

# Media Gateway Solution



AP-MG5000



AP-MG3000



AP-MG3800

**AddPac**

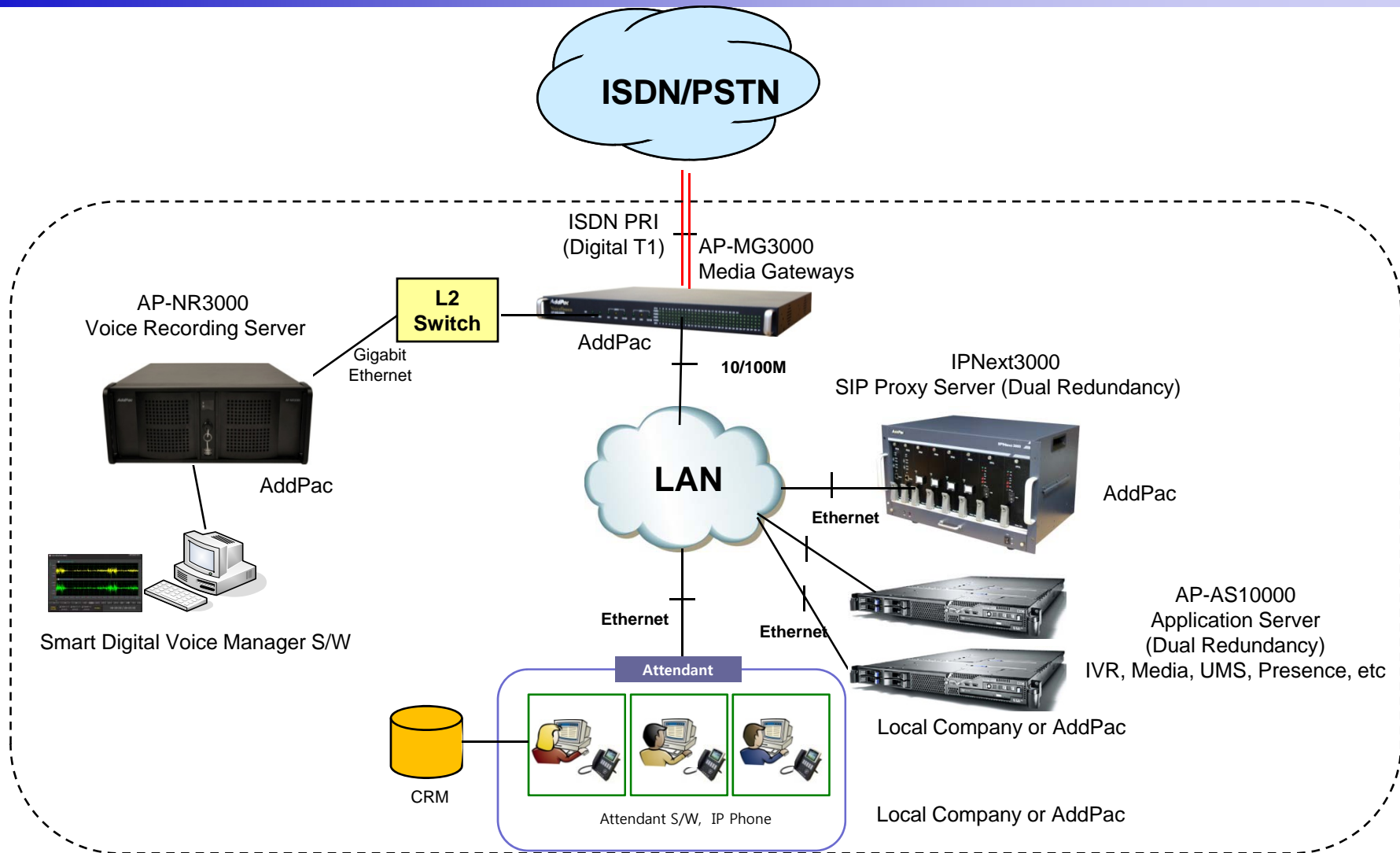
**AddPac Technology**

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<br>APv2-2E1<br>APv2-4E1  | HIM-VoIP4E1<br>(4 E1/T1 Module)   | HIM-4E1<br>(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,<br>AP-MG5000 | <b>HIM-VOIP4E1</b> | 4-Port Digital E1 Module<br>(4 x RJ45) |   |
| AP-MG3800,<br>AP-MG5000 | <b>HIM-VOIP4T1</b> | 4-Port Digital T1 Module<br>(4 x RJ45) |  |

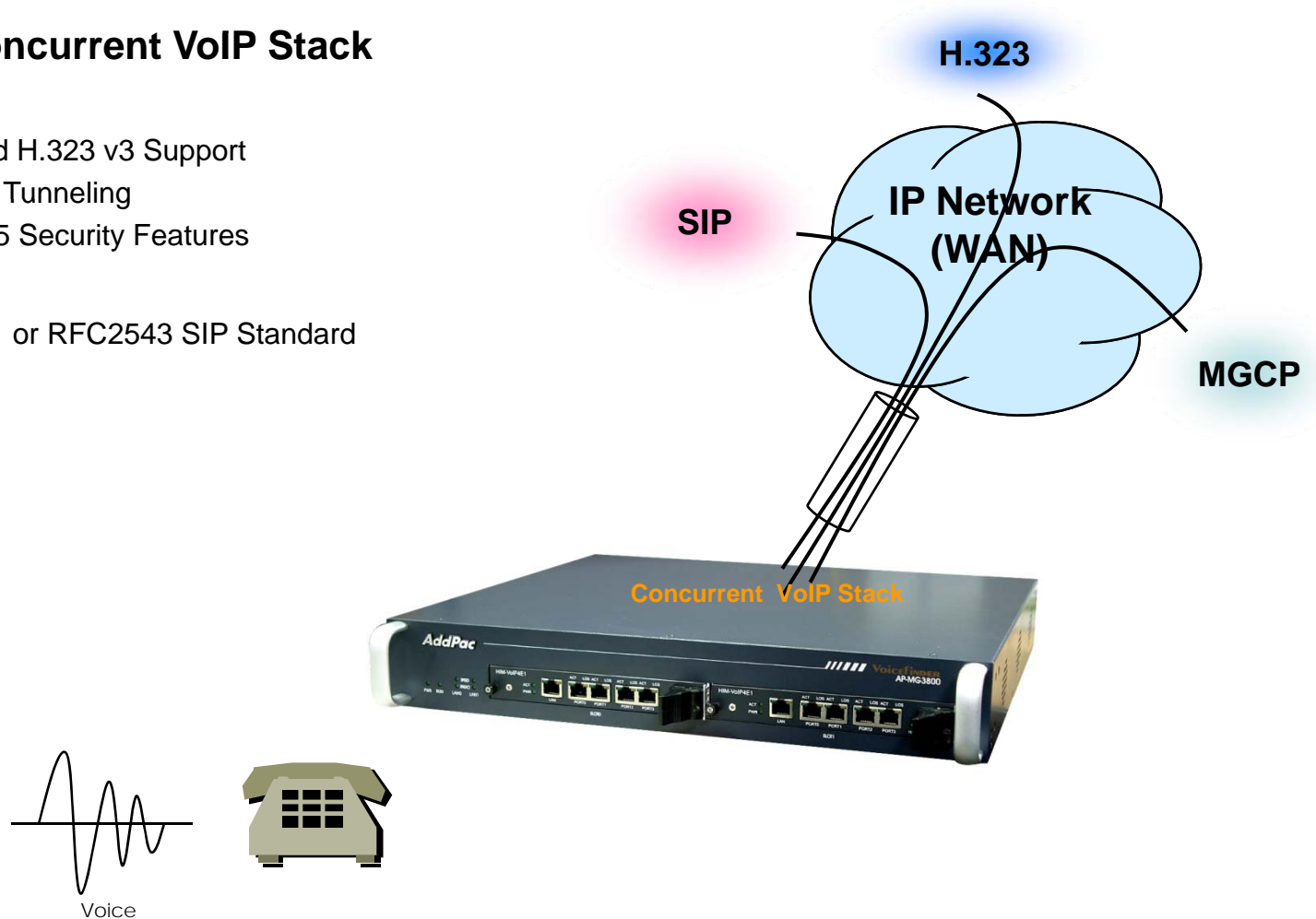




# Media Gateway Service Features

# 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**

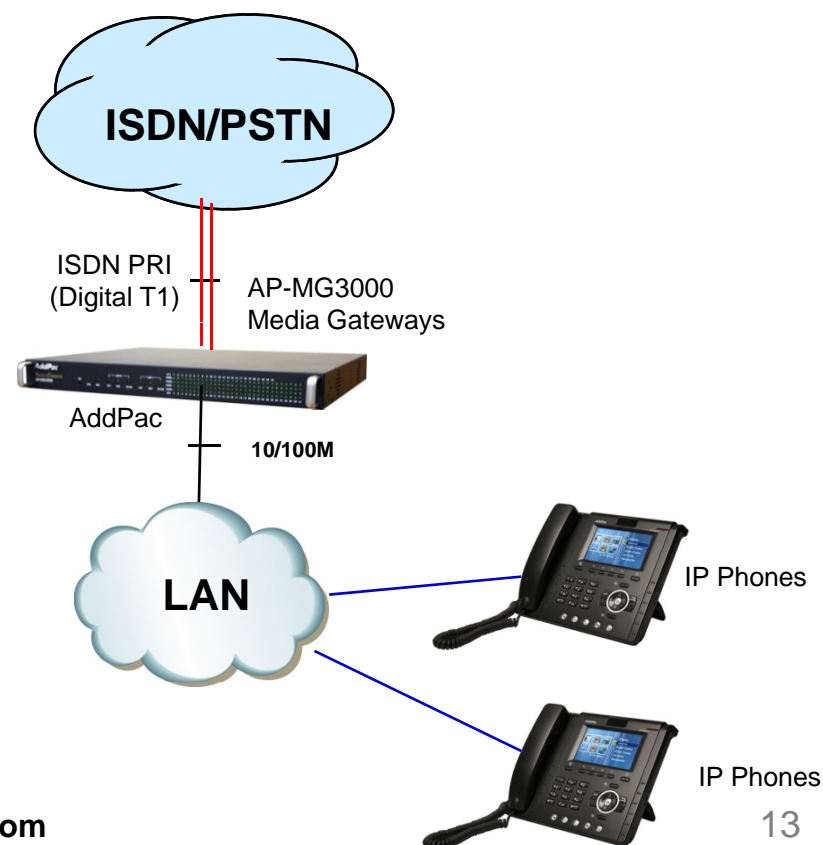
- G.711 A-Law, G.711 U-Law
- G.726 r16, G.726 r32
- G.729A
- G.723.1 r63, G.723.1 r53
- VAD (Voice Activity Detection) function support
- DTMF relay support (H.323, SIP, MGCP common) based on RFC2833

- **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

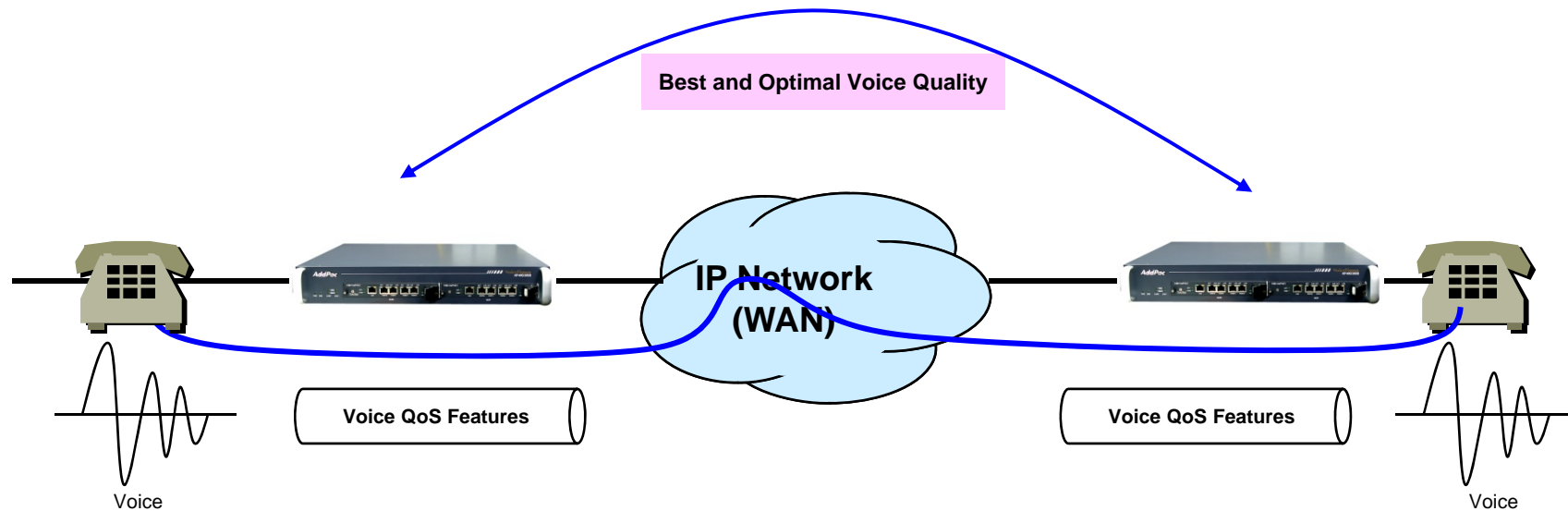
# Advanced QoS Features

- **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**

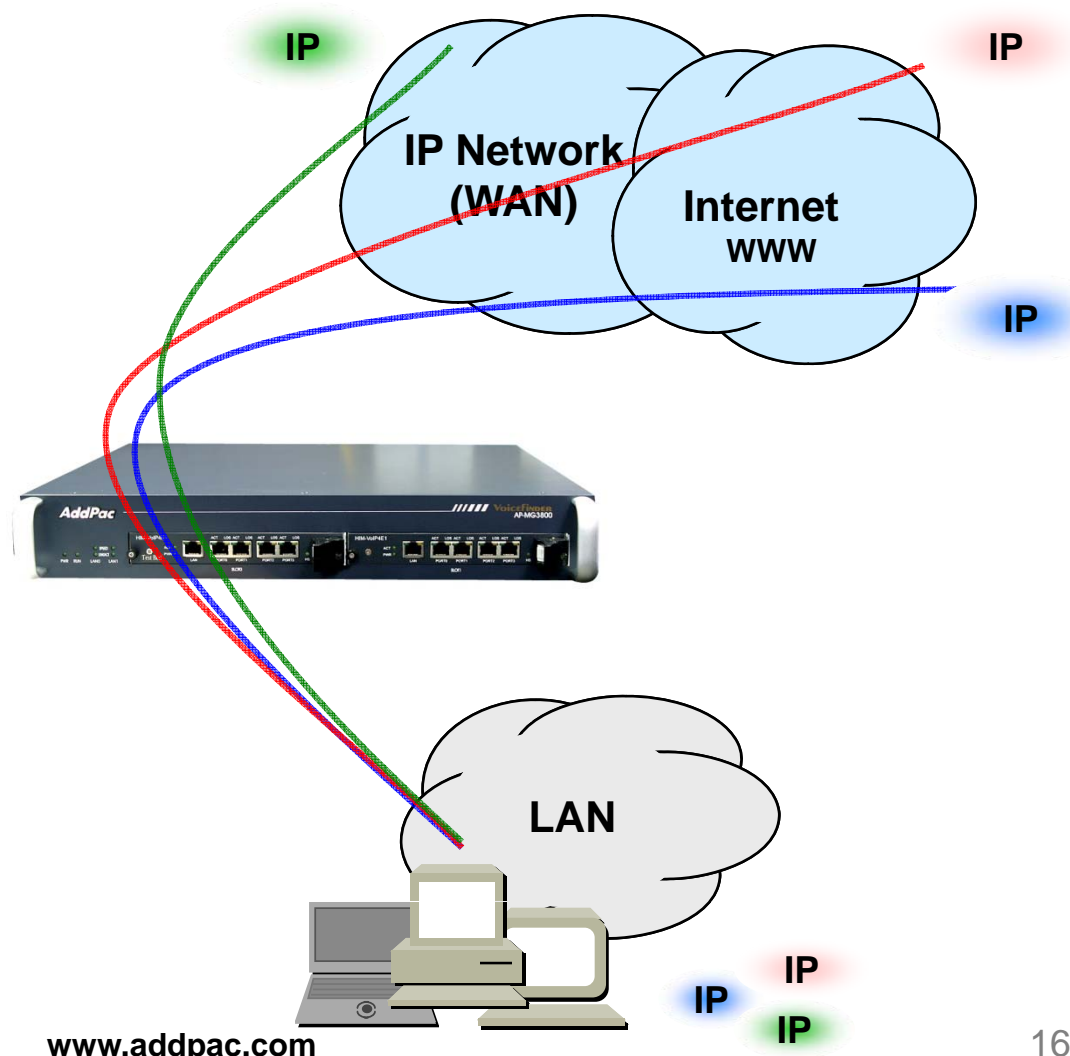
- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog

- **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**

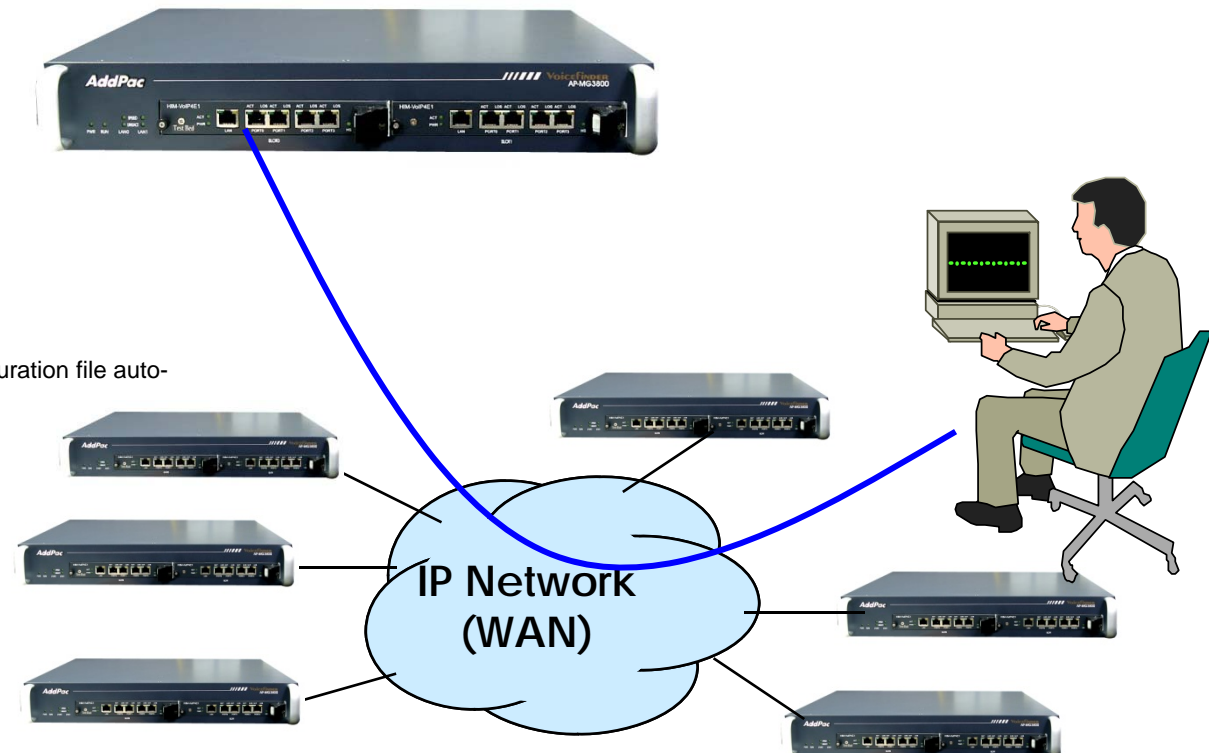
- HTTP server based APOS image and configuration file auto-upgrade support

- **Batch Job Function**

- Text based script downloading

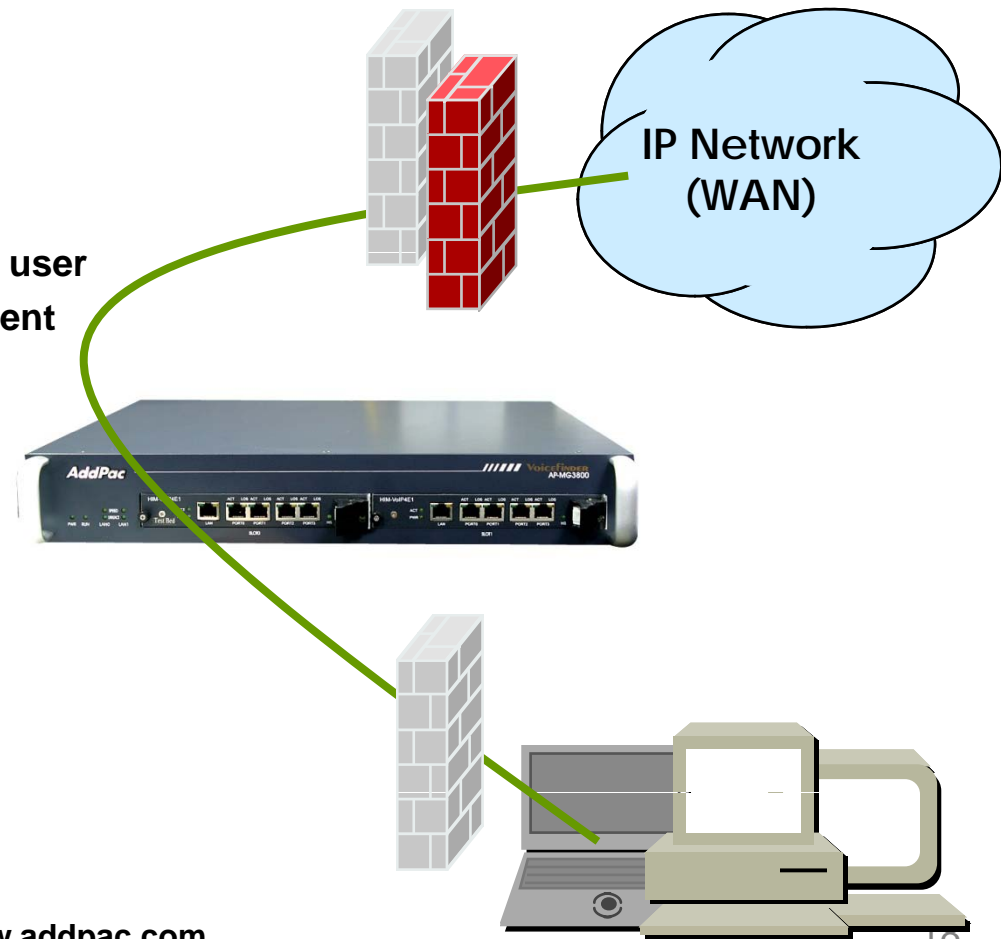
- **Interoperable with AP-VPMS Service**

- 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

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

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

Clock-Source: Master  
Framing: CRC4  
Line Code: HDB3  
Signaling-type: ISDN-PRI

**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

Protocol-emulate:  Network  User  
Virtual-Connect:  Enable  Disable  
Immediate-disc:  Enable  Disable  
Dial-Tone-Generate:  Enable  Disable  
Compand-Type:  a-law  u-law  
Q931 Timer: T303: 4 (1-400sec), T310: 10 (5-400sec)  
R2-MFC: Get-Calling-number:  Enable  Disable  
Busyout: Action:  PortDown  None

Apply

**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

# 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<br>Apply |

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

**Information**

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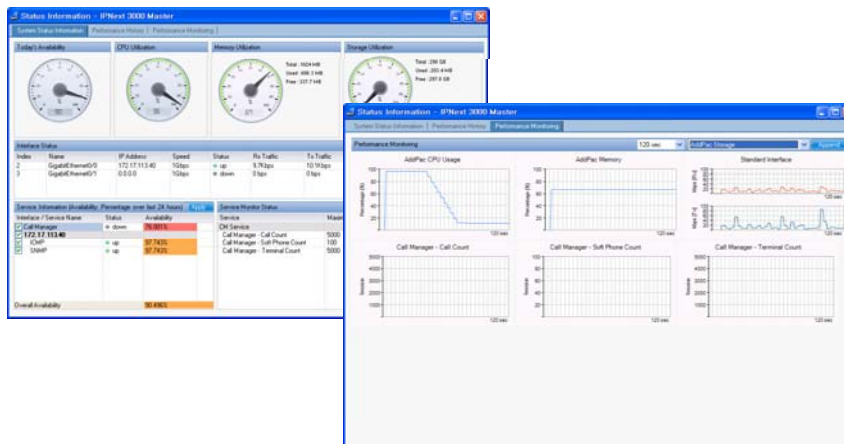
**Description**

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

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

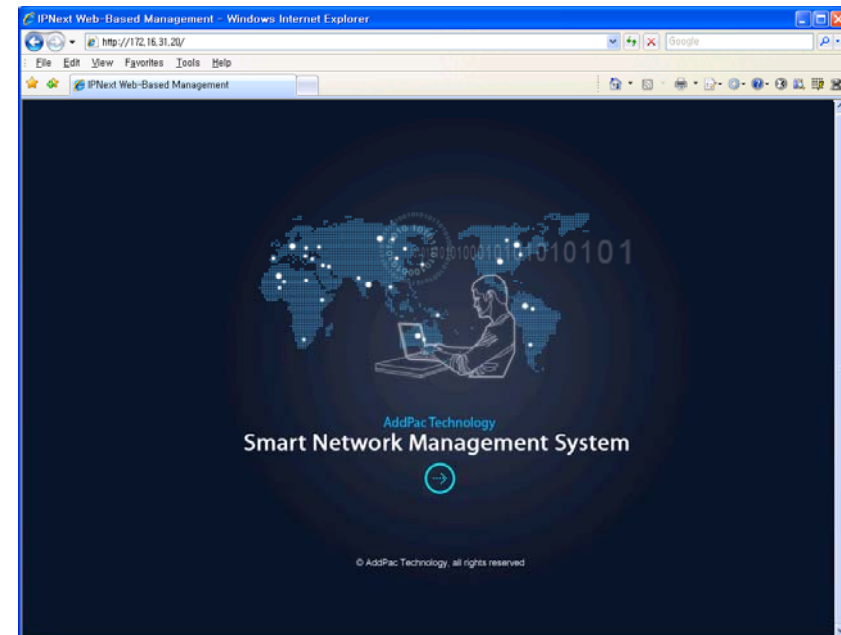
# Smart NMS

## 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

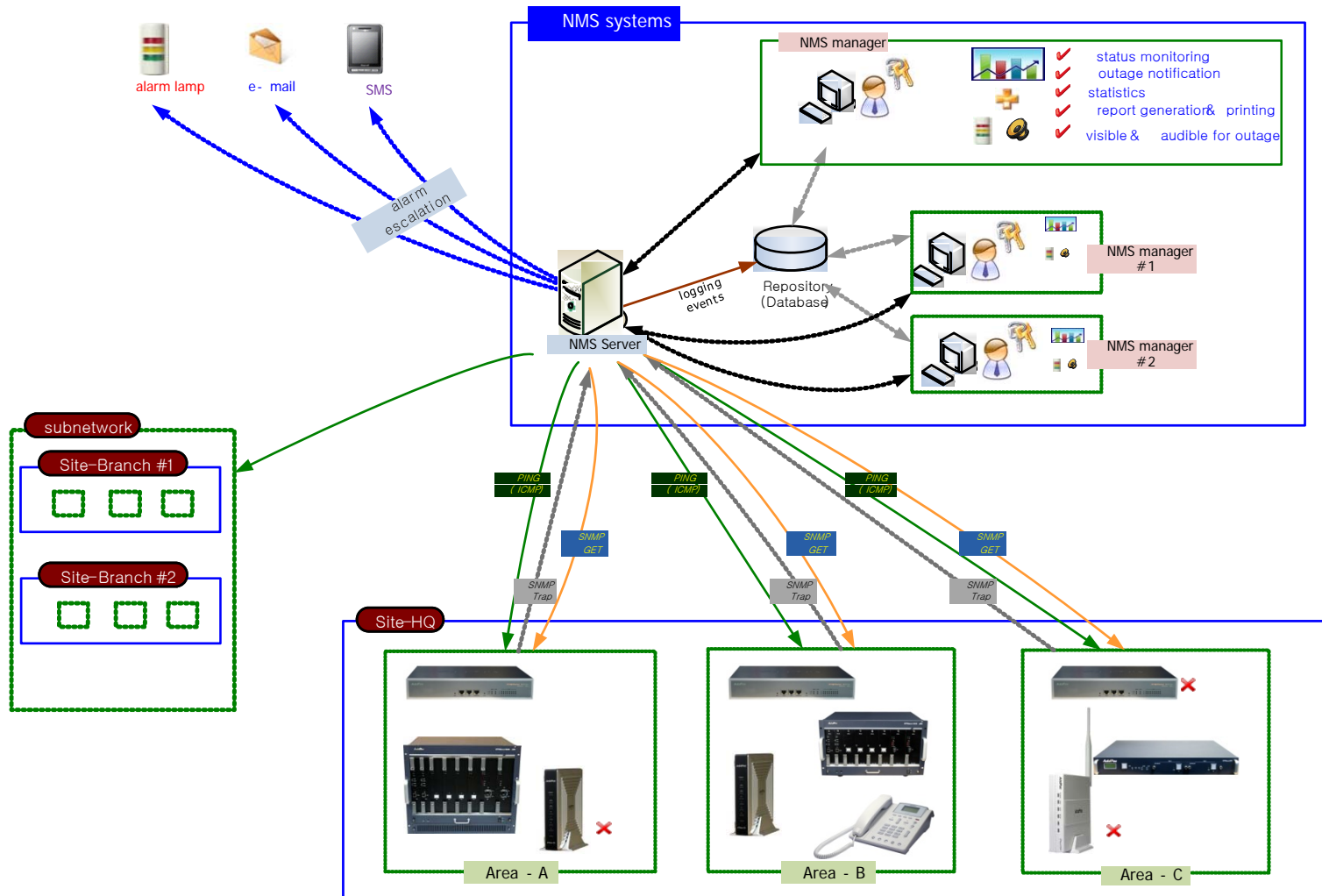
## NMS Server

- 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".

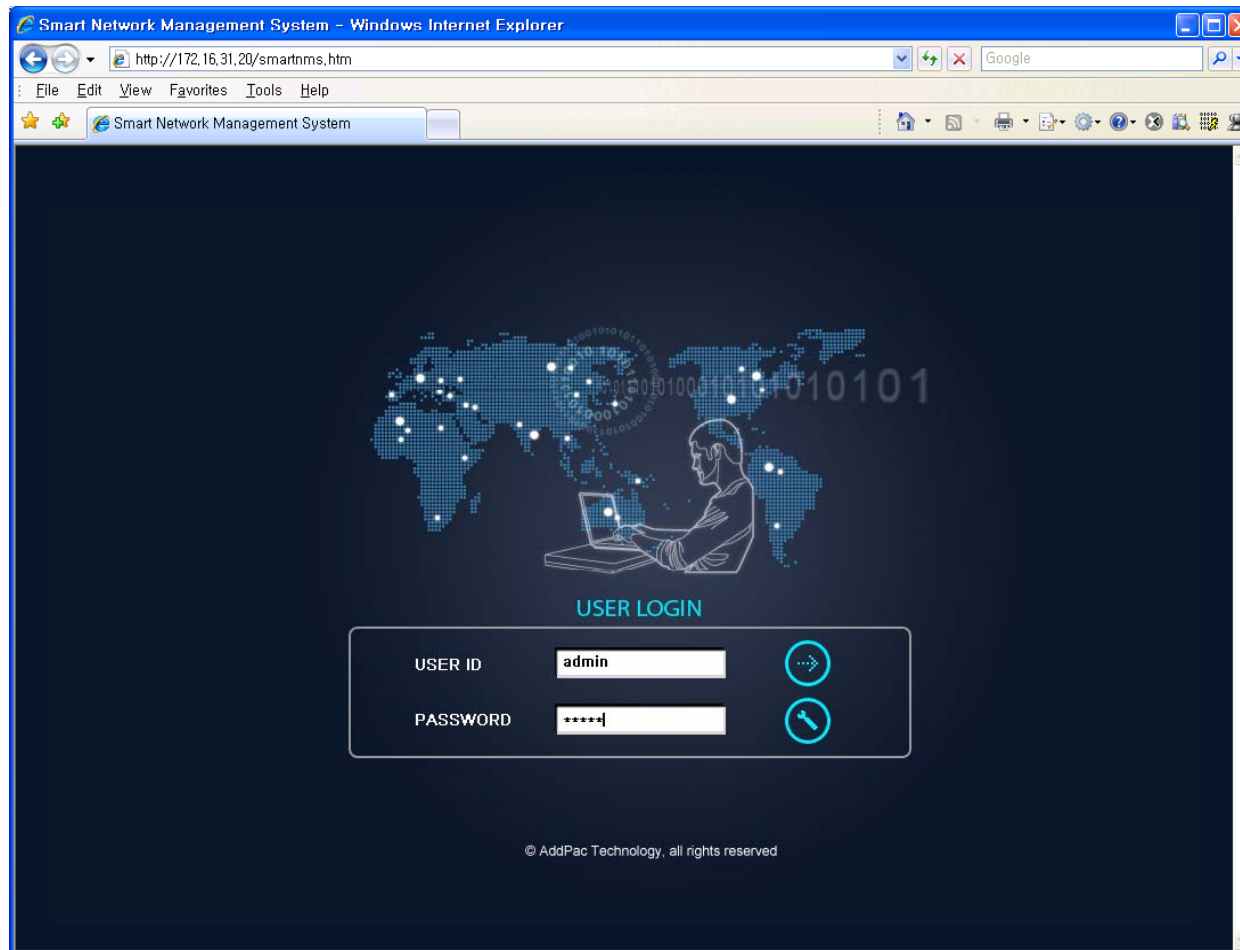
Two callout boxes highlight specific features:

- 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 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, including sites like AddPac, Seoul, and various branches. A context menu is open over the 'GangNamGu' node, with options like 'Add Sub Network', 'Add Site', 'Delete', 'Execute SMM', 'Search', 'Refresh', and 'Properties'. The 'Execute SMM' option is highlighted. In the center, a table lists device categories such as Desktop, Network Camera, Phone, Server, Switch, and VoIP Gateway. On the right, a 'User Properties' dialog box is open, showing a 'Site' tab with a tree view of the same network structure, where several nodes are checked. Three orange callout boxes provide additional context: one points to the tree view stating 'manage the complex network with a structured, hierarchical form'; another points to the 'Execute SMM' option stating 'can assign the hierarchical node to the operator and manage role-based policy'; and a third points to the 'Execute SMM' option stating 'can cooperate with the application executables such as SMM'. The bottom of the interface shows a search bar with '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 main content area is divided into several sections:

- Current Outage Devices [111]:** A tree view showing the hierarchy of devices across different sites (AddPac, Branch AQ, Branch GX, HeadQuarter, Subnetwork #2, Center).
- Service Outages:** A table showing site device fault summaries.
 

| Site   | Type        | Outages      | Availability | Description            |
|--------|-------------|--------------|--------------|------------------------|
| AddPac | Sub Netw... | 28 / 10 / 32 | 58%          | AddPac Technology C... |
| Seoul  | Sub Netw... | 2 / 1 / 2    | 98%          | Seoul subnetwork       |
- Device Categories:** A table showing device fault summary for category (classification).
 

| 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:** A summary bar at the bottom of the site device fault table showing 30 / 11 / 34 and 78.650%.
- Your Outstanding Notices [16]:** A table listing current device fault event messages, including details like Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message.

current device fault list with hierarchy view

site device fault summary

device fault summary for category (classification)

overall total device fault statistics

current device fault event message are shown as below



# Device Fault Management

Smart Network Management System - Windows Internet Explorer

http://172.16.31.20/smartnms.htm

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Current Outage Devices (12) | 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 tabs for NMS, Account, Configuration, Monitoring, Notification, Fault, Statistics, and View. Below this is a toolbar with various icons for site management and monitoring. The main content area is divided into several sections:

- Left Panel:** A tree view showing the network hierarchy, including sites like AddPac, Seoul, and MokDong Area, with sub-nodes for branches and subnetworks.
- Top Right Panel:** A search and filter area with dropdown menus for 'Group Type' and 'Value', and buttons for 'Refresh', 'Import', and 'New Tab'.
- 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 various server types, IPNext 3000 units, and NMS cameras. A red arrow points to a specific camera icon labeled 'NMS Camera'.
- Bottom Panel:** A table titled 'Your Outstanding Notices (18)' listing recent alerts. The table has 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 text box with an orange background and black text, containing the phrase "device status matrix with small view mode", is overlaid on the right side of the device grid.

# 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_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 |

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 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, and Message. A 'Troubleshooting Note' dialog box is open, allowing users to enter a note for a specific event. The dialog box includes a 'Status' dropdown menu (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 |
| <input type="checkbox"/>            | 9518 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ | co                                  |                |              |   | to-acknowledged   | 4/10/2009 4:03:13 PM |
| <input type="checkbox"/>            | 9517 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ | 00                                  |                |              |   | to-acknowledged   | 4/10/2009 4:03:13 PM |
| <input type="checkbox"/>            | 9516 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ | 5th floor meeting room phone device |                |              |   | to-acknowledged   | 4/10/2009 4:02:54 PM |
| <input type="checkbox"/>            | 9515 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ | IP                                  |                |              |   | to-acknowledged   | 4/10/2009 4:02:44 PM |
| <input type="checkbox"/>            | 9514 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ | 172                                 |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9513 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ | tr=admin                            |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9512 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9511 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9510 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9509 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9508 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9507 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9506 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9505 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9504 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9503 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9502 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9501 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9500 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9499 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9498 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9497 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9496 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9495 | 4/10/2009 3:36:09 PM  | /AddPac/Branch AQ |                                     |                |              |   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <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    | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <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.   | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <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.  | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <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               | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <input type="checkbox"/>            | 9230 | 4/6/2009 7:49:20 PM   | /AddPac/Branch AQ | NMS Camera 2                        | 172.16.253.110 | ICMP         | device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator | to-acknowledged   | 4/10/2009 4:02:43 PM |
| <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 | to-acknowledged   | 4/10/2009 4:02:43 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... | 172.16.53.101  | ICMP         | 4/10/2009 5:34:10 PM   |
| 13907     | /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       | device 00_RBT_server down  |
| 9020      | /AddPac/Branch GX      | UMS slave                   | 172.17.113.41  | device       | device 00_RBT_server down  |
| 9019      | /AddPac/Branch GX      | UMS slave                   | 172.17.113.41  | device       | device 00_RBT_server down  |
| 6489      | /AddPac/Branch GX      | 00_PS_server                | 172.17.113.41  | device       | device 00_RBT_server down  |

**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

**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 down  |
| <input type="checkbox"/> | 9527 | 4/10/2009 5:34:10 PM  | /AddPac/HeadQuarter    | 5th floor meeting... |                | device       | device 00_RBT_server down  |
| <input type="checkbox"/> | 9502 | 4/10/2009 3:34:29 PM  | /Subnetwork #2/Cent... | NMS_S0H0_PBX         |                | device       | device 00_RBT_server 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            |

4/13/2009 11:44:29 AM    172.16.31.20:5101    admin    Version 1,2,3384

# 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  |
| 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         |                |         | 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       |
| 45782   | Critical | 4/13/2009 11:15:13 AM | /AddPac/Branch GX     | 00_NR_server         |                |         | 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)

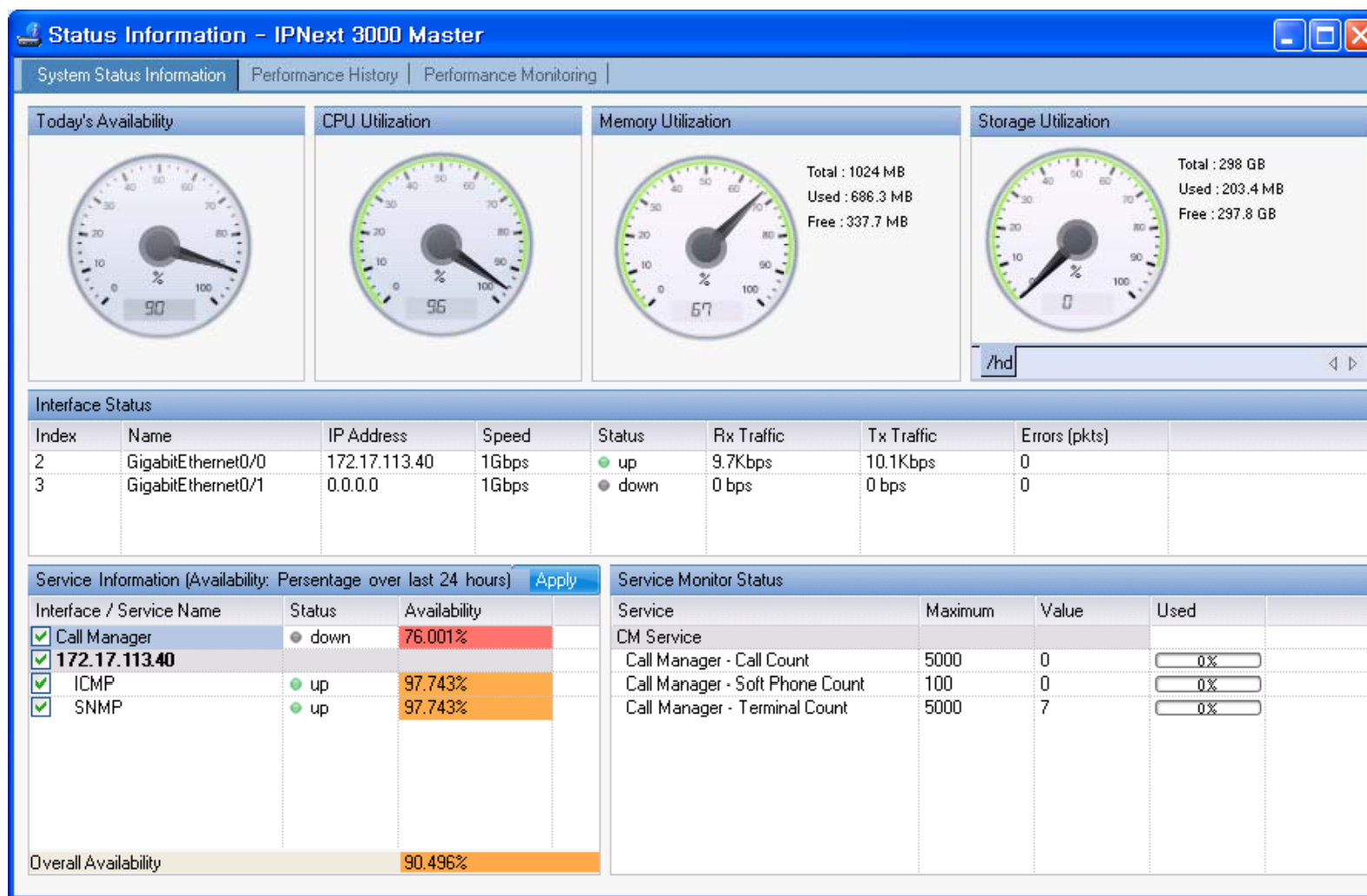
4/13/2009 11:46:45 AM | 172.16.31.20:5101 | admin | Version 1.2.3384

# 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

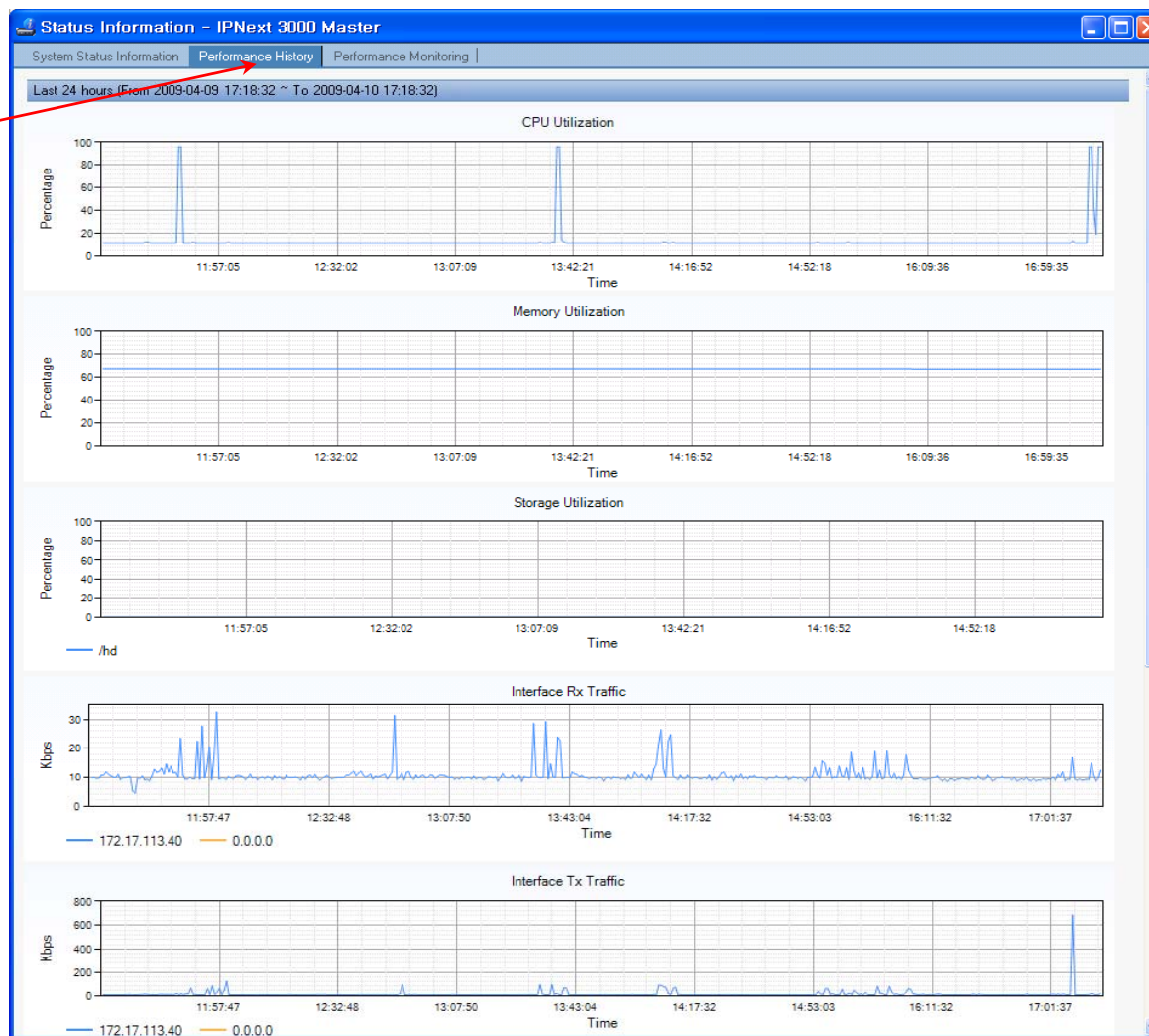


# Device Status Information

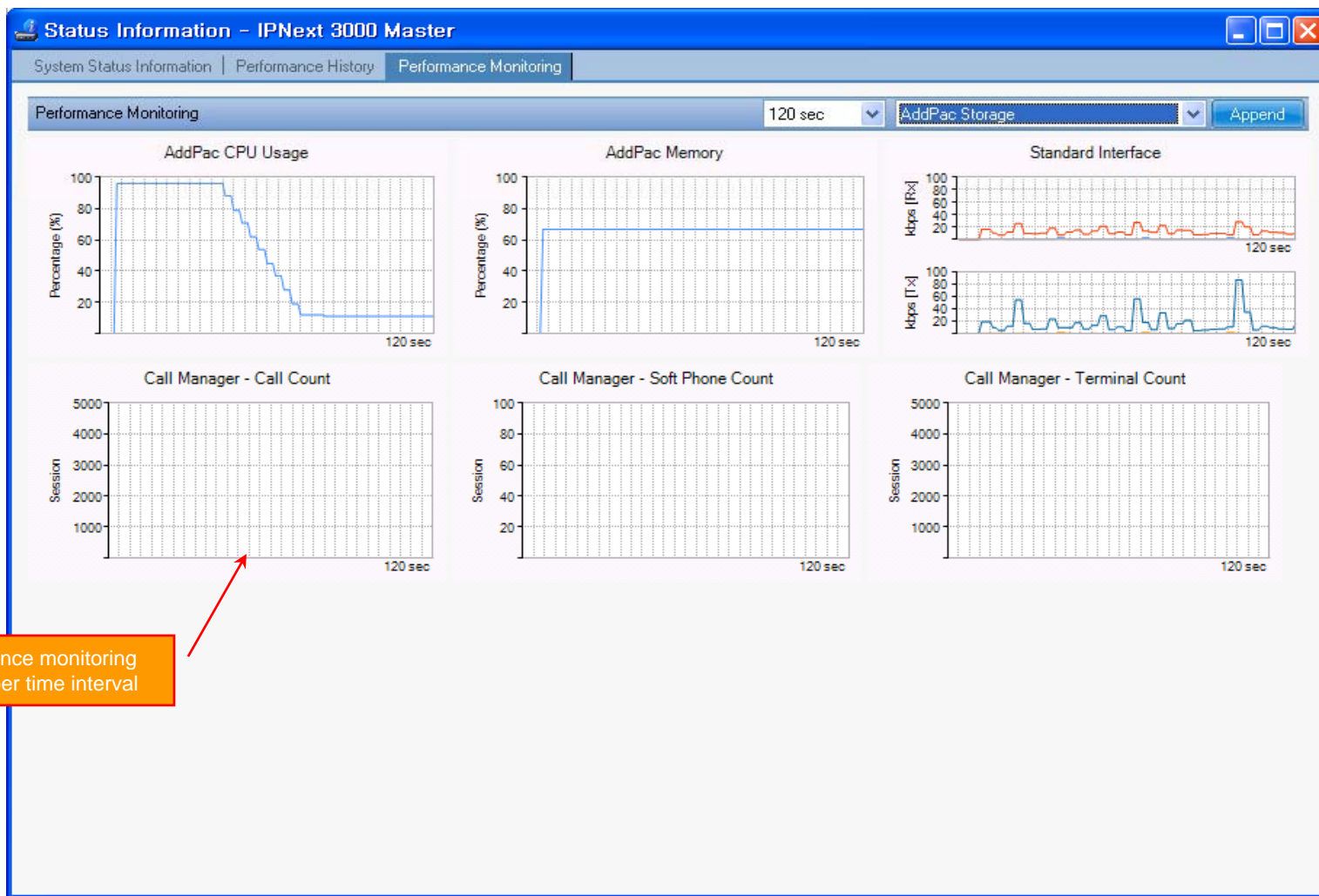


# Device Status Information

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. 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 %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:

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 shows the Smart NMS interface with the 'Destination Path Properties' dialog box open. The dialog is titled 'Destination Path Properties' and has a 'Destination Path Name' field set to 'default'. Below this, there is a table for 'Initial Target' with columns for 'Notification Type', 'Target', and 'Auto Notify'. The table contains three entries: 'alarmLamp' with target 'alarmLamp' and 'Auto Notify' set to 'on'; 'email' with target 'admin' and 'Auto Notify' set to 'on'; and 'sms' with target 'admin' and 'Auto Notify' set to 'on'. A red callout box with the text 'define notification channel such as e-mail, sms, or alarmLamp' points to the 'alarmLamp' entry. There are 'Add' and 'Delete' buttons below the table. At the bottom of the dialog, there is an 'Escalation' section with a 'Delay' field set to '0m' and another empty table with 'Add' and 'Delete' buttons. The background shows a tree view of network devices and a table of 'Your Outstanding Notices'.

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

# 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

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

The screenshot displays the Smart Network Management System (NMS) configuration interface. The main window shows a tree view of network devices under 'AddPac', including Branch AQ, Branch GX, and HeadQuarter. A 'Configure Notification' dialog box is open, showing the 'External Notification' tab. The dialog contains the following fields:

- 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".

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

| Ack                      | ID   | Send Time             | Site                   | Device Name          | IP Address     | Service      | Message   |
|--------------------------|------|-----------------------|------------------------|----------------------|----------------|--------------|---|
| <input type="checkbox"/> | 9535 | 4/10/2009 9:26:04 PM  | /AddPac/Branch GX      | 00_RBT_server        |                |              | device 00_RBT_server's all services are down.   |
| <input type="checkbox"/> | 9527 | 4/10/2009 5:34:10 PM  | /AddPac/HeadQuarter    | 5th floor meeting... |                |              | device 5th floor meeting room phone device, all services are down.                                      |
| <input type="checkbox"/> | 9502 | 4/10/2009 3:34:29 PM  | /Subnetwork #2/Cent... | NMS_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)                                     |
| <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 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 (01:00 to 23:00) 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 fault count 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.

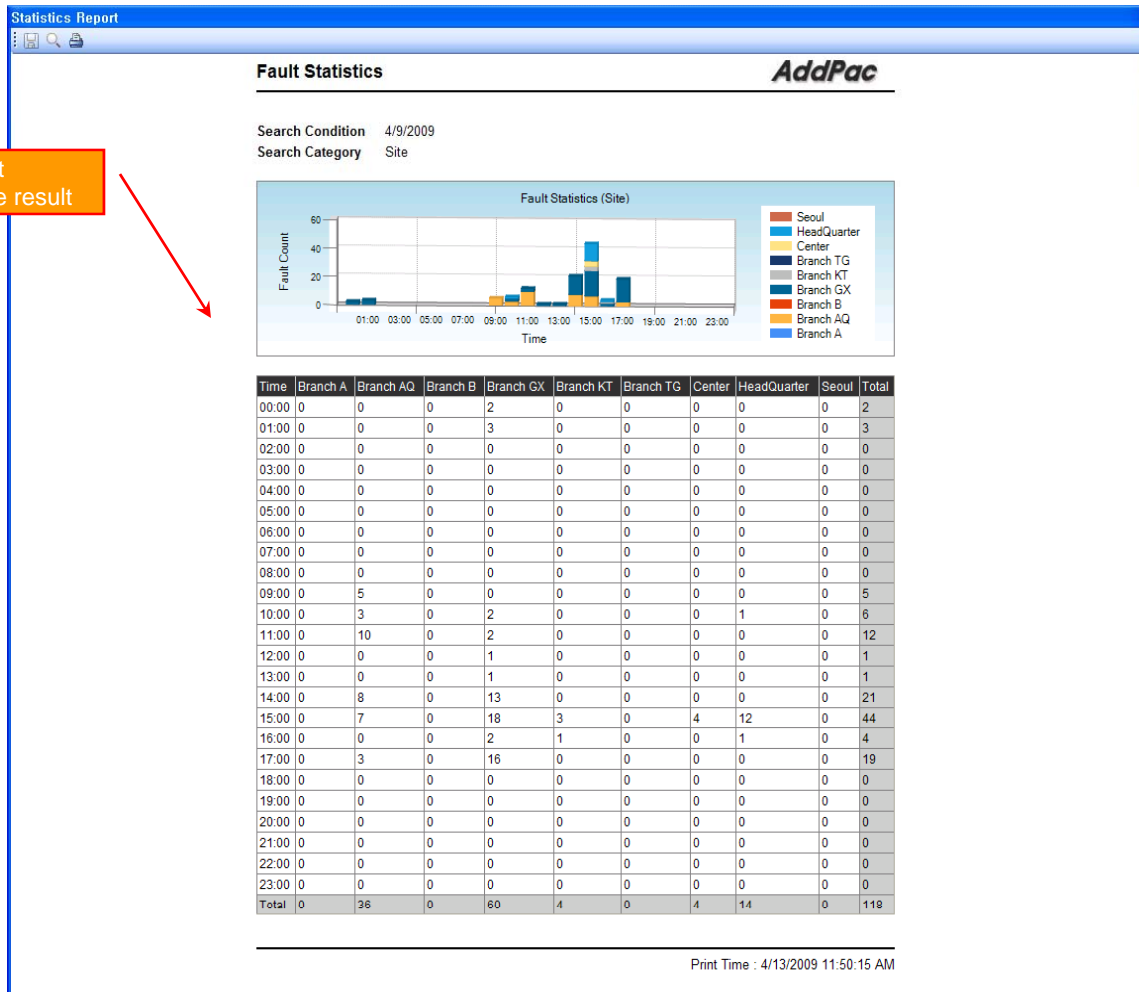
Two orange callout boxes provide additional context:

- display graph for fault statistics with various search condition:** Points to the search bar and the Fault Statistics 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 for selection] |

| Device Model Properties                      |
|--|
| Model Name: AP-IPC250M                       |
| Category: Network Camera                     |
| Management by SSCP: <input type="checkbox"/> |
| SSCP Port: 5061 (1*65535)                    |
| Model Image: [Image of AP-IPC250M]           |

| Your Outstanding Notices (18)  |
|--|
| Ack ID Send Time Site Device Name IP Address Service Message                               |
| 9535 4/10/2009 9:26:04 PM /AddPac/Branch GX 00_RBT_server                                  |
| 9527 4/10/2009 5:34:10 PM /AddPac/HeadQuarter 5th floor meeting                            |
| 9502 4/10/2009 3:34:29 PM /Subnetwork #2/Cent. NMS_SOHD_PBX                                |
| 9495 4/10/2009 11:37:12 AM /AddPac/Branch GX IPNext 3000 Slave 172.17.113.41 Call Manager  |
| 9494 4/10/2009 11:37:12 AM /AddPac/Branch GX IPNext 3000 Master 172.17.113.40 Call Manager |
| 9418 4/9/2009 2:20:01 PM /AddPac/Branch GX 00_IVR_server                                   |
| 9396 4/9/2009 10:57:37 AM /AddPac/Branch AQ NMS_IP_PBX_3                                   |
| 9239 4/6/2009 7:49:20 PM /AddPac/Branch AQ NMS Camera 2 172.16.253.118                     |
| 9238 4/6/2009 7:49:20 PM /AddPac/Branch AQ NMS Camera 2 172.16.253.118 ICMP                |
| 9237 4/6/2009 7:49:20 PM /AddPac/Branch AQ NMS Camera 2 172.16.253.118                     |
| 9236 4/6/2009 7:41:25 PM /AddPac/Branch AQ NMS Camera 2 172.16.253.118                     |

# 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 List:**

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

**Service Properties (Top):**

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

**Service Properties (Bottom):**

- Service OID: 1.3.6.1.4.1.4895.7.51.1.3.0
- Service Condition: Operator =, Operand 1

**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_serv    |
| <input type="checkbox"/> | 9527 | 4/10/2009 5:34:10 PM  | /AddPac/HeadQuarter    | 5th floor meetin... |                |              | device 5th floor meet |
| <input type="checkbox"/> | 9502 | 4/10/2009 3:34:29 PM  | /Subnetwork #2/Cent... | NMS_SOHD_PBX        |                |              | device NMS_SOHD_      |
| <input type="checkbox"/> | 9495 | 4/10/2009 11:37:12 AM | /AddPac/Branch GX      | IPNext 3000 Slave   | 172.17.113.41  | Call Manager | interface 172.17.113. |
| <input type="checkbox"/> | 9494 | 4/10/2009 11:37:12 AM | /AddPac/Branch GX      | IPNext 3000 Master  | 172.17.113.40  | Call Manager | interface 172.17.113. |
| <input type="checkbox"/> | 9418 | 4/9/2009 2:20:01 PM   | /AddPac/Branch GX      | 00_IVR_server       |                |              | device 00_IVR_serv    |
| <input type="checkbox"/> | 9396 | 4/9/2009 10:57:37 AM  | /AddPac/Branch AQ      | NMS_IP_PBX_3...     |                |              | device NMS_IP_PBX     |
| <input type="checkbox"/> | 9239 | 4/6/2009 7:49:20 PM   | /AddPac/Branch AQ      | NMS Camera 2        | 172.16.253.118 |              | device (NMS Camera    |
| <input type="checkbox"/> | 9238 | 4/6/2009 7:49:20 PM   | /AddPac/Branch AQ      | NMS Camera 2        | 172.16.253.118 | ICMP         | response or delete by |
| <input type="checkbox"/> | 9237 | 4/6/2009 7:49:20 PM   | /AddPac/Branch AQ      | NMS Camera 2        | 172.16.253.118 | SNMP         | device (NMS Camera    |
| <input type="checkbox"/> | 9236 | 4/6/2009 7:41:25 PM   | /AddPac/Branch AQ      | NMS Camera 2        | 172.16.253.118 | ICMP         | SNMP not response o   |

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



# Thank you!

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