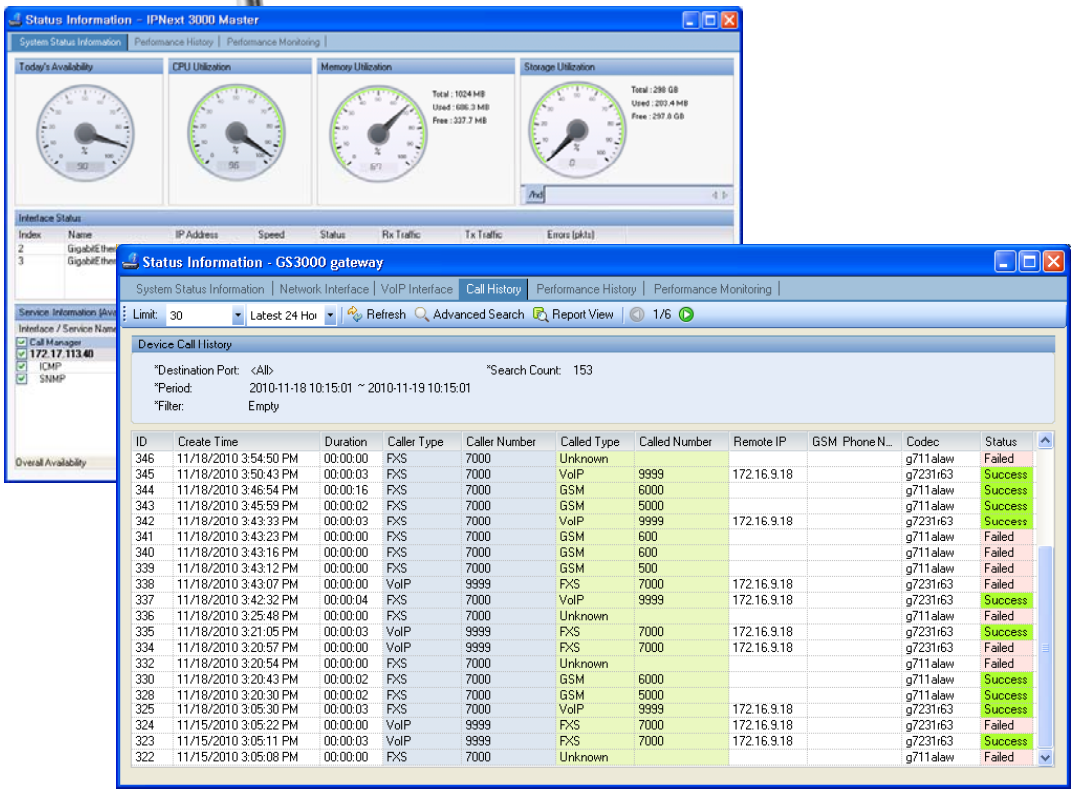
Smart GSM NMS

Smart Network Management System

Smart GSM NMS Overview



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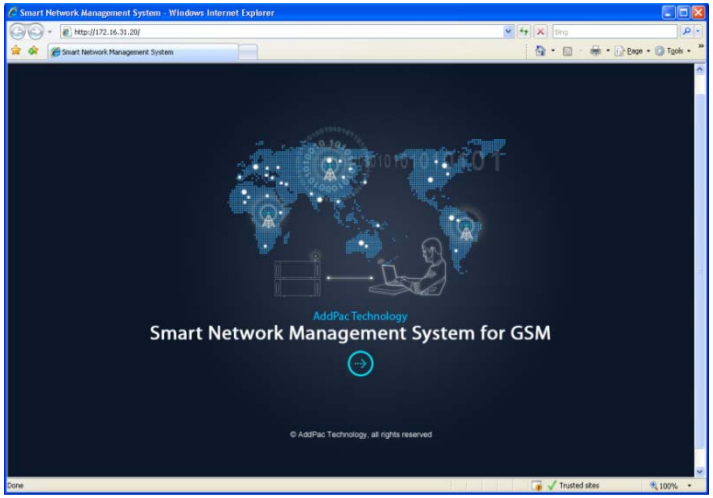


System Requirement

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

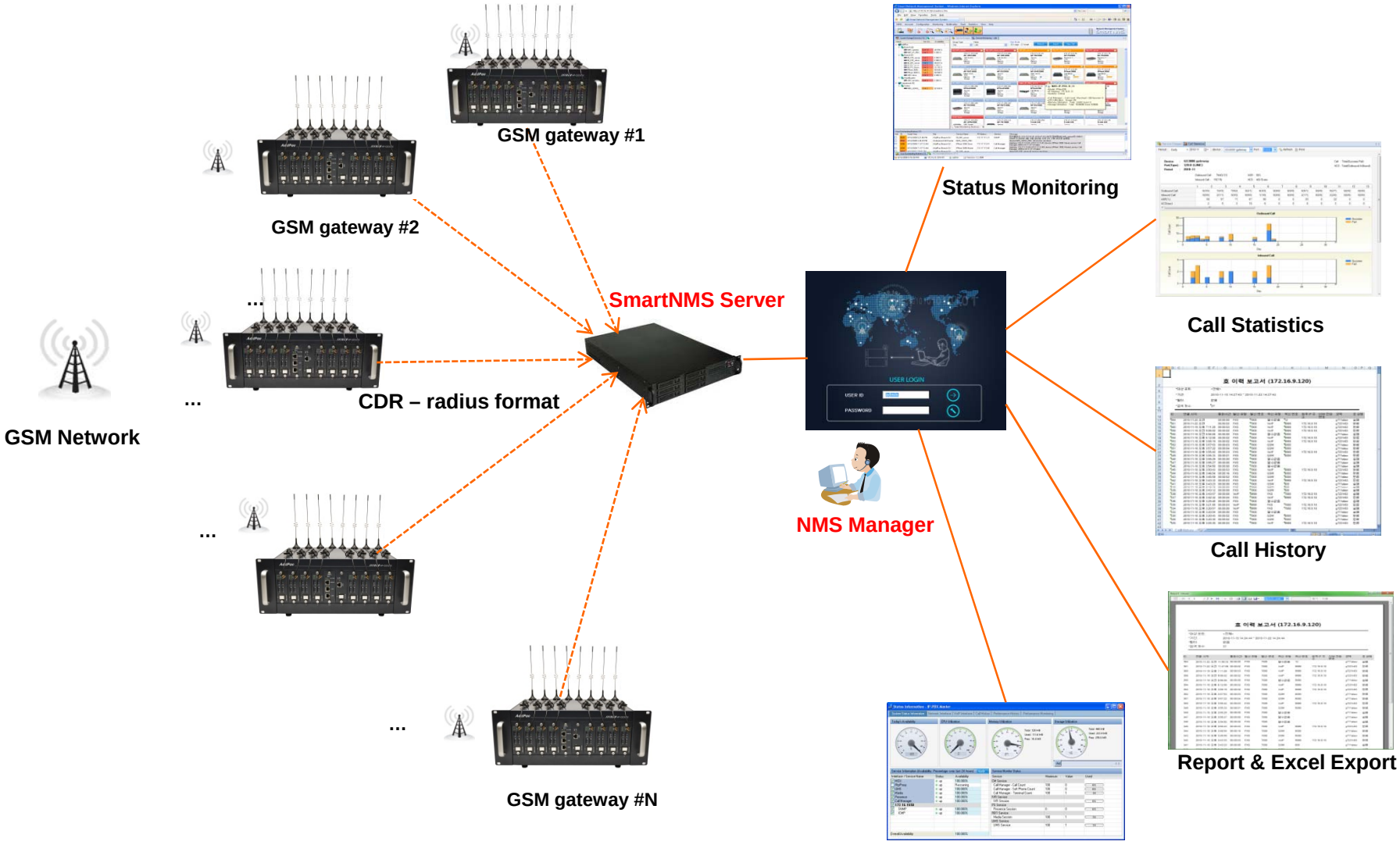
NMS Client

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

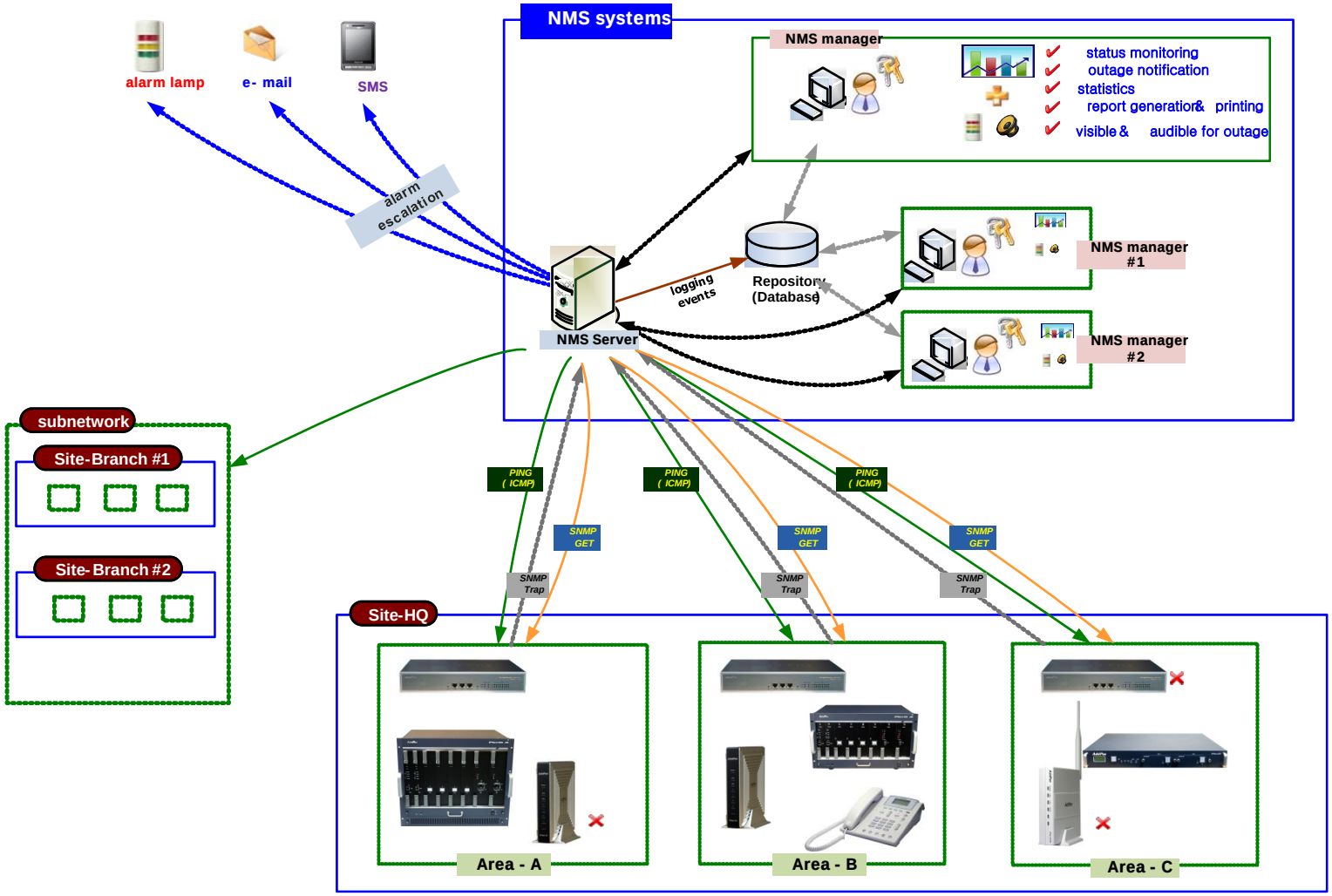
Main Features

- 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



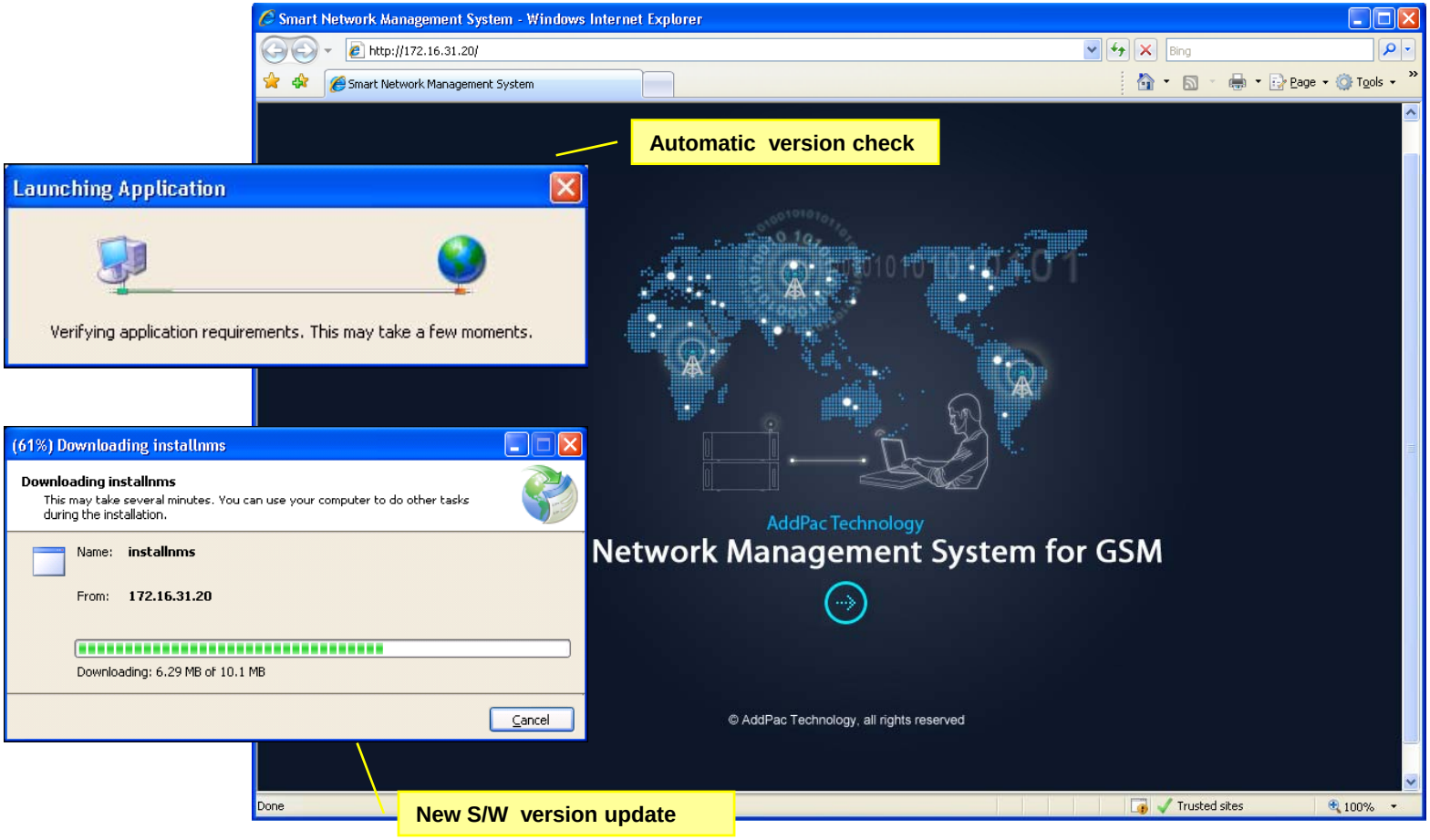
NMS Networking Diagram



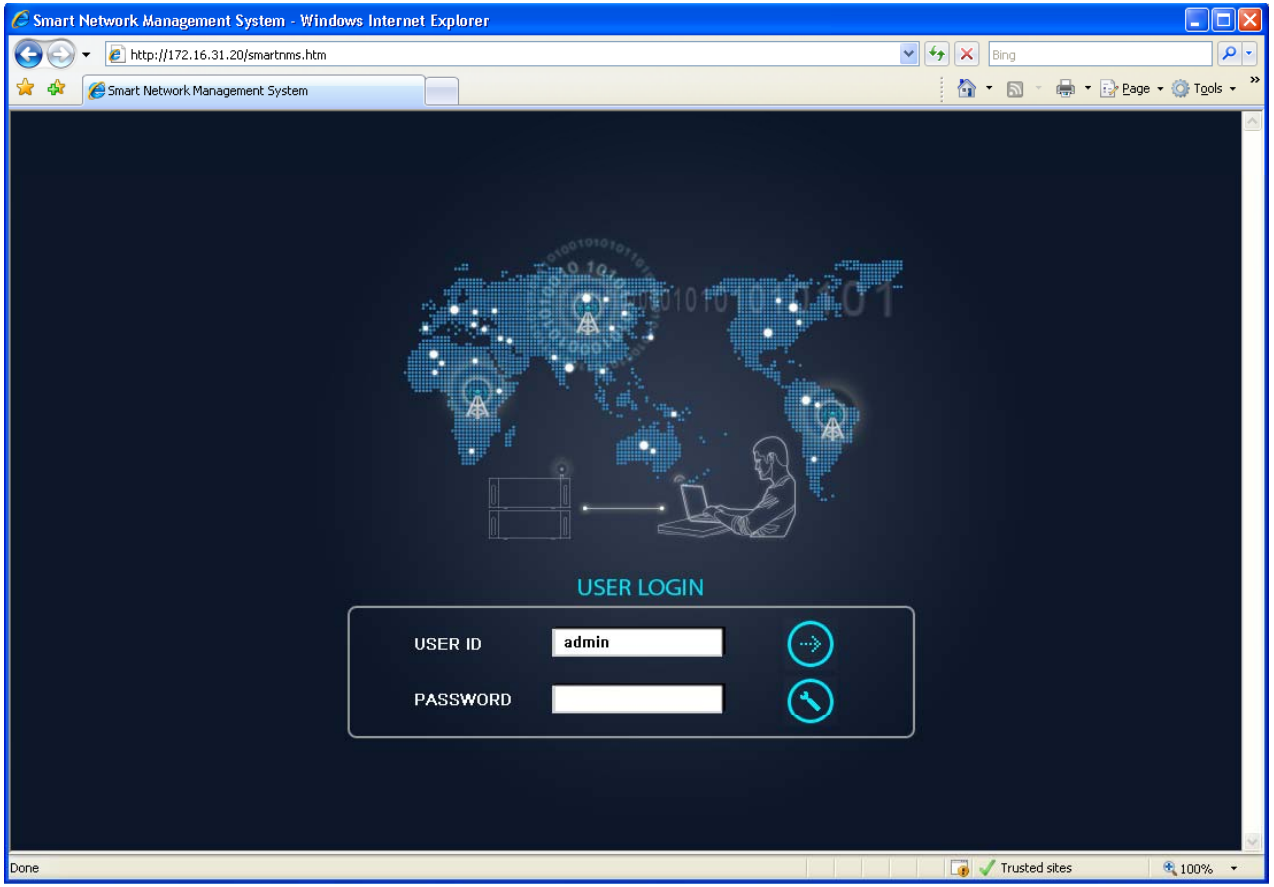
Web-based Management

- **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



Web-based Login

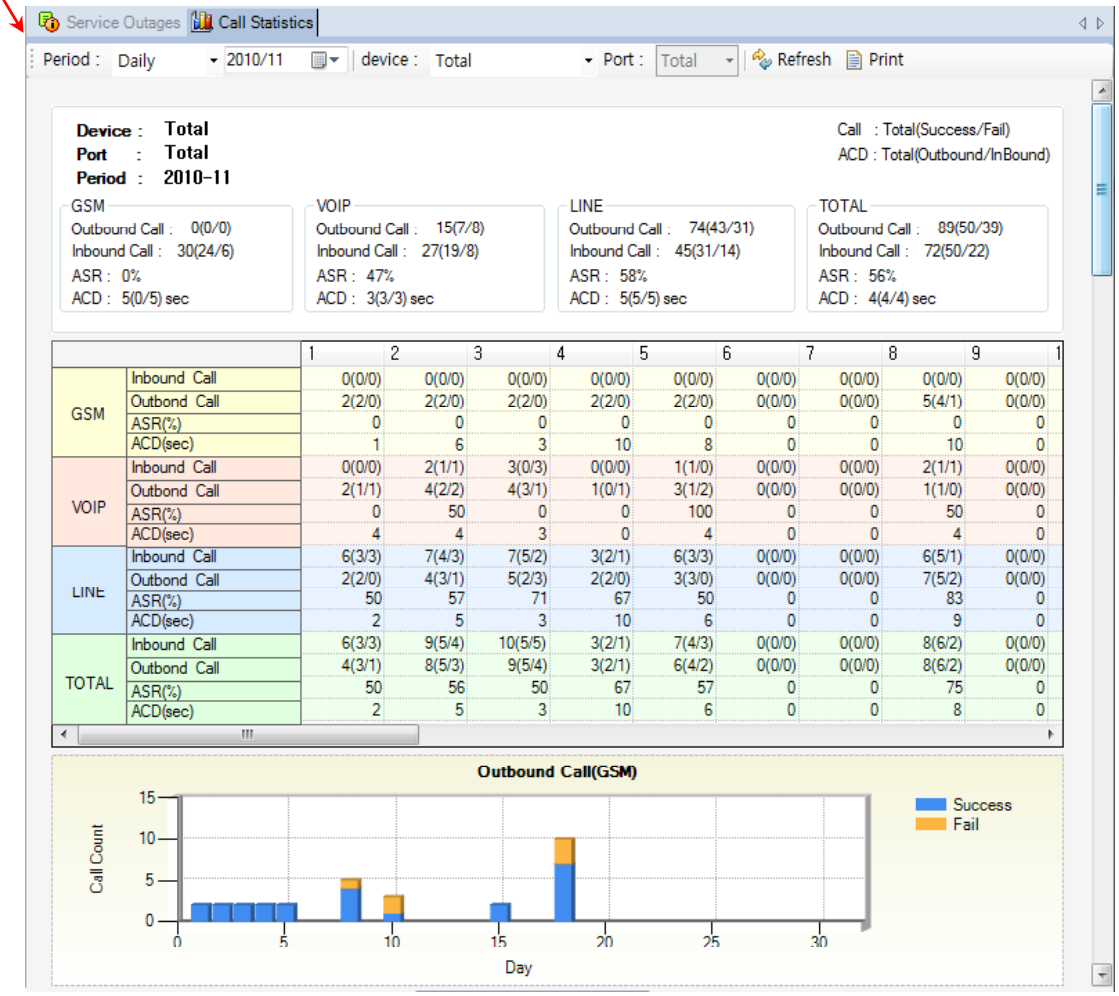


Call Statistics

- 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.

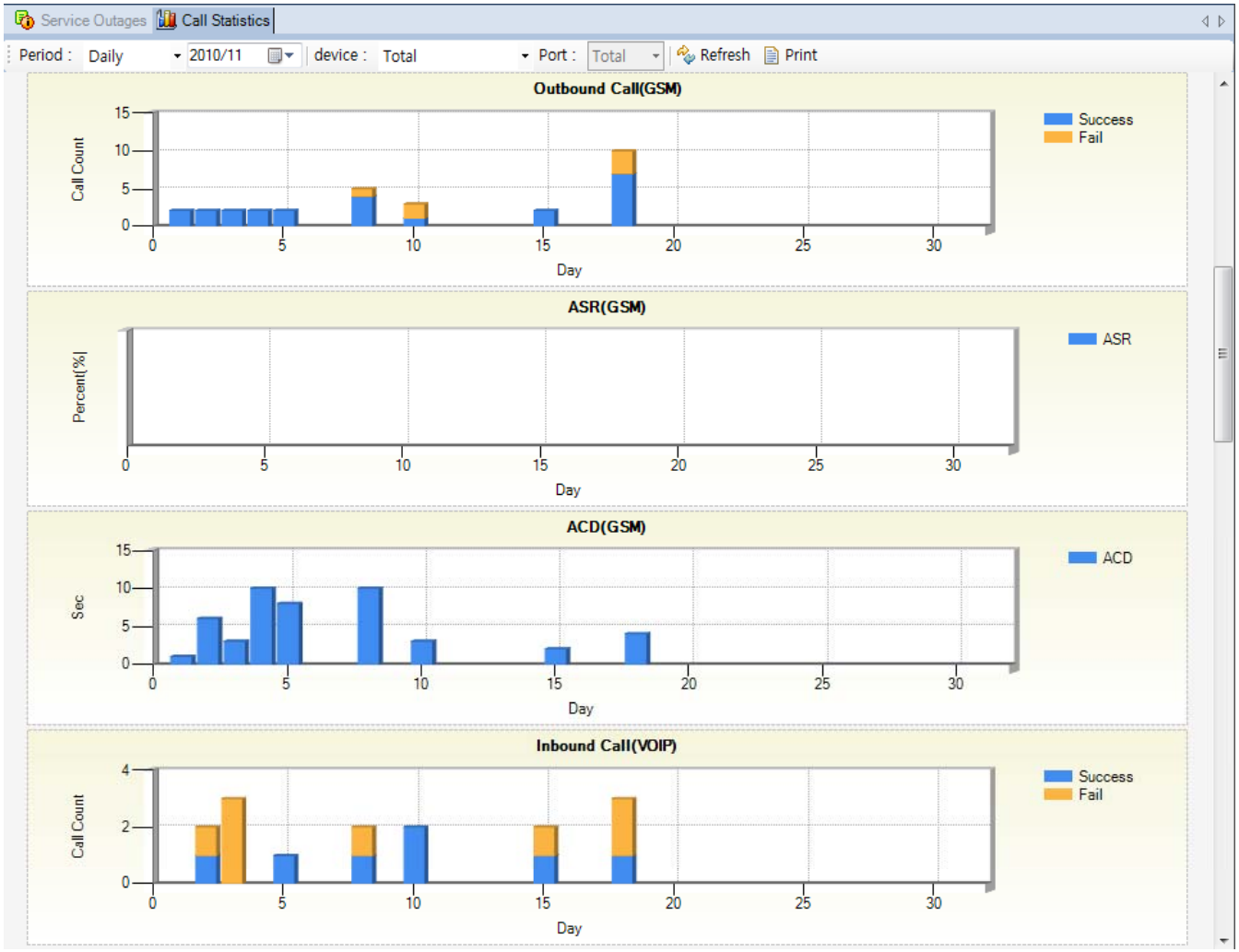
Call Statistics

Total call statistics



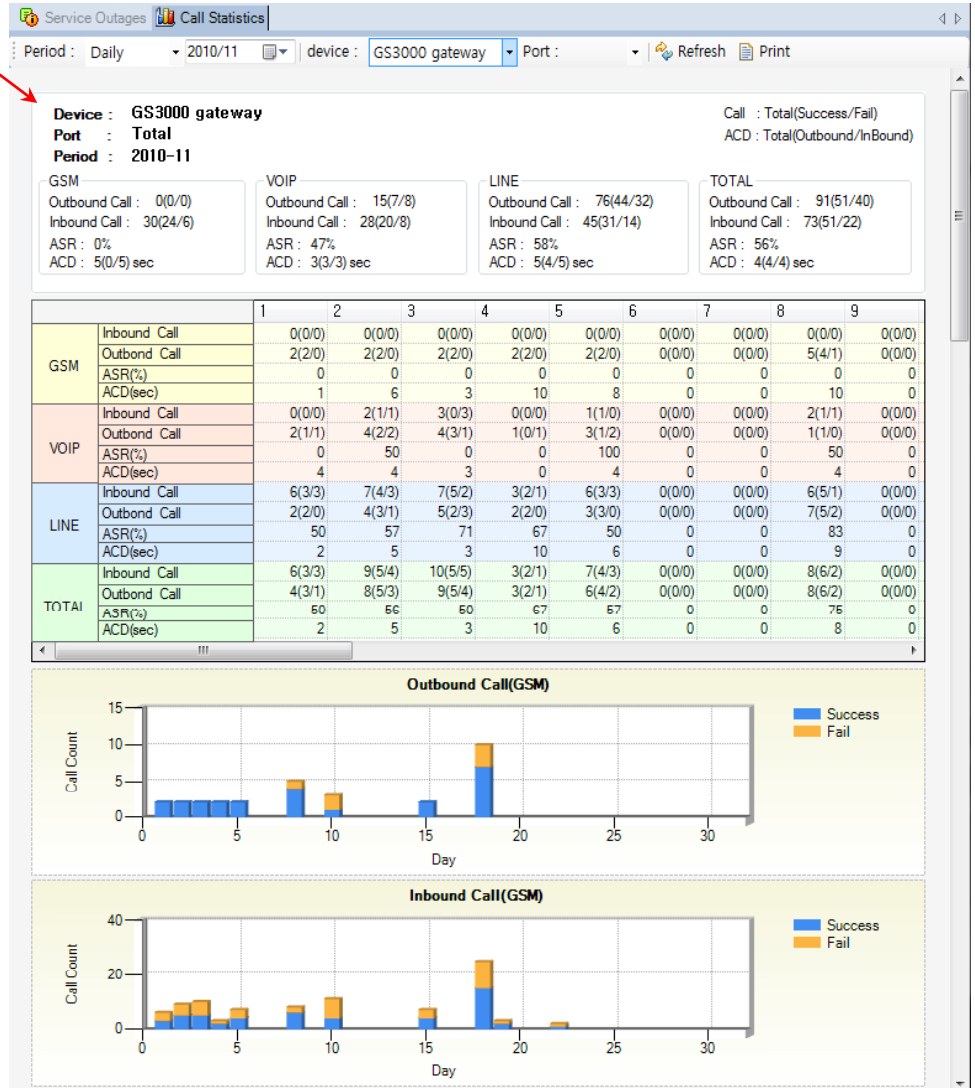
		1	2	3	4	5	6	7	8	9	1
GSM	Inbound Call	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	
	Outbond Call	2(2/0)	2(2/0)	2(2/0)	2(2/0)	2(2/0)	0(0/0)	0(0/0)	5(4/1)	0(0/0)	
	ASR(%)	0	0	0	0	0	0	0	0	0	
	ACD(sec)	1	6	3	10	8	0	0	10	0	
VOIP	Inbound Call	0(0/0)	2(1/1)	3(0/3)	0(0/0)	1(1/0)	0(0/0)	0(0/0)	2(1/1)	0(0/0)	
	Outbond 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)	0(0/0)	
	ASR(%)	0	50	0	0	100	0	0	50	0	
	ACD(sec)	4	4	3	0	4	0	0	4	0	
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)	0(0/0)	
	Outbond 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)	0(0/0)	
	ASR(%)	50	57	71	67	50	0	0	83	0	
	ACD(sec)	2	5	3	10	6	0	0	9	0	
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)	0(0/0)	
	Outbond 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)	0(0/0)	
	ASR(%)	50	56	50	67	57	0	0	75	0	
	ACD(sec)	2	5	3	10	6	0	0	8	0	

Call Statistics



Call Statistics

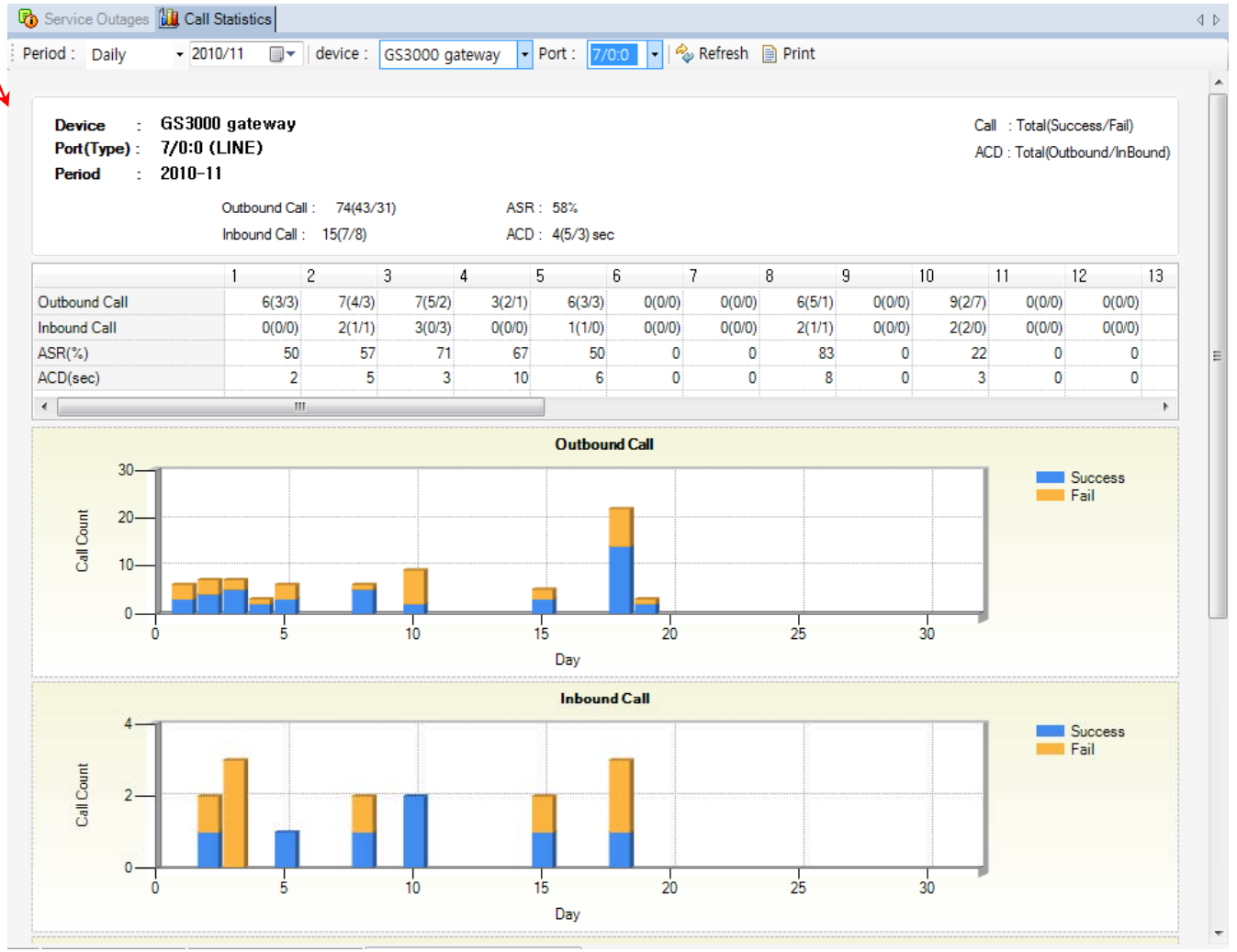
Call statistics for the specified gateway.



		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)	0(0/0)
	Outbond 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)	0(0/0)
	ASR(%)	0	0	0	0	0	0	0	0	0
	ACD(sec)	1	6	3	10	8	0	0	10	0
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)	0(0/0)
	Outbond 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)	0(0/0)
	ASR(%)	0	50	0	0	100	0	0	50	0
	ACD(sec)	4	4	3	0	4	0	0	4	0
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)	0(0/0)
	Outbond 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)	0(0/0)
	ASR(%)	50	57	71	67	50	0	0	83	0
	ACD(sec)	2	5	3	10	6	0	0	9	0
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)	0(0/0)
	Outbond 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)	0(0/0)
	ASR(%)	50	66	60	67	67	0	0	75	0
	ACD(sec)	2	5	3	10	6	0	0	8	0

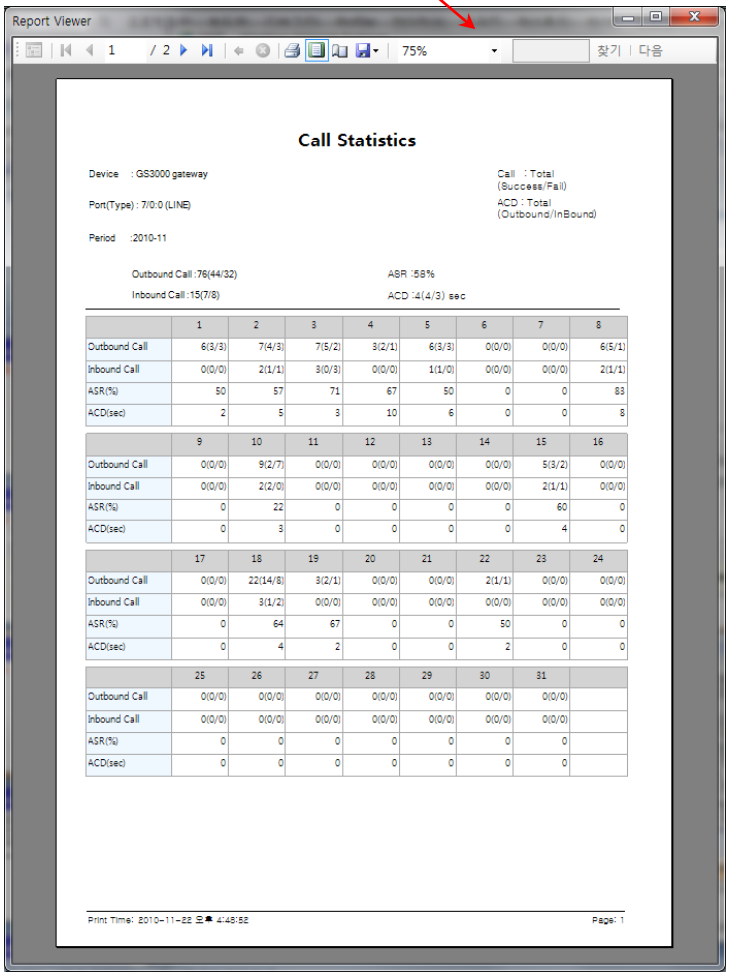
Call Statistics

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.

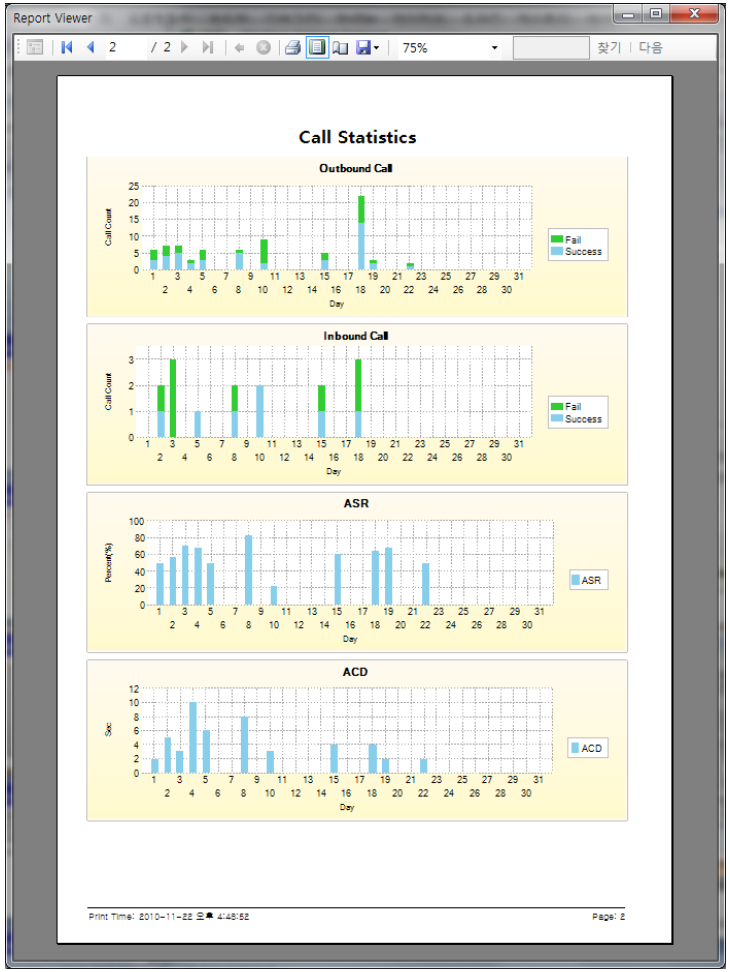


	1	2	3	4	5	6	7	8
Outbound Call	6(3/3)	7(4/3)	7(5/2)	3(2/1)	6(3/3)	0(0/0)	0(0/0)	6(5/1)
Inbound Call	0(0/0)	2(1/1)	3(0/3)	0(0/0)	1(1/0)	0(0/0)	0(0/0)	2(1/1)
ASR(%)	50	57	71	67	50	0	0	83
ACD(sec)	2	5	3	10	6	0	0	8

	9	10	11	12	13	14	15	16
Outbound Call	0(0/0)	9(2/7)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	5(3/2)	0(0/0)
Inbound Call	0(0/0)	2(2/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	2(1/1)	0(0/0)
ASR(%)	0	22	0	0	0	0	60	0
ACD(sec)	0	3	0	0	0	0	4	0

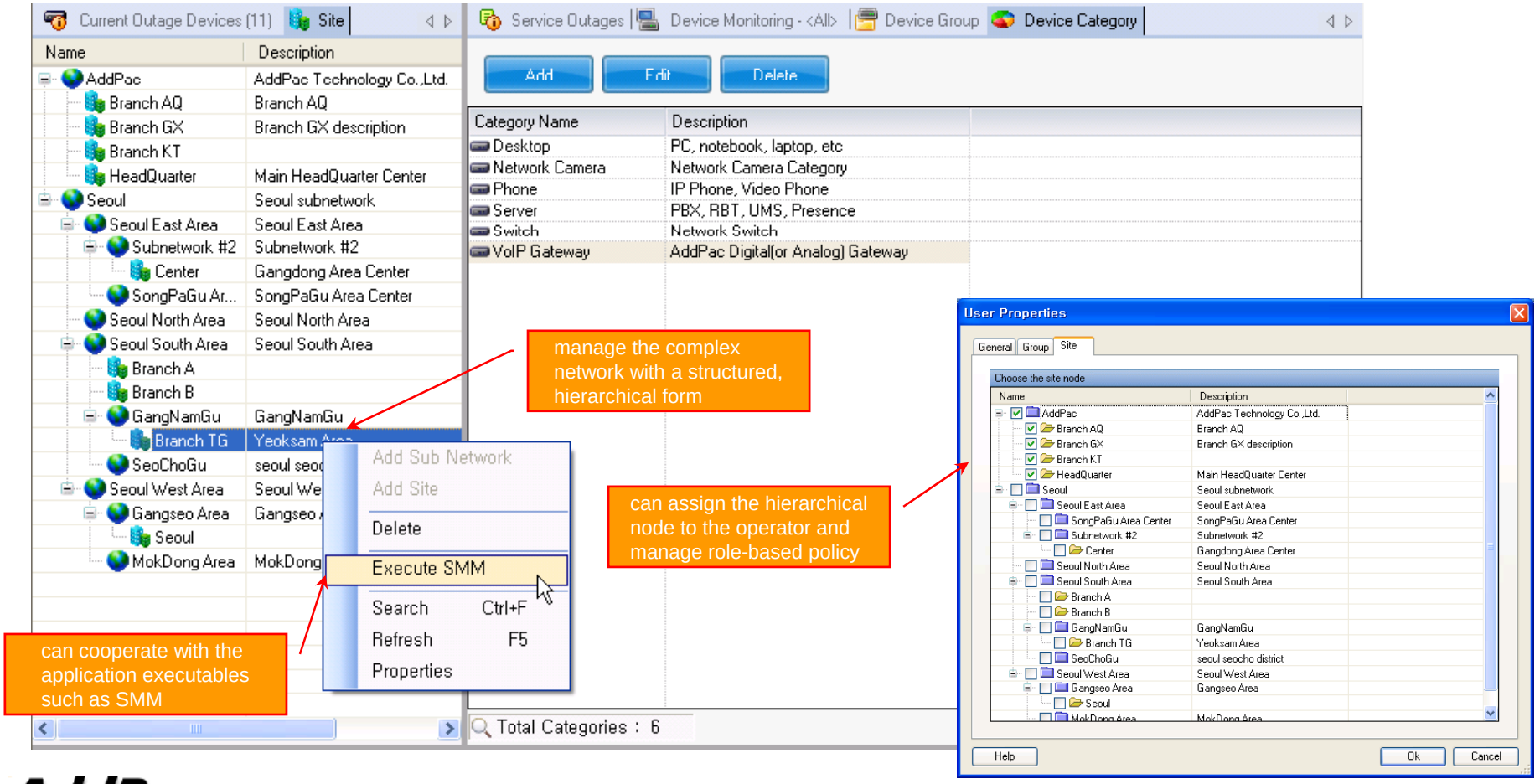
	17	18	19	20	21	22	23	24
Outbound Call	0(0/0)	22(14/8)	3(2/1)	0(0/0)	0(0/0)	2(1/1)	0(0/0)	0(0/0)
Inbound Call	0(0/0)	3(1/2)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)
ASR(%)	0	64	67	0	0	50	0	0
ACD(sec)	0	4	2	0	0	2	0	0

	25	26	27	28	29	30	31
Outbound Call	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)
Inbound Call	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)	0(0/0)
ASR(%)	0	0	0	0	0	0	0
ACD(sec)	0	0	0	0	0	0	0



Network Resource Management

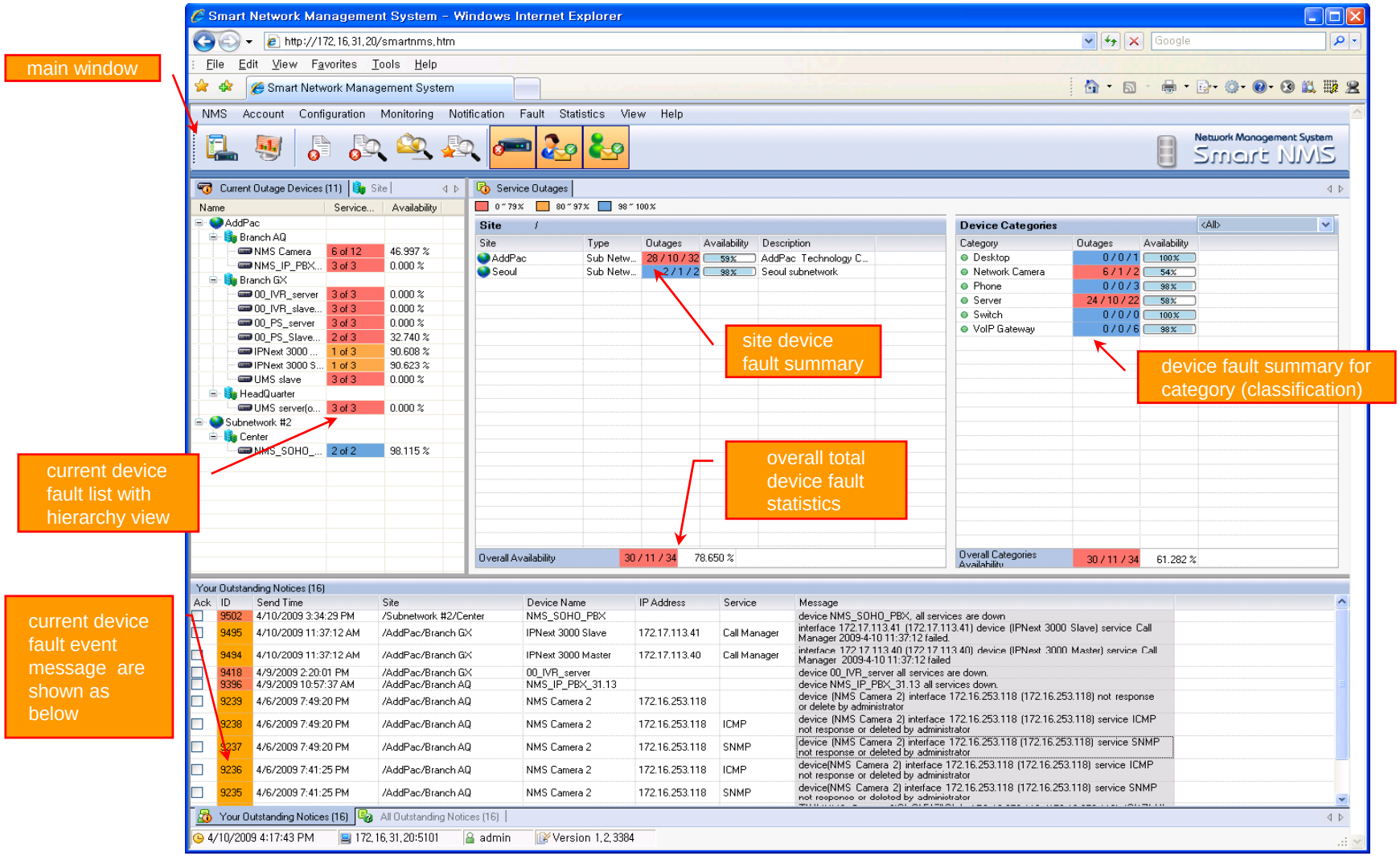
- Network resource management with hierarchical structure
- Role-based resource management for each administrator



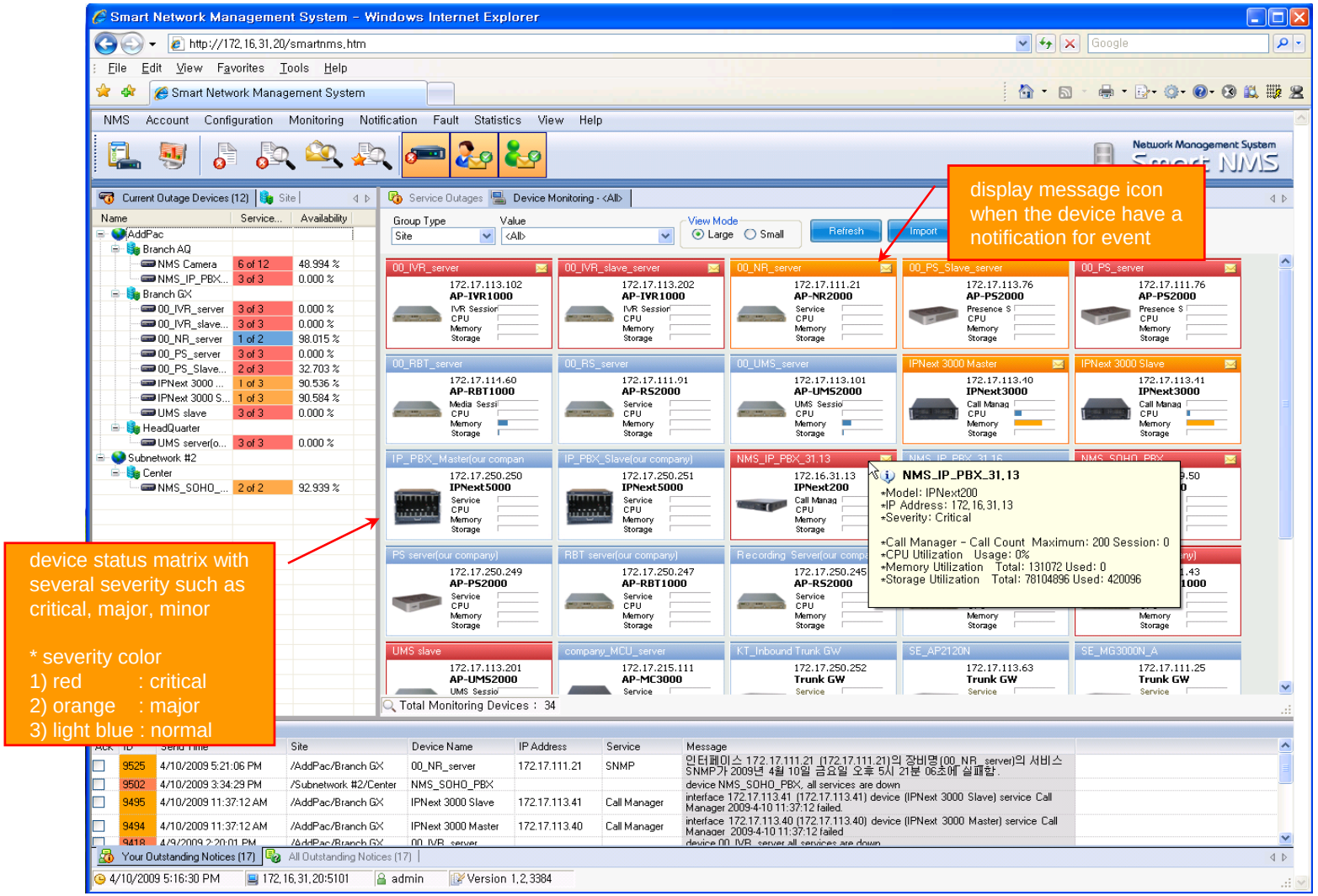
Device Fault Management

- 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

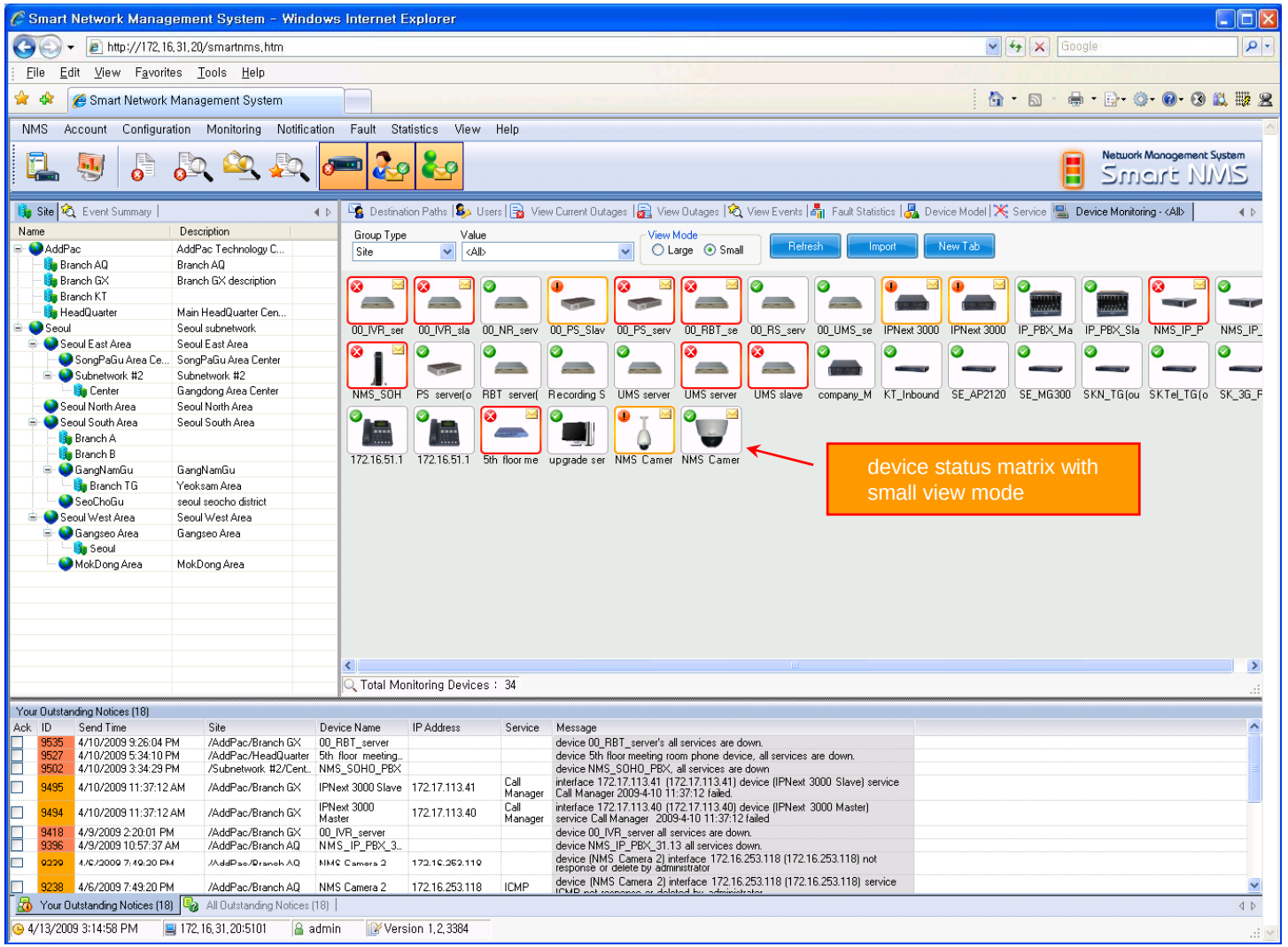
Device Fault Management



Device Fault Management



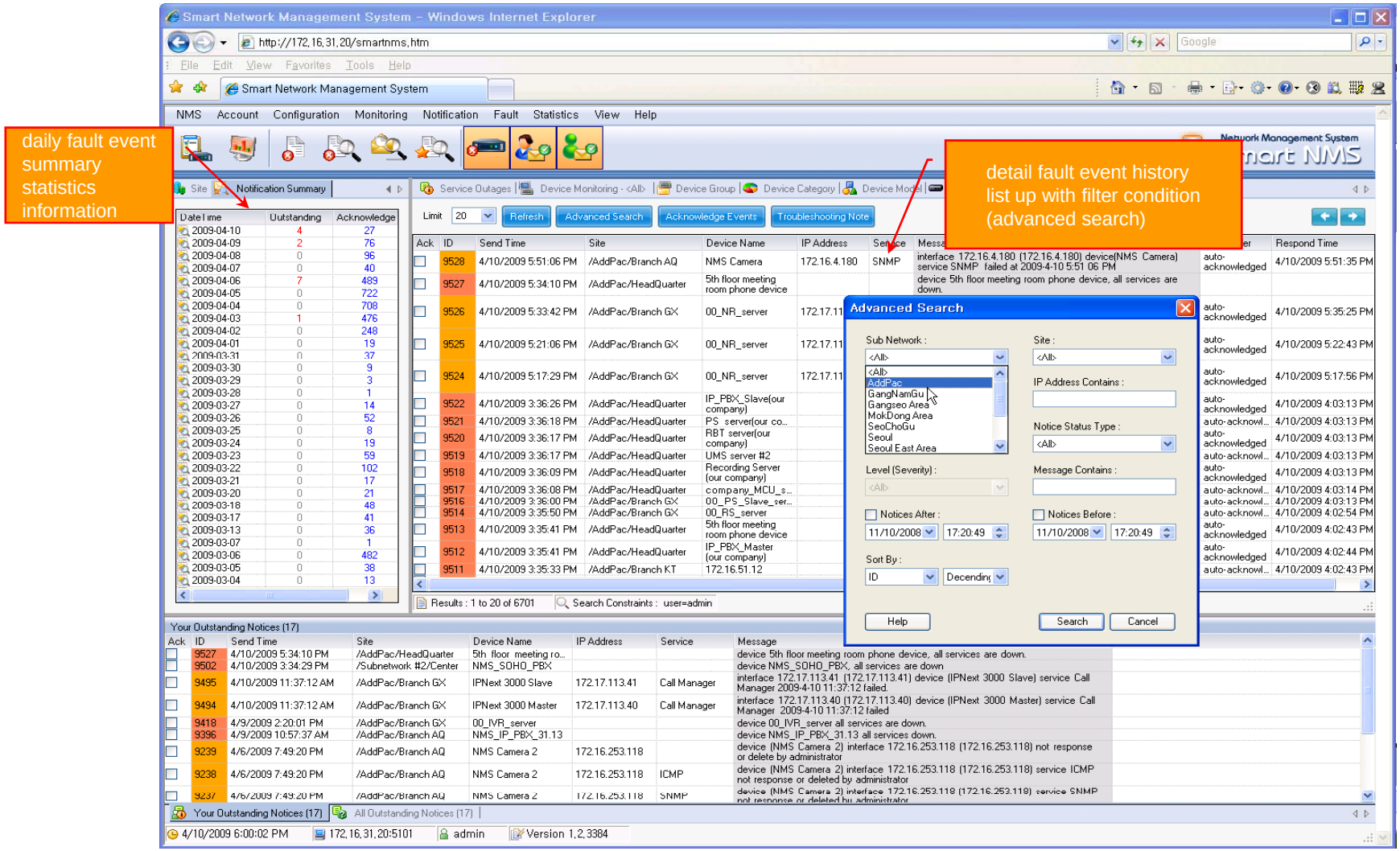
Device Fault Management



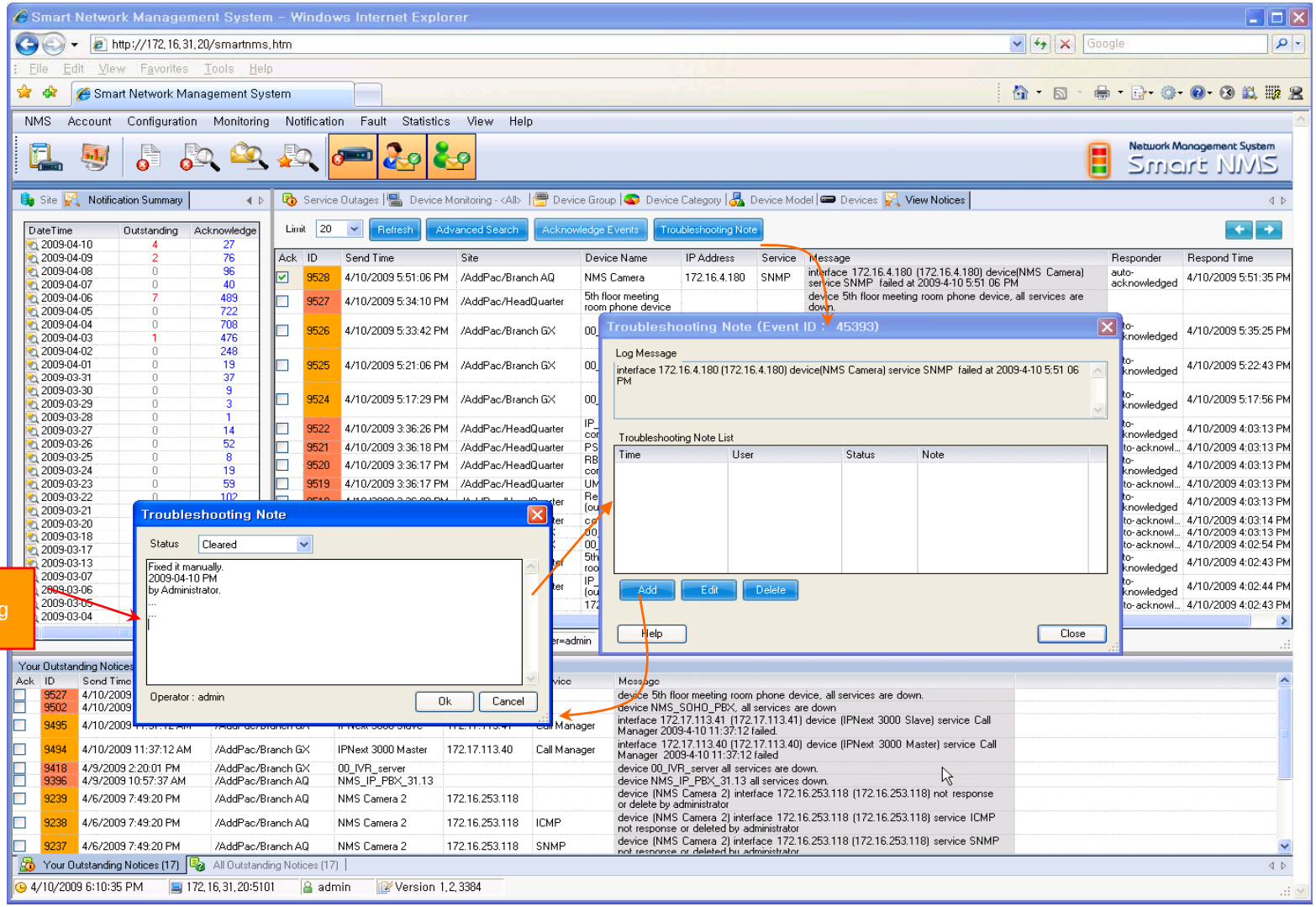
Device Fault History Management

- 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

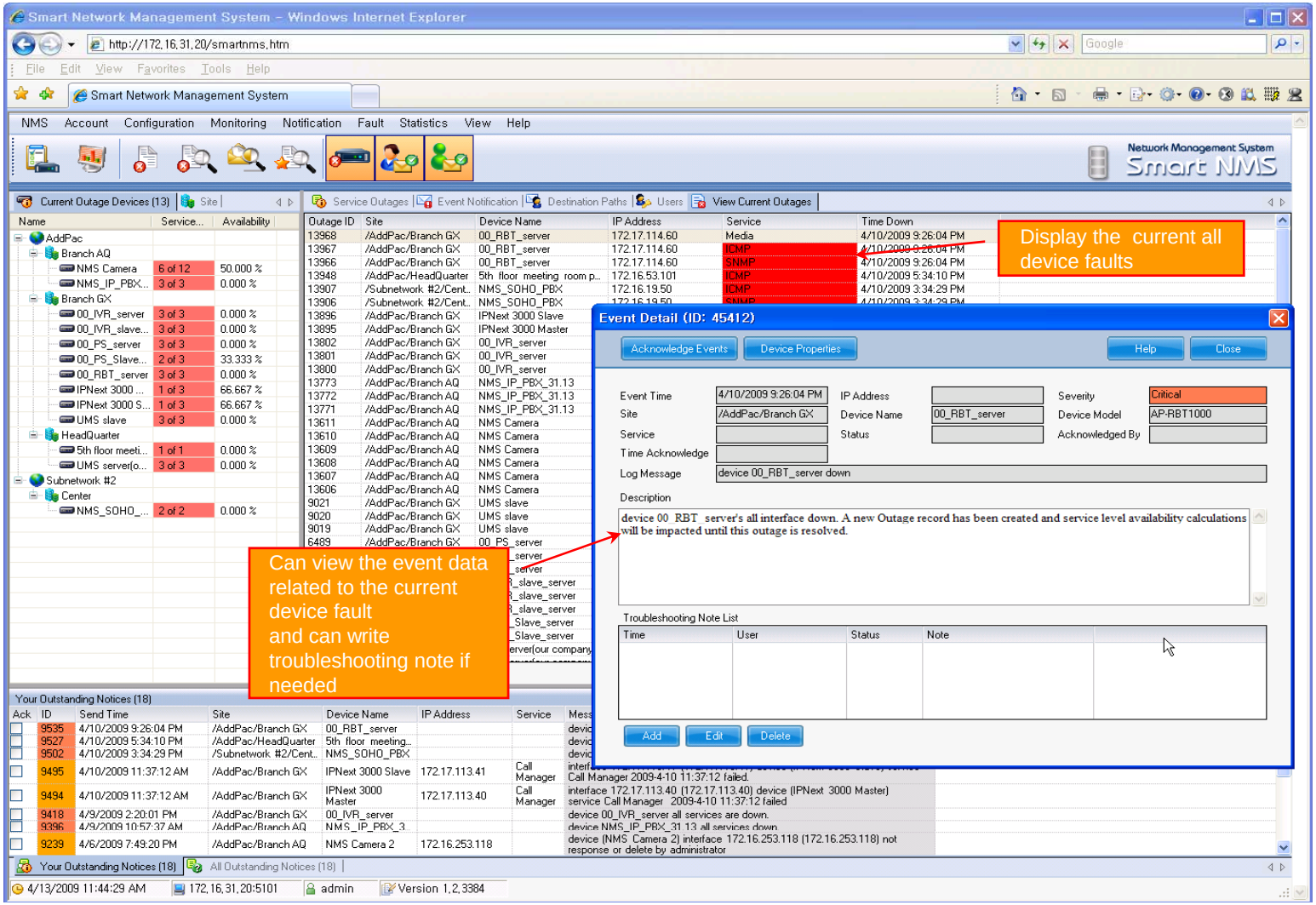
Device Fault History Management



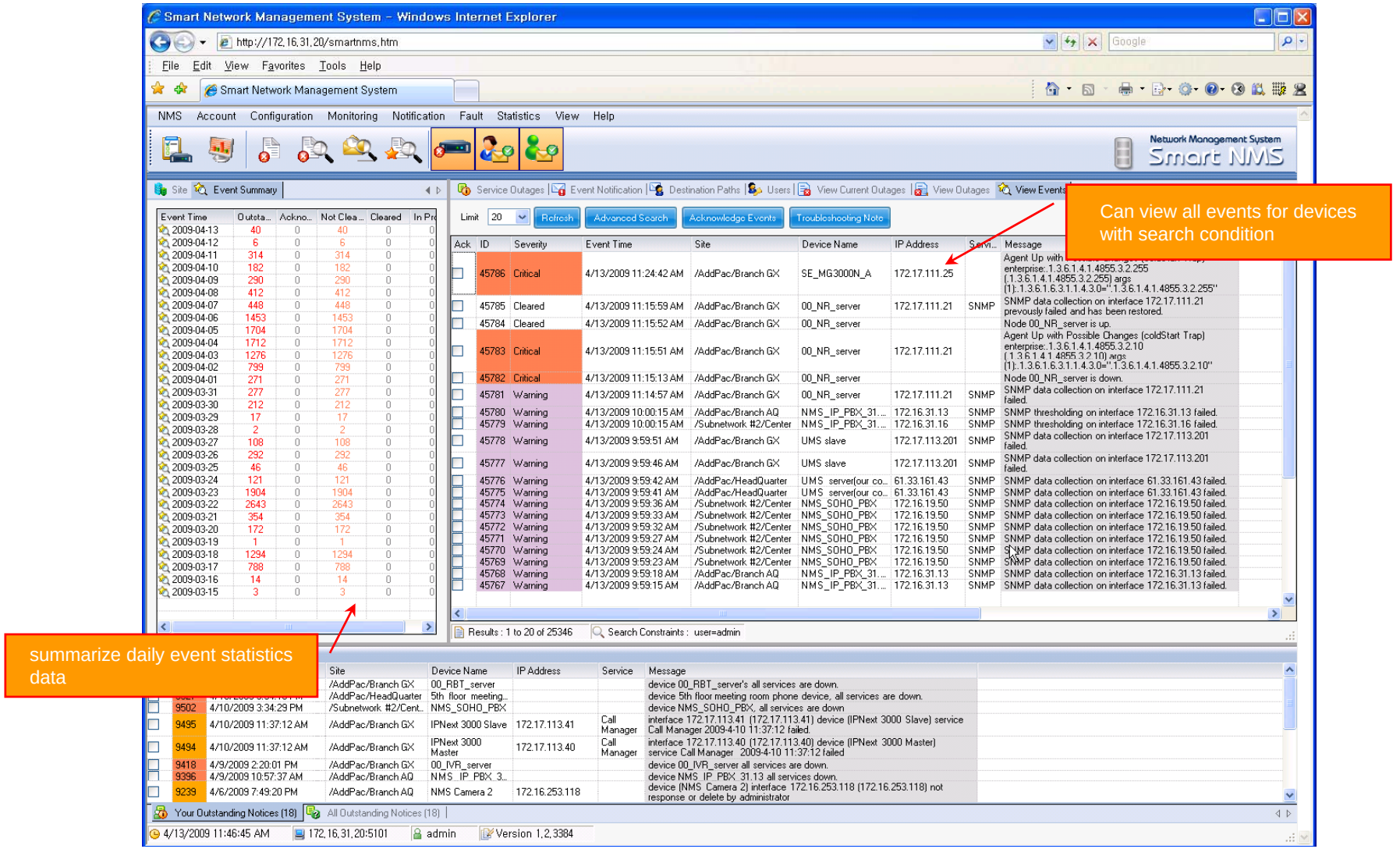
Device Fault History Management



Current Device Fault (Outage)



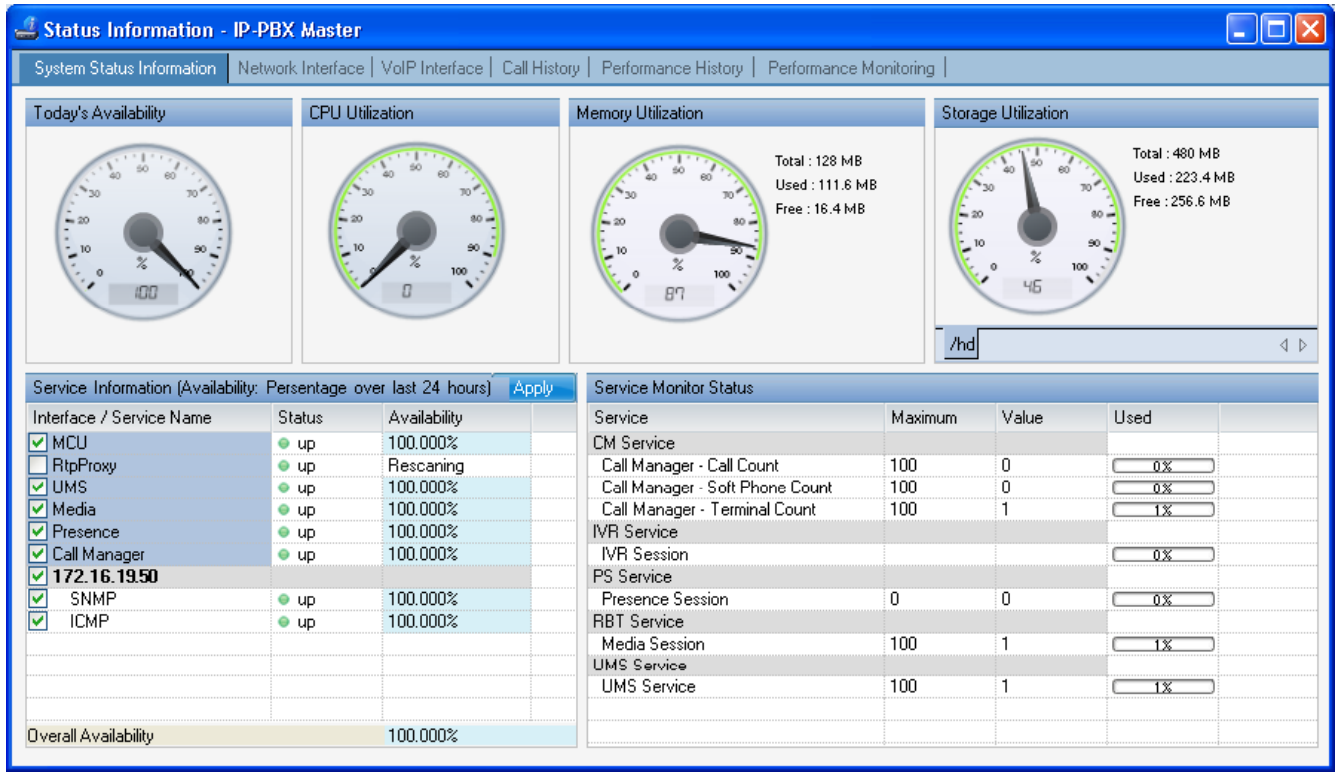
Device Event History



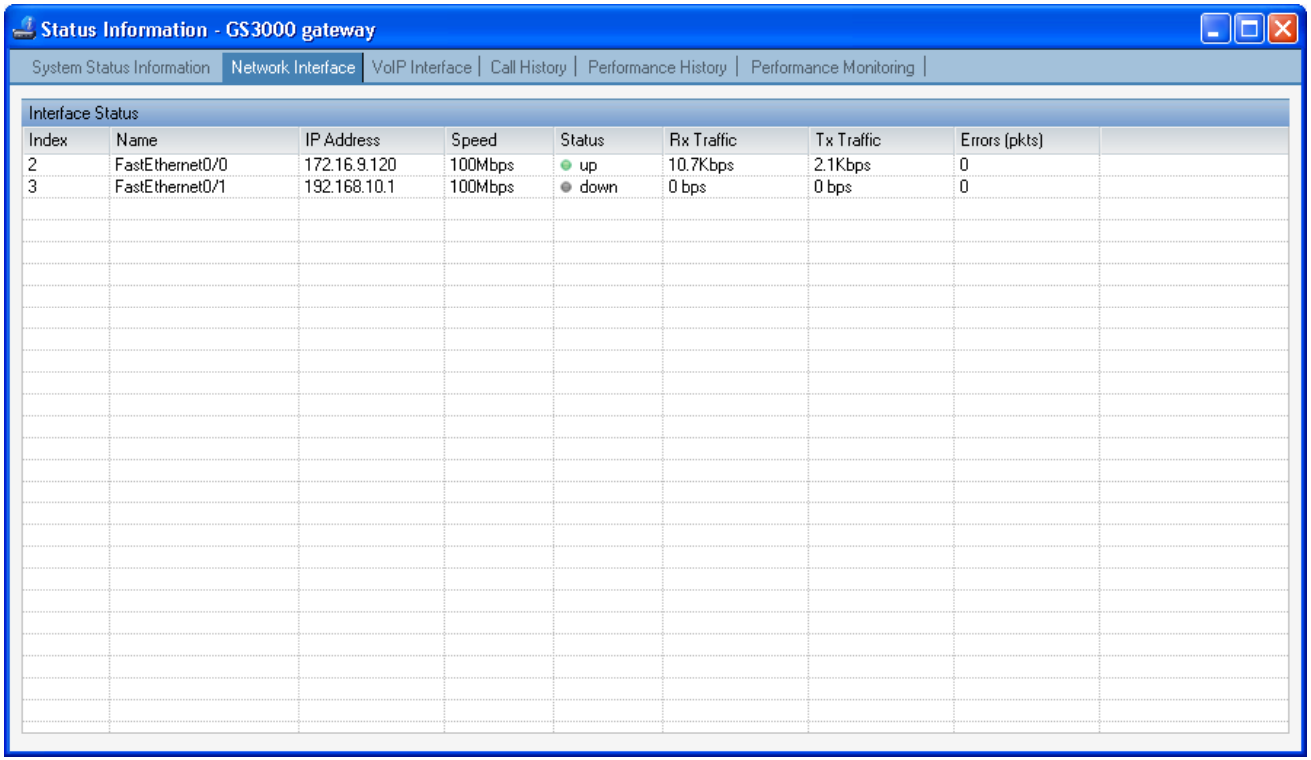
Device Status Information

- 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

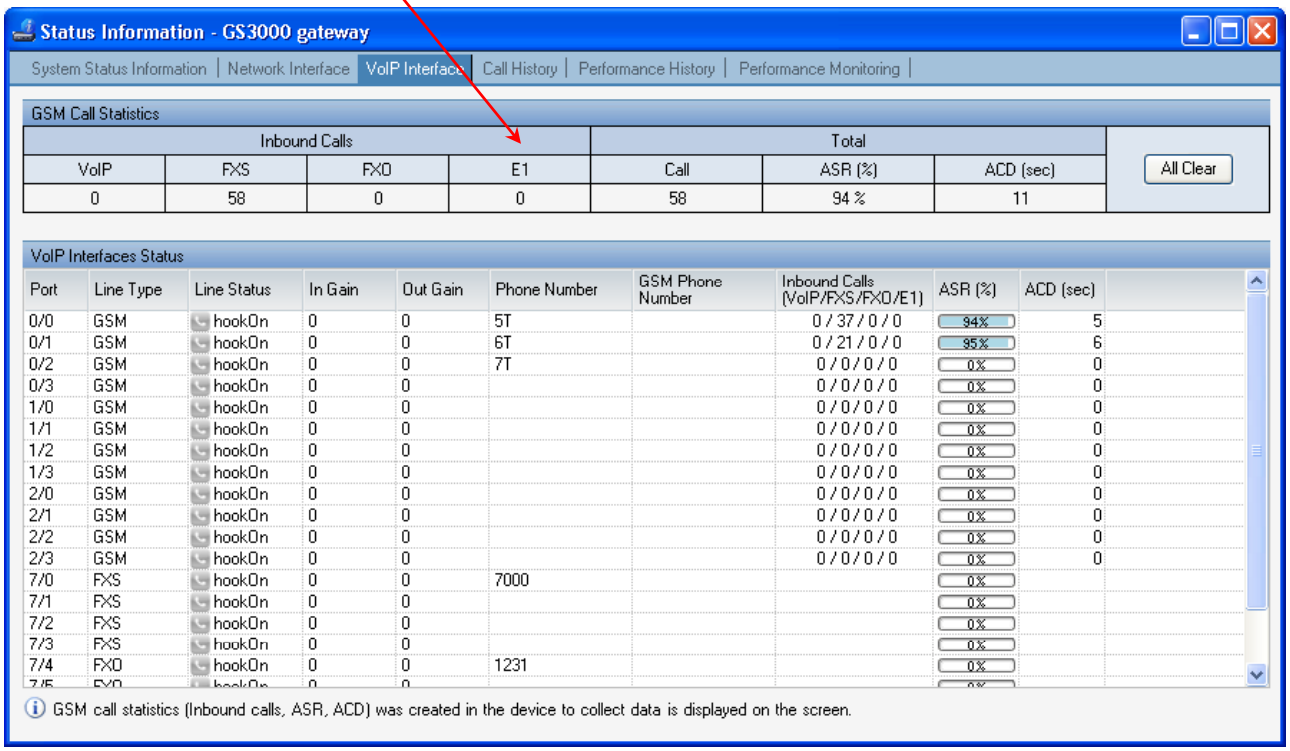


Network Interface



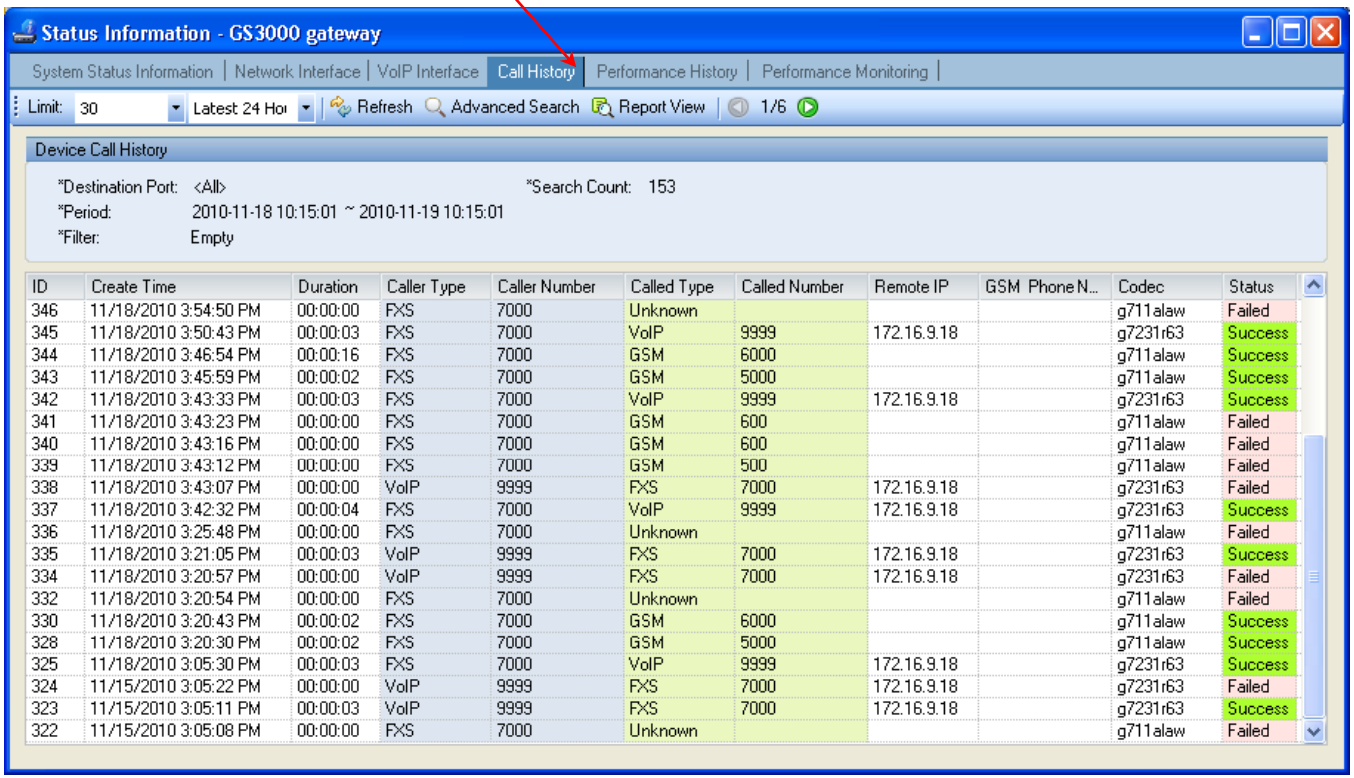
VoIP Interface

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



Call History

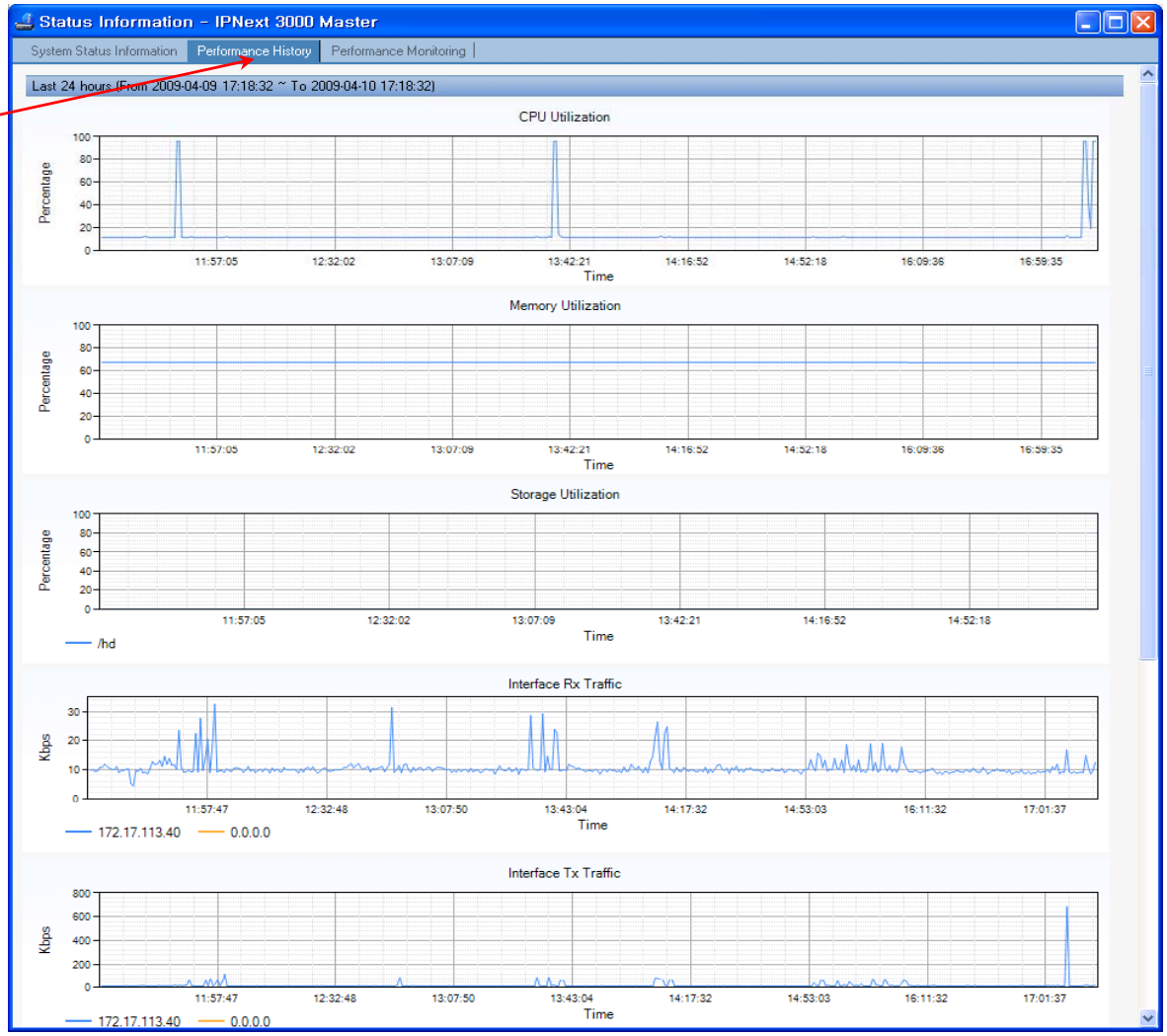
You can search call history with various conditions such as start date, end date, port and ip etc.



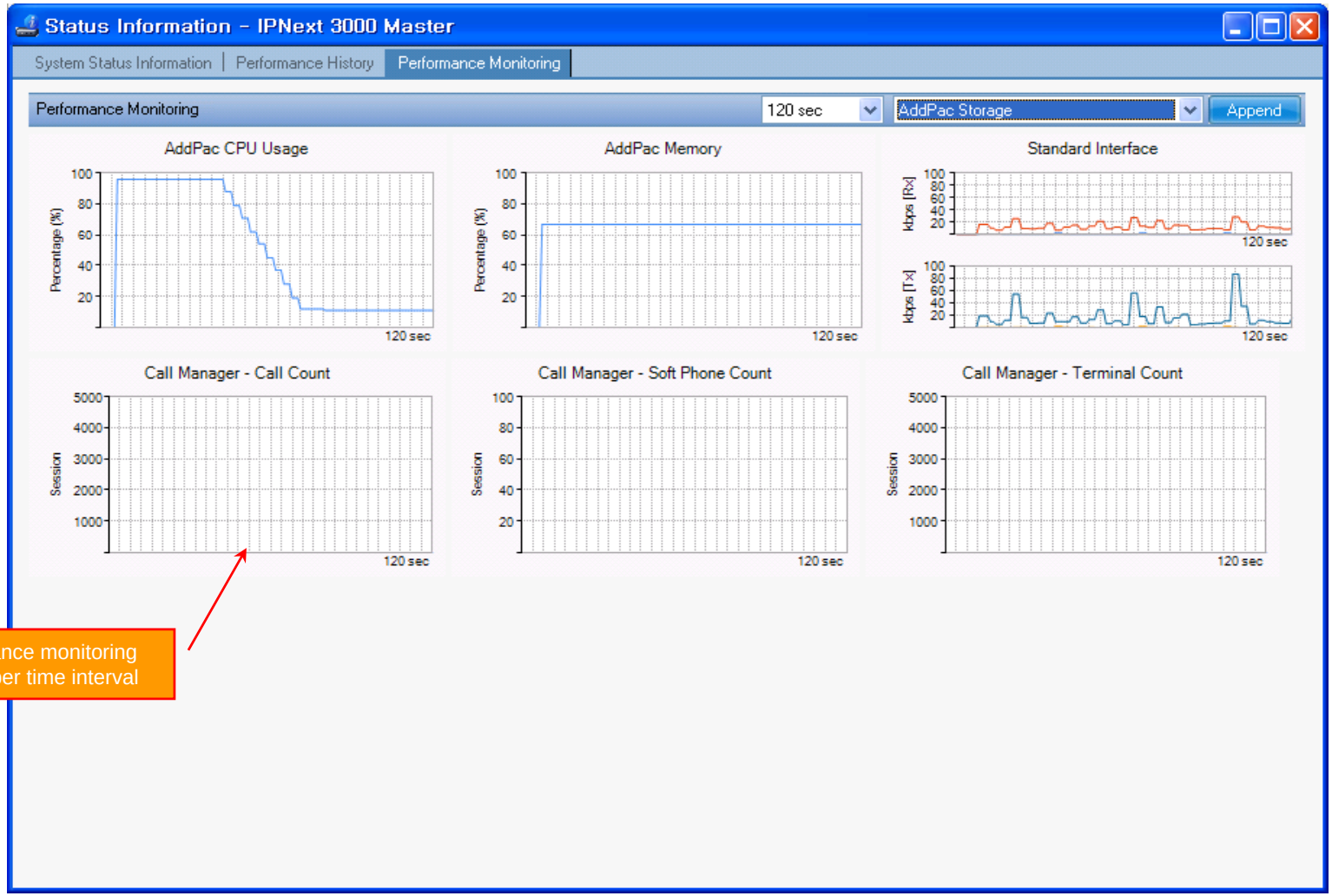
ID	Create Time	Duration	Caller Type	Caller Number	Called Type	Called Number	Remote IP	GSM Phone N...	Codec	Status
346	11/18/2010 3:54:50 PM	00:00:00	FXS	7000	Unknown				g711alaw	Failed
345	11/18/2010 3:50:43 PM	00:00:03	FXS	7000	VoIP	9999	172.16.9.18		g7231r63	Success
344	11/18/2010 3:46:54 PM	00:00:16	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



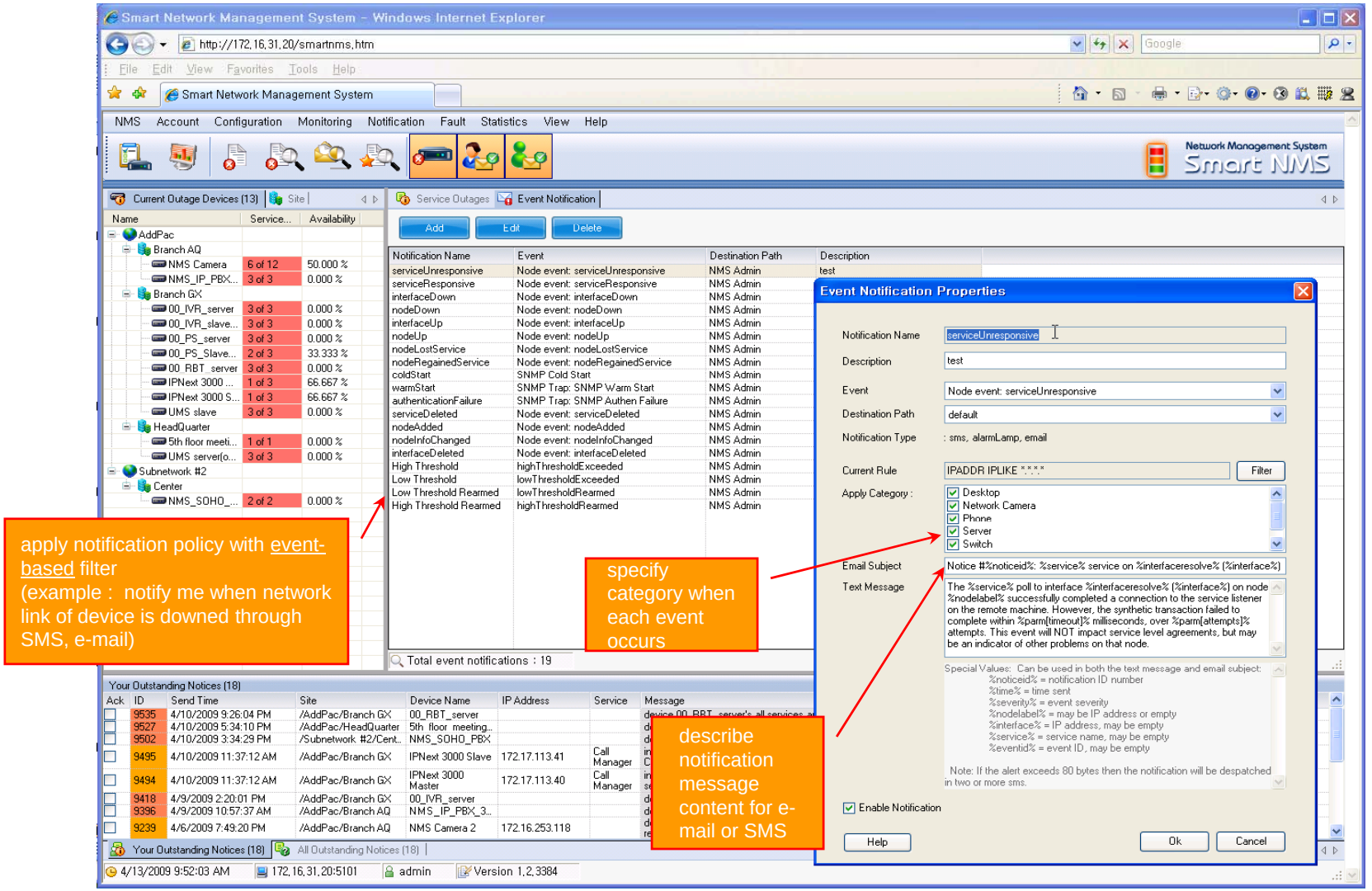
Performance Monitoring



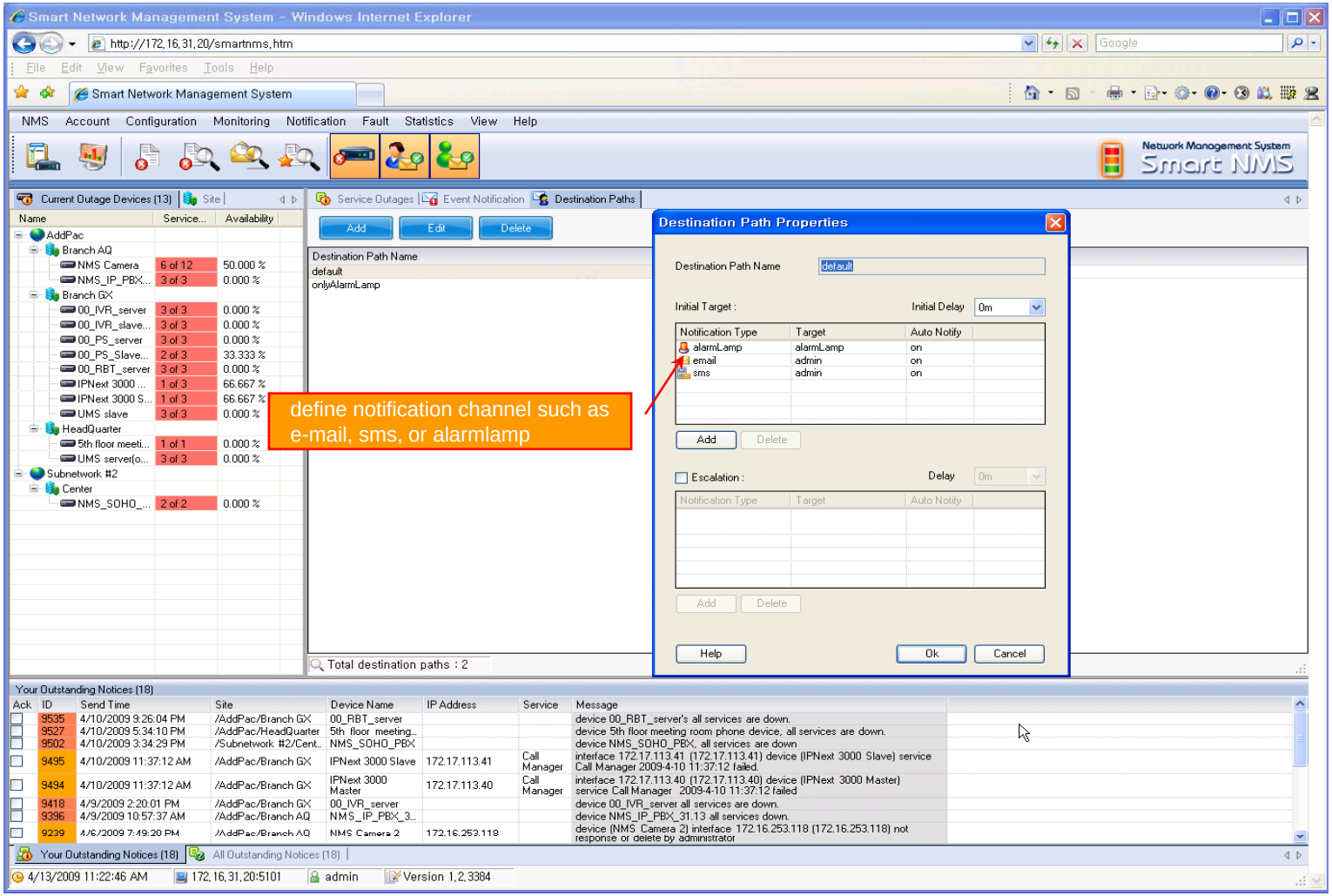
Notification Management

- 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

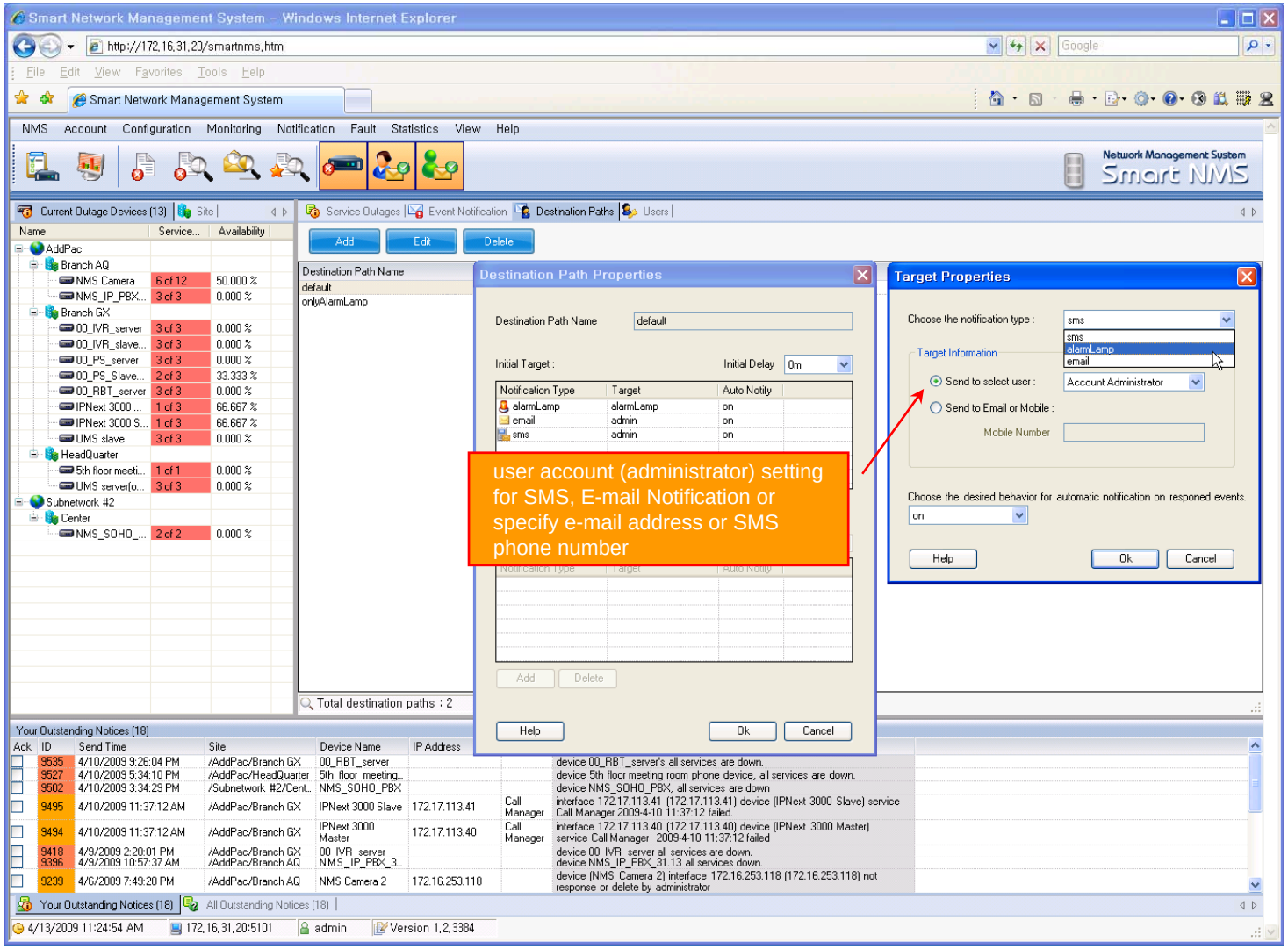
Event Notification Management



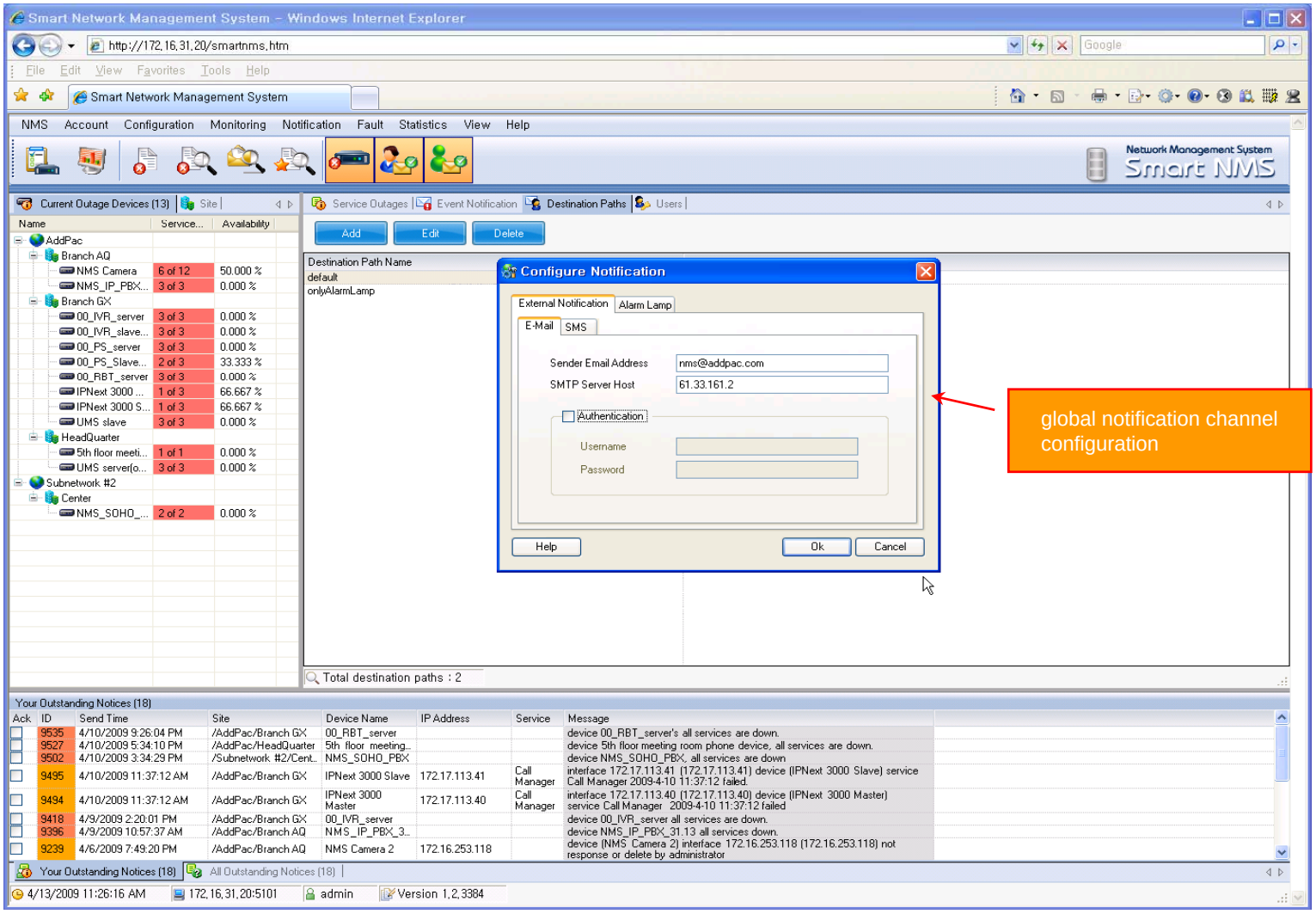
Event Notification Management



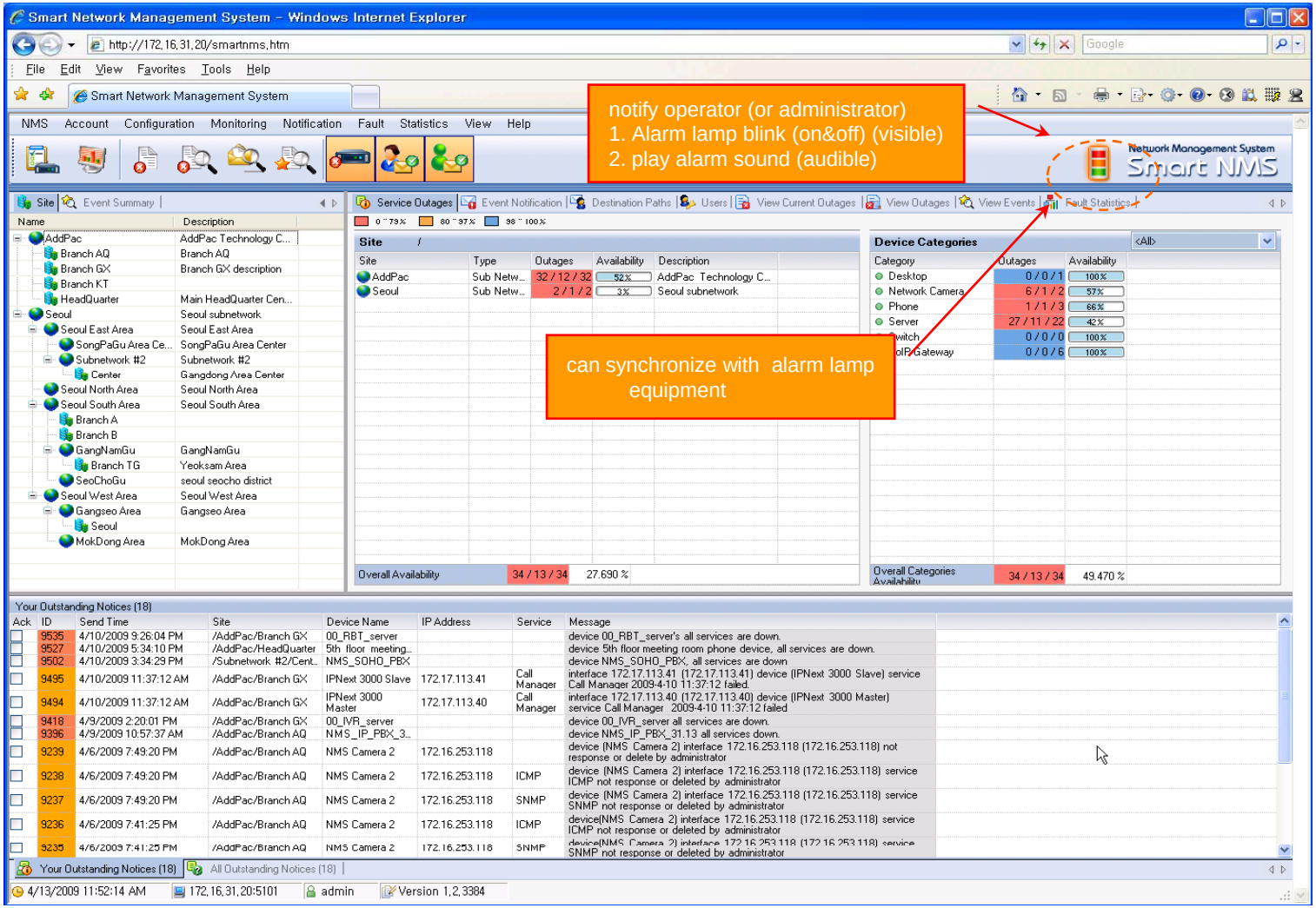
Event Notification Management



Configuration



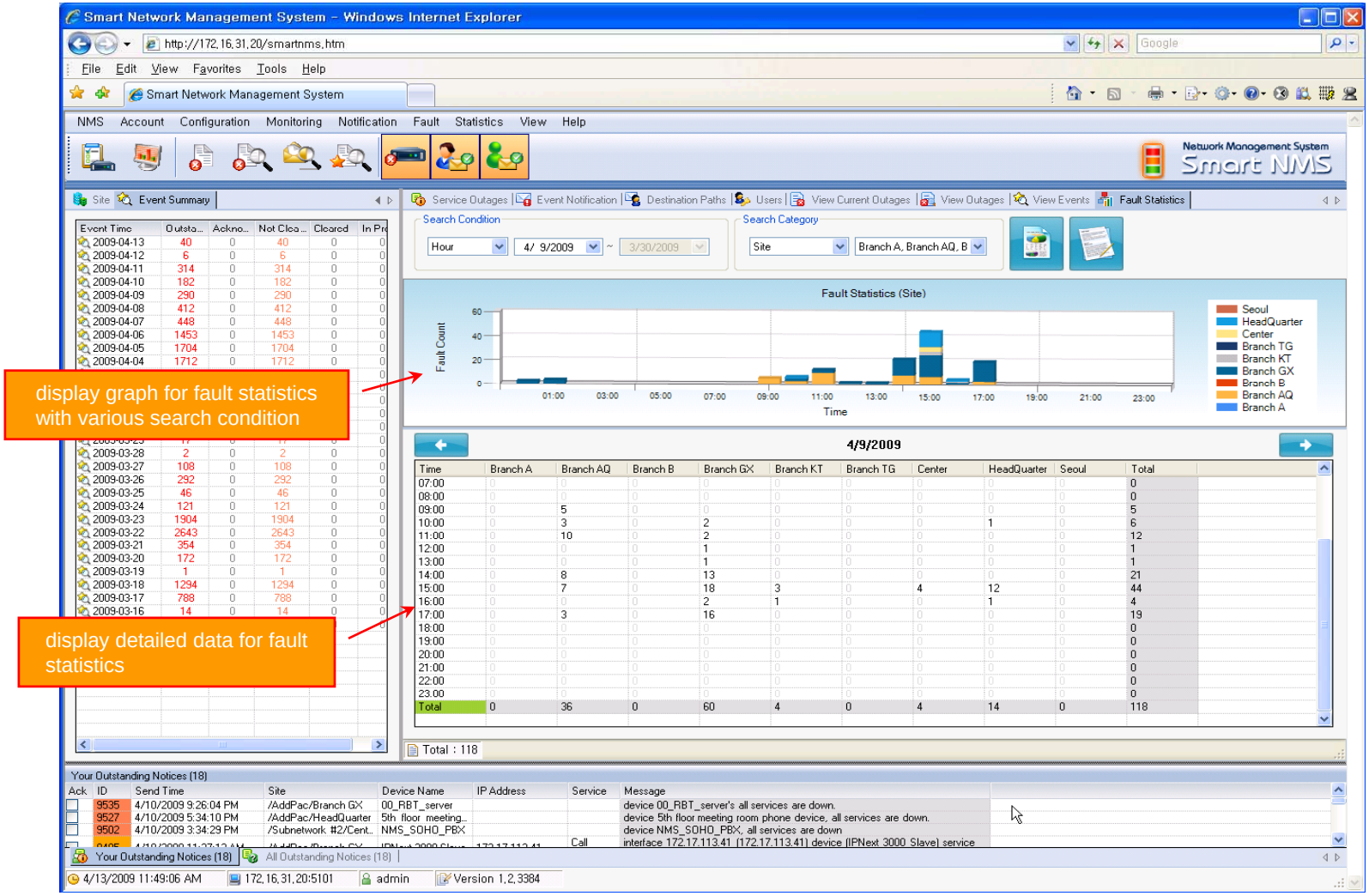
Audible & Visible Alarm



Fault Statistics

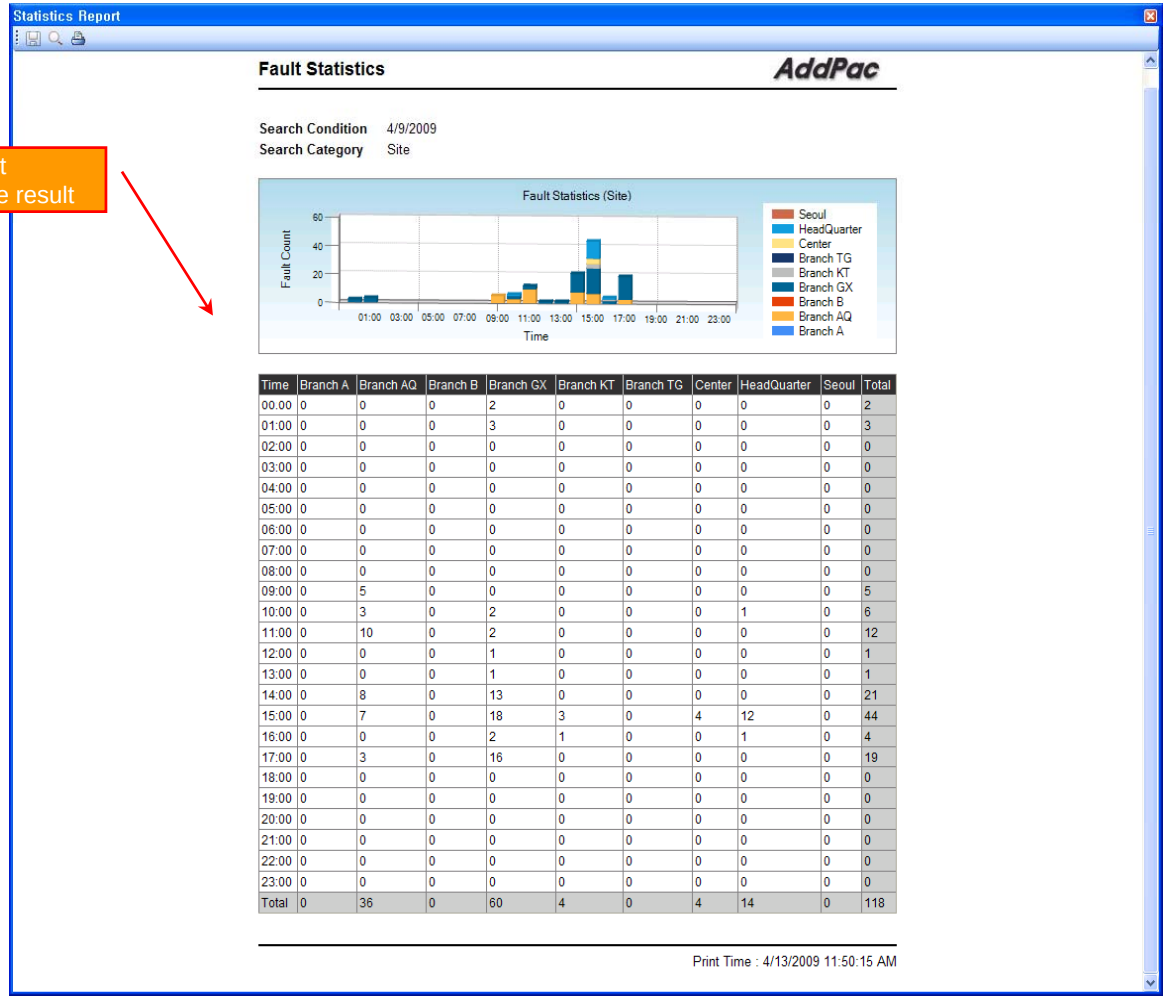
- analyze for a fault event with graph and detailed list data
- Report form generation and print out for statistics result

Fault Statistics



Fault Statistics – Report Generation

report generation for fault statistics and print out the result

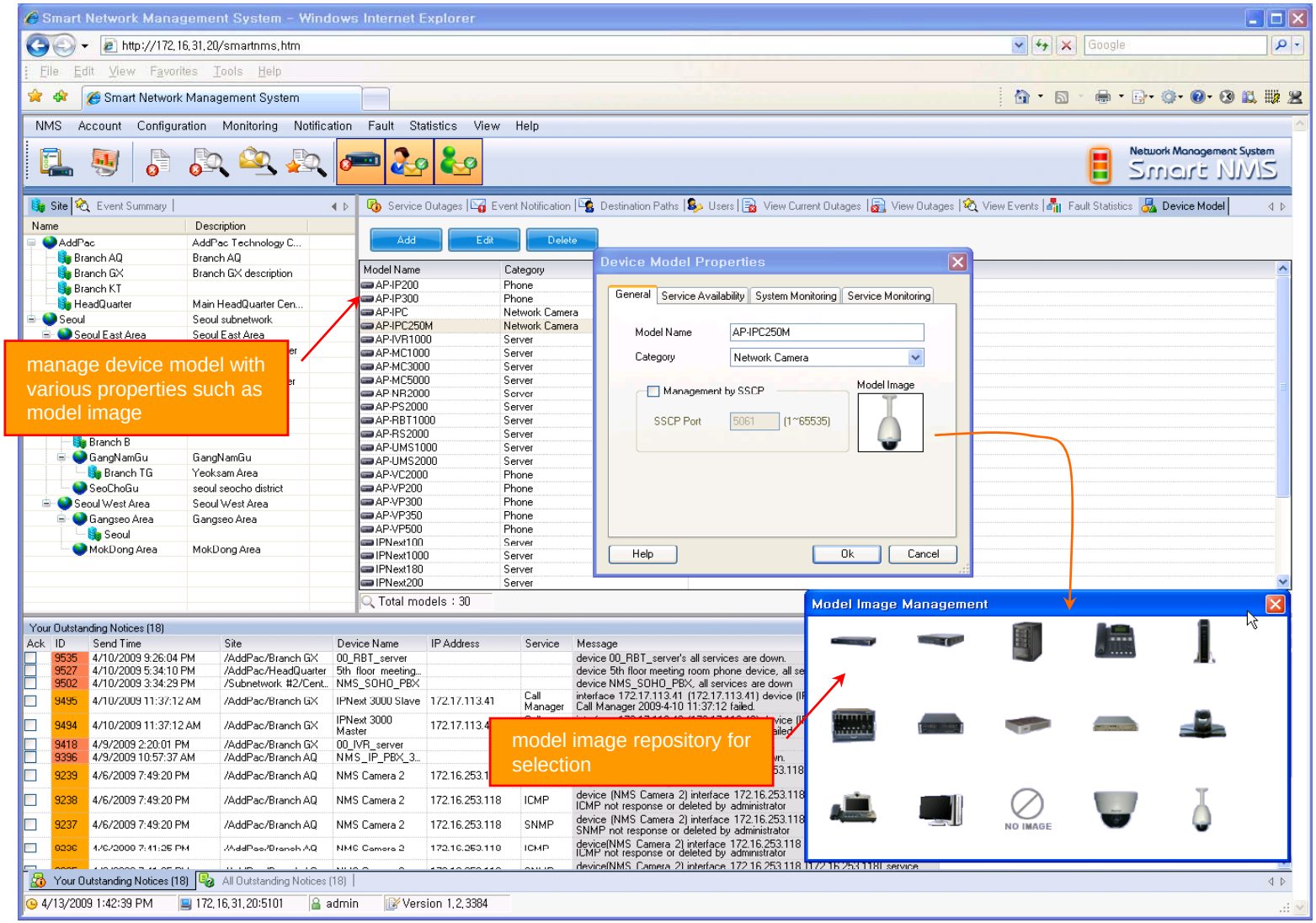


Time	Branch A	Branch AQ	Branch B	Branch GX	Branch KT	Branch TG	Center	HeadQuarter	Seoul	Total
00:00	0	0	0	2	0	0	0	0	0	2
01:00	0	0	0	3	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0
09:00	0	5	0	0	0	0	0	0	0	5
10:00	0	3	0	2	0	0	0	1	0	6
11:00	0	10	0	2	0	0	0	0	0	12
12:00	0	0	0	1	0	0	0	0	0	1
13:00	0	0	0	1	0	0	0	0	0	1
14:00	0	8	0	13	0	0	0	0	0	21
15:00	0	7	0	18	3	0	4	12	0	44
16:00	0	0	0	2	1	0	0	1	0	4
17:00	0	3	0	16	0	0	0	0	0	19
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0
Total	0	36	0	60	4	0	4	14	0	118

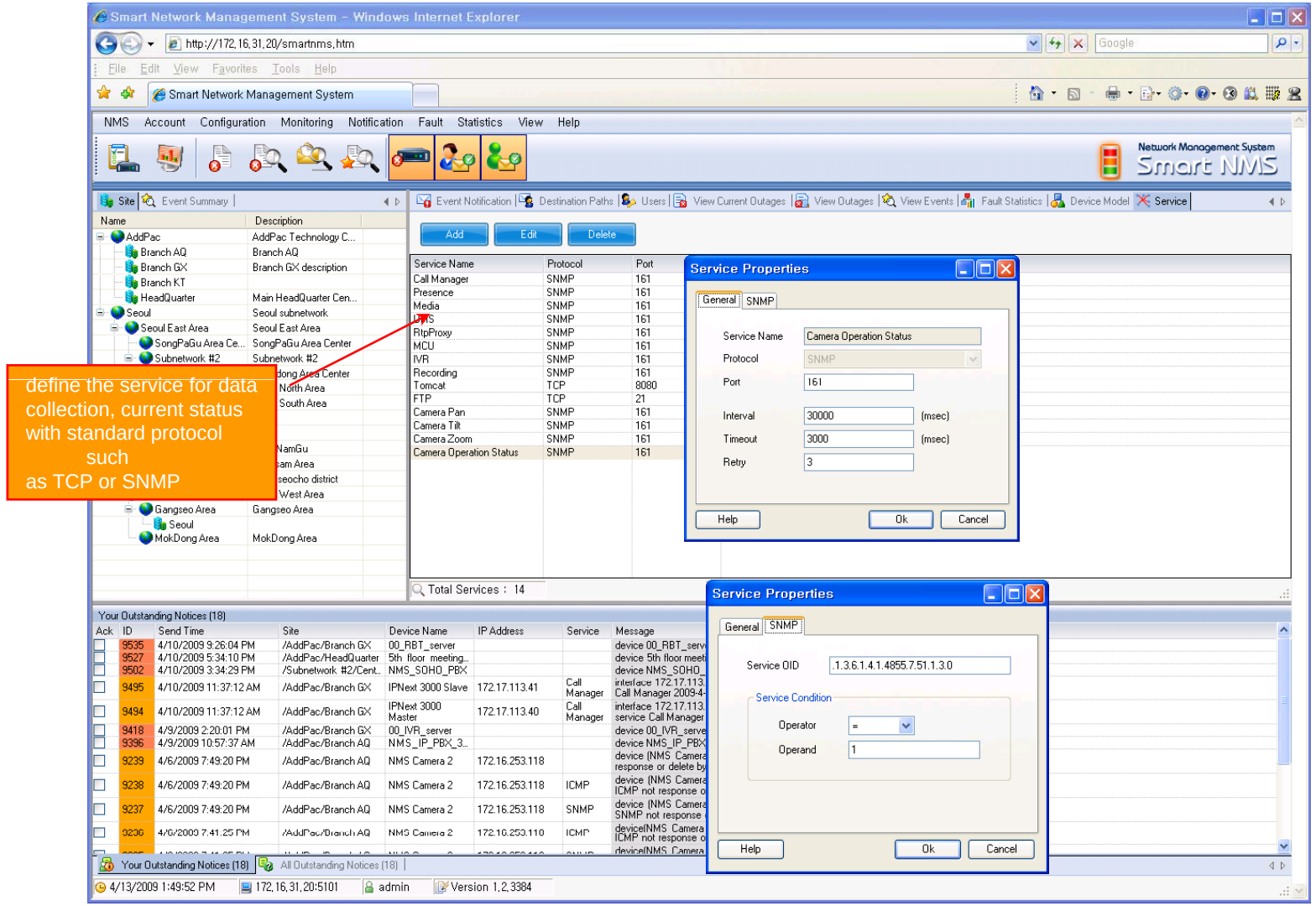
Model & Service Management

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

Device Model Management



Service Definition



Thank you!

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