

Secure IP Telephony Solution (TLS/SRTP Protocol)



AddPac

AddPac Technology

2012, Sales and Marketing

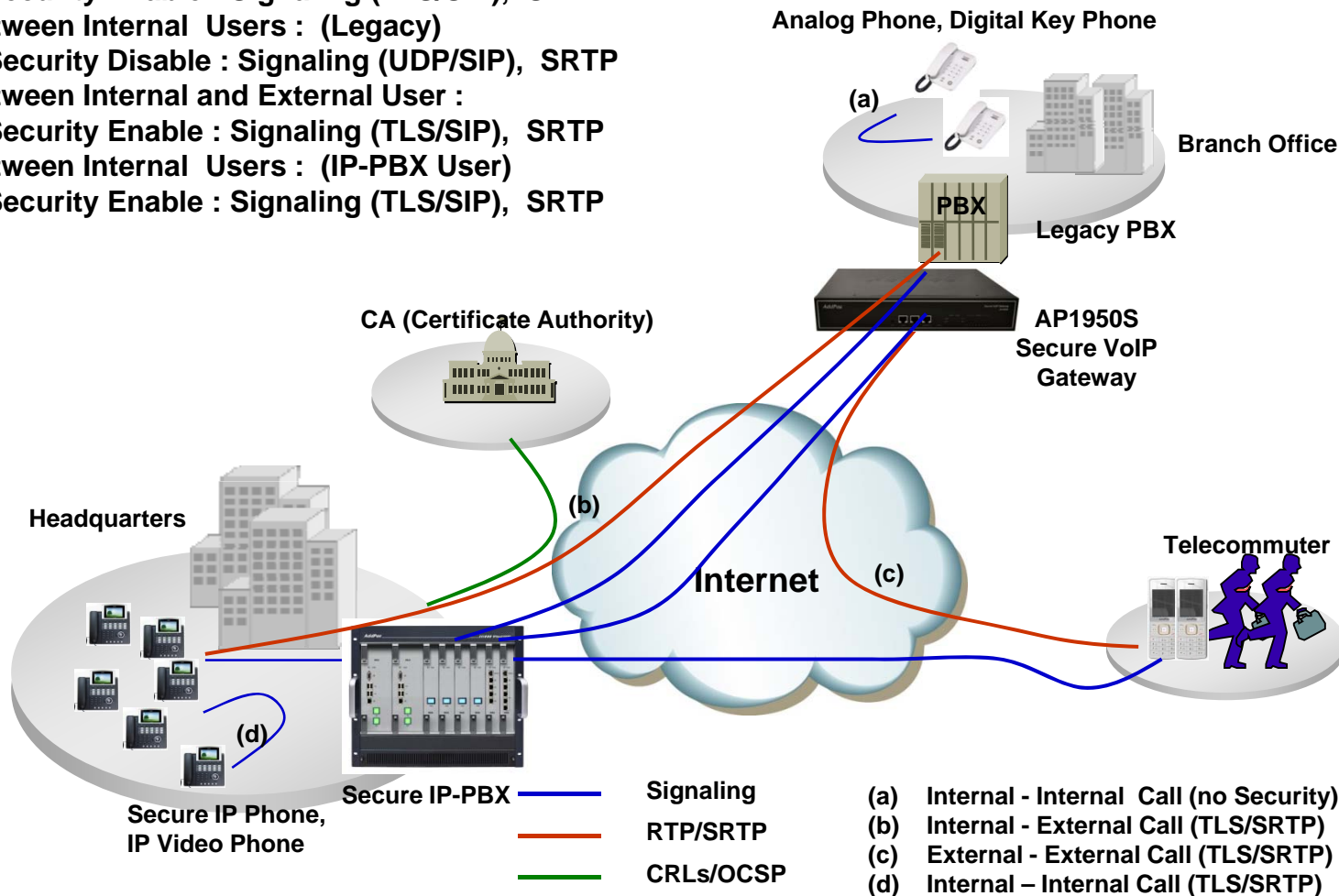
www.addpac.com

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



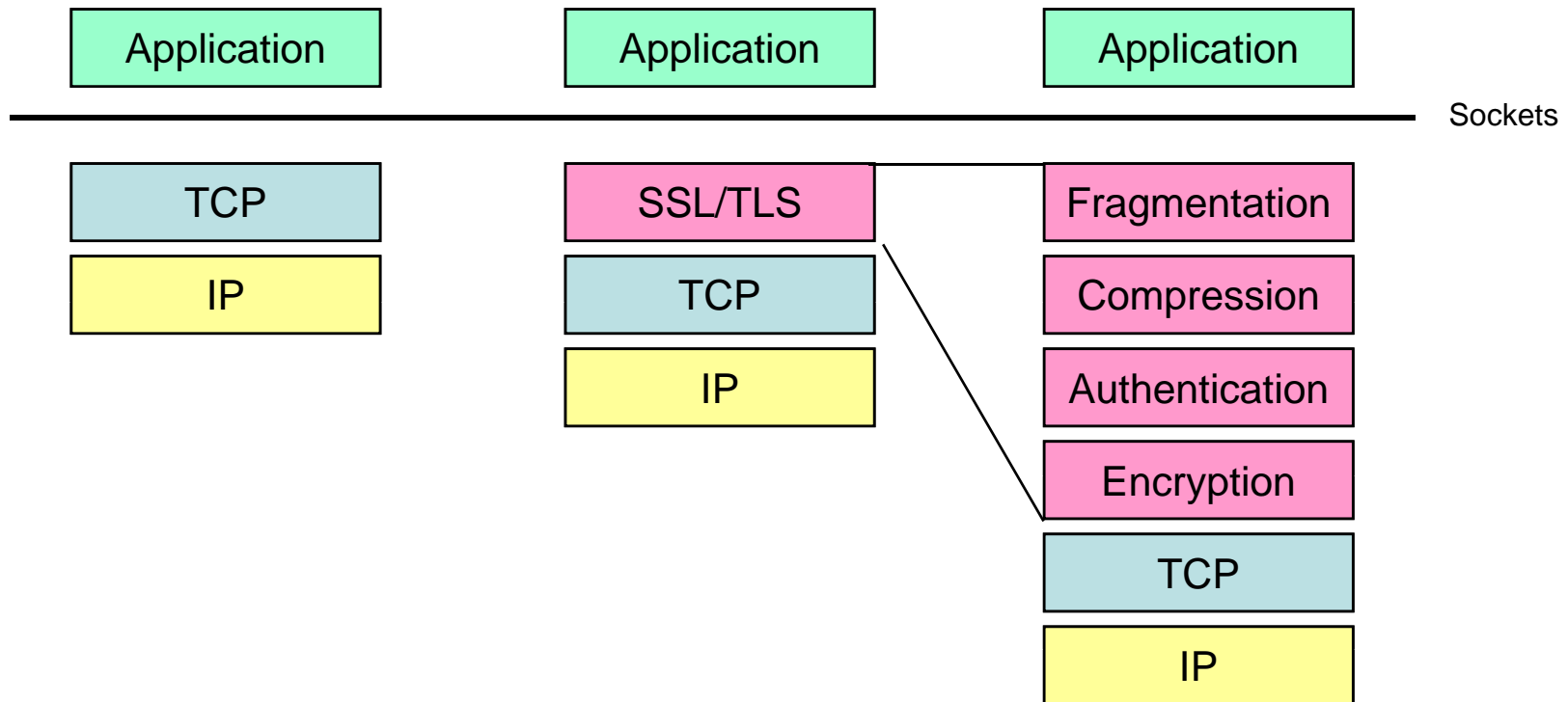


Secure IP Telephony Service Features

TLS Features for Secure VoIP Service

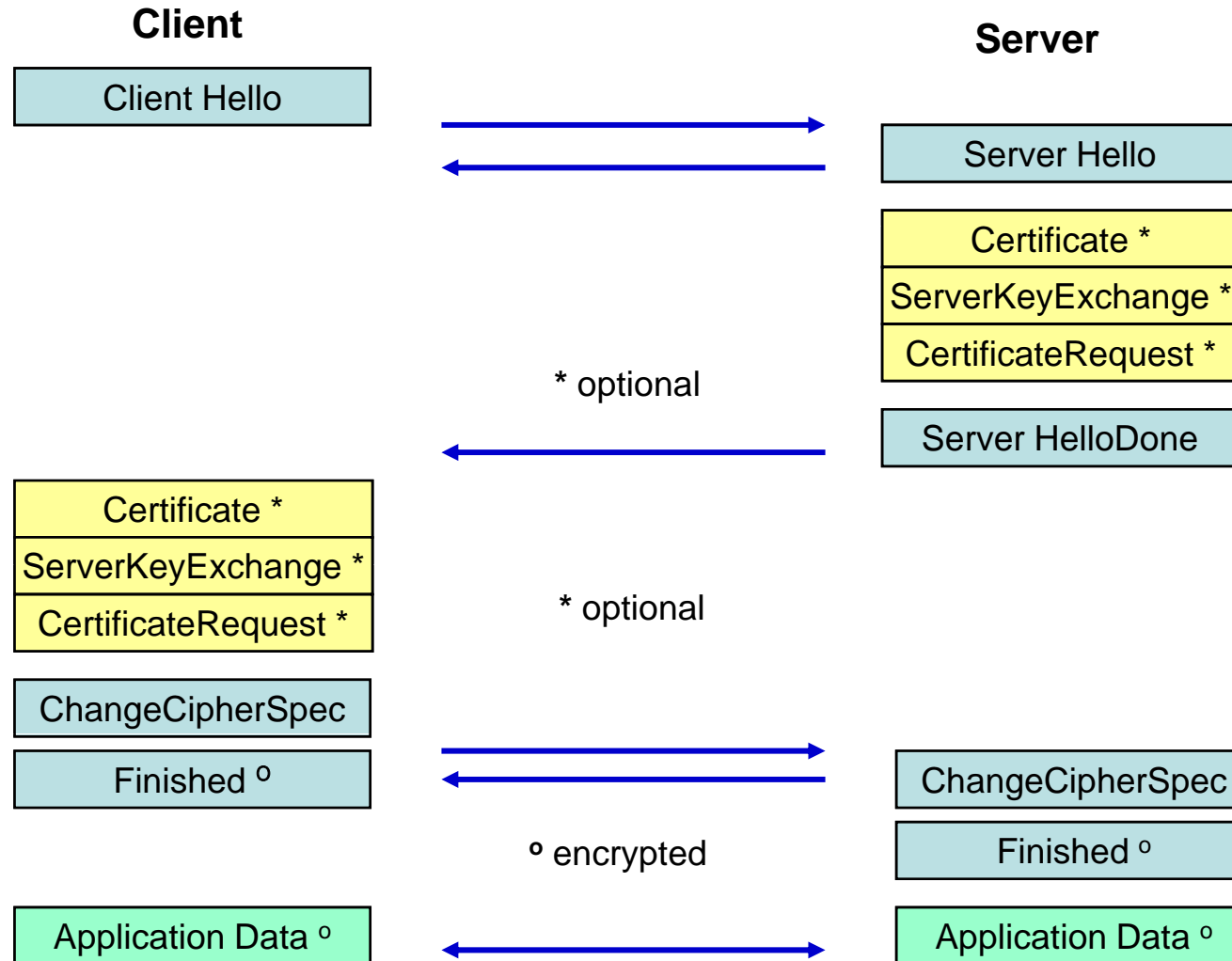
- Support for TLS 1.1, TLS 1.0 and SSL 3.0 protocols
- Since SSL 2.0 is insecure it is not supported.
- TLS 1.2 is supported but disabled by default.
- Support for TLS extensions: server name indication, max record size, opaque PRF input, etc.
- Support for authentication using the SRP protocol.
- Support 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

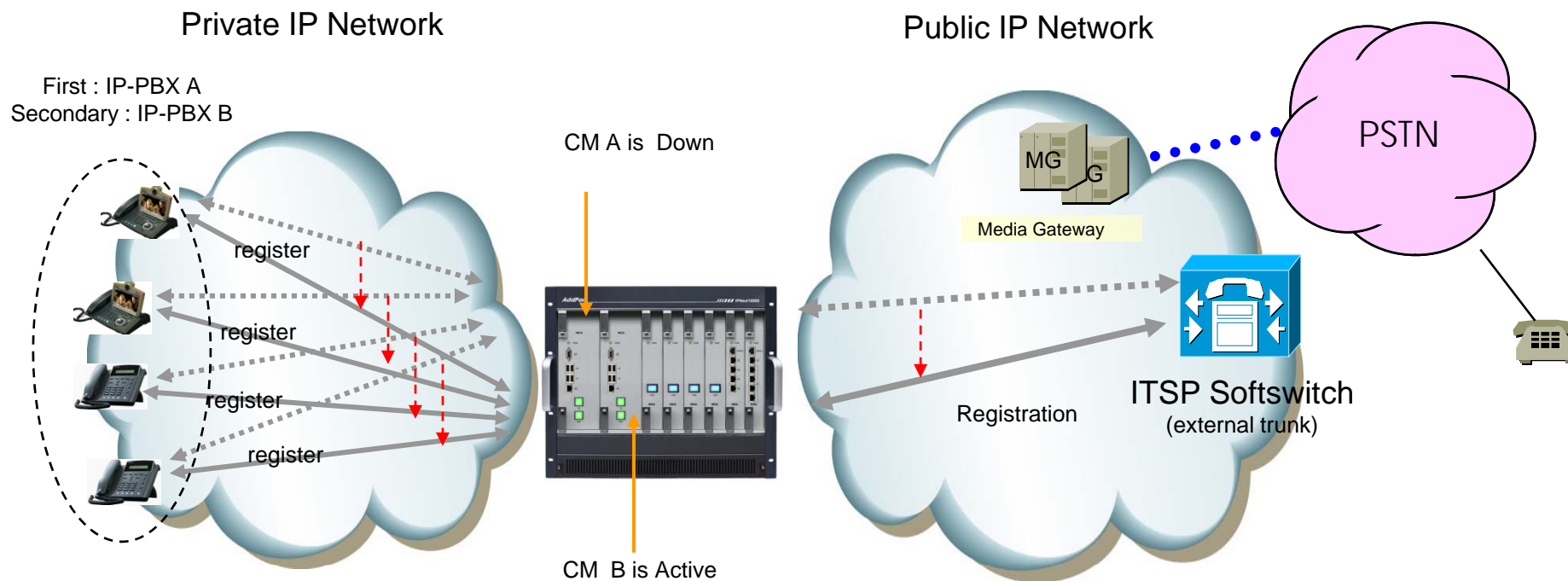
IPNext10000 Large Capacity Call Manager

- SIP Application Server, Proxy, Registrar and Location Server
- Multiple ITSP Trunk with SIP & H.323 Accounts Support
- One(1) System Dual Call Manager Redundancy Architecture
 - One(1) Gigabit Ethernet Interface, Two(2) Hard Disk / IP-PBX
 - Default : Single Call Manager
 - Option A : Dual Call Manager
 - Option B : One(1) Call Manager + One(1) Application Server
- 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) Server Support
 - External Application Server : 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
- Smart Multimedia Manager for IP-PBX Management
- Dual Redundancy Power Module

System Redundancy Features

IPNext10000 Large Capacity Call Manager

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

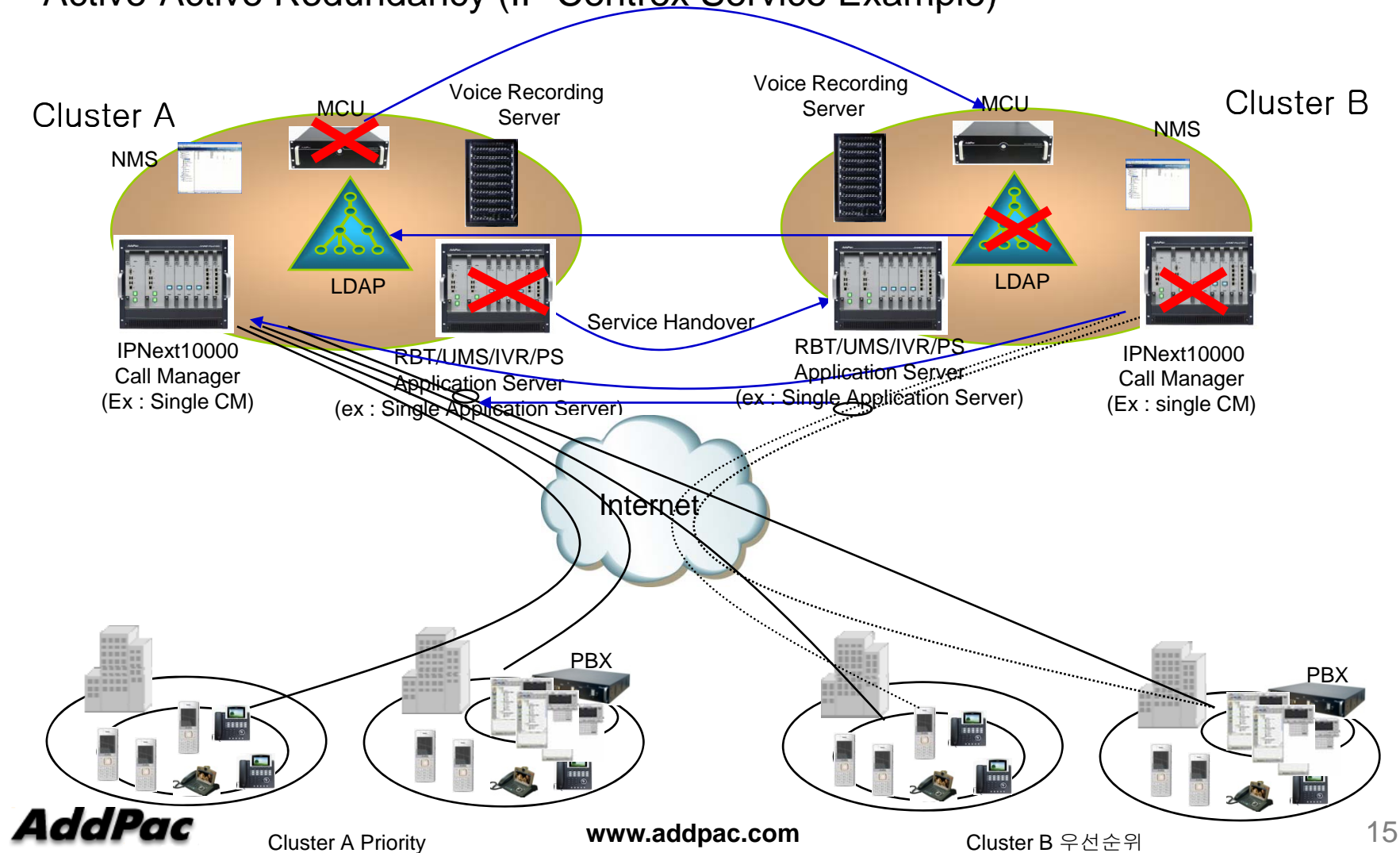


Active – Standby Duplication Scheme (example)

System Redundancy Features

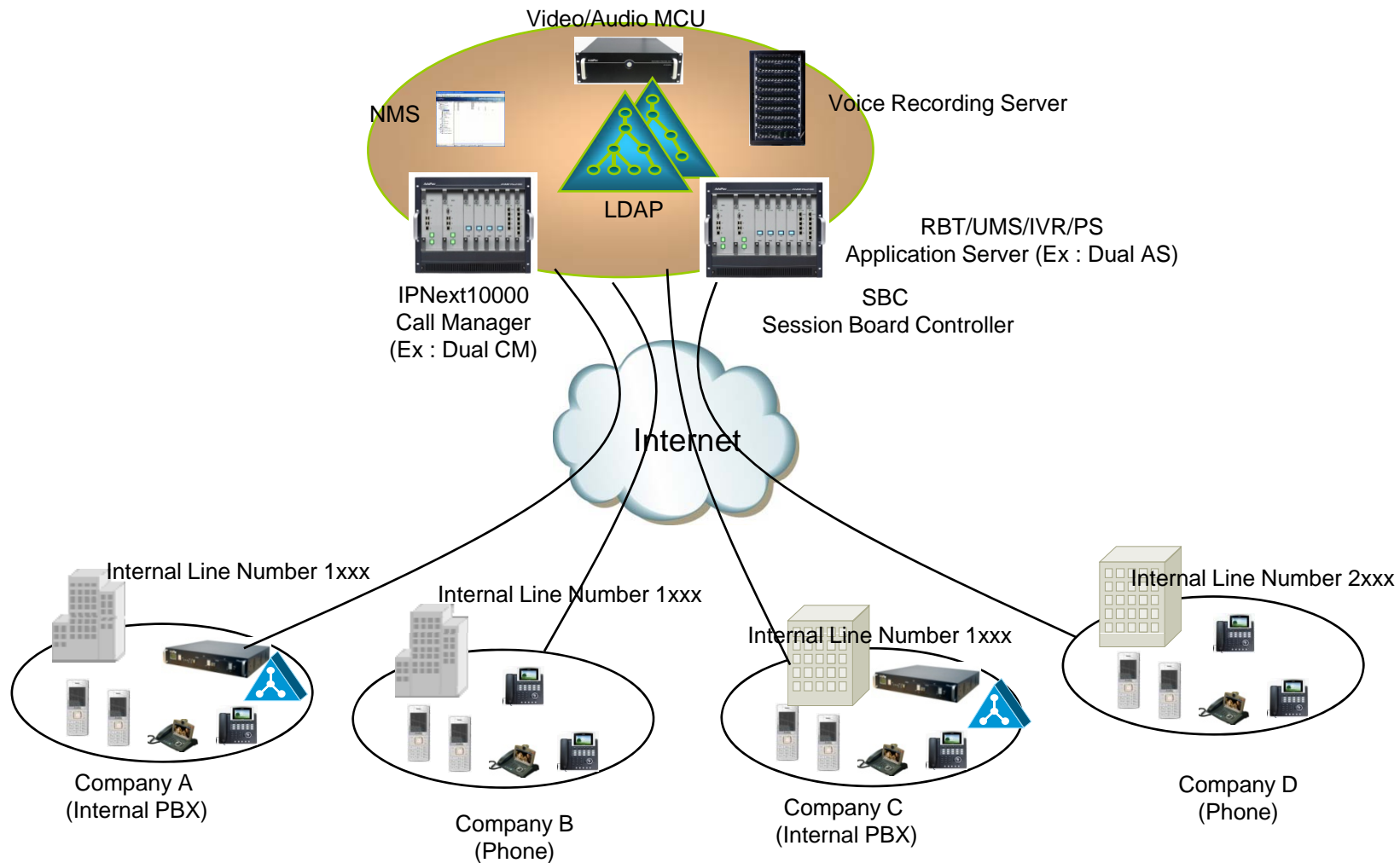
IPNext10000 Large Capacity Call Manager


- Active-Active Redundancy (IP Centrex Service Example)



IP Centrex Service

IPNext10000 Large Capacity Call Manager





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

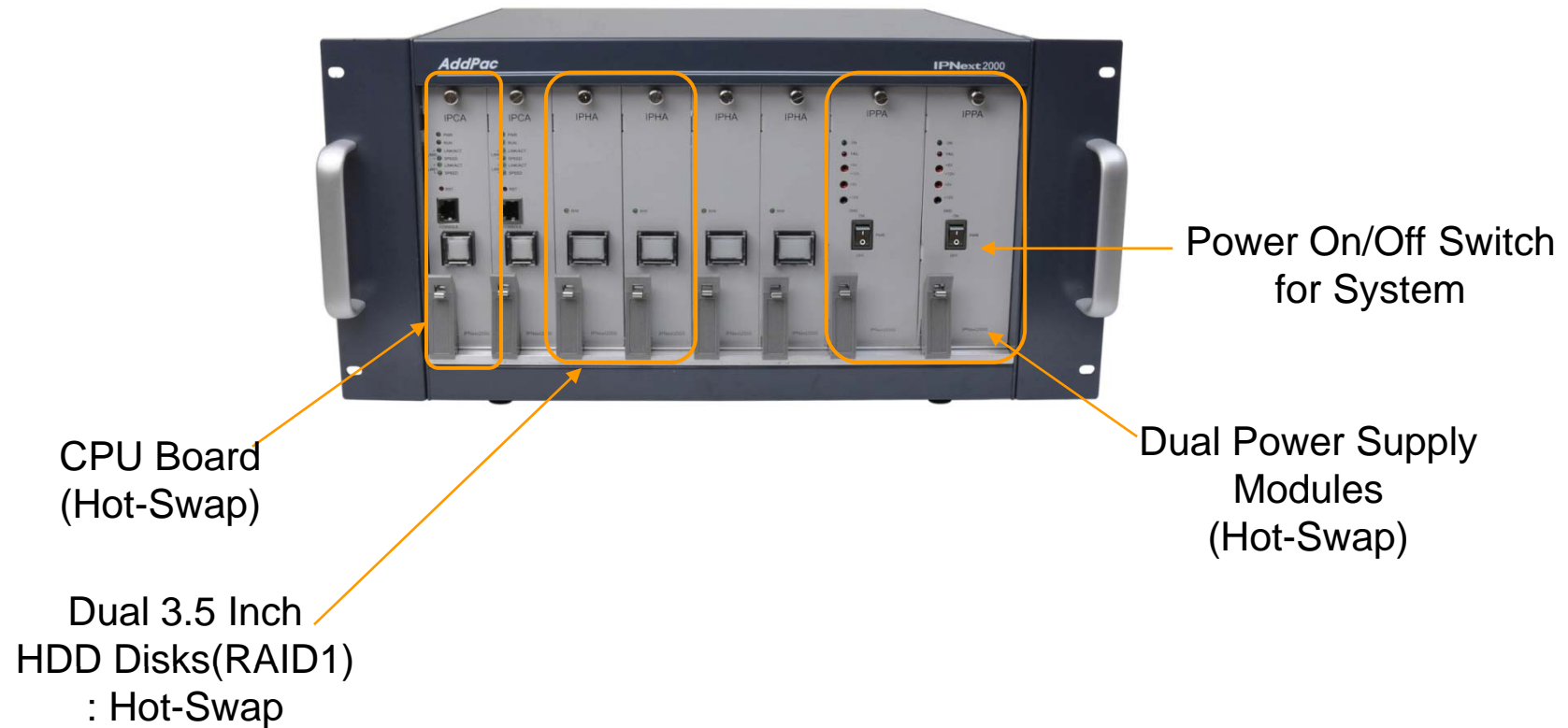
- 64bit High-End Microprocessor Computing Power
- Main Chassis
 - Dual Redundancy CPU Boards for System Fault Tolerant
 - Two(2) 10/100/1000Mbps Gigabit Ethernet
 - One(1) RS-232C Console (RJ45)
 - Two(2) 3.5 Inch Hard Disk Interface Slot (RAID 1)
 - Dual Redundancy Power Supply Module
 - Hot-Swap Features

Hardware Specification

IPNext2000 Next Generation IP-PBX

RISC
CPU

IPNext2000 Front Side

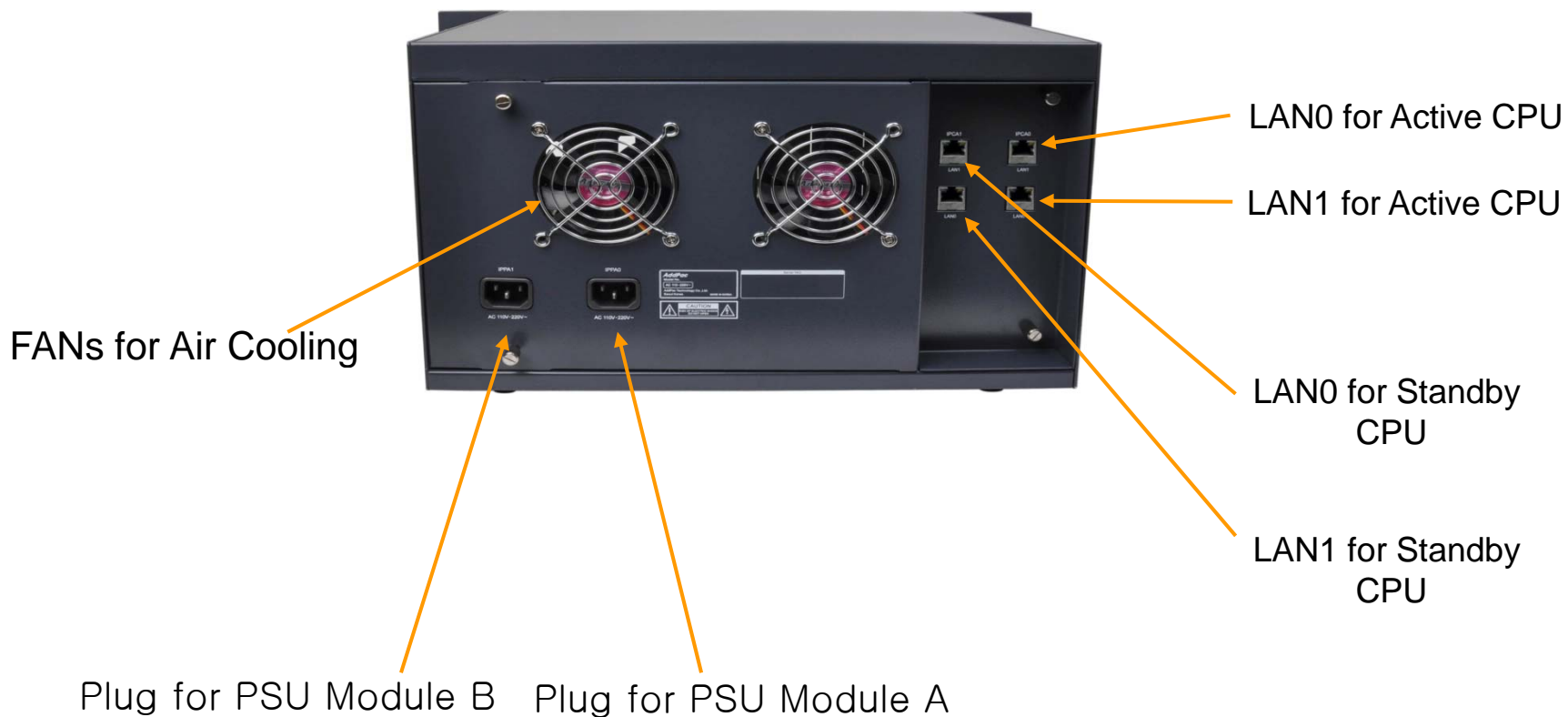



Hardware Specification

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

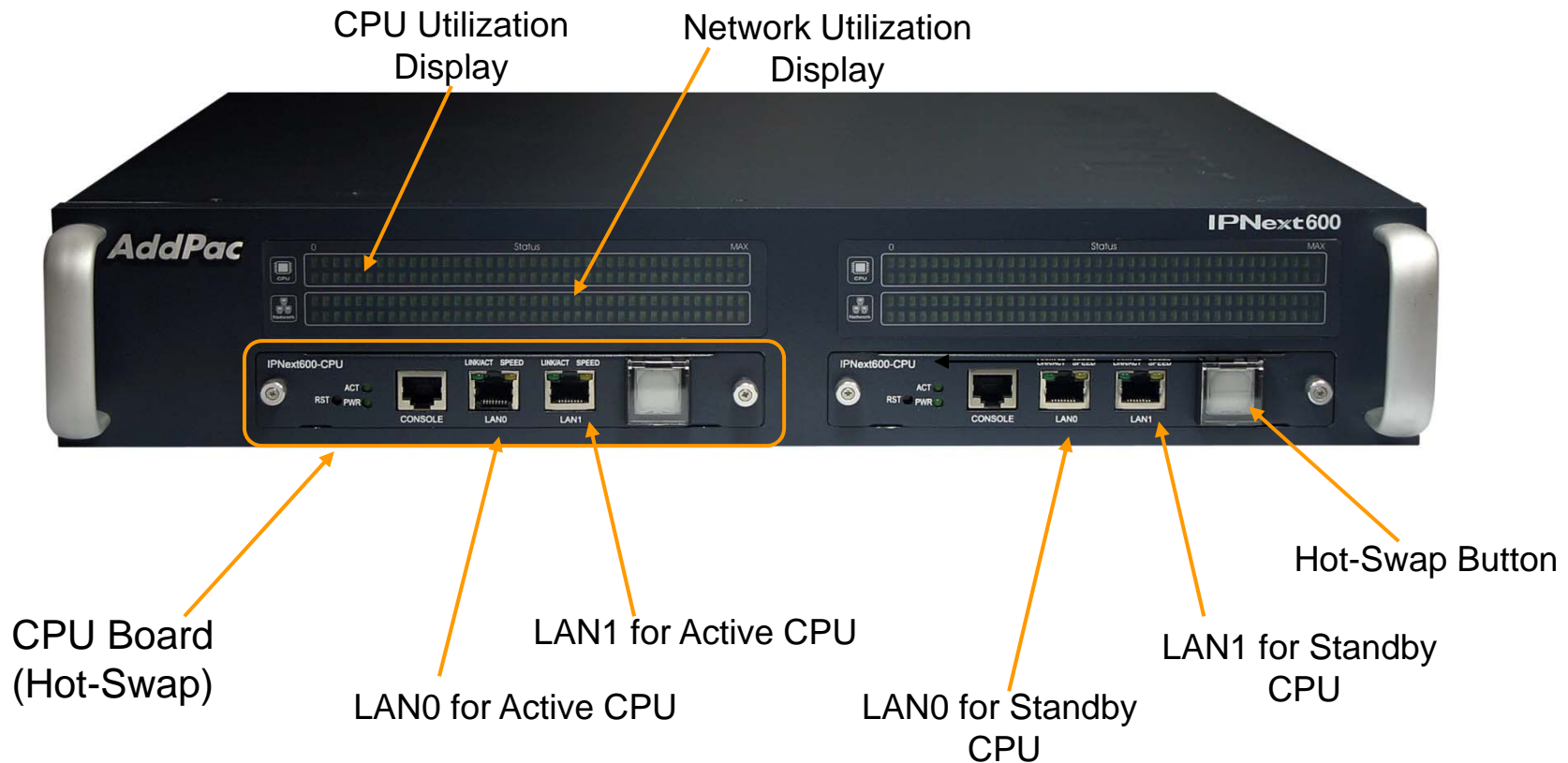


Hardware Specification

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



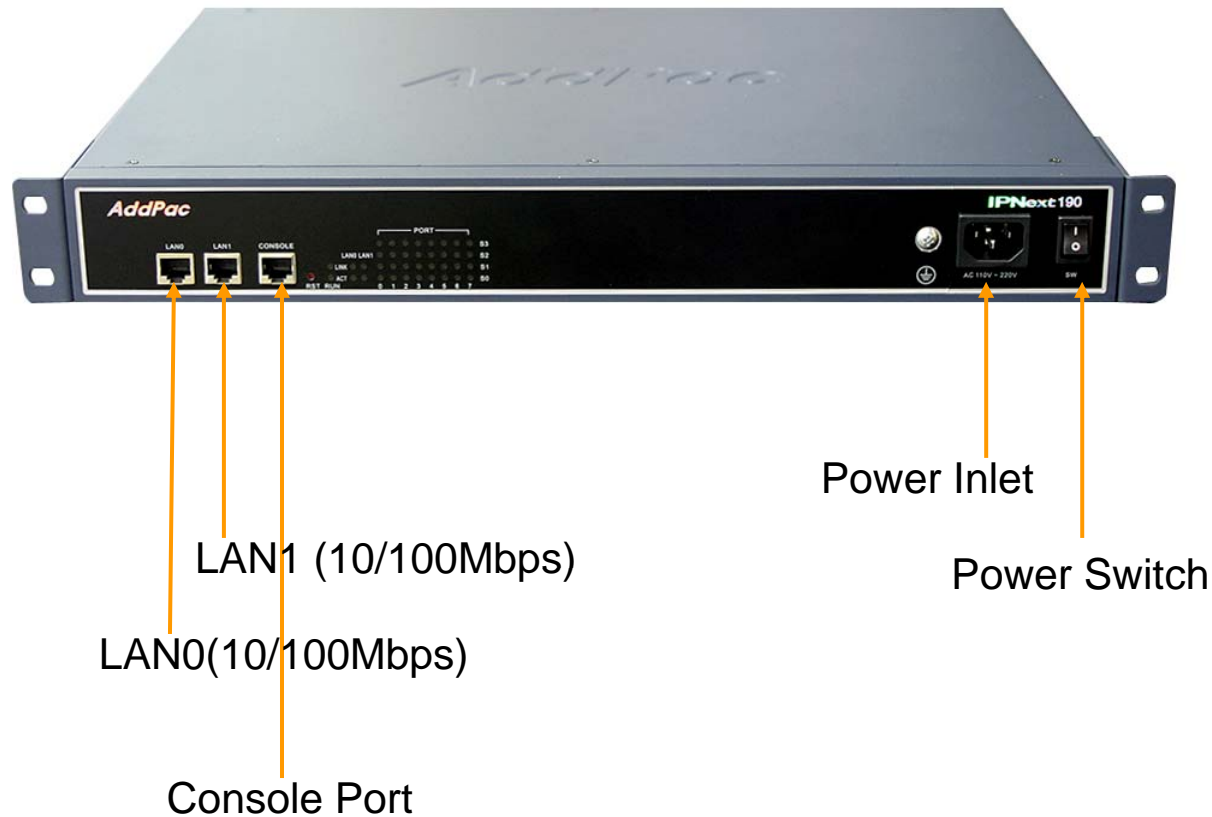
Hardware Specification

IPNext190 Hybrid IP-PBX

RISC
CPU

High-end
DSP

IPNext190 Front Side



Hardware Specification

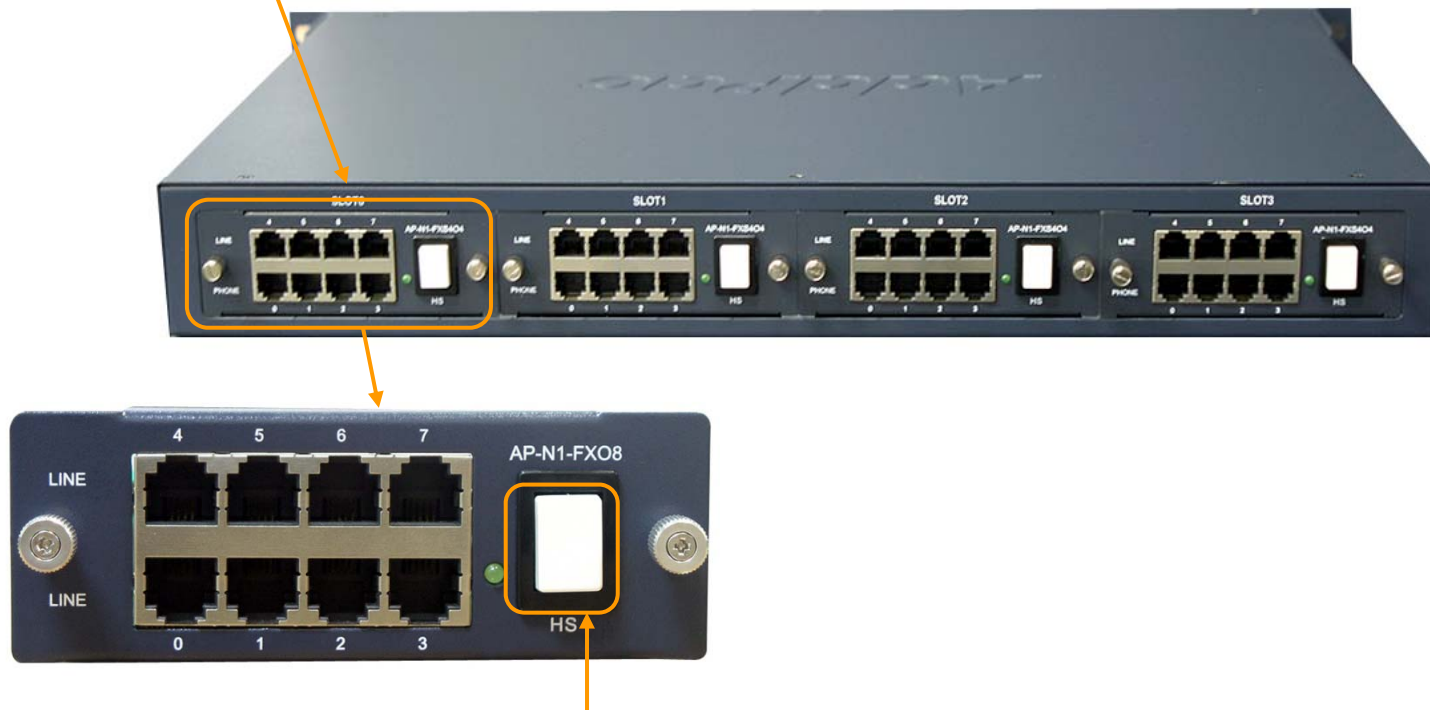
IPNext190 Hybrid IP-PBX

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



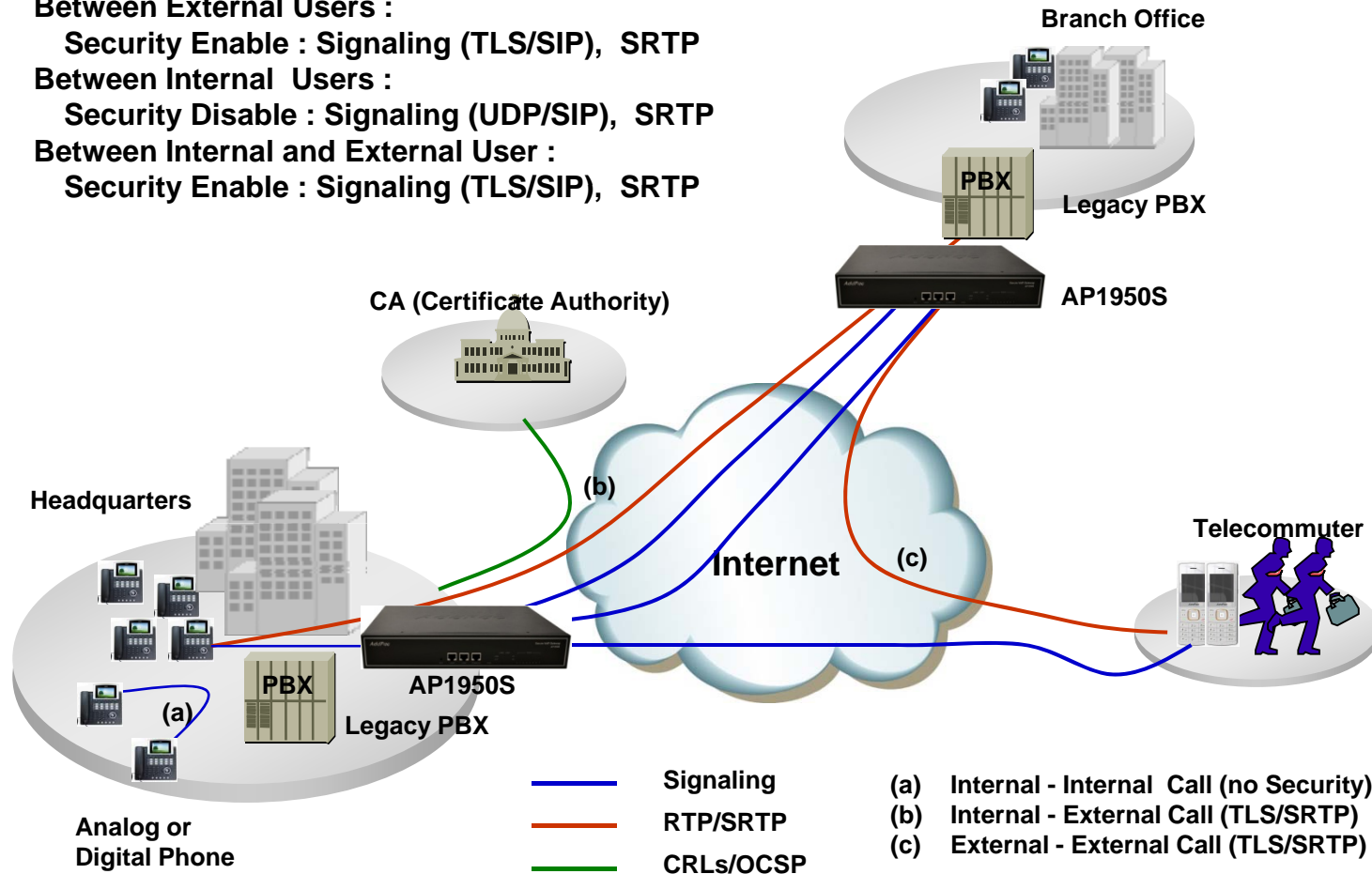
Secure VoIP Gateway Solution (TLS/SRTP Protocol)

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- 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

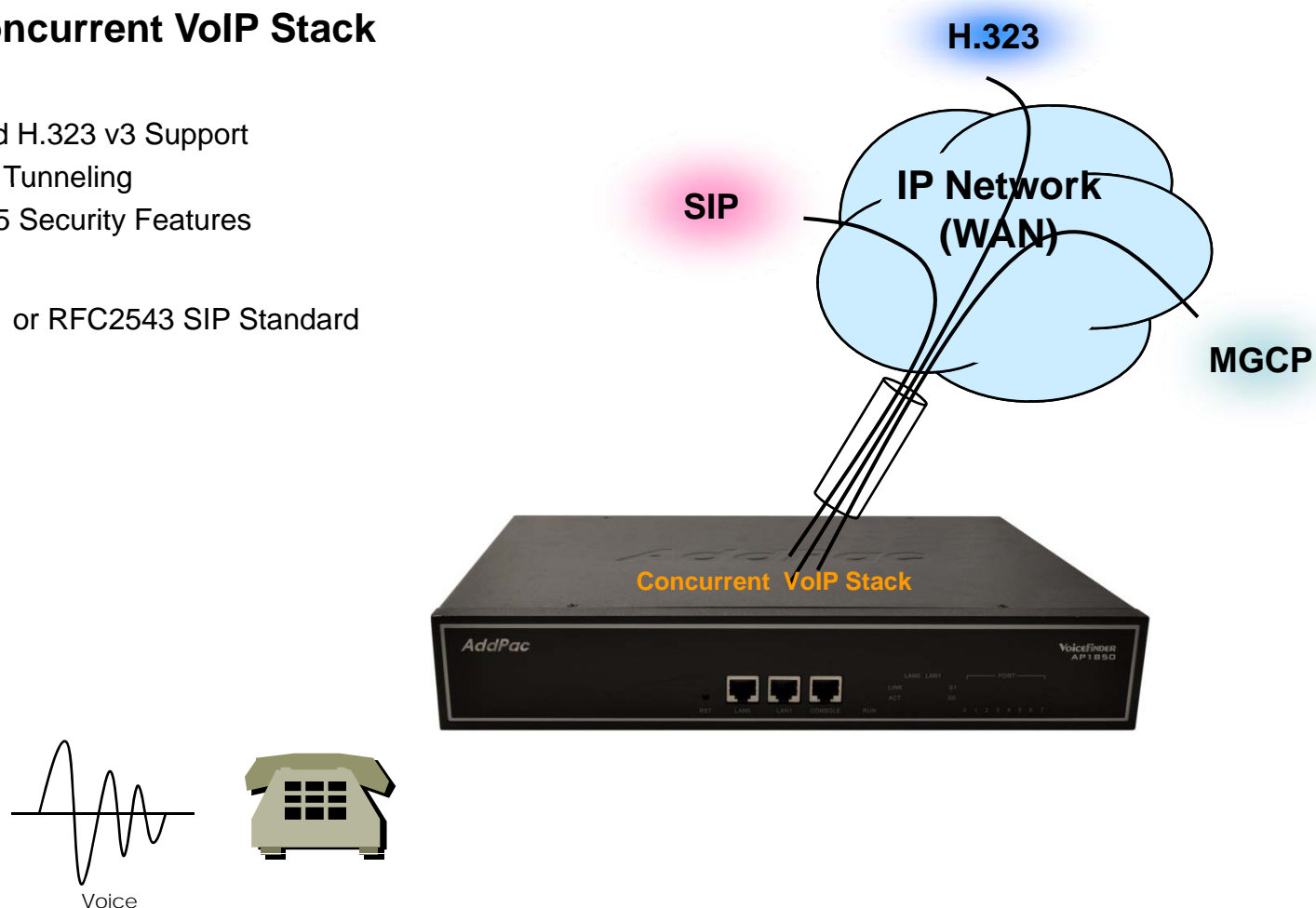
Target	VoIP Modules	Module Features	Module Picture
AP19x0S AP2330S AP2340S	AP-N1-FXS8	8-Port FXS Module	
AP19x0S AP2330S AP2340S	AP-N1-FXO8	8-Port FXO Module	
AP1800 AP2330S AP2340S	AP-N1-FXS4O4	4-Port FXS&4-Port FXO Module	
AP1900S AP1950S	AP-N1-E1	1-Port Digital E1/T1 Module	
AP1950S	AP-N1-2E1	2-Port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

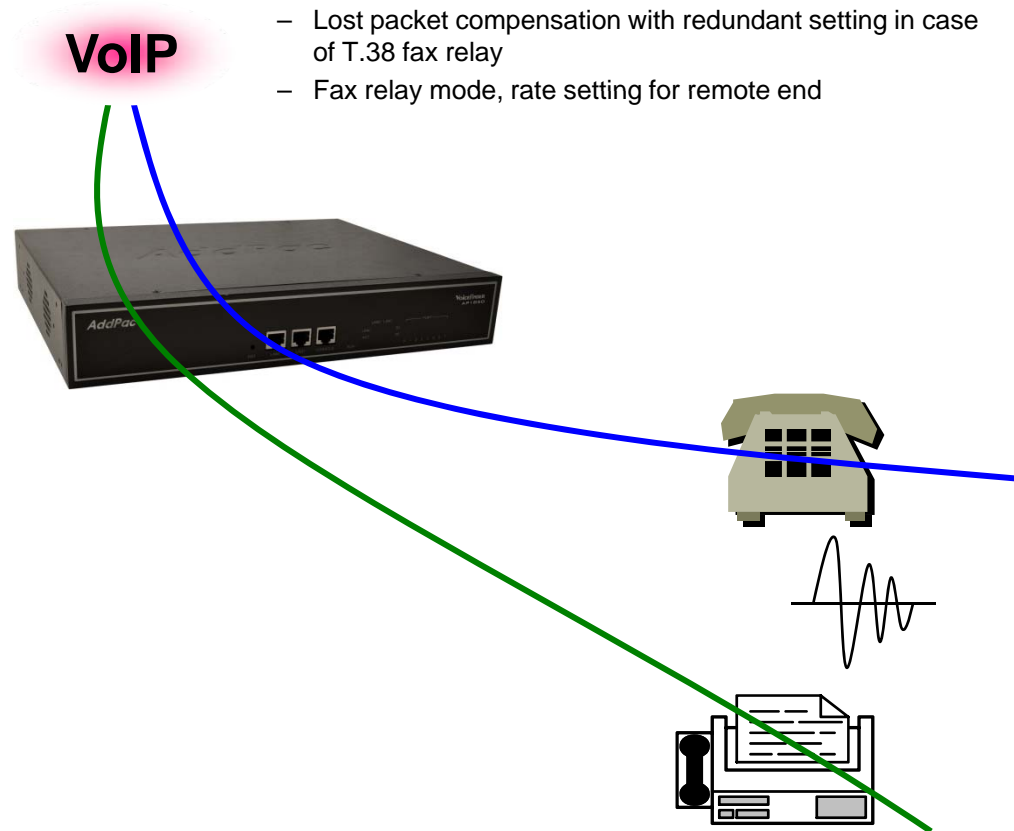
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **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



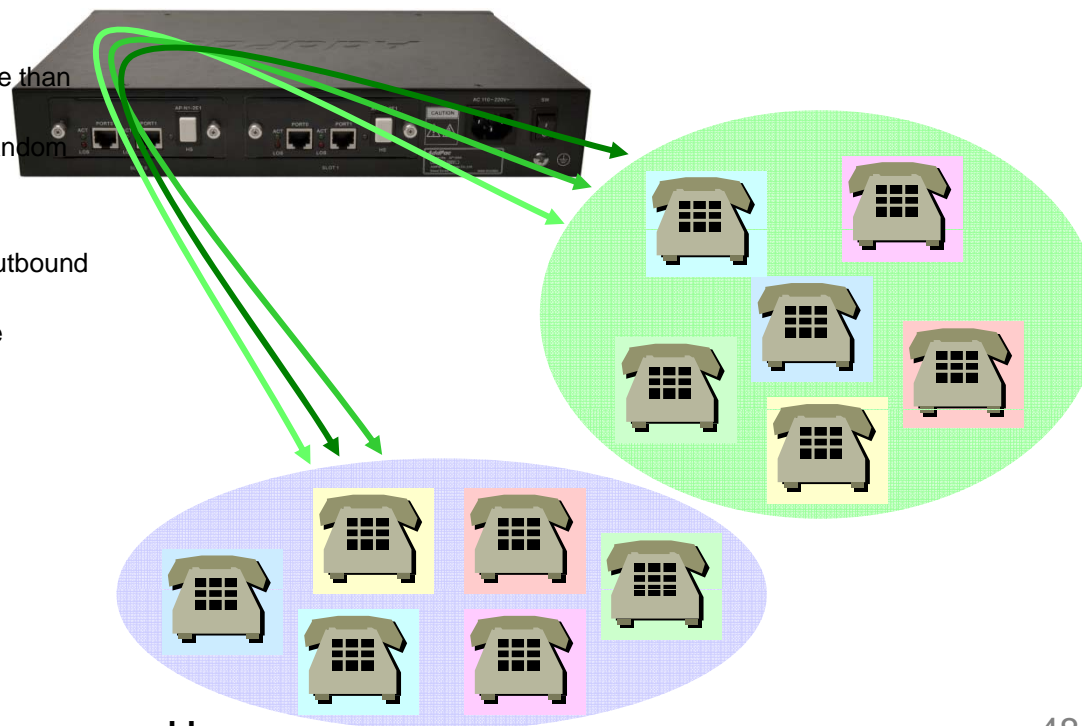
VoIP (Voice over IP) Service

• 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



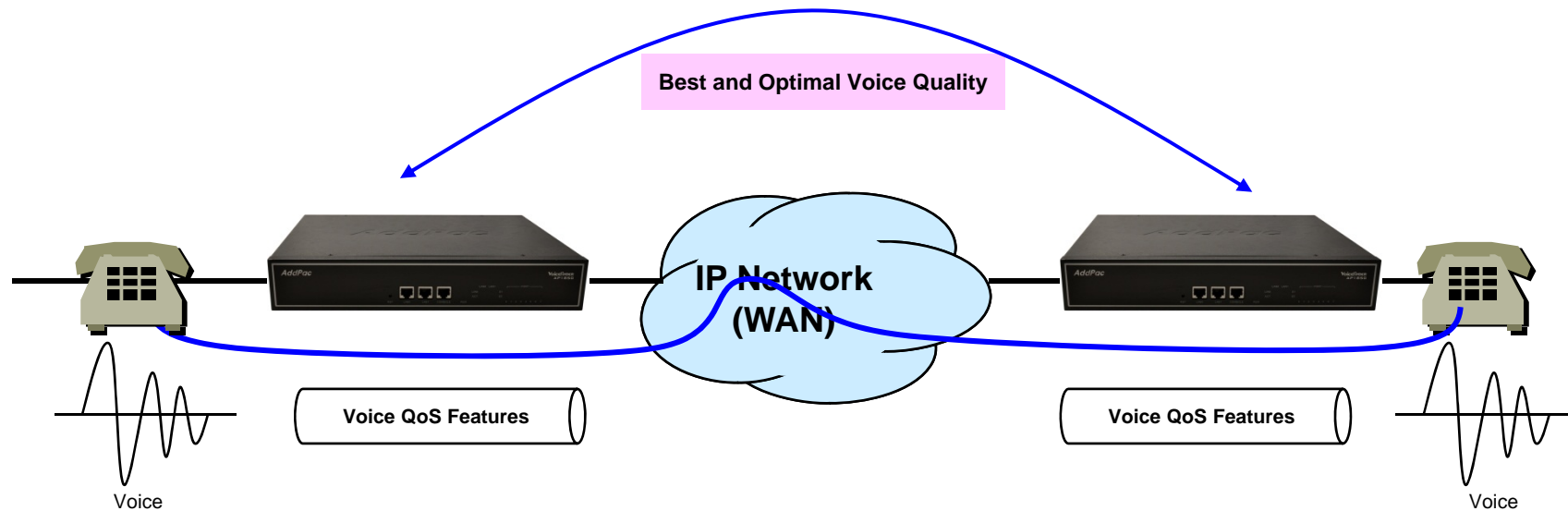
Advanced QoS Features

- **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**

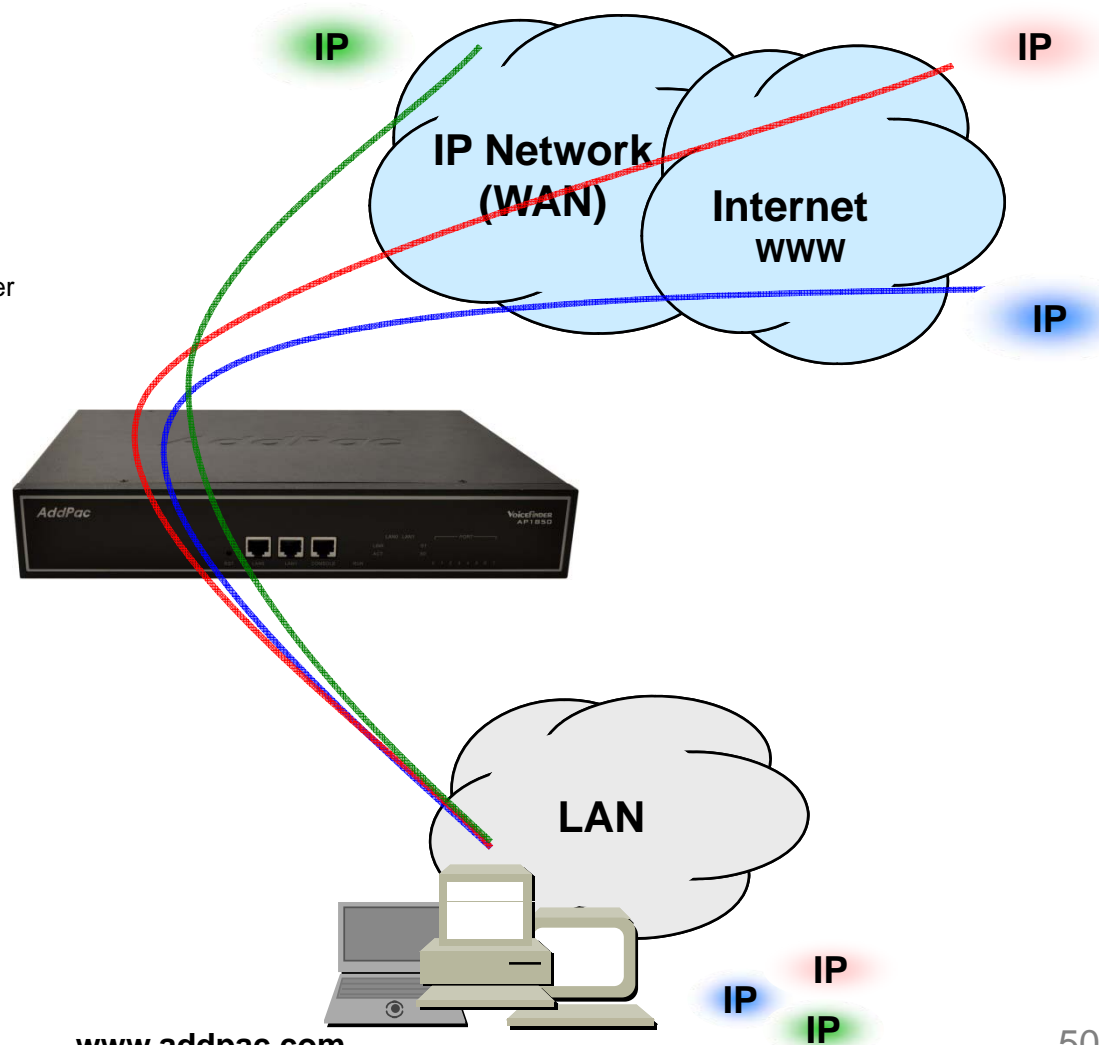
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **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**

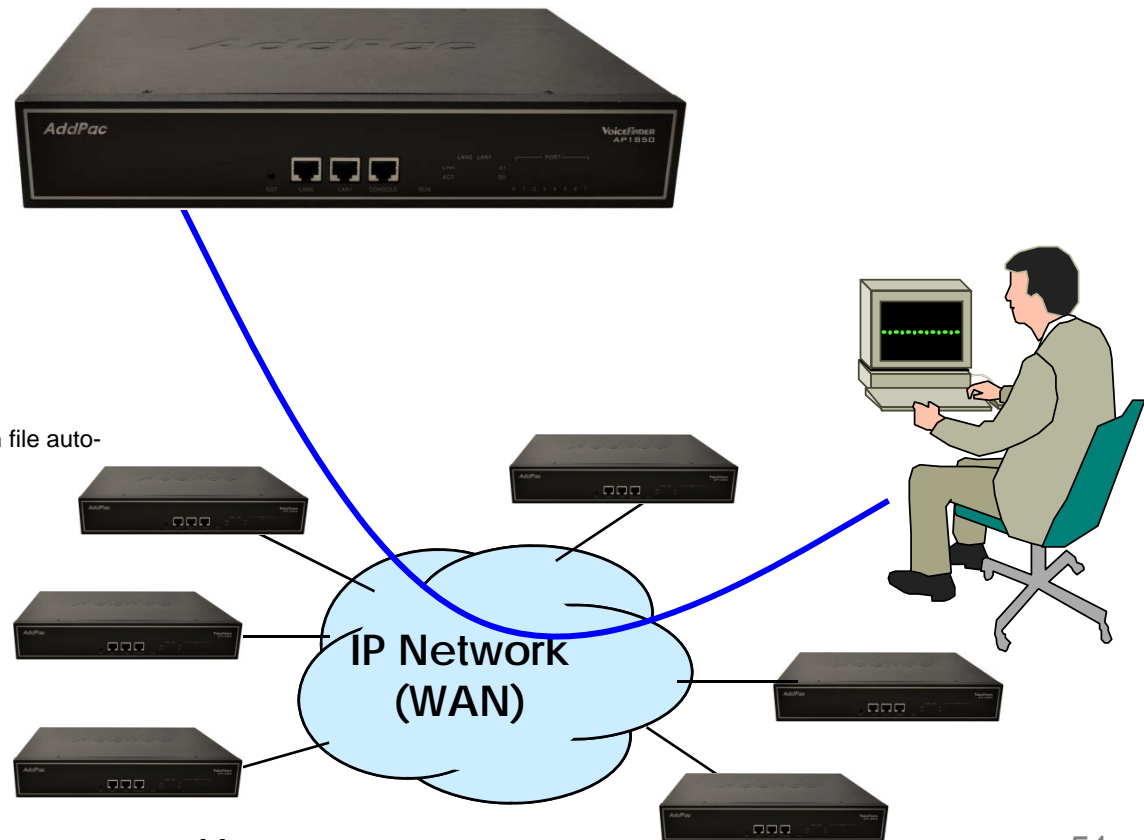
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

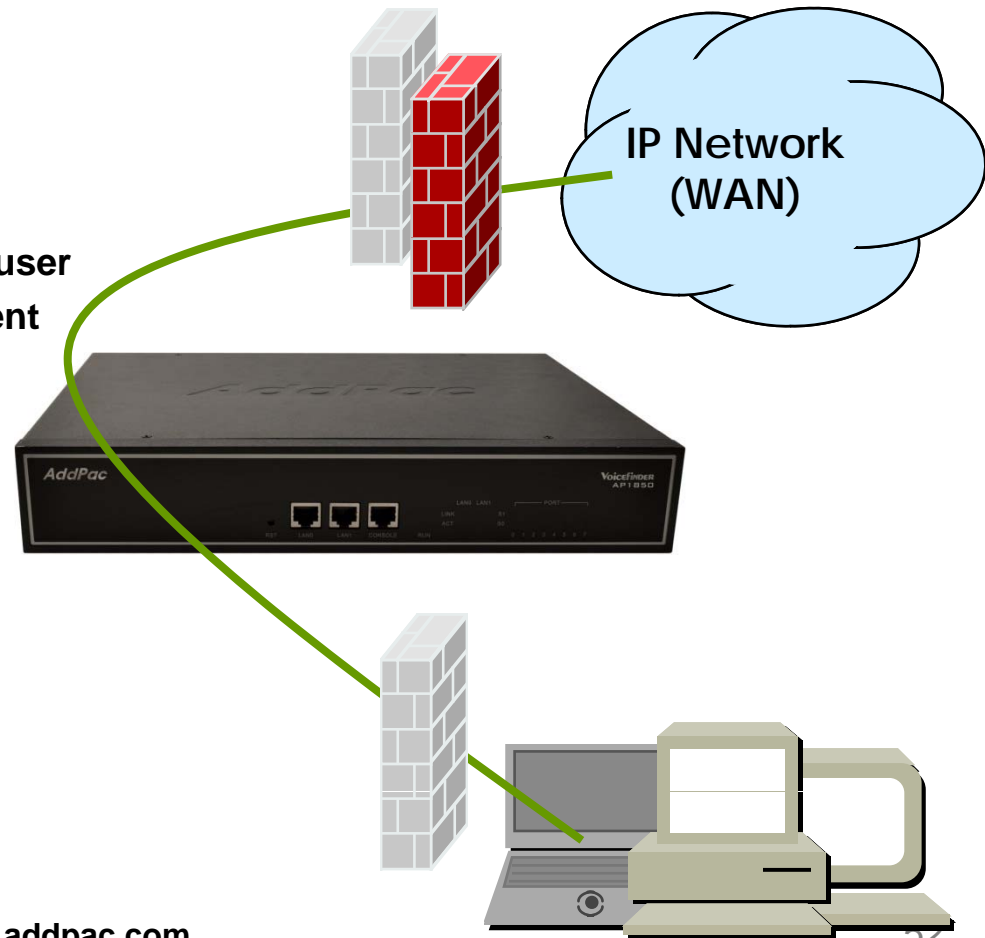
- **Interoperable with AP-VPMS Service**

- 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

Add Conference

General | Participants | Virtual Audience

Conference Name & Description
 Conference Name
 Description

Conference Number
 Conference Number

Conference Type
 : Dial-out, Meet me, AddHoc
 Conference Type: Dial-Out Conference

Media Type
 Select Conference Media Type
 Media Type: Audio Video + Audio

Audio Codec
 Select a conference audio codec
 Audio Codec: G.711U

Maximum Participant
 (Can select in Meet-Me conference type only)
 Max Participant: 16

Close on Chair Out
 Conference Disconnected if chair hang up phone
 Close on Chair Out

Secret Room
 -Secret room and Room Password
 -(Can select in Meet-Me conference type only)
 Secret Room
 Room Password: (4 digit)

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

Video Endpoint
 In case of Video Media type, select the video parameter of endpoint.
 Video Type: Continuous presence
 Target Rate: 1024K
 Picture Size: 640x480
 Video Codec: MPEG4
 Frame Rate: 30 fps

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 various layout and display settings. Several callout boxes provide additional information:

- Video Layout Mode**: - Auto (symmetric, asymmetric) - manual
- Arrange Mode**: -(dynamic, fixed, fixed reserved)
- Video Layout**: - Select the video layout
- Floor Assign Mode**: Floor권한 할당에 대한 방법 설정. (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.
- Mic off of Invisible Participant**

SMM : Conference - Participants

Conference Properties

General | **Participants** | Virtual Audience

Number	Par...	User
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
		kim so young

Enter External Phone Number

Add

Number	Partition	User	Type	User Class	Media Type	Position	Display Name
3001		Steven	Internal	Chair	Video		
3004		John	Internal	Participant	Video		
3005		Jane	Internal	Participant	Video		
3010		Sally	Internal	Participant	Video		

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

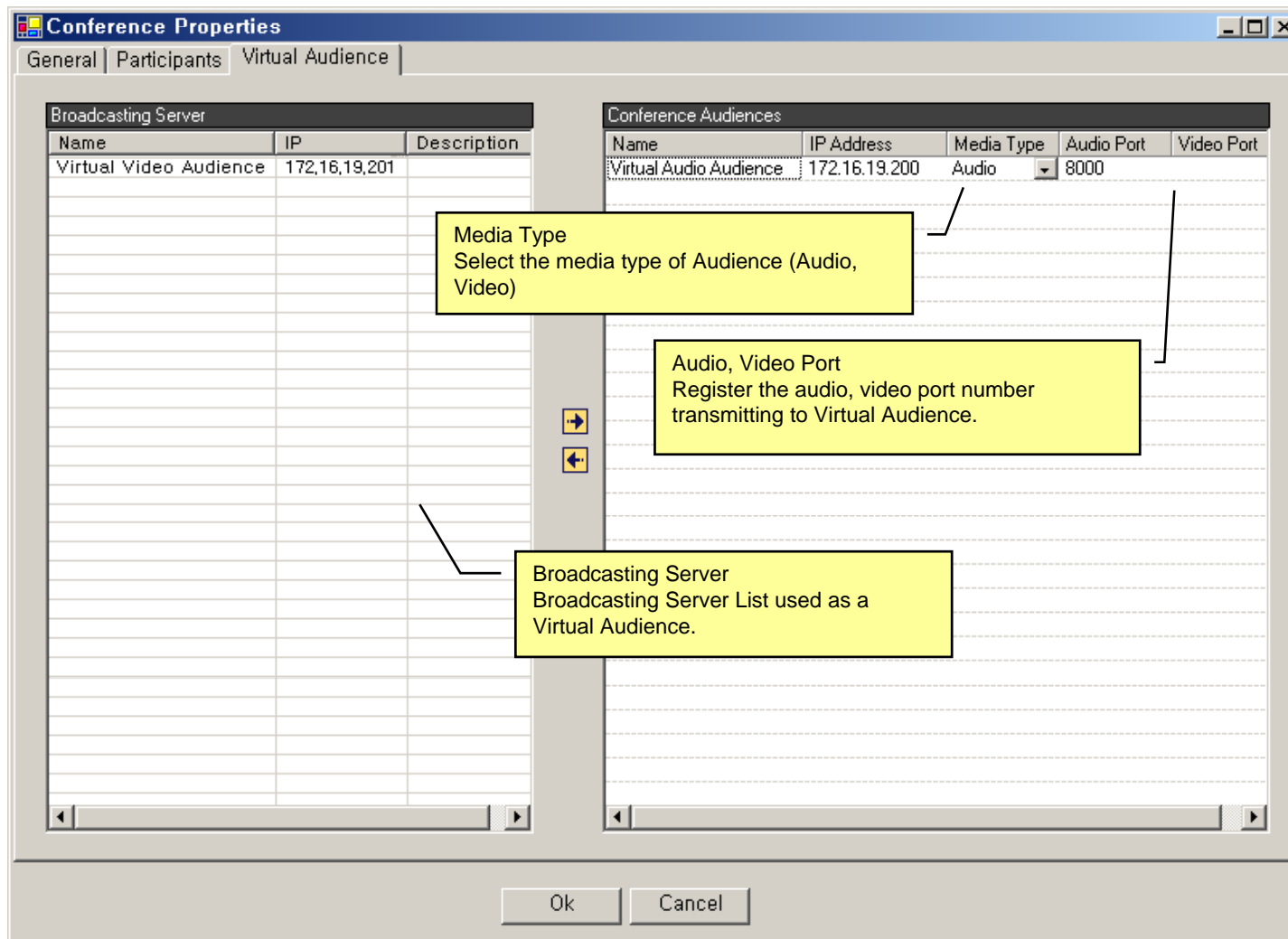
Display Name
A Participant Display Name

Phone Number Participant Phone List

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

Ok Cancel

SMM : Conference – Virtual Audience



SMM : Active Conference (1)

Smart Multimedia Manager - [Active Conferences]

File View Tools Window Help

AddPac Smart Multimedia Manager

172.16.201.100 172.16.11.120

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

Conference
Display the current conference room list

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 jung hyuk(jh.lee)	6010	172.16.11.110	Connected					

Participants (nms conference)

Participants
Display the participant list in conference room each

172.16.201.100 [Ok] 172.16.11.120 [Ok]

2006-12-07 오후 2:35:08 Version 2.9.2532.21338 172.16.201.100:389 administrator

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 contains a table with the following data:

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

Below the main table, there are two sub-panels:

- Conference Snapshot:** A window 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.
- Participants (nms conference):** A table listing active participants with their parameters:

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

Annotations in the image provide additional context:

- A yellow box points to the 'Conference Snapshot' window with the text: "Conference Snapshot Display the real-time still image of a current video conference call".
- Another yellow box points to the 'Participants' table with the text: "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 Name	Conference Number	User in conference / maximum	Conference room (Lock/Unlock)	Conference type (Video/Audio)	Conference layout
Conference 1	1000	3/16	Lock	Video, Audio	Layout 1
Conference 2	2000	0/4	Unlock	Audio	Layout 2
Conference 3	8888	0/16	Unlock	Video, Audio	Layout 3

Detail View

AddPac

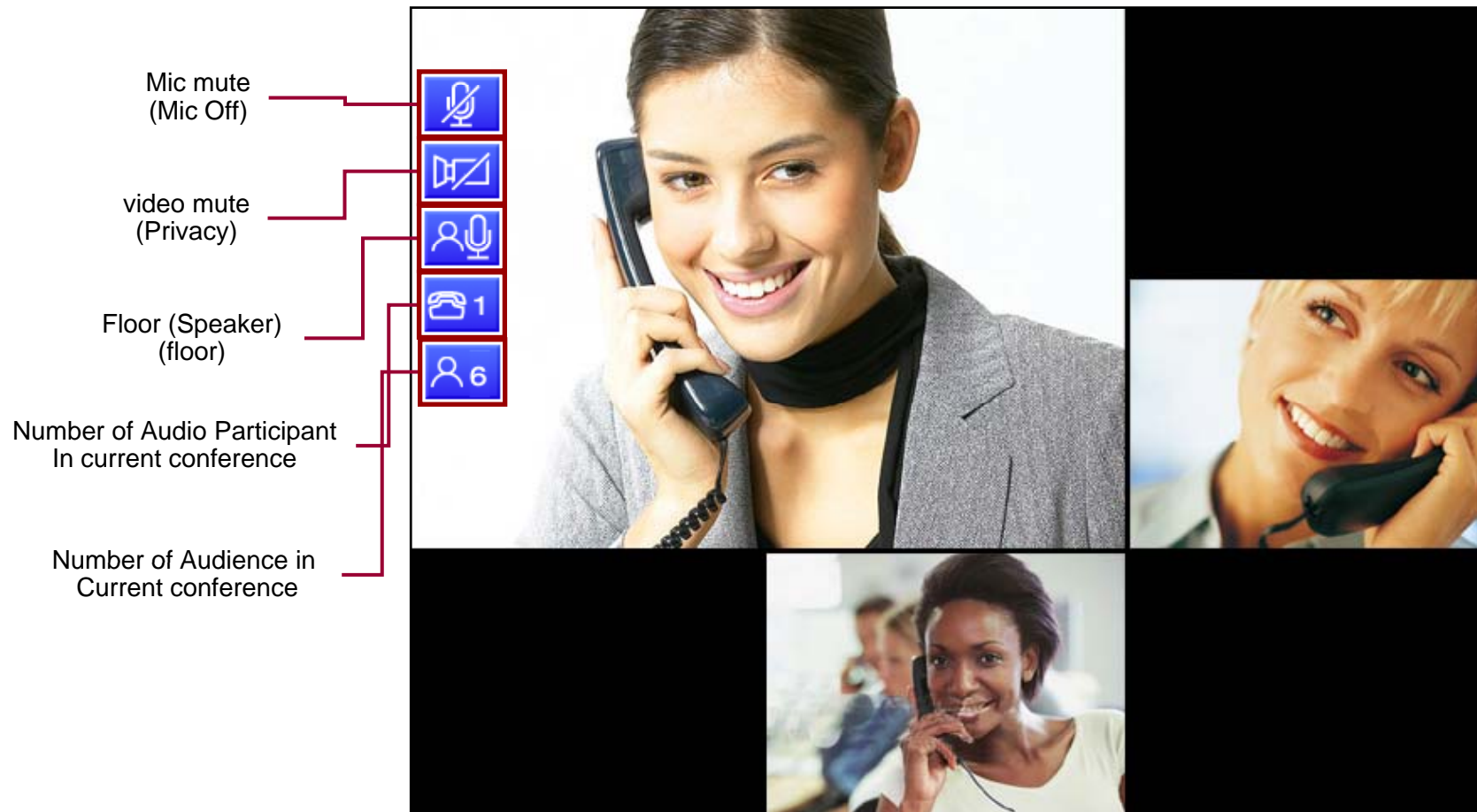
www.addpac.com

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

Add Party

ON AIR

NUM

Incoming Call

3000

Invite new user

Select User class
-participant
-audience

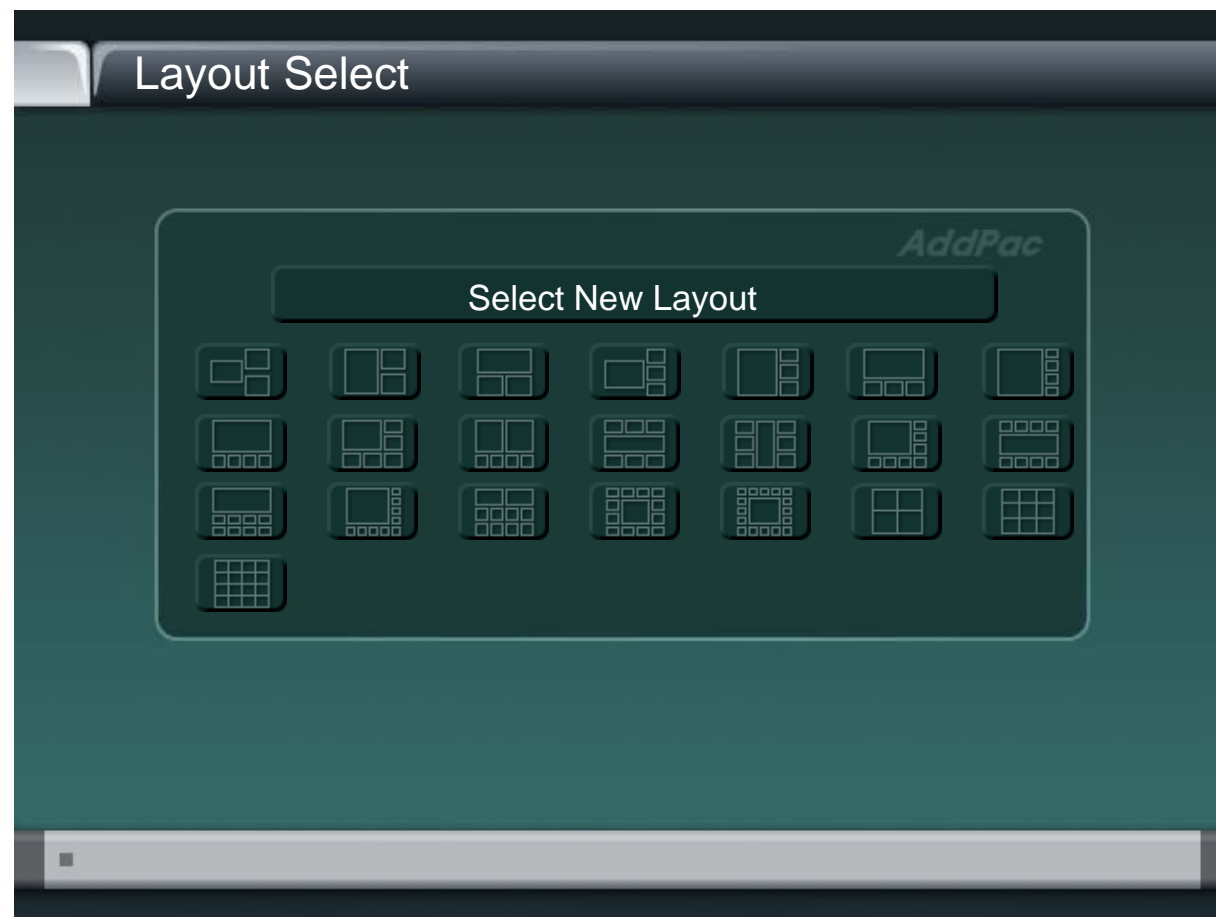
Select Media type
-audio call
-video call

Participant

Audio Call

Layout

- Video Layout Change in current conference



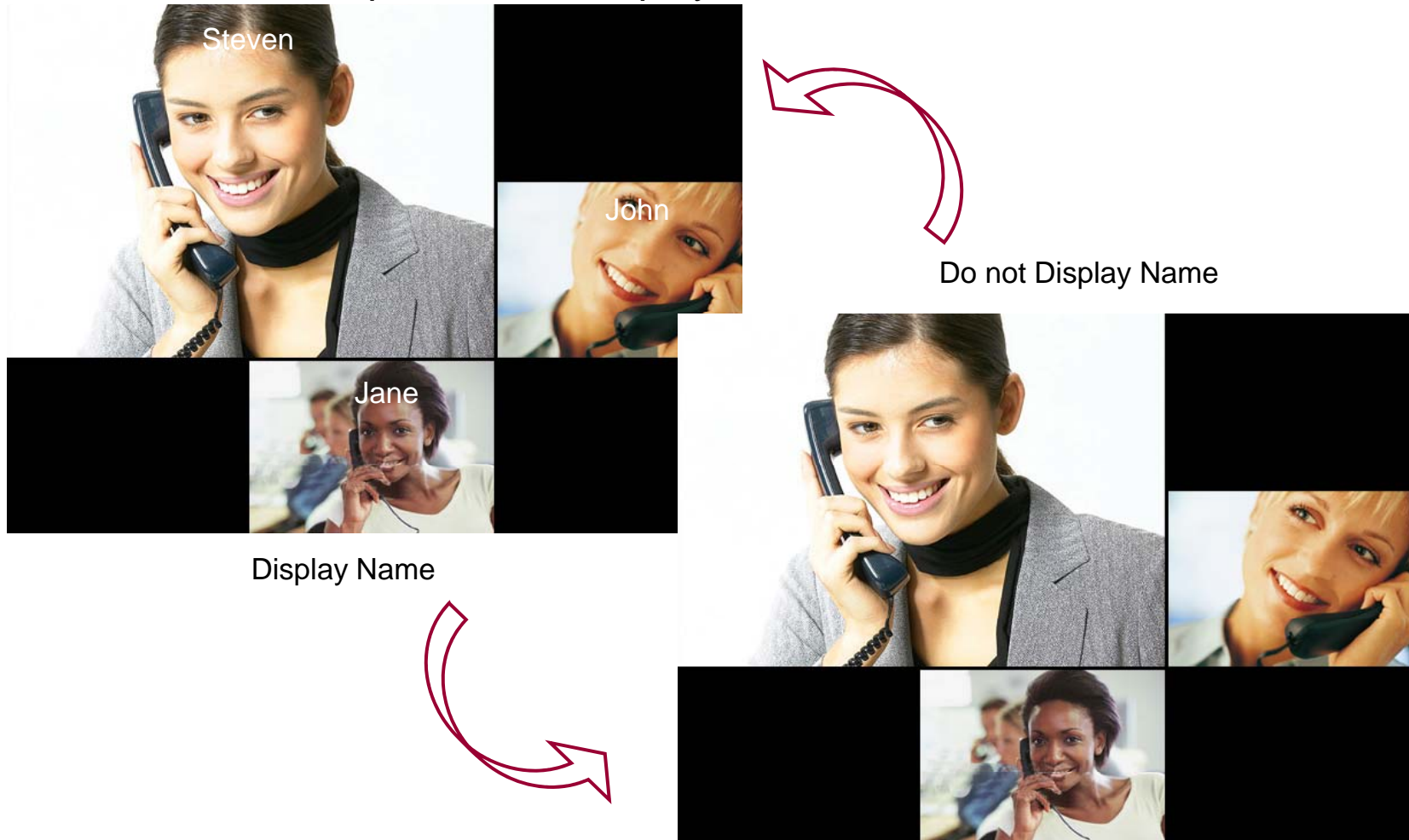
Floor To Full Screen

- Large view display mode : Floor Participant



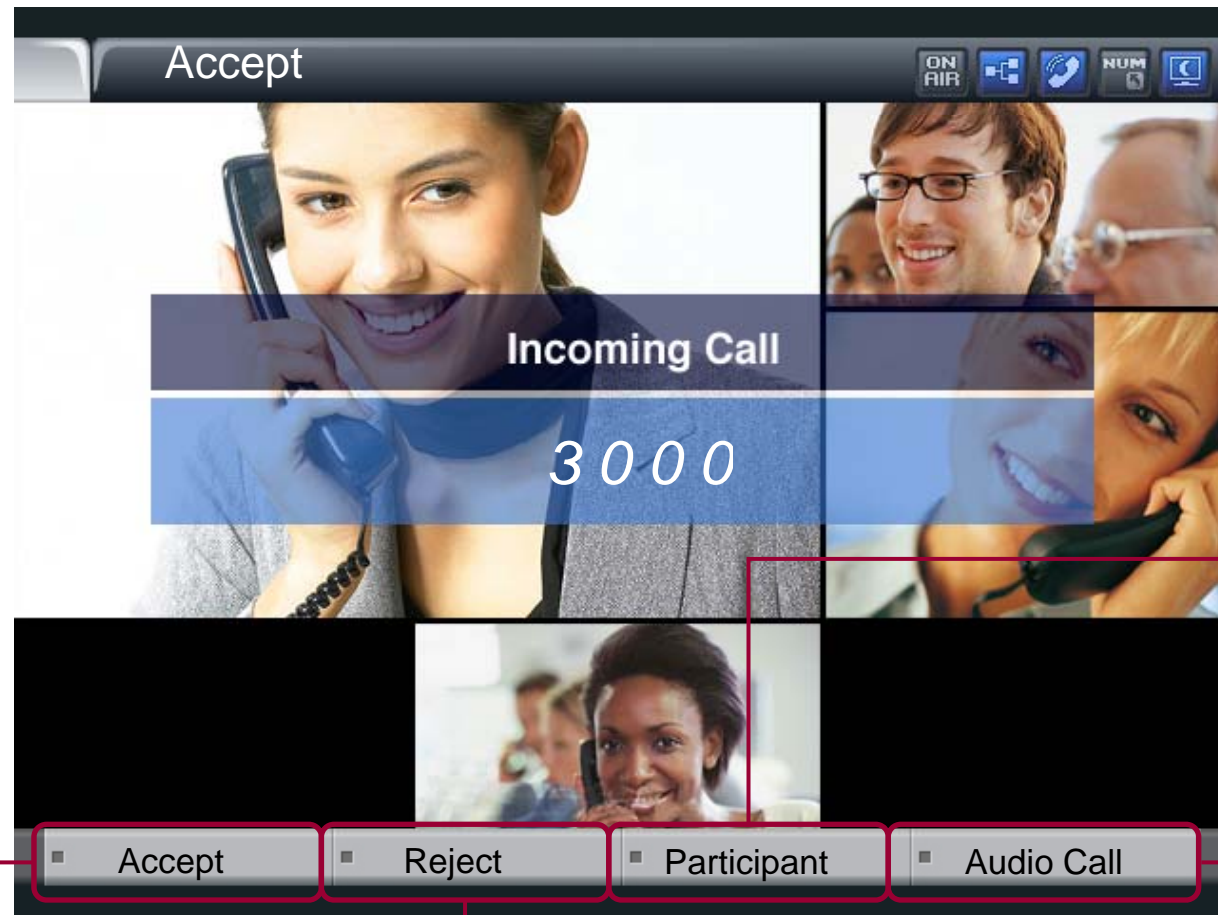
Display Name

- 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, media type icons (video and audio), and an audio/video enable status icon. A 'position' icon is also present. The bottom bar contains buttons for 'Assign Floor', 'Remove Party', 'Position', and 'more'.

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
[Icon]	Sally	3010	[Video/Audio]	[Status]	[Position]
[Icon]	Steven	3001	[Video/Audio]	[Status]	[Position]
[Icon]	Jane	3005	[Video/Audio]	[Status]	[Position]
[Icon]	John	3004	[Video/Audio]	[Status]	[Position]

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. At the top, there are status icons for 'ON AIR', a grid, a microphone, 'NUM', and a moon. The list contains four participants:

Name	ID	Status Icon
Sally	3010	Person icon
Steven	3001	Person with microphone icon
Jane	3005	Person icon
John	3004	Person icon

Annotations on the left side:

- 'Have a right of speaking' points to Steven's microphone icon.
- 'Don't have a right of speaking' points to Jane's person icon.
- 'Give Floor (Speaker) to Participant' points to the 'Assign Floor' button at the bottom.

The bottom navigation bar includes buttons for 'Assign Floor', 'Remove Party', 'Position', and 'more'. The 'Assign Floor' button is highlighted with a red box.

Remove Party

- Conference Call Disconnect of a Participant selected in List

Participant Select

Conference call disconnect of a participant selected



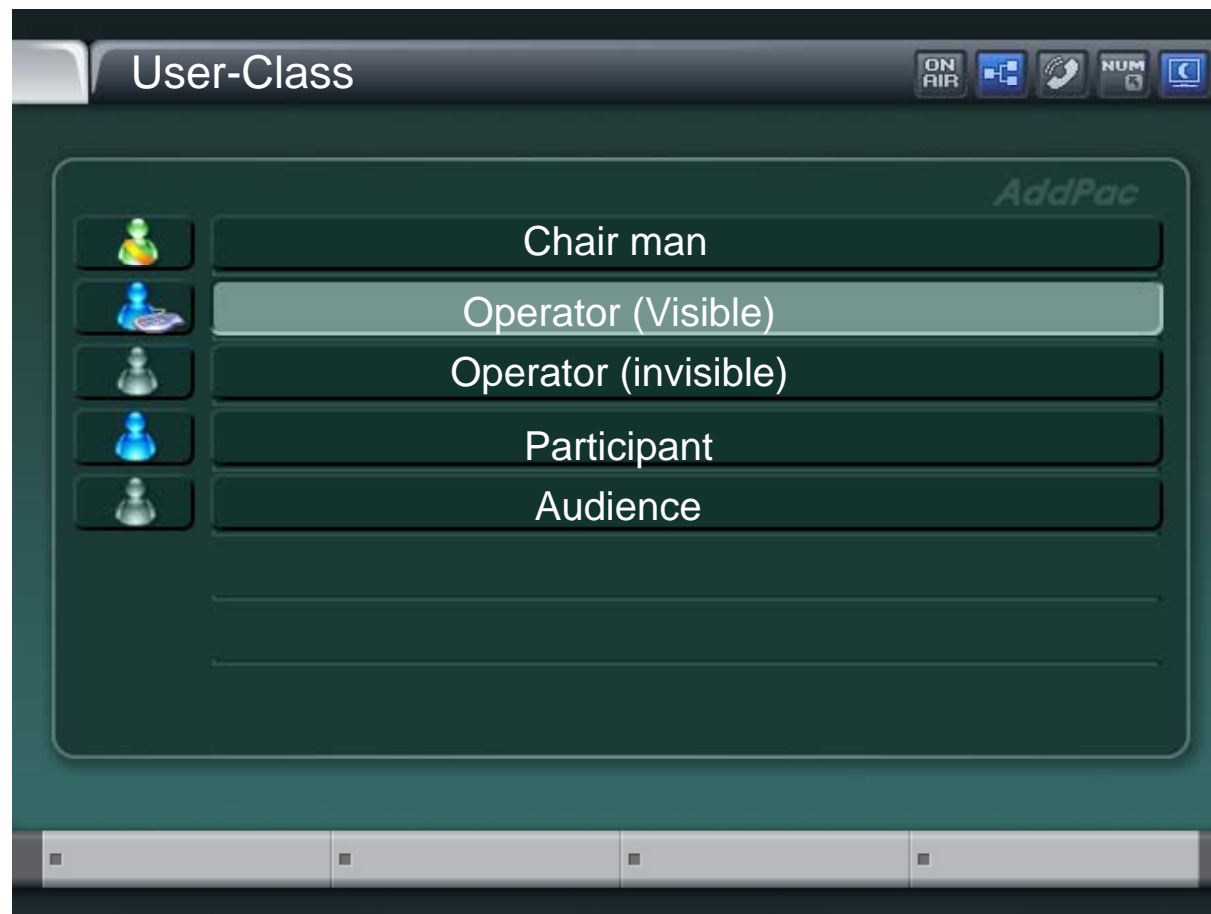
Position

- 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. At the top, there are icons for 'ON AIR', a grid, a phone, 'NUM', and a monitor. Below this is a table of participants with columns for a profile icon, name, ID, audio status, video status, and a grid icon. The audio status column contains a microphone icon with a red slash through it, indicating it is muted. The video status column contains a camera icon with a red slash through it, indicating it is muted. A red box highlights the audio and video icons for Steven and Jane. Below the table, there are buttons for 'User Class', 'Audio Enable', 'Video Mute', and 'more'. A red box highlights the 'Audio Enable' and 'Video Mute' buttons. Red lines connect the text labels to the corresponding icons and buttons.

Audio Mute/Enable

Video Mute/Enable

Participant List

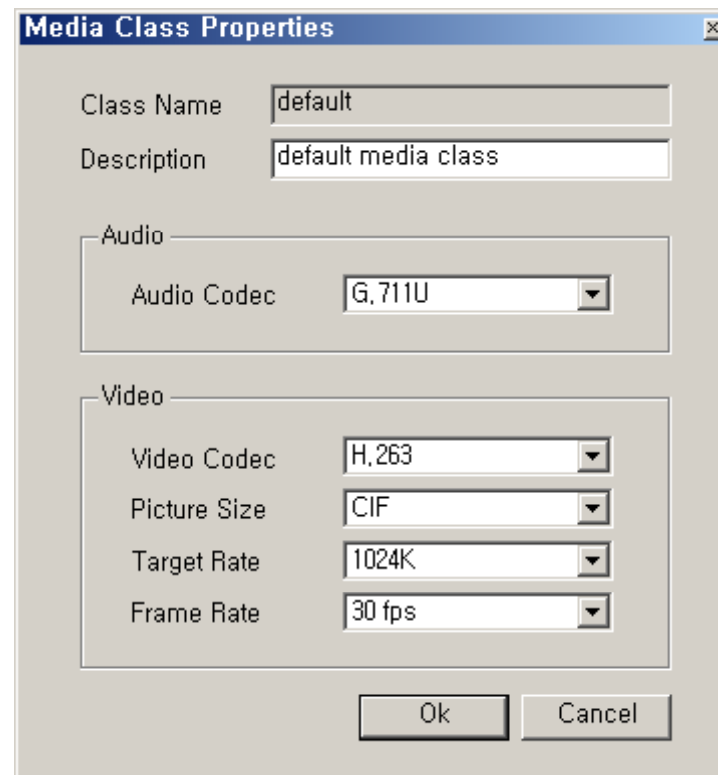
Profile Icon	Name	ID	Audio Icon	Video Icon	Grid Icon
	Sally	3010			
	Steven	3001			
	Jane	3005			
	John	3004			

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". It contains the following fields:

- 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

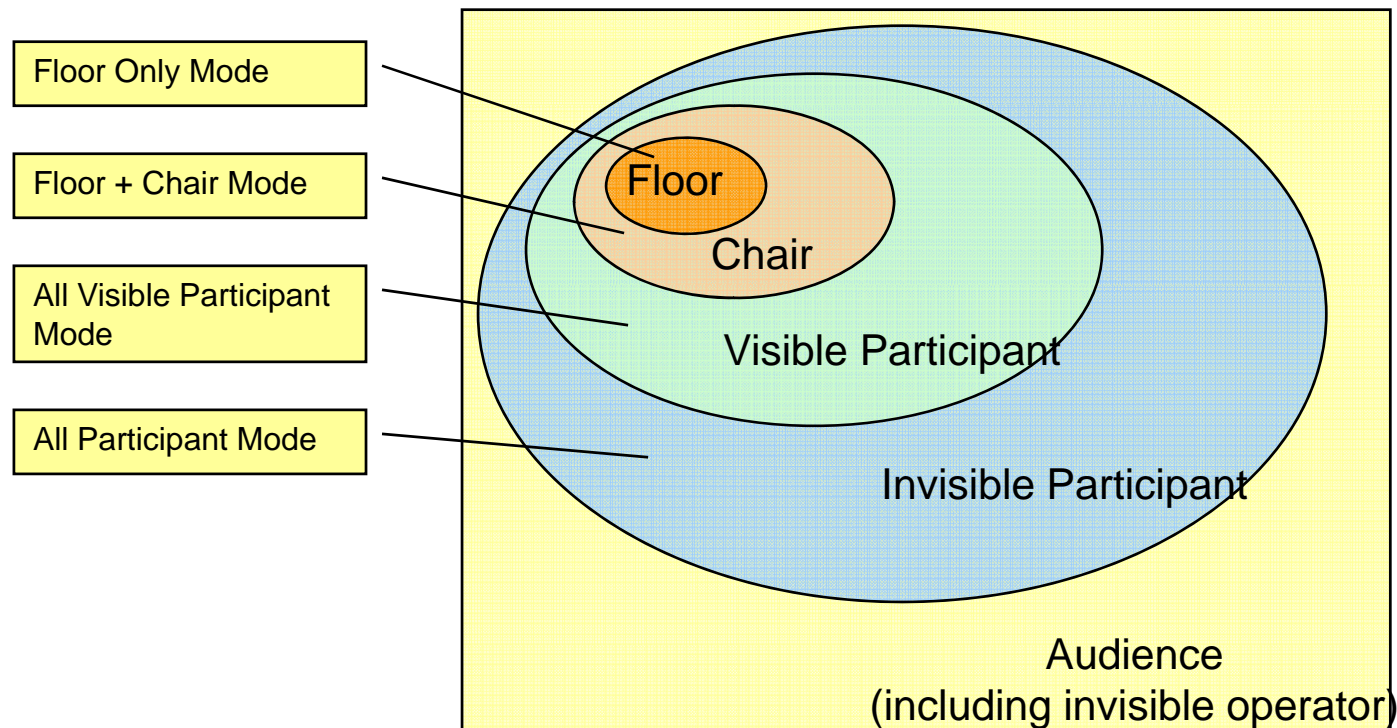
*Blue Box is newly implemented functions.

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.
- 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).
- Video Terminal**: Callout for the 'Video' tab, explaining: In case of Video Media type, select the video parameter of endpoint.

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' section expanded. The 'Terminal' tab is selected, showing 'Layout' options. The 'Video Layout Mode' is set to 'Auto(Asymmetric)' and 'Arrange Mode' is 'Dynamic'. The 'Video Layout' section shows a '3' in a dropdown and a small icon of three squares. The 'Floor to Full Screen' section has 'Symmetric' checked and 'Asymmetric' unchecked. The 'Floor Assign Mode' section has 'After Release' selected and 'On Request' unselected. The 'Display Participant Name' section has 'Layout' set to 'Top Left' and 'Size' set to 'Small'. The 'Color' section has 'Border Line' (black), 'Floor Line' (white), and 'Background Line' (blue) checked, and 'Background' (black) selected. Annotations in yellow boxes provide details for these settings.

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.

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

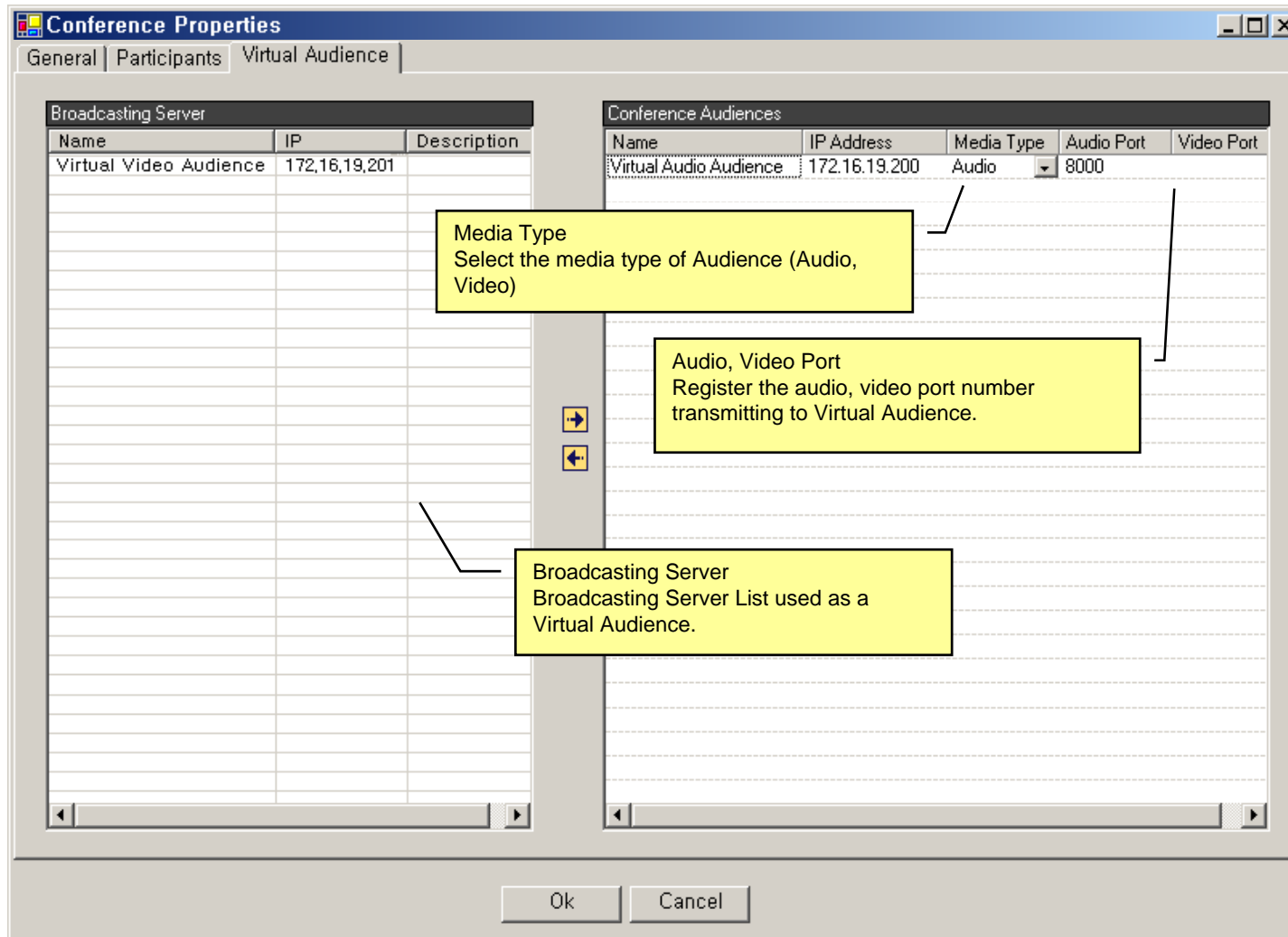
Media Class
Select a Media Class for a conference participant

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

Enter External Phone Number [] Add

Ok Cancel

New SMM Feature : Conference Room – Virtual Audience



New SMM Feature : Active Conference (1)

Smart Multimedia Manager - [Active Conferences - IPNext200_Slave]

File View Search Tools Window Help

AddPac Smart Multimedia Manager
AddPac Technology

172.17.250.250 172.16.31.13 172.16.31.2

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

Conference
Display the current conference room list

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			

Participants (n>AddPac Conference)
Display the participant list in conference room each

172.17.250.250 (Ok) 172.16.31.13 (Connect fail) 172.16.31.2 (Ok)

2007-10-18 오후 3:35:55 Version 3.0.2846 172.16.31.13:389 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. At the top, the title bar reads 'Smart Multimedia Manager - [Active Conferences - IPNext200_Slave]'. Below the title bar is a menu bar (File, View, Search, Tools, Window, Help) and a toolbar with various icons. The main area features the 'AddPac' logo and 'Smart Multimedia Manager' text.

A 'Conference' table is visible, showing details for a conference with ID 7002, status 'Running', and type 'Dial-Out'. Below this, a 'Participants' table lists four participants with their names, phone numbers, IP addresses, and status. The 'Participants' table has columns for Name, Phone Number, IP, Status, Audio, Video, Mic, Speaker, Floor, In Picture, and Res.

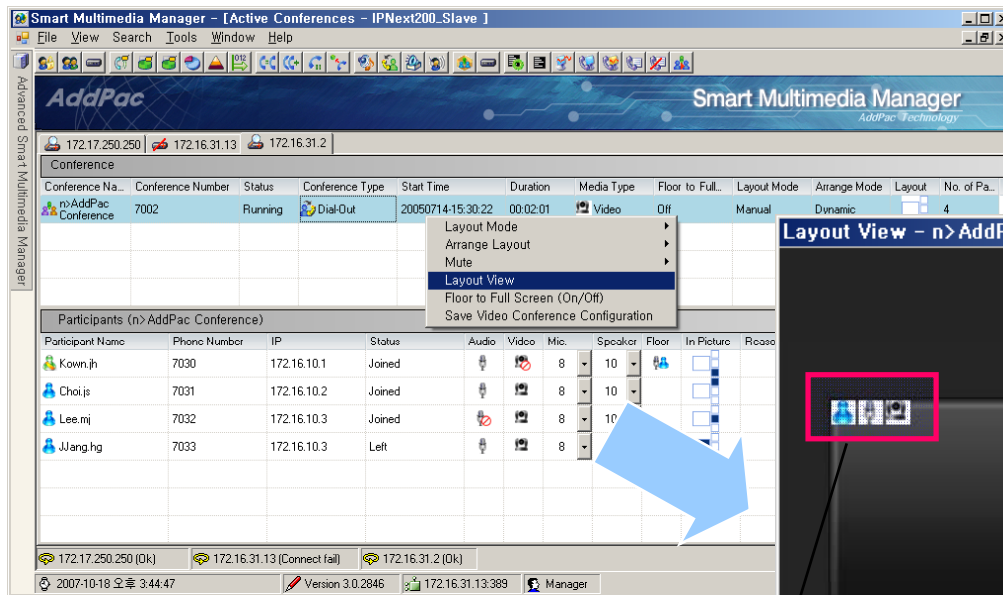
Key features and annotations:

- Conference Snapshot:** A panel on the left shows a real-time still image of a current video conference call. A yellow callout box explains: 'Conference Snapshot Display the real-time still image of a current video conference call'.
- Mic, Speaker Control:** A blue callout box points to the 'Mic' and 'Speaker' columns in the participants table, stating: 'Mic, Speaker Mic or Speaker Volume Control for a Conference participant'.
- Dynamic Parameter Setting:** A yellow callout box points to the 'Participants' table, stating: 'Participants Participant parameter setting is possible dynamically in current conference call'.

At the bottom, there are status indicators for three participants: '172.17.250.250 (Ok)', '172.16.31.13 (Connect fail)', and '172.16.31.2 (Ok)'. The system clock shows '2007-10-18 오후 3:38:57', the version is '3.0.2846', and the user is '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:

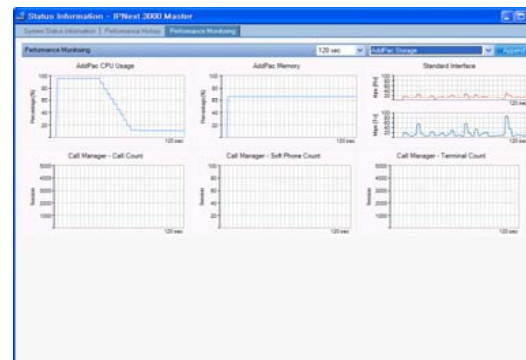
- Schedule Name:** Conference Schedule
- Description:** (empty field)
- Conference Room:** Dial
- Start Datetime:** 2007-10-18, 오후 4:00:45
- Duration:** (empty field) sec
- Schedule Recurrence:** (checked)
- Recurrence Options:**
 - Daily
 - Weekly
 - Recur every 1 2 3 4 5 week
 - Mon Tue Wed Thu
 -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

Callout boxes provide additional context for these fields:

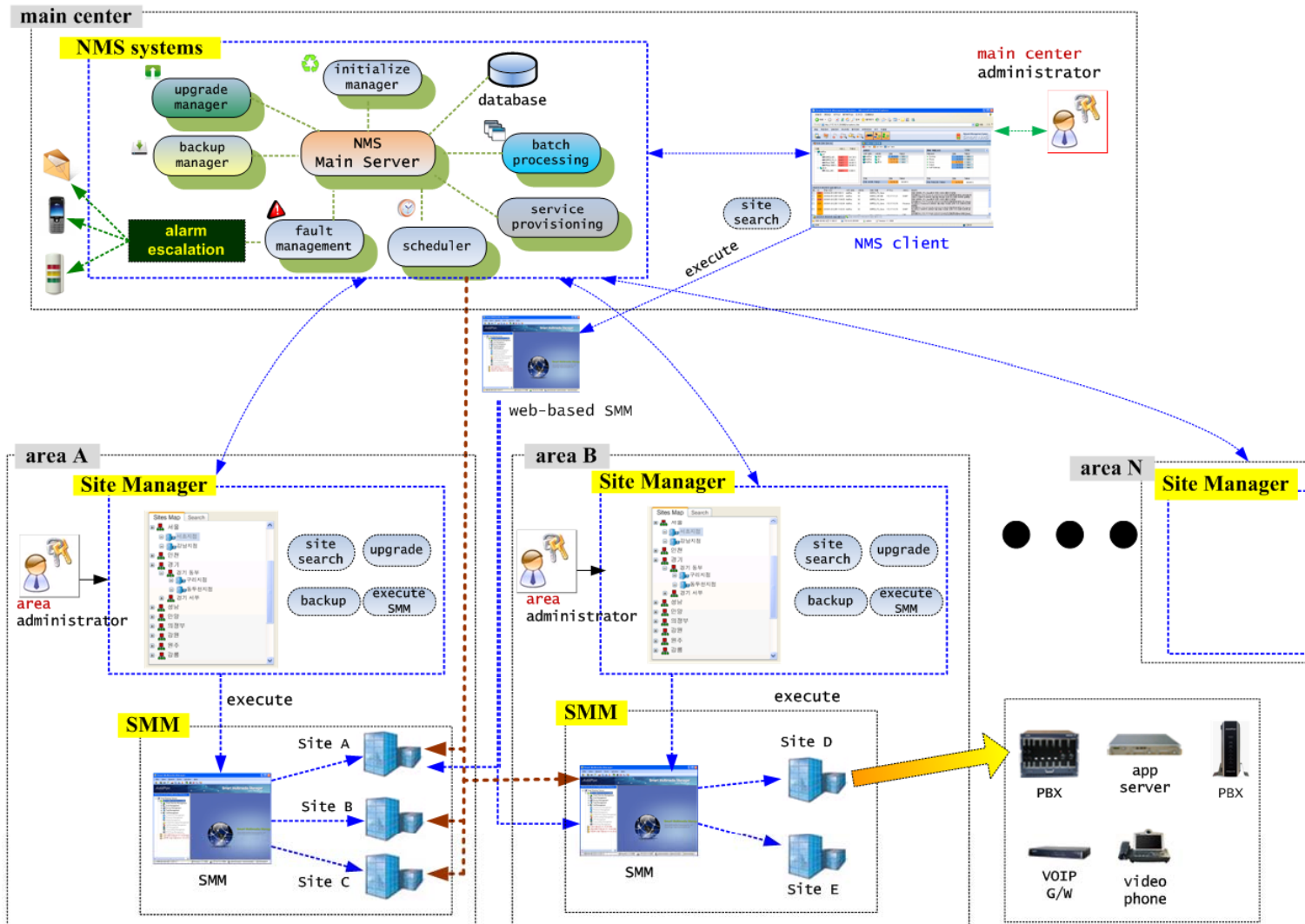
- Schedule Name, Description:** Conference Schedule Name and Explanation
- Conference Room:** Conference Room Setup
- Daily, Weekly, Monthly:** Set up Conference schedule
- Range Of Recurrence:** Schedule end-day setup
- Start Date time:** Schedule start day and time setup
- Duration:** Conference duration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

Buttons: Ok, Cancel

NMS for AddPac Secure IP Telephony Solution

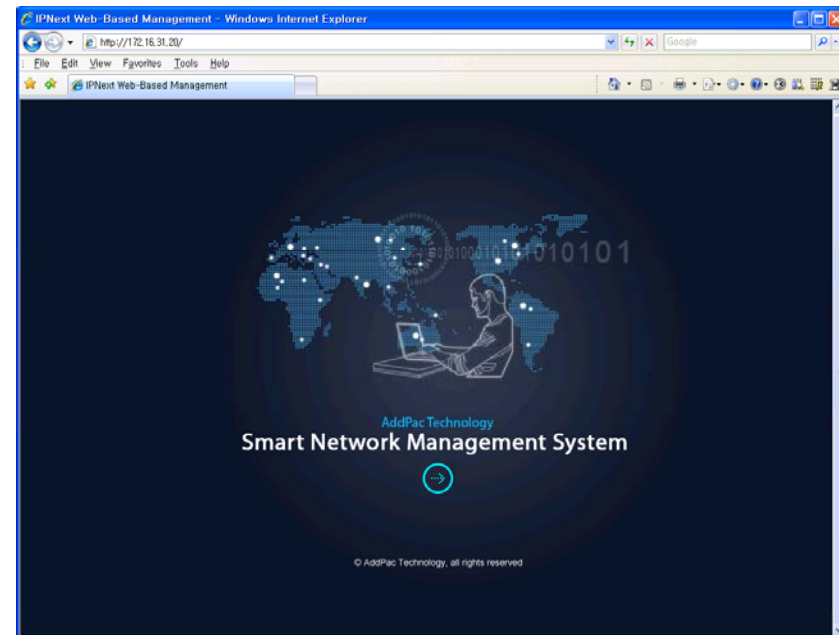


NMS System for Whole Site Management



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

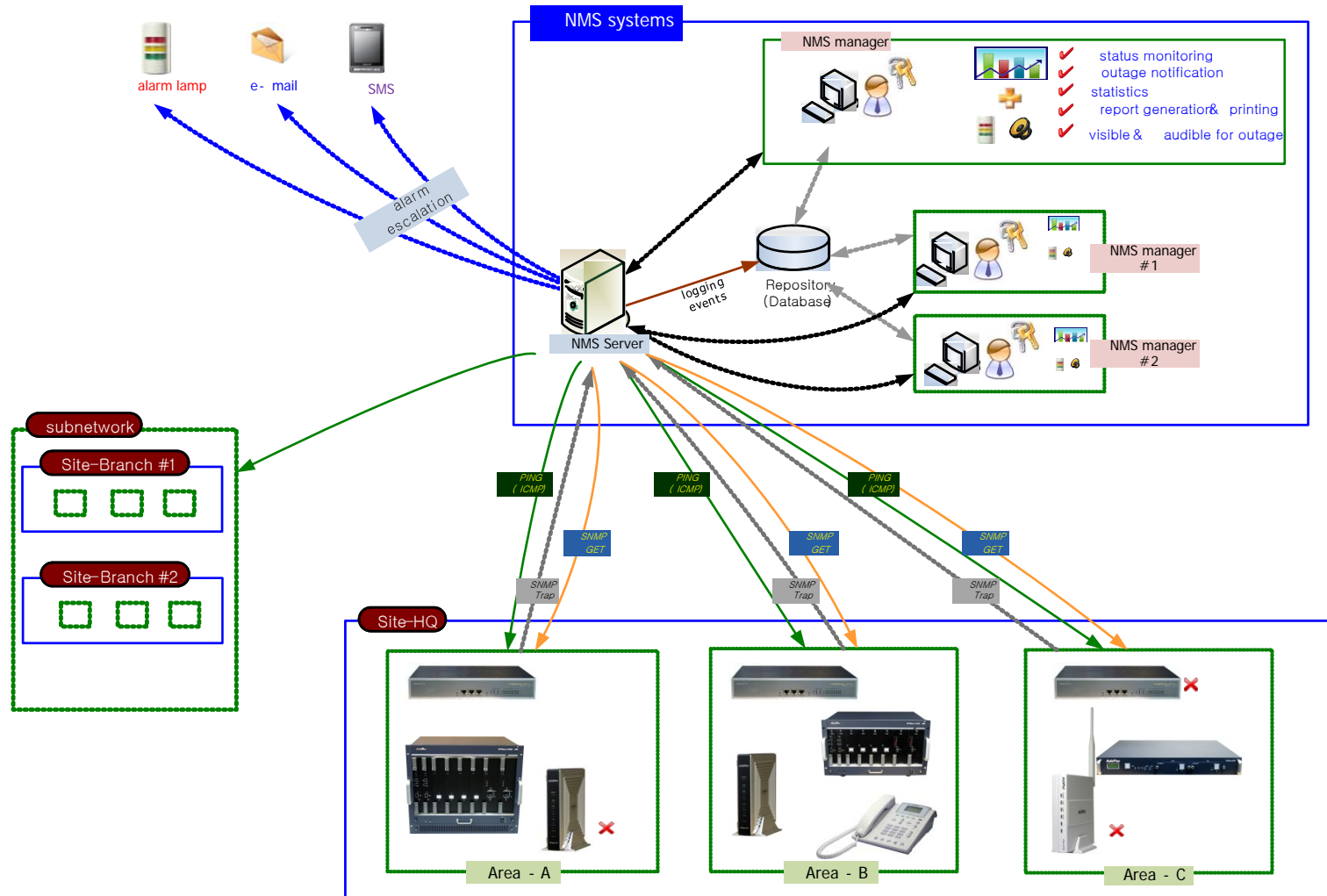
NMS Server

- 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".

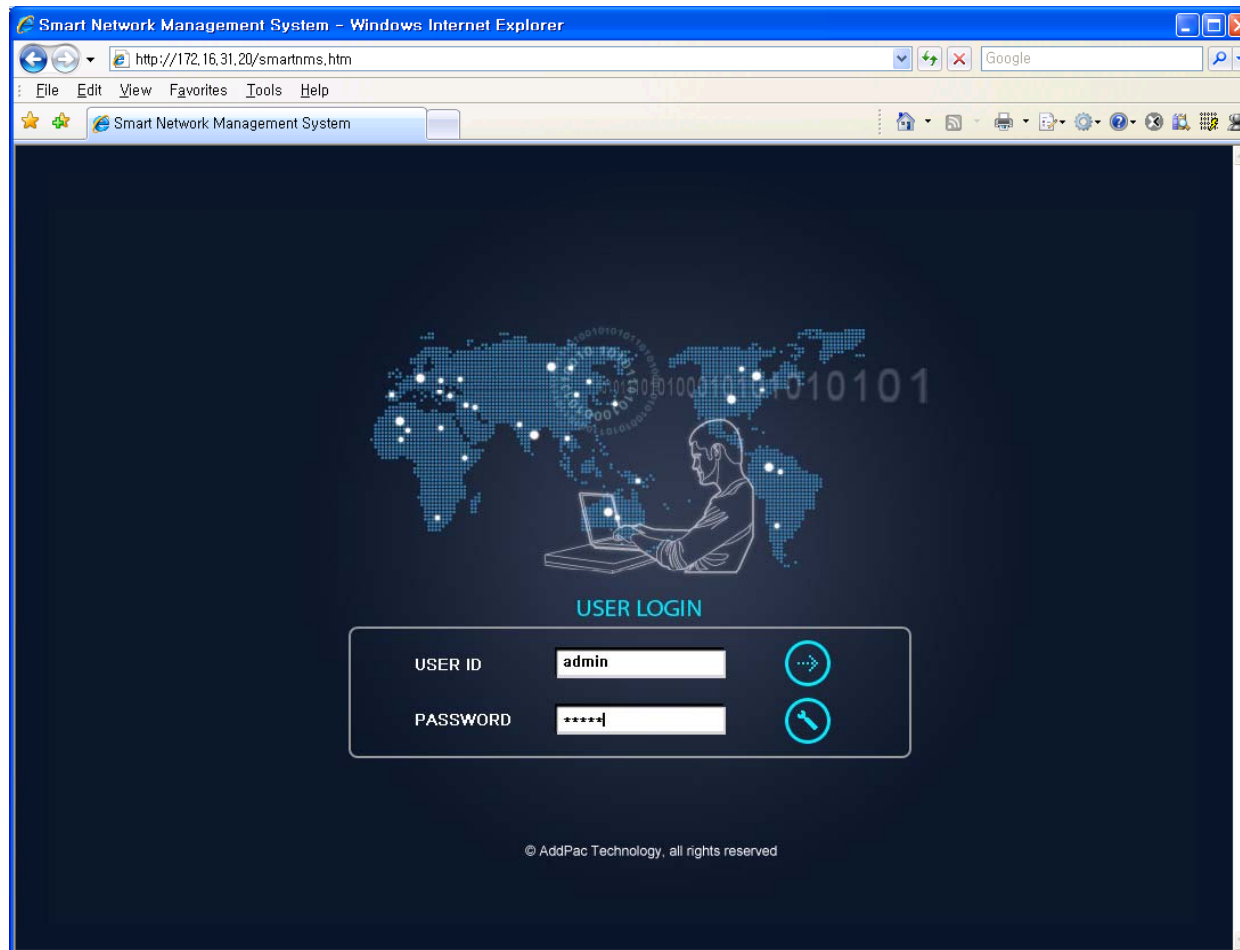
Two callout boxes highlight specific features:

- Automatic version check:** A yellow box with an arrow pointing to the top right of the main interface.
- New S/W version update:** A yellow box with an arrow pointing to the bottom right of the main interface.

Two Windows dialog boxes are overlaid on the interface:

- Launching Application:** A dialog box with a blue title bar and a close button. 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 with a blue title bar and standard window controls. It contains the text "Downloading installnms" and "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 include: "Name: installnms", "From: 172.16.31.20", and "Downloading: 6.29 MB of 10.1 MB". A "Cancel" button is at the bottom right.

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 organization of network resources, including sites like 'Seoul' and 'GangNamGu'. The main area shows a table of categories with columns for 'Category Name' and 'Description'. A context menu is open over the tree, highlighting 'Execute SMM'. A 'User Properties' dialog is also open, showing a selection of hierarchical nodes.

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

Annotations:

- manage the complex network with a structured, hierarchical form
- can assign the hierarchical node to the operator and manage role-based policy
- can cooperate with the application executables such as SMM

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)

Name	Service...	Availability
AddPac		
Branch AQ		
NMS Camera	6 of 12	46.937 %
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	32.740 %
IPNext 3000 ...	1 of 3	90.608 %
IPNext 3000 S...	1 of 3	90.623 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
UMS server(o...	3 of 3	0.000 %
Subnetwork #2		
Center		
NMS_SOHO_2...	2 of 2	98.115 %

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

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 Availability	Outages	Availability
Overall Availability	30 / 11 / 34	78.650 %

Overall Categories Availability	Outages	Availability
Overall Categories Availability	30 / 11 / 34	61.282 %

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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/smartnms.htm

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Current Outage Devices (12) | Service Outages | Device Monitoring - <All>

View Mode: Large Small 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

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 %

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_NR_server	172.17.111.21	SNMP	인터페이스 172.17.111.21 (172.17.111.21)의 장비명(00_NR_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 interface in a Windows Internet Explorer browser. The main content area shows a 'Device Monitoring' view with a grid of device icons. Each icon represents a device and includes a status indicator (green for healthy, red for faulted). A red box highlights a section of the grid, with a red arrow pointing to it and the text 'device status matrix with small view mode'.

Below the device grid, there is a table of 'Your Outstanding Notices (18)'. The table has columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

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

The status bar at the bottom shows the current date and time as 4/13/2009 3:14:58 PM, the IP address 172.16.31.20:5101, the user admin, and the 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 content area 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.

daily fault event summary statistics information

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

detail fault event history list up with filter condition (advanced search)

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.	4/10/2009 5:35:25 PM
<input type="checkbox"/>	9526	4/10/2009 5:33:42 PM	/AddPac/Branch GX	00_NR_server	172.17.11.11			4/10/2009 5:22:43 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	00_NR_server	172.17.11.11			4/10/2009 5:17:56 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX	00_NR_server	172.17.11.11			4/10/2009 4:03:13 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 4:03:14 PM
<input type="checkbox"/>	9517	4/10/2009 3:36:08 PM	/AddPac/HeadQuarter	company_MCU_s...				4/10/2009 4:03:13 PM
<input type="checkbox"/>	9516	4/10/2009 3:36:00 PM	/AddPac/Branch GX	00_PS_Slave_ser...				4/10/2009 4:02:54 PM
<input type="checkbox"/>	9514	4/10/2009 3:35:50 PM	/AddPac/Branch GX	00_PS_server				4/10/2009 4:02:43 PM
<input type="checkbox"/>	9513	4/10/2009 3:35:41 PM	/AddPac/HeadQuarter	5th floor meeting room phone device				4/10/2009 4:02:44 PM
<input type="checkbox"/>	9512	4/10/2009 3:35:41 PM	/AddPac/HeadQuarter	IP_PBX_Master (our company)				4/10/2009 4:02:43 PM
<input type="checkbox"/>	9511	4/10/2009 3:35:33 PM	/AddPac/Branch KT	172.16.51.12				

Results: 1 to 20 of 6701 | Search Constraints: user=admin

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. A red box highlights the 'Current Outage Devices' table, with an annotation: "Display the current all device faults".

Name	Service...	Availability	Outage ID	Site	Device Name	IP Address	Service	Time Down
AddPac			13968	/AddPac/Branch GX	00_RBT_server	172.17.114.60	Media	4/10/2009 9:26:04 PM
Branch AQ			13967	/AddPac/Branch GX	00_RBT_server	172.17.114.60	Media	4/10/2009 9:26:04 PM
NMS Camera	6 of 12	50.000 %	13966	/AddPac/Branch GX	00_RBT_server	172.17.114.60	SNMP	4/10/2009 9:26:04 PM
NMS_IP_PBX...	3 of 3	0.000 %	13948	/AddPac/HeadQuarter	5th floor meeting room p...	172.16.53.101	ICMP	4/10/2009 5:34:10 PM
Branch GX			13907	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	ICMP	4/10/2009 3:34:29 PM
00_IVR_server	3 of 3	0.000 %	13906	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	4/10/2009 3:34:29 PM
00_IVR_slave...	3 of 3	0.000 %	13896	/AddPac/Branch GX	IPNext 3000 Slave			
00_PS_server	3 of 3	0.000 %	13895	/AddPac/Branch GX	IPNext 3000 Master			
00_PS_slave...	2 of 3	33.333 %	13802	/AddPac/Branch GX	00_IVR_server			
00_RBT_server	3 of 3	0.000 %	13801	/AddPac/Branch GX	00_IVR_server			
IPNext 3000 ...	1 of 3	66.667 %	13800	/AddPac/Branch GX	00_IVR_server			
IPNext 3000 S...	1 of 3	66.667 %	13773	/AddPac/Branch AQ	NMS_IP_PBX_31.13			
UMS slave	3 of 3	0.000 %	13772	/AddPac/Branch AQ	NMS_IP_PBX_31.13			
UMS slave	3 of 3	0.000 %	13771	/AddPac/Branch AQ	NMS_IP_PBX_31.13			
HeadQuarter			13611	/AddPac/Branch AQ	NMS Camera			
5th floor meeti...	1 of 1	0.000 %	13610	/AddPac/Branch AQ	NMS Camera			
UMS serverfo...	3 of 3	0.000 %	13609	/AddPac/Branch AQ	NMS Camera			
Subnetwork #2			13608	/AddPac/Branch AQ	NMS Camera			
Center			13607	/AddPac/Branch AQ	NMS Camera			
NMS_SOHO_...	2 of 2	0.000 %	13606	/AddPac/Branch AQ	NMS Camera			
			9021	/AddPac/Branch GX	UMS slave			
			9020	/AddPac/Branch GX	UMS slave			
			9019	/AddPac/Branch GX	UMS slave			
			6489	/AddPac/Branch GX	00_PS_server			

An 'Event Detail (ID: 45412)' dialog box is open, 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.

Below the description is a 'Troubleshooting Note List' table with columns for Time, User, Status, and Note.

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

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 provides a daily overview of event statistics.

Event Time	Outlets	Ackno...	Not Clea...	Cleared	In Pr...
2009-04-13	40	0	40	0	0
2009-04-12	6	0	6	0	0
2009-04-11	314	0	314	0	0
2009-04-10	182	0	182	0	0
2009-04-09	290	0	290	0	0
2009-04-08	412	0	412	0	0
2009-04-07	448	0	448	0	0
2009-04-06	1453	0	1453	0	0
2009-04-05	1704	0	1704	0	0
2009-04-04	1712	0	1712	0	0
2009-04-03	1276	0	1276	0	0
2009-04-02	799	0	799	0	0
2009-04-01	271	0	271	0	0
2009-03-31	277	0	277	0	0
2009-03-30	212	0	212	0	0
2009-03-29	17	0	17	0	0
2009-03-28	2	0	2	0	0
2009-03-27	108	0	108	0	0
2009-03-26	292	0	292	0	0
2009-03-25	46	0	46	0	0
2009-03-24	121	0	121	0	0
2009-03-23	1904	0	1904	0	0
2009-03-22	2643	0	2643	0	0
2009-03-21	354	0	354	0	0
2009-03-20	172	0	172	0	0
2009-03-19	1	0	1	0	0
2009-03-18	1294	0	1294	0	0
2009-03-17	788	0	788	0	0
2009-03-16	14	0	14	0	0
2009-03-15	3	0	3	0	0
- Event List Table:** A detailed table on the right shows individual events with columns for Ack, ID, Severity, Event Time, Site, Device Name, IP Address, Service, and Message.

Ack	ID	Severity	Event Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	45786	Critical	4/13/2009 11:24:42 AM	/AddPac/Branch GX	SE_MG3000N_A	172.17.111.25		Agent Up with enterprise: 1.3.6.1.4.1.4855.3.2.255 [1.3.6.1.4.1.4855.3.2.255] args [1.3.6.1.6.3.1.1.4.3.0="1.3.6.1.4.1.4855.3.2.255"
<input type="checkbox"/>	45785	Cleared	4/13/2009 11:15:59 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21	SNMP	SNMP data collection on interface 172.17.111.21 previously failed and has been restored.
<input type="checkbox"/>	45784	Cleared	4/13/2009 11:15:52 AM	/AddPac/Branch GX	00_NR_server			Node 00_NR_server is up.
<input type="checkbox"/>	45783	Critical	4/13/2009 11:15:51 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21		Agent Up with Possible Changes (coldStart Trap) enterprise: 1.3.6.1.4.1.4855.3.2.10 [1.3.6.1.4.1.4855.3.2.10] args [1.3.6.1.6.3.1.1.4.3.0="1.3.6.1.4.1.4855.3.2.10"
<input type="checkbox"/>	45782	Critical	4/13/2009 11:15:13 AM	/AddPac/Branch GX	00_NR_server			Node 00_NR_server is down.
<input type="checkbox"/>	45781	Warning	4/13/2009 11:14:57 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21	SNMP	SNMP data collection on interface 172.17.111.21 failed.
<input type="checkbox"/>	45780	Warning	4/13/2009 10:00:15 AM	/AddPac/Branch AQ	NMS_IP_PBX_31...	172.16.31.13	SNMP	SNMP thresholding on interface 172.16.31.13 failed.
<input type="checkbox"/>	45779	Warning	4/13/2009 10:00:15 AM	/Subnetwork #2/Center	NMS_IP_PBX_31...	172.16.31.16	SNMP	SNMP thresholding on interface 172.16.31.16 failed.
<input type="checkbox"/>	45778	Warning	4/13/2009 9:59:51 AM	/AddPac/Branch GX	UMS slave	172.17.113.201	SNMP	SNMP data collection on interface 172.17.113.201 failed.
<input type="checkbox"/>	45777	Warning	4/13/2009 9:59:46 AM	/AddPac/Branch GX	UMS slave	172.17.113.201	SNMP	SNMP data collection on interface 172.17.113.201 failed.
<input type="checkbox"/>	45776	Warning	4/13/2009 9:59:42 AM	/AddPac/HeadQuarter	UMS server(our co...	61.33.161.43	SNMP	SNMP data collection on interface 61.33.161.43 failed.
<input type="checkbox"/>	45775	Warning	4/13/2009 9:59:41 AM	/AddPac/HeadQuarter	UMS server(our co...	61.33.161.43	SNMP	SNMP data collection on interface 61.33.161.43 failed.
<input type="checkbox"/>	45774	Warning	4/13/2009 9:59:36 AM	/Subnetwork #2/Center	NMS_SDHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
<input type="checkbox"/>	45773	Warning	4/13/2009 9:59:33 AM	/Subnetwork #2/Center	NMS_SDHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
<input type="checkbox"/>	45772	Warning	4/13/2009 9:59:32 AM	/Subnetwork #2/Center	NMS_SDHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
<input type="checkbox"/>	45771	Warning	4/13/2009 9:59:27 AM	/Subnetwork #2/Center	NMS_SDHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
<input type="checkbox"/>	45770	Warning	4/13/2009 9:59:24 AM	/Subnetwork #2/Center	NMS_SDHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
<input type="checkbox"/>	45769	Warning	4/13/2009 9:59:23 AM	/Subnetwork #2/Center	NMS_SDHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
<input type="checkbox"/>	45768	Warning	4/13/2009 9:59:18 AM	/AddPac/Branch AQ	NMS_IP_PBX_31...	172.16.31.13	SNMP	SNMP data collection on interface 172.16.31.13 failed.
<input type="checkbox"/>	45767	Warning	4/13/2009 9:59:15 AM	/AddPac/Branch AQ	NMS_IP_PBX_31...	172.16.31.13	SNMP	SNMP data collection on interface 172.16.31.13 failed.
- Outstanding Notices Table:** A table at the bottom shows outstanding notices with columns for ID, Site, Device Name, IP Address, Service, and Message.

ID	Site	Device Name	IP Address	Service	Message
9502	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
9501	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
9495	/Subnetwork #2/Center	NMS_SDHO_PBX			device NMS_SDHO_PBX, all services are down
9494	/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	/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	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
9396	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
9239	/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

Can view all events for devices with search condition

summarize daily event statistics data

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](#)

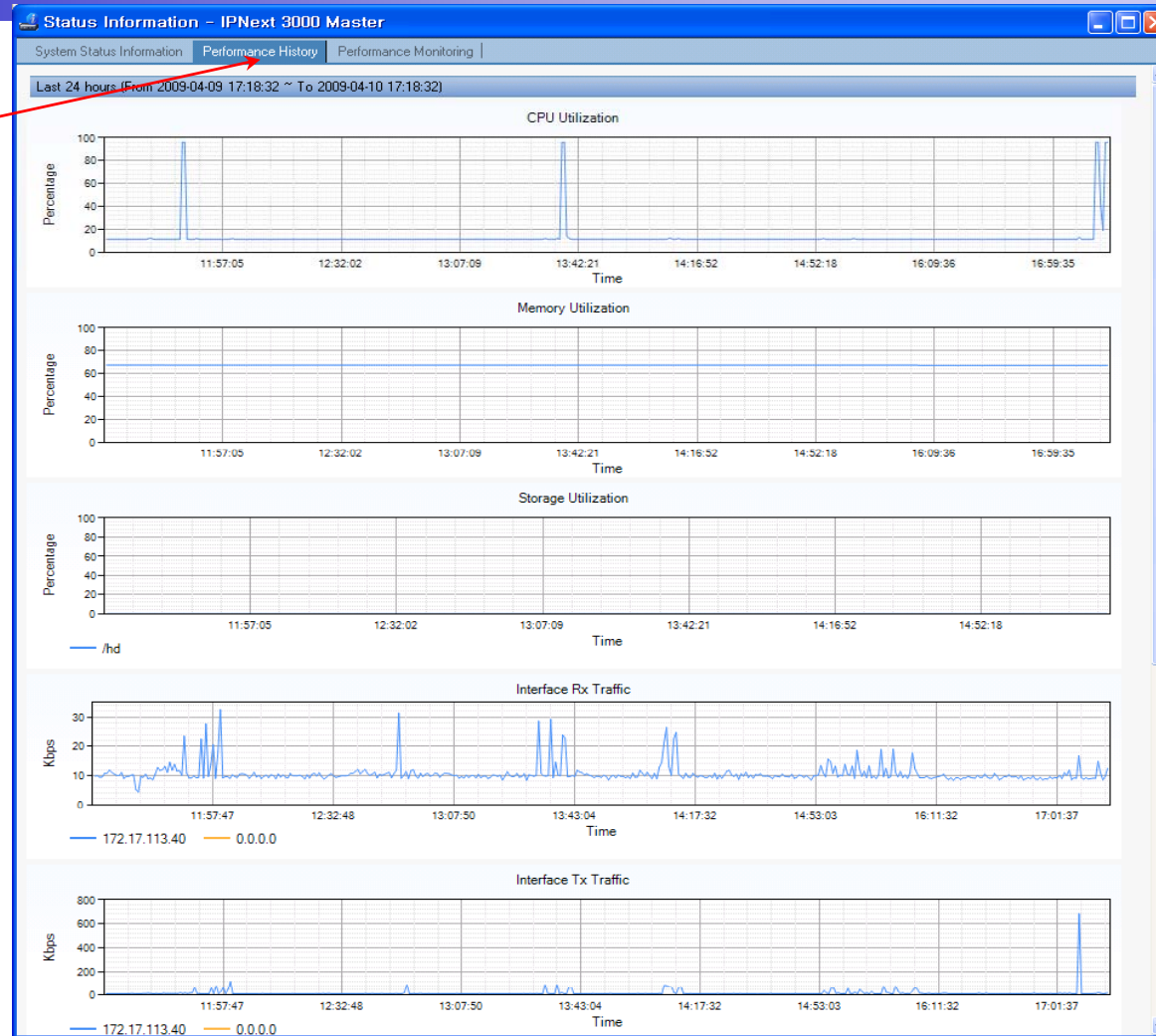
Interface / Service Name	Status	Availability
✓ Call Manager	● down	76.001%
✓ 172.17.113.40		
✓ ICMP	● up	97.743%
✓ SNMP	● up	97.743%
Overall Availability		90.496%

Service Monitor Status

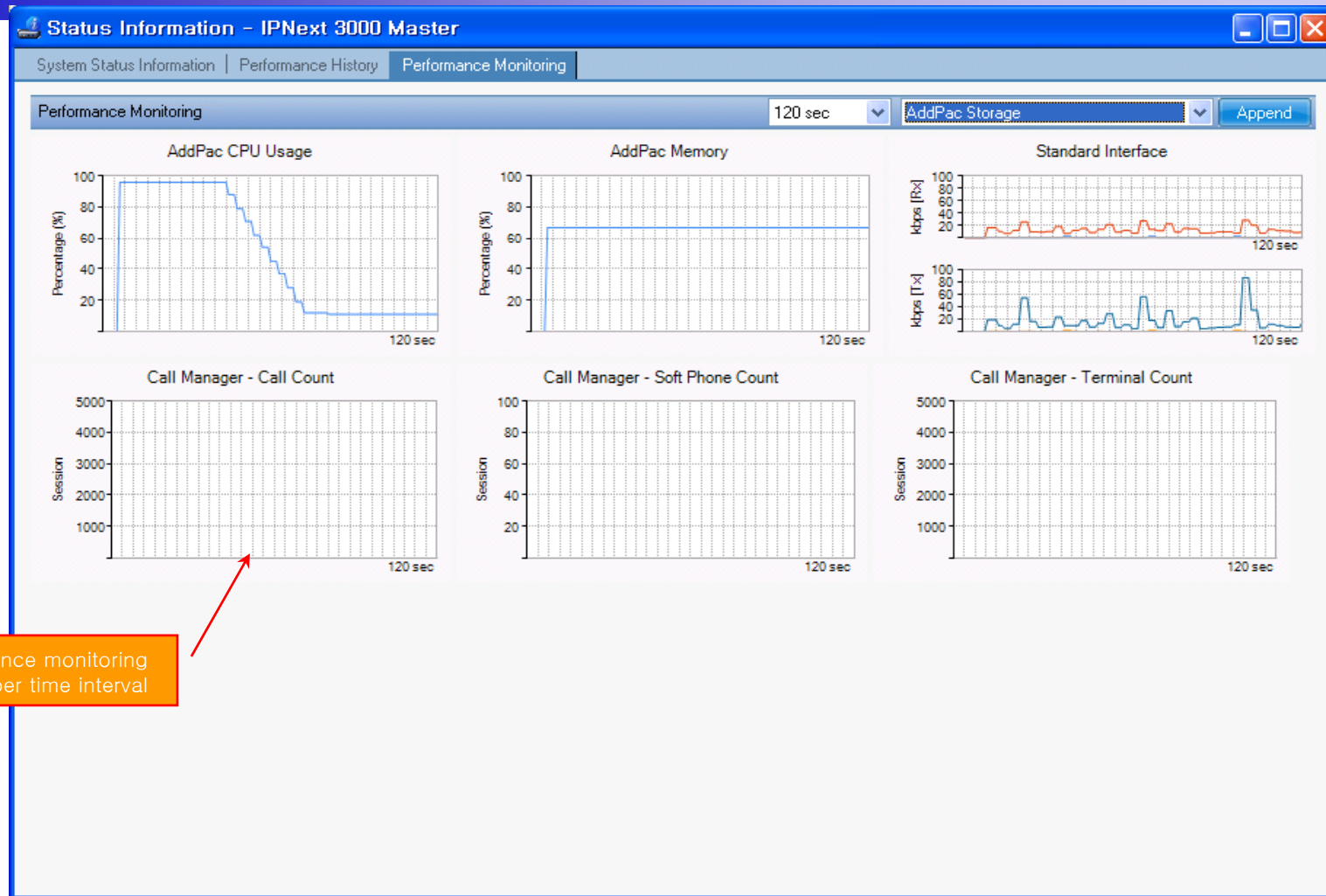
Service	Maximum	Value	Used
CM Service			
Call Manager - Call Count	5000	0	0%
Call Manager - Soft Phone Count	100	0	0%
Call Manager - Terminal Count	5000	7	0%

Device Status Information

performance analysis graph for last 24 hours



Device Status Information



performance monitoring with proper time interval

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. The dialog box is configured for a 'serviceUnresponsive' event, with a description, destination path, notification type (sms, alarmLamp, email), and a filter rule 'IPADDR IPLIKE ****'. The 'Apply Category' section is checked for Desktop, Network Camera, Phone, Server, and Switch. The 'Email Subject' and 'Text Message' fields are populated with dynamic variables and a detailed description of the event.

Event Notification Properties Dialog:

- 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.

Event Notification Table:

Notification Name	Event	Destination Path	Description
serviceUnresponsive	Node event: serviceUnresponsive	NMS Admin	test
serviceResponsive	Node event: serviceResponsive	NMS Admin	
interfaceDown	Node event: interfaceDown	NMS Admin	
nodeDown	Node event: nodeDown	NMS Admin	
interfaceUp	Node event: interfaceUp	NMS Admin	
nodeUp	Node event: nodeUp	NMS Admin	
nodeLostService	Node event: nodeLostService	NMS Admin	
nodeRegainedService	Node event: nodeRegainedService	NMS Admin	
coldStart	SNMP Cold Start	NMS Admin	
warmStart	SNMP Trap: SNMP Warm Start	NMS Admin	
authenticationFailure	SNMP Trap: SNMP Authn Failure	NMS Admin	
serviceDeleted	Node event: serviceDeleted	NMS Admin	
nodeAdded	Node event: nodeAdded	NMS Admin	
nodeInfoChanged	Node event: nodeInfoChanged	NMS Admin	
interfaceDeleted	Node event: interfaceDeleted	NMS Admin	
High Threshold	highThresholdExceeded	NMS Admin	
Low Threshold	lowThresholdExceeded	NMS Admin	
Low Threshold Rearmed	lowThresholdRearmed	NMS Admin	
High Threshold Rearmed	highThresholdRearmed	NMS Admin	

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...	
<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		

apply notification policy with event-based filter (example : notify me when network link of device is down through SMS, e-mail)

specify category when each event occurs

describe notification message content for e-mail or SMS

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 Target' dropdown set to '0m', and a table for defining notification channels. A red callout box points to the 'email' and 'sms' options in this table, with the text: "define notification channel such as e-mail, sms, or alarmlamp".

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

Below the dialog, the 'Your Outstanding Notices (18)' table is visible, showing a list of events with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

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

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of network devices and their availability. Two dialog boxes are open: 'Destination Path Properties' and 'Target Properties'.

Destination Path Properties Dialog:

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

Target Properties Dialog:

- Choose the notification type: sms
- Target Information: alarmLamp (selected), email
- Send to select user: Account Administrator (selected)
- Send to Email or Mobile: (empty)
- Mobile Number: (empty)
- Choose the desired behavior for automatic notification on responded events: on

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

Your Outstanding Notices (18) Table:

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

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 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

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 main content area shows a search condition filter set to 'Hour' for '4/ 9/2009' and 'Site' set to 'Branch A, Branch AQ, B'. Below this is a bar chart titled 'Fault Statistics (Site)' showing fault counts over time for various sites. A legend on the right identifies 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 across different times of the day. At the bottom, there is a section for 'Your Outstanding Notices (18)' with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

Event Summary Table:

Event Time	Outsta...	Ackno...	Not Cloa...	Cleared	In Pr
2009-04-13	40	0	40	0	0
2009-04-12	6	0	6	0	0
2009-04-11	314	0	314	0	0
2009-04-10	182	0	182	0	0
2009-04-09	290	0	290	0	0
2009-04-08	412	0	412	0	0
2009-04-07	448	0	448	0	0
2009-04-06	1453	0	1453	0	0
2009-04-05	1704	0	1704	0	0
2009-04-04	1712	0	1712	0	0

Fault Statistics (Site) - 4/9/2009

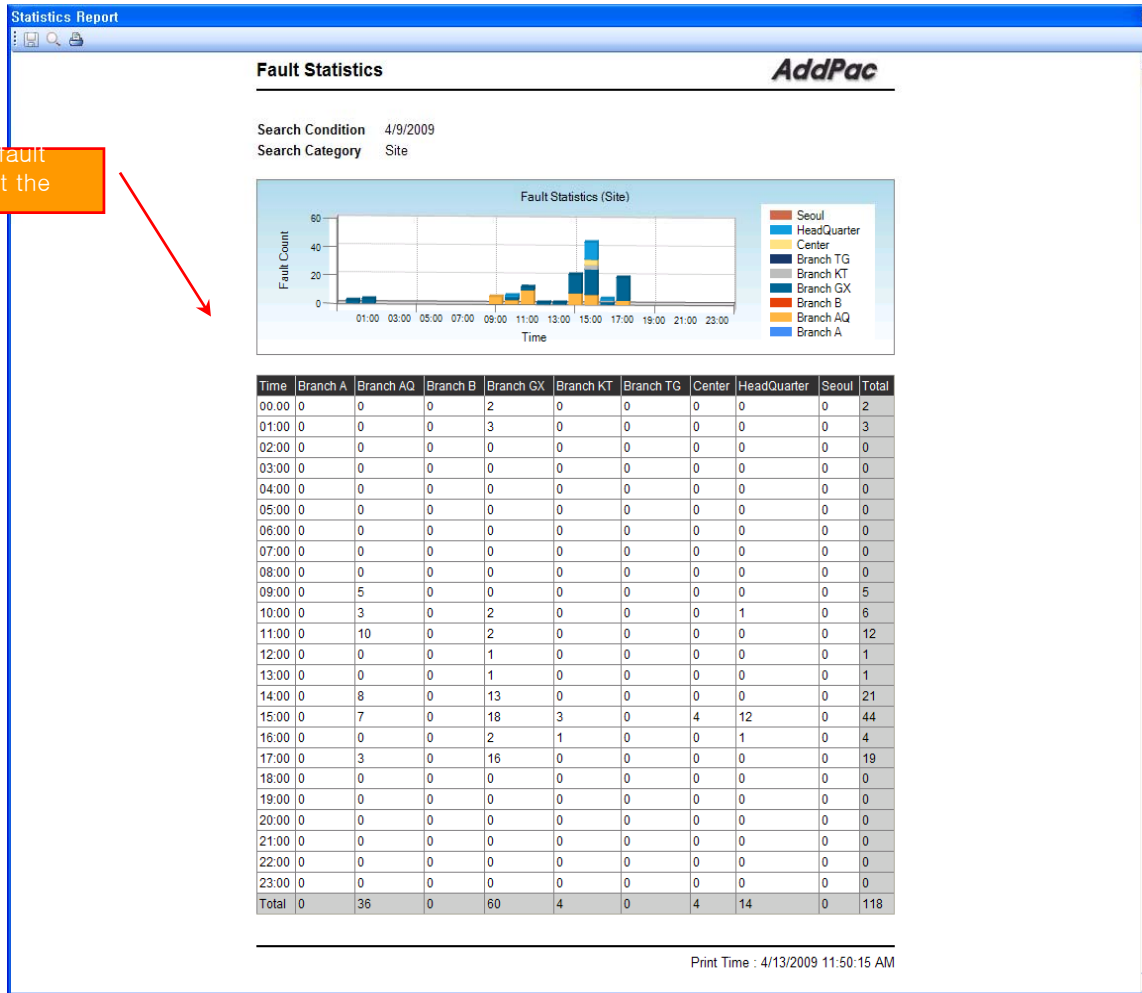
Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	1	0	0	0	0	0	1
13:00	0	0	0	1	0	0	0	0	0	1
14:00	0	8	0	13	0	0	0	0	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	1	0	0	1	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

Smart NMS

Site: AddPac

Name	Description
AddPac	AddPac Technology C...
Branch AQ	Branch AQ
Branch GX	Branch GX description
Branch KT	Branch KT
HeadQuarter	Main HeadQuarter Cen...
Seoul	Seoul subnetwork
Seoul East Area	Seoul East Area
Branch B	Branch B
GangNamGu	GangNamGu
Branch TG	Yeoksam Area
SeoChoGu	seoul seochu district
Seoul West Area	Seoul West Area
Gangseo Area	Gangseo Area
Seoul	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

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 (IP
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IP
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device (IP
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3			device (IP
<input type="checkbox"/>	9239	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"/>	9238	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"/>	9237	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"/>	9236	4/6/2009 7:41:26 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	ICMP not response or deleted by administrator

Your Outstanding Notices (18)

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 displays the Smart Network Management System (NMS) interface within a Windows Internet Explorer browser. The main window shows a tree view of network sites and a table of services. A 'Service Properties' dialog box is open, showing the configuration for a service named 'Camera Operation Status' using the SNMP protocol on port 161. The dialog includes fields for Service Name, Protocol, Port, Interval (30000 msec), Timeout (3000 msec), and Retry (3). Below the dialog, another 'Service Properties' dialog is visible, showing the Service OID (1.3.6.1.4.1.4855.7.51.1.3.0) and a Service Condition (Operator =, Operand 1).

Service Name	Protocol	Port
Call Manager	SNMP	161
Presence	SNMP	161
Media	SNMP	161
NMS	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

Site	Name	Description
AddPac	AddPac Technology C...	
	Branch AQ	Branch AQ
	Branch GX	Branch GX description
	Branch KT	
	HeadQuarter	Main HeadQuarter Cen...
Seoul	Seoul subnetwork	
	Seoul East Area	Seoul East Area
	SongPaGu Area Ce...	SongPaGu Area Center
	Subnetwork #2	Subnetwork #2
	Song Area Center	
	North Area	
	South Area	
	NamGu	
	Sam Area	
	seocho district	
	West Area	
Gangseo Area	Gangseo Area	
Seoul	Seoul	
MokDong Area	MokDong Area	

Site	Device Name	IP Address	Service	Message
/AddPac/Branch GX	00_RBT_server			device 00_RBT_serv
/AddPac/HeadQuarter	5th floor meeting_			device 5th floor meet
/Subnetwork #2/Cent...	NMS_SOH0_PBX			device NMS_SOH0_PBX
/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.
/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.
/AddPac/Branch GX	00_IVR_server			service Call Manager
/AddPac/Branch AQ	NMS_IP_PBX_3			device 00_IVR_serv
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device NMS_IP_PBX
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	response or delete by
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera
/AddPac/Branch AQ	NMS Camera 2	172.16.253.110	ICMP	SNMP not response o
/AddPac/Branch AQ	NMS Camera 2	172.16.253.110	ICMP	ICMP not response o
/AddPac/Branch AQ	NMS Camera 2	172.16.253.110	ICMP	device(NMS Camera



Thank you!

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