



AP-MG10000 Media Gateway

High Performance Large Scale Media Gateway Solution

Preliminary Product Overview

AddPac

AddPac Technology

Sales and Marketing

www.addpac.com

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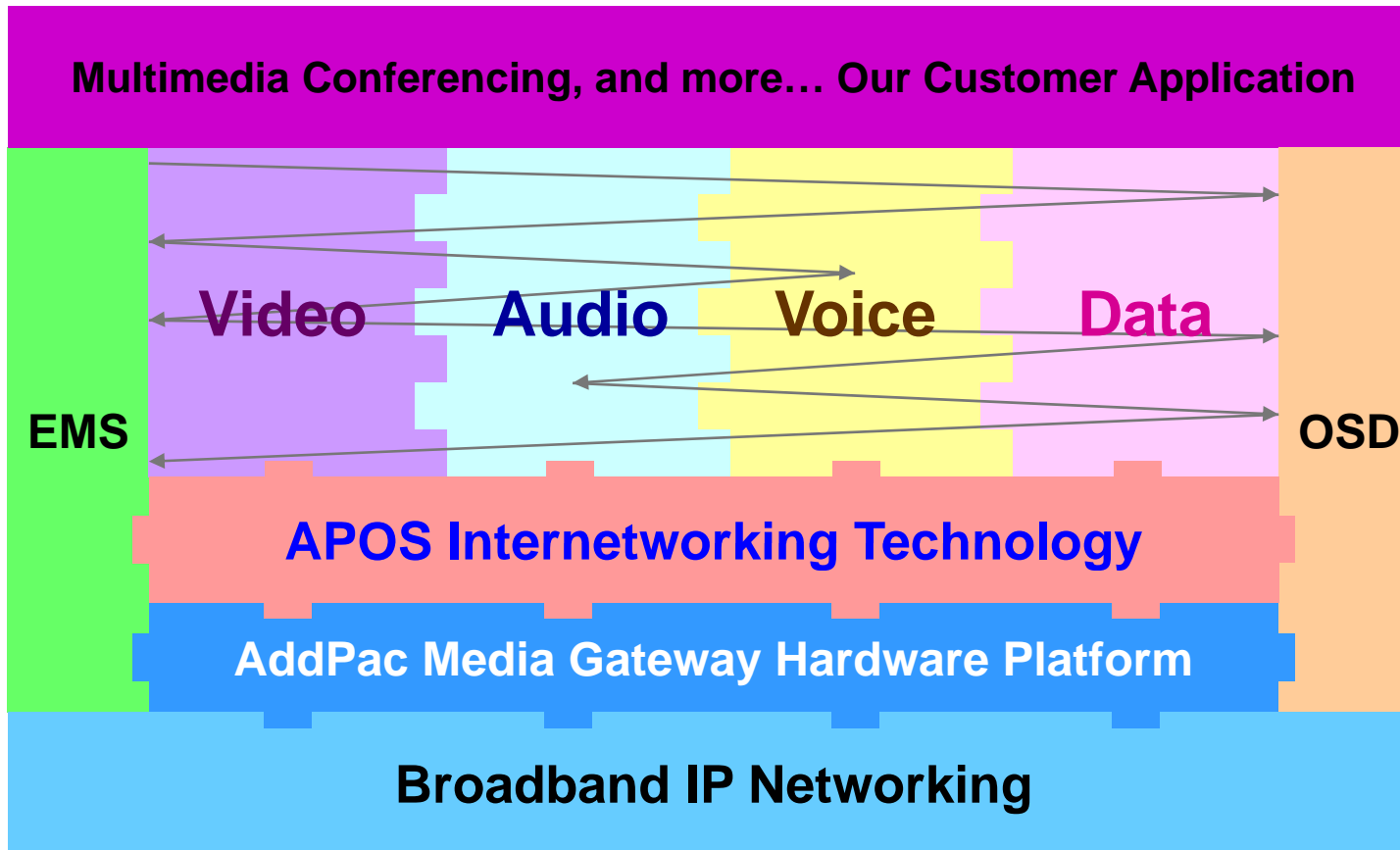
Product Overview

AP-MG10000 Large Scale Media Gateway

- Large Scale Analog/Digital Voice Media Gateway Solution
- H.323/SIP Concurrent Stack Embedded
- High Performance RISC Microprocessor for System Control
- Hot-Swap Function Support
- Up to Four(4) E1 Digital Interface Port (MFC-R2, ISDN-PRI, etc)
- Up to 512 Analog Interface Port Support (FXS, FXO, E&M, etc)
- High Performance IP-PBX/Call Manager Embedded for Survivability
- 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

APOS Technology


AP-MG10000 Large Scale Media Gateway



- APOS : AddPac Internetworking Operating System
- OSD : On- Screen Display
- EMS : Element Management System

Hardware Assembly

AP-MG10000 Large Scale Media Gateway

AP-MG10000 Large Scale Media Gateway	MG10000 CMA (Call Manager Assembly)	MG10000 AMGA (Analog Media Gateway Assembly)	MG10000 DMGA (Digital Media Gateway Assembly)
			
	<p>Call Manager, IP-PBX Dual CPU for Call Manager Redundancy (Option) Dual Power Supply for Redundancy</p>	<p>Analog Media Gateway Dual CPU for Redundancy (Option) Dual Module Type Power Supply for Redundancy(Option) FXS, FXO, E&M, etc</p>	<p>Digital Media Gateway Dual Power Supply for Redundancy E1, 2E1,4E1 VoIP Modules</p>



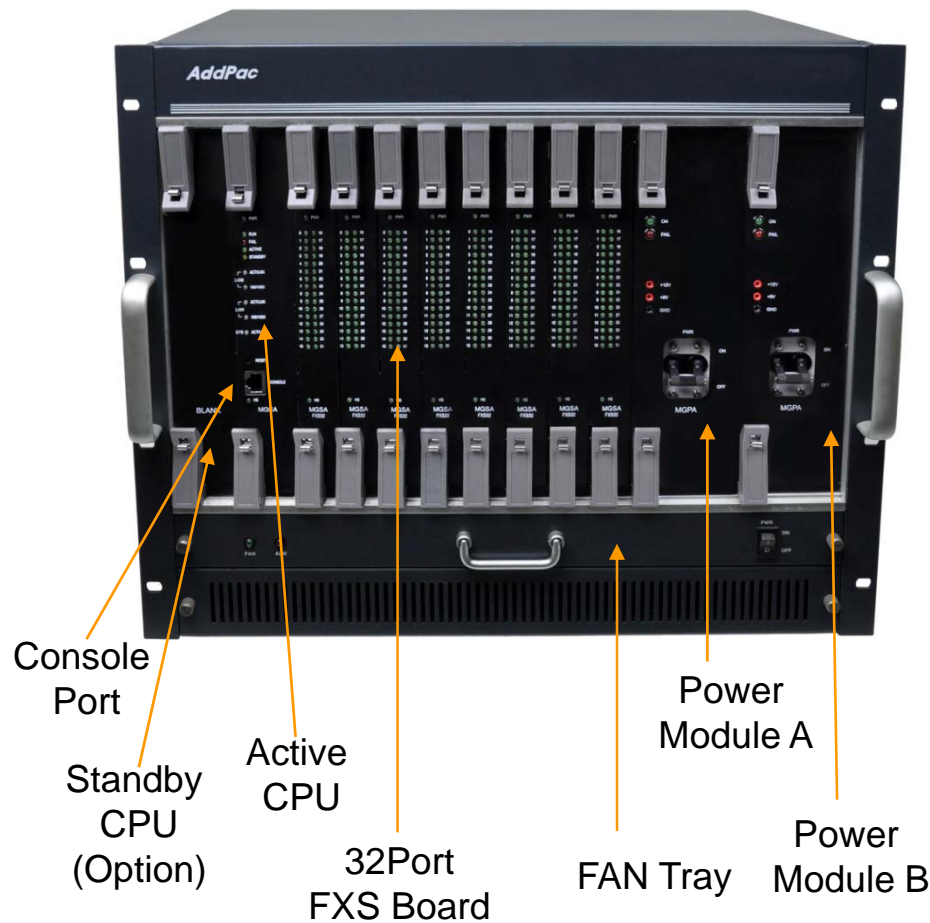
MG10000 AMGA

(Analog Media Gateway Assembly)

Hardware Specification

RISC
CPU

High-end
DSP



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Hardware Specification

Hardware Specifications

MG10000 AMGA	Basic Specifications
CPU	High-End RISC Microprocessor Option : Dual Redundancy CPU (Active, Standby)
Voice Interface	Up to 256-Port FXS Voice Interface Up to 256-Port FXO Voice Interface
	32-Port Analog FXS Board, 32-Port FXO Board, 8-Port E&M
Ethernet Interface	2-Ports 10/100/1000Mbps Gigabit Ethernet Interface(RJ-45)
Flash Memory/CPU	512Mbyte NAND Flash Memory
Base Memory/CPU	1Gbyte High Speed DDR2
Power Requirement	Dual Power Supply / VAC 110~220V, 50/60Hz, 880Watt
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	400mm x 482mm x 340mm (H x W x D)

Hardware Specification : Analog VoIP Modules

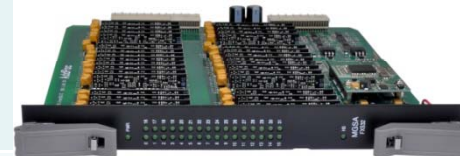
MGCA

Media Gateway Control Board Assembly



MGSA-32FXS-N1

Media Gateway Subscriber Board Assembly



MGSA-32FXS-N2

Media Gateway Subscriber Board Assembly



MGSA-32FXO

Media Gateway Subscriber Board Assembly



MGSA-8E&M

Media Gateway Subscriber Board Assembly : 8-Port E&M



MGPA

Media Gateway Power Supply Assembly





MG10000 DMGA

(Digital Media Gateway Assembly)

Hardware Specification

RISC
CPU

High-end
DSP

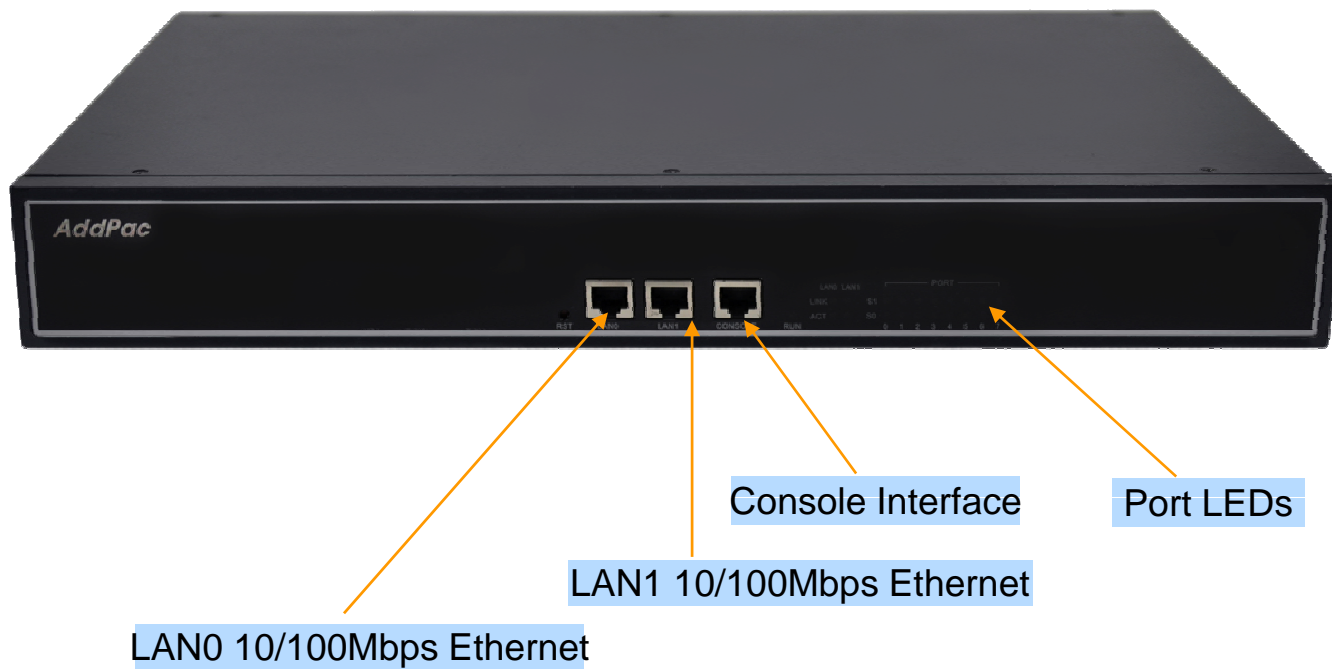
- RISC Microprocessor Computing Power
- Up to 4E1 VoIP Gateway
- Two(2) VoIP Module Slots (Hot-Swap)
 - One(1)-Port Digital E1/T1 Card
 - Two(2)-Port Digital E1/T1 Card
- Network Interface
 - Two(2) 10/100Mbps Fast Ethernet (RJ45)
- RS232C Console Interface
- Run LED, LAN LED, Port LEDs
- Internal Dual Power Supply

Hardware Specification

	Basic Specifications
Voice Interface	Two(2) VoIP Module Slots
	AP-N1-E1, AP-N1-2E1
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	512Mbyte High-speed NAND Flash Memory
Base Memory	1Gbyte High-speed DDR2
Power Requirement	Power Supply Adaptor / VAC 110~220V, 50/60Hz, 5V 8A
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)
Dimension (H x W x D)	55mm x 440mm x 267mm
Weight	3.5Kg

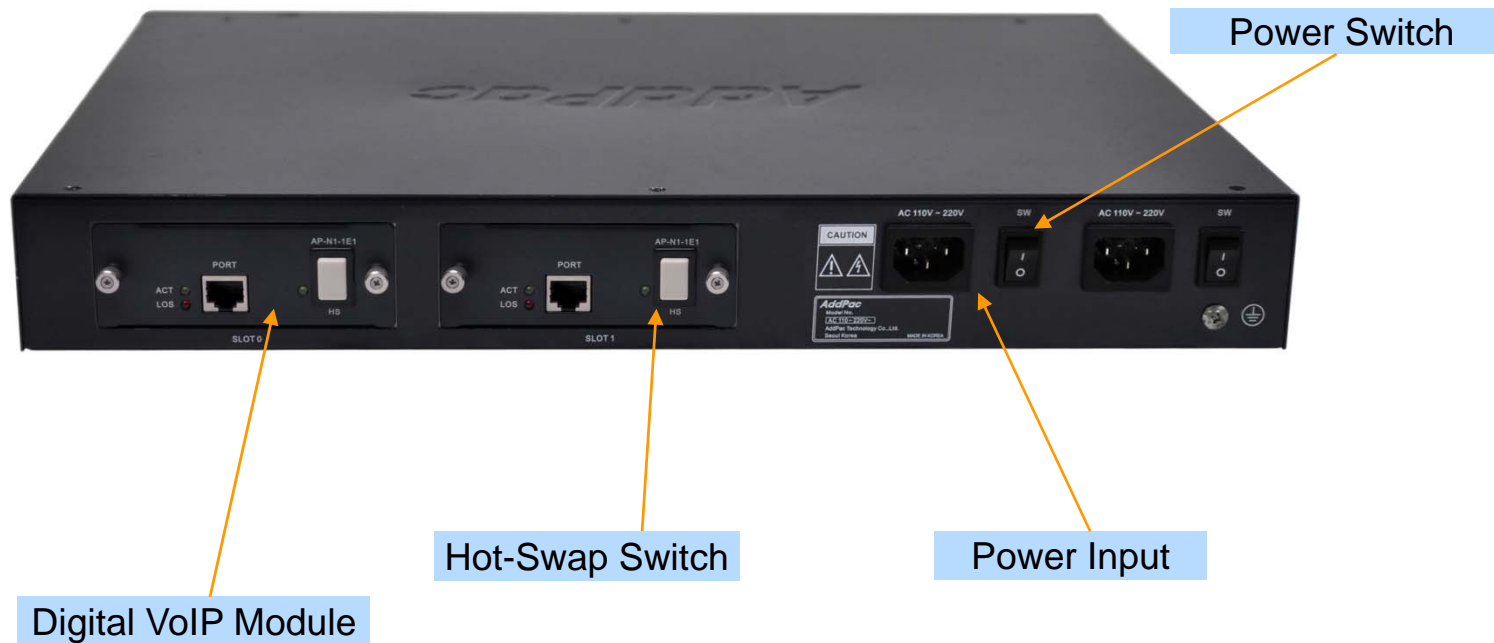
Hardware Specification

Front Side



Hardware Specification

Back Side



Hardware Specification



**AP-N1-E1
(Digital E1 Module)**



**AP-N1-2E1
(Digital 2E1 Module)**



MG10000 CMA

(Call Manager Assembly)

Hardware Specification

A square logo with a dark blue background and a light blue border. The text "RISC" is positioned above "CPU" in a white, sans-serif font.

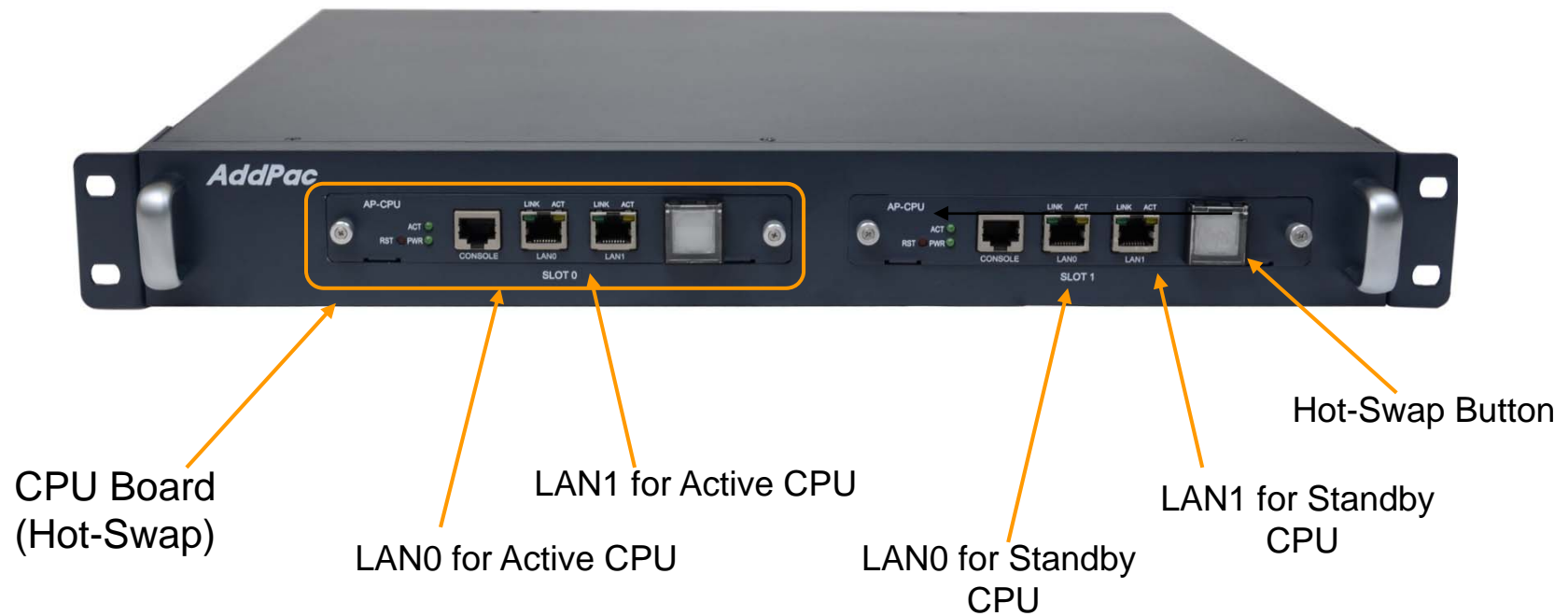
RISC
CPU

- High-End Microprocessor Computing Power
- Main Chassis
 - Dual Redundancy CPU Boards for System Fault Tolerant
 - Two(2) 10/100Mbps Gigabit Ethernet
 - One(1) RS-232C Console (RJ45)
 - Dual Redundancy Power Supply
 - Hot-Swap Features

Hardware Specification

RISC
CPU

Front Side



Hardware Specification

RISC
CPU

Back Side



PSU A

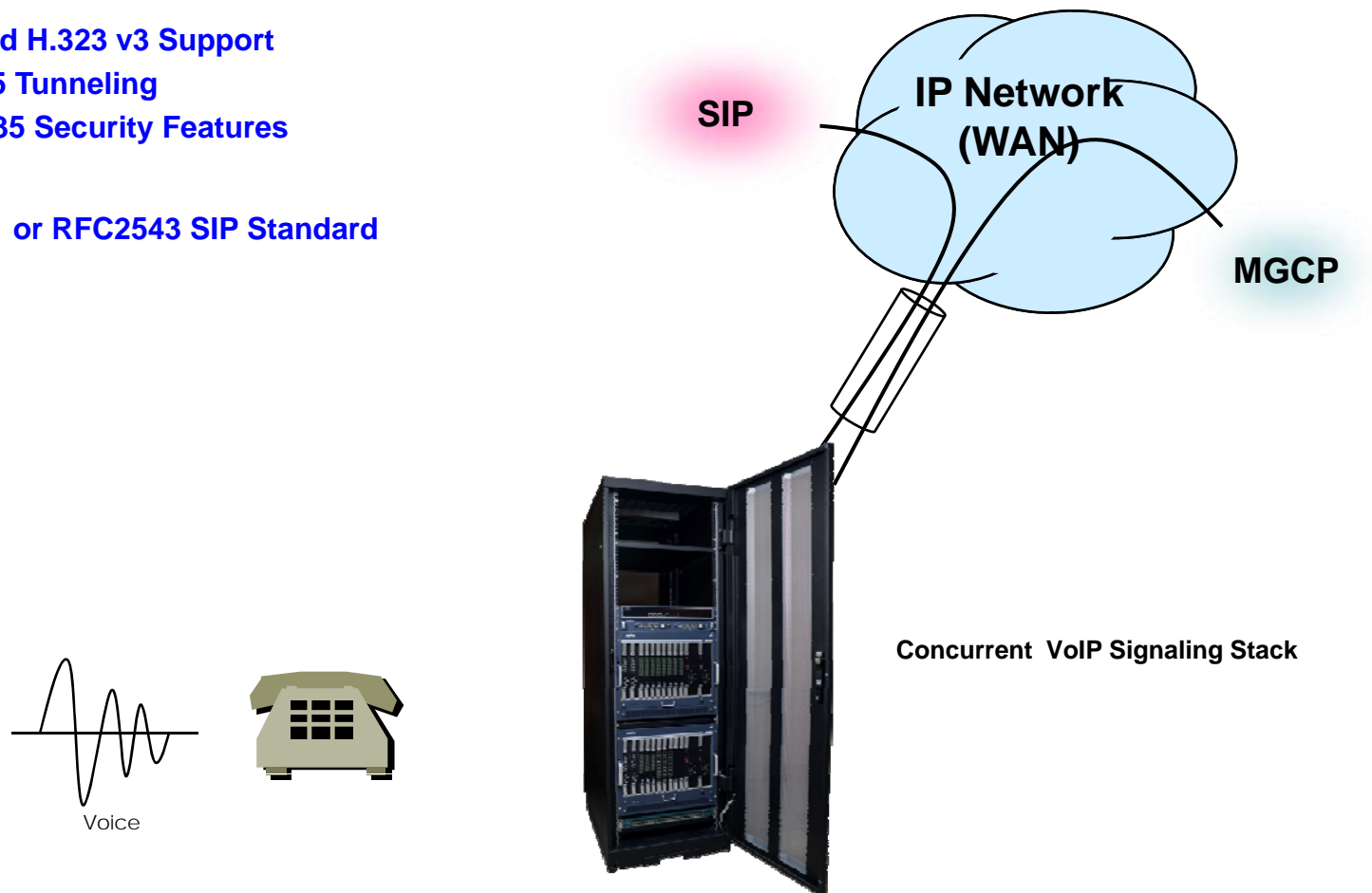
PSU B

Power On/Off Switch
for System

VoIP (Voice over IP) Service

AP-MG10000 Large Scale Media Gateway

- **H.323, SIP VoIP Signaling 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

AP-MG10000 Large Scale Media Gateway

- **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

AP-MG10000 Large Scale Media Gateway

- **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

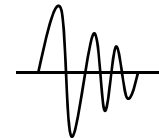
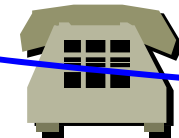
- **RTP**

- 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



VoIP (Voice over IP) Service

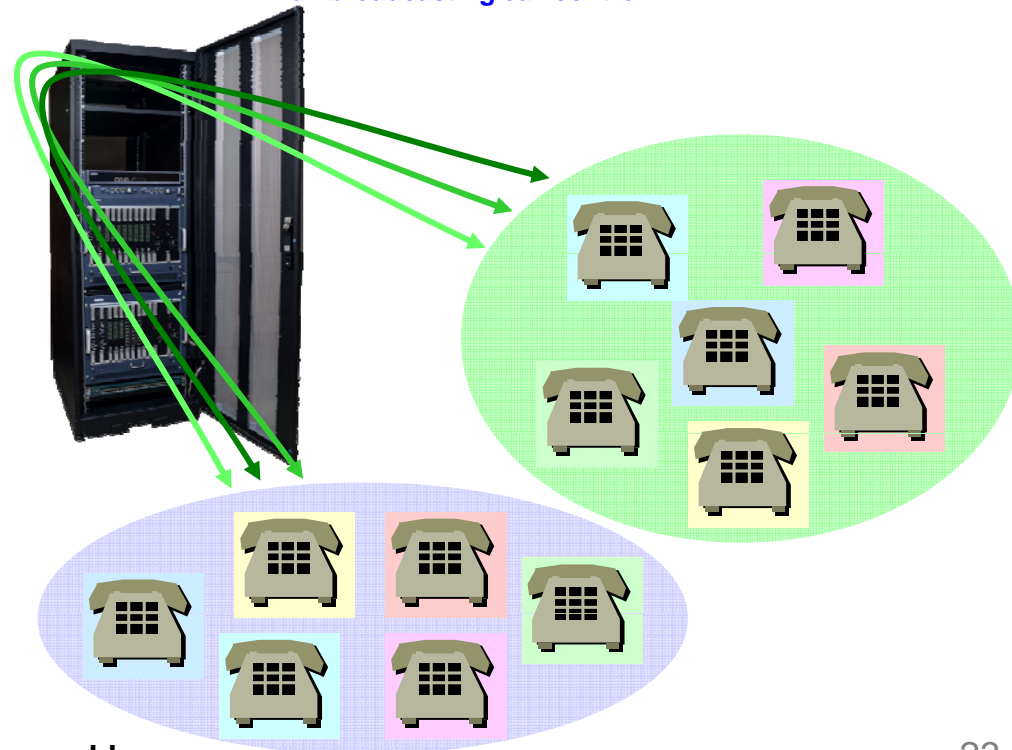
AP-MG10000 Large Scale Media Gateway

• 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
- 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



IP Telephony Service and Features

AP-MG10000 Large Scale Media Gateway

- Signaling Server
 - SIP Application Server, Proxy, Registrar and Location Server (RFC3261)
 - Multiple ITSP Trunk with SIP & H.323 Accounts Support
 - IP UA Client Role for Registering to ITSP SIP Server
 - H.323 Gatekeeper Client Role for Registering to ITSP H.323 Gatekeeper Server
- IVR & Auto Attendant
 - Default Auto Attendant Support
 - Interactive Voice Response (IVR)
 - Provides with GUI-based Smart IVR Scenario Editor
 - Upload/Download Scenario by Smart IVR Scenario Editor
 - Supports Multiple Concurrent Scenarios
 - Supports Recordable IVR Prompts
- Voice Mail
 - Support Voice Mail with IVR
 - Access from Remote Site via Trunk Support
 - Voice Mail Notification Support



IP Telephony Service and Features

AP-MG10000 Large Scale Media Gateway

- **Number & Call Routing**

- Trunk Hunting by Preference or Sequential
- Call Hunting by Preference, Simultaneous, Random
- Call Hunting by Chained Hunting Group
- Partition for Address Grading
- Call Class for Call Access Control
- Number Translation Rule for Inbound/Outbound Call
- Centrex with Prefix Support
- Multiple Shared Devices with One Number
- Multiple Numbers on One Device
- Individual Call Park within Park Number Pool
- Group Call Park within a Group or Other Group
- Call Pickup of Ringing Call of Same Group or Other Group
- Call Pickup of Parked Call
- Call Transfer - Blind, Consult
- Call Forwarding - Unconditional, Busy, No Answer, Voice Mail
- Call Waiting
- Call Swaping
- Call Hold

IP Telephony Service and Features

AP-MG10000 Large Scale Media Gateway

- IP-PBX Advanced Features with AddPac IP Phones
 - Multiple Call Handling with Call Status and Calling Line Number and Name
 - Plug and Play with Auto Discovery Function
 - Softkey Map Download and Control
 - Time and Date Setting
 - Voice Mail List View
 - Parked Call List View
 - Call Forward Setting
 - Recent Call List View
 - Calling Number and Name Identification
 - Individual Call Park within Park Number Pool by Softkey
 - Group Call Park within a Group or Other Group by Softkey
 - Call Pickup of Ringing Call of Same Group or Other Group by Softkey
 - Call Pickup of Parked Call by Softkey
 - Call Transfer - Blind, Consult by Softkey
 - Call Waiting Indication
 - Call Swaping by Softkey
 - Call Hold by SoftKey
 - Conference Control

IP Telephony Service and Features

AP-MG10000 Large Scale Media Gateway

- User & Device Management
 - LDAP (Light weight Directory Access Protocol) Support
 - Supports Hierarchical Organization
 - Auto Discovery of IP Phones & Video Phones
 - Monitoring Status of Phones
- Miscellaneous*
 - Distinctive Ring by Calling User
 - Auto Config & Upgrade
 - Personal Directory
 - Downloadable Ring
 - Do not Disturb

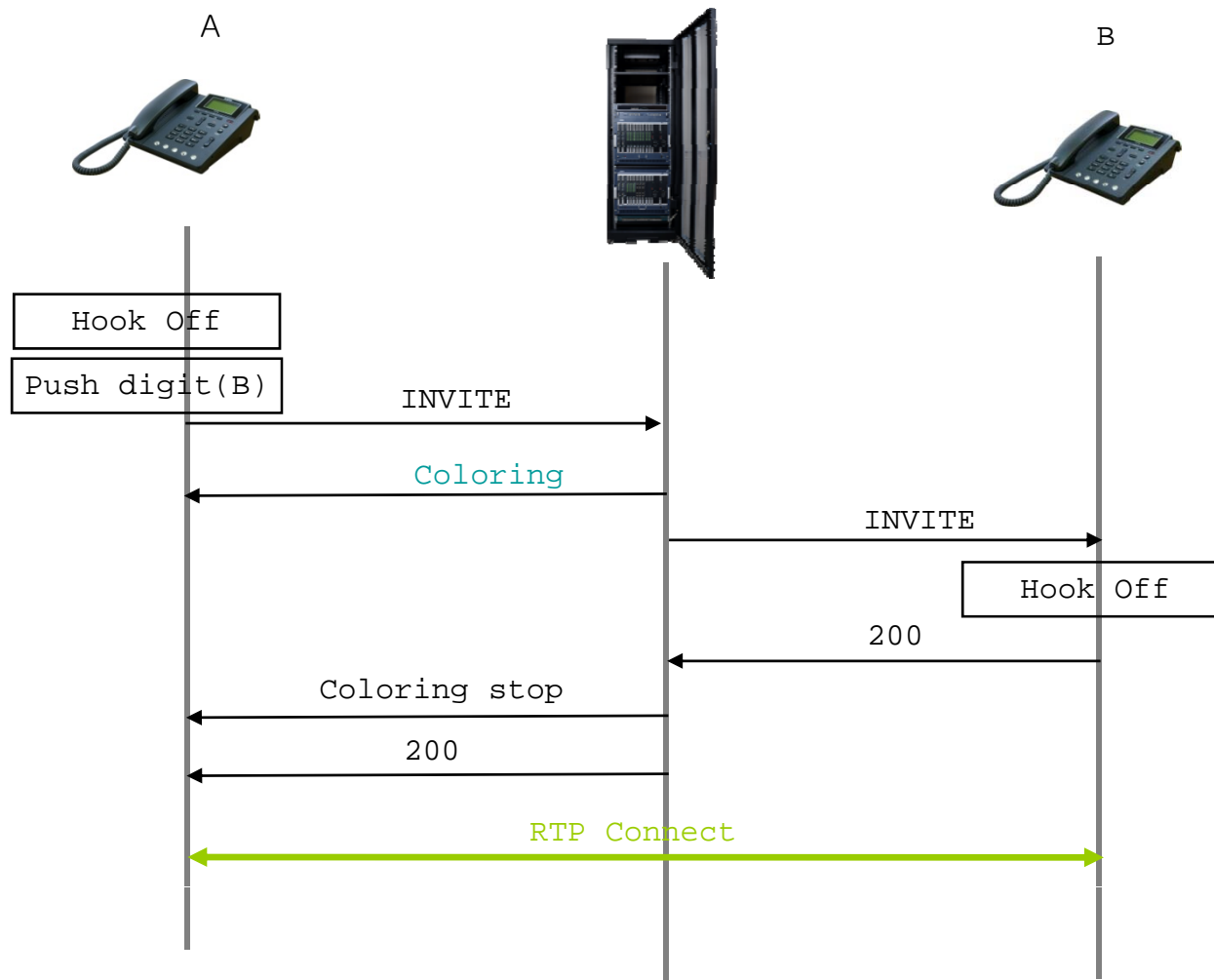
IP Telephony Service and Features

AP-MG10000 Large Scale Media Gateway

- Conference
 - G.711 (4-party Conference, 2 session) : Basic
 - Ad-hoc Conference
 - Dial-Out Conference
 - Meet-me Conference
 - Multiple External MCU support(Video, Audio, etc) : AddPac AP-MC1000, etc
 - Conference Chair and Participants Management
- Music & Announcement
 - Music on Hold
 - Replaceable Announcements
 - Dialing Music / Tone Service

IP Telephony Basic Call Scenario

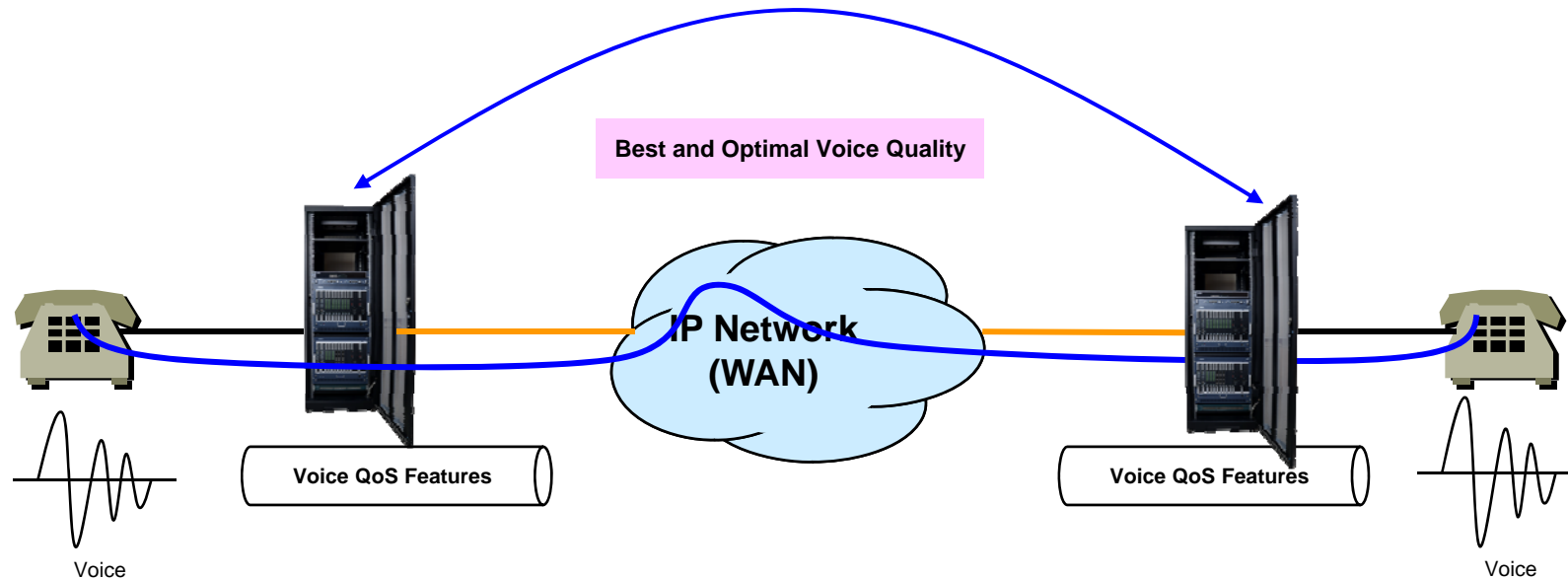
AP-MG10000 Large Scale Media Gateway



Advanced QoS Features

AP-MG10000 Large Scale Media Gateway

- 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

AP-MG10000 Large Scale Media Gateway

Basic Network Protocols

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

Routing Protocol

- IPv4 : Static

Service Protocol

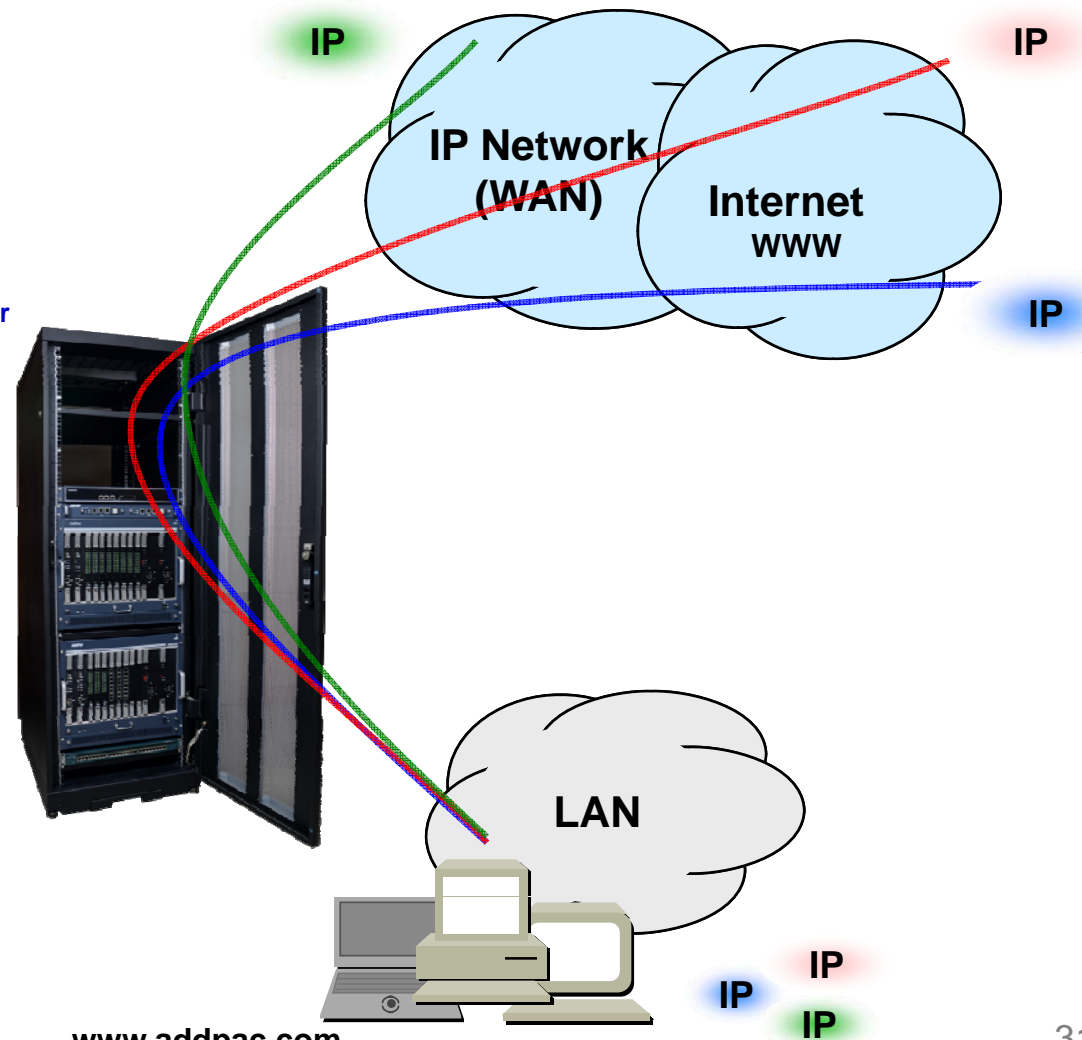
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

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

AP-MG10000 Large Scale Media Gateway

- **SNMP**

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

- **Watch-dog Function**

- Hardware, Software watch-dog services

- **Remote Management**

- Telnet
- Rlogin

- **Auto Upgrade Service**

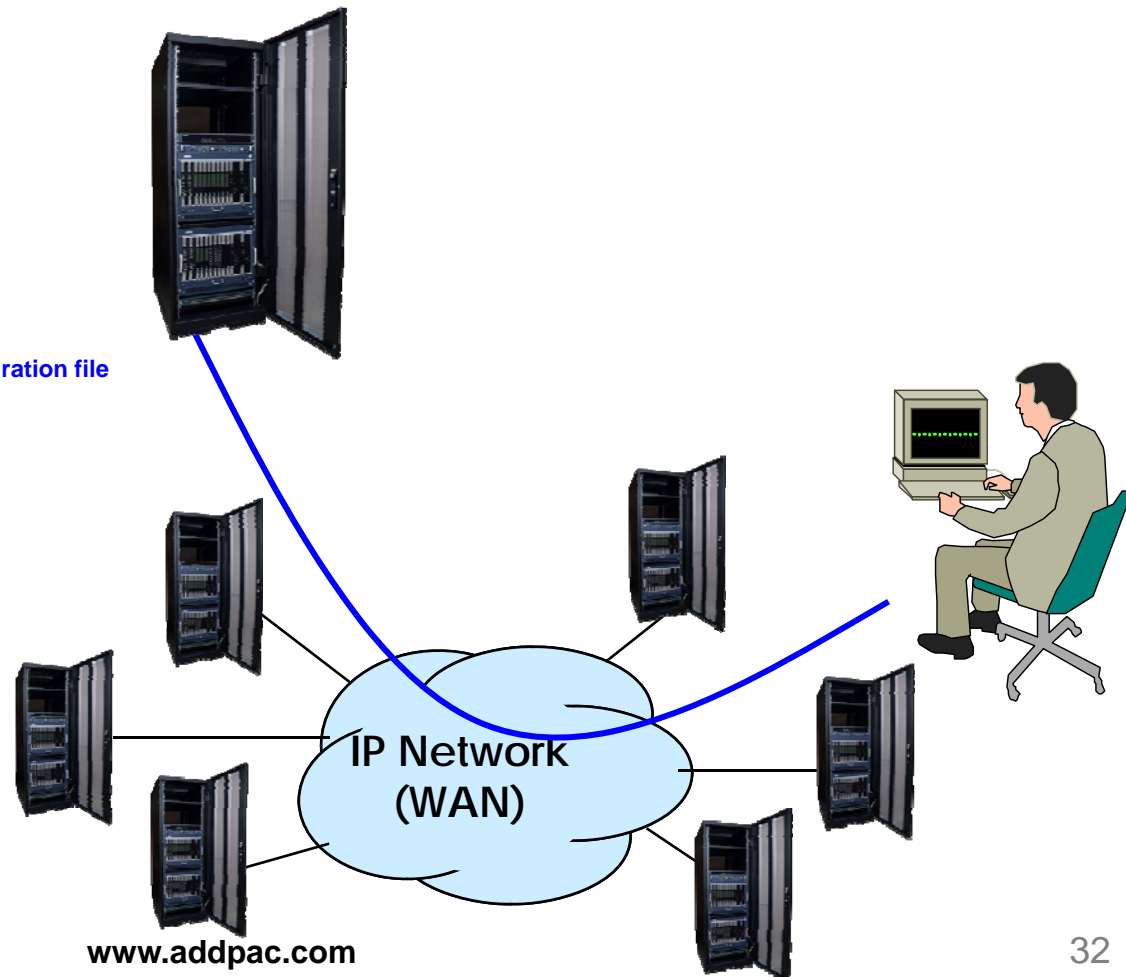
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

- **Interoperable with AP-SNMS Service**

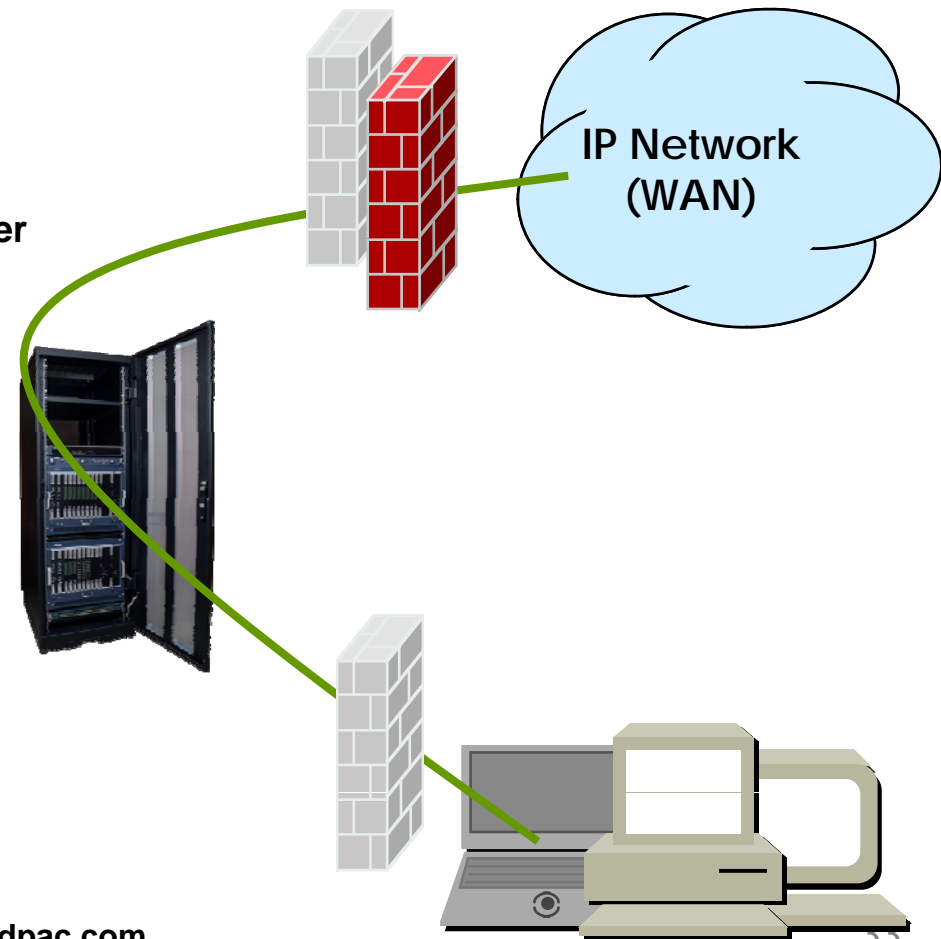
- AddPac Smart NMS (Network Management System)



Security Management

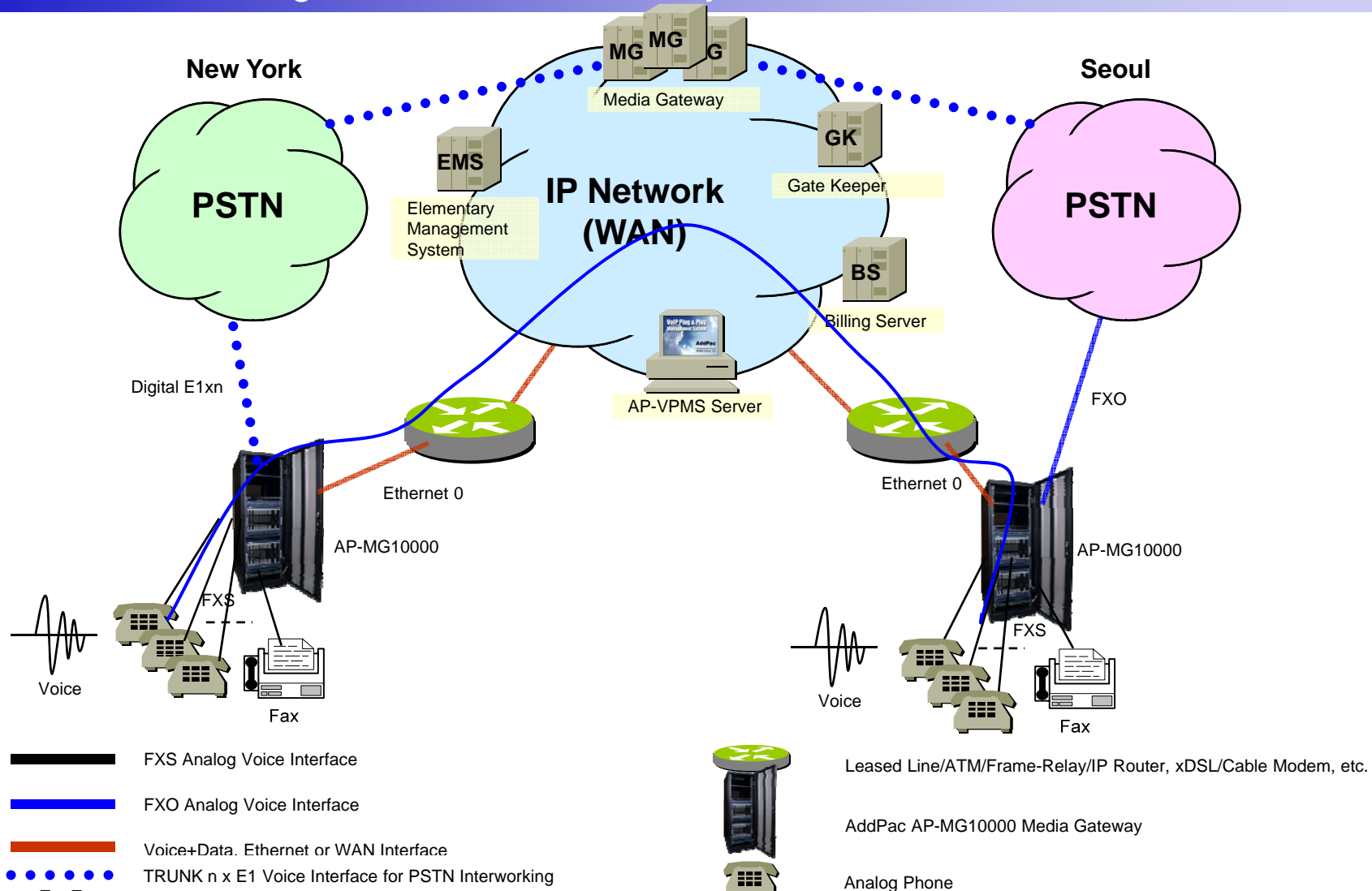
AP-MG10000 Large Scale Media Gateway

- 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



Standard Application

AP-MG10000 Large Scale Media Gateway



Ordering Information

- **AP-MG10000 Media Gateway Hardware**
 - AP-MG10000 Media Gateway Main Rack
 - FXS, FXO, E&M, etc Analog Interface Configuration (Up to 512FXS, 512FXO, 128E&M, etc), Option : Duplication (CPU, Power Module)
 - Digital E1 Interface Configuration (Up to 4E1), Default : Dual Power Supply
 - Call Manager Service Configuration , Option : Dual Call Manager CPU), Default : Dual Power Supply
 - Including Network Cable & Power Supply, etc.
- **Built-in APOS Internetworking Software for AP-MG10000**
- **Including 1 Year Hardware Warranty**
- **Product Documents**
 - Install and Operation Guide (PDF)
- **Pricing**
 - AddPac Technology Regional Sales Manager
 - Authorized Sales and Marketing Representatives
 - Please Contact www.addpac.com

VoIP Gateway Series

Thank you!

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Sales and Marketing

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