

GPS based NTP Server for IP Emergency Call Center



AddPac

AddPac Technology

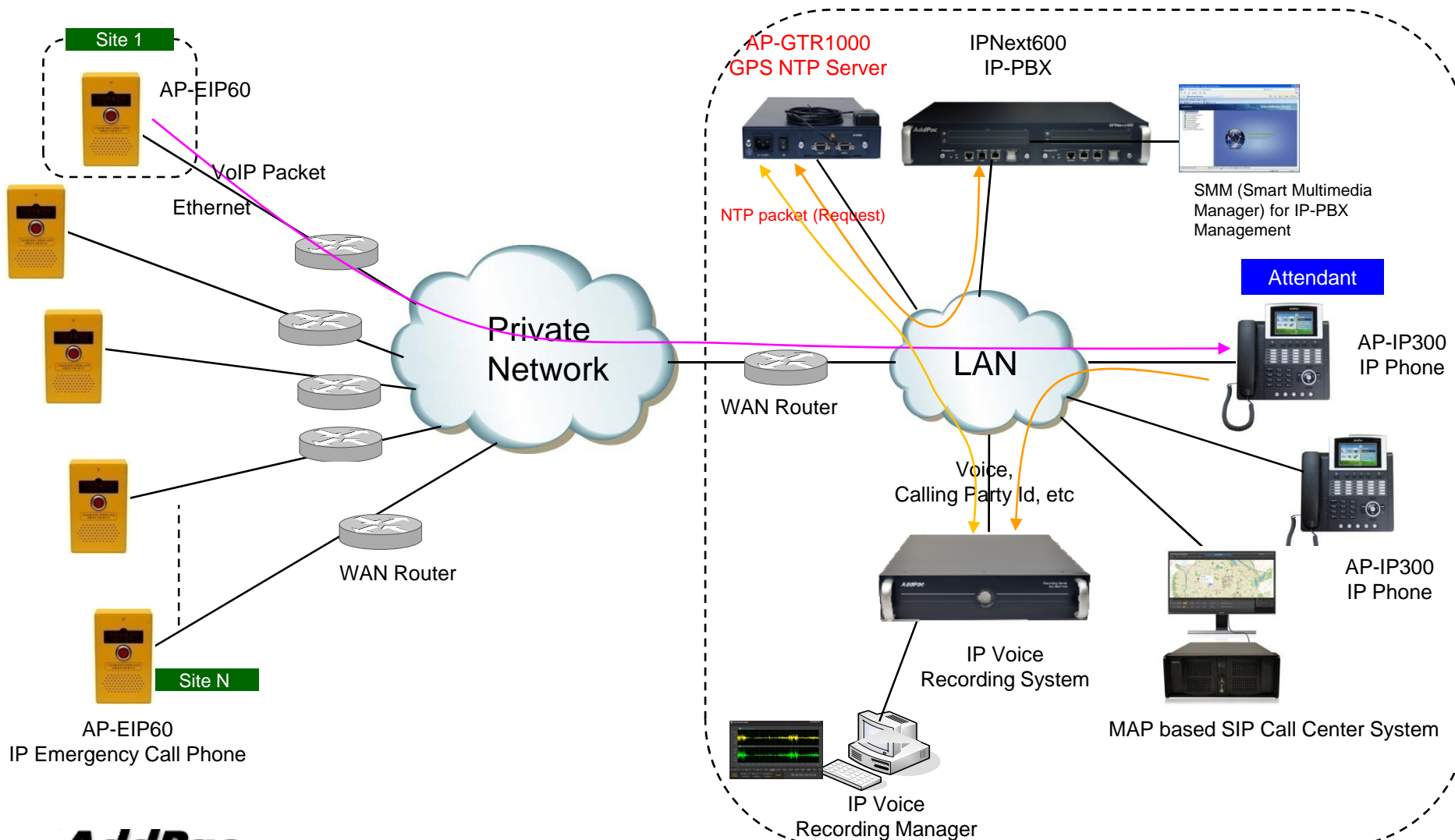
Sales and Marketing

www.addpac.com

Contents

- Network Diagram
- Product Solution Table
- IP Emergency Call Phone Comparison Table
- GPS based Embedded NTP Server for Time Sync.
- IPNext600 IP-PBX Solution for Call Center
- IP Phone Solution for Call Center
- IP Voice Recording Solution (Option)
- AP-MSCS MAP based IP Emergency Call Center System (Option)

Network Diagram



IP Emergency Call Solution Product Table






MAP based Management System	SIP Call Manager	SIP Emergency Phone	SIP Phone for Call Center	IP Voice Recording Server	GPS based NTP Server
	 <p>IPNext600</p>	 <p>AP-EIP100</p>	 <p>AP-IP300</p>	 <p>AP-NR1500</p>	 <p>AP-GTR1000</p>
		 <p>AP-EIP70</p>	 <p>AP-IP230</p>		
		 <p>AP-EIP60</p>			





Emergency Call IP Phone Solution

(SIP VoIP Standard Signaling Protocol)

Emergency Call IP Phone Comparison Table

Model	AP-EIP100	AP-EIP90	AP-EIP80	AP-EIP70	AP-EIP50
Service Features					
Duplex	Full Duplex (Acoustic Echo Canceller)	Full Duplex (Acoustic Echo Canceller)	Full Duplex (Acoustic Echo Canceller)	Full Duplex (Acoustic Echo Canceller)	Full Duplex (Acoustic Echo Canceller)
Key Pad	3x4 Key Support	N/A	N/A	N/A	N/A
Handset	Support	N/A	N/A	N/A	N/A
Voice Codec	G.711/G.726/ G.729/G.723	G.711/G.726/ G.729/G.723	G.711/G.726/ G.729/G.723	G.711/G.726/ G.729/G.723	G.711/G.726/ G.729/G.723
Signaling	SIP	SIP	SIP	SIP	SIP
Speaker Phone	Support	Support	Support	Support	Support
LAN Port	1	1	1	1	1
PoE(Optional)	Support	Support	Support	Support	Support
Application	Indoor	Outdoor(water resistance)	Outdoor(water resistance)	Outdoor(water resistance)	Indoor

Emergency Call IP Phone Comparison Table

Model	AP-EIP60	AP-EIP60L
Service Features		
Duplex	Full Duplex (Acoustic Echo Canceller)	Full Duplex(Acoustic Echo Canceller)
Key Pad	N/A	N/A
Handset	N/A	N/A
Voice Codec	G.711/G.726/G.729/G.723	G.711/G.726/G.729/G.723
Signaling	SIP	SIP
Speaker Phone	Support (Internal SPK.Watt is comparative large for Outdoor Env.)	Support
LAN Port	1	1
PoE(Optional)	Support	Support
Chassis	Die-Casting Steel Frame Chassis(Optional) Front, Back (Steel)	Front Panel (Steel)
Application	Outdoor(water resistance)	Indoor

GPS based Embedded NTP Server for Time Sync. AP-GTR1000



Contents

- Product Overview
- Hardware Specification
- Simple NTP (Network Time Protocol)
- Network Diagram



Product Overview

AP-GTR1000 IP based GPS Time Receiver Terminal

- High Performance GPS Time Receiver Terminal Solution
- IP based GPS Time Receiver (Location Free, etc)
- NTP (Network Time Protocol) Sever Solution
- Dual RS232 Port for GPS Time Information Transmission
- LCD Display for GPS Time Information
- External Antenna Interface Support
- Various Antenna Support for GPS Signal
- Blue LAMP for Device Status
- Smart Web Manager for System Configuration & Management
- Window, Linux Simple Socket API Program Support
- Firmware Upgradeable Architecture
- Broadcasting Solution with Outstanding Network Service Capability

Hardware Specification

AP-GTR1000 IP based GPS Time Receiver Terminal

RISC
CPU

High-end
GPS

- RISC Microprocessor Computing Power
- High-end GPS Module Hardware Architecture
- One(1) Module Slot for GPS Module
- LCD Display at Front Side
- Blue LAMP
- One(1) 10/100Mbps Fast Ethernet Interface
- Dual(2) DB-9 RS232C Interface
- Internal Power Supply
- Rack Mount Bracket (Option)
- GPS Antenna (Option)
- Option Module : AP-GPS-RS232
 - Two(2) DB-9 RS232C Interface Port
 - GPS Antenna Interface Port

Hardware Specification

AP-GTR1000 IP based GPS Time Receiver Terminal

RISC
CPU

High-end
GPS

Front Side



One(1) 10/100Mbps
LAN

RS232C Console

Status LCD

On-Air Blue LAMP
& Switch

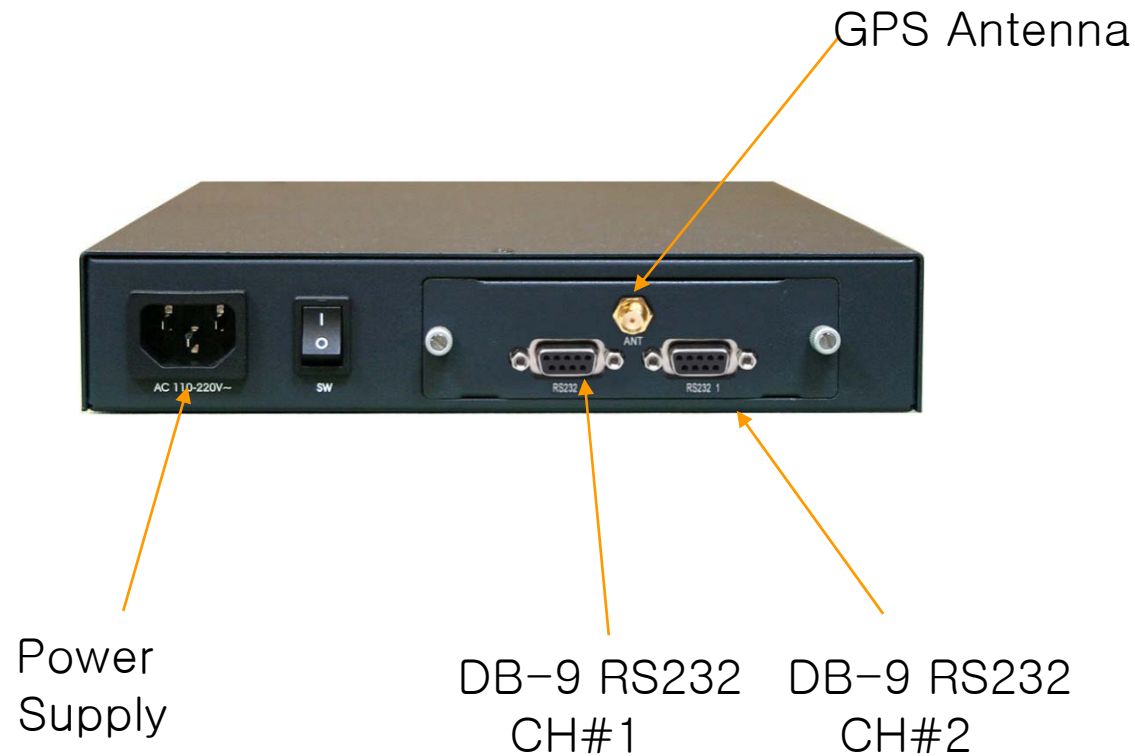
Hardware Specification

AP-GTR1000 IP based GPS Time Receiver Terminal

RISC
CPU

High-end
GPS

Back Side



Hardware Specification

AP-GTR1000 IP based GPS Time Receiver Terminal

RISC
CPU

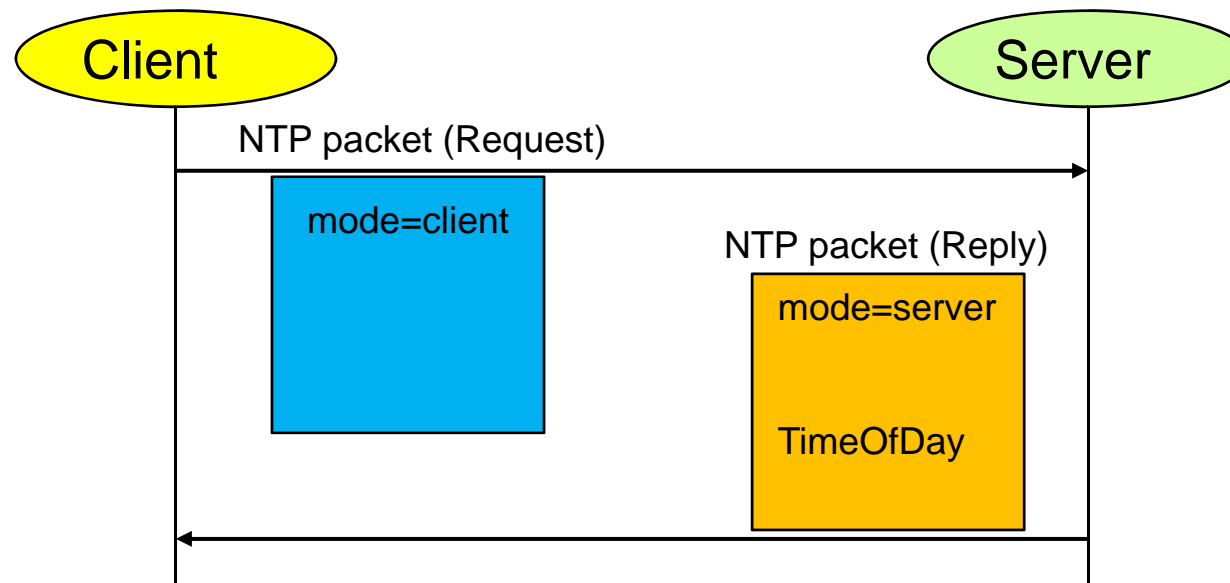
High-end
GPS

GPS Antenna

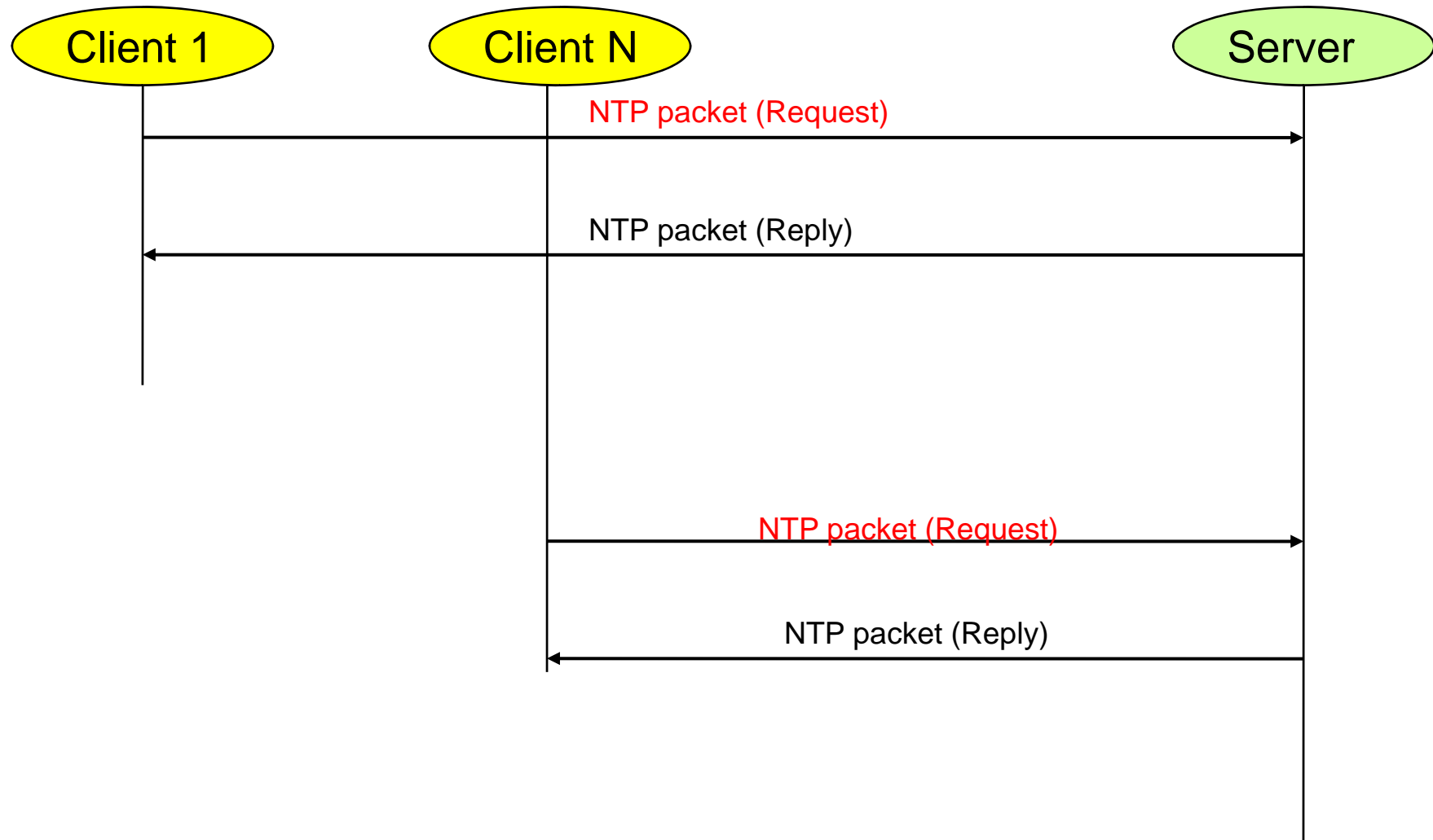


SNTP (Simple Network Time Protocol)

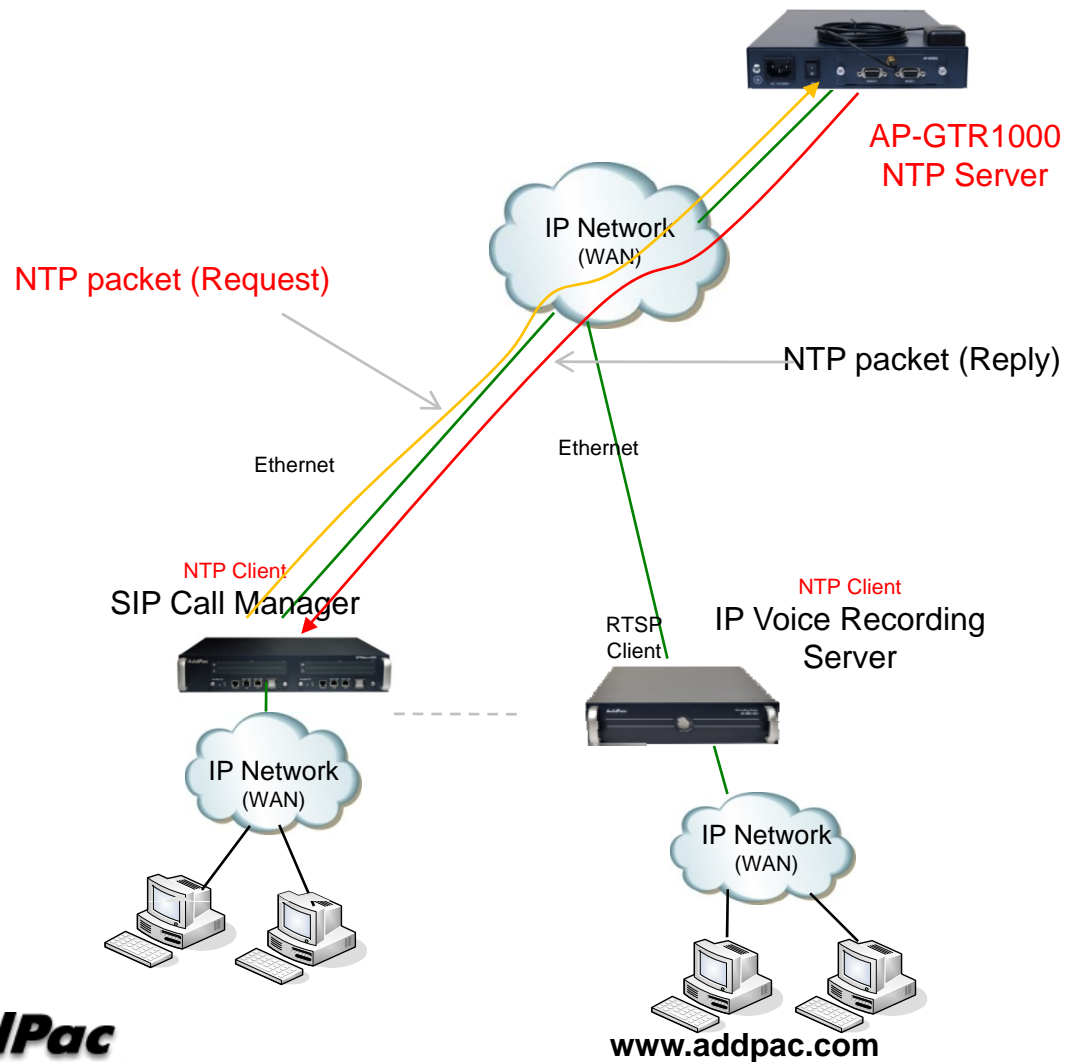
- Transport : UDP (port number 123)
- Protocol Version : 4
- Client/Server Mode



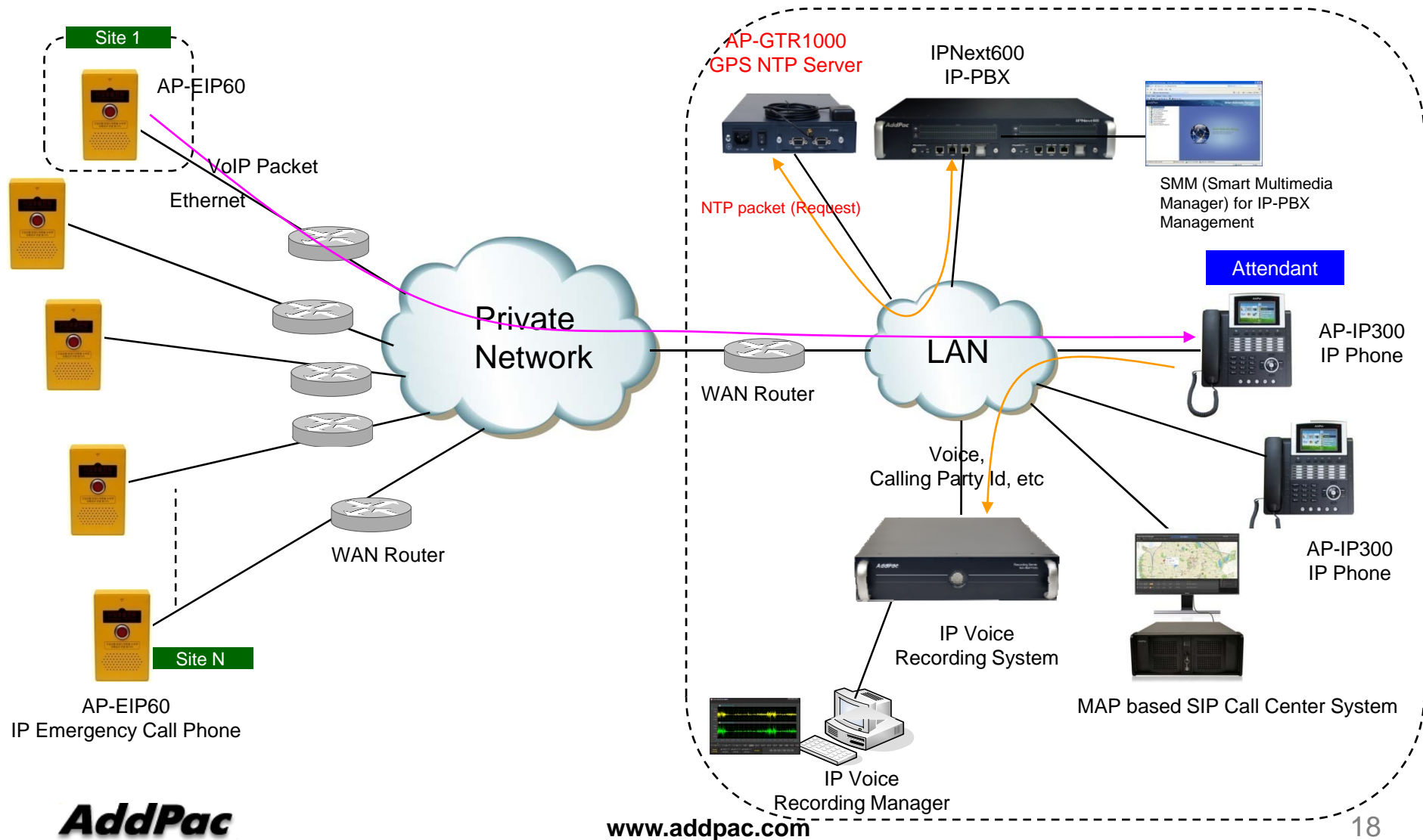
SNTP (Simple Network Time Protocol)



SNTP (Simple Network Time Protocol)



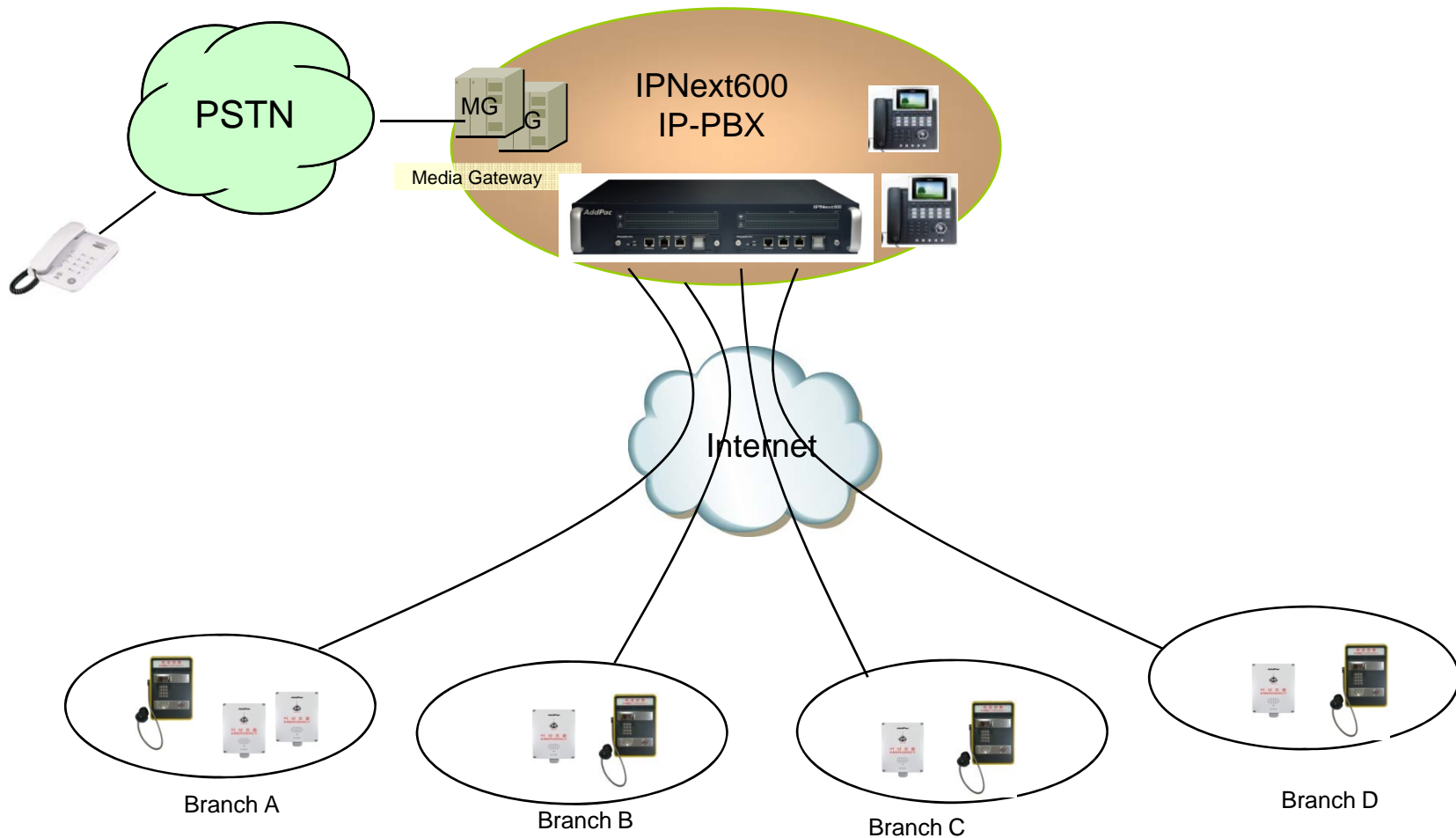
Network Diagram





IPNext600 IP-PBX Solution for Call Center

Network Diagram



Product Overview

IPNext 600 Next Generation IP-PBX System

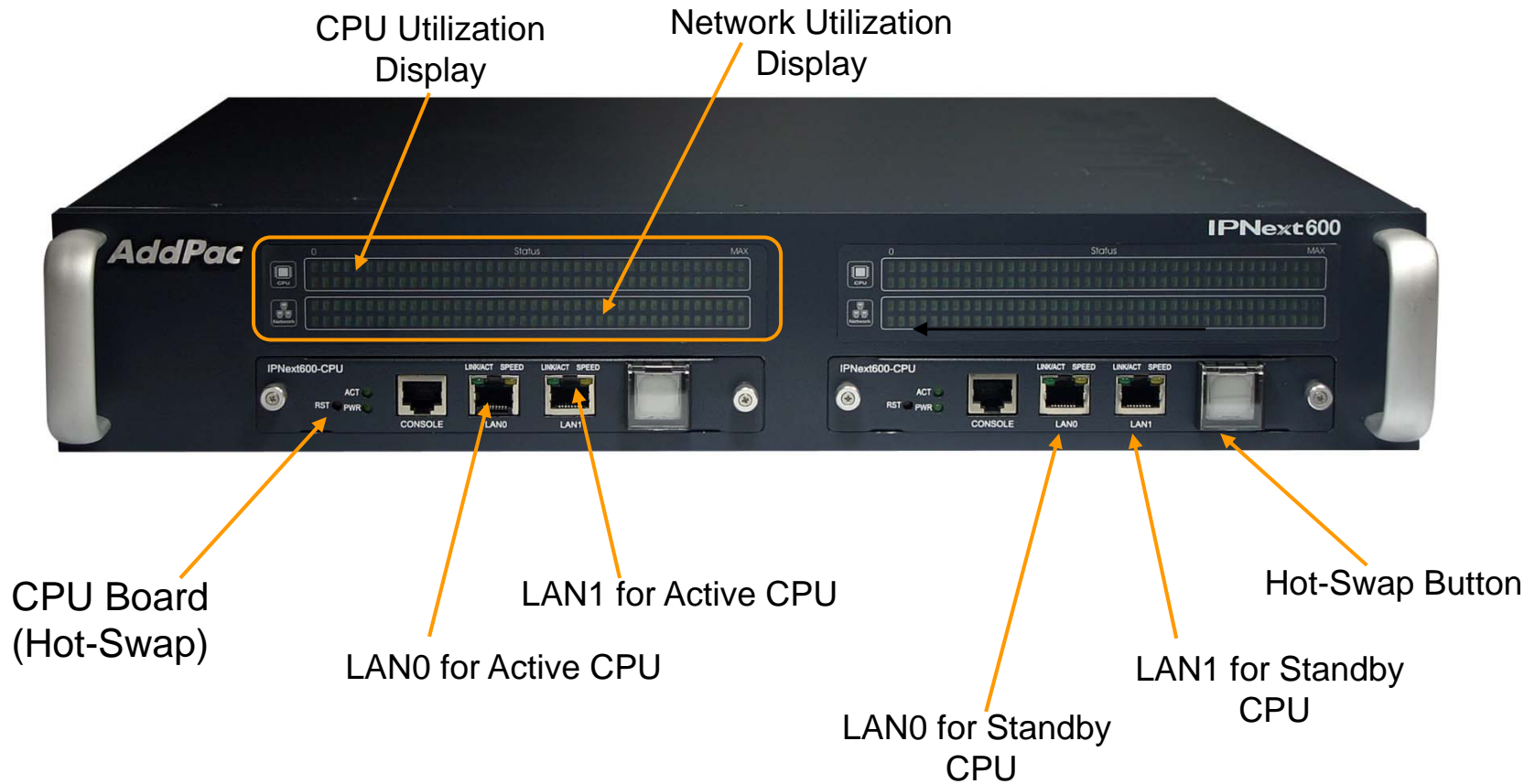
- SIP Application Server, Proxy, Registrar and Location Server
- Multiple ITSP Trunk with SIP & H.323 Accounts Support
- Dual System Redundancy Architecture
 - Two(2) Fast Ethernet Interface / System
- High Performance RISC Architecture
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- 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

Hardware Specification

IPNext 600 Next Generation IP-PBX System

RISC
CPU

IPNext 600 Front Side

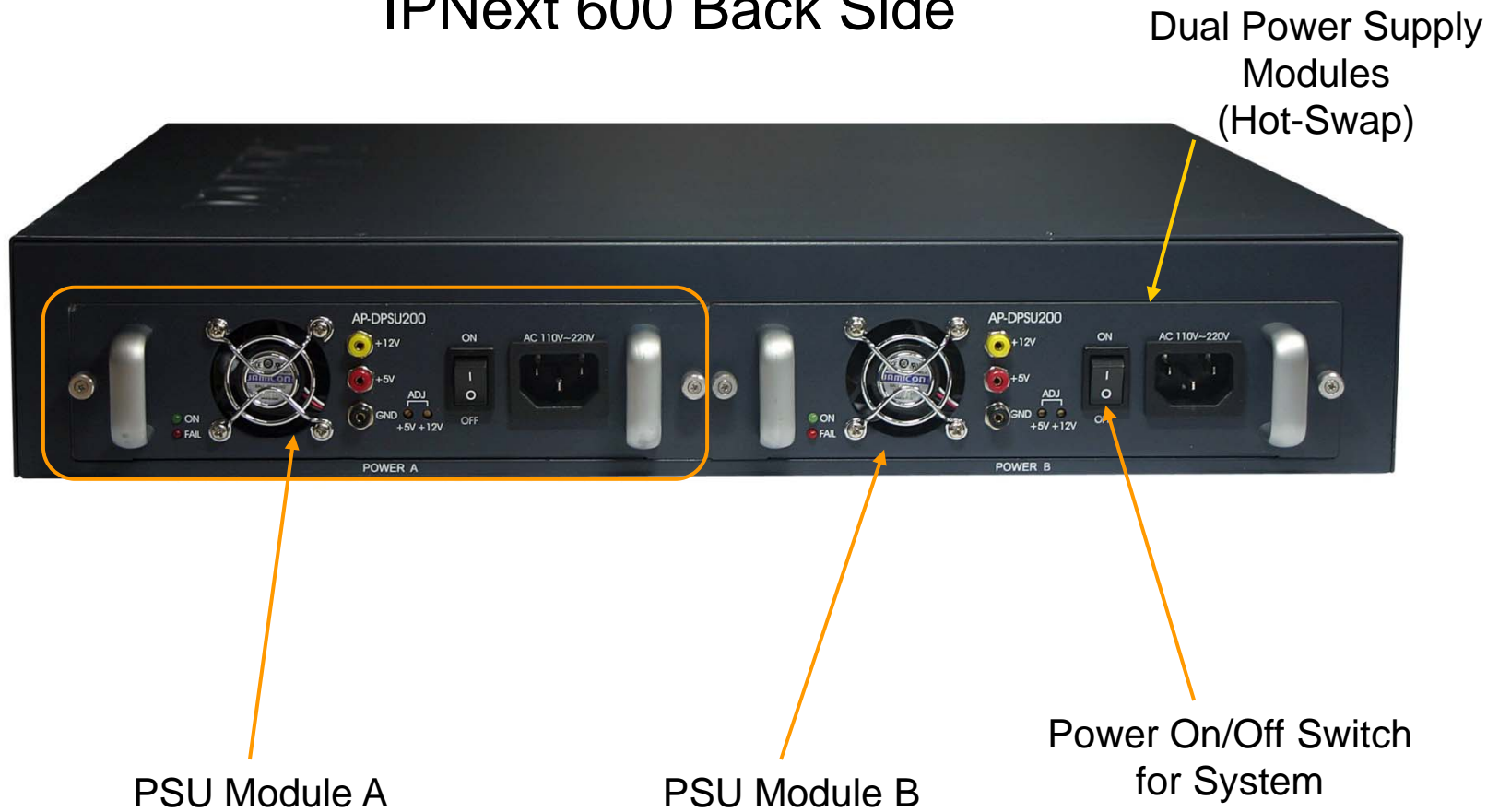


Hardware Specification

IPNext 600 Next Generation IP-PBX System



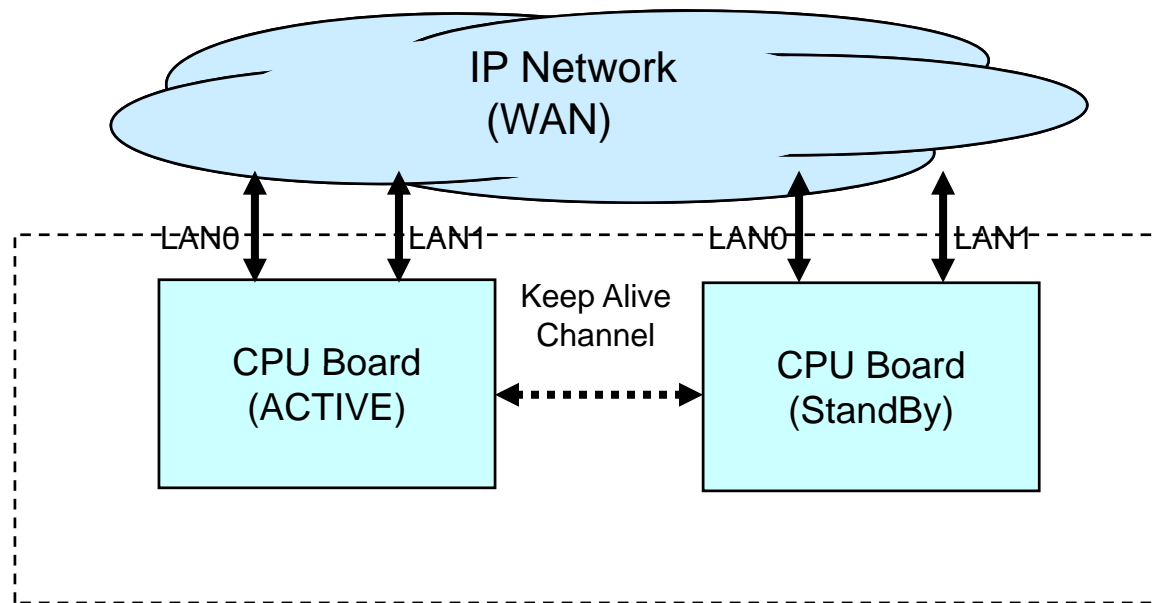
IPNext 600 Back Side



System Redundancy Features

IPNext 600 Next Generation IP-PBX System

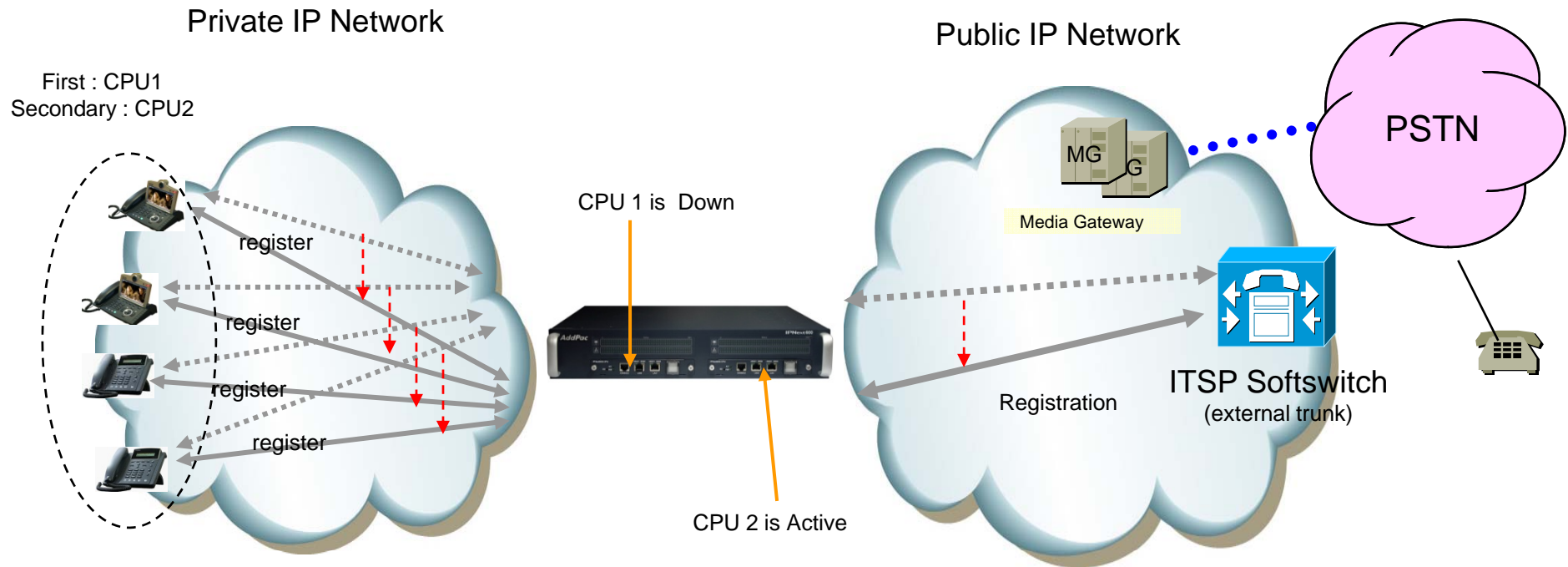
IPNext600 System Block Diagram



System Redundancy Features

IPNext 600 Next Generation IP-PBX System

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





Active – Standby Duplication Scheme (example)



IP Phone Solution for Call Center

IP Phone Comparison Table

Model	AP-IP300	AP-IP230
Spec.		
LCD Size	4.3 Inch Color LCD	5 Inch Color LCD
Touch Screen	N/A	Support
Speed-Dial Keys	25 Key with Presence LED	Touch Screen based 25 Keys
Voice Codec	G.711/G.726/ G.729/G.723	G.711/G.726/ G.729/G.723
Signaling	H.323/SIP	H.323/SIP
3-Party Conversation	Support	Support
LAN Port	2	2
PoE(Optional)	Support	Support
FXO(Optional)	Support	Support



IP Voice Recording Solution

Contents

- IP Voice Recording Servers
- Network Diagram for Voice Recording
- SIP Voice Call Flow Diagram
- Smart Digital Voice Recording Management Program



IP Voice Recording Server AP-NR1500

Product Overview

AP-NR1500 IP Voice Call Recording Server

- IP based Network Voice Call Recording Server
- Linux Operating System
- Powerful Management and User Friendly Features
- High-performance Voice Recording Service
- External AddPac IP Terminal (Ex: IP Phone, IP Intercom, IP Emergency Phone) Interworking Support
- Firmware Upgradeable Architecture
- One(1) 10/100/1000Mbps Gigabit Ethernet Interface
- Up to Two(2) 3.5Inch SATA Hard Disk Interface Support
- Two(2) USB Interface Support
- One(1) RS232C Console Interface

Hardware Specification

AP-N1500 IP Voice Call Recording Server

- High Performance Computing Power
- Network Interface
 - One(1) 10/100/1000Mbps Gigabit Ethernet Port
- Two(2) USB 2.0 Interfaces for Mouse, Secondary Storage, etc
- One(1) RS232C Console Interface (RJ45)
- Up Two(2) SATA type Hard Disk (4~8 Tera HDD Capacity)
- Power On/Off Soft Switch with LED Indication Lamp (Front Side)

Hardware Specification

AP-NR1500 IP Voice Call Recording Server

AP-NR1500 Front Side

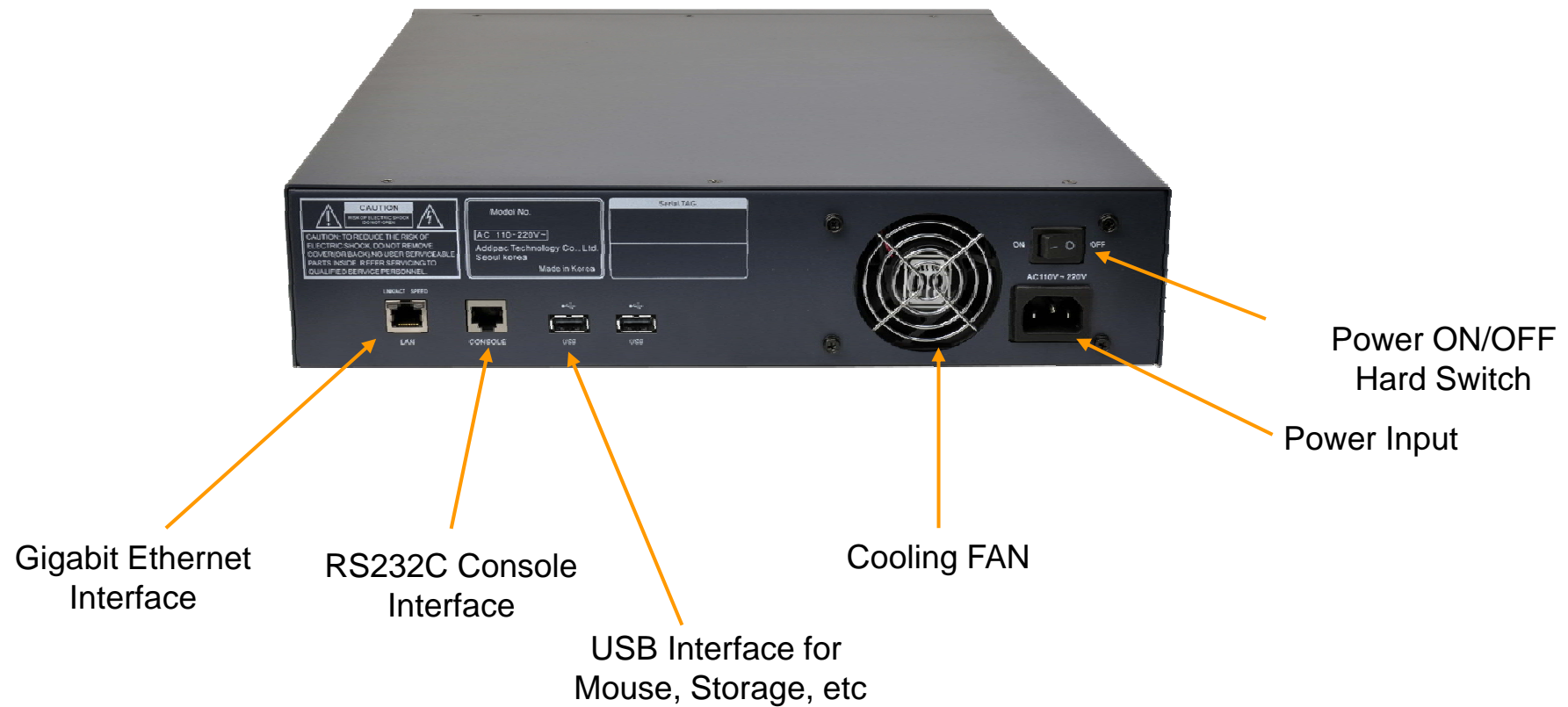


Power On/Off Switch with LED Indication LAMP

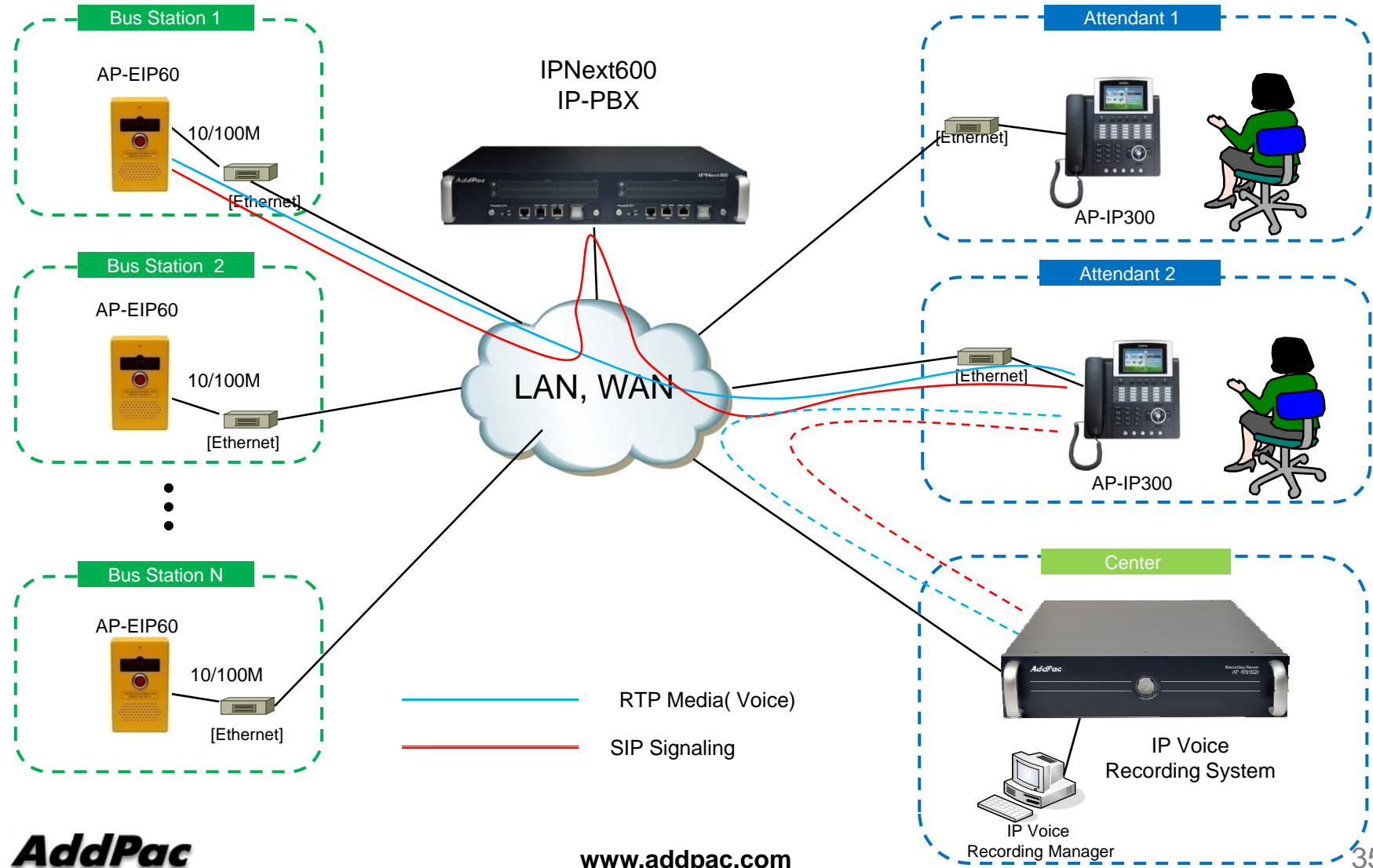
Hardware Specification

AP-NR1500 IP Voice Call Recording Server

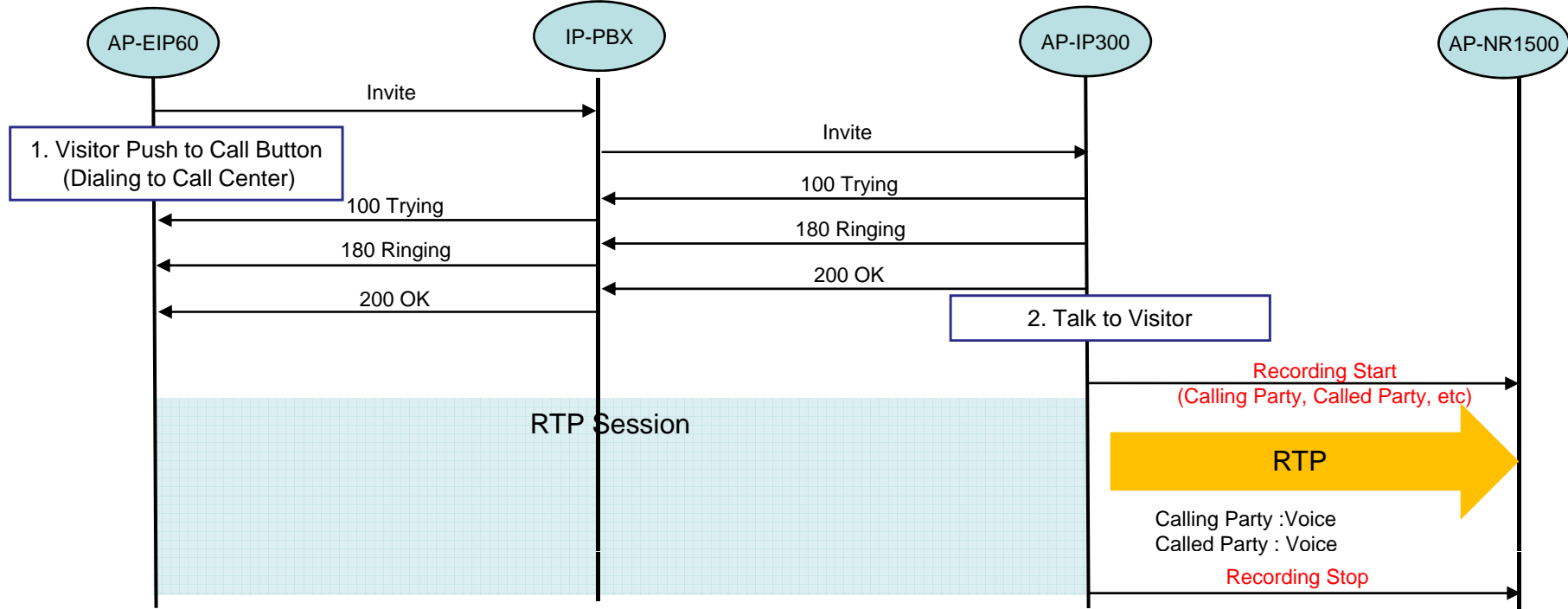
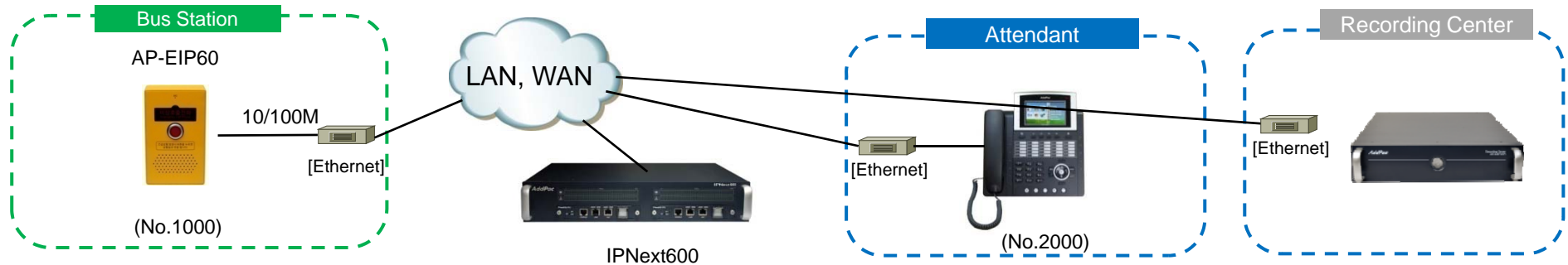
AP-NR1500 Back Side



Network Diagram for IP Phone Recording



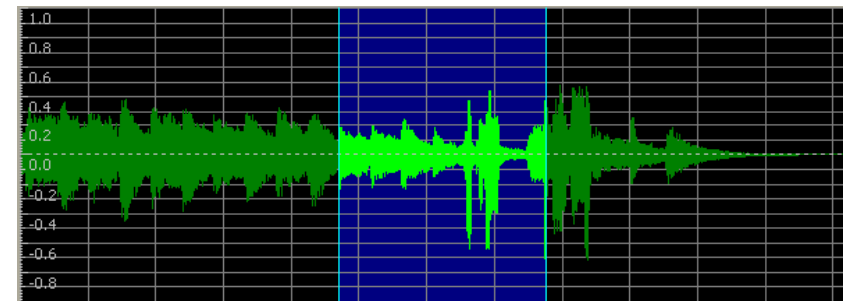
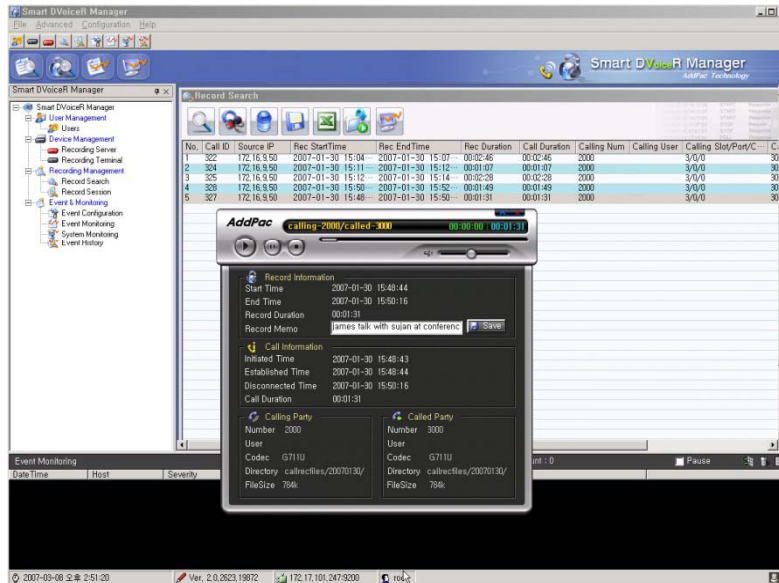
SIP VoIP Call Flow





Smart DVoiceR Manager

Smart DV_{ideo} door phoneR Management Program



- Call History Management (search/modify/delete/save)
- Media Play Management (Play/Stop/Seek/Pause)
- Live Call List Management, Live Call Monitoring
- Local Backup (File Manager Support, PC HDD, DVD) and Local Play
- User Management (registration/modify/delete/search)
- Server Status (CPU/Memory/HDD) & Event Monitoring
- Recording Source Management (Video Phone, etc)
- Live Recording Board

UI example (recording file search..)

Recording File Search Result

Calling Num ▼

	Calling Number	Called Number	Recording Start Time	Recording End Time	Duration (sec)	Play
<input type="checkbox"/>	9000	5000	2010/03/17 09:50:45	2010/03/17 09:51:45	60	Play
<input checked="" type="checkbox"/>	9000	3000	2010/03/18 09:00:12	2010/03/17 09:00:45	33	Play
<input checked="" type="checkbox"/>	9002	9000	2010/03/18 10:50:12	2010/03/17 10:55:12	300	Play
<input type="checkbox"/>	9005	9000	2010/03/18 15:12:03	2010/03/18 15:12:13	10	Play
<input type="checkbox"/>	9006	9000	2010/03/19 01:10:23	2010/03/19 01:11:10	47	Play

[1] [2] [3] ... [Next]

Powerful Recording Search
 * calling number
 * called number
 * date
 * call identifier, etc

Recording Play

Recording Backup
 * selected files from recording server to PC storage

Calling Number : Video Door Phone
 Called Number : Video Phone (attendant)

Login

The image shows the 'Smart DVoiceR Manager' login screen. At the top, it says 'AddPac Technology' and 'Smart DVoiceR Manager USER LOGIN'. There are two input fields: 'I D' with 'root' entered and 'Password' with '*****' entered. To the right of these fields are two buttons: 'Login' (with a lock icon) and 'Setting' (with a key icon). Below the input fields are two checkboxes: 'Auto login' (unchecked) and 'Save password' (checked). A red arrow points from the 'Auto login' checkbox to the text 'Auto Login Configuration'. Another red arrow points from the 'Save password' checkbox to the text 'Password Save'. A third red arrow points from the 'Setting' button to a 'Setting' dialog box. The dialog box has a title bar with standard window controls. Inside, it is titled 'Smart Recording Server' and contains two input fields: 'IP Address' with '172.16.4.22' and 'Port' with '9200' (with '(default: 9200)' next to it). At the bottom of the dialog are 'OK' and 'Cancel' buttons.

User Management

The screenshot shows the Smart DVoiceR Manager application window. The main window title is "Smart DVoiceR Manager" and it has a menu bar with "File", "Advanced", "Configuration", and "Help". Below the menu bar is a toolbar with various icons. The main content area is titled "Smart DVoiceR Manager" and "AddPac Technology". On the left, there is a tree view showing the application structure, with "User Management" expanded to show "Users".

Three red arrows point to specific icons in the "Users" window:

- New Manager Registration**: Points to the "Add" icon (a person with a plus sign).
- Manager Information Modification**: Points to the "Edit" icon (a person with a pencil).
- Manager Delete**: Points to the "Delete" icon (a person with a minus sign).

The "Users" window displays a table with the following data:

No.	ID	Name	Description
1	Administrator	Administrator	Addpac Administrator
2	root	recording manager	Maintenance dept.

The status bar at the bottom shows the date and time "2007-06-13 오후 1:43:49", the version "Ver. 1.0.2719", the IP address "172.16.31.14:9200", and the user "root".

Recording Server Status Monitoring

Smart DVoiceR Manager

File Advanced Configuration Help

Smart DVoiceR Manager

- Smart DVoiceR Manager
 - User Management
 - Users
 - Device Management
 - Smart Recording Server**
 - Smart Recording Terminal
 - Recording Management
 - Record Search
 - Record Session
 - Event & Monitoring
 - Event Configuration
 - Event Monitoring
 - System Monitoring
 - Event History
 - Recording Board
 - Board Users
 - Board Groups
 - Map List

Smart Recording Server Status

172.16.31
Smart Re

Configuration Client Session List

Max Session : 10

Keep Alive Interval : 15 sec

OK

Smart Recording Server Status

172.16.31,14:9200
Smart Recording Server is running.

Configuration Client Session List

No.	User	IP Address	Port	Access Time	Duration
1	root	172.16.1.31	4417	2007-06-13 13:40:05	00:04:49

Client List

OK Cancel

2007-06-13 오후 1:46:20 Ver. 1.0.2719 172.16.31,14:9200 root

Recording File Management

(Recorded File Monitoring (play/seek/pause/resume/stop))

The screenshot displays the Smart DVoiceR Manager software interface. The main window shows a 'Record Search' table with columns for No., Call ID, Source IP, Rec StartTime, Rec EndTime, Rec Duration, Call Duration, Calling Num, Calli..., Calling..., Called Num, Calle..., and Called S... The table contains 19 rows of recording data. A 'Search Filter' dialog box is open in the foreground, showing search criteria for 'Calling Number' (2000) and 'Called Number' (3000). A recording playback window is also visible, showing 'AddPac calling-3004/called-5020' with a progress bar and a 'Memo Save' button. The interface includes a menu bar (File, Advanced, Configuration, Help) and a toolbar with various icons. The status bar at the bottom shows the date and time (2007-06-13 3:25:07) and system information (Ver. 1.0.2720, 172.16.4.22:9200, root).

No.	Call ID	Source IP	Rec StartTime	Rec EndTime	Rec Duration	Call Duration	Calling Num	Calli...	Calling...	Called Num	Calle...	Called S...
1	39500	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:43	00:00:28	00:00:28	3000		4/0/0	5016		4/0/0
2	39502	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:43	00:00:28	00:00:28	3001		4/1/0	5017		4/1/0
3	39504	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:43	00:00:28	00:00:28	3002		4/2/0	5018		4/2/0
4	39506	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:43	00:00:28	00:00:28	3003		4/3/0	5019		4/3/0
5	39508	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:44	00:00:28	00:00:28	3004		5/0/0	5020		5/0/0
6	39510	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:44	00:00:28	00:00:28	3005		5/1/0	5021		5/1/0
7	39512	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:45	00:00:29	00:00:28	3006		5/2/0	5022		5/2/0
8	39514	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:45	00:00:29	00:00:28	3007		5/3/0	5023		5/3/0
9	39516	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:45	00:00:29	00:00:28	3007		5/3/0	5023		5/3/0
10	39518	172.17.213.100	2007-06-13 13:12:15	2007-06-13 13:12:45	00:00:29	00:00:28	3007		5/3/0	5023		5/3/0
11	39520	172.17.213.100	2007-06-13 13:12:16	2007-06-13 13:12:16	00:00:00	00:00:00				5024		6/0/0
12	39522	172.17.213.100	2007-06-13 13:12:16	2007-06-13 13:12:16	00:00:00	00:00:00				5025		6/1/0
13	39524	172.17.213.100	2007-06-13 13:12:16	2007-06-13 13:12:16	00:00:00	00:00:00				5026		6/2/0
14	39526	172.17.213.100	2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5027		6/3/0
15	39528	172.17.213.100	2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5028		7/0/0
16	39529	172.17.213.100	2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5029		7/1/0
17	39498	172.17.213.100	2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5030		7/2/0
18	39499	172.17.213.100	2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5031		7/3/0
19	39501	172.17.213.100	2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2000		0/0/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2001		0/1/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2002		0/2/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2003		0/3/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2004		1/0/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2005		1/1/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2006		1/2/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2007		1/3/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2008		2/0/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2009		2/1/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2010		2/2/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2011		2/3/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2013		3/1/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2014		3/2/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2015		3/3/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				2012		3/0/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5016		4/0/0
			2007-06-13 13:12:17	2007-06-13 13:12:17	00:00:00	00:00:00				5017		4/1/0

Recording File List Save (Excel File Format)

The screenshot displays the Smart DVoiceR Manager interface. The main window shows a 'Record Search' section with a table of recording data. A dialog box titled 'Records Exporting !!!' is overlaid on the table, indicating the export process. A red arrow points from the 'Export' button in the Record Search section to the dialog box. Below the dialog box, a preview of the resulting Excel file is shown, displaying the recorded data in a structured format.

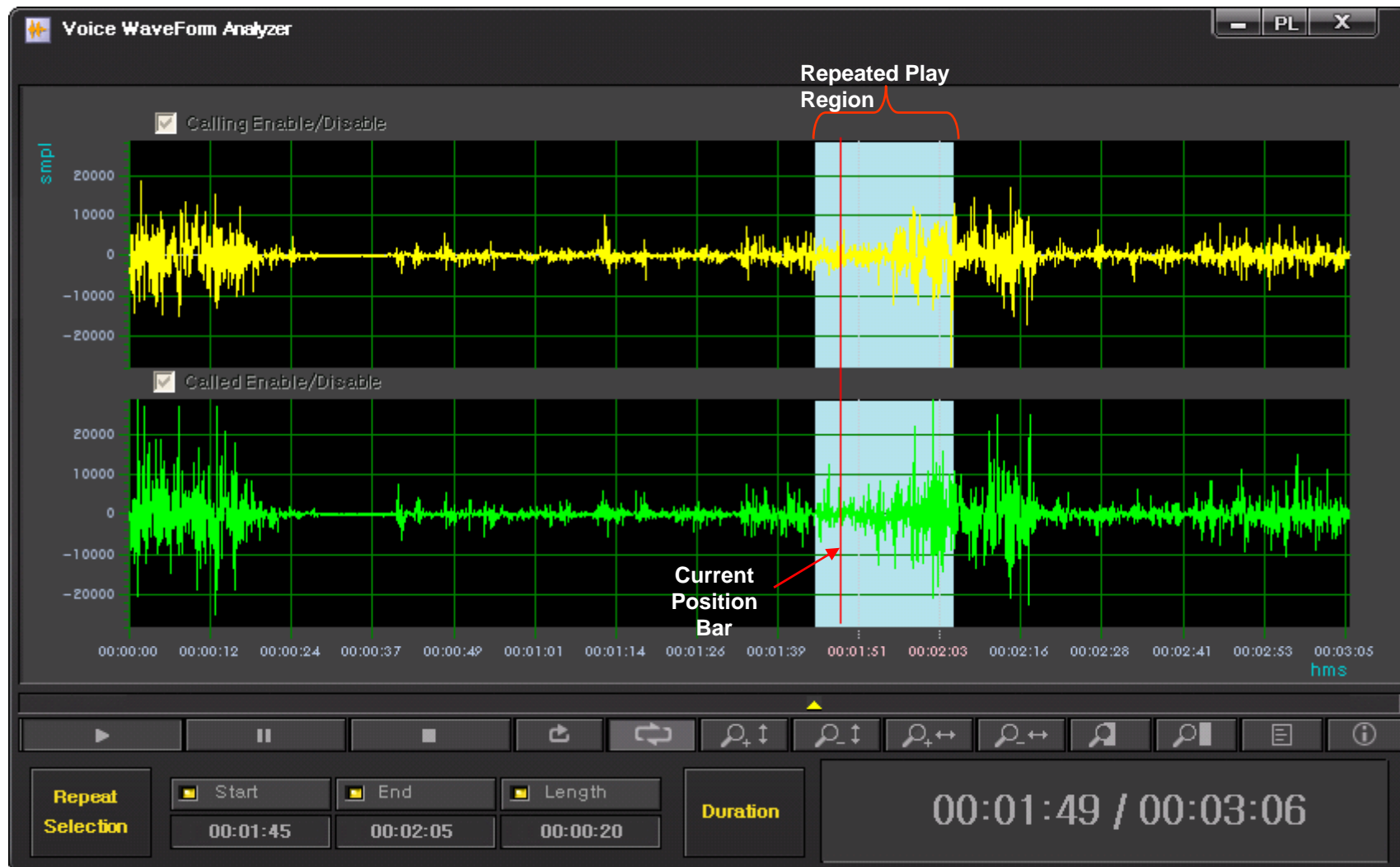
No.	Call ID	Source IP	Rec StartTime	Rec EndTime	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec
1	63292	172.16.9.60	2007-06-12 09:44:59	2007-06-12 09:46:34	00:01:35	00:01:35	1015													
2	63293	172.16.9.60	2007-06-12 09:46:38	2007-06-12 10:10:38	00:22:49	00:24:03	1015													
3	63295	172.16.9.60	2007-06-12 10:11:28	2007-06-12 10:14:34	00:03:06	00:03:06	1015													
4	64171	172.16.9.60	2007-06-12 13:24:09	2007-06-12 13:24:09	00:00:00	00:01:40	1015													
5						00:02:19	1015													
6						00:01:26	1015													
7						00:01:33	1015													
8	64177	172.16.9.60	2007-06-12 14:04:09	2007-06-12 14:04:25	00:00:16	00:00:16	1015													
9	64181	172.16.9.60	2007-06-12 14:05:11																	
10	64185	172.16.9.60	2007-06-12 14:34:21																	
11	64186	172.16.9.60	2007-06-12 14:37:31																	
12	67503	172.16.9.60	2007-06-12 16:00:00																	
13	67504	172.16.9.60	2007-06-12 16:02:51																	
14	67515	172.16.9.60	2007-06-12 17:03:21																	
15	67517	172.16.9.60	2007-06-12 17:06:00																	

Recording File Waveform Analyzer



Recording File Waveform Analyzer

(Repeated Play)



Recording File Waveform Analyzer

(Bookmark Play)

The screenshot displays the 'Voice WaveForm Analyzer' application. It features two waveform plots: a top plot in yellow and a bottom plot in green. The top plot has a 'Bookmark Set' label with an arrow pointing to a specific point on the waveform. The bottom plot has a 'Bookmark' label with a pushpin icon. A 'Bookmark List' dialog box is open, showing a table with one entry: 'my bookmark no1.' at '00:01:05'. The dialog has buttons for 'Modify', 'Bookmark Set', 'Bookmark Delete', and 'Play at Bookmark Position'. A context menu is also visible over the bottom waveform, with options: 'Play From Here', 'Set Bookmark', and 'Bookmark List'. The bottom of the interface includes playback controls (play, pause, stop, etc.), a 'Repeat Selection' button, and a 'Duration' display showing '00:00:00 / 00:03:06'.

No.	Name	Time
1	my bookmark no1.	00:01:05

Recording File Waveform Analyzer

(Column Side Zooming)



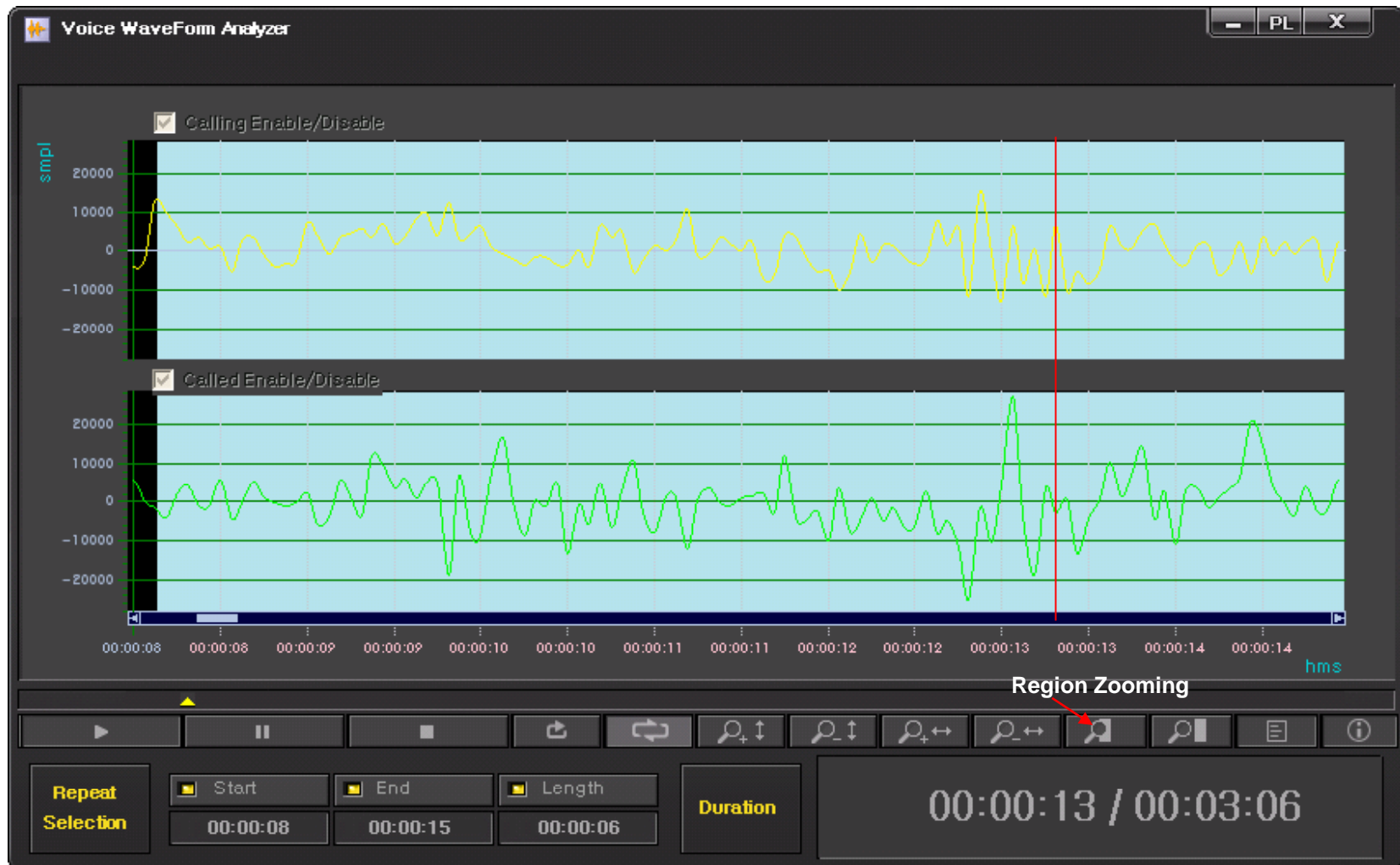
Recording File Waveform Analyzer

(Row Side Zooming)



Recording File Waveform Analyzer

(Region Zooming)



Recording File Waveform Analyzer

(Call Info. Display)

The screenshot displays the 'Voice WaveForm Analyzer' application window. The main interface features two waveform plots: a top plot with a yellow waveform and a bottom plot with a green waveform. A central 'Record Information' dialog box is open, displaying the following data:

Record Information	
Start Time	2007-06-12 10:11:28
End Time	2007-06-12 10:14:34
Record Duration	00:03:06
Record Memo	<input type="text"/>

Call Information	
Initiated Time	2007-06-12 10:13:15
Established Time	2007-06-12 10:13:16
Disconnected Time	2007-06-12 10:16:24
Call Duration	00:03:08

Calling Party	
Number	1015
User	
Codec	G711U
Directory	/mnt/hda1/callrecfiles
FileSize	1606k

Called Party	
Number	6015
User	
Codec	G711U
Directory	/mnt/hda1/callrecfiles
FileSize	1606k

At the bottom of the window, there is a control bar with playback buttons (play, pause, stop, previous, next, zoom in, zoom out, zoom reset, zoom full) and a 'Call Info. Display' button. Below the control bar, a 'Repeat Selection' section shows 'Start' (00:00:10), 'End' (00:00:11), and 'Length' (00:00:01). A 'Duration' section shows '00:00:11 / 00:03:06'. The status bar at the bottom right indicates 'Original View Mode' and '00:00:11 / 00:03:06'. A red arrow points from the 'Call Info. Display' button to the 'Call Info. Display' text in the status bar.

Live Call Recording List and Monitoring

The screenshot displays the Smart DVoiceR Manager interface. The main window shows a 'Current Call List Display' with a 'Live Play' button and a 'List Update Time' indicator. A 'Record Session' window is open, showing a table of call records. A 'Refresh Interval' is set to 5 seconds. A 'Record Information' window is also open, displaying details for a specific call.

No.	Call ID	Source IP	Rec StartTime	Initiated Time	Established Time	Call Duration	Calling Num	Calling User	Calling SI...	Calling Trans...	C
1	46551	172.17.213.100	2007-06-13 15:20:42	2007-06-13 15:2...	2007-06-13 15:22:38	00:00:11	5009		2/1/0	G7231_63-> ...	2
2	46552	172.17.213.100	2007-06-13 15:20:42	2007-06-13 15:2...	2007-06-13 15:22:38	00:00:11	5007		1/3/0	G7231_63-> ...	2
3	46553	172.17.213.100	2007-06-13 15:20:43	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:10	5013		3/1/0	G7231_63-> ...	2
4	46558	172.17.213.100	2007-06-13 15:20:44	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	3015		7/3/0	G7231_63-> ...	5
5	46554	172.17.213.100	2007-06-13 15:20:44	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		2/3/0	G7231_63-> ...	2
6	46555	172.17.213.100	2007-06-13 15:20:44	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5014		3/2/0	G7231_63-> ...	2
7	46556	172.17.213.100	2007-06-13 15:20:44	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		3/3/0	G7231_63-> ...	2
8	46559	172.17.213.100	2007-06-13 15:20:45	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		7/2/0	G7231_63-> ...	5
9	46557	172.17.213.100	2007-06-13 15:20:45	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		0/3/0	G7231_63-> ...	2
10	46560	172.17.213.100	2007-06-13 15:20:46	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		7/0/0	G7231_63-> ...	5
11	46561	172.17.213.100	2007-06-13 15:20:47	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		1/0/0	G7231_63-> ...	2
12	46546	172.17.213.100	2007-06-13 15:20:34	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/3/0	G7231_63-> ...	5
13	46563	172.17.213.100	2007-06-13 15:20:47	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		6/0/0	G7231_63-> ...	5
14	46562	172.17.213.100	2007-06-13 15:20:50	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		1/2/0	G7231_63-> ...	2
15	46545	172.17.213.100	2007-06-13 15:20:36	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		3/0/0	G7231_63-> ...	2
16	46564	172.17.213.100	2007-06-13 15:20:50	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/0/0	G7231_63-> ...	5
17	46565	172.17.213.100	2007-06-13 15:20:51	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		5/3/0	G7231_63-> ...	5
18	46547	172.17.213.100	2007-06-13 15:20:41	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		0/2/0	G7231_63-> ...	2
19	46566	172.17.213.100	2007-06-13 15:20:52	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		6/2/0	G7231_63-> ...	5
20	46548	172.17.213.100	2007-06-13 15:20:41	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		1/1/0	G7231_63-> ...	2
21	46567	172.17.213.100	2007-06-13 15:20:52	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/2/0	G7231_63-> ...	5
22	46549	172.17.213.100	2007-06-13 15:20:41	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		2/0/0	G7231_63-> ...	2
23	46568	172.17.213.100	2007-06-13 15:20:52	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		5/2/0	G7231_63-> ...	5
24	46569	172.17.213.100	2007-06-13 15:20:52	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		6/1/0	G7231_63-> ...	5
25	46570	172.17.213.100	2007-06-13 15:20:52	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		5/0/0	G7231_63-> ...	5
26	46550	172.17.213.100	2007-06-13 15:20:42	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		0/0/0	G7231_63-> ...	2
27	46573	172.17.213.100	2007-06-13 15:20:53	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/1/0	G7231_63-> ...	5
28	6208	172.16.9.60	2007-06-13 15:20:30	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/2/0	G729A_8->G...	2
29	6209	172.16.9.60	2007-06-13 15:20:30	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		5/0/0	G729A_8->G...	2
30	6223	172.16.9.60	2007-06-13 15:20:45	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		1/3/0	G729A_8->G...	6
31	6213	172.16.9.60	2007-06-13 15:20:32	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/0/0	G729A_8->G...	2
32	6214	172.16.9.60	2007-06-13 15:20:32	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/3/0	G729A_8->G...	2
33	6215	172.16.9.60	2007-06-13 15:20:32	2007-06-13 15:2...	2007-06-13 15:22:39	00:00:09	5011		4/1/0	G729A_8->G...	2
34	6224	172.16.9.60	2007-06-13 15:20:49	2007-06-13 15:2...	2007-06-13 15:22:42	00:00:04	1006		1/2/0	G729A_8->G...	6
35	5882	172.16.9.60	2007-06-13 15:08:56	2007-06-13 15:1...	2007-06-13 15:10:48	00:11:57	1015		3/3/0	G729A_8->G...	6
36	6220	172.16.9.60	2007-06-13 15:20:41	2007-06-13 15:2...	2007-06-13 15:22:35	00:00:12	1004		1/0/0	G729A_8->G...	6
37	6221	172.16.9.60	2007-06-13 15:20:42	2007-06-13 15:2...	2007-06-13 15:22:35	00:00:11	1005		1/1/0	G729A_8->G...	6

The 'Record Information' window shows the following details:

- Record Information:** Start Time: 2007-06-15 14:16:46
- Call Information:** Initiated Time: 2007-06-15 14:18:56, Established Time: 2007-06-15 14:18:57
- Calling Party:** DialNumber: 3006, User: [blank], Codec: G711U, Directory: /mnt/hda1/callrecfiles, FileSize: [blank]
- Called Party:** DialNumber: 5022, User: [blank], Codec: G711U, Directory: /mnt/hda1/callrecfiles, FileSize: [blank]

Event Management (Configuration)

The screenshot shows the Smart DVoiceR Manager interface with two 'Event Configuration' dialog boxes overlaid. The main application window has a menu bar (File, Advanced, Configuration, Help) and a toolbar. A tree view on the left shows the application structure, with 'Event Configuration' selected under 'Event & Monitoring'. The dialog boxes are annotated with red arrows and text:

- Server IP address:** Points to the 'Host' field containing '172,16,4,22'.
- Event Port Number:** Points to the 'Listen Port' field containing '514'.
- Realtime event level Setting:** Points to the 'Event Filter' tab in the left dialog.
- Event logging level Setting:** Points to the 'Event Logging Filter' tab in the right dialog.
- Event level Configuration:** Points to the 'Event Filter' tab in the left dialog.
- Sound Play On/Off at Server Emergency Event Occurring:** Points to the 'Use Emergency Sound' checkbox in the left dialog.

Both dialog boxes contain the following text:

Event Source
Host : 172,16,4,22
Listen Port : 514

1. Emergency
The presence of a condition that has either caused the system to become unstable or has crashed the system.

2. Error
Error events are warnings of conditions that will affect the performance of the MX.

Event Filter | Event Logging Filter

+ Event filter setting for source.

Select / Deselect All

Category	Severity	Description
<input checked="" type="checkbox"/> recording	Warning	recording
<input checked="" type="checkbox"/> play	Warning	play
<input checked="" type="checkbox"/> system	Warning	system

Use Emergency Sound

OK Cancel

Event Management (Monitoring)

The screenshot displays the Smart DVoiceR Manager interface. The main window shows a list of call records with columns for No., Call ID, Source IP, Rec StartTime, Initiated Time, Established Time, Call Duration, Calling Num, and Calli... The interface includes a menu bar (File, Advanced, Configuration, Help), a toolbar, and a sidebar with navigation options like User Management, Device Management, Recording Management, and Event & Monitoring. A 'Refresh Interval' of 5 seconds is set. Red annotations point to specific features: 'Event Display Window' points to the sidebar, 'Event level Configuration Window' points to the top right, 'Event Display Window Clear' points to a button in the bottom right, and 'Event Receiving Pause' points to a 'Pause' button in the bottom right.

No.	Call ID	Source IP	Rec StartTime	Initiated Time	Established Time	Call Duration	Calling Num	Calli...
1	690	172.17.213.100	2007-06-14 16:25:24	2007-06-14 16:27:25	2007-06-14 16:27:29	00:00:20	5012	
2	693	172.17.213.100	2007-06-14 16:25:24	2007-06-14 16:27:28	2007-06-14 16:27:29	00:00:20	5005	
3	694	172.17.213.100	2007-06-14 16:25:25	2007-06-14 16:27:29	2007-06-14 16:27:30	00:00:19	5001	
4	695	172.17.213.100	2007-06-14 16:25:26	2007-06-14 16:27:29	2007-06-14 16:27:31	00:00:18	5006	
5	696	172.17.213.100	2007-06-14 16:25:26	2007-06-14 16:27:30	2007-06-14 16:27:31	00:00:18	5007	
6	697	172.17.213.100	2007-06-14 16:25:27	2007-06-14 16:27:31	2007-06-14 16:27:32	00:00:17	5008	
7	698	172.17.213.100	2007-06-14 16:25:28	2007-06-14 16:27:32	2007-06-14 16:27:33	00:00:16	5009	
8	699	172.17.213.100	2007-06-14 16:25:30	2007-06-14 16:27:34	2007-06-14 16:27:35	00:00:14	5011	
9	700	172.17.213.100	2007-06-14 16:25:31	2007-06-14 16:27:34	2007-06-14 16:27:36	00:00:13	5010	
10	701	172.17.213.100	2007-06-14 16:25:32	2007-06-14 16:27:36	2007-06-14 16:27:37	00:00:12	5013	
11	702	172.17.213.100	2007-06-14 16:25:34	2007-06-14 16:27:37	2007-06-14 16:27:38	00:00:10	5014	
12	703	172.17.213.100	2007-06-14 16:25:38	2007-06-14 16:27:42	2007-06-14 16:27:43	00:00:06	5015	
13	704	172.17.213.100	2007-06-14 16:25:39	2007-06-14 16:27:43	2007-06-14 16:27:44	00:00:05	3000	
14	705	172.17.213.100	2007-06-14 16:25:40	2007-06-14 16:27:44	2007-06-14 16:27:45	00:00:04	3001	
15	706	172.17.213.100	2007-06-14 16:25:42	2007-06-14 16:27:45	2007-06-14 16:27:46	00:00:02	3002	
16	684	172.17.213.100	2007-06-14 16:25:17	2007-06-14 16:27:20	2007-06-14 16:27:21	00:00:27	3012	
17	707	172.17.213.100	2007-06-14 16:25:43	2007-06-14 16:27:46	2007-06-14 16:27:47	00:00:01	3003	
18	686	172.17.213.100	2007-06-14 16:25:18	2007-06-14 16:27:21	2007-06-14 16:27:22	00:00:26	3013	
19	708	172.17.213.100	2007-06-14 16:25:44	2007-06-14 16:27:47	2007-06-14 16:27:49	00:00:00	3004	
20	687	172.17.213.100	2007-06-14 16:25:18	2007-06-14 16:27:22	2007-06-14 16:27:23	00:00:26	3014	
21	685	172.17.213.100	2007-06-14 16:25:19	2007-06-14 16:27:23	2007-06-14 16:27:24	00:00:25	5000	
22	689	172.17.213.100	2007-06-14 16:25:20	2007-06-14 16:27:23	2007-06-14 16:27:24	00:00:24	3015	

Event Monitoring window details:

DateTime	Host	Severity	Module	Description
Jun 14 07:25:43	172.16.4.22	Informational	recording	recording stopping ; call_id = 682, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:43	172.16.4.22	Informational	recording	Stop Recording, bind id:2003
Jun 14 07:25:43	172.16.4.22	Informational	recording	new recording starting ; call_id = 707, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:43	172.16.4.22	Informational	recording	Start Recording, bind id:2003
Jun 14 07:25:44	172.16.4.22	Informational	recording	recording stopping ; call_id = 683, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:44	172.16.4.22	Informational	recording	Stop Recording, bind id:2003
Jun 14 07:25:44	172.16.4.22	Informational	recording	new recording starting ; call_id = 708, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:44	172.16.4.22	Informational	recording	Start Recording, bind id:2003
Jun 14 07:25:44	172.16.4.22	Debug	system	get current recording session ;
Jun 14 07:25:44	172.16.4.22	Informational	recording	new recording starting ; call_id = 709, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:44	172.16.4.22	Informational	recording	Start Recording, bind id:2003
Jun 14 07:25:45	172.16.4.22	Informational	recording	recording stopping ; call_id = 684, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:45	172.16.4.22	Informational	recording	Stop Recording, bind id:2003
Jun 14 07:25:45	172.16.4.22	Informational	recording	new recording starting ; call_id = 710, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:45	172.16.4.22	Informational	recording	Start Recording, bind id:2003
Jun 14 07:25:46	172.16.4.22	Informational	recording	recording stopping ; call_id = 686, ip = 172.17.213.100, mac_addr = 0002,a403,cc82
Jun 14 07:25:46	172.16.4.22	Informational	recording	Stop Recording, bind id:2003
Jun 14 07:25:46	172.16.4.22	Debug	system	get current recording session ;

Event Management

(System Monitoring)

The screenshot displays the 'System Monitoring' window of the Smart DVoiceR Manager. The interface includes a navigation tree on the left and a main performance dashboard. The dashboard features three rows of monitoring widgets, each with a current status gauge and a history line graph.

Performance Metrics:

- CPU Usage:** Current usage is 40%. The history graph shows fluctuating activity over time.
- Memory Usage:** Current usage is 61 MB. The history graph shows a steady, low-level usage.
- Trans Codec Usage:** Current usage is 54. The history graph shows a peak at 'Max 128'.

System Resource Summary:

Resource	Total	Available	Used	Used(%)
CPU	Total(%)	100	Used(%)	0
Memory	254752 KB	171860 KB	82892 KB	32,54
Transcoding Channel	Max 128	Used	0	
HDD	304273 MB	138124 MB	166149 MB	54,61

Disk Space Usage:

- rootfs (/):** 2.00 GB used out of 3.00 GB.
- /dev/hda1 (/mnt/hda1):** 139.00 GB used out of 300.00 GB.

The status bar at the bottom indicates the date and time (2007-06-14 오후 4:38:08), version (Ver. 1,0,2720), IP address (172.16.4.22:9200), and the current user (root).

Event Management

(Event History)

Event Search Time Setting

Start : 2007-06-14 00:00:00
End : 2007-06-14 23:59:59

Event category

Recording : Debug
 Play : Debug
 System : Debug

Search Condition Setting

Filter Name : Event
Rule : IsExactly
Search :

Event History Table

No.	Event Time	Host	Category	Severity	Event
22	2007-06-14 15:14:21	172.16.4.22	recording	Informational	recording stopping : call_id = 0, ip = , mac_addr =
23	2007-06-14 15:14:21	172.16.4.22	recording	Informational	recording stopping : call_id = 0, ip = , mac_addr =
24	2007-06-14 15:15:01	172.16.4.22	recording	Informational	new recording starting : call_id = 9702, ip = 172.16.9...
25	2007-06-14 15:15:32	172.16.4.22	recording	Informational	new recording starting : call_id = 9784, ip = 172.16.9...
26	2007-06-14 15:15:32	172.16.4.22	recording	Informational	new recording starting : call_id = 9788, ip = 172.16.9...
27	2007-06-14 15:15:33	172.16.4.22	recording	Informational	new recording starting : call_id = 9790, ip = 172.16.9...
28	2007-06-14 15:15:35	172.16.4.22	recording	Informational	new recording starting : call_id = 9792, ip = 172.16.9...
29	2007-06-14 15:15:37	172.16.4.22	recording	Informational	new recording starting : call_id = 9794, ip = 172.16.9...
30	2007-06-14 15:15:39	172.16.4.22	recording	Informational	new recording starting : call_id = 9797, ip = 172.16.9...
31	2007-06-14 15:15:40	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
32	2007-06-14 15:15:43	172.16.1.48	system	Debug	get system information requested : cpu = 15%, mem...
33	2007-06-14 15:15:44	172.16.1.48	system	Debug	get system information requested : cpu = 20%, mem...
34	2007-06-14 15:15:45	172.16.1.48	system	Debug	get system information requested : cpu = 20%, mem...
35	2007-06-14 15:15:45	172.16.1.48	system	Debug	get transcoding channel usage :
36	2007-06-14 15:15:46	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
37	2007-06-14 15:15:47	172.16.1.48	system	Debug	get system information requested : cpu = 1%, memor...
38	2007-06-14 15:15:47	172.16.1.48	system	Debug	get transcoding channel usage :
39	2007-06-14 15:15:48	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
40	2007-06-14 15:15:49	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
41	2007-06-14 15:15:50	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
42	2007-06-14 15:15:51	172.16.1.48	system	Debug	get system information requested : cpu = 16%, mem...
43	2007-06-14 15:15:51	172.16.1.48	system	Debug	get transcoding channel usage :
44	2007-06-14 15:15:52	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
45	2007-06-14 15:15:53	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
46	2007-06-14 15:15:54	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
47	2007-06-14 15:15:55	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
48	2007-06-14 15:15:56	172.16.1.48	system	Debug	getChannelUsage : client ip = 172.16.1.48, port = 1824
49	2007-06-14 15:15:57	172.16.1.48	system	Debug	get system information requested : cpu = 16%, mem...
50	2007-06-14 15:15:57	172.16.1.48	system	Debug	get transcoding channel usage :
51	2007-06-14 15:15:58	172.16.4.22	recording	Informational	recording stopping : call_id = 9785, ip = 172.16.9.60, ...
52	2007-06-14 15:15:58	172.16.1.48	system	Debug	get system information requested : cpu = 8%, memor...
53	2007-06-14 15:15:58	172.16.1.48	system	Debug	get transcoding channel usage :

Contents

- Network Diagram
- Product Solution Table
- IP Emergency Call Phone Comparison Table
- GPS based Embedded NTP Server for Time Sync.
- IPNext600 IP-PBX Solution for Call Center
- IP Phone Solution for Call Center
- IP Voice Recording Solution (Option)
- AP-MSCS MAP based IP Emergency Call Center System (Option)

MAP based SIP Emergency Call Center System (AP-MSCS)



MAP based SIP Emergency Call Service Overview

- JavaScript based Interactive MAP Service
- Integrated Security Management Service via MAP based Device Overlay Display
- SIP Emergency Call Phone, Video Phone, etc, Geographical Display on MAP for Instinctive Control Service
- MAP Editor Service (Background Image, Device Lists, etc)
- MAP based IP Emergency Call Phone Status Display
- Zoom to Area, Double Click Zoom, Scroll Wheel Zoom, etc
- Tile Layer, etc

MAP based SIP Emergency Call Service Overview (Example)

Smart Security Manager PM 12:13

수원시 지도

ID	시간	단계	구분	지역	장치	메시지	위치 정보
1747001	2017-09-27 11:17:20	주의	시스템	권선구	EIP60	연결 끊김	권선구 탑동 탑동사거리
1747000	2017-09-27 09:11:20	주의	시스템	관달구	EIP60	연결 끊김	관달구 우만동 효성사거리

장치

- Camera 0/0
- Emergency Intercom 1/40
- Sensor 0/0

MAP based SIP Emergency Call Service Overview (Tile Layer Example)

The screenshot displays the Smart Security Manager interface. At the top, it shows the title 'Smart Security Manager' and the time 'PM 12:13'. Below the title bar, there are navigation icons for '상황판' (Status), '관리소' (Control Room), '장치' (Devices), '알림' (Alerts), '작업' (Operations), and '이력' (History).

The main area is divided into two map panes: '팔달구 지도' (Paldal-gu Map) on the left and '장안구 지도' (Jangang-gu Map) on the right. The Paldal-gu map has a pop-up window for '고동동' (Godong-dong) with the following details:

- 상태: 비상통화 통화중 (Status: Emergency Call in Progress)
- Link: linked
- Last: 2017/02/09 15:20:37

At the bottom, there is an '알림' (Alerts) table and a '장치' (Devices) panel.

ID	시간	단계	구분	지역	장치	메시지	위치 정보
1747001	2017-09-27 11:17:20	주의	시스템	권선구	EIP60	연결 끊김	권선구 탑동 탑동사거리
1747000	2017-09-27 09:11:20	주의	시스템	팔달구	EIP60	연결 끊김	팔달구 우만동 효성사거리

The '장치' (Devices) panel shows the following status:

- Camera: 0/0
- Emergency Intercom: 1/40
- Sensor: 0/0

MAP based SIP Emergency Call Service Overview (Tile Layer Example)

Smart Security Manager

PM 12:13

상황판 관리소 장치 알람 5 작업 이력

팔달구 지도

고등동
상태 : 비상통화 통화중
Link : linked
Last : 2017/02/09 15:20:37

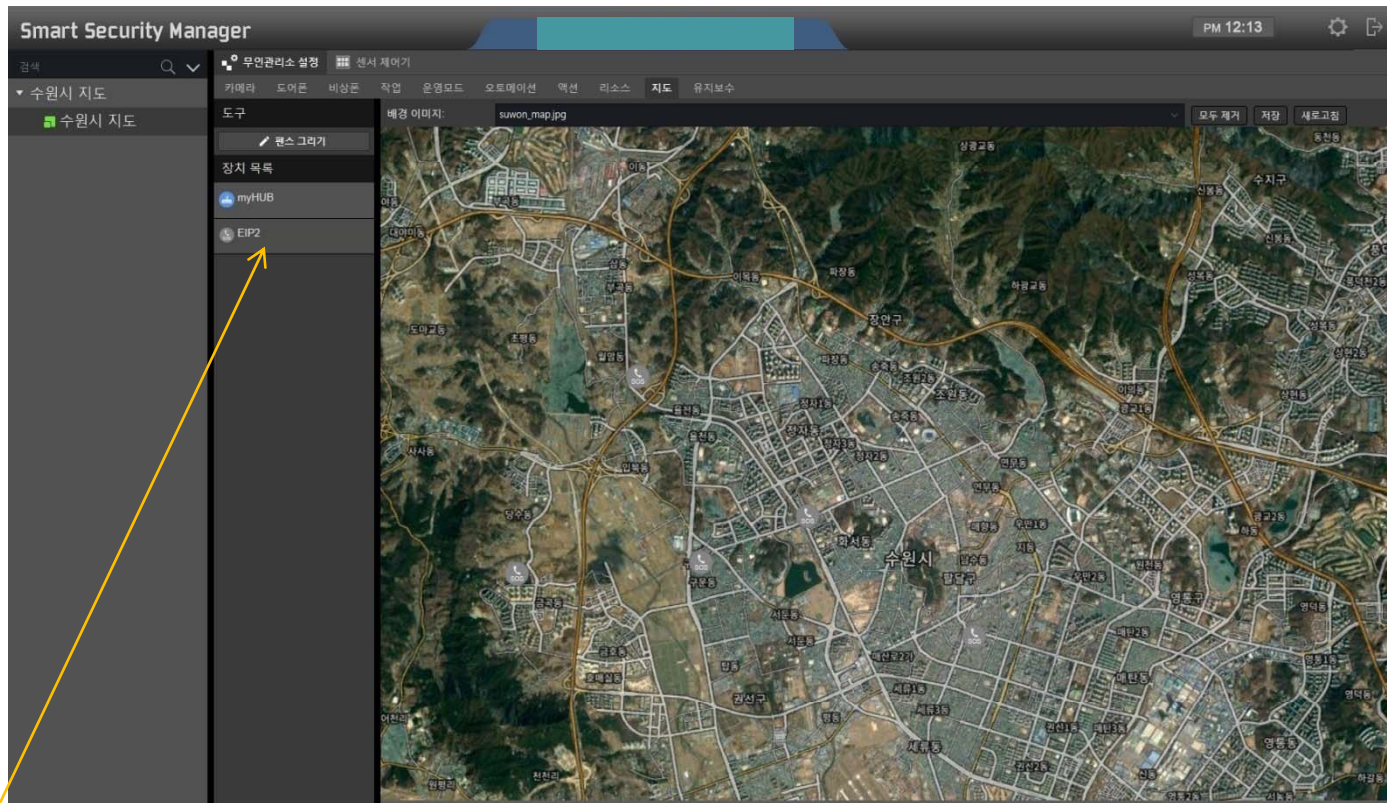
장안구 지도

알람	ID	시간	단계	구분	지역	장치	메시지	위치 정보
	1747001	2017-09-27 11:17:20	주의	시스템	권선구	EIP60	연결 끊김	권선구 합동 합동사거리
	1747000	2017-09-27 09:11:20	주의	시스템	팔달구	EIP60	연결 끊김	팔달구 우만동 효성사거리

장치

- Camera 0/0
- Emergency Intercom 1/40
- Sensor 0/0

MAP based SIP Emergency Call Service Overview (MAP Editor Service)

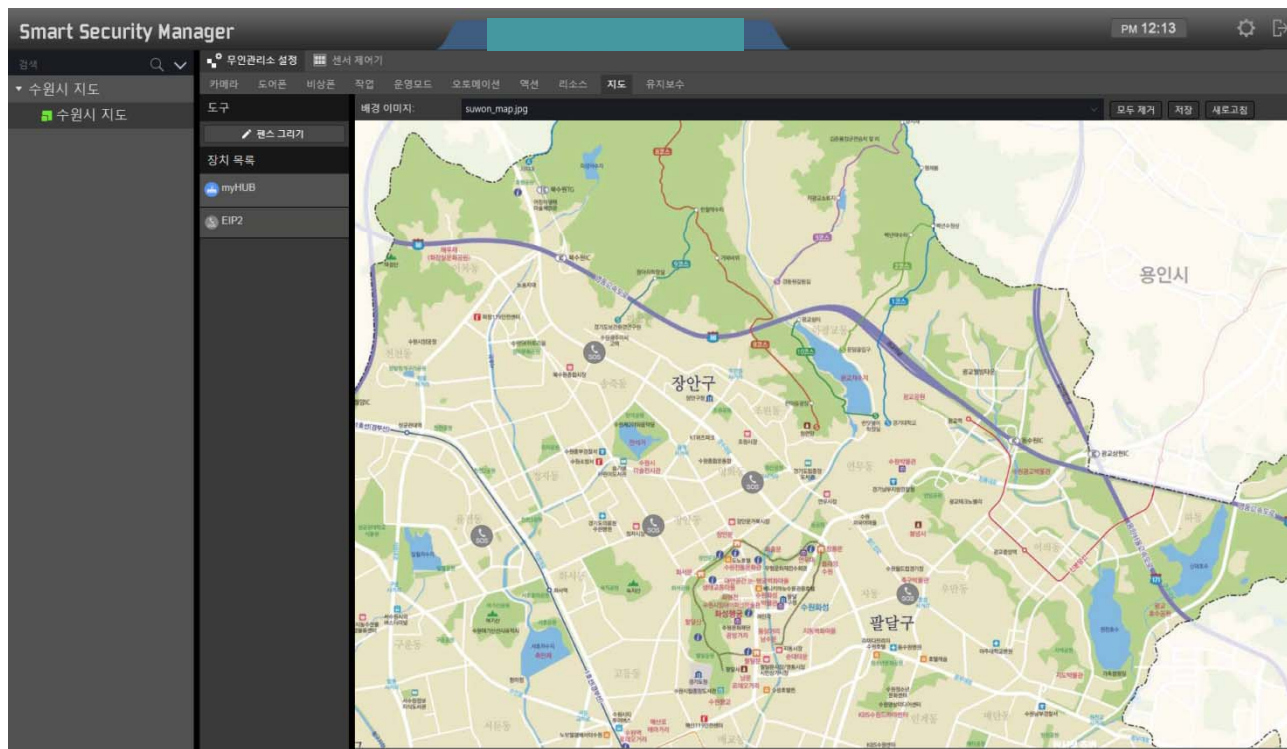


Device Lists : IP
Emergency Call Phone, IP
paging terminal etc

AddPac

www.addpac.com

MAP based SIP Emergency Call Service Overview (MAP Editor Service)





Thank you!

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