

# Media Gateway Solution



AP-MG5000



AP-MG3000



AP-MG3800

**AddPac**

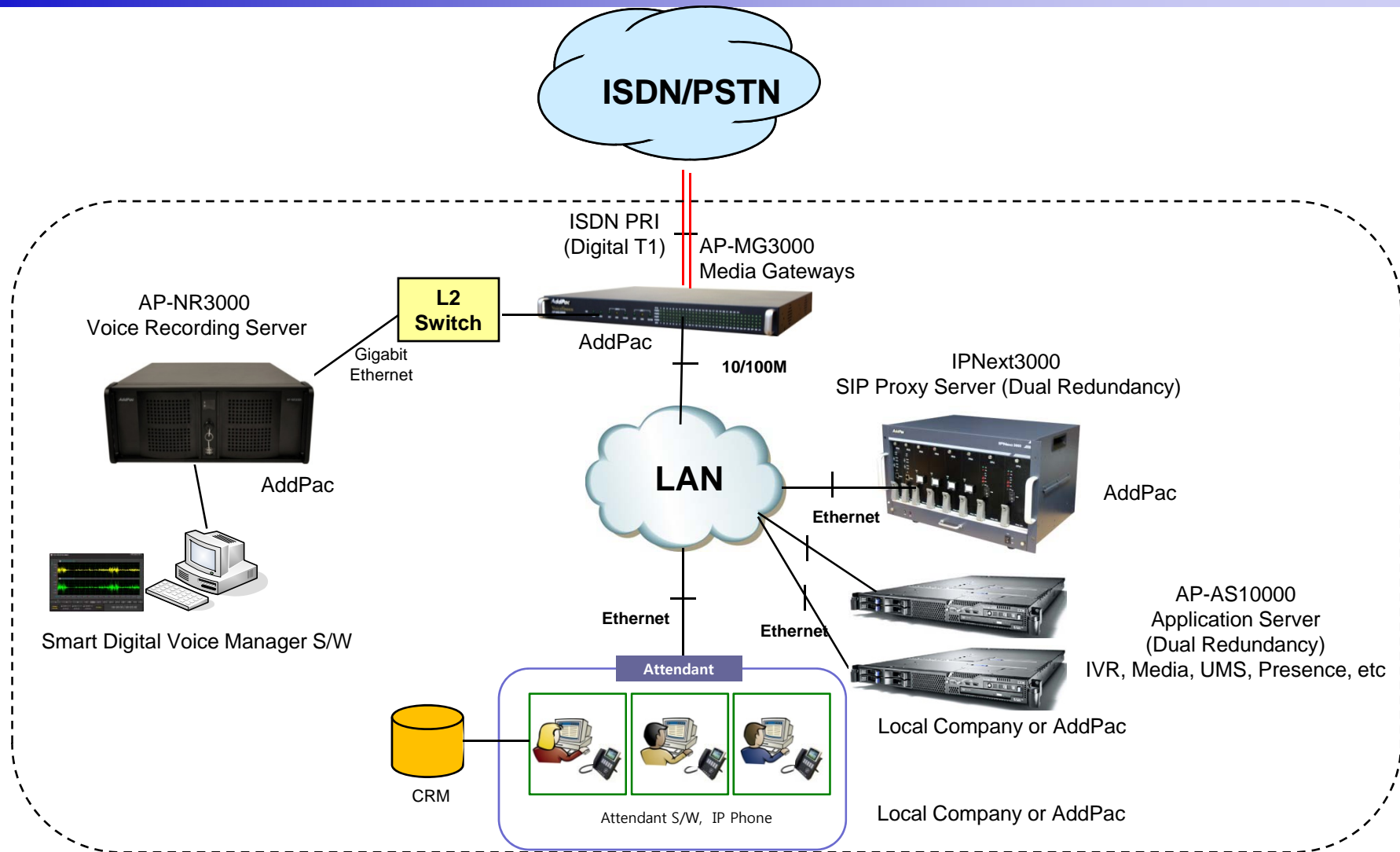
**AddPac Technology**

2010, Sales and Marketing



# Contents

- Media Gateway Service Diagram
- Media Gateway Comparison Table
  - Digital Media Gateways(1~16 E1/T1)
- Media Gateway VoIP Modules
- Media Gateway Service Features
- Media Gateway Web Management (EMS)
- Media Gateway NMS Management

# Media Gateway Service Diagram



# Media Gateways (1~16 E1/T1)

Product	AP-MG3000	AP-MG3800	AP-MG5000
			
Available Modules	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
Digital E1/T1	Up to 4E1	Up to 8 E1	Up to 16E1
Digital Signaling	ISDN PRI, R2	ISDN PRI, R2	ISDN PRI, R2
Module Slot	Two(2)	Two(2)	Four(4)
LAN Port	2	2	2
Console	1	1	1
Power	Single PSU	Single PSU	Dual PSU









# VoIP Modules



Target :  
AP-MG3000

# VoIP Modules

DSP

Target	VoIP Modules	Module Features	Module Picture
AP-MG3800	<b>APV2-1E1</b>	1-Port ISDN PRI VoIP Digital E1 Interface Module(1xRJ45)	
AP-MG3800	<b>APV2-1T1</b>	1-Port ISDN PRI VoIP Digital T1 Interface Module(1xRJ45)	
AP-MG3800	<b>APV2-2E1</b>	2-Port ISDN PRI VoIP Digital E1 Interface Module(2xRJ45)	
AP-MG3800	<b>APV2-2T1</b>	2-Port ISDN PRI VoIP Digital T1 Interface Module(2xRJ45)	
AP-MG3800	<b>APV2-4E1</b>	4-Port ISDN PRI VoIP Digital E1 Interface Module(4xRJ45)	
AP-MG3800	<b>APV2-4T1</b>	4-Port ISDN PRI VoIP Digital T1 Interface Module(4xRJ45)	





Target :  
AP-MG3800, AP-MG5000



# VoIP Modules

DSP

Target	VoIP Modules	Module Features	Module Picture
AP-MG3800, AP-MG5000	<b>HIM-VOIP4E1</b>	4-Port Digital E1 Module (4 x RJ45)	
AP-MG3800, AP-MG5000	<b>HIM-VOIP4T1</b>	4-Port Digital T1 Module (4 x RJ45)	

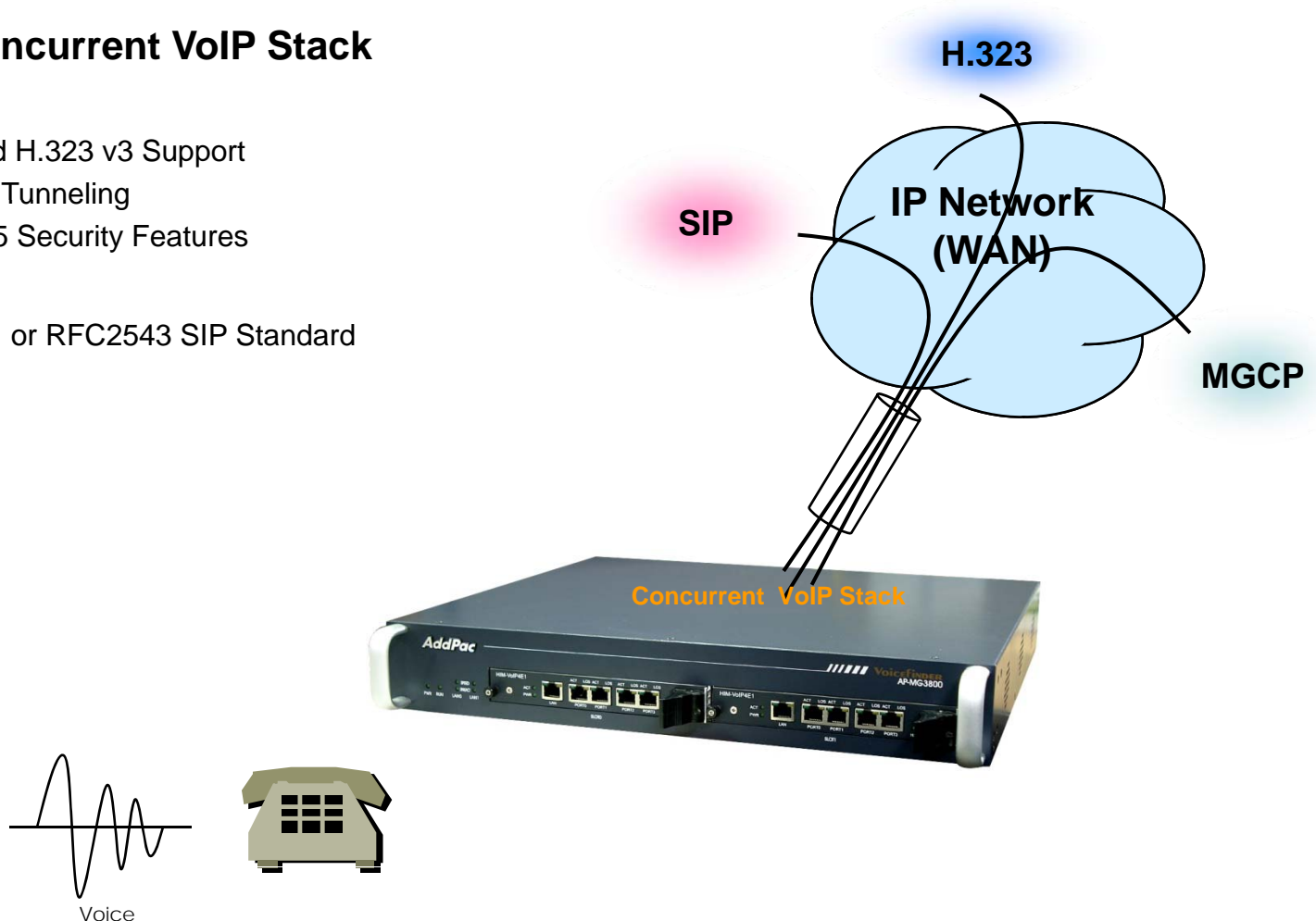




# Media Gateway Service Features

# 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**

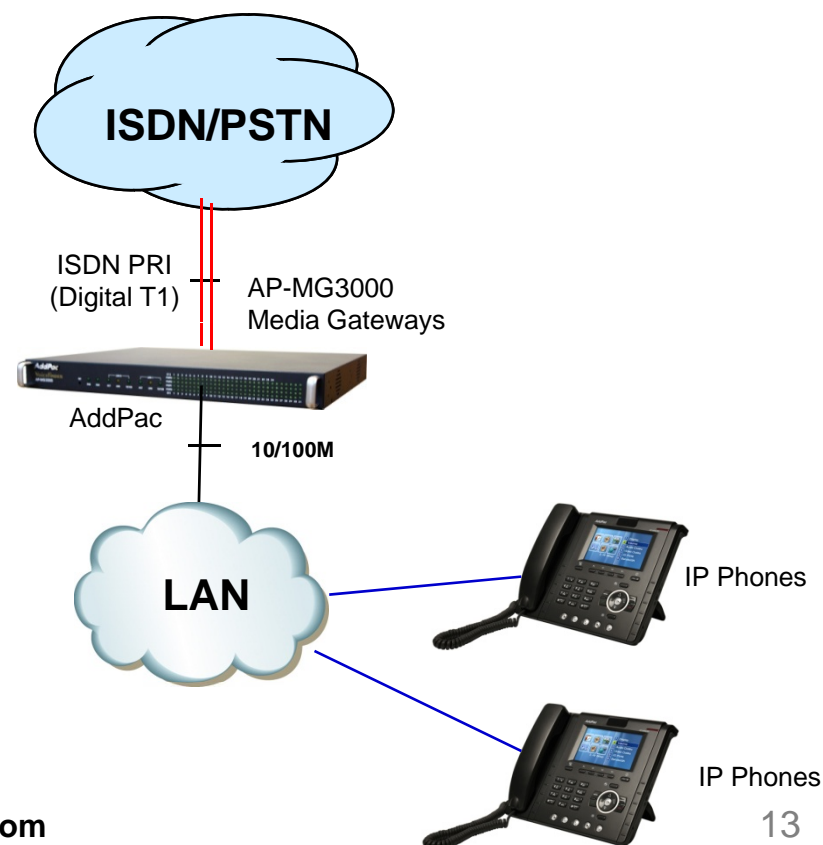
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **RTP**

- Redundant RTP packet transmission in case of severe packet loss
- Dynamic jitter buffer management and RPT 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

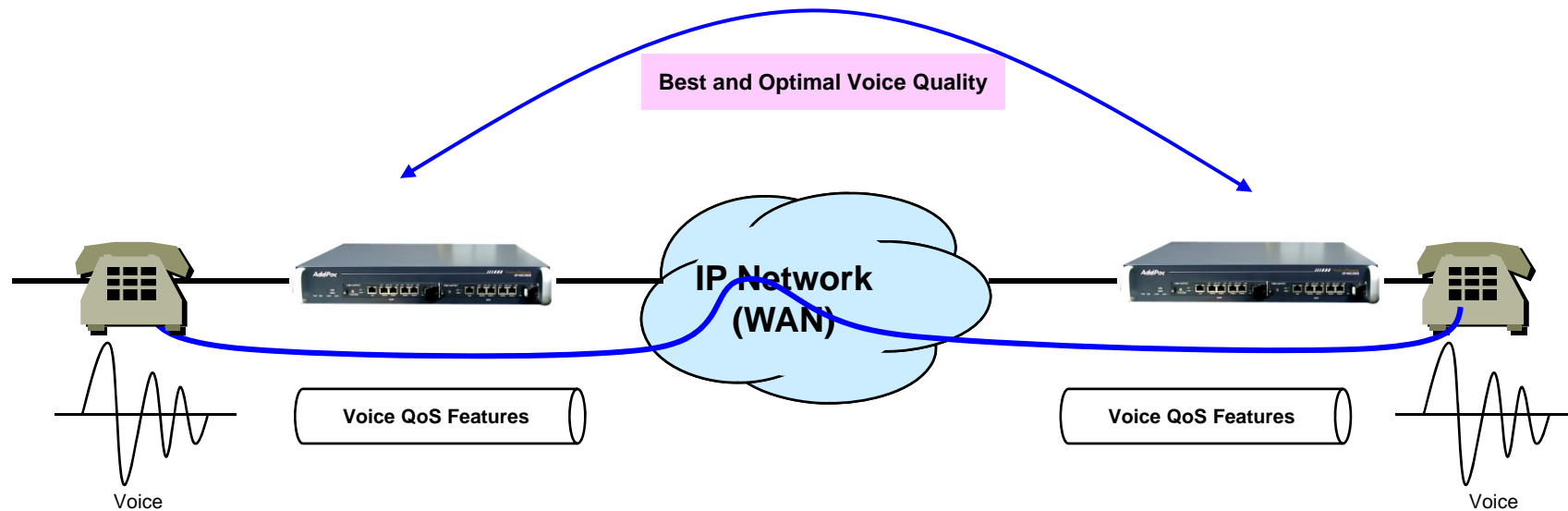
# Advanced QoS Features

- **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**

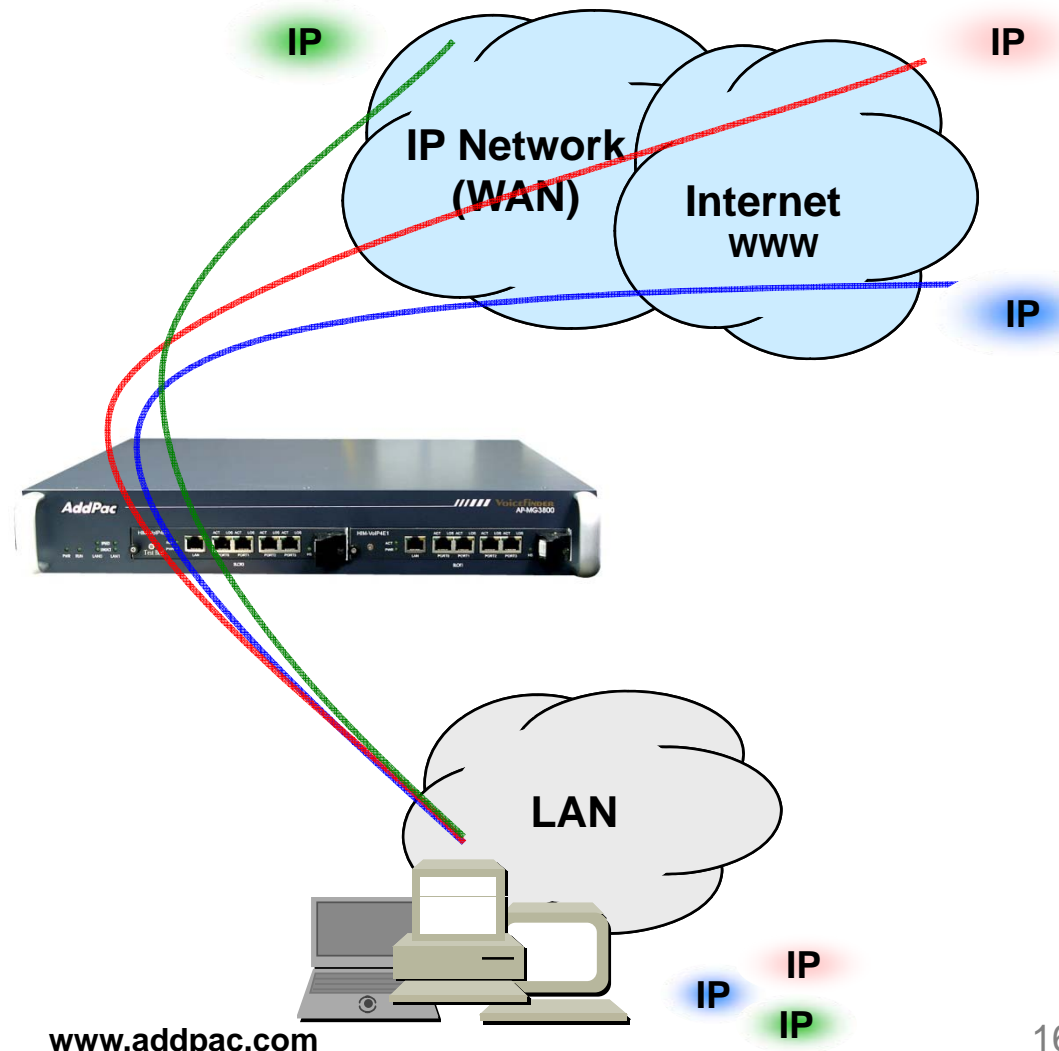
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **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**

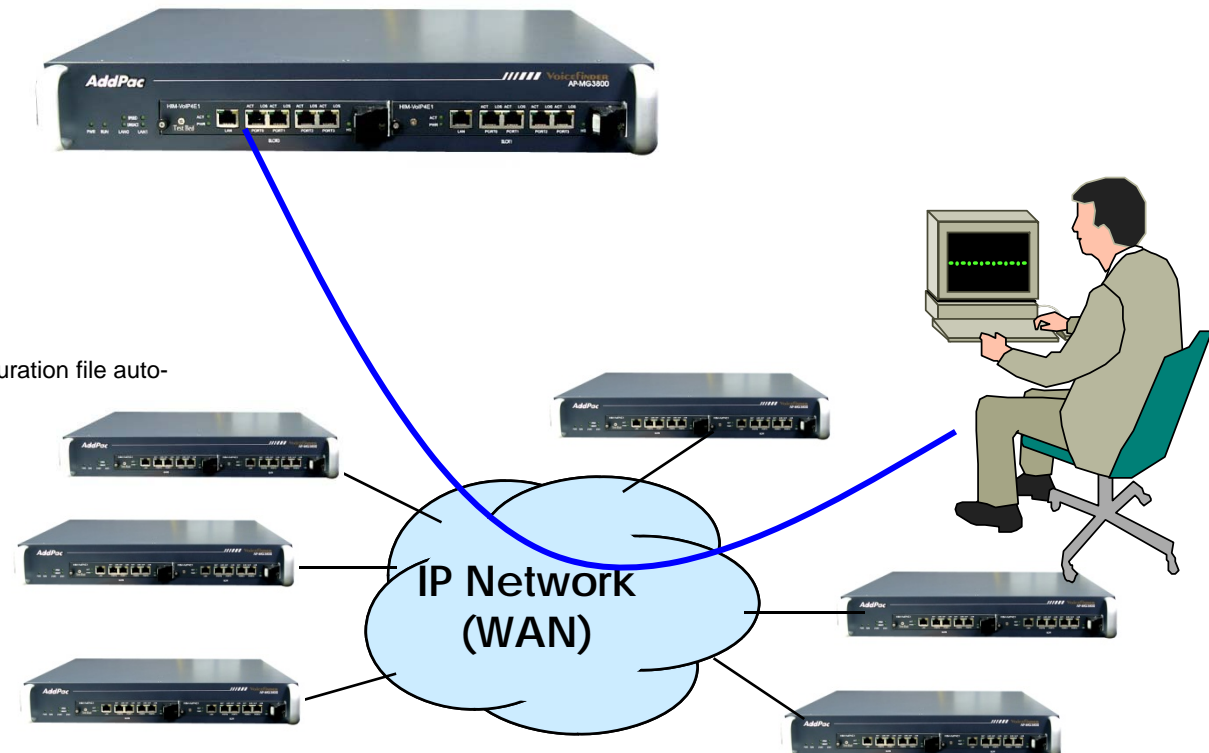
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

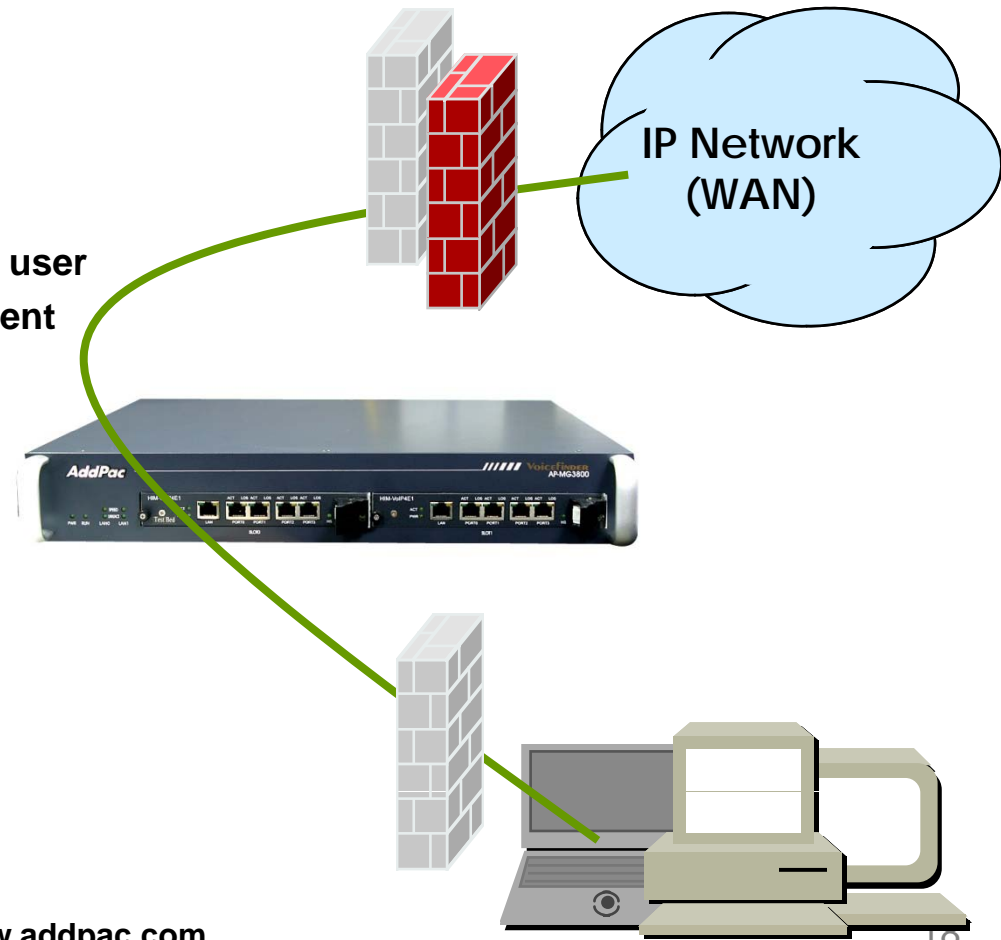
- **Interoperable with AP-VPMS Service**

- 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 Web Manager

# Contents

- Web Connection
- Main Page Layout
- System Configuration
  - Language, WAN Setup, LAN Setup, NAT, NTP, System Time, File Browser
- Basic Configuration
  - Protocol : SIP Server , H.323 Server
  - Analog Port : FXS Extension, FXO Extension, FXO Dial Plan, Hot Line
  - Digital Port : E1/T1 Trunk, E1/T1 Extension
  - VoIP : DTMF/CODEC, VoIP Dial Plan, Static Route
- Advanced Configuration
  - Gain/CID, FAX, Service, Filtering, Security
- Miscellaneous Configuration
  - Port & Call Status, System Status
  - Call Log, System Log, Test Call, Ping

# Basic – Digital : E1/ T1 Trunk

**Smart Web Manager**  
www.addpac.com

**E1/T1 Trunk**

**E1/T1 Port**  
Configure E1 channel & group

**E1/T1 value**  
Clock-Source  
Framing  
Line Code  
Signaling type

**E1/T1Sub function**  
ISDN-PRI  
- Protocol-emulate  
- virtual-Connect  
- immediate-disconnect  
- dial-tone generate  
- Compand type  
- Q931 Timer  
R2-MFC  
- Get calling number  
Busyout  
- monitoring E1/T1 port status

**Information**  
AddPac Technology  
Model : AP1800  
HW Version : 2.0  
SW Version : 8.41.086  
Smart Web Version : 0.4  
Smart Web Build : Sep 15 2010  
Voice Interface  
E1(2) : None  
Protocol : H.323  
Status : Unregistered  
Current Calls : 0  
CallNetwork : Static 0.0.0.0  
Mac Address : 0002.a1ff.f6a4

**Description**  
Configure the settings for VoIP Dial Plan and Prefix table

**E1 Port (Slot 0/0)**

Slot/Port	group Num (0-9)	Time slot Range(1-31,16-31,1,2,3)	Control
0/0			Add

**Clock-Source** Master

**Framing** CRC4

**Line Code** HDB3

**Signaling-type** ISDN-PRI

**ISDN-PRI**

Protocol-emulate	<input checked="" type="radio"/> Network	<input type="radio"/> User
Virtual-Connect	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable
Immediate-disc	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable
Dial-Tone-Generate	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable
Compand-Type	<input checked="" type="radio"/> a-law	<input type="radio"/> u-law
Q931 Timer	N303	2 (1-10sec)
	T303	4 (1-400sec)
	T310	10 (5-400sec)
R2-MFC	Get-Calling-number	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Busyout	Action	<input type="radio"/> PortDown <input checked="" type="radio"/> None

Apply

# Basic – Digital : E1/ T1 Extension

**Smart Web Manager**  
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**System**

- Language
- WAN Setup
- LAN Setup
- NAT
- NTP
- System Time
- File Browser

**Basic**

- SIP Registration
- H.323 Registration
- E1/T1 Trunk
- FXS Extension
- FXO Extension
- E1/T1 Extension**
- DTMF/CODEC
- VoIP Dial Plan
- FXO DialPlan
- Static Route

### E1/T1 Extension

**Port Information**

Port	P0	P1	P2	P3	P4	P5	P6	P7
SLOT 0	E1	E1						
SLOT 1								

**E1/T1 Extension Configuration**

Pots Num	Port	Group	Numbers	HuntStop	Forward Digits(0~99)	Control
P0:0				<input type="checkbox"/>	<input checked="" type="radio"/> from <input type="radio"/> last	Delete Apply

\* E1/T1 Extension - Assigned Pots Tag Number : 2536 - 2737

**Information**

AddPac Technology  
Model : AP1800  
HW Version : 2.0  
SW Version : 8.41.086  
Smart Web Version : 0.4  
Smart Web Build : Sep 15 2010  
Voice Interface  
E1(2) : None  
Protocol : H.323  
Status : Unregistered  
Current Calls : 0  
CallNetwork : Static 0.0.0.0  
Mac Address : 0002.a4ff.f6a4

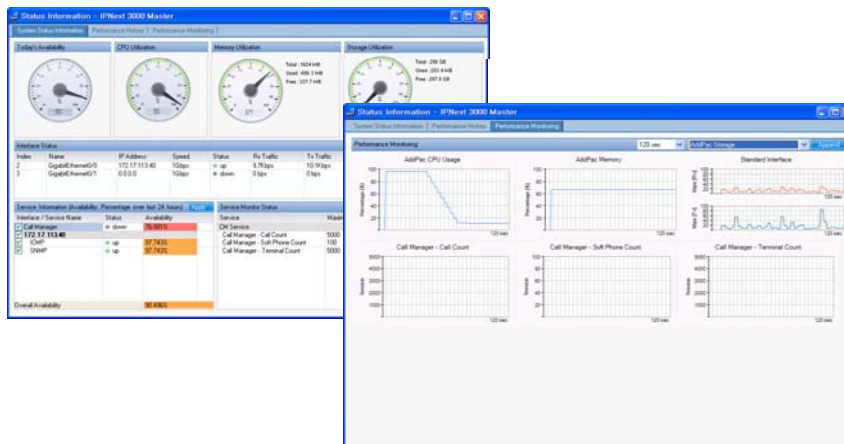
**Description**

**Port Information**  
voice port type & physical port

**E1/T1 Extension**  
Configure phone-number for using PABX  
- Forward-Digits (from / last)

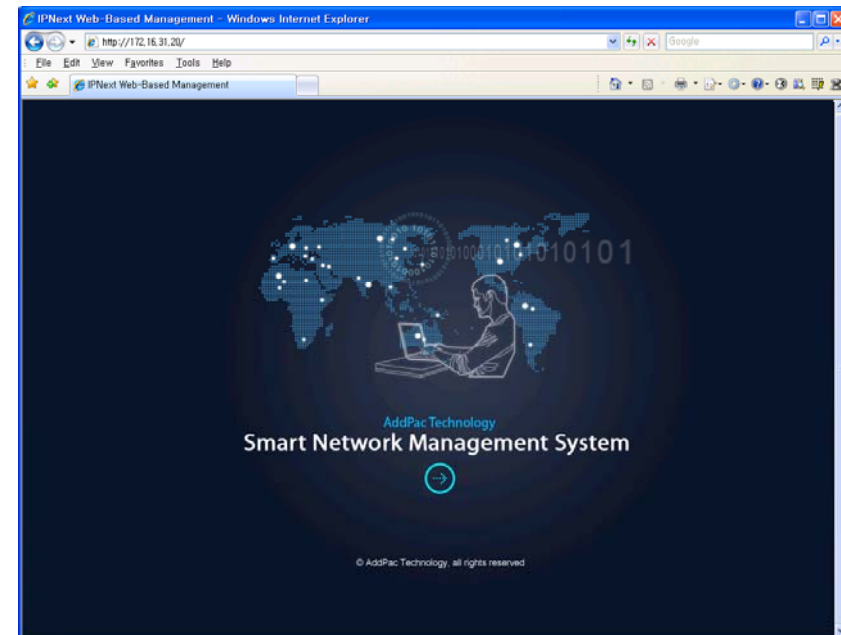
# Smart NMS

## Smart Network Management System for Media 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

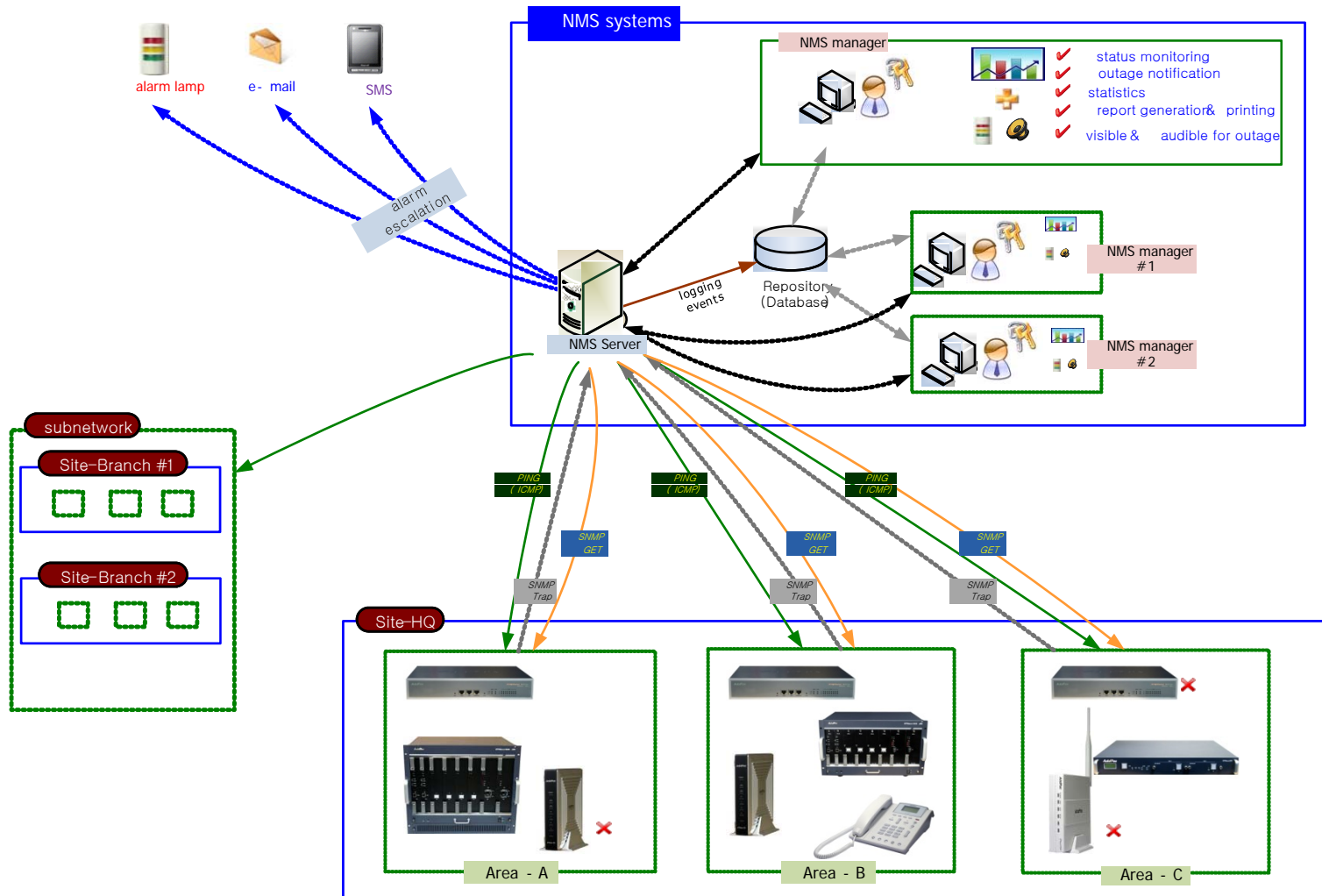
## NMS Server

- 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".

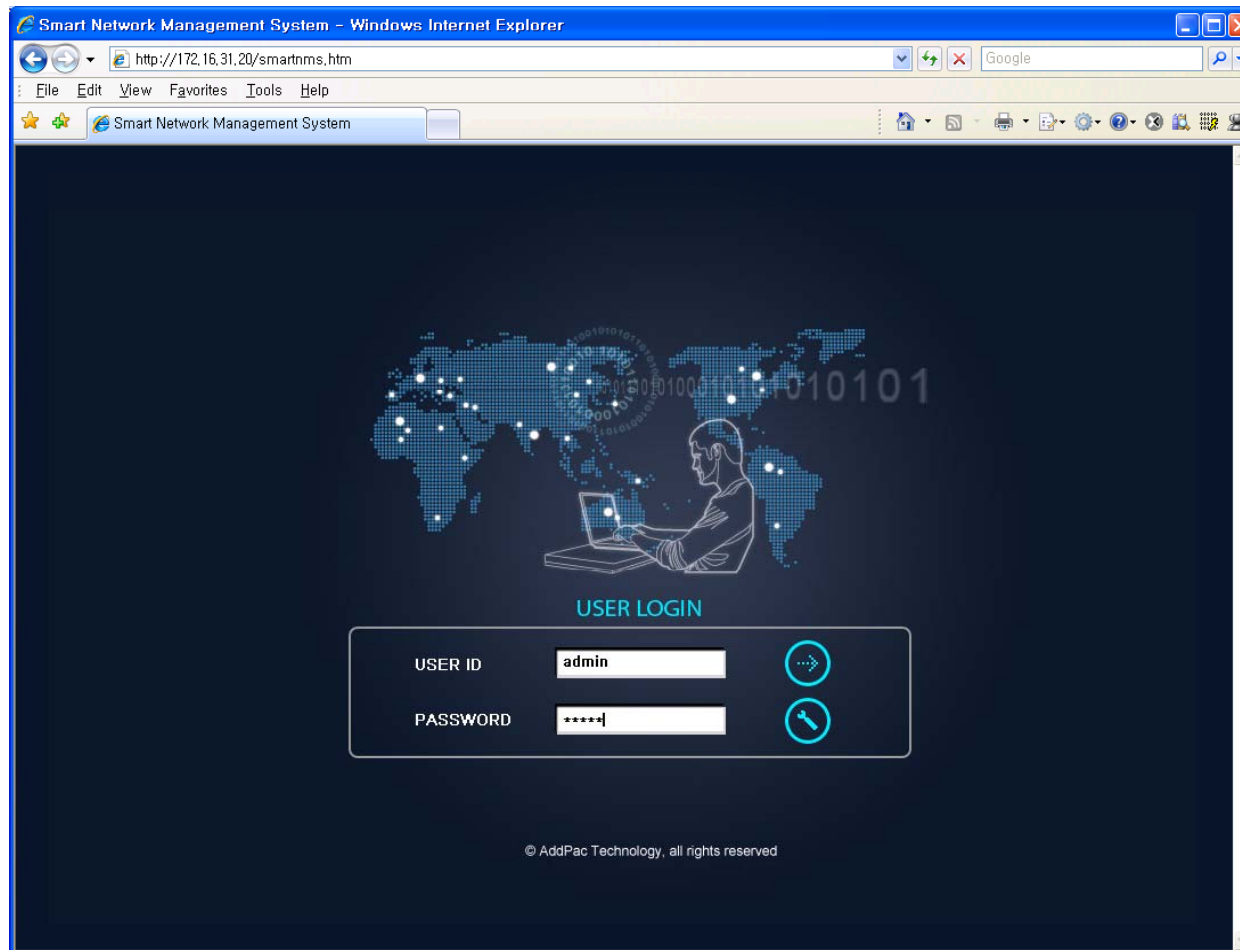
Two callout boxes highlight specific features:

- 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 bottom 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 view shows the network structure under 'Current Outage Devices (11)'. The tree includes nodes like 'AddPac', 'Branch AQ', 'Branch GX', 'Branch KT', 'HeadQuarter', 'Seoul', 'Seoul East Area', 'Subnetwork #2', 'Center', 'SongPaGu Ar...', 'Seoul North Area', 'Seoul South Area', 'Branch A', 'Branch B', 'GangNamGu', 'Branch TG', 'SeoChoGu', 'Seoul West Area', 'Gangseo Area', and 'Seoul'. A context menu is open over the 'GangNamGu' node, with options: 'Add Sub Network', 'Add Site', 'Delete', 'Execute SMM', 'Search (Ctrl+F)', 'Refresh (F5)', and 'Properties'. 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:

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

Buttons for 'Add', 'Edit', and 'Delete' are located above this table. An orange callout box points to the 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 network 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 of the main window, it says '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 central area is divided into several sections:

- Current Outage Devices [111]:** A tree view showing the hierarchy of devices under 'AddPac', including Branch AQ, Branch GX, HeadQuarter, and Subnetwork #2. Each device has a status indicator (e.g., 6 of 12, 46.997%) and a color-coded availability bar.
- Service Outages:** A table showing site-level outages. The 'Overall Availability' is 30 / 11 / 34, 78.650%.
- Device Categories:** A table summarizing faults by category. The 'Overall Categories Availability' is 30 / 11 / 34, 61.282%.
- Your Outstanding Notices [16]:** A table of recent fault events with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

Annotations with red arrows point to:

- main window:** The top navigation bar.
- current device fault list with hierarchy view:** The tree view on the left.
- current device fault event message are shown as below:** The 'Your Outstanding Notices' table.
- site device fault summary:** The 'Service Outages' table.
- overall total device fault statistics:** The 'Overall Availability' row at the bottom of the Service Outages table.
- device fault summary for category (classification):** The 'Device Categories' table.



# 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>

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

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) | All 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 address bar shows the URL `http://172.16.31.20/smartnms.htm`. The interface features a top navigation bar with menus like 'NMS', 'Account', 'Configuration', 'Monitoring', 'Notification', 'Fault', 'Statistics', and 'View'. Below this is a toolbar with various icons for site management, monitoring, and reporting.

The main content area is divided into several sections:

- Left Panel:** A tree view showing the network hierarchy under 'Site'. It includes categories like 'AddPac', 'Seoul', and 'GangnamGu', with sub-entries for various branches and areas.
- Top Right Panel:** A control area for the 'Device Monitoring' view, including 'View Mode' (Large/Small), 'Refresh', 'Import', and 'New Tab' buttons.
- Central Panel:** A grid of device status icons. Each icon represents a device with a status indicator (e.g., a red 'X' for a fault, a green checkmark for operational). The devices listed include '00\_IVR\_ser', '00\_IVR\_sla', '00\_NR\_ser', '00\_PS\_Slav', '00\_PS\_serv', '00\_RBT\_ser', '00\_RS\_serv', '00\_UMS\_ser', 'IPNext 3000', 'IP\_PBX\_Ma', 'IP\_PBX\_Sla', 'NMS\_IP\_P', 'NMS\_IP...', 'NMS\_SDH', 'PS server(o', 'RBT server', 'Recording S', 'UMS server', 'UMS server', 'UMS slave', 'company\_M', 'KT\_Inbound', 'SE\_AP2120', 'SE\_MG300', 'SKN\_TG(ou', 'SKTelTG(o', and 'SK\_3G\_F'.
- Bottom Panel:** A table titled 'Your Outstanding Notices (18)'. It lists various alerts with columns for 'Ack', 'ID', 'Send Time', 'Site', 'Device Name', 'IP Address', 'Service', and 'Message'. The messages describe service outages and failures for various devices.

A red arrow points to a device icon labeled 'NMS Camer' with IP address '172.16.51.1'. An orange text box next to it contains the text: 'device status matrix with small view mode'.

# Device Fault History Management

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

# Device Fault History Management

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a list of fault events with columns for Date/Time, Outstanding status, and Acknowledge status. An orange callout box on the left points to the 'Notification Summary' table, labeled 'daily fault event summary statistics information'. Another orange callout box on the right points to the 'Advanced Search' dialog box, labeled 'detail fault event history list up with filter condition (advanced search)'. The 'Advanced Search' dialog includes fields for Sub Network, Site, IP Address Contains, Notice Status Type, Level (Severity), Message Contains, Notices After, Notices Before, and Sort By. Below the main table, there is a section for 'Your Outstanding Notices (17)' with a detailed list of fault events including Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

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

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message	Order	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	auto-acknowledged	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.	auto-acknowledged	4/10/2009 5:35:25 PM
<input type="checkbox"/>	9526	4/10/2009 5:33:42 PM	/AddPac/Branch GX	00_NH_server	172.17.111			auto-acknowledged	4/10/2009 5:35:25 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	UU_NH_server	172.17.111			auto-acknowledged	4/10/2009 5:22:43 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX	00_NH_server	172.17.111			auto-acknowledged	4/10/2009 5:17:56 PM
<input type="checkbox"/>	9522	4/10/2009 3:36:26 PM	/AddPac/HeadQuarter	IP_PBX_Slave(our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9521	4/10/2009 3:36:18 PM	/AddPac/HeadQuarter	PS_server(our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9520	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	RBT_server(our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9519	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	UMS_server #2				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9518	4/10/2009 3:36:09 PM	/AddPac/HeadQuarter	Recording Server (our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9517	4/10/2009 3:36:08 PM	/AddPac/HeadQuarter	company_MUU_s...				auto-acknowledged	4/10/2009 4:03:14 PM
<input type="checkbox"/>	9516	4/10/2009 3:36:00 PM	/AddPac/Branch GX	00_PS_Slave_ser...				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9514	4/10/2009 3:35:50 PM	/AddPac/Branch GX	00_PS_server				auto-acknowledged	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				auto-acknowledged	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)				auto-acknowledged	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			auto-acknowledged	4/10/2009 4:02:43 PM

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"/>	9239	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 in a Windows Internet Explorer browser. The main window shows a list of device faults 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, allowing users to enter a note for a specific event. The dialog box includes a 'Status' dropdown (set to 'Cleared'), a text area for the note, and buttons for 'Add', 'Edit', 'Delete', and 'Close'. An orange callout box points to the text area 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 5:22:43 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX					to-acknowledged	4/10/2009 5:17:56 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX					to-acknowledged	4/10/2009 4:03:13 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 cor				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

Can write troubleshooting note if needed



# Current Device Fault (Outage)

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of network devices and a table of current outages. An 'Event Detail' dialog box is open, providing information about a specific outage event.

**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_S0H0...	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...	172.17.114.60	SNMP	4/10/2009 9:26:04 PM
13907	/Subnetwork #2/Cent.	NMS_S0H0_PBX	172.16.53.101	ICMP	4/10/2009 5:34:10 PM
13906	/Subnetwork #2/Cent.	NMS_S0H0_PBX	172.16.19.50	ICMP	4/10/2009 3:34:29 PM
13906	/Subnetwork #2/Cent.	NMS_S0H0_PBX	172.16.19.50	SNMP	4/10/2009 3:34:29 PM
13896	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	2009-4-10 11:37:12 AM
13895	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	2009-4-10 11:37:12 AM
13802	/AddPac/Branch GX	00_IVR_server	172.17.113.40	device	00_IVR_server all services are down.
13801	/AddPac/Branch GX	00_IVR_server	172.17.113.40	device	00_IVR_server all services are down.
13800	/AddPac/Branch GX	00_IVR_server	172.17.113.40	device	00_IVR_server all services are down.
13773	/AddPac/Branch AQ	NMS_IP_PBX_31.13	172.16.253.118	device	NMS_IP_PBX_31.13 all services down.
13772	/AddPac/Branch AQ	NMS_IP_PBX_31.13	172.16.253.118	device	NMS_IP_PBX_31.13 all services down.
13771	/AddPac/Branch AQ	NMS_IP_PBX_31.13	172.16.253.118	device	NMS_IP_PBX_31.13 all services down.
13611	/AddPac/Branch AQ	NMS Camera	172.16.253.118	device	NMS Camera 2 interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
13610	/AddPac/Branch AQ	NMS Camera	172.16.253.118	device	NMS Camera 2 interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
13609	/AddPac/Branch AQ	NMS Camera	172.16.253.118	device	NMS Camera 2 interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
13608	/AddPac/Branch AQ	NMS Camera	172.16.253.118	device	NMS Camera 2 interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
13607	/AddPac/Branch AQ	NMS Camera	172.16.253.118	device	NMS Camera 2 interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
13606	/AddPac/Branch AQ	NMS Camera	172.16.253.118	device	NMS Camera 2 interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
9021	/AddPac/Branch GX	UMS slave	172.17.113.41	device	00_RBT_server failed.
9020	/AddPac/Branch GX	UMS slave	172.17.113.41	device	00_RBT_server failed.
9019	/AddPac/Branch GX	UMS slave	172.17.113.41	device	00_RBT_server failed.
6489	/AddPac/Branch GX	00_PS_server	172.17.113.41	device	00_RBT_server failed.

**Event Detail (ID: 45412)**

Event Time: 4/10/2009 9:26:04 PM  
 Site: /AddPac/Branch GX  
 Service: 00\_RBT\_server  
 Time Acknowledge: [Empty]  
 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.  
 Troubleshooting Note List: [Empty table]  
 Buttons: Acknowledge Events, Device Properties, Help, Close, Add, Edit, Delete

**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	device 00_RBT_server failed.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...		device	device 5th floor meeting room p... failed.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent.	NMS_S0H0_PBX		device	device NMS_S0H0_PBX all services down.
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	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"/>	9419	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server		device	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	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	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

# Device Event History

Smart Network Management System - Windows Internet Explorer

http://172.16.31.20/smatnms.htm

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Event Summary

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

Limit: 20 | Refresh | Advanced Search | Acknowledge Events | Troubleshooting Note

Acc. 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 [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"
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.
45784	Cleared	4/13/2009 11:15:52 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21		Node 00_NR_server is up.
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"
45782	Critical	4/13/2009 11:15:13 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21		Node 00_NR_server is down.
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.
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.
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.
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 172.17.113.201 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 61.33.161.43 failed.
45774	Warning	4/13/2009 9:59:36 AM	/Subnetwork #2/Center	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/Center	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/Center	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/Center	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/Center	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/Center	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.

Results: 1 to 20 of 25346 | Search Constraints: user=admin

Can view all events for devices with search condition

summarize daily event statistics data

Acc. ID	Event Time	Site	Device Name	IP Address	Service	Message
9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	device 00_RBT_server's all services are down.
9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	device 5th floor meeting room phone device, all services are down.
9419	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device NMS_SOHO_PBX, all services are down.
9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
						device 00_IVR_server all services are down.
						device NMS_IP_PBX_31.13 all services down.
						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)

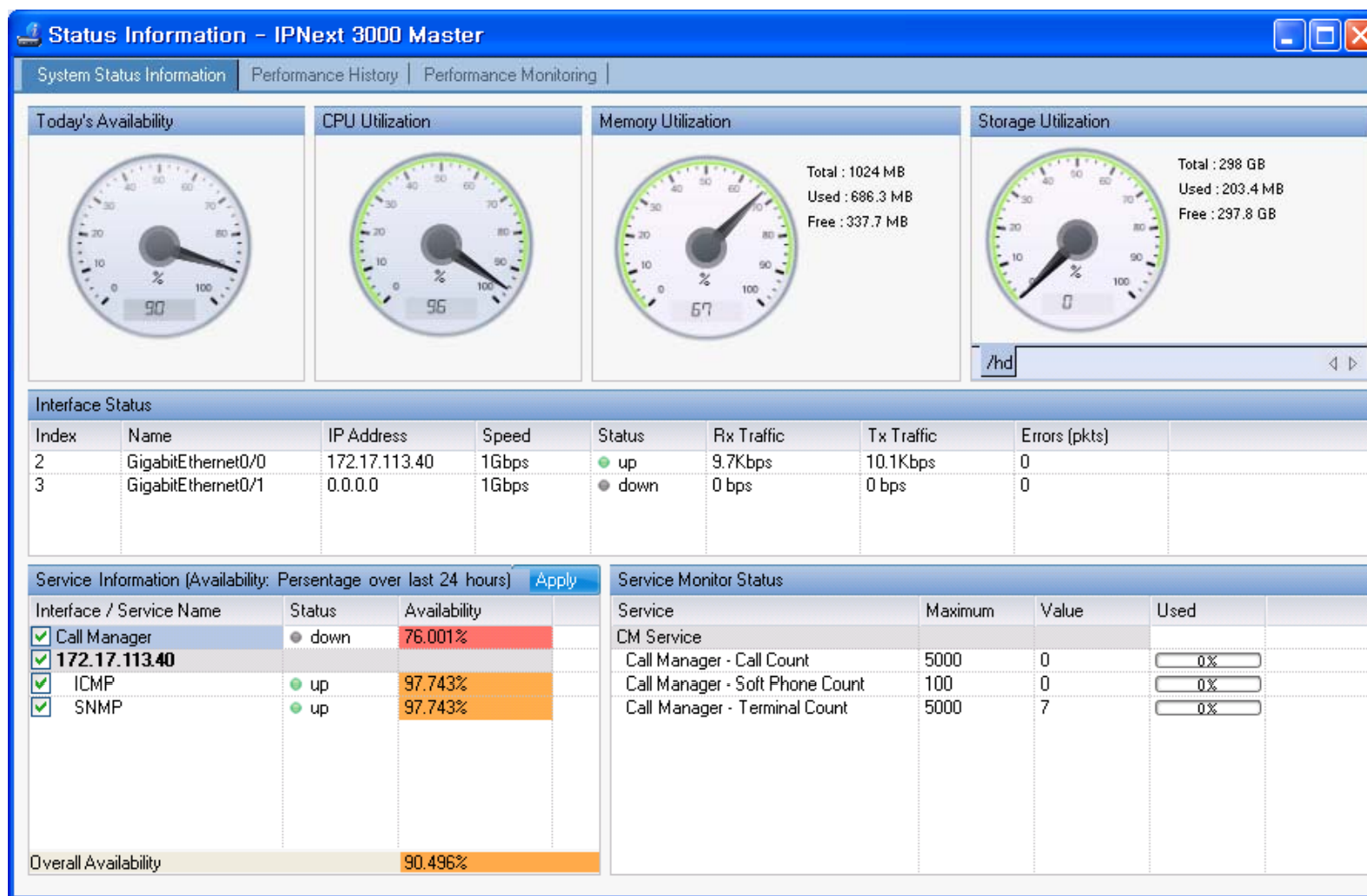
4/13/2009 11:46:45 AM | 172.16.31.20:5101 | admin | Version 1.2.3384

# 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

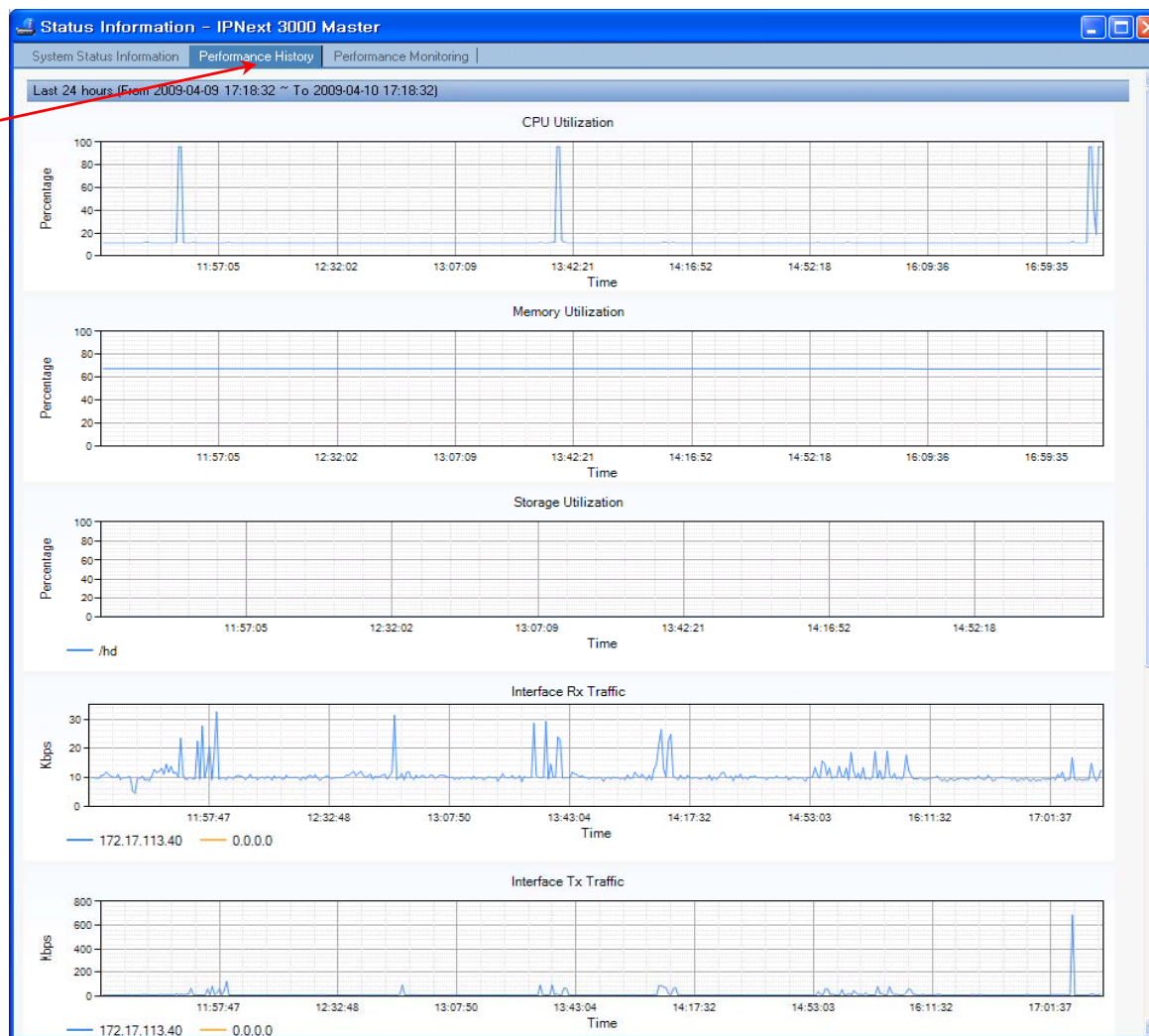


# Device Status Information

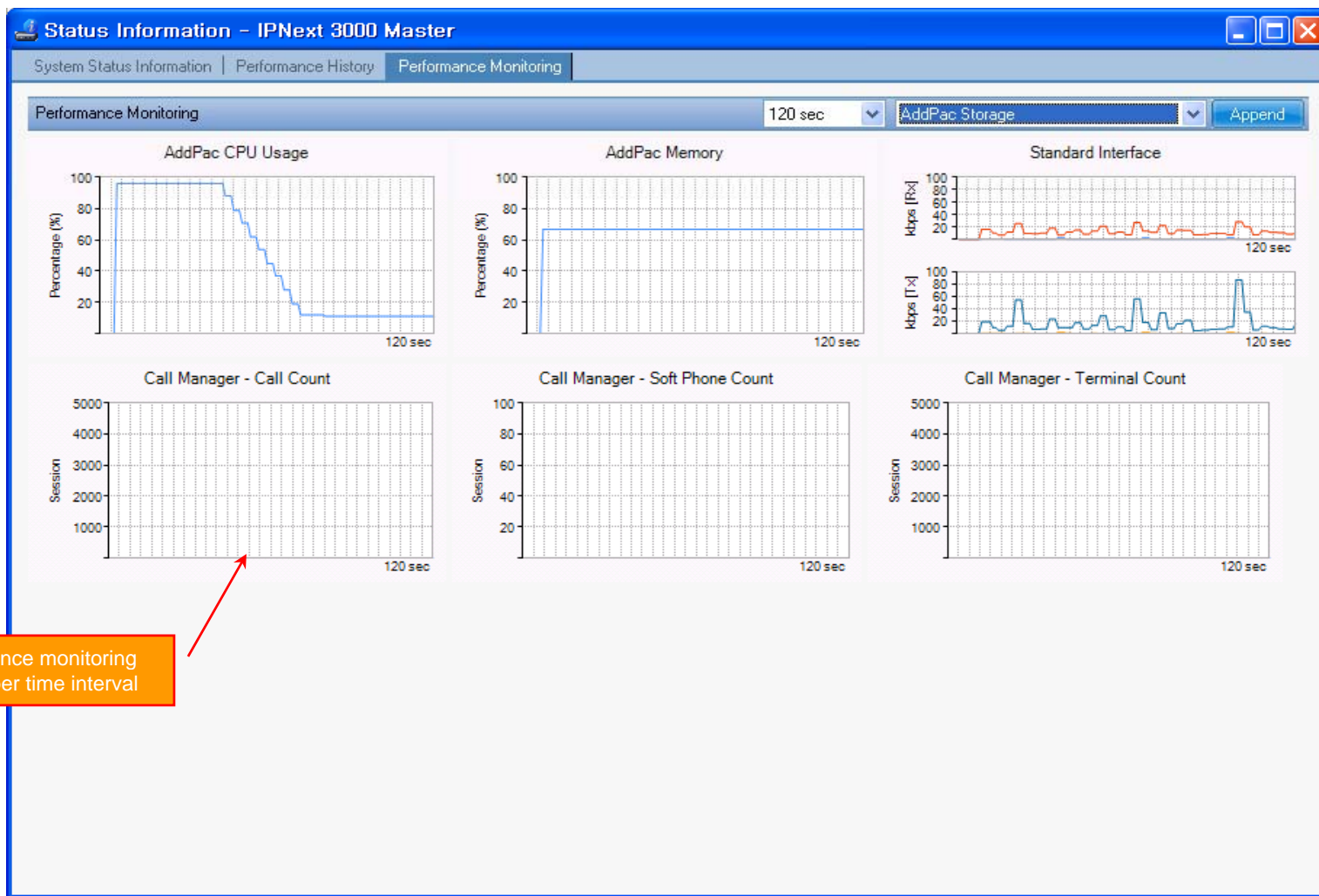


# Device Status Information

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

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, and a list of apply categories (Desktop, Network Camera, Phone, Server, Switch). The text message and email subject fields are populated with a detailed notification template.

**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**

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 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 Trap: 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	

Event Notification Properties
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 %iparm(timeout)% milliseconds, over %iparm(attempts)% attempts. This event will NOT impact service level agreements, but may be an indicator of other problems on that node.
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: <input checked="" type="checkbox"/>

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 is all services...
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent.	NMS_SOHO_PBX			
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		

# Event Notification Management

The screenshot displays the Smart NMS web interface in Internet Explorer. The main window shows a tree view of 'Current Outage Devices' and a table of 'Your Outstanding Notices'. A 'Destination Path Properties' dialog box is open, allowing configuration of a destination path named 'default'. The dialog includes fields for 'Destination Path Name', 'Initial Target', and 'Initial Delay'. A table within the dialog lists notification types and their targets:

Notification Type	Target	Auto Notify
alarmLamp	alarmLamp	on
e-mail	admin	on
sms	admin	on

A red callout box with the text "define notification channel such as e-mail, sms, or alarmLamp" points to the 'Notification Type' column in this table. Below the dialog, the 'Your Outstanding Notices' table is visible, showing details for 18 notices, including Ack ID, Send Time, Site, Device Name, IP Address, Service, and Message.



# Event Notification 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 (13) | Site | Service Outages | Event Notification | Destination Paths | Users

Destination Path Name: default  
onlyAlarmLamp

Destination Path Properties

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

Target Properties

Choose the notification type: sms

Target Information

Send to select user: Account Administrator

Send to Email or Mobile: Mobile Number

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

Help Ok Cancel

Your Outstanding Notices (18)

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

4/13/2009 11:24:54 AM | 172.16.31.20:5101 | admin | Version 1.2.3384

# Configuration

The screenshot displays the Smart NMS web interface. A 'Configure Notification' dialog box is open, showing configuration for an 'Alarm Lamp' notification channel. The 'E-Mail' tab is selected, and the following fields are visible:

- Sender Email Address: nms@addpac.com
- SMTP Server Host: 61.33.161.2
- Authentication:  (unchecked)
- Username: [empty field]
- Password: [empty field]

An orange callout box with a red arrow points to the dialog, containing the text: "global notification channel configuration".

The background interface shows a tree view of network devices under 'AddPac' and a table of 'Your Outstanding Notices'.

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all 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
<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



# 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	52%	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%

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

# Fault Statistics

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

# Fault Statistics

The screenshot displays the Smart Network Management System (NMS) interface. The search conditions are set to 'Hour' for '4/ 9/2009' from '3/30/2009' to '3/30/2009', with the site category set to 'Branch A, Branch AQ, B'. The bar chart shows fault counts over time, with a peak around 15:00. The detailed data table below the chart shows fault counts for various sites and branches for the date 4/9/2009.

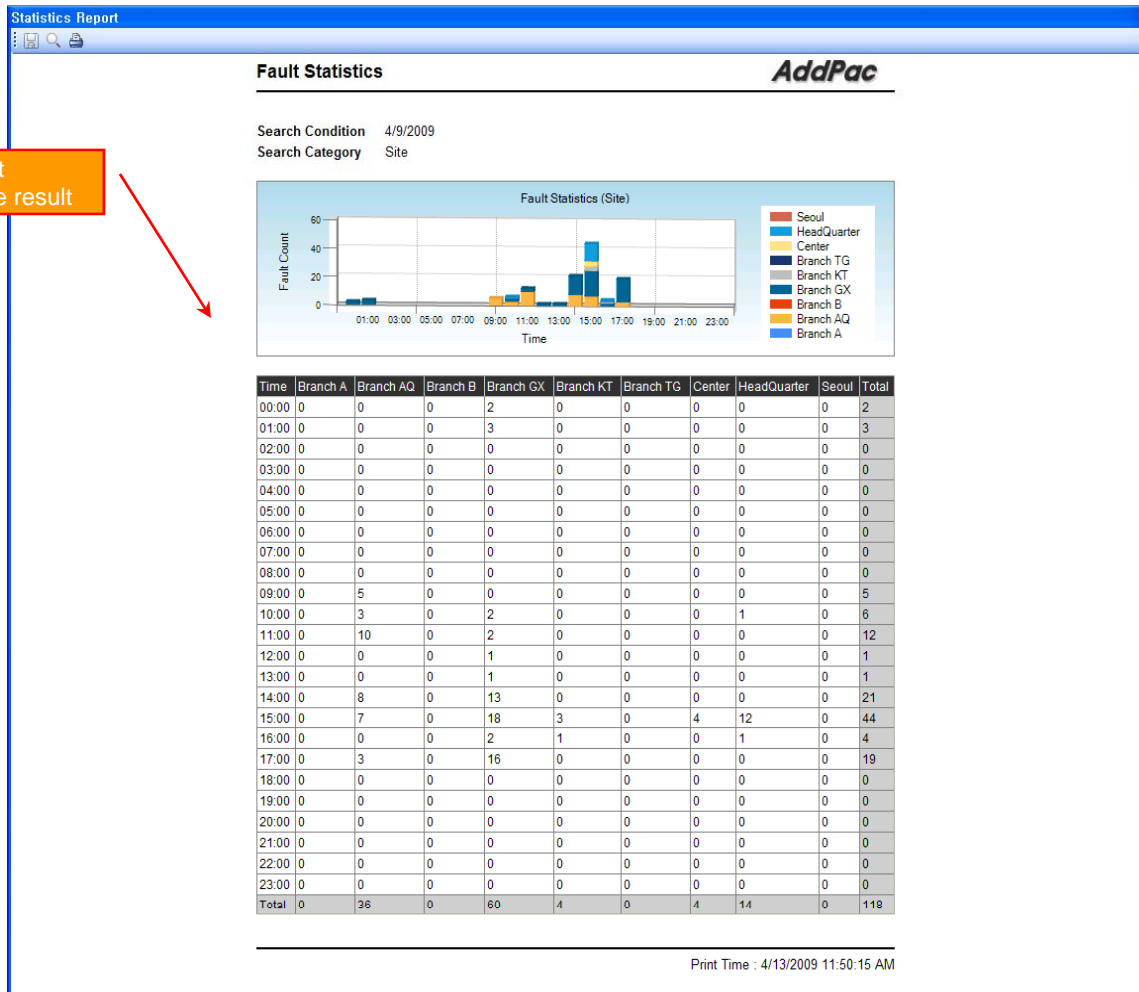
Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	1	0	0	0	0	0	1
13:00	0	0	0	1	0	0	0	0	0	1
14:00	0	8	0	13	0	0	0	0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

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
Branch TG	Yeoksam Area
SeoChoGu	seoul seocho district
Seoul West Area	Seoul West Area
Uangseo Area	Uangseo Area
Seoul	
MokDong Area	MokDong Area

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

Model Name	Category	SSCP Port
AP-IPC250M	Network Camera	5061 (1*65535)

Model Image Management
[Grid of device images including various routers, switches, and cameras]

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 ser...
/Subnetwork #2/Cent...	NMS_SOHD_PBX			device NMS_SOHD_PBX, all services are down
/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IP...
/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IP...
/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.11		
/AddPac/Branch AQ	NMS Camera 2	172.16.253.11		

# Service Definition

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of sites on the left and a list of services in the center. A red arrow points from an orange callout box to the 'Camera Operation Status' service in the list. Two 'Service Properties' dialog boxes are open, showing configuration details for this service.

**Service Properties (Top Dialog):**

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

**Service Properties (Bottom Dialog):**

- General | SNMP
- Service OID: 1.3.6.1.4.1.4895.7.51.1.3.0
- Service Condition:
  - Operator: =
  - Operand: 1

**Service List (Bottom Table):**

Site	Device Name	IP Address	Service	Message
/AddPac/Branch GX	00_RBT_server			device 00_RBT_serv
/AddPac/HeadQuarter	5th floor meeti...			device 5th floor meeti...
/Subnetwork #2/Cent...	NMS_S0HD_PBX			device NMS_S0HD...
/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	Call Manager 2009-4...
/AddPac/Branch GX	00_IVR_server			interface 172.17.113...
/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera...
/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	ICMP	device (NMS Camera...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	ICMP not response o...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	SNMP not response...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device(NMS Camera...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	ICMP not response o...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device(NMS Camera...

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



# Thank you!

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