

VoIP Gateway Solution



AddPac

AddPac Technology






2010, Sales and Marketing

www.addpac.com

Contents

- VoIP Gateway Service Diagram
- VoIP Gateway Comparison Table
 - VoIP Gateways for SOHO (1~2 Port)
 - VoIP Gateways for SMB (~4 Port)
 - VoIP Gateways for Medium Size Business (~8 Port)
 - VoIP Gateways (~24 Port)
 - VoIP Gateways(~32 Port)
 - Large Capacity Analog VoIP Gateways(~256 Port)
 - Digital VoIP Gateways(1~16 E1/T1)
- VoIP Modules for Rack Mountable Equipment
- AddPac VoIP Gateway Service Features
- AddPac VoIP Gateway Management


VoIP Gateways for SOHO(1~2Port)

Product	AP100		AP100B		AP190	AP200		AP300	
									
Model	Type	VoIP	Type	VoIP		Type	VoIP	Type	VoIP
	P	PSTN Backup	B	2FXS, PSTN Backup		B	2FXS, PSTN Backup	B	2FXS, PSTN Backup
						D	2FXO		
						E	1FXS, 1FXO		
VoIP Ports	1		2		1	2		2	
Signaling	SIP, H.323		SIP, H.323		SIP, H.323	SIP, H.323		SIP, H.323	
Module Slot	N/A		N/A		N/A	N/A		N/A	
LAN Port	2		2		2	2		2	
Console	N/A		N/A		Support	Support		Support	
Power	External Adaptor		External Adaptor		External Adaptor	External Adaptor		External Adaptor	



VoIP Gateways for SMB (4 Port)

Product	AP700		AP1000	AP1002	AP1005	AP800	
							
Model	Type	VoIP				Type	VoIP
	P	1-Port PSTN Backup				A	1-Port PSTN Backup
						B	4-Port PSTN Backup
VoIP Ports	4-Port FXS		4-Port FXS	2-Port FXS & 2-Port FXO	4-Port FXO	4-Port FXS	
Signaling	SIP, H.323		SIP, H.323	SIP, H.323	SIP, H.323	SIP, H.323	
Module Slot	N/A		N/A	N/A	N/A	N/A	
LAN Port	2		2	2	2	2	
Console	Support		Support	Support	Support	Support	
Power	External Adaptor		External Adaptor	External Adaptor	External Adaptor	External Adaptor	




VoIP Gateways for MB (8Port)

Product	AP900		AP1100		AP1200	
						
Model	Type	VoIP	Type	VoIP	Type	VoIP
	A	4 FXS, 4 FXO	A	4 FXS, 4 FXO	A	4 FXS, 1 FXO
	B	8 FXS	B	8 FXS	B	8 FXS, 1 FXO
	C	8 FXO	C	8 FXO		
VoIP Ports	Up to 8-Port		Up to 8-Port		Up to 8-Port	
Signaling	SIP, H.323		SIP, H.323		SIP, H.323	
Module Slot	N/A		N/A		N/A	
LAN Port	2		2		2	
Console	Support		Support		Support	
Power	External Adaptor		External Adaptor		External Adaptor	




VoIP Gateways (~24Port)

Product	AP1700	AP1800	AP2610	AP2620	AP2120N	AP2330
						
Available Modules	AP-FXS4 AP-FXO4 AP-FXS2O2 AP-E&M4 AP-E1	AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4 AP-N1-E1	AP-FXS4 AP-FXO4 AP-FXS2O2 AP-E&M4	AP-FXS4 AP-FXO4 AP-FXS2O2 AP-E&M4 AP-E1	AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4	AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS4O4
Analog Ports	Up to 8	Up to 16	Up to 4	Up to 8	Up to 16	Up to 24
Signaling	SIP, H.323	SIP, H.323	SIP, H.323	SIP, H.323	SIP, H.323	SIP, H.323
Digital E1/T1	Up to 2E1	Up to 2E1	N/A	Up to 2E1	N/A	N/A
E&M	Support	N/A*	Support	Support	Support	N/A*
Module Slot	Two(2)	Two(2)	One(1)	Two(2)	Two(2)	Three(3)
LAN Port	2	2	2	2	2	2
Console	1	1	1	1	1	1
Power	Single PSU	Single PSU	Single PSU	Single PSU	Single PSU	Single PSU





VoIP Gateways (~32Port)

Product	AP2340	AP2640	AP2650
			
Available Modules	AP-N1-FXS8 AP-N1-FXO8 AP-N1-FXS404	AP-FXS8 AP-FXO8 AP-FXS404 AP-E&M8 AP-E1	AP-FXS8 AP-FXO8 AP-FXS404 AP-E&M8 AP-E1
Analog Ports	Up to 32	Up to 32	Up to 32
Signaling	SIP, H.323	SIP, H.323	SIP, H.323
Digital E1/T1	N/A	Up to 2E1	Up to 2E1
E&M	N/A*	Support	Support
Module Slot	Four(4)	Four(4)	Four(4)
LAN Port	2	2	2
Console	1	1	1
Power	Single PSU	Single PSU	Dual PSU

Large Capacity VoIP Gateways


Product	AP3100P	AP6500	AP6800
			
Available VoIP Modules	AP-FXS4, AP-FXO4 AP-FXS2O2, AP-E&M4	AP-N1-FXS32 AP-N1-FXO32	AP-N1-FXS32 AP-N1-FXO32
Analog Ports	Up to 60 (4Port Module x 15)	Up to 128 (32 Port Module x 4)	Up to 256 (32 Port Module x 8)
Signaling	SIP, H.323	SIP, H.323	SIP, H.323
CPU Redundancy (Dual CPU)	N/A	Support (Option)	Support (Option)
E&M	Support	N/A	N/A
Module Slot for VoIP Module	15 Slots	4 Slots	8 Slots
LAN Port	2	2	2
Console	1	1	1
Dual Power Supply (Option)	Support	Support	Support

Digital VoIP Gateways (1~16 E1/T1)

Product	AP1850	AP-MG3000	AP-MG3800	AP-MG5000
				
Available Modules	AP-N1-E1 AP-N1-2E1	APv2-1E1 APv2-2E1 APv2-4E1	HIM-VoIP4E1 (4 E1/T1 Module)	HIM-4E1 (4 E1/T1 Module)
VoIP Signaling	SIP, H.323	SIP, H.323	SIP, H.323	SIP, H.323
Digital E1/T1	Up to 4E1	Up to 4E1	Up to 8 E1	Up to 16E1
Digital Signaling	ISDN PRI, R2	ISDN PRI, R2	ISDN PRI, R2	ISDN PRI, R2
Module Slot	Two(2)	Two(2)	Two(2)	Four(4)
LAN Port	2	2	2	2
Console	1	1	1	1
Power	Single PSU	Single PSU	Single PSU	Dual PSU









VoIP Modules



Target :
AP2610, AP2620, AP1700,
AP3100P





VoIP Modules

DSP

Target	VoIP Modules	Module Features	Module Picture
AP1700,AP2610 AP2620,AP3100P	AP-FXS4	4-Port FXS Module	
AP1700,AP2610 AP2620,AP3100P	AP-FXO4	4-Port FXO Module	
AP1700,AP2610 AP2620,AP3100P	AP-FXS2O2	2-Port FXS&2-Port FXO Module	
AP1700,AP2610 AP2620,AP3100P	AP-E&M4	4-Port E&M Module	
AP1700,AP2610 AP2620,AP3100P	AP-FXS3O1	3-Port FXS&1-Port FXO Module	
AP1700, AP2620	AP-E1	1-Port Digital E1/T1 Module	

Additional VoIP Modules

DSP







Target	Voice Modules	Module Features	Module Picture
AP2610, AP2620	AP-MP3	1-Pair Audio-In/Out Port, Direct MIC-In, Headphone High Quality Audio Band IP Broadcasting	
AP2610 AP2620	AP-AUDIO2	2-Pair Audio-In/Out Ports Voice Band IP Broadcasting	
AP2610, AP2620	AP-AUD1S3	1-Pair Audio-In/Out Ports, FXS Analog Interface Voice Band IP Broadcasting	
AP2610, AP2620	AP-AUD1S2O1	1-Pair Audio-In/Out Ports, FXS 2-Ports, FXO 1-Port Voice Band IP Broadcasting	




Target :
AP2120N, AP2640, AP2650

VoIP Modules

DSP






Target	VoIP Modules	Module Features	Module Picture
AP2120N AP2640 AP2650	AP-FXS8	8-Port FXS Module	
AP2120N AP2640 AP2650	AP-FXO8	8-Port FXS Module	
AP2120N AP2640 AP2650	AP-FXS4O4	4-Port FXS&4-Port FXO Module	
AP2120N AP2640 AP2650	AP-E&M8	8-Port E&M Module	
AP2640 AP2650	AP-E1	1-Port Digital E1/T1 Module	
AP2640 AP2650	AP-2E1	2-Port Digital E1/T1 Module	



Target :
AP1800, AP2330, AP2340,
AP1850

VoIP Modules

DSP



Target	VoIP Modules	Module Features	Module Picture
AP1800 AP2330 AP2340	AP-N1-FXS8	8-Port FXS Module	
AP1800 AP2330 AP2340	AP-N1-FXO8	8-Port FXO Module	
AP1800 AP2330 AP2340	AP-N1-FXS4O4	4-Port FXS&4-Port FXO Module	
AP1800 AP1850	AP-N1-E1	1-Port Digital E1/T1 Module	
AP1800 AP1850	AP-N1-2E1	2-Port Digital E1/T1 Module	



Target :
AP6500, AP6800

VoIP Modules

DSP




Target	VoIP Modules	Module Features	Module Picture
AP6500 AP6800	AP-N1-FXS32	32-Port FXS Module	
AP6500 AP6800	AP-N1-FXO32	32-Port FXO Module	



Target :
AP-MG3000

VoIP Modules

DSP


Target	VoIP Modules	Module Features	Module Picture
AP-MG3000	APv2-1E1	1-Port Digital E1/T1 Module	
AP-MG3000	APv2-2E1	2-Port Digital E1/T1 Module	
AP-MG3000	APv2-4E1	4-Port Digital E1/T1 Module	



Target :
AP-MG3800, AP-MG5000

VoIP Modules

DSP

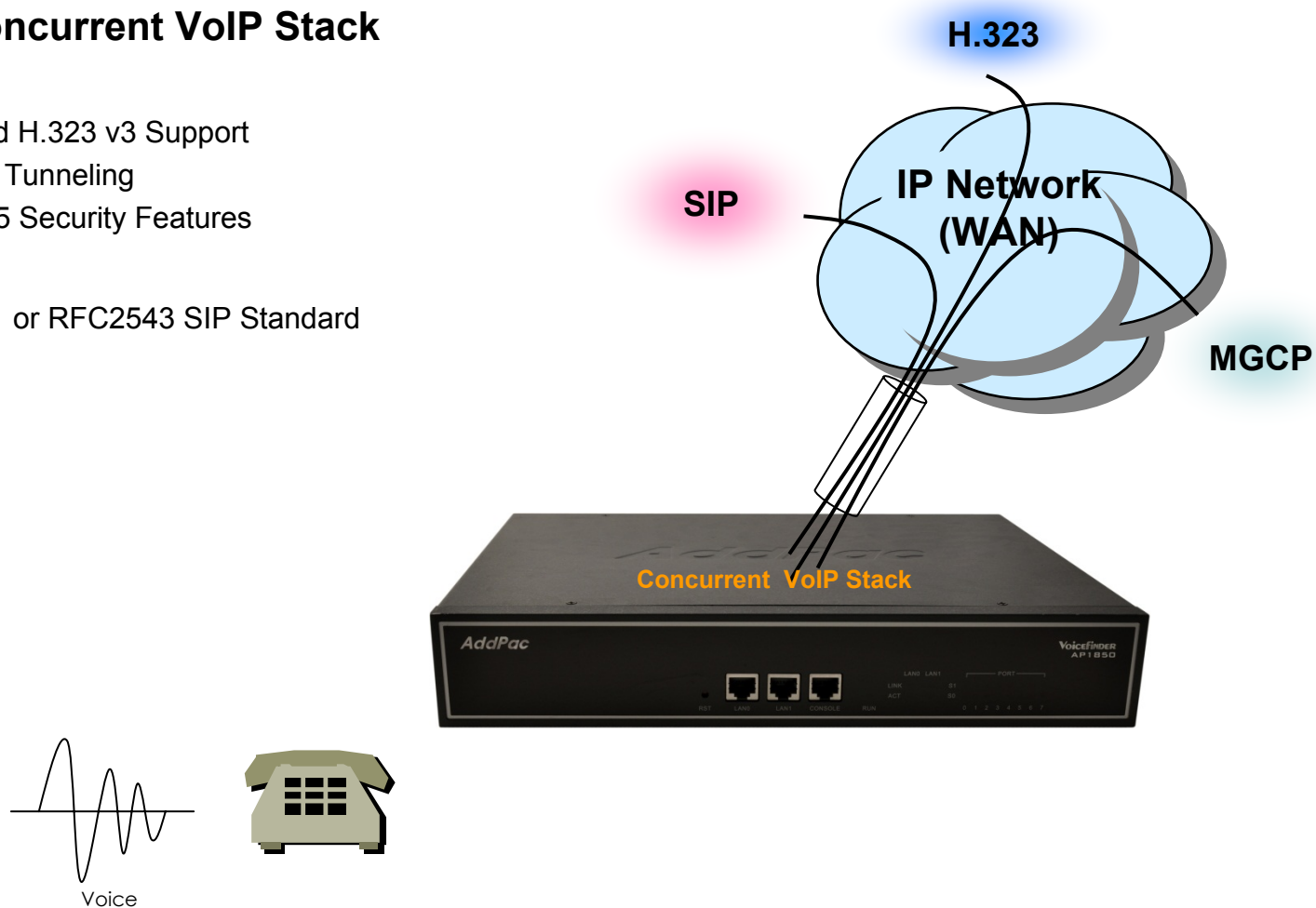
Target	VoIP Modules	Module Features	Module Picture
AP-MG3800, AP-MG5000	HIM-VOIP4E1	4-Port Digital E1/T1 Module	



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**

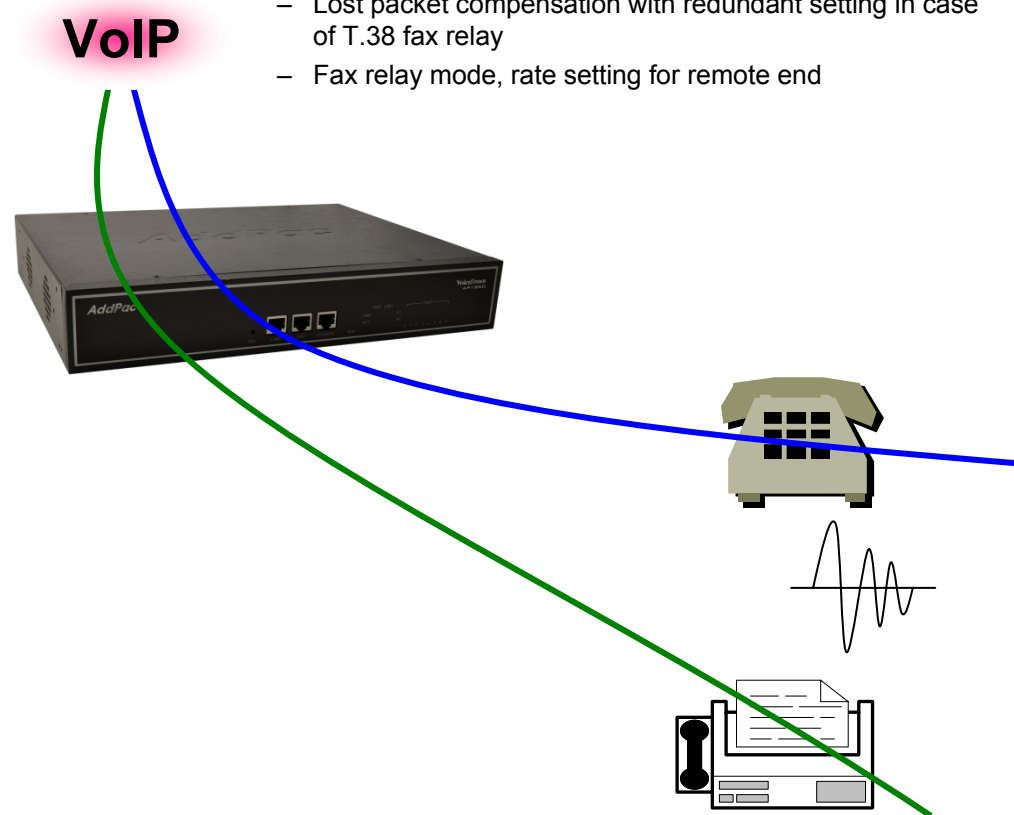
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **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



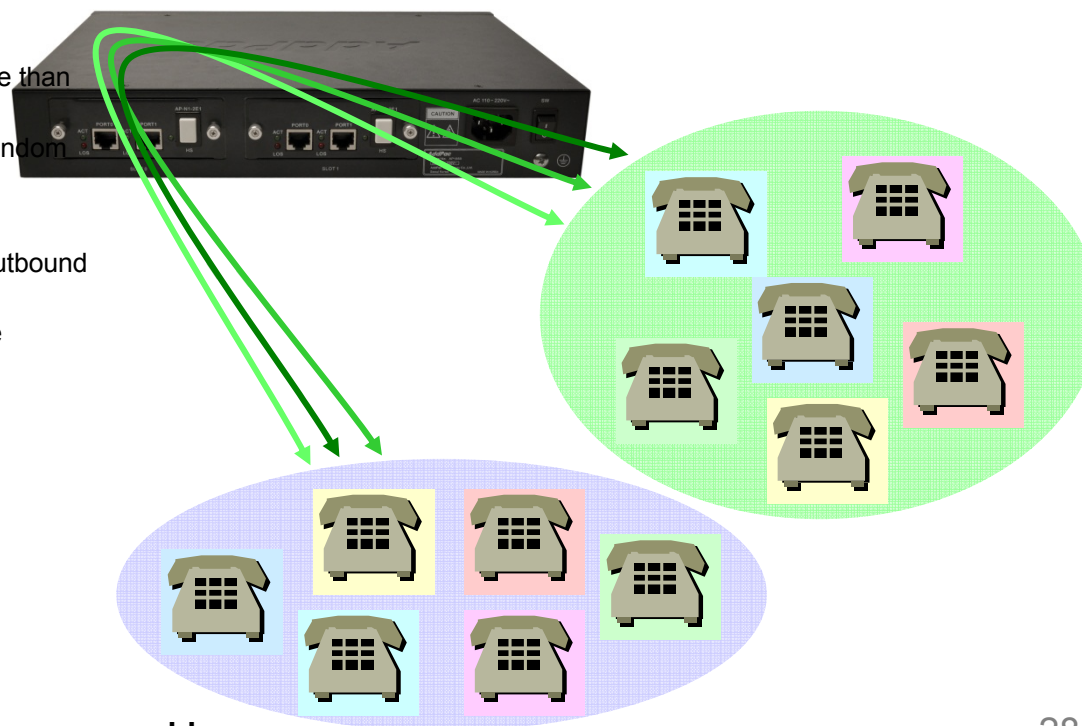
VoIP (Voice over IP) Service

• 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



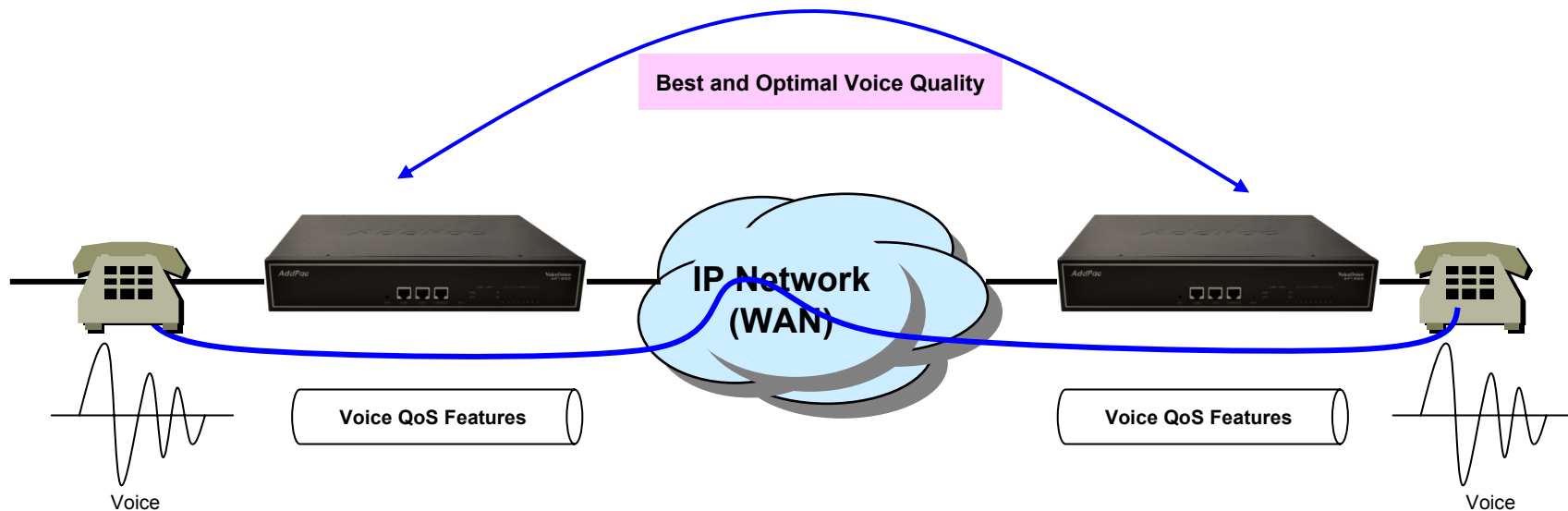
Advanced QoS Features

- **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**

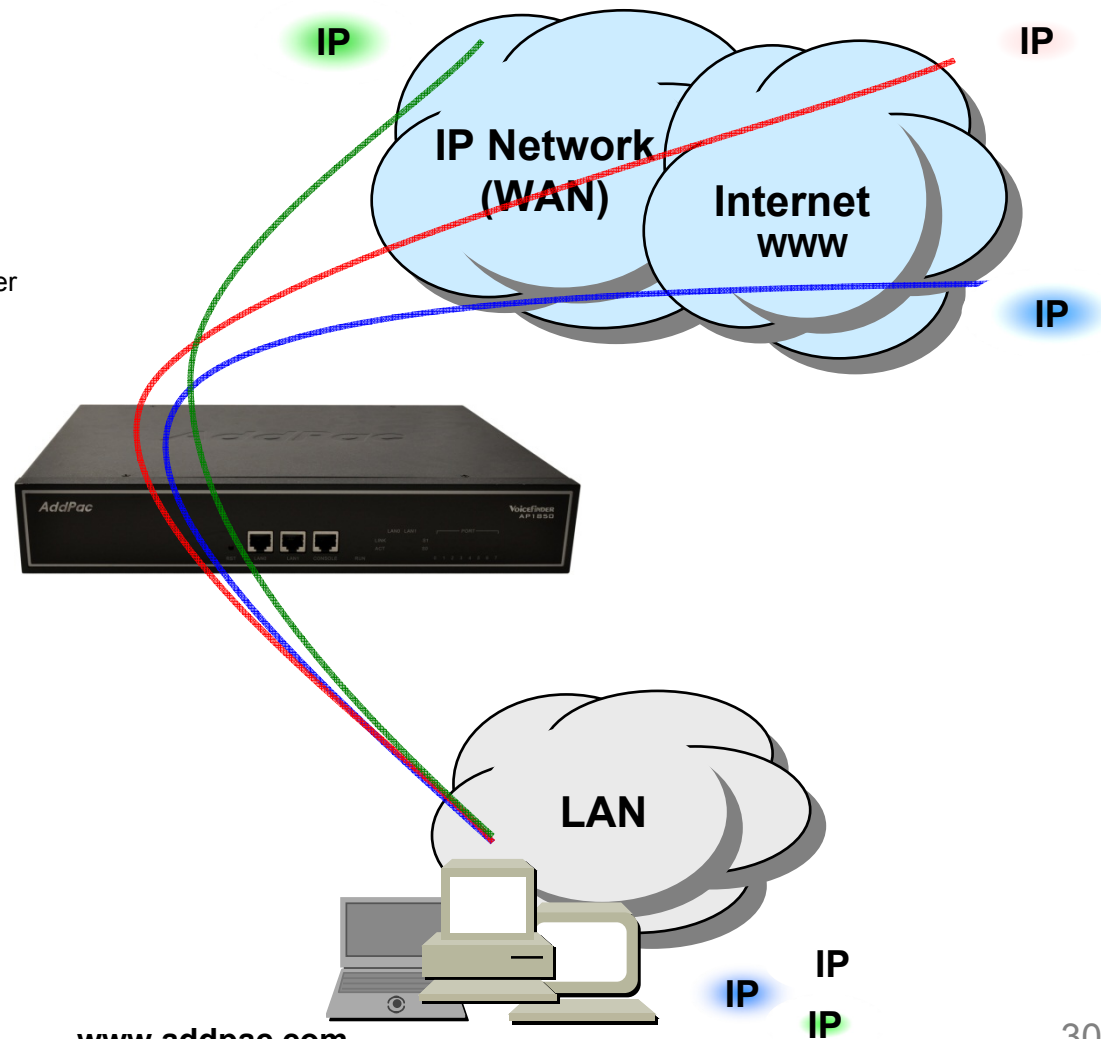
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **IPv4 Address Configuration**

- Fixed (Static)
- DHCP
- PPPoE

- **Miscellaneous**

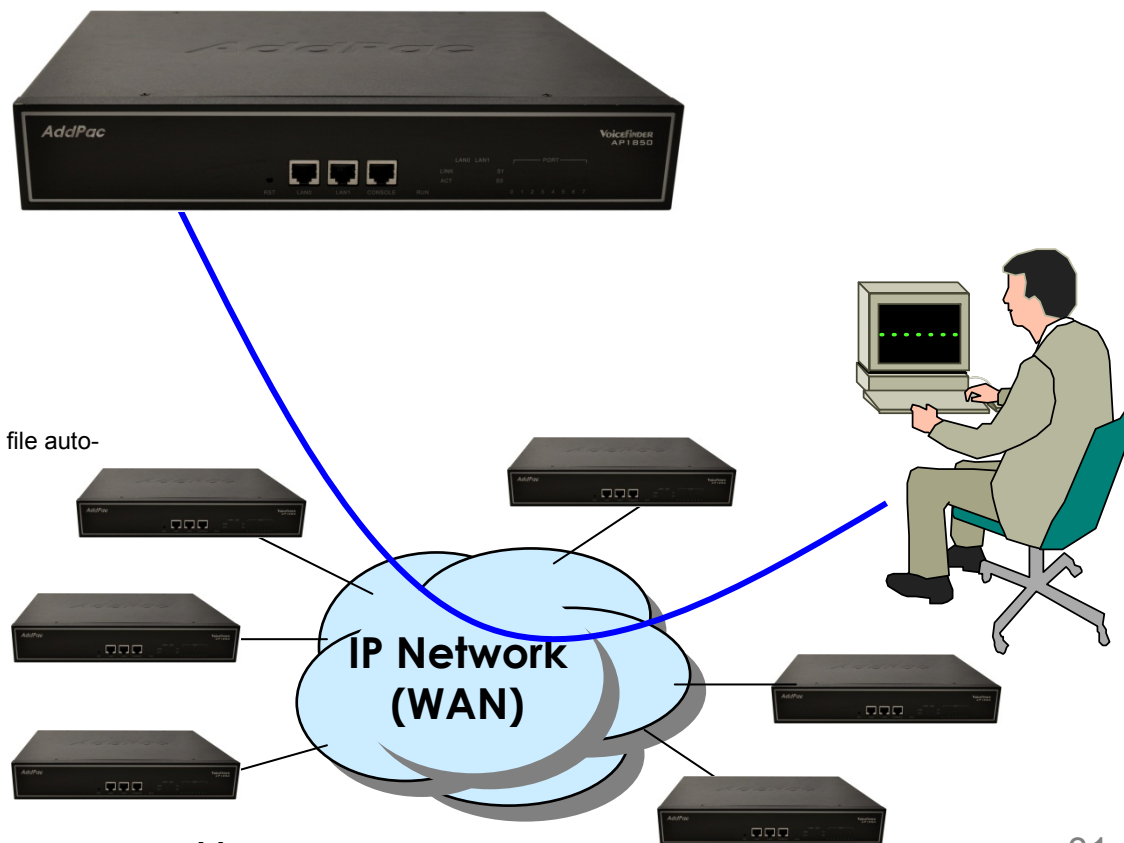
- Cisco Style CLI
- Standard & Extended IPv4 Access List
- Multi-level User Account Management
- IP accounting
- STUN Client



Network Management

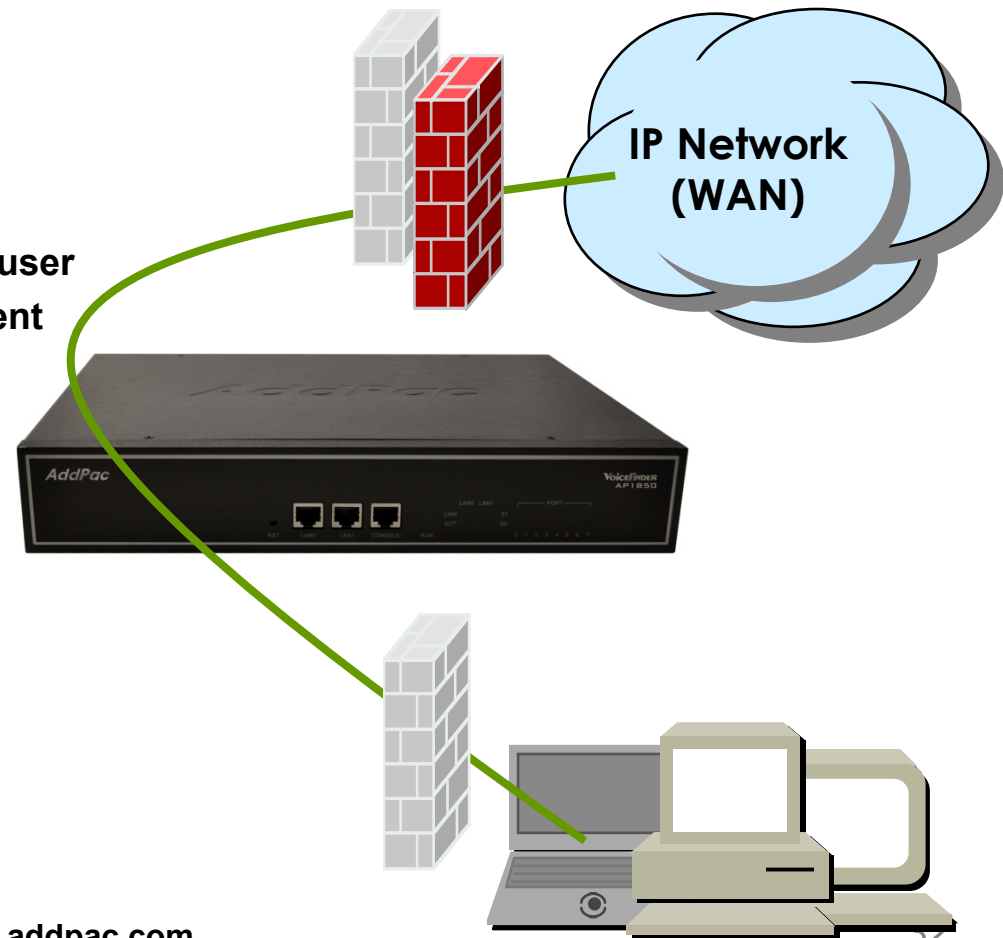
- **SNMP**
 - Standard Simple Network Management Protocol(SNMP) Agent support
 - MIB v1 and v2 Support
- **Web-based Management**
 - Smart Easy Setup
 - Standard Voice Interface
 - Standard PSTN Back-up Interface
- **Watch-dog Function**
 - Hardware, Software watch-dog services
- **Remote Management**
 - 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)



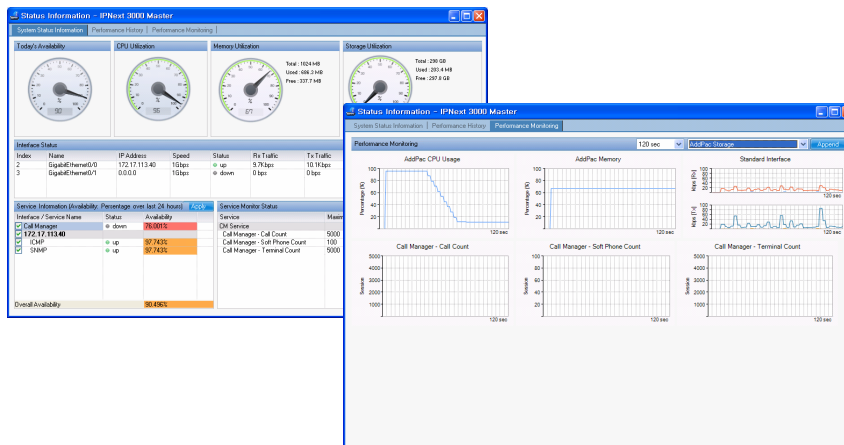
Security Management

- 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



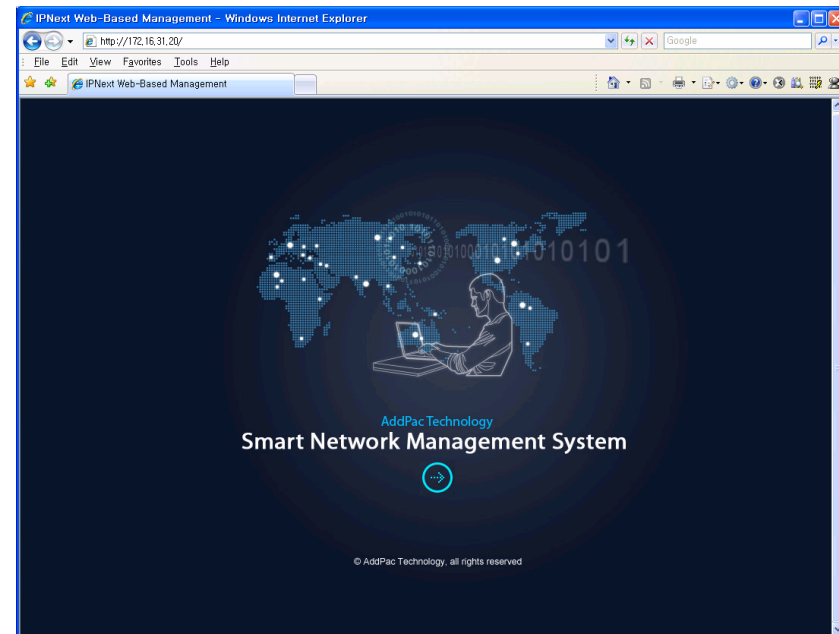
Smart NMS

Smart Network Management System for VoIP Gateway



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

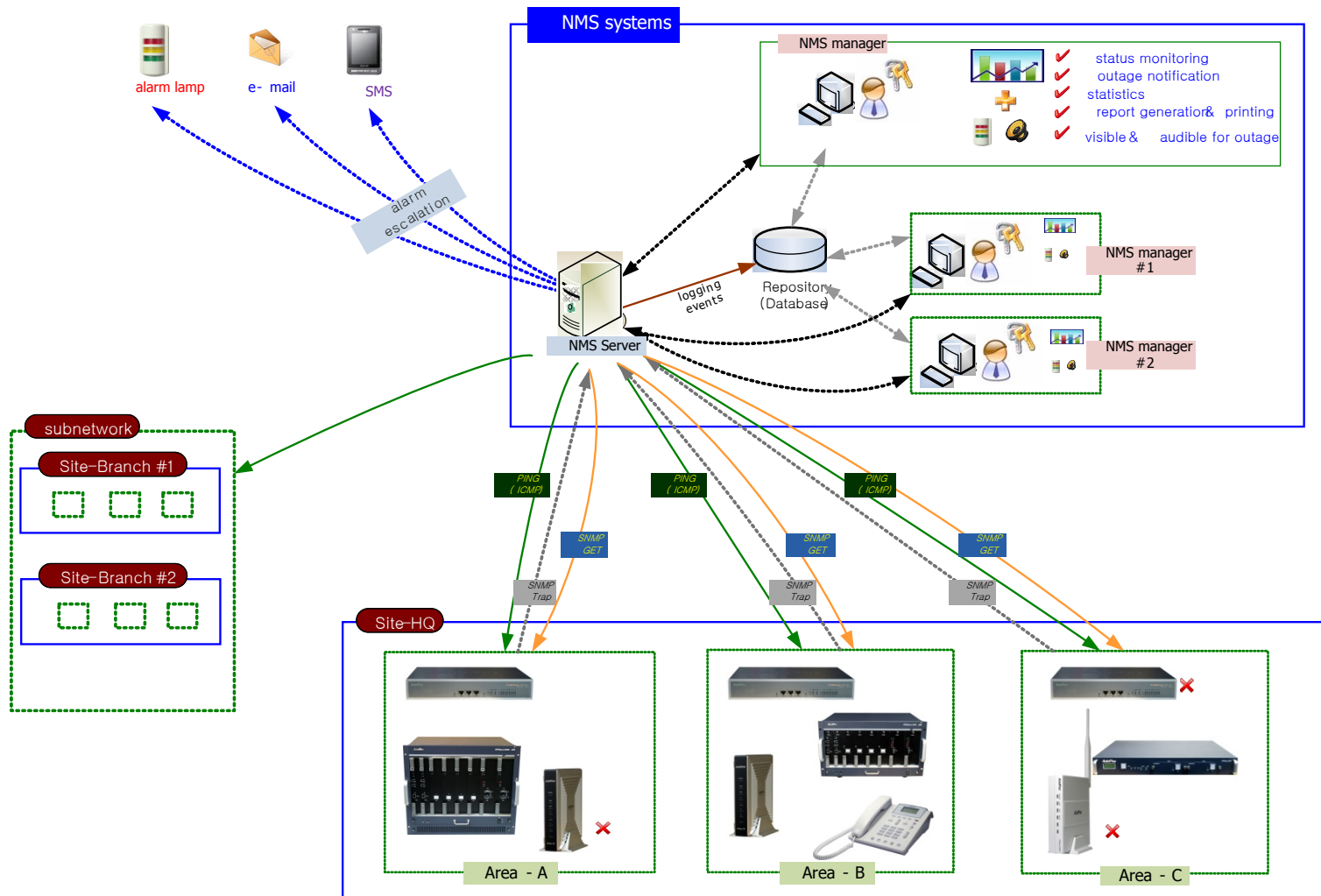
NMS Server

- 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

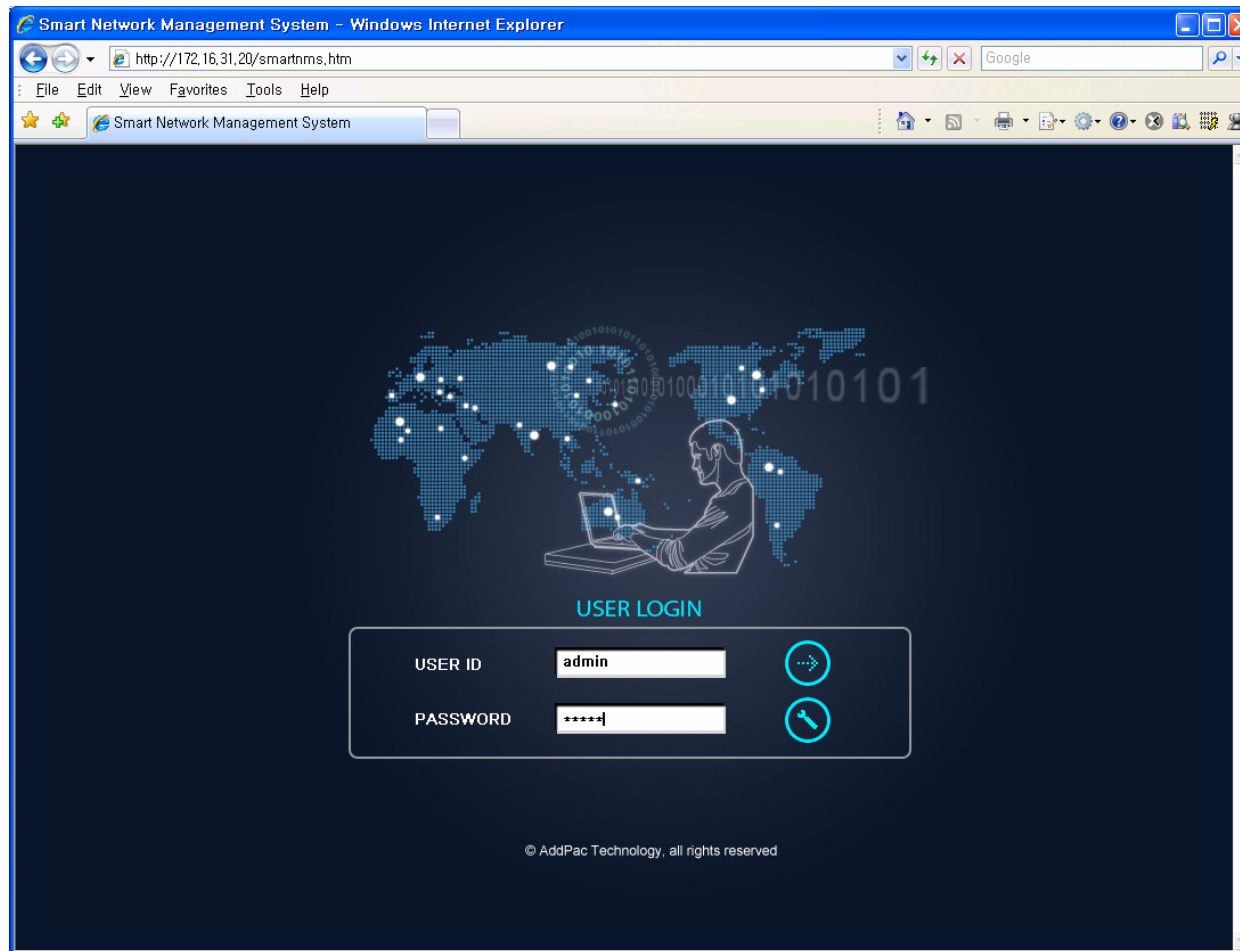
The screenshot displays the IPNext Web-Based Management interface within a Windows Internet Explorer browser window. The browser's address bar shows the URL `http://172.16.31.20/`. The main content area features a dark blue background with a world map and a person using a laptop, with the text "AddPac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

Two callout boxes highlight specific features:

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

The "Launching Application" dialog box is titled "Launching Application" and contains the text "Verifying application requirements. This may take a few moments." The "Downloading installnms" dialog box is titled "(61%) Downloading installnms" and contains the text "Downloading installnms. This may take several minutes. You can use your computer to do other tasks during the installation." It also displays the file name "installnms", the source "From: 172.16.31.20", and a progress bar showing "Downloading: 6.29 MB of 10.1 MB".

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 'Seoul East Area', and various sub-networks and centers. A context menu is open over the 'GangNamGu' node, with 'Execute SMM' highlighted. An orange callout box points to this menu with the text: 'can cooperate with the application executables such as SMM'. In the center, a table lists device categories such as Desktop, Network Camera, Phone, Server, Switch, and VoIP Gateway. An orange callout box points to this table with the text: 'manage the complex network with a structured, hierarchical form'. On the right, a 'User Properties' dialog box is open, showing a 'Site' tab with a tree view of the same hierarchical structure. An orange callout box points to this dialog with the text: 'can assign the hierarchical node to the operator and manage role-based policy'. At the bottom, a status bar indicates 'Total Categories : 6'.

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

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a navigation menu with options like NMS, Account, Configuration, Monitoring, Notification, Fault, Statistics, and View. The interface is divided into several sections:

- Current Outage Devices (11):** A tree view showing the hierarchy of devices. A red arrow points to the 'Subnetwork #2' section, labeled 'current device fault list with hierarchy view'.
- Service Outages:** A table showing site-level statistics. A red arrow points to the 'AddPac' site row, labeled 'site device fault summary'.
- Device Categories:** A table showing fault statistics for various device types. A red arrow points to the 'Server' category row, labeled 'device fault summary for category (classification)'.
- Overall Availability:** A summary bar at the bottom of the site table showing 'Overall Availability 30 / 11 / 34 78.650 %', with a red arrow pointing to it labeled 'overall total device fault statistics'.
- Your Outstanding Notices (16):** A table at the bottom showing a list of fault events. A red arrow points to the first row, labeled 'current device fault event message as shown as below'.

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]

Name	Service...	Availability
Branch AQ		
NMS Camera	6 of 12	48.994 %
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 serverfo...	3 of 3	0.000 %
Subnetwork #2		
NMS_SOHO_...	2 of 2	92.939 %

Service Outages

Device Monitoring - <All>

Group Type Value 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

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 Network Management System (NMS) interface within a Windows Internet Explorer browser. The main area shows a 'device status matrix with small view mode' containing various network devices and their operational status, indicated by icons with checkmarks or warning symbols. A red arrow points to a specific 'NMS Camera' device.

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_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
<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 delete by administrator

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. On the left, a 'Notification Summary' table provides a daily fault event summary. On the right, a table lists individual 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, Level (Severity), Message, and time range. The search results are sorted by ID in descending order.

daily fault event summary statistics information

DateTime	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	172.17.11.41	Call Manager	interface 172.17.11.41 (172.17.11.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.	4/10/2009 5:22:43 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	00_NR_server	172.17.11.40	Call Manager	interface 172.17.11.40 (172.17.11.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.	4/10/2009 5:17:56 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX	00_NR_server	172.17.11.41	Call Manager	interface 172.17.11.41 (172.17.11.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.	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)			device NMS_SOHD_PBX, all services are down	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9521	4/10/2009 3:36:18 PM	/AddPac/HeadQuarter	PS_server(our company)			device PS_server(our company) all services are down.	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9520	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	RBT_server(our company)			device RBT_server(our company) all services are down.	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9519	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	UMS_server #2			device UMS_server #2 all services are down.	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9518	4/10/2009 3:36:09 PM	/AddPac/HeadQuarter	Recording Server (our company)			device Recording Server (our company) all services are down.	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9517	4/10/2009 3:36:08 PM	/AddPac/HeadQuarter	company_MCU_server			device company_MCU_server all services are down.	4/10/2009 4:03:14 PM
<input type="checkbox"/>	9516	4/10/2009 3:36:00 PM	/AddPac/Branch GX	00_PS_Slave_server			device 00_PS_Slave_server all services are down.	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9514	4/10/2009 3:35:50 PM	/AddPac/Branch GX	00_PS_server			device 00_PS_server all services are down.	4/10/2009 4:02:54 PM
<input type="checkbox"/>	9513	4/10/2009 3:35:41 PM	/AddPac/HeadQuarter	5th floor meeting room phone device			device 5th floor meeting room phone device, all services are down.	4/10/2009 4:02:43 PM
<input type="checkbox"/>	9512	4/10/2009 3:35:41 PM	/AddPac/HeadQuarter	IP_PBX_Master (our company)			device IP_PBX_Master (our company) all services are down.	4/10/2009 4:02:44 PM
<input type="checkbox"/>	9511	4/10/2009 3:35:33 PM	/AddPac/Branch KT	172.16.51.12			device 172.16.51.12 all services are down.	4/10/2009 4:02:43 PM

Your Outstanding Notices (17)

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting ro...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Center	NMS_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_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

Device Fault History Management

The screenshot displays the Smart Network Management System (NMS) interface within a Windows Internet Explorer browser. The main window shows a list of events with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, Message, Responder, and Respond Time. A 'Troubleshooting Note' dialog box is open, showing a log message and a table for adding notes. An orange callout box points to the note input field with the text 'Can write troubleshooting note if needed'.

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message	Responder	Respond Time
<input checked="" 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	auto-acknowledged	4/10/2009 5:51:35 PM
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/Branch AQ	5th floor meeting room phone device			device 5th floor meeting room phone device, all services are down.	to-acknowledged	4/10/2009 5:35:25 PM
<input type="checkbox"/>	9526	4/10/2009 5:33:42 PM	/AddPac/Branch GX					to-acknowledged	4/10/2009 5:35:25 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX					to-acknowledged	4/10/2009 5:22:43 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX					to-acknowledged	4/10/2009 5:17:56 PM
<input type="checkbox"/>	9522	4/10/2009 3:36:26 PM	/AddPac/Branch AQ	IP cor				to-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9521	4/10/2009 3:36:18 PM	/AddPac/Branch AQ	PS RB cor				to-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9520	4/10/2009 3:36:17 PM	/AddPac/Branch AQ	UW				to-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9519	4/10/2009 3:36:17 PM	/AddPac/Branch AQ	Re (ou				to-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9518	4/10/2009 3:36:09 PM	/AddPac/Branch AQ	ter co				to-acknowledged	4/10/2009 4:03:14 PM
<input type="checkbox"/>	9517	4/10/2009 3:36:09 PM	/AddPac/Branch AQ	00				to-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9516	4/10/2009 3:36:09 PM	/AddPac/Branch AQ	5th floor				to-acknowledged	4/10/2009 4:02:54 PM
<input type="checkbox"/>	9515	4/10/2009 3:36:09 PM	/AddPac/Branch AQ	IP (ou				to-acknowledged	4/10/2009 4:02:43 PM
<input type="checkbox"/>	9514	4/10/2009 3:36:09 PM	/AddPac/Branch AQ	172				to-acknowledged	4/10/2009 4:02:44 PM
<input type="checkbox"/>	9513	4/10/2009 3:36:09 PM	/AddPac/Branch AQ	er=admin				to-acknowledged	4/10/2009 4:02:43 PM

Troubleshooting Note (Event ID : 45393)

Log Message
interface 172.16.4.180 (172.16.4.180) device(NMS Camera) service SNMP failed at 2009-4-10 5:51 06 PM

Troubleshooting Note List

Time	User	Status	Note

Buttons: Add, Edit, Delete, Help, Close

Troubleshooting Note

Status: Cleared

Fixed it manually.
2009-04-10 PM
by Administrator.

Operator: admin

Buttons: Ok, Cancel

Can write troubleshooting note if needed

Current Device Fault (Outage)

Current Outage Devices (13)

Name	Service...	Availability
AddPac		
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_RBT_server	3 of 3	0.000 %
IPNext 3000 S...	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_SOHO_...	2 of 2	0.000 %

Service Outages

Outage ID	Site	Device Name	IP Address	Service	Time Down
13968	/AddPac/Branch GX	00_RBT_server	172.17.114.60	Media	4/10/2009 9:26:04 PM
13967	/AddPac/Branch GX	00_RBT_server	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
13966	/AddPac/Branch GX	00_RBT_server	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
13948	/AddPac/HeadQuarter	5th floor meeting room p...	172.16.53.101	ICMP	4/10/2009 5:34:10 PM
13907	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	ICMP	4/10/2009 3:34:29 PM
13906	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	4/10/2009 3:34:29 PM
13896	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41		
13895	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40		
13802	/AddPac/Branch GX	00_IVR_server			
13801	/AddPac/Branch GX	00_IVR_server			
13800	/AddPac/Branch GX	00_IVR_server			
13773	/AddPac/Branch AQ	NMS_IP_PBX_31.13			
13772	/AddPac/Branch AQ	NMS_IP_PBX_31.13			
13771	/AddPac/Branch AQ	NMS_IP_PBX_31.13			
13611	/AddPac/Branch AQ	NMS Camera			
13610	/AddPac/Branch AQ	NMS Camera			
13609	/AddPac/Branch AQ	NMS Camera			
13608	/AddPac/Branch AQ	NMS Camera			
13607	/AddPac/Branch AQ	NMS Camera			
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			

Event Detail (ID: 45412)

Event Time: 4/10/2009 9:26:04 PM | Site: /AddPac/Branch GX | Device Name: 00_RBT_server | IP Address: 172.17.114.60 | 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.

Time	User	Status	Note

Device Event History

The screenshot displays the Smart Network Management System (NMS) interface in a Windows Internet Explorer browser. The main content area shows a table of event history with columns for Event Time, Outsta., Ackno., Not Clea..., Cleared, and In Pr. Below this is a detailed view of events, including a table with columns for Ack, ID, Severity, Event Time, Site, Device Name, IP Address, Service, and Message. An orange callout box points to the search bar and filters, stating "Can view all events for devices with search condition". Another orange callout box points to a summary table at the bottom, stating "summarize daily event statistics data".

Event Time	Outsta.	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

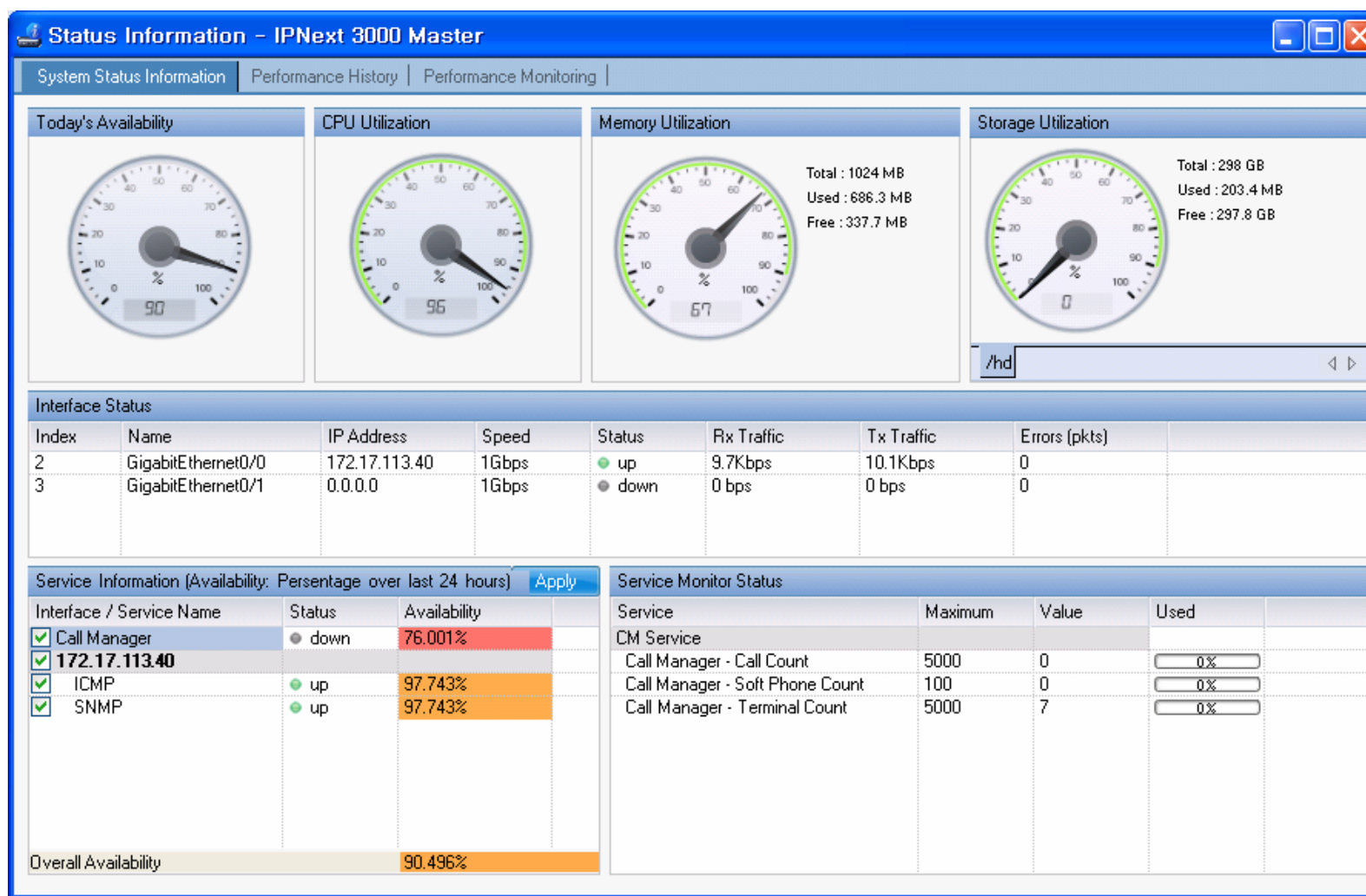
Ack	ID	Severity	Event Time	Site	Device Name	IP Address	Service	Message
	45786	Critical	4/13/2009 11:24:42 AM	/AddPac/Branch GX	SE_MG3000N_A	172.17.111.25		Agent Up with enterprise: 1.3.6.1.4.1.4855.3.2.255 args [1]: 1.3.6.1.4.1.4855.3.2.255"
	45785	Cleared	4/13/2009 11:15:59 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21	SNMP	SNMP data collection on interface 172.17.111.21 previously failed and has been restored. Node 00_NR_server is up.
	45784	Cleared	4/13/2009 11:15:52 AM	/AddPac/Branch GX	00_NR_server			Agent Up with Possible Changes (coldStart Trap) enterprise: 1.3.6.1.4.1.4855.3.2.10 [1]: 1.3.6.1.4.1.4855.3.2.10" args [1]: 1.3.6.1.4.1.4855.3.2.10"
	45783	Critical	4/13/2009 11:15:51 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21		Node 00_NR_server is down.
	45782	Critical	4/13/2009 11:15:13 AM	/AddPac/Branch GX	00_NR_server			SNMP data collection on interface 172.17.111.21 failed.
	45781	Warning	4/13/2009 11:14:57 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21	SNMP	SNMP thresholding on interface 172.16.31.13 failed.
	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 172.16.31.16 failed.
	45779	Warning	4/13/2009 10:00:15 AM	/Subnetwork #2/Cent...	NMS_IP_PBX_31...	172.16.31.16	SNMP	SNMP data collection on interface 172.17.113.201 failed.
	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.
	45777	Warning	4/13/2009 9:59:46 AM	/AddPac/Branch GX	UMS slave	172.17.113.201	SNMP	SNMP data collection on interface 61.33.161.43 failed.
	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.
	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 172.16.19.50 failed.
	45774	Warning	4/13/2009 9:59:36 AM	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
	45773	Warning	4/13/2009 9:59:33 AM	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
	45772	Warning	4/13/2009 9:59:32 AM	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
	45771	Warning	4/13/2009 9:59:27 AM	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
	45770	Warning	4/13/2009 9:59:24 AM	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
	45769	Warning	4/13/2009 9:59:23 AM	/Subnetwork #2/Cent...	NMS_SOHO_PBX	172.16.19.50	SNMP	SNMP data collection on interface 172.16.19.50 failed.
	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.
	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.

Site	Device Name	IP Address	Service	Message		
/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.		
/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.		
/Subnetwork #2/Cent...	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.
9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

Device 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

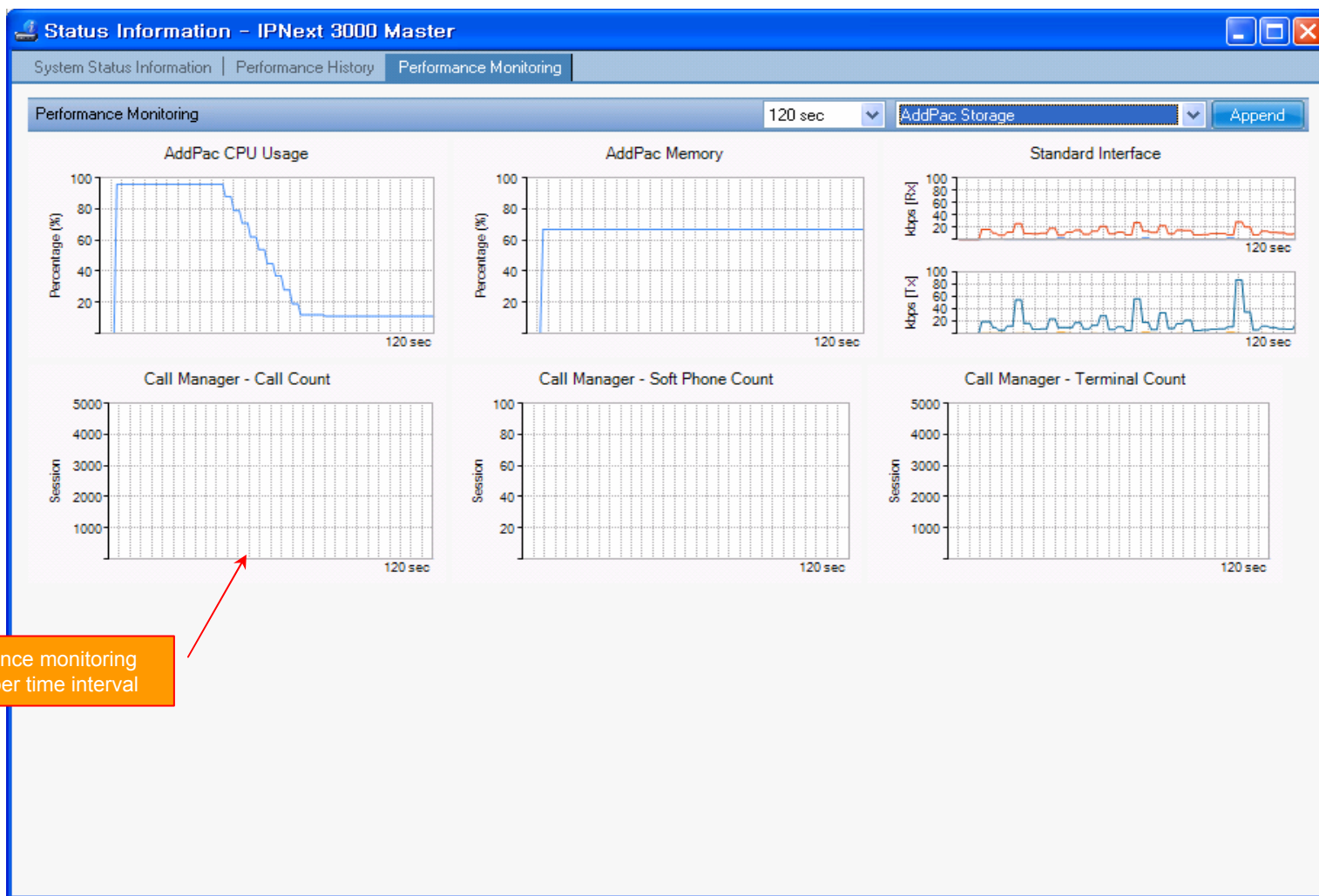


Device Status Information

performance analysis graph for last 24 hours



Device Status Information



Notification Management

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

Event Notification Management

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

specify category when each event occurs

describe notification message content for e-mail or SMS

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) | **Service Outages** | **Event Notification**

Name	Service...	Availability
AddPac		
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_RBT_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 server(o...	3 of 3	0.000 %
Subnetwork #2		
NMS_SOHO_...	2 of 2	0.000 %

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	
High Threshold Rearmed	highThresholdRearmed	NMS Admin	
Low Threshold Rearmed	lowThresholdRearmed	NMS Admin	

Event Notification Properties

Notification Name:

Description:

Event:

Destination Path:

Notification Type:

Current Rule:

Apply Category:

- Desktop
- Network Camera
- Phone
- Server
- Switch

Email Subject:

Text Message:

Special Values: Can be used in both the text message and email subject:
 %noticeid% = notification ID number
 %time% = time sent
 %severity% = event severity
 %nodelabel% = may be IP address or empty
 %interface% = IP address, may be empty
 %service% = service name, may be empty
 %eventid% = event ID, may be empty

Note: If the alert exceeds 80 bytes then the notification will be dispatched in two or more sms.

Enable Notification

Total event notifications : 19

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: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		

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

4/13/2009 9:52:03 AM | 172.16.31.20:5101 | admin | Version 1.2.3384

Event Notification Management

The screenshot shows the Smart NMS interface with the 'Destination Path Properties' dialog box open. The dialog is titled 'Destination Path Properties' and contains the following information:

- Destination Path Name: default
- Initial Target: onlyAlarmLamp
- Initial Delay: 0m
- Notification Type table:

Notification Type	Target	Auto Notify
alarmLamp	alarmLamp	on
email	admin	on
sms	admin	on
- Escalation: (unchecked)
- Delay: 0m

A red callout box with the text 'define notification channel such as e-mail, sms, or alarmlamp' points to the 'alarmLamp' entry in the table.

Below the dialog, the 'Your Outstanding Notices (18)' table is visible:

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_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

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. Overlaid on this are two configuration dialog boxes: 'Destination Path Properties' and 'Target Properties'.

The 'Target Properties' dialog is the primary focus, showing the following configuration:

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

An orange callout box with a red arrow pointing to the 'Account Administrator' dropdown in the 'Send to select user' field contains the text: "user account (administrator) setting for SMS, E-mail Notification or specify e-mail address or SMS phone number".

At the bottom of the NMS interface, there is a table of 'Your Outstanding Notices (18)'. Below is a partial view of this table:

Ack	ID	Send Time	Site	Device Name	IP Address	Details
<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

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Current Outage Devices [13] Site

Name	Service...	Availability
AddPac		
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_S0HD_...	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_S0HD_PBX			device NMS_S0HD_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
<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 1.2.3984

Audible & Visible Alarm

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

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

Device Categories	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%
VoIP Gateway	0 / 0 / 6	100%

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/HeadQuater	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_S0HQ_PBX			device NMS_S0HQ_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator
<input type="checkbox"/>	9236	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device(NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9235	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device(NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator

4/13/2009 11:52:14 AM 172.16.31.20:5101 admin Version 1.2.3384

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 is titled "Fault Statistics (Site)" and shows a bar chart of fault counts over time for various sites. Below the chart is a detailed data table for the date 4/9/2009, showing fault counts for different sites and a total count of 118.

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

Fault Statistics (Site) Legend: Seoul, HeadQuarter, Center, Branch TG, Branch KT, Branch GX, Branch B, Branch AQ, Branch A

4/9/2009 Data Table:

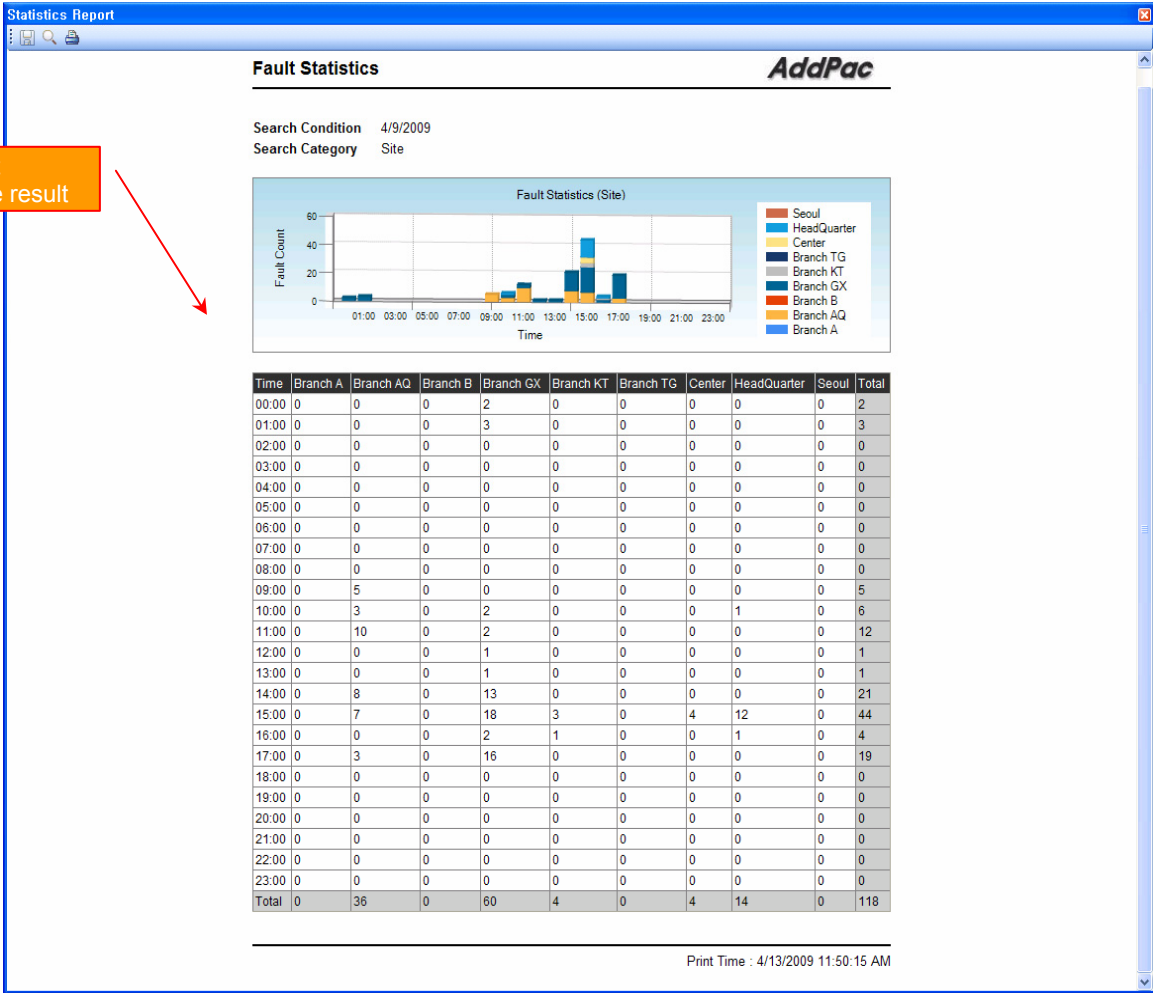
Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	1	0	0	0	0	0	1
13:00	0	0	0	1	0	0	0	0	0	1
14:00	0	8	0	13	0	0	0	0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

Callout 1: display graph for fault statistics with various search condition

Callout 2: display detailed data for fault statistics

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

model image repository for selection

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
IPNext100	Server
IPNext1000	Server
IPNext180	Server
IPNext200	Server

Model Name	Category	IP Address
00_RBT_server		
5th_floor_meeting...		
NMS_50HO_PBX		
IPNext 3000 Slave		172.17.113.41
IPNext 3000 Master		172.17.113.40
00_IVR_server		
NMS_IP_PBX_3...		
NMS Camera 2		172.16.253.118
NMS Camera 2		172.16.253.118
NMS Camera 2		172.16.253.11
NMS Camera 2		172.16.253.11

Service Definition

The screenshot displays the Smart NMS web interface. On the left, a tree view shows the network hierarchy under 'AddPac'. The main area shows a list of services with columns for Name, Protocol, and Port. The 'Camera Operation Status' service is highlighted. A 'Service Properties' dialog box is open, showing the configuration for this service. The 'General' tab is active, and the 'SNMP' protocol is selected. The 'Service Name' is 'Camera Operation Status', and the 'Port' is '161'. The 'Interval' is set to '30000 (msec)', 'Timeout' is '3000 (msec)', and 'Retry' is '3'. A second 'Service Properties' dialog box is also visible, showing the 'Service Condition' tab with the 'Service OID' set to '1.3.6.1.4.1.4855.7.51.1.3.0' and the 'Operator' set to '=' and 'Operand' set to '1'. An orange callout box points to the 'Camera Operation Status' service in the list.

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

Name	Description	Protocol	Port
Call Manager		SNMP	161
Presence		SNMP	161
Media		SNMP	161
IPX		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

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



Thank you!

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