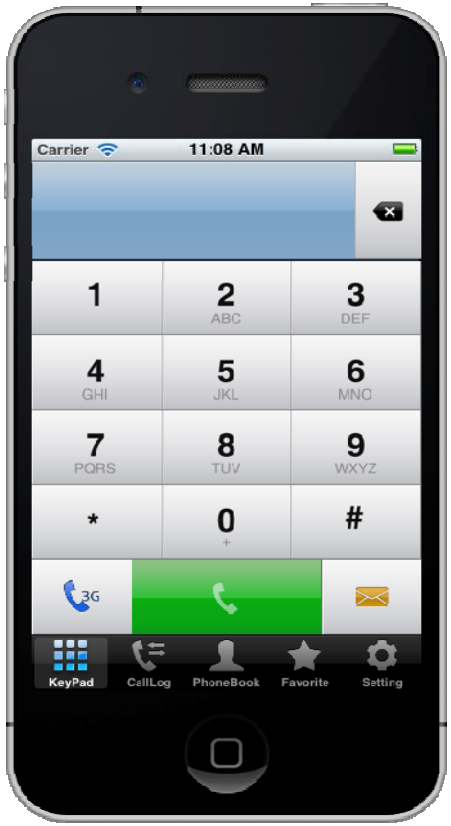
I-Phone PTT (Push-to-Talk) over IP Solution



Preliminary Product Overview

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

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- I-Phone PTT Service Features
- I-Phone PTT Network Diagram
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- I-Phone PTT Solution Components
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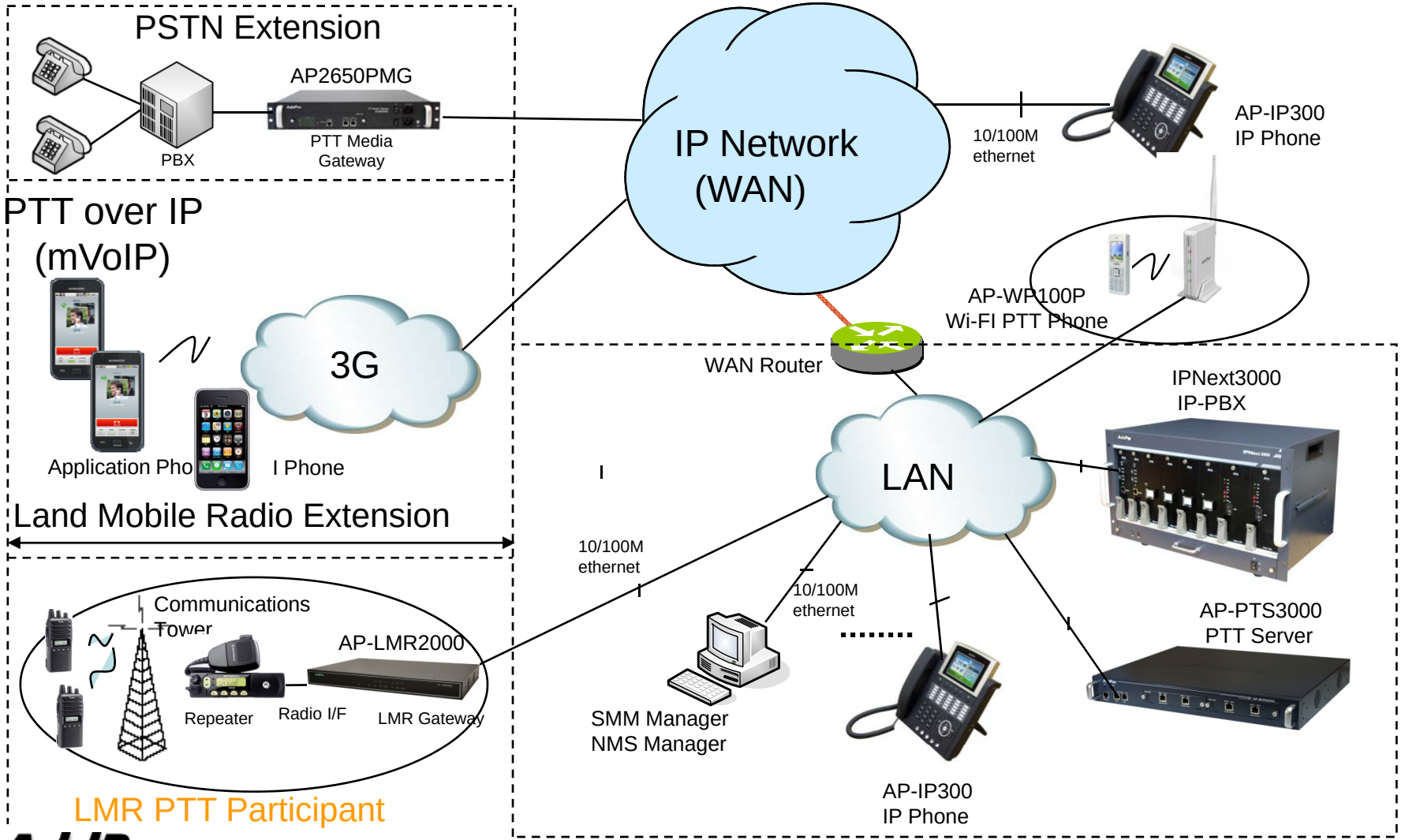
  - AP-PTS3000 PTT Server
  - LMR(Land-to-Mobile Radio) Gateway for PTT Service
  - PMG(PTT Media Gateway) Gateway for PTT Service
  - AP-WP100P Wi-Fi Phone for PTT Service
  - AP-IP300 IP Phone for PTT Service
  - Network Management System

I-Phone PTT Service Features

- Apple MAC IOS Support (Over IOS 4.2 Version)
- I-Phone 3g, 3gs, 4 Support
- Wi-Fi based PTT over IP Service
- 3G over PTT over IP Service (mVoIP)
- SIP based Point-to-Point VoIP Call Service
- SIP based Group(PTT) VoIP Call Service
- Emergency PTT Call Service
- Various IP-PBX Call Scenario

  Hold/Resume , Transfer , Call Waiting
- Personal, Public, Group Address List Support
- Use Internal Contacts List for Personal Phone Book

PTT Solution Network Diagram

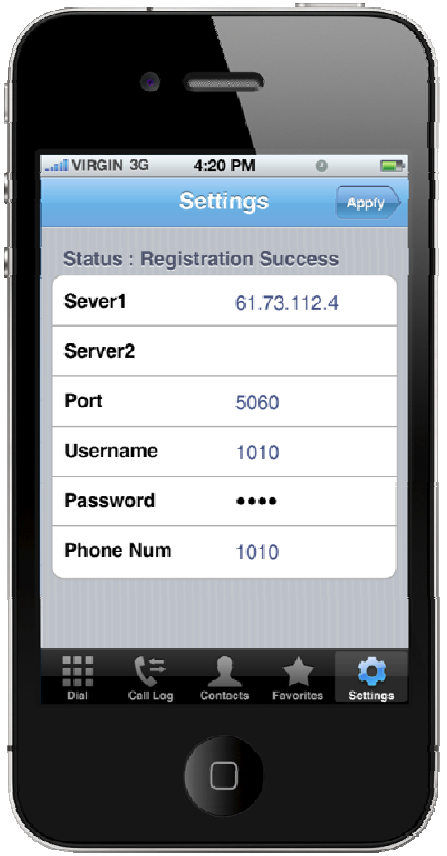


I-Phone PTT Basic Function Examples (Start)

1. Application Start

I-Phone PTT Application

Application Loading

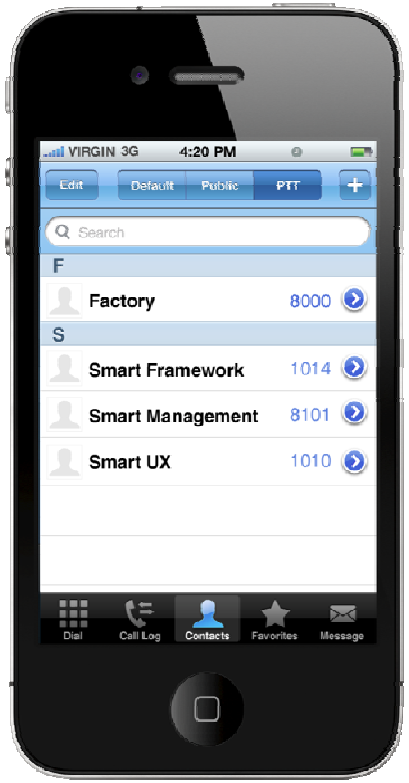


IP-PBX registration

I-Phone PTT Basic Functions (Registration)

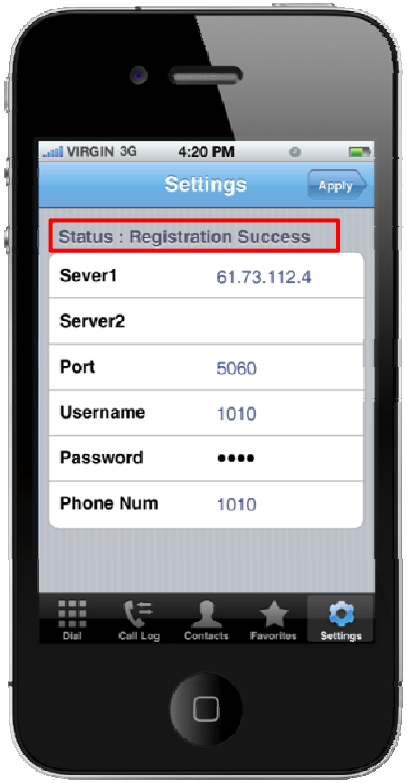
2. IP-PBX Registration

After IP-PBX registration is done at first, all function such as PTP Call, PTT Call, Phone book, UMS is enabled.



New IP-PBX Registration Method

Registration Apply after Server Address, User Name, Password, Telephone Number field is done



IP-PBX Registration Success

I-Phone PTT Basic Functions (Termination)

3. Application Termination

Click Twice Home Button

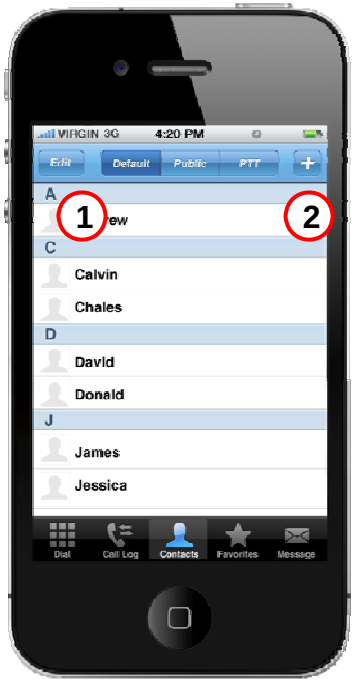
Application icon press for 1sec. And then press PTT appl. icon

Termination Confirm

I-Phone PTT Supplementary Functions (Phone Book)

1-1. Personal Phone Book

After IP-PBX registration is done, PTT application display the personal, public, group address book list which is received from IP-PBX and Local Phone book



Personal Phone Book List

1	After edit button is pressed, Local Phone Book remove
2	new address addition

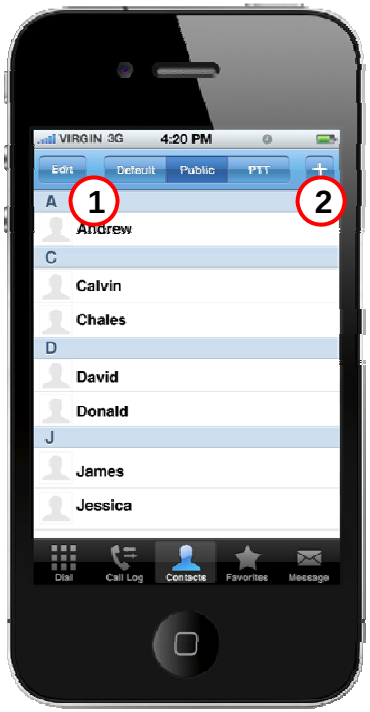
Personal Phone Book Edition Mode

1	Personal Picture
2	SMS sending
3	3G call
4	Favorites addition

I-Phone PTT Supplementary Functions (Phone Book)

1-2. Public Phone Book

In case of public phone list, address book can loaded from AddPac Presence Server



Public Phone Book Mode

1	After edit button is pressed, Public Phone book can be removed
2	New address addition

Public Phone Book Edition Mode

1	Photo Registration
2	Name
3	Telephone Number

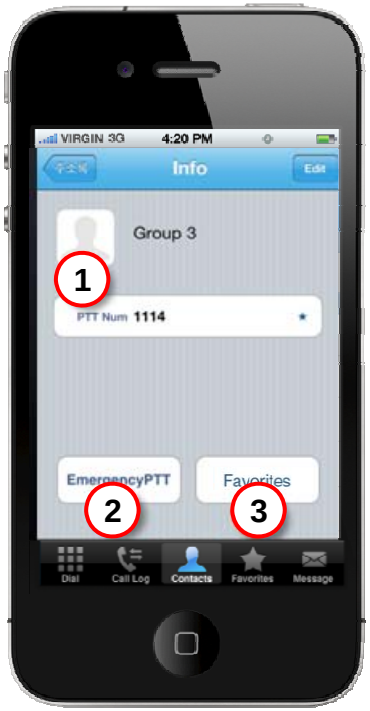
I-Phone PTT Supplementary Functions (Phone Book)

1-3. Group PTT Phone Book

In case of Group PTT call, user can add a PTT group.(Multiple Group PTT call configuration)

PTT Phone Book Mode

1	After edit button is pressed, Group Phone book can be removed
2	New address addition



PTT Phone Book Editing Mode

1	Photo registration
2	Emergency PTT call
3	Favorites addition

I-Phone PTT Supplementary Functions (Key PAD)

1. Key PAD

Key PAD Layout

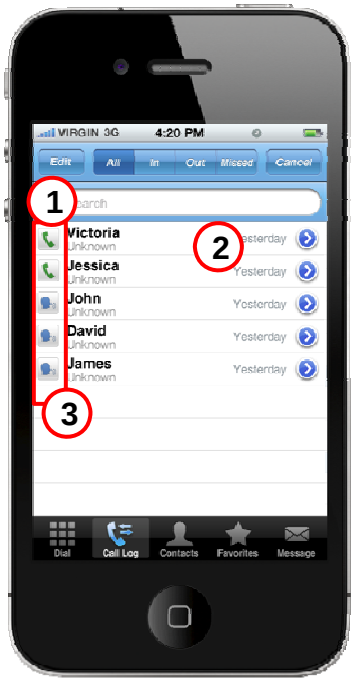
1	Dial number input
2	3G call button
3	internal line button
4	message button

Outgoing Call Layout

1	Call duration Display
2	Mute
3	Entering KeyPAD Mode
4	Speaker Phone Mode
5	Phone Book Mode
6	New call
7	Call Hold
8	Call waiting
9	Call Transfer

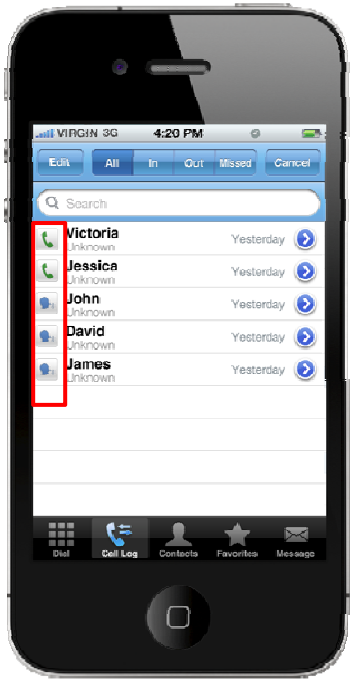
I-Phone PTT Supplementary Functions (Call History)

1. Recent Call History



Call Log Mode

1		Recent call log editing mode
2		Date and time display
3		3G call connection ICON
		PTP call connection ICON
		PTT call connection ICON
		emergency call connection ICON



I-Phone PTT Supplementary Functions (Favorite)

1. Favorite Function

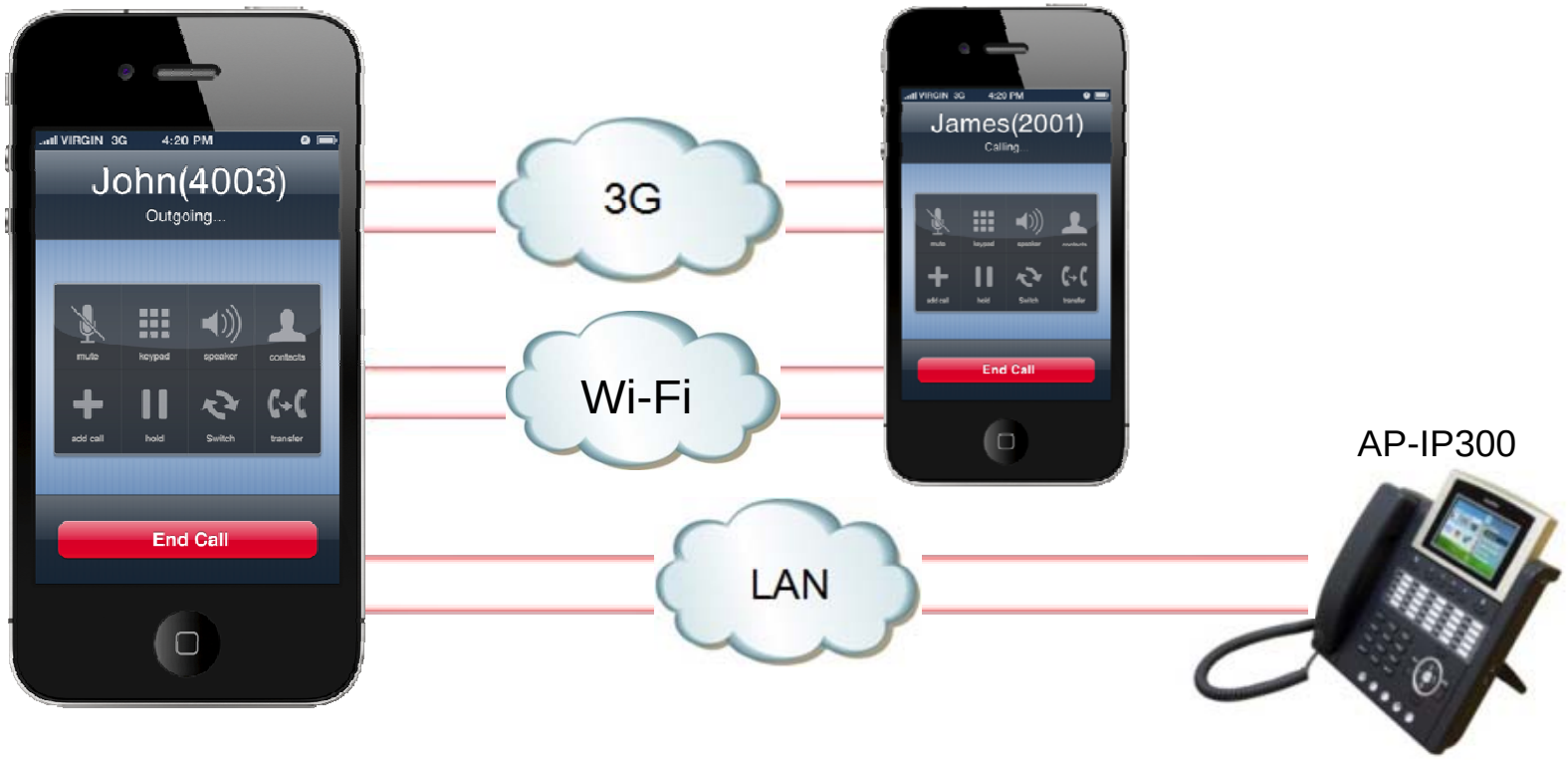
PTT Call Scenario (example)

- PTP Call Scenario
  - Basic Call and Display user profile
  - Hold / Resume
  - Call Waiting
  - Call Transfer
  - 3G to 3G basic Call

- PTT Scenario
  - Basic Call (Wi-Fi to Wi-Fi)
  - Basic Call (3G to 3G)

I-Phone PTT Call Scenario

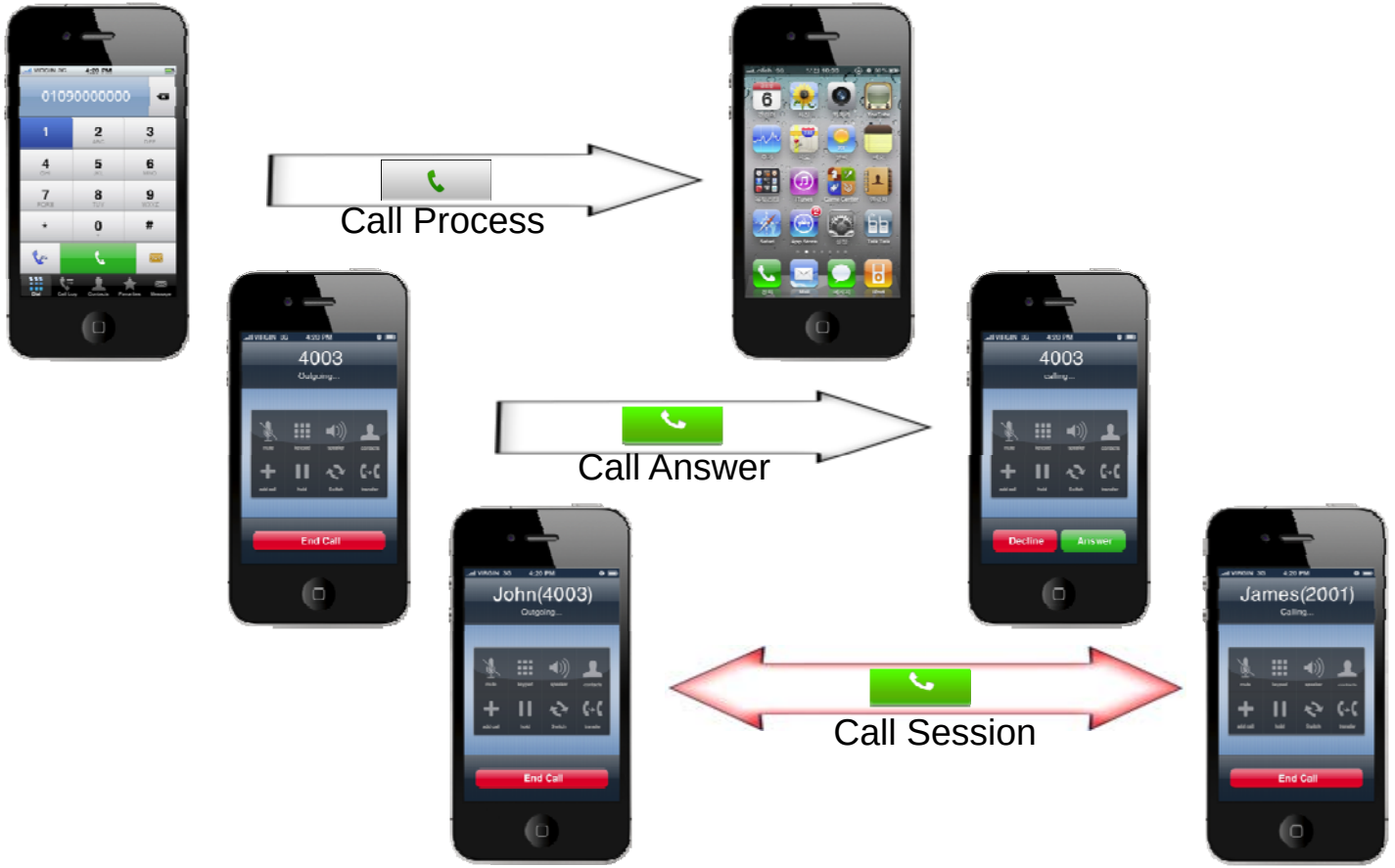
1-1. Basic Call



I-Phone Call Scenario

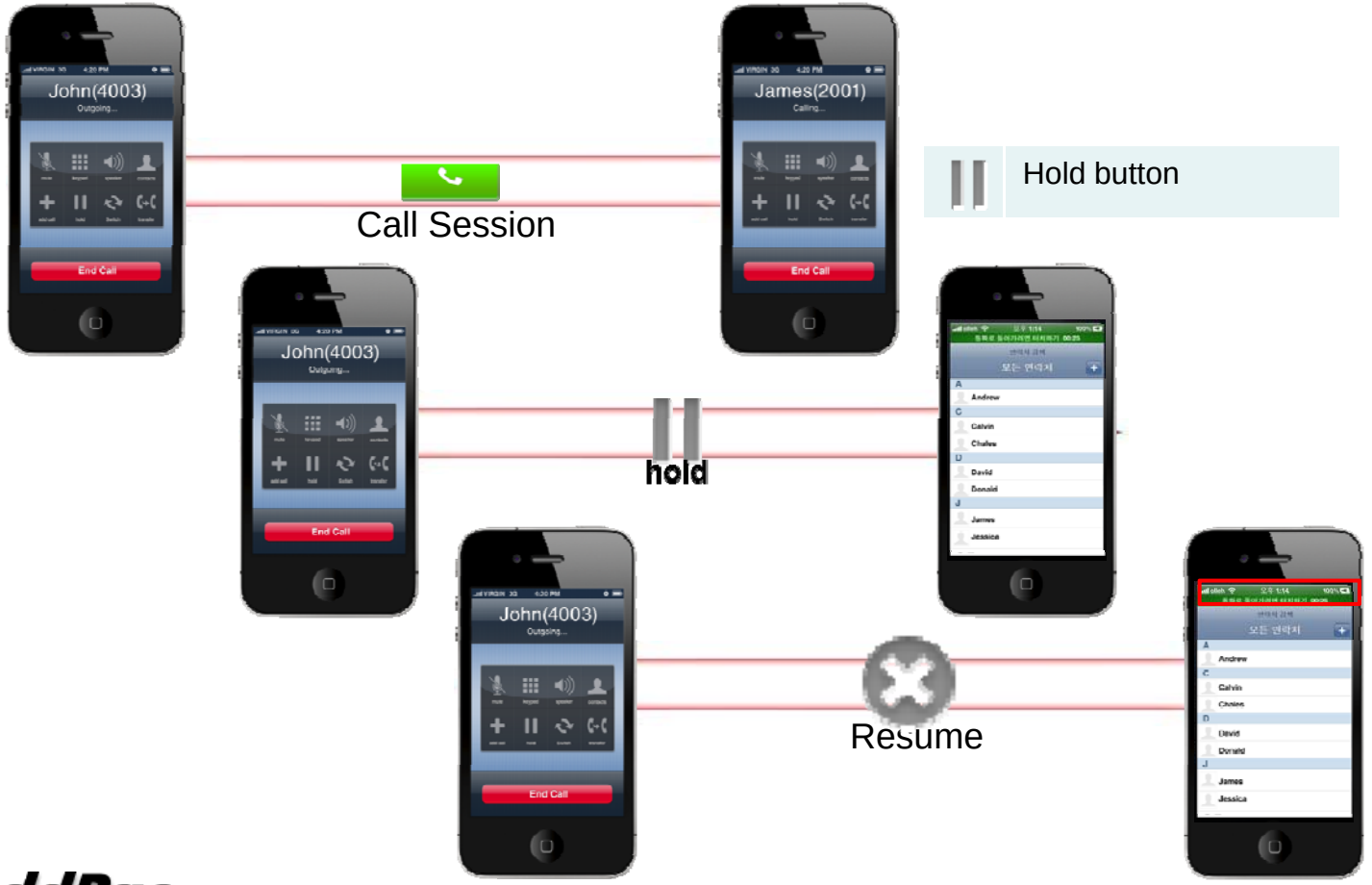
1-2. Basic Call and display user profile

Wi-Fi and 3G Call Connection



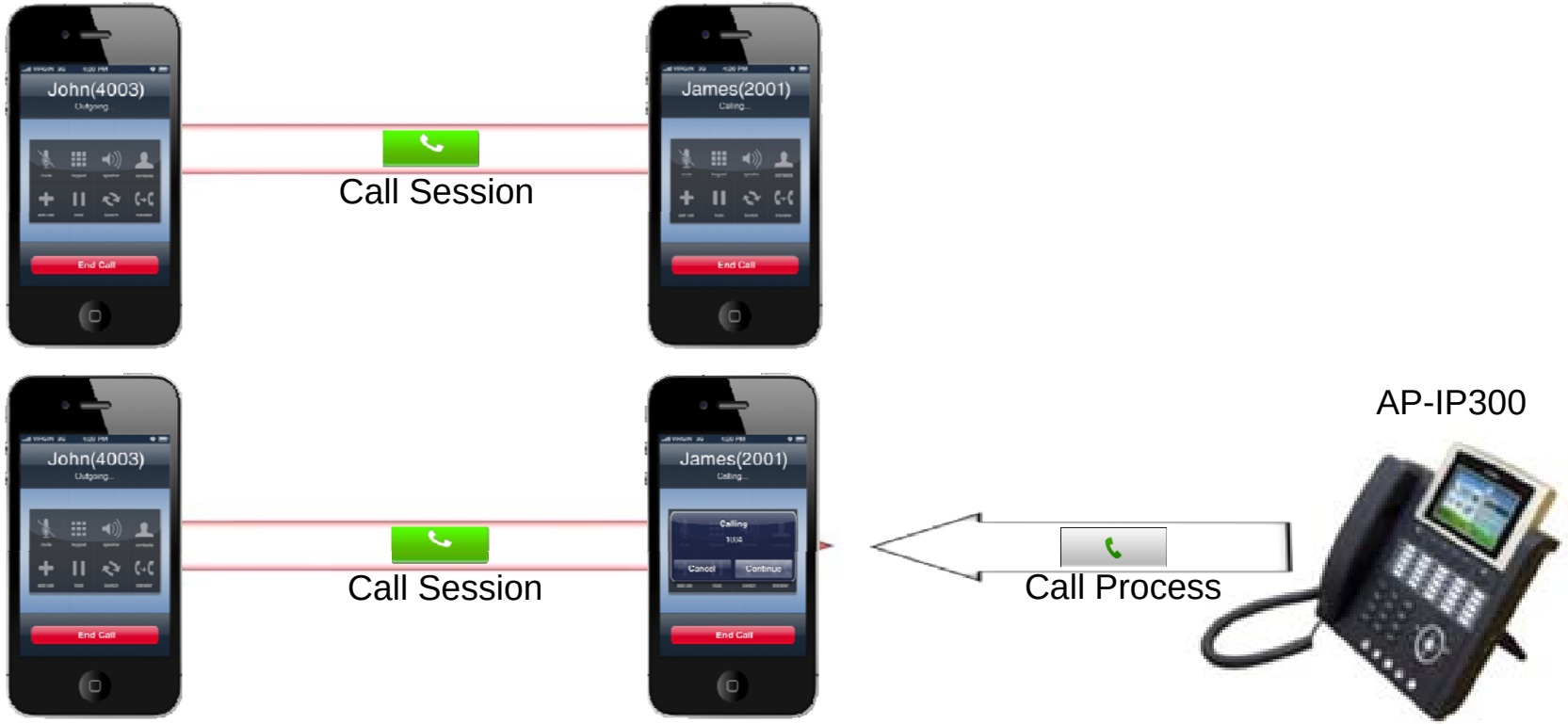
I-Phone Call Scenario

2. Hold/Resume



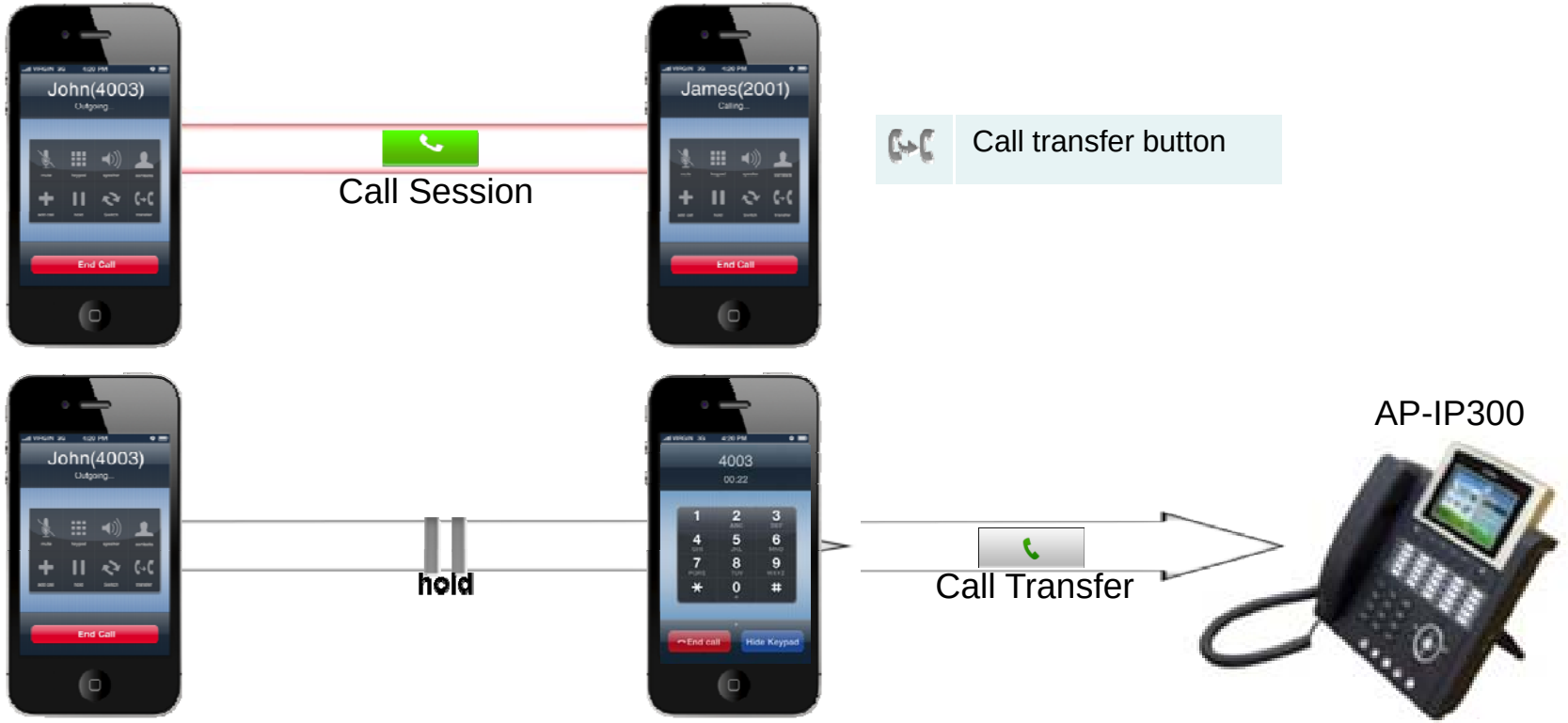
I-Phone Call Scenario

3. Call Waiting



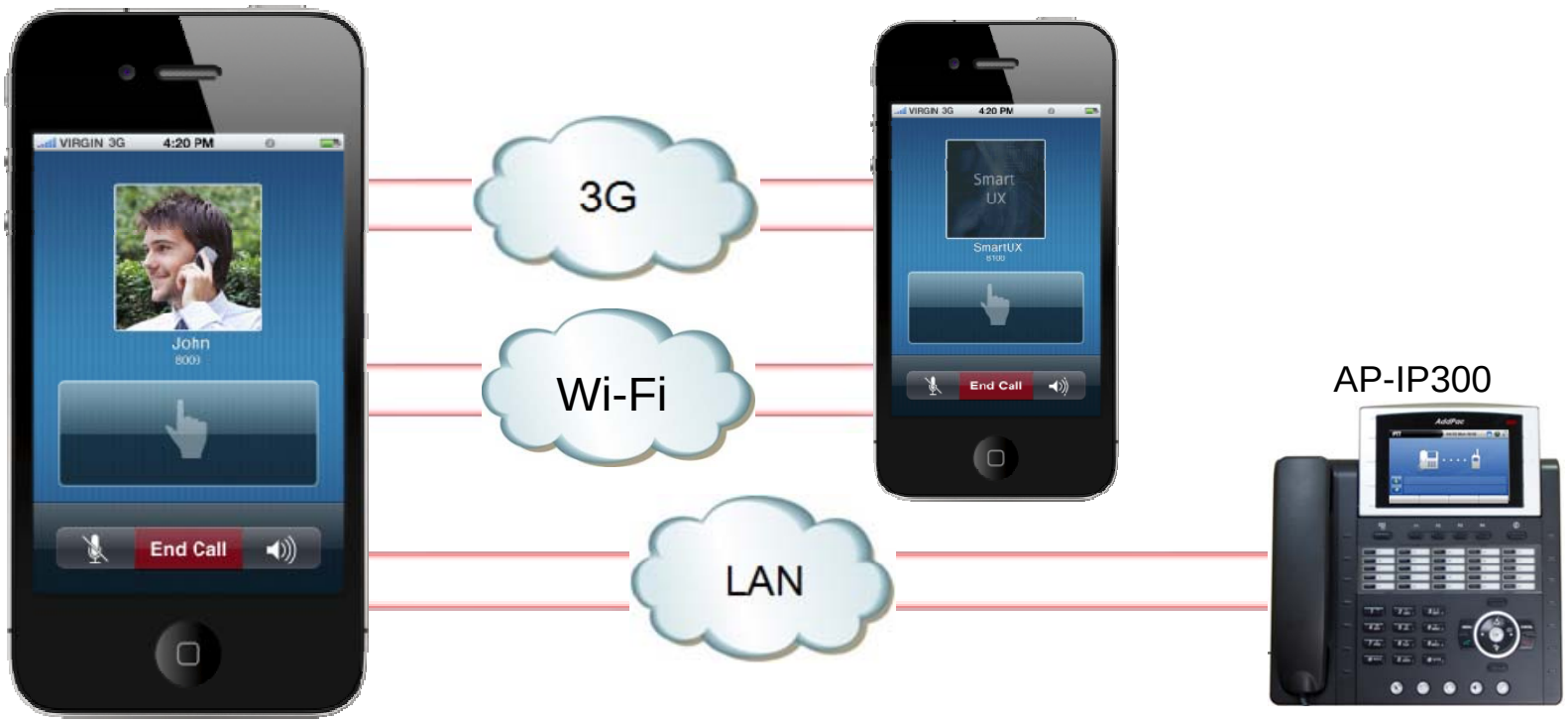
I-Phone Call Scenario

4. Call Transfer



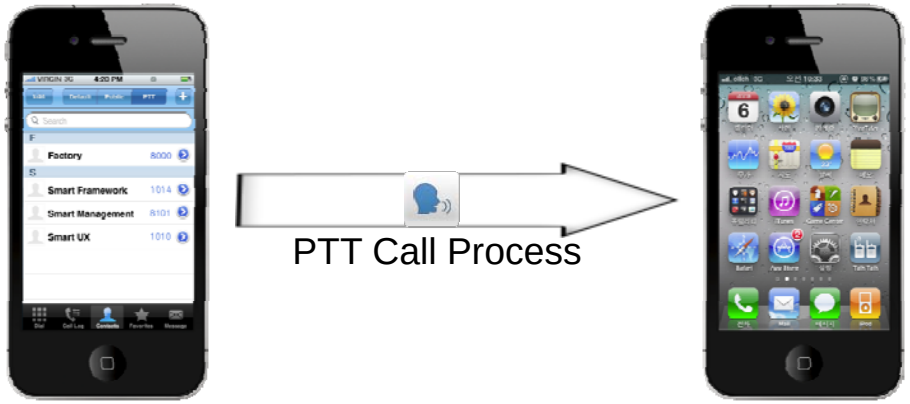
I-Phone Call Scenario

1-1. Basic PTT call connection



I-Phone Call Scenario

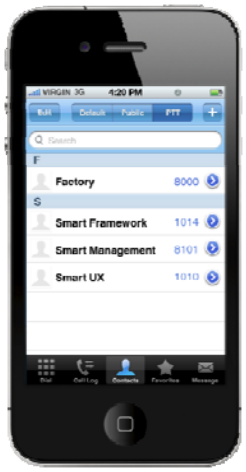
1-2. Basic PTT call connection (1)



PTT Call Process

PTT Call Session
(Auto-Answer)

Tip. PTT group call addition



I-Phone Call Scenario

1-2. Basic PTT call addition(2)

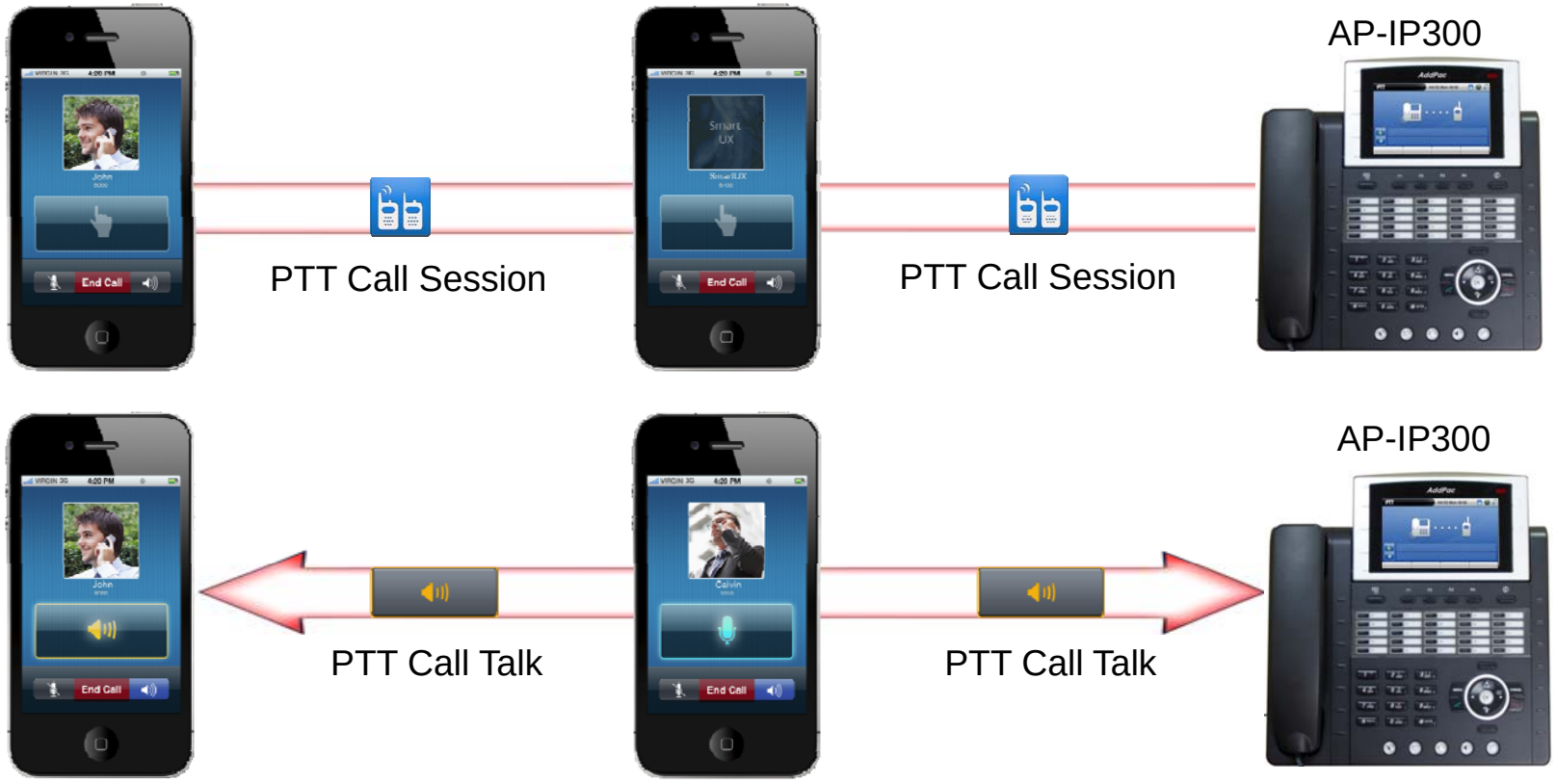
1	PTT button
2	mute
3	Call termination
4	Speaker phone

Tip. Phone Book Photo addition

1	Take Picture
2	Photo selection from internal album
3	Delete Photo

I-Phone Call Scenario

1-3. PTT(Push-To-Talk) Speaking Mode(1)



I-Phone Call Scenario

1-3. PTT(Push-To-Talk) Speaking Mode (2)

IP based PTT Solution Components

IPNext3000 Next Generation IP-PBX

Main Features

IPNext3000 Next Generation IP-PBX

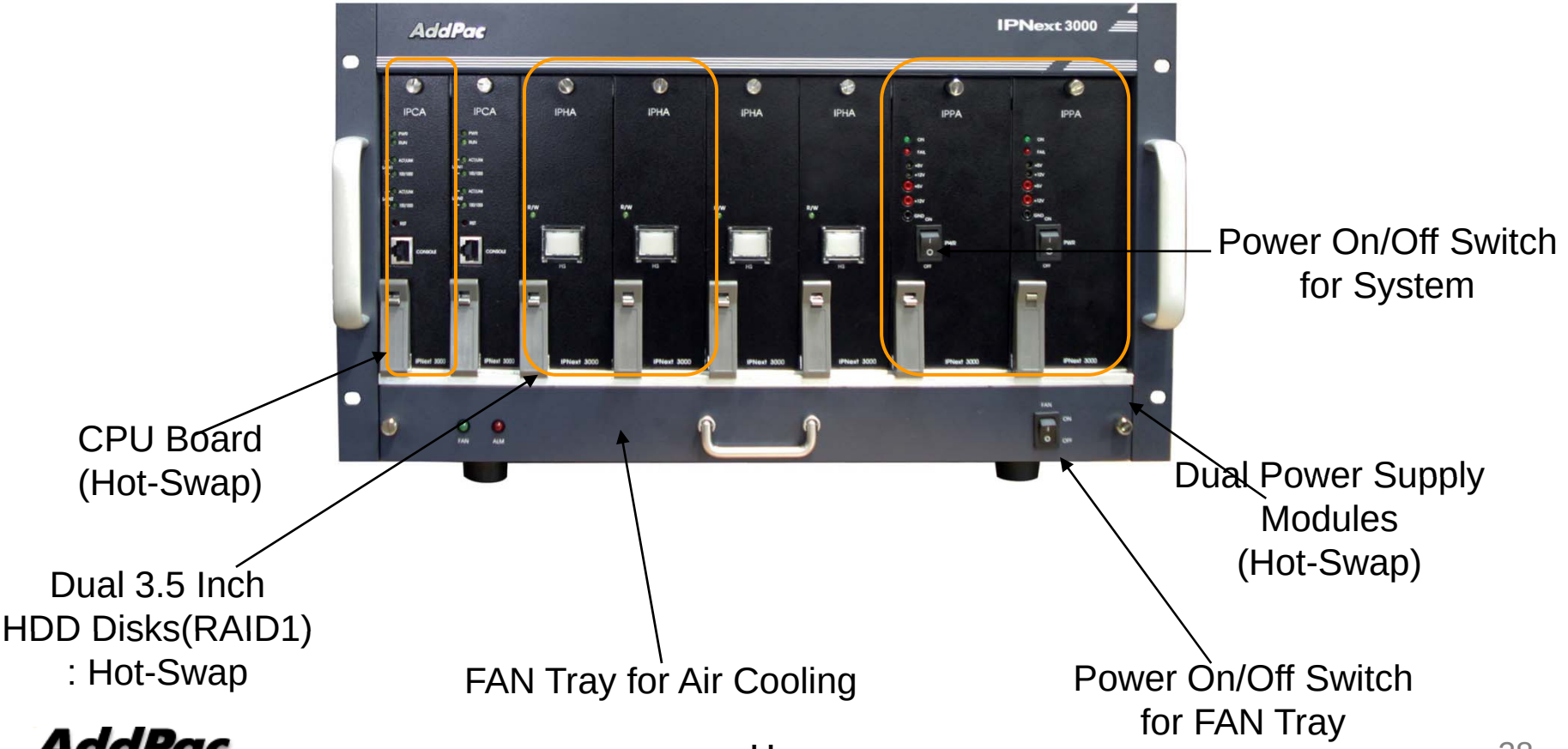
- Advanced IP-PBX Solution
- IPv4/IPv6 based Dual Network Protocol Support
- Internal/External RTP Proxy Function Support
  - External RTP Proxy Server for Private Address : AP-RS2000
- Internal/External Presence Function Support with Smart Messenger
  - External Presence Server : AP-PS2000
- Powerful Management and User Friendly Features
- Fault Tolerant and Scalability Architecture
- Firmware Upgradeable Architecture
- Dual System Redundancy Architecture
  - Two(2) 3.5 Inch Hard Disk (RAID 1) / System
  - Two(2) Gigabit Ethernet Interface / System
- Dual Redundancy Power Module
- Smart Multimedia Manager Software

Hardware Specification

IPNext3000 Next Generation IP-PBX

RISC CPU

IPNext3000 Front Side



Hardware Specification

IPNext3000 Next Generation IP-PBX

RISC CPU

IPNext3000 Back Side

LAN0 for Active CPU

LAN1 for Active CPU

LAN0 for Standby CPU

LAN1 for Standby CPU

Plug for PSU Module B

Plug for PSU Module A

AP-PTS3000 PTT Server

Main Features

AP-PTS3000 PTT Server

- Two(2) Module Slots for PTT Broadcasting Service
- Two(2) Gigabit Ethernet Interface Module
- IP based PTT Service Support
- Dial-Out based PTT Service Support
  - Multi-Session , Multi-Group
  - PtMP(Point-to-Multipoint) Service
  - PtP (Point-to-Point) Service
- Meet-me based PTT Service Support(Option)
- IP-PBX Interworking Service
- IP Terminal Interworking Service (Wi-Fi Phone, IP Phones)
- Advanced Networking Protocols
- Firmware Upgradeable Architecture
- PTT Solution with Outstanding Network Service Capability

Hardware Specification

AP-PTS3000 PTT Server

64bit CPU

- Network Module (AP-AIM2-GE2)
  - Two(2) Port Gigabit Ethernet Module

One(1) RS232C Port for CLI

Two(2) Fast Ethernet for management

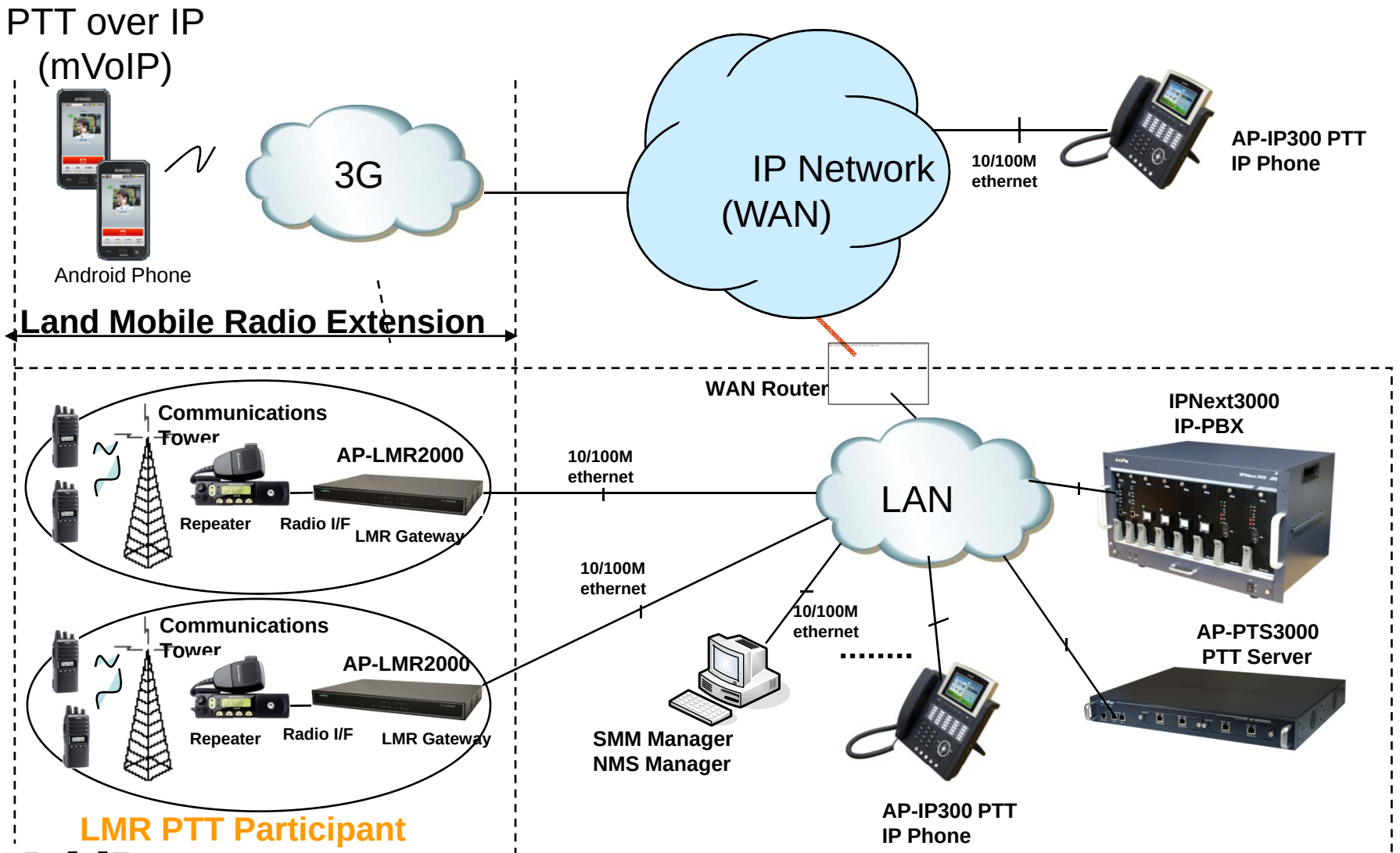
Two(2) Gigabit Ethernet for PTT Service

LMR Gateways for PTT Service (RoIP : Radio over IP)

LMR Gateway Comparison Table

	AP-LMR100	AP-LMR1000	AP-LMR2000
			
Radio Interface Type	E&M, etc	E&M, etc	E&M, etc
Module Slots for Radio Interface	N/A	1	2
Port Number /Module	N/A	2	2
Radio Interface Ports	1	2	4
IPv4/IPv6 Dual Stack Support	Support	Support	Support
VoIP Signaling	H.323/SIP	H.323/SIP	H.323/SIP
TLS/SRTP Secure Protocol	Support	Support	Support
Management	CLI/Web	CLI/Web	CLI/Web
LAN Port	2	2	2
Console Port for CLI	1	1	1

RoIP Network Diagram



AP-LMR2000
LMR Gateway

Main Features

AP-LMR2000 LMR Gateway

- LMR 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 Module, Radio Interface Adaptation Module, 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
- TLS/SRTP VoIP Secure Protocol Support (AES, 3DES, etc)
- Firmware Upgradeable Architecture
- Advanced Voice QoS Mechanism
- Powerful Web based Management
- RS232C Port Support for Command Line Interface
- AddPac Total Solution Component for Radio over IP

Hardware Specification

AP-LMR2000 LMR Gateway

RISC CPU

High-end DSP

- 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

Hardware Specification

AP-LMR2000 LMR Gateway

RISC CPU

High-end DSP

AP-LMR2000 Back Side

RS232C Console Port

LAN0(10/100Mbps)

LAN1 (10/100Mbps)

Radio Interface Module

Power Inlet

Power Switch

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

Example : E&M Interface for Radio Interworking

PMG Media Gateways for PTT Service

Main Features

AP2650PMG PTT Media Gateway

- PTT over IP Service Support
- Radio Systems(Motorola, etc) are Extended to Circuit Switch Network(PSTN, Cellular) via IP Network
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- High Performance LAN-to-LAN Routing Capability
- Four(4) Module Slots for PTT Media Gateway Service
- 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
- Dual Power Supply for Redundancy

Hardware Specification

AP2650PMG PTT Media Gateway

RISC CPU

High-end DSP

- RISC Microprocessor Computing Power
- Main Chassis
  - Module Type System Processor Interface
    - Two(2) 10/100Mbps Fast Ethernet
    - One(1) RS-232C Console (RJ45)
  - Four(4) Module Slots for FXS, FXO, Digital E1/T1, etc
  - Dual Power Supply

RS232C Console Port

LAN0(10/100Mbps)

LAN1 (10/100Mbps)

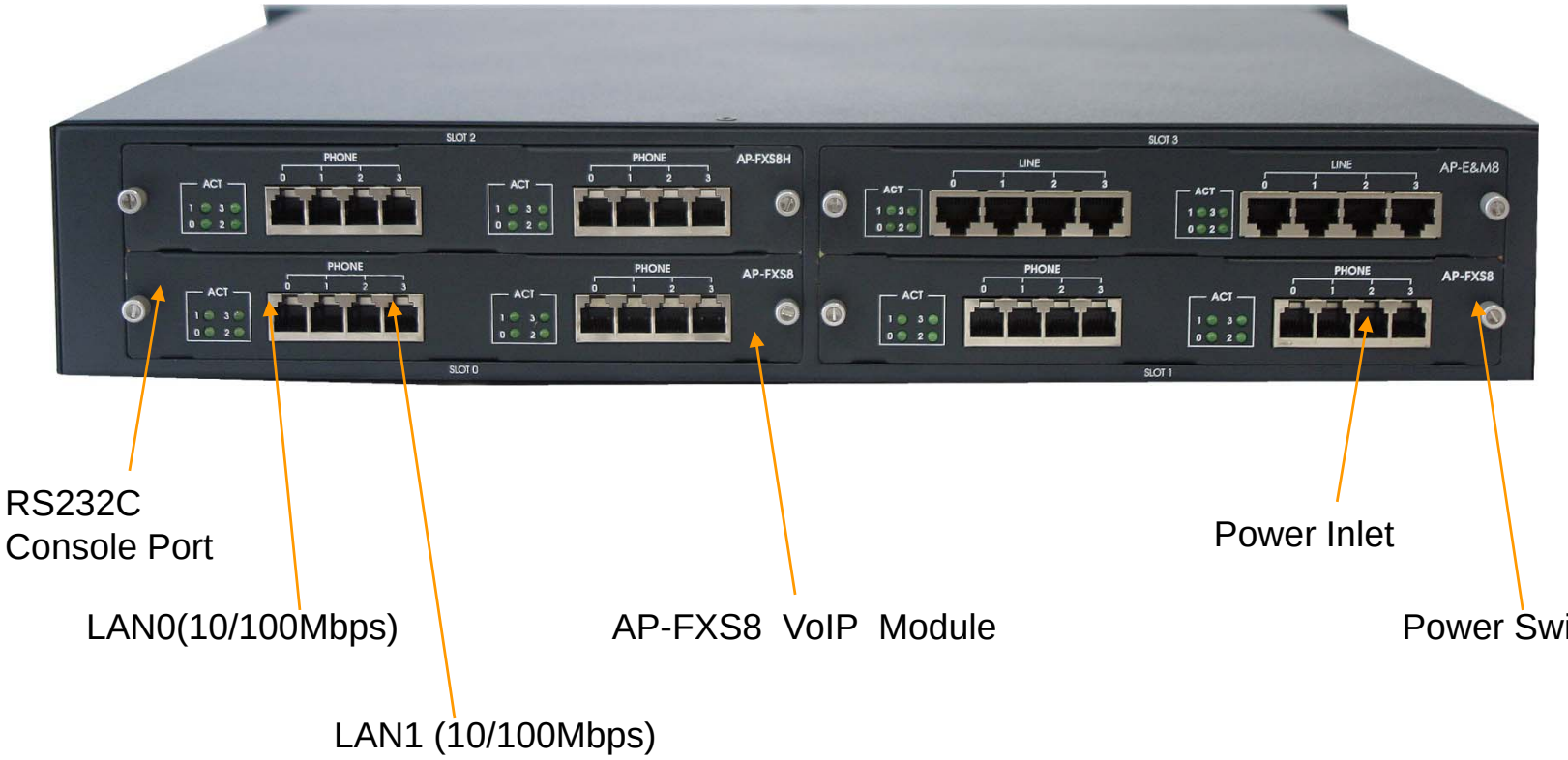
Power Switch

Power Inlet

Hardware Specification

AP2650PMG PTT Media Gateway

AP2650PMG Back Side



AP-WP100P Wi-Fi Phone for PTT Service

Main Features

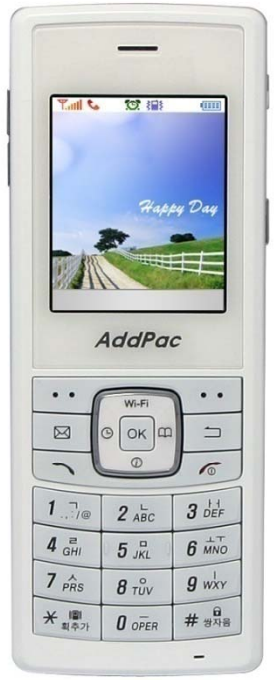
AP-WP100 Wi-Fi IP Phone

- Wi-Fi IP Phone Solution
- Various Call Scenario Support (IP-PBX)
- State-of-art SIP Signaling
- PTT Service over IP (PTT Button Support)
- IEEE802.11b/g up to 54Mbps
- WPA(Wifi Protected Access), 802.11i Security Standard
- Wi-Fi IP Audio Broadcasting Terminal Solution
- External Audio In/Out Port for Headset
- Firmware Upgradeable Architecture
- VoIP Solution with Outstanding Network Service Capability
- Audio Privacy Protection

Hardware Specification

AP-WP100 Wi-Fi IP Phone

- Microprocessor
  - RISC processor
- Memory
  - NAND FLASH : 32Mbyte
  - mSDRAM : 32MByte
- Wireless
  - IEEE802.11b/g Support
  - Operating Frequency : 2.4GHz
  - 802.11g: 54, 48, 36, 24, 18, 12, 9, 6Mbps, auto rate
  - 802.11b: 11, 5.5, 2, 1Mbps, auto rate
  - Operating Channels : IEEE Channels 1–14
- Audio Interface
  - 2 x MIC-IN, Receiver OUT, Speaker OUT , Head Phone C
  - Interface : I2S (Chip Set : CS42L52)
- Display
  - LCD : 220 X 176 260K Color 2” TFT LCD (16bit data bus)



Hardware Specification

AP-WP100 Wi-Fi IP Phone

- IO PORT
  - Ear-phone jack 2.5mm, 4 Contact
  - 24PIN Data Connector
    - USB Device, RS232 TTL, Battery Charge 4.2V or 5V(USB)
  - 3PIN Battery Charge Connector(4.2V)
- Other
  - 23 Keys (Front) + 4 Keys (Side) , 8 Back Light LEDs
  - Vibration Motor
  - Battery : 3.7V, 1330mAh Lithium Polymer Battery (Inner Pack Type)

Hardware Specification

AP-WP100 Wi-Fi IP Phone

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

NMS System for PTT Solution

System Requirement

Network Management System for PTT Server

NMS Server

- OS : RHEL (Redhat Enterprise Linux) 5.0 or higher
- CPU : Quad-Core 2.0 GHz / 1333MHz FSB 2x4 MB cache
- Physical Memory : 4 GB
- HDD : 300 G
- JRE (Java Runtime Environment) 1.5.1 or Higher
- Database : PostgreSQL 8.1.11

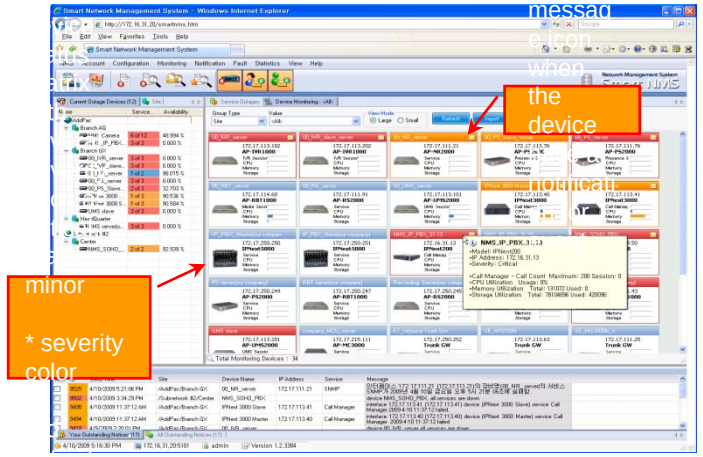
NMS Client

- Windows XP, Vista, Windows Server 2000/2003
- Microsoft Internet Explorer 6.0 or higher

Main Features

Network Management System for PTT Server

- Server & Client Architecture
- Web-based Management
- Network Resource Management
- Device Fault Management
- Device Fault History Management
- Device Status Information
- Notification Management
- Fault Statistics
- Model & Service Management



Thank you!

AddPac Technology Co., Ltd.
Sales and Marketing

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