

# Midrange Analog VoIP Gateway Solution



**AddPac**

**AddPac Technology**

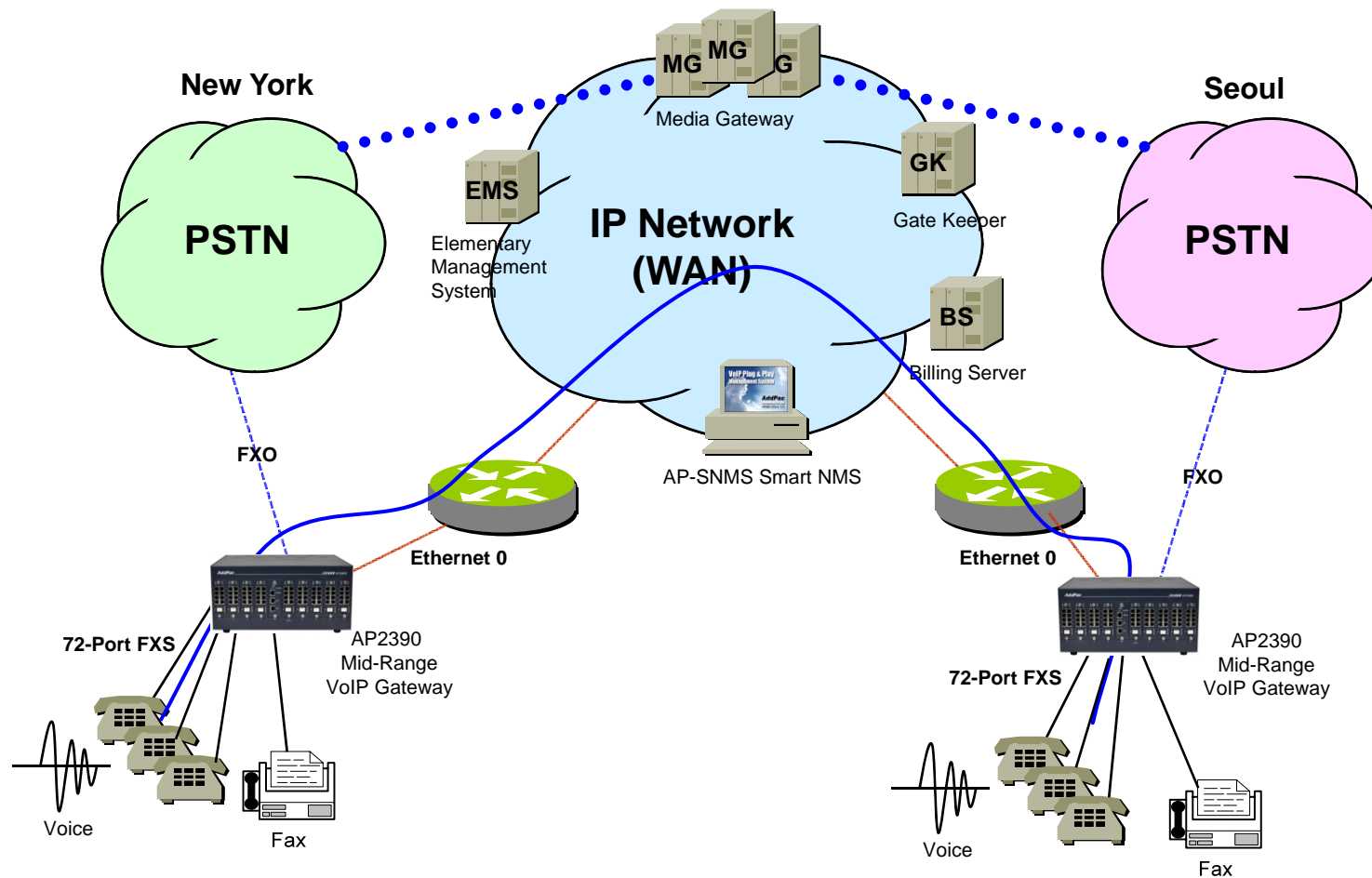
2014, Sales and Marketing

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

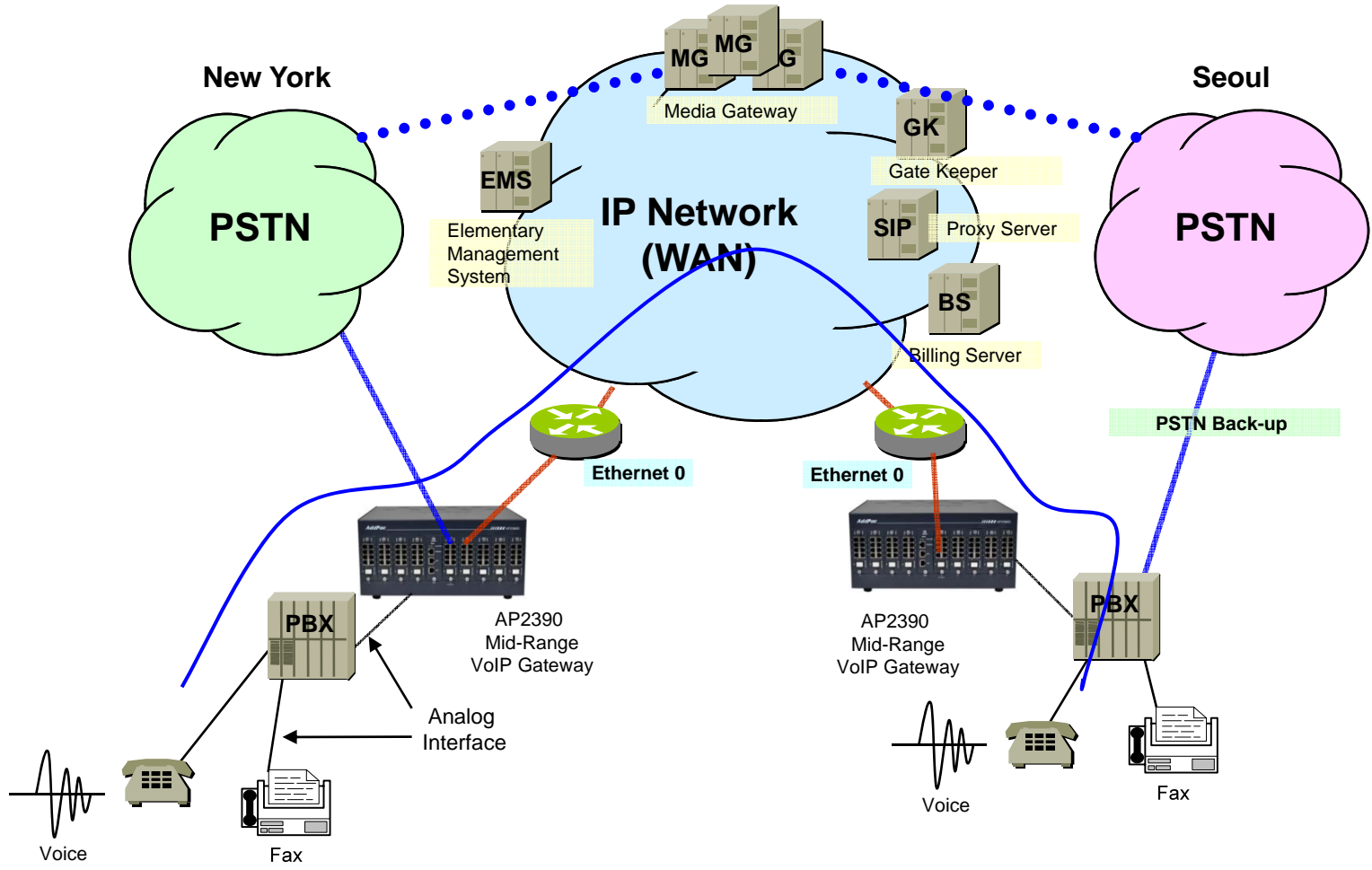
# Contents

- Mid-Range VoIP Gateway Service Diagram
- Mid-Range VoIP Gateway Comparison Table
- Mid-Range VoIP Modules for Rack Mountable Equipment
- Mid-Range Analog VoIP Gateways
  - AP2390 72-Port Analog VoIP Gateway
  - AP2370 56-Port Analog VoIP Gateway
  - AP2360 48-Port Analog VoIP Gateway
- AddPac VoIP Gateway Service Features




# Mid-Range VoIP Gateway Service Diagram



# Mid-Range VoIP Gateway Service Diagram



# Mid-range Analog VoIP Gateways




Product	AP2390	AP2370	AP2360
			
Available VoIP Modules	AP-N1-FXS8, AP-N1-FXO8, AP-N1-E&M4, AP-N1-FXS4O4	AP-N1-FXS8, AP-N1-FXO8, AP-N1-E&M4, AP-N1-FXS4O4	AP-N1-FXS8, AP-N1-FXO8, AP-N1-E&M4, AP-N1-FXS4O4
Analog Ports	Up to 72 (8-Port Module x 9)	Up to 56 (8-Port Module x 7)	Up to 48 (8-Port Module x 6)
Signaling	SIP, H.323	SIP, H.323	SIP, H.323
CPU Module	Support	Support	Support
E&M	Support	Support	Support
Module Slot for VoIP Module	9 Slots	7 Slots	6 Slots
LAN Port	2	2	2
Console	1	1	1



# VoIP Modules

# VoIP Modules




Target	VoIP Modules	Module Features	Module Picture
AP2390 AP2370 AP2360	<b>AP-N1-FXS8</b>	8-Port FXS Module	
AP2390 AP2370 AP2360	<b>AP-N1-FXO8</b>	8-Port FXO Module	
AP2390 AP2370 AP2360	<b>AP-N1-FXS4O4</b>	4-Port FXS&4-Port FXO Module	



# Mid-Range VoIP Gateways





# AP2390 72-Port VoIP Gateway

# Product Overview

## AP2390 72-Port Analog VoIP Gateway

- H.323/SIP Dual Concurrent Stack Embedded
- High Performance RISC & Programmable DSP Architecture
- Nine(9) VoIP Module Slots : 8-Port VoIP Module
- Maximum 72-Port Analog VoIP Interface
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- High Performance LAN-to-LAN Routing Capability
- G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- Firmware Upgradeable Architecture
- Smart NMS for Large Scale Deployment
- Smart Web Manager for Management
- Advanced Voice QoS Mechanism
- Compact Design with Internal Power Supply

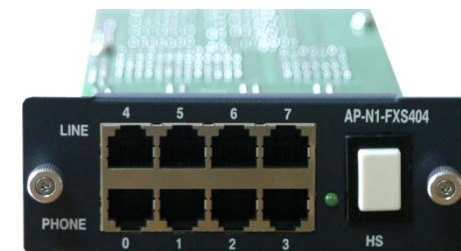
# Hardware Specification

AP2390 72-Port Analog VoIP Gateway

RISC  
CPU

High-end  
DSP

- RISC Microprocessor Computing Power
- Up to 72 Port Analog VoIP Gateway
- Nine(9) VoIP Module Slots (Hot-Swap)
  - 8-Port FXS Card, 8-Port FXO Card, 4-Port FXS 4-Port FXO Card
- Network Interface
  - Two(2) 10/100Mbps Fast Ethernet (RJ45)
- RS232C Console Interface
- Run LED, LAN LED, Port LEDs
- Internal Power Supply
  - AC Power (Default)
  - DC Power (Option) : Model D



# Hardware Specification

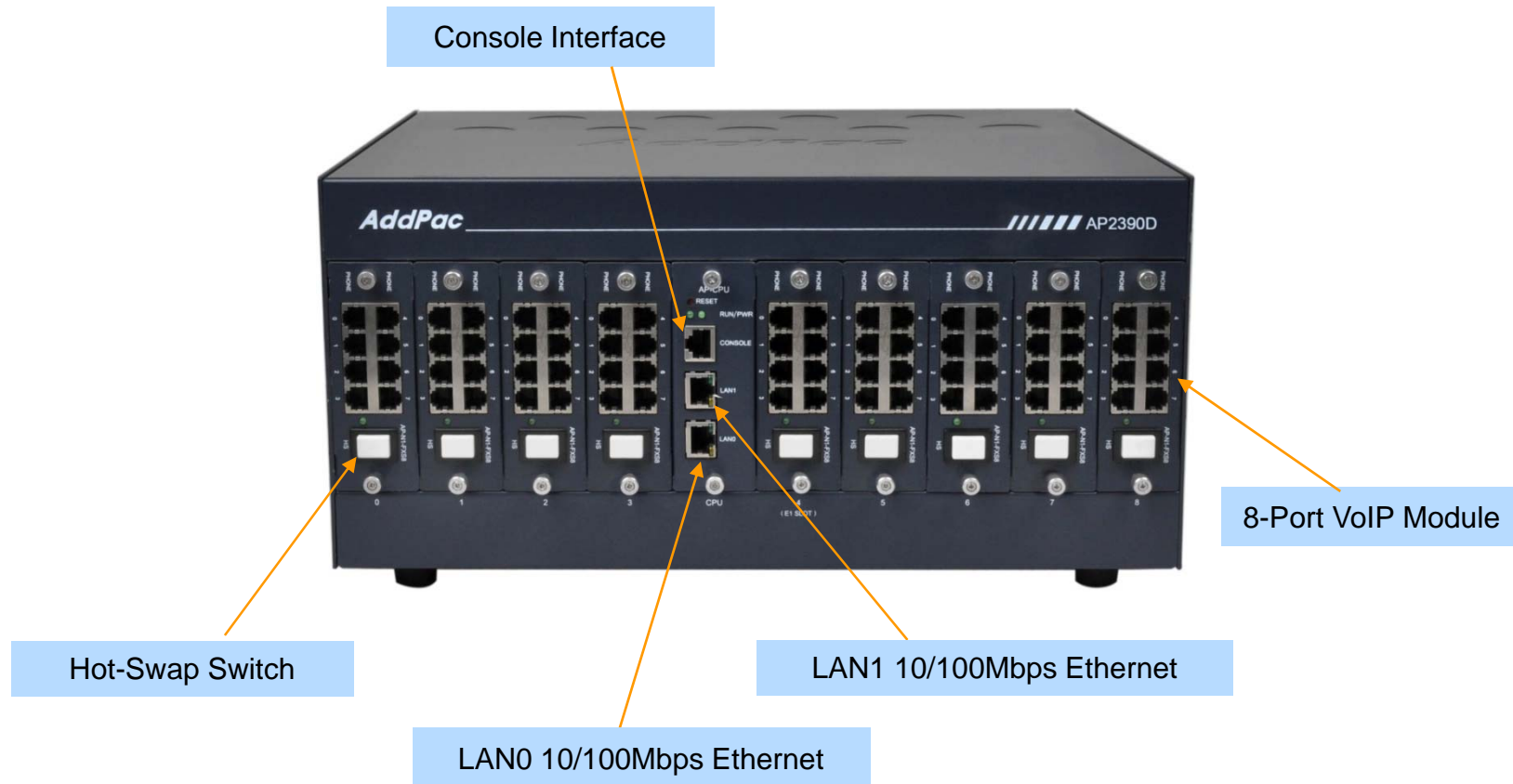
## AP2390 72-Port Analog VoIP Gateway

AP2390 VoIP Gateway	Basic Specifications
Voice Interface	Nine(9) VoIP Module Slots
	AP-N1-FXS8, AP-N1-FXO8, AP-N1-FXS4O4
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	256Mbyte High-speed NAND Flash Memory
Base Memory	128Mbyte High-speed SDRAM
Power Requirement	Power Supply / VAC 110~220V, 50/60Hz, 5V 30A
	Option : Power Supply / DC 48V, 150Watt
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	W × D × H (378 × 300 × 177mm)
Weight(kg)	9.6Kg

# Hardware Specification

## AP2390 72-Port Analog VoIP Gateway

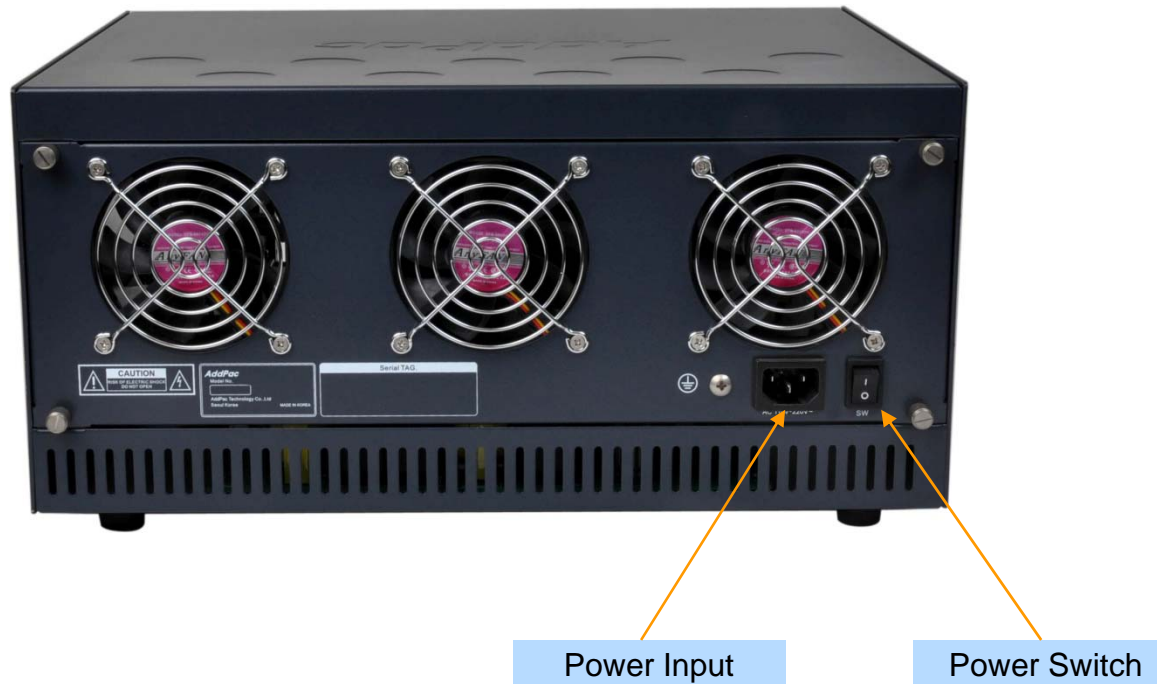
### Front Side




# Hardware Specification

AP2390 72-Port Analog VoIP Gateway

## Back Side (AC Power Supply Type)





# AP2370 56-Port VoIP Gateway

# Product Overview

## AP2370 48-Port Analog VoIP Gateway

- H.323/SIP Dual Concurrent Stack Embedded
- High Performance RISC & Programmable DSP Architecture
- Seven(7) VoIP Module Slots : 8-Port VoIP Module
- Maximum 56-Port Analog VoIP Interface
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- High Performance LAN-to-LAN Routing Capability
- G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- Firmware Upgradeable Architecture
- Smart NMS for Large Scale Deployment
- Smart Web Manager for Management
- Advanced Voice QoS Mechanism
- Compact Design with Internal Power Supply



# Hardware Specification

## AP2370 48-Port Analog VoIP Gateway

AP2370 VoIP Gateway	Basic Specifications
Voice Interface	Seven(7) VoIP Module Slots
	AP-N1-FXS8, AP-N1-FXO8, AP-N1-FXS4O4
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	256Mbyte High-speed NAND Flash Memory
Base Memory	128Mbyte High-speed SDRAM
Power Requirement	Power Supply / VAC 110~220V, 50/60Hz, 5V 30A
	Option : Power Supply / DC 48V, 150Watt
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	W×D×H (303.5×300×147mm)
Weight(kg)	7.3Kg

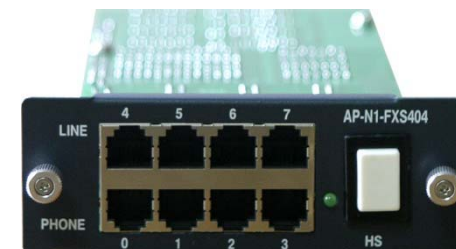
# Hardware Specification

## AP2370 48-Port Analog VoIP Gateway

RISC  
CPU

High-end  
DSP

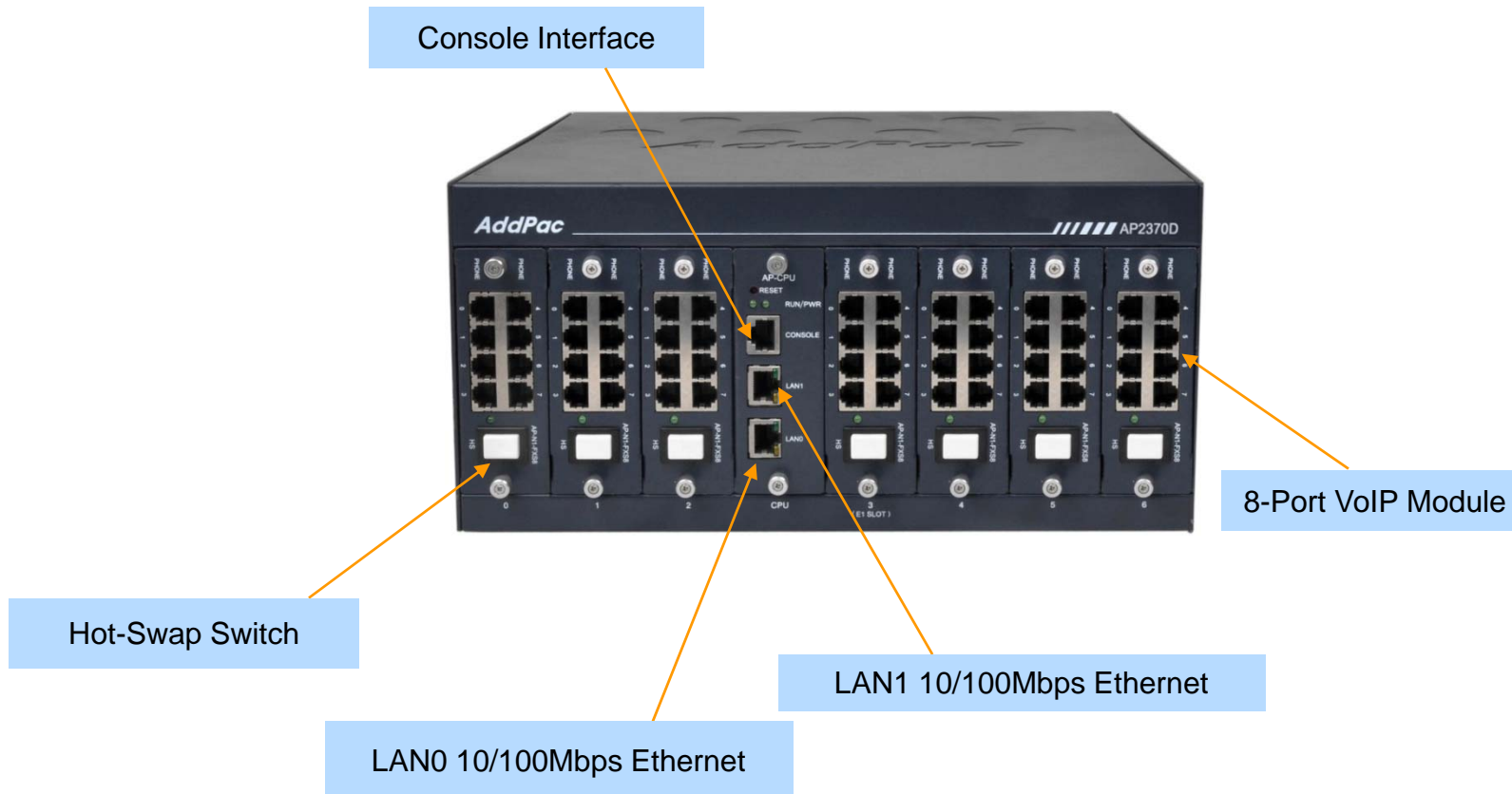
- RISC Microprocessor Computing Power
- Up to 56 Port Analog VoIP Gateway
- Seven(7) VoIP Module Slots (Hot-Swap)
  - 8-Port FXS Card, 8-Port FXO Card, 4-Port FXS 4-Port FXO Card
- Network Interface
  - Two(2) 10/100Mbps Fast Ethernet (RJ45)
- RS232C Console Interface
- Run LED, LAN LED, Port LEDs
- Internal Power Supply
  - AC Power (Default)
  - DC Power (Option) : Model D



# Hardware Specification

## AP2370 48-Port Analog VoIP Gateway

### Front Side



# Hardware Specification


AP2370 48-Port Analog VoIP Gateway

## Back Side (AC Power Supply Type)



Power Input

Power Switch



# AP2360 48-Port VoIP Gateway

# Product Overview

## AP2360 48-Port Analog VoIP Gateway

- 48-Port Analog VoIP Gateway Solution
- H.323/SIP/MGCP Triple Concurrent Stack Embedded
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- High Performance LAN-to-LAN Routing Capability
- G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- Firmware Upgradeable Architecture
- Smart NMS (Network Management System) for Large Scale Deployment
- Advanced Voice QoS Mechanism
- Compact Design with Internal Power Supply
- Six(6) VoIP Module Slots : 8-Port VoIP Module (FXS, FXO, etc)
- One(1) CPU Module Slot

# Hardware Specification

AP2360 48-Port Analog VoIP Gateway

RISC  
CPU

High-end  
DSP

- RISC Microprocessor Computing Power
- Up to 48 Port Analog VoIP Gateway
- Six(6) VoIP Module Slots (Hot-Swap)
  - 8-Port FXS Card, 8-Port FXO Card, 4-Port FXS 4-Port FXO Card
- One(1) CPU Module Slot
  - Two(2) 10/100Mbps Fast Ethernet (RJ45)
  - One(1) RS232C Port (RJ45)
- RS232C Console Interface
- Run LED, LAN LED, Port LEDs
- Internal Power Supply



# Hardware Specification

## AP2360 48-Port Analog VoIP Gateway

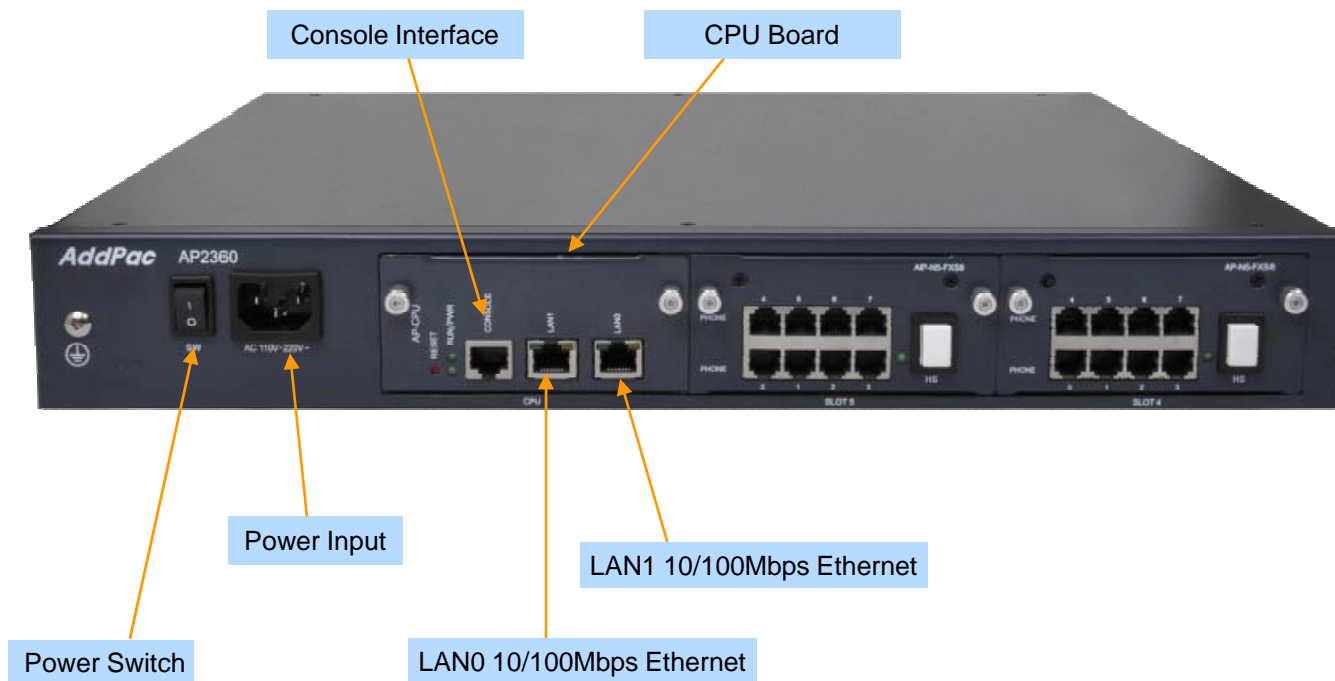
AP2360 VoIP Gateway	Basic Specifications
Voice Interface	Six(6) VoIP Module Slots
	AP-N1-FXS8, AP-N1-FXO8, AP-N1-FXS4O4
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	512Mbyte NAND
Base Memory	128Mbyte High-speed SDRAM
Power Requirement	Power Supply / VAC 110~220V, 50/60Hz, 5V 30A
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	W×D×H (440×407×60mm)



# Hardware Specification

## AP2360 48-Port Analog VoIP Gateway

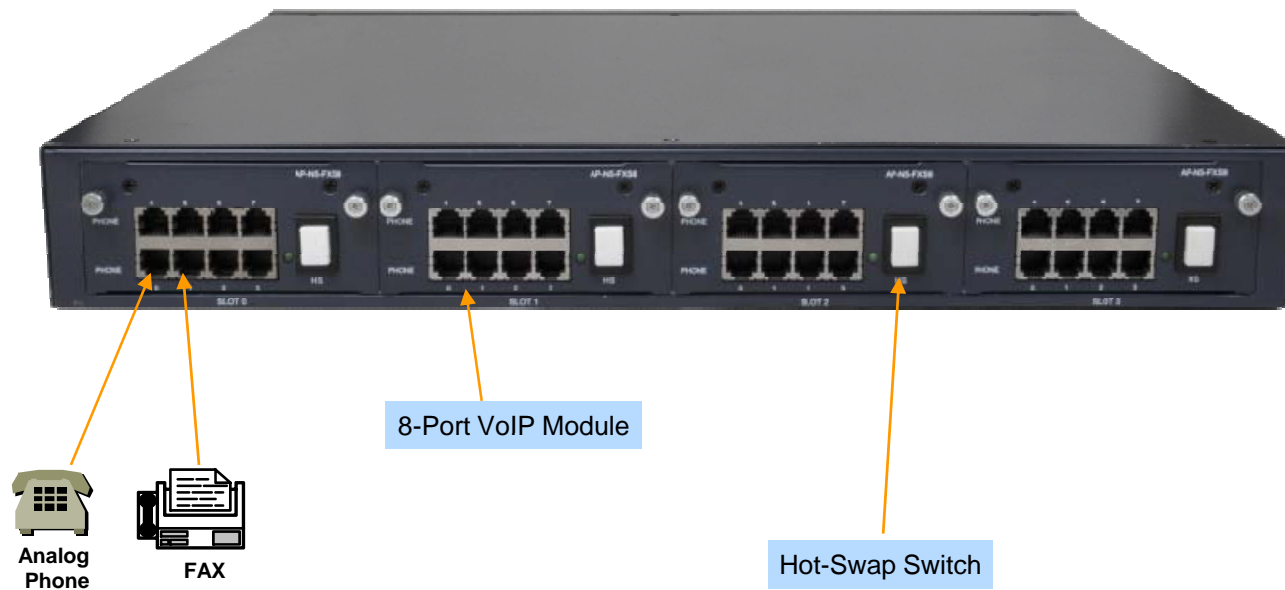
### Front Side



# Hardware Specification

AP2360 48-Port Analog VoIP Gateway

## Back Side

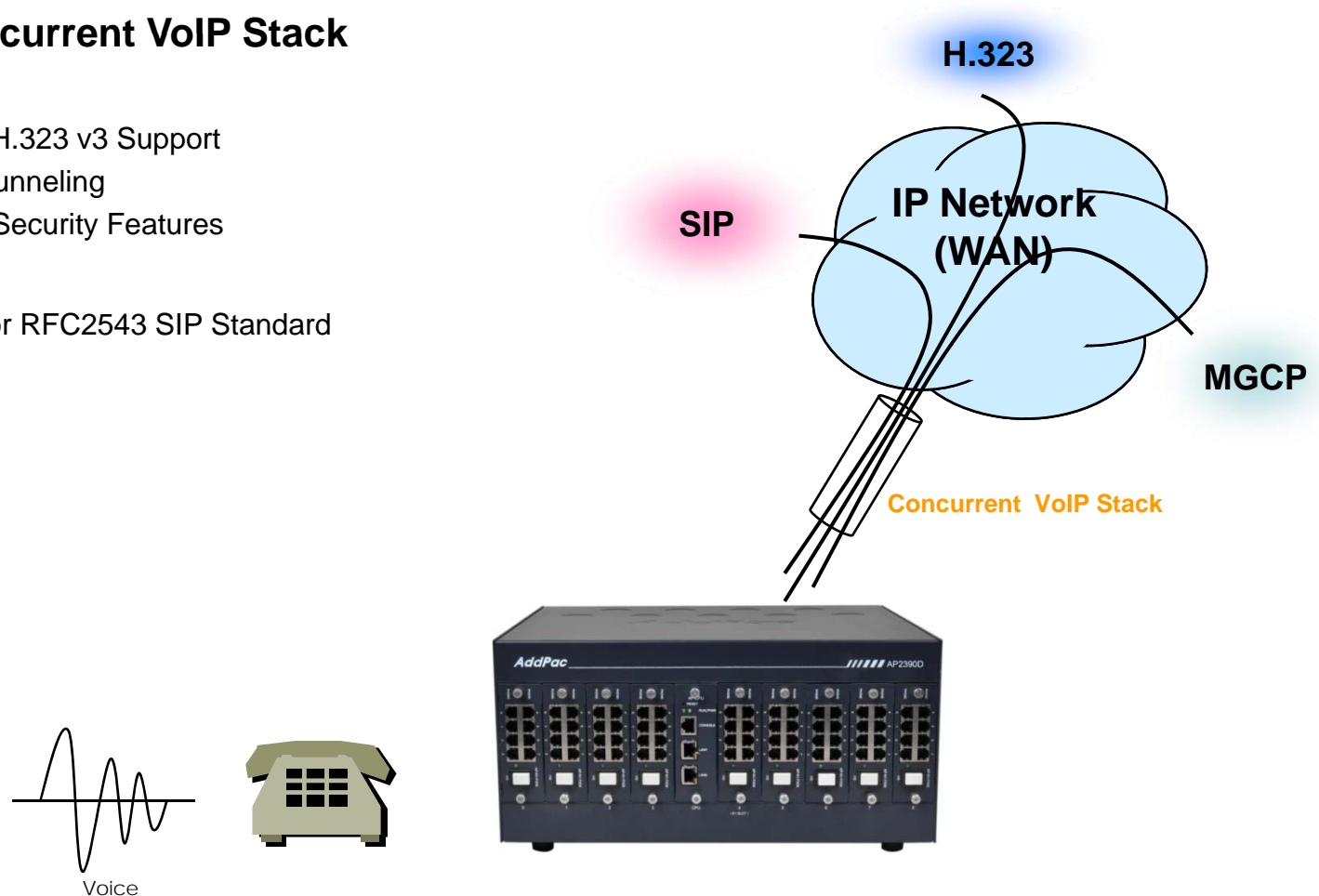




# VoIP Gateway Service Features

# VoIP (Voice over IP) Service

- **H.323, SIP Concurrent VoIP Stack**
- **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



# VoIP (Voice over IP) Service

- **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

# VoIP (Voice over IP) Service

- **Voice Codec**

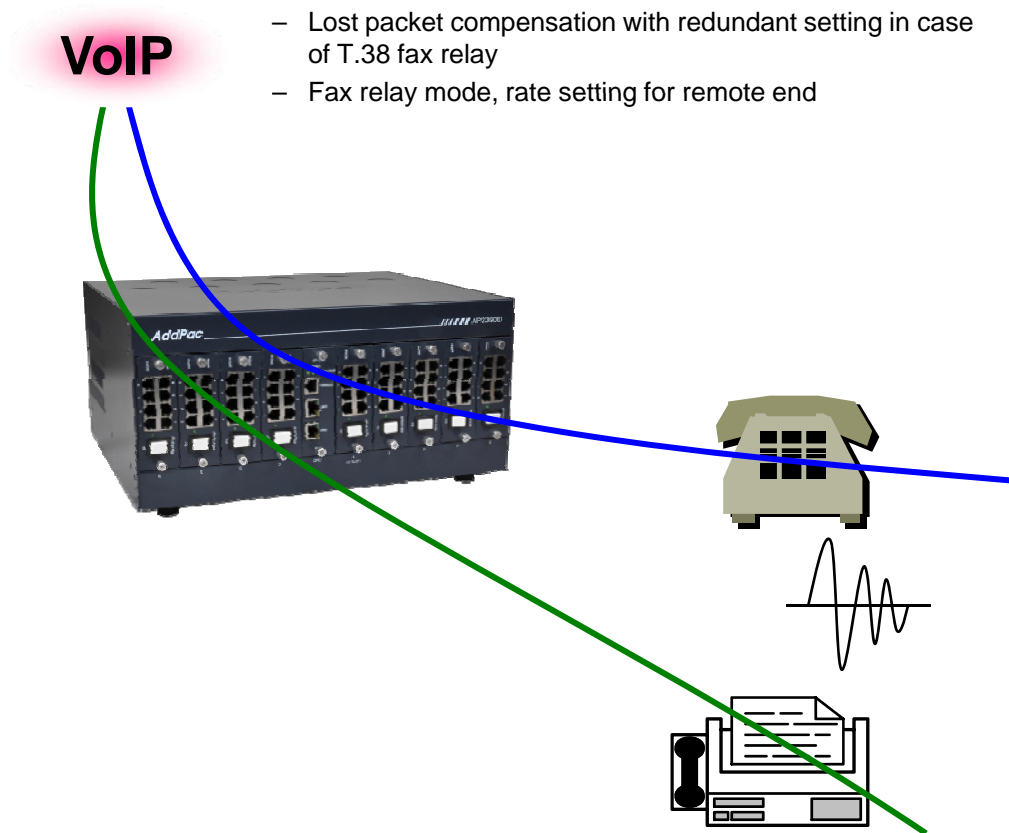
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **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



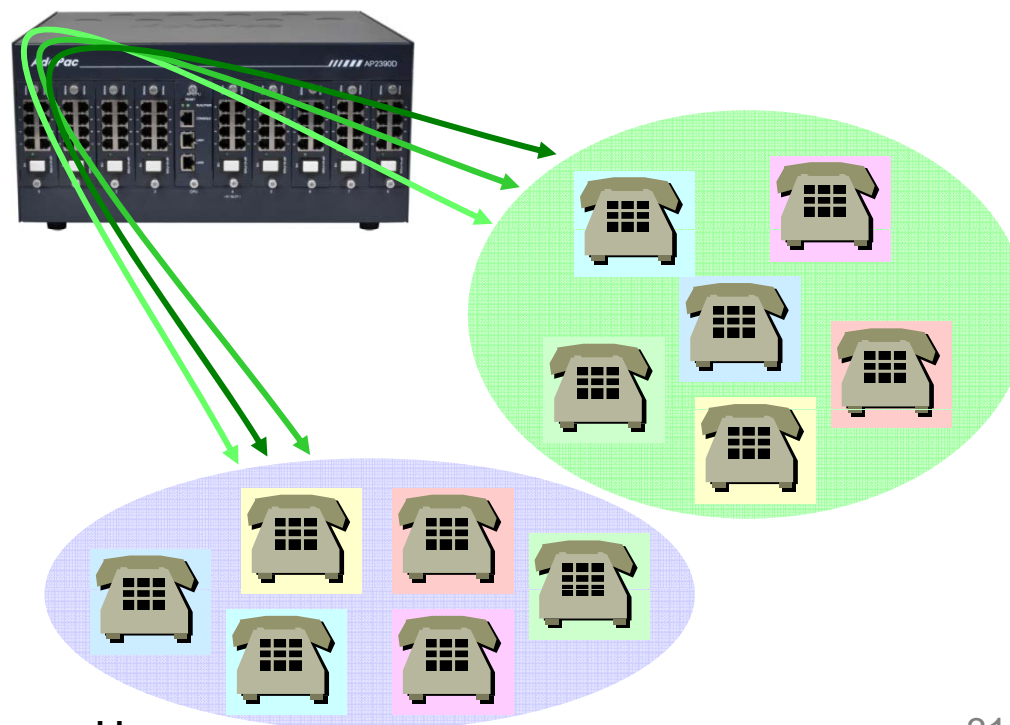
# VoIP (Voice over IP) Service

## • 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



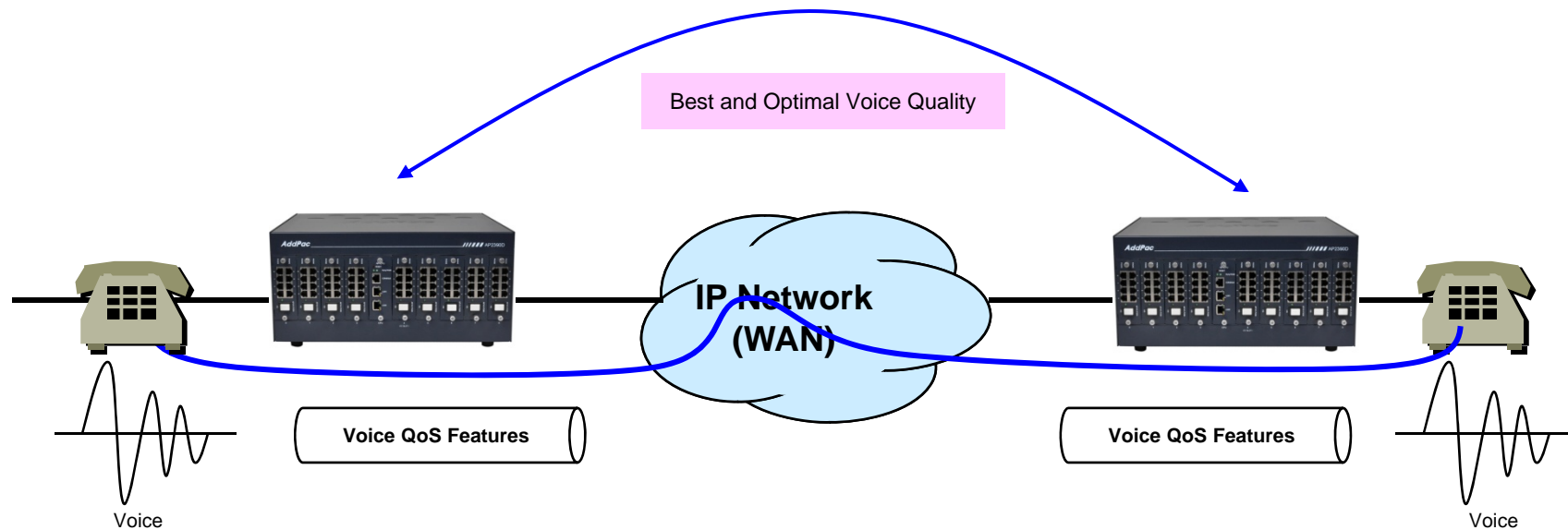
# Advanced QoS Features

- **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





# Network Protocols

- **Basic Network Protocols**

- ARP, IPv4, TCP, UDP, ICMP, SCTP, IGMP, MLD

- **Routing Protocol**

- IPv4 : Static

- **Service Protocol**

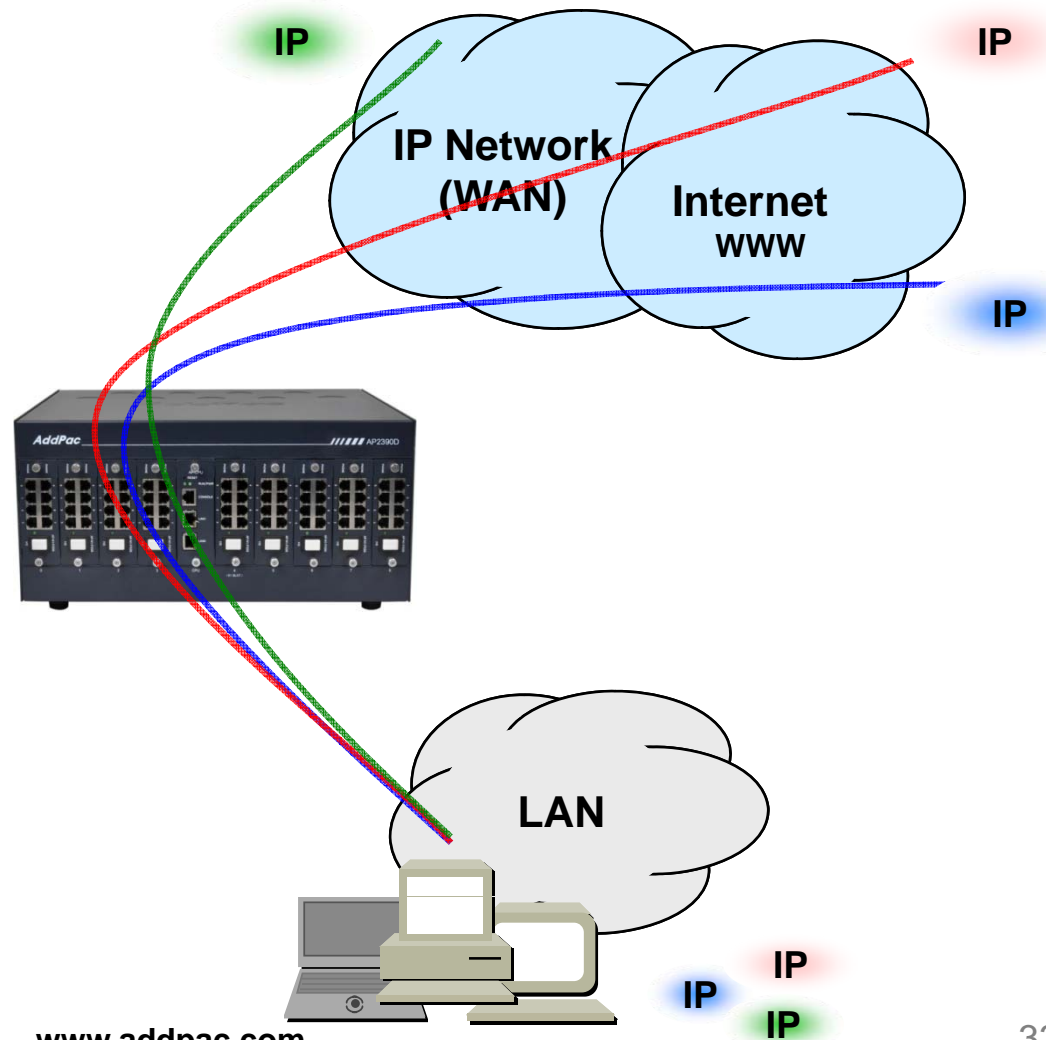
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **IPv4 Address Configuration**

- Fixed (Static)
- DHCP
- PPPoE

- **Miscellaneous**

- Cisco Style CLI
- Standard & Extended IPv4 Access List
- Multi-level User Account Management
- IP accounting
- STUN Client



# Network Management

- **SNMP**

- Standard Simple Network Management Protocol( SNMP) Agent support
- MIB v1 and v2 Support

- **Web-based Management**

- Smart Easy Setup
- Standard Voice Interface
- Standard PSTN Back-up Interface

- **Watch-dog Function**

- Hardware, Software watch-dog services

- **Remote Management**

- Telnet
- Rlogin

- **Auto Upgrade Service**

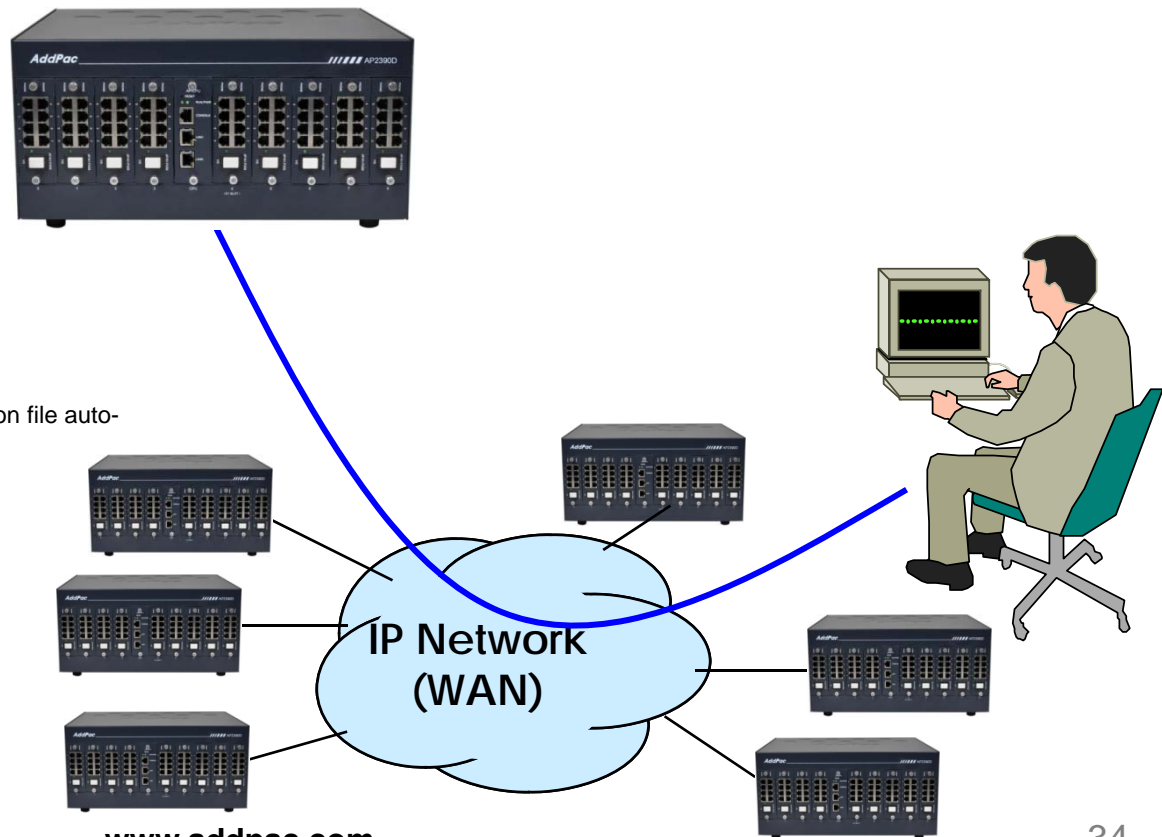
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

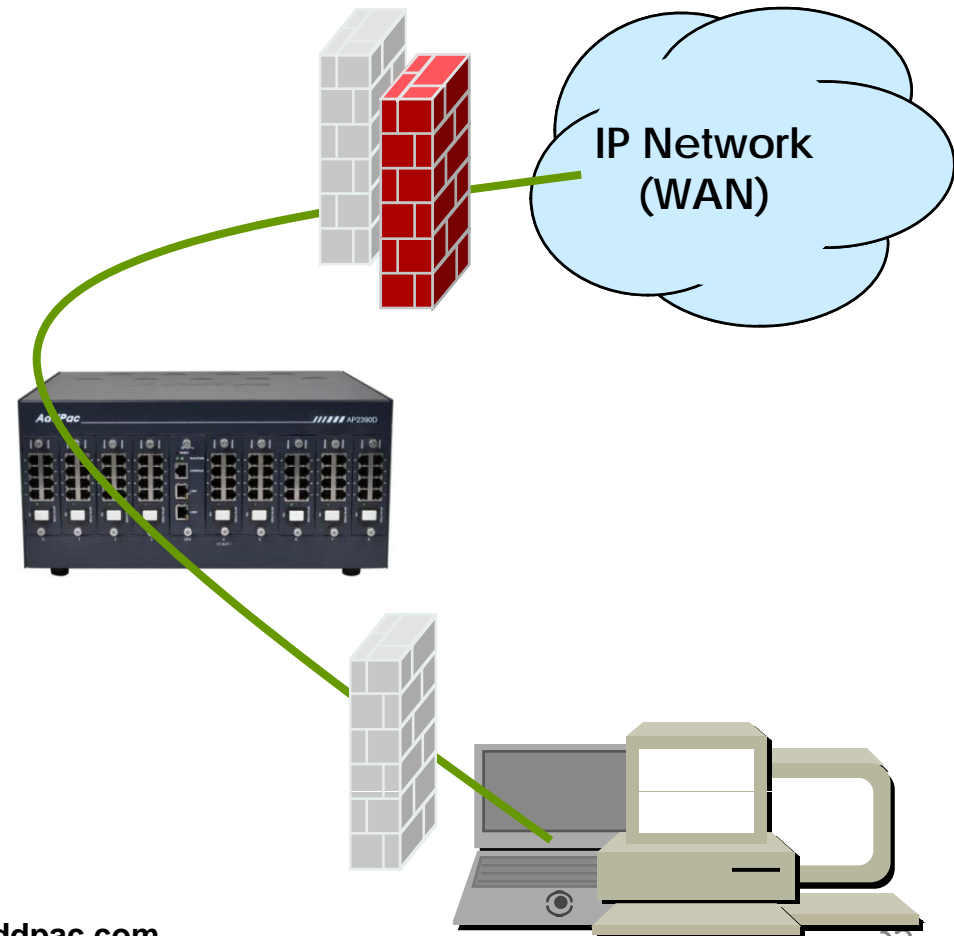
- **Interoperable with AP-SNMS Service**

- AddPac Smart Network Management System (AP-SNMS)



# Security Management

- 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 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





# Thank you!

**AddPac Technology Co., Ltd.**  
Sales and Marketing

Phone +82.2.568.3848 (KOREA)

FAX +82.2.568.3847 (KOREA)

E-mail : [sales@addpac.com](mailto:sales@addpac.com)