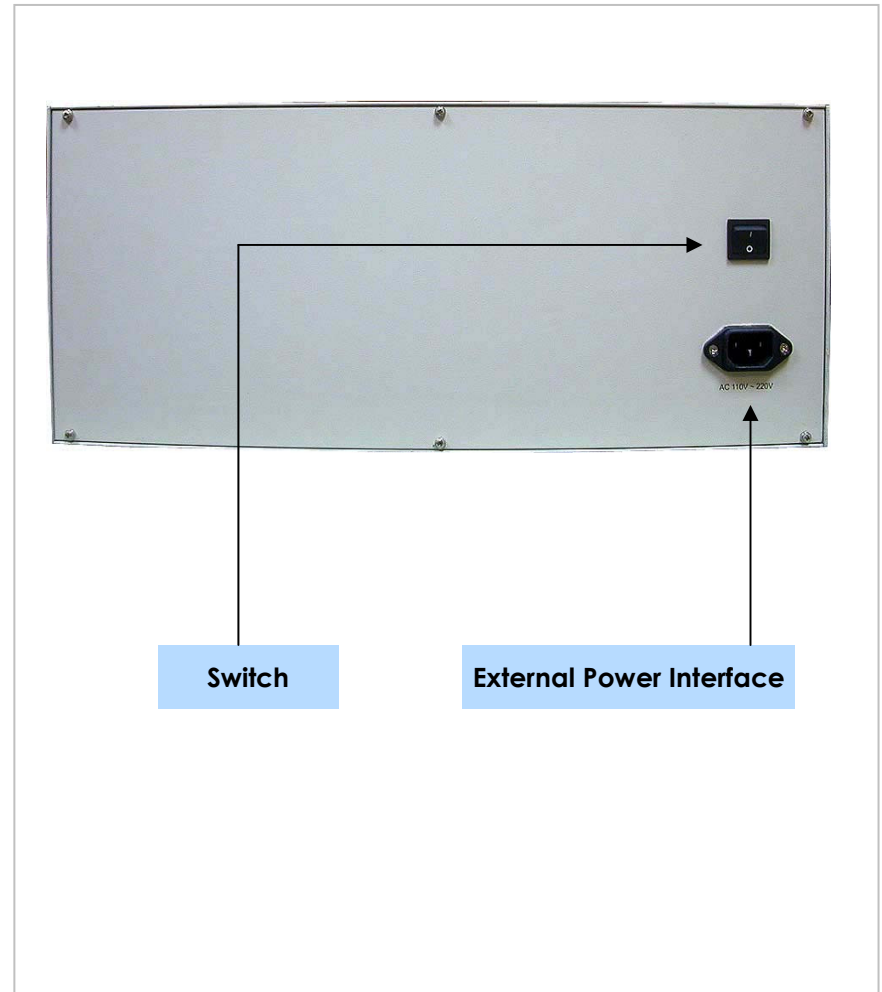
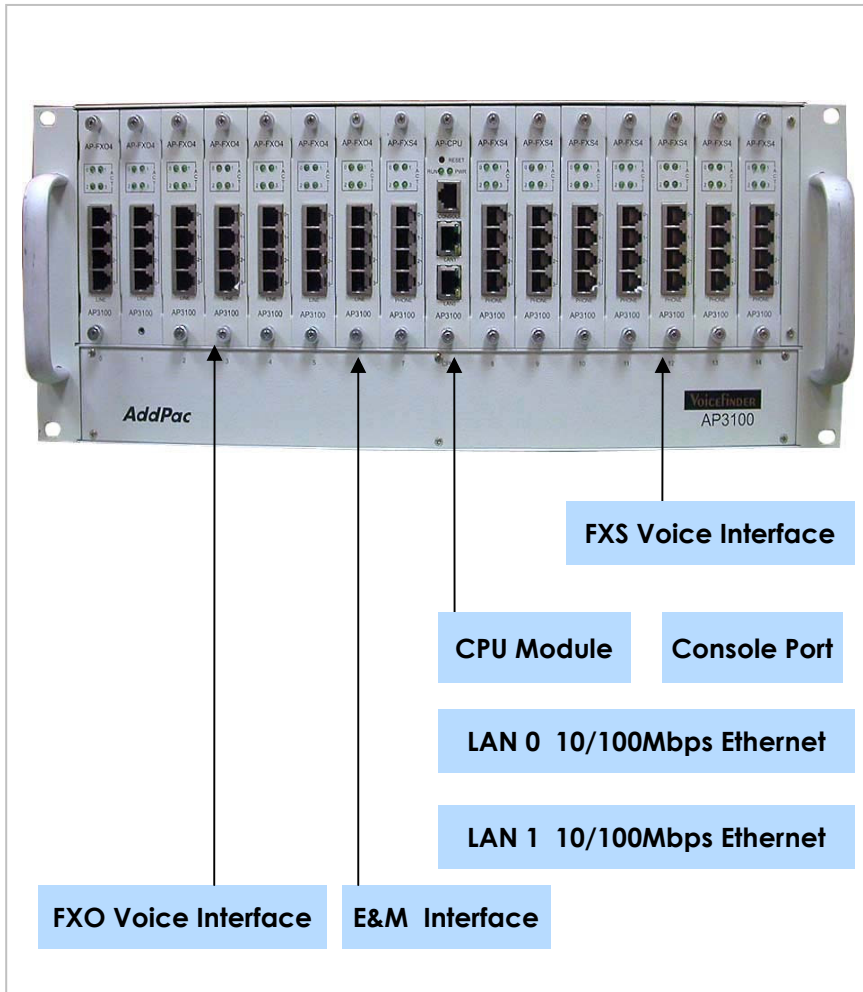
4-Port FXO Module



2-Port FXS and 2-port FXO Module

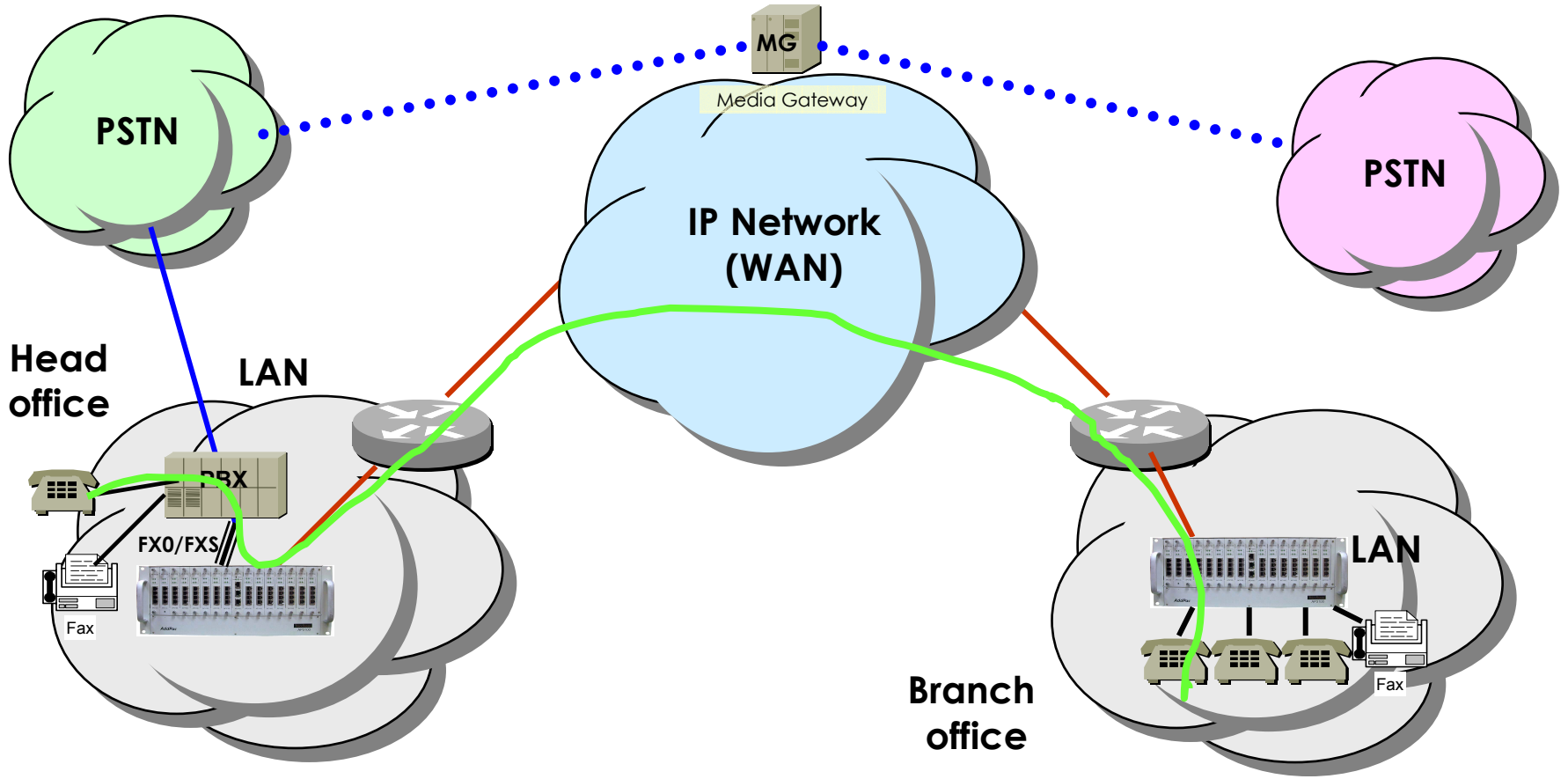
# AP3100 VoIP Gateway Product Overview




## Network interface Configurations

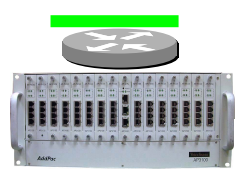





# AP3100 Voice Networking Configuration

## 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

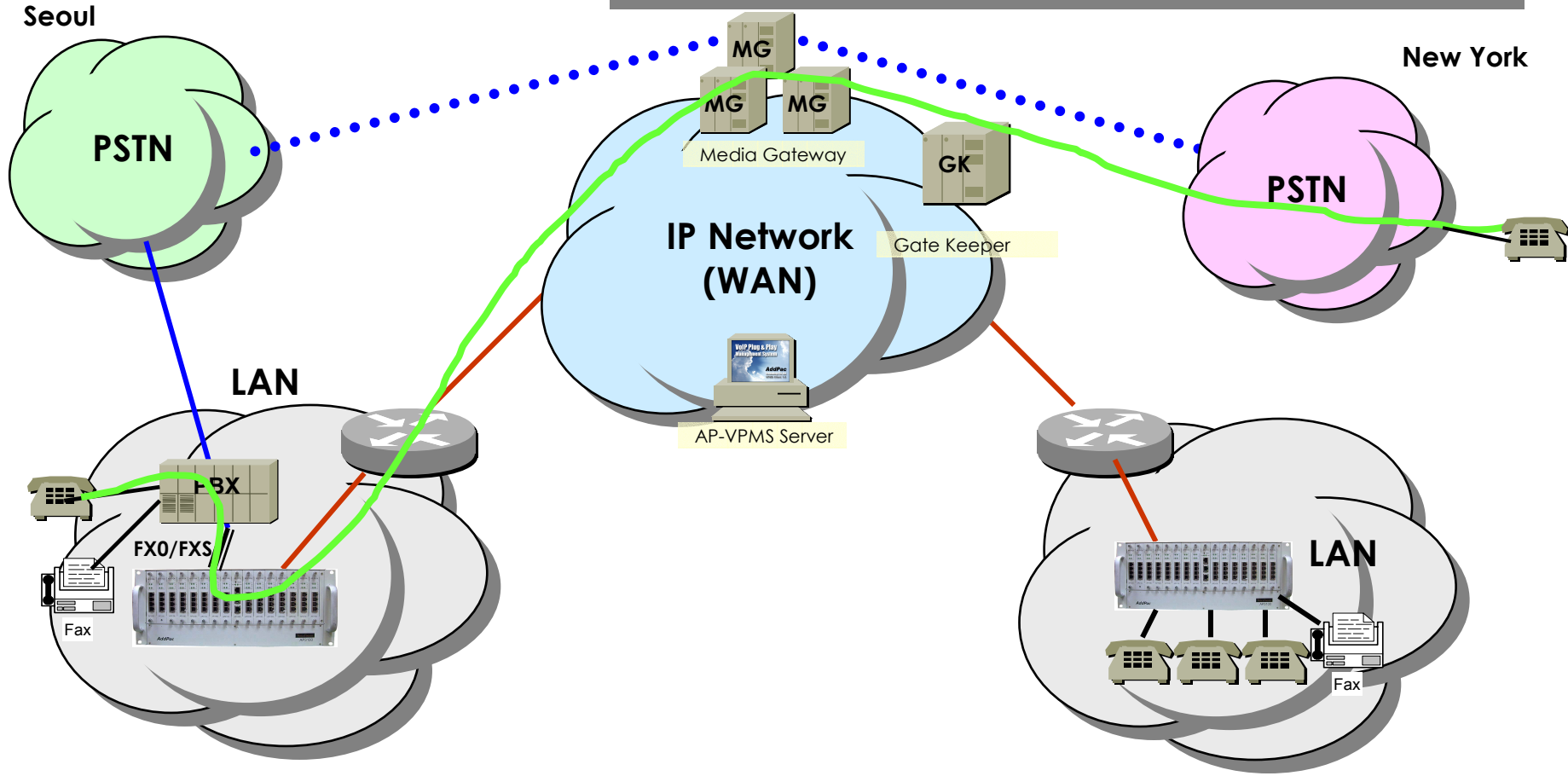


-  Voice Call Flow
-  Leased Line/ATM/Frame-Relay/IP Router, xDSL/Cable Modem, etc.
-  AddPac AP3100 Voice over IP Gateway




# 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.

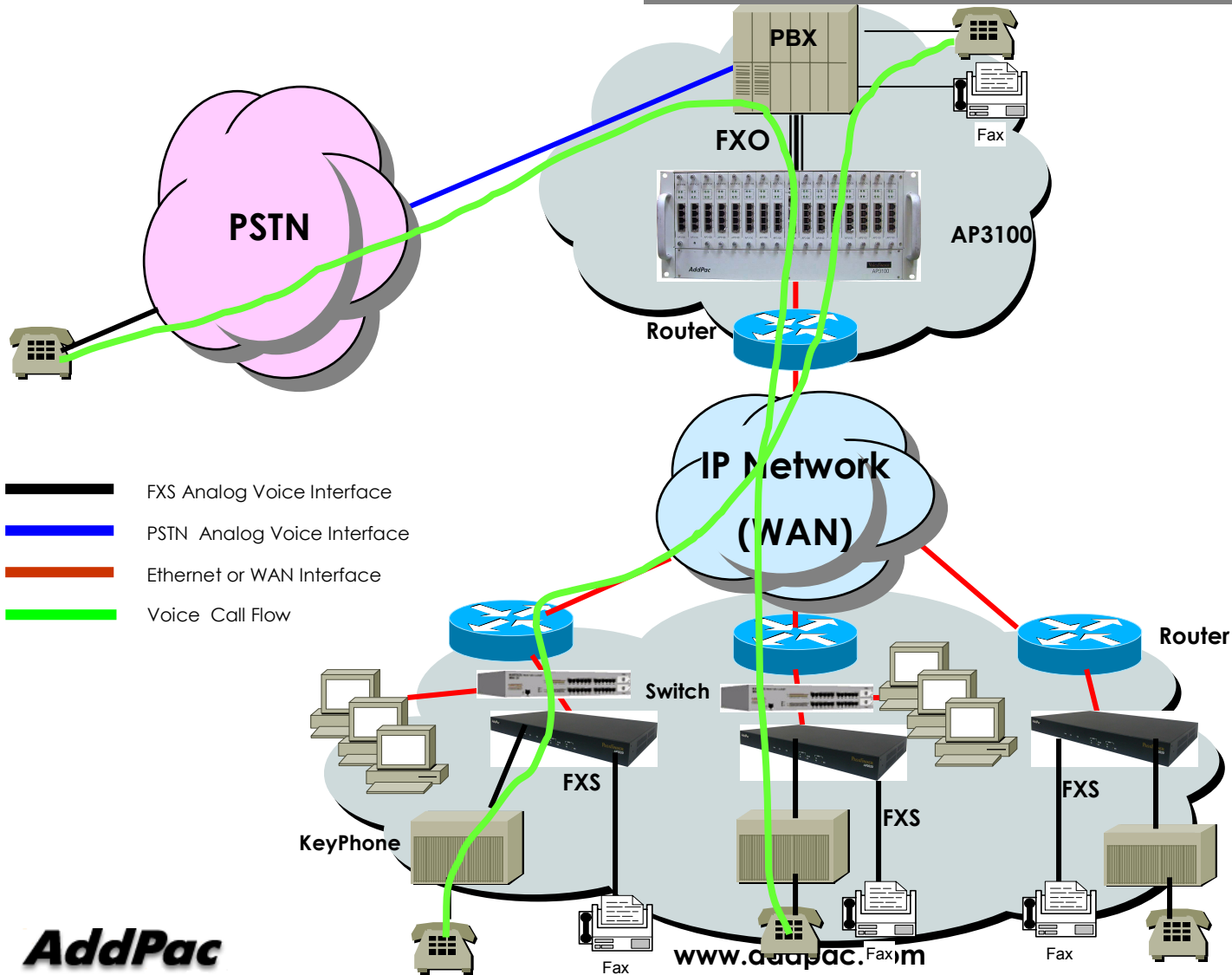
 AddPac AP3100 Voice over IP Gateway



[www.addpac.com](http://www.addpac.com)

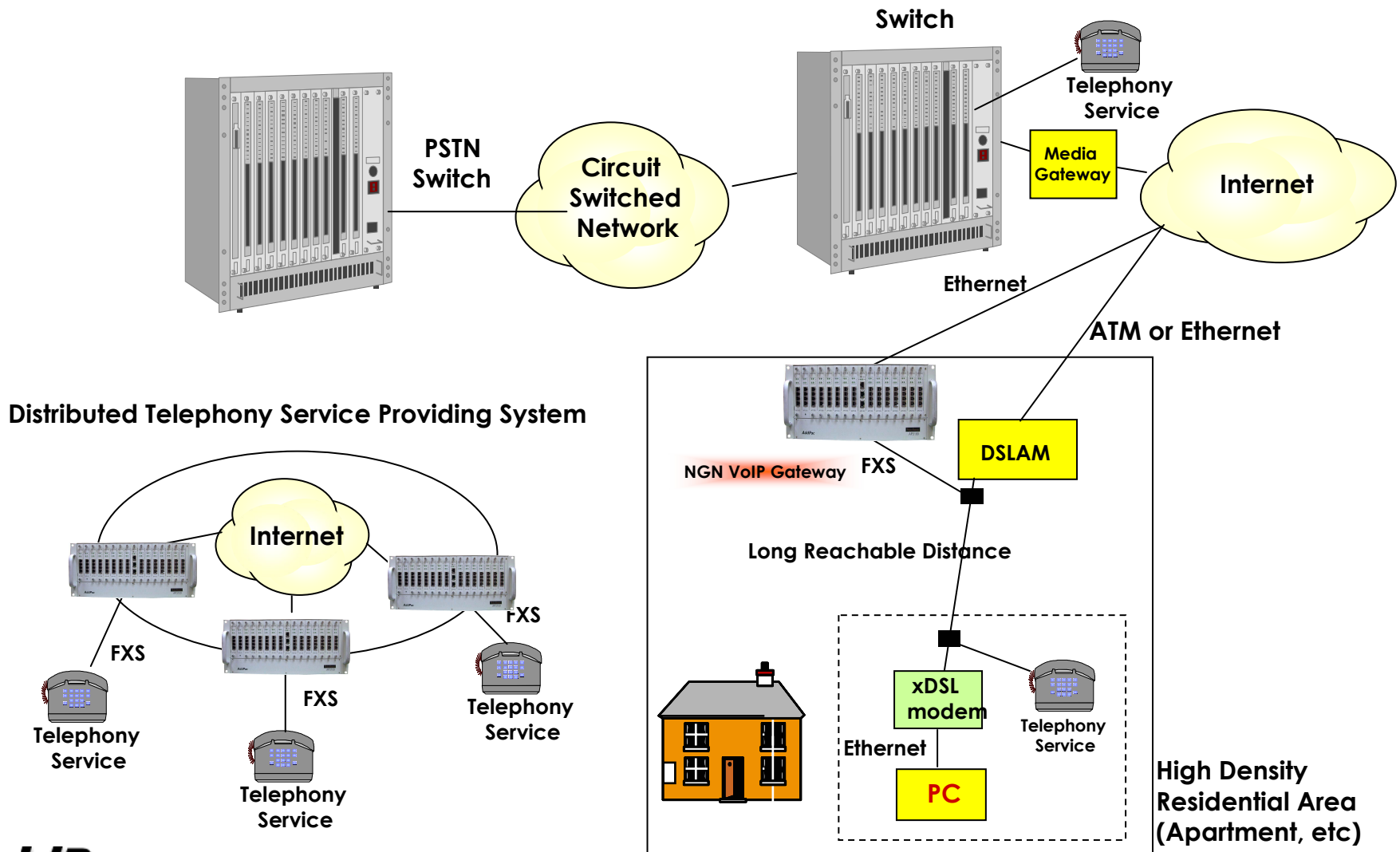
# AP3100 Voice Networking Configuration

A head office to local branches



# 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
- Please Contact [www.addpac.com](http://www.addpac.com)

# 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

**AddPac Technology Co., Ltd.**

**Thank you !**

[www.addpac.com](http://www.addpac.com)

**Technical Sales and Marketing**

**Phone : +82 2 568 3848**

**Fax : +82 2 568 3847**

**[sales@addpac.com](mailto:sales@addpac.com)**