

Secure IP Telephony Solution (TLS/SRTP Protocol)



AddPac

AddPac Technology

Sales and Marketing

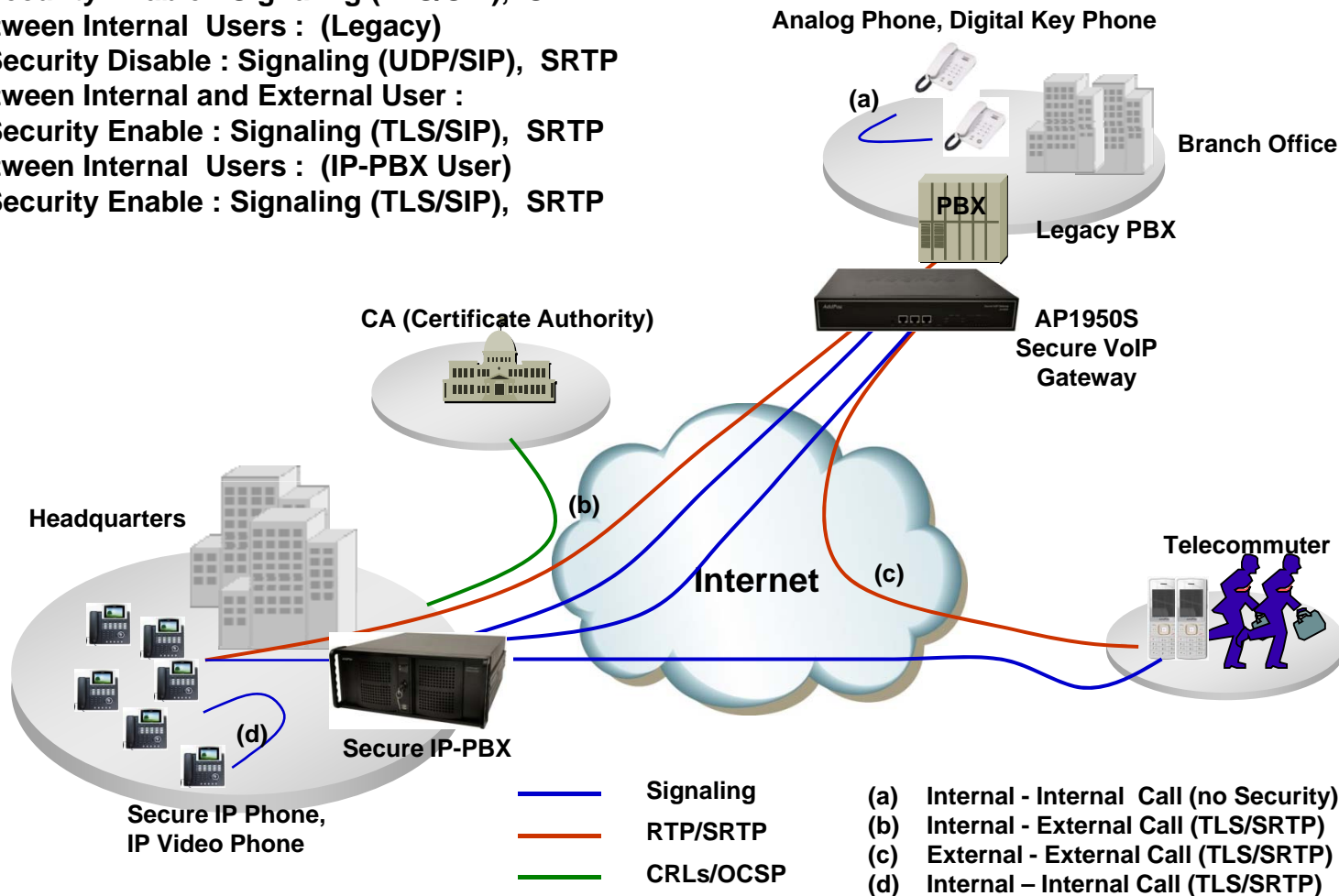
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Contents

- Secure IP Telephony Service Diagram
- Secure VoIP Protocol & Algorithm (TLS & SRTP)
- AddPac Secure IP Telephony Solution Components
 - Secure IP-PBX Solution
 - Secure IP Phone Solution
 - Secure IP Video Phone Solution
 - Secure VoIP Gateway Solution
 - Secure Video MCU Solution
- NMS for AddPac Secure IP Telephony Solution

Secure IP Telephony Network Diagram

- **Between External Users :**
Security Enable : Signaling (TLS/SIP), SRTP
- **Between Internal Users : (Legacy)**
Security Disable : Signaling (UDP/SIP), SRTP
- **Between Internal and External User :**
Security Enable : Signaling (TLS/SIP), SRTP
- **Between Internal Users : (IP-PBX User)**
Security Enable : Signaling (TLS/SIP), SRTP



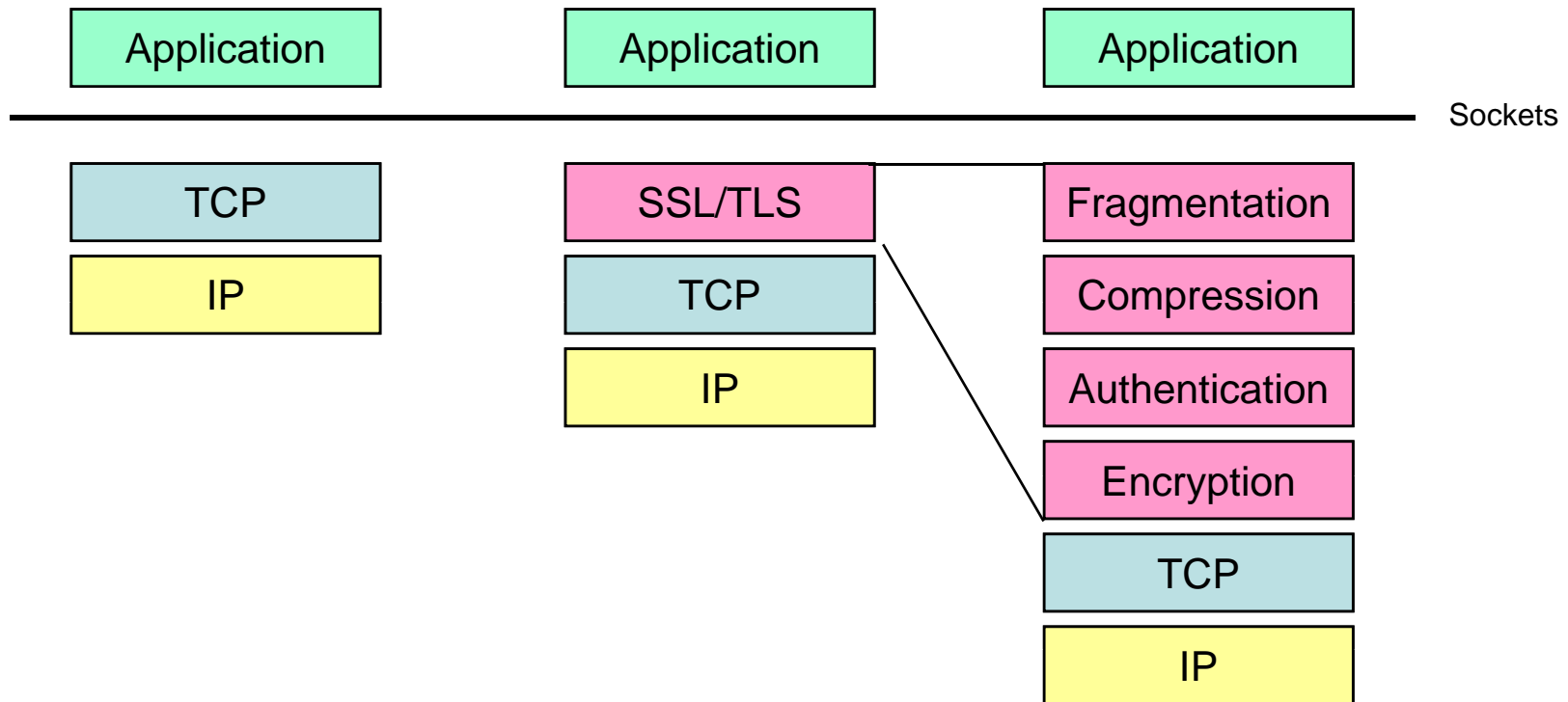


Secure IP Telephony Service Features

TLS Features for Secure VoIP Service

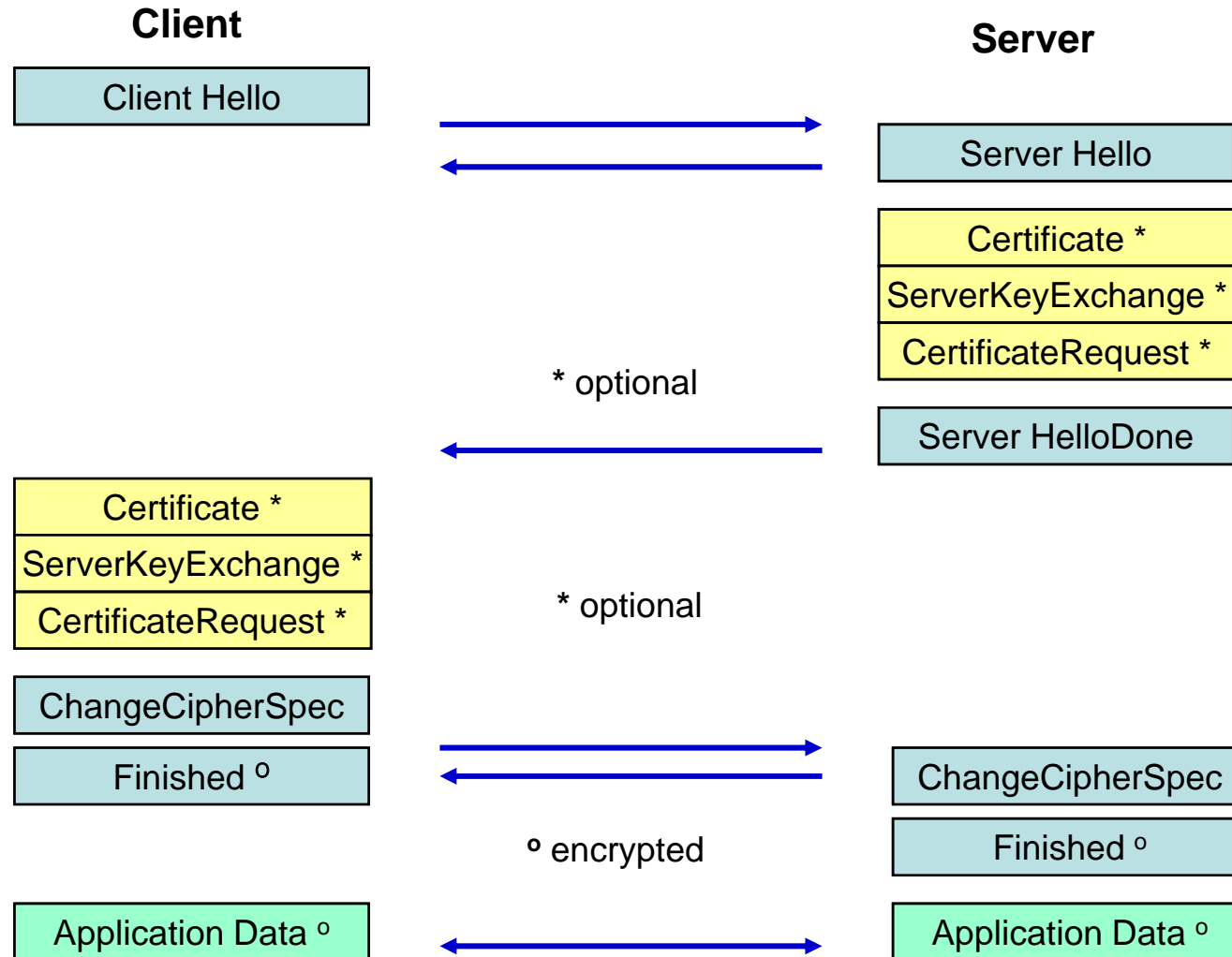
- Support for TLS 1.1, TLS 1.0 and SSL 3.0 protocols
- Since SSL 2.0 is insecure it is not supported.
- TLS 1.2 is supported but disabled by default.
- Support for TLS extensions: server name indication, max record size, opaque PRF input, etc.
- Support for authentication using the SRP protocol.
- Support for authentication using both **X.509 certificates** and OpenPGP keys.
- Support for TLS Pre-Shared-Keys (PSK) extension.
- Support for Inner Application (TLS/IA) extension.
- Support for X.509 and OpenPGP certificate handling.
- Support for X.509 Proxy Certificates (RFC 3820).
- Supports all the strong encryption algorithms (including SHA-256/384/512), including Camellia (RFC 4132).
- Supports compression (optional).
- CRLs
 - CRL (Certificate Revocation List)
 - OCSP (Online Certificate Status Protocol, RFC2560) (via HTTP)
- Hash Algorithm : SHA-1, MD5

SSL/TLS Protocol Layers



SSL/TLS Handshake

AP1950S Secure VoIP Gateway



TLS Comparison with OpenSSL

- Protocol Support

	SSLv2.0	SSLv3.0	TLSv1.0	TLSv1.1	TLSv1.2
AddPac	No	Yes	Yes	Yes	Yes
OpenSSL	Yes	Yes	Yes	No	No

- Key Exchange Algorithms

	Anon-RSA	RSA	RSA Export	DHE-RSA	DHE-DSS	SRP-DSS	SRP-RSA	SRP	PSK	ECC
AddPac	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
OpenSSL	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes

- Encryption Algorithms

(*1) 40-bit encryption is insecure

	AES-256-CBC	AES-128-CBC	3DES-CBC	DES-CBC	RC4-128-CBC	RC4-40(*1)	RC2-40(*1)	Camellia	SEED	ARIA
AddPac	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OpenSSL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

SRTP (Secure Real-time Transport Protocol) Features

- [RFC4568](#), Standards Track, Session Description Protocol (SDP) Security Descriptions for Media Streams
- [RFC 3711](#), Proposed Standard, The Secure Real-time Transport Protocol (SRTP)
- [RFC 3551](#), Standard 65, RTP Profile for Audio and Video Conferences with Minimal Control
- [RFC 3550](#), Standard 64, RTP: A Transport Protocol for Real-Time Applications
- [RFC 2104](#), Informational, HMAC: Keyed-Hashing for Message Authentication
- Cipher Algorithm : ARIA, SEED, AES, DES(*), 3DES(*)


* Support at AddPac Specific SRTP



Secure IP-PBX Solution (TLS/SRTP Protocol)

Contents

- IPNext IP-PBXs for Secure IP Telephony Service
 - IPNext10000 IP-PBX (Large Capacity)
 - IPNext2000 IP-PBX(Medium Capacity)
 - IPNext600 IP-PBX(Medium&Small Capacity)
 - IPNext190 Hybrid IP-PBX(Small Capacity)



IPNext10000 Large Capacity IP-PBX

Main Features

IPNext10000 Next Generation IP-PBX

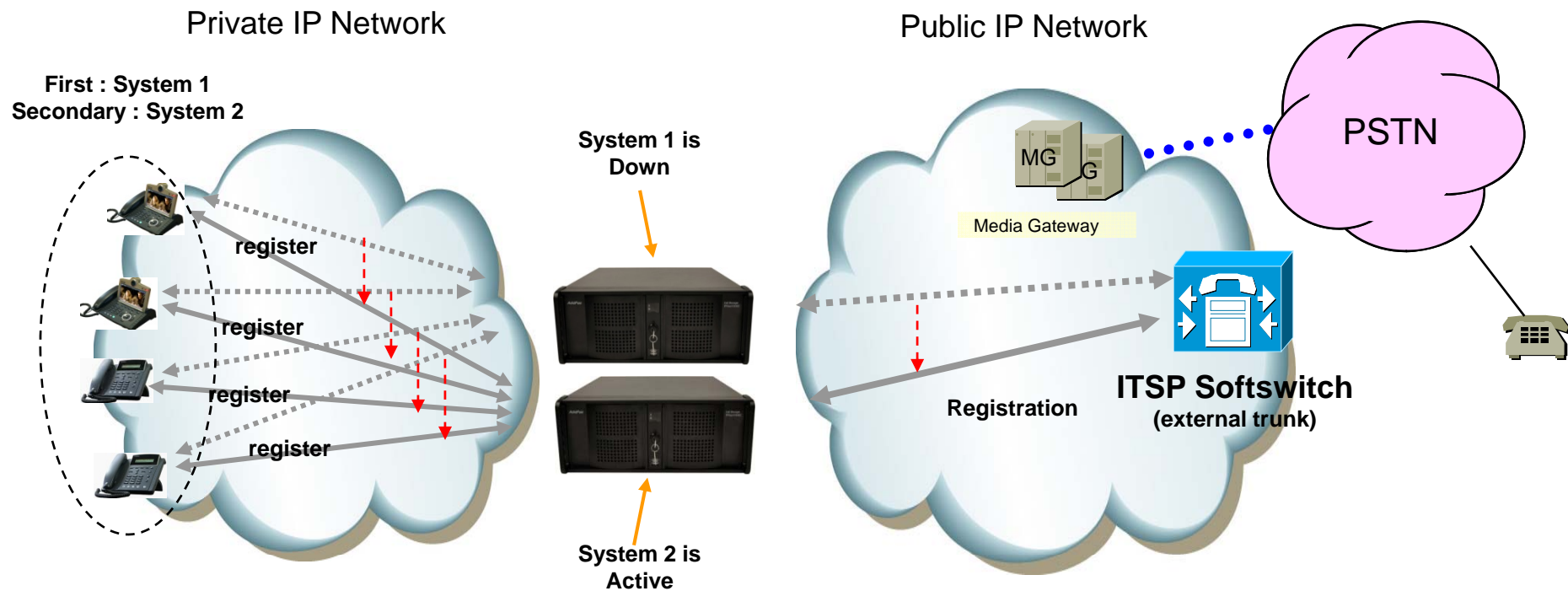
- IP based Advanced PBX Solution
- IPv4/IPv6 based Dual Network Protocol Support
- External RTP Proxy Function Support
 - External RTP Proxy Server for Private Address : AP-RS3000
- External Application (IVR, RBT, UMS,etc) Function Support
 - External Application Server : AP-AS10000
- Powerful Management and User Friendly Features
- Fault Tolerant and Scalability Architecture
- High-performance Video, Audio, and Voice Service
- Firmware Upgradeable Architecture
- Linux Operation System



System Redundancy Features

IPNext10000 Next Generation IP-PBX

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

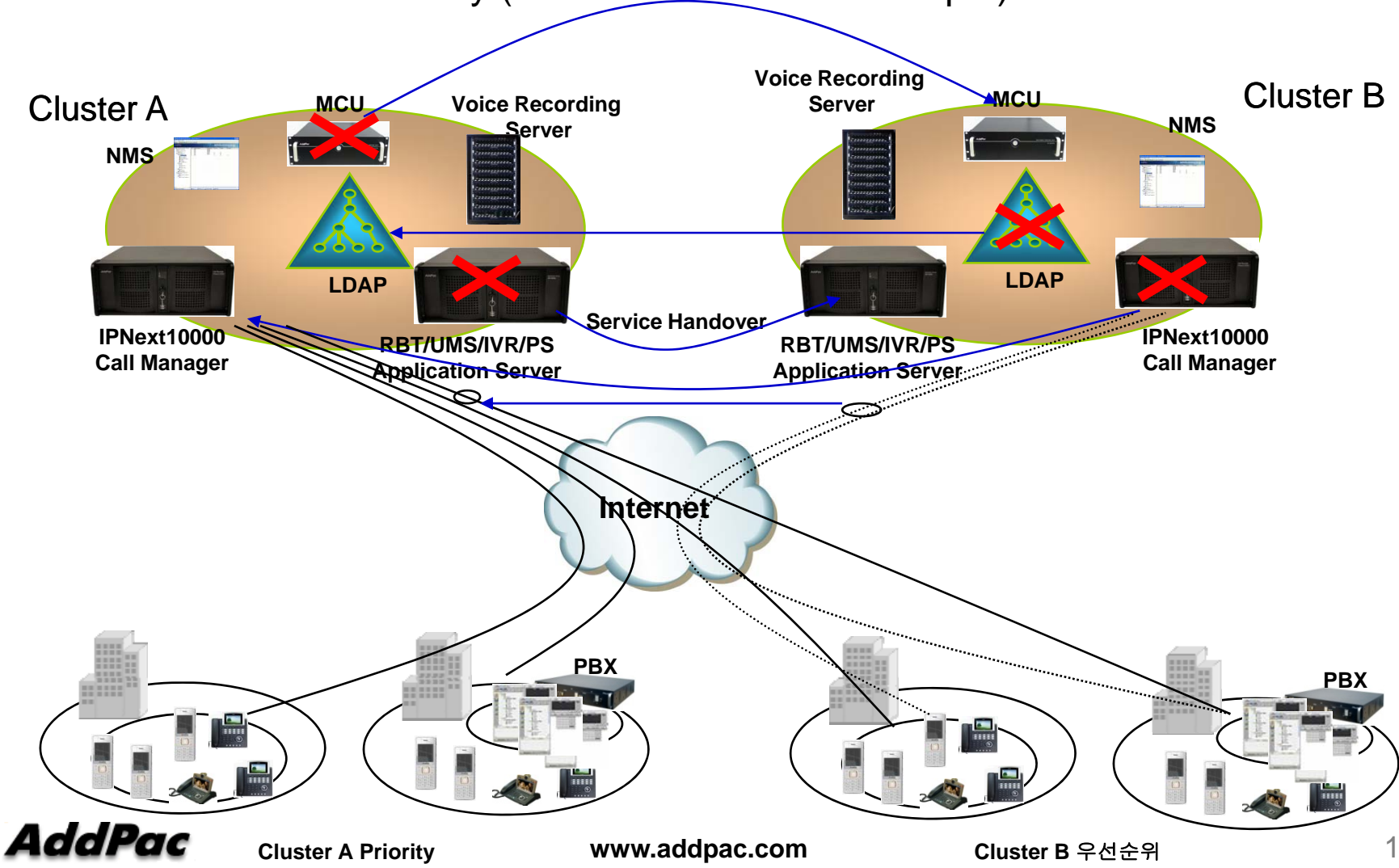


Active – Standby Duplication Scheme (example)

System Redundancy Features

IPNext10000 Next Generation IP-PBX

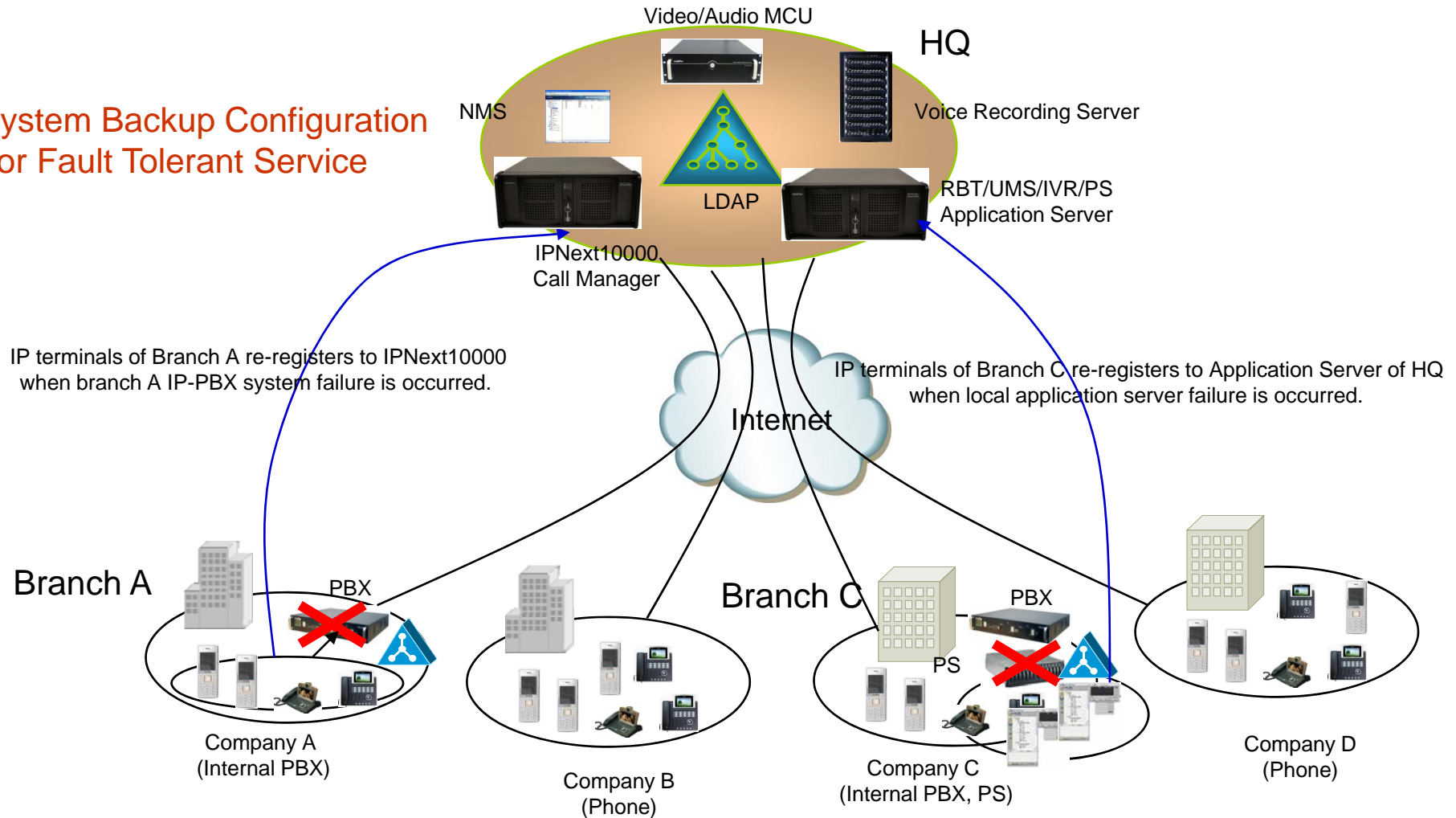
- Active-Active Redundancy (IP Centrex Service Example)




IP Centrex Service

IPNext10000 Next Generation IP-PBX

System Backup Configuration for Fault Tolerant Service





IPNext2000 IP-PBX (One System, Dual IP-PBX)

Main Features

IPNext2000 Next Generation IP-PBX

- IP based Advanced Mobile IP-PBX Solution
- IPv4/IPv6 Multimedia Telephony Solution for Large Office
- System Duplication Support (Dual System Board, Dual Power Supply)
- Powerful Management and User Friendly Features
- Fault Tolerant and Scalability Architecture
- High-performance Video, Audio, and Voice Service
- Firmware Upgradeable Architecture
- IVR Service with Scenario Editor
- Voice Mailing Service
- Presence Service for High-End IP Phone, Video Phone, UC
- RTP Proxy Service for Private IP service
- SIP, H.323 Signaling for Outbound Calls
- Various Call Scenario (Call Pickup, Call Park, Call Transfer, etc)
- Various IP Multimedia Terminal Support

Hardware Specification

IPNext2000 Next Generation IP-PBX

RISC
CPU

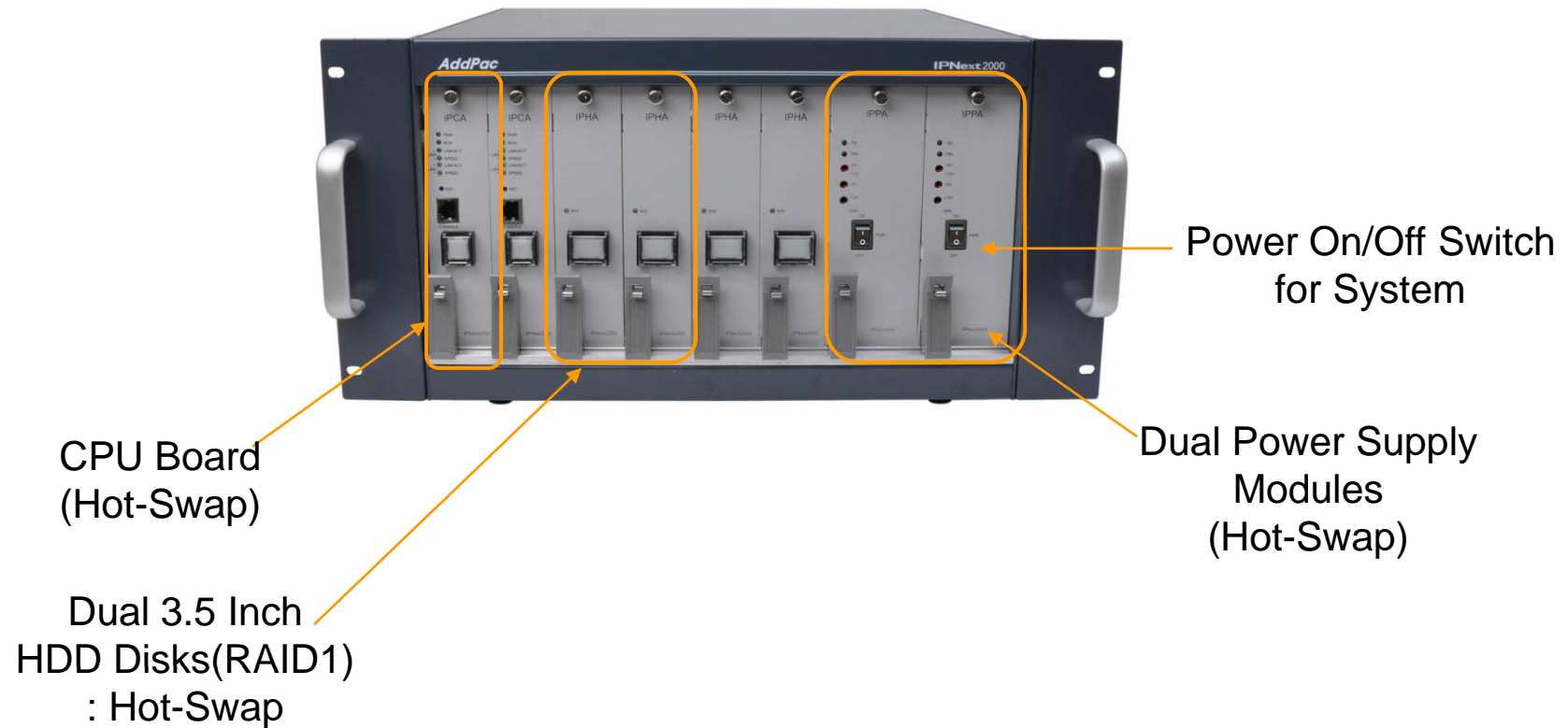
- 64bit High-End Microprocessor Computing Power
- Main Chassis
 - Dual Redundancy CPU Boards for System Fault Tolerant
 - Two(2) 10/100/1000Mbps Gigabit Ethernet
 - One(1) RS-232C Console (RJ45)
 - Two(2) 3.5 Inch Hard Disk Interface Slot (RAID 1)
 - Dual Redundancy Power Supply Module
 - Hot-Swap Features

Hardware Specification

IPNext2000 Next Generation IP-PBX

RISC
CPU

IPNext2000 Front Side

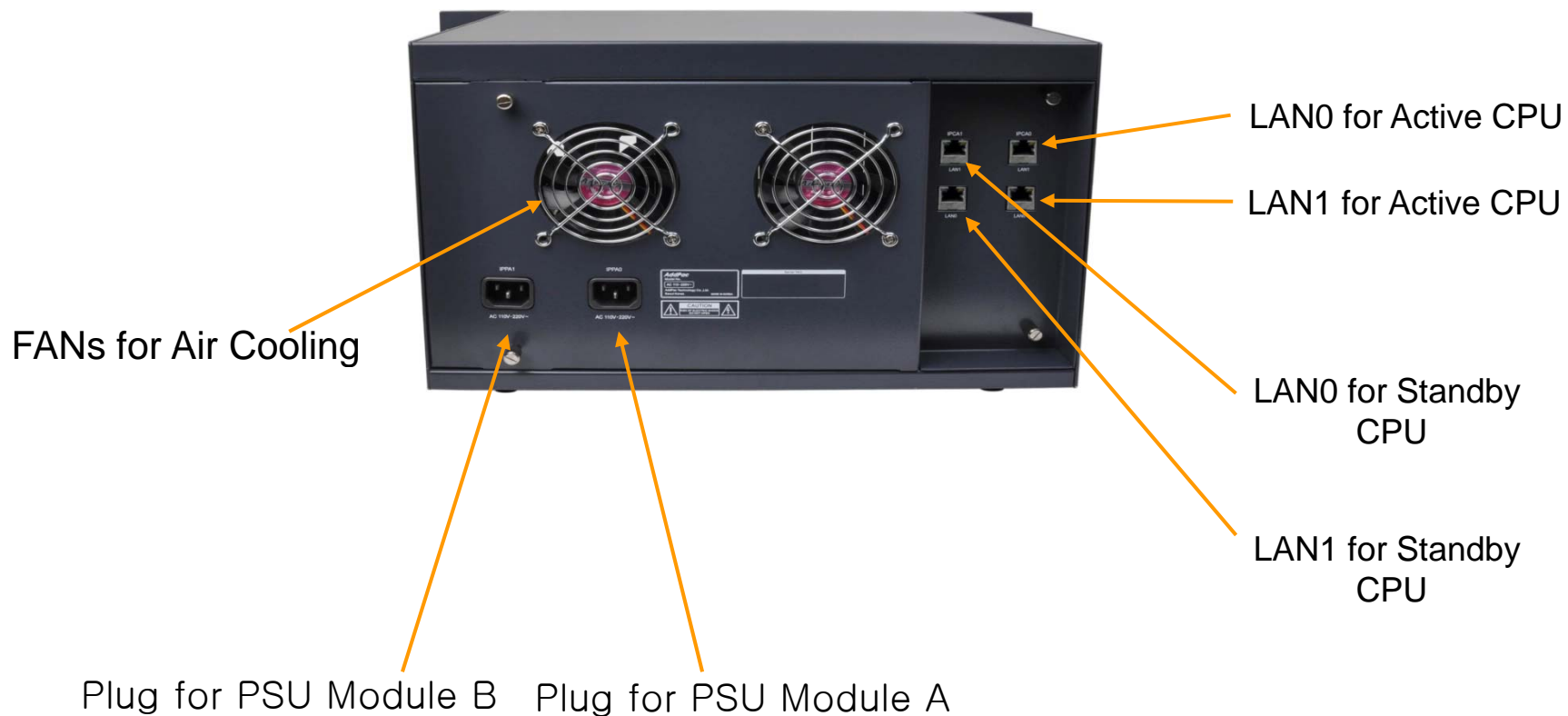


Hardware Specification

IPNext2000 Next Generation IP-PBX



IPNext2000 Back Side





IPNext600 IP-PBX (One System, Dual IP-PBX)

Main Features

IPNext600 Next Generation IP-PBX

- 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
- VPMS (VoIP Plug&Play Management System) & Smart NMS for Large Scale Deployment
- Advanced Voice QoS Mechanism
- Dual Redundancy Power Module

Hardware Specification

IPNext600 Next Generation IP-PBX

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

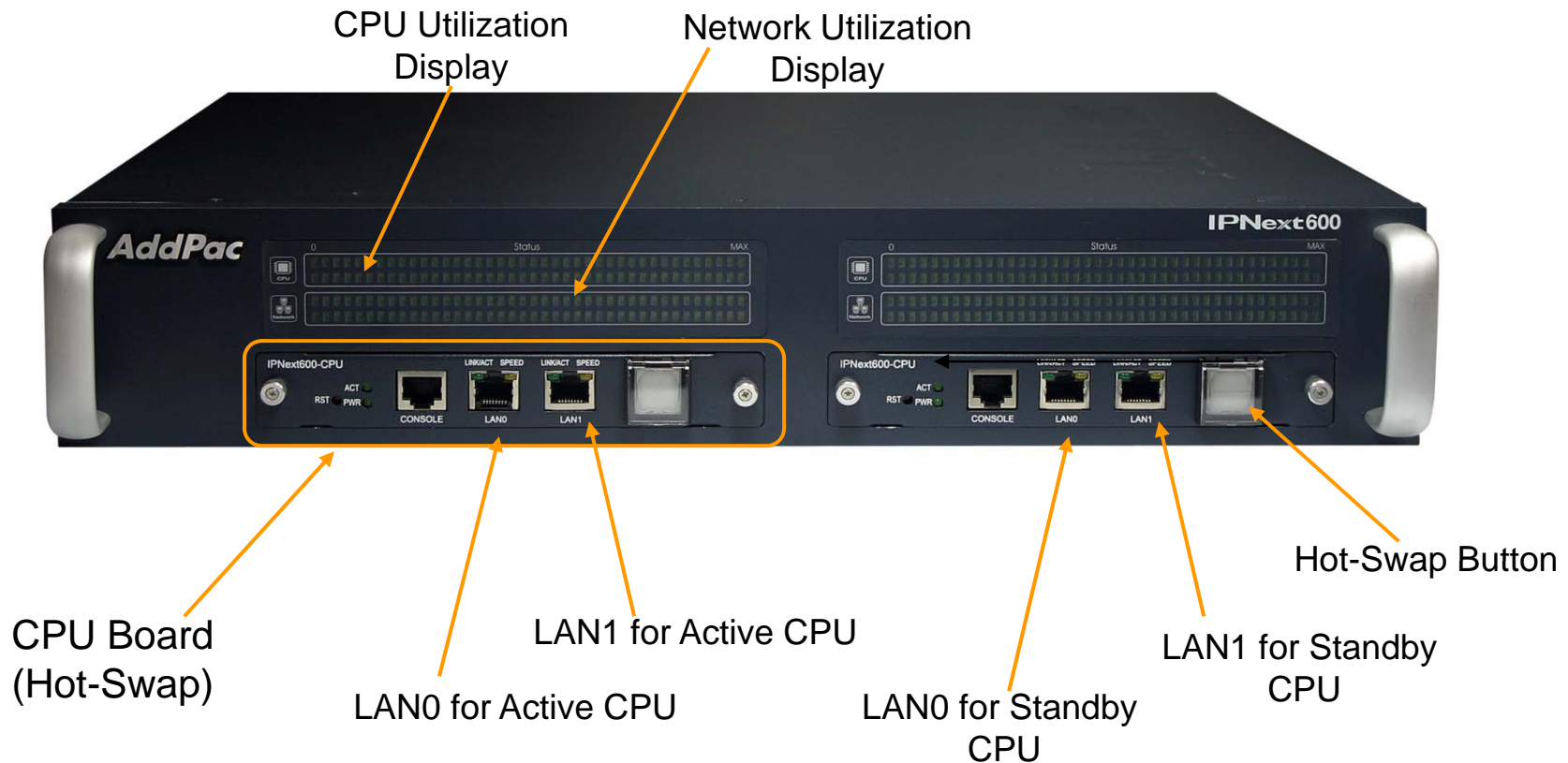


Hardware Specification

IPNext600 Next Generation IP-PBX

RISC
CPU

IPNext600 Front Side



Hardware Specification

IPNext600 Next Generation IP-PBX

RISC
CPU

IPNext600 Back Side


Dual Power Supply
Modules
(Hot-Swap)



PSU Module A

PSU Module B

Power On/Off Switch
for System



IPNext190 Hybrid IP-PBX

Main Features

IPNext190 Hybrid IP-PBX

- SIP Application Server, Proxy, Registrar and Location Server
- Multiple ITSP Trunk with SIP & H.323 Accounts Support
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- 4 Module Slots for VoIP Gateway Interface, Up to 32 Port
- FXS, FXO Interface (8 Port VoIP Module)
- VoIP Gateway : G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- 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 for Smart Multimedia Messenger and Smart IP Phone
- IVR Scenario Editor, Three Party Conference (G.711)
- Unified Messaging Service (Voice Mail, etc)
- Firmware Upgradeable Architecture
- Smart Multimedia Manager for IP-PBX Management
- Smart Messenger Service for UC
- Advanced Voice QoS Mechanism
- Various Call Scenario (Call Pickup, Call Park, Call Transfer, etc)
- Various IP Terminal Support (Video Phone, IP Phone, WiFi Phone, Soft Phone)

Hardware Specification

IPNext190 Hybrid IP-PBX

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)
 - Four(4) VoIP Module Slots for FXS, FXO etc



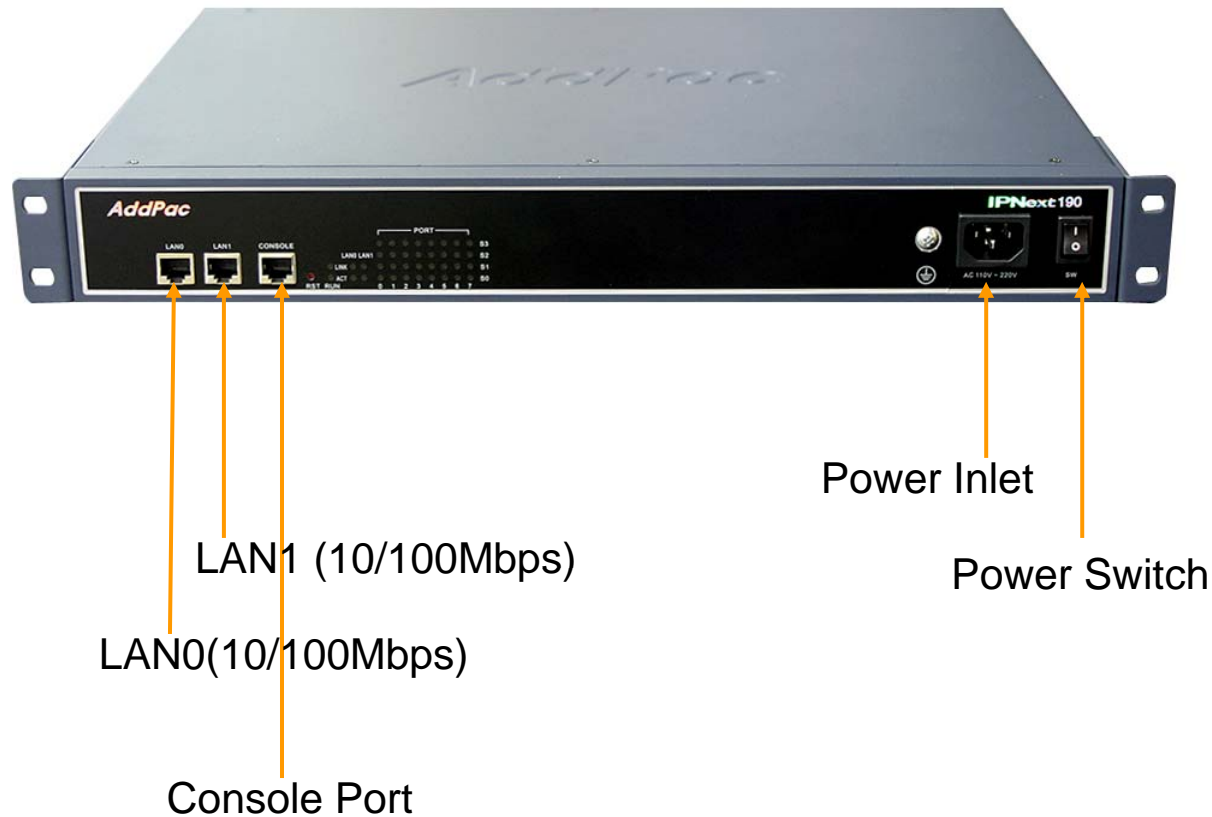
Hardware Specification

IPNext190 Hybrid IP-PBX

RISC
CPU

High-end
DSP

IPNext190 Front Side



Hardware Specification

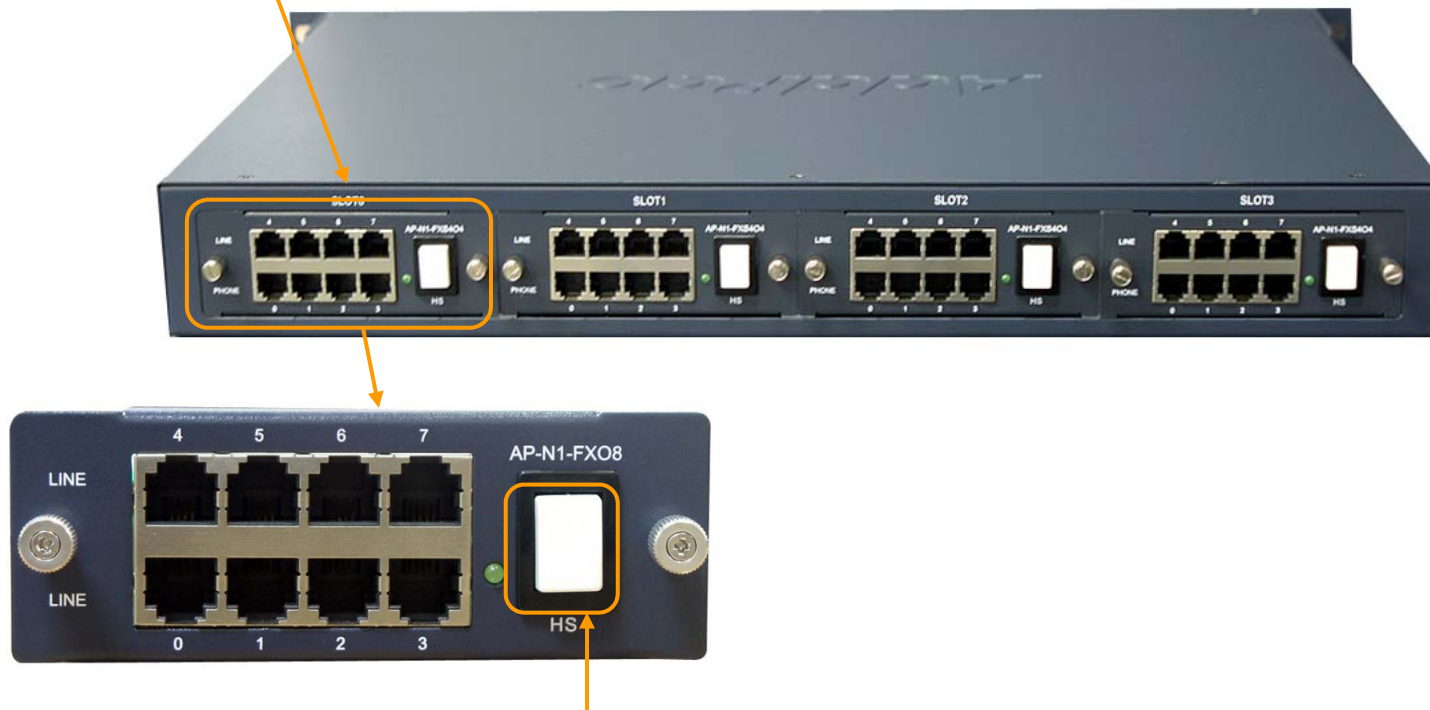
IPNext190 Hybrid IP-PBX

RISC
CPU

High-end
DSP

IPNext190 Back Side

PSTN Interface Module



Hot-Swap Switch & LAMP Indication










Secure IP Phone Solution (TLS/SRTP Protocol)



Secure IP Video Phone Solution (TLS/SRTP Protocol)

Secure IP Video Phone Comparison Table

	AP-VP500	AP-VP300N	AP-VP280	AP-VP250	AP-VP230	AP-VP150	AP-VP120
							
LCD Size	12.1 Inch Touch Screen	7Inch Touch Screen	7Inch Touch Screen	4.3Inch Touch Screen	5Inch Touch Screen	4.3Inch Touch Screen	4.3Inch
Camera	CCD	CCD	CMOS	CMOS	CMOS	CCD	CMOS
Video Codec	H.263 MPEG4 H.264	H.263 MPEG4 H.264	H.263 MPEG4 H.264	H.263 MPEG4 H.264	H.263 MPEG4 H.264	H.263 MPEG4 H.264	H.263 MPEG4 H.264
Signaling	H.323/SIP	H.323/SIP	H.323/SIP	H.323/SIP	H.323/SIP	H.323/SIP	H.323/SIP
Security Protocol	TLS/SRTP	TLS/SRTP	TLS/SRTP	TLS/SRTP	TLS/SRTP	TLS/SRTP	TLS/SRTP
Voice MCU	3-Party	3-Party	3-Party	3-Party	3-Party	3-Party	3-Party
LAN Port	2	2	2	2	2	2	2
PoE	N/A	Support	N/A	Support	Support	Support	Support



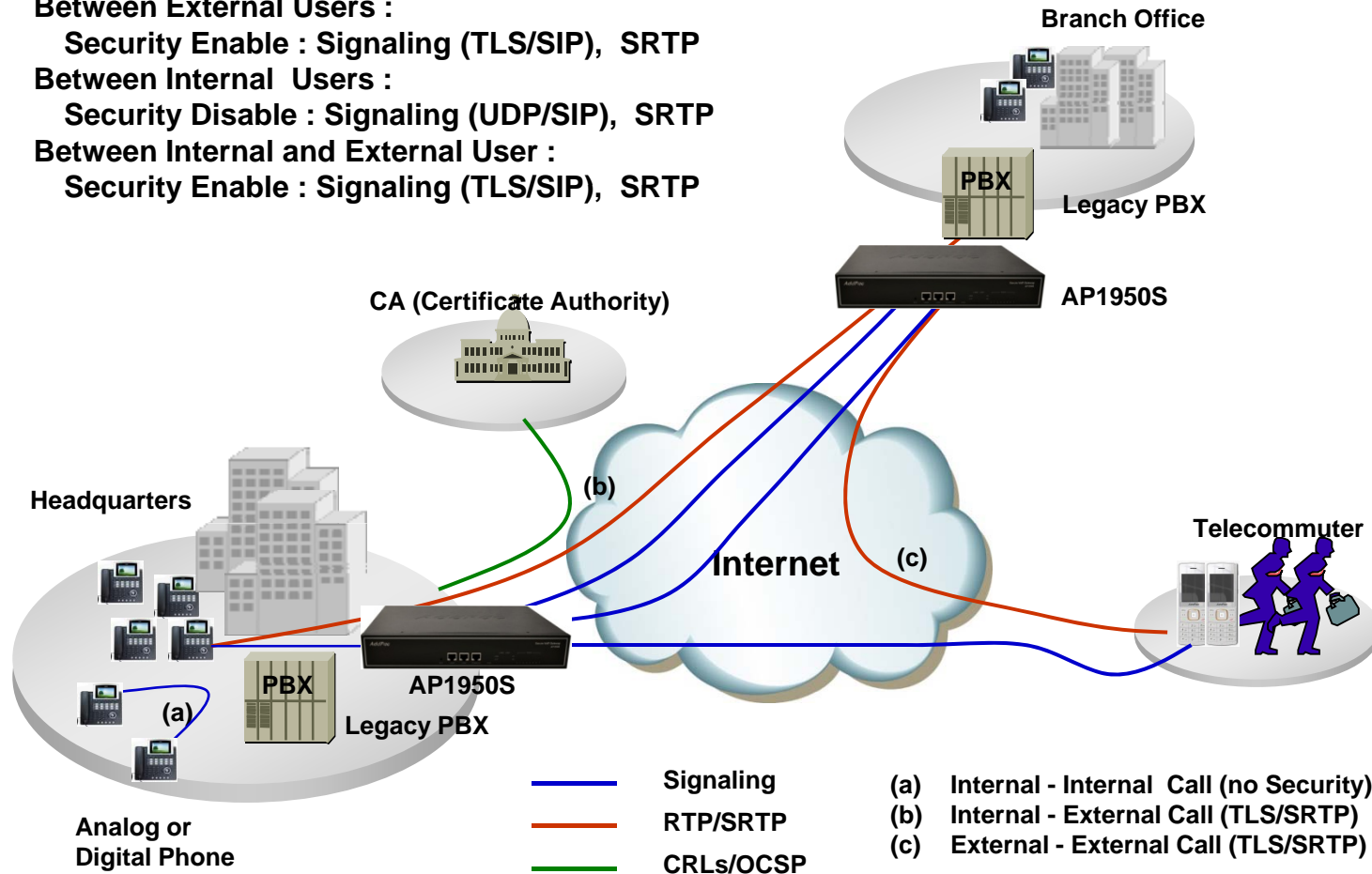
Secure VoIP Gateway Solution (TLS/SRTP Protocol)

Contents



- Secure VoIP Gateway Service Diagram
- Secure VoIP Gateway Comparison Table
 - Secure Analog VoIP Gateways
 - Secure Digital VoIP Gateways
- VoIP Modules for Rack Mountable Equipment
- VoIP Gateway Service Features

SRTP/TLS Network Diagram



- **Between External Users :**
Security Enable : Signaling (TLS/SIP), SRTP
- **Between Internal Users :**
Security Disable : Signaling (UDP/SIP), SRTP
- **Between Internal and External User :**
Security Enable : Signaling (TLS/SIP), SRTP



Secure Analog VoIP Gateways (~32 Port)


Product	AP2330S	AP2340S
		
Available Modules	AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4	AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4
Analog Ports	Up to 24	Up to 32
Signaling	SIP, H.323	SIP, H.323
TLS/SRTP Support	Yes	Yes
Module Slots	3	4
Module Slot	Three(3)	Four(4)
LAN Port	2	2
Console	1	1
Power	Single PSU	Single PSU

Secure Digital VoIP Gateways (1~2 E1/T1)

Product	AP1900S	AP1950S
		
Available Modules	AP-N1-E1 AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4	AP-N1-E1 AP-N1-2E1 AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4
VoIP Signaling	SIP, H.323	SIP, H.323
Digital E1/T1	Up to 1E1	Up to 2E1
Digital Signaling	ISDN PRI, R2	ISDN PRI, R2
TLS/SRTP Support	Yes	Yes
Module Slot	Two(2)	Two(2)
LAN Port	2	2
Console	1	1
Power	Single PSU	Single PSU








VoIP Modules



Target :
AP1900S, AP1950S,
AP2330S, AP2340S

VoIP Modules

DSP

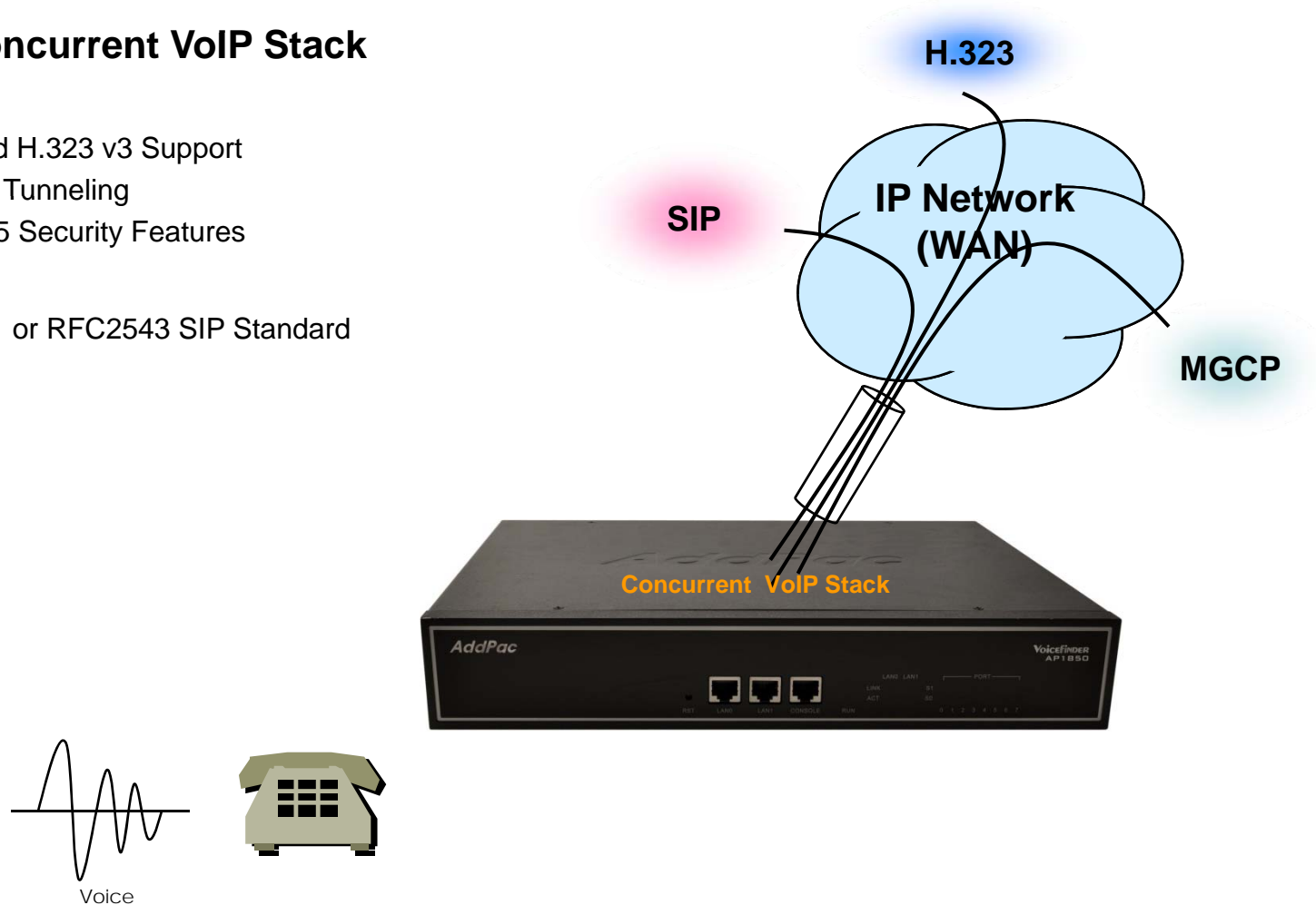
Target	VoIP Modules	Module Features	Module Picture
AP19x0S AP2330S AP2340S	AP-N1-FXS8	8-Port FXS Module	
AP19x0S AP2330S AP2340S	AP-N1-FXO8	8-Port FXO Module	
AP1800 AP2330S AP2340S	AP-N1-FXS4O4	4-Port FXS&4-Port FXO Module	
AP1900S AP1950S	AP-N1-E1	1-Port Digital E1/T1 Module	
AP1950S	AP-N1-2E1	2-Port Digital E1/T1 Module	



VoIP Gateway Service Features

VoIP (Voice over IP) Service

- **H.323, SIP Concurrent VoIP Stack**
- **H.323**
 - ITU-T Standard H.323 v3 Support
 - Support H.245 Tunneling
 - Including H.235 Security Features
- **SIP**
 - IETF RFC3261 or RFC2543 SIP Standard



VoIP (Voice over IP) Service

- **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

- **Voice Codec**

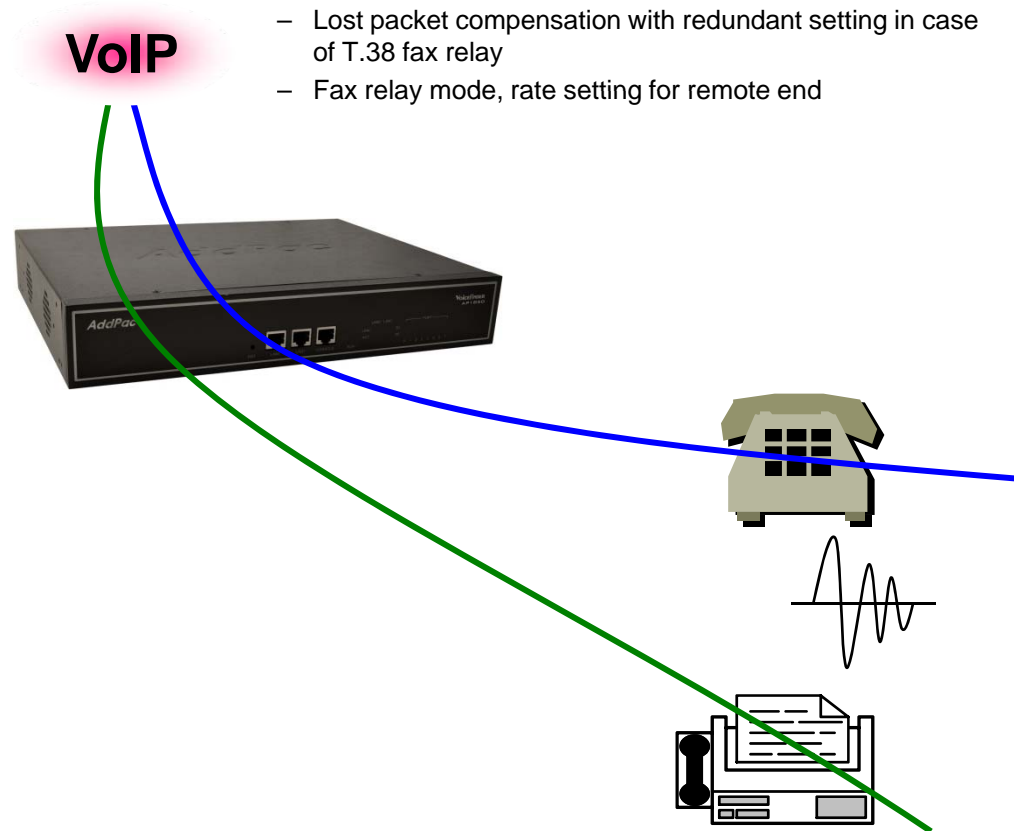
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **RTP**

- Redundant RTP packet transmission in case of severe packet loss
- Dynamic jitter buffer management and RTP packet jitter and loss compensation with heuristic & DSP error concealment
- Static jitter buffer setting support
- Voice frame per RTP packet number control for each codec
- In-band ring-back tone support
- Virtual ring-back tone support
- Tone parameter change support

- **FAX**

- Fax relay mode supporting T.38, inband-T.38, bypass mode
- Lost packet compensation with redundant setting in case of T.38 fax relay
- Fax relay mode, rate setting for remote end



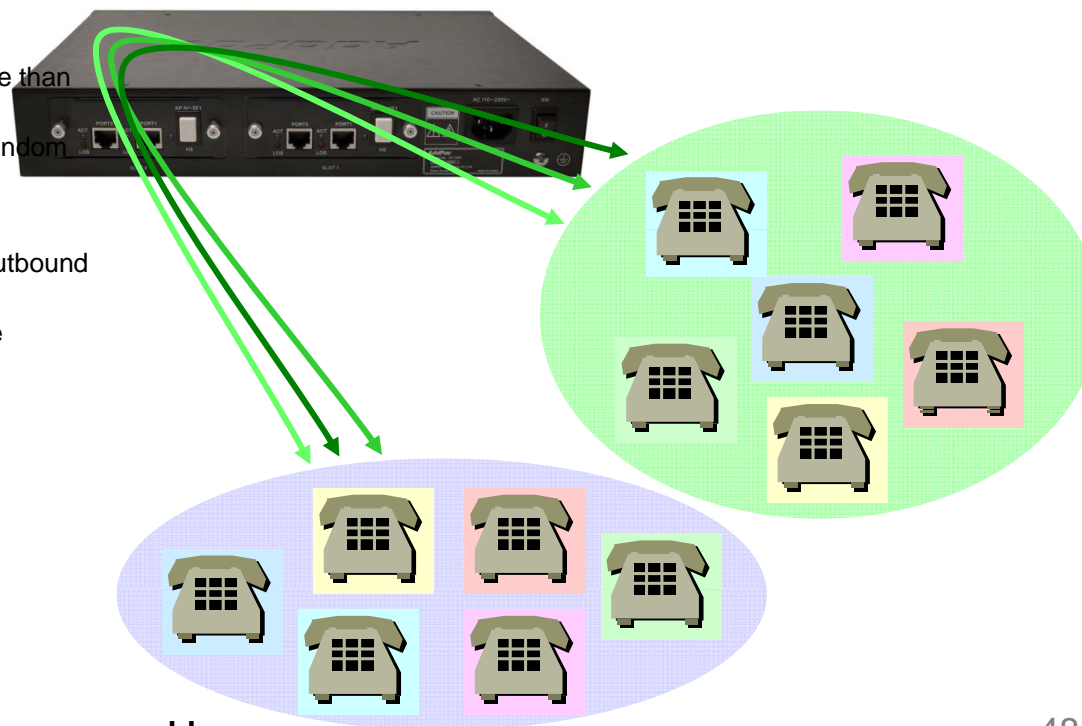
VoIP (Voice over IP) Service

• 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



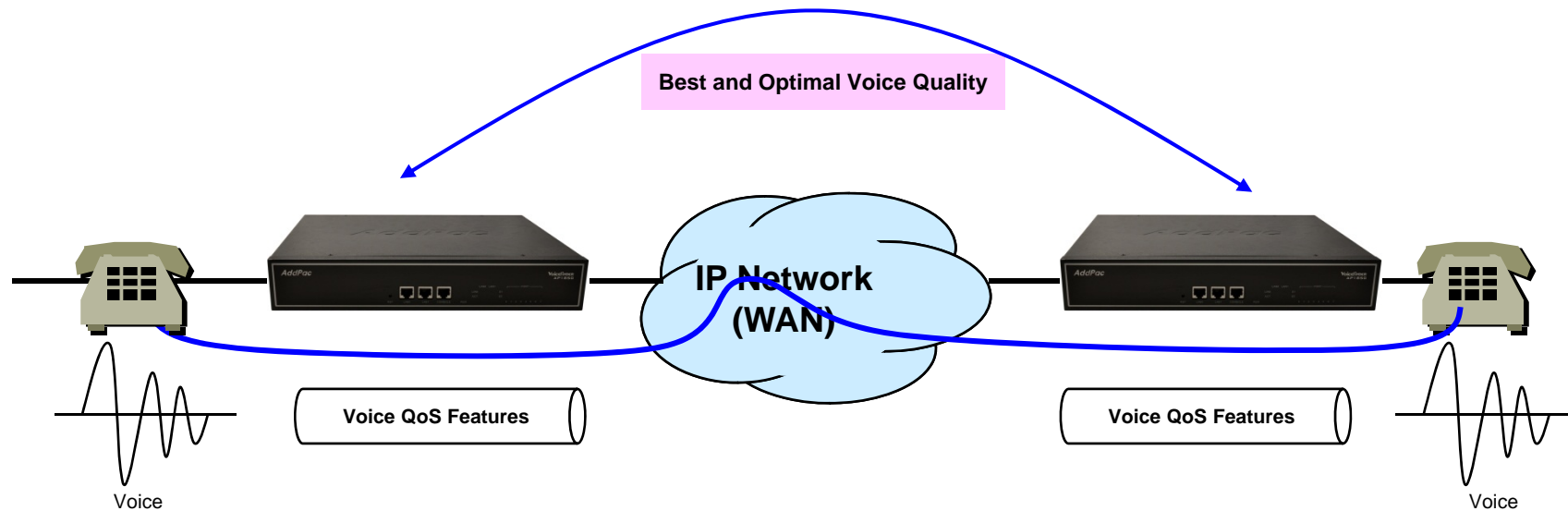
Advanced QoS Features

- **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

- **Basic Network Protocols**

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

- **Routing Protocol**

- IPv4 : Static

- **Service Protocol**

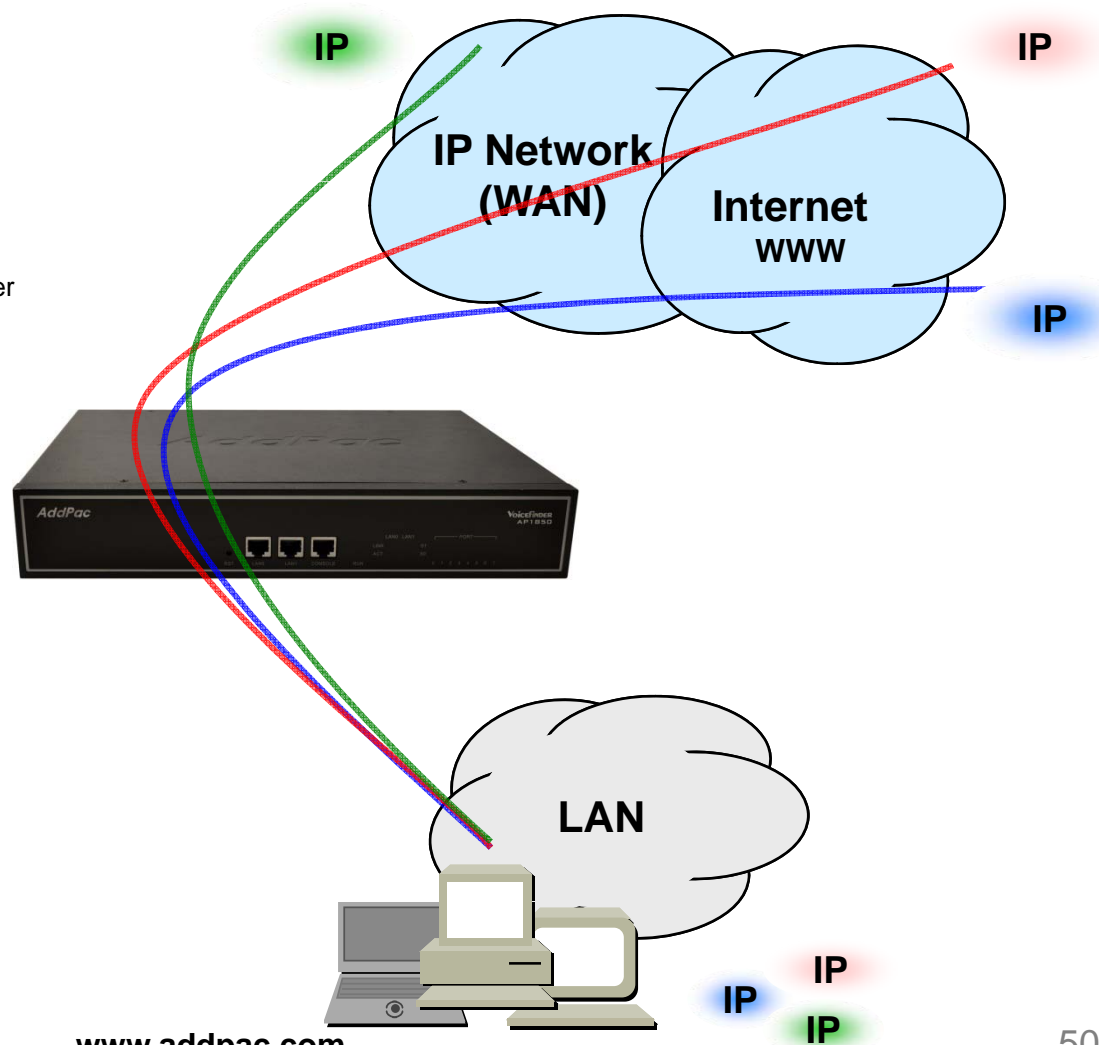
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **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

- **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**

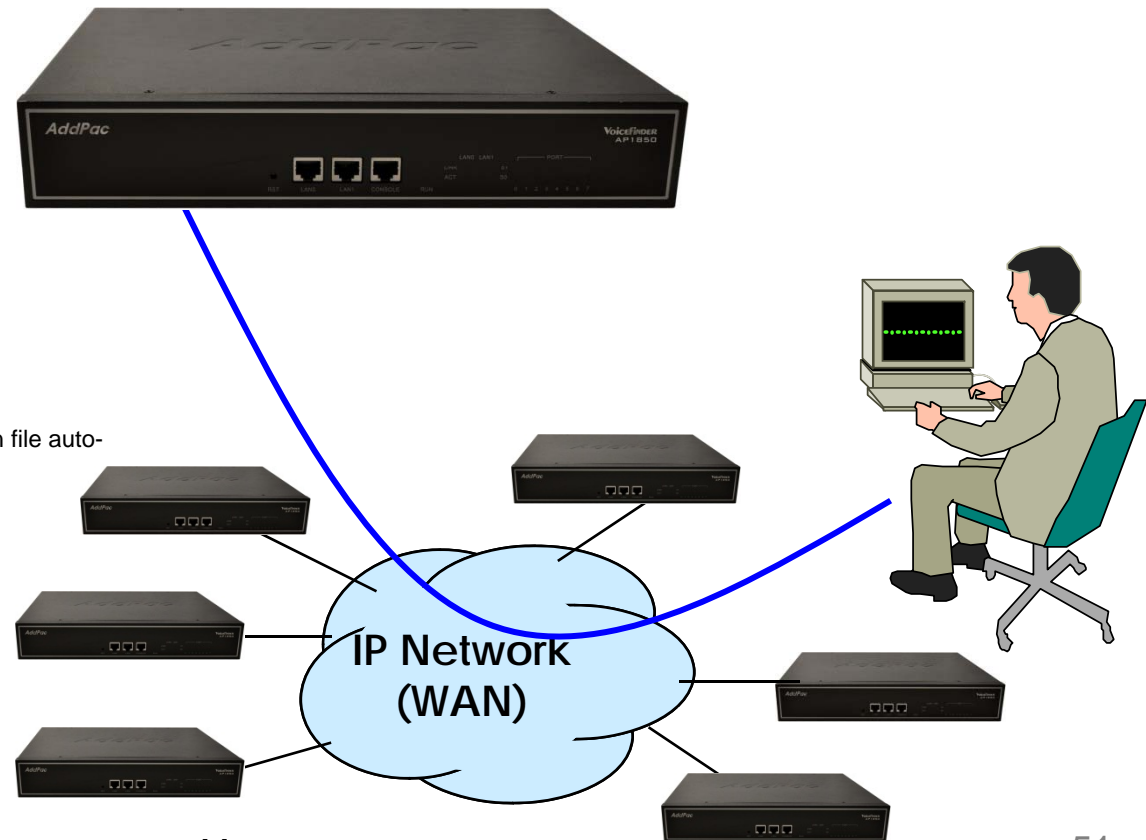
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

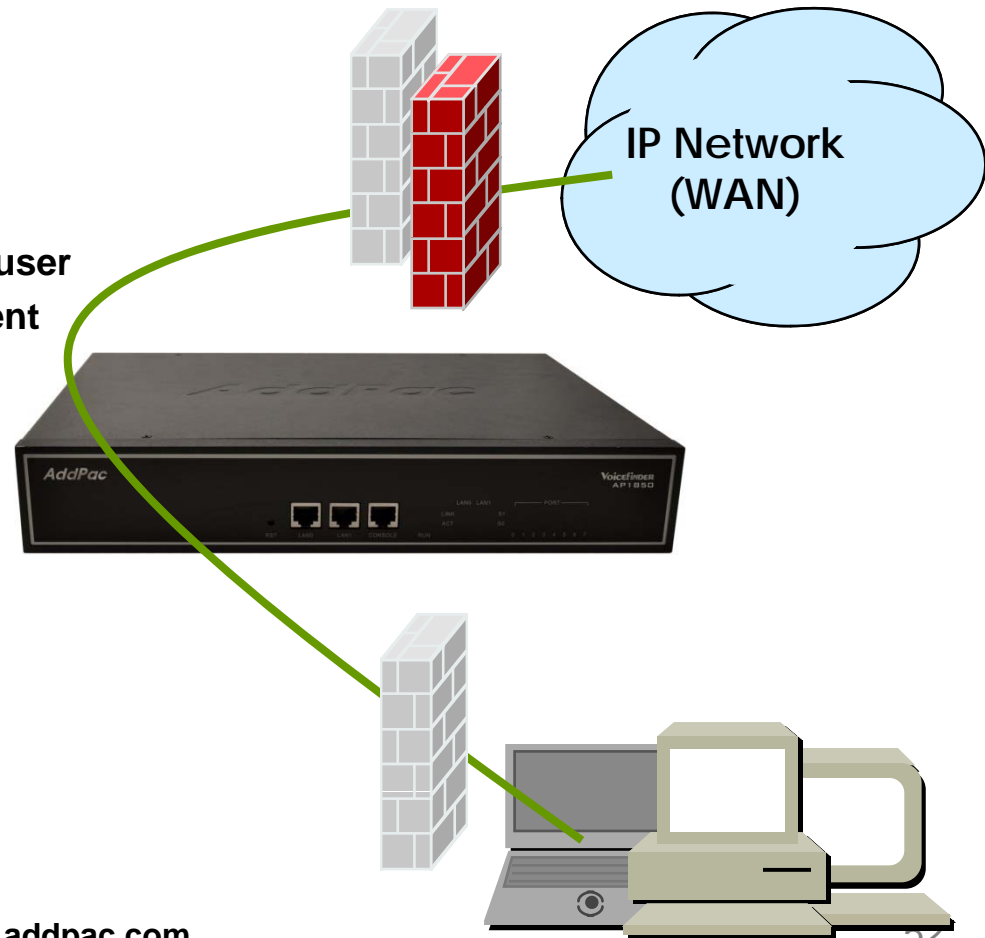
- **Interoperable with AP-VPMS Service**

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



Security Management


- 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





Secure IP Video MCU (TLS/SRTP Protocol)

Secure IP Video MCU Comparison Table

	AP-MC3000 	AP-MC2000 	AP-MC1800 
Video Codec	H.263 MPEG4 H.264	H.263 MPEG4 H.264	H.263 MPEG4 H.264
Signaling	H.323/SIP	H.323/SIP	H.323/SIP
Voice Codec	G.722/G.711/G.726/G.729 /G.723, etc	G.722/G.711/G.726/G.729 /G.723, etc	G.722/G.711/G.726/G.729/G .723, etc
Party Number	32	16	4/8
Multi-Session	Support	Support	Support
Conference Mode	Add-Hoc, Dial-Out, Meet Me	Add-Hoc, Dial-Out, Meet Me	Add-Hoc, Dial-Out, Meet Me
H.323 GateKeeper	Support	Support	Support
Security Protocol	TLS/SRTP	TLS/SRTP	TLS/SRTP
Conference Video Recording	Support	Support	Support
LAN Port	2	1	1
Power Duplication	N/A	N/A	N/A



Video MCU Service Features

Contents

- Video Display Layout
- Dynamic Session Management
- Personal Feature
- Video Conference Signaling
- SMM(Smart Multimedia Management) for MCU
- OSD (Video Phone, Video Terminal, etc)
- Conference Service Diagram : Example
- New SMM Feature: Media Class
- New SMM Feature : Conference Room (Speaking Mode, Voice Switching)
- New SMM Feature : Active Conference
- New SMM Feature : Conference Scheduling

Video Display Layout

- **Various Layout**
 - 31 types (Symmetric Layout, Asymmetric Layout)
 - Symmetric Layout : same participant picture size
 - Asymmetric Layout : asymmetric participant picture size
 - Auto, Manually : can choice a specific video layout when a conference is started
- **Dynamic control**
 - Dynamic layout change
 - Dynamic participant movement
- **Floor**
 - Can distinguish a participant by using the concept of the right of a speaking participant
 - Floor to full screen
- **Name display**
 - Display or hide the name of a participant dynamically
- **Border**
 - Three kind of a participant picture border : empty border, a participant boarder, a speaker boarder

Personal Feature*

- Individual (Per Connection) Rate Control for Down Stream
 - Codec, Picture Size, etc
- Personal Layout
 - Example, Zooming for Detailed View

Video Conference Signaling

- **Dial-in**
 - Even in Dial-out started Video Conference, a participant can join the Video Conference if a participant knows the conference room number in outside.
- **Mic off of invisible participant**
 - Can turn off MIC of a invisible participant.
- **Forced Mute (audio, video)**
 - Can mute Audio/Video Capability of a participant via SMM or in Chair, Operator Terminal (Video Phone).
- **Virtual Audience**
 - Broadcasting solution
 - Can monitor the video conference via inter-working with AddPac Broadcasting Server.
- **H323 Support ***
 - Floor control(H.243)
 - Dual Video (H.239)

SMM (Smart Multimedia Management) for MCU

- Initial Setting
 - Video Layout Setting
 - User class
 - Chair, Operator, Participant, Audience
 - Initial position
- Active Monitoring
 - Monitoring
 - Snapshot
 - Control
 - Layout
 - Move party
 - Floor
 - Mute
- Video Conference Scheduling*
 - Scheduled Dial-Out Conference

SMM : Conference Room

Conference Name & Description

Conference Number

Conference Type
: Dial-out, Meet me, AddHoc

Media Type
Select Conference Media Type

Audio Codec
Select a conference audio codec

Maximum Participant
(Can select in Meet-Me conference type only)

Close on Chair Out
Conference Disconnected if chair hang up phone

Secret Room
-Secret room and Room Password
-(Can select in Meet-Me conference type only)

Video Endpoint
In case of Video Media type, select the video parameter of endpoint.

Video Support
In case of Video Media Type, select the video information

Video Support
Support | EndPoint | Layout

Video Type: Continuous presence
Target Rate: 1024K
Picture Size: 640x480
Video Codec: MPEG4
Frame Rate: 30 fps

Conference Name: []
Description: []
Conference Number: []
Conference Type: Dial-Out Conference
Partition: N/A
Media Type: Audio Video + Audio
Audio Codec: G.711U
Max Participant: 16
 Close on Chair Out
 Secret Room
Room Password: [] (4 digit)

Ok Cancel

SMM : Conference - Layout

The screenshot shows the 'Add Conference' dialog box with the 'General' tab selected. The 'Video' sub-tab is active, showing settings for 'Layout Mode', 'Arrange Mode', 'Video Layout', 'Floor Assign Mode', 'Color', and 'Mic Off of Invisible Participant'. Several callout boxes provide additional information:

- Video Layout Mode**: - Auto (symmetric, asymmetric) - manual
- Arrange Mode**: -(dynamic, fixed, fixed reserved)
- Floor to Full Screen**: - Floor to Full Screen Enable/Disable in symmetric, asymmetric Layout Mode.
- Display Participant Name**: - Participant Name Display Enable/Disable and Location of Name Display
- Color**: - Layout border and Floor, Background Color Setting.
- Mic off of Invisible Participant**
- Video Layout**: - Select the video layout
- Floor Assign Mode**: Floor 권한 할당에 대한 방법 설정. (After Release, On Request)

SMM : Conference - Participants

Conference Properties

General | **Participants** | Virtual Audience

Number	Partition	User	Type	User Class	Media Type	Position	Display Name
1002		hwang woo sun					
1003		sim sang kwon					
1004		lee young sik					
1005		oh hyoung suk					
1006		lee myoung won					
1007		choi jin suk					
1008		lee min ji					
1010		kwon jong hwi					
1012		kim sang mi					
1013		you jae won					
1015		jang byoung ju					
1018		kim kyoung nam					
1019		kim chang yeon					
1020		kwon young pil					
1021		kim do hyoung					
1024		kim kwang					
1026		lee joung hyuk					
1027		kim so young					
1101		choi woo suk					
1102		sin kwang woong					
1500		choi jin suk					
3003		kim kyoung nam					
4002		kim so young					
4003							

Enter External Phone Number

Add

Ok Cancel

Phone Number Participant Phone List

User Class
(Chair, Operator, Participant, Audience)

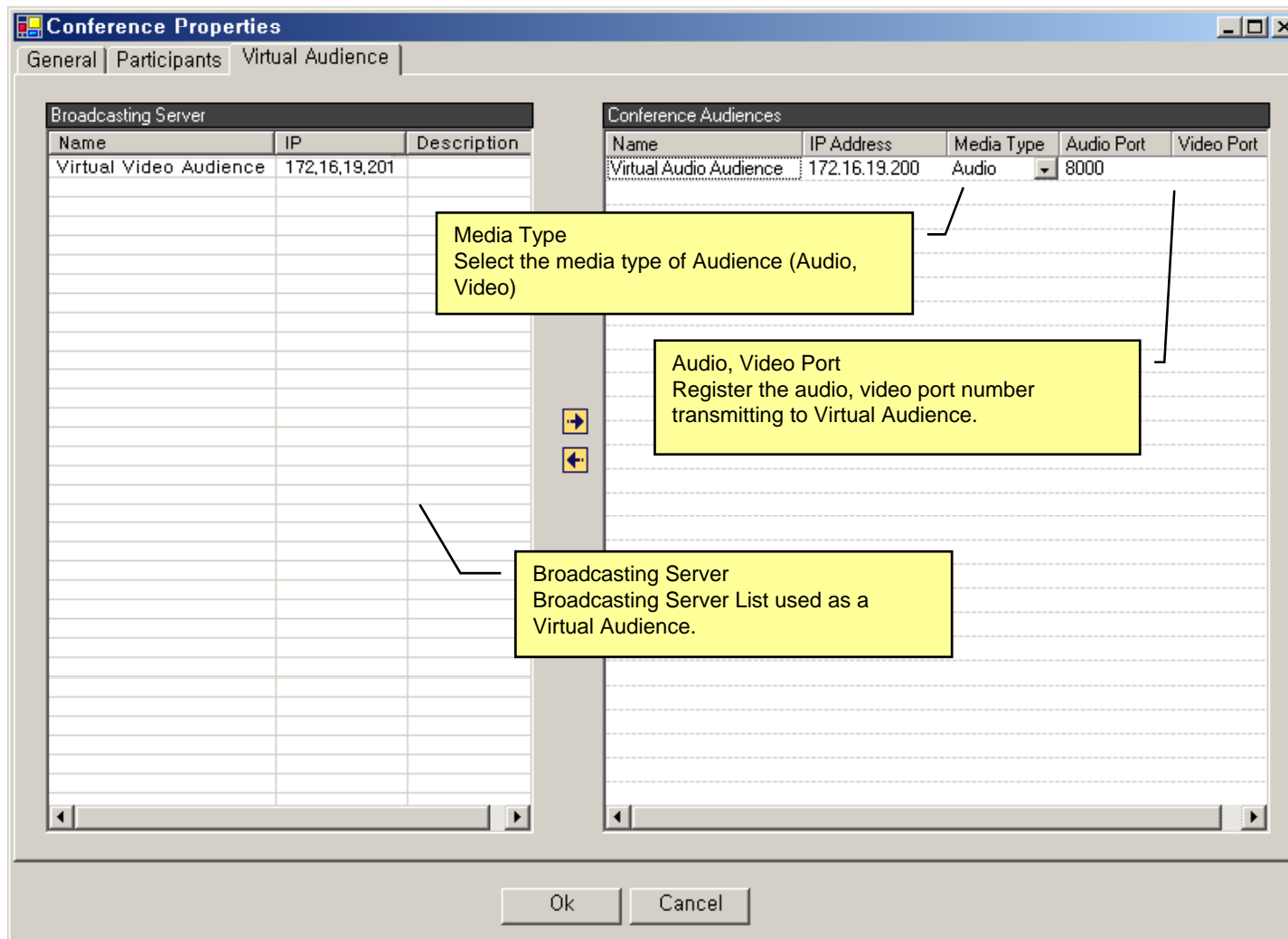
Media Type
(Audio, Audio (Seat Reserved), Video)

Position
In case of video media type,
Select the location of a
participant in video layout

Display Name
A Participant Display Name

External Phone Number
Register the external phone
line number by inputting
number directly

SMM : Conference – Virtual Audience



SMM : Active Conference (1)

Conference

Conference Name	Conference Number	Status	Conference Type	Start Time	Duration (s..	Media Type	Floor to Full...	Layout Mode	Arrange Mode	Layout	No. of Pa..
nms conference	7100	Running	Dial-Out	20061207-14:33:45	82	Video	On	Manual	Dynamic		3

Participants (nms conference)

Participant Name	Phone Number	IP	Status	Audio	Video	Floor	In Picture	Reason
choi jin suk(js.choi)	1500	172.16.19.103	Connected					
kim kyoung nam(kn...	3500	172.16.12.30	Connected					
lee joungh hyuk(jh.lee)	6010	172.16.11.110	Connected					

Conference
Display the current conference room list

Participants
Display the participant list in conference room each

SMM : Active Conference (2)

Smart Multimedia Manager - [Active Conferences]

File View Tools Window Help

Advanced Smart Multimedia Manager

AddPac Technology

172.16.201.100 172.16.11.120

Conference

Conference parameter setting is possible dynamically in current conference call

Conference Name	Conference Number	Status	Conference Type	Start Time	Duration (s..	Media Type	Floor to Full...	Layout Mode	Arrange Mode	Layout	No. of Pa..
nms conference	7100	Running	Dial-Out	20061207-14:33:45	173	Video	On	Manual	Dynamic		3

Participants (nms conference)

Participant Name	Phone Number	IP	Status	Audio	Video	Floor	In Picture	Reason
choi jin suk(js.choi)	1500	172.16.19.103	Connected					
kim kyoung nam(kn...	3500	172.16.12.30	Connected					
lee jounghyuk(jh.lee)	6010	172.16.11.110	Connected					

172.16.201.100 (Ok) 172.16.11.120 (Ok)

2006-12-07 오후 2:36:34 Version 2.9.2532.21338 172.16.201.100:389 administrator

SMM : Active Conference (3)

The screenshot displays the 'Smart Multimedia Manager - [Active Conferences]' window. The main area shows a table of active conferences. A 'Conference Snapshot' window is open, showing a real-time still image of a current video conference call. Below the snapshot is a 'Participants (nms conference)' table listing participant details and their status.

Conference Name	Conference Number	Status	Conference Type	Start Time	Duration (s..)	Media Type	Floor to Full..	Layout Mode	Arrange Mode	Layout	No. of Pa..
nms conference	7100	Running	Dial-Out	20061207-14:33:45	318	Video	On	Manual	Dynamic	[Grid Icon]	3

Participant Name	Phone Number	IP	Status	Audio	Video	Floor	In Picture	Reason
choi jin suk(js.choi)	1500	172.16.19.103	Connected	[Icon]	[Icon]		[Grid Icon]	
kim kyoung nam(kn...)	3500	172.16.12.30	Connected	[Icon]	[Icon]		[Grid Icon]	
lee joungh hyuk(jh.lee)	6010	172.16.11.110	Connected	[Icon]	[Icon]		[Grid Icon]	

Conference Snapshot
Display the real-time still image of a current video conference call

Participants
Participant parameter setting is possible dynamically in current conference call

OSD (Video Phone, Video Terminal, etc)

- Conference Management (Chair, Operator)
 - Layout
 - Move party
 - Floor
 - Mute
- Indicator
- Floor



OSD : Conference Room

- Application >> Conference Room
 - conference list

Conference Room

ON AIR NUM

Conference room
-Lock
-unlock

Conference type
-video
-audio

User in conference / maximum

Conference Name	Conference Number	User in conference / maximum	Lock Status	Video/Audio	Layout
Conference 1	1000	3/16	Locked	Video/Audio	Layout 1
Conference 2	2000	0/4	Unlocked	Video/Audio	Layout 2
Conference 3	8888	0/16	Unlocked	Video/Audio	Layout 3

Dial-in conference
- gray : not active
- Colored : active

Meet-me conference
- gray : not active
- Colored : active

Conference name

Conference number

Conference layout

See Detail Participant list

Detail View

AddPac

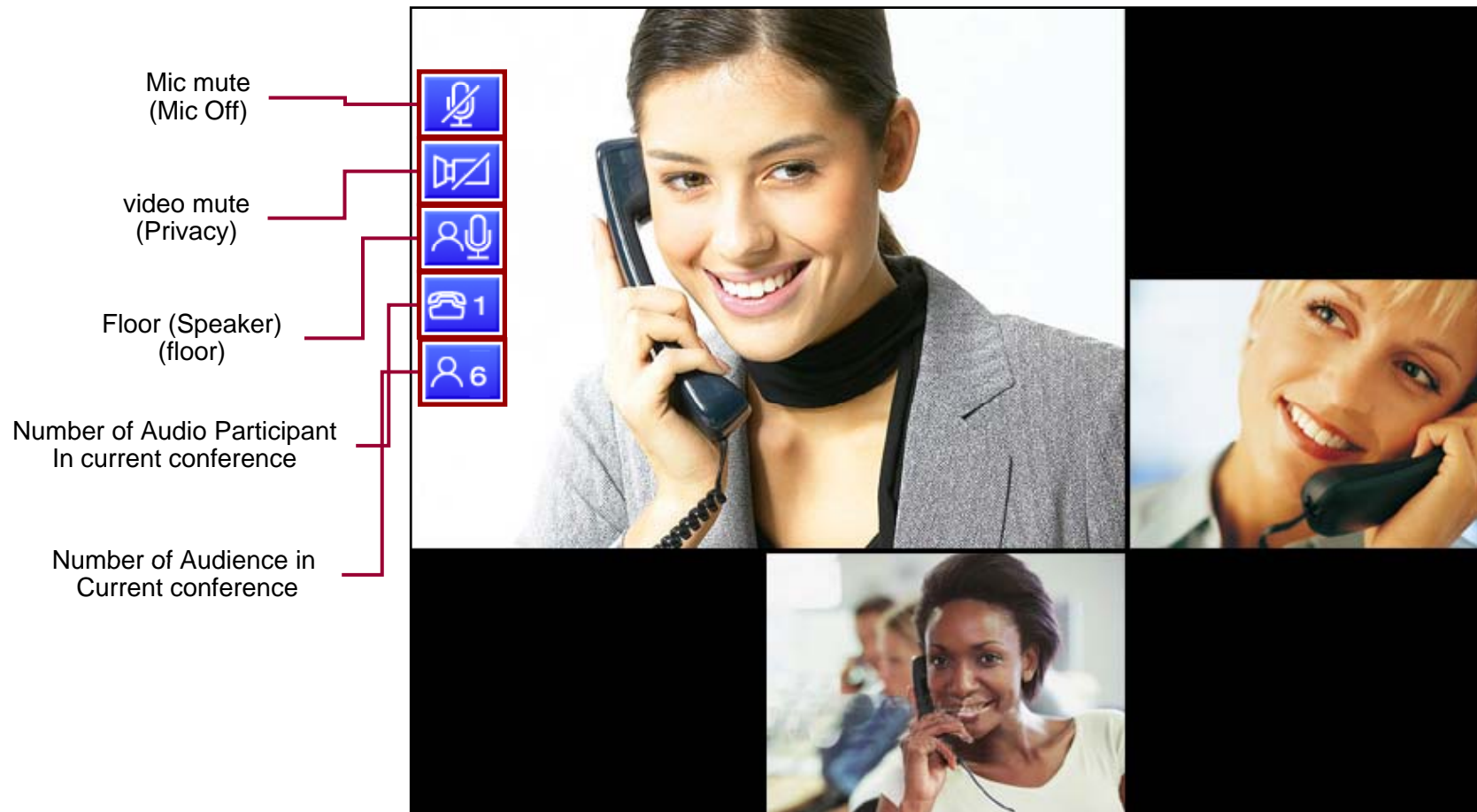
www.addpac.com

OSD : Conference Open

- Conference open
 - OK or Send Key in Conference Room List
 - Dialing using Conference Room List

OSD : Indicators

- User conference status information (function key)



OSD : Add Party

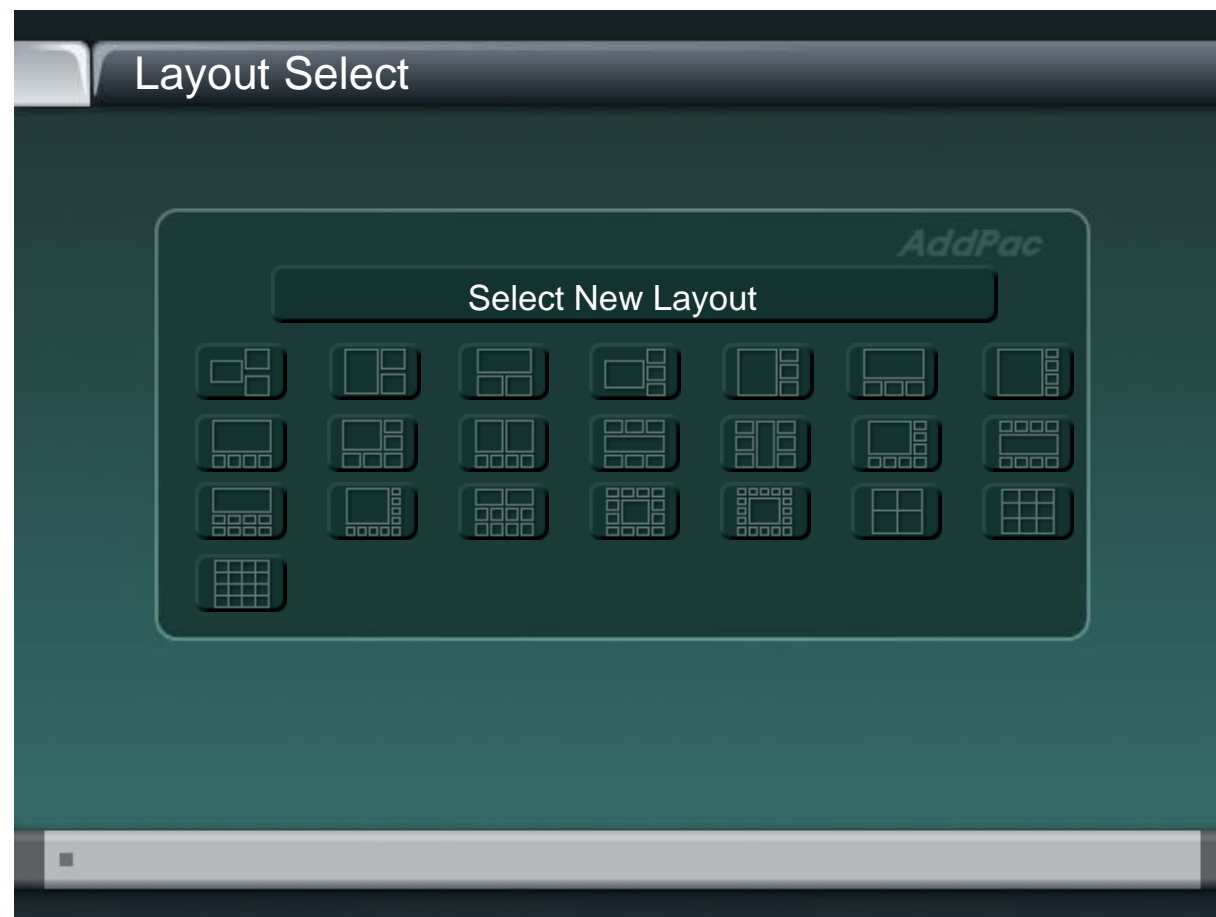
- New User Invite in Current Conference

The screenshot shows the 'Add Party' interface. At the top, there's a title bar with 'Add Party' and several icons: 'ON AIR', a grid icon, a phone icon, 'NUM', and a window icon. The main area is a grid of video thumbnails. A central overlay displays 'Incoming Call' and the number '3000'. Below the grid, there are two buttons: 'Participant' and 'Audio Call'. Red lines connect text labels on the left to these elements:

- Invite new user (points to the 'Incoming Call' overlay)
- Select User class
 - participant
 - audience(points to the 'Participant' button)
- Select Media type
 - audio call
 - video call(points to the 'Audio Call' button)

Layout

- Video Layout Change in current conference



Floor To Full Screen

- Large view display mode : Floor Participant



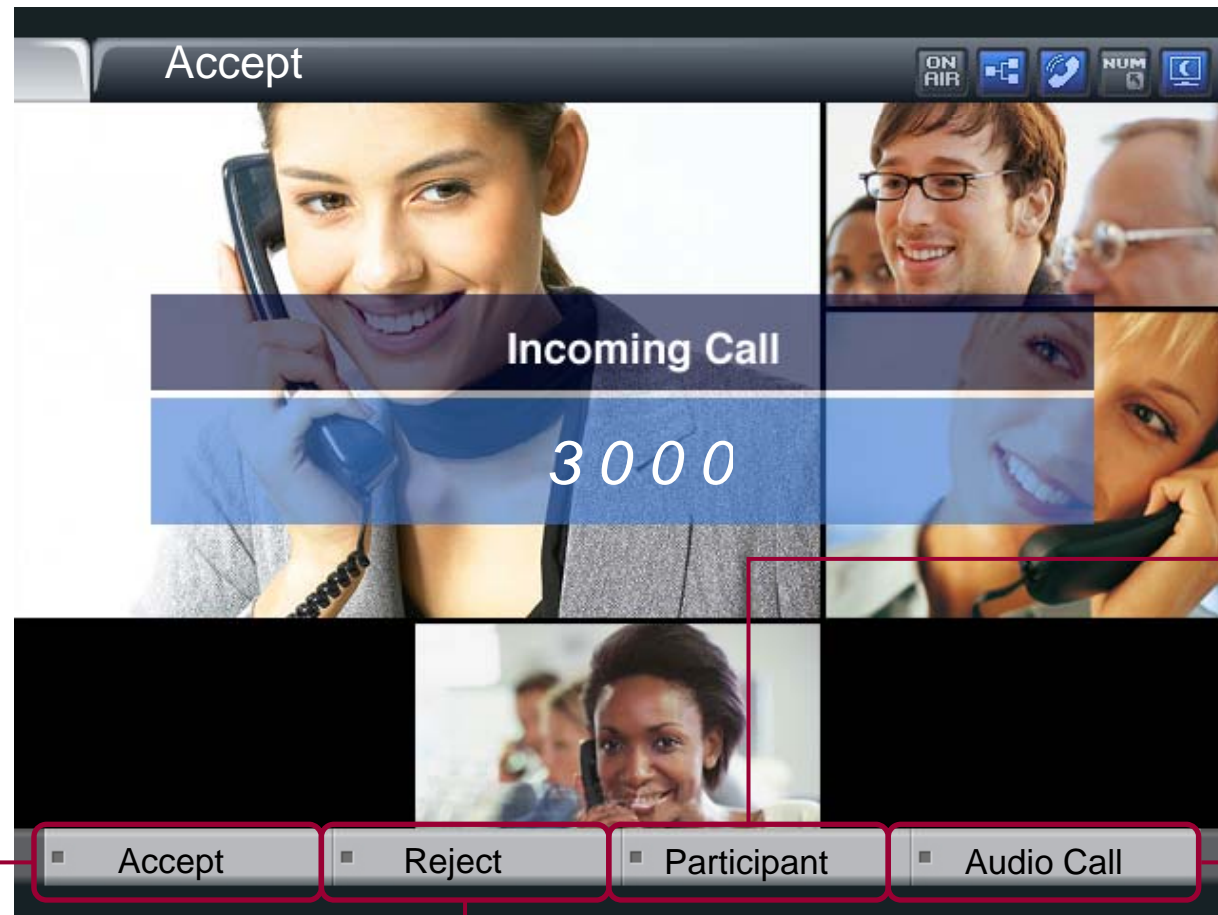
Display Name

- Conference Participant Name Display Enable/Disable



Accept

- User unregistered want to join the conference
 - User can join the conference by Chair or Operator's Permission,



User class
-participant
-audience

Media type
-audio call
-video call

Conference Join
Accept

Conference Join
Reject

Participant info

- Party Info
 - Simple Participant info list View/Modification
 - Chair, Operator can modify the status of participant
 - Participant, Audience can read only the status of participant



Detail participant list

- Can view the status information of member In conference

The screenshot shows the 'Participant List' interface. At the top, there are control buttons: 'ON AIR', a grid icon, a microphone icon, 'NUM', and a moon icon. The list contains four participants: Sally (3010), Steven (3001), Jane (3005), and John (3004). Each row includes a user class icon, name, number, and media status icons (video, audio, camera, screen). A bottom bar contains 'Assign Floor', 'Remove Party', 'Position', and 'more' buttons. Red lines connect text labels to specific UI elements.

Media type
-video
-audio

Audio/Video enable status

position

User class

Participant's name

Participant's number

User class	Participant's name	Participant's number	Media type	Audio/Video enable status	position
[User Class Icon]	Sally	3010	[Video/Audio/Screen Icons]	[Status Icons]	[Position Icon]
[User Class Icon]	Steven	3001	[Video/Audio/Screen Icons]	[Status Icons]	[Position Icon]
[User Class Icon]	Jane	3005	[Video/Audio/Screen Icons]	[Status Icons]	[Position Icon]
[User Class Icon]	John	3004	[Video/Audio/Screen Icons]	[Status Icons]	[Position Icon]

Assign Floor Remove Party Position more

Assign floor

- Give floor (Right of Speaking) to Participant selected in List
 - The ICON of Participant having Floor is changed as MIC ICON

The screenshot shows the 'Participant List' interface in AddPac. The list contains four participants: Sally (3010), Steven (3001), Jane (3005), and John (3004). Each participant row has a set of icons for floor assignment. Steven's icon is a microphone, indicating he has the floor. Jane's icon is a person, indicating she does not have the floor. The 'Assign Floor' button at the bottom is highlighted with a red box and labeled 'Give Floor (Speaker) to Participant'.

Participant	Room Number	Icon
Sally	3010	Person
Steven	3001	Microphone
Jane	3005	Person
John	3004	Person

Give Floor (Speaker) to Participant

Remove Party

- Conference Call Disconnect of a Participant selected in List

Participant Select

Conference call disconnect of a participant selected



Position

- Participant Location Change In Conference View Layout
- Display the Position List in current conference view layout



User Class

- Change the Right of Participant selected in List
- User class icon change



Audio/Video Mute

- audio, video mute enable/disable

The screenshot displays the 'Participant List' interface in the AddPac software. At the top, there are control buttons for 'ON AIR', a grid icon, a phone icon, 'NUM', and a mute icon. Below this is a table of participants with columns for a profile icon, name, ID, and status icons for audio and video. The 'Audio Mute/Enable' label points to the top-right area containing the 'ON AIR' and phone icons. The 'Video Mute/Enable' label points to the top-right area containing the 'NUM' and mute icons. A red box highlights the audio and video status icons for Steven and Jane. The 'Audio, video mute/ enable' label points to the bottom navigation bar. The bottom navigation bar includes 'User Class', 'Audio Enable', 'Video Mute', and 'more'. The 'Audio Enable' and 'Video Mute' buttons are highlighted with a red box.

Participant	ID	Audio Status	Video Status
Sally	3010	Enabled	Enabled
Steven	3001	Muted	Muted
Jane	3005	Muted	Muted
John	3004	Enabled	Enabled

Participant List

ON AIR

NUM

Audio Mute/Enable

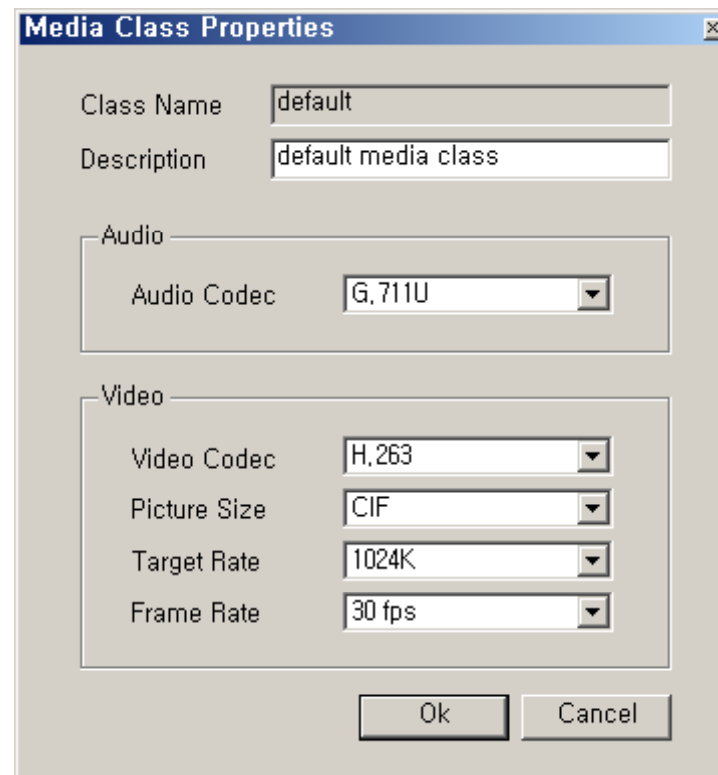
Video Mute/Enable

Audio, video mute/ enable

User Class Audio Enable Video Mute more

New SMM Feature : Media Class

- Media Class represents the profile information about Audio, Video Codecs, and is used for configuration at conference setup



The screenshot shows a dialog box titled "Media Class Properties" with the following fields and options:

- Class Name: default
- Description: default media class
- Audio section:
 - Audio Codec: G.711U
- Video section:
 - Video Codec: H.263
 - Picture Size: CIF
 - Target Rate: 1024K
 - Frame Rate: 30 fps

At the bottom of the dialog are "Ok" and "Cancel" buttons.

New SMM Feature : Conference Room

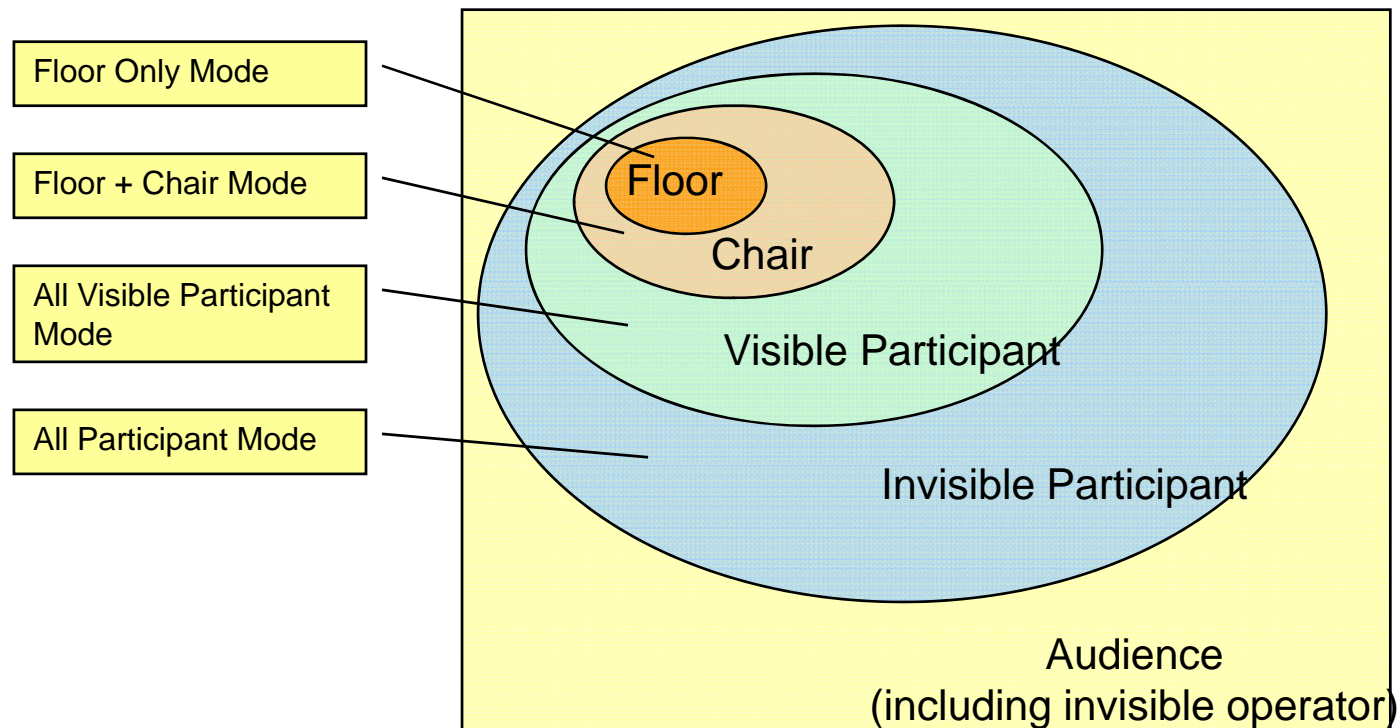
*Blue Box is newly implemented functions.

The screenshot shows the 'Add Conference' dialog box with the following fields and callouts:

- Conference Name & Description**: Callout for the 'Conference Name' and 'Description' text boxes.
- Conference Number**: Callout for the 'Conference Number' text box.
- Conference Type**: Callout for the 'Conference Type' dropdown menu, listing options: Dial-out, Meet me, AddHoc.
- Media Type**: Callout for the 'Media Type' dropdown menu, listing options: Select Conference Media Type.
- Media Class**: Callout for the 'Media Class' dropdown menu, explaining: Select a Media Class for a conference room. Second, third media class are reserved for first media class Mismatch.
- Speaking Mode**: Callout for the 'Speaking Mode' dropdown menu, explaining: Set up Who can speak out at conference.
- Encryption Mode**: Callout for the 'Encryption Mode' dropdown menu, explaining: Encryption mode setup for secure conference.
- Enable Voice Switching**: Callout for the 'Enable Voice Switching' checkbox, explaining: Provide the Voice Activity Switching Function.
- Video Terminal**: Callout for the 'Video Terminal' section, explaining: In case of Video Media type, select the video parameter of endpoint.
- Maximum Participant**: Callout for the 'Max Participant' spinner box, explaining: (Can select in Meet-Me conference type only).
- Conference Priority**: Callout for the 'Conference Priority' spinner box, explaining: Conference Priority Setting.
- Close on Chair Out**: Callout for the 'Close on Chair Out' checkbox, explaining: Conference Disconnected if chair hang up phone).
- Secret Room**: Callout for the 'Secret Room' checkbox and 'Room Password' field, explaining: -Secret room and Room Password - (Can select in Meet-Me conference type only).

New SMM Feature : Speaking Mode

- Speaking Mode
 - Determine the scope of participant who can speak out at conference.



New SMM Feature : Voice Switching

- Voice Switching
 - Voice Activity Switching or Voice Detect Switching
 - Detect the Voice Activity of participants during video conference, and dynamically change the MCU display layout mode to display a participant who is speaking out currently
 - If one participant obtains Floor, Voice Switching is inactive automatically till Floor is released.
- Display Priority Control
 - Floor > Voice Switching > Chair

New SMM Feature : Conference Room - Layout

The screenshot shows the 'Add Conference' dialog box with the 'Video' tab selected. The 'Video' section contains several settings, each highlighted with a yellow callout box:

- Video Layout Mode**: - Auto (symmetric, asymmetric) - manual
- Arrange Mode**: -dynamic, fixed, fixed reserved
- Video Layout**: - Select the video layout
- Floor Assign Mode**: -After Release, On Request
- Floor to Full Screen**: - Floor to Full Screen Enable/Disable in symmetric, asymmetric Layout Mode.
- Display Participant Name**: - Participant Name Display Enable/Disable and Location of Name Display
- Color**: - Layout border and Floor, Background Color Setting.

The 'Video' section also includes a 'Terminal' dropdown set to 'Layout', a 'Layout Mode' dropdown set to 'Auto(Asymmetric)', an 'Arrange Mode' dropdown set to 'Dynamic', a 'Video Layout' dropdown set to '3' with a small icon, a 'Floor Assign Mode' section with radio buttons for 'After Release' (selected) and 'On Request', a 'Floor to Full Screen' section with checkboxes for 'Symmetric' (checked) and 'Asymmetric', a 'Display Participant Name' section with a checkbox (unchecked) and dropdowns for 'Layout' (Top Left) and 'Size' (Small), and a 'Color' section with checkboxes for 'Border Line' (unchecked), 'Floor Line' (unchecked), and 'Background Line' (checked) with corresponding color swatches (black, white, blue).

New SMM Feature : Conference Room - Participants

Search Phone Number
Used for phone number or user search

Filter
Filter Name: Phone Number, Rule: is exactly, Word: [], Advanced Search, Find

Phone Number			Conference Participants								
Number	Partition	User	Number	Partition	User	Type	User Class	Media Type	Position	Display Name	Media Class
5007	Factory...		5007	Factory_in		Internal	Chair	Video	[]	Steven	default
5008	Factory...		5008	Factory_in		Internal	Participant	Video	[]	John	default
5009	Factory...		5009	Factory_in		Internal	Participant	Video	[]	Jane	default
5010	Factory...		5010	Factory_in		Internal	Participant	Video	[]	Sally	default
5011	Factory...										
5012	Factory...										
5013	Factory...										
5014	Factory...										
6000	external...										
6001	external...										
6005	external...										
6006	external...										
6010	external...										
6020	external...										
6029	external...										

Phone Number
Participant Phone List

User Class
(Chair, Operator, Participant, Audience)

Media Type
(Audio, Audio (Seat Reserved), Video)

Position
In case of video media type,
Select the location of a participant in video layout

Display Name
A Participant Display Name

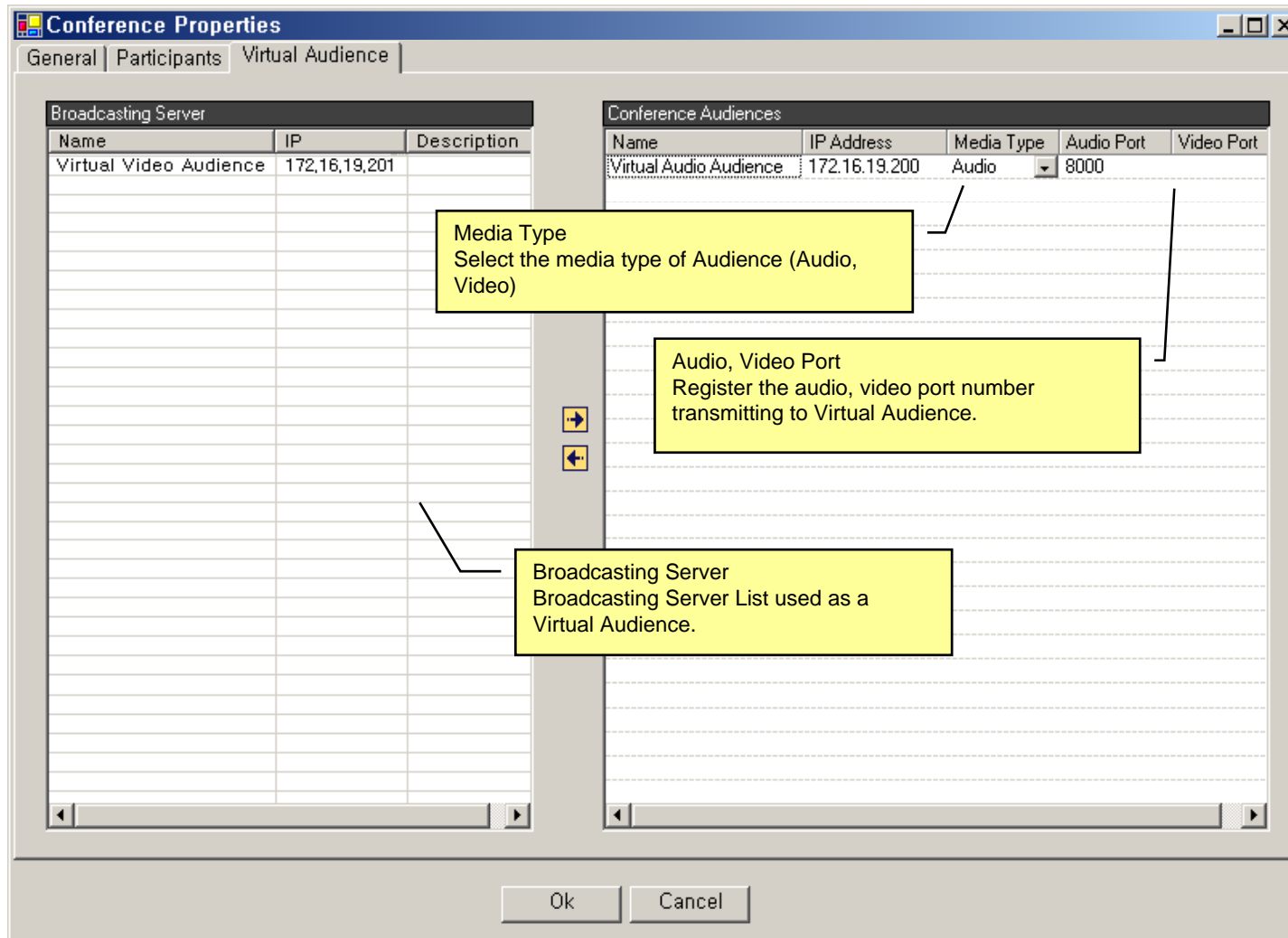
Media Class
Select a Media Class for a conference participant

Enter External Phone Number
Add

External Phone Number
Register the external phone line number by inputting number directly

Ok Cancel

New SMM Feature : Conference Room – Virtual Audience



New SMM Feature : Active Conference (1)

The screenshot displays the Smart Multimedia Manager (SMM) interface. The title bar reads "Smart Multimedia Manager - [Active Conferences - IPNext200_Slave]". The menu bar includes File, View, Search, Tools, Window, and Help. The toolbar contains various icons for conference management. The main window features the AddPac logo and the text "Smart Multimedia Manager AddPac Technology".

At the top, there are three IP addresses: 172.17.250.250, 172.16.31.13, and 172.16.31.2. Below this is a "Conference" section with a table showing the current conference room list.

Conference Na...	Conference Number	Status	Conference Type	Start Time	Duration	Media Type	Floor to Full...	Layout Mode	Arrange Mode	Layout	No. of Pa...
n>AddPac Conference	7002	Running	Dial-Out	20050714-15:30:22	00:02:01	Video	Off	Manual	Dynamic		4

A yellow callout box points to this table with the text: "Conference Display the current conference room list".

Below the conference list is a "Participants (n>AddPac Conference)" section with a table showing the participant list in the conference room.

Participant Name	Phone Number	IP	Status	Audio	Video	Mic.	Speaker	Floor	In Picture	Reason
Kown.jh	7030	172.16.10.1	Joined			8	10			
Choi.js	7031	172.16.10.2	Joined			8	10			
Lee.mj	7032	172.16.10.3	Joined			8	10			
JJang.hg	7033	172.16.10.3	Left			8	10			

A yellow callout box points to this table with the text: "Participants Display the participant list in conference room each".

At the bottom, there are three IP addresses with status indicators: 172.17.250.250 (Ok), 172.16.31.13 (Connect fail), and 172.16.31.2 (Ok). The system tray shows the date and time (2007-10-18 오후 3:35:55), the version (Version 3.0.2846), and the user (Manager).

New SMM Feature : Active Conference (2)

The screenshot displays the Smart Multimedia Manager (SMM) interface for an active conference. The window title is "Smart Multimedia Manager - [Active Conferences - IPNext200_Slave]". The interface includes a menu bar (File, View, Search, Tools, Window, Help) and a toolbar with various icons. The main area is divided into several sections:

- Conference Information:** Shows the conference name "n>AddPac Conference", number "7002", status "Running", type "Dial-Out", start time "20050714-15:30:22", duration "00:02:01", media type "Video", floor to full "Off", layout mode "Manual", and arrange mode "Dynamic".
- Participants Table:** Lists participants with columns for Name, Phone Number, IP, Status, Audio, Video, Mic., Speaker, Floor, and In Picture. The participants are Kown.jh (7030, 172.16.10.1, Joined), Choi.js (7031, 172.16.10.2, Joined), Lee.mj (7032, 172.16.10.3, Joined), and JJang.hg (7033, 172.16.10.3, Left).
- Layout Selection:** A grid of layout icons is visible, with a "New 2 Party Layout" icon highlighted in a red box. A yellow callout box points to this area, stating: "Conference parameter setting is possible dynamically in current conference call".

The status bar at the bottom shows the date and time "2007-10-18 오후 3:36:48", version "Version 3.0.2846", and the user "Manager".

New SMM Feature : Active Conference (3)

The screenshot displays the Smart Multimedia Manager interface for an active conference. The main window title is "Smart Multimedia Manager - [Active Conferences - IPNext200_Slave]". The interface includes a menu bar (File, View, Search, Tools, Window, Help) and a toolbar with various icons. The main content area is divided into several sections:

- Conference Information:** A table showing conference details.

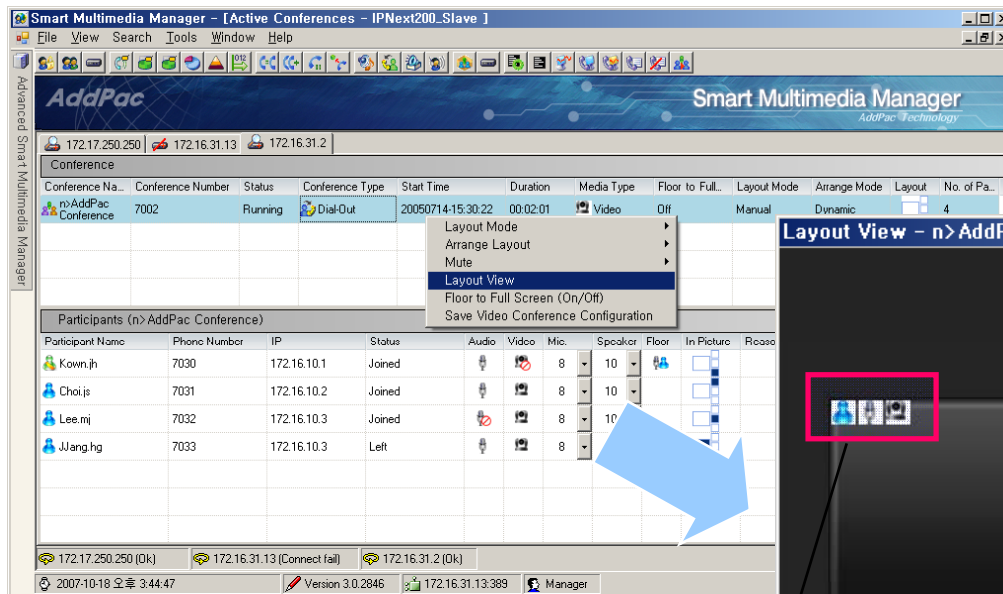
Conference Na...	Conference Number	Status	Conference Type	Start Time	Duration	Media Type	Floor to Full...	Layout Mode	Arrange Mode	Layout	No. of Pa...
n>AddPac Conference	7002	Running	Dial-Out	20050714-15:30:22	00:02:01	Video	Off	Manual	Dynamic	[Layout Icon]	4
- Conference Snapshot:** A panel on the left showing a real-time still image of a current video conference call. It includes an "Auto Refresh" checkbox, a "Refresh" button, and a "Refresh Interval" set to 5 seconds. A yellow callout box points to this panel with the text: "Conference Snapshot Display the real-time still image of a current video conference call".
- Participants (n>AddPac Conference):** A table listing participants with their parameters. A pink box highlights the "Mic" and "Speaker" columns, with a blue callout box pointing to it: "Mic, Speaker Mic or Speaker Volume Control for a Conference participant".

Participant Name	Phone Number	IP	Status	Audio	Video	Mic	Speaker	Floor	In Picture	Res
Kown.jh	7030	172.16.10.1	Joined	[Icon]	[Icon]	8	10	[Icon]	[Icon]	[Icon]
Choi.js	7031	172.16.10.2	Joined	[Icon]	[Icon]	8	10	[Icon]	[Icon]	[Icon]
Lee.mj	7032	172.16.10.3	Joined	[Icon]	[Icon]	8	10	[Icon]	[Icon]	[Icon]
JJang.hg	7033	172.16.10.3	Left	[Icon]	[Icon]	8	10	[Icon]	[Icon]	[Icon]
- Participants Panel:** A yellow callout box points to the bottom of the participants table with the text: "Participants Participant parameter setting is possible dynamically in current conference call".

The bottom status bar shows connection status for three IP addresses: 172.17.250.250 (Ok), 172.16.31.13 (Connect fail), and 172.16.31.2 (Ok). It also displays the date and time (2007-10-18 3:38:57), version (3.0.2846), and the user (Manager).

New SMM Feature : Active Conference (4)

Layout view function provide the layout status of a conference participant



Layout View
User can change a participant layout easily via Mouse Drag & Drag at Layout view window. Floor configuration, participant add or delete function is also provided.



Indicator
User class configuration, audio/video on/off and configuration is possible

Status
Display the status of each participant such as phone number, nick name, alias. Using font color, show whether a user participate conference room or not. (yellow color : participating , grey color : not participating)

Floor
Background of Floor participant among a conference room is displayed as red color to distinguish floor participant with other participant.

New SMM Feature : Conference Schedule

Conference scheduling is used for configuration of repeated conference or a specific day conference

The screenshot shows a dialog box titled "Add a New Conference Schedule" with the following fields and options:

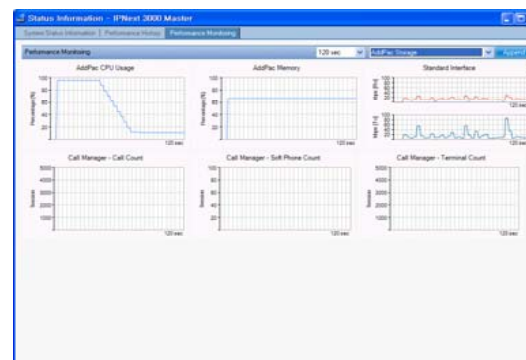
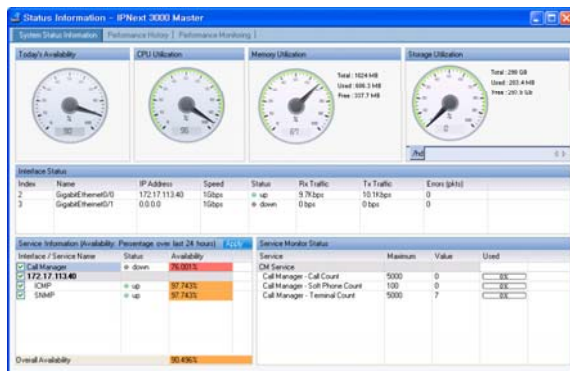
- Schedule Name:** Conference Schedule
- Description:** (empty)
- Conference Room:** Dial
- Start Datetime:** 2007-10-18, 오후 4:00:45
- Duration:** (empty) sec
- Schedule Recurrence:** (checked)
- Recurrence Options:**
 - Daily
 - Weekly
 - Recur every 1 2 3 4 5 week
 - Mon Tue Wed Thu
 - Fri Sat Sun
 - Monthly
- Range Of Recurrence:** End By : 2007-10-18
- Enable Schedule:** (checked)

Callout boxes provide additional context for these fields:

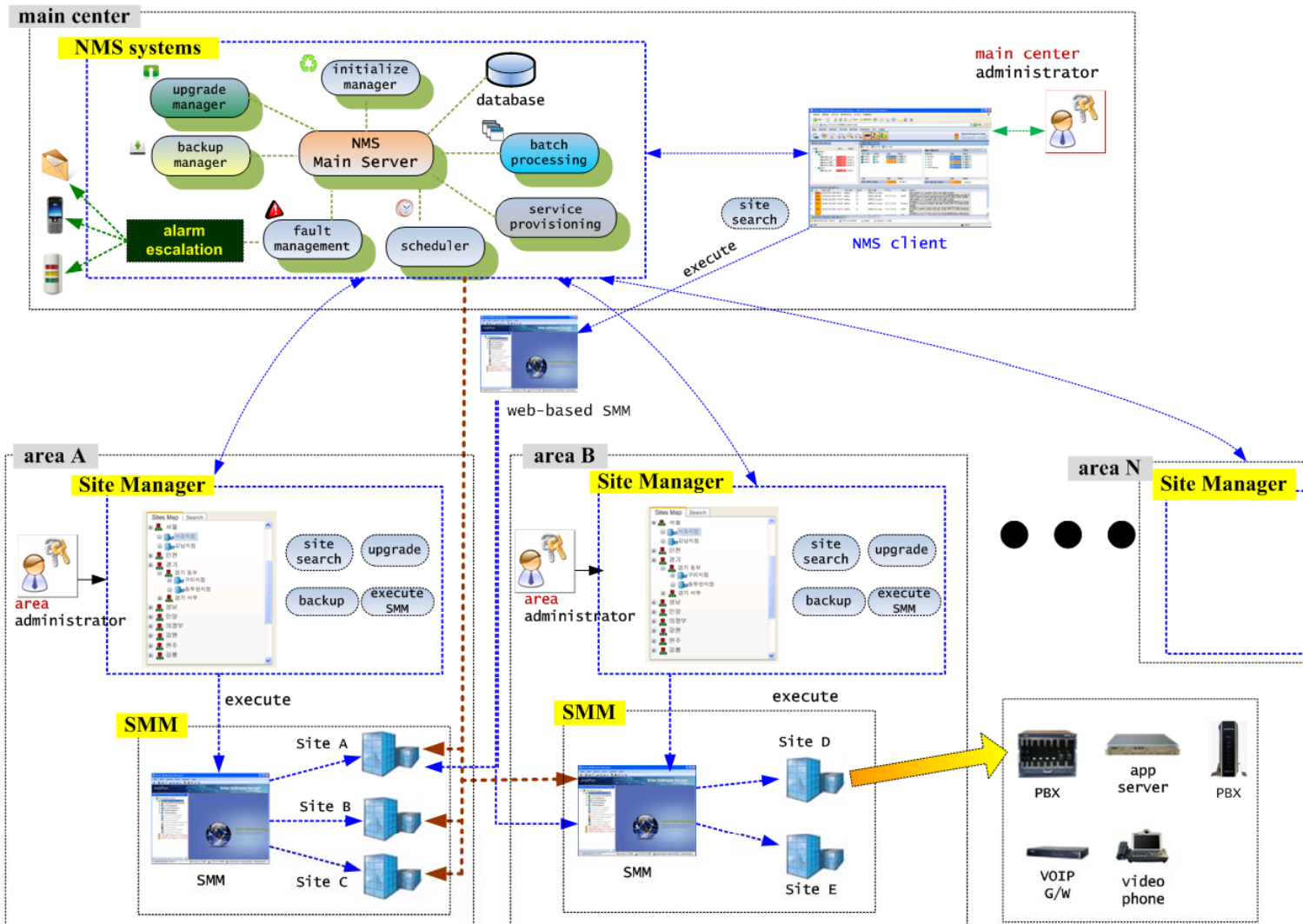
- Schedule Name, Description Conference Schedule Name and Explanation** (points to Schedule Name and Description)
- Conference Room Conference Room Setup** (points to Conference Room)
- Start Date time Schedule start day and time setup** (points to Start Datetime)
- Duration Conference duration time (sec)** (points to Duration)
- Schedule Recurrence Repeated conference setup** (points to Schedule Recurrence)
- Daily, Weekly, Monthly Set up Conference schedule** (points to Recurrence options)
- Range Of Recurrence Schedule end-day setup** (points to Range Of Recurrence)
- Enable Schedule Schedule enable or disable Setup** (points to Enable Schedule)

Buttons: Ok, Cancel

NMS for AddPac Secure IP Telephony Solution

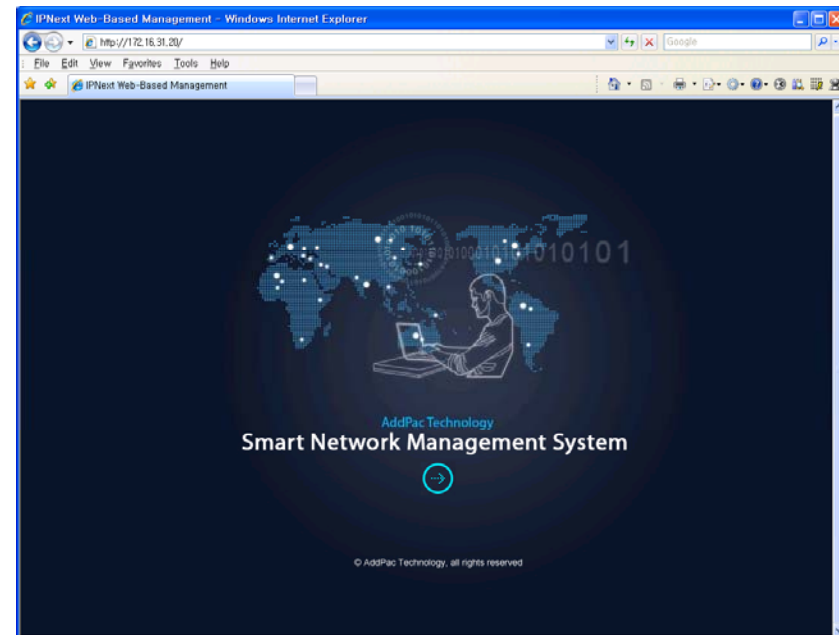


NMS System for Whole Site Management



Contents

- System Requirement
- Smart NMS Networking Diagram
- Web-based Management
- Network Resource Management
- Device Fault Management
- Device Fault History Management
- Device Status Information
- Notification Management
- Fault Statistics
- Model & Service Management



System Requirement

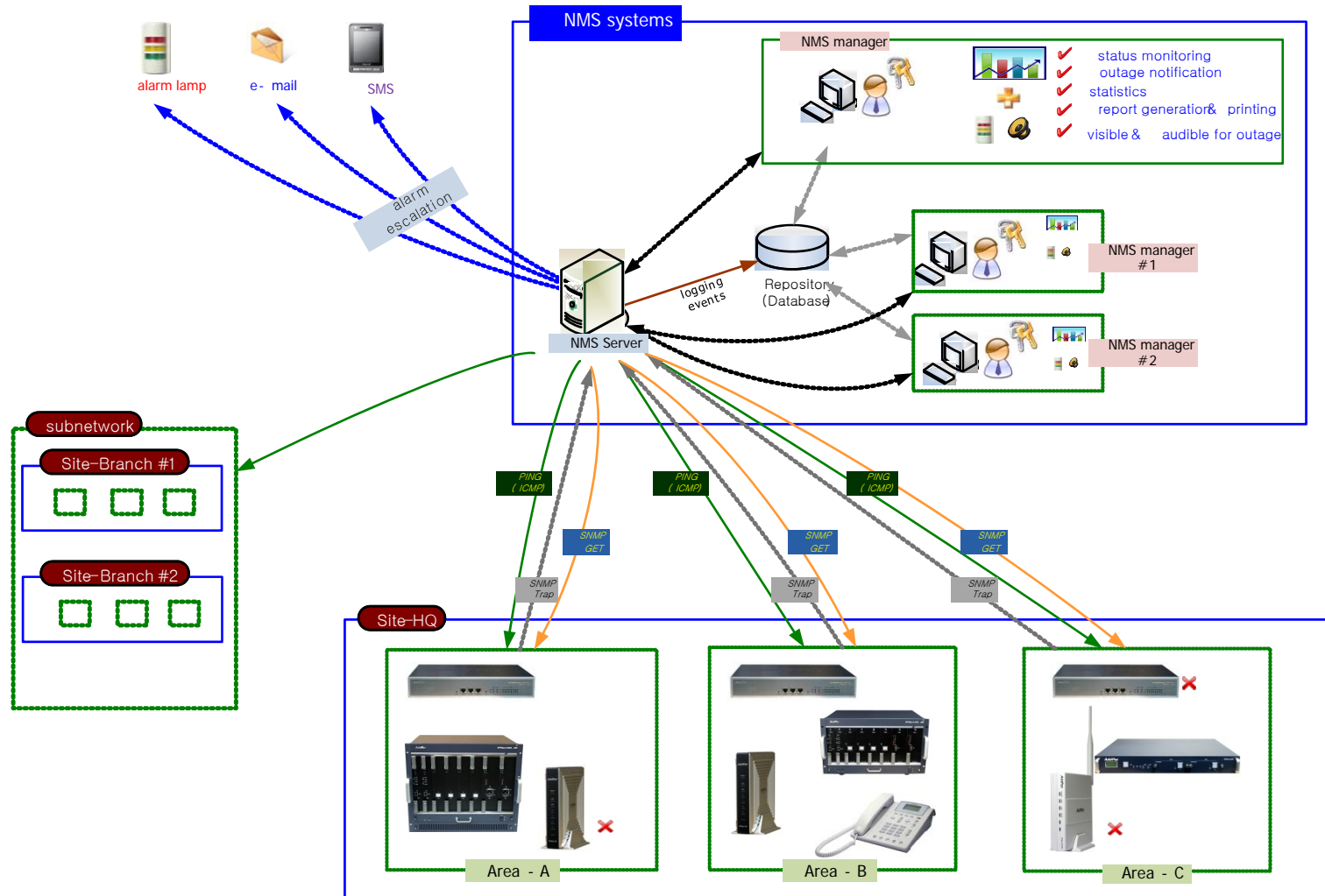
NMS Server

- 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

NMS Networking Diagram



Web-based Management

- **Easy Access via Web browser**
 - Microsoft Internet Explorer 6.0 or higher compatible
- **Version Control**
 - Automatic version check
 - New version software download feature
- **UI control**
 - User friendly GUI management

Version Control

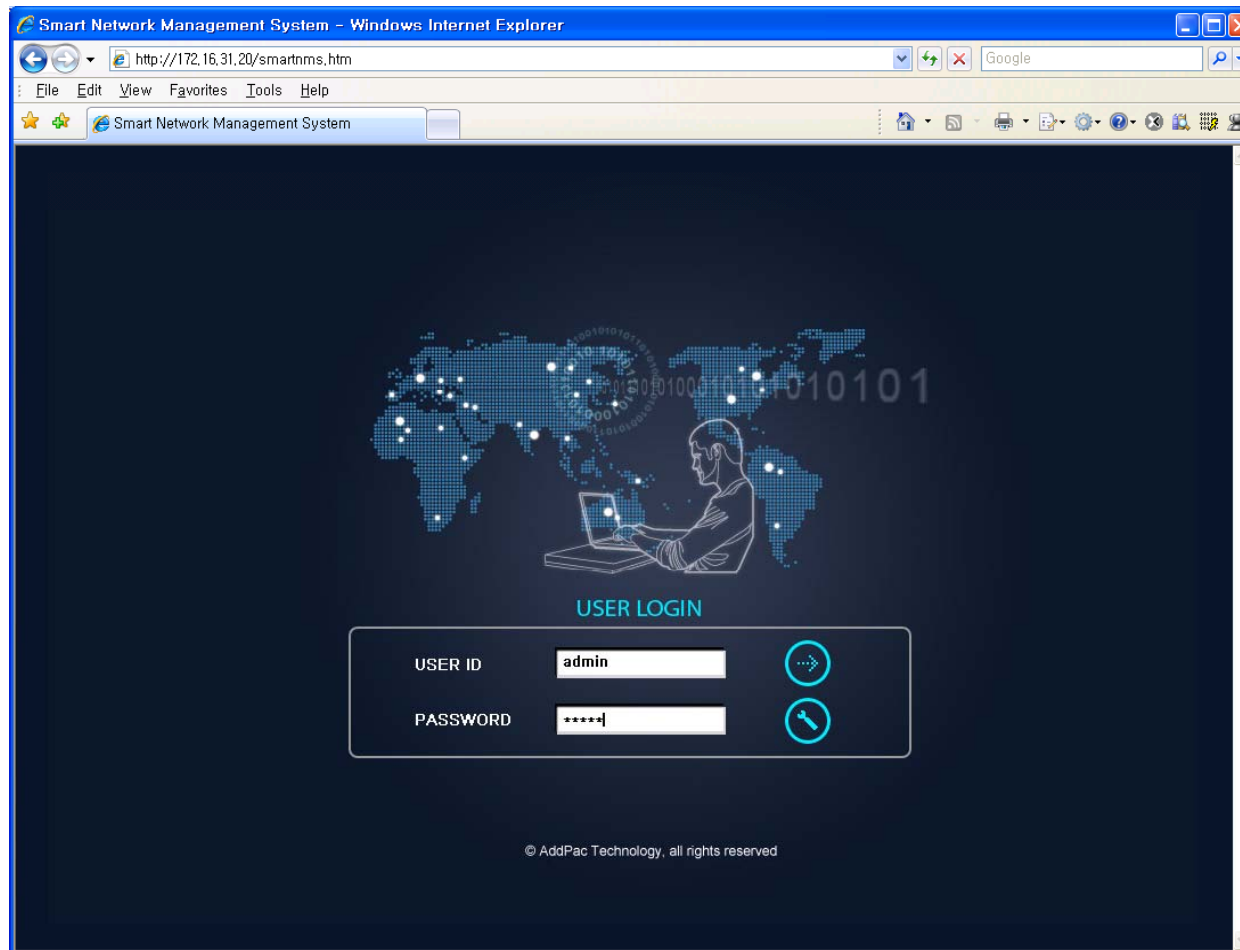
The screenshot displays the IPNext Web-Based Management interface within a Windows Internet Explorer browser window. The browser's address bar shows the URL `http://172.16.31.20/`. The main content area features a dark blue background with a world map and a person using a laptop, with the text "AddPac Technology Smart Network Management System" and a copyright notice "© AddPac Technology, all rights reserved".

Two dialog boxes are overlaid on the interface:

- Automatic version check:** A yellow callout box points to the top of the browser window, indicating the automatic version check process.
- Launching Application:** A dialog box titled "Launching Application" with a close button (X) in the top right corner. It contains a progress bar and the text "Verifying application requirements. This may take a few moments." Below the progress bar are icons of a computer and a globe.
- (61%) Downloading installnms:** A dialog box titled "(61%) Downloading installnms" with standard window controls. It includes the text "Downloading installnms This may take several minutes. You can use your computer to do other tasks during the installation." Below this is a progress bar showing 61% completion. The details listed are: Name: `installnms`, From: `172.16.31.20`, and Downloading: 6.29 MB of 10.1 MB. A "Cancel" button is located at the bottom right.

A yellow callout box at the bottom of the browser window points to the "New S/W version update" text.

Web-based Login



Network Resource Management

- Network resource management with hierarchical structure
- Role-based resource management for each administrator

The screenshot displays the AddPac Network Resource Management interface. On the left, a hierarchical tree structure shows the network organization, including 'AddPac' (AddPac Technology Co., Ltd.), various branches (AQ, GX, KT), and regional centers (Seoul, Seoul East Area, etc.). A context menu is open over the 'GangNamGu' node, with options like 'Add Sub Network', 'Add Site', 'Delete', 'Execute SMM', 'Search', 'Refresh', and 'Properties'. The 'Execute SMM' option is highlighted. A red arrow points from a text box to this option.

In the center, a table lists network categories:

Category Name	Description
Desktop	PC, notebook, laptop, etc
Network Camera	Network Camera Category
Phone	IP Phone, Video Phone
Server	PBX, RBT, UMS, Presence
Switch	Network Switch
VoIP Gateway	AddPac Digital(or Analog) Gateway

On the right, the 'User Properties' dialog box is open, showing a 'Site' tab with a tree view of the same hierarchical structure. A red arrow points from a text box to this dialog.

Three orange text boxes provide additional context:

- 'manage the complex network with a structured, hierarchical form' (points to the main tree)
- 'can assign the hierarchical node to the operator and manage role-based policy' (points to the User Properties dialog)
- 'can cooperate with the application executables such as SMM' (points to the 'Execute SMM' menu item)

Device Fault Management

- Centralized fault summary information in main window
- Display current fault device through tree view
- Notify administrator with detailed fault information
- Provide device availability information for 24hrs

Device Fault Management

main window

current device fault list with hierarchy view

current device fault event message are shown as below

site device fault summary

overall total device fault statistics

device fault summary for category (classification)

Site	Type	Outages	Availability	Description
AddPac	Sub Netw...	28 / 10 / 32	59%	AddPac Technology C...
Seoul	Sub Netw...	2 / 1 / 2	98%	Seoul subnetwork
Overall Availability		30 / 11 / 34	78.650 %	

Category	Outages	Availability
Desktop	0 / 0 / 1	100%
Network Camera	6 / 1 / 2	54%
Phone	0 / 0 / 3	98%
Server	24 / 10 / 22	58%
Switch	0 / 0 / 0	100%
VoIP Gateway	0 / 0 / 6	98%
Overall Categories Availability	30 / 11 / 34	61.282 %

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Center	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_31.13			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or deleted by administrator
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator
<input type="checkbox"/>	9236	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device(NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9235	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device(NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator

Device Fault Management

Smart Network Management System - Windows Internet Explorer

http://172.16.31.20/smarnms.htm

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Current Outage Devices (12)

Name	Service...	Availability
Branch AQ		
NMS Camera	6 of 12	48.934 %
NMS_IP_PBX...	3 of 3	0.000 %
Branch GX		
00_IVR_server	3 of 3	0.000 %
00_IVR_slave...	3 of 3	0.000 %
00_NR_server	1 of 2	98.015 %
00_PS_server	3 of 3	0.000 %
00_PS_Slave...	2 of 3	32.703 %
IPNext 3000 ...	1 of 3	90.536 %
IPNext 3000 S...	1 of 3	90.584 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
UMS server(o...	3 of 3	0.000 %
Subnetwork #2		
NMS_SOHO_...	2 of 2	92.939 %

Service Outages Device Monitoring - <All>

Group Type Value View Mode Refresh Import

display message icon when the device have a notification for event

device status matrix with several severity such as critical, major, minor

- * severity color
- 1) red : critical
- 2) orange : major
- 3) light blue : normal

Total Monitoring Devices : 34

ACK ID	Send Time	Site	Device Name	IP Address	Service	Message
9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	00_IVR_server	172.17.111.21	SNMP	인터페이스 172.17.111.21 (172.17.111.21)의 장비명(00_IVR_server)의 서비스 SNMP가 2009년 4월 10일 금요일 오후 5시 21분 06초에 실패함.
9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Center	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down
9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed
9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down

Your Outstanding Notices (17)

4/10/2009 5:16:30 PM 172.16.31.20:5101 admin Version 1.2,3384

Device Fault Management

The screenshot displays the Smart NMS web interface. The top navigation bar includes menus for NMS, Account, Configuration, Monitoring, Notification, Fault, Statistics, View, and Help. The main content area is divided into a left sidebar with a site tree, a central grid of device status icons, and a bottom section for notices.

Device Status Matrix (Small View Mode):

Group Type	Value	View Mode	Refresh	Import	New Tab								
Site	<All>	Large / Small	[Refresh]	[Import]	[New Tab]								
00_IVR_ser	00_IVR_sla	00_NR_serv	00_FS_Slav	00_PS_serv	00_RBT_ser	00_RS_serv	00_UMS_se	IPNext 3000	IPNext 3000	IP_PBX_Ma	IP_PBX_Sla	NMS_IP_P	NMS_IP_
NMS_SOH	PS server(o	RBT server(o	Recording 5	UMS server	UMS server	UMS slave	company_M	KT_Inbound	SE_AP2120	SE_MG300	SKN_TG(o	SKTelTG(o	SK_36_F
172.16.51.1	172.16.51.1	5th floor me	upgrade ser	NMS Camer	NMS Camer								

Your Outstanding Notices (18):

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9229	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.110		device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator

4/13/2009 3:14:58 PM | 172.16.31.20:5101 | admin | Version 1.2.3384

Device Fault History Management

- Provide both summary view and detailed event message
- Can Write troubleshooting job note for each event manually
- Administrator can query for a history fault with search condition
- Each fault is related to the several raw events

Device Fault History Management

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a list of fault events with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, Message, and Respond Time. An 'Advanced Search' dialog box is open, allowing users to filter events based on Sub Network, Site, IP Address, Notice Status Type, Message Contains, and Sort By options.

Notification Summary

Date/Time	Outstanding	Acknowledge
2009-04-10	4	27
2009-04-09	2	76
2009-04-08	0	96
2009-04-07	0	40
2009-04-06	7	489
2009-04-05	0	722
2009-04-04	0	708
2009-04-03	1	476
2009-04-02	0	248
2009-04-01	0	19
2009-03-31	0	37
2009-03-30	0	9
2009-03-29	0	3
2009-03-28	0	1
2009-03-27	0	14
2009-03-26	0	52
2009-03-25	0	8
2009-03-24	0	19
2009-03-23	0	59
2009-03-22	0	102
2009-03-21	0	17
2009-03-20	0	21
2009-03-18	0	48
2009-03-17	0	41
2009-03-13	0	36
2009-03-07	0	1
2009-03-06	0	482
2009-03-05	0	38
2009-03-04	0	13

Advanced Search Dialog

Sub Network: <All> Site: <All>
 IP Address Contains:
 Notice Status Type: <All>
 Message Contains:
 Level (Severity): <All>
 Notices After: 11/10/2008 17:20:49 Notices Before: 11/10/2008 17:20:49
 Sort By: ID Descending

Main Fault Event List

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message	Respond Time
<input type="checkbox"/>	9528	4/10/2009 5:51:06 PM	/AddPac/Branch AQ	NMS Camera	172.16.4.180	SNMP	interface 172.16.4.180 (172.16.4.180) device(NMS Camera) service SNMP failed at 2009-4-10 5:51:06 PM	4/10/2009 5:51:35 PM
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting room phone device			device 5th floor meeting room phone device, all services are down.	
<input type="checkbox"/>	9526	4/10/2009 5:33:42 PM	/AddPac/Branch GX	00_NR_server	172.17.11.1			4/10/2009 5:35:25 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	00_NR_server	172.17.11.1			4/10/2009 5:22:43 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX	00_NR_server	172.17.11.1			4/10/2009 5:17:56 PM
<input type="checkbox"/>	9522	4/10/2009 3:36:26 PM	/AddPac/HeadQuarter	IP_PBX_Slave(our company)				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9521	4/10/2009 3:36:18 PM	/AddPac/HeadQuarter	PS server(our co...				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9520	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	RBT server(our company)				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9519	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	UMS server #2				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9518	4/10/2009 3:36:09 PM	/AddPac/HeadQuarter	Recording Server (our company)				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9517	4/10/2009 3:36:08 PM	/AddPac/HeadQuarter	company_MCU_s...				4/10/2009 4:03:14 PM
<input type="checkbox"/>	9516	4/10/2009 3:36:00 PM	/AddPac/Branch GX	00_PS_Slave_ser...				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9514	4/10/2009 3:35:50 PM	/AddPac/Branch GX	00_PS_server				4/10/2009 4:02:54 PM
<input type="checkbox"/>	9513	4/10/2009 3:35:41 PM	/AddPac/HeadQuarter	5th floor meeting room phone device				4/10/2009 4:02:43 PM
<input type="checkbox"/>	9512	4/10/2009 3:35:41 PM	/AddPac/HeadQuarter	IP_PBX_Master (our company)				4/10/2009 4:02:44 PM
<input type="checkbox"/>	9511	4/10/2009 3:35:33 PM	/AddPac/Branch KT	172.16.51.12				4/10/2009 4:02:43 PM

Your Outstanding Notices (17)

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting ro...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Center	NMS_SOH0_PBX			device NMS_SOH0_PBX, all services are down.
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9386	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_31.13			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator.
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator.
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator.

Current Device Fault (Outage)

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of devices on the left and a table of 'Current Outage Devices' on the right. The table lists various devices and their availability status. A red box highlights the 'Current Outage Devices' table, with an annotation: "Display the current all device faults".

An 'Event Detail' window is open for ID 45412, showing the following information:

- Event Time: 4/10/2009 9:26:04 PM
- Site: /AddPac/Branch GX
- Device Name: 00_RBT_server
- Service: Media
- Severity: Critical
- Device Model: AP-RBT1000
- Log Message: device 00_RBT_server down
- Description: device 00_RBT_server's all interface down. A new Outage record has been created and service level availability calculations will be impacted until this outage is resolved.

Another annotation points to the 'Event Detail' window: "Can view the event data related to the current device fault and can write troubleshooting note if needed".

At the bottom of the interface, there is a section for 'Your Outstanding Notices (18)' with a table of notices:

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all interface down. A new Outage record has been created and service level availability calculations will be impacted until this outage is resolved.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 00_IVR_server all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX			device NMS_IP_PRX_31 13 all services down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	device 00_IVR_server all services are down.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PRX_3			device NMS_IP_PRX_31 13 all services down
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

Device Event History

The screenshot displays the Smart Network Management System (NMS) interface within a Windows Internet Explorer browser. The interface is divided into several sections:

- Event Summary Table:** A table on the left side showing a summary of events by date. It includes columns for Event Time, Outlets, Acknowledged, Not Cleared, Cleared, and In Progress. An orange callout box points to this table with the text "summarize daily event statistics data".
- Event List Table:** A larger table on the right showing individual event details. It includes columns for Ack, ID, Severity, Event Time, Site, Device Name, IP Address, Service, and Message. An orange callout box points to this table with the text "Can view all events for devices with search condition".
- Search and Filter Options:** Above the event list table, there are buttons for "Refresh", "Advanced Search", "Acknowledge Events", and "Troubleshooting Note". Below the table, it shows "Results: 1 to 20 of 25346" and "Search Constraints: user=admin".
- Outstanding Notices:** At the bottom, there are sections for "Your Outstanding Notices (18)" and "All Outstanding Notices (18)".

Device Status Information


- System Performance Information (CPU, HDD, Memory, ...)
- Provide device current service status (up/down)
- Provide device main status (max value vs current value)
- Display Graph Series with System Performance Information
- Monitor Main Status Flow with System Monitoring View

Device Status Information

Status Information - IPNext 3000 Master


System Status Information | Performance History | Performance Monitoring

Today's Availability




90

CPU Utilization



96


Memory Utilization



67

Total : 1024 MB
Used : 686.3 MB
Free : 337.7 MB

Storage Utilization



0

Total : 298 GB
Used : 203.4 MB
Free : 297.8 GB

/hd

Interface Status

Index	Name	IP Address	Speed	Status	Rx Traffic	Tx Traffic	Errors (pkts)
2	GigabitEthernet0/0	172.17.113.40	1Gbps	● up	9.7Kbps	10.1Kbps	0
3	GigabitEthernet0/1	0.0.0.0	1Gbps	● down	0 bps	0 bps	0

Service Information (Availability: Percentage over last 24 hours) [Apply](#)

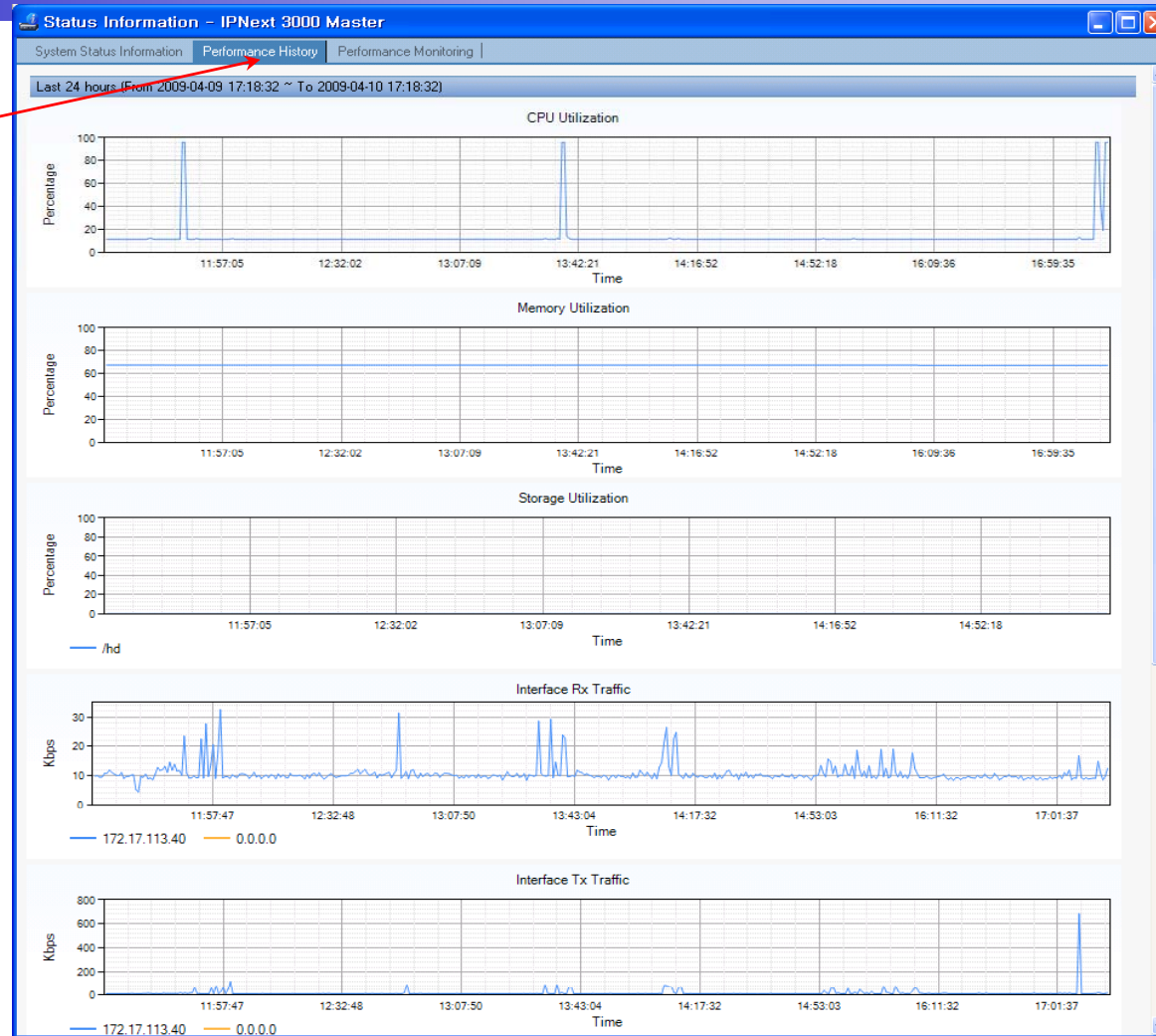
Interface / Service Name	Status	Availability
✓ Call Manager	● down	76.001%
✓ 172.17.113.40		
✓ ICMP	● up	97.743%
✓ SNMP	● up	97.743%
Overall Availability		90.496%

Service Monitor Status

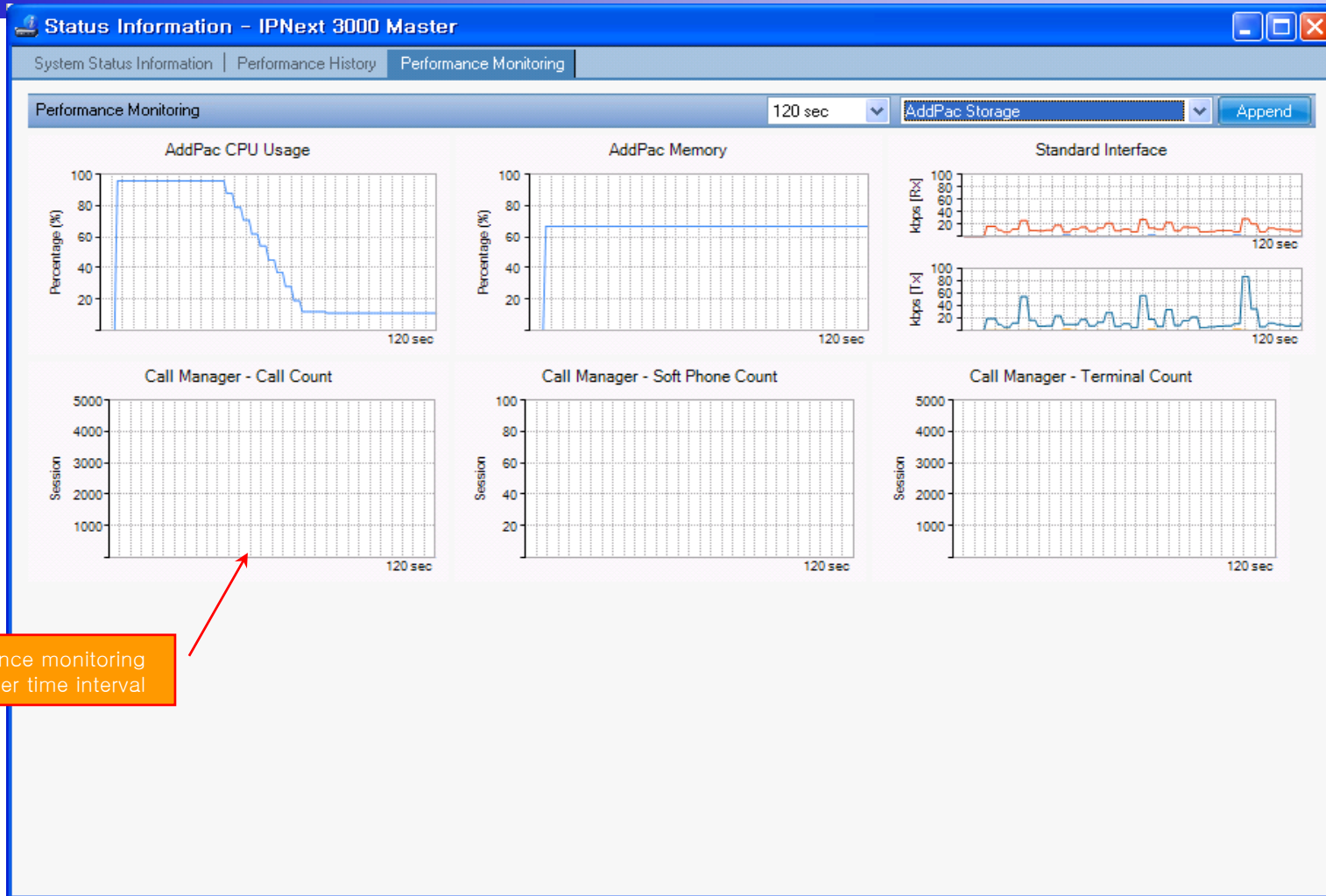
Service	Maximum	Value	Used
CM Service			
Call Manager - Call Count	5000	0	0%
Call Manager - Soft Phone Count	100	0	0%
Call Manager - Terminal Count	5000	7	0%

Device Status Information

performance analysis graph for last 24 hours



Device Status Information



Notification Management

- Notify administrator for important event such as critical device fault when proper action needs
- Provide several notification channel such as SMS, e-mail, alarm lamp
- Notification channel configuration for each event
- Manage notification with device category such as Server, Terminal, PC, etc
- Provide Alarm with audible (play sound), visible (alarm lamp) form

Event Notification Management

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of devices on the left, a table of event notifications in the center, and a detailed 'Event Notification Properties' dialog box on the right. Three orange callout boxes provide instructions:

- apply notification policy with event-based filter (example : notify me when network link of device is down through SMS, e-mail)**: This callout points to the 'Event' field in the 'Event Notification Properties' dialog, which is set to 'Node event: serviceUnresponsive'.
- specify category when each event occurs**: This callout points to the 'Apply Category' section in the 'Event Notification Properties' dialog, where 'Desktop', 'Network Camera', 'Phone', 'Server', and 'Switch' are checked.
- describe notification message content for e-mail or SMS**: This callout points to the 'Text Message' field in the 'Event Notification Properties' dialog, which contains a detailed description of the event.

The 'Event Notification Properties' dialog box shows the following configuration:

- Notification Name: serviceUnresponsive
- Description: test
- Event: Node event: serviceUnresponsive
- Destination Path: default
- Notification Type: sms, alarmLamp, email
- Current Rule: IPADDR IPLIKE ****
- Apply Category: Desktop, Network Camera, Phone, Server, Switch
- Email Subject: Notice #noticeid%: %service% service on %interfaceresolve% (%interface%)
- Text Message: The %service% poll to interface %interfaceresolve% (%interface%) on node %nodelabel% successfully completed a connection to the service listener on the remote machine. However, the synthetic transaction failed to complete within %param[timeout]% milliseconds, over %param[attempts]% attempts. This event will NOT impact service level agreements, but may be an indicator of other problems on that node.

The 'Your Outstanding Notices (18)' table at the bottom shows the following data:

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server		device:00_RBT_server's all services...	
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th_floor_meeting...			
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX			
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		

Event Notification Management

The screenshot displays the Smart Network Management System (NMS) interface. A 'Destination Path Properties' dialog box is open, showing configuration options for event notifications. The dialog includes a 'Destination Path Name' field set to 'default', an 'Initial Delay' dropdown set to '0m', and a table for defining notification channels. A red callout box points to the 'email' row in this table with the text: 'define notification channel such as e-mail, sms, or alarmlamp'. Below the dialog, the 'Your Outstanding Notices (18)' table is visible, listing various system events and their details.

Notification Type	Target	Auto Notify
alarmLamp	alarmLamp	on
email	admin	on
sms	admin	on

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SDHD_PBX			device NMS_SDHD_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9229	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.119		device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

Event Notification Management

user account (administrator) setting for SMS, E-mail Notification or specify e-mail address or SMS phone number

Destination Path Properties

Notification Type	Target	Auto Notify
alarmLamp	alarmLamp	on
email	admin	on
sms	admin	on

Target Properties

Choose the notification type : sms

Target Information

Send to select user : Account Administrator

Send to Email or Mobile : Mobile Number

Choose the desired behavior for automatic notification on responded events. on

Your Outstanding Notices (18)

Ack	ID	Send Time	Site	Device Name	IP Address	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch Gx	00_RBT_server		device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeti...		device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX		device NMS_SOHO_PBX; all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch Gx	IPNext 3000 Slave	172.17.113.41	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch Gx	IPNext 3000 Master	172.17.113.40	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch Gx	00_IVR_server		device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...		device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

Configuration

Smart Network Management System - Windows Internet Explorer

http://172.16.31.20/smartnms.htm

Smart Network Management System

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Current Outage Devices [13] Site

Name	Service...	Availability
Branch AQ		
NMS Camera	6 of 12	50.000 %
NMS_IP_PBX...	3 of 3	0.000 %
Branch GX		
00_IVR_server	3 of 3	0.000 %
00_IVR_slave...	3 of 3	0.000 %
00_PS_server	3 of 3	0.000 %
00_PS_Slave...	2 of 3	33.333 %
00_FBT_server	3 of 3	0.000 %
IPNext 3000 ...	1 of 3	66.667 %
IPNext 3000 S...	1 of 3	66.667 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
5th floor meeti...	1 of 1	0.000 %
UMS serverfo...	3 of 3	0.000 %
Subnetwork #2		
Center		
NMS_SOHD_...	2 of 2	0.000 %

Destination Path Name: default, onlyAlarmLamp

Configure Notification

External Notification | Alarm Lamp

E-Mail | SMS

Sender Email Address: nms@addpac.com

SMTP Server Host: 61.33.161.2

Authentication

Username: _____

Password: _____

Help Ok Cancel

Total destination paths : 2

Your Outstanding Notices (18)

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_FBT_server			device 00_FBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHD_PBX			device NMS_SOHD_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

Your Outstanding Notices (18) All Outstanding Notices (18)

4/13/2009 11:26:16 AM 172.16.31.20:5101 admin Version 1.2.3384

global notification channel configuration

Audible & Visible Alarm

notify operator (or administrator)
1. Alarm lamp blink (on&off) (visible)
2. play alarm sound (audible)

can synchronize with alarm lamp equipment

Site	Type	Outages	Availability	Description
AddPac	Sub Netw...	32 / 12 / 32	92%	AddPac Technology C...
Seoul	Sub Netw...	2 / 1 / 2	33%	Seoul subnetwork

Category	Outages	Availability
Desktop	0 / 0 / 1	100%
Network Camera	6 / 1 / 2	57%
Phone	1 / 1 / 3	66%
Server	27 / 11 / 22	42%
Switch	0 / 0 / 0	100%
WiFi Gateway	0 / 0 / 6	100%

Overall Availability	Outages	Availability
Overall Availability	34 / 13 / 34	27.690 %
Overall Categories Availability	34 / 13 / 34	49.470 %

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SDHO_PBX			device NMS_SDHO_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator
<input type="checkbox"/>	9236	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9235	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator

Fault Statistics

- analyze for a fault event with graph and detailed list data
- Report form generation and print out for statistics result

Fault Statistics

The screenshot displays the Smart Network Management System (NMS) interface. The top navigation bar includes 'NMS', 'Account', 'Configuration', 'Monitoring', 'Notification', 'Fault', 'Statistics', 'View', and 'Help'. The main content area shows a search bar with 'Hour' set to '4/ 9/2009' and 'Site' set to 'Branch A, Branch AQ, B'. Below the search bar is a bar chart titled 'Fault Statistics (Site)' showing fault counts over time for various sites. A legend on the right lists the sites: Seoul, HeadQuarter, Center, Branch TG, Branch KT, Branch GX, Branch B, Branch AQ, and Branch A. Below the chart is a detailed data table for the date 4/9/2009, showing fault counts for each site at hourly intervals. Two callout boxes highlight the search condition and the detailed data table.

Search Condition: Hour: 4/ 9/2009 ~ 3/30/2009; Site: Branch A, Branch AQ, B

Fault Statistics (Site) - 4/9/2009

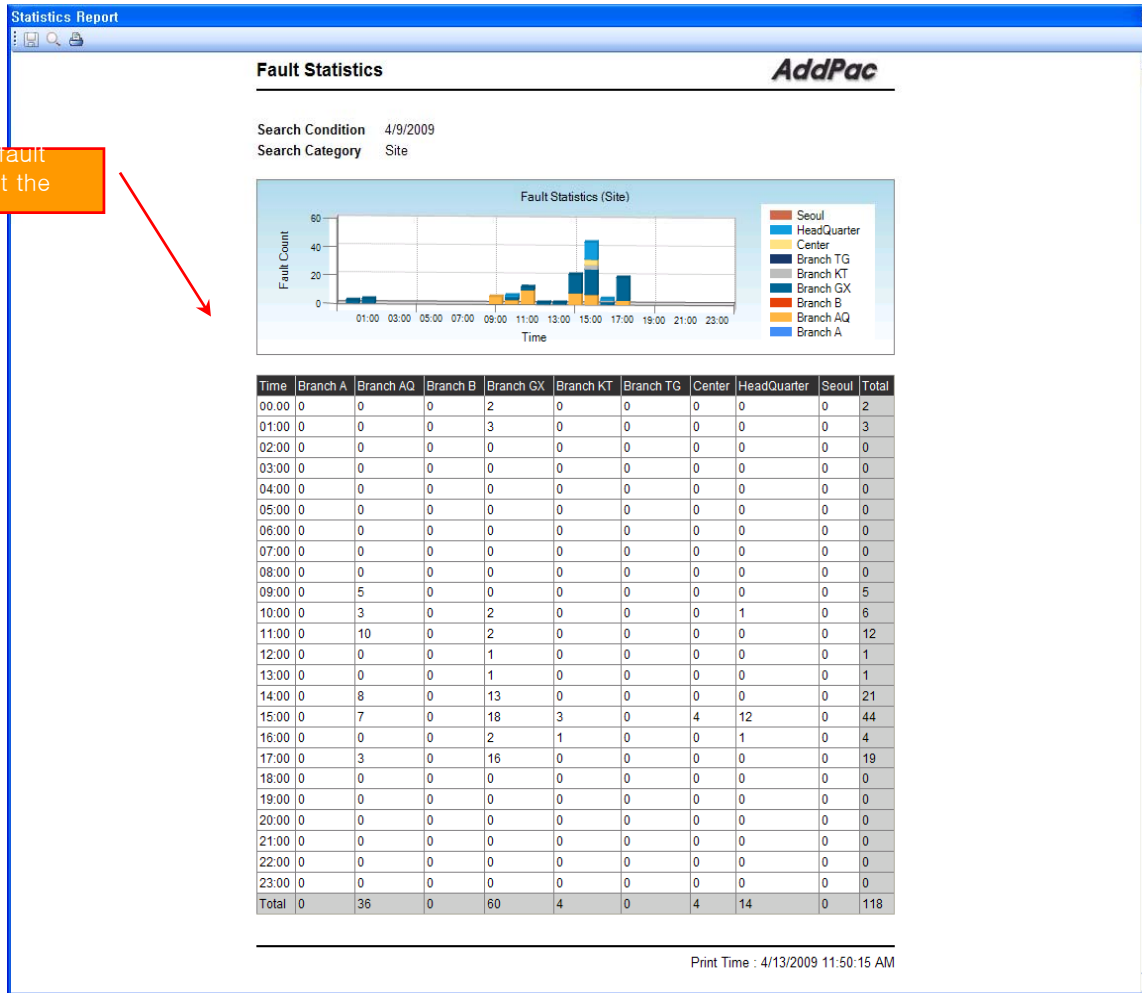
Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	0	1	0	0	0	0	1
13:00	0	0	0	0	0	0	0	0	0	0
14:00	0	8	0	13	0	0	0	0	0	21
15:00	0	7	0	18	3	0	4	12	0	44
16:00	0	0	0	2	1	0	0	1	0	4
17:00	0	3	0	16	0	0	0	0	0	19
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0
Total	0	36	0	60	4	0	4	14	0	118

Your Outstanding Notices (18)

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th_floor_meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down.
<input type="checkbox"/>	9505	4/10/2009 11:23:13 AM	/AddPac/Branch GX	IPNext_3000_Slave1	172.17.113.41	Call	interface 172.17.113.41 (172.17.113.41) device IPNext_3000_Slave1 service

Fault Statistics – Report Generation

report generation for fault statistics and print out the result.



Model & Service Management

- Define new model with provided template image & properties
- Customize data collection with standard protocol such as TCP, SNMP

Device Model Management

manage device model with various properties such as

model image repository for selection

Smart Network Management System - Windows Internet Explorer
 http://172.16.31.20/smartnms.htm

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Site: AddPac
 AddPac Technology C...
 Branch AQ
 Branch GX
 Branch KT
 HeadQuarter
 Main HeadQuarter Cen...
 Seoul subnetwork
 Seoul East Area
 Seoul Fast Area
 Branch B
 GangNamGu
 GangNamGu
 Branch TG
 Yeoksam Area
 SeoChoGu
 seoul seochu district
 Seoul West Area
 Seoul West Area
 Gangseo Area
 Gangseo Area
 Seoul
 MokDong Area
 MokDong Area

Model Name Category
 AP-IP200 Phone
 AP-IP300 Phone
 AP-IPC Network Camera
 AP-IPC250M Network Camera
 AP-IVR1000 Server
 AP-MC1000 Server
 AP-MC3000 Server
 AP-MC5000 Server
 AP-NR2000 Server
 AP-PS2000 Server
 AP-RBT1000 Server
 AP-RS2000 Server
 AP-UMS1000 Server
 AP-UMS2000 Server
 AP-VC2000 Phone
 AP-VP200 Phone
 AP-VP300 Phone
 AP-VP350 Phone
 AP-VP500 Phone
 IPNext1000 Server
 IPNext1000 Server
 IPNext180 Server
 IPNext200 Server

Device Model Properties
 General Service Availability System Monitoring Service Monitoring
 Model Name AP-IPC250M
 Category Network Camera
 Management by SSCP
 SSCP Port 5061 (1~65535)
 Model Image

Model Image Management

Your Outstanding Notices (18)

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all se
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SDHO_PBX			device NMS_SDHO_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (If
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.4		Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device (00_IVR_server) interface 172.16.253.118
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3			device (NMS_IP_PBX_3) interface 172.16.253.118
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.1		device (NMS Camera 2) interface 172.16.253.118
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	ICMP not response or deleted by administrator
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	SNMP not response or deleted by administrator
<input type="checkbox"/>	9336	4/6/2009 7:41:26 PM	/AddPac/Branch AQ	NMC Camera 2	172.16.253.110	ICMP	ICMP not response or deleted by administrator
<input type="checkbox"/>							device (NMS Camera 2) interface 172.16.253.118
<input type="checkbox"/>							device (NMS Camera 2) interface 172.16.253.118

4/13/2009 1:42:39 PM 172.16.31.20:5101 admin Version 1.2.3384

Service Definition

define the service for data collection, current status with standard protocol such as TCP or SNMP

The screenshot shows the Smart Network Management System (NMS) interface. The main window displays a tree view of sites and a table of services. Two 'Service Properties' dialog boxes are open, illustrating the process of defining a service.

Service Properties (General) - Top Dialog:

Service Name	Protocol	Port
Call Manager	SNMP	161
Presence	SNMP	161
Media	SNMP	161
NIS	SNMP	161
RtpProxy	SNMP	161
MCU	SNMP	161
IVR	SNMP	161
Recording	SNMP	161
Tomcat	TCP	8080
FTP	TCP	21
Camera Pan	SNMP	161
Camera Tilt	SNMP	161
Camera Zoom	SNMP	161
Camera Operation Status	SNMP	161

Service Properties (General) - Bottom Dialog:

Service Name: Camera Operation Status
 Protocol: SNMP
 Port: 161
 Interval: 30000 (msec)
 Timeout: 3000 (msec)
 Retry: 3

Service Condition (Bottom Dialog):

Service OID: 1.3.6.1.4.1.4855.7.51.1.3.0
 Operator: =
 Operand: 1

Your Outstanding Notices (18) Table:

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server		device	00_RBT_serv
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting		device	5th floor meet
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent.	NMS_S0HD_PBX		device	NMS_S0HD_PBX
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server		device	00_IVR_serv
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3		device	NMS_IP_PBX_3
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	response or delete by
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	ICMP not response o
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	SNMP not response
<input type="checkbox"/>	9236	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.110	ICMP	ICMP not response o



Thank you!

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