



# AP-3G1002

## 2-Port 3G Gateway

High Performance 3G Gateway Solution

### Preliminary Product Overview

(Without notice, following described technical spec. can be changed)



# **AddPac**

## AddPac Technology

Sales and Marketing

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

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- Product Overview
- Hardware Specification
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# Product Overview

## AP-3G1002 2-Port 3G Gateway

- Analog Interface (FXS or FXO)/VoIP Interface(LAN) Both Support
- 2-Port 3G Analog Gateway Service
- 2-Port 3G VoIP Gateway Service
- H.323/SIP Dual Concurrent Stack Embedded
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- LAN Interface for 3G Data Service
- 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
- VPMS (VoIP Plug&Play Management System) for Large Scale Deployment
- Advanced Voice QoS Mechanism
- Light and Compact Design with External Power Supply

# Product Highlights

AP-3G1002 2-Port 3G Gateway

## Powerful 3G Gateway

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

Light and  
Compact Design

Analog interface,  
VoIP Interface Both  
Support

High Performance RISC CPU  
+ Programmable DSP

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

Broadband IP Networking  
With dual 10/100Mbps  
Fast Ethernet

APOS™ Technology  
Firmware Upgradeable Architecture

VPMS Large Scale VoIP  
Gateway Management Support

Powerful Network Protocol  
Support

Powerful Trouble Shooting &  
Debugging Feature Support

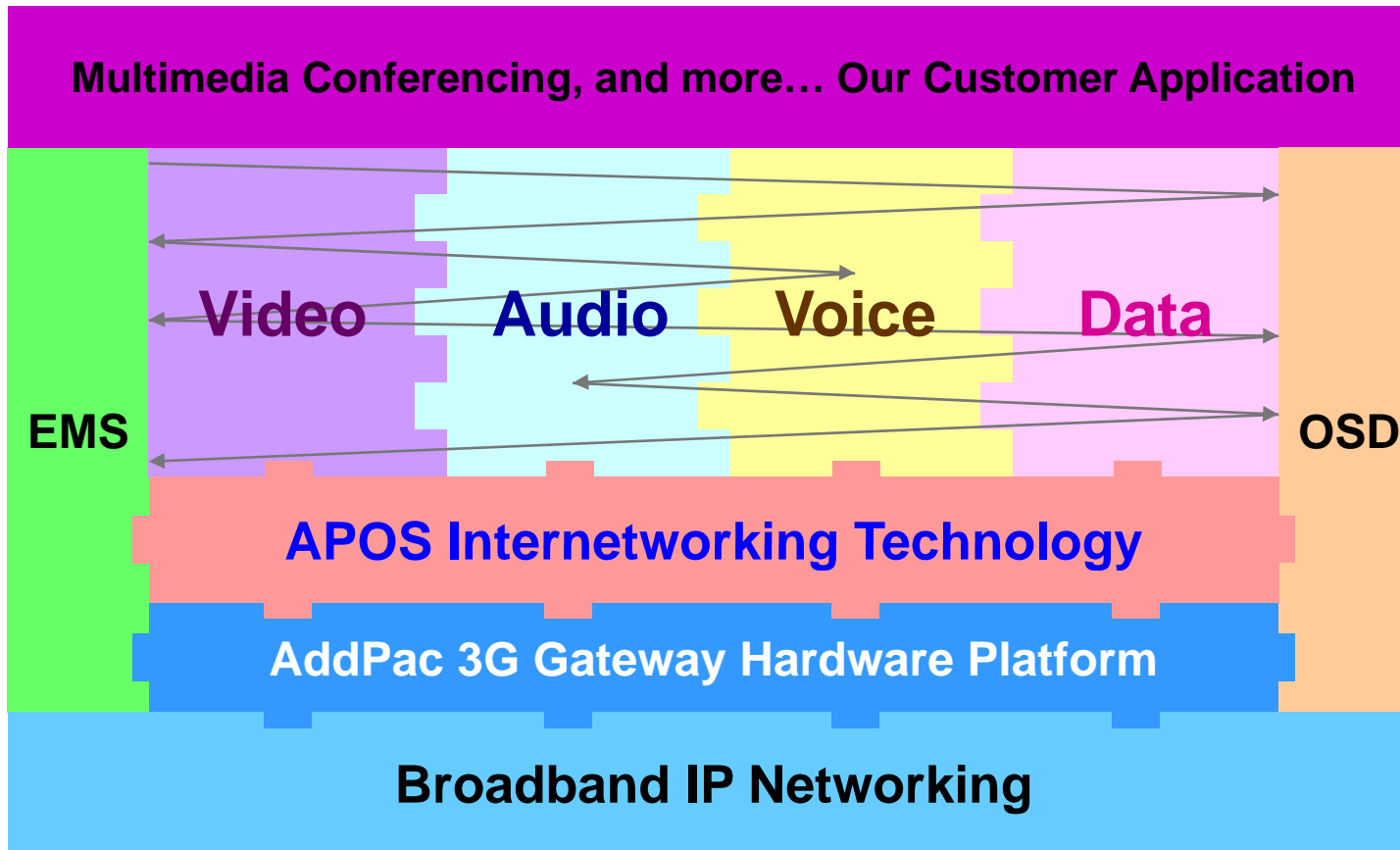
Advanced Voice  
Traffic QoS Mechanism

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# APOS Technology

AP-3G1002 2-Port 3G Gateway



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

# Hardware Specification

## AP-3G1002 2-Port 3G Gateway

RISC  
CPU

High-end  
DSP

- RISC Microprocessor Computing Power
- 2-Port 3G Gateway
- 2-Port USIM Card Slot
- 2-Port 3G Antenna Interface
- VoIP Analog Interface
  - AP-3G1002 Model A: None
  - AP-3G1002 Model B: Two(2) FXS Port
  - AP-3G1002 Model C: Two(2) FXO Port
- Network Interface for VoIP Direct Interface
  - Two(2) 10/100Mbps Fast Ethernet (RJ45)
- Run LED, LAN LED, Port LEDs
- External Power Supply

# Hardware Specification

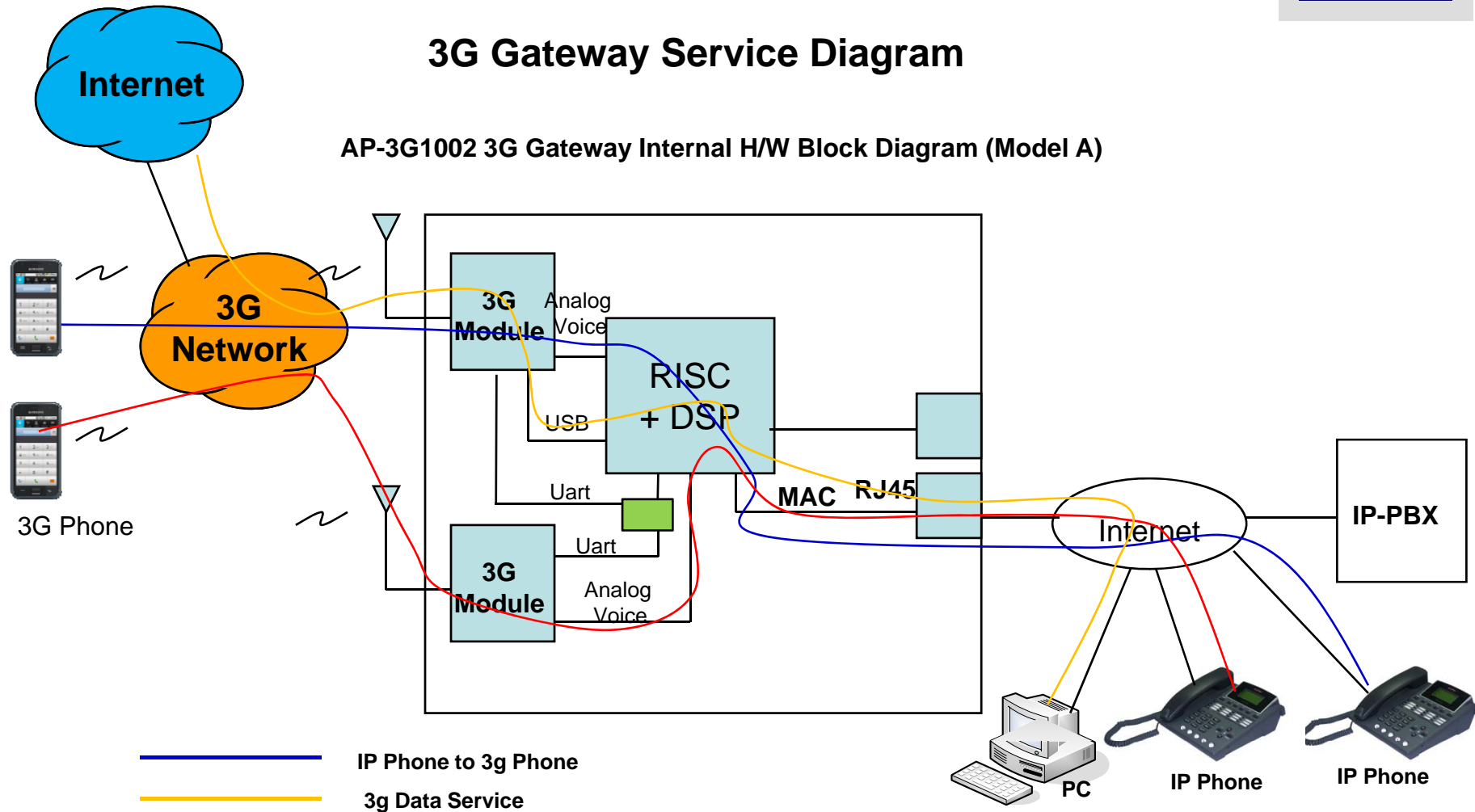
AP-3G1002 2-Port 3G Gateway

RISC  
CPU

High-end  
DSP

## 3G Gateway Service Diagram

AP-3G1002 3G Gateway Internal H/W Block Diagram (Model A)



# Hardware Specification

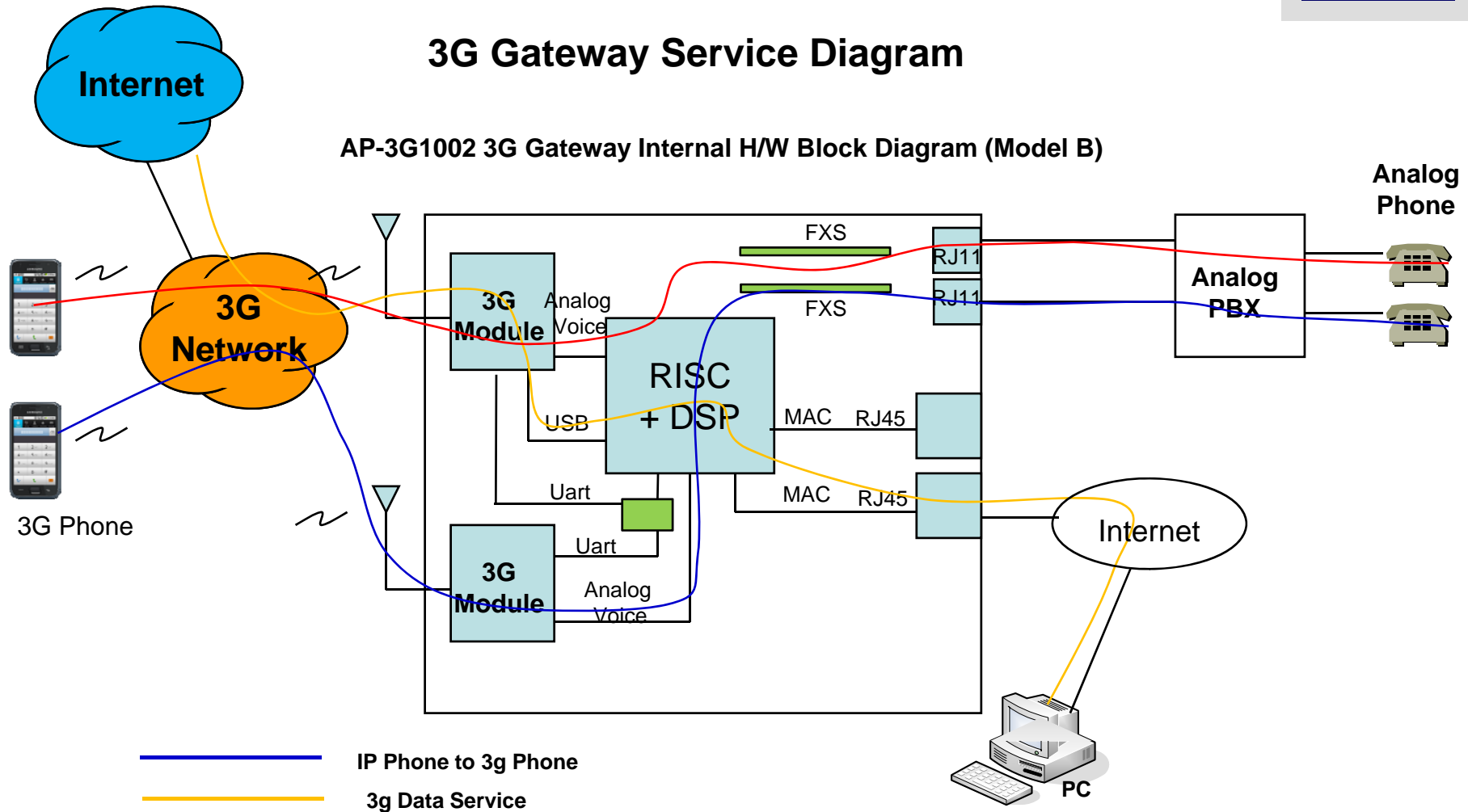
AP-3G1002 2-Port 3G Gateway

RISC  
CPU

High-end  
DSP

## 3G Gateway Service Diagram

AP-3G1002 3G Gateway Internal H/W Block Diagram (Model B)





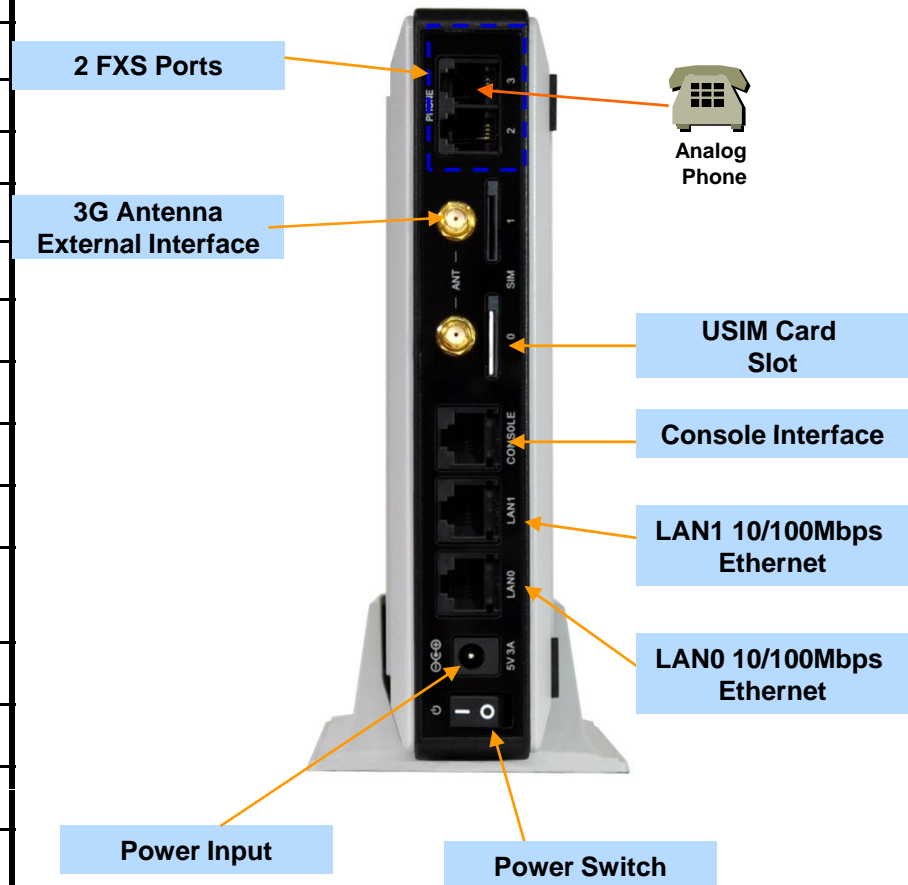
# Hardware Specification

## AP-3G1002 2-Port 3G Gateway

### Hardware Specifications

AP-3G1002 3G Gateway	Basic Specifications
Voice Interface	No Analog Voice Port : Model A
	Two(2)-Port FXS Analog Interface : Model B
	Two(2)-Port FXO Analog Interface : Model C
3G Antenna Interface	Two(2)-Port External 3G Antenna
USIM Card Slot	Two(2)-Port 3G USIM Card Slot
Ethernet Interface	Two(2)-Port 10/100Mbps Ethernet (RJ-45)
Console Interface	One(1)-Port RS-232C Console for CLI
Flash Memory	512Mbyte High-speed Flash Memory
Base Memory	64Mbyte High-speed SDRAM
Power Requirement	Power Supply Adaptor / VAC 110~220V, 50/60Hz, 5V, 3A
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	182mm x 182mm x 38mm (W x D x H)

### Network interface Configurations



# 3G Module Specification

## AP-3G1002 2-Port 3G Gateway

- ✓ 3G UMTS/HSDPA/HSUPA Characteristics
  - Class A User Requirement : data & voice simultaneously
  - UMTS Terrestrial Radio Access FDD
  - 3GPP Release 6 High Speed Packet Access(HSPA)
  - Dual-band Support\*(Option)
    - Band I (2100MHz),Band VIII (900MHz)
  - Dual-band Support\* (Option)
    - Band II (1900MHz),Band V (850MHz)
  - WCDMA/HSDPA/HSUPA Power Class
    - Power Class 3 (24dBm) for WCDMA/HSDPA/HSUPA Mode
  - PS(Packet Switched) Data Rate
    - HSUPA category 6, up to 5.76Mbps UL
    - HSDPA category 8, up to 7.2Mbps DL
    - WCDMA PS data up to 384kbps DL/UL
  - CS(Circuit Switched) Data Rate
    - WCDMA CS data up to 64Kbps DL/UL

# 3G Module Specification

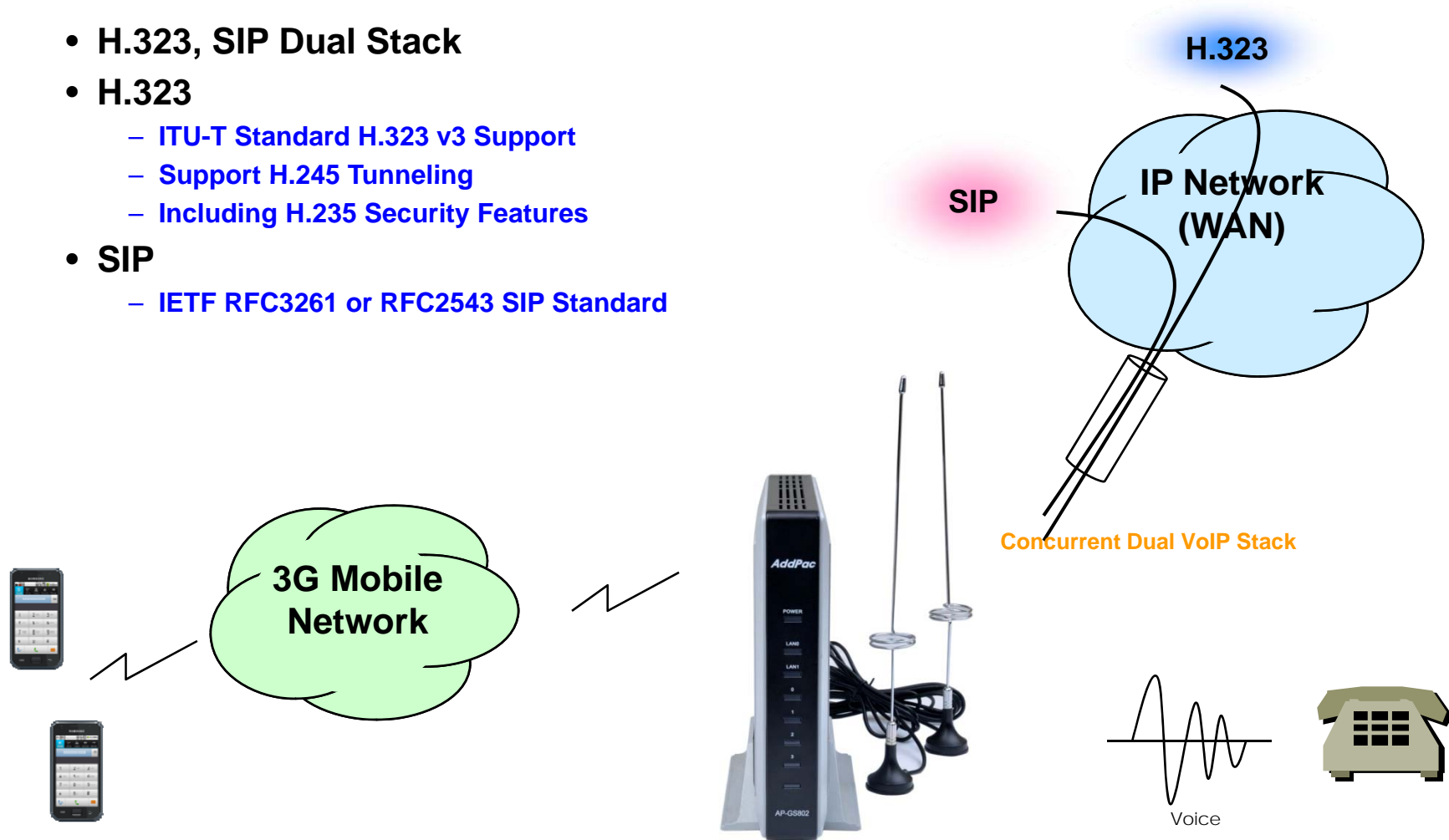
AP-3G1002 2-Port 3G Gateway

- ✓ 2G GSM Characteristics
  - Class B Mobile Station
  - Quad-band Support
    - GSM 850MHz, E-GSM 900MHz
    - DCS 1800MHz, PCS1900MHz
  - GSM Power Class
    - Power Class 4 (33dBm) for GSM/E-GSM bands
    - Power Class 1 (30dBm) for DCS/PCS bands

# VoIP (Voice over IP) Service

AP-3G1002 2-Port 3G 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



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# VoIP (Voice over IP) Service

## AP-3G1002 2-Port 3G 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-3G1002 2-Port 3G Gateway

- **Voice Codec**

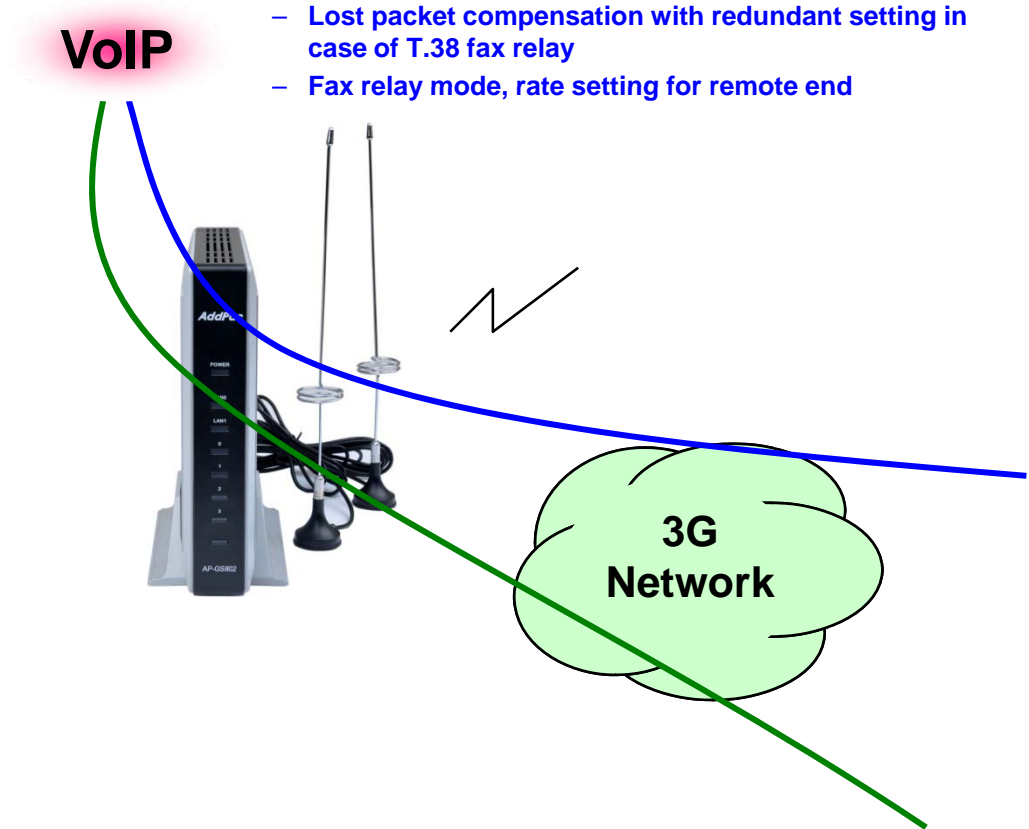
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **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

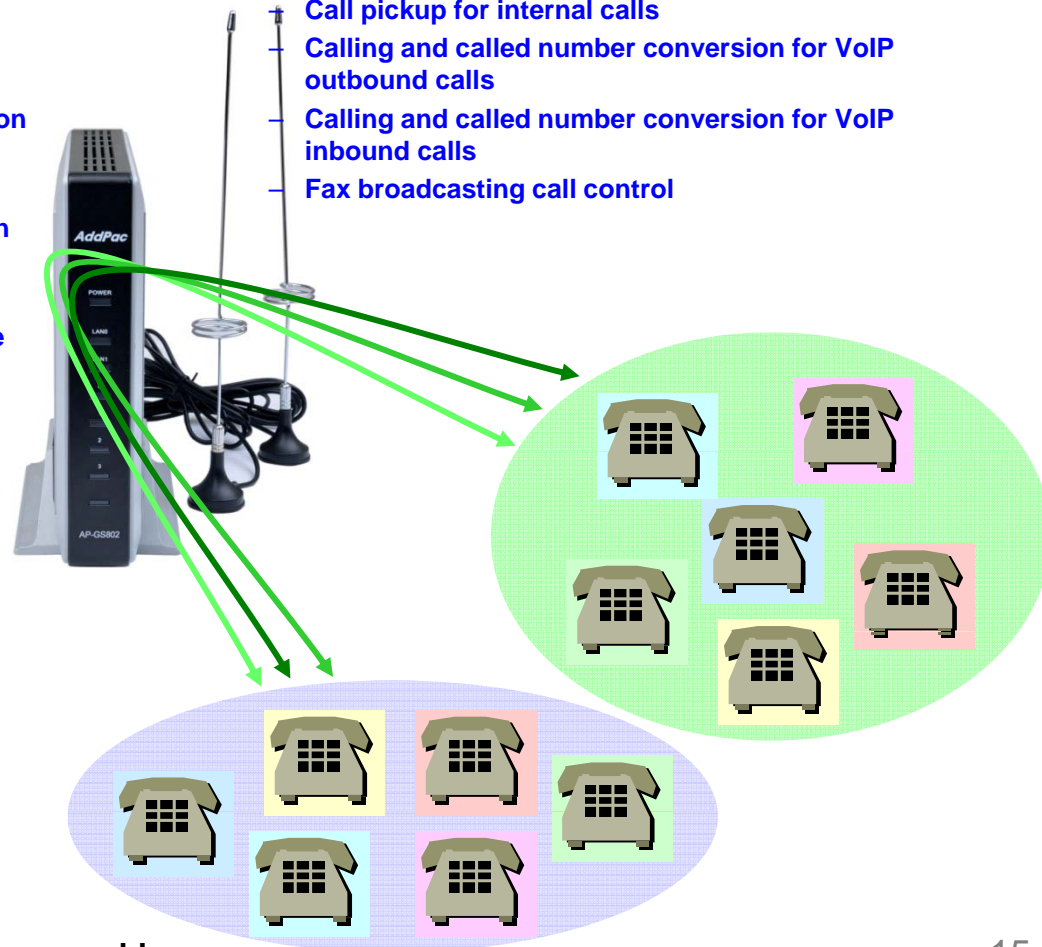
AP-3G1002 2-Port 3G Gateway

## • 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.)

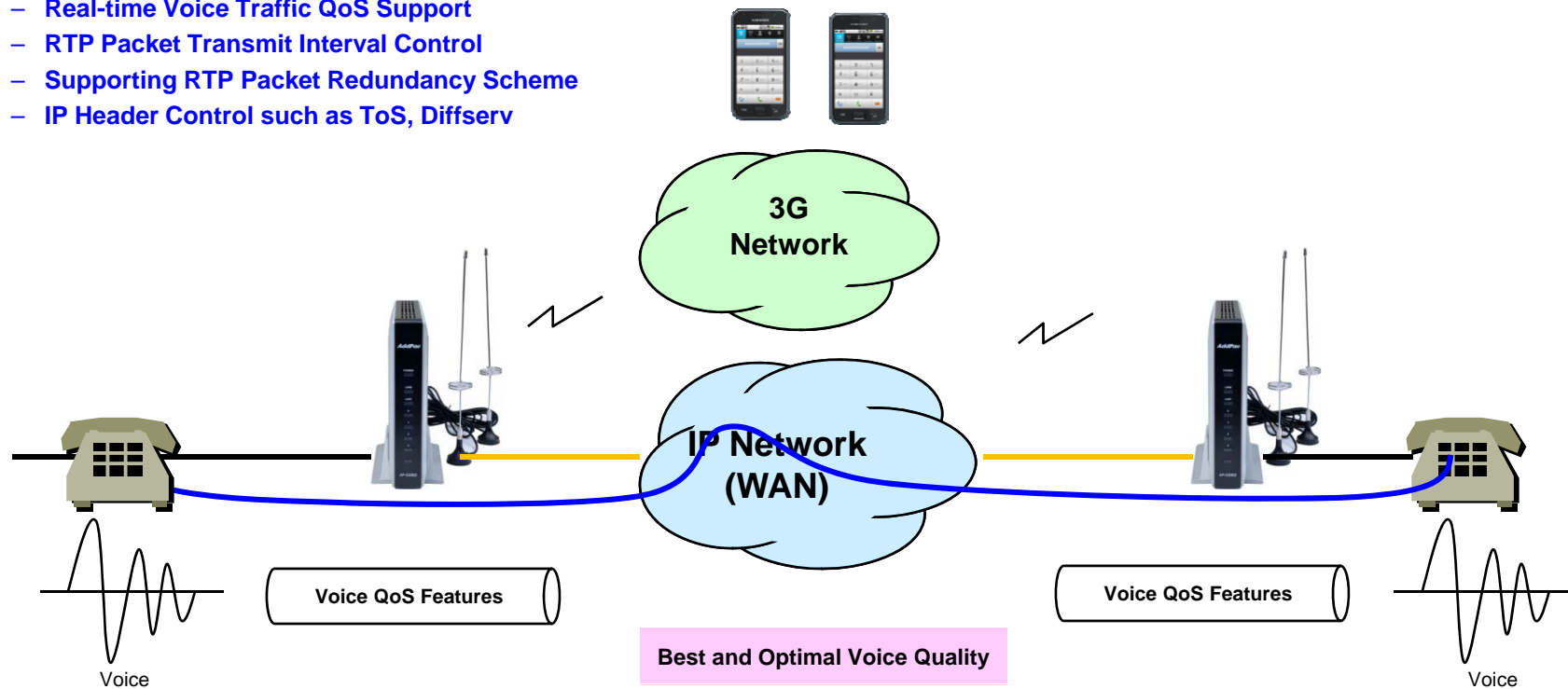
- Call transfer for internal calls
- Call pickup for internal calls
- Calling and called number conversion for VoIP outbound calls
- Calling and called number conversion for VoIP inbound calls
- Fax broadcasting call control



# Advanced QoS Features

## AP-3G1002 2-Port 3G 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-3G1002 2-Port 3G Gateway

## Basic Network Protocols

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

## Routing Protocol

- IPv4 : Static

## Service Protocol

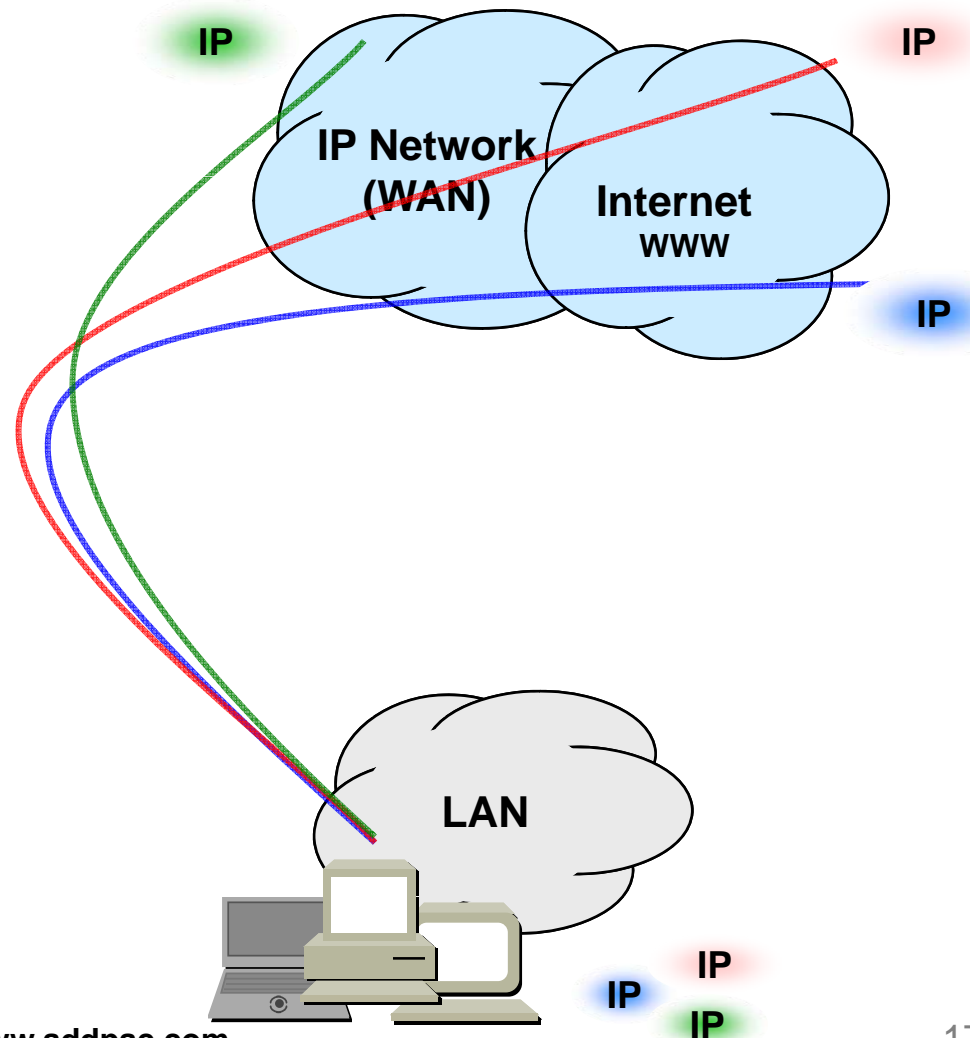
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

## 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-3G1002 2-Port 3G 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**

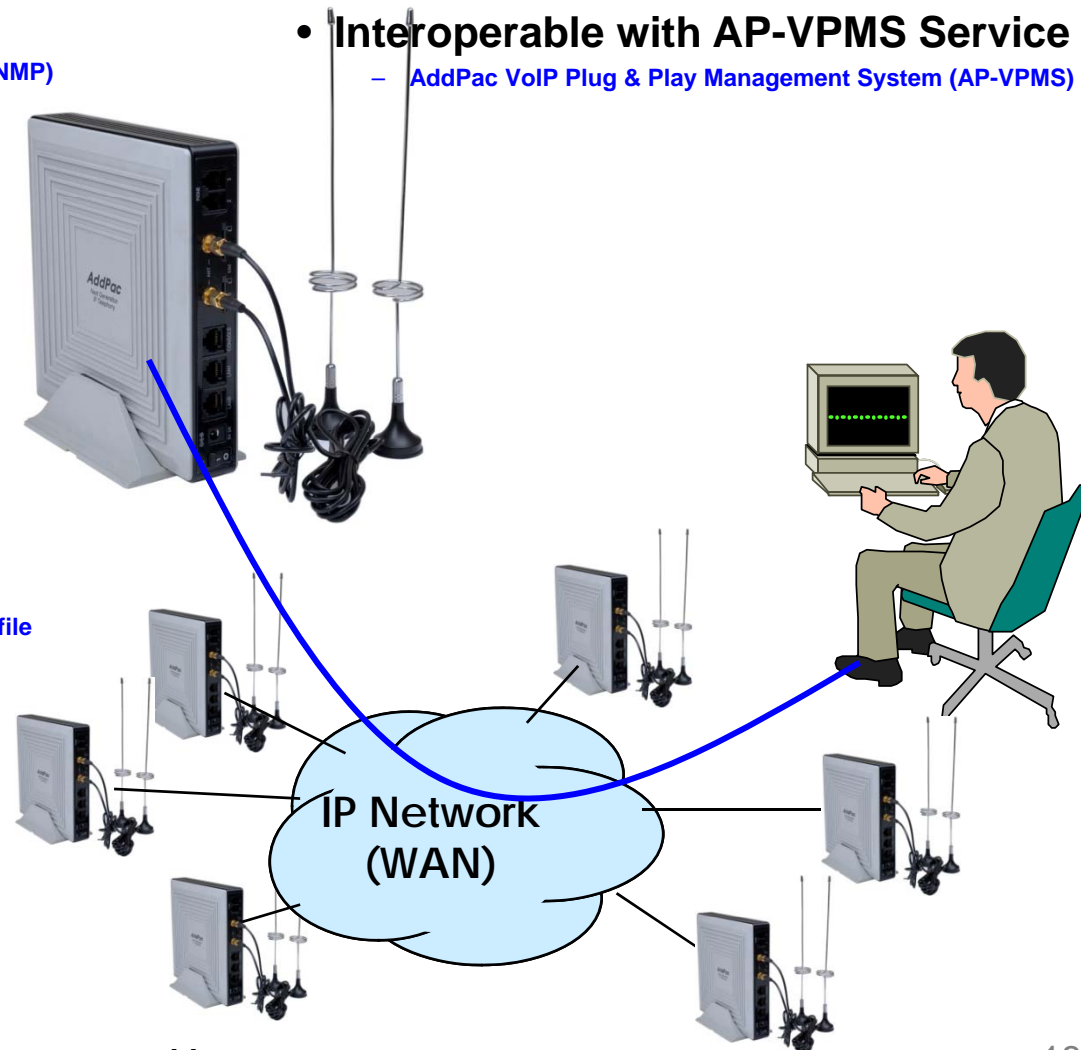
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

- **Interoperable with AP-VPMS Service**

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



# Smart Web Manager : Main Page Layout

## AP-3G1002 2-Port 3G Gateway

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

- System
  - Network Setup
  - Language
  - NTP
  - Backup/Restore
- Basic
  - Protocol
  - Server SIP
  - Server H.323
  - Tel Number
  - FXS/FXO/E1 Group
  - E1 Trunk
  - DTMF/CODEC
  - Dial Plan/Prefix
  - Static Route
  - Hot Line
- Advanced
  - Gain
  - Fax
  - Service
  - Filtering
  - Security
  - SNMP
- Miscellaneous
  - Call Status
  - System Status
  - Alarm Status
  - Call Log
  - System Log
  - Test Call
  - Ping

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

**System Information**

HW Version	2.0
SW Version	ap1800k_web_g2_v8_47T.bin 8.47
MAC Address	0002.a511.2245
VoIP Protocol	SIP
Voice Interface Module	S(4)O(4) : E1(2)
Registration Status	Unregistered
Supported Codec List	g711alaw g711ulaw g7231r53 g7231r63 g726r32 g729
Network Information	Static 172.16.50.114
WAN LINK Status	100Mbps FULL Duplex Link UP
LAN LINK Status	Link Down
Current Time	Thu Oct 1 13:06:23 2009
System Startup Time	Thu Oct 1 12:56:46 2009
System Running Time	0 days 00:09:37
Total Calls	0

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

Information

AddPac Tehonology  
Model : AP1800K\_G2  
HW Version : 2.0  
SW Version : 8.47  
Smart Web Version : 0.3  
Smart Web Build : Oct 1 2009  
Voice Interface  
S(4)O(4) : E1(2)  
Protocol : SIP  
Status : Unregistered  
CurrentCalls : 0 Call  
Network : Static 172.16.50.114  
Mac Address: 0002.a511.2245

**Description**  
WAN 포트에 대한 설정입니다. Static IP의 경우 고정 IP 주소로 사업자로부터 할당 받은 주소 정보를 입력합니다. DHCP와 PPPoE의 경우 유동 IP로 장비의 주소가 변경될 수 있습니다. DHCP 및 PPPoE는 사용자 환경에 맞도록 설정하십시오. MAC 주소 변경은 필요시 장비에 설정된 주소를 사용하지 않고사용자가 설정한 주소를 사용하는 방안으로 반드시 필요한 경우에 한하여 사용하여야 합니다.

**Workspace**  
Workspace for detailed action

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

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# Smart Web Manager : FXS Extension (example)

AP-3G1002 2-Port 3G Gateway

**Smart Web Manager**  
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**System**

- Network Setup
- Language
- NAT
- PPTP
- NTP

**Basic**

- Protocol
- Server SIP
- SIP Registration
- **FXS Extension**
- GSM Extension

**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

### FXS Extension

**Port Information**

Port	P0	P1	P2	P3
SLOT0	GSM	GSM	FXS	FXS

**FXS Extension Configuration**

Index	Port	Numbers	Preference	HuntStop	Select
0	0/2	1234	0	0	<input type="checkbox"/>

**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 FXS port to extension number (forwarding No)

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

**FXS Extension**  
Configure phone-number for using inter-office Preference ( 0 : highest )

# Smart Web Manager : GSM Dial Plan (example)

AP-3G1002 2-Port 3G Gateway

**System**

- Network Setup
- Language
- NAT
- PPTP
- NTP

**Port Information**

Port	P0	P1	P2	P3
SLOT0	GSM	GSM	FXS	FXS

**Plan Table**

Index	Digits to Insert	Number of Digits to Delete	Digit Pattern	Control
0	1	1	2T	<input type="checkbox"/>

**Prefix Table**

Index	Prefix	2nd Prefix	PlanIndex	Slot/Port	Control
0	33	2T	0	0/0	<input type="checkbox"/>

**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  
 Network : Static 172.16.9.16  
 Mac Address : 0002.a400.0000  
 Unread Message :  
 P0:0(0)  
 P0:1(0)

**Description**

Hot Line Setup

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

**VoIP PLAN**  
Configure translation rule for GSM Peer.  
 - first, 'Number of Digits to Delete' option is applied.  
 - second, 'Digits to Insert' option is applied.

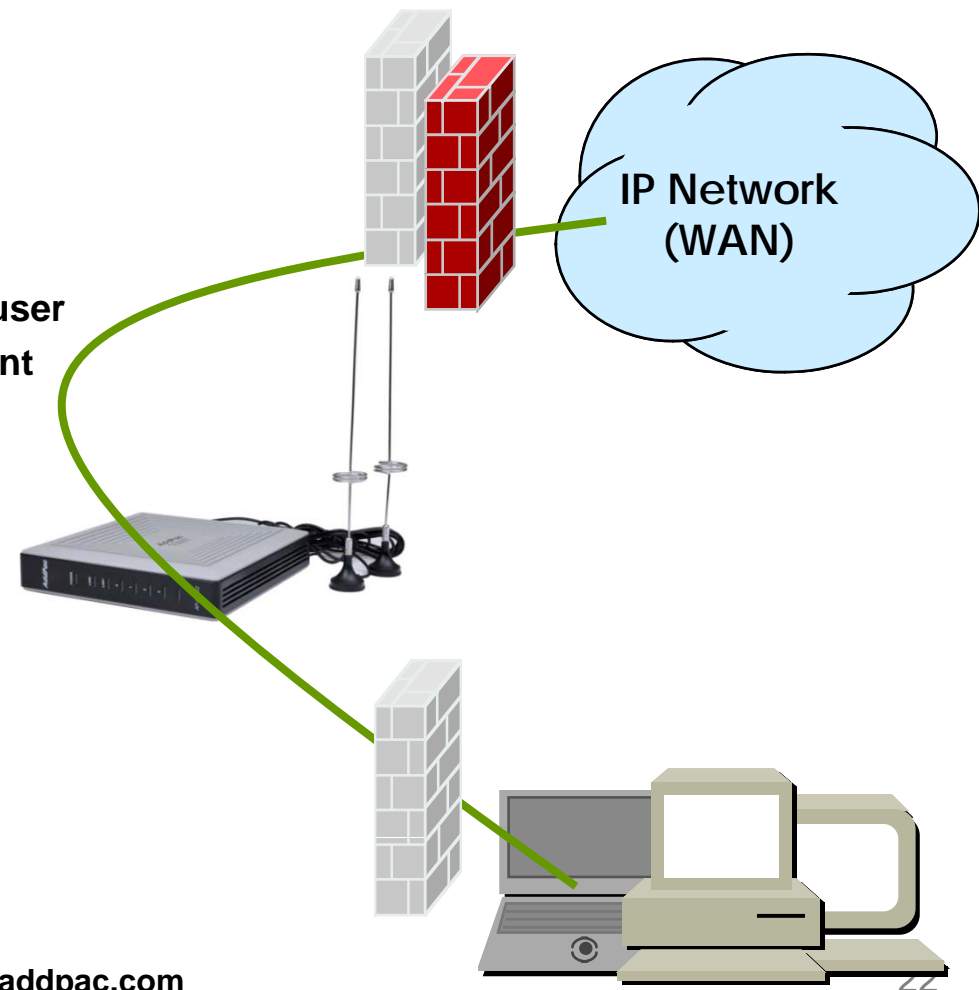
(ex) Origin called Number = 123456  
 Number of Digits to Delete = 2  
 Digits to Insert = "88"  
 -----  
 result = 883456

**Prefix Table**  
Configure GSM Peer with translation rule.

# Security Management

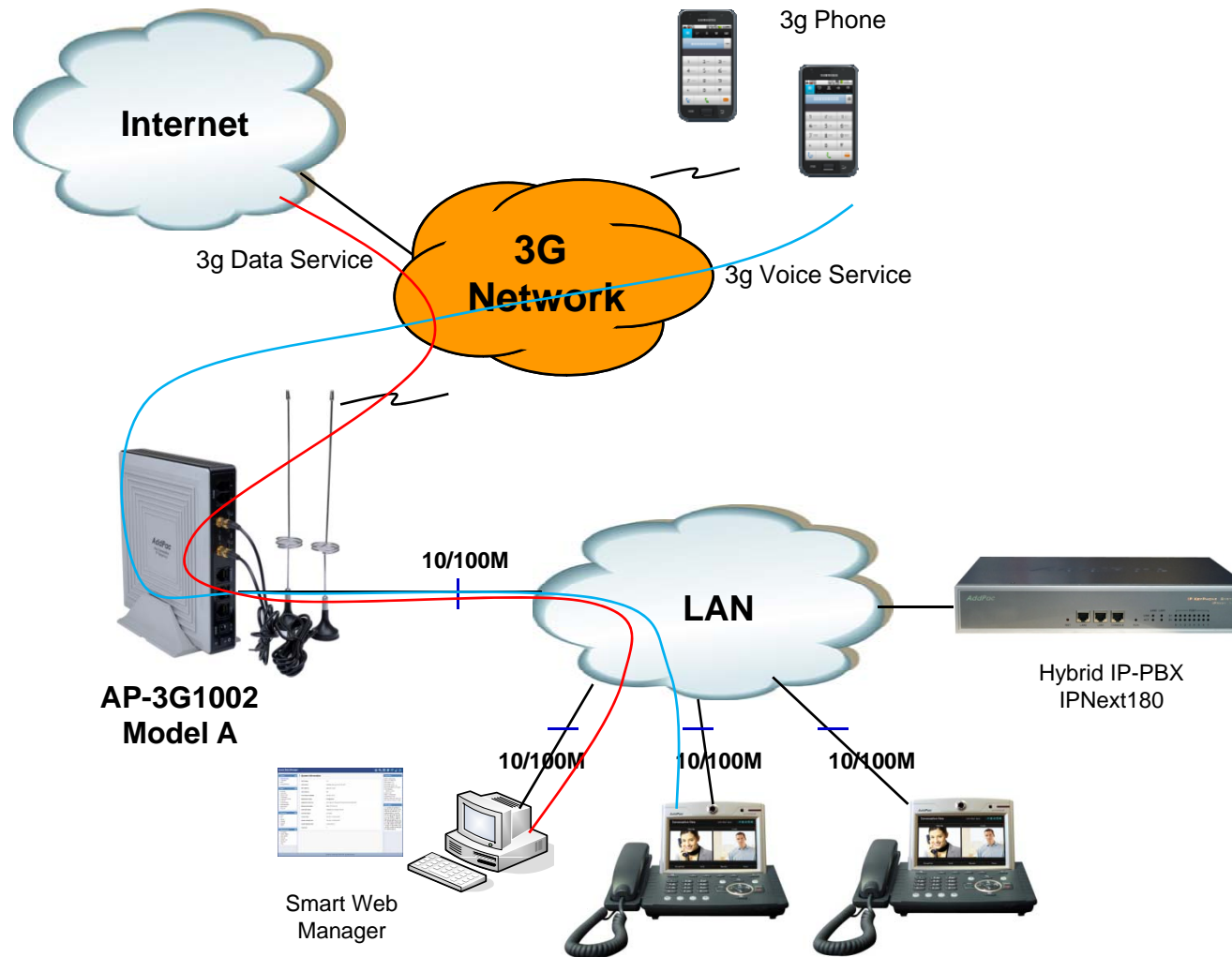
AP-3G1002 2-Port 3G Gateway

- 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-3G1002 2-Port 3G Gateway



# Ordering Information

- **AP-3G1002 3G Gateway Hardware**
  - AP-3G1002 3G Gateway Main Body
  - RISC Microprocessor with High-end Programmable DSP Architecture
  - 2-Ports 3G Wireless Interface (antenna, USIM slots)
  - Analog Voice Port (Option) : FXS, FXO, None
  - 2-ports 10/100Mbps Fast Ethernet(RJ45)
  - 1-Port RS232 Console Interface for CLI
  - Including Network Cable, Antenna & Ext. Power Supply, etc.
- **Built-in APOS Internetworking Software for AP-3G1002**
- **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)



# 3G Gateway Series

# Thank you!

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