



# Smart GSM NMS

## Smart Network Management System

### Smart GSM NMS Overview

The screenshot displays the 'Status Information - IPNext 3000 Master' window with four gauges: Today's Availability, CPU Utilization, Memory Utilization (Total: 1024 MB, Used: 686.3 MB, Free: 337.7 MB), and Storage Utilization (Total: 238 GB, Used: 202.4 MB, Free: 35.6 GB). Below these is an 'Interface Status' table and a 'Status Information - GS3000 gateway' window. The gateway window shows a 'Device Call History' table with search filters and a list of call records.

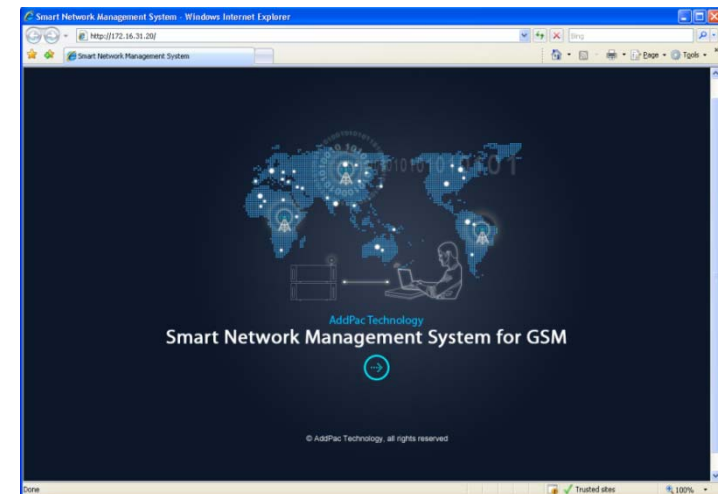
ID	Create Time	Duration	Caller Type	Caller Number	Called Type	Called Number	Remote IP	GSM Phone N...	Codec	Status
346	11/18/2010 3:54:50 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
345	11/18/2010 3:50:43 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g723163	Success
344	11/18/2010 3:46:54 PM	00:00:16	FXS	7000	GSM	6000			g711alaw	Success
343	11/18/2010 3:45:59 PM	00:00:02	FXS	7000	GSM	5000			g711alaw	Success
342	11/18/2010 3:43:33 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g723163	Success
341	11/18/2010 3:43:23 PM	00:00:00	FXS	7000	GSM	600			g711alaw	Failed
340	11/18/2010 3:43:16 PM	00:00:00	FXS	7000	GSM	600			g711alaw	Failed
339	11/18/2010 3:43:12 PM	00:00:00	FXS	7000	GSM	500			g711alaw	Failed
338	11/18/2010 3:43:07 PM	00:00:00	VoIP	9999	FXS	7000	172.16.9.18		g723163	Failed
337	11/18/2010 3:42:32 PM	00:00:04	FXS	7000	VoIP	9999	172.16.9.18		g723163	Success
336	11/18/2010 3:25:48 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
335	11/18/2010 3:21:05 PM	00:00:03	VoIP	9999	FXS	7000	172.16.9.18		g723163	Success
334	11/18/2010 3:20:57 PM	00:00:00	VoIP	9999	FXS	7000	172.16.9.18		g723163	Failed
332	11/18/2010 3:20:54 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
330	11/18/2010 3:20:43 PM	00:00:02	FXS	7000	GSM	6000			g711alaw	Success
328	11/18/2010 3:20:30 PM	00:00:02	FXS	7000	GSM	5000			g711alaw	Success
325	11/18/2010 3:05:30 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g723163	Success
324	11/15/2010 3:05:22 PM	00:00:00	VoIP	9999	FXS	7000	172.16.9.18		g723163	Failed
323	11/15/2010 3:05:11 PM	00:00:03	VoIP	9999	FXS	7000	172.16.9.18		g723163	Success
322	11/15/2010 3:05:08 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed

**AddPac**  
AddPac Technology

Sales and Marketing

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# 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

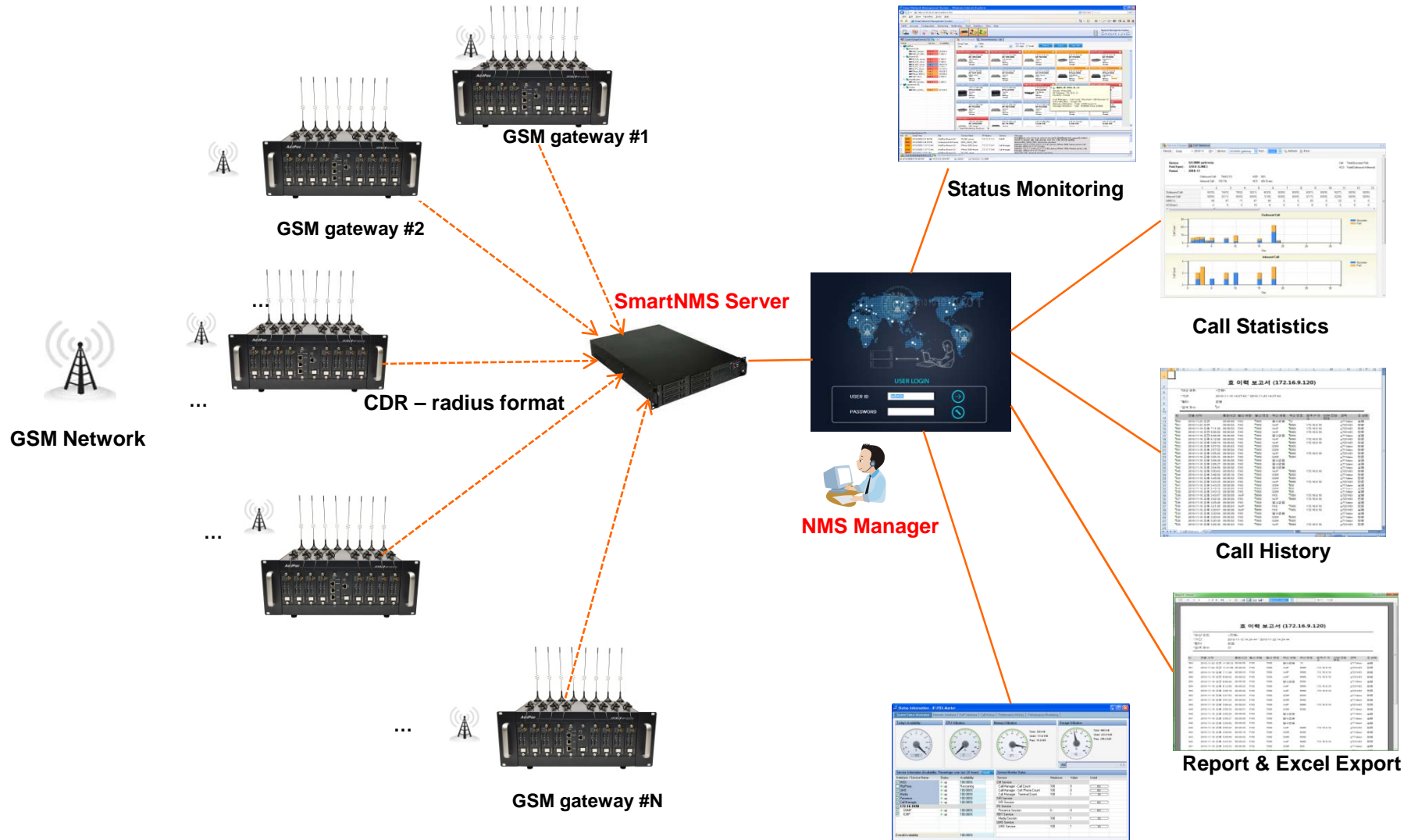
## **NMS Client**

- Windows XP, Vista, Windows Server 2000/2003
- Microsoft Internet Explorer 6.0 or higher

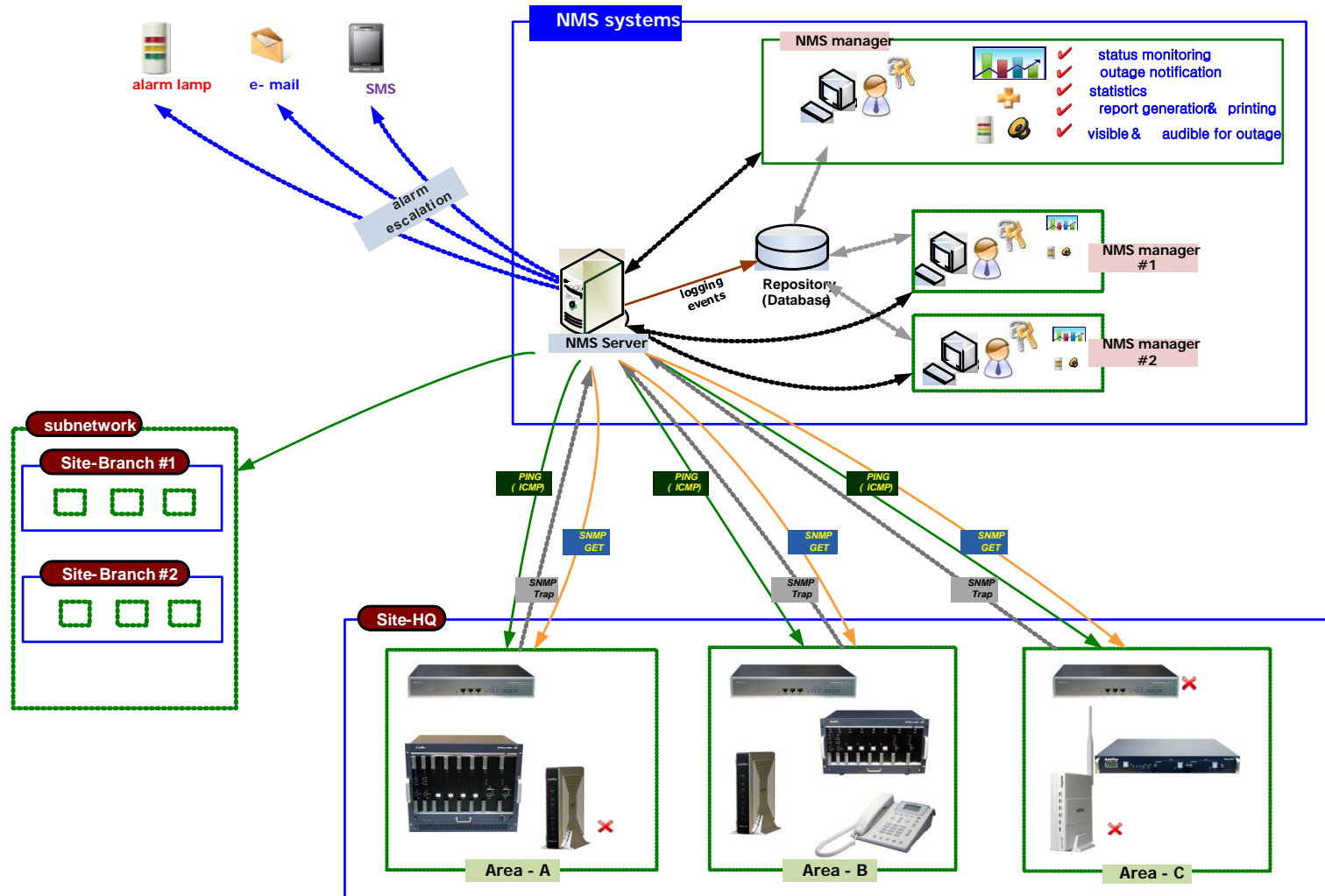
# Main Features

- Smart directory server(LDAP) and data(device, end-user..) integration.
- Site level management for the device and group.
- Auto provisioning for each GSM gateways.
- Event and notification management.
- Dashboard-styled real-time fault monitoring for GSM gateways.
- Port status and summary for GSM gateways (call history and statistics) .
- Fault statistics for GSM gateways.
- Batch processing for GSM gateways (initialize, backup, restore, upgrade, batch script, batch excel).
- System backup and restore of the SmartNMS operating data.

# Smart NMS CDR Processing Diagram



# 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

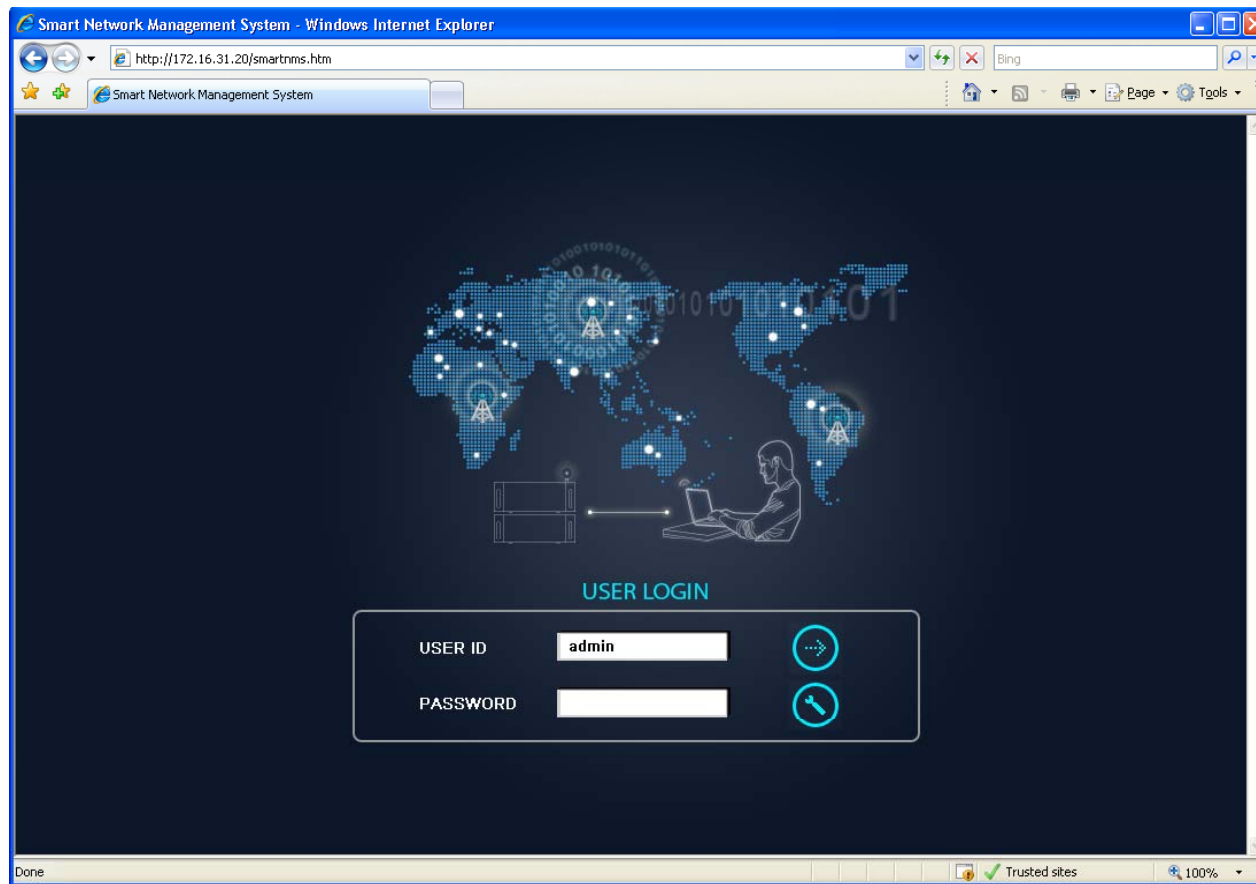
The screenshot displays a Windows Internet Explorer browser window titled "Smart Network Management System - Windows Internet Explorer" with the address bar showing "http://172.16.31.20/". The main content area features a dark blue background with a world map, server icons, and a person at a laptop. The text "AddPac Technology Network Management System for GSM" is prominently displayed. At the bottom, it says "© AddPac Technology, all rights reserved".

Two dialog boxes are overlaid on the browser window:

- Launching Application:** A blue-bordered dialog box with a close button. It contains icons of a computer and a globe, and the text "Verifying application requirements. This may take a few moments." A yellow callout box labeled "Automatic version check" points to this dialog.
- (61%) Downloading installnms:** A blue-bordered dialog box with a close button. It shows the progress of downloading a file named "installnms" from "172.16.31.20". The progress bar is partially filled with green. The text indicates "Downloading: 6.29 MB of 10.1 MB". A yellow callout box labeled "New S/W version update" points to the bottom of this dialog.



# Web-based Login

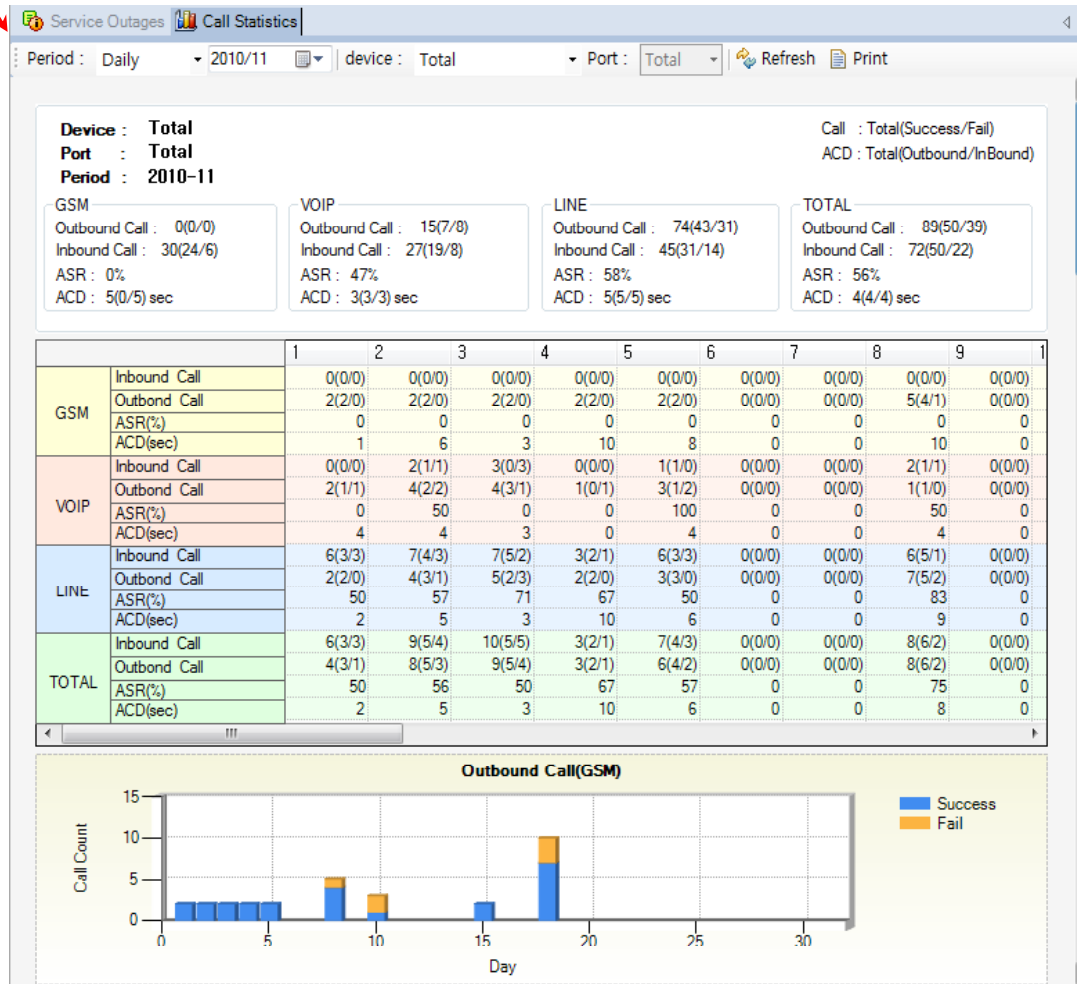


# Call Statistics

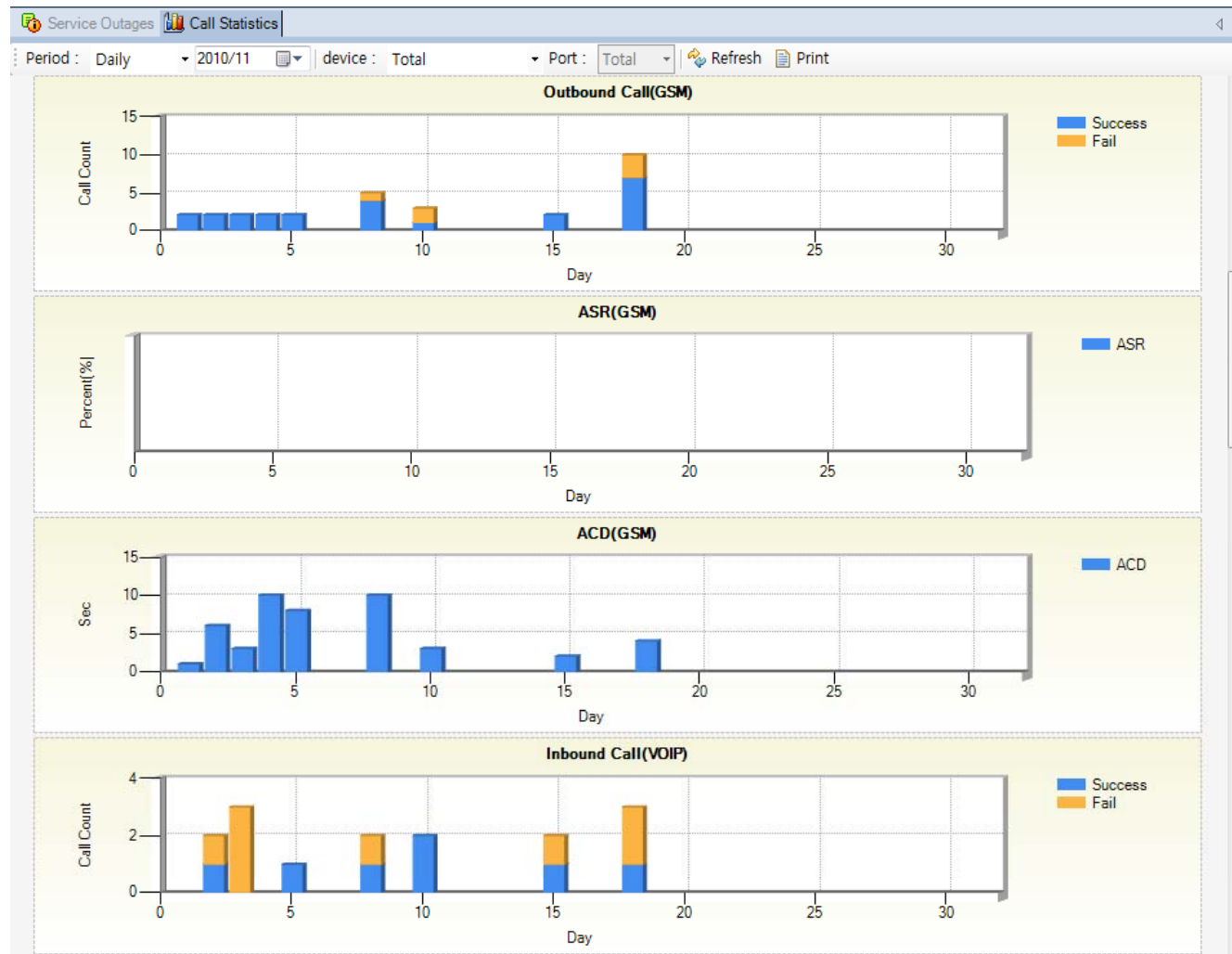
- SmartNMS receives CDR data for calls which is used for call statistics from the VOIP or GSM gateway.
- You can get statistics data with various time interval conditions such as daily and monthly basis for the device and VOIP port.
- Report statistics can be exported to the various document formats such as PDF and MS-Excel.

# Call Statistics

Total call statistics



# Call Statistics



# Call Statistics

Call statistics for the specified gateway.

Service Outages | Call Statistics

Period : Daily    2010/11    device : GS3000 gateway    Port :    Refresh    Print

**Device : GS3000 gateway**    Call : Total(Success/Fail)  
**Port : Total**    ACD : Total(Outbound/InBound)  
**Period : 2010-11**

	GSM	VOIP	LINE	TOTAL
Outbound Call :	0(0/0)	15(7/8)	76(44/32)	91(51/40)
Inbound Call :	30(24/6)	28(20/8)	45(31/14)	73(51/22)
ASR :	0%	47%	58%	56%
ACD :	5(0/5) sec	3(3/3) sec	5(4/5) sec	4(4/4) sec

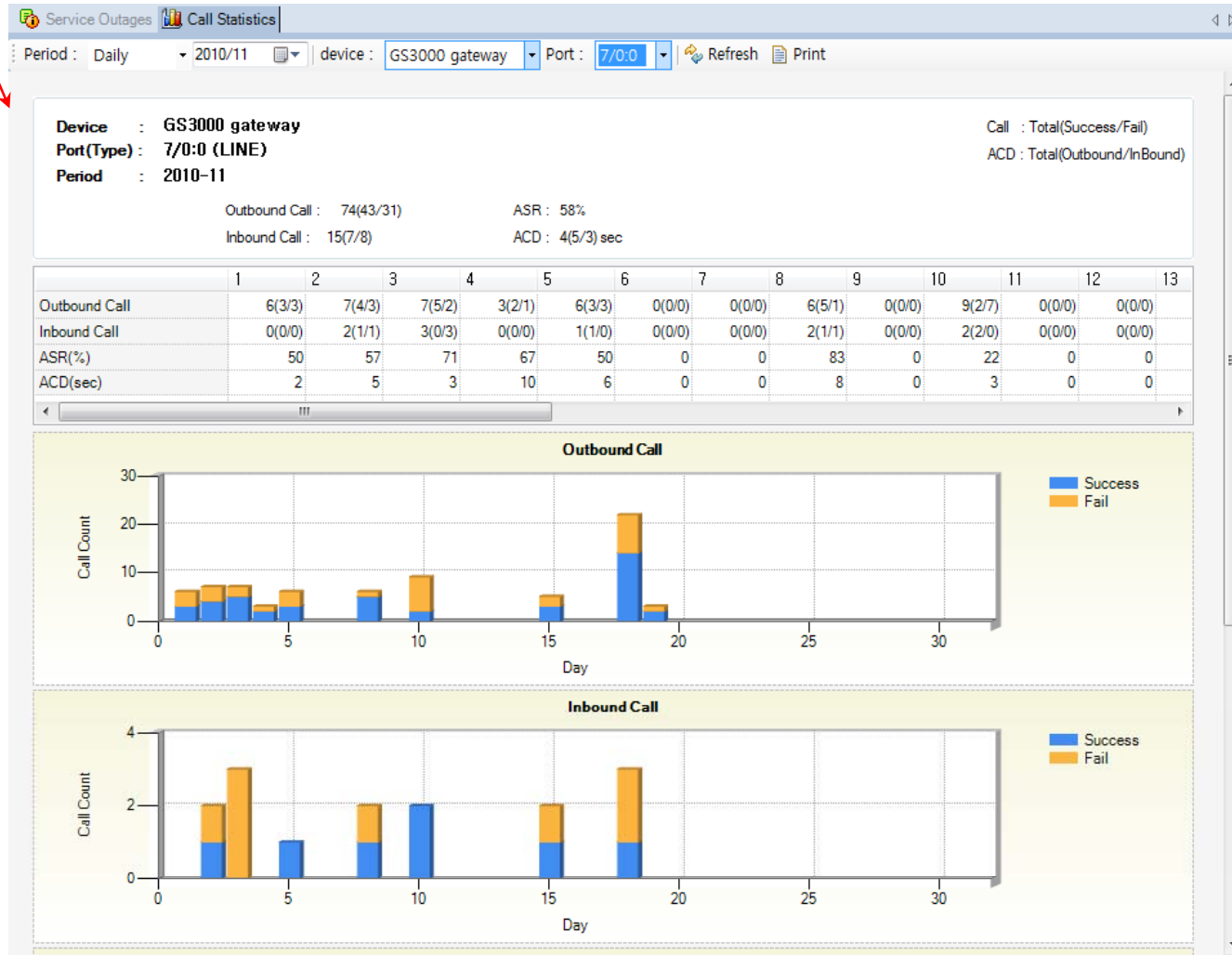
	1	2	3	4	5	6	7	8	9
GSM	Inbound Call	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)
	Outbound Call	2(2/0)	2(2/0)	2(2/0)	2(2/0)	2(2/0)	0(0/0)	0(0/0)	5(4/1)
	ASR(%)	0	0	0	0	0	0	0	0
	ACD(sec)	1	6	3	10	8	0	0	10
VOIP	Inbound Call	0(0/0)	2(1/1)	3(0/3)	0(0/0)	1(1/0)	0(0/0)	0(0/0)	2(1/1)
	Outbound Call	2(1/1)	4(2/2)	4(3/1)	1(0/1)	3(1/2)	0(0/0)	0(0/0)	1(1/0)
	ASR(%)	0	50	0	0	100	0	0	50
	ACD(sec)	4	4	3	0	4	0	0	4
LINE	Inbound Call	6(3/3)	7(4/3)	7(5/2)	3(2/1)	6(3/3)	0(0/0)	0(0/0)	6(5/1)
	Outbound Call	2(2/0)	4(3/1)	5(2/3)	2(2/0)	3(3/0)	0(0/0)	0(0/0)	7(5/2)
	ASR(%)	50	57	71	67	50	0	0	83
	ACD(sec)	2	5	3	10	6	0	0	9
TOTAL	Inbound Call	6(3/3)	9(5/4)	10(5/5)	3(2/1)	7(4/3)	0(0/0)	0(0/0)	8(6/2)
	Outbound Call	4(3/1)	8(5/3)	9(5/4)	3(2/1)	6(4/2)	0(0/0)	0(0/0)	8(6/2)
	ASR(%)	60	66	60	67	67	0	0	76
	ACD(sec)	2	5	3	10	6	0	0	8

**Outbound Call(GSM)**

**Inbound Call(GSM)**

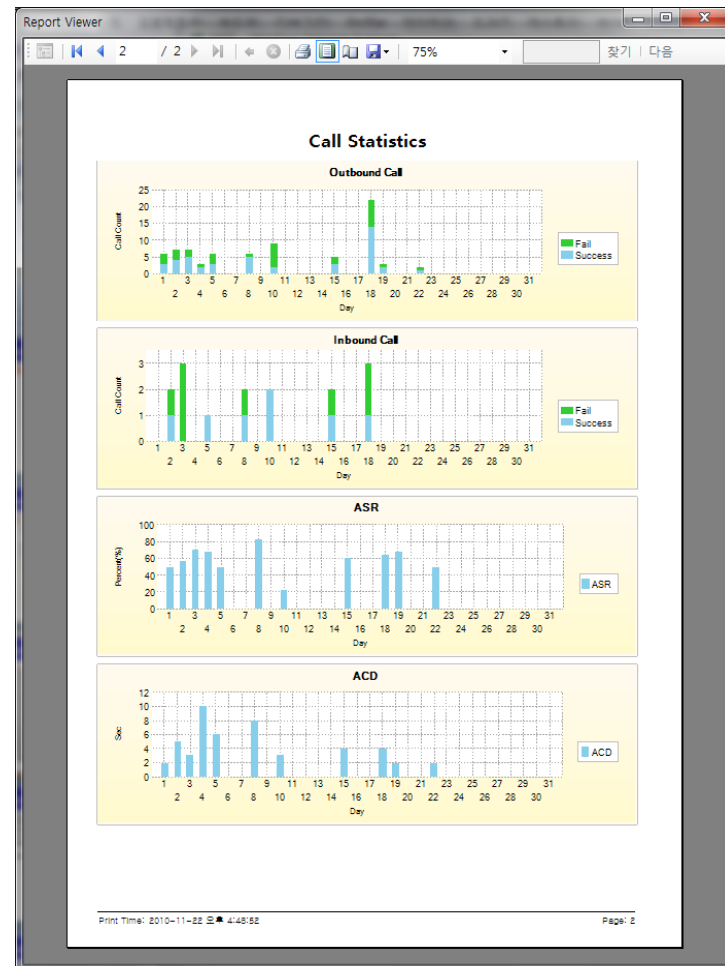
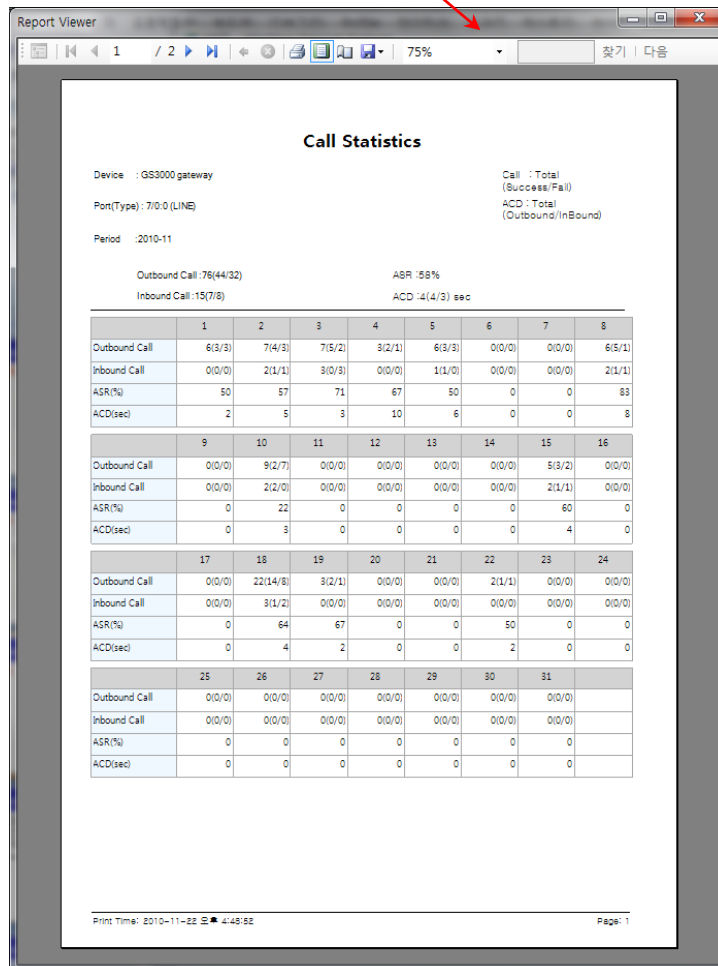
# Call Statistics

Call statistics for the specified port of the GSM gateway.



# Call Statistics Report

Can export to MS-Excel document or PDF and printout for the call statistics.



# 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 'GangNamGu'. The main area shows a table of categories with columns for 'Category Name' and 'Description'. A context menu is open over the tree, with 'Execute SMM' highlighted. A 'User Properties' dialog box is also open, showing a selection of sites for a user.

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

**manage the complex network with a structured, hierarchical form**

**can assign the hierarchical node to the operator and manage role-based policy**

**can cooperate with the application executables such as SMM**



# Device Fault Management

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

# Device Fault Management

**main window**

**current device fault list with hierarchy view**

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

**site device fault summary**

**overall total device fault statistics**

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

**Smart Network Management System - Windows Internet Explorer**

http://172.16.31.20/smartnms.htm

NMS Account Configuration Monitoring Notification Fault Statistics View Help

Network Management System Smart NMS

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_slave...	2 of 3	32.740 %
IPNext 3000 ...	1 of 3	90.608 %
IPNext 3000 S...	1 of 3	90.623 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
UMS server(o...	3 of 3	0.000 %
Subnetwork #2		
Center		
NMS_SOHO_...	2 of 2	98.115 %

**Service Outages**

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

**Device Categories**

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 %

**Your Outstanding Notices (16)**

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

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)

Name	Service...	Availability
Branch AQ		
NMS Camera	6 of 12	48.934 %
NMS_IP_PBX...	3 of 3	0.000 %
Branch GX		
00_IVR_server	3 of 3	0.000 %
00_IVR_slave...	3 of 3	0.000 %
00_NR_server	1 of 2	98.015 %
00_PS_server	3 of 3	0.000 %
00_PS_Slave...	2 of 3	32.703 %
IPNext 3000 ...	1 of 3	90.536 %
IPNext 3000 S...	1 of 3	90.584 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
UMS server(o...	3 of 3	0.000 %
Subnetwork #2		
NMS_SOHO_...	2 of 2	92.939 %

Service Outages Device Monitoring - <All>

Group Type Value View Mode Refresh Import

display message icon when the device have a notification for event

device status matrix with several severity such as critical, major, minor

- \* severity color
- 1) red : critical
- 2) orange : major
- 3) light blue : normal

Total Monitoring Devices : 34

ACK ID	Send time	Site	Device Name	IP Address	Service	Message
9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	00_IVR_server	172.17.111.21	SNMP	인터페이스 172.17.111.21 (172.17.111.21)의 장비명(00_IVR_server)의 서비스 SNMP가 2009년 4월 10일 금요일 오후 5시 21분 06초에 실패함.
9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Center	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down
9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.
9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.

Your Outstanding Notices (17)

4/10/2009 5:16:30 PM 172.16.31.20:5101 admin Version 1.2,3384

# Device Fault Management

The screenshot displays the Smart NMS interface in a Windows Internet Explorer browser. The main content area shows a 'Device Monitoring' view with a 'device status matrix with small view mode'. The matrix consists of a grid of icons representing various network devices, each with a status indicator (green for OK, red for fault). A red arrow points to the grid, and a red box contains the text 'device status matrix with small view mode'.

Below the device status matrix, there is a table titled 'Your Outstanding Notices (18)'. The table has columns for Ack, ID, Send Time, Site, Device Name, IP Address, Service, and Message. The messages describe various faults, such as services being down or interfaces failing.

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9229	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.110		device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator
<input type="checkbox"/>	9238	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	ICMP	device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) service ICMP not response or deleted by administrator

# 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

daily fault event summary statistics information

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

The screenshot displays the Smart Network Management System (NMS) interface in a Windows Internet Explorer browser. The main window shows a 'Notification Summary' table on the left and a detailed fault event history table on the right. An 'Advanced Search' dialog box is open over the main table, allowing for filtering of fault events based on various criteria.

**Notification Summary Table:**

Date/Time	Outstanding	Acknowledge
2009-04-10	4	27
2009-04-09	2	76
2009-04-08	0	96
2009-04-07	0	40
2009-04-06	7	489
2009-04-05	0	722
2009-04-04	0	708
2009-04-03	1	476
2009-04-02	0	248
2009-04-01	0	19
2009-03-31	0	37
2009-03-30	0	9
2009-03-29	0	3
2009-03-28	0	1
2009-03-27	0	14
2009-03-26	0	52
2009-03-25	0	8
2009-03-24	0	19
2009-03-23	0	59
2009-03-22	0	102
2009-03-21	0	17
2009-03-20	0	21
2009-03-18	0	48
2009-03-17	0	41
2009-03-13	0	36
2009-03-07	0	1
2009-03-06	0	482
2009-03-05	0	38
2009-03-04	0	13

**Advanced Search Dialog:**

- Sub Network: <All>
- Site: <All>
- IP Address Contains: [Empty]
- Notice Status Type: <All>
- Message Contains: [Empty]
- Level (Severity): <All>
- Notices After: 11/10/2008 17:20:49
- Notices Before: 11/10/2008 17:20:49
- Sort By: ID, Descending

**Main Fault Event History Table (Partial):**

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message	Response	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	172.17.11.1			auto-acknowledged	4/10/2009 5:22:43 PM
<input type="checkbox"/>	9525	4/10/2009 5:21:06 PM	/AddPac/Branch GX	00_NR_server	172.17.11.1			auto-acknowledged	4/10/2009 5:17:56 PM
<input type="checkbox"/>	9524	4/10/2009 5:17:29 PM	/AddPac/Branch GX	00_NR_server	172.17.11.1			auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9522	4/10/2009 3:36:26 PM	/AddPac/HeadQuarter	IP_PBX_Slave(our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9521	4/10/2009 3:36:18 PM	/AddPac/HeadQuarter	PS server(our co...				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9520	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	RBT server(our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9519	4/10/2009 3:36:17 PM	/AddPac/HeadQuarter	UMS server #2				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9518	4/10/2009 3:36:09 PM	/AddPac/HeadQuarter	Recording Server (our company)				auto-acknowledged	4/10/2009 4:03:13 PM
<input type="checkbox"/>	9517	4/10/2009 3:36:08 PM	/AddPac/HeadQuarter	company_MCU_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

**Your Outstanding Notices (17) Table (Partial):**

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

# Device Fault History Management

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a table of device fault history with the following columns: Date/Time, Outstanding, Acknowledge, ID, Send Time, Site, Device Name, IP Address, Service, Message, Responder, and Respond Time. The table lists various events, including those related to NMS Camera and IPNext 3000 Master/Slave services.

Two pop-up windows are visible:

- Troubleshooting Note (Event ID : 45393):** This window displays a log message: "interface 172.16.4.180 (172.16.4.180) device(NMS Camera) service SNMP failed at 2009-4-10 5:51:06 PM". It also includes a table for "Troubleshooting Note List" with columns for Time, User, Status, and Note.
- Troubleshooting Note:** This window shows a text area where a note has been entered: "Fixed it manually. 2009-04-10 PM by Administrator." The status is set to "Cleared".

An orange callout box with the text "Can write troubleshooting note if needed" points to the text area in the second pop-up window.

# Current Device Fault (Outage)

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of network devices on the left and a table of 'Current Outage Devices' on the right. A red box highlights the 'Current Outage Devices' table, with the text 'Display the current all device faults'. Below this, a 'Event Detail (ID: 45412)' window is open, showing details for a specific outage event. A red box highlights the 'Event Detail' window, with the text 'Can view the event data related to the current device fault and can write troubleshooting note if needed'. The 'Event Detail' window includes fields for Event Time, Site, Device Name, Service, and Severity, as well as a 'Log Message' field and a 'Description' field. The 'Description' field contains the text: 'device 00\_RBT\_server's all interface down. A new Outage record has been created and service level availability calculations will be impacted until this outage is resolved.' Below the description is a 'Troubleshooting Note List' table with columns for Time, User, Status, and Note. The 'Event Detail' window also has buttons for 'Acknowledge Events', 'Device Properties', 'Help', and 'Close'. At the bottom of the NMS interface, there is a 'Your Outstanding Notices (18)' section with a table of notices.

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



# Device Event History

**Smart Network Management System - Windows Internet Explorer**  
 http://172.16.31.20/smartnms.htm

**Event Summary**

Event Time	Outlets	Ackno...	Not Clea...	Cleared	In Pr...
2009-04-13	40	0	40	0	0
2009-04-12	6	0	6	0	0
2009-04-11	314	0	314	0	0
2009-04-10	182	0	182	0	0
2009-04-09	290	0	290	0	0
2009-04-08	412	0	412	0	0
2009-04-07	448	0	448	0	0
2009-04-06	1453	0	1453	0	0
2009-04-05	1704	0	1704	0	0
2009-04-04	1712	0	1712	0	0
2009-04-03	1276	0	1276	0	0
2009-04-02	799	0	799	0	0
2009-04-01	271	0	271	0	0
2009-03-31	277	0	277	0	0
2009-03-30	212	0	212	0	0
2009-03-29	17	0	17	0	0
2009-03-28	2	0	2	0	0
2009-03-27	108	0	108	0	0
2009-03-26	292	0	292	0	0
2009-03-25	46	0	46	0	0
2009-03-24	121	0	121	0	0
2009-03-23	1904	0	1904	0	0
2009-03-22	2643	0	2643	0	0
2009-03-21	354	0	354	0	0
2009-03-20	172	0	172	0	0
2009-03-19	1	0	1	0	0
2009-03-18	1294	0	1294	0	0
2009-03-17	788	0	788	0	0
2009-03-16	14	0	14	0	0
2009-03-15	3	0	3	0	0

**Event List**

Ack	ID	Severity	Event Time	Site	Device Name	IP Address	Service	Message
	45786	Critical	4/13/2009 11:24:42 AM	/AddPac/Branch GX	SE_MG3000N_A	172.17.111.25		Agent Up with enterprise: 1.3.6.1.4.1.4855.3.2.255 [1.3.6.1.4.1.4855.3.2.255] args [1.3.6.1.6.3.1.1.4.3.0="1.3.6.1.4.1.4855.3.2.255"
	45785	Cleared	4/13/2009 11:15:59 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21	SNMP	SNMP data collection on interface 172.17.111.21 previously failed and has been restored.
	45784	Cleared	4/13/2009 11:15:52 AM	/AddPac/Branch GX	00_NR_server			Node 00_NR_server is up.
	45783	Critical	4/13/2009 11:15:51 AM	/AddPac/Branch GX	00_NR_server	172.17.111.21		Agent Up with Possible Changes (coldStart Trap) enterprise: 1.3.6.1.4.1.4855.3.2.10 [1.3.6.1.4.1.4855.3.2.10] args [1.3.6.1.6.3.1.1.4.3.0="1.3.6.1.4.1.4855.3.2.10"
	45782	Critical	4/13/2009 11:15:13 AM	/AddPac/Branch GX	00_NR_server			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_SDHO_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_SDHO_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_SDHO_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_SDHO_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_SDHO_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_SDHO_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

**Event Details**

ID	Site	Device Name	IP Address	Service	Message
9502	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
9501	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
9495	/Subnetwork #2/Center	NMS_SDHO_PBX		Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed.
9494	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed.
9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server		device 00_IVR_server all services are down.
9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...		device NMS_IP_PBX_31.13 all services down.
9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2		device (NMS Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

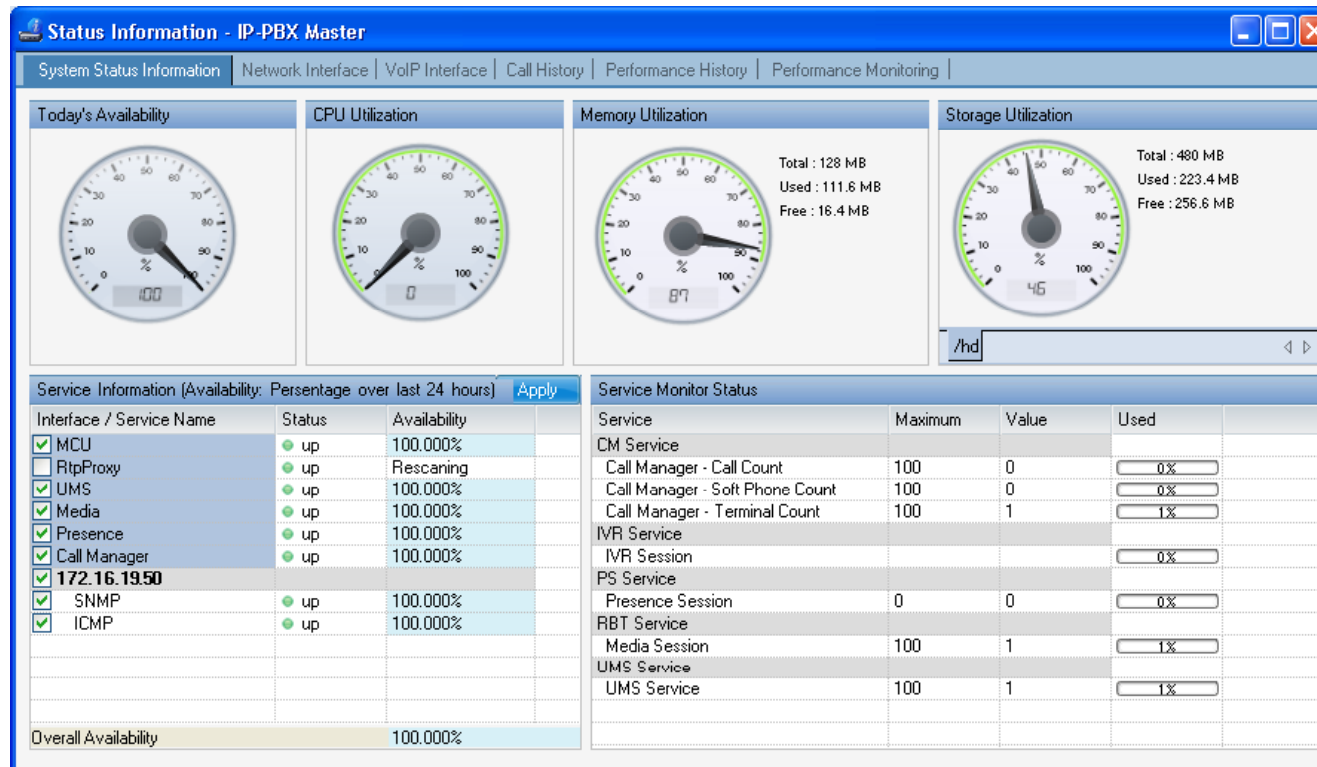
Can view all events for devices with search condition

summarize daily event statistics data

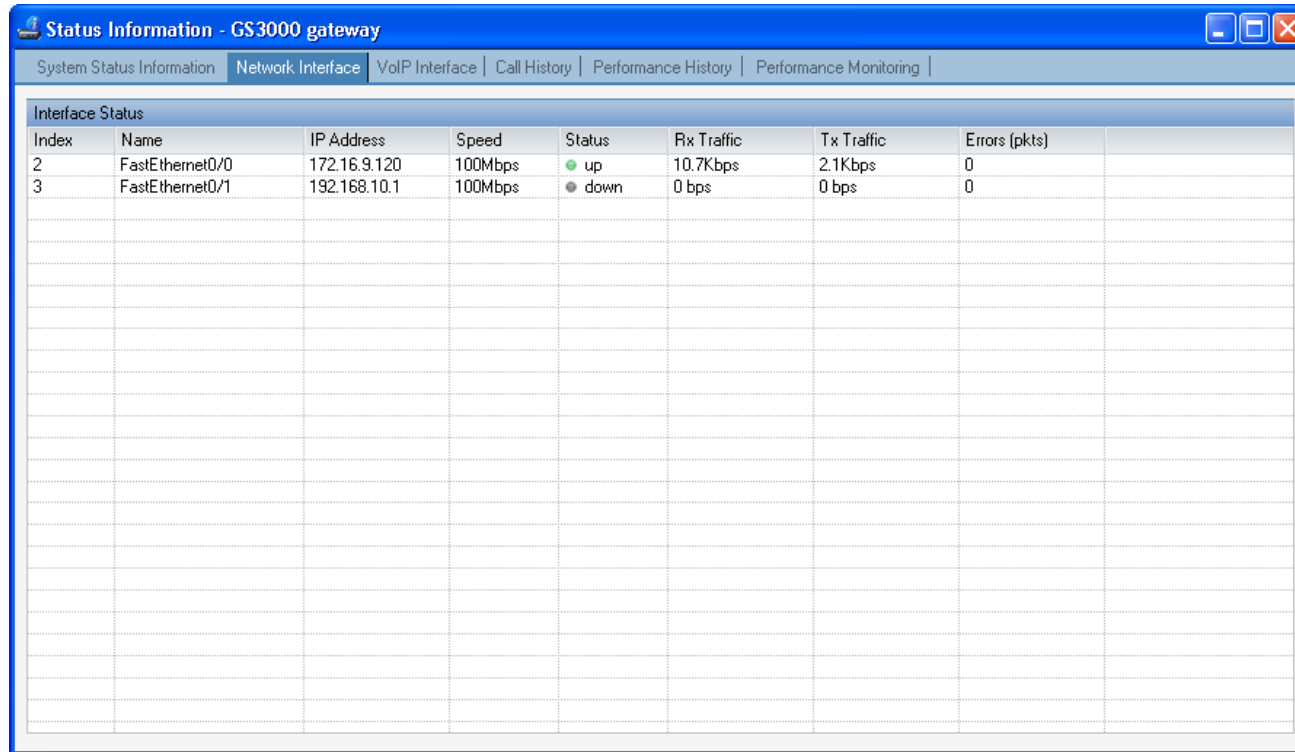
# Device Status Information

- System Performance Information (CPU, HDD, Memory,...)
- Provide device current service status (up/down)
- Provide device main status (max value vs current value)
- Provide network interface status (up/down & network traffic)
- Provide VoIP interface status and call statistics.
- Search call history for the device and port
- Display Graph Series with System Performance Information
- Monitor Main Status Flow with System Monitoring View

# System Status Information



# Network Interface



The screenshot shows a web-based network management interface for a GS3000 gateway. The main window title is "Status Information - GS3000 gateway". There are several tabs: "System Status Information", "Network Interface" (which is selected), "VoIP Interface", "Call History", "Performance History", and "Performance Monitoring". Below the tabs, there is a section titled "Interface Status" containing a table with the following data:

Index	Name	IP Address	Speed	Status	Rx Traffic	Tx Traffic	Errors (pkts)
2	FastEthernet0/0	172.16.9.120	100Mbps	● up	10.7Kbps	2.1Kbps	0
3	FastEthernet0/1	192.168.10.1	100Mbps	● down	0 bps	0 bps	0

# VoIP Interface

You can view call summary informations such as total call, ASR, and ACD for the GSM gateway device each

The screenshot displays the 'Status Information - GS3000 gateway' web interface. The 'VoIP Interface' tab is selected, showing 'GSM Call Statistics' and 'VoIP Interfaces Status'.

**GSM Call Statistics**

Inbound Calls				Total			All Clear
VoIP	FXS	FXD	E1	Call	ASR (%)	ACD (sec)	
0	58	0	0	58	94 %	11	

**VoIP Interfaces Status**

Port	Line Type	Line Status	In Gain	Out Gain	Phone Number	GSM Phone Number	Inbound Calls (VoIP/FXS/FXD/E1)	ASR (%)	ACD (sec)
0/0	GSM	hookOn	0	0	5T		0 / 37 / 0 / 0	94%	5
0/1	GSM	hookOn	0	0	6T		0 / 21 / 0 / 0	95%	6
0/2	GSM	hookOn	0	0	7T		0 / 0 / 0 / 0	0%	0
0/3	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
1/0	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
1/1	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
1/2	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
1/3	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
2/0	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
2/1	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
2/2	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
2/3	GSM	hookOn	0	0			0 / 0 / 0 / 0	0%	0
7/0	FXS	hookOn	0	0	7000			0%	
7/1	FXS	hookOn	0	0				0%	
7/2	FXS	hookOn	0	0				0%	
7/3	FXS	hookOn	0	0				0%	
7/4	FXD	hookOn	0	0	1231			0%	
7/5	FXD	hookOn	0	0				0%	

ⓘ GSM call statistics (Inbound calls, ASR, ACD) was created in the device to collect data is displayed on the screen.

# Call History

You can search call history with various conditions such as start date, end date, port and ip etc.

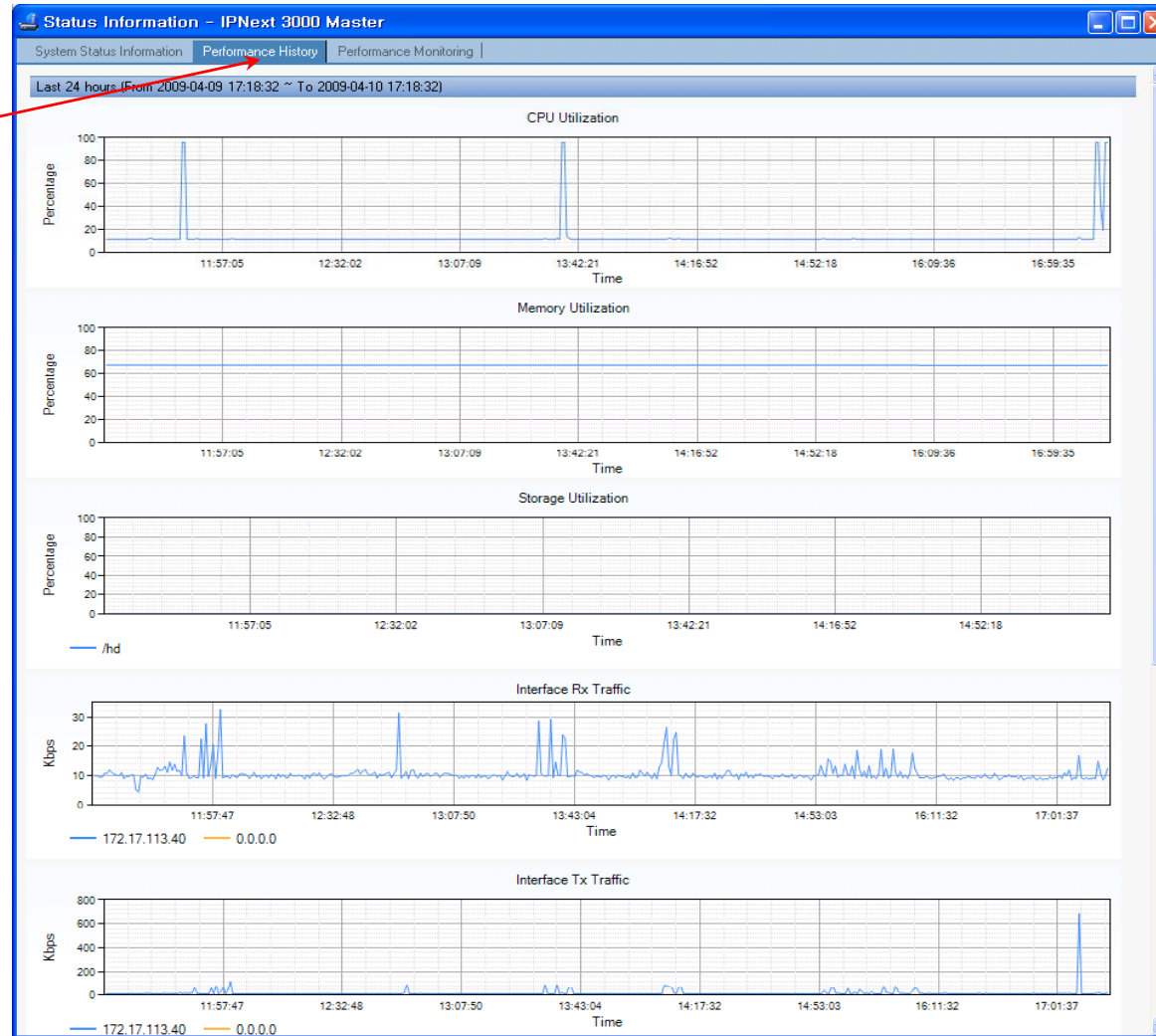
Device Call History

\*Destination Port: <All> \*Search Count: 153  
\*Period: 2010-11-18 10:15:01 ~ 2010-11-19 10:15:01  
\*Filter: Empty

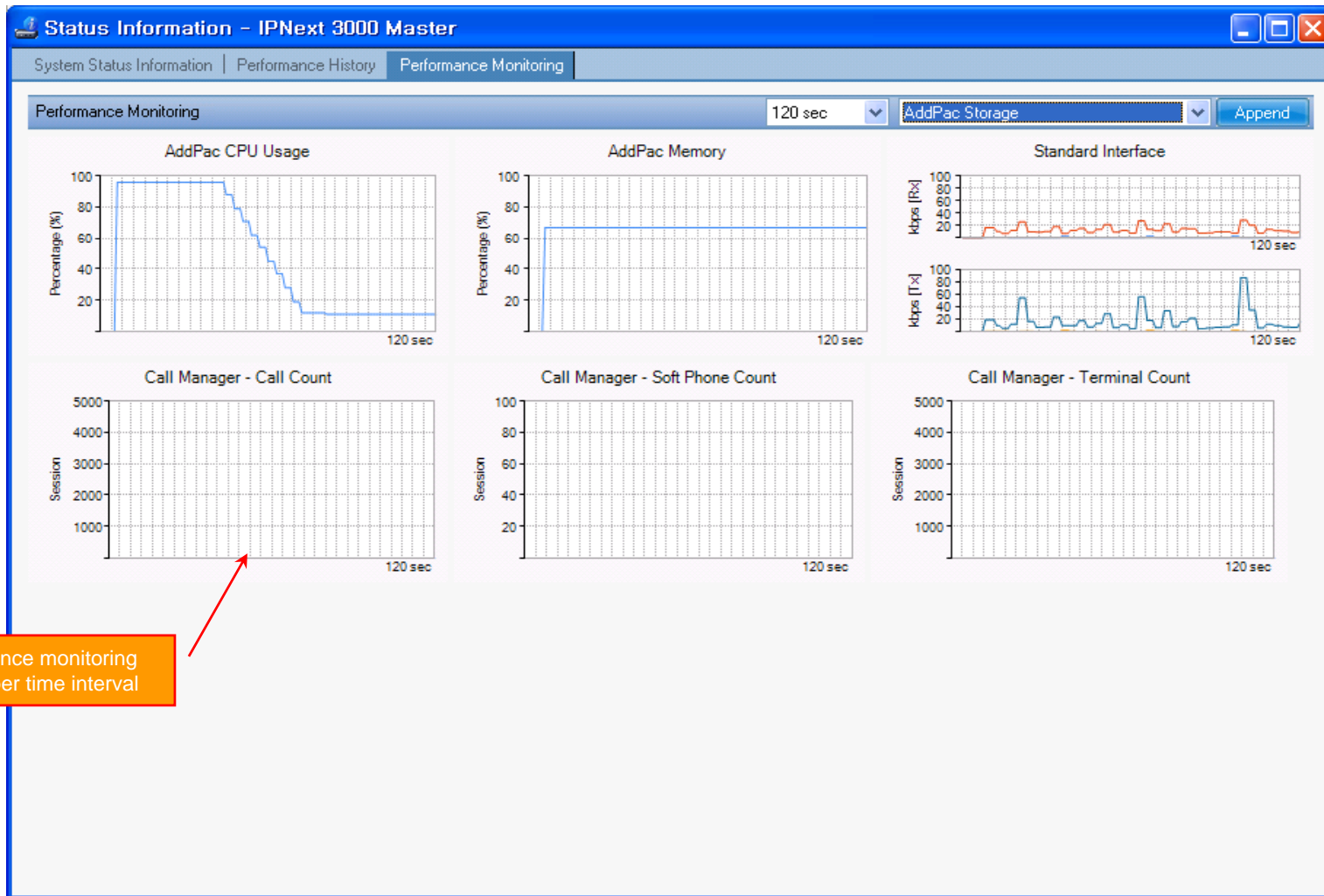
ID	Create Time	Duration	Caller Type	Caller Number	Called Type	Called Number	Remote IP	GSM Phone N...	Codec	Status
346	11/18/2010 3:54:50 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
345	11/18/2010 3:50:43 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g7231r63	Success
344	11/18/2010 3:46:54 PM	00:00:16	FXS	7000	GSM	6000			g711alaw	Success
343	11/18/2010 3:45:59 PM	00:00:02	FXS	7000	GSM	5000			g711alaw	Success
342	11/18/2010 3:43:33 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g7231r63	Success
341	11/18/2010 3:43:23 PM	00:00:00	FXS	7000	GSM	600			g711alaw	Failed
340	11/18/2010 3:43:16 PM	00:00:00	FXS	7000	GSM	600			g711alaw	Failed
339	11/18/2010 3:43:12 PM	00:00:00	FXS	7000	GSM	500			g711alaw	Failed
338	11/18/2010 3:43:07 PM	00:00:00	VoIP	9999	FXS	7000	172.16.9.18		g7231r63	Failed
337	11/18/2010 3:42:32 PM	00:00:04	FXS	7000	VoIP	9999	172.16.9.18		g7231r63	Success
336	11/18/2010 3:25:48 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
335	11/18/2010 3:21:05 PM	00:00:03	VoIP	9999	FXS	7000	172.16.9.18		g7231r63	Success
334	11/18/2010 3:20:57 PM	00:00:00	VoIP	9999	FXS	7000	172.16.9.18		g7231r63	Failed
332	11/18/2010 3:20:54 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
330	11/18/2010 3:20:43 PM	00:00:02	FXS	7000	GSM	6000			g711alaw	Success
328	11/18/2010 3:20:30 PM	00:00:02	FXS	7000	GSM	5000			g711alaw	Success
325	11/18/2010 3:05:30 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g7231r63	Success
324	11/15/2010 3:05:22 PM	00:00:00	VoIP	9999	FXS	7000	172.16.9.18		g7231r63	Failed
323	11/15/2010 3:05:11 PM	00:00:03	VoIP	9999	FXS	7000	172.16.9.18		g7231r63	Success
322	11/15/2010 3:05:08 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed

# Performance History

performance analysis graph for last 24 hours



# Performance Monitoring



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 and a table of event notifications in the center. A dialog box titled 'Event Notification Properties' is open on the right, showing configuration details for a specific event notification.

**Event Notification Properties Dialog:**

- Notification Name: serviceUnresponsive
- Description: test
- Event: Node event: serviceUnresponsive
- Destination Path: default
- Notification Type: sms, alarmLamp, email
- Current Rule: IPADDR IPLIKE \*\*\*\*
- Apply Category: Desktop, Network Camera, Phone, Server, Switch
- Email Subject: Notice #noticeid%: %service% service on %interfaceresolve% (%interface%)
- Text Message: The %service% poll to interface %interfaceresolve% (%interface%) on node %nodelabel% successfully completed a connection to the service listener on the remote machine. However, the synthetic transaction failed to complete within %param[timeout]% milliseconds, over %param[attempts]% attempts. This event will NOT impact service level agreements, but may be an indicator of other problems on that node.

**Callout Boxes:**

- 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**

**Table: 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_RB1_server		device:00_RB1_server's all services...	
	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_SOHO_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		

# Event Notification Management

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of network devices and their service availability. A dialog box titled "Destination Path Properties" is open, allowing configuration of notification channels. The dialog includes a table for defining notification types and targets.

**Destination Path Properties Dialog:**

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

Notification Type	Target	Auto Notify
alarmLamp	alarmLamp	on
email	admin	on
sms	admin	on
- Escalation: (checkbox) Delay: 0m
- Buttons: Add, Delete, Help, Ok, Cancel

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

**Your Outstanding Notices (18) Table:**

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SDHD_PBX			device NMS_SDHD_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (IPNext 3000 Slave) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.40	Call Manager	interface 172.17.113.40 (172.17.113.40) device (IPNext 3000 Master) service Call Manager 2009-4-10 11:37:12 failed
<input type="checkbox"/>	9418	4/9/2009 2:20:01 PM	/AddPac/Branch GX	00_IVR_server			device 00_IVR_server all services are down.
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			device NMS_IP_PBX_31.13 all services down.
<input type="checkbox"/>	9229	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.119		device (NMS_Camera 2) interface 172.16.253.118 (172.16.253.118) not response or delete by administrator

# Event Notification Management

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

**Destination Path Properties Dialog:**

- Destination Path Name: default
- Initial Target: Account Administrator
- Initial Delay: 0m
- Notification Type Table:
 

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

**Target Properties Dialog:**

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

A red box highlights the 'Initial Target' field in the 'Destination Path Properties' dialog, containing the text: "user account (administrator) setting for SMS, E-mail Notification or specify e-mail address or SMS phone number". A red arrow points from this box to the 'Target Properties' dialog.

**Your Outstanding Notices (18) Table:**

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

# Configuration

The screenshot displays the Smart Network Management System (NMS) interface. The main window shows a tree view of devices and a 'Configure Notification' dialog box. The dialog box is open to the 'Alarm Lamp' tab, showing fields for 'Sender Email Address' (nms@addpac.com) and 'SMTP Server Host' (61.33.161.2). A red arrow points to the dialog box with a callout box containing the text 'global notification channel configuration'.

Name	Service...	Availability
Branch AQ		
NMS_Camera	6 of 12	50.000 %
NMS_IP_PBX...	3 of 3	0.000 %
Branch GK		
00_IVR_server	3 of 3	0.000 %
00_IVR_slave...	3 of 3	0.000 %
00_PS_server	3 of 3	0.000 %
00_PS_Slave...	2 of 3	33.333 %
00_FBT_server	3 of 3	0.000 %
IPNext 3000 ...	1 of 3	66.667 %
IPNext 3000 S...	1 of 3	66.667 %
UMS slave	3 of 3	0.000 %
HeadQuarter		
5th floor meeti...	1 of 1	0.000 %
UMS serverfo...	3 of 3	0.000 %
Subnetwork #2		
Center		
NMS_SOHD_...	2 of 2	0.000 %

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GK	00_FBT_server			device 00_FBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHD_PBX			device NMS_SOHD_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GK	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 GK	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 GK	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	92%	AddPac Technology C...
Seoul	Sub Netw...	2 / 1 / 2	33%	Seoul subnetwork

Category	Outages	Availability
Desktop	0 / 0 / 1	100%
Network Camera	6 / 1 / 2	57%
Phone	1 / 1 / 3	66%
Server	27 / 11 / 22	42%
Switch	0 / 0 / 0	100%
WiFi Gateway	0 / 0 / 6	100%

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

# Fault Statistics

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

# Fault Statistics

The screenshot displays the Smart Network Management System (NMS) interface. The main content area shows a search condition panel with a date range of 4/9/2009 to 3/30/2009 and a site selection of Branch A, Branch AQ, B. Below this is a bar chart titled 'Fault Statistics (Site)' showing fault counts over time for various sites. A detailed data table for 4/9/2009 provides a breakdown of fault counts by site and time. The bottom section shows a list of outstanding notices.

**Event Summary Table (Left):**

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

**Fault Statistics (Site) Chart Data (Approximate):**

Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	1	0	0	0	0	0	1
13:00	0	0	0	1	0	0	0	0	0	1
14:00	0	8	0	13	0	0	0	0	0	21
15:00	0	7	0	18	3	0	4	12	0	44
16:00	0	0	0	2	1	0	0	1	0	4
17:00	0	3	0	16	1	0	0	1	0	19
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0
Total	0	36	0	60	4	0	4	14	0	118

**4/9/2009 Detailed Data Table:**

Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	1	0	0	0	0	0	1
13:00	0	0	0	1	0	0	0	0	0	1
14:00	0	8	0	13	0	0	0	0	0	21
15:00	0	7	0	18	3	0	4	12	0	44
16:00	0	0	0	2	1	0	0	1	0	4
17:00	0	3	0	16	1	0	0	1	0	19
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0
Total	0	36	0	60	4	0	4	14	0	118

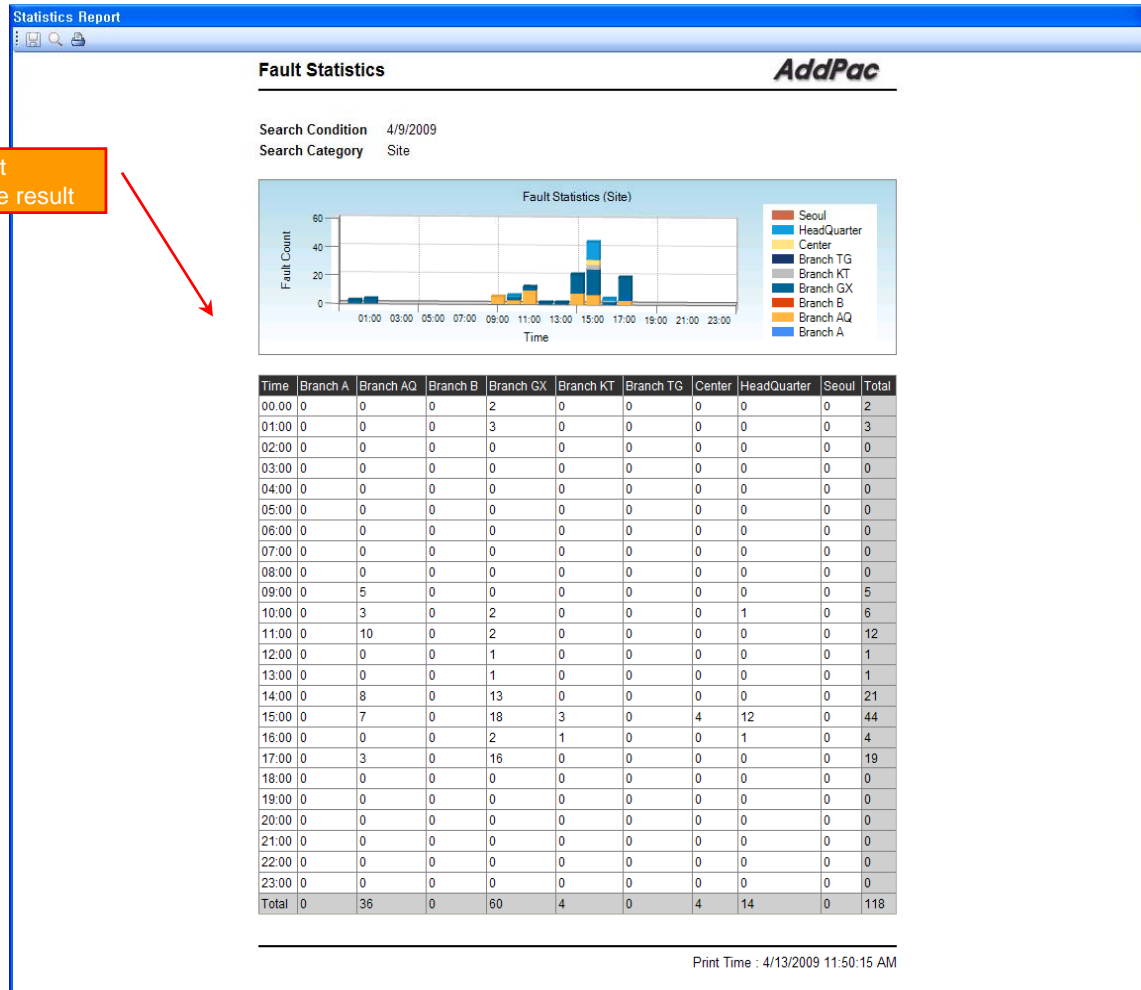
**Your Outstanding Notices (18):**

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th_floor_meeting...			device 5th floor meeting room phone device, all services are down.
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SOHO_PBX			device NMS_SOHO_PBX, all services are down
<input type="checkbox"/>	9505	4/10/2009 11:23:13 AM	/AddPac/Branch GX	IPNext_3000_Slave1	172.17.113.41	Call	interface 172.17.113.41 (172.17.113.41) device IPNext_3000_Slave1 service



# Fault Statistics – Report Generation

report generation for fault statistics and print out the result



# Model & Service Management

- Define new model with provided template image & properties
- Customize data collection with standard protocol such as TCP, SNMP

# Device Model Management

manage device model with various properties such as model image

model image repository for selection

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

Network Management System Smart NMS

Site: Event Summary

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
Branch B	
GangNamGu	GangNamGu
Branch TG	Yeoksam Area
SeoChoGu	seoul seochodistrict
Seoul West Area	Seoul West Area
Gangseo Area	Gangseo 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
IPNext1000	Server
IPNext180	Server
IPNext200	Server

Device Model Properties

General Service Availability System Monitoring Service Monitoring

Model Name: AP-IPC250M

Category: Network Camera

Management by SSCP:

SSCP Port: 5061 (1~65535)

Model Image:

Model Image Management

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_server's all services are down.
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meeting room phone device, all se
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_SDHO_PBX			device NMS_SDHO_PBX, all services are down
<input type="checkbox"/>	9495	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Slave	172.17.113.41	Call Manager	interface 172.17.113.41 (172.17.113.41) device (If
<input type="checkbox"/>	9494	4/10/2009 11:37:12 AM	/AddPac/Branch GX	IPNext 3000 Master	172.17.113.4		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 (If
<input type="checkbox"/>	9396	4/9/2009 10:57:37 AM	/AddPac/Branch AQ	NMS_IP_PBX_3...			53.118
<input type="checkbox"/>	9239	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.1		
<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
<input type="checkbox"/>	9237	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	ICMP not response or deleted by administrator
<input type="checkbox"/>	9236	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
<input type="checkbox"/>	9235	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	SNMP not response or deleted by administrator
<input type="checkbox"/>	9234	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
<input type="checkbox"/>	9233	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	SNMP not response or deleted by administrator
<input type="checkbox"/>	9232	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
<input type="checkbox"/>	9231	4/6/2009 7:49:20 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.118	SNMP	SNMP not response or deleted by administrator
<input type="checkbox"/>	9230	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

Your Outstanding Notices (18)

4/13/2009 1:42:39 PM 172.16.31.20:5101 admin Version 1.2.3384

# Service Definition

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

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

**Service Properties (General - SNMP)**

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

**Service Properties (General - SNMP)**

Service OID: 1.3.6.1.4.1.4855.7.51.1.3.0

Service Condition:  
 Operator: =  
 Operand: 1

Ack	ID	Send Time	Site	Device Name	IP Address	Service	Message
<input type="checkbox"/>	9535	4/10/2009 9:26:04 PM	/AddPac/Branch GX	00_RBT_server			device 00_RBT_serv
<input type="checkbox"/>	9527	4/10/2009 5:34:10 PM	/AddPac/HeadQuarter	5th floor meeting...			device 5th floor meet
<input type="checkbox"/>	9502	4/10/2009 3:34:29 PM	/Subnetwork #2/Cent...	NMS_S0HD_PBX			device NMS_S0HD_PBX
<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	ICMP not response o
<input type="checkbox"/>	9236	4/6/2009 7:41:25 PM	/AddPac/Branch AQ	NMS Camera 2	172.16.253.110	ICMP	device(NMS_Camera



# Thank you!

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