

# AP190 VoIP Gateway

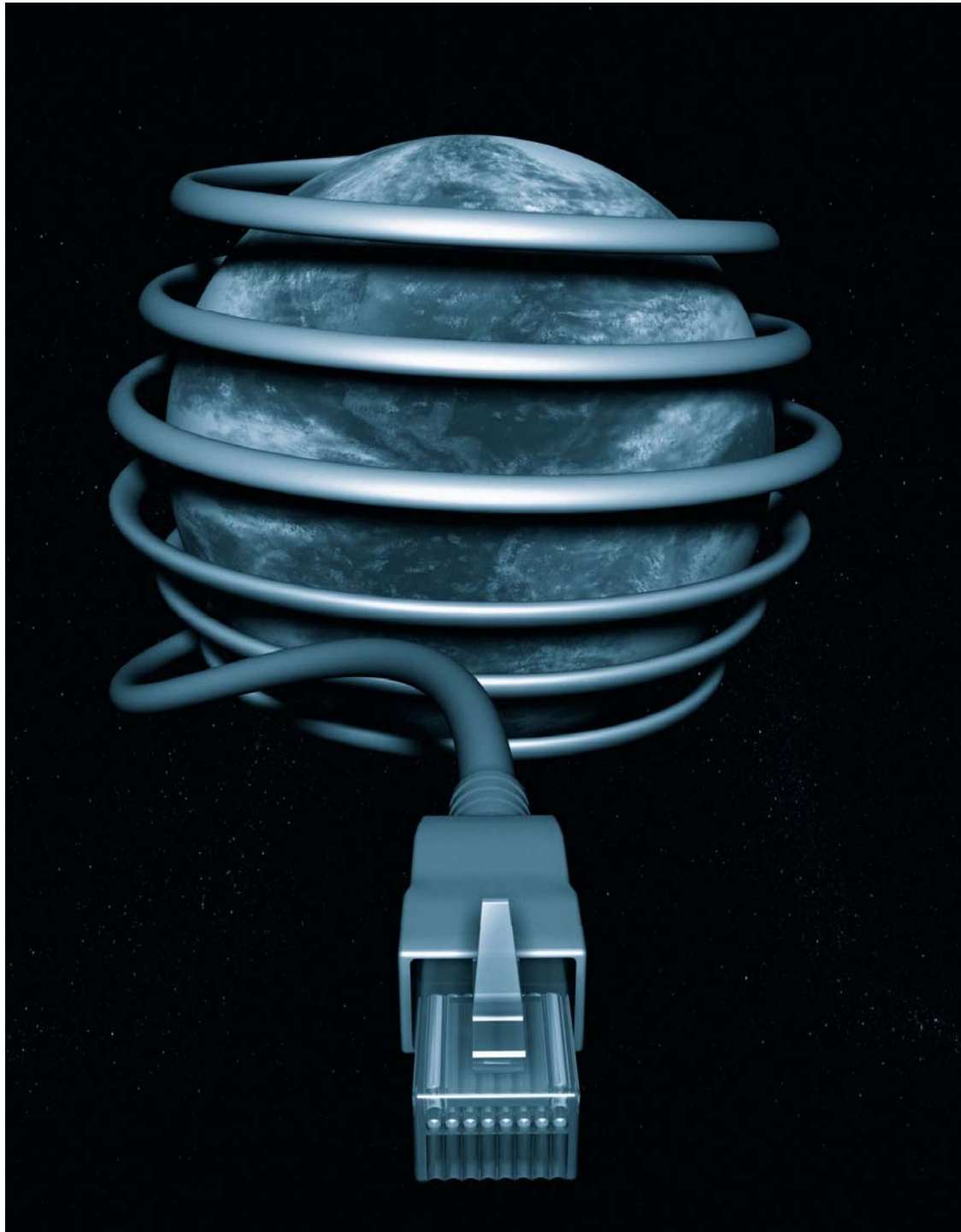


December 2004

Technical Sales and Marketing

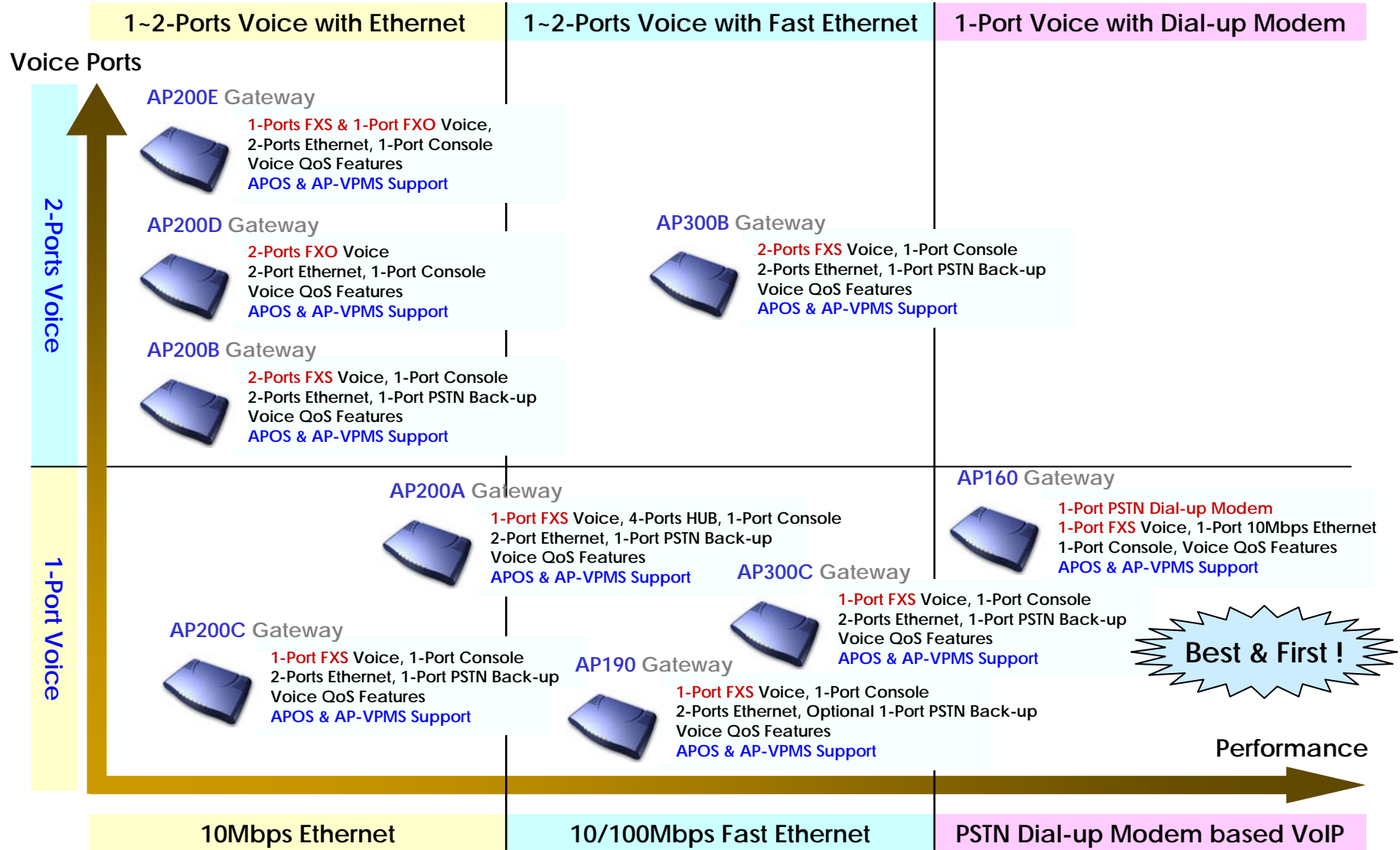
AddPac Technology

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

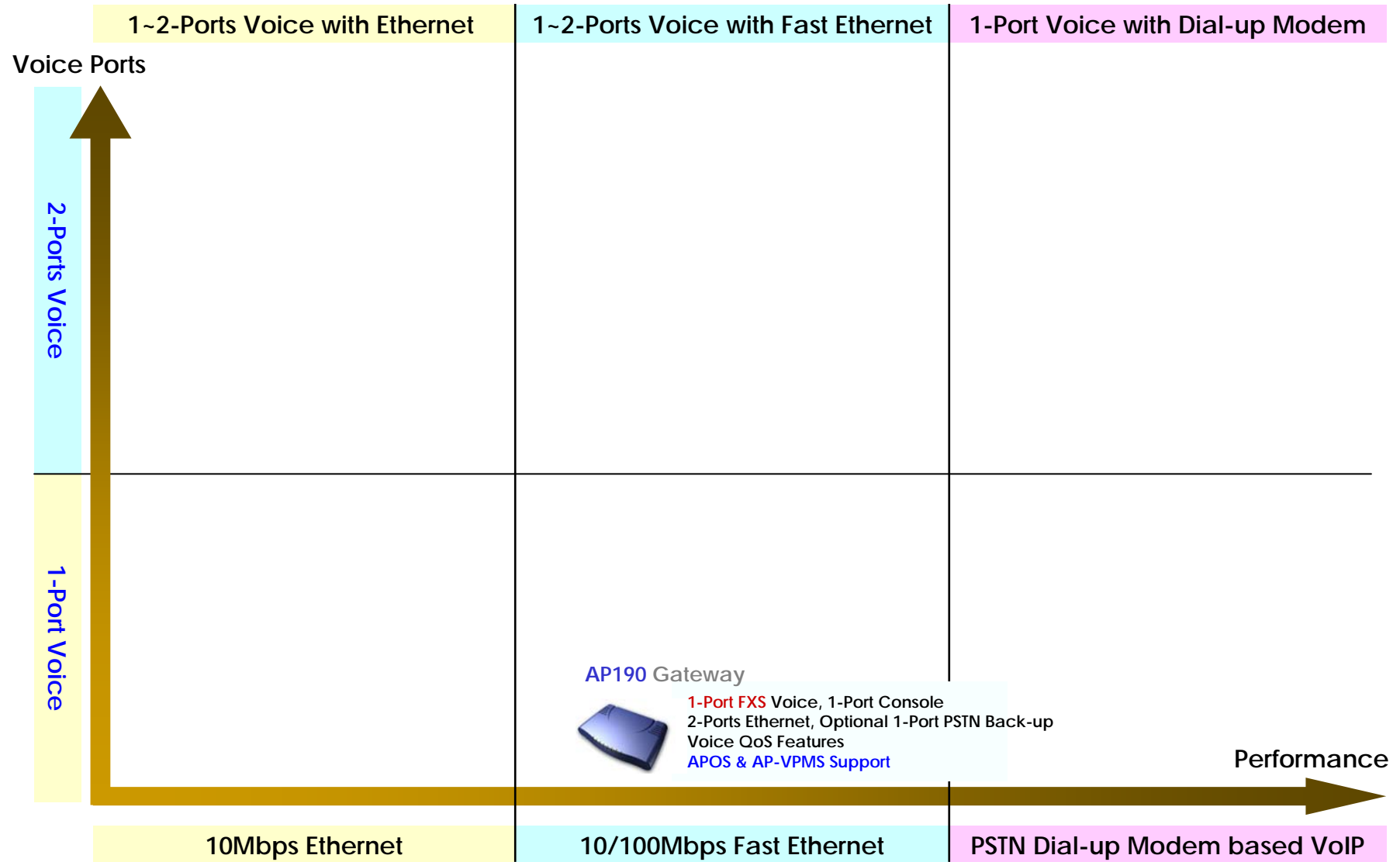




# AddPac AP160/190/200/300 Products Road-Map

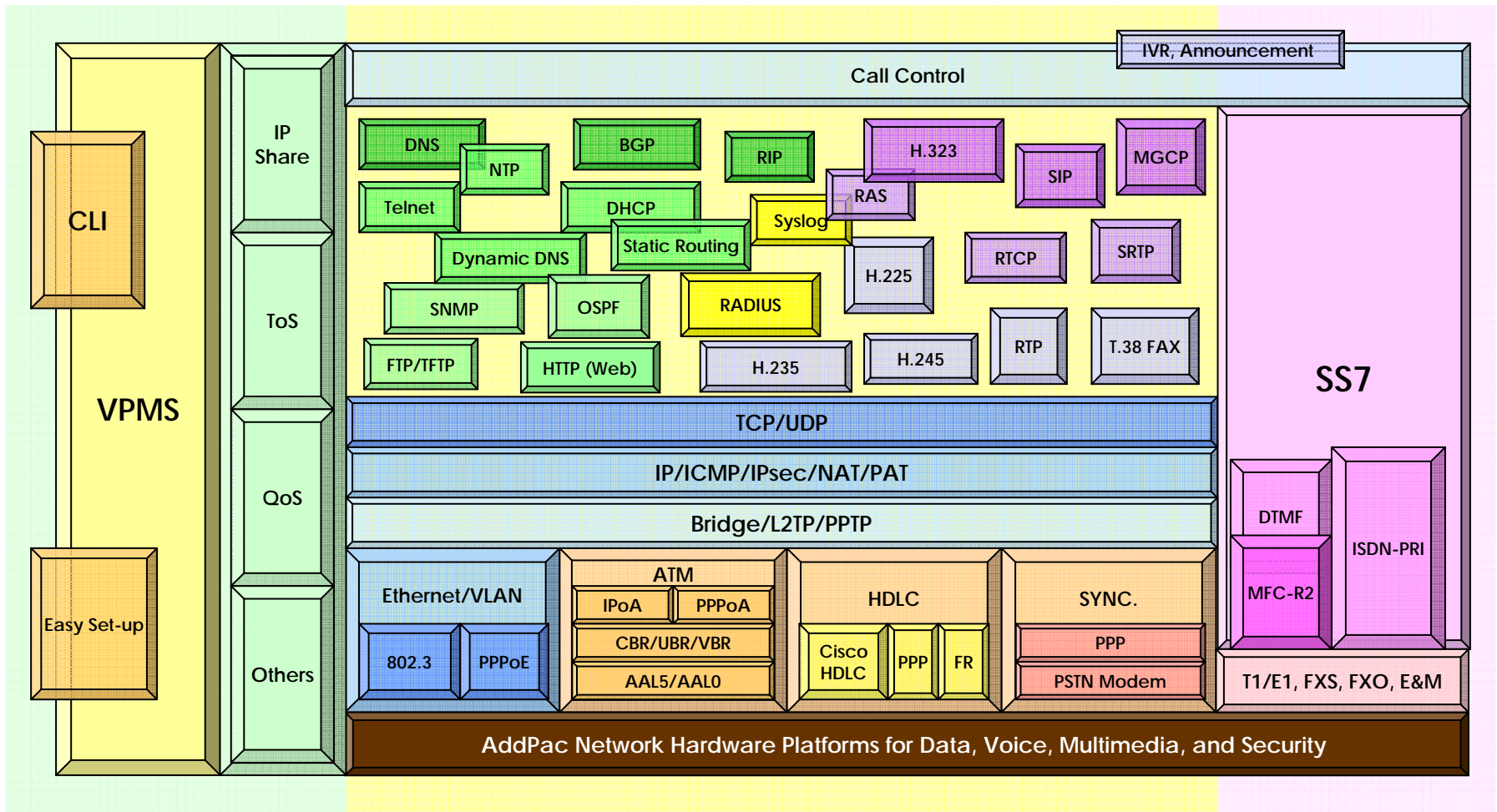


# AddPac AP190 Products Road-Map



# AP190 VoIP Gateway Product Overview

## APOS Internetworking Protocol Stack



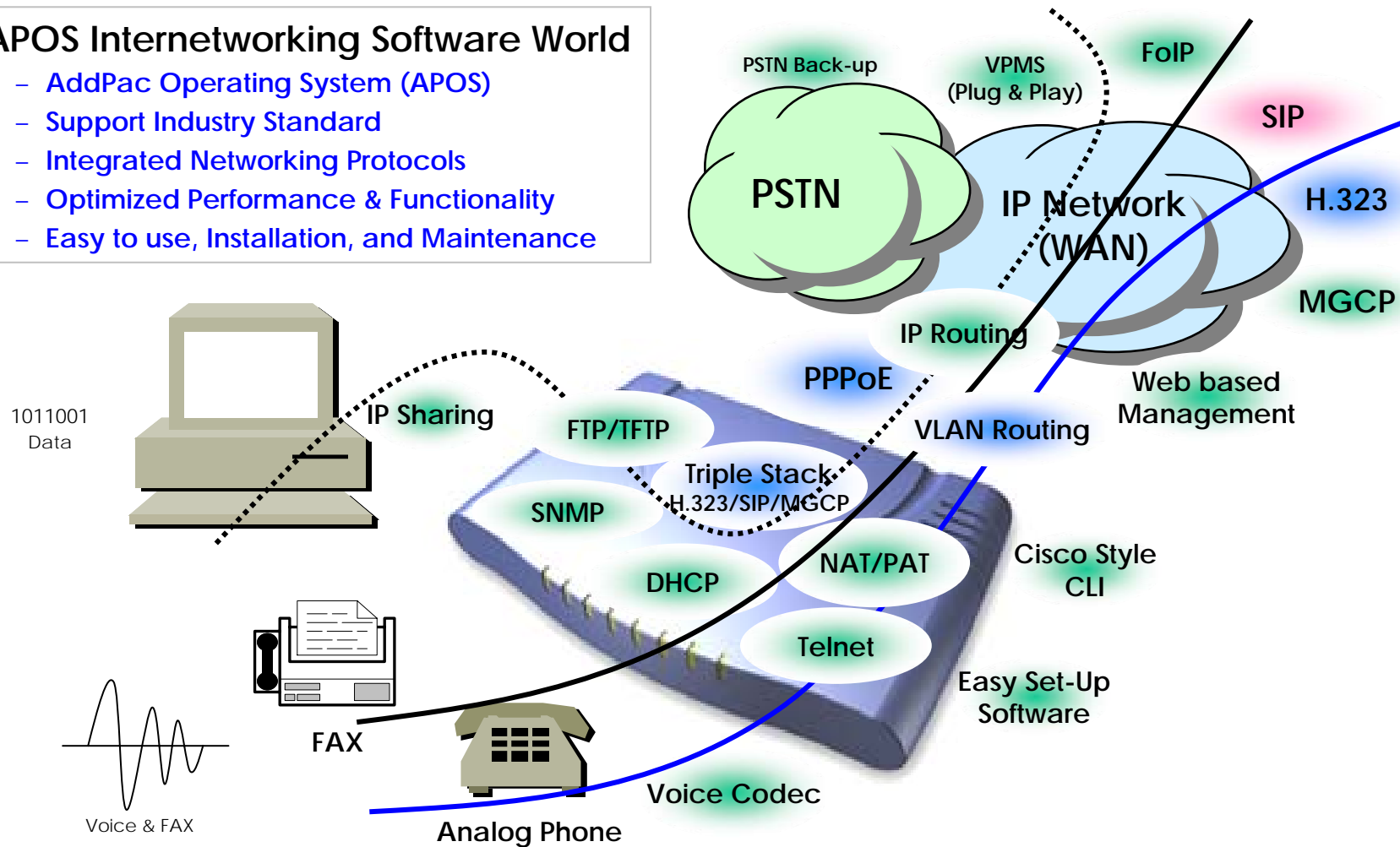


# AP190 VoIP Gateway Product Overview

## APOS Internetworking S/W World

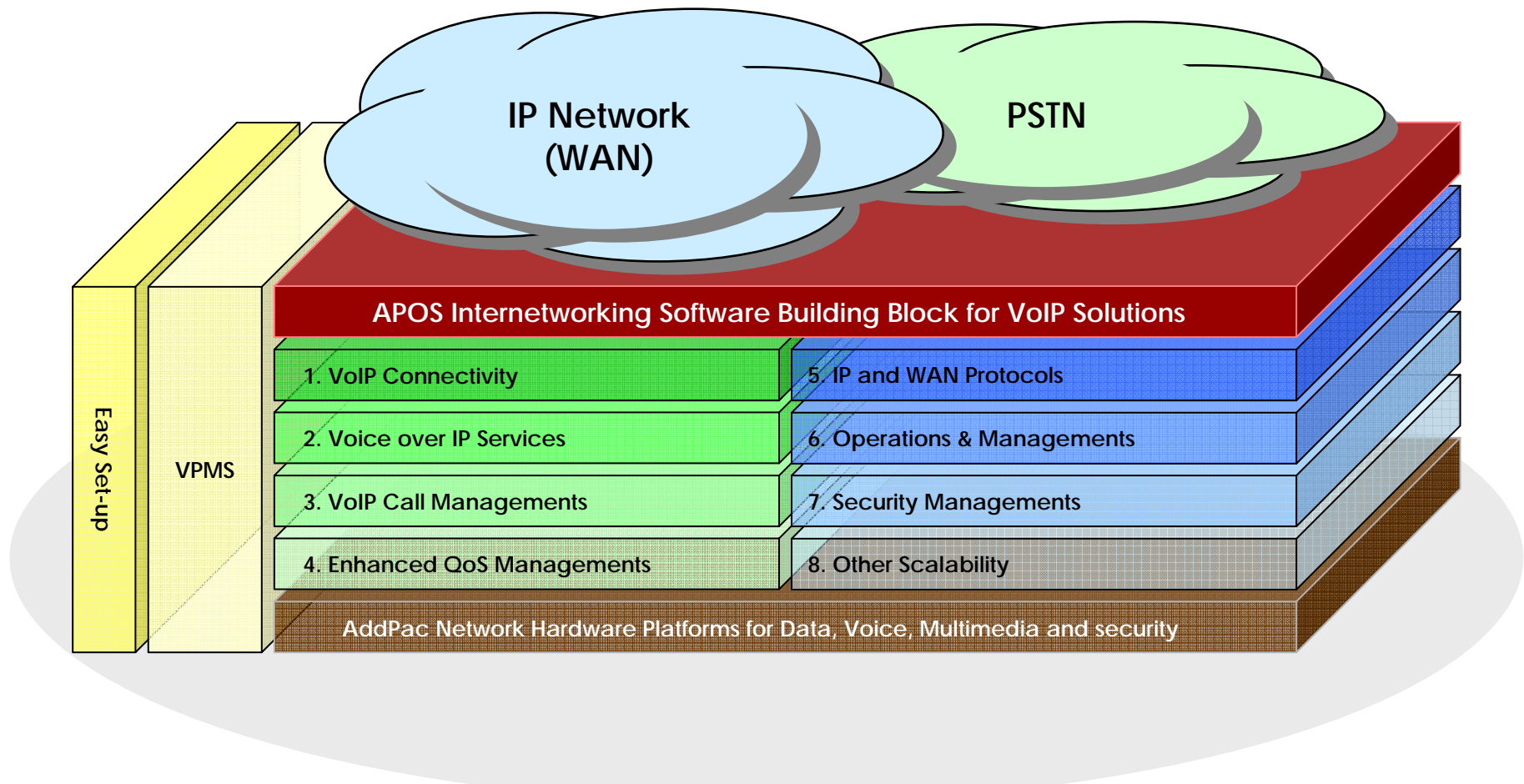
### • APOS Internetworking Software World

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



# AP190 VoIP Gateway Product Overview

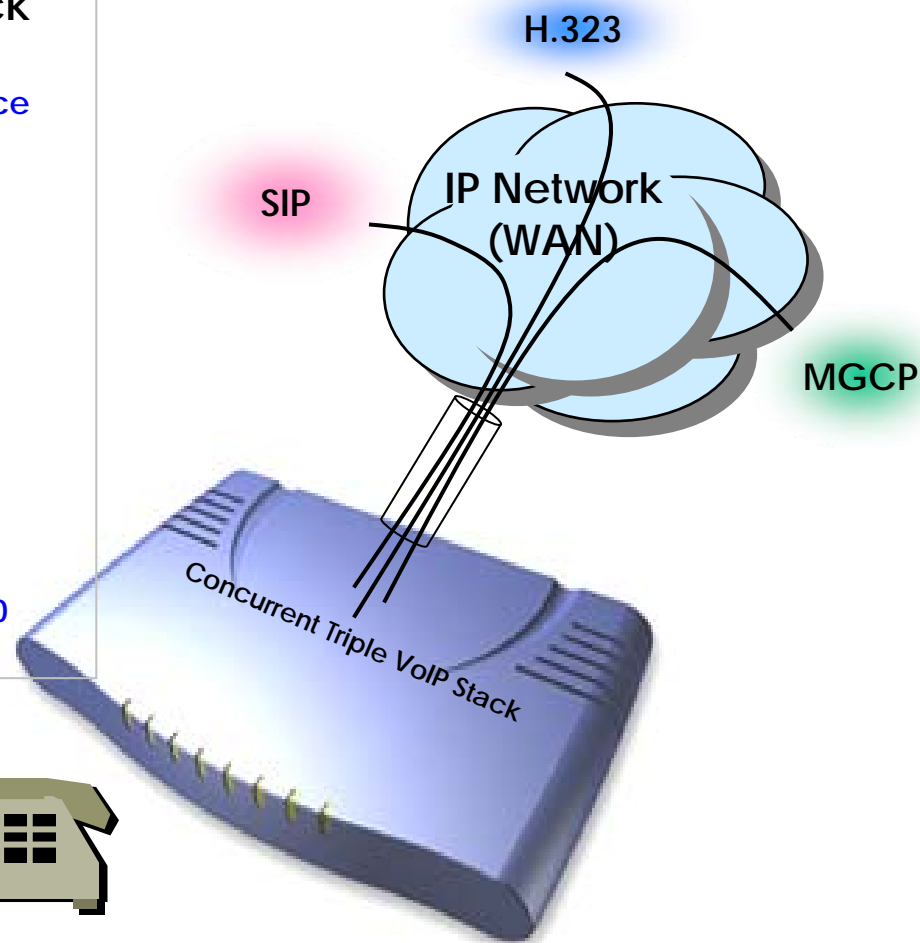
## APOS Internetworking S/W World (cont.)



# AP190 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





# AP190 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

# AP190 VoIP Gateway Product Overview

## Voice over IP Service (cont.)

### • Voice Codec

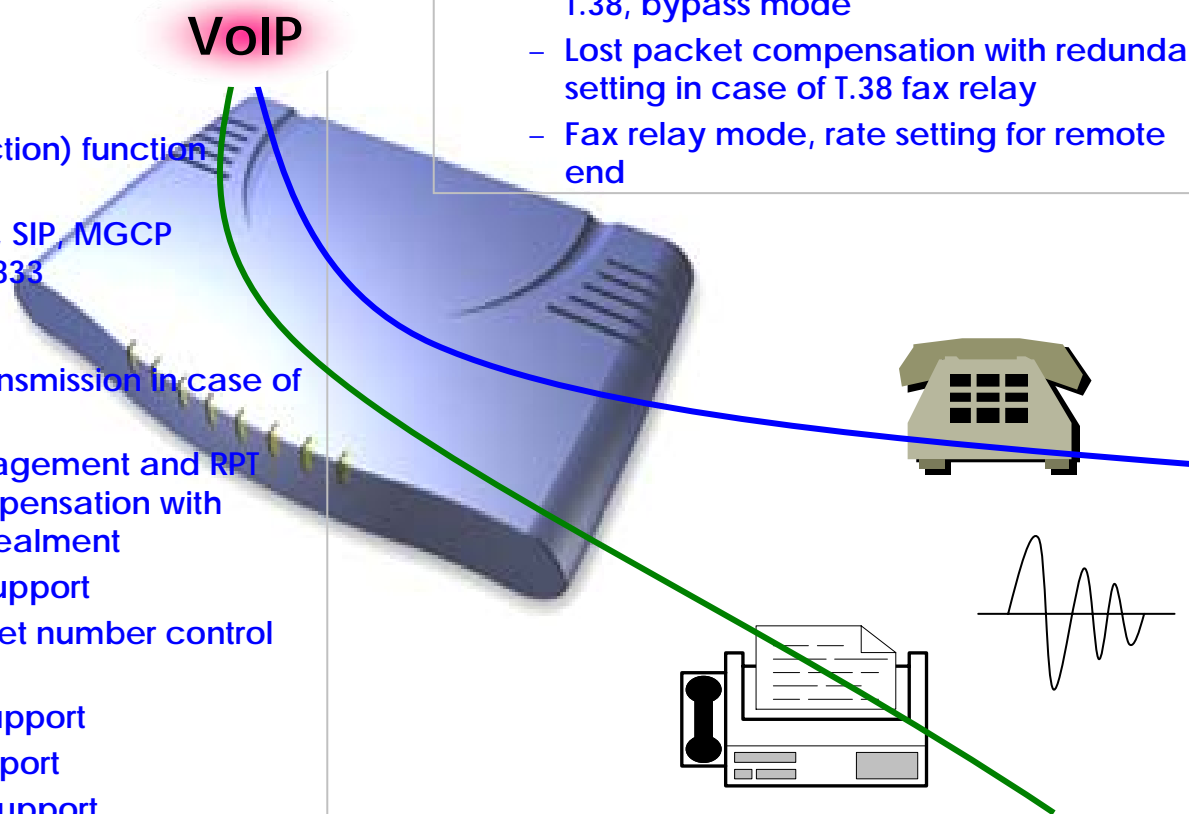
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

### • 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



# AP190 VoIP Gateway Product Overview

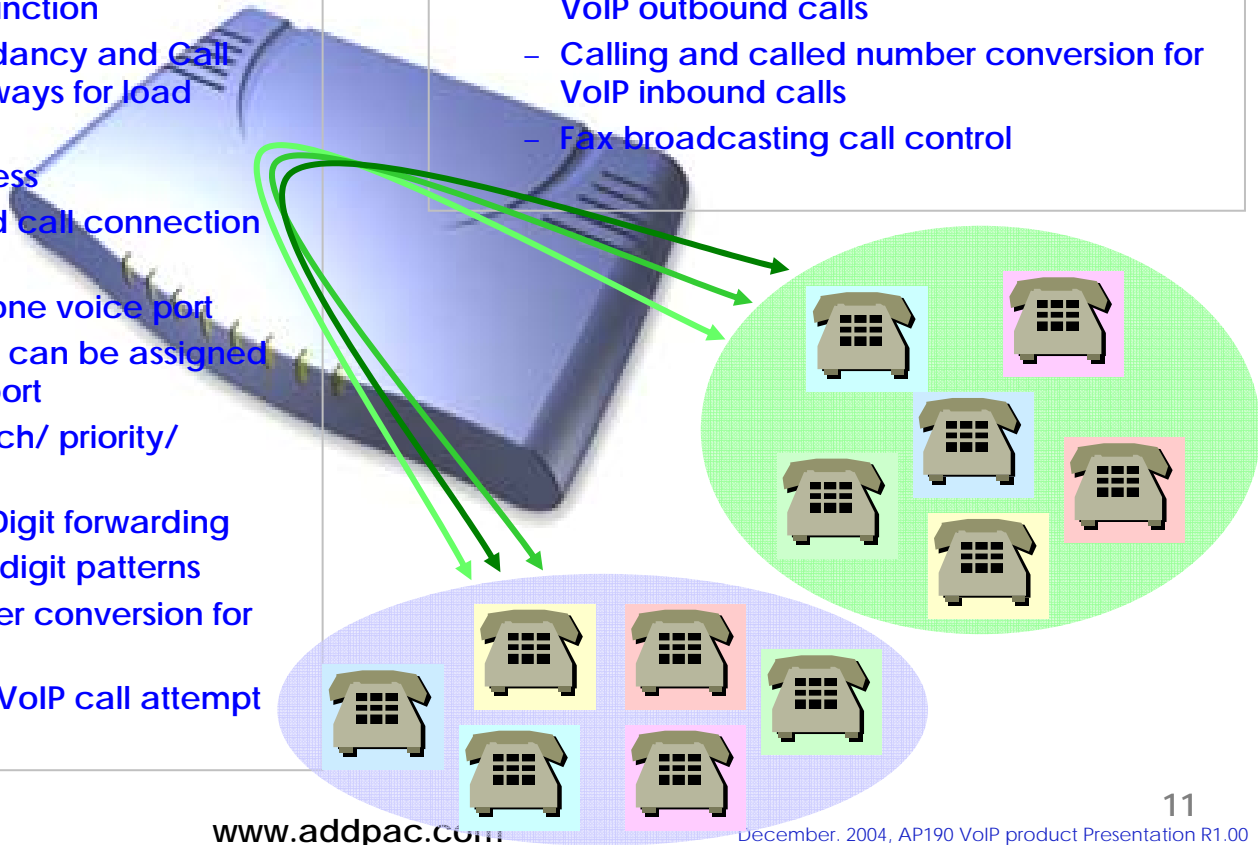
## VoIP Call Managements

### • 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



# AP190 VoIP Gateway Product Overview

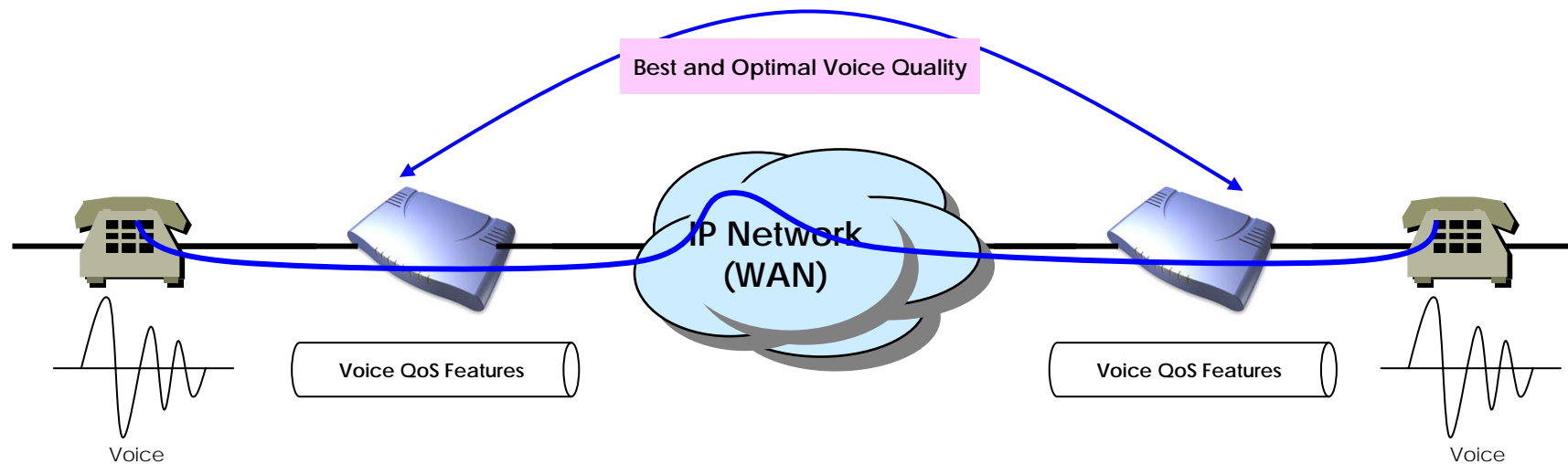
## Enhances QoS Managements

- 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

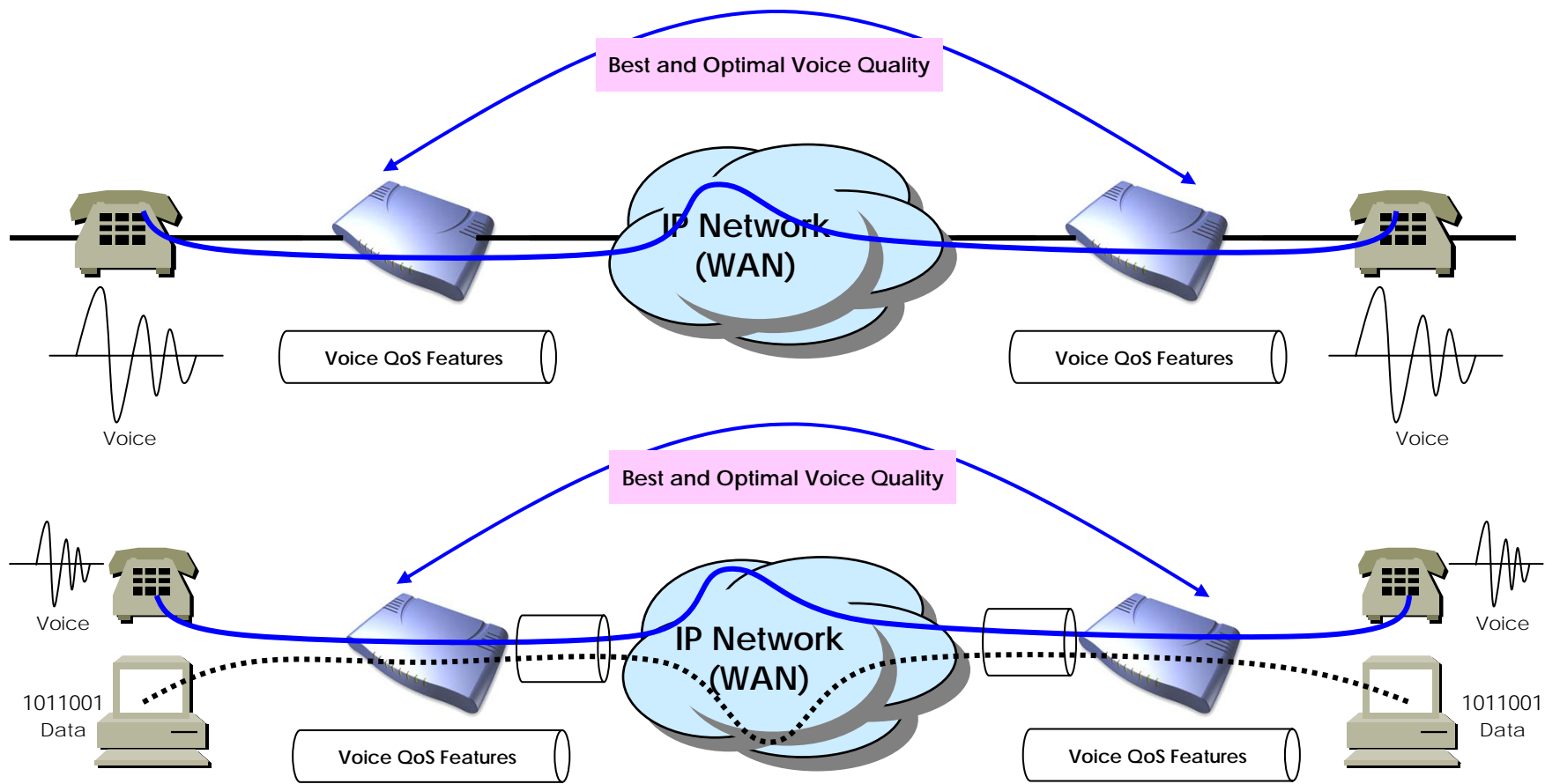
- Enhances **Receive** Voice QoS Features

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



# AP190 VoIP Gateway Product Overview

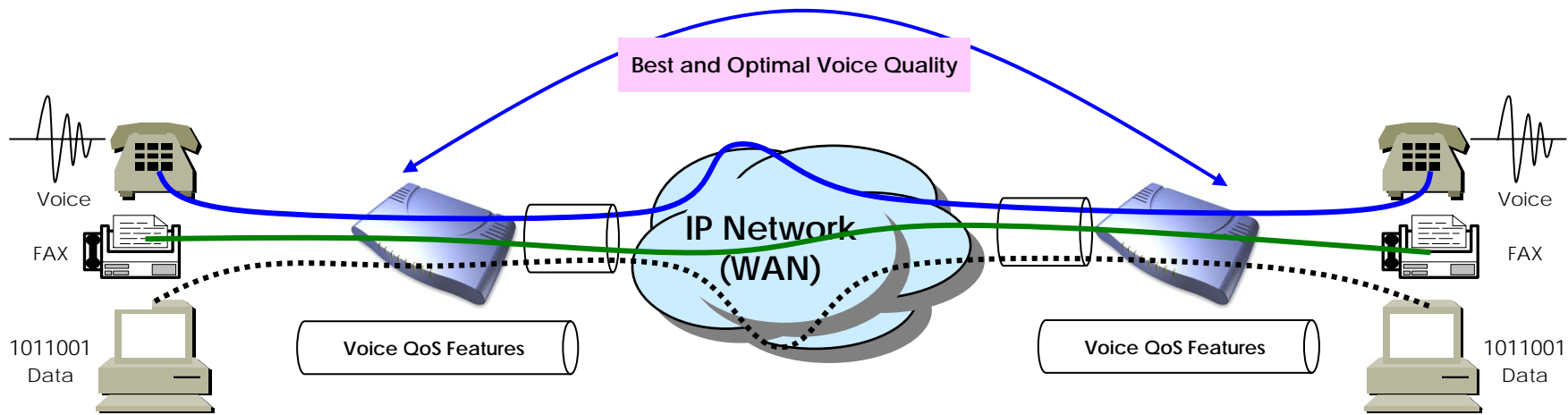
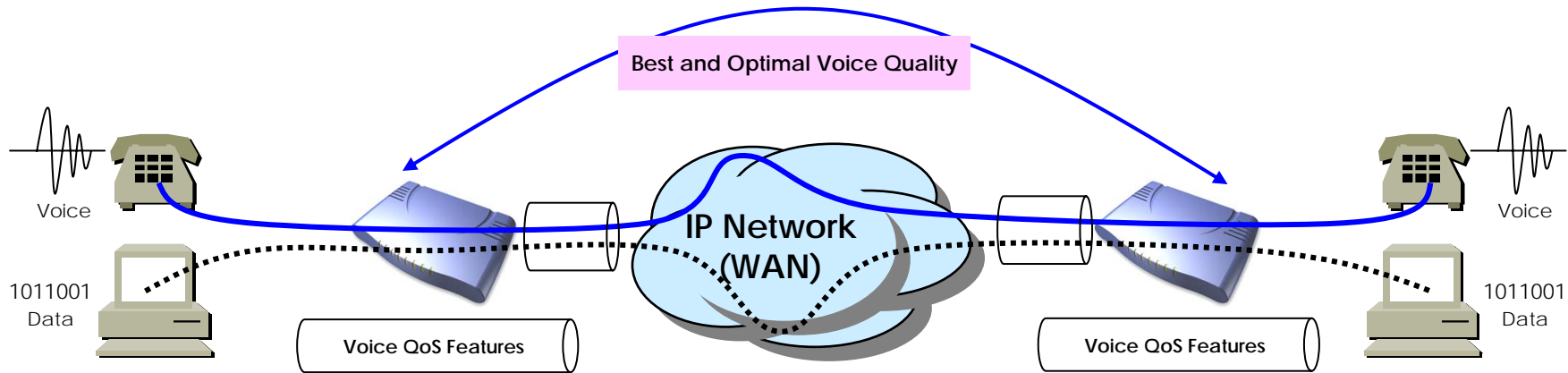
## Enhances QoS Managements (cont.)





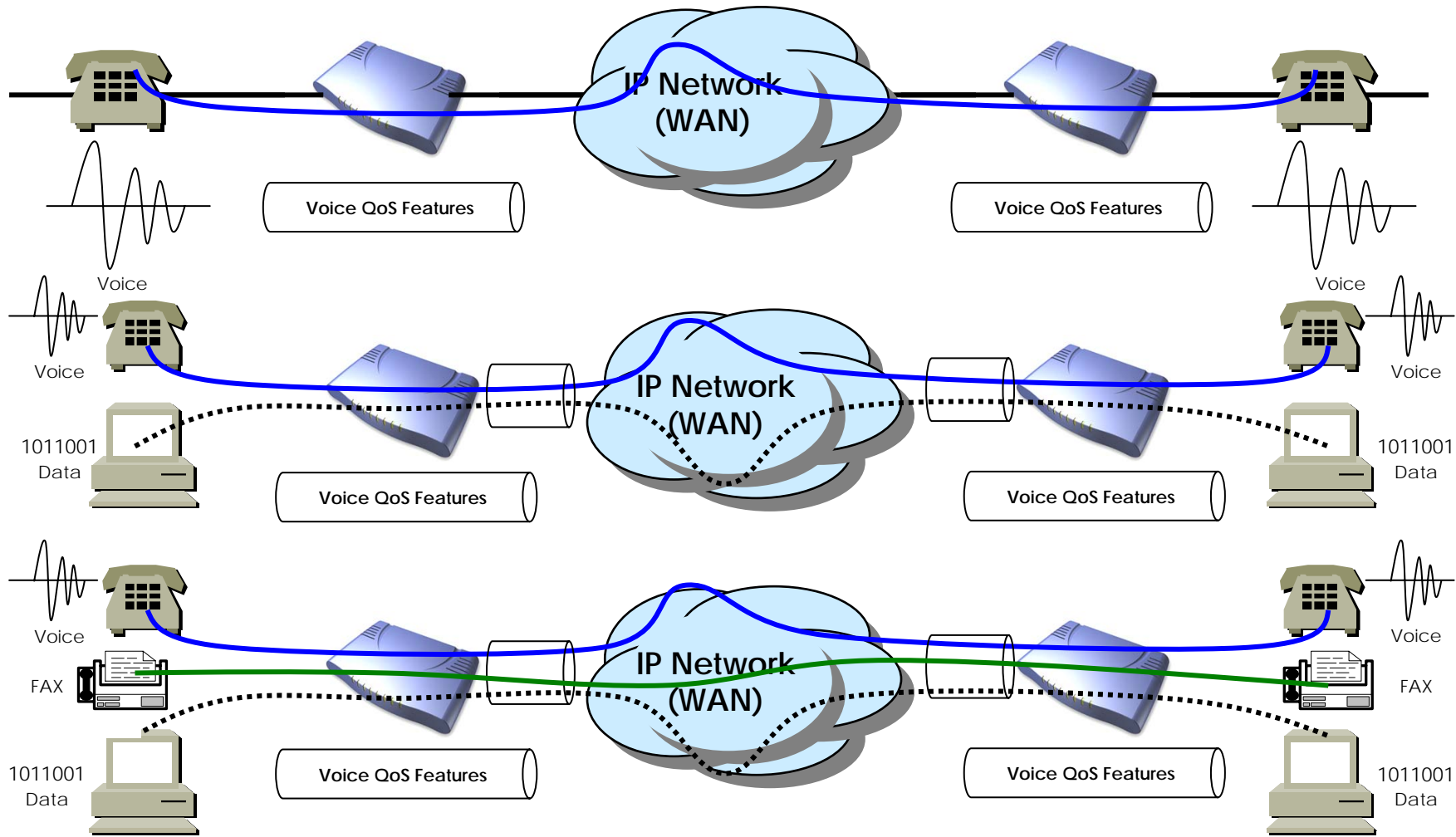
# AP190 VoIP Gateway Product Overview

## Enhances QoS Managements (cont.)



# AP190 VoIP Gateway Product Overview

## Enhances QoS Managements (cont.)



# AP190 VoIP Gateway Product Overview

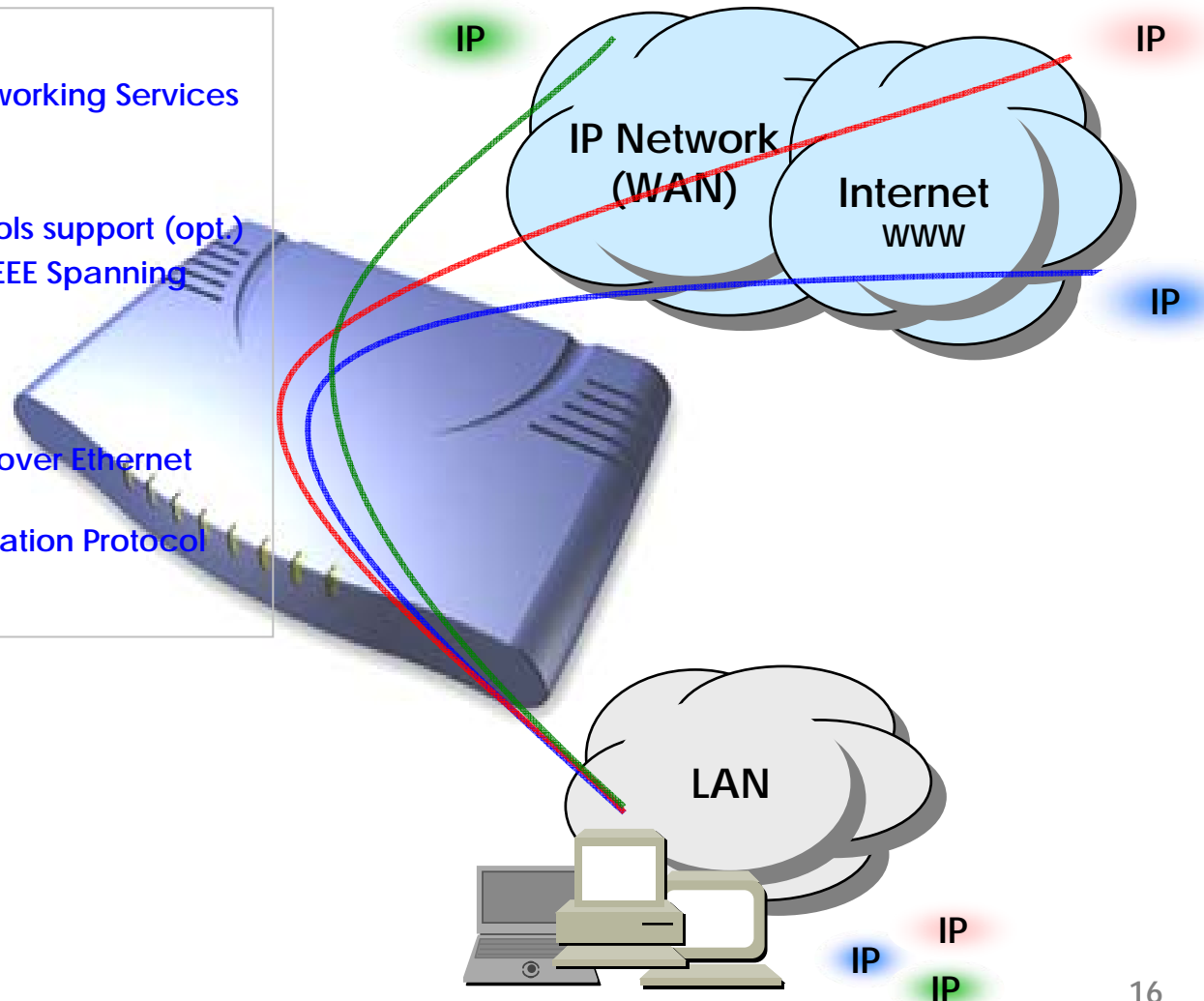
## IP and WAN Protocols

- 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 over Ethernet (PPPoE)
- Dynamic Host Configuration Protocol (DHCP) Networking



# AP190 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(optional)

- **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**

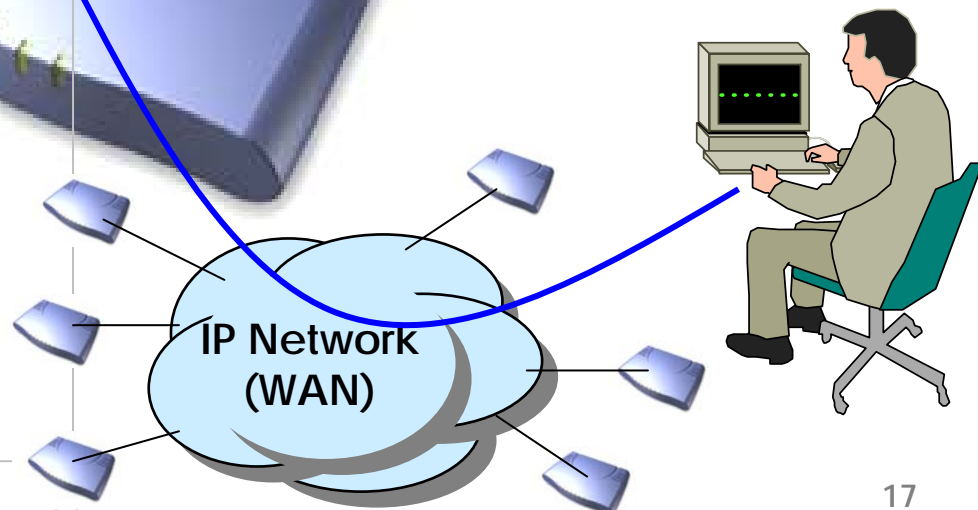
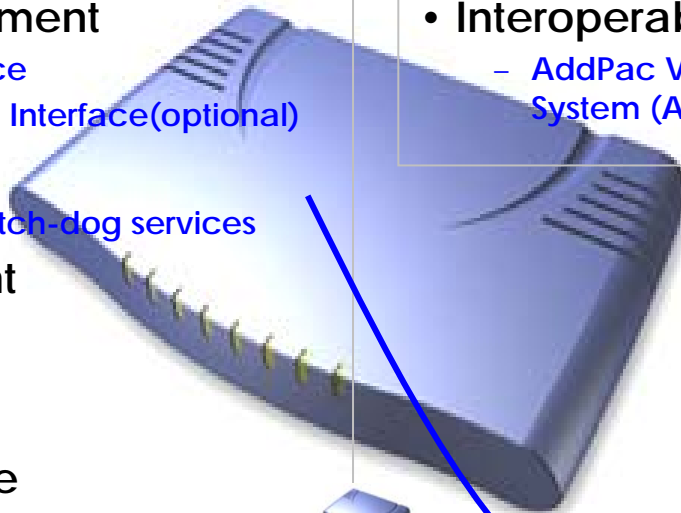
- Text based script downloading

- **Easy Set-up Service**

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

- **Interoperable with AP-VPMS Service**

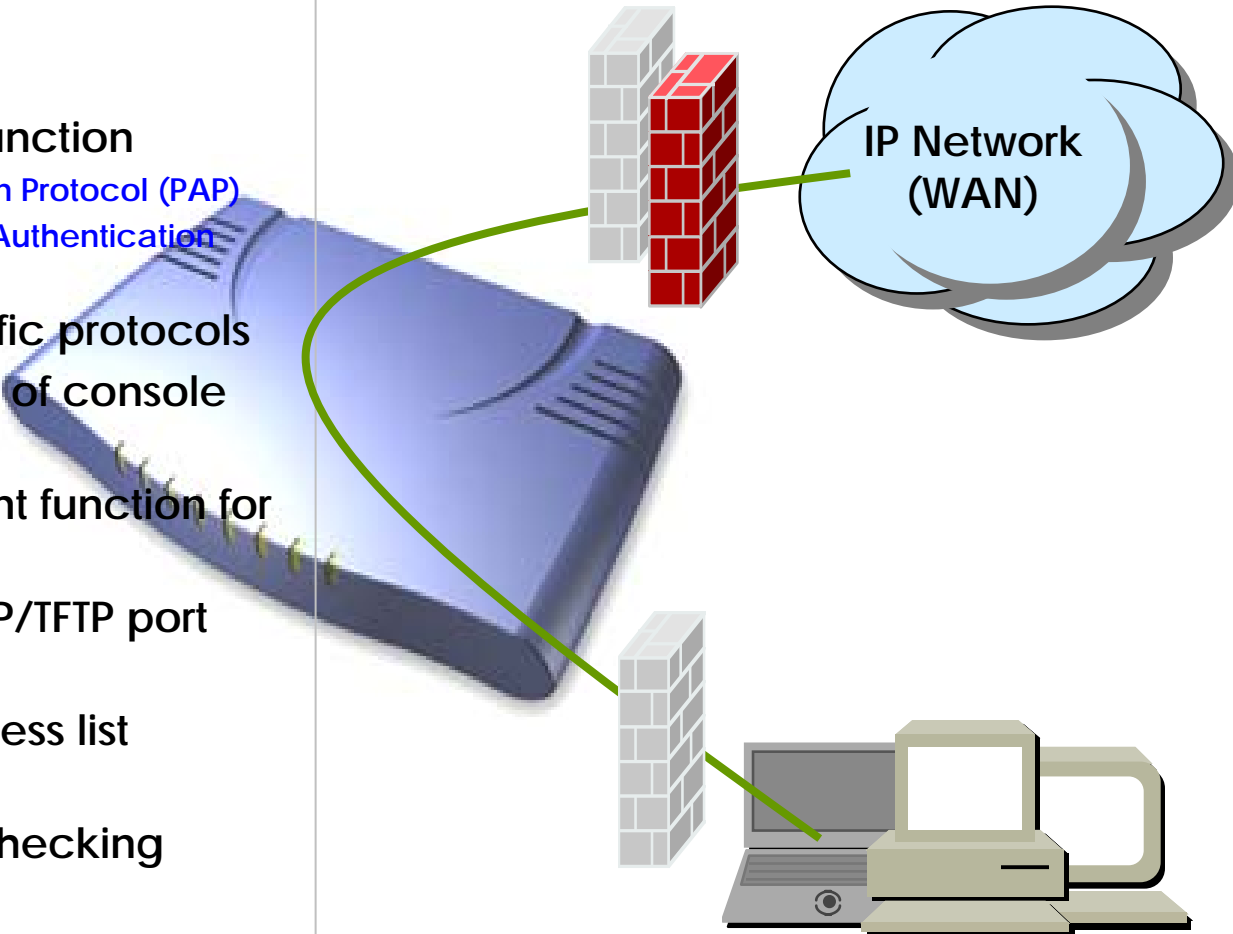
- AddPac VoIP Plug & Play Management System (AP-VPMS)



# AP190 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





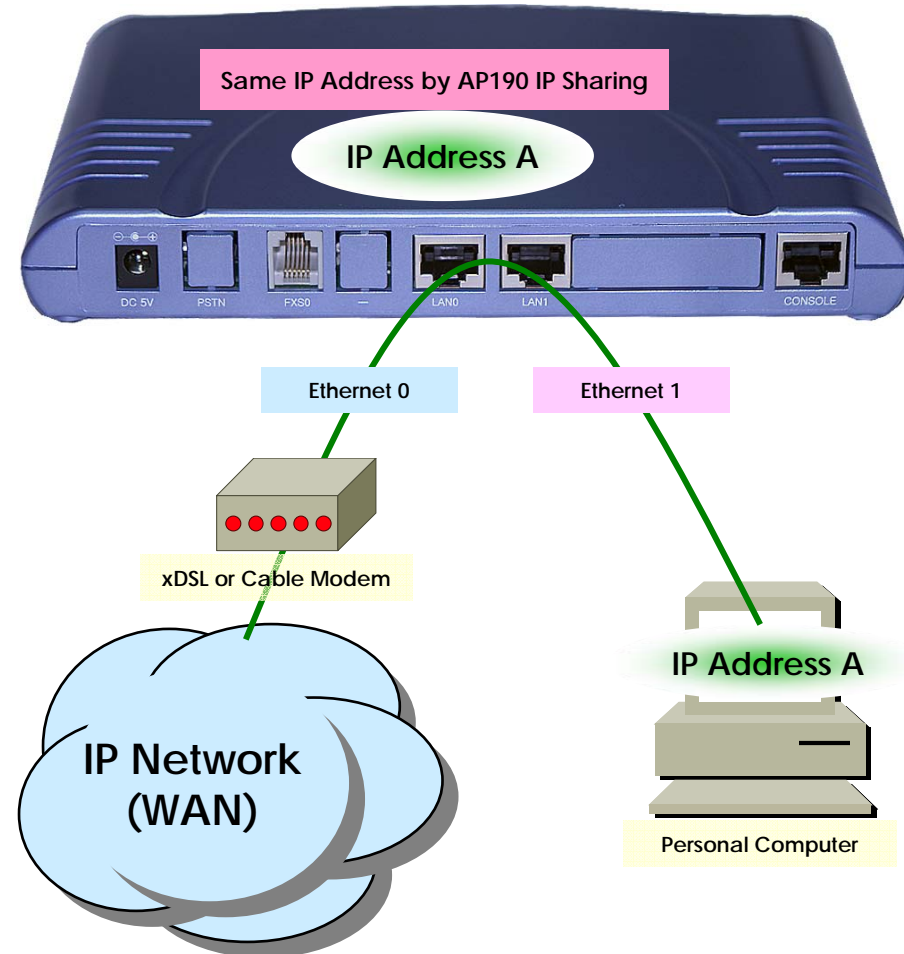
# AP190 VoIP Gateway Product Overview

## 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
  - PPTP
  - DHCP
- Cascade(Stacking) Function
  - Single Public IP address with stacking multiple VoIP Gateways(virtual ports expansion)



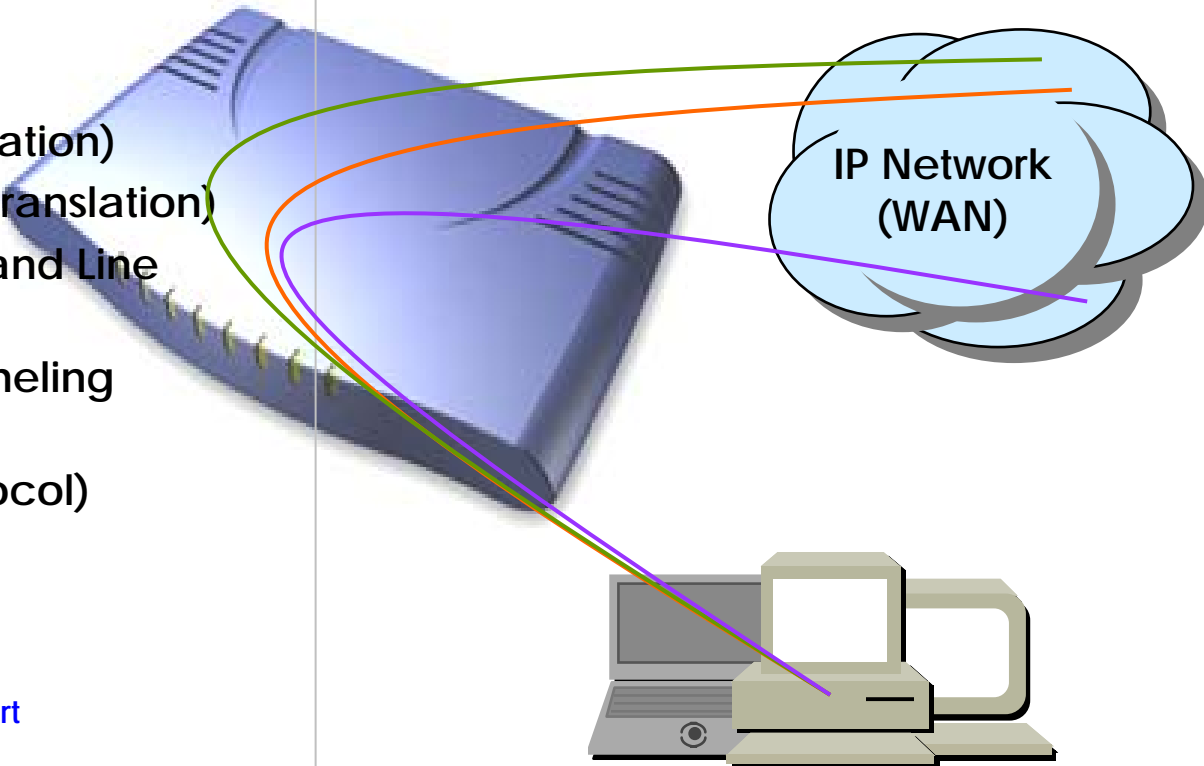
AP190 VoIP Gateway



# AP190 VoIP Gateway Product Overview

## Network Scalability (cont.)

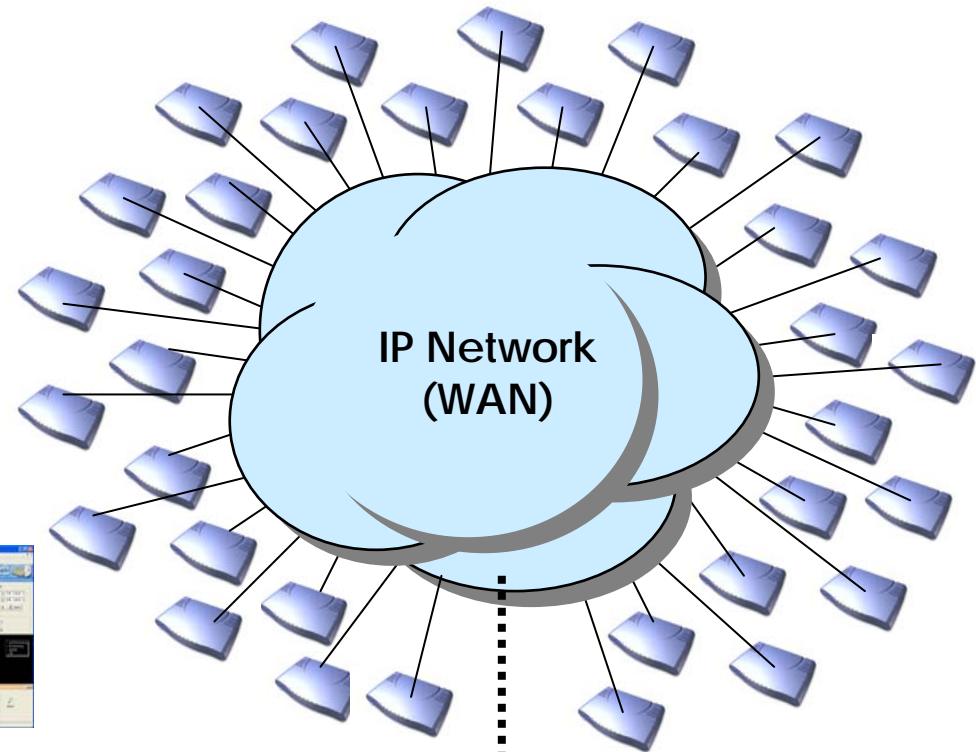
- Bridging Service
  - Spanning Tree Bridging protocol (IEEE) support
- DHCP
  - Server and Relay
- IP Accounting
- PAT (Port Address Translation)
- NAT (Network Address Translation)
- Cisco Style CLI (Command Line Interface)
- PPTP (Point-to-Point Tunneling Protocol)
- NTP (Network Time Protocol)
-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



# AP190 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



# AP190 VoIP Gateway Product Overview

## AP190 Network Configurations



- Front View Side of AP190



- Rear View Side of AP190
  - 1-Port FXS, 1-Port Console
  - 2-Ports Ethernet,
  - 1-Port PSTN Back-up(Optional)

- AddPac AP-VPMS Support
  - AddPac VoIP Plug & Play System (VPMS)
  - Best EMS Solutions for AddPac VoIP G/W

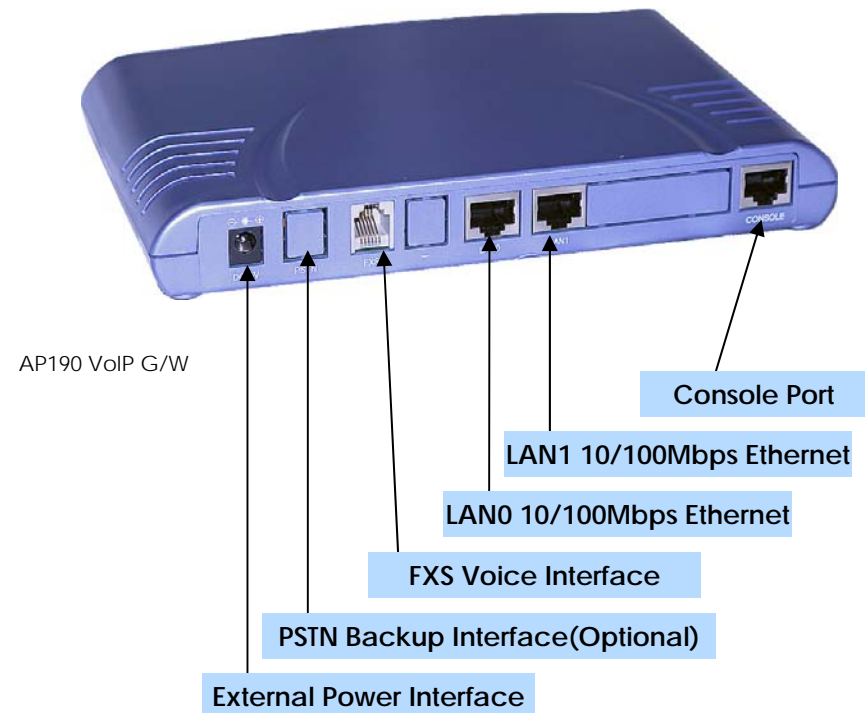
# AP190 VoIP Gateway Product Overview

## AP190 Hardware Specification

### Hardware Specifications

AP190 VoIP Series	Basic Specifications
CPU	32Bit RISC Microprocessor
Voice Interface	1-Ports FXS Voice Interface(RJ-11)
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Console Port	1-Port RS-232C Console Port(RJ-45)
PSTN Backup Port(Optional)	1-Port PSTN Backup Port(RJ-11)
Flash Memory	2Mbyte High-speed Flash Memory
Base Memory	16Mbyte High-speed SDRAM
Power Requirement	External Power Supply Adaptor / VAC 110~220V, 50/60Hz, 10Watt
Operating Temperature	0°C ~ 45°C (32 °F ~ 122°F)
Storage Temperature	-40°C ~ 85°C (-40°C ~ 185°F)
Relative Humidity	5% ~ 95% (Non-condensing)
Dimensions	26mm x 200mm x 137mm (H x W x D)
Weight (g)	400g

### Network interface Configurations





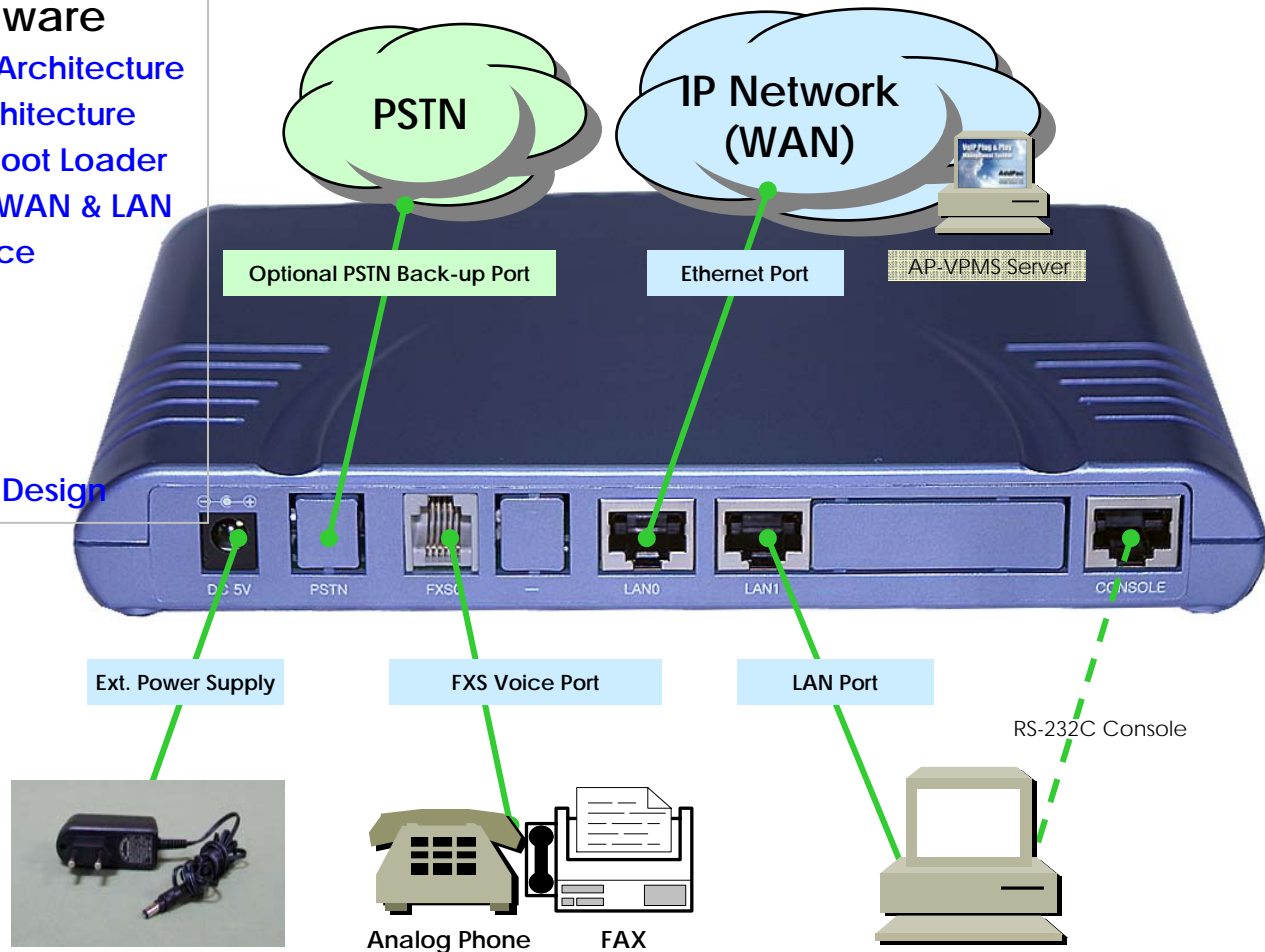
# AP190 VoIP Gateway Product Overview

## AP190 Networking Interface

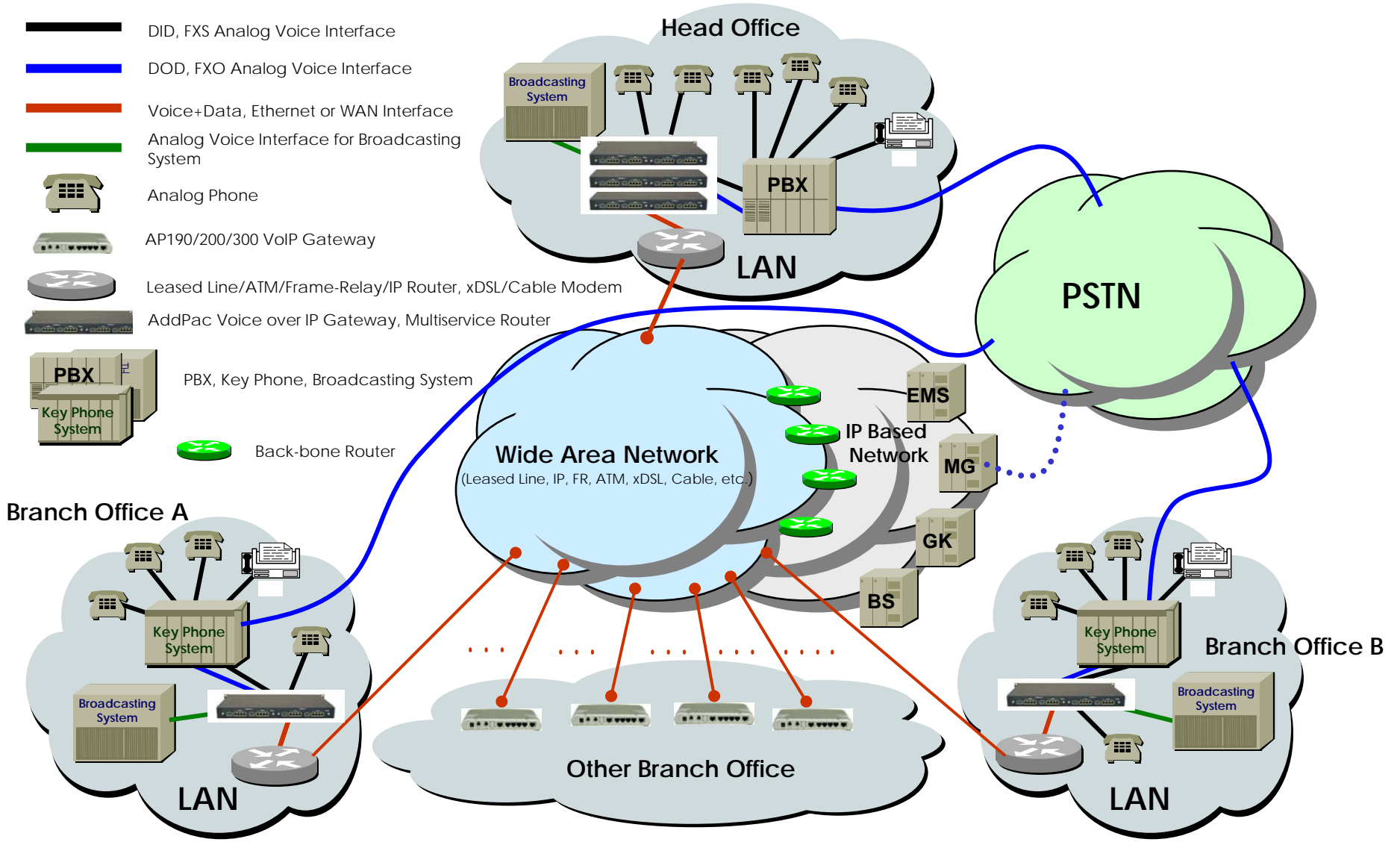
- **High-performance Hardware**
  - 32bit RISC Microprocessor Architecture
  - High-performance DSP Architecture
  - High-speed Memory with Boot Loader
  - Dual Ethernet Interface for WAN & LAN
  - Standard FXS Voice Interface
  - Standard PSTN Back-up Interface(Optional)
  - RS-232C Console Interface
- **Compact Design**
  - Small, Light, and Compact Design



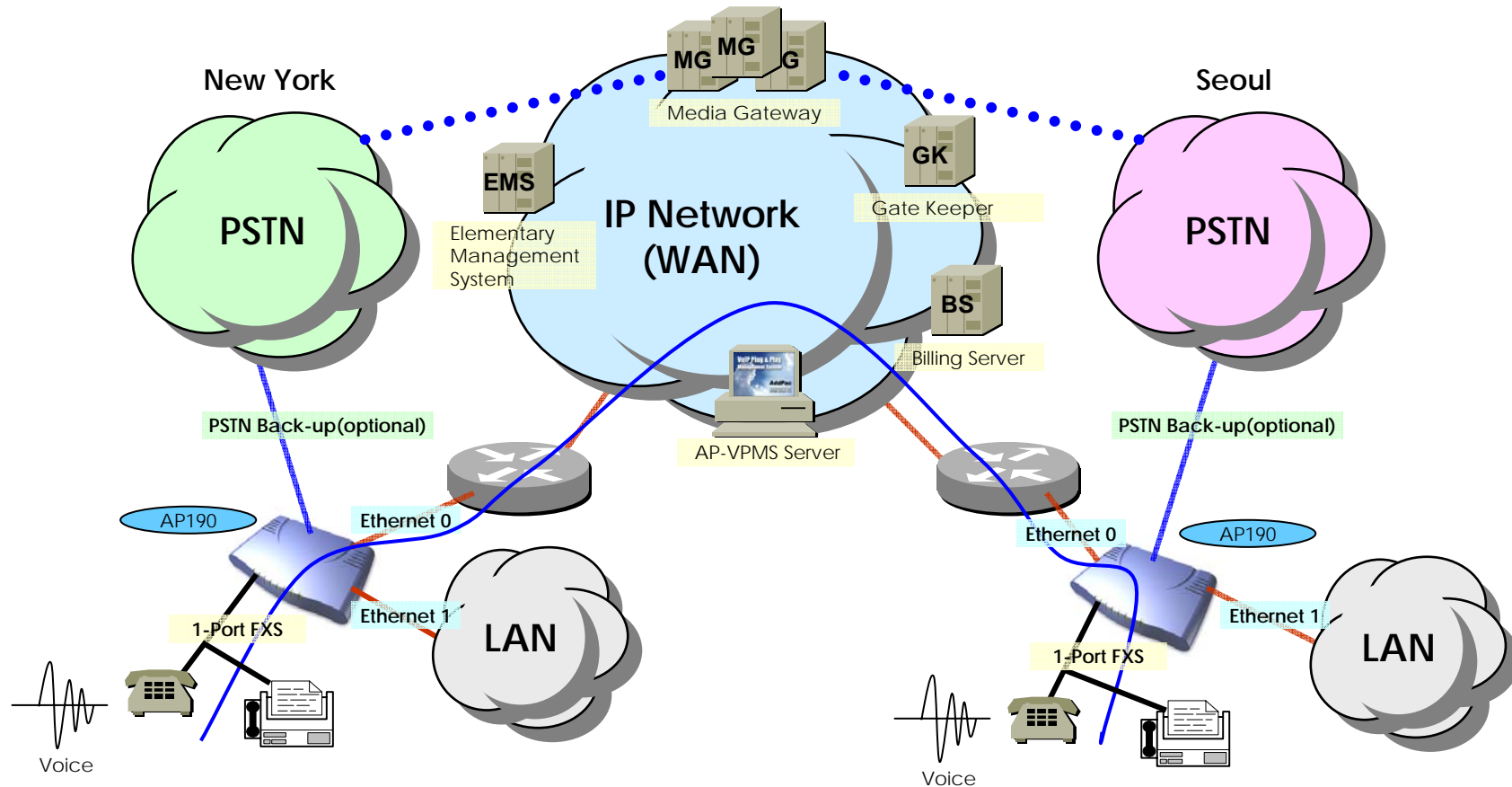
AP190 VoIP Gateway



# AddPac VoIP Gateway Network Diagram Example



# AP190 Voice Networking Configuration



— FXS Analog Voice Interface

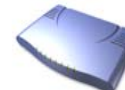
— FXO Analog Voice Interface

— 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.



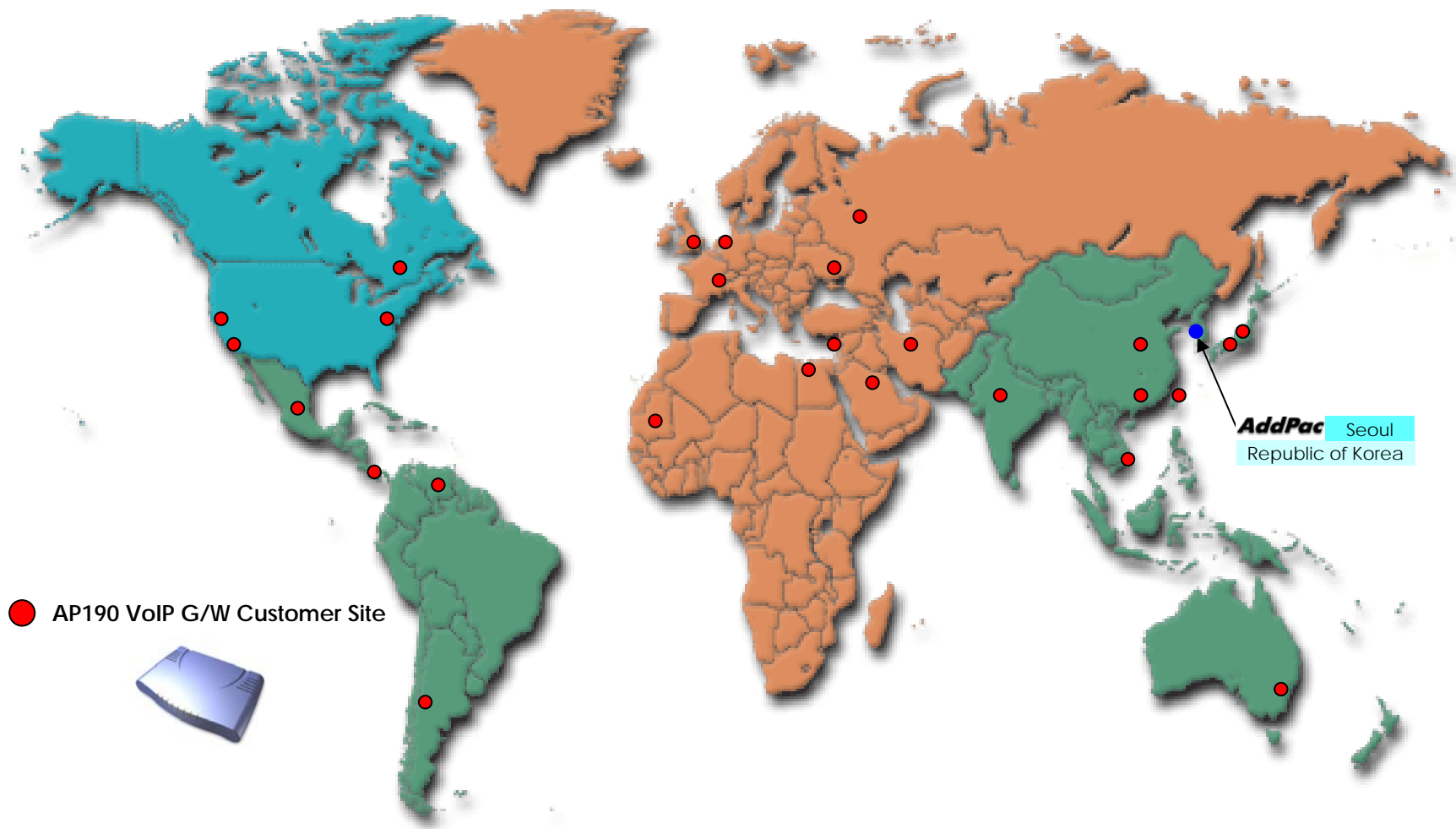
AddPac AP190 Voice over IP Gateway



Analog Phone

# AP190 VoIP Gateway Product Overview

## AP190 World-Wide Customer Site



# AP190 VoIP Gateway Product Overview

## AP190 Ordering and Pricing

- **AP190 VoIP Gateway Series**

- VoIP Gateway Hardware
  - High-speed 32bit RISC CPU
  - 1-Port FXS Voice port Configuration
  - 2-Ports 10/100BaseT Ethernet
  - Optional 1-Port PSTN Back-up
  - 1-Port RS-232C Console
  - Including Network Cable Set
- Built-in APOS Internetworking Software
- Including 1-Year Hardware Warranty
- Product Documents
  - [Installation Guide \(PDF\)](#)
  - [Quick APOS Operation Guide \(PDF\)](#)
  - [APOS Operation Guide \(PDF\)](#)

- **Pricing**

- AddPac Technology Regional Sales Managers
- Authorized Sales and Marketing Representatives
- Please Contact [www.addpac.com](http://www.addpac.com)



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