

# Media Gateway Solution



AP-MG5000



AP-MG3000



AP-MG3800

**AddPac**

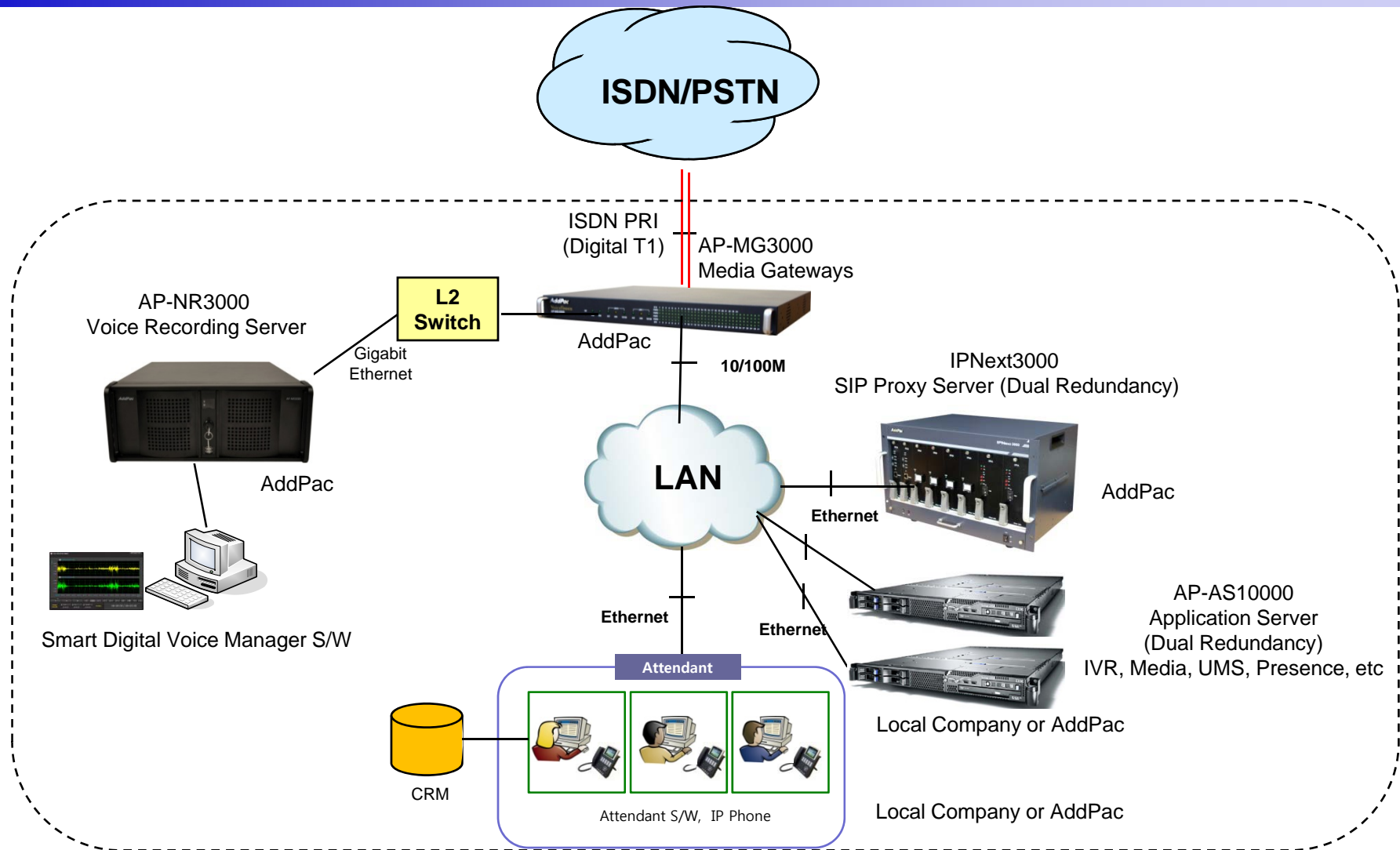
**AddPac Technology**

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)	

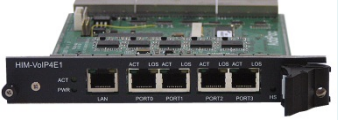



Target :  
AP-MG3800, AP-MG5000



# VoIP Modules



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)	

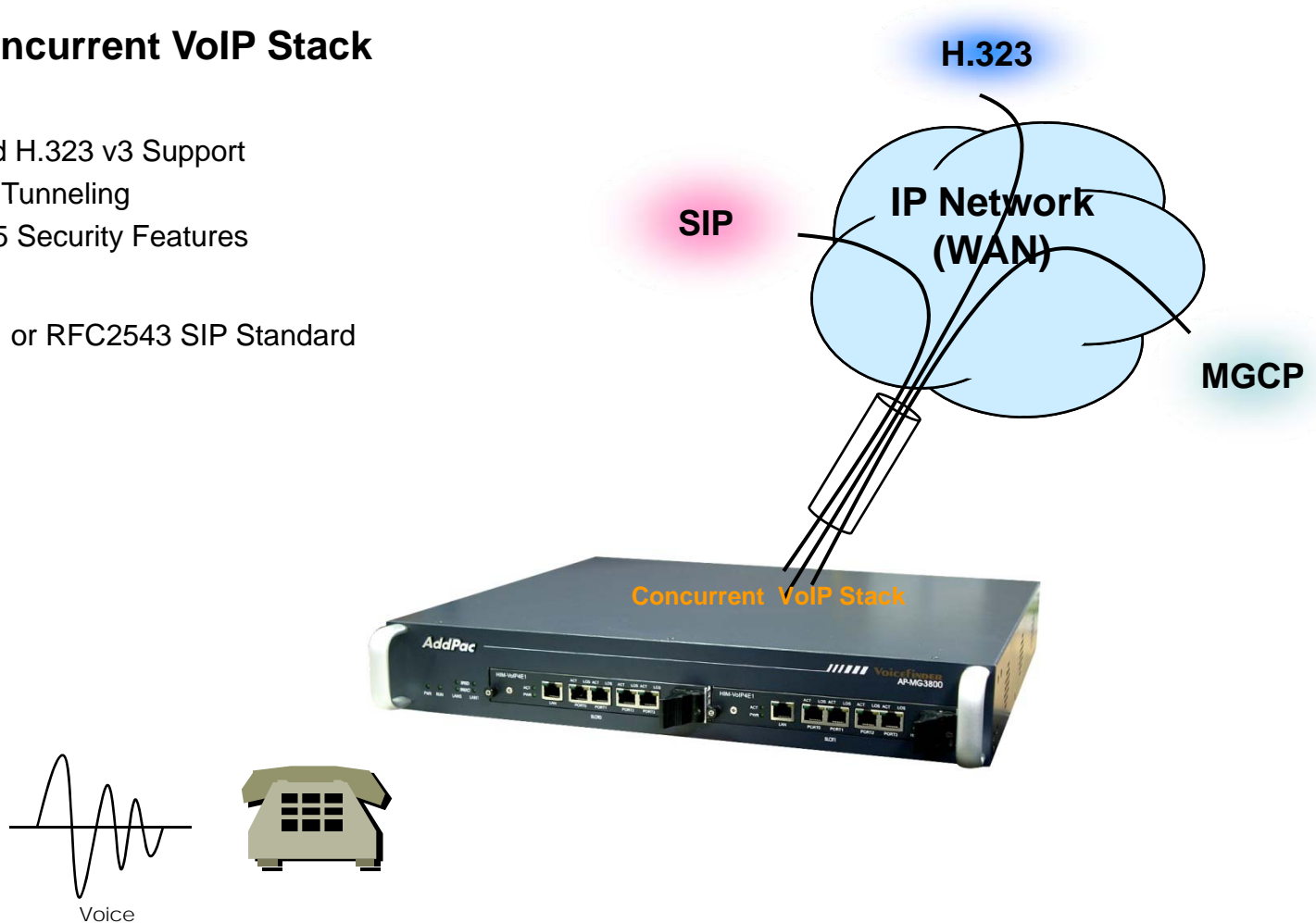




# Media Gateway Service Features

# 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**

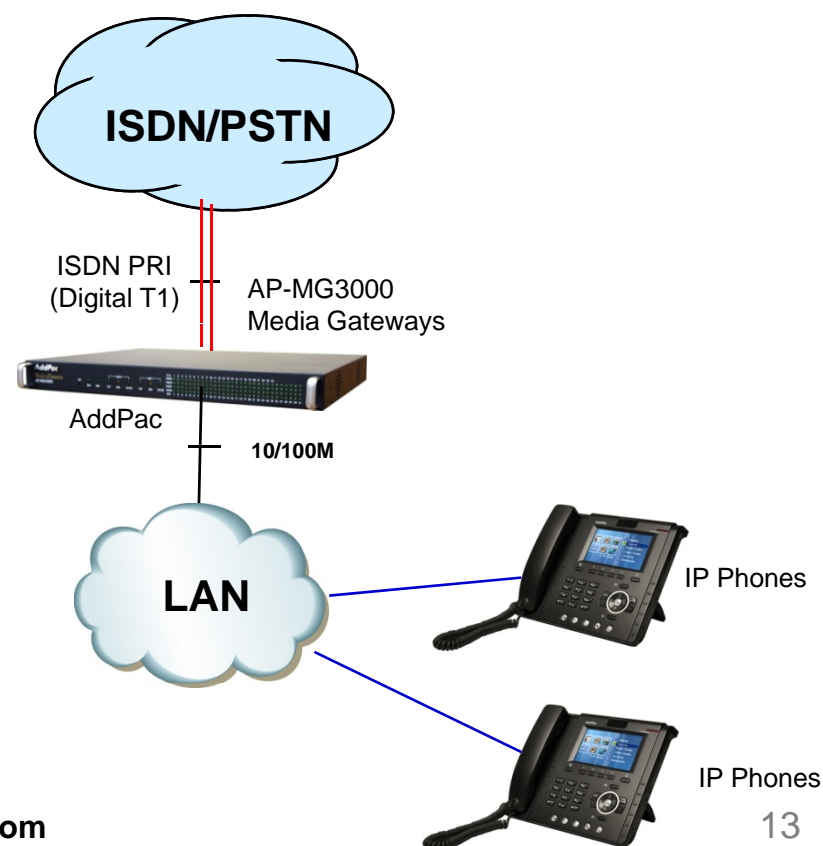
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **RTP**

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

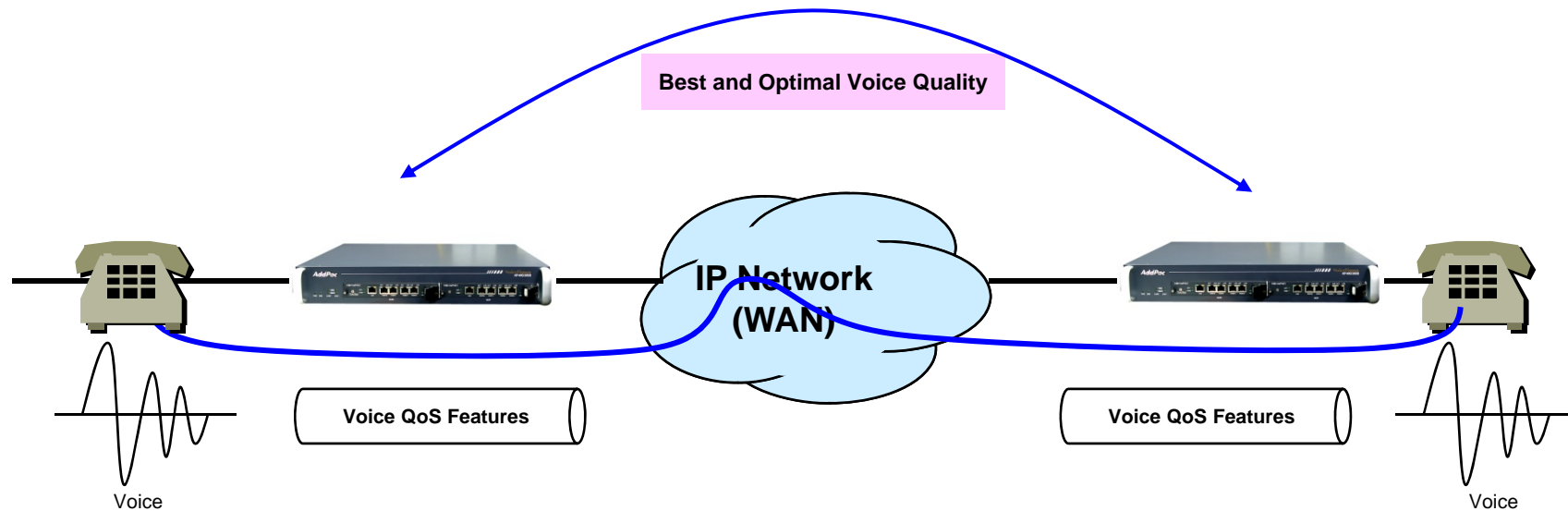
# Advanced QoS Features

- **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**

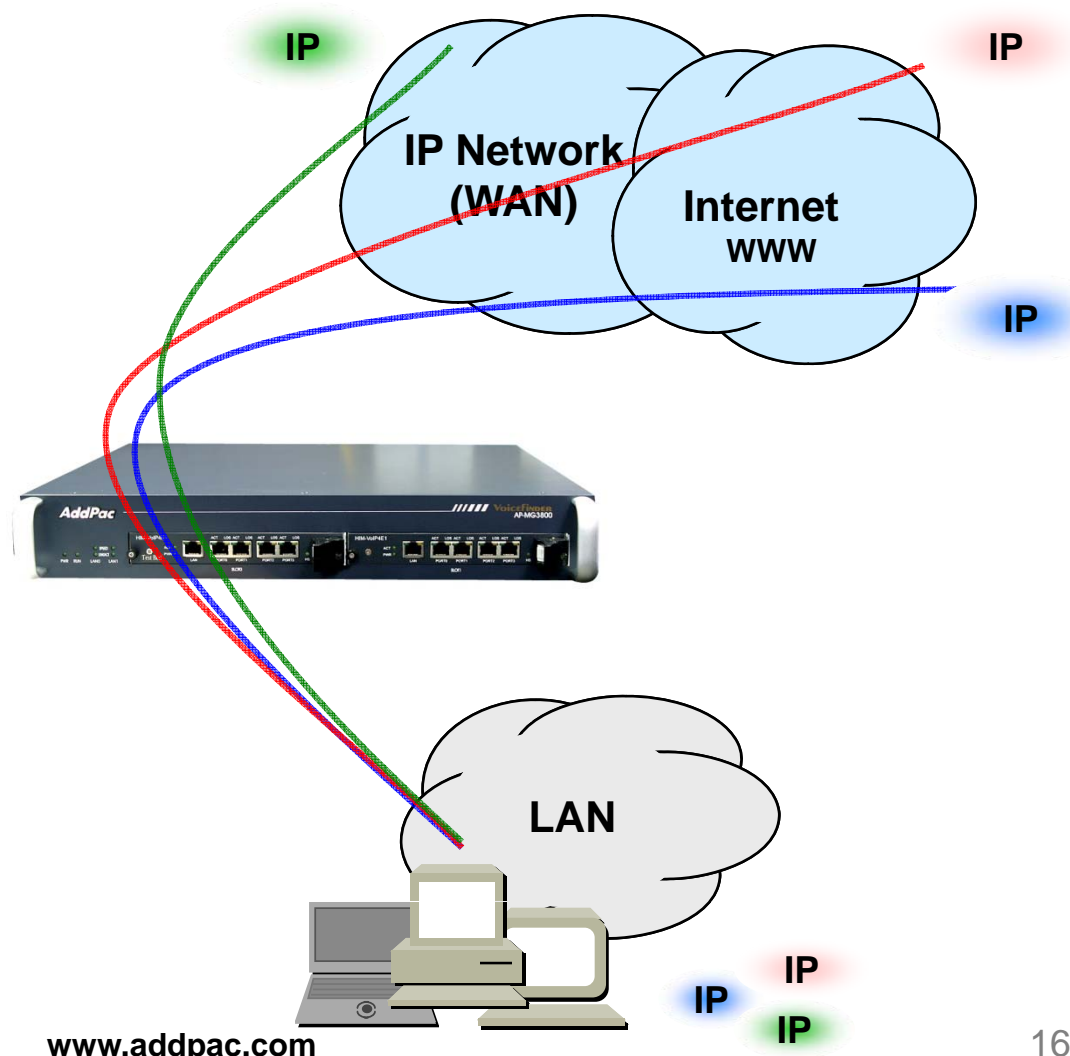
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **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**

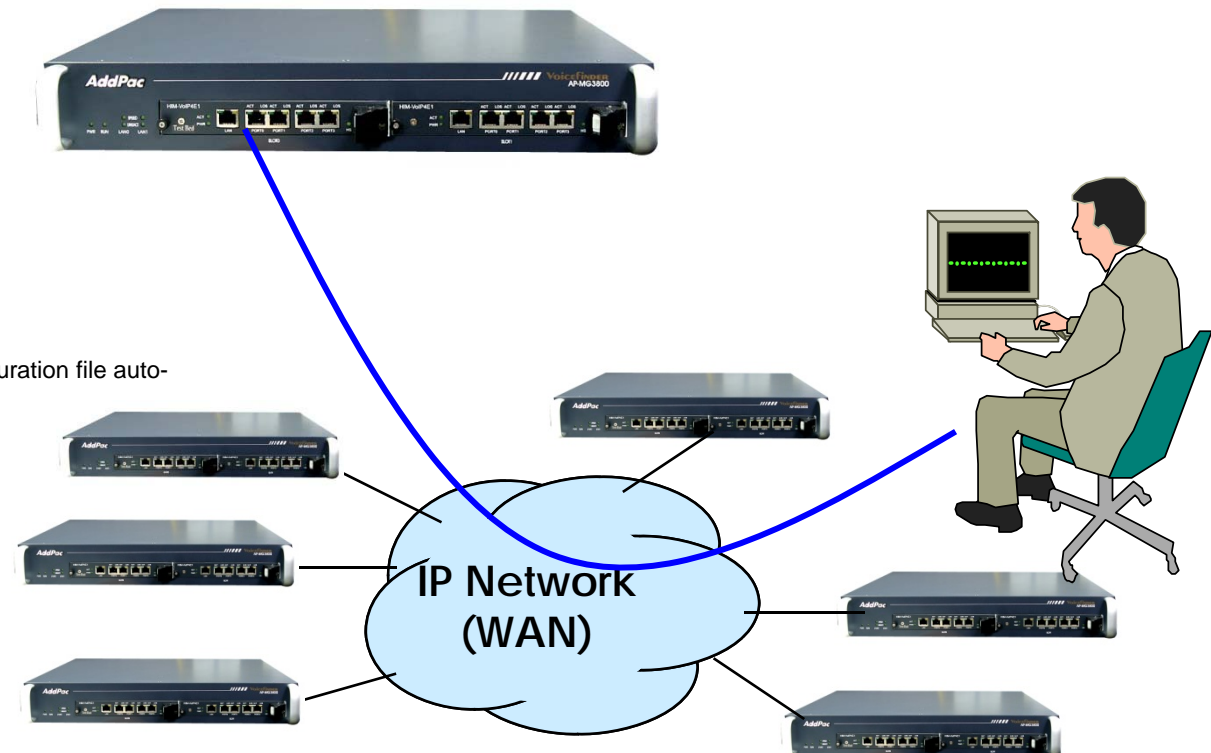
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

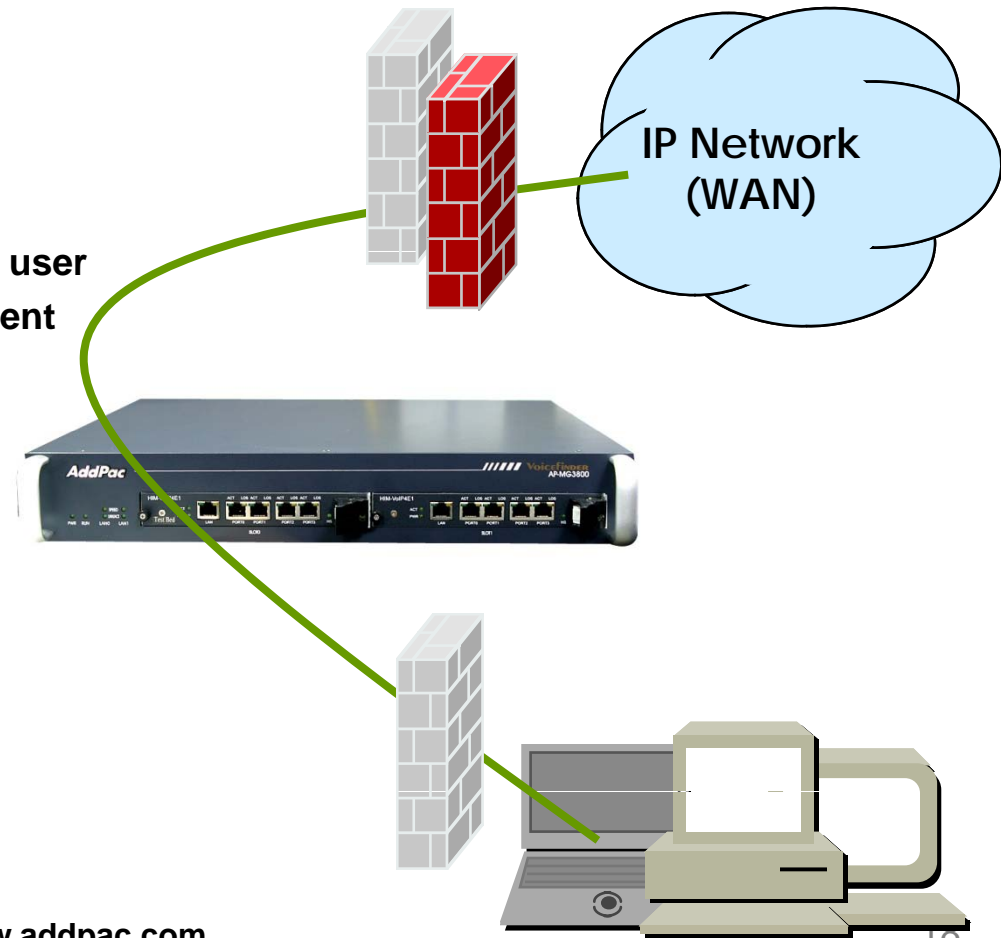
- **Interoperable with AP-VPMS Service**

- 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 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

**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	T303	2 (1-10sec)
	T310	4 (1-400sec)
		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

**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

Apply

# Basic – Digital : E1/ T1 Extension

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

**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**

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Model : AP1800  
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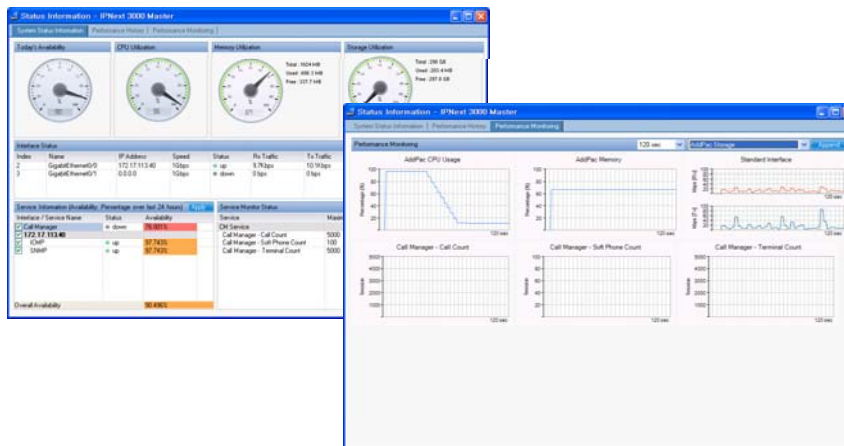
**Description**

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

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

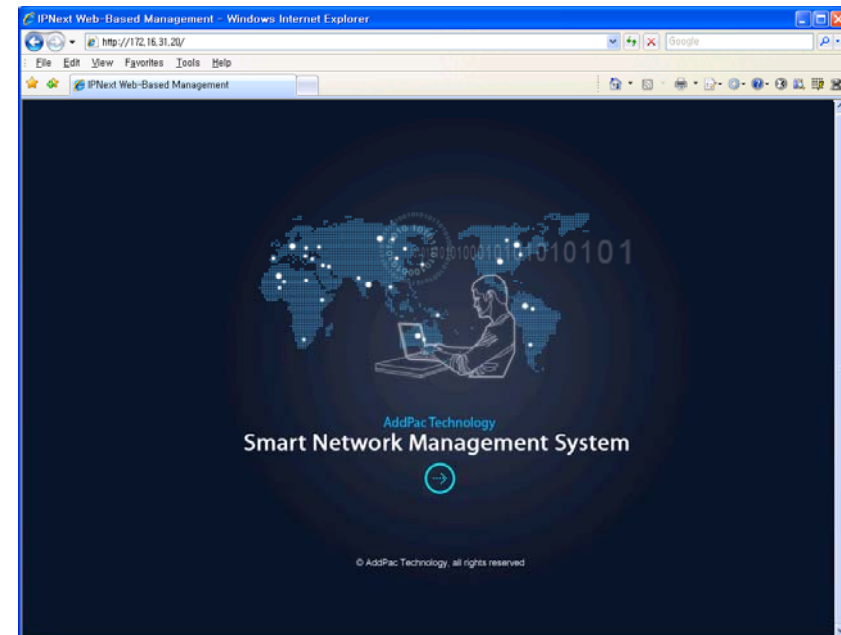
# Smart NMS

## 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

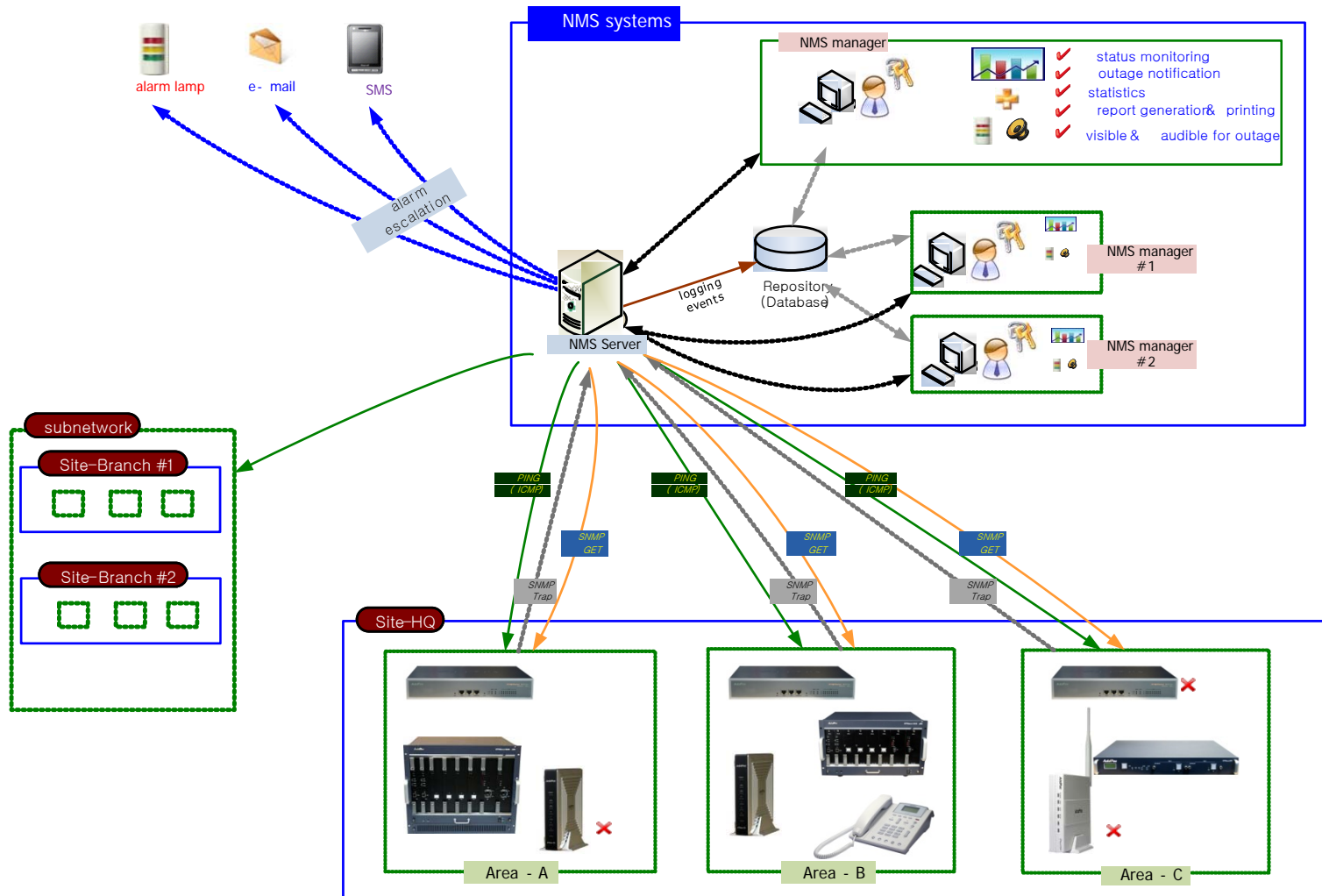
## NMS Server

- 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." at the bottom.

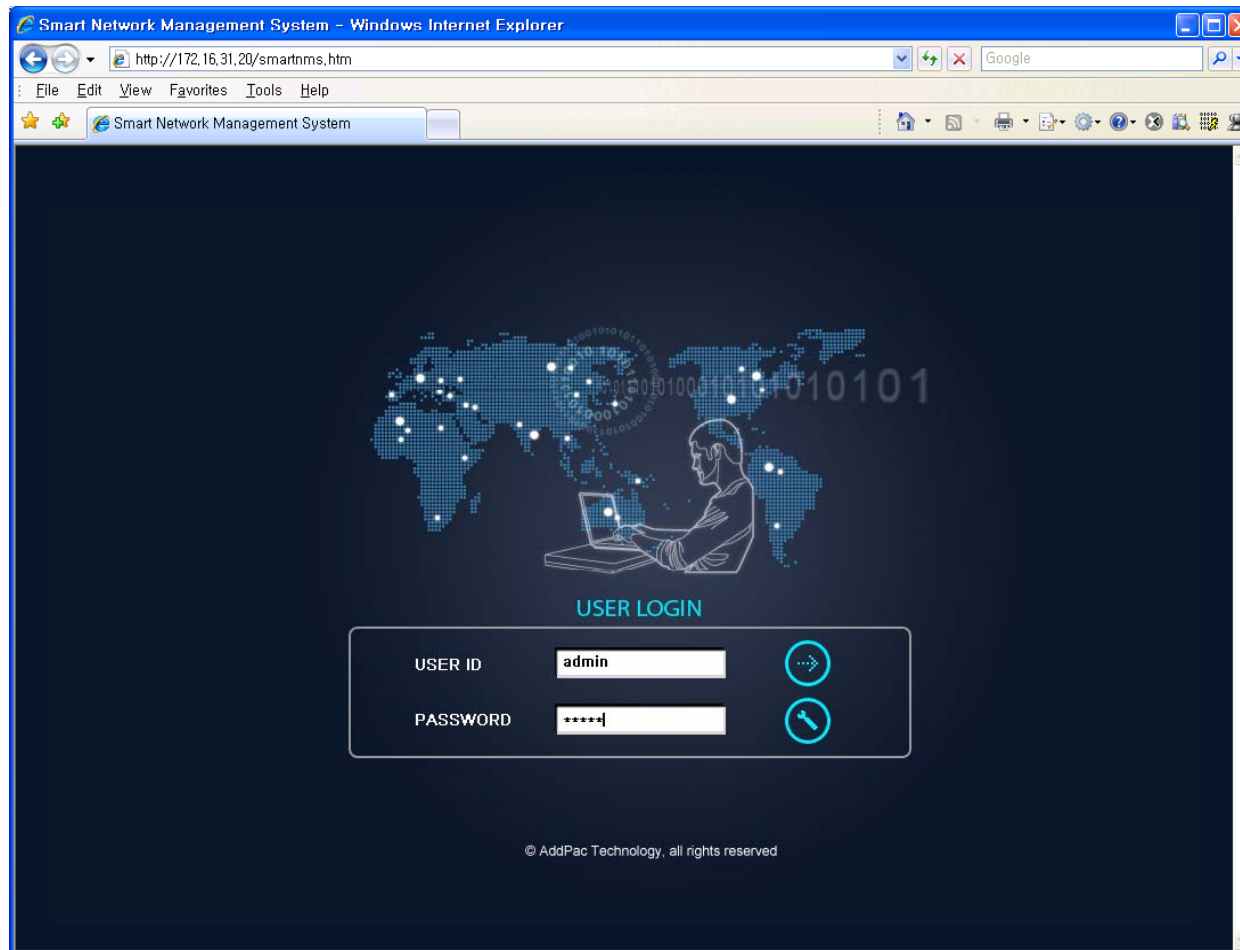
Two callout boxes highlight specific features:

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

- Name: `installnms`
- From: `172.16.31.20`
- Download progress: 6.29 MB of 10.1 MB
- Buttons: "Cancel"

# 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'. A red arrow points from an orange callout box to the 'Execute SMM' option.

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

On the right, a 'User Properties' dialog box is open, showing a 'Site' tab. It contains a tree view of the same hierarchical structure as the main interface, with several nodes checked. A red arrow points from an orange callout box to this dialog box.

Three orange callout boxes provide additional context:

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

# Device Fault Management

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

# Device Fault Management

**main window**

**current device fault list with hierarchy view**

**current device fault event message are shown as below**

**site device fault summary**

**overall total device fault statistics**

**device fault summary for category (classification)**

**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 [11] | Service Outages

Name	Service...	Availability
AddPac		
Branch AQ		
NMS Camera	6 of 12	46.937 %
NMS_IP_PBX...	3 of 3	0.000 %
Branch GX		
00_IVR_server	3 of 3	0.000 %
00_IVR_slave...	3 of 3	0.000 %
00_PS_server	3 of 3	0.000 %
00_PS_Slavo...	2 of 3	32.740 %
IPNext 3000 ...	1 of 3	90.608 %
IPNext 3000 S...	1 of 3	90.623 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
UMS server(o...	3 of 3	0.000 %
Subnetwork #2		
Center		
NMS_SOHO_...	2 of 2	98.115 %

Site	Type	Outages	Availability	Description
AddPac	Sub Netw...	28 / 10 / 32	53%	AddPac Technology C...
Seoul	Sub Netw...	2 / 1 / 2	98%	Seoul subnetwork

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

Overall Availability: 30 / 11 / 34 78.650 %

Overall Categories Availability: 30 / 11 / 34 61.282 %

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

Your Outstanding Notices (16) | All Outstanding Notices (16)

4/10/2009 4:17:43 PM | 172.16.31.20:5101 | admin | Version 1.2.3384



# 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 locations like 'AddPac', 'Seoul', 'Seoul East Area', 'Seoul South Area', and 'MokDong Area'.
- Top Right:** A 'Destination Paths' section with a 'Value' dropdown set to '<All>' and 'View Mode' options for 'Large' and 'Small'. There are buttons for 'Refresh', 'Import', and 'New Tab'.
- Center:** A grid of device icons representing various network components. Each icon has a status indicator (green for OK, red for fault, yellow for warning). A red arrow points to an 'NMS Camera' icon, which is highlighted by an orange callout box containing the text 'device status matrix with small view mode'.
- Bottom:** 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 interface failures for various devices.

At the bottom of the browser window, the status bar shows the date and time '4/13/2009 3:14:58 PM', the IP address '172.16.31.20:5101', the user 'admin', and the version 'Version 1.2.3384'.

# Device Fault History Management

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

# Device Fault History Management

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a list of fault events with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, Message, Status, 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 Contains, Notices After, Notices Before, and Sort By.

**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	9
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	Status	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_NR_server	172.17.113.41			auto-acknowledged	4/10/2009 5:35:25 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	UU_NR_server	172.17.113.41			auto-acknowledged	4/10/2009 5:22:43 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX	00_NR_server	172.17.113.41			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	RBT 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	PS 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_server				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_server				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

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

**Your Outstanding Notices (17)**

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting ro...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Center	NMS_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	172.16.253.119	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 Internet Explorer. The main window shows a list of device faults with columns for Date/Time, Outstanding count, Acknowledge status, and a detailed table of events. The detailed table includes columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, Message, Responder, and Respond Time.

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.		
<input type="checkbox"/>	9526	4/10/2009 5:33:42 PM	/AddPac/Branch GX						
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX						
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX						
<input type="checkbox"/>	9522	4/10/2009 3:36:26 PM	/AddPac/Branch AQ	IP cor					
<input type="checkbox"/>	9521	4/10/2009 3:36:18 PM	/AddPac/Branch AQ	PS RB					
<input type="checkbox"/>	9520	4/10/2009 3:36:17 PM	/AddPac/Branch AQ	cor					
<input type="checkbox"/>	9519	4/10/2009 3:36:17 PM	/AddPac/Branch AQ	UW					

Two 'Troubleshooting Note' dialog boxes are open. The first dialog shows a text area with the message: "Fixed it manually. 2009-04-10 PM by Administrator." and buttons for "Ok" and "Cancel". The second dialog is titled "Troubleshooting Note (Event ID : 45393)" and contains a "Log Message" field with the same text as the first dialog, a "Troubleshooting Note List" table, and buttons for "Add", "Edit", "Delete", and "Close".

An orange callout box on the left contains the text: "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 ID...	2 of 2	0.000 %

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	SNMP	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	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	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
13801	/AddPac/Branch GX	00_IVR_server	172.17.114.60	SNMP	4/10/2009 9:26:04 PM
13800	/AddPac/Branch GX	00_IVR_server	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
13773	/AddPac/Branch AQ	NMS_IP_PBX_31.13	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
13772	/AddPac/Branch AQ	NMS_IP_PBX_31.13	172.17.114.60	SNMP	4/10/2009 9:26:04 PM
13771	/AddPac/Branch AQ	NMS_IP_PBX_31.13	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
13611	/AddPac/Branch AQ	NMS Camera	172.16.253.118	ICMP	4/10/2009 7:49:20 PM
13610	/AddPac/Branch AQ	NMS Camera	172.16.253.118	SNMP	4/10/2009 7:49:20 PM
13609	/AddPac/Branch AQ	NMS Camera	172.16.253.118	ICMP	4/10/2009 7:49:20 PM
13608	/AddPac/Branch AQ	NMS Camera	172.16.253.118	SNMP	4/10/2009 7:49:20 PM
13607	/AddPac/Branch AQ	NMS Camera	172.16.253.118	ICMP	4/10/2009 7:49:20 PM
13606	/AddPac/Branch AQ	NMS Camera	172.16.253.118	SNMP	4/10/2009 7:49:20 PM
9021	/AddPac/Branch GX	UMS slave	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
9020	/AddPac/Branch GX	UMS slave	172.17.114.60	SNMP	4/10/2009 9:26:04 PM
9019	/AddPac/Branch GX	UMS slave	172.17.114.60	ICMP	4/10/2009 9:26:04 PM
6489	/AddPac/Branch GX	00_PS_server	172.17.114.60	ICMP	4/10/2009 9:26:04 PM

**Event Detail (ID: 45412)**

Acknowledge Events    Device Properties    Help    Close

Event Time: 4/10/2009 9:26:04 PM    IP Address:    Severity: Critical

Site: /AddPac/Branch GX    Device Name: 00\_RBT\_server    Device Model: AP-RBT1000

Service:    Status:    Acknowledged By:

Time Acknowledge:

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

Time	User	Status	Note

Add    Edit    Delete

# 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

Site Event Summary

Event Time	Outsta...	Ackno...	Not Clea...	Cleared	In Prk
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 args [1].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].1.3.6.1.4.1.4855.3.2.10 args [1].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)

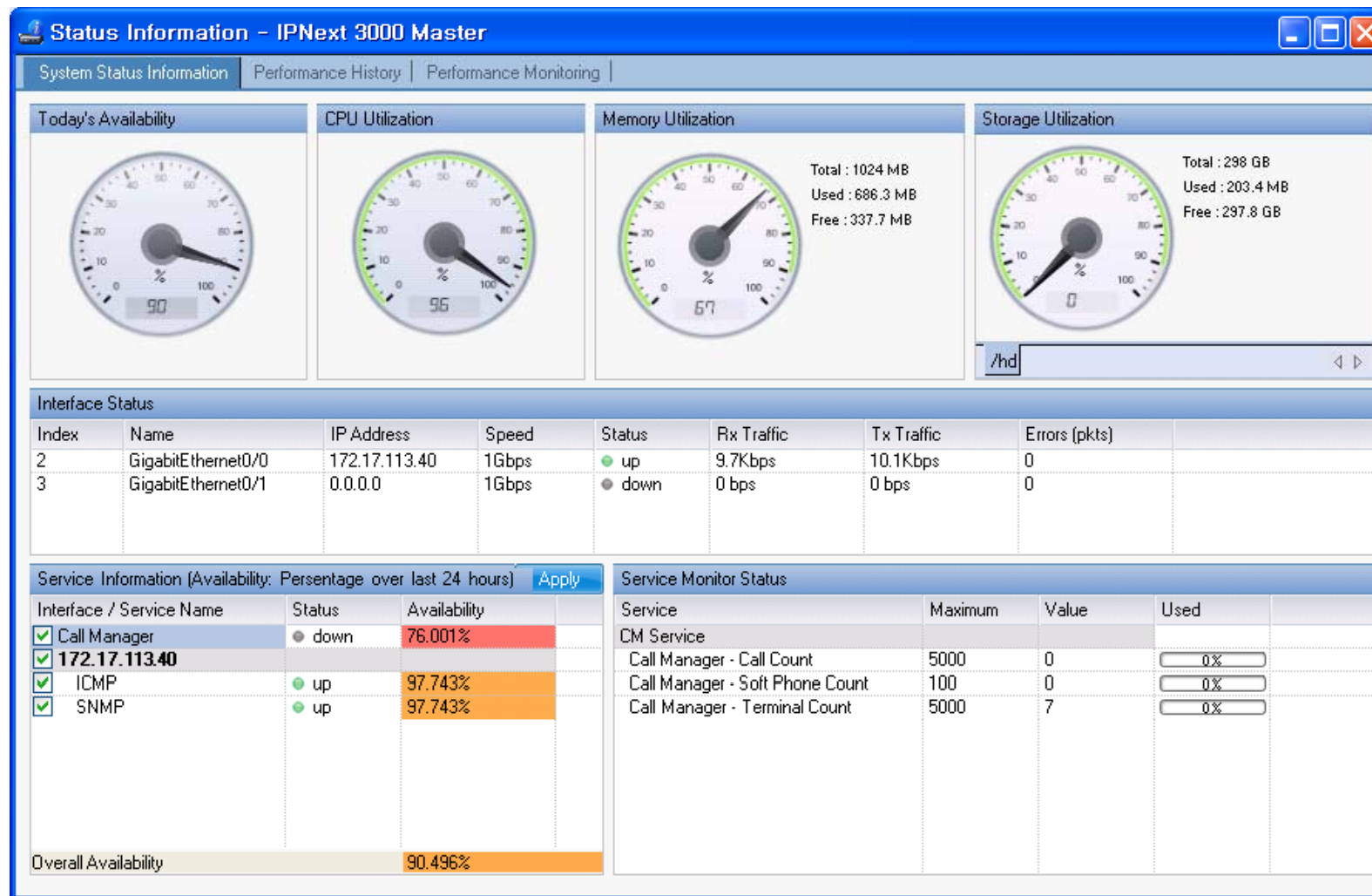
4/13/2009 11:46:45 AM 172.16.31.20:5101 admin Version 1.2.3384

# 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

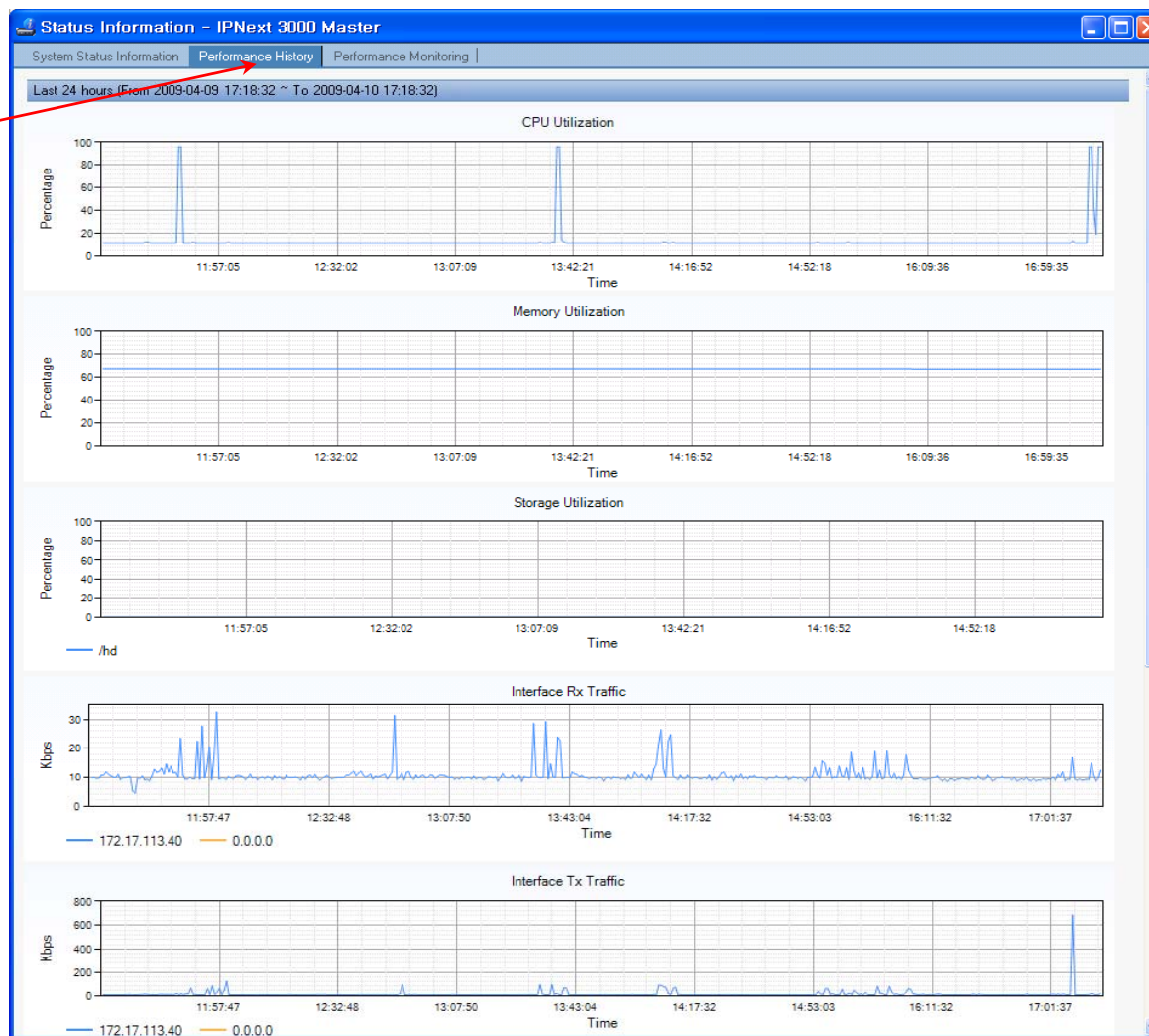


# Device Status Information

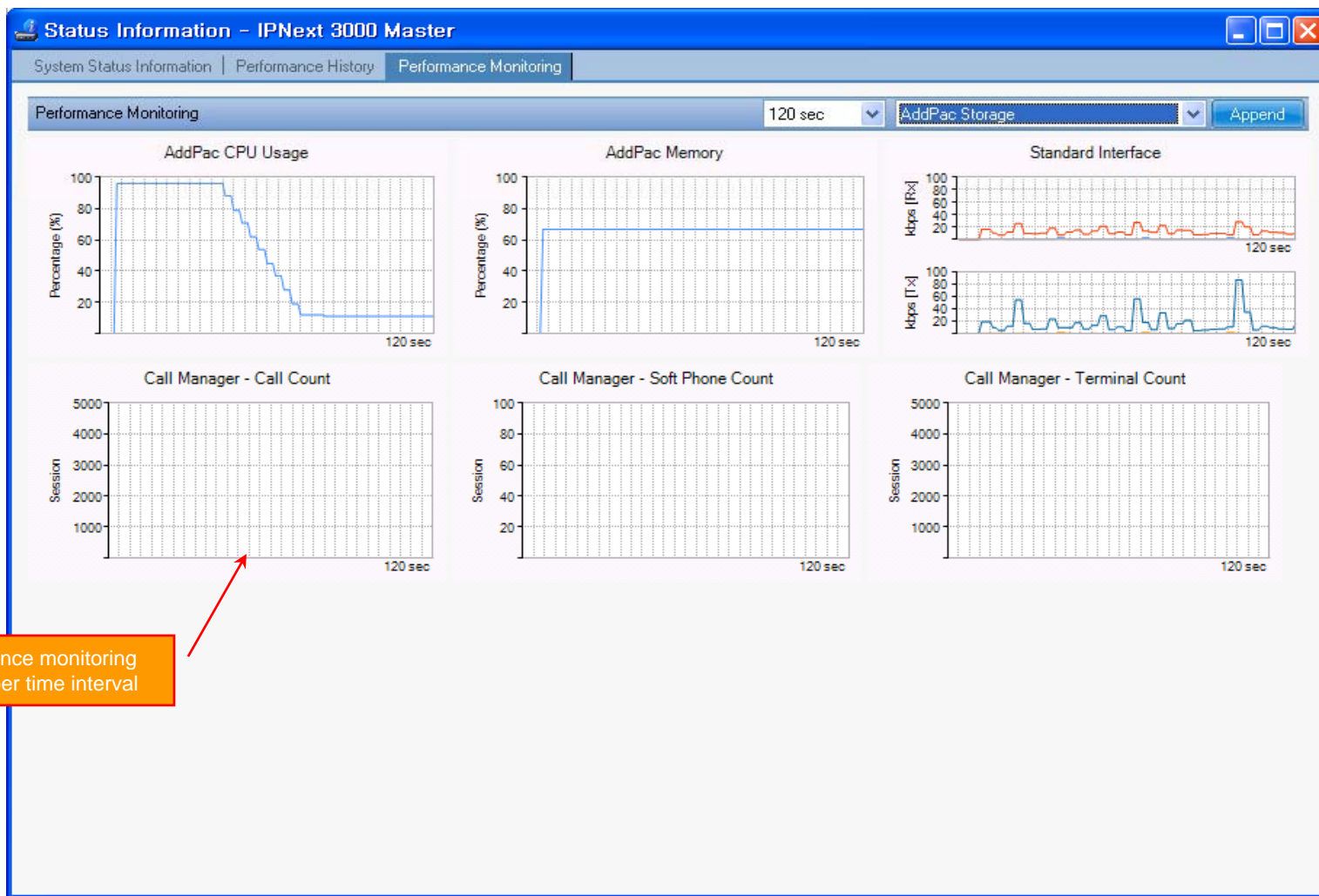


# Device Status Information

performance analysis graph for last 24 hours



# Device Status Information



performance monitoring with proper time interval

# Notification Management

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

# Event Notification Management

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

- apply notification policy with event-based filter** (example : notify me when network link of device is down through SMS, e-mail)
- specify category when each event occurs**
- describe notification message content for e-mail or SMS**

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

- Notification Name: serviceUnresponsive
- Description: test
- Event: Node event: serviceUnresponsive
- Destination Path: default
- Notification Type: sms, alarmLamp, email
- Current Rule: IPADDR IPLIKE \*\*\*\*
- Apply Category: Desktop, Network Camera, Phone, Server, Switch
- Email Subject: Notice #noticeid% %service% service on %interfaceresolve% (%interface%)
- Text Message: The %service% poll to interface %interfaceresolve% (%interface%) on node %nodelabel% successfully completed a connection to the service listener on the remote machine. However, the synthetic transaction failed to complete within %iparam[timeout]% milliseconds, over %iparam[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:

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

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server 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 network devices and their service availability. A 'Destination Path Properties' dialog box is open, allowing configuration of notification paths. The dialog includes fields for 'Destination Path Name' (set to 'default'), '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

Below the dialog, a table titled 'Your Outstanding Notices (18)' lists recent events:

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 &N	NMS_IP_PRX_3			device NMS_IP_PRX_3 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

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

Destination Path Name: default

Initial Target: [empty] Initial Delay: 0m

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: [empty]

Mobile Number: [empty]

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

Help Ok Cancel

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

Your Outstanding Notices (18)

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

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

# Configuration

Smart Network Management System - Windows Internet Explorer

http://172.16.31.20/smartnms.htm

Smart Network Management System

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Current Outage Devices [13] Site

Service Outages Event Notification Destination Paths Users

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\_FS\_server 3 of 3 0.000 %
- 00\_IPS\_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 serverfo... 3 of 3 0.000 %

Subnetwork #2

- Center
- NMS\_S0HD\_... 2 of 2 0.000 %

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

global notification channel configuration

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_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_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 1.2.3384



# Audible & Visible Alarm

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

can synchronize with alarm lamp equipment

Site	Type	Outages	Availability	Description
AddPac	Sub Netw...	32 / 12 / 32	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%

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/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 deleted by administrator
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator
<input type="checkbox"/>	9236	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device(NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator
<input type="checkbox"/>	9235	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device(NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service SNMP not response or deleted by administrator

# Fault Statistics

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

# Fault Statistics

The screenshot displays the Smart Network Management System (NMS) interface. The top navigation bar includes 'NMS', 'Account', 'Configuration', 'Monitoring', 'Notification', 'Fault', 'Statistics', 'View', and 'Help'. The main content area is divided into several sections:

- Event Summary Table:** A table listing events with columns for Event Time, Outsta..., Ackno..., Not Clea..., Cleared, and In Pr... The search condition is set to 'Hour' for '4/ 9/2009' from '3/30/2009' at 'Branch A, Branch AQ, B'.
- Fault Statistics (Site) Graph:** A bar chart showing fault counts over time for various sites. The legend includes Seoul, HeadQuarter, Center, Branch TG, Branch KT, Branch GX, Branch B, Branch AQ, and Branch A.
- Detailed Data Table (4/9/2009):** A table showing fault counts for each hour of the day across different sites. The total count for 4/9/2009 is 118.
- Your Outstanding Notices (18):** A table listing notices with columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

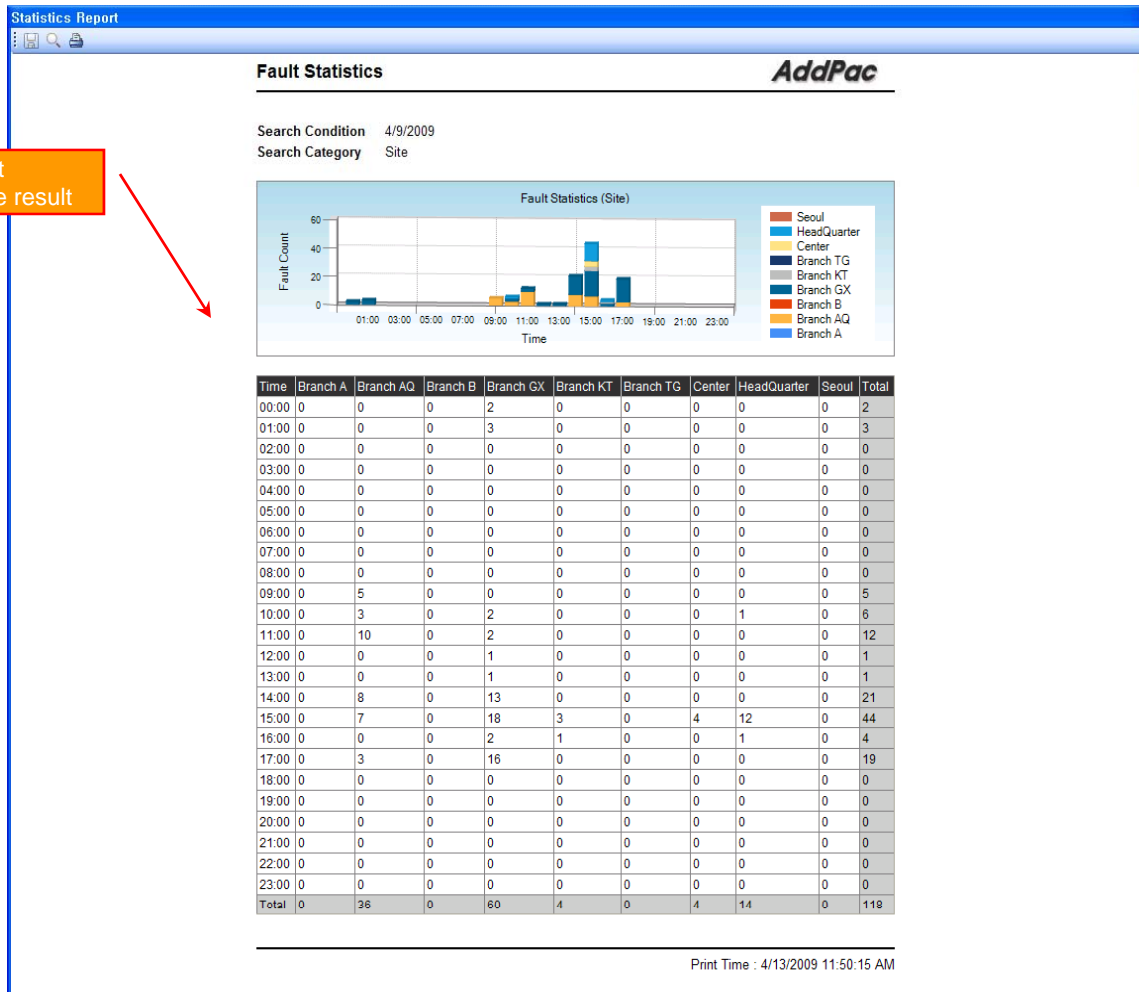
Two orange callout boxes provide additional information:

- display graph for fault statistics with various search condition:** Points to the search bar and the Fault Statistics (Site) graph.
- display detailed data for fault statistics:** Points to the detailed data table for 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
<b>Total</b>	<b>0</b>	<b>36</b>	<b>0</b>	<b>60</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>14</b>	<b>0</b>	<b>118</b>

# 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
IPNext1800	Server
IPNext200	Server

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

Model Image Management
[Grid of device images including various cameras, servers, and phones]

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_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 (IPNext 3000 Slave) failed
/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) failed
/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 response or delete by administrator
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera 2) interface 172.16.253.118 response or delete by administrator
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 response or delete by administrator
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera 2) interface 172.16.253.118 response or delete by administrator

# 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_SOHD_PBX			device NMS_SOHD_PBX
/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41
/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40
/AddPac/Branch GX	00_IVR_server			device 00_IVR_serv
/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_3...
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118		device (NMS Camera response or delete by
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS Camera ICMP not response o
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	device (NMS Camera SNMP not response
/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device(NMS Camera ICMP not response o

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



# Thank you!

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