



AP5500 (128 Port)

Large Scale VoIP Gateway

High Performance VoIP Gateway Solution

Preliminary Product Overview



AddPac

AddPac Technology

Sales and Marketing

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Contents

- Product Overview
- APOS Technology
- Hardware Specification
- VoIP (Voice over IP) service
- Advanced QoS Features
- Network Protocols
- Network Management
- Security Management
- VPMS VoIP Management
- Application Service
- Ordering Information



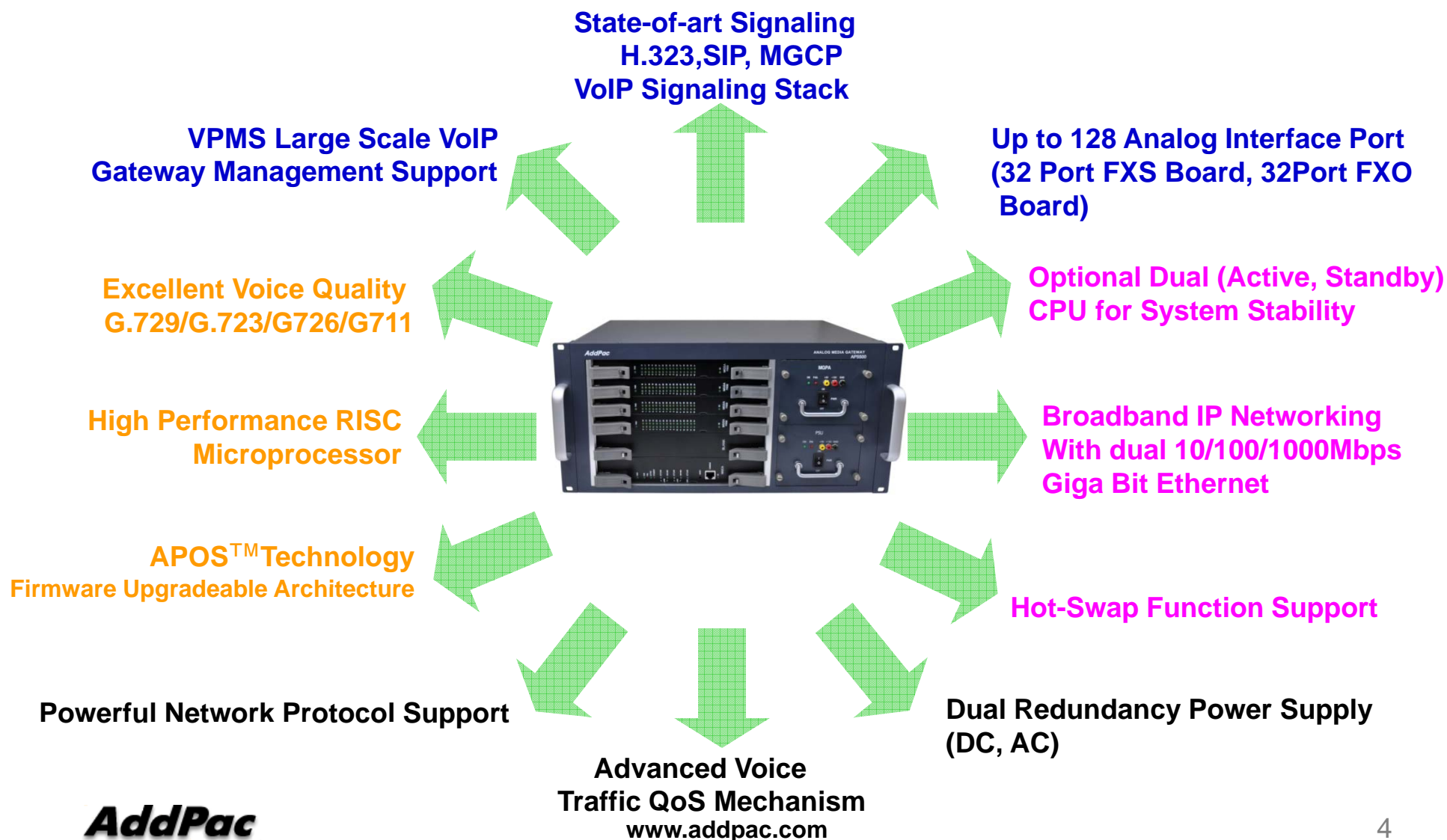
Product Overview

AP5500 Large Scale VoIP Gateway

- SIP VoIP Stack (Redundancy Mode : Dual CPU Mode)
- H.323/SIP/MGCP Concurrent VoIP Stack (Single CPU Mode)
- High Performance RISC Microprocessor for System Control
- Dual Power Redundancy (AC, DC) selectable at ordering
- Optional Dual CPU Board Support for Active/Standby System Redundancy
- Hot-Swap Function Support
- Up to 128 Analog Interface Port (32Port Board x 4 ea) Support
- Two(2) 10/100/1000Mbps Giga-bit Ethernet Interface
- G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- Firmware Upgradeable Architecture
- VPMS (VoIP Plug&Play Management System) for Large Scale Deployment
- Advanced Voice QoS Mechanism

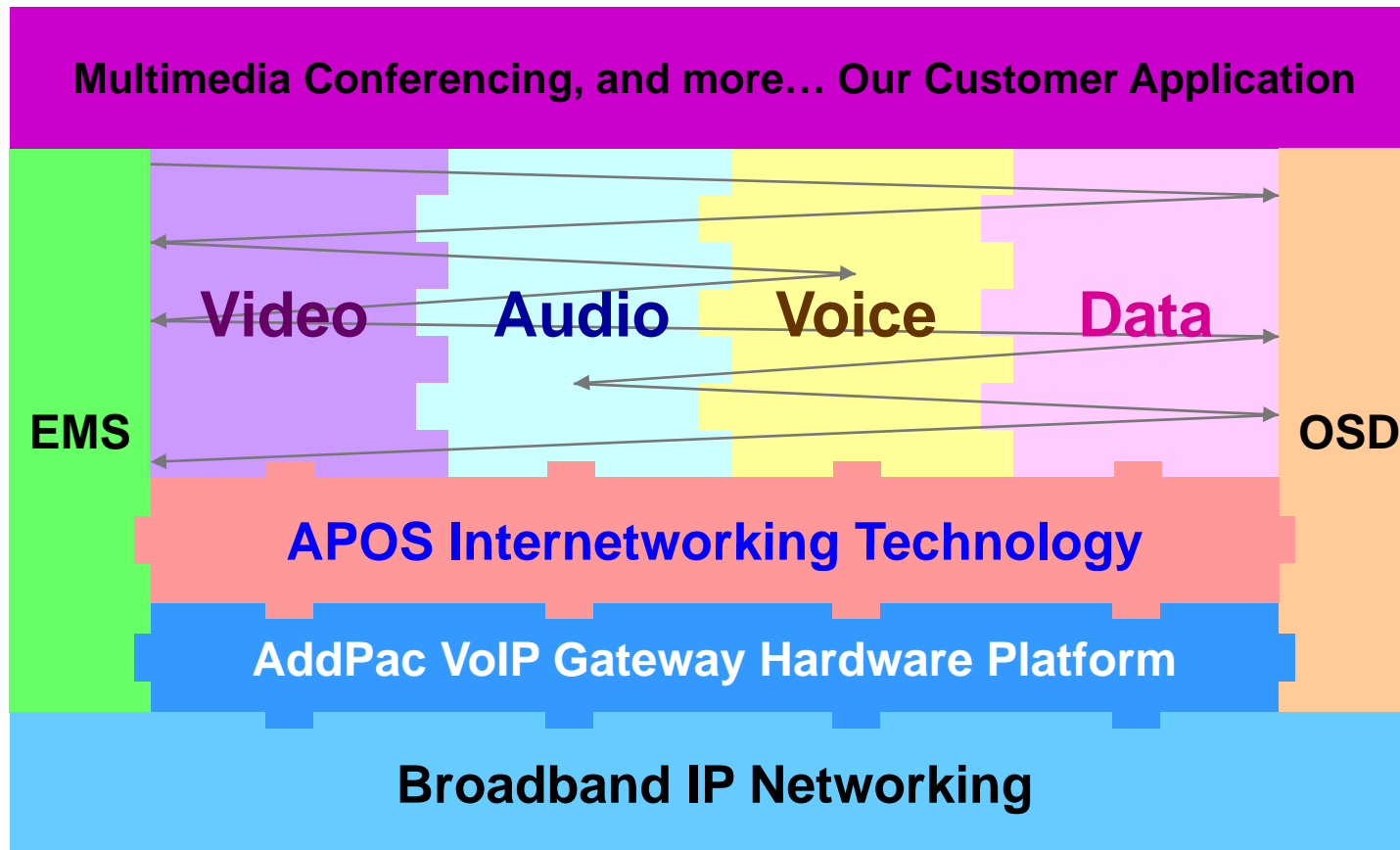
Product Highlights

AP5500 Large Scale VoIP Gateway



APOS Technology

AP5500 Large Scale VoIP Gateway



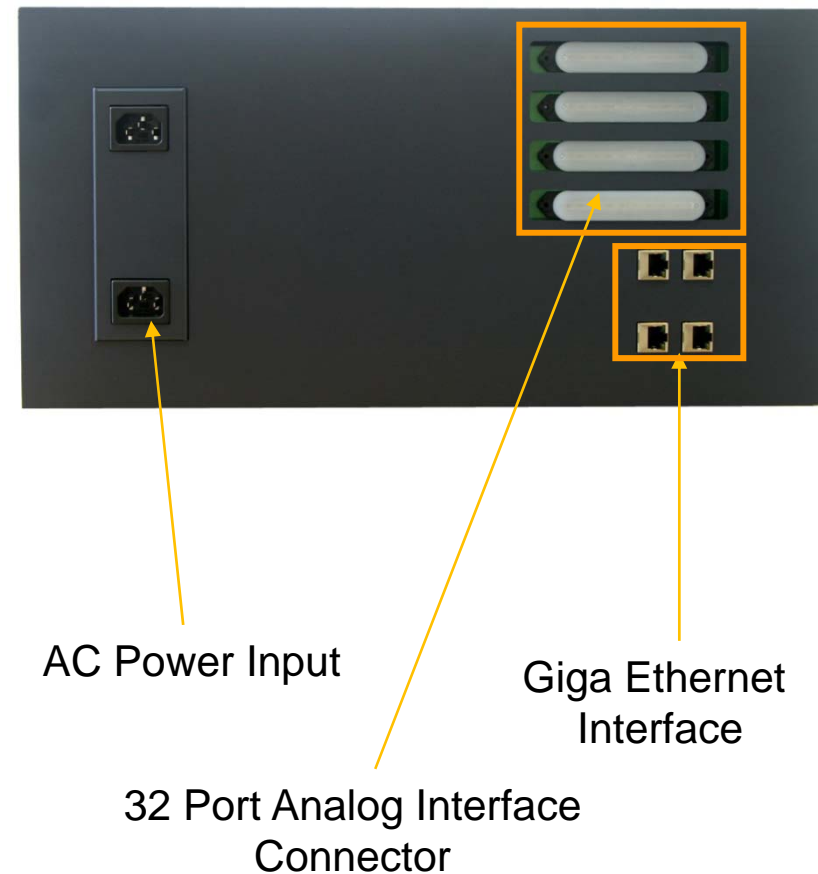
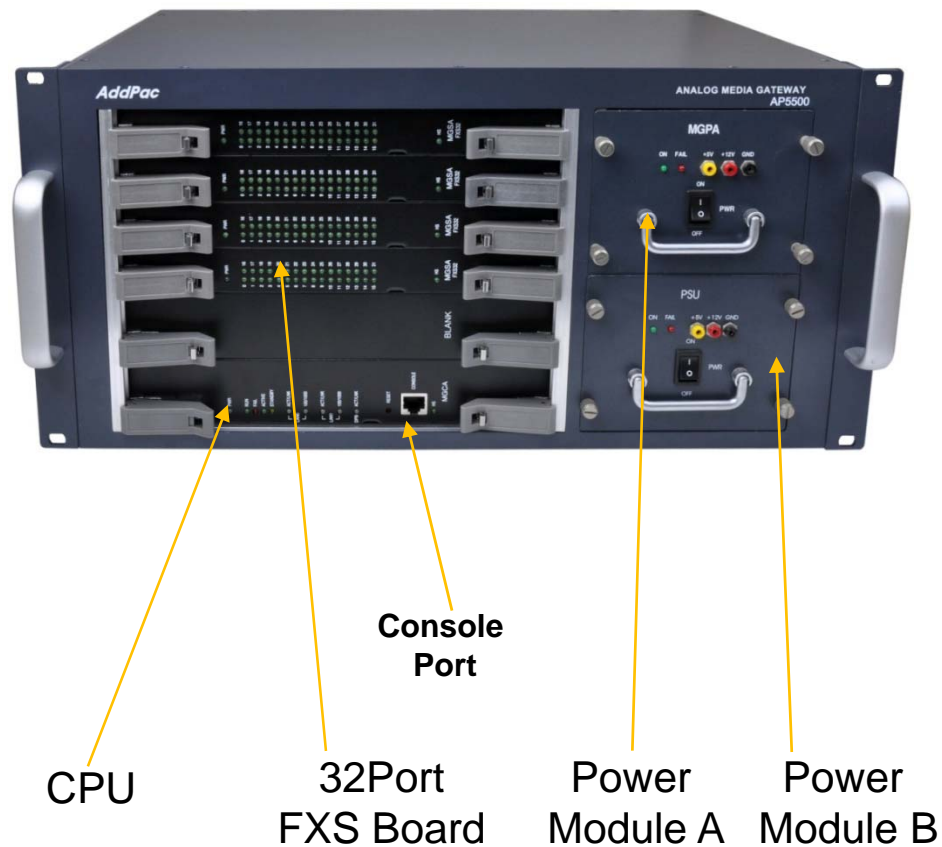
- APOS : AddPac Internetworking Operating System
- OSD : On- Screen Display
- EMS : Element Management System

Hardware Specification

AP5500 Large Scale VoIP Gateway

RISC
CPU

High-end
DSP



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Hardware Specification

AP5500 Large Scale VoIP Gateway

Hardware Specifications

AP5800 VoIP Gateway	Basic Specifications
CPU	High-End RISC Microprocessor Option : Dual Redundancy CPU (Active, Standby)
Voice Interface	Up to 128 Port FXS Voice Interface Up to 128Port FXO Voice Interface
	32-Port Analog FXS Board, FXO Board
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, 220V, 2.5A
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	222mm x 440mm x 333mm (H x W x D)

Hardware Specification : AP5800 Modules

AP5500 Large Scale VoIP Gateway

MGCA

Media Gateway Control Board Assembly



MGSA-32FXS

Media Gateway Subscriber Board Assembly
: 32-Port FXS for Long Distance



MGSA-32FXS-N1

Media Gateway Subscriber Board Assembly



MGSA-32FXO

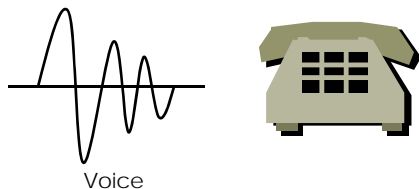
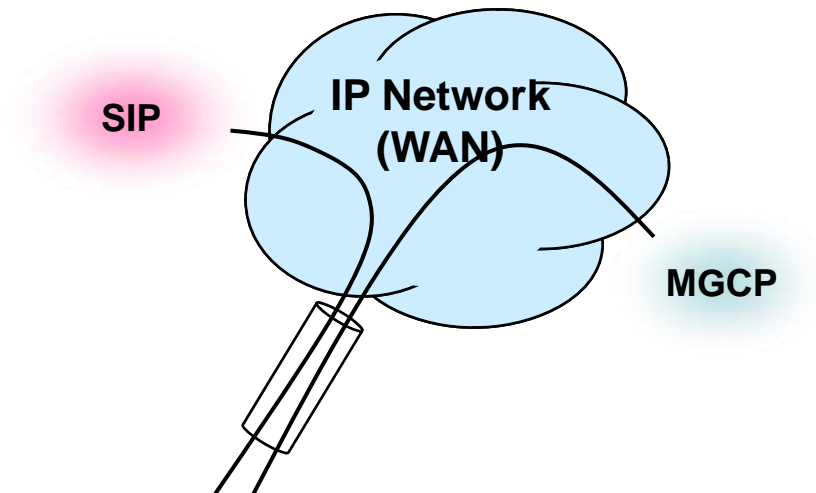
Media Gateway Subscriber Board Assembly
: 32-Port FXO



VoIP (Voice over IP) Service

AP5500 Large Scale VoIP Gateway

- H.323, SIP, and MGCP 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
- MGCP
 - IETF RFC2705bis-02 Standard MGCP 1.0



Concurrent VoIP Signaling Stack

VoIP (Voice over IP) Service

AP5500 Large Scale VoIP 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

- **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

VoIP (Voice over IP) Service

AP5500 Large Scale VoIP Gateway

- **Voice Codec**

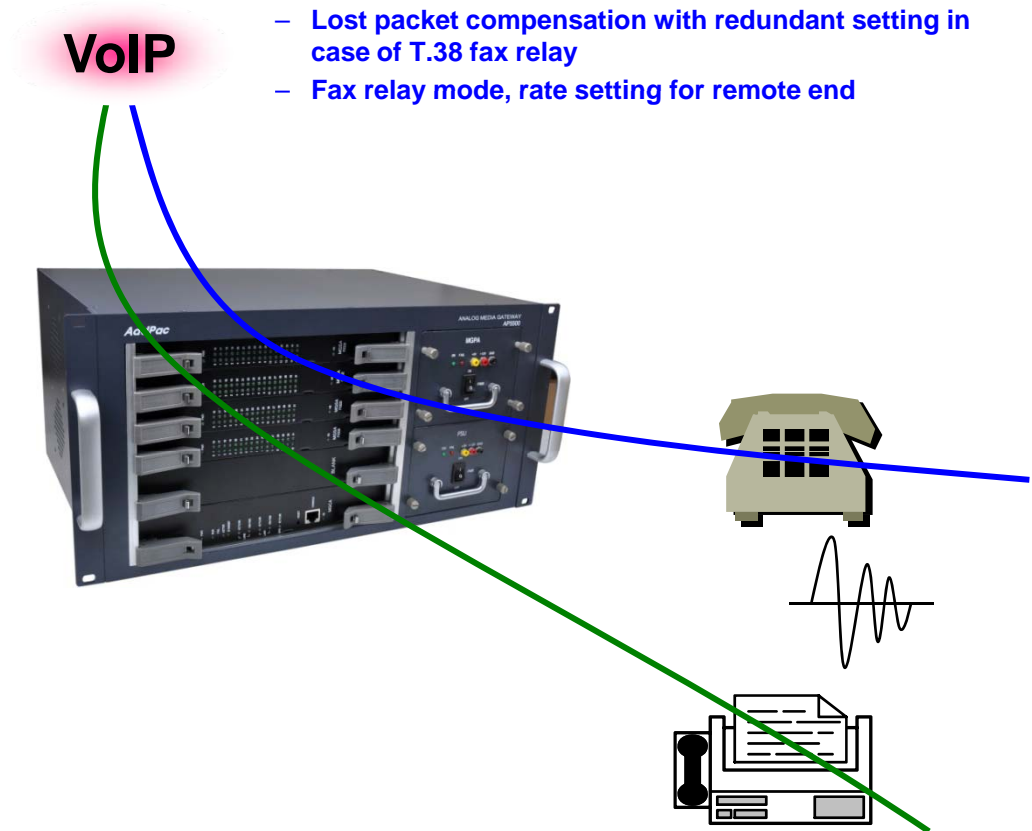
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **RTP**

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

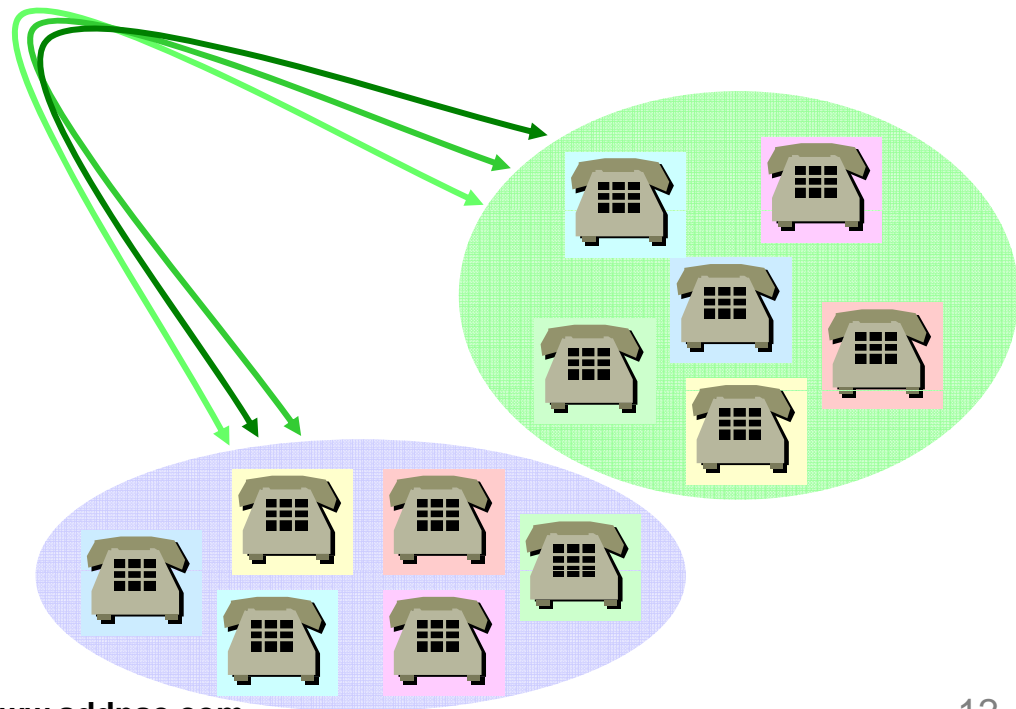
AP5500 Large Scale VoIP Gateway

• 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.)

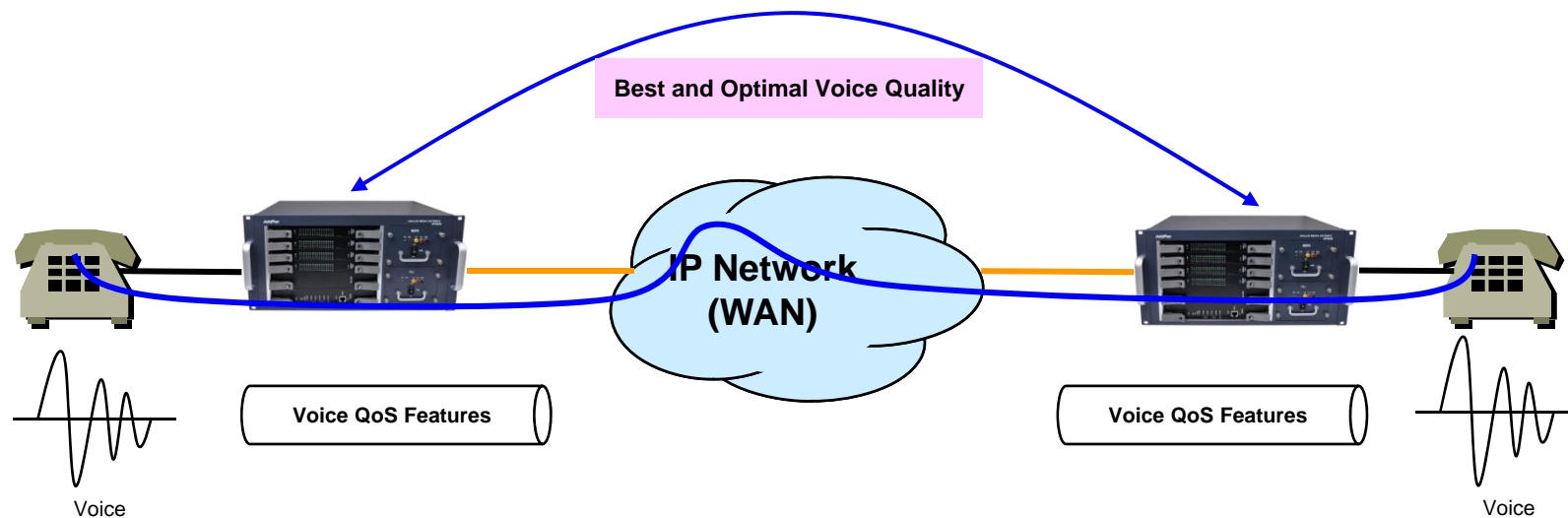
- Call transfer for internal calls
- Call pickup for internal calls
- Calling and called number conversion for VoIP outbound calls
- Calling and called number conversion for VoIP inbound calls
- Fax broadcasting call control



Advanced QoS Features

AP5500 Large Scale VoIP 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

AP5500 Large Scale VoIP Gateway

Basic Network Protocols

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

Routing Protocol

- IPv4 : Static

Service Protocol

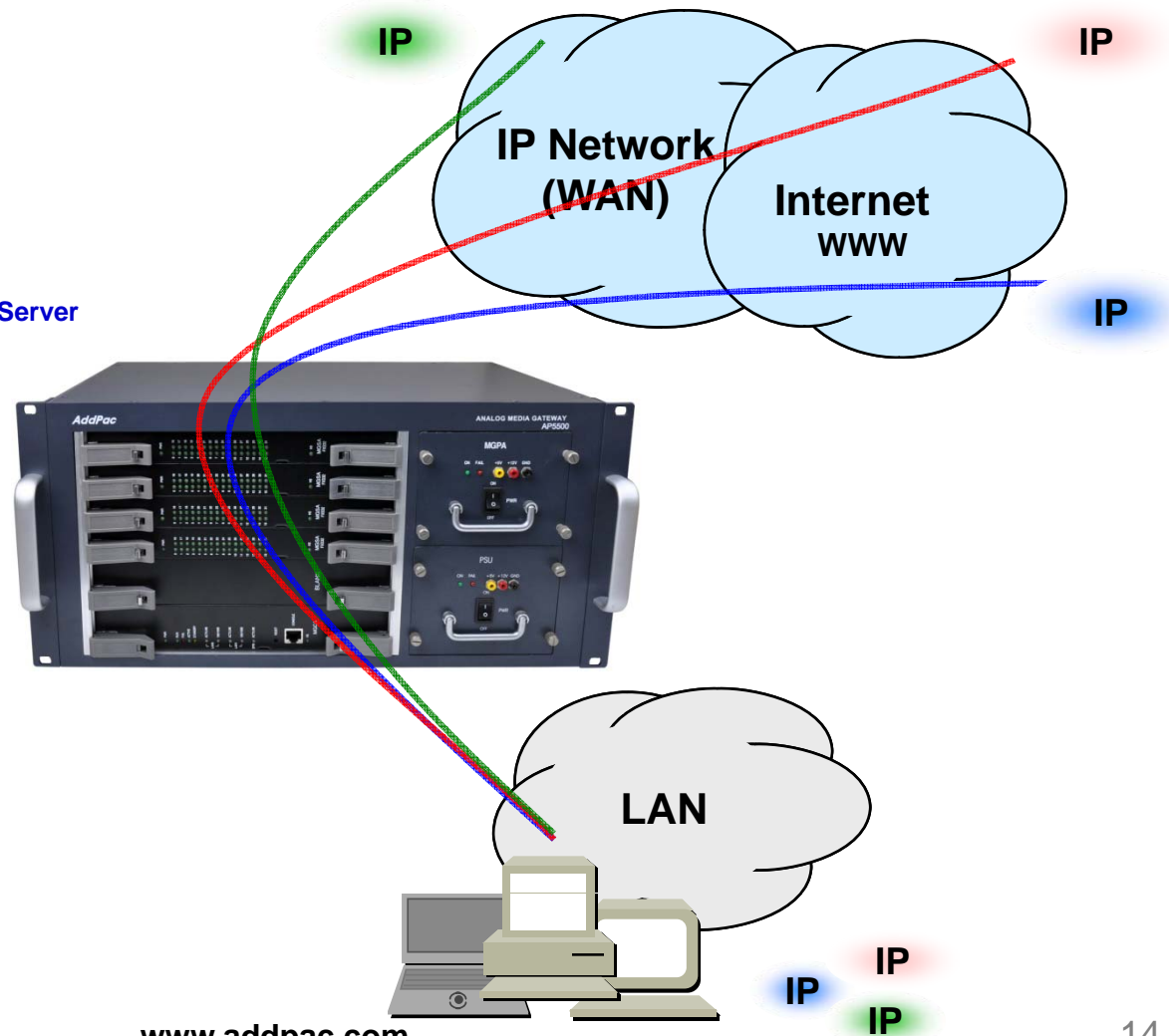
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

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



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Network Management

AP5500 Large Scale VoIP 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**

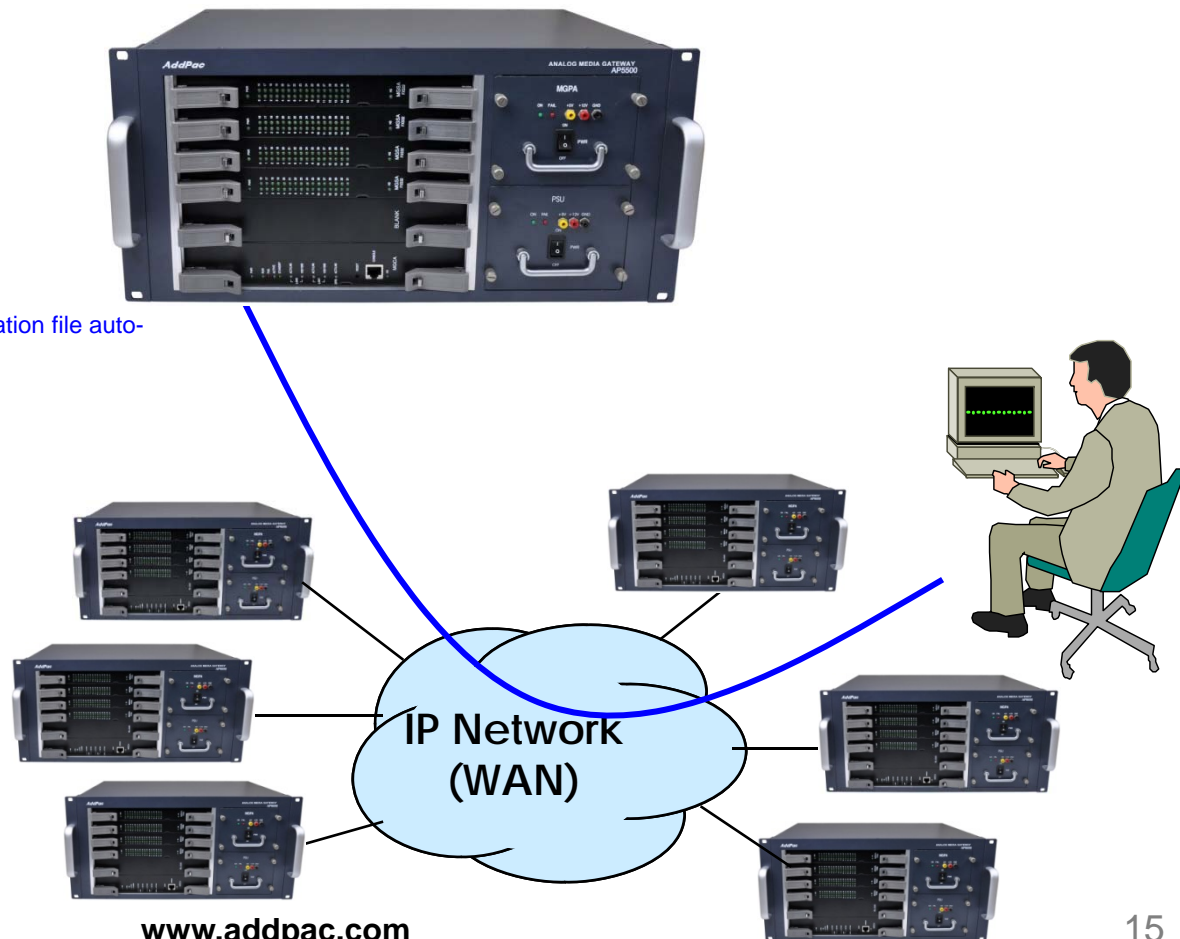
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

- **Interoperable with AP-VPMS Service**

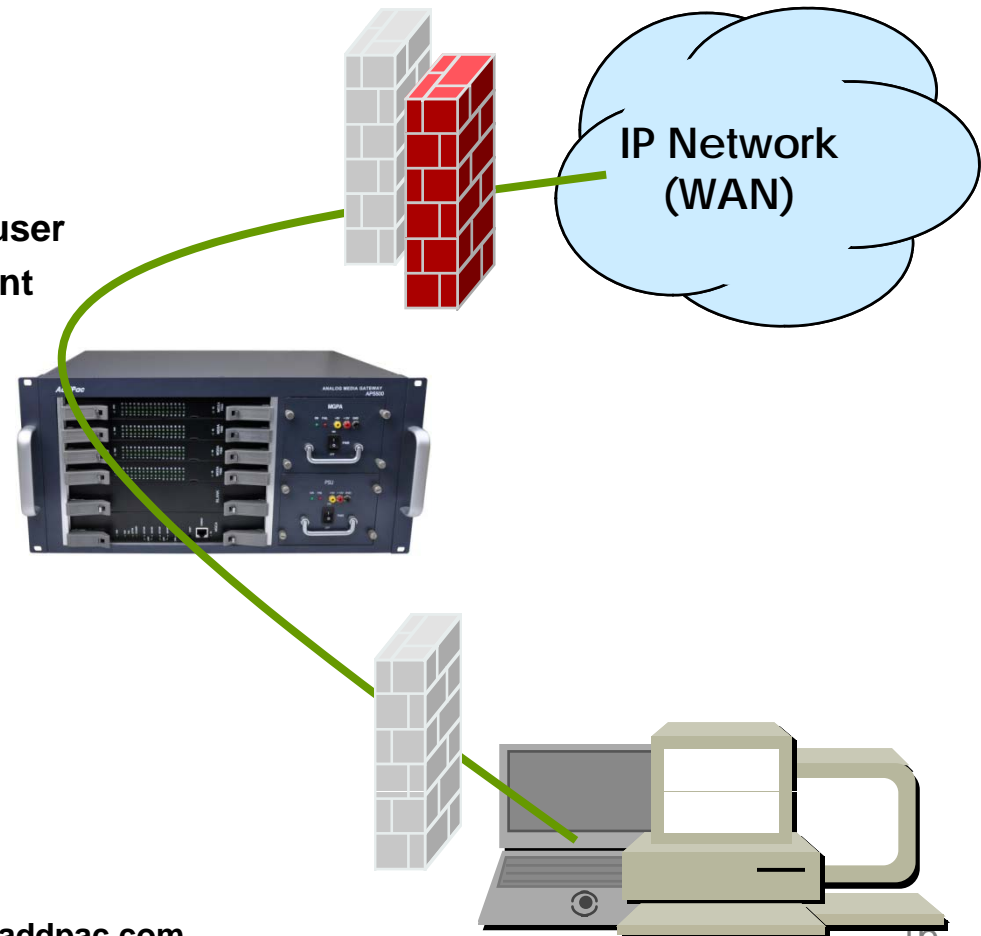
- AddPac VoIP Plug & Play Management System (AP-VPMS)



Security Management

AP5500 Large Scale VoIP 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



VPMS(VoIP Plug&Play Management System)

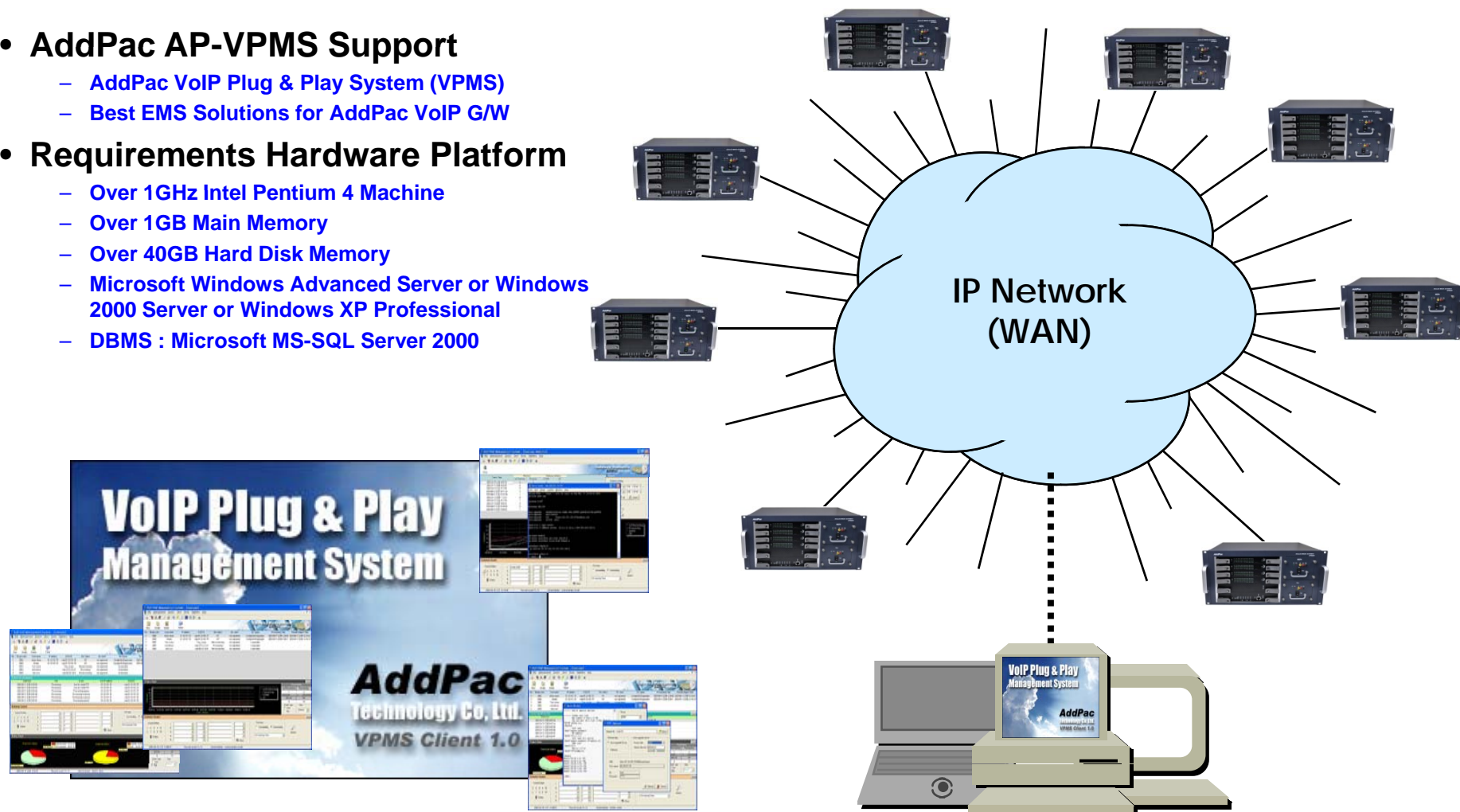
AP5500 Large Scale VoIP Gateway

- **AddPac AP-VPMS Support**

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

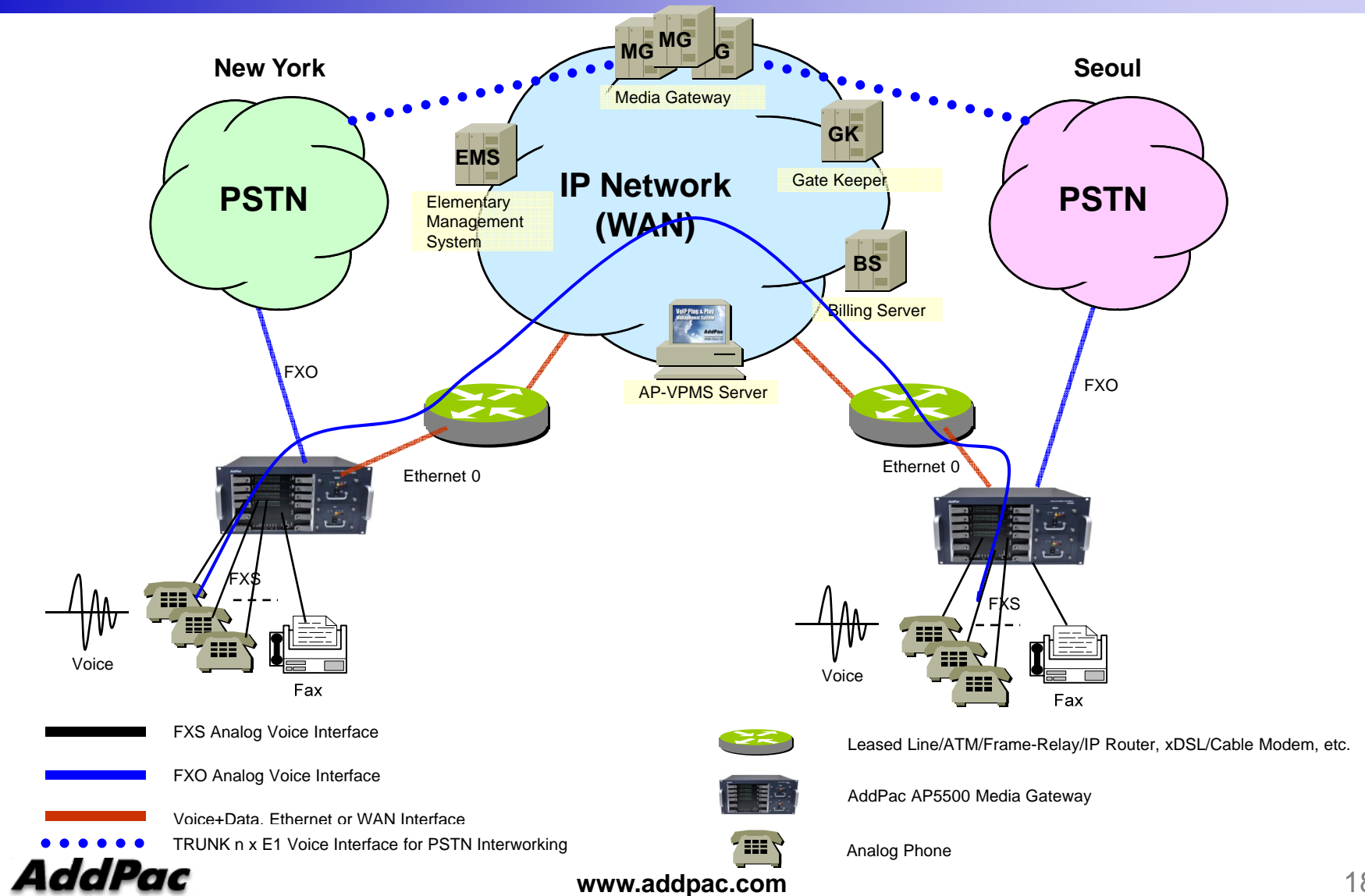
- **Requirements Hardware Platform**

- 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



Standard Application

AP5500 Large Scale VoIP Gateway



Ordering Information

- **AP5500 VoIP Gateway Hardware**
 - AP5500 VoIP Gateway Main Body
 - Single CPU, Dual Power Supply
 - 128 Port FXS, FXO Interface Configuration
 - Including Network Cable & Power Supply, etc.
- **Built-in APOS Internetworking Software for AP5500**
- **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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