PTT over IP Solution
for Management Center

IPNext600PTT IP-PBX+
PTT Server

AP-IP300 PTT
IP Phone

AP-LMR2000 LMR Gateway

AddPac

AddPac Technology

Sales and Marketing

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    - AP-LMR2000
  - AP601 SIP Paging Terminal

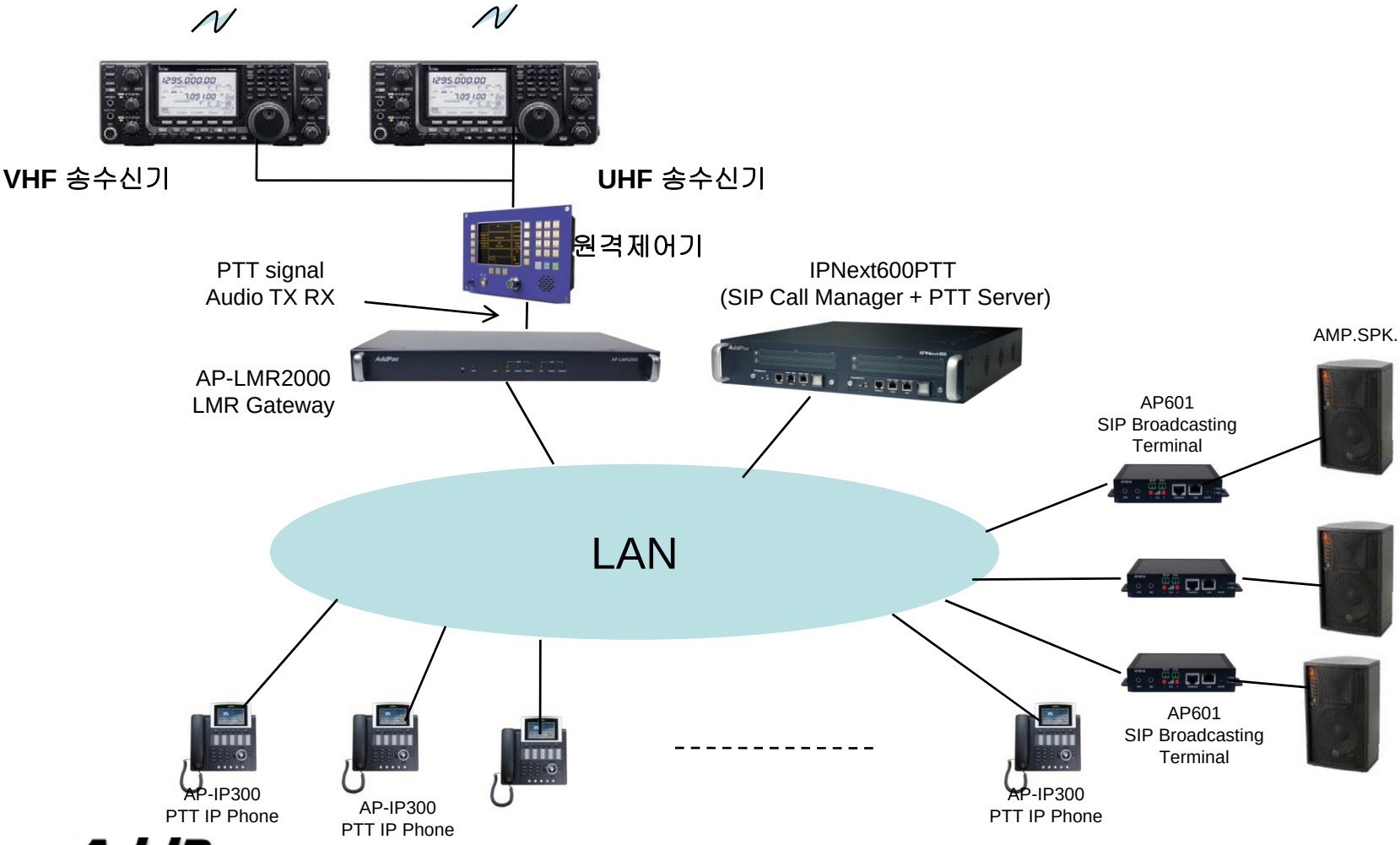
PTT over IP Service Features

- Various VoIP & PTT Call Mode Support
  - VoIP Call & PTT Call Support
  - Call Waiting Support and Incoming Call Indication
  - VoIP Call and PTT Call Mode Change
  - Various PTT Call Mode Support
    - Point-to-Point PTT Call, Group PTT Call, Emergency PTT Call
  - PTT Call Connection using Send/PTT Button

PTT over IP Service Features

- PTT Group List Display Function
  - PTT Member List Display
    - Overall, Personal, Group, Emergency List Display
  - Group Presence Status Display
  - PTT Group Presence Status Display (Option : Presence Server Required)
    - Automatic Presence Status Display
    - Manual Presence Status Display
- VoIP Call List Display
  - Outbound/Incoming/Absent Call List
  - VoIP Call Phone Book
  - VoIP Call List Delete and Redialing Support

PTT over IP Network Diagram



IP based PTT Solution Components

PTT over IP Solution Product Table

PTT & Paging S/W	IPNext600PTT	AP-IP300 PTT IP Phone	AP-LMR2000 LMR Gateway	AP601 SIP Paging Terminal
				
Smart Web Manager	IP based PTT Service Support Dial-Out based PTT Service Support Advanced PTT Server Features Emergency PTT Service Support IP-PBX Interworking Service SIP Call Manager System Redundancy Power Redundancy	High End IP Phone 4.3 Inch Color LCD External Audio In/Out Two(2) Fast Ethernet 25 Speed Dial button with Lamp Push-to-Talk Service SIP, H.323 Signaling Support VoIP Codec (G.711,G.729,etc)	Radio over IP Service Support Radio Systems(Motorola, etc) are Extended to IP Network RISC Microprocessor Computing Power Two(2) 10/100Mbps Fast Ethernet One(1) RS-232C Console (RJ45) Two(2) Radio Module Slots for E&M, etc	SIP Paging Terminal RISC +DSP Computing Power One(1) 10/100Mbps Fast Ethernet (RJ45) One(1) RS-232C Interface (RJ45) SPK/MIC Audio Interface Support Option : 30Watt Digital AMP. Built-in (AP601A)

IPNext 600 PTT IP-PBX System

(IP-PBX + PTT Server)

Product Overview

IPNext600PTT Next Generation IP-PBX System

- SIP Application Server, Proxy, Registrar and Location Server
- Multiple ITSP Trunk with SIP & H.323 Accounts Support
- High Performance PTT Server Solution
- Dual System Redundancy Architecture
  - Two(2) Fast Ethernet Interface / System
- High Performance RISC Architecture
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- IPv4/IPv6 Dual Stack
- RTP Proxy Function Embedded for Private IP and IPv6 Address Interworking
- User Presence Service Features for Smart Multimedia Messenger and Smart IP Phone
- IVR Scenario Editor, Voice Mail, Media Service (Coloring), Conference
- Firmware Upgradeable Architecture
- Smart Multimedia Manager for IP-PBX Management
- Smart Messenger Service (click to dial) for Unified Communication
- Smart NMS for Large Scale Deployment
- Advanced Voice QoS Mechanism
- Dual Redundancy Power Module
- Various IP Terminal Support

PTT Server Service

IPNext600PTT Next Generation IP-PBX System

- IP based PTT Service Support
- Dial-Out based PTT Service Support
  - Multi-Session, Multi-Group
  - PtP (Point-to-Point) Service
- Advanced PTT Server Features
  - 1:1 PTT
  - Group PTT
  - Emergency PTT with Alarm Notification
- Emergency PTT Service Support
- IP-PBX Interworking Service
- IP Terminal Interworking Service (Wi-Fi Phone, IP Phones, Soft Phone, Smart Phone Application)
- PTT Solution with Outstanding Network Service Capability

Hardware Specification

IPNext600PTT Next Generation IP-PBX System

RISC CPU

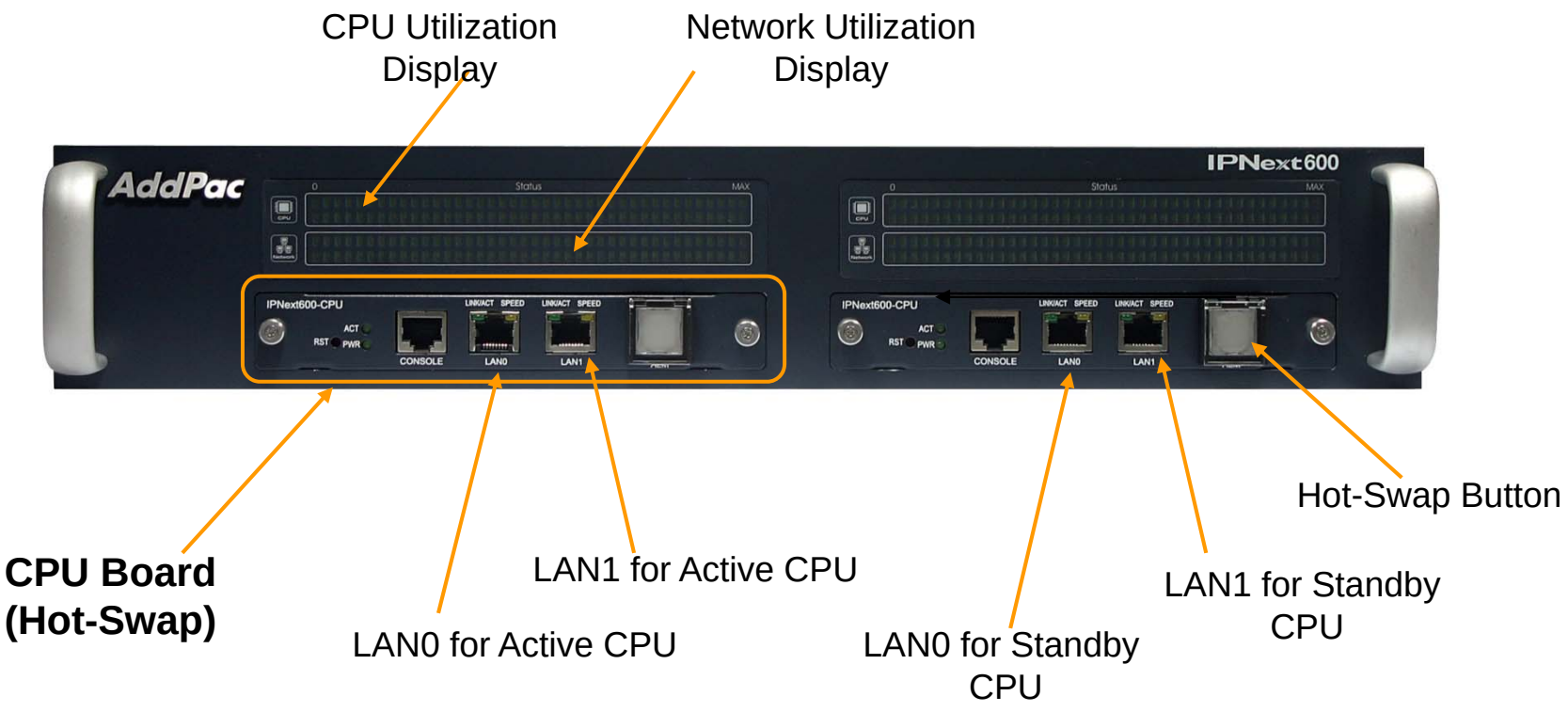
- 64bit High-End Microprocessor Computing Power
- Main Chassis
  - Dual Redundancy CPU Boards for System Fault Tolerant
    - Two(2) 10/100Mbps Gigabit Ethernet
    - One(1) RS-232C Console (RJ45)
  - Dual Redundancy Power Supply Module
  - Hot-Swap Features

Hardware Specification

IPNext600PTT Next Generation IP-PBX System

RISC CPU

Front Side



Hardware Specification

IPNext600PTT Next Generation IP-PBX System

RISC CPU

Back Side

Dual Power Supply Modules (Hot-Swap)

PSU Module A

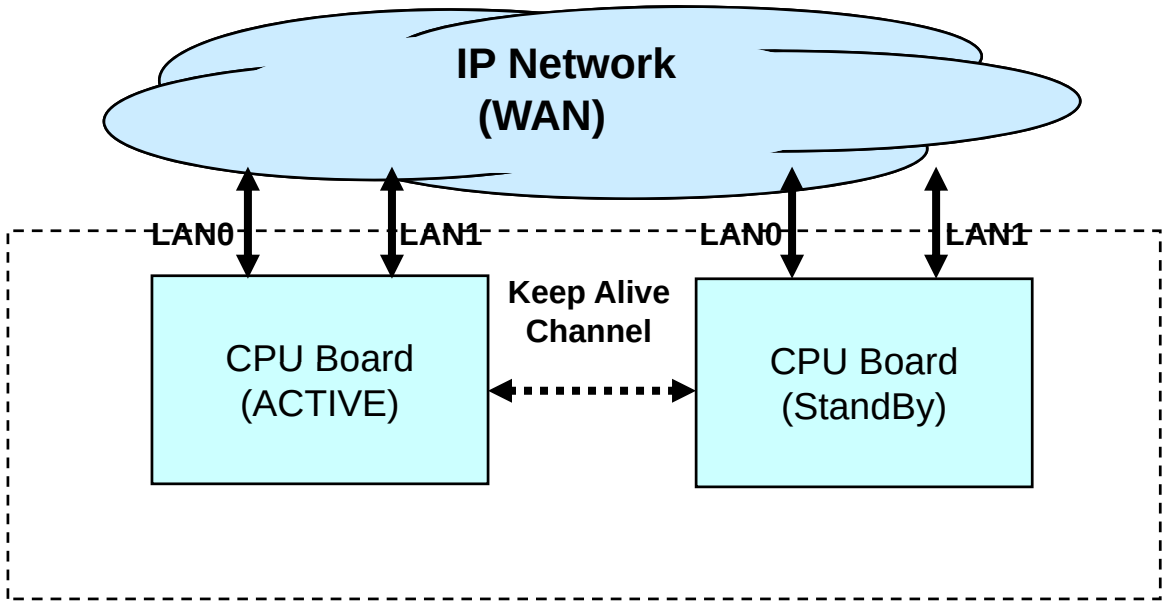
PSU Module B

Power On/Off Switch for System

System Redundancy Features

IPNext600PTT Next Generation IP-PBX System

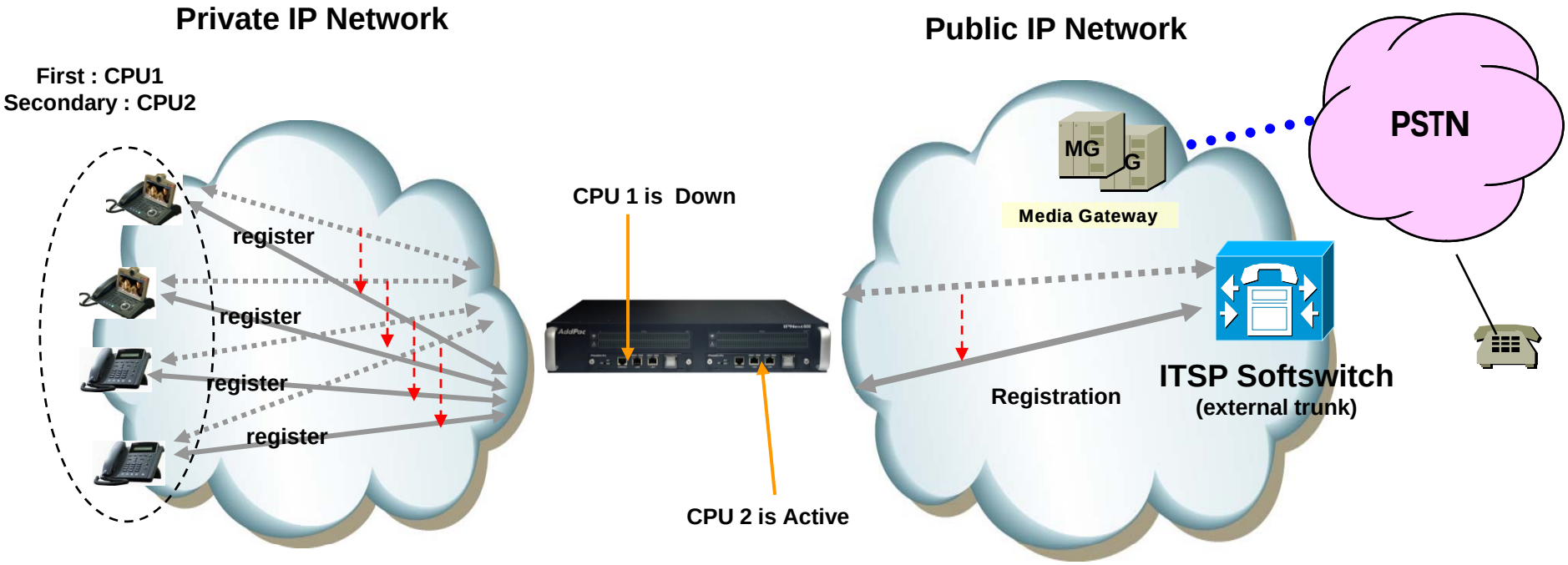
IPNext600PTT System Block Diagram



System Redundancy Features

IPNext600PTT Next Generation IP-PBX System

- Active– Active Duplication Scheme
- Active – Standby Duplication Scheme
- VRRP based Duplication Scheme



Active – Standby Duplication Scheme (example)

AP-IP300 IP Phone for PTT Service

Main Features

AP-IP300 IP Phone

- 4.3 Inch Color LCD Display
- External I/O Interface
  - Audio In/Out
  - Two(2) Fast Ethernet Interface
  - PSTN FXO Interface (optional)
- PoE (Power over Ethernet) Support
- 25 Speed Dial button with Presence Indication Lamp
- Audio Broadcasting Controller & Terminal
- Providing Powerful Push-to-Talk Service
- Powerful Color GUI
- IPv4/IPv6 Address Support
- SIP, H.323 Signaling Support
- High-end Error Resilient Against Various Packet Error

Hardware Specification

AP-IP300 IP Phone

- RISC+DSP Microprocessor Computing Power
  (Dual Processor Architecture)
- High Quality 4.3 Inch Color LCD Panel
- 25 Speed Dial Key & User Presence Indication LED
- Optional PSTN Backup Interface
  - FXO Interface
- High quality Audio and Voice Interface
  - Stereo Audio Input Connector
  - Stereo Audio Output Connector
- Network Interface
  - Two(2) 10/100Mbps Fast Ethernet
- USB Host Mode Interface
  - USB Memory(Flash, HDD), etc
- Power Supply
  - Power over Ethernet
  - External Power Adaptor (5V, 3A)

Hardware Specification

AP-IP300 IP Phone

AP-LMR2000
LMR(Land-to-Mobile Radio) Gateway

Contents

- Product Overview
- Hardware Specification
- LMR(Land-to-Mobile Radio) Service
- RoIP System Message Flow Diagram

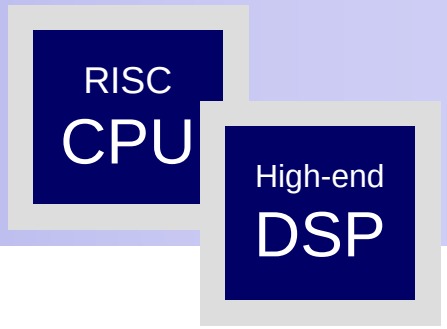
Product Overview

AP-LMR2000 LMR Gateway

- Radio over IP Service Support
- Radio Systems(Motorola, etc) are Extended to IP Network
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- High Performance LAN-to-LAN Routing Capability
- Two(2) Module Slots for Radio Interface (E&M, etc)
- VoIP Codec : G.711/G.726/G.723/G.729, VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- IPv4/IPv6 Dual Stack Support
- SIP/H.323 Dual Concurrent Signaling Protocols
- Firmware Upgradeable Architecture
- Advanced Voice QoS Mechanism
- Powerful Web based Management
- RS232C Port Support for Command Line Interface

Hardware Specification

AP-LMR2000 LMR Gateway



- RISC Microprocessor Computing Power
- Main Chassis
  - Network Interface
    - Two(2) 10/100Mbps Fast Ethernet
    - One(1) RS-232C Console (RJ45)
  - Two(2) Radio Module Slots for E&M, etc
  - Internal Power Supply

Hardware Specification

AP-LMR2000 LMR Gateway

AP-LMR2000 Back Side

RS232C
Console Port

LAN0(10/100Mbps)

LAN1 (10/100Mbps)

Radio Interface Module

Power Inlet

Power Switch

Hardware Specification

AP-LMR2000 LMR Gateway

Example : AP-RADIO2 E&M Interface Module for Radio Interworking

Hardware Specification

AP-LMR2000 LMR Gateway

Example : E&M Interface for Radio Interworking

Lead Name	Pin	Description
E (Ear or Earth)	Pin 7	Signal wire asserted by the router toward the connected device. Typically mapped to the push-to-talk (PTT) lead on the radio.
M (Mouth or Magnet)	Pin 2	Signal wire asserted by the router toward the connected device. Typically mapped to the push-to-talk (PTT) lead on the radio.
SG (Signal Ground)	Pin 8	Used on E&M signaling Types II, III, and IV.
SB (Signal Battery)	Pin 1	Used on E&M signaling Types II, III, and IV.
Two-Wire Mode		
T1/R1 (Tip-1/Ring-1)	Pin 4,5	In two-wire operation, the T1/R1 leads carry the full-duplex audio path.
Four-Wire Mode		
T/R (Tip/Ring)	Pin6,3	In a four-wire operation configuration, this pair of leads carries the audio in from the radio to the router and would typically be connected to the line out or speaker of the radio.
T1/R1 (Tip-1/Ring-1)	Pin5,4	In a four-wire operation configuration, this pair of leads carries the audio out from the router to the radio and would normally be connected to the line in or microphone on the radio

LMR Service

AP-LMR2000 LMR Gateway

- LMR system overview
  - A LMR(Land Mobile Radio) system is a collection of portable and stationary radio units designed to communicate with each other.
  - LMR is deployed wherever organizations need to have instant communication between geographically dispersed and mobile personnel.
  - Typical LMR system users are public safety organizations (ex: police departments, fire departments, etc).
  - The systems are extended the range of communications by repeaters.
  - The systems are required interoperability with IP network.

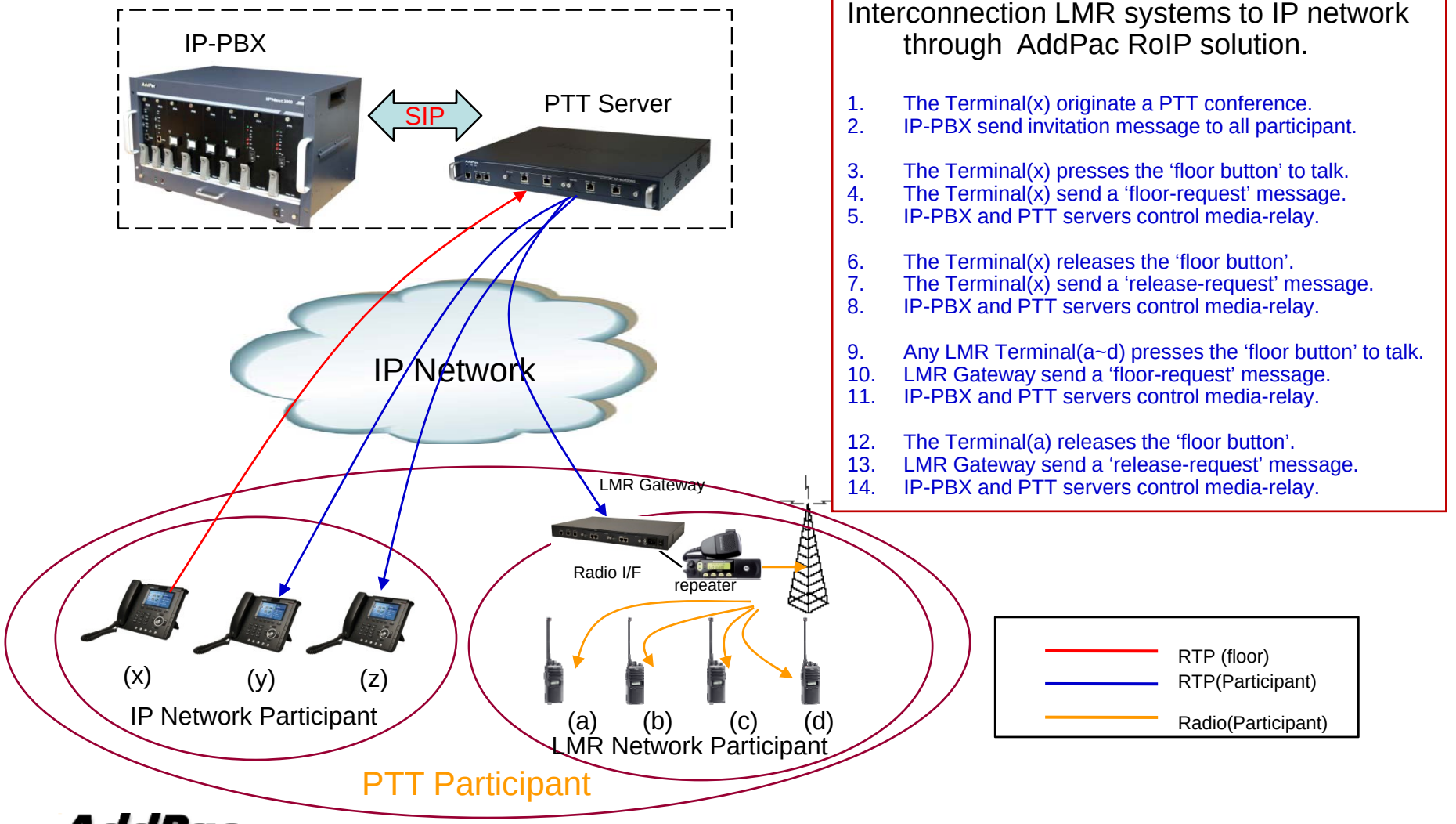
LMR Service

AP-LMR2000 LMR Gateway

- AddPac RoIP Solution Features
  - LMR Gateway(AP-LMR2000) joins the LMR systems to the IP network through open SIP standard and RTP.
  - The radios are connected to LMR gateway through AddPac radio interface (reference LMR signal).
  - AddPac IP PTT terminals (AP-IP230, AP-IP300 IP Phones, etc) support the traditional radio user interface(PTT).
  - AddPac IP PTT terminals easy PTT group management user interface.
  - IP-PBX support call management, PTT group management, PTT control and various additional service.
  - PTT Server(AP-PTS3000) support powerful media data relay, broadcasting, multicasting and PTT group management.
  - RoIP Solution supports emergency and group PTT service.

LMR Service Examples

AP-LMR2000 LMR Gateway



Interconnection LMR systems to IP network through AddPac RoIP solution.

1. The Terminal(x) originate a PTT conference.
2. IP-PBX send invitation message to all participant.

3. The Terminal(x) presses the 'floor button' to talk.
4. The Terminal(x) send a 'floor-request' message.
5. IP-PBX and PTT servers control media-relay.

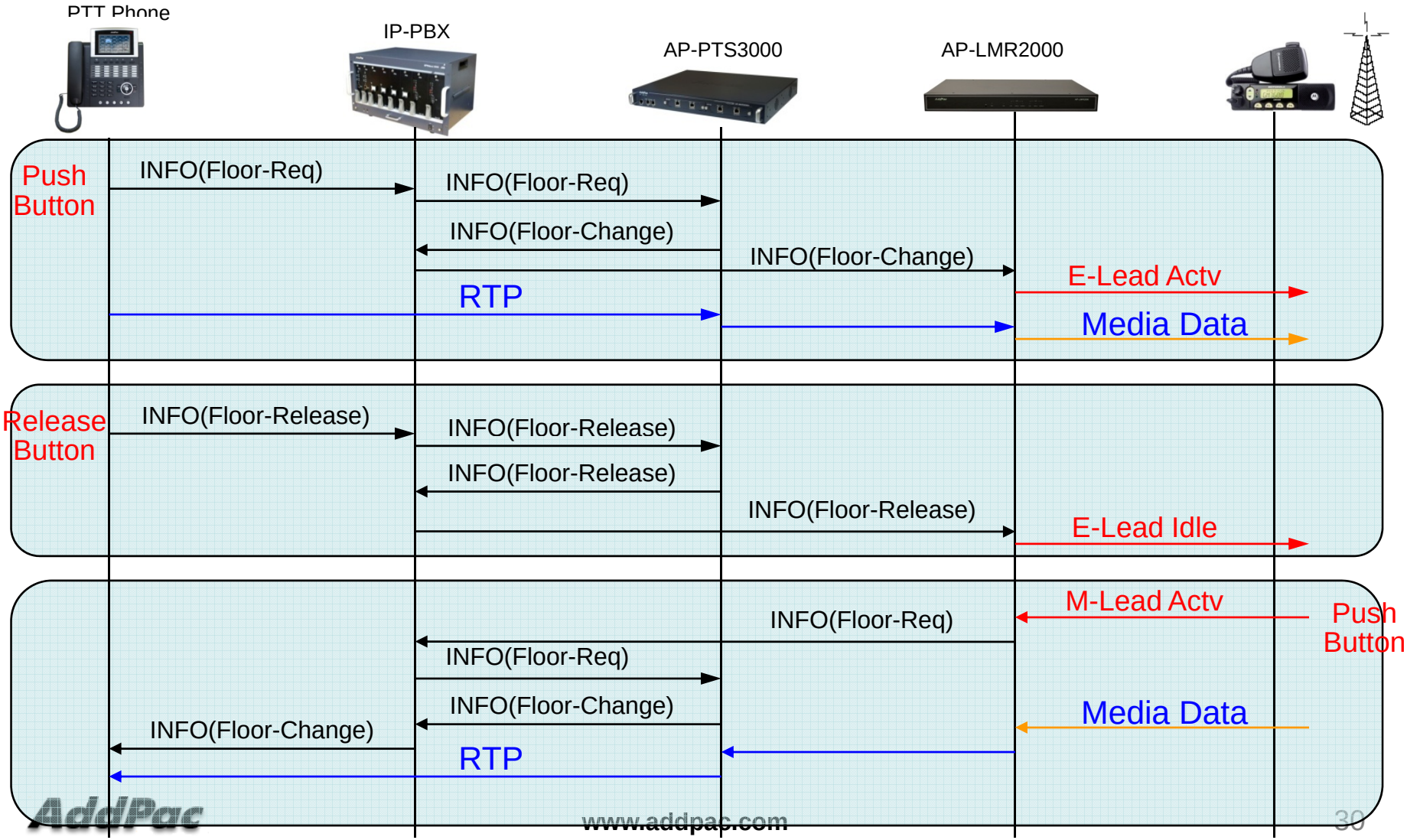
6. The Terminal(x) releases the 'floor button'.
7. The Terminal(x) send a 'release-request' message.
8. IP-PBX and PTT servers control media-relay.

9. Any LMR Terminal(a~d) presses the 'floor button' to talk.
10. LMR Gateway send a 'floor-request' message.
11. IP-PBX and PTT servers control media-relay.

12. The Terminal(a) releases the 'floor button'.
13. LMR Gateway send a 'release-request' message.
14. IP-PBX and PTT servers control media-relay.

RoIP System Message Flow

AP-LMR2000 LMR Gateway



AP601

SIP Paging Terminal

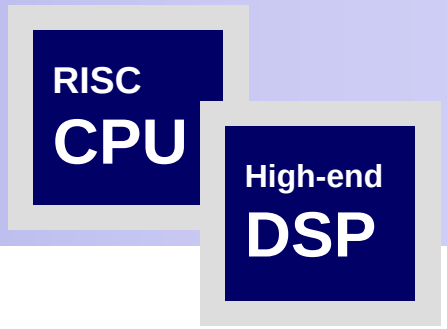
Product Overview

AP601 SIP Paging Terminal

- SIP based Voice Broadcasting Terminal Solution
- Hardware Architecture for Voice Broadcasting Terminal Service
- Remote Broadcasting Service at terminal side
- High Quality Voice Codec Support (High Quality Codec, G.711, G.726, etc)
- RTP/UDP Protocol Support
- Unicast and Multicast Broadcasting Scheme
- SPMS (SIP Paging Management Software) Support
- One(1) channel SPK/MIC Port
- Volume Control Button Support (Up, Down)
- Option (AP601A) : AMP. Built-in
- High-Quality Audio/Voice Service
- Firmware Upgradeable Architecture
- Broadcasting Solution with Outstanding Network Service Capability
- External Power Supply

Hardware Specification

AP601 SIP Paging Terminal



- RISC Microprocessor Computing Power
- High-end Programmable DSP Hardware Architecture
- High Quality Audio Encoding/Decoding Service
- One(1) 10/100Mbps Fast Ethernet (RJ45)
- One(1) RS-232C Interface (RJ45)
- SPK/MIC Audio Interface Support
- Volume Control Button Support (Up, Down)
- External Power Supply Support
- Option : 30Watt Digital AMP. Built-in (AP601A)

Hardware Specification

AP601 SIP Paging Terminal

RISC CPU

High-end DSP

Front Side

Speaker Out

MIC Input

Speaker Volume Control Button (Up, Down)

RS232C Console

Fast Ethernet (LAN)

ON-AIR LED

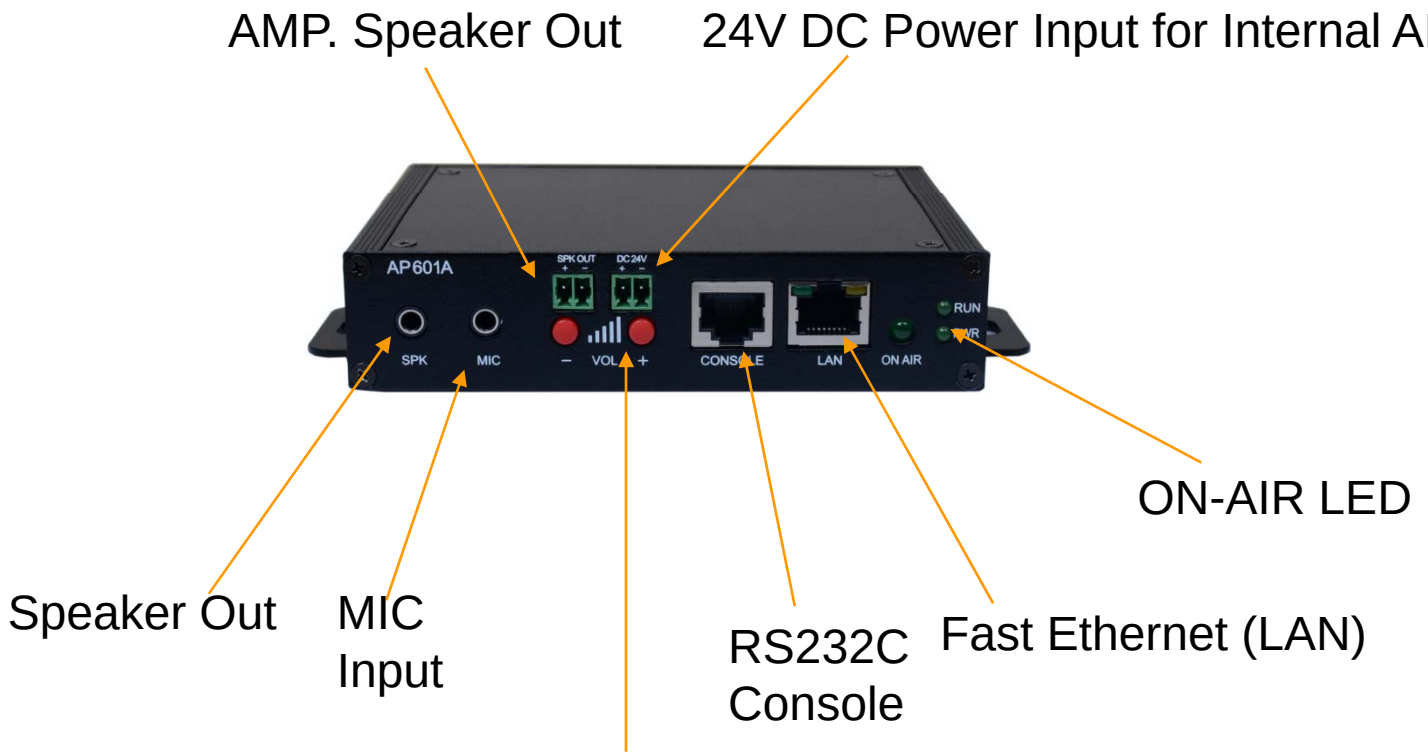
Hardware Specification

AP601 SIP Paging Terminal

RISC CPU

High-end DSP

Front Side
(AMP. Built-In Model : AP601A)



Hardware Specification

AP601 SIP Paging Terminal

RISC CPU

High-end DSP

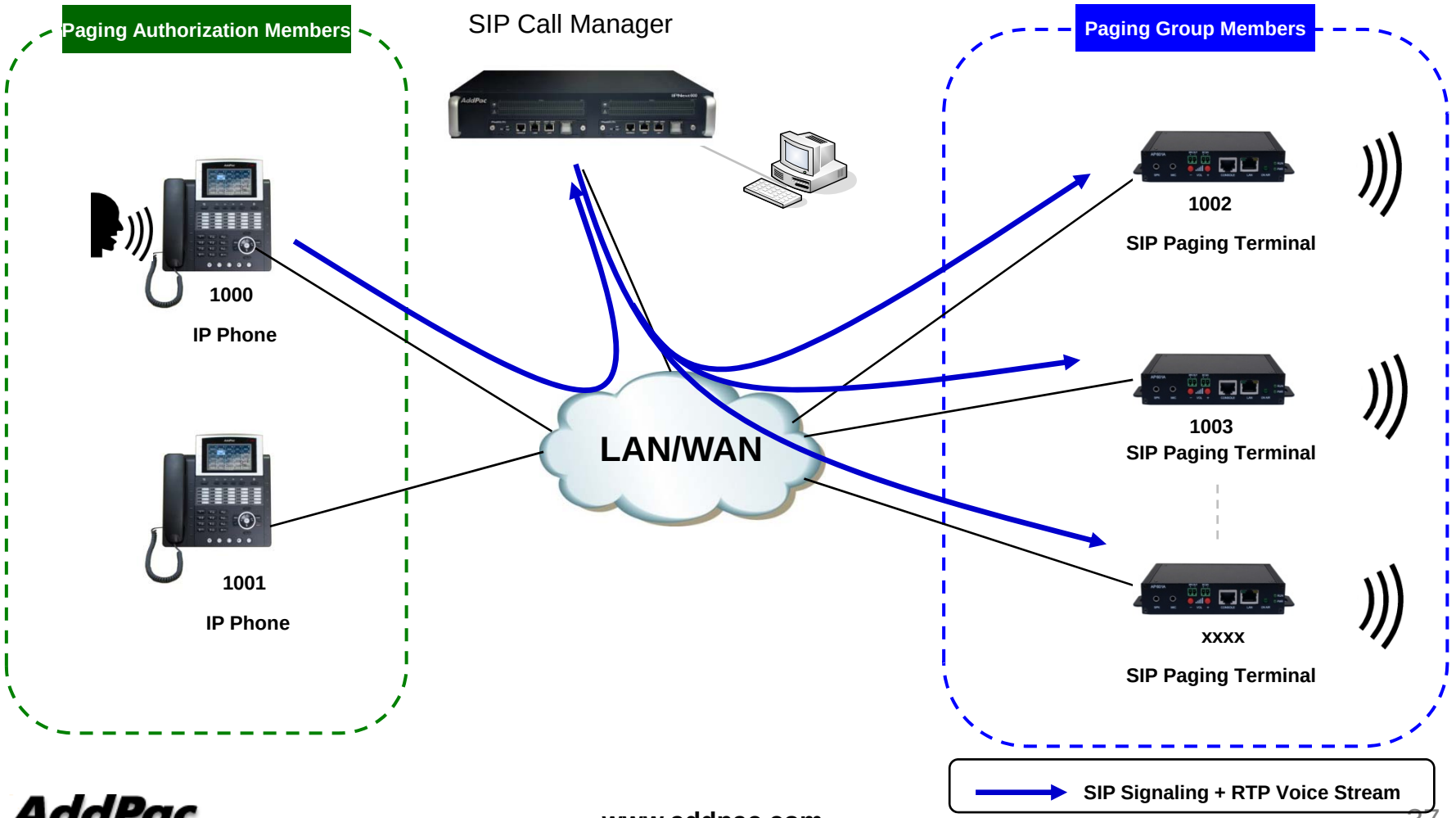
Back Side

External Power Supply Adaptor

Power Switch

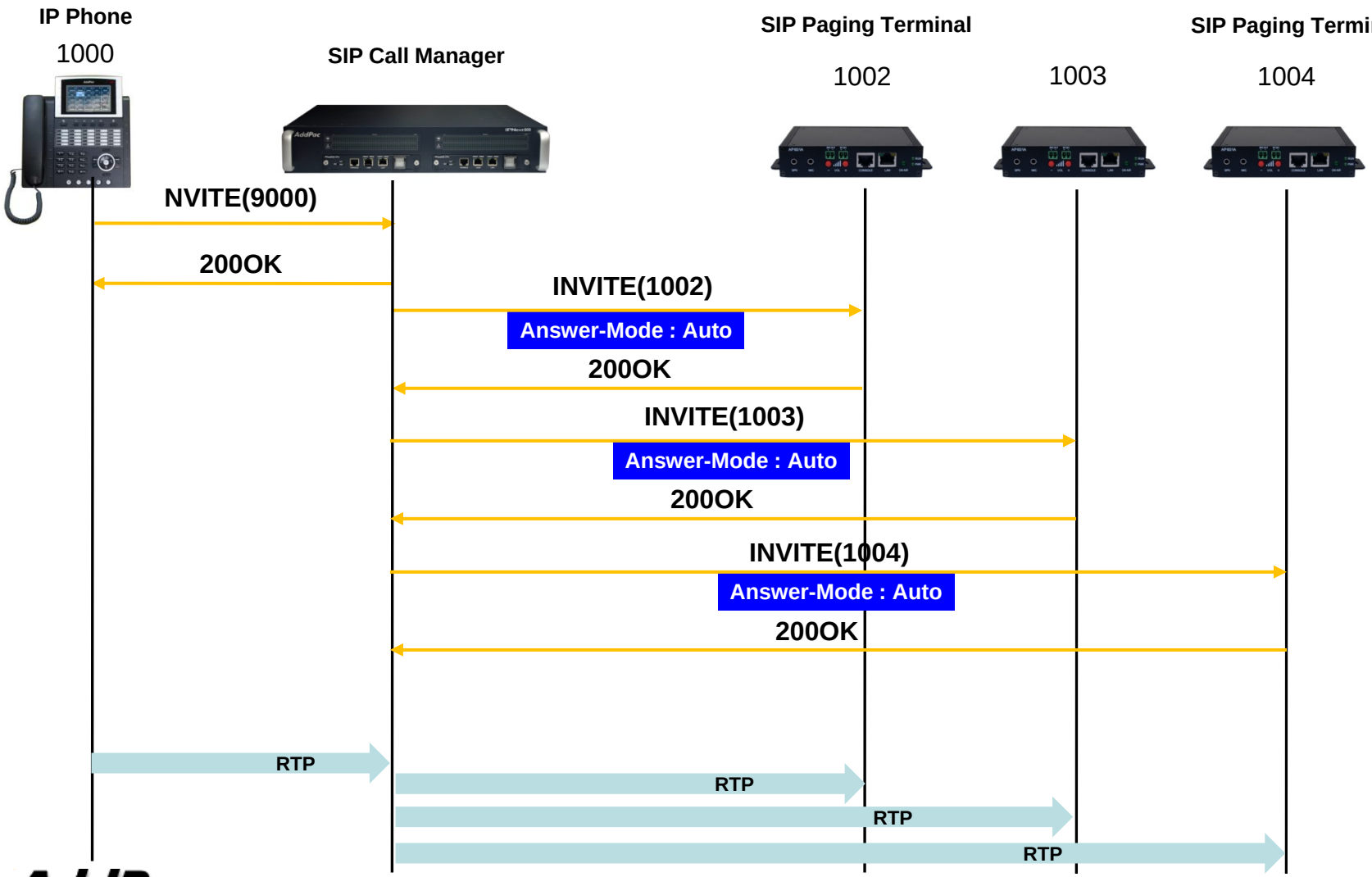
SIP Broadcasting Network Diagram

AP601 SIP Paging Terminal



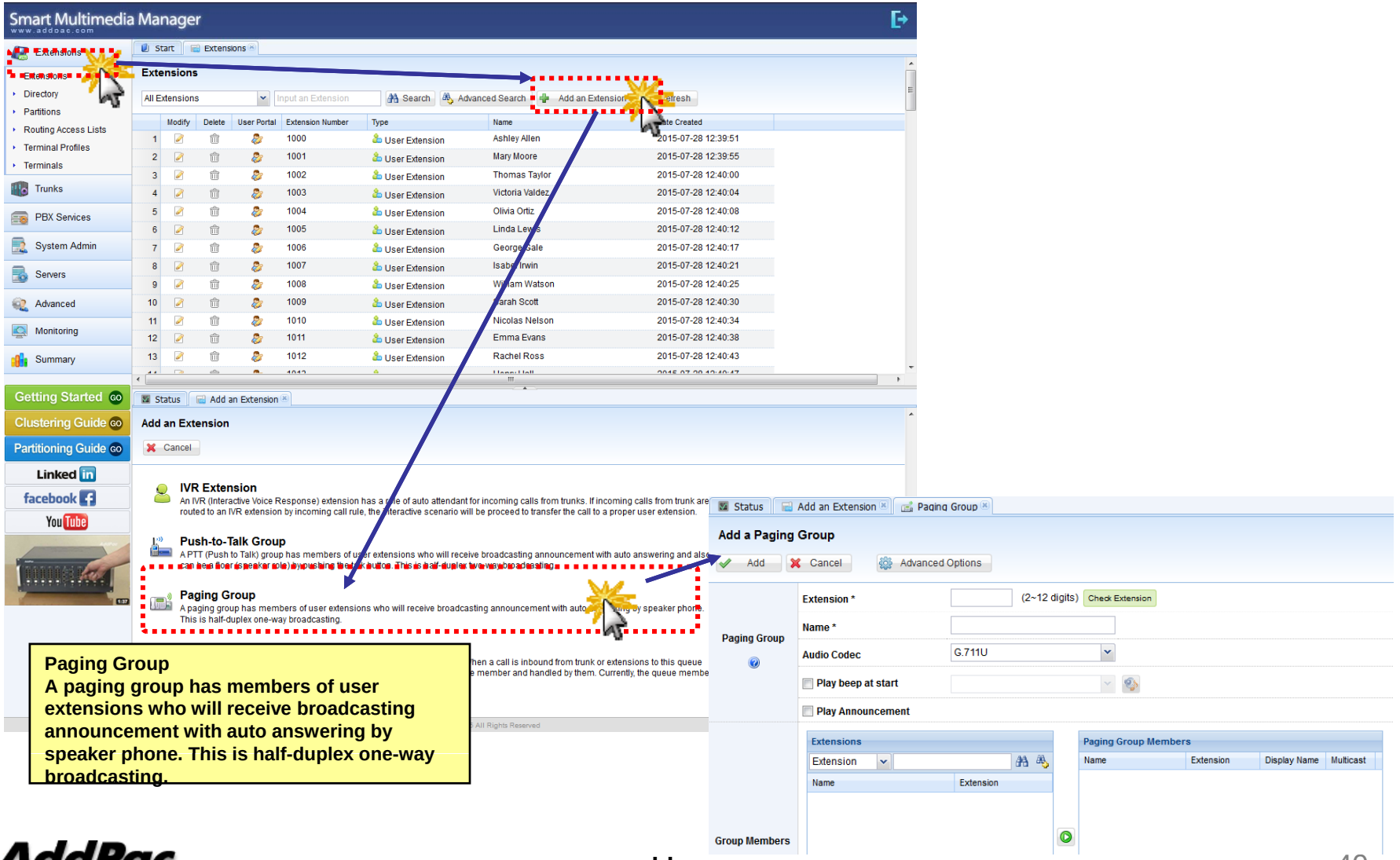
Paging Group Signaling Flow

AP601 SIP Paging Terminal



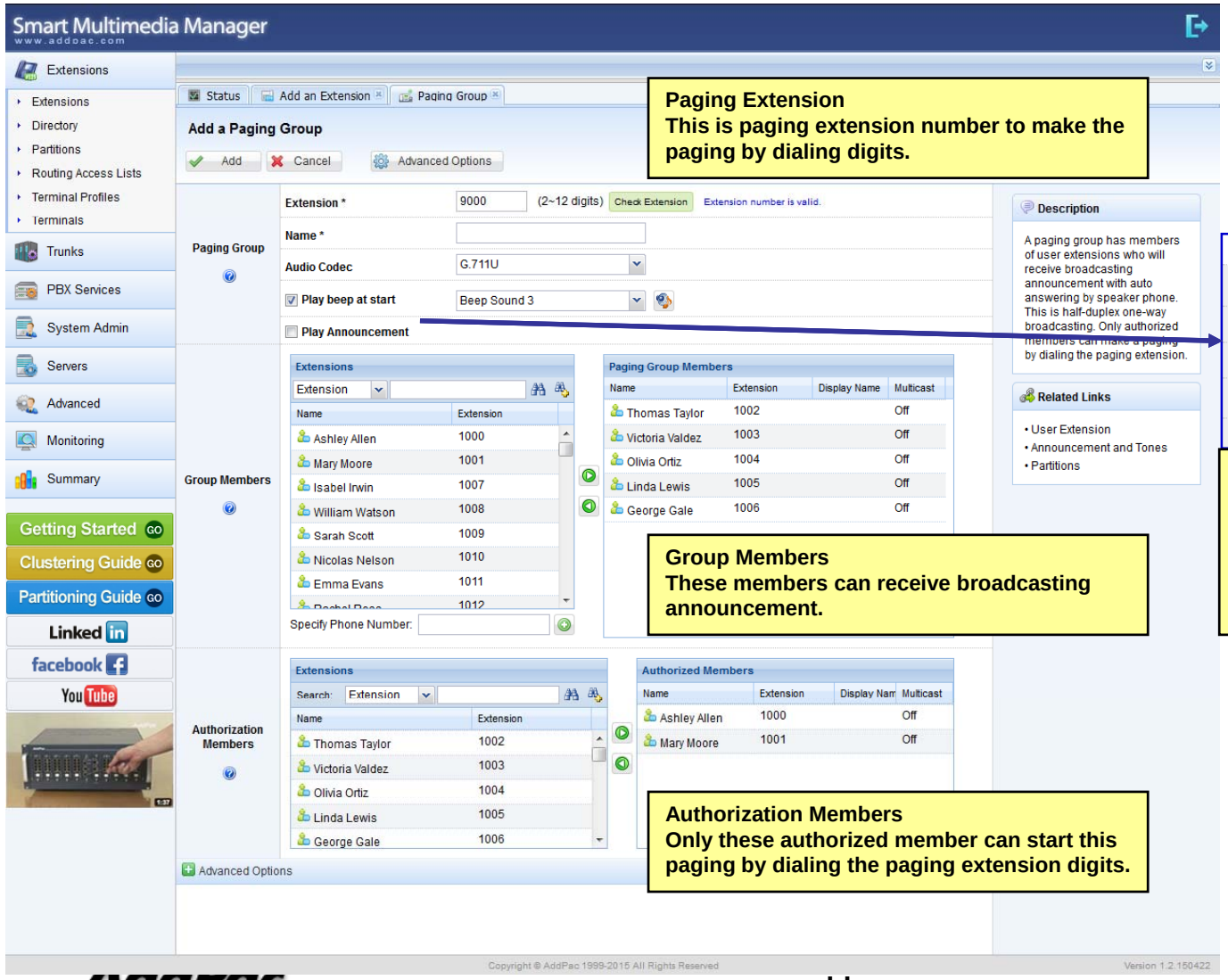
WSMM Configuration for Paging Group
(WSMM : Web based Smart Multimedia Manager)
: AddPac IP-PBX Solution

Extension – Paging Group



Paging Group
A paging group has members of user extensions who will receive broadcasting announcement with auto answering by speaker phone. This is half-duplex one-way broadcasting.

Paging Group Configuration



Thank you!

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