



# AP-GS2500

## 16-Port CDMA Gateway

High Performance CDMA VoIP Gateway Solution

AP-GS2500 based on AP-N1-CDMA4I  
4-Port CDMA Module



**AddPac**

**AddPac Technology**

Sales and Marketing

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

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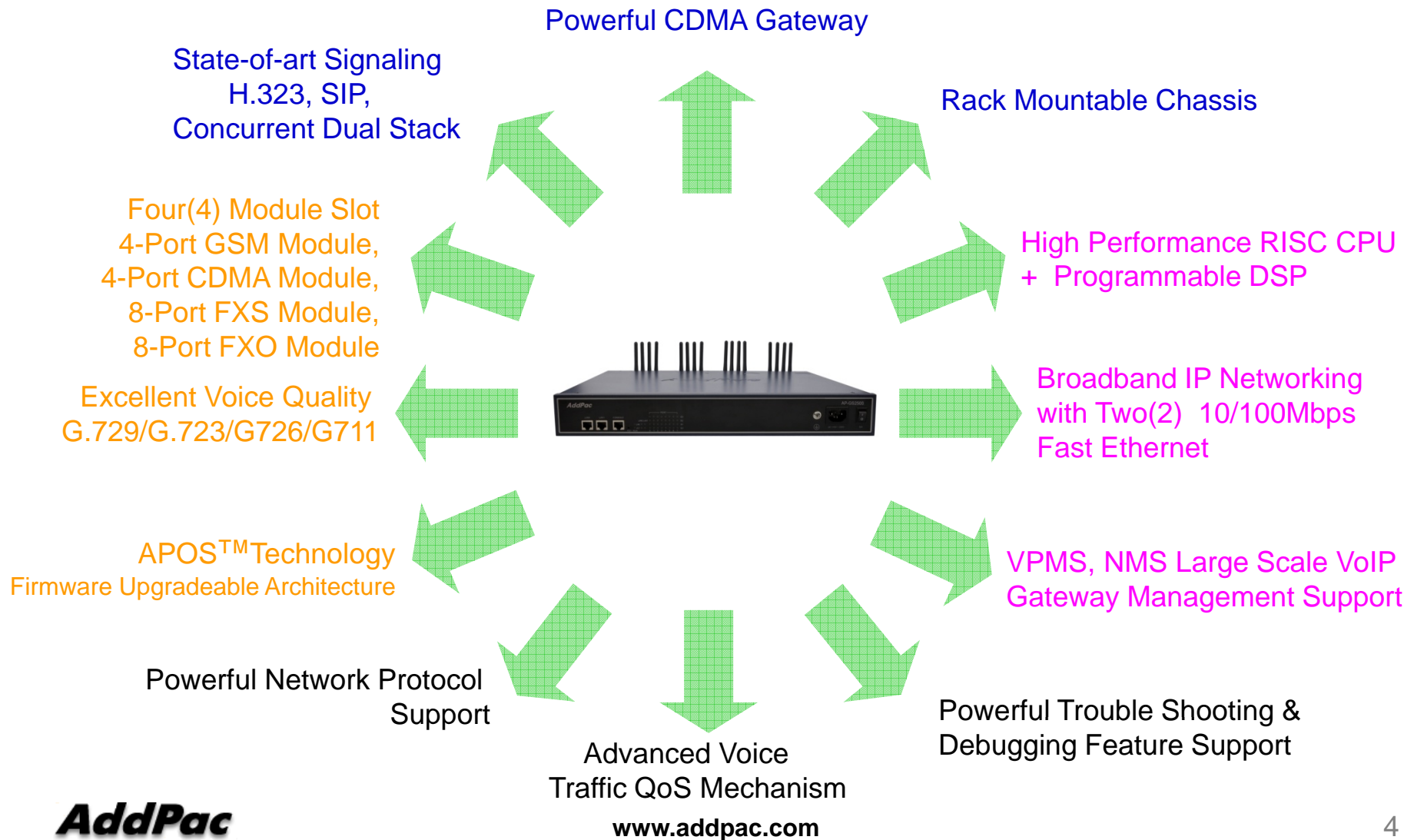
# Product Overview

## AP-GS2500 16-Port CDMA Gateway

- Four(4) Module Slots for 4-Port GSM/CDMA Module, 8FXS/8FXO Analog Interface (Up to 16-Port CDMA, Up to 16-Port GSM)
- H.323/SIP Dual Concurrent Stack Embedded
- High Performance RISC & Programmable DSP Architecture
- G.711/G.726/G.723/G.729, T.38, VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- Two(2)10/100Mbps Fast Ethernet
- One(1) RS-232C Port for Command Line Interface
- Firmware Upgradeable Architecture
- Smart Web Manager for CDMA, GSM Configuration & Maintenance
- Smart NMS for Large Scale Deployment
- Advanced Voice QoS Mechanism
- Rack Mountable Chassis with Internal Power Supply

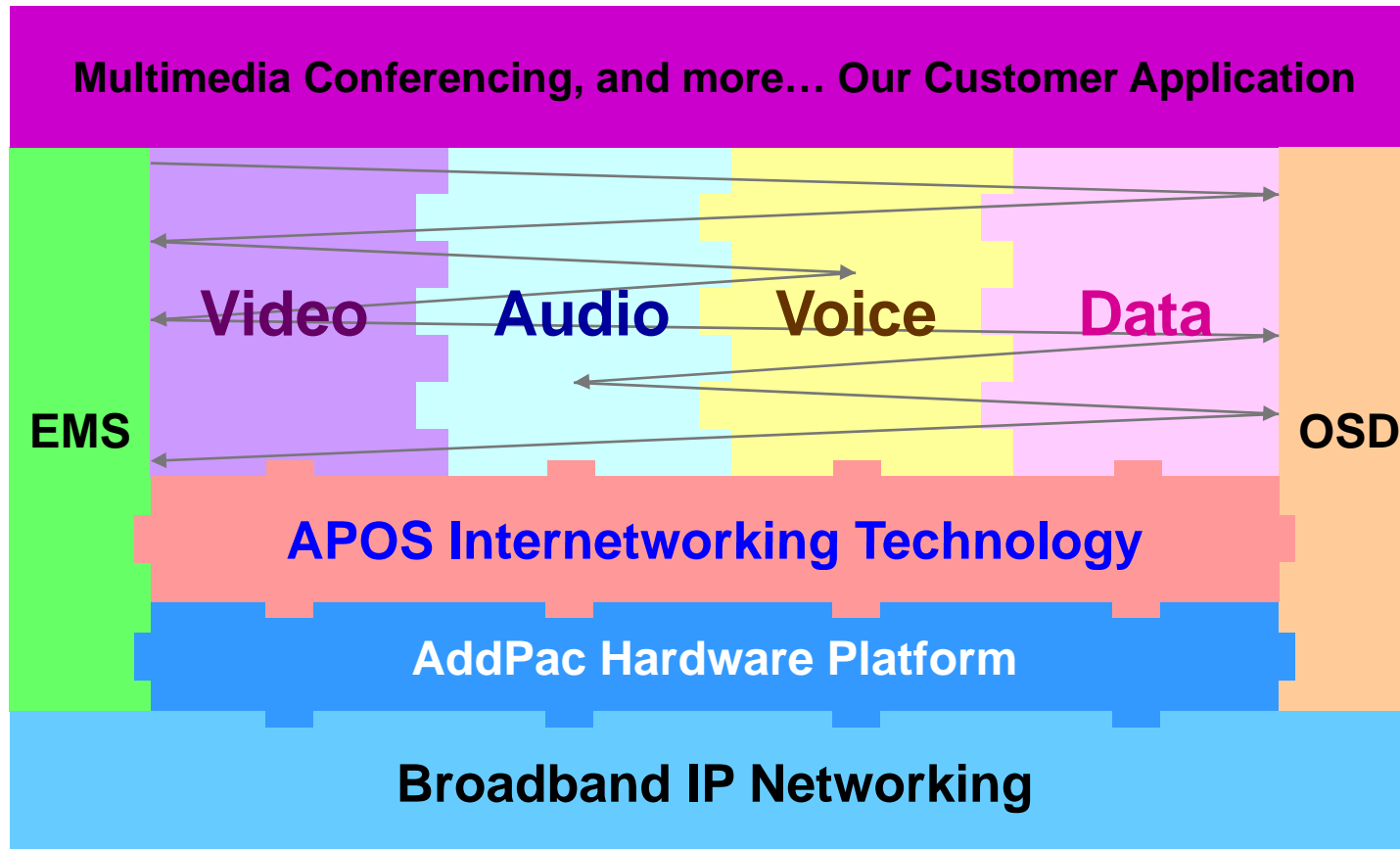
# Product Highlights

## AP-GS2500 16-Port CDMA Gateway



# APOS Technology

AP-GS2500 16-Port CDMA Gateway



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

# Hardware Specification

## AP-GS2500 16-Port CDMA Gateway

RISC  
CPU

High-end  
DSP

- RISC Microprocessor Computing Power
- Four(4) Module Slot for GSM, CDMA, Analog Interface
- 4-Port GSM Module, Hot-Swap
  - 4-Port SIM Card Slot
  - One(1) GSM Antenna(AP-N1-GSM4), Four(4) GSM Antenna(AP-N1-GSM4I)
- 4-Port CDMA Module, Hot-Swap
  - 4-Port RUIM Card Slot
  - One(1) CDMA Antenna(AP-N1-CDMA4), Four(4) CDMA Antenna(AP-N1-CDMA4I)
- VoIP Interface Module, Hot-Swap
  - 8-Port FXS Module, (AP-N1-FXS8, AP-N1-FXO8, etc)
- Network Interface
  - Two(2) 10/100Mbps Fast Ethernet (RJ45)
- RS232C Console Interface for CLI
- Run LED, LAN LED, Port LEDs
- Internal Power Supply

# Hardware Specification

AP-GS2500 16-Port CDMA Gateway

RISC  
CPU

High-end  
DSP

AP-GS2500 16-Port CDMA Gateway	Basic Specifications
CDMA Interface	Four(4) CDMA Module Slots
	AP-N1-CDMA4I, AP-N1-GSM4I, AP-N1-FXS8, AP-N1-FXO8, AP-N1-FXS4O4, etc
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	512Mbyte High-speed NAND Memory
Base Memory	128Mbyte High-speed SDRAM
Power Requirement	Power Supply / VAC 110~220V, 50/60Hz, 5V 20A
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	H x W x D (56 x 440 x 313mm)
Weight(kg)	5Kg

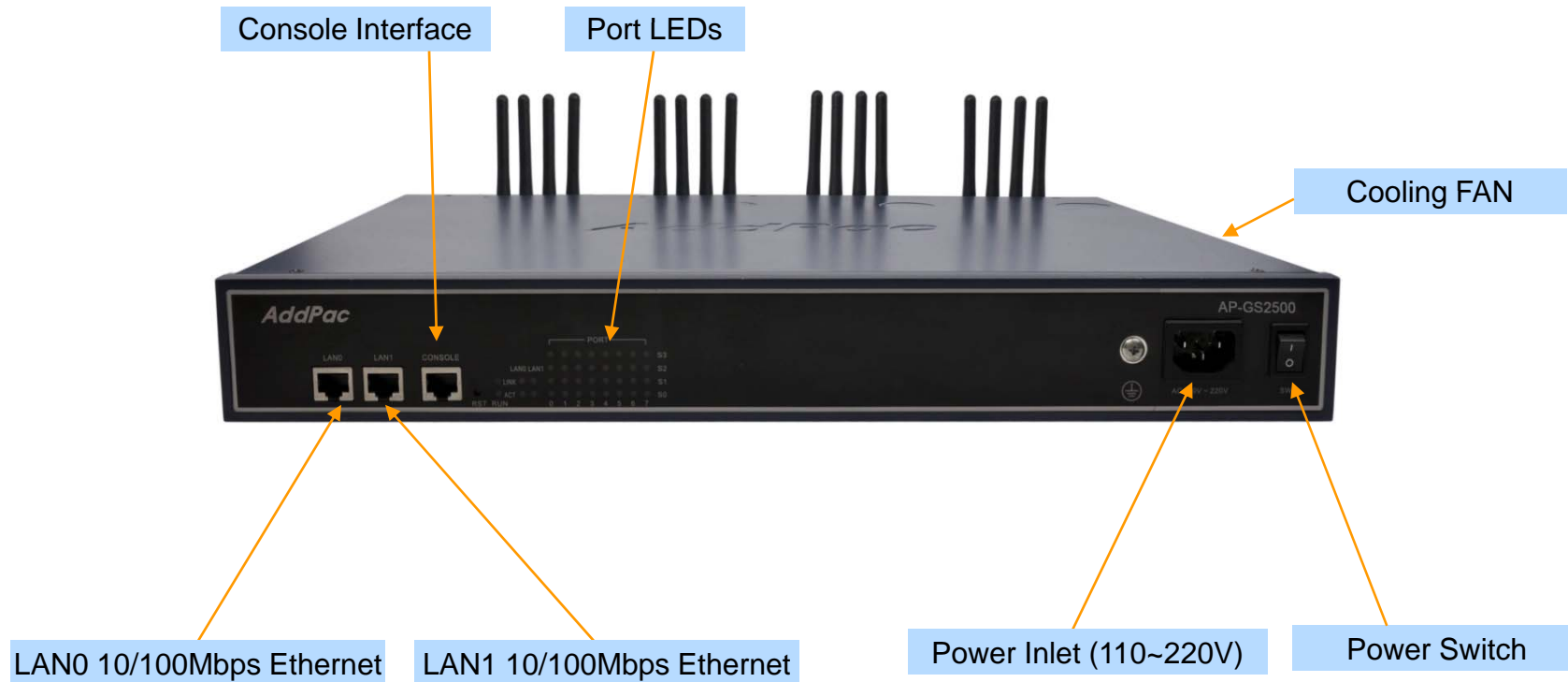
# Hardware Specification

AP-GS2500 16-Port CDMA Gateway

RISC  
CPU

High-end  
DSP

## Front Side View





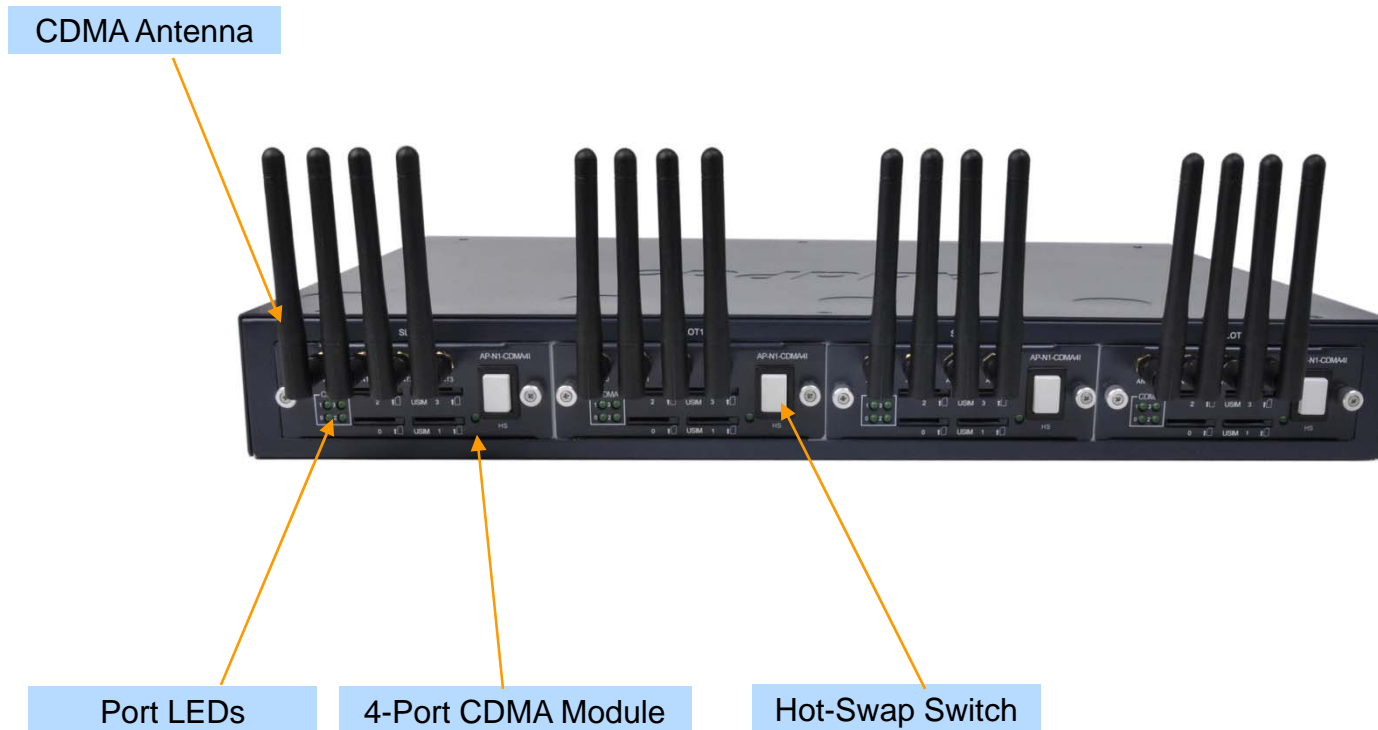
# Hardware Specification

AP-GS2500 16-Port CDMA Gateway

RISC  
CPU

High-end  
DSP

## Back Side View



# Hardware Specification

## AP-GS2500 16-Port CDMA Gateway

### GSM, CDMA Modules

**AP-N1-GSM4I** 4-Port GSM Module (Antenna : 4)



**AP-N1-CDMA4I** 4-Port CDMA Module (Antenna : 4)



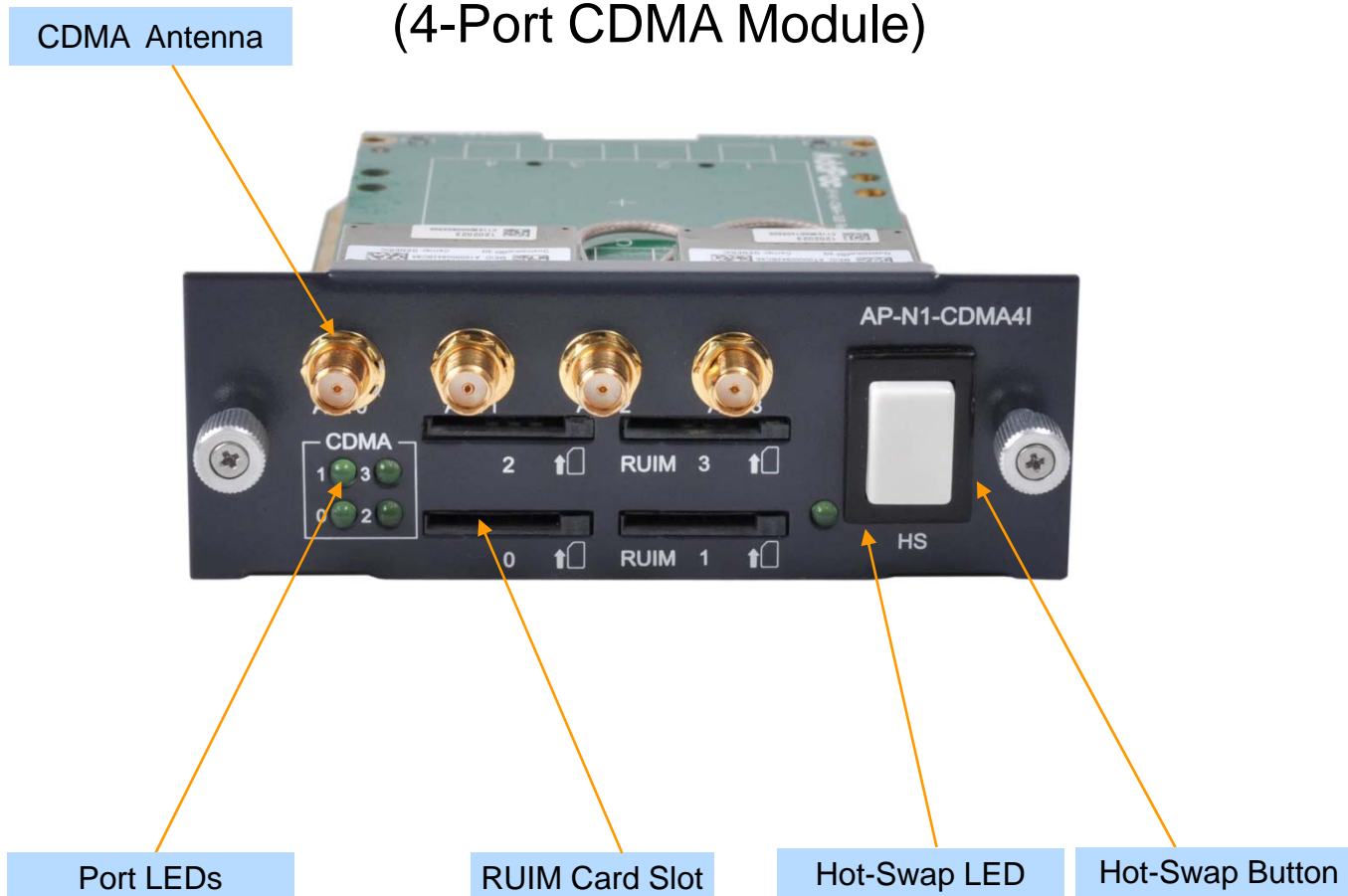
# Hardware Specification

AP-GS2500 16-Port CDMA Gateway

RISC  
CPU

High-end  
DSP

## AP-N1-CDMA4I (4-Port CDMA Module)



# AP-N1-CDMA4I 4-Port CDMA Module

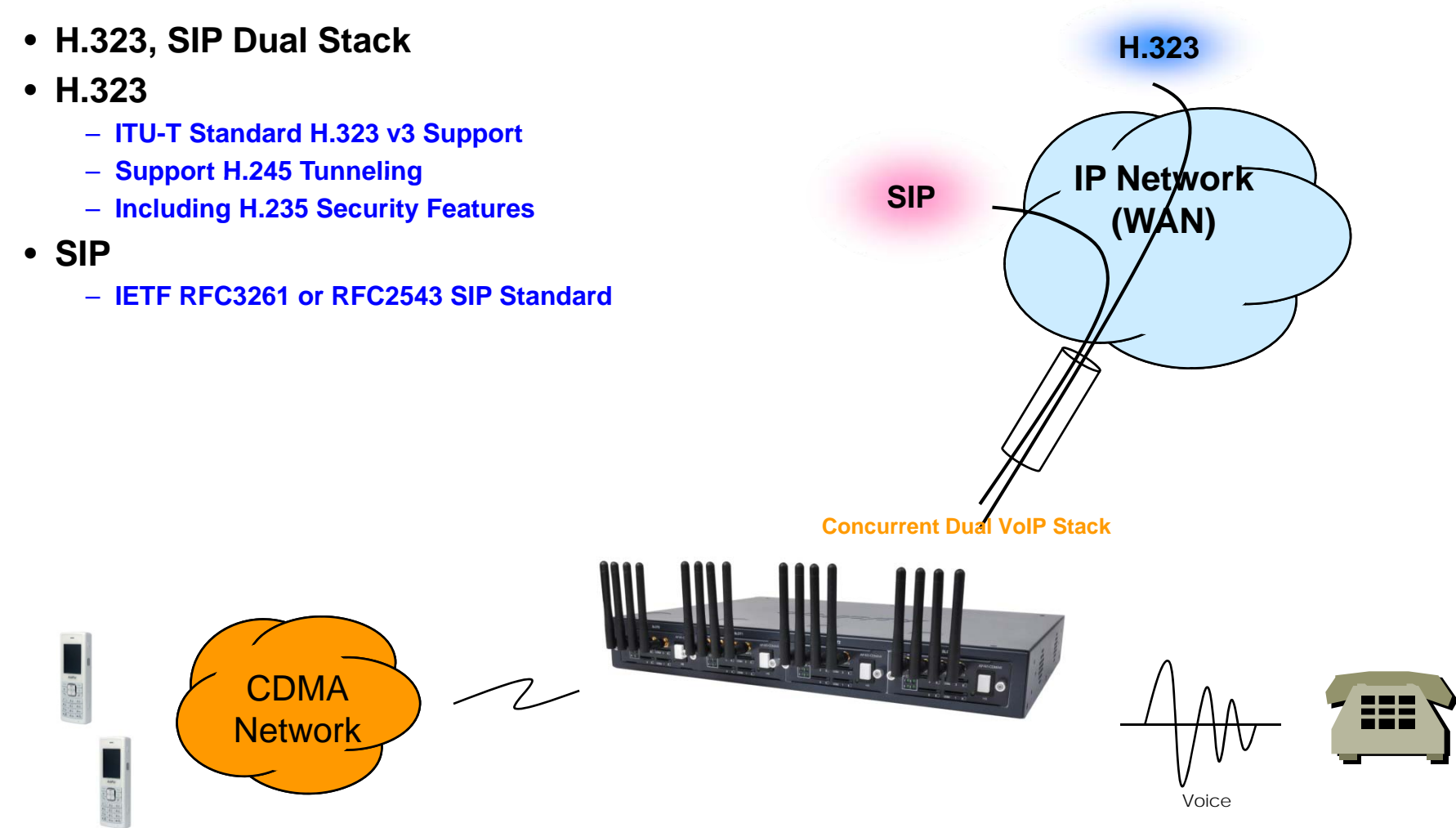
## AP-GS2500 16-Port CDMA Gateway

- CDMA2000 1xRTT (IS-2000)-(Dual Band)
- Band class0 (TX : 824~849 MHz / RX : 869~894MHz)
- Band class1 (TX : 1850~1910 MHz / RX : 1930~1990MHz)
- GPS L1 Support
- Output Power : 0.25W CDMA
- CDMA2000 Release A
- IS-637 : Short Message Service (Mobile Originated and Mobile Terminated)
- RUIM(for Asia Pacific Countries)
- 4-Port CDMA Module(AP-N1-CDMA4I)
  - 4-Port RUIM Card Slot
  - Port LEDs for Link Activation Indication
  - 4-Port CDMA Antenna Interface
  - Hot-Swap Button

# VoIP (Voice over IP) Service

AP-GS2500 16-Port CDMA Gateway

- H.323, SIP Dual 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-GS2500 16-Port CDMA 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-GS2500 16-Port CDMA Gateway

- **Voice Codec**

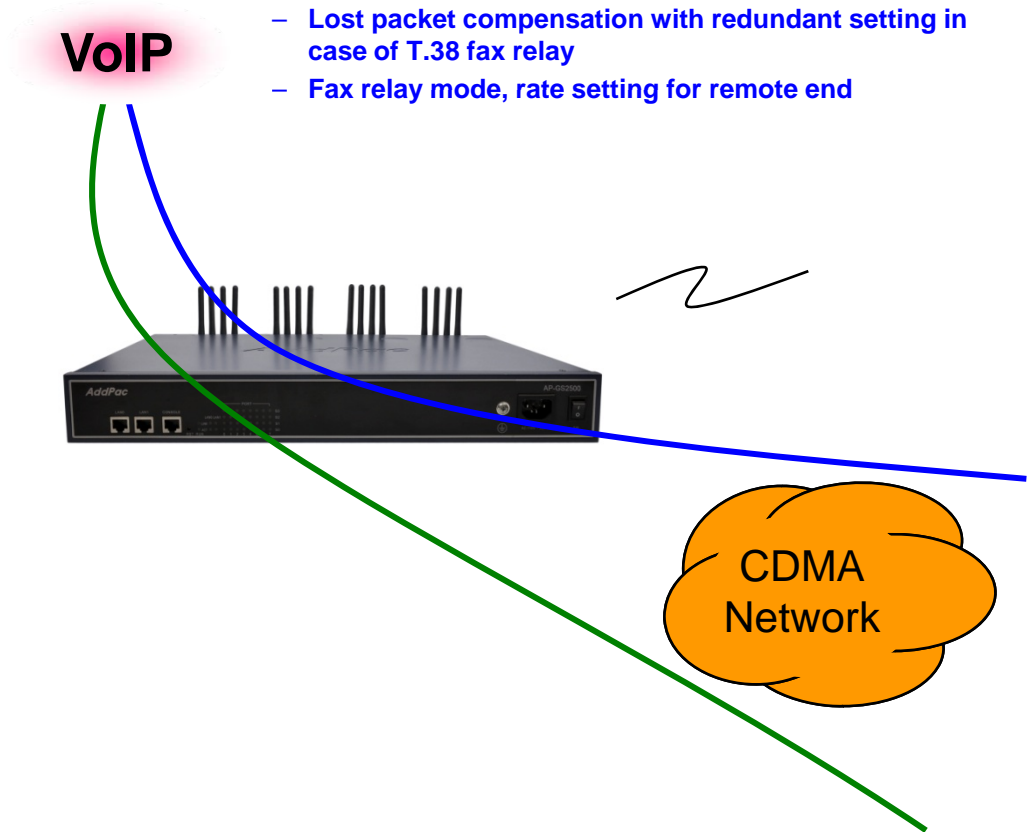
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **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 (Voice over IP) Service

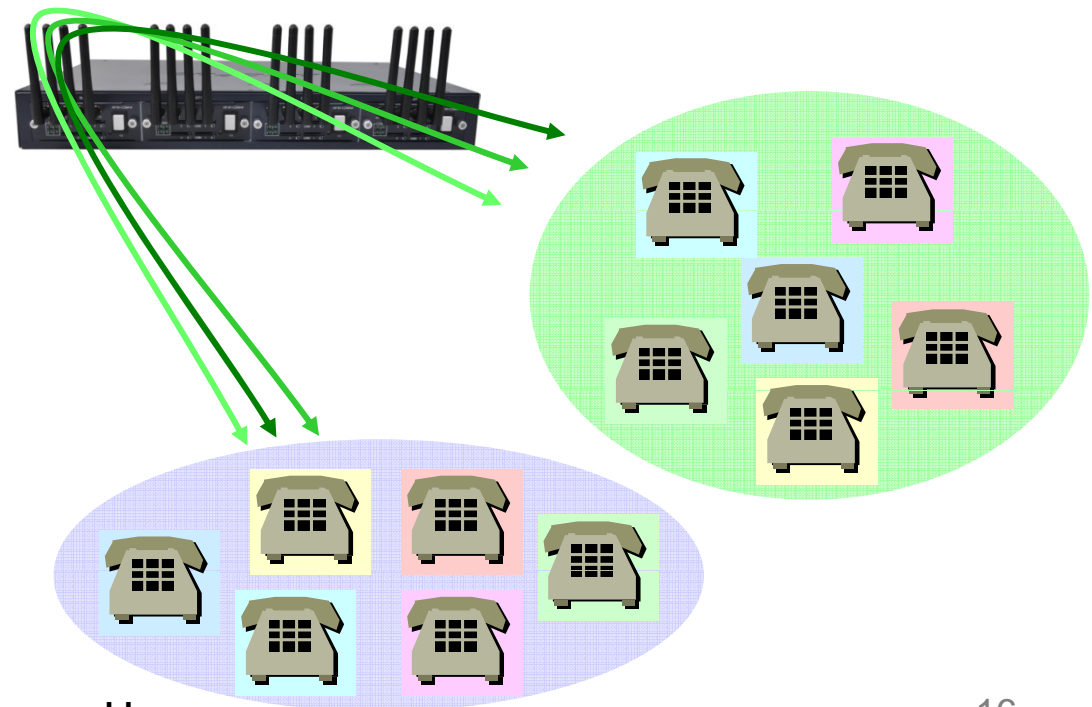
## AP-GS2500 16-Port CDMA Gateway

### • 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
- 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

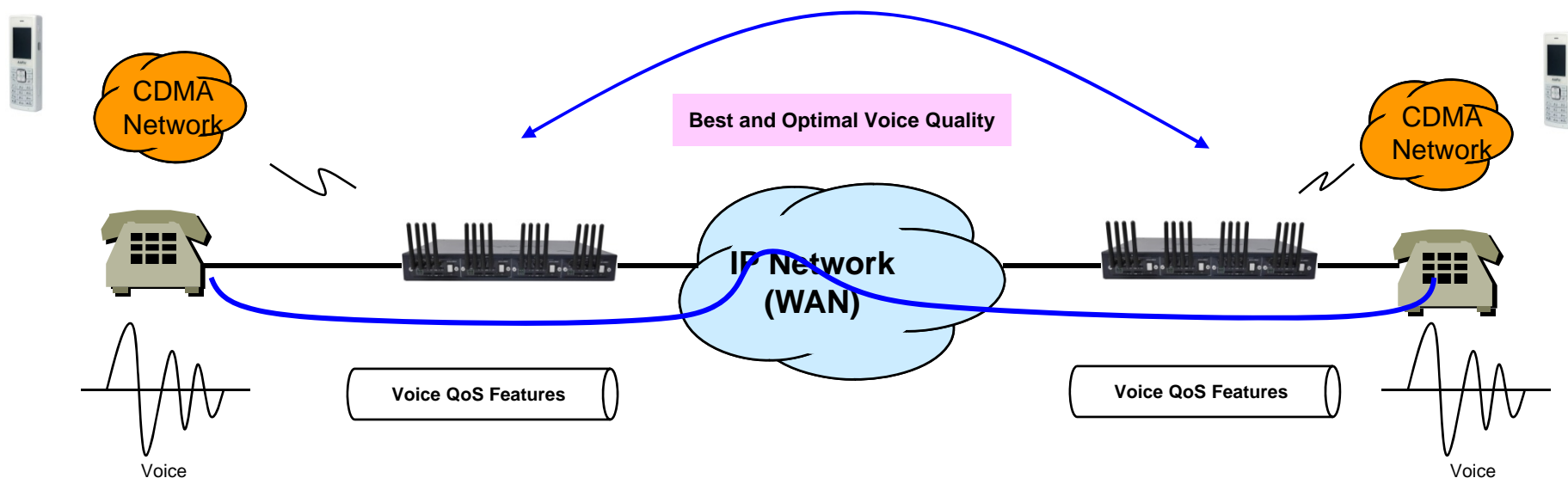




# Advanced QoS Features

## AP-GS2500 16-Port CDMA 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-GS2500 16-Port CDMA Gateway

## Basic Network Protocols

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

## Routing Protocol

- IPv4 : Static

## Service Protocol

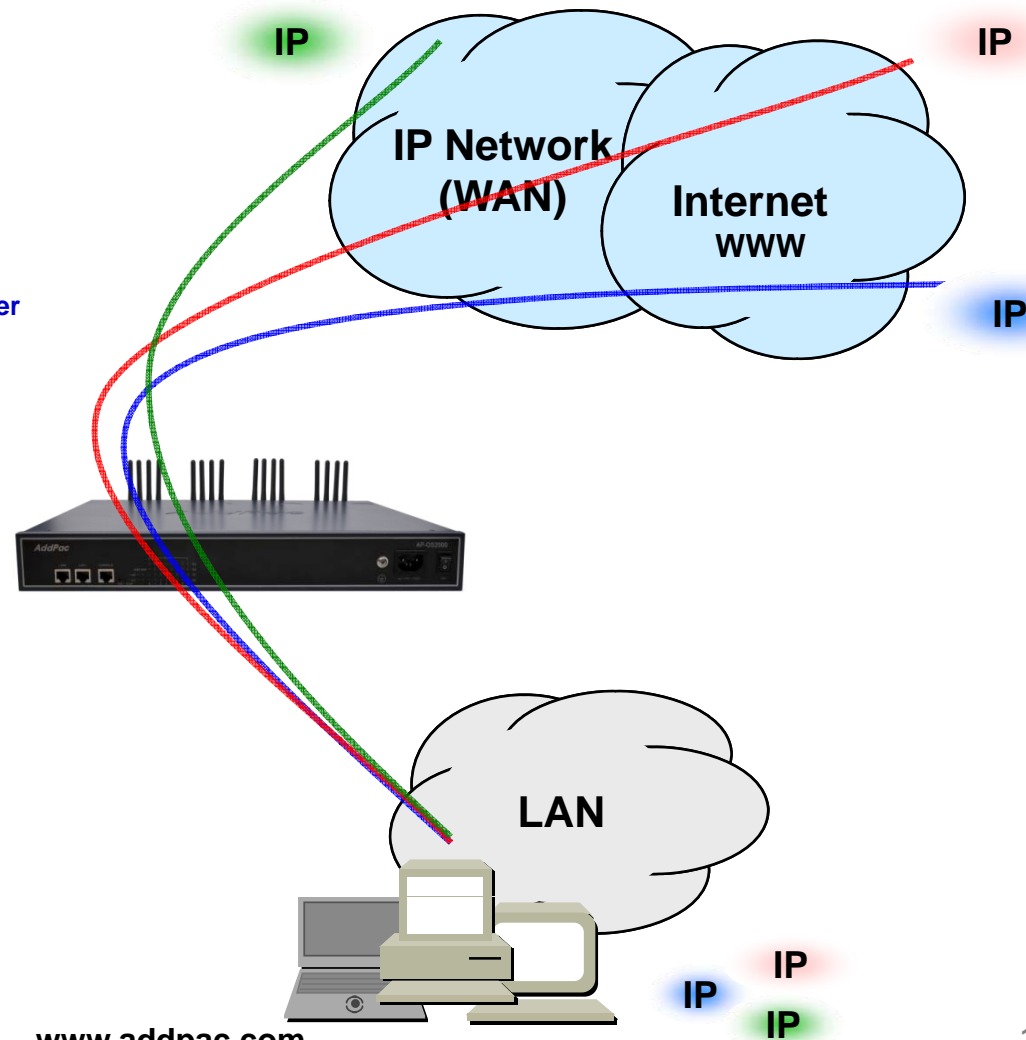
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

## 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-GS2500 16-Port CDMA Gateway

- **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**

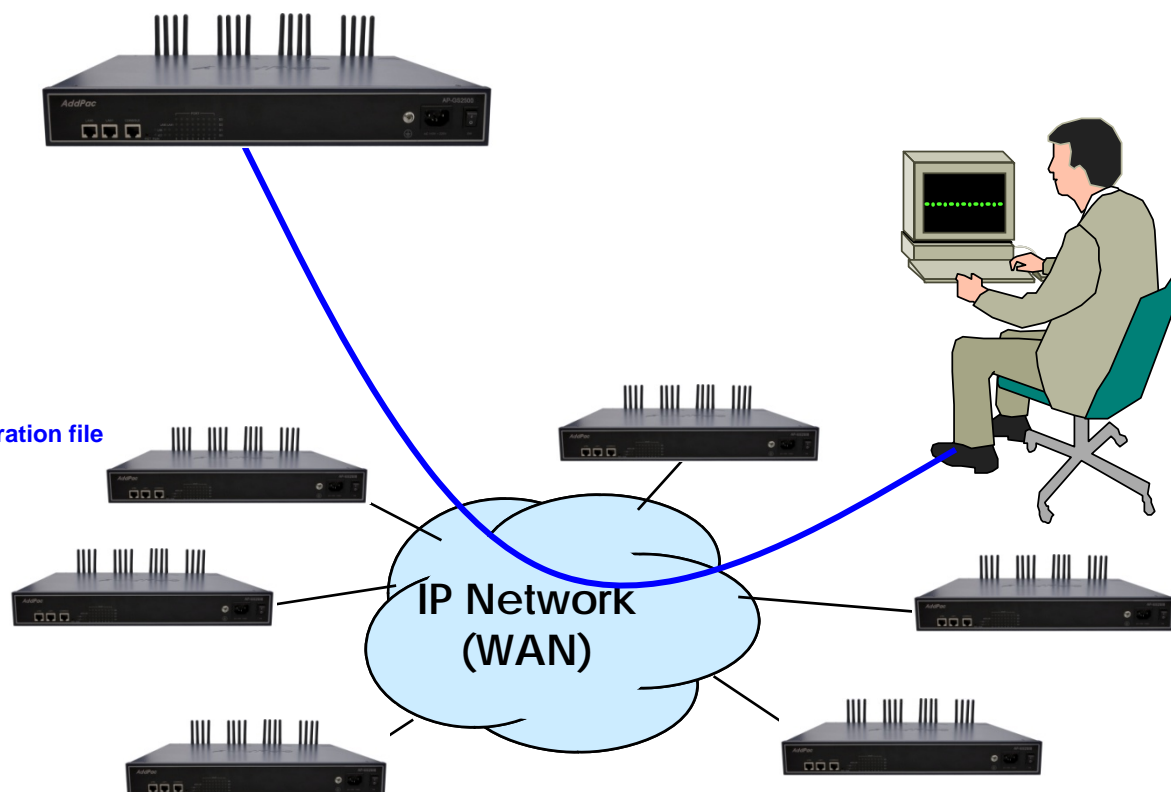
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

- **Interoperable with AP-VPMS Service**

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



# Smart Web Manager

## AP-GS2500 16-Port CDMA Gateway

- **System Configuration**
  - Network Setup, Language, NAT, PPTP, NTP
- **Basic Configuration**
  - Protocol, SIP Server , FXS Extension, GSM Extension
  - DTMF/CODEC, VoIP Dial Plan, GSM Dial Plan, Static Routing, Hot Line
- **Advanced Configuration**
  - Gain/CID, GSM PINs, FAX, Service, Filtering, Security
  - GSM Web Callback, GSM Callback
- **Miscellaneous Configuration**
  - Call Status, System Status, Alarm Status, GSM Status
  - Call Log, System Log, Ping, BTS Selection, GSM BTS Info
- **LCR(Least Cost Routing)**
  - Black & White List, Time Interval, Tariff Group, LCR Test
- **SMS**
  - Inbox, SMS New Message

# Smart Web Manager : Main Page Layout

AP-GS2500 16-Port CDMA Gateway

**Main Menu**  
For easy system setup, provide the various menu and category

- System
  - Network Setup
  - Language
  - NAT
  - PPTP
  - NTP
- Basic
  - Protocol
  - Server SIP
  - SIP Registration
  - FXS Extension
  - GSM Extension
  - DTMF/CODEC
  - VoIP Dial Plan
  - GSM Dial Plan
  - Static Route
  - Hot Line
- Advanced
  - Gain & CID
  - GSM PINs
  - Fax
  - Service
  - Filtering
  - Security
  - SNMP
  - WEB Callback
  - GSM Callback

**Tool Bar**  
Provide frequently used tools like as System Update, Configuration Backup, Initialization, Restart, Telnet

**Information**  
Display the current system version and status summary

**Description**  
Display the help message if you move mouse over main menu

**Workspace**  
Workspace for detailed action

System Information	
H/W Version	2.0
SW Version	8.00d
MAC Address	0002.a400.0000
VoIP Protocol	SIP
Voice Interface Module	G(2)S(2)
Registration Status	Registered
Supported Codec List	
Network Information	Static 172.16.9.16
WAN LINK Status	100Mbps FULL Duplex Link UP
LAN LINK Status	Link Down
Current Time	Fri Jan 1 01:49:57 2010
System Startup Time	Fri Jan 1 00:00:00 2010
	0 days 01:49:57
	0

**Information**  
AddPac Technology  
Model : GS1002\_G2  
H/W Version : 2.0  
S/W Version : 8.00d  
Smart Web Version : 0.4  
Smart Web Build : Mar 24 2010  
Voice Interface  
G(2)S(2)  
Protocol : SIP  
Status : Registered  
CurrentCalls: 0 Call  
Network : Static 172.16.9.16  
Mac Address: 0002.a400.0000  
Unread Message:  
P0:0(0)  
P0:1(0)

**Description**

# Smart Web Manager : System – Network Setup

## AP-GS2500 16-Port CDMA Gateway

The screenshot shows the 'Network Setup' page in the Smart Web Manager interface. The page is divided into several sections, each with a radio button for selection. The 'Static IP' section is currently selected. The 'Information' panel on the right provides details about the device and network status. The 'Description' panel at the bottom right explains the 'UnRead SMS Messages' status.

**Host Name**  
Create a representative name for the site to be installed

**Static IP**  
This is static IP mode. Specify the addressed IP from the service provider

**Static IP**  
IP Address: 172.16.9.16 A.B.C.D  
Network Mask: 255.255.0.0 A.B.C.D  
Default Router: 172.16.1.1 A.B.C.D  
DNS Server: [ ] Primary DNS Server  
[ ] Secondary DNS Server

**PPPoE**  
This is ADSL mode. This mode is used for addressing IP through authentication from the modem. At this time, the modem must be configured in a way that the device can be authenticated.

**PPPoE(ADSL)**  
Username: [ ]  
Password: [ ]

**DHCP**  
This is dynamic IP mode which is set at default. The IP can be addressed from the external DHCP server.

**VLAN**  
Configure VLAN mode and ID.

**VLAN**  
ID: [0]

**WAN Link**  
Controls and recognizes WAN port. Specify the connection speed of WAN port. connection automatically.

**WAN Link Control**  
Auto (selected)  
Manual  
Speed: 100 (selected), 10  
Duplex: full (selected), half

**MAC**  
Change MAC address of WAN interface. Without address entry, use the basic MAC Address.

**MAC(Hardware) Address**  
[ ]-[ ]-[ ]-[ ]-[ ]-[ ]

**Information**  
AddPac Technology  
Model : GS1002\_G2  
H/W Version : 2.0  
S/W Version : 8.00d  
Smart Web Version : 0.4  
Smart Web Build : Mar 24 2010  
Voice Interface  
G(2)S(2)  
Protocol : SIP  
Status : Registered  
CurrentCalls : 0 Call  
Network : Static 172.16.9.16  
Mac Address : 0002.a400.0000  
Unread Message:  
P0:0(0)  
P0:1(0)

**Description**  
This command sets up WAN port. The static IP address is to be assigned to the WAN port. The static IP address of the device can be changed. MAC Address change can be used only when necessary. It is recommended to use the address created by the user not the address of the device

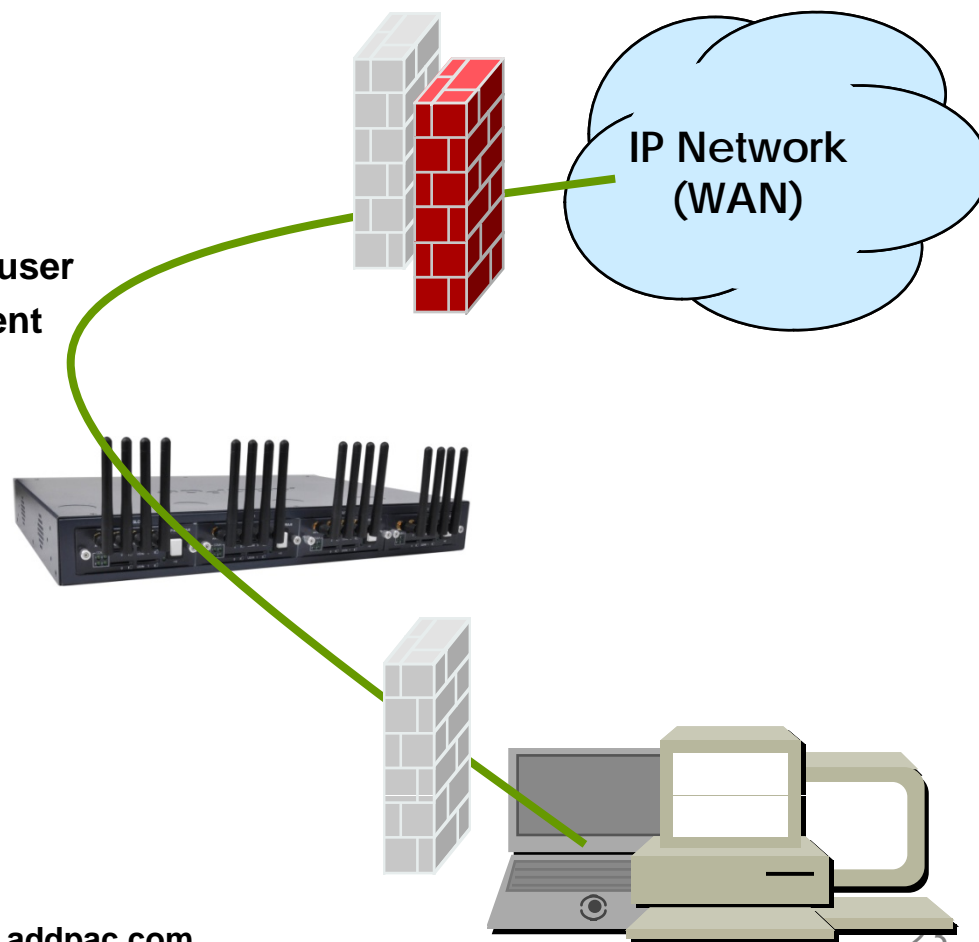
**UnRead SMS Messages**

Apply

# Security Management

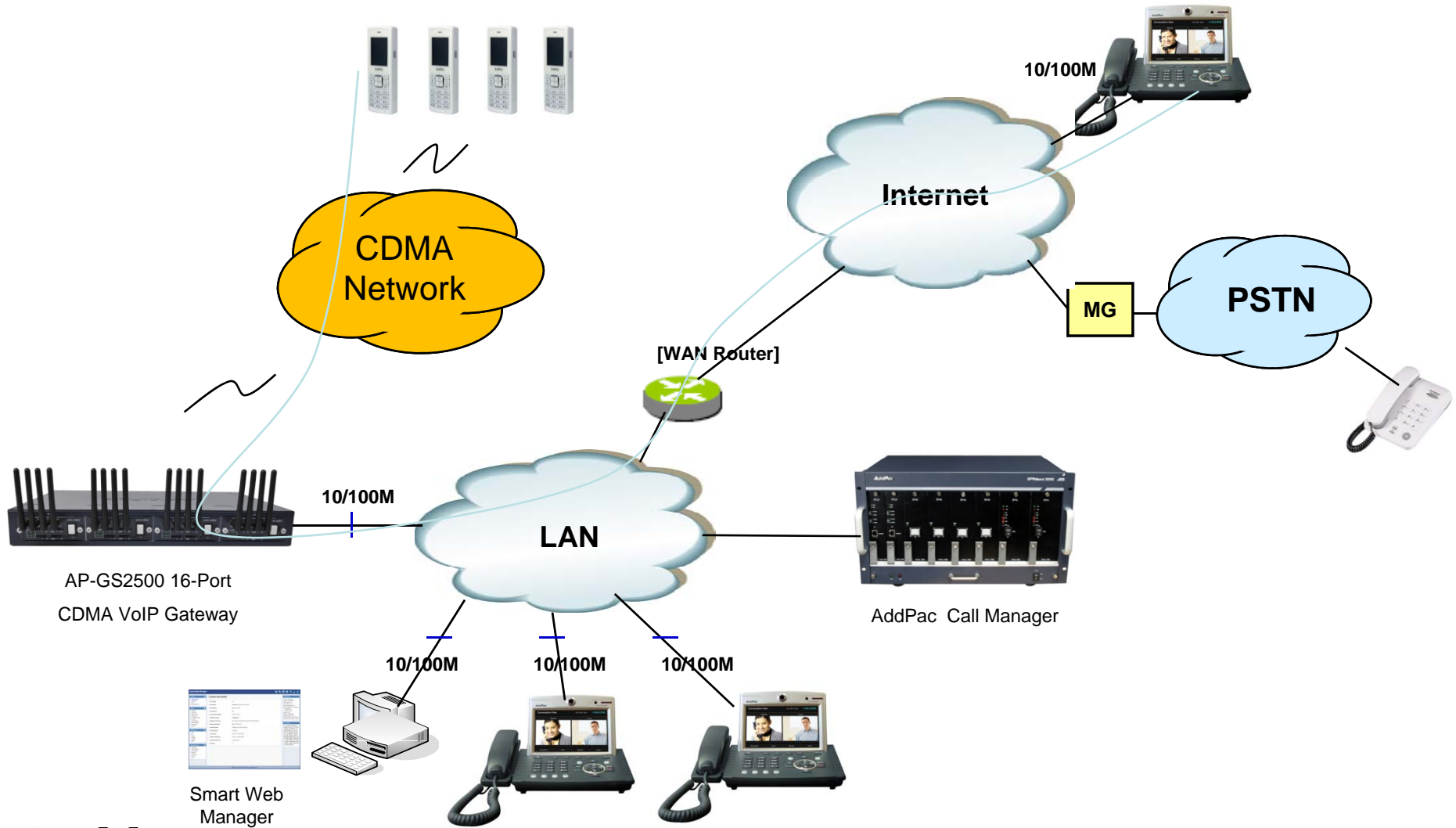
## AP-GS2500 16-Port CDMA Gateway

- 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 (CDMA Only)

## AP-GS2500 16-Port CDMA Gateway





# Ordering Information

- **AP-GS2500 CDMA Gateway Hardware**
  - AP-GS2500 CDMA Gateway Main Body
  - Four(4) Module Slots for CDMA Interface
  - RISC Microprocessor with High-end Programmable DSP Architecture
  - 2-port 10/100Mbps Fast Ethernet(RJ45)
  - 1-Port RS232C Console Interface(RJ45)
  - Option Module : AP-N1-CDMA4I, AP-N1-GSM4I AP-N1-FXS8, AP-N1-FXO8,AP-N1-FXS4O4 etc
  - Including Network Cable, Antenna, etc.
- **Built-in APOS Internetworking Software for AP-GS2500**
- **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](http://www.addpac.com)

# CDMA Gateway Series

# Thank you!

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