



# AP-GS3100

## 16-Port Front-SIM Type Multi-SIM GSM VoIP Gateway

High Performance Multi-SIM GSM VoIP Gateway Solution



8 SIM Card Slots/ GSM Port  
32 SIM Card Slots/ 4-Port GSM Module

**AddPac**

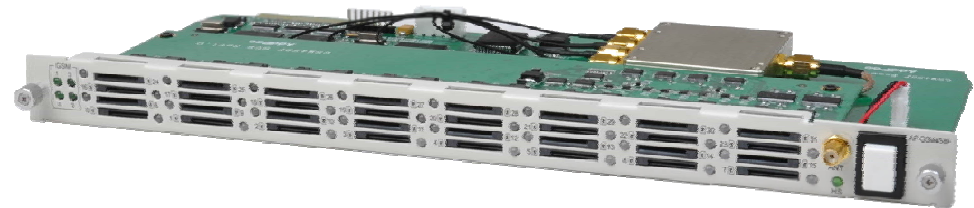
**AddPac Technology**

Sales and Marketing

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

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# Product Overview

## AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

- Quad(4) Module Slots for GSM Module (Up to 16-Port GSM)
- High Density Front SIM type Multi-SIM GSM Module (4-Port GSM, 8SIM/GSM Port)
- One(1) CPU Module Slot
- H.323/SIP Dual Concurrent Stack Embedded
- High Performance RISC & Programmable DSP Architecture
- G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- 10/100/1000Mbps Gigabit Ethernet Interface
- One(1) RS-232C Port for Command Line Interface
- Firmware Upgradeable Architecture
- NMS(Network Management System) Support
- Advanced Voice QoS Mechanism
- Rack Mountable Chassis with Internal Power Supply
- Smart Web Manager for System Control

# Product Highlights

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

**Powerful Front SIM Type Multi-SIM GSM Gateway  
(up to 16 Channel GSM Interface)**

**State-of-art Signaling  
H.323, SIP  
Concurrent Dual Stack**

**Rack Mountable Chassis  
with Module Type Power Supply**

**Quad(4) Module Slot  
8 SIM 4-Port GSM Module**

**High Performance RISC CPU  
+ Programmable DSP**

**Excellent Voice Quality  
G.729/G.723/G726/G711**

**Broadband IP Networking  
with Two(2) 10/100/1000Mbps  
Gigabit Ethernet**

**APOS™ Technology  
Firmware Upgradeable Architecture**

**NMS (Network Management  
System) & Smart Web Manager  
Support**

**Powerful Network Protocol  
Support**

**Powerful Trouble Shooting &  
Debugging Feature Support**

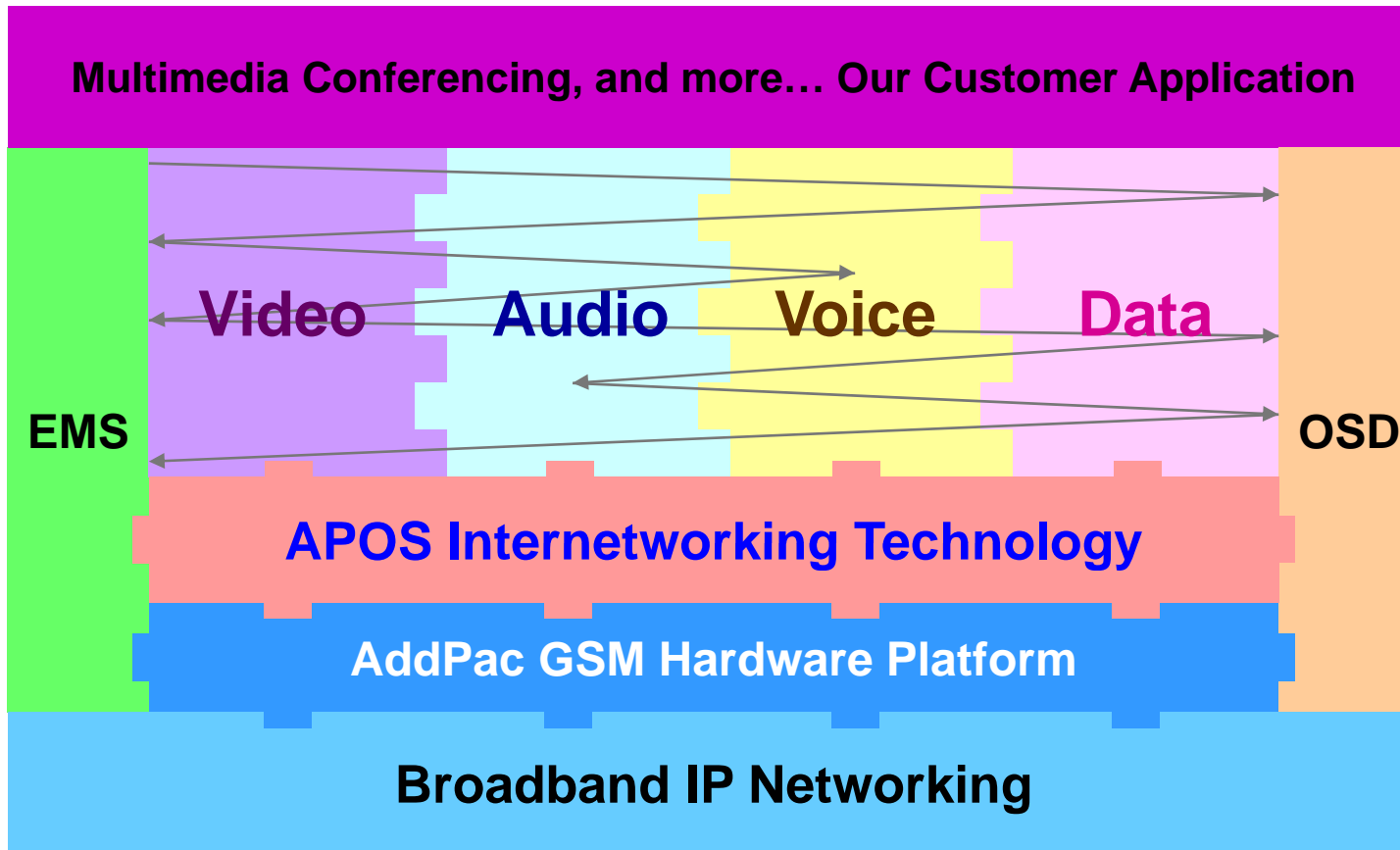
**Advanced Voice  
Traffic QoS Mechanism**

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# APOS Technology

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway



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

# Hardware Specification

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

RISC  
CPU

High-end  
DSP

- RISC Microprocessor Computing Power
- Quad(4) Module Slot for GSM VoIP Interface
- Up to 128 SIM Card Slots, 32 SIM card slots/ a GSM module
- 4-Port GSM Module(AP-N1-GSM4S8F)
  - 4-Port GSM Module
  - 8 SIM Slots / a GSM Port , 32 SIM Slots / a GSM Module
  - Single GSM Antenna Interface (Internal 4 Channel Antenna Combiner x 1)
  - Hot-Swap
- Network Interface
  - Two(2) 10/100/1000Mbps Gigabit Ethernet (RJ45)
- RS232C Console Interface for CLI
- Run LED, LAN LED, Port LEDs
- Internal Power Supply

# Hardware Specification

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

RISC  
CPU

High-end  
DSP

AP-GS3100 Front SIM Type Multi-SIM GSM VoIP Gateway	Basic Specifications
Voice Interface	Quad(4) Module Slots for GSM VoIP Module
	AP-N1-GSM4S8F
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	512Mbyte Flash Memory
Base Memory	128MB DDR2
Power Requirement	Power Supply / VAC 110~220V, 50/60Hz, 40Watt
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 (135mm x 380mm x 298mm)
Weight(kg)	7.2Kg

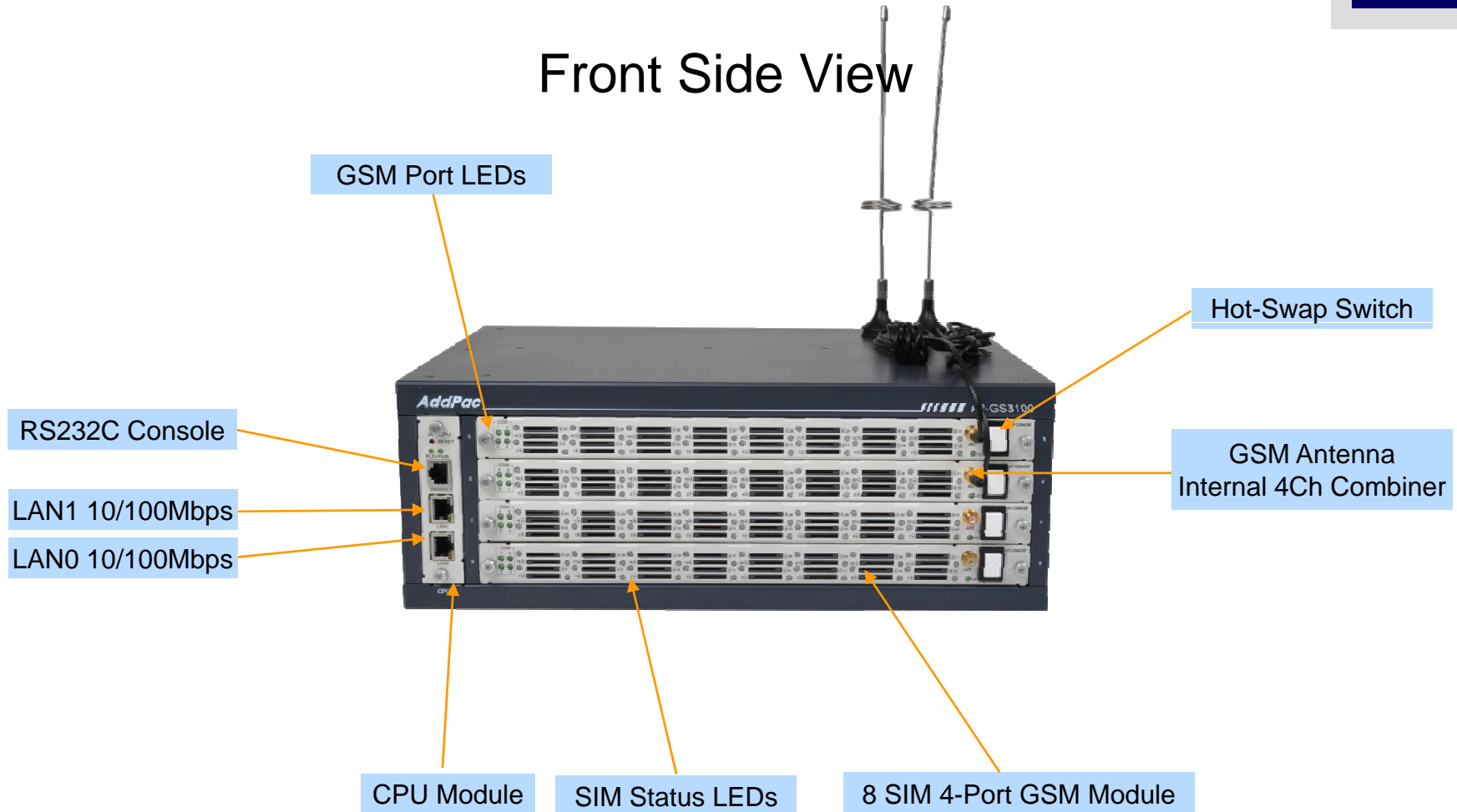
# Hardware Specification

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

RISC  
CPU

High-end  
DSP

## Front Side View





# Hardware Specification

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

RISC  
CPU

High-end  
DSP

Back Side View



# Hardware Specification

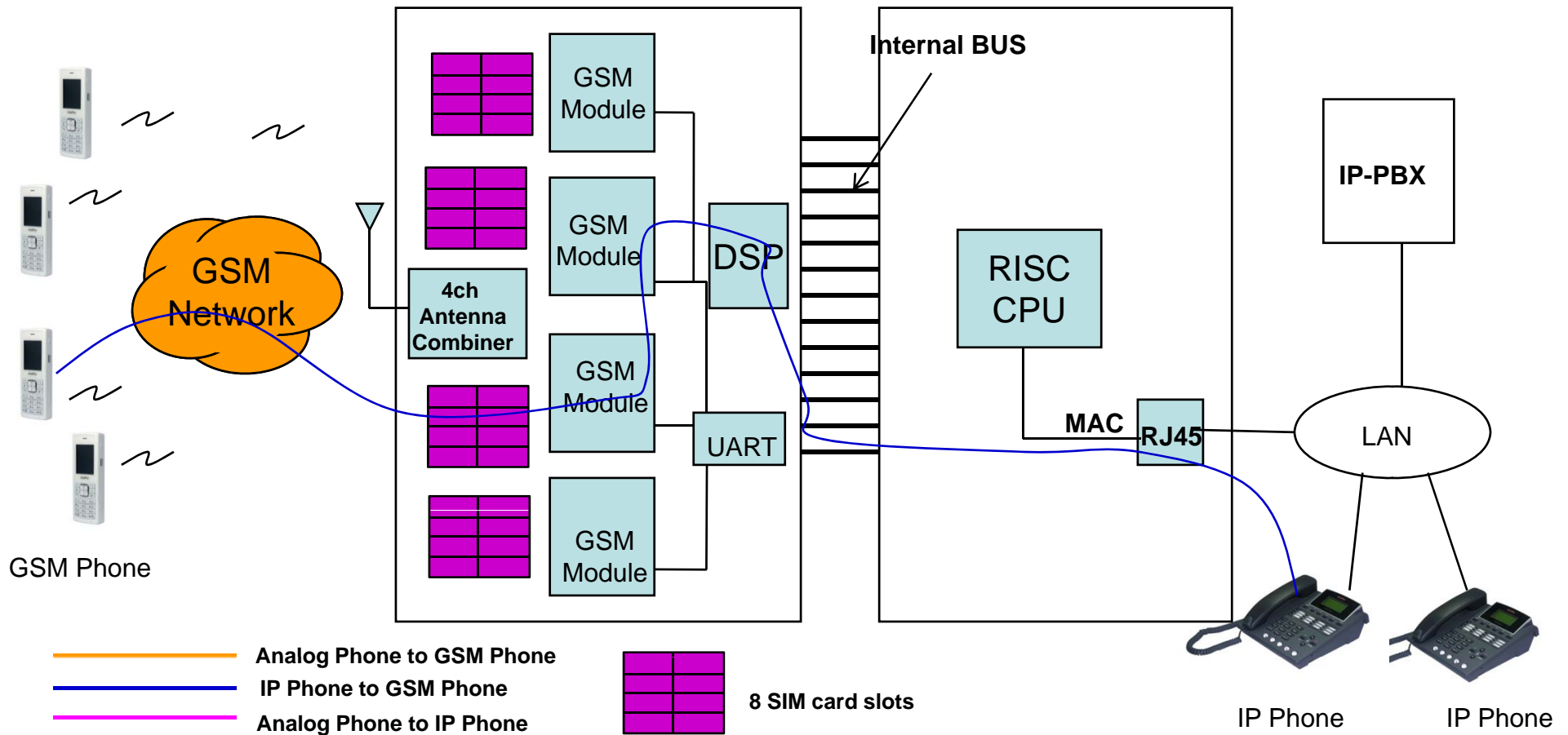
AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

RISC  
CPU

High-end  
DSP

## GSM Gateway Service Diagram

AP-N1-GSM4S8F 8 SIM 4-Port GSM Module Internal H/W Block Diagram



# Hardware Specification

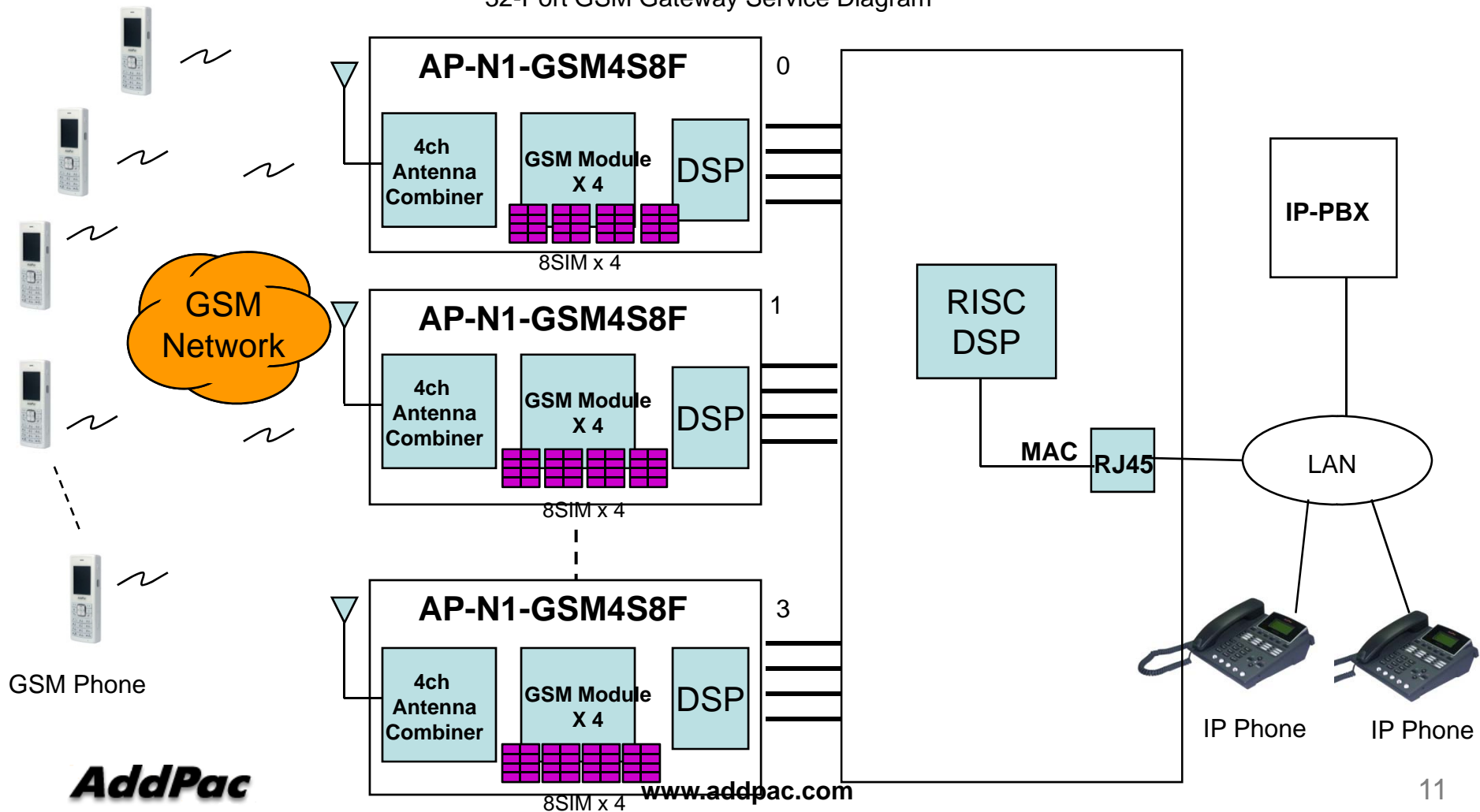
AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

RISC  
CPU

High-end  
DSP

## GSM Gateway Service Diagram

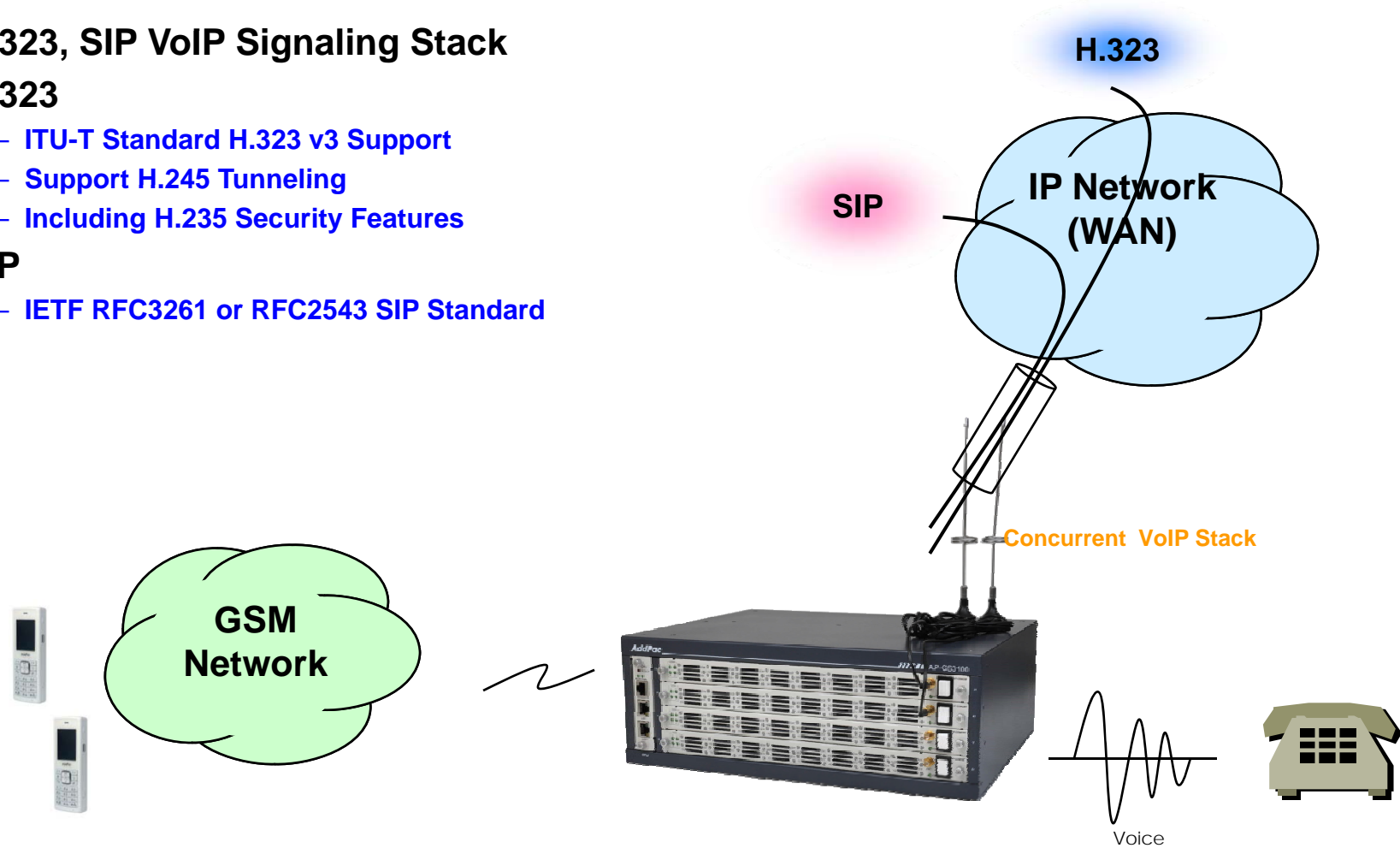
32-Port GSM Gateway Service Diagram



# VoIP (Voice over IP) Service

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP 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-GS3100 Front-SIM Type Multi-SIM GSM 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

# VoIP (Voice over IP) Service

## AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

- **Voice Codec**

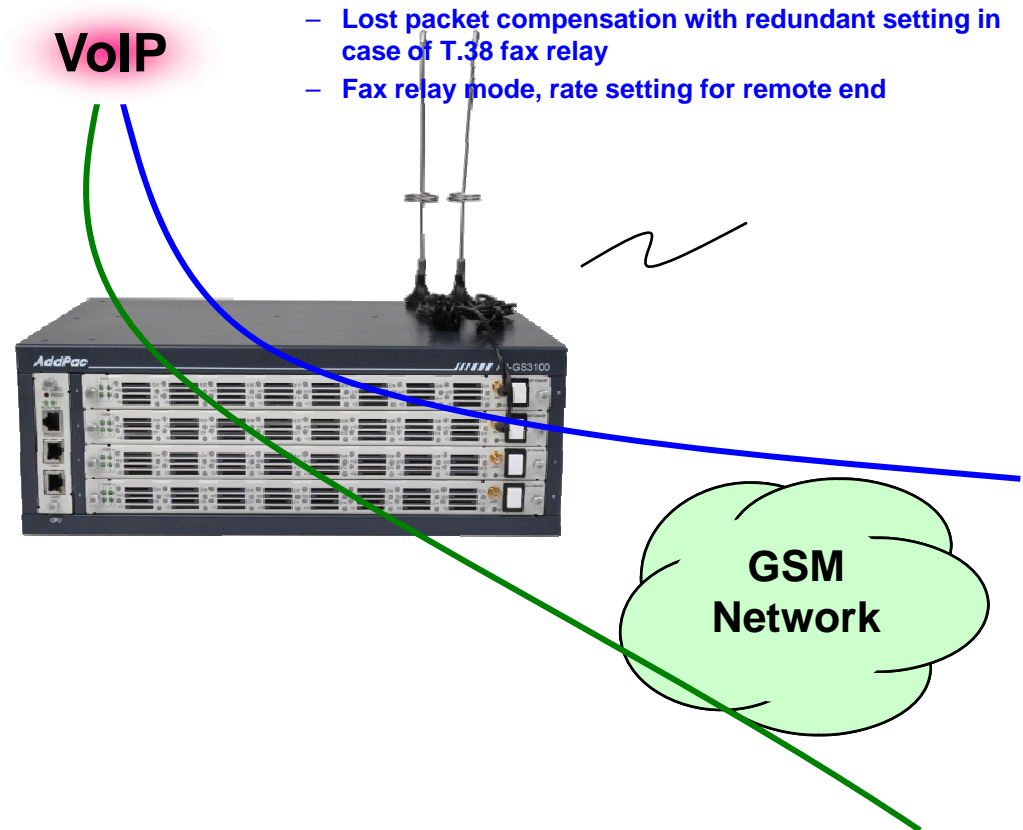
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **RTP**

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

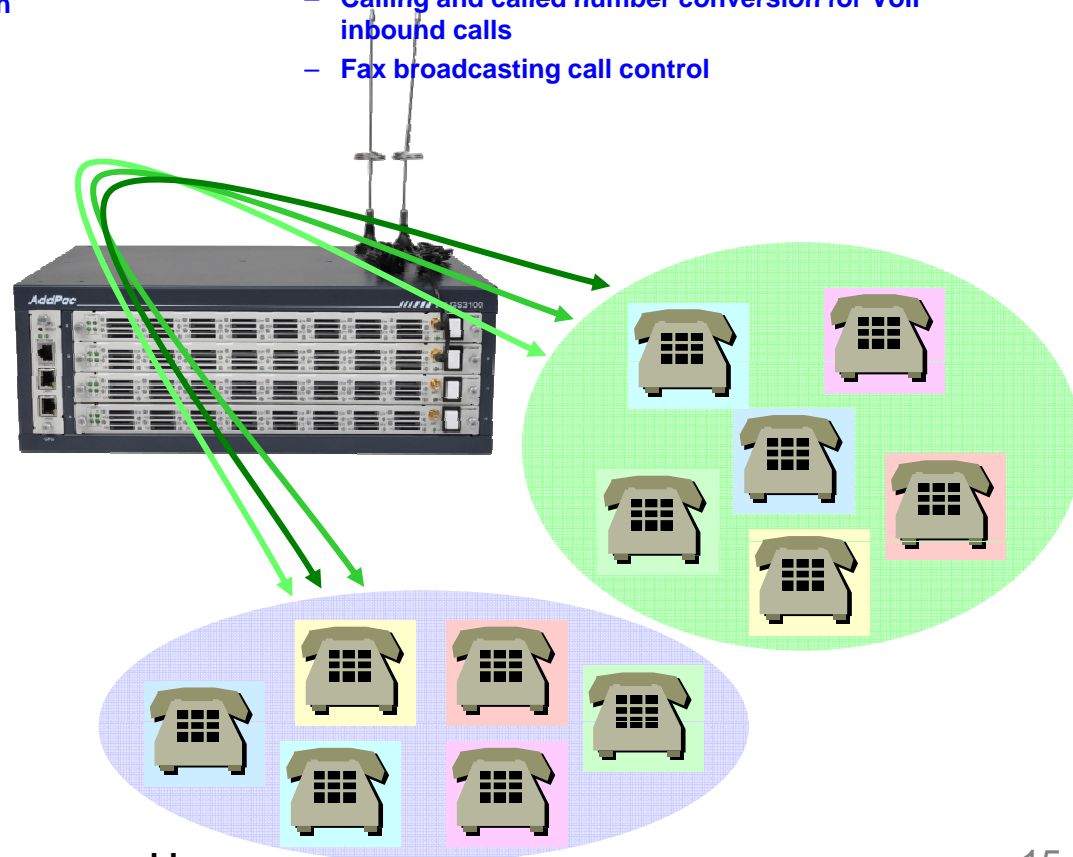
AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

## • 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
- 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.)

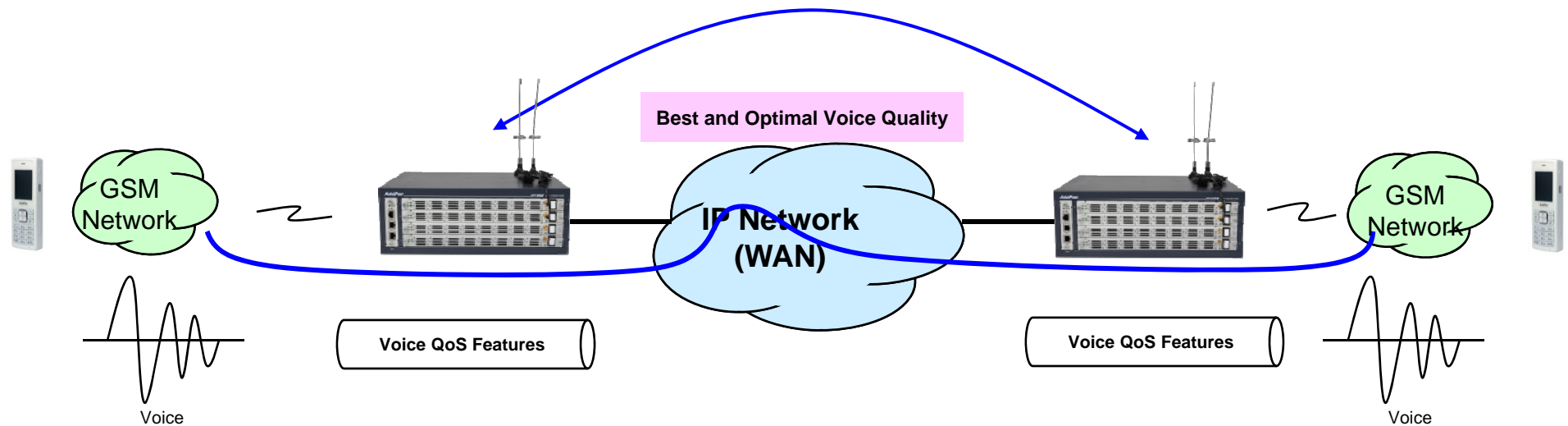
- Call transfer for internal calls
- Call pickup for internal calls
- Calling and called number conversion for VoIP outbound calls
- Calling and called number conversion for VoIP inbound calls
- Fax broadcasting call control



# Advanced QoS Features

AP-GS3100 Front-SIM Type Multi-SIM GSM 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

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

## Basic Network Protocols

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

## Routing Protocol

- IPv4 : Static

## Service Protocol

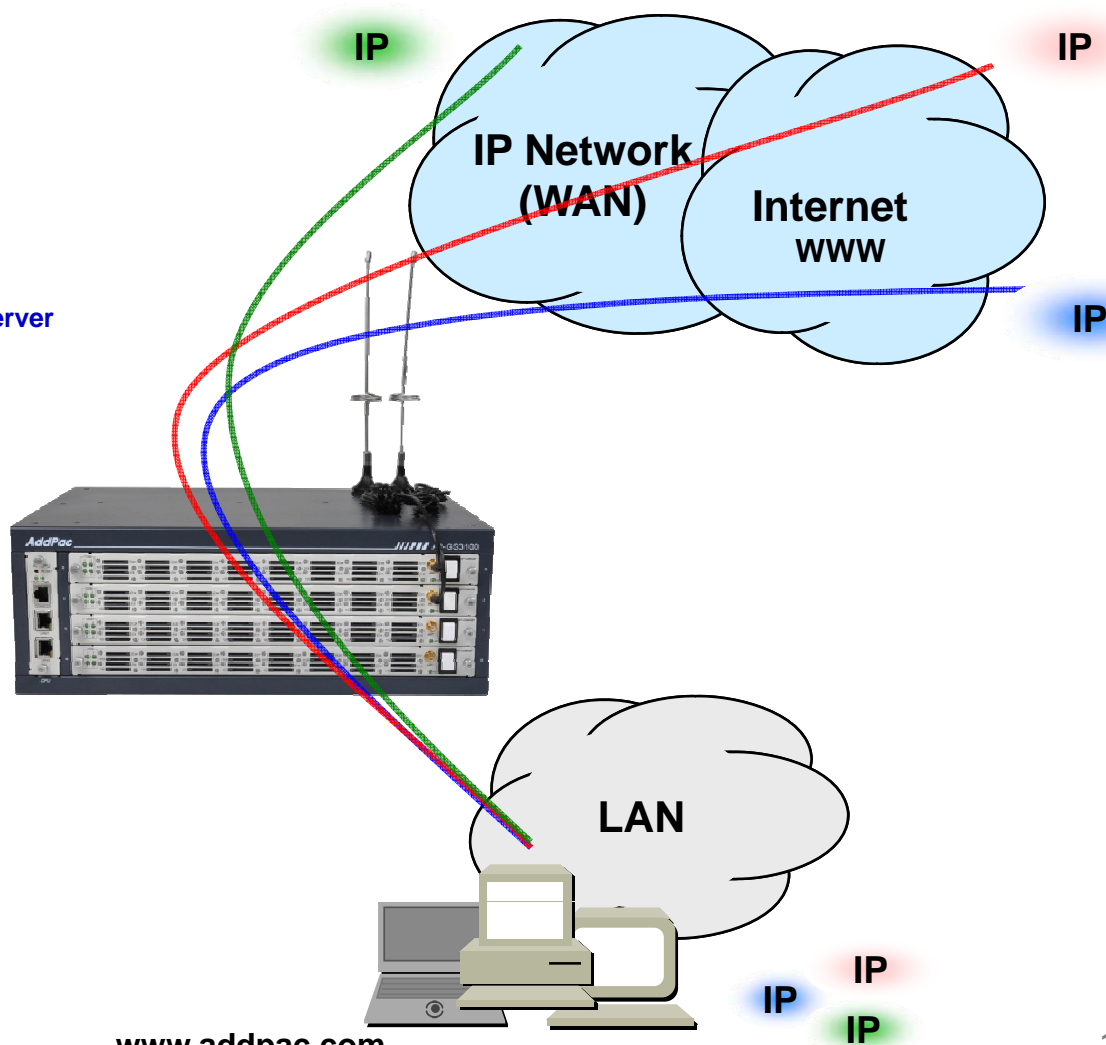
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

## 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



# Network Management

## AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP 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**

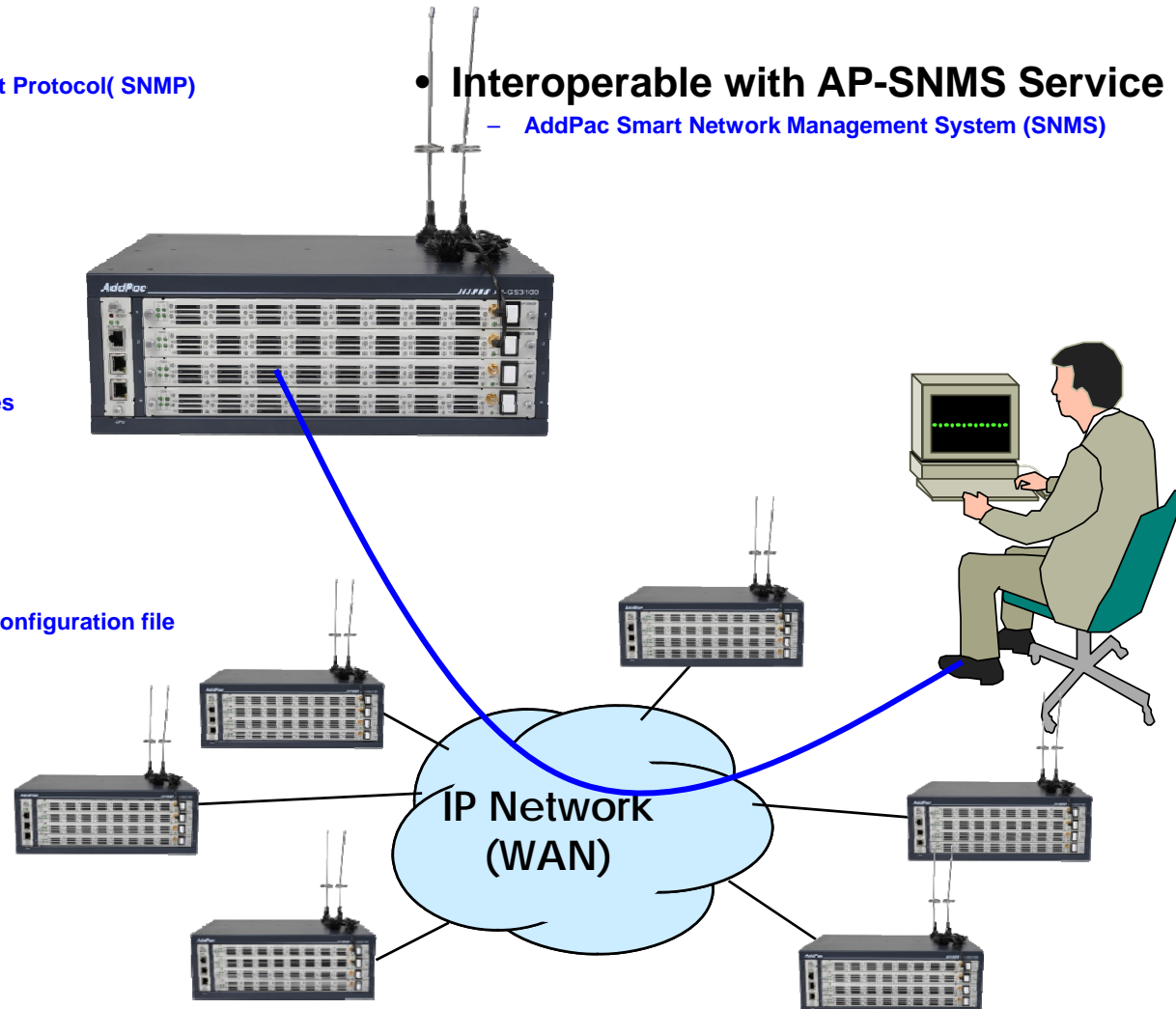
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

- **Interoperable with AP-SNMS Service**

- AddPac Smart Network Management System (SNMS)



# Smart Web Manager

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP 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-GS3100 Front-SIM Type Multi-SIM GSM VoIP 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

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

**Workspace**  
Workspace for detailed action

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

**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-GS3100 Front-SIM Type Multi-SIM GSM VoIP 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:

- Static IP:** Selected. Fields include Hostname (GS1002), IP Address (172.16.9.16), Network Mask (255.255.0.0), Default Router (172.16.1.1), and DNS Server (Primary and Secondary).
- PPPoE(ADSL):** Unselected. Fields include Username and Password.
- DHCP:** Unselected.
- VLAN:** Unselected. Field includes ID (0).
- WAN Link Control:** Set to Auto. Options for Speed (100, 10) and Duplex (full, half).
- MAC(Hardware) Address:** Six empty input fields.

On the right side, there is an 'Information' panel and a 'Description' panel. The 'Information' panel shows device details like Model (GS1002\_G2) and Network (Static 172.16.9.16). The 'Description' panel contains a note about WAN port setup and MAC address changes.

Yellow callout boxes on the left provide detailed explanations for each configuration option:

- 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.
- PPPoE:** This is ADSL mode. This mode is used for addressing IP though authentication from the modem. At this time, the modem must be configured in a way that the device can be authenticated.
- 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.
- WAN Link:** Controls and recognizes WAN port. Specify the connection speed of WAN port. connection automatically.
- MAC:** Change MAC address of WAN interface. Without address entry, use the basic MAC Address.

An additional callout box on the right points to the 'Unread Message' section in the Information panel, which shows 'Unread SMS Messages'.

# Smart Web Manager : Basic – GSM Extension

## AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

**Port Information**  
voice port type & physical port

**GSM Extension**  
Configure GSM phone-number for receiving a call  
(usually 'T' is used for each port)

**GSM Extension with Translation**  
Used to GSM callback  
- The Received CID is not real serving number.  
- The specified translation rule is applied.

**System**

- Network Setup
- Language
- NAT
- PPTP

**Advanced**

- Gain & CID
- GSM PINs
- Fax
- Service
- Filtering
- Security
- SNMP
- WEB Callback
- GSM Callback

**Miscellaneous**

- Call Status
- System Status
- Alarm Status
- GSM Status
- Call Log
- System Log
- Ping
- BTS Selection
- GSM BTS Info

**GSM Extension**

**Port Information**

Port	P0	P1	P2	P3
SLOT0	GSM	GSM	FXS	FXS

**GSM Extension Configuration**

Index	Port	Numbers	Preference	HuntStop	Select
0	0/0	T	0	X	<input type="checkbox"/>

**GSM Extension with Translation**

Port	Destination Pattern	Digits to Insert	Number of Digits to Delete
P0:0	33	8	1
P0:1			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 : Unregistered  
CurrentCalls : 0 Call  
Network : Static 172.16.9.16  
Mac Address : 0002.a400.0000  
Unread Message:  
P0:0(0)  
P0:1(0)

**Description**

Set up for using GSM port to extension number (forwarding No)



# Smart Web Manager : Miscellaneous – GSM BTS Info

## AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

Smart Web Manager

www.addpac.com

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

Miscellaneous

- Call Status
- System Status
- Alarm Status
- GSM Status
- Call Log
- System Log
- Ping
- BTS Selection
- GSM BTS Info

GSM BCCH Cell Information

PORT 0:0

PORT 0:1

**BCCH Cell Information**  
Shows serving cell information ( center circle) and neighboring cell information.

- \* LAC : Location Area Code
- \* CI : Cell ID
- \* BSIC : Basic Station ID Code
- \* BCCH : Broadcast Control Channel
- \* RSSI : Receiver Signal Strength

Information

AddPac Technology  
Model : GS1002\_G2  
HW Version : 2.0  
SW Version : 8.00d  
Smart Web Version : 0.4  
Smart Web Build : Mar 24 2010  
Voice Interface  
G(2)S(2)  
Protocol : SIP  
Status : Unregistered  
CurrentCalls : 0 Call  
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Mac Address: 0002.a400.0000  
Unread Message:  
P0:0(0)  
P0:1(0)

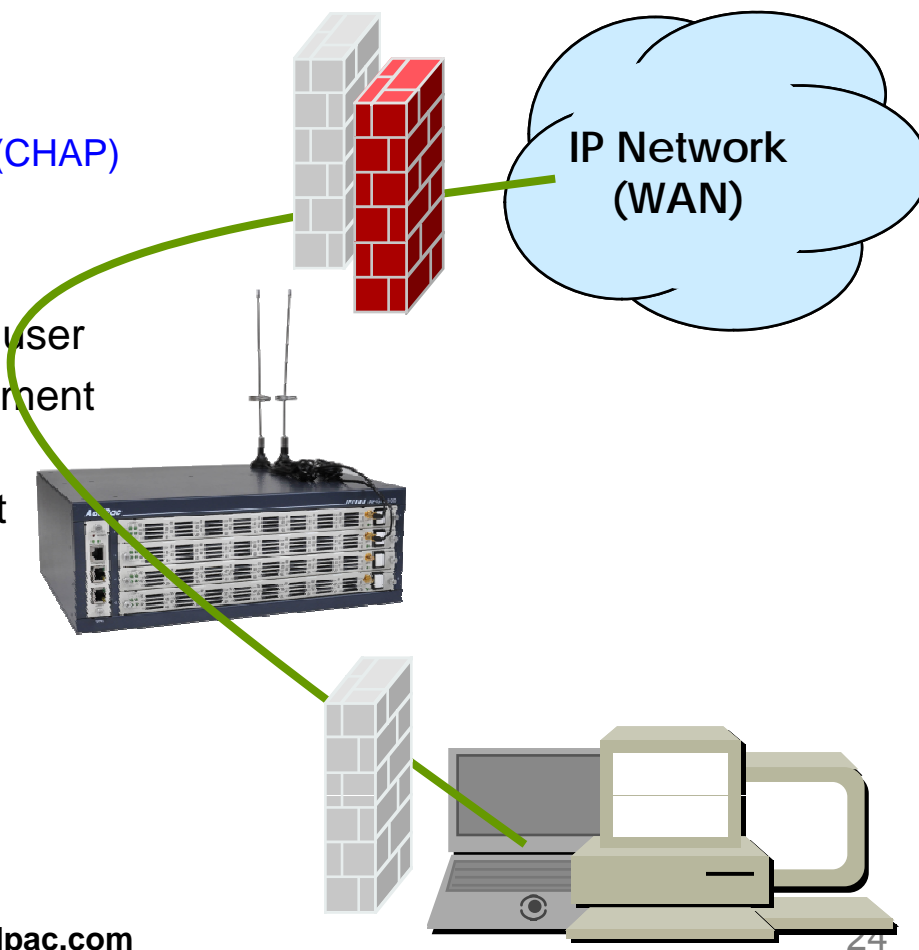
Description

Verify GSM wireless signal status

# Security Management

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway

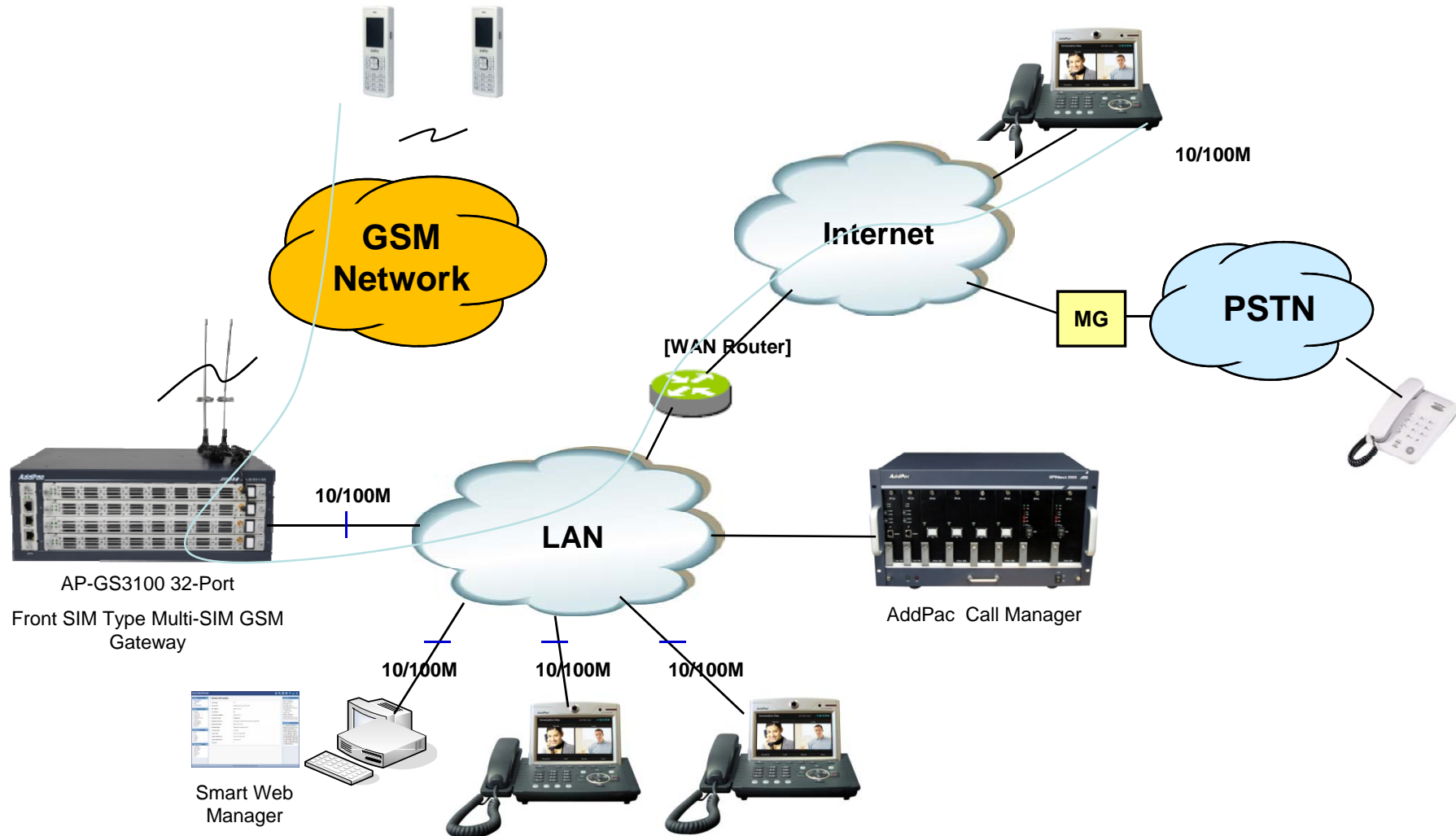
- IP packet filtering
- IP access list
- User authentication function
  - Password Authentication Protocol (PAP)
  - Challenge Handshake Authentication Protocol (CHAP)
- Enable/Disable specific protocols
- Auto-square connect of Telnet session
- Account Management function for multi-level user
- SNMP/TELNET/FTP/HTTP/TFTP port assignment function
- SNMP/TELNET/FTP access list management
- Boot mode security checking function





# Standard Application (GSM Only)

AP-GS3100 Front-SIM Type Multi-SIM GSM VoIP Gateway



# Ordering Information

- **AP-GS3100 Multi-SIM GSM VoIP Gateway Hardware**
  - AP-GS3100 GSM VoIP Gateway Main Body
  - Quad(4) Module Slots for AP-N1-GSM4S8F GSM Module
  - One(1) CPU Module Slot
  - 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-GSM4S8F, etc
  - Including Network Cable, Antenna, etc.
- **Built-in APOS Internetworking Software for AP-GS3100**
- **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)

# GSM Gateway Series

# Thank you!

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