



NMIS8 User Training

January 2013
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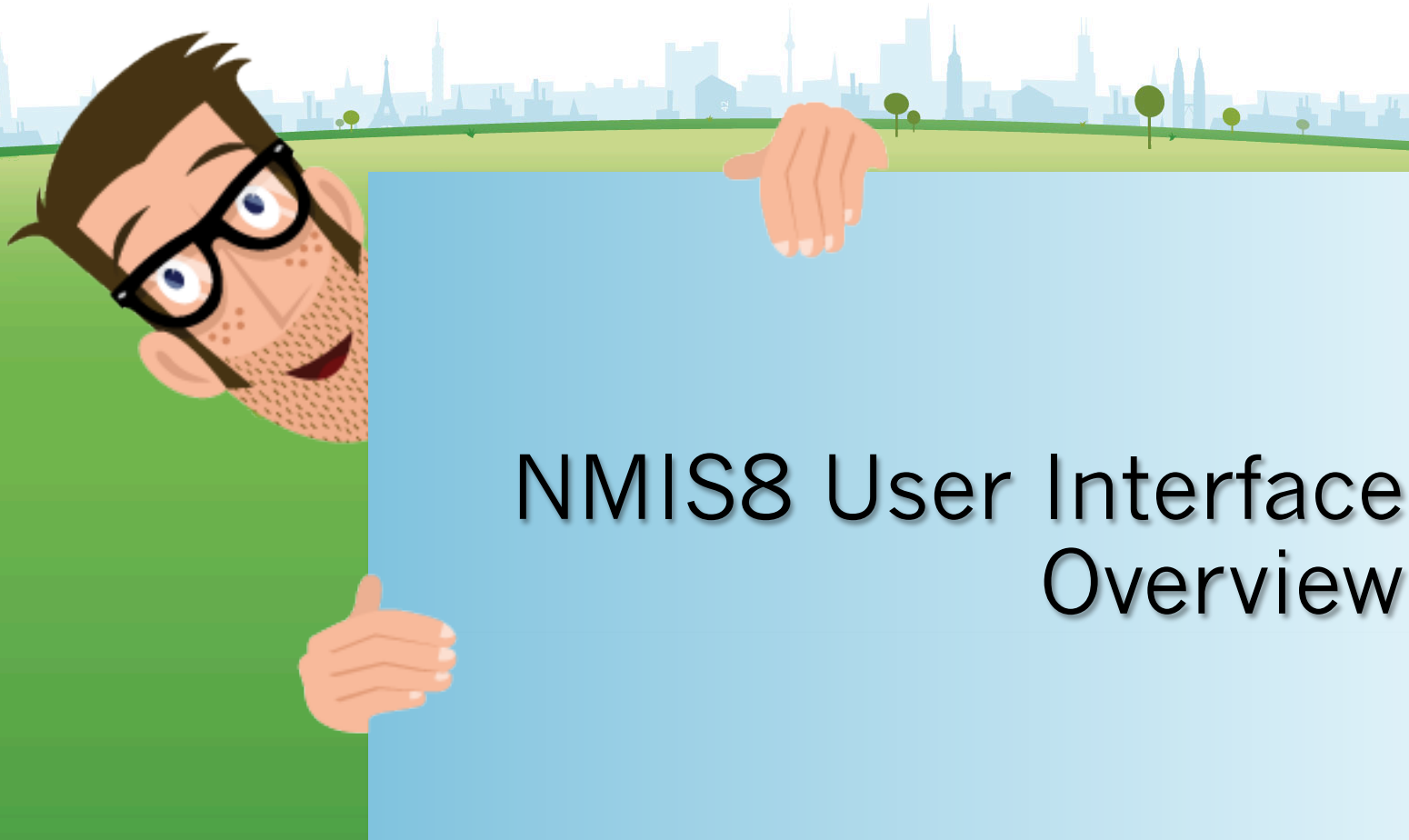
User Training Agenda

Time	Session
1 hour	NMIS User Interface Overview
1 hour	Managing Nodes (devices) in NMIS. Adding and deleting devices and groups in NMIS8
1 hour	Incident Scenarios and NMIS Visibility (what happens when things break and how will it look in NMIS8)



Opmantek Community Wiki

- Access all available documentation at the Opmantek Community Wiki. <https://community.opmantek.com>
- Register @ <https://opmantek.com> “Join Community” top right.



The NMIS Dashboard

http://server_name_or_ip/cgi-nmis8/nmiscgi.pl



Metrics Sun 16:09

8Hr Summary

- Metric** 80%
- Reachability** 82%
- InterfaceAvail** 82%
- Health** 77%
- ResponseTime** 3ms

Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6	0	▲ 94.0%	▲ 100%	▲ 87.6%	▲ 91.3%	▲ 1.3ms
Opmantek-Brisbane	Major	4	3	1	▲ 74.4%	▲ 75.0%	▲ 80.0%	▲ 71.0%	▲ 1.4ms
Opmantek-Christchurch	Normal	4	4	0	▲ 92.9%	▲ 100%	▲ 83.2%	▲ 90.6%	▲ 1.3ms
Opmantek-Dallas	Major	4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
Opmantek-Denver	Major	4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.2ms
Opmantek-Guadalajara	Normal	4	4	0	▲ 92.9%	▲ 100%	▲ 83.2%	▲ 90.6%	▲ 1.3ms
Opmantek-HongKong	Major	4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
Opmantek-London	Major	6	4	2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Quick Search Sun 16:09

Select Device by Context

- Group
- Model
- Type
- Role
- Net
- Vendor

Filter Device list by input string

boston-lin1
boston-mail1
boston-r1
boston-r2
boston-s1
boston-win1
brisbane-lin1
brisbane-r1

76 matches

[Reset the List](#)

Log of Event_Log Sun 16:09

Log Name	Search String	Lines	Level	Sort	Group
Event_Log		50	ALL		

Lines: [15](#) [25](#) [50](#) [100](#) [250](#) [500](#) [1000](#) Level: [ALL](#) [Fatal](#) [Critical](#) [Major](#) [Minor](#) [Warning](#) [Error](#) [Normal](#) [Unknown](#) [Summary](#) [Log List](#)

NMIS	20-Jan-2013 18:29:02	warsaw-win1	SNMP Down	Warning	SNMP error
NMIS	18-Jan-2013 18:33:47	london-r2	SNMP Down	Critical	SNMP error
NMIS	14-Jan-2013 15:43:52	zurich-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49
NMIS	14-Jan-2013 15:43:49	warsaw-r1	Node Reset	Warning	Old_sysUpTime=10 days 20:08:17 New_sysUpTime=0:03:46
NMIS	14-Jan-2013 15:43:44	singapore-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:12 New_sysUpTime=0:03:41
NMIS	14-Jan-2013 15:43:42	saratoga-r2	Node Reset	Minor	Old_sysUpTime=10 days 20:08:11 New_sysUpTime=0:03:39
NMIS	14-Jan-2013 15:43:40	saratoga-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:08 New_sysUpTime=0:03:37
NMIS	14-Jan-2013 15:43:37	puebla-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:04 New_sysUpTime=0:03:34
NMIS	14-Jan-2013 15:43:34	munich-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:02 New_sysUpTime=0:03:32
NMIS	14-Jan-2013 15:43:32	milan-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:59 New_sysUpTime=0:03:29
NMIS	14-Jan-2013 15:43:29	mexicocity-r2	Node Reset	Minor	Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
NMIS	14-Jan-2013 15:43:29	mexicocity-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
NMIS	14-Jan-2013 15:43:27	lyon-r1	Interface Up	Normal	FastEthernet3 Time=00:05:00
NMIS	14-Jan-2013 15:43:25	lyon-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22

The NMIS Dashboard – Navigation



Current Logged in User and Authorisation Level
User: nmis, Auth: Level0

NMIS Portal Links
easily customised to include links to other systems you have.

NMIS Server Selector
shows available NMIS slave servers

NMIS Menu Bar
clicking on names, provides a functional view of available information.

Access to installed Opmantek Modules
like opMaps, opReports, opFlow, opConfig and others.

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%
Opmantek-Boston	Normal						6%
Opmantek-Brisbane	Major						0%
Opmantek-Christchurch	Normal						2%
Opmantek-Dallas	Major						6%
Opmantek-Denver	Major						6%
Opmantek-Guadalajara		4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%
Opmantek-HongKong							3.2%
Opmantek-London							7.6%
							3.2%

Log Name	Search String	Lines	Level	Sort	Group
Event Log		50	ALL		
Warning Error Normal Unknown Summary Log List					
error					
ne=10 days 20:08:20 New_sysUpTime=0:03:49					
NMIS 14-Jan-2013 15:43:49 warsaw-r1 Node Reset warning Old_sysUpTime=10 days 20:08:17 New_sysUpTime=0:03:46					
NMIS 14-Jan-2013 15:43:44 singapore-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:12 New_sysUpTime=0:03:41					
Inor Old_sysUpTime=10 days 20:08:11 New_sysUpTime=0:03:39					
Inor Old_sysUpTime=10 days 20:08:08 New_sysUpTime=0:03:37					
or Old_sysUpTime=10 days 20:08:04 New_sysUpTime=0:03:34					
or Old_sysUpTime=10 days 20:08:02 New_sysUpTime=0:03:32					
Old_sysUpTime=10 days 20:07:59 New_sysUpTime=0:03:29					
NMIS 14-Jan-2013 15:43:29 mexicocity-r2 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26					
NMIS 14-Jan-2013 15:43:29 mexicocity-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26					
NMIS 14-Jan-2013 15:43:27 lyon-r1 Interface Up Normal FastEthernet3 Time=00:05:00					
NMIS 14-Jan-2013 15:43:25 lyon-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22					

The NMIS Dashboard – Log Widgets



Select the require log to view

- Reachability 82%
- InterfaceAvail 82%
- Health 77%
- ResponseTime 3ms

Search the log for the required string

Number of lines to view (last X lines)

NMIS Logs Widget: allows viewing of NMIS logs and syslog if available

Device	State	UpDn	Metric	Reach	IntfAvail	Health	RespTime
Opmantek-Christchurch	Normal	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Dallas	Major	0	▲ 94.0%	▲ 100%	▲ 87.8%	▲ 81.2%	▲ 1.3ms
Opmantek-Denver	Major	1	▲ 74.4%	▲ 100%	▲ 87.8%	▲ 81.2%	▲ 1.3ms
Opmantek-Guadalajara	Normal	0	▲ 92.9%	▲ 100%	▲ 87.8%	▲ 81.2%	▲ 1.3ms
Opmantek-HongKong	Major	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
Opmantek-London	Major	2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Quick Search Sun 16:09

Select Device by Context

- Group
- Model
- Type
- Role
- Net
- Vendor

Filter Device list by input string

- boston-lin1
- boston-mail1
- boston-r1
- boston-r2
- boston-s1
- boston-win1
- brisbane-lin1
- brisbane-r1

76 matches

Reset the List

Log of Event_Log Sun 16:09

Log Name: Event_Log Search String: Lines: 50 Level: ALL Sort: Group: Go

Lines: 15 25 50 100 250 500 1000 Level: ALL Fatal Critical Major Minor Warning Error Fatal Unknown Summary Log List

Select criticality level to view.

Sort in ascending or descending order.

Select the group of devices to include.

- NMIS 20-Jan-2013 18:29:02 warsaw-win1 SNMP Down Warning SNMP error
- NMIS 18-Jan-2013 18:33:47 london-r2 SNMP Down Critical SNMP error
- NMIS 14-Jan-2013 15:43:40 saratoga-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49
- NMIS 14-Jan-2013 15:43:37 puebla-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:17 New_sysUpTime=0:03:46
- NMIS 14-Jan-2013 15:43:34 munich-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:12 New_sysUpTime=0:03:41
- NMIS 14-Jan-2013 15:43:32 milan-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:11 New_sysUpTime=0:03:39
- NMIS 14-Jan-2013 15:43:29 mexico-city-r2 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:37
- NMIS 14-Jan-2013 15:43:27 lyon-r1 Interface Up Normal FastEthernet3 Time=00:05:00
- NMIS 14-Jan-2013 15:43:25 lyon-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22

The NMIS Dashboard – Extra Controls



8Hr Summary

- Metric: 80%
- Reachability: 82%
- InterfaceAvail: 82%
- Health: 77%
- ResponseTime: 3ms

Network Status and Health

Group	Status	IntfAvail	Health	RespTime			
All Groups	Normal	82.6%	82.0%	77.1%	3.0ms		
Opmantek	Normal	100%	87.6%	91.8%	1.3ms		
Opmantek-Dallas	Major	75.0%	80.0%	71.0%	1.4ms		
Opmantek-Denver	Major	100%	83.2%	90.6%	1.3ms		
Opmantek-Guadalajara	Normal				1.3ms		
Opmantek-HongKong	Major	1	73.9%	75.0%	77.6%	70.8%	1.3ms
Opmantek-London	Major	2	67.9%	66.7%	83.2%	61.6%	1.3ms

Log of Event_Log

Log Name	Search String	Lines	Level	Sort	Group
Event_Log		50	ALL		

Lines: 15 25 50 100 250 500 1000 | Level: ALL Fatal Critical Major Minor Warning Error Normal Unknown | Summary | Log List

Log Entries:

- NMIS 20-Jan-2013 18:29:02 warsaw-win1 SNMP Down Warning SNMP error
- NMIS 18-Jan-2013 18:33:47 london-r2 SNMP Down Critical SNMP error
- NMIS 14-Jan-2013 15:43:40 saratoga-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49
- NMIS 14-Jan-2013 15:43:37 puebla-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:17 New_sysUpTime=0:03:46
- NMIS 14-Jan-2013 15:43:34 munich-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:12 New_sysUpTime=0:03:41
- NMIS 14-Jan-2013 15:43:32 milan-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:11 New_sysUpTime=0:03:39
- NMIS 14-Jan-2013 15:43:29 mexicocity-r2 Node Reset Minor Old_sysUpTime=10 days 20:08:08 New_sysUpTime=0:03:37
- NMIS 14-Jan-2013 15:43:27 lyon-r1 Interface Up Normal FastEthernet3 Time=00:05:00
- NMIS 14-Jan-2013 15:43:25 lyon-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:...

Pop-out control lets you pop a widget to its own tab or window in the browser.

Refresh control refreshes the contents of the widget

Launch the device widget for this node

Click on node name, event name or level to quickly filter/search the log

NMIS Menu Summary





NMIS Primary Menu Options

NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8 Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk System Quick Select Help

Metrics
Network Metric Graphs
Network Status and Health
Network Status and Health by Group
Current Events
Network Events
Network Maps

The first menu item; “**Network Status**” provides options for seeing the **current and historical operational status** of all devices managed by NMIS.

NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8 Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk System Quick Select Help

IPSLA Monitor
All Groups
OverView
Top 10
Link List

Application Flows
TopN Applications
TopN Application Sources
TopN Talkers
TopN Listeners

The second menu item; “**Network Performance**” provides options for seeing the **current and historical performance** of all devices managed by NMIS.

This section of the menu is available when opFlow is installed on the same server.

NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8 Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk System Quick Select Help

Ping
Traceroute
SNMP Tool
IP Tools
IP Calc
IP host
IP dns
IP arpa
IP loc

The third menu item; “**Network Tools**” contains a few convenient tools for working with devices managed by NMIS.



NMIS Report Menu

The forth menu item; “**Reports**” provides access to generate reports now and historically, these are through the options “**Current**” and “**History**”.

NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8 Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools **Reports** Service Desk System Quick Select Help

- Current
 - Availability
 - Health
 - Response Time
 - Top 10
 - Outage
 - Port Counts
- History

NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8 Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools **Reports** Service Desk System Quick Select Help

- Current
- History
 - Availability
 - Health
 - Response Time
 - Top 10
 - Outage
 - Port Counts

Report Name	Description
Availability	Summarises the availability of all devices for the reporting period
Health	Summarises the health of all devices
Response Time	Summarises the response of all devices
Top 10	Finds the Top10 devices in several categories, the busy devices.
Outage	Shows all the outages for node or interface in the reporting period
Port Counts	Summarises available ports (interfaces), available physical capacity

NMIS Service Desk Menu



The fifth menu item; “**Service Desk**” includes options for seeing alerting, finding elements and viewing logs.

The image displays three screenshots of the NMIS 8.3.12G interface, each showing the 'Service Desk' menu expanded. The interface includes a header with the NMIS logo, version '8.3.12G', and navigation tabs: 'Network Status', 'Network Performance', 'Network Tools', 'Reports', 'Service Desk', 'System', 'Quick Select', and 'Help'. The 'Service Desk' menu is expanded to show the following options:

- Alerts ▶
- Find ▶
- Logs ▶

The sub-menu options are:

- Events
- Outages
- Links
- Node
- Interface
- NMIS Log
- Event Log
- Log List

Each screenshot also shows the user information: 'Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0'.



NMIS System Menu

NMIS 8.3.12G NMIS Servers ▾ NMIS Modules ▾ NMIS8 ▾ Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk **System** Quick Select Help

- System Configuration ▾
- Configuration Check ▾
- Host Diagnostics ▾

- Access
- Contacts
- Escalations
- IFTypes
- Locations
- Logs
- NMIS Configuration
- Node Configuration
- Nodes (devices)
- Models
- Portal
- PrivMap
- Services
- Users

The sixth menu item; “**System**” provides options for viewing and editing the NMIS configuration, checking the configuration and checking NMIS server performance.

Access to all the configuration and policy files.

NMIS 8.3.12G NMIS Servers ▾ NMIS Modules ▾ NMIS8 ▾ Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk **System** Quick Select Help

- System Configuration ▾
- Configuration Check ▾
- Host Diagnostics ▾

- Check Event Flow
- Check Event DB

NMIS 8.3.12G NMIS Servers ▾ NMIS Modules ▾ NMIS8 ▾ Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk **System** Quick Select Help

- System Configuration ▾
- Configuration Check ▾
- Host Diagnostics ▾

- NMIS Polling Summary
- NMIS Runtime Graph
- NMIS Host Info
- date
- df
- ps
- lstat
- vmstat
- who

Checking NMIS server performance.

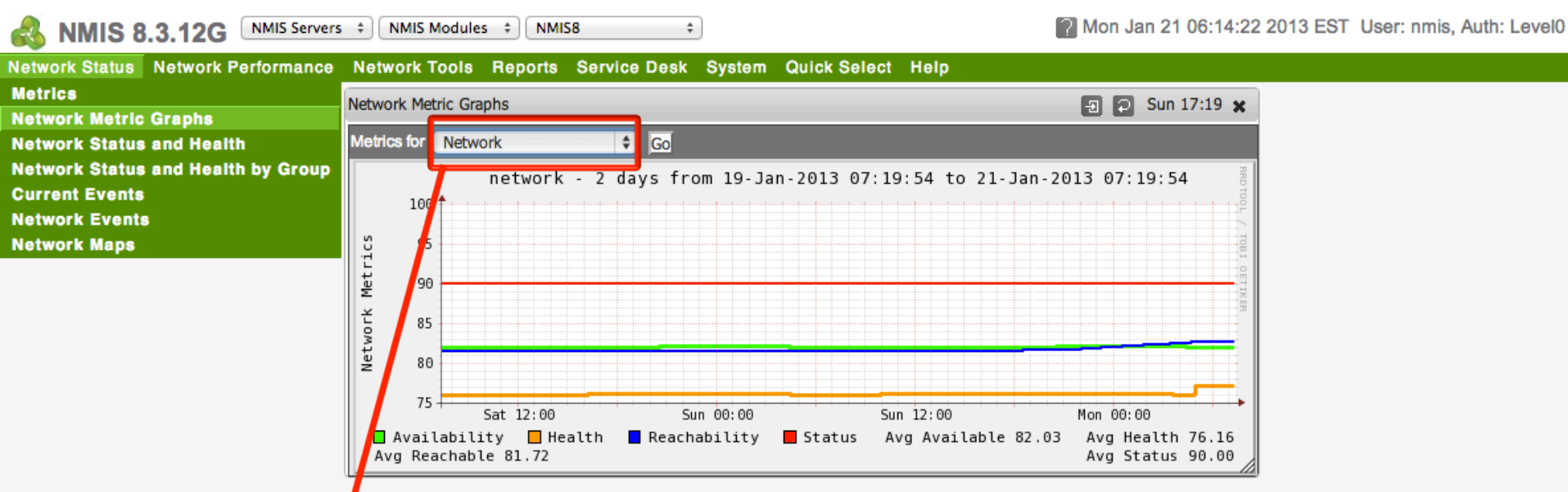
NMIS Menu Drill Down





NMIS Network Metric Graphs

The menu item “Network Status -> Network Metric Graphs” provides access to seeing the NMIS metrics, availability, health, reachability and status over time.



Select “Network” for entire network or select a group name for specific metrics.

NMIS Network Status and Health by Group



NMIS 8.3.12G

Network Status and Health by Group

Sun 17:20

- Network Status
- Network P
- Metrics
- Network Metric Graphs
- Network Status and Health
- Network Status and Health by Group
- Current Events
- Network Events
- Network Maps

Opmantek-Boston Node List and Status

Node	Location	Type	Net	Role	Status	Health	Reach	Intf. Avail.	Resp. Time	Outage	Esc.	Last Update
boston-lin1	Opmantek Data Center	server	lan	core	Normal	▼ 79.1 %	▲ 100 %	▲ 100 %	▲ 0.7ms			21-Jan-2013 07:18:04
boston-lin1	Opmantek Data Center	server	lan	access	Normal	▼ 85.9 %	▲ 100 %	▲ 100 %	disabled			21-Jan-2013 07:18:02
boston-r1	Brisbane	router	wan	core	Normal	▲ 99.3 %	▲ 100 %	▲ 92.9 %	▲ 1.6ms			21-Jan-2013 07:18:05
boston-r2	Brisbane	router	wan	core	Normal	▲ 99.3 %	▲ 100 %	▲ 92.9 %	▼ 1.6ms			21-Jan-2013 07:18:06
boston-s1	default	switch	lan	core	Normal	▲ 98.0 %	▲ 100 %	▲ 80.0 %	▲ 1.3ms			21-Jan-2013 07:18:06
boston-win1	Head Office	server	lan	core	Normal	▼ 86.2 %	▲ 100 %	▼ 60.0 %	▲ 1.3ms			21-Jan-2013 07:18:06

Provides a view of network status and health of all groups and devices in a single window.

Christchurch Node List and Status

Node	Location	Type	Net	Role	Status	Health	Reach	Intf. Avail.	Resp. Time	Outage	Esc.	Last Update
christchurch-lin1	Opmantek Data Center	server	lan	access	Normal	▼ 79.1 %	▲ 100 %	▲ 100 %	▲ 0.8ms			21-Jan-2013 07:18:10
christchurch-r1	Brisbane	router	wan	distribution	Normal	▲ 99.3 %	▲ 100 %	▲ 92.9 %	▲ 2.0ms			21-Jan-2013 07:18:11
christchurch-s1	default	switch	lan	access	Normal	▲ 98.0 %	▲ 100 %	▲ 80.0 %	▲ 1.4ms			21-Jan-2013 07:18:11
christchurch-win1	Head Office	server	lan	access	Normal	▼ 86.2 %	▲ 100 %	▼ 60.0 %	▲ 0.9ms			21-Jan-2013 07:18:11

Opmantek-Dallas Node List and Status

Node	Location	Type	Net	Role	Status	Health	Reach	Intf. Avail.	Resp. Time	Outage	Esc.	Last Update
dallas-lin1	Unknown (edit /etc/snmp/snmpd.conf)	generic	lan	core	Critical	▲ 0.0 %	▲ 0.0 %	▼ nan %	▼ nan			3-Jan-2013 15:23:13
dallas-r1	Brisbane	router	wan	core	Normal	▲ 99.3 %	▲ 100 %	▲ 92.9 %	▲ 2.0ms			21-Jan-2013 07:18:13
dallas-s1	default	switch	lan	core	Normal	▲ 98.0 %	▲ 100 %	▲ 80.0 %	▲ 1.3ms			21-Jan-2013 07:18:13
dallas-win1	Head Office	server	lan	core	Normal	▼ 86.2 %	▲ 100 %	▼ 60.0 %	▲ 0.7ms			21-Jan-2013 07:18:13

NMIS Current Events



NMIS 8.3.12G NMIS Servers NMIS

Current Events Sun 17:21

Network Status Network Performance Network Metrics

Network Metric Graphs
Network Status and Health
Network Status and Health by Group
Current Events
Network Events
Network Maps

Localhost Event List

Name	Outage	Start	Event	Level	Element	Details	Ack.	Esc.	User
Active Events. (Set All Events Inactive <input type="checkbox"/>)									
boston-r1 ▲ 1 Event(s) (Set Events Inactive for boston-r1 <input type="checkbox"/>)									
boston-r1	310:07:49	8-Jan-2013 09:13:33	Interface Down	Major	Cellular0		<input type="checkbox"/>	10	
boston-r2 ▲ 1 Event(s) (Set Events Inactive for boston-r2 <input type="checkbox"/>)									
boston-r2	310:07:52	8-Jan-2013 09:13:30	Interface Down	Major	Cellular0		<input type="checkbox"/>	10	
boston-s1 ▲ 1 Event(s) (Set Events Inactive for boston-s1 <input type="checkbox"/>)									
boston-s1	298:51:02	8-Jan-2013 20:30:20	Interface Down	Major	FastEthernet0/2	Collect Stats	<input type="checkbox"/>	10	
boston-win1 ▲ 2 Event(s) (Set Events Inactive for boston-win1 <input type="checkbox"/>)									
boston-win1	2013 09:13:25	2013 09:13:25	Interface Down	Major	Apple Mobile Device Ethernet - VirtualBox Bridged Networking Driver Miniport	Local Area Connection* 13	<input type="checkbox"/>	10	
boston-win1	2013 09:13:24	2013 09:13:24	Interface Down	Major	Teredo Tunneling Pseudo-Interface	Local Area Connection* 11	<input type="checkbox"/>	10	
brisbane-s1 ▲ 1 Event(s) (Set Events Inactive for brisbane-s1 <input type="checkbox"/>)									
brisbane-s1	298:51:02	8-Jan-2013 20:30:20	Interface Down	Major	FastEthernet0/2	Collect Stats	<input type="checkbox"/>	10	
brisbane-win1 ▲ 2 Event(s) (Set Events Inactive for brisbane-win1 <input type="checkbox"/>)									
brisbane-win1	298:51:04	8-Jan-2013 20:30:18	Interface Down	Major	Teredo Tunneling Pseudo-Interface	Local Area Connection* 11	<input type="checkbox"/>	10	
brisbane-win1	298:51:04	8-Jan-2013 20:30:18	Interface Down	Major	Apple Mobile Device Ethernet - VirtualBox Bridged Networking Driver Miniport	Local Area Connection* 13	<input type="checkbox"/>	10	
christchurch-r1 ▲ 1 Event(s) (Set Events Inactive for christchurch-r1 <input type="checkbox"/>)									
christchurch-r1	310:07:13	8-Jan-2013 09:14:09	Interface Down	Minor	Cellular0		<input type="checkbox"/>	10	

Accessing “Current Events” will show all active events and there current escalation level.

Events can also be acknowledged here.

NMIS Reports – Availability



NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8

Network Status Network Performance Network Tools Reports Service Desk System

- Current > Availability
- History > Health
- Response Time
- Top 10
- Outage
- Port Counts

Availability Sun 17:19 ST User: nmis, Auth: Level0

Availability Metric from 20-Jan-2013 07:19:29 to 21-Jan-2013 07:19:29

Select Period or Start End

% Availability (Reachability) for all Devices

Node	Node Type	% Availability
boston-lin1	server	100.00
boston-mail1	server	100.00
boston-r1	router	100.00
boston-r2	router	100.00
boston-s1	switch	100.00
boston-win1	server	100.00
brisbane-lin1	generic	0.00
brisbane-r1	router	100.00
brisbane-s1	switch	100.00
brisbane-win1	server	100.00
christchurch-lin1	server	100.00
christchurch-r1	router	100.00
christchurch-s1	switch	100.00
christchurch-win1	server	100.00
dallas-lin1	generic	0.00
dallas-r1	router	100.00
dallas-s1	switch	100.00
dallas-win1	server	100.00
denver-lin1	generic	0.00
denver-r1	router	100.00
denver-s1	switch	100.00
denver-win1	server	100.00

“Reports -> Current -> Availability”, shows availability for the selected period or between the two dates.

Select Period like the day, week, month

OR select the specific dates and times you require.

NMIS Reports – Top 10



“Reports -> Current -> Top 10” is a summary of the highest elements in several measures.

Available Top 10 Report Sections:

- Top 10 Nodes by **Average Response Time**
- Top 10 Nodes by **Average Ping loss**
- Top 10 Nodes by **CPU Load** (Routers only)
- Top 10 Nodes by **% Processor Memory Used** (Routers only)
- Top 10 Nodes by **% IO Memory Used** (Routers only)
- Top 10 **Interfaces** by **Percent Utilization**
- Top 10 **Interfaces** by **Traffic**
- Top 10 PVC BECN's and FECN's
- Top 10 **Errors** and **Discards**
- Down Interfaces

Network Status Network Performance Network Tools Reports Service

Current Availability
History Health
Response Time
Top 10
Outage
Port Counts

Top 10

Network Top10 from 20-Jan-2013 07:18:22 to 21-Jan-2013 07:18:22

Select Period or Start End Go

Top 10 Nodes by Average Response Time

Node	Average Response Time (msec)	Bar
lin1	75.26	████████████████████
singapore-r1	7.86	██
saratoga-win1	7.18	██
warsaw-s1	7.16	██
zurich-r1	6.49	██
saratoga-r2	3.78	██
saratoga-s1	2.93	██
warsaw-r1	2.91	██
saratoga-r1	2.85	██
singapore-s1	2.47	██

Top 10 Nodes by Average Ping loss

Node	Percent Ping Loss	Bar
denver-lin1	100.00	████████████████████
london-r2	100.00	████████████████████
london-lin1	100.00	████████████████████
saratoga-lin1	100.00	████████████████████
brisbane-lin1	100.00	████████████████████
hongkong-lin1	100.00	████████████████████
singapore-lin1	100.00	████████████████████
warsaw-lin1	100.00	████████████████████
munich-lin1	100.00	████████████████████
lyon-lin1	100.00	████████████████████

Reporting period controls.

NMIS Reports – Outage



- Current
- History
- Availability
- Health
- Response Time
- Top 10
- Outage
- Port Counts

“Reports -> Current -> Outage”
Provides a summary of all the elements which were down during the selected period.

Report can be for nodes or interfaces.

Outage Report

Select Period [dropdown] or Start 22-Dec-2012 00:51:47 End 22-Jan-2013 00:51:47 [Go]

Based on node interface

Outage Report, 22-Dec-2012 00:51:47 to 22-Jan-2013 00:51:47

Time	Node	Outage Type	Outage Time	Element	Planned Outage
25-Dec-2012 15:59:15	saratoga-r1	Node Outage	00:04:56		
25-Dec-2012 15:59:15	saratoga-r1	Node Outage	00:04:56		
25-Dec-2012 15:59:33	warsaw-r1	Node Outage	00:04:52		
25-Dec-2012 15:59:45	zurich-r1	Node Outage	00:04:15		
27-Dec-2012 01:08:57	mexicocity-r1	Node Outage	00:04:15		
27-Dec-2012 01:08:59	mexicocity-r2	Node Outage	00:04:53		
27-Dec-2012 01:09:14	milan-r1	Node Outage	00:05:03		
27-Dec-2012 01:09:18	munich-r1	Node Outage	00:04:59		
27-Dec-2012 01:09:35	puebla-r1	Node Outage	00:05:04		
27-Dec-2012 01:09:56	saratoga-r2	Node Outage	00:05:15		
27-Dec-2012 01:09:58	saratoga-r1	Node Outage	00:05:16		
27-Dec-2012 01:09:58	saratoga-r1	Node Outage	00:05:16		

Report on Nodes or Interfaces

Reporting period controls.



NMIS Reports – Port Counts

NMIS 8.3.12G NMIS Servers NMIS Modules NMIS8 Mon Jan 21 06:14:22 2013 EST User: nmis, Auth: Level0

Network Status Network Performance Network Tools Reports Service Desk System Quick Select Help

- Current
- History
- Availability
- Health
- Response Time
- Top 10
- Outage
- Port Counts

“Reports -> Current -> Port Counts”, summarises all ports (interfaces) and shows the ports in use, and those not in use.

This provides a good summary of available physical capacity.

Port Counts Sun 17:19

Port Count Summary Report @ 21-Jan-2013 07:19:06

Summary Port Counts

The port count summary is indicative. Consideration should be given to weight the port counts according to day of week port types etc.

Total Port Totals

Port Count Total	1511	
Port Count Real	1270	
Admin Up Port Count	1164	92%
Admin Down Port Count	106	8%
Oper Up Port Count	578	46%
Oper Down Port Count	692	54%
Oper Minor Fault Port Count		0%
< 10 megabit Port Count	241	19%
10 megabit Port Count		0%
100 megabit Port Count	554	44%
1 gigabit Port Count	475	37%
10 gigabit Port Count		0%
Collect Port Count	428	34%

NMIS Device Screens



NMIS Node Widget



Node menu with available node/device views

Summary of node node information.

Available node level graphs

Node Widget: Interfaces



boston-r1 ☰ ↺ ↻ ← Sun 16:33 ✕

Node [boston-r1](#) **interfaces** [active intf](#) [ports](#) [events](#) [outage](#) [telnet](#) [ping](#) [trace](#) [contact](#) [location](#)

Interface Table of node boston-r1

Name	Description	Admin Status	Oper Status	Intf. Avail.	Util. 6hrs	Bandwidth	Last Change	Collect on	IfIndex	Esc.
ATM0	mac-address 78a0.5112.84f9	up	up			1023 Kbps	3 days, 6:21:46	false	1	
		up	up	100.00	0.00	1 Gbps	0:00:00	true	10	none
		up	up	100.00	0.00	1023 Kbps	3 days, 6:21:46	true	7	none
		up	up	100.00	0.00	1 Gbps	0:00:00	true	8	none
		up	up	100.00	0.00	1023 Kbps	0:00:00	true	11	none
		up	up			1023 Kbps	0:00:00	false	9	
ATM0.1-aal5 layer		up	up	100.00	0.62	1023 Kbps	0:00:36	true	16	none
ATM0.1-atm subif		up	up			1023 Kbps	0:00:36	false	15	
Cellular0		up	notPresent	0.00	0.00	9 Kbps	0:00:24	true	13	10
Dialer0		up	dormant	100.00	0.00	1024 Kbps	0:00:00	true	18	none
Dialer1	Cloud Connection	up	dormant	100.00	0.63	1000 Kbps	3 days, 6:21:54	true	19	none
FastEthernet0		up	up	100.00	0.02	100 Mbps	0:01:22	true	2	none
FastEthernet1		up	up	100.00	0.00	100 Mbps	0:01:22	true	3	none
FastEthernet2		up	up	100.00	0.00	100 Mbps	4 days, 1:36:39	true	4	none
FastEthernet3		up	up	100.00	0.00	100 Mbps	0:01:22	true	5	none
Null0		up	up			10 Gbps	0:00:00	false	6	
NV10		down	down			56 Kbps	0:01:22	false	17	
Tunnel0	IPv6 Tunnel Collection	up	up	100.00	0.00	768 Kbps	0:01:27	true	14	none
Virtual-Access1		up	up			100 Mbps	0:01:21	false	20	
Virtual-Access2		up	up			1000 Kbps	3 days, 6:21:54	false	21	
Vlan1	--- Ethernet LAN --- SFW_INSIDES	up	up	100.00	0.02	100 Mbps	0:01:52	true	12	none

A table of all interfaces in the device, with current information on the configuration and operational status of interfaces.

Node Widget: Active Interfaces



boston-r1 🔍 🔄 🏠 Sun 16:33 ✕

Node [boston-r1](#) | [interfaces](#) | **[active intf](#)** | [ports](#) | [events](#) | [outage](#) | [telnet](#) | [ping](#) | [trace](#) | [contact](#) | [location](#)

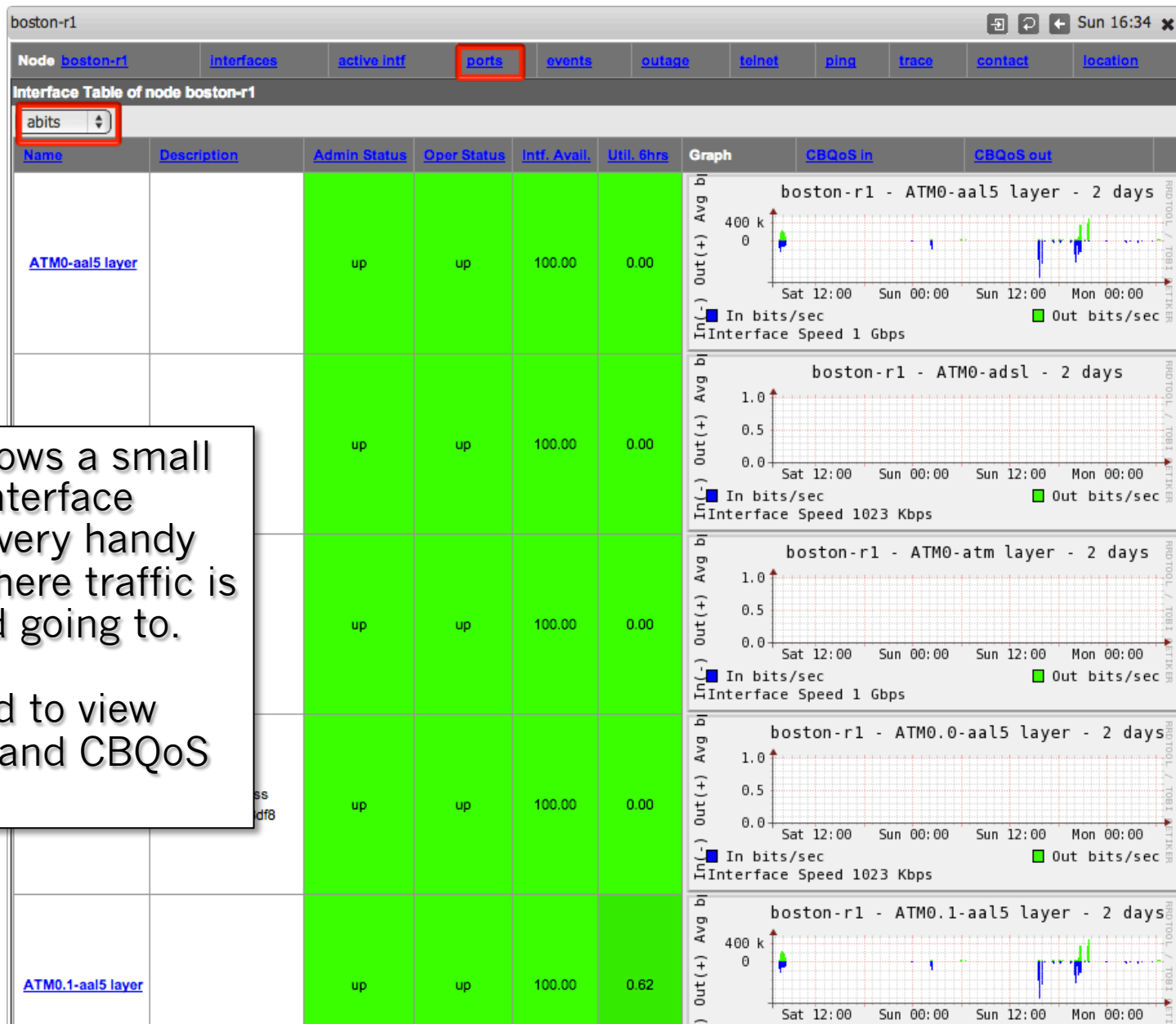
Interface Table of node boston-r1

Name	Description	Admin Status	Oper Status	Intf. Avail.	Util. 6hrs	Bandwidth	Last Change	ifIndex	Esc.
ATM0-aal5 layer		up	up	100.00	0.00	1 Gbps	0:00:00	10	none
ATM0-ads1		up	up	100.00	0.00	1023 Kbps	3 days, 6:21:46	7	none
ATM0-atm layer		up	up	100.00	0.00	1 Gbps	0:00:00	8	none
ATM0.0-aal5 layer	mac-address 78a0.5112.8df8	up	up	100.00	0.00	1023 Kbps	0:00:00	11	none
ATM0.1-aal5 layer		up	up	100.00	0.62	1023 Kbps	0:00:36	16	none
Cellular0		up	notPresent	0.00	0.00	9 Kbps	0:00:24	13	10
Ethernet0/0/0		up	dormant	100.00	0.00	1024 Kbps	0:00:00	18	none
Ethernet0/0/1		up	dormant	100.00	0.63	1000 Kbps	3 days, 6:21:54	19	none
Ethernet0/0/2		up	up	100.00	0.02	100 Mbps	0:01:22	2	none
Ethernet0/0/3		up	up	100.00	0.00	100 Mbps	0:01:22	3	none
Ethernet0/0/4		up	up	100.00	0.00	100 Mbps	4 days, 1:36:39	4	none
Ethernet0/0/5		up	up	100.00	0.00	100 Mbps	0:01:22	5	none
Ethernet0/0/6		up	up	100.00	0.00	768 Kbps	0:01:27	14	none
Ethernet0/0/7		up	up	100.00	0.02	100 Mbps	0:01:52	12	none
Vlan1	Ethernet0/0/24 \$FW_INSIDES	up	up	100.00	0.02	100 Mbps	0:01:52	12	none

A table of all ACTIVE interfaces in the device, with current information on the configuration and operational status of interfaces.

Only the monitored nodes are included in this view.

Node Widget: Ports



The port view shows a small graph for each interface being collected, very handy for comparing where traffic is coming from and going to.

Controls included to view different graphs and CBQoS if required.

Node Widget: Ports -> CBQoS



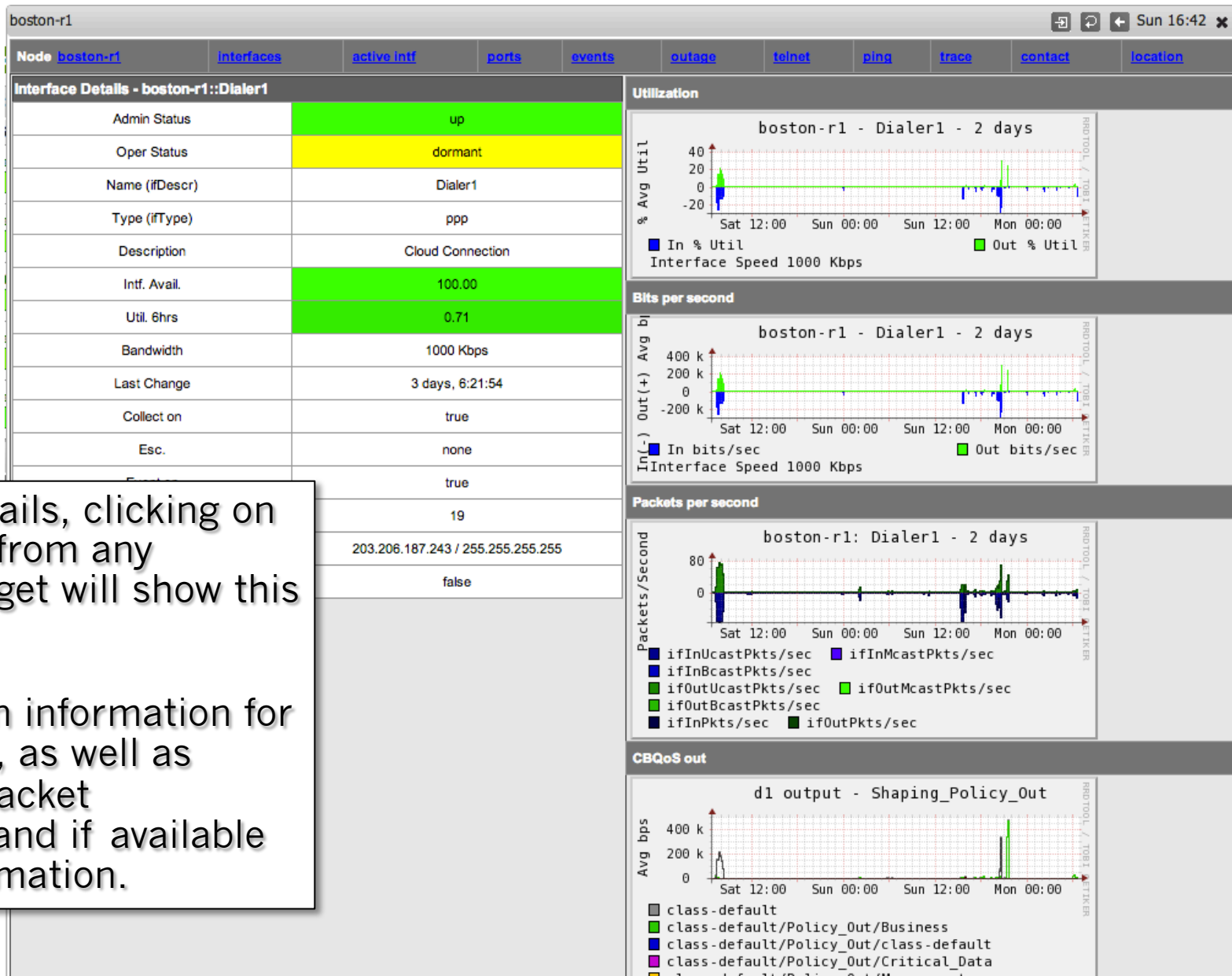
boston-r1 Sun 16:34

[Node boston-r1](#)
[Interfaces](#)
[active intf](#)
ports
[events](#)
[outage](#)
[telnet](#)
[ping](#)
[trace](#)
[contact](#)
[location](#)

Interface Table of node boston-r1

Name	Description	Admin Status	Oper Status	Intf. Avail.	Util. 6hrs	Graph	CBQoS in	CBQoS out
Dialer1	Cloud Connection	up	dormant	100.00	0.63	<p>d1 output - Shaping_Policy_Out</p> <p>Avg bps</p> <p>Sat 12:00 Sun 00:00 Sun 12:00 Mon 00:00</p> <ul style="list-style-type: none"> class-default class-default/Policy_Out/Business class-default/Policy_Out/class-default class-default/Policy_Out/Critical_Data class-default/Policy_Out/Management class-default/Policy_Out/Scavenger class-default/Policy_Out/Video class-default/Policy_Out/Voice 		
Vlan1	--- Ethernet LAN --- \$FW_INSIDES	up	up	100.00	0.02	<p>v1 output - QoS_Marking_Policy</p> <p>Avg bps</p> <p>Sat 12:00 Sun 00:00 Sun 12:00 Mon 00:00</p> <ul style="list-style-type: none"> class-default Mark_Business Mark_Critical_Data Mark_Management Mark_Scavenger Mark_Video Mark_Voice 		

Node Widget: Interface Details



Interface details, clicking on an interface from any previous widget will show this information.

Configuration information for the interface, as well as utilisation, packet information and if available CBQoS information.

Node Widget: Outage



Current events for this device, that is stateful events which are active and the escalation level.

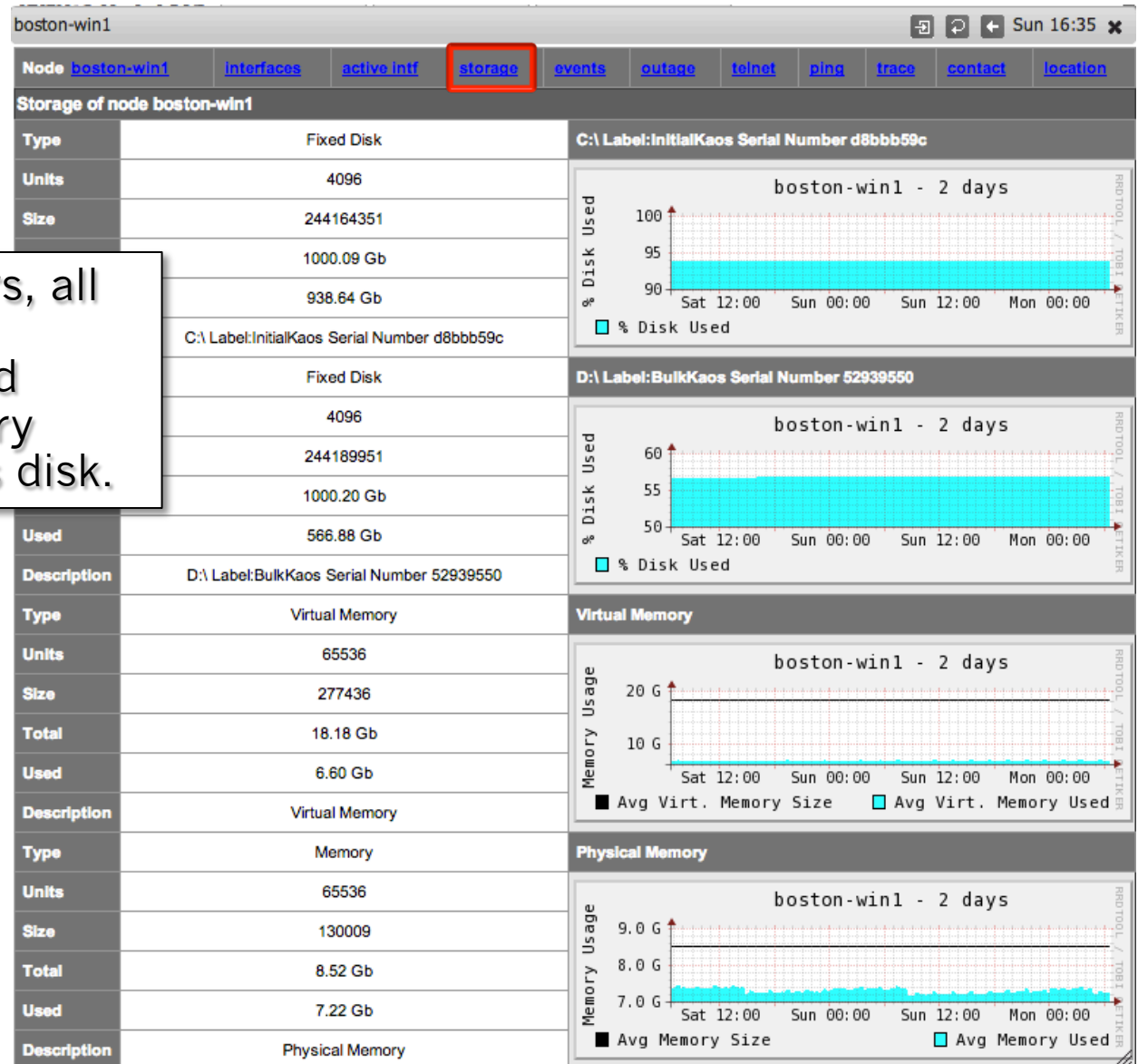
boston-r1 ☰ ↺ ↻ ← Sun 16:35 ✕

[Node boston-r1](#) [interfaces](#) [active intf](#) [ports](#) [events](#) [outage](#) [telnet](#) [ping](#) [trace](#) [contact](#) [location](#)

Events of node boston-r1

Node	Outage	Start	Event	Level	Element	Details	Escalate	State
boston-r1	309:21:50	8-Jan-2013 09:13:33	Interface Down	Major	Cellular0		10	active

Node Widget: Storage

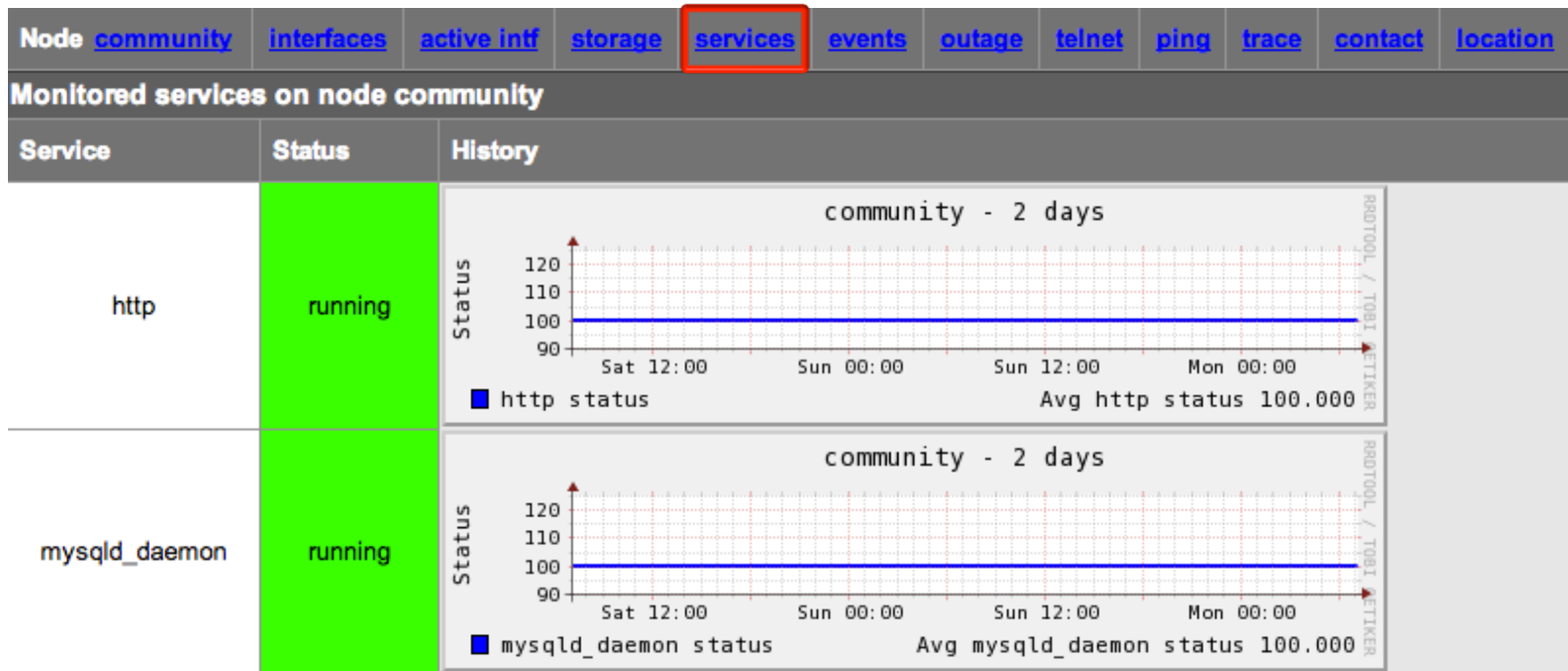


For devices like servers, all the available storage information, this could include Virtual memory information as well as disk.

Node Widget: Services



For devices like servers, all the available services being monitored.



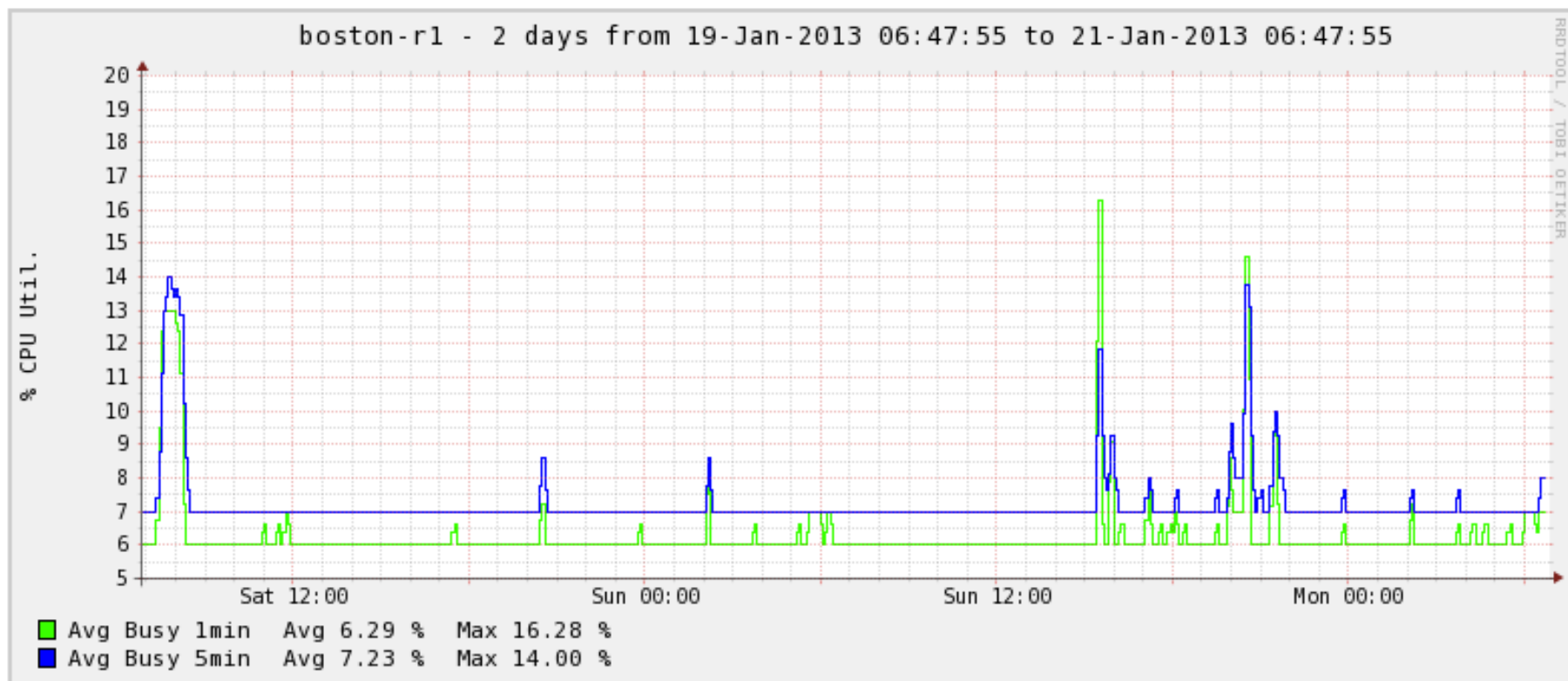
Graph Drill-in: CPU Utilisation



Clicking on any graph, brings up a BIG graph, you can select the time period and zoom in and out of the graph by clicking on different parts of it.

CPU Utilisation

Start	19-Jan-2013 06:47:55	Node	boston-r1	Type	cpu	Submit
End	21-Jan-2013 06:47:55	Interface	Dialer1	CPU IP Response Health Memory Export Stats NMIS		



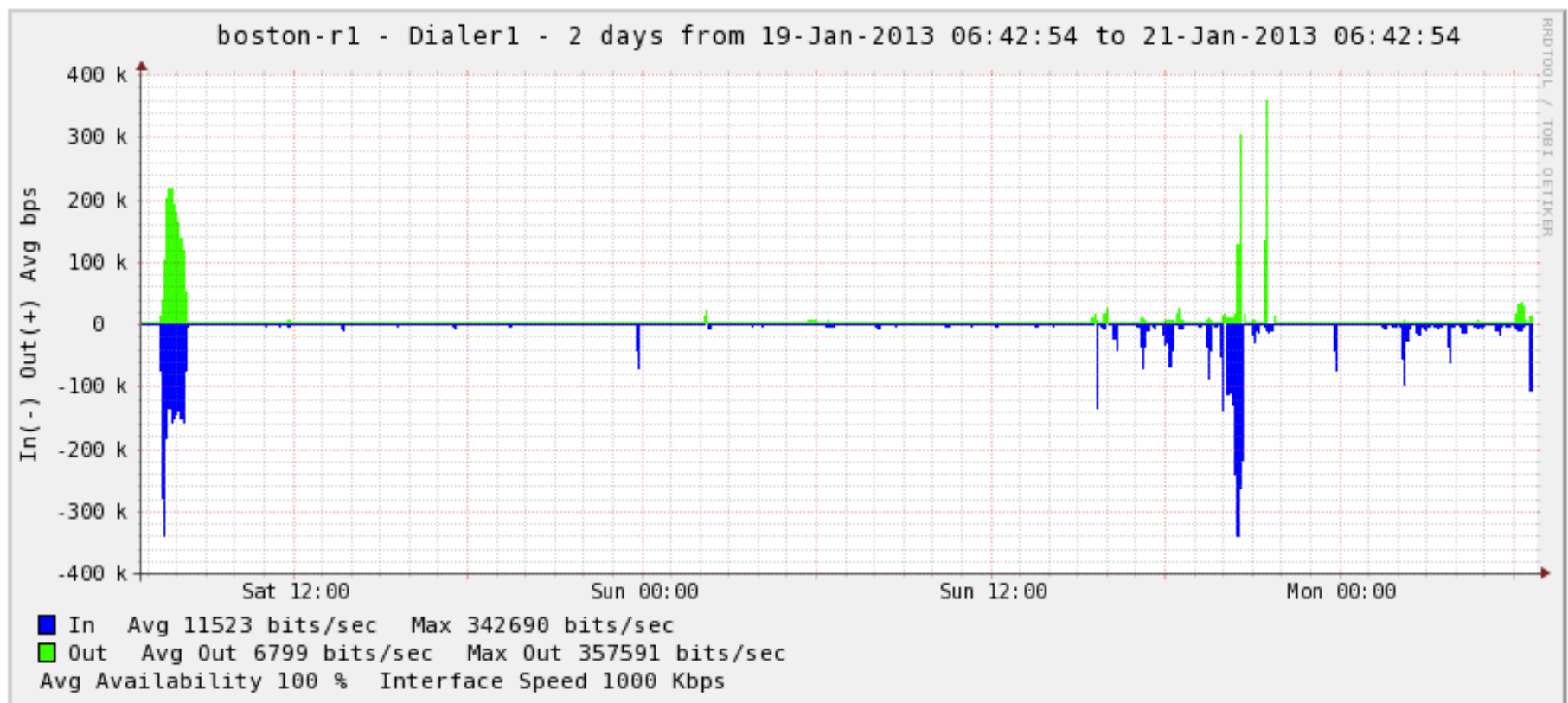
Clickable graphs: Left -> Back; Right -> Forward; Top Middle -> Zoom In; Bottom Middle-> Zoom Out, in time

Graph Drill-in: Interface Utilisation



Interface dialer1 Bits/Second Utilisation

Start <input type="text" value="19-Jan-2013 06:42:54"/>	Node <input type="text" value="boston-r1"/>	Type <input type="text" value="abits"/>	<input type="button" value="Submit"/>
End <input type="text" value="21-Jan-2013 06:42:54"/>	Interface <input type="text" value="Dialer1"/>	CPU IP Response Health Memory Export Stats NMIS	
Type	ppp	Speed	1000 Kbps
Last Updated	21-Jan-2013 06:38:09	Description	Cloud Connection



Clickable graphs: Left -> Back; Right -> Forward; Top Middle -> Zoom In; Bottom Middle -> Zoom Out; in time

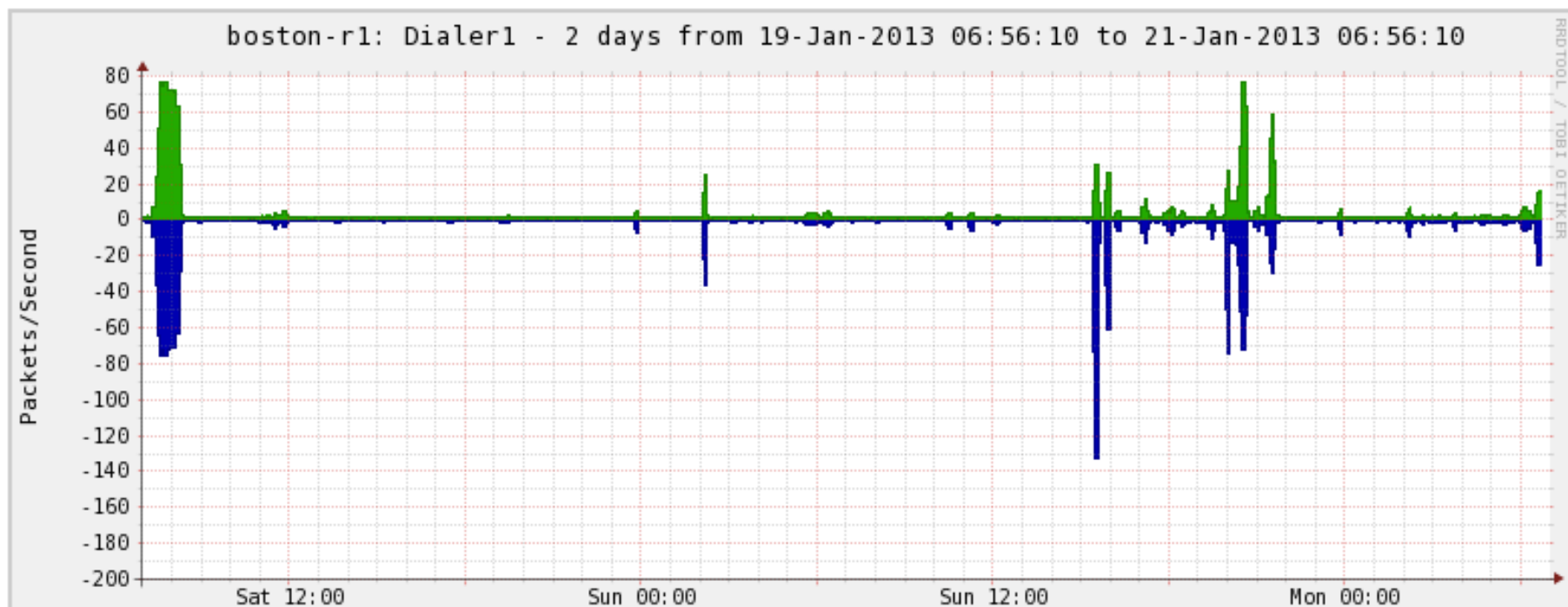
Graph Drill-in: Packet Utilisation



Interface Packets/Second Utilisation

Start	19-Jan-2013 06:56:10	Node	boston-r1	Type	pkts	Submit
End	21-Jan-2013 06:56:10	Interface	Dialer1	CPU IP Response Health Memory Export Stats NMIS		

Type	ppp	Speed	1000 Kbps
Last Updated	21-Jan-2013 06:43:09	Description	Cloud Connection



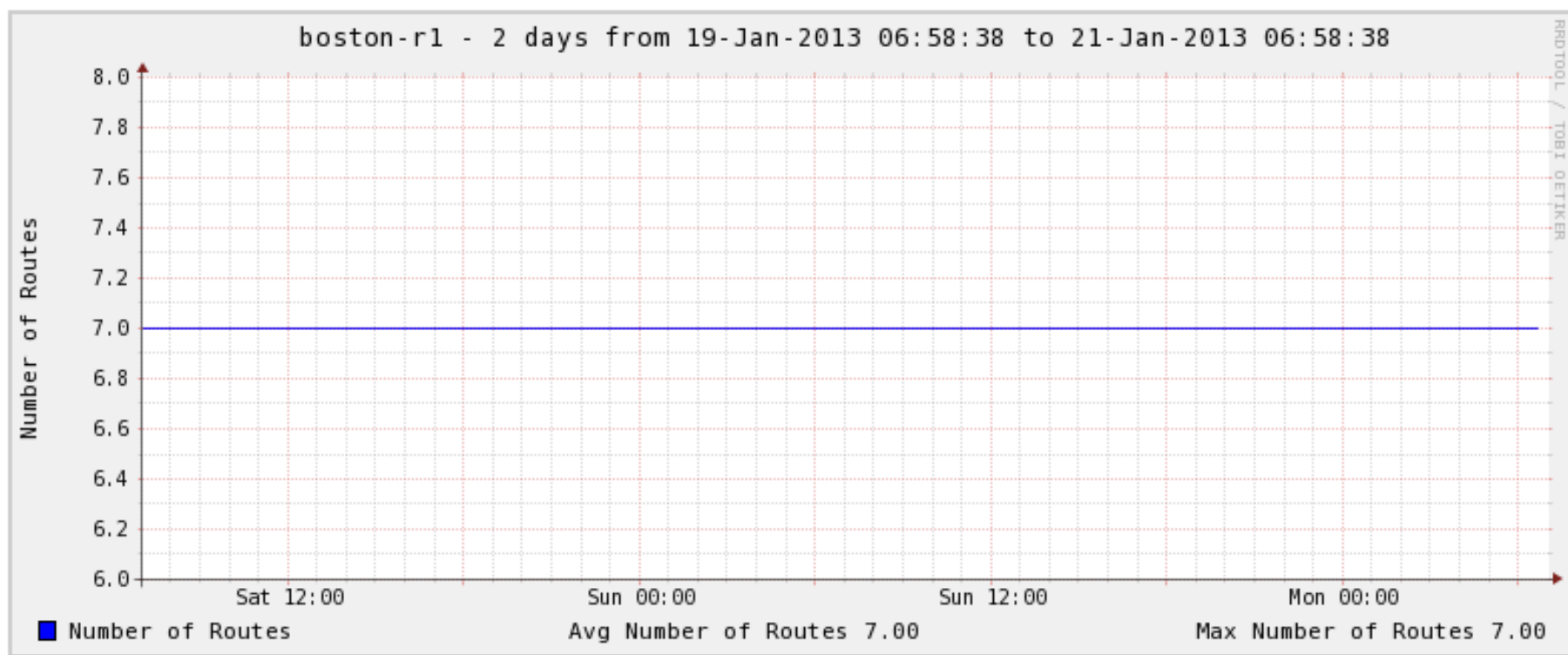
ifInUcastPkts/sec	Avg 4.05		
ifInNUcastPkts/sec	Avg 0.00		
ifOutUcastPkts/sec	Avg 3.76		
ifOutNUcastPkts/sec	Avg 0.00		
ifInPkts/sec	Avg 4.05	Max 132.44	Avg In Packet Size 364.97

Graph Drill-in: Number of Routes



Number of Routes

Start <input type="text" value="19-Jan-2013 06:58:38"/>	Node <input type="text" value="boston-r1"/>	Type <input type="text" value="routenumber"/>	<input type="button" value="Submit"/>
End <input type="text" value="21-Jan-2013 06:58:38"/>	Interface <input type="text" value="Dialer1"/>	CPU IP Response Health Memory Export Stats NMIS	



Clickable graphs: Left -> Back; Right -> Forward; Top Middle -> Zoom In; Bottom Middle-> Zoom Out, in time





Information required to add devices.

Determine your groups before you add devices.

Decide on Group Names

- How does the network look?
- What are the major locations or buildings.
- How does the business operate?
- Are there multiple countries?
- Are there data centres?
- Will branches or offices be represented by region
- Each of these things will likely be a group.

Minimum device information

- The absolute minimum you can add a device with is:
 - IP address
 - SNMP community string
- Good to include the following:
 - name
 - group
 - role
 - CBQoS required or not
 - business_services
 - status
 - services (if a server)

Manage Groups





Managing Groups in NMIS8

To manage groups in NMIS access the menu option “System -> System Configuration -> NMIS Configuration”.

This will launch a small widget, which hides many settings.

The screenshot shows the NMIS 8.3.12G interface. At the top, there is a navigation bar with the following items: Network Status, Network Performance, Network Tools, Reports, Service Desk, System, Quick Select, and Help. The 'System' menu is expanded, showing a list of options: System Configuration, Configuration Check, and Host Diagnostics. The 'System Configuration' option is selected, and a sub-menu is displayed with the following items: Access, Contacts, Escalations, IfTypes, Locations, Logs, NMIS Configuration, Node Configuration, Nodes (devices), Models, Portal, PrivMap, Services, and Users. The 'NMIS Configuration' option is highlighted. Below the navigation bar, there is a widget titled 'NMIS Configuration - Config.nmis loaded'. The widget has a 'Select section' dropdown menu, which is currently empty. A red box highlights the dropdown menu, and a red arrow points from the text box below to the dropdown menu.

Select “system”
from this option.

Access the Group Settings



The screenshot shows the NMIS Configuration web interface. The browser title is 'NMIS Configuration' and the address bar shows 'Mon 13:38'. The page title is 'NMIS Configuration - Config.nmis loaded'. A 'Select section' dropdown menu is open, showing a list of sections: authentication, daemons, database, directories, email, escalation, files, graph, icons, menu, metrics, mibs, modules, online, **system** (highlighted), tables NMIS4, tools, and url. The 'system' section is selected, and the 'system' dropdown menu is set to 'system'. The main content area displays a table with a header row containing 'system' and 'add'. Below the header, there is a large grey area labeled 'group_list' and a list of group names: Opmantek-Boston, Opmantek-Brisbane, Opmantek-Christchurch, Opmantek-Dallas, Opmantek-Denver, Opmantek-Guadalajara, Opmantek-HongKong, Opmantek-London, Opmantek-Lyon, Opmantek-MexicoCity, Opmantek-Milan, Opmantek-Munich, Opmantek-Puebla, Opmantek-Saratoga, Opmantek-Singapore, Opmantek-Warsaw, and Opmantek-Zurich. An 'edit' link is visible next to the list.

system	add
group_list	edit
Opmantek-Boston, Opmantek-Brisbane, Opmantek-Christchurch, Opmantek-Dallas, Opmantek-Denver, Opmantek-Guadalajara, Opmantek-HongKong, Opmantek-London, Opmantek-Lyon, Opmantek-MexicoCity, Opmantek-Milan, Opmantek-Munich, Opmantek-Puebla, Opmantek-Saratoga, Opmantek-Singapore, Opmantek-Warsaw, Opmantek-Zurich	

After selecting system from this list the panel on the left will be displayed.

Click on "edit" to edit the "group_list".

Editing the Group List



The screenshot shows a window titled "NMIS Configuration" with a sub-header "Edit of NMIS Config -". Below this is a table with two columns: "system" and "group_list". The "group_list" cell contains the text "Group1,Group2,Group3,Group4". Below the table are two buttons: "Edit" and "Cancel". Below the buttons, there is a list item for "group_list" with the format "Format: string" and the description "Comma separated list of groups, without spaces".

system	group_list
	Group1,Group2,Group3,Group4

• group_list
Format: string
Comma separated list of groups, without spaces

Edit the group_list adding or removing the required groups.

This is a string of group names, which can not contain spaces, and there is a “,” (comma) between each group name.

Click “Edit” when done to save the changes.

Manage Nodes





Managing Nodes (Devices) in NMIS8

To manage devices in NMIS access the menu option “System -> System Configuration -> Nodes (devices)”.

This will display a list of devices already being managed by NMIS. You can view, add, edit, delete devices from this menu.

NMIS 8.3.12G | NMIS Servers | NMIS Modules | NMIS8 | Tue Jan 22 02:42:14 2013 EST User: nmis, Auth: Level0

Network Status | Network Performance | Network Tools | Reports | Service Desk | System | Quick Select | Help

System Configuration | Configuration Check | Host Diagnostics

Access | Contacts | Escalations | IfTypes | Locations | Logs | NMIS Configuration | Node Configuration | Models | Portal | PrivMap | Services | Users

Name	Name/IP Address	Group	Select Model	Active	Ping	Collect	CBQoS	SNMP Version	Action > add
boston-lin1	192.168.1.2	Opmantek-Boston	automatic	true	true	true	none	snmpv2c	view edit delete
boston-mail1	nmisdev.dev.opmantek.com	Opmantek-Boston	automatic	true	false	true	none	snmpv2c	view edit delete
boston-r1	192.168.1.254	Opmantek-Boston	automatic	true	true	true	both	snmpv2c	view edit delete
boston-r2	192.168.1.254	Opmantek-Boston	automatic	true	true	true	both	snmpv2c	view edit delete
boston-s1	192.168.1.253	Opmantek-Boston	automatic	true	true	true	none	snmpv2c	view edit delete
boston-win1	192.168.1.4	Opmantek-Boston	automatic	true	true	true	none	snmpv2c	view edit delete
brisbane-lin1	192.168.1.11	Opmantek-Brisbane	automatic	true	true	true	none	snmpv2c	view edit delete

Select “add” to add a device. This will only be visible if you are authorised.

Selecting “edit” will bring the same screen as “add” but all existing properties available.

Add or Edit a Node (Device) in NMIS8



Nodes (devices) Mon 12:50

Table Nodes

Name	<input type="text"/>
Name/IP Address	<input type="text"/>
Group	Opmantek-Boston
Select Model	automatic
Active	true
Ping	true
Collect	true
CBQoS	none
Modem Calls	false
Threshold	true
Rancid	false
Web Server	false
Net Type	wan
Role Type	core

2. Optionally complete the Depend and Services properties.

3. Select the SNMP Version, if using snmpv1 or snmpv2c only a community string is required. For snmpv3 many properties are required.

Depend	N/A boston-lin1 boston-mail1 boston-r1 boston-r2 boston-s1
Services	dns http http_server mysqld_daemon pop3

Time Zone	0
SNMP Version	snmpv2c
SNMP Community	<input type="text"/>
SNMP Port	161
SNMP Username	<input type="text"/>
SNMP Auth Password	<input type="text"/>
SNMP Auth Key	<input type="text"/>
SNMP Auth Proto	md5
SNMP Priv Password	<input type="text"/>
SNMP Priv Key	<input type="text"/>
SNMP Priv Proto	des

Add and Update Node Add Cancel

1. Complete the node properties, selecting or entering the required information.

4. If changing the node, select "Add/Edit and Update Node" to finish. Select add if you will update later.

Node Properties



Heading	Default	Description	Values
name		The name of the device to be used, this should be the CI ID as used in other systems	
host		Hostname or IP address of the device, this may need to be the FQDN of the device	
community	public	The SNMP Community which has been configured to use on this device	
group		The group to which this device belongs	A valid group name from group_names in Config.nmis
roleType		The role of the device in the network	core, distribution, access
services		The services on this device to monitor	A valid service name from Services.nmis
businessService		A list of the business services for this device	A valid business service name from Business_Services.nmis
serviceStatus	Production	The status of the device for service management	Planning, Deployment, Pre-production, Production, Pilot, Suspended, Decommissioned, Test Lab, Other
location		The location of the device, not the SNMP sysLocation	
version	snmpv2c	The version of SNMP to use	snmpv1, snmpv2c, snmpv3
port	161	The SNMP Daemon UDP port to use for connection	Any valid UDP port
model	automatic	The name of the Model to use for this device, default is automatic	A valid model name from the NMIS8 models directory
active	true	Is this device active in NMIS8, should it be actively polled	true, false
collect	true	Should SNMP be collected on this device	true, false
ping	true	Should this device be polled with ICMP Pings	true, false
netType	lan	The network this device connects to.	lan, wan
threshold	true	Should thresholding be done on this device	true, false
cbqos	none	Should Cisco CBQoS MIB data be polled on this device	none, in, out, both
depend		What other nodes is this node dependant on.	
webserver	false	Does this node run a webserver for management	true, false
timezone	0	What is the timezone offset for this device	
calls	false	Collect Call SNMP information	
username		SNMP V3 Security Settings	
authkey		SNMP V3 Security Settings	
authpassword		SNMP V3 Security Settings	
authprotocol	md5	SNMP V3 Security Settings	
privkey		SNMP V3 Security Settings	
privpassword		SNMP V3 Security Settings	
privprotocol	des	SNMP V3 Security Settings	

Customise Node Configuration

By default NMIS will use policy and models to configure nodes, but you can always override those settings by using Node Configuration.





Modify the Node Configuration for a Node

To access Node Configuration access the menu option “System -> System Configuration -> Node Configuration”. This will launch a small widget.

The screenshot shows the NMIS 8.3.12G interface. At the top, there are navigation tabs: Network Status, Network Performance, Network Tools, Reports, Service Desk, System, Quick Select, and Help. The System menu is open, showing options: System Configuration, Configuration Check, and Host Diagnostics. A sub-menu is visible on the right, listing various configuration options: Access, Contacts, Escalations, IfTypes, Locations, Logs, NMIS Configuration, Node Configuration (highlighted), Nodes (devices), Models, Portal, PrivMap, Services, and Users. Below the menu, a 'Node Configuration' widget is displayed. It has a title bar with a refresh icon, a close icon, and the text 'Mon 18:27'. The widget contains a 'Select node' dropdown menu and a section titled 'Optional Node and Interface Configuration'.

This is a close-up of the 'Node Configuration' widget. The 'Select node' dropdown menu is open, showing a list of nodes. The node 'boston-r1' is selected and highlighted in blue. A red box highlights the entire dropdown menu. The list of nodes includes: boston-lin1, boston-mail1, boston-r1, boston-r2, boston-s1, boston-win1, brisbane-lin1, brisbane-r1, brisbane-s1, brisbane-win1, christchurch-lin1, christchurch-r1, christchurch-s1, and christchurch-win1.

Select a node to modify the configuration for.



Modify the Node Configuration (override)

Node Configuration Mon 18:27

Select node: **boston-r1** Optional Node and Interface Configuration

		Original value	Replaced by (active after update of node)
Node			<input type="checkbox"/> Store <input type="checkbox"/> Store and Update Node
	Contact	default	<input type="text"/>
	Location	Brisbane	<input type="text"/>
Interfaces			
ATM0	Description	mac-address 78a0.5112.8df8	<input type="text"/>
	Speed	1023000	<input type="text"/>
	Collect	false	<input checked="" type="radio"/> not <input type="radio"/> true
ATM0-aal5 layer	Description		<input type="text"/>
	Speed	1000000000	<input type="text"/>
	Collect	true	<input checked="" type="radio"/> not <input type="radio"/> false
	Events	true	<input checked="" type="radio"/> not <input type="radio"/> false
ATM0-adsl	Description		<input type="text"/>
	Speed	1023000	<input type="text"/>
	Collect	true	<input checked="" type="radio"/> not <input type="radio"/> false
	Events	true	<input checked="" type="radio"/> not <input type="radio"/> false
ATM0-atm layer	Description		<input type="text"/>
	Speed	1000000000	<input type="text"/>
	Collect	true	<input checked="" type="radio"/> not <input type="radio"/> false
	Events	true	<input checked="" type="radio"/> not <input type="radio"/> false

When changes are complete, select "Store and Update Node" to finish. Select "Store" if you will update later.

Modify/override node contact and location (SNMP sysContact and sysLocation)

Enable collection when an interface is not being collected.

Modify/override interface descriptions or speed.

Disable collection or events when an interface is being collected.



Incident Scenarios and NMIS Visibility

This section is to work through how incidents will appear in NMIS and how you can use NMIS to troubleshoot what is happening in the network.



What causes an incident (event/alert/outage)?

Hard failures, soft failures, and people/process issues

Hard Failures

- Equipment failure
 - Processor boards
 - Power supply
- Power failure
 - Branch
 - Data center
- Cable cuts and failure
 - WAN cables
 - LAN cables
 - Fibre optic cables
 - Data center, LAN or branch

Soft Failures

- Resource usage
 - CPU load
 - Disk usage
 - Memory usage
 - Network interface capacity
- Application scalability
 - Concurrency/scalability

People/Process

- Changes
 - Configuration change
 - Equipment upgrades
 - Operating system upgrades



Incident Scenarios and NMIS Visibility

The following scenarios describe what happens before an incident.

- Scenario 1: High Router CPU
- Scenario 2: High Server CPU
- Scenario 3: WAN Packet Loss
- Scenario 4: Network interface congestion
- Scenario 5: Switch hardware failure
- Scenario 6: Router hardware failure
- Scenario 7: WAN connectivity failure
- Scenario 8: Service running service fails
- Scenario 9: Routing Problem



Scenario 1: Router High CPU

Business/Customer Impact:

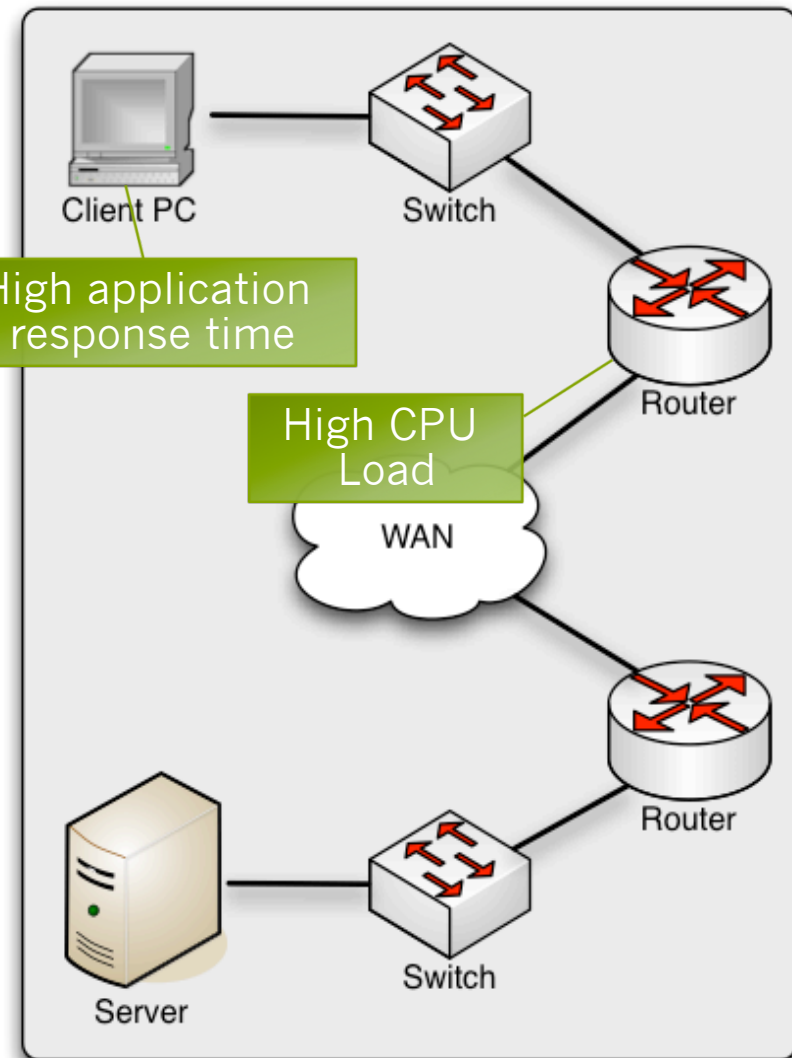
- User experiencing high application response time and having productivity problems.

Technical Symptoms:

- Client experiencing high application response time
- Branch router has high CPU load
- Servers are OK

NMIS8 Visibility:

- Health Metrics for router, group and network will be reduced
- Performance graphs of router CPU will show high CPU
- Threshold events may occur for router CPU
- Response time will increase for router and switch.
- Synthetic transactions will show increased response time.



Scenario 1: Related NMIS Visibility



Metrics Sun 16:09

8Hr Summary

- Metric: 80%
- Reachability: 82%
- InterfaceAvail: 82%
- Health: 77%
- CPU Utilisation

Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	80.0%	82.0%	82.0%	77.1%	3.0ms
Opmantek-Boston	Normal	6	6	0	92.9%	100%	83.2%	90.6%	1.3ms
Opmantek-Brisbane	Major	4	3	1	73.9%	75.0%	77.6%	70.8%	1.4ms
Opmantek-Christchurch	Normal	4	4	0	67.9%	66.7%	83.2%	61.6%	1.3ms
Opmantek-Dallas	Major	4	3	1					1.3ms
Opmantek-Denver	Major	4	3	1					1.3ms

Health Metrics for router, group and network will be reduced

Start: 19-Jan-2013 06:47:55 Node: boston-r1 Type: cpu

End: 21-Jan-2013 06:47:55 Interface: Dialer1

Clickable graphs: Left -> Back; Right -> Forward; Top Middle -> Zoom In; Bottom Middle -> Zoom Out, in time

50 Lines | ALL Level | Sort | Group

Major Minor Warning Error Normal Unknown Summary Log List

SNMP error

sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49

Performance graphs of router CPU will show high CPU

Threshold events may occur for router CPU

76 matches

- NMIS 14-Jan-2013 15:43:40 saratoga-r1 Node Reset Minor Old_sysUpTime=10 days
- NMIS 14-Jan-2013 15:43:37 puebla-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:59 New_sysUpTime=0:03:29
- NMIS 14-Jan-2013 15:43:34 munich-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
- NMIS 14-Jan-2013 15:43:32 milan-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
- NMIS 14-Jan-2013 15:43:29 mexico-city-r2 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22
- NMIS 14-Jan-2013 15:43:29 mexico-city-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22
- NMIS 14-Jan-2013 15:43:27 lyon-r1 Interface Up Normal FastEthernet3 Time=00:05:00
- NMIS 14-Jan-2013 15:43:25 lyon-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22



Scenario 2: Server High CPU

Business/Customer Impact:

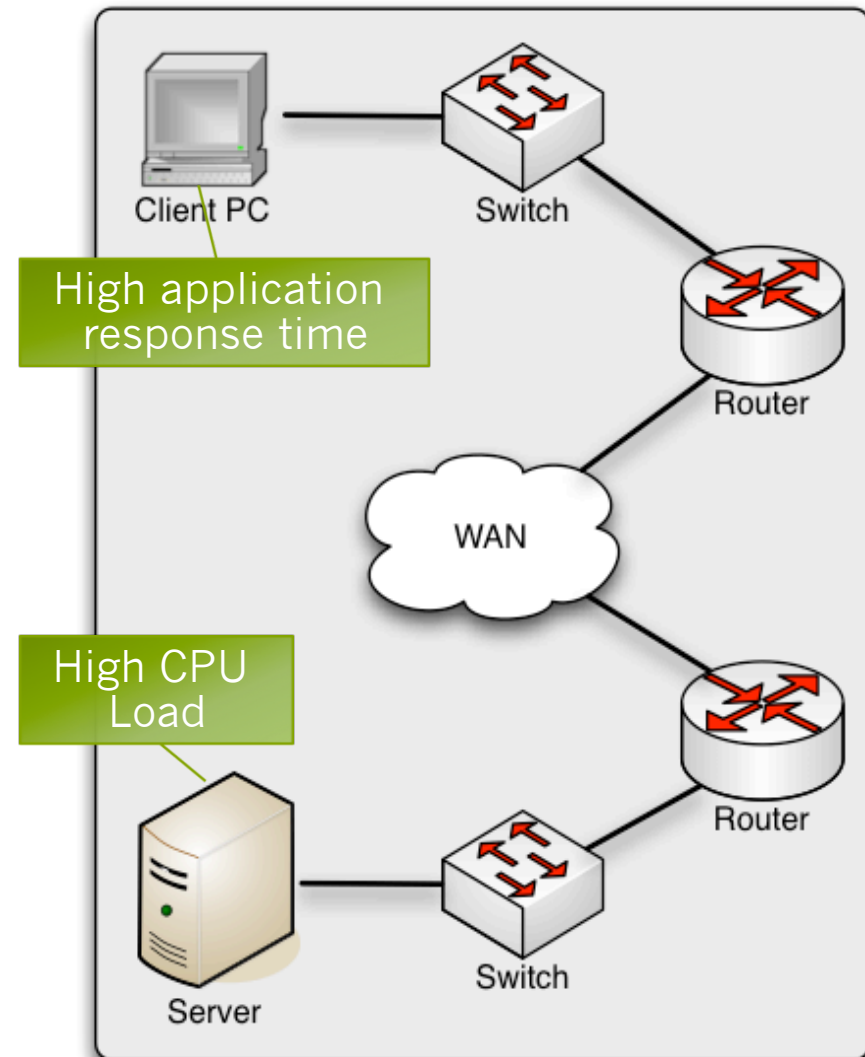
- User experiencing high application response time and having productivity problems.

Technical Symptoms:

- Client experiencing high application response time
- Server has high CPU load
- Network is OK

NMIS8 Visibility:

- Health Metrics for server, group and network will be reduced
- Performance graphs of server CPU will show high CPU
- Threshold events may occur for Server CPU
- Synthetic transactions will show increased response time.
- Response time for server will increase



Scenario 2: Related NMIS Visibility



Metrics Sun 16:09

8Hr Summary

- Metric: 80%
- Reachability: 82%
- InterfaceAvail: 82%
- Health: 77%

Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.2%	▲ 82.0%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6	0	▲ 100.0%	▲ 100.0%	▲ 100.0%	▲ 100.0%	▲ 1.3ms
Opmantek-Brisbane	Major	4	3	1	▲ 75.0%	▲ 75.0%	▲ 75.0%	▲ 70.0%	▲ 1.4ms
Opmantek-Christchurch	Normal	4	4	0	▲ 100.0%	▲ 100.0%	▲ 100.0%	▲ 100.0%	▲ 1.3ms
Opmantek-Dallas	Major	4	3	1	▲ 75.0%	▲ 75.0%	▲ 75.0%	▲ 70.0%	▲ 1.3ms
Opmantek-Denver	Major	4	3	1	▲ 75.0%	▲ 75.0%	▲ 75.0%	▲ 70.0%	▲ 1.2ms
				0	▲ 92.9%	▲ 100%	▲ 83.2%	▲ 90.6%	▲ 1.3ms
				1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
				2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Health Metrics for server, group and network will be reduced

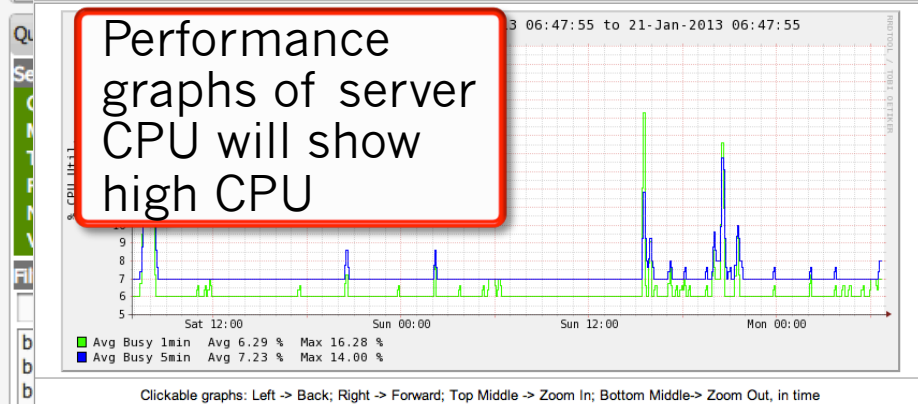
CPU Utilisation

Start: 19-Jan-2013 06:47:55 Node: boston-r1 Type: cpu

End: 21-Jan-2013 06:47:55 Interface: Dialer1

Submit

CPU IP Response Health Memory Export Stats NMIS



50 Lines Level ALL Sort Group Go

Major Minor Warning Error Normal Unknown Summary Log List

SNMP error

SNMP error

_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49

Old_sysUpTime=10 days

Old_sysUpTime=10 days

Old_sysUpTime=10 days

Old_sysUpTime=10 days

NMIS 14-Jan-2013 15:43:40 saratoga-r1 Node Reset Minor Old_sysUpTime=10 days

NMIS 14-Jan-2013 15:43:37 puebla-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49

NMIS 14-Jan-2013 15:43:34 munich-r1 Node Reset Minor Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49

NMIS 14-Jan-2013 15:43:32 milan-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:59 New_sysUpTime=0:03:29

NMIS 14-Jan-2013 15:43:29 mexico-city-r2 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26

NMIS 14-Jan-2013 15:43:29 mexico-city-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26

NMIS 14-Jan-2013 15:43:27 lyon-r1 Interface Up Normal FastEthernet3 Time=00:05:00

NMIS 14-Jan-2013 15:43:25 lyon-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22

Threshold events may occur for server CPU

- boston-r2
 - boston-s1
 - boston-win1
 - brisbane-lin1
 - brisbane-r1
- 76 matches
- Reset the List

Clickable graphs: Left -> Back; Right -> Forward; Top Middle -> Zoom In; Bottom Middle -> Zoom Out, in time

NMIS	14-Jan-2013 15:43:40	saratoga-r1	Node Reset	Minor	Old_sysUpTime=10 days
NMIS	14-Jan-2013 15:43:37	puebla-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49
NMIS	14-Jan-2013 15:43:34	munich-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:08:20 New_sysUpTime=0:03:49
NMIS	14-Jan-2013 15:43:32	milan-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:59 New_sysUpTime=0:03:29
NMIS	14-Jan-2013 15:43:29	mexico-city-r2	Node Reset	Minor	Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
NMIS	14-Jan-2013 15:43:29	mexico-city-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
NMIS	14-Jan-2013 15:43:27	lyon-r1	Interface Up	Normal	FastEthernet3 Time=00:05:00
NMIS	14-Jan-2013 15:43:25	lyon-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22



Scenario 3: WAN Packet Loss

High application response time

Business/Customer Impact:

- User(s) experiencing high application response time and having productivity problems.

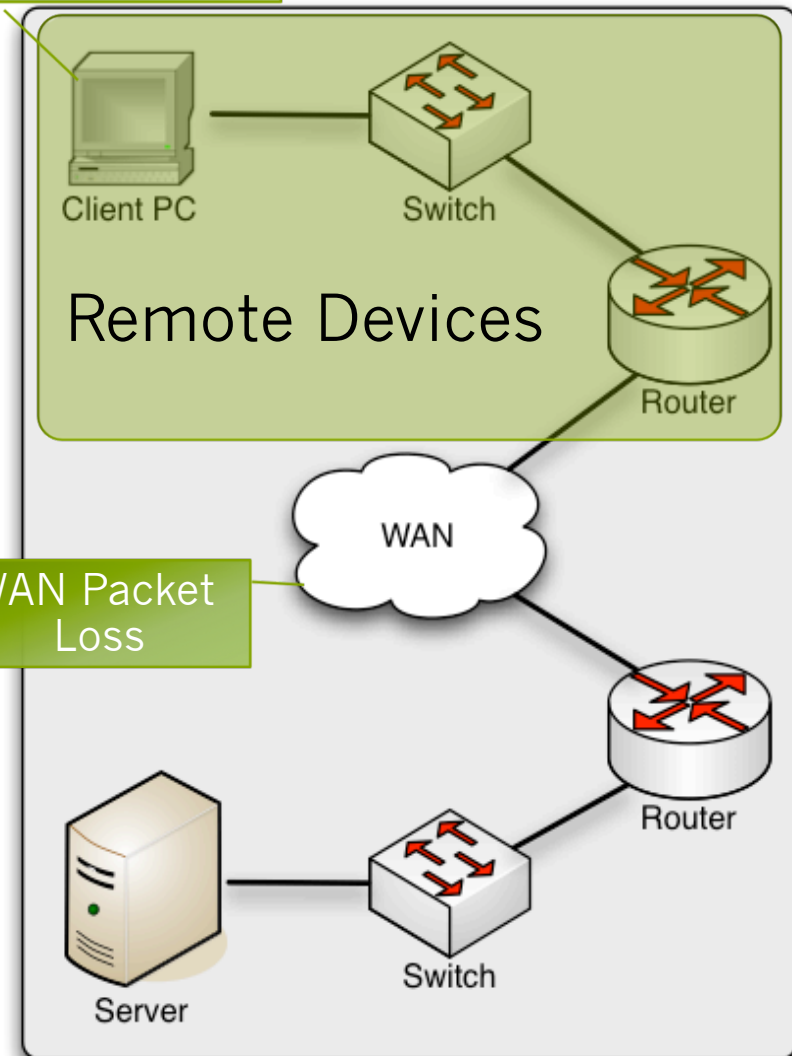
Technical Symptoms:

- Client experiencing high application response time
- Network devices are OK
- Servers are OK

NMIS8 Visibility:

- Packet loss will result in TCP retransmissions between the server and the client.
- Router interface graphs may show errors.
- Threshold events may occur for interface errors
- Response time will increase for remote router and switch.
- Packet loss may occur for the ping and SNMP polling, causing “node down” and “snmp down”.
- Synthetic transactions will show increased response time and packet loss.

WAN Packet Loss



Scenario 3: Related NMIS Visibility



Metrics Sun 16:09 ✕

8Hr Summary

▲ Metric 80%

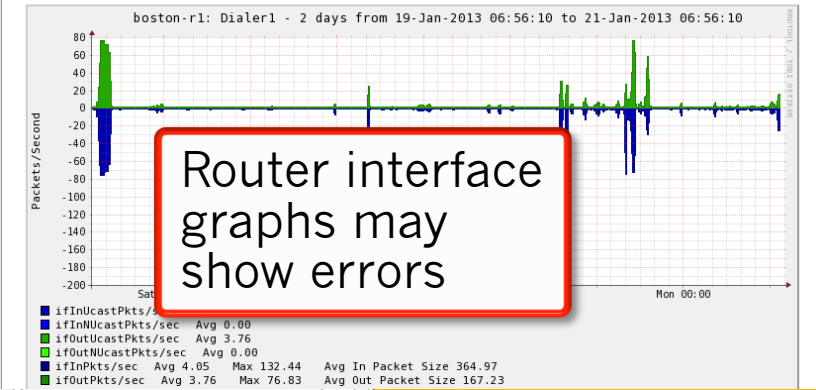
▲ Reachability 82%

▲ InterfaceAvail 82%

Network Status and Health Sun 16:09 ✕

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6	0	▲ 94.0%	▲ 100%	▲ 87.6%	▲ 91.3%	▲ 1.3ms
Opmantek-Brisbane	Major	4	3	1	▲ 75.0%	▲ 75.0%	▲ 77.6%	▲ 70.8%	▲ 1.4ms
Opmantek-Christchurch	Normal	4	4	0	▲ 94.0%	▲ 100%	▲ 87.6%	▲ 91.3%	▲ 1.3ms
			3	1	▲ 75.0%	▲ 75.0%	▲ 77.6%	▲ 70.8%	▲ 1.3ms
			3	1	▲ 75.0%	▲ 75.0%	▲ 77.6%	▲ 70.8%	▲ 1.2ms
			4	0	▲ 94.0%	▲ 100%	▲ 87.6%	▲ 91.3%	▲ 1.3ms
			3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
			4	2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Response time will increase for remote router and switch.



Router interface graphs may show errors

50 Lines ALL Level Sort Group Go

Summary Log List

Down Warning SNMP error

Down Critical SNMP error

set Minor Old_sysUpTime=10 d

set Warning Old_sysUpTime=

Reset Minor Old_sysUpTime=

NMIS 14-Jan-2013 15:43:42 saratoga-r2 Node Reset Minor Old_sysUpTime=1

NMIS 14-Jan-2013 15:43:40 saratoga-r1 Node Reset Minor Old_sysUpTime=1

NMIS 14-Jan-2013 15:43:37 puebla-r1 Node Reset Minor Old_sysUpTime=10 d

NMIS 14-Jan-2013 15:43:34 munich-r1 Node Reset Minor Old_sysUpTime=10

NMIS 14-Jan-2013 15:43:32 milan-r1 Node Reset Minor Old_sysUpTime=10 d

NMIS 14-Jan-2013 15:43:29 mexico-city-r2 Node Reset Minor Old_sysUpTime=

NMIS 14-Jan-2013 15:43:29 mexico-city-r1 Node Reset Minor Old_sysUpTime=

NMIS 14-Jan-2013 15:43:27 lyon-r1 Interface Up Normal FastEthernet3 Time=

NMIS 14-Jan-2013 15:43:25 lyon-r1 Node Reset Minor Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22

Threshold events may occur for interface errors

Packet loss may occur for the ping and SNMP polling, causing "node down" and "snmp down"

- boston-r1
 - boston-r2
 - boston-s1
 - boston-win1
 - brisbane-lin1
 - brisbane-r1
- 76 matches
- Reset the List



Scenario 4: Network interface congestion

High application response time

Business/Customer Impact:

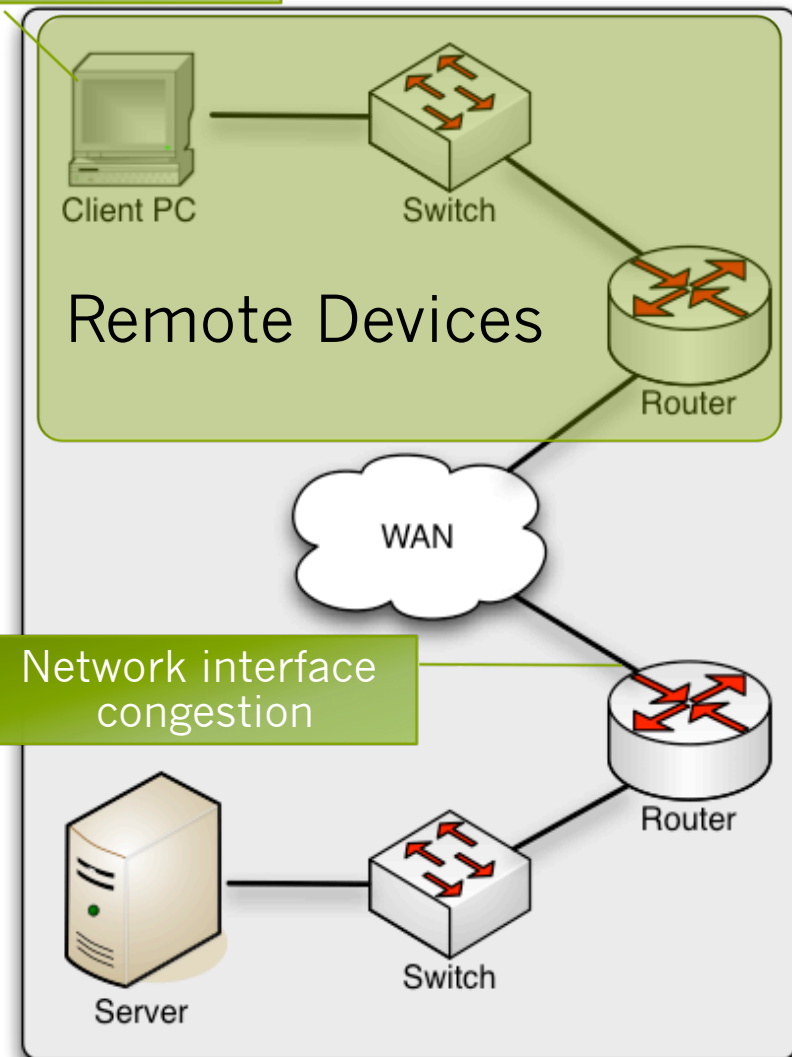
- User experiencing high application response time and having productivity problems.

Technical Symptoms:

- Client experiencing high application response time
- Servers are OK

NMIS8 Visibility:

- Health Metrics for router, group and network will be reduced
- Congestion will likely result in packet loss and TCP retransmissions between the server and the client.
- Router interface graphs will show high utilisation.
- Router QoS graphs will show high class utilisation and possible packet loss.
- Threshold events may occur for interface utilisation.
- Threshold events may occur for interface discards.
- Response time will increase for remote router and switch.
- Packet loss may occur for the ping and SNMP polling, causing “node down” and “snmp down”.
- Synthetic transactions will show increased response time and packet loss.





Scenario 5: Switch hardware failure

Business/Customer Impact:

- User is unable to connect to any applications.

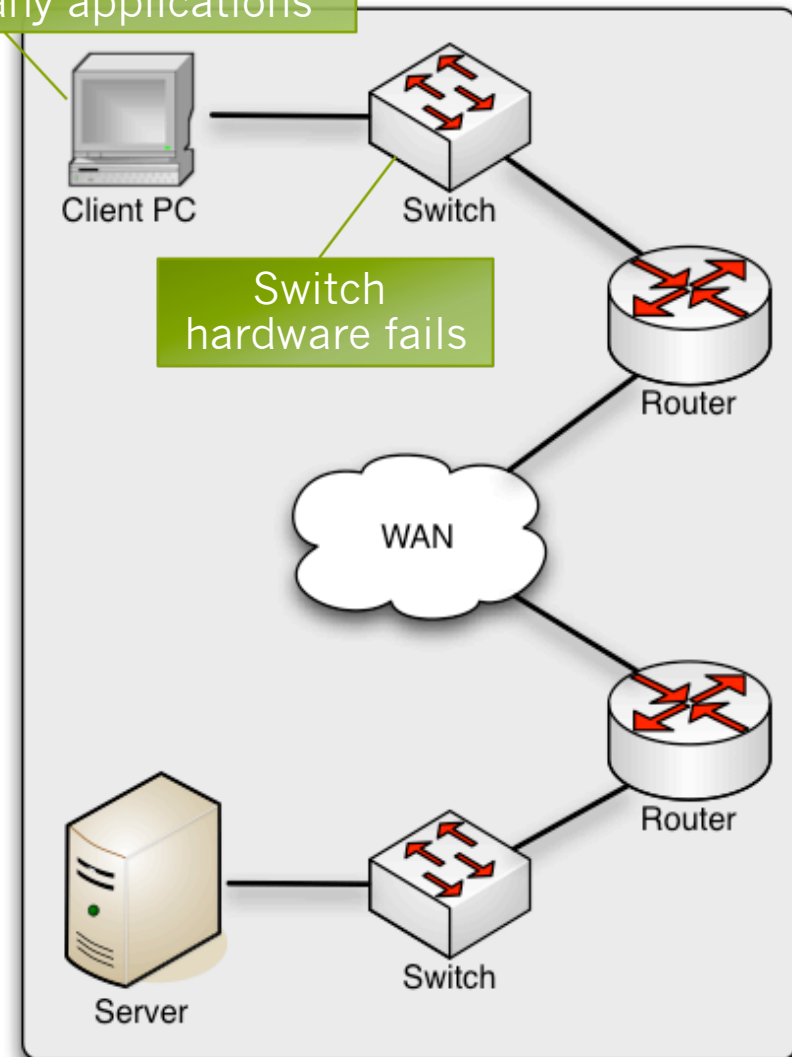
Technical Symptoms:

- User has no network connectivity
- Servers are OK

NMIS8 Visibility:

- Health and reachability metrics for switch, group and network will be reduced
- “Node Down” event generated for the switch which has failed.
- “Interface Down” from the router connected to the switch.

User can not connect to any applications



Scenario 5: Related NMIS Visibility



Metrics Sun 16:09

8Hr Summary

- Metric: 80% (80%)
- Reachability: 82% (82%)
- InterfaceAvail: 82% (82%)
- Health: 77% (77%)
- ResponseTime: 3ms (3ms)

Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6						▲ 1.3ms
Opmantek-Brisbane	Major	4	3						▲ 1.4ms
Opmantek-Christchurch	Normal	4	4						▲ 1.3ms
Opmantek-Dallas	Major	4	3						▲ 1.3ms
Opmantek-Denver	Major	4	3						▲ 1.2ms
Opmantek-Guadalajara	Normal	4	4						▲ 1.3ms
Opmantek-HongKong	Major	4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
Opmantek-London	Major	6	4	2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Health and reachability metrics for switch, group and network will be reduced

Quick Search Sun 16:09

Select Device by Context

- Group
- Model
- Type
- Role
- Net
- Vendor

Filter Device list by input string

boston-lin1
boston-mail1
boston-r1
boston-r2
boston-s1
boston-win1
brisbane-lin1
brisbane-r1

76 matches

Reset the List

Log of Event_Log Sun 16:09

Log Name	Search String	Lines	Level	Sort	Group
Event_Log		50	ALL		

Lines: 15 25 50 100 250 500 1000 Level: ALL Fatal Critical Major Minor Warning Error Normal Unknown Summary Log List

- NMIS 20-Jan-2013 18:29:02 [warsaw-win1](#) **SNMP Down** **Warning** SNMP error
- NMIS 18-Jan-2013 18:33:47 [london-r2](#) **SNMP Down** **Critical** SNMP error
- NMIS 14-Jan-2013 15:43:52 [zurich-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:49 [warsaw-r1](#) **Node Reset** **Warning** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:44 [singapore-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:42 [saratoga-r2](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:40 [saratoga-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:37 [puebla-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:34 [munich-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:32 [milan-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:29 [mexicocity-r2](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:29 [mexicocity-r1](#) **Node Reset** **Minor** Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:27 [lyon-r1](#) **Interface Up** **Normal** FastEthernet3 Time=10
- NMIS 14-Jan-2013 15:43:25 [lyon-r1](#) **Node Reset** **Minor** Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22

“Node Down” event generated for the switch which has failed.

“Interface Down” from the router connected to the switch.



Scenario 6: Router hardware failure

Business/Customer Impact:

- User unable to connect to any applications.

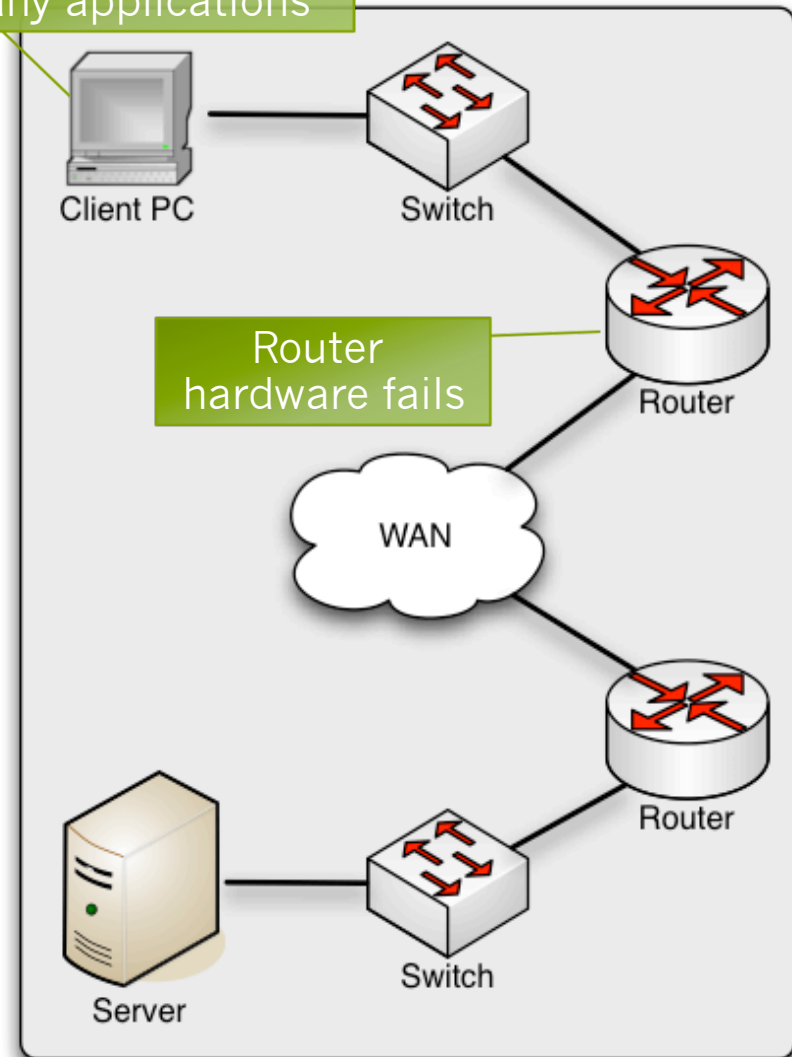
Technical Symptoms:

- User has connectivity to switch only
- Servers are OK

NMIS8 Visibility:

- Health and reachability metrics for router, group and network will be reduced
- “Node Down” event generated for the router which has failed.
- “Node Down” event generated for the switch connected to the router (unless a node dependency has been configured)
- Possibly an “Interface Down” from the remote wan.
- If device reboots, a “Node Reset” event will be generated.
- Graph for “routenumber” will show a change in available routes.

User can not connect to any applications



Scenario 6: Related NMIS Visibility



Metrics Sun 16:09

8Hr Summary

- Metric 80%
- Reachability 82%

Number of Routes

Start: 19-Jan-2013 06:58:38 Node: boston-r1 Type: routenumber

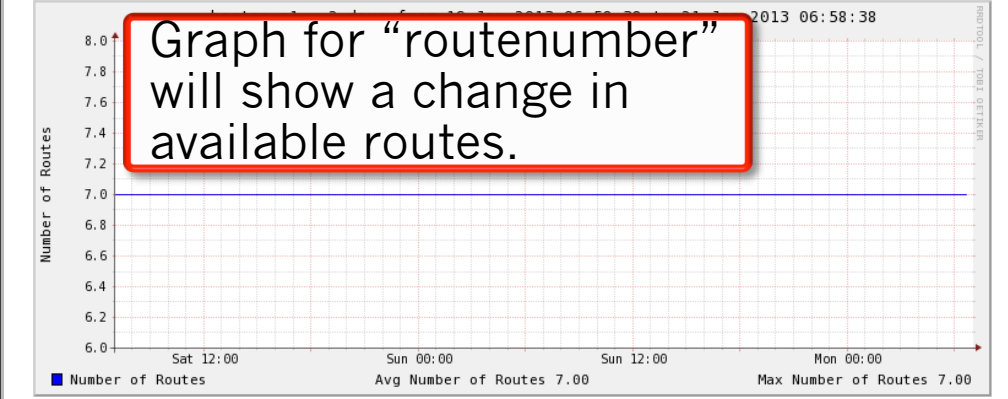
End: 21-Jan-2013 06:58:38 Interface: Dialer1

Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6						▲ 1.3ms
Opmantek-Brisbane	Major	4	3						▲ 1.4ms

Health and reachability metrics for router, group and network will be reduced

Graph for "routenumber" will show a change in available routes.



"Node Down" event generated for the router which has failed.

"Node Down" event generated for the switch connected to the router (unless a node dependency has been configured)

Possibly an "Interface Down" from the remote wan.

If device reboots, a "Node Reset" event will be generated.

- boston-mail1
 - boston-r1
 - boston-r2
 - boston-s1
 - boston-win1
 - brisbane-lin1
 - brisbane-r1
- 76 matches
- Reset the List

NMIS	14-Jan-2013 15:43:44	singapore-r1	Node Reset	Minor	Old_sysUpTime=
NMIS	14-Jan-2013 15:43:42	saratoga-r2	Node Reset	Minor	Old_sysUpTime=
NMIS	14-Jan-2013 15:43:40	saratoga-r1	Node Reset	Minor	Old_sysUpTime=
NMIS	14-Jan-2013 15:43:37	puebla-r1	Node Reset	Minor	Old_sysUpTime=
NMIS	14-Jan-2013 15:43:34	munich-r1	Node Reset	Minor	Old_sysUpTime=
NMIS	14-Jan-2013 15:43:32	milan-r1	Node Reset	Minor	Old_sysUpTime=1
NMIS	14-Jan-2013 15:43:29	mexicocity-r2	Node Reset	Minor	Old_sysUpTi
NMIS	14-Jan-2013 15:43:29	mexicocity-r1	Node Reset	Minor	Old_sysUpTi
NMIS	14-Jan-2013 15:43:27	lyon-r1	Interface Up	Normal	FastEthernet3 Tim
NMIS	14-Jan-2013 15:43:25	lyon-r1	Node Reset	Minor	Old_sysUpTime=10



Scenario 7: WAN connectivity failure

Business/Customer Impact:

- User(s) unable to connect to any applications.

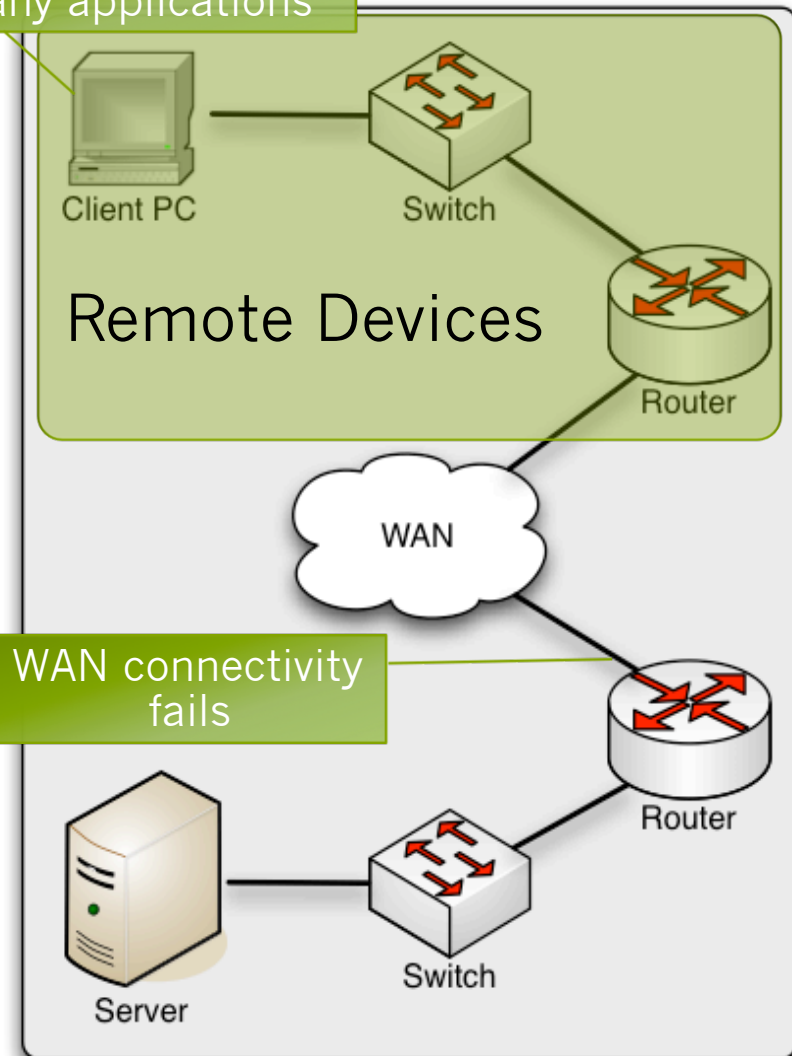
Technical Symptoms:

- User has connectivity to switch and router.
- Servers are OK

NMIS8 Visibility:

- Health and availability metrics for router, group and network will be reduced
- “Interface Down” event generated from the WAN connected router.
- “Node Down” event generated for the remote devices. (unless a node dependency has been configured)
- “Proactive Interface Availability” event generated for interface which has failed after a brief period

User can not connect to any applications



Scenario 7: Related NMIS Visibility



Metrics Sun 16:09

8Hr Summary

- Metric 80%
- Reachability 82%
- InterfaceAvail 82%
- Health 77%
- ResponseTime 3ms

Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6						▲ 1.3ms
Opmantek-Brisbane	Major	4	3						▲ 1.4ms
Opmantek-Christchurch	Normal	4	4						▲ 1.3ms
Opmantek-Dallas	Major	4	3						▲ 1.3ms
Opmantek-Denver	Major	4	3						▲ 1.2ms
Opmantek-Guadalajara	Normal	4	4						▲ 1.3ms
Opmantek-HongKong	Major	4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
Opmantek-London	Major	6	4	2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Health and reachability metrics for router, group and network will be reduced

Quick Search Sun 16:09

Select Device by Context

- Group
- Model
- Type
- Role
- Net
- Vendor

Filter Device list by input string

boston-lin1
boston-mail1
boston-r1
boston-r2
boston-s1
boston-win1
brisbane-lin1
brisbane-r1

76 matches

Reset the List

Log of Event_Log Sun 16:09

Log Name	Search String	Lines	Level	Sort	Group
Event_Log		50	ALL		

Lines: 15 25 50 100 250 500 1000 Level:

- NMIS 20-Jan-2013 18:29:02 warsaw-win1
- NMIS 18-Jan-2013 18:33:47 london-r2 SH
- NMIS 14-Jan-2013 15:43:52 zurich-r1 No
- NMIS 14-Jan-2013 15:43:49 warsaw-r1 N
- NMIS 14-Jan-2013 15:43:44 singapore-r1
- NMIS 14-Jan-2013 15:43:42 saratoga-r2 I
- NMIS 14-Jan-2013 15:43:40 saratoga-r1 I
- NMIS 14-Jan-2013 15:43:37 puebla-r1 No
- NMIS 14-Jan-2013 15:43:34 munich-r1 N
- NMIS 14-Jan-2013 15:43:32 milan-r1 No
- NMIS 14-Jan-2013 15:43:29 mexico-city-r
- NMIS 14-Jan-2013 15:43:29 mexico-city-r
- NMIS 14-Jan-2013 15:43:27 lyon-r1 Inter
- NMIS 14-Jan-2013 15:43:25 lyon-r1 Node

“Interface Down” event generated from the WAN connected router.

“Node Down” event generated for the remote devices. (unless a node dependency has been configured)

“Proactive Interface Availability” event generated for interface which has failed after a brief period



Scenario 8: Service running service fails

Business/Customer Impact:

- User(s) unable to connect to effected application.

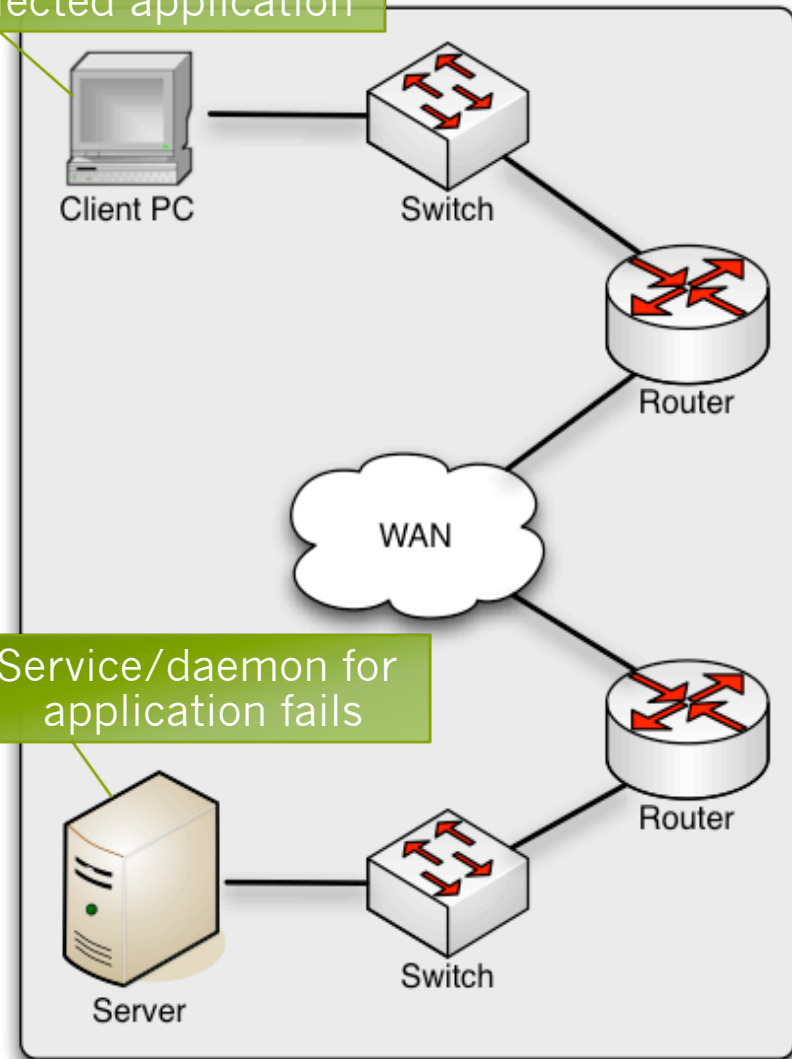
Technical Symptoms:

- Network is OK

NMIS8 Visibility:

- Health metrics for server, group and network will be reduced
- “Service Down” event generated from service running the service.
- Service availability graph will show reduced availability

User can not connect to effected application



Scenario 8: Related NMIS Visibility



Metrics Sun 16:09

8Hr Summary

- Metric 80%
- Reachability 82%
- InterfaceAvail 82%
- Health 77%
- ResponseTime 3ms

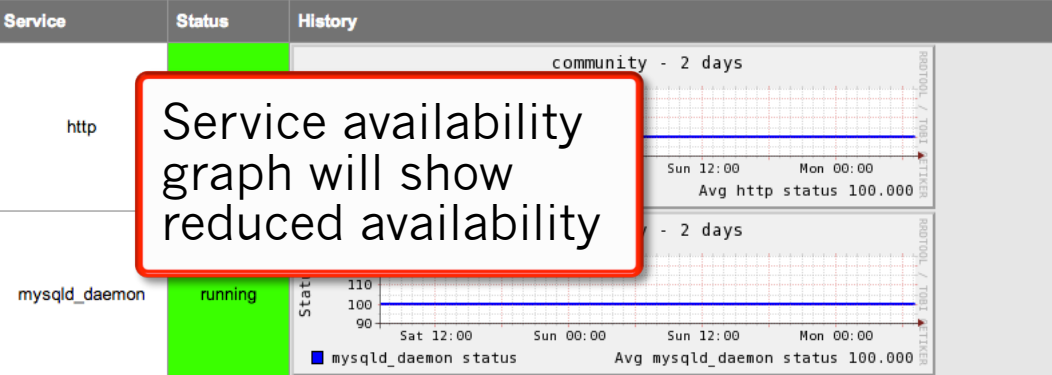
Network Status and Health Sun 16:09

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6						▲ 1.3ms
Opmantek-Brisbane	Major	4	3						▲ 1.4ms
Opmantek-Christchurch	Normal	4	4						▲ 1.3ms
Opmantek-Dallas	Major	4	3						▲ 1.3ms
Opmantek-Denver	Major	4	3						▲ 1.2ms
Opmantek-Guadalajara	Normal	4	4						▲ 1.3ms
Opmantek-HongKong	Major	4	3	1	▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
Opmantek-London	Major	6	4	2	▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Health and reachability metrics for server, group and network will be reduced

Node [community](#) [interfaces](#) [active inf](#) [storage](#) [services](#) [events](#) [outage](#) [telnet](#) [ping](#) [trace](#) [contact](#) [location](#)

Monitored services on node community



Service availability graph will show reduced availability

Level: ALL Sort: Group: Go

Summary Log List

“Service Down” event generated from service running the service.

brisbane-lin1
brisbane-r1
76 matches
[Reset the List](#)

NMIS	14-Jan-2013 15:43:34	munich-r1	Node Reset	Minor	Old_sysUpTime=10 d
NMIS	14-Jan-2013 15:43:32	milan-r1	Node Reset	Minor	Old_sysUpTime=10 day
NMIS	14-Jan-2013 15:43:29	mexicocity-r2	Node Reset	Minor	Old_sysUpTime=
NMIS	14-Jan-2013 15:43:29	mexicocity-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:56 New_sysUpTime=0:03:26
NMIS	14-Jan-2013 15:43:27	lyon-r1	Interface Up	Normal	FastEthernet3 Time=00:05:00
NMIS	14-Jan-2013 15:43:25	lyon-r1	Node Reset	Minor	Old_sysUpTime=10 days 20:07:53 New_sysUpTime=0:03:22



Scenario 9: Routing problem

Business/Customer Impact:

- User(s) unable to connect to any applications.

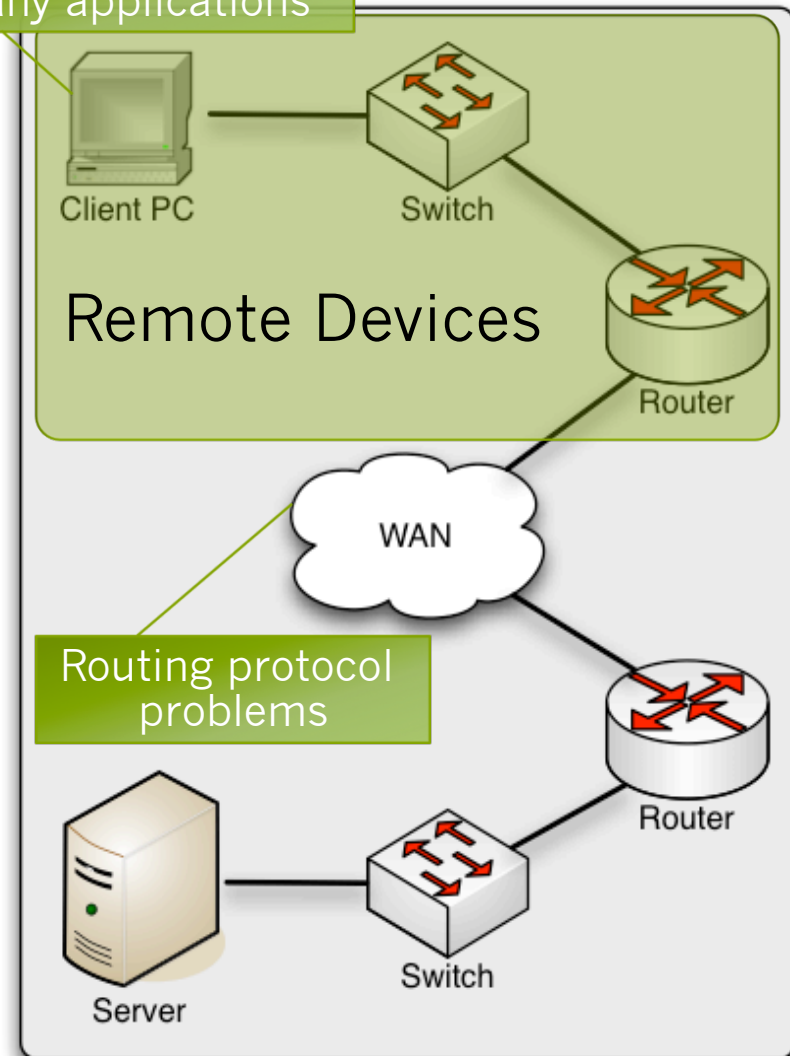
Technical Symptoms:

- User has connectivity to switch and router.
- Servers are OK

NMIS8 Visibility:

- Health and availability metrics for router, group and network will be reduced
- “Node Down” event generated for the remote devices. (unless a node dependency has been configured)
- Active routers graph for “routenumber” will show a change in available routes.
- Likely to be threshold alerts for response time.

User can not connect to any applications



Scenario 9: Related NMIS Visibility



8Hr Summary

Metric 80%
Reachability 82%

Network Status and Health

Group	Status	NodeTotal	NodeUp	NodeDn	Metric	Reach	IntfAvail	Health	RespTime
All Groups Status	Minor	76	62	14	▲ 80.3%	▲ 82.6%	▲ 82.0%	▲ 77.1%	▲ 3.0ms
Opmantek-Boston	Normal	6	6						▲ 1.3ms
Opmantek-Brisbane	Major	4	3						▲ 1.4ms
									▲ 1.3ms
									▲ 1.3ms
									▲ 1.3ms
									▲ 1.2ms
									▲ 1.3ms
1					▲ 73.9%	▲ 75.0%	▼ 77.6%	▲ 70.8%	▲ 1.3ms
2					▲ 67.9%	▲ 66.7%	▲ 83.2%	▲ 61.6%	▲ 1.3ms

Health and reachability metrics for router, group and network will be reduced

Number of Routes

Start: 19-Jan-2013 06:58:38 Node: boston-r1 Type: routenumber
End: 21-Jan-2013 06:58:38 Interface: Dialer1

boston-r1 - 2 days from 19-Jan-2013 06:58:38 to 21-Jan-2013 06:58:38

Active routers graph for "routenumber" will show a change in available routes.

Level: ALL Sort: Group: [Go]

Warning Error Normal Unknown Summary Log List

"Node Down" event generated for the remote devices. (unless a node dependency has been configured)
Likely to be threshold alerts for response time.

- boston-mail1
- boston-r1
- boston-r2
- boston-s1
- boston-win1
- brisbane-lin1
- brisbane-r1

76 matches
Reset the List

- NMIS 14-Jan-2013 15:43:44 [singapore-r1](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:42 [saratoga-r2](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:40 [saratoga-r1](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:37 [puebla-r1](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:34 [munich-r1](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:32 [milan-r1](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:29 [mexicocity-r2](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:29 [mexicocity-r1](#) Node Reset Minor Old_sysUpTime=10
- NMIS 14-Jan-2013 15:43:27 [lyon-r1](#) Interface Up Normal FastEthernet3 Tim
- NMIS 14-Jan-2013 15:43:25 [lyon-r1](#) Node Reset Minor Old_sysUpTime=10

Application Troubleshooting Scenario



Using opFlow to Find Who – AppSource



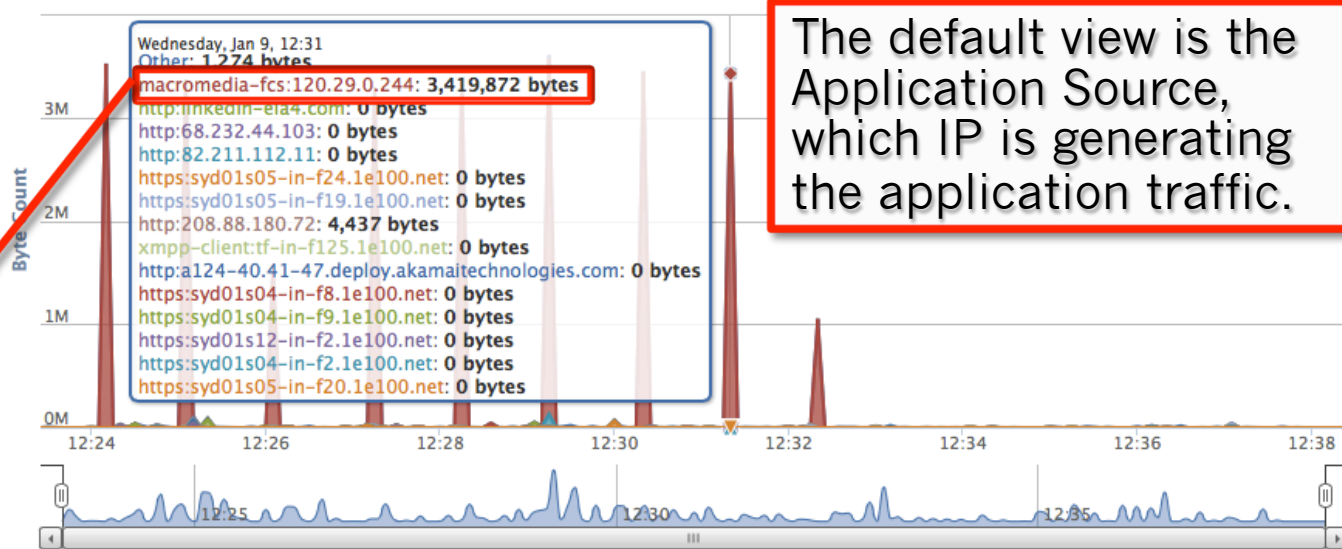
opFlow 1.0.1 Modules Views Advanced Site AppSource 15 byte 15m 5 s Ending Time Filter User: nmis Level: 0

Auto Refresh | Flow Summary Starting 9-Jan-2013 12:23:25 and Ending 9-Jan-2013 12:38:25

Flow Summary: 313 Endpoints, 3885 Flows, 28.442 MB, 49664 Packets

Top End Points	Top Applications
120.29.0.244 (1...)	db-lsp-disc
192.168.88.26 (...)	domain
eeyore (192.168...)	http
loki (192.168.88.9)	https
208.88.180.72 (...)	imaps
linkedin-ela4.c...	macromedia-fcs
68.232.44.103 (...)	pop3s
syd01s05-in-f19...	submission
82.211.112.11 (...)	xmpp-client

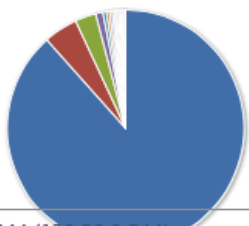
Top 15 Application Sources, Flow Summary by bytes



The default view is the Application Source, which IP is generating the application traffic.

The application here is Macromedia Flash video, 3.5 megabytes every minute.

Top 15 Talkers by total bytes

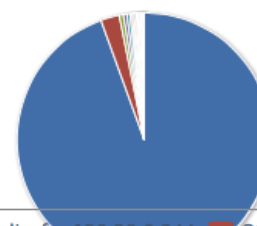


120.29.0.244 (120.29.0.244)
192.168.88.26 (192.168.88.26)
loki (192.168.88.9)
linkedin-ela4.com (216.52.242.80)

Top 15 Applications by total bytes



Top 15 Application Sources by total bytes



macromedia-fcs:120.29.0.244
http:linkedin-ela4.com
http:68.232.44.103
http:82.211.112.11
https:syd01s05-in-f24.1e100.net

Using opFlow to Find Who – AppDestination



opFlow 1.0.1

Modules

Views

Advanced

Site

AppDest

15

byte

15m

5 s

Ending Time

Filter

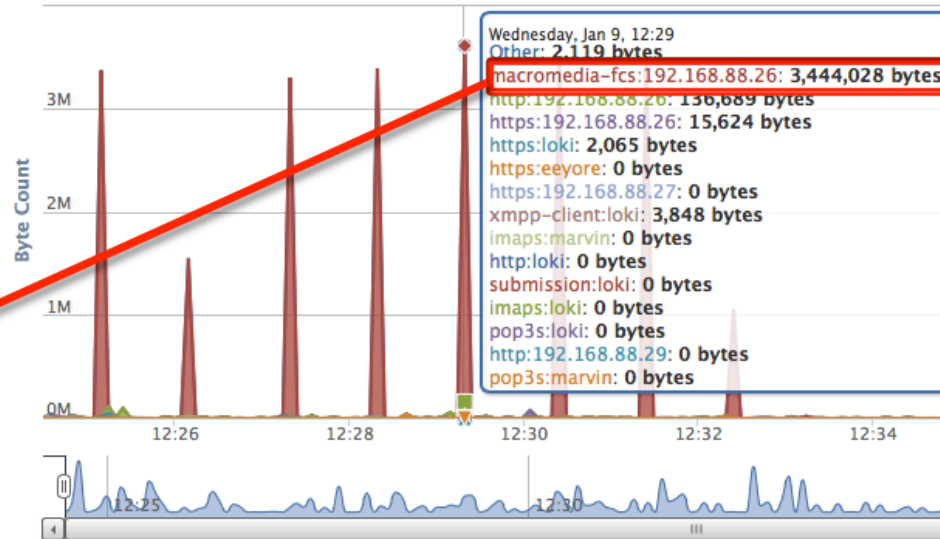
User: nmis Level: 0

Auto Refresh | Flow Summary Starting 9-Jan-2013 12:24:29 and Ending 9-Jan-2013 12:39:29

Flow Summary: 298 Endpoints, 3595 Flows, 24.867 MB, 44707 Packets

Top End Points	Top Applications
120.29.0.244 (1...)	db-lsp-disc
192.168.88.26 (...)	domain
eeyore (192.168...)	http
loki (192.168.88.9)	https
208.88.180.72 (...)	imaps
linkedin-ela4.c...	macromedia-fcs
68.232.44.103 (...)	pop3s
syd01s05-in-f19...	submission
82.211.112.11 (...)	xmpp-client

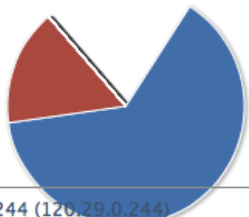
Top 15 Application Destinations, Flow Summary by bytes



Selecting the Application Destination will tell us which IP address is receiving the data.

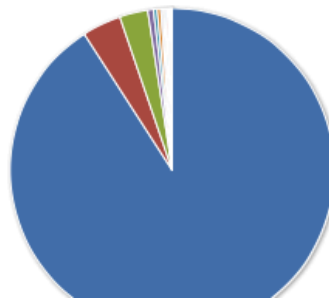
Macromedia Flash video, is going to 192.168.88.26

Top 15 Talkers by total bytes

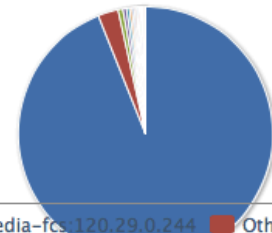


- 120.29.0.244 (120.29.0.244)
- 192.168.88.26 (192.168.88.26)
- loki (192.168.88.9)
- linkedin-ela4.com (216.52.242.80)
- Other

Top 15 Applications by total bytes



Top 15 Application Sources by total bytes



- macromedia-fcs:120.29.0.244
- http:linkedin-ela4.com
- http:82.211.112.11
- http:68.232.44.103
- https:syd01s05-in-f24.1e100.net
- Other

Using opFlow to Find Who – Conversation Matrix



Selecting View and Conversation Matrix opens a new view with detailed data.

opFlow 1.0.1 Modules **Views** Advanced Site AppSour 100 Level: 0

Auto Refresh | Flow Summary Starting 9-Jan-2013 12:27:17 and Ending 9-Jan-2013 12:42:17

Show 100 entries Search:

Time	Protocol	Application	Source	Source Port	Destination	Dest Port	TOS	Flows	MB	Pkts	MB/Sec	Pkts/Sec	% Flows	% MB	% Pkts
9-Jan-2013 12:32:57	TCP	macromedia-fcs	120.29.0.244 (120.29.0.244)	1935	192.168.88.26 (...)	60475	CS1	13	17.154	13755	1.349	1249.7	0.36	84.64	37.43
9-Jan-2013 12:27:19	Other	Other	120.29.0.244 (120.29.0.244)		Other (Other)	Other	Other	2876	0.785	6694	0.000		79.80	3.87	18.22
9-Jan-2013 12:32:11	TCP	macromedia-fcs	120.29.0.244 (120.29.0.244)		20.29.0.244 (1...	1935	default	6	0.572	10725	4.505	82539.8	0.17	2.82	29.19
9-Jan-2013 12:40:49	TCP	http	ec2-174-129-201...	80	marvin (192.168...	54261	CS4	3	0.229	171	0.033	30.4	0.08	1.13	0.47
9-Jan-2013 12:39:29	TCP	https	syd01s04-in-f11...	443	marvin (192.16...	54258	CS4	1	0.123	96	0.569	444.4	0.03	0.61	0.26
9-Jan-2013 12:38:39	TCP	https	17.146.232.12 (...)	443	loki (192.168.88.9)	56802	CS4	2	0.091	76	0.001	5.6	0.06	0.45	0.21
9-Jan-2013 12:34:38	TCP	https	syd01s05-in-f24...	443	192.168.88.26 (...)								0.33	0.26	
9-Jan-2013 12:41:49	TCP	imaps	we-in-f109.1e10...	993	loki (192.168.88.9)								0.33	0.28	
9-Jan-2013 12:34:20	TCP	http	82.211.112.11 (...)	80	192.168.88.26 (...)								0.29	0.16	
9-Jan-2013 12:41:49	TCP	xmpp-client	loki (192.168.88.9)	55551	tf-in-f125.1e10...								0.23	2.53	
9-Jan-2013 12:41:49	TCP	xmpp-client	tf-in-f125.1e10...	5222	loki (192.168.88.9)								0.23	2.53	
9-Jan-2013 12:34:20	TCP	http	82.211.112.11 (...)	80	192.168.88.26 (...)								0.21	0.16	
9-Jan-2013 12:32:49	TCP	http	linkedin-ela4.c...	80	192.168.88.26 (...)	60424	CS4	5	0.039	46	0.000	6.6	0.14	0.19	0.13
9-Jan-2013 12:32:18	TCP	https	syd01s04-in-f8...	443	eeyore (192.168...	55155	CS4	2	0.039	47	0.041	56.2	0.06	0.19	0.13
9-Jan-2013 12:39:59	TCP	https	loki (192.168.88.9)	56609	syd01s04-in-f2...	443	default	6	0.035	97	0.007	21.2	0.17	0.17	0.26
9-Jan-2013 12:41:29	TCP	https	syd01s05-in-f16...	443	loki (192.168.88.9)	57085	CS4	1	0.033	36	0.024	26.7	0.03	0.16	0.10
9-Jan-2013 12:40:49	TCP	http	ec2-174-129-201...	80	marvin (192.168...	54264	CS4	3	0.031	28	0.005	10.6	0.08	0.16	0.08
9-Jan-2013 12:39:34	TCP	http	s3-2.amazonaws...	80	marvin (192.168...	54287	CS4	1	0.031	24	0.023	17.8	0.03	0.15	0.07
9-Jan-2013 12:40:49	TCP	http	ec2-174-129-201...	80	marvin (192.168...	54262	CS4	3	0.030	27	0.005	10.4	0.08	0.15	0.07
9-Jan-2013 12:39:59	TCP	https	syd01s04-in-f2...	443	loki (192.168.88.9)	56609	CS4	6	0.025	79	0.004	19.0	0.17	0.13	0.21
9-Jan-2013 12:29:47	TCP	http	208.88.180.72 (...)	80	192.168.88.26 (...)	60483	CS4	4	0.024	33	0.018	28.7	0.11	0.12	0.09
9-Jan-2013 12:29:47	TCP	http	192.168.88.26 (...)	60526	82.211.112.11 (...)	80	default	1	0.022	66	0.001	2.3	0.03	0.11	0.18
9-Jan-2013 12:28:01	TCP	https	syd01s05-in-f19...	443	eeyore (192.168...	55153	CS4	2	0.021	23	0.016	25.3	0.06	0.11	0.06
9-Jan-2013 12:38:05	TCP	https	syd01s05-in-f19...	443	eeyore (192.168...	55166	CS4	2	0.021	22	0.018	21.9	0.06	0.11	0.06

This is the flow of data causing all the traffic, using 1.3 megabytes per second.

Using opFlow to Find Who – opTools



Clicking the Pop-out icon will go to opTools and you can use the tools to determine what and where the server is.

opTools 0.1 Modules

opTools: Endpoint 120.29.0.244, tool traceroute output

Name: , IP: 120.29.0.244

```
/bin/traceroute 120.29.0.244
traceroute to 120.29.0.244 (120.29.0.244), 30 hops max, 60 byte packets
 1 asgard (192.168.88.254)  6.538 ms  8.201 ms  8.264 ms
 2 116.255.63.22 (116.255.63.22)  5.905 ms  5.963 ms  6.432 ms
 3 116.255.63.4 (116.255.63.4)  8.444 ms  8.571 ms  10.188 ms
 4 202.171.175.65 (202.171.175.65)  25.637 ms  26.189 ms  26.258 ms
 5 202.171.175.42 (202.171.175.42)  26.441 ms  26.668 ms  26.737 ms
 6 as24130.sydney.pipenetworks.com (218.100.2.3)  27.123 ms  22.977 ms  23.940 ms
 7 eth3-3.rn-639gardeners-mlx-03.pipenetworks.com (121.101.138.148)  40.555 ms  41.212
41.540 ms
 8 eth6-7.rn-400harris-mlx-03.pipenetworks.com (121.101.138.36)  41.517 ms  41.810 ms
27 ms
 9 eth8-1.rq-148brunswick-mlx-01.pipenetworks.com (121.101.138.167)  41.206 ms  42.874
43.345 ms
10 ve100.rq-148brunswick-cer-01.pipenetworks.com (121.101.138.3)  43.341 ms  44.025 ms
024 ms
11 ip-186-128-161-203.static.pipenetworks.com (203.161.128.186)  44.109 ms  44.448 ms
06 ms
12 * * *
13 v10.pe1.dc1-vars.onthenet.net (121.50.213.126)  40.301 ms  41.056 ms  41.051 ms
14 v10.pe1.dc1-vars.onthenet.net (121.50.213.126)  42.216 ms  42.196 ms  42.323 ms
15 120.29.0.244 (120.29.0.244)  42.433 ms  44.834 ms  44.851 ms
```

opTools 0.1 Modules

opTools: Endpoint 120.29.0.244, tool nmap output

Name: , IP: 120.29.0.244

```
/usr/bin/nmap -v -F 120.29.0.244

Starting Nmap 5.21 ( http://nmap.org ) at 2013-01-09 12:44 EST
Initiating Ping Scan at 12:44
Scanning 120.29.0.244 [2 ports]
Completed Ping Scan at 12:44, 0.04s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 12:44
Completed Parallel DNS resolution of 1 host. at 12:44, 0.17s elapsed
Initiating Connect Scan at 12:44
Scanning 120.29.0.244 [100 ports]
Discovered open port 111/tcp on 120.29.0.244
Discovered open port 554/tcp on 120.29.0.244
Discovered open port 22/tcp on 120.29.0.244
Discovered open port 80/tcp on 120.29.0.244
Completed Connect Scan at 12:44, 2.35s elapsed (100 total ports)
Nmap scan report for 120.29.0.244
Host is up (0.046s latency).
Not shown: 95 closed ports
PORT      STATE SERVICE
22/tcp    open  ssh
80/tcp    open  http
111/tcp   open  rpcbind
554/tcp   open  rtsp
2000/tcp  filtered cisco-sccp

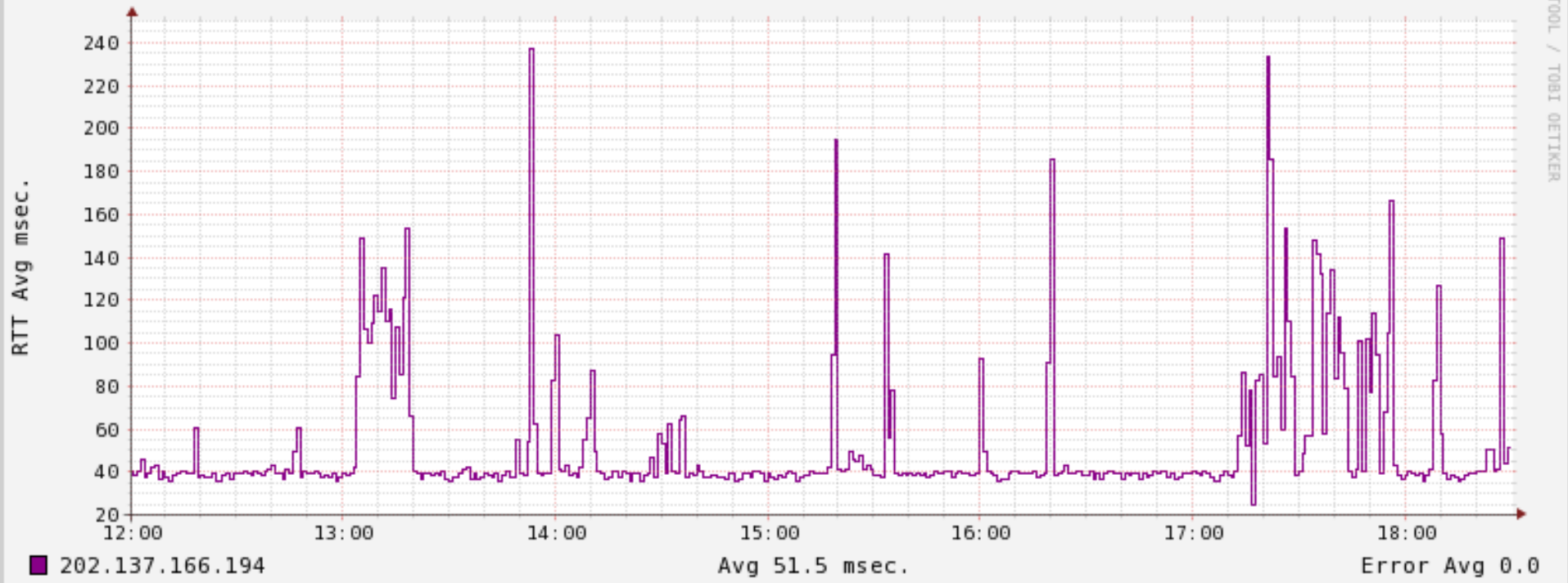
Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 2.72 seconds
```

Network Troubleshooting Scenario



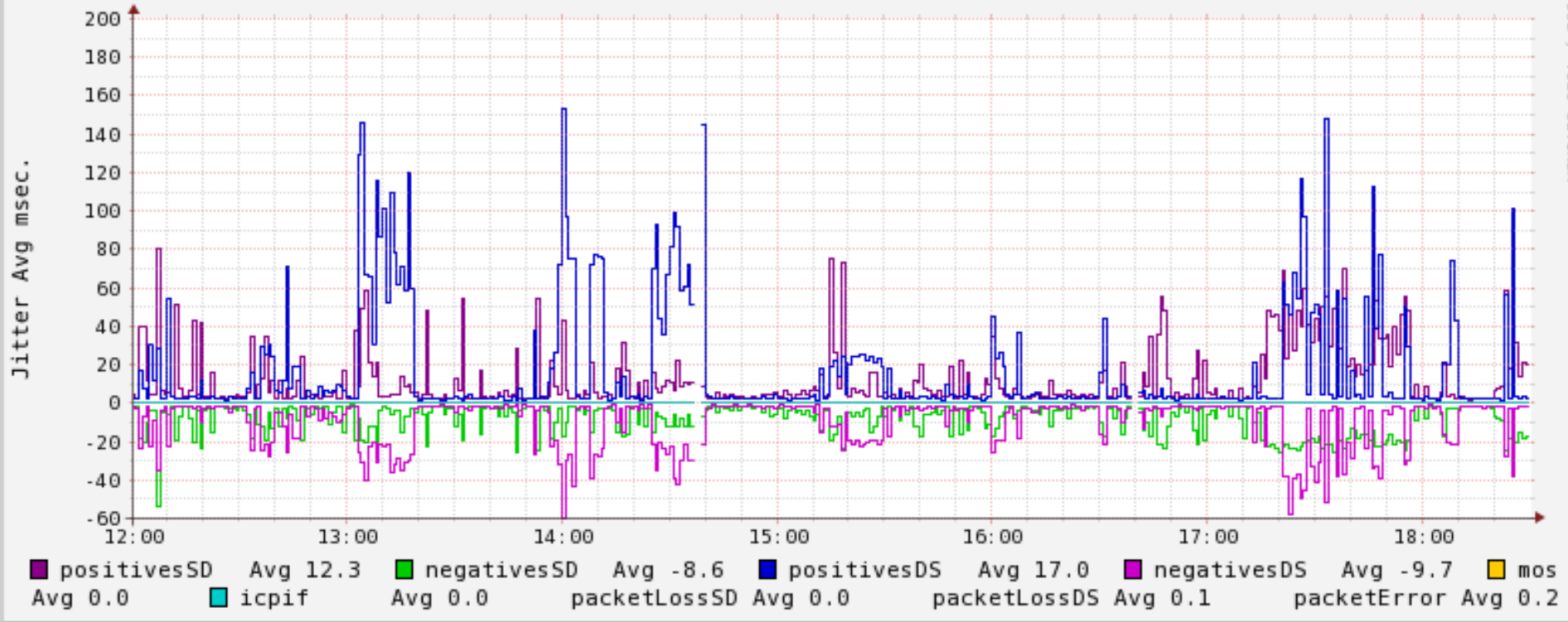


meatball::asgard::echo::0 from 14-Feb-2013 12:00:00 to 14-Feb-2013 18:30:00



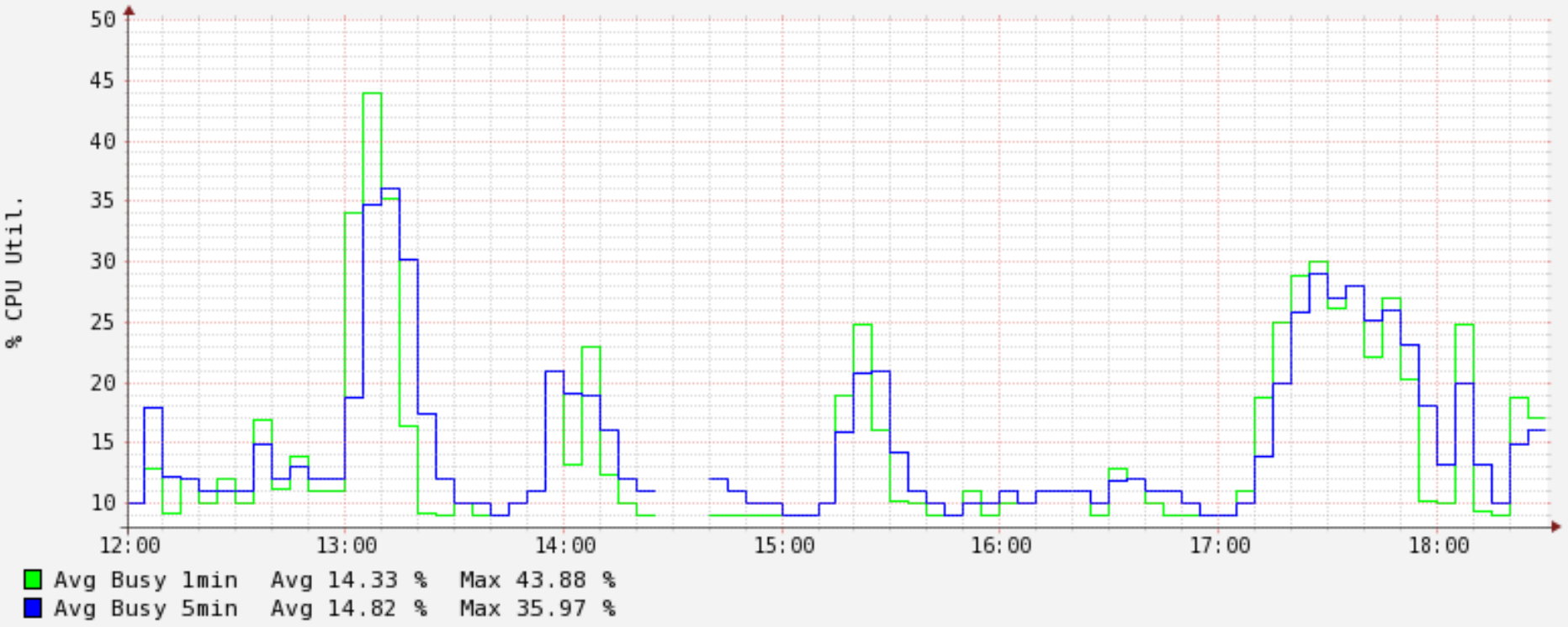


meatball::asgard::jitter:::0 from 14-Feb-2013 12:00:00 to 14-Feb-2013 18:30:00



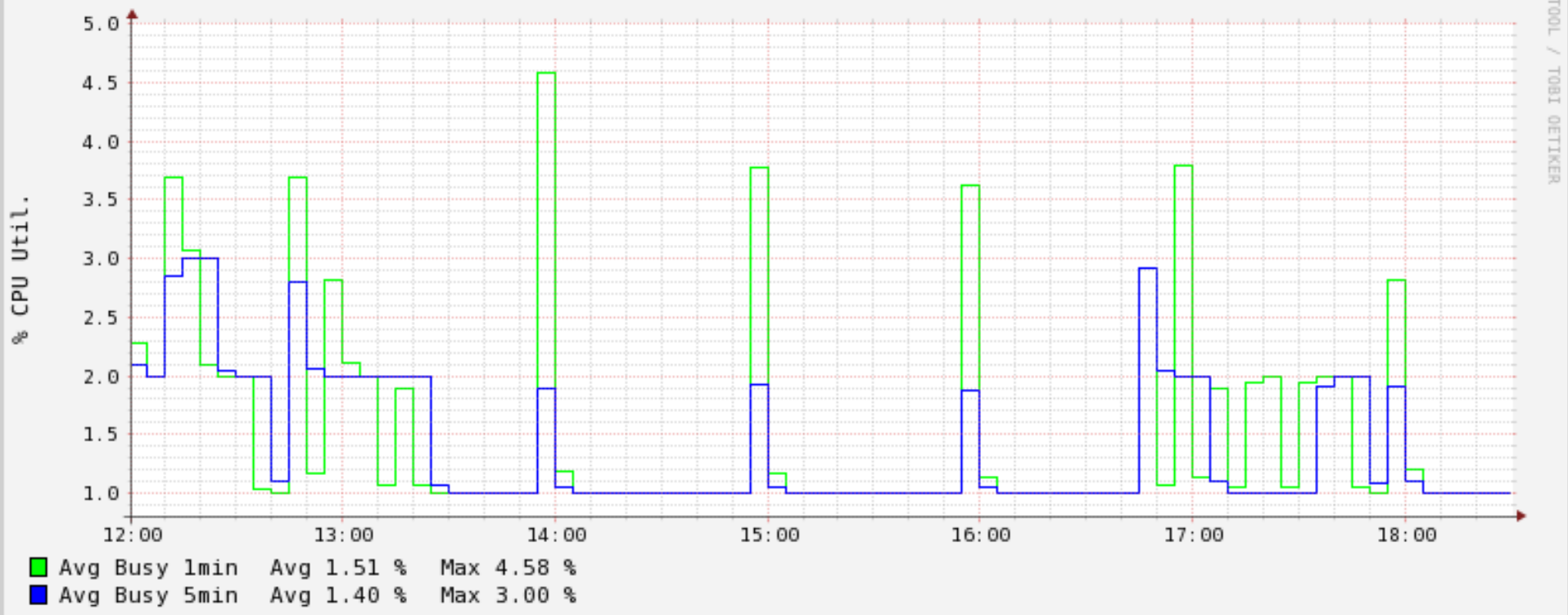


meatball - 6 hours from 14-Feb-2013 12:00:00 to 14-Feb-2013 18:30:00

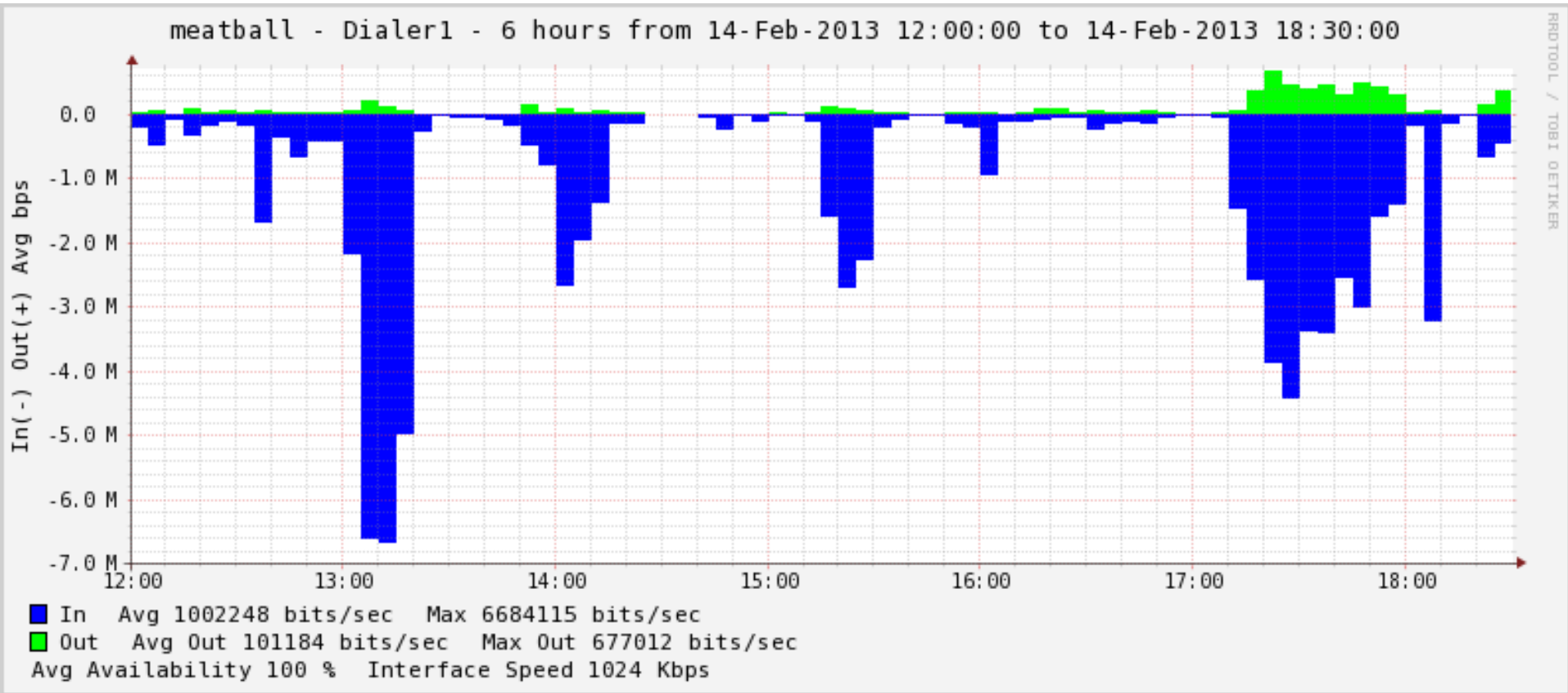




asgard - 6 hours from 14-Feb-2013 12:00:00 to 14-Feb-2013 18:30:00

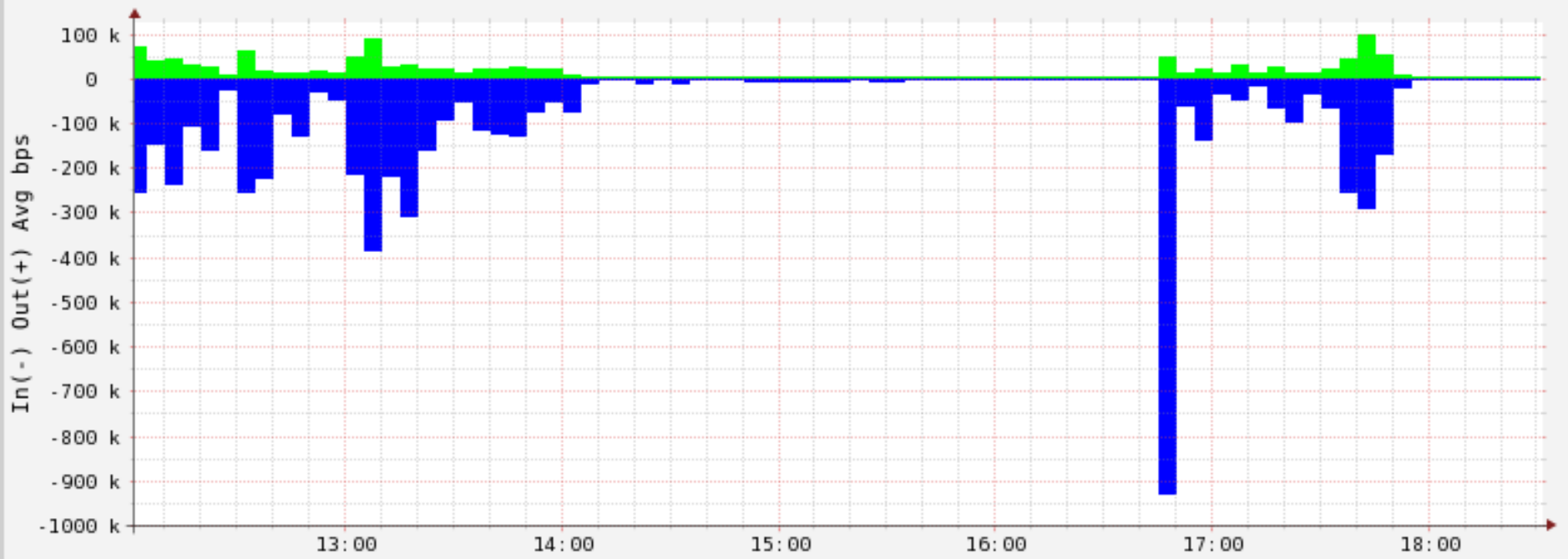


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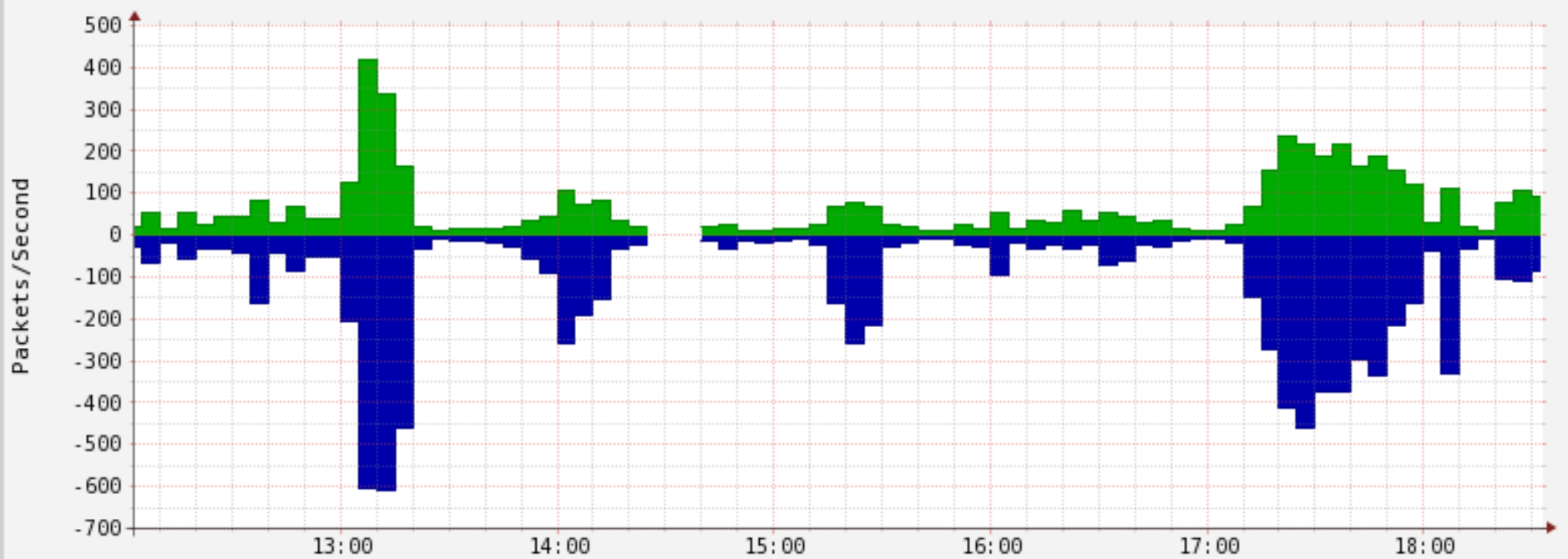
asgard - Dialer1 - 6 hours from 14-Feb-2013 12:01:08 to 14-Feb-2013 18:31:08



■ In Avg 76920 bits/sec Max 927322 bits/sec
■ Out Avg Out 16815 bits/sec Max Out 101476 bits/sec
Avg Availability 100 % Interface Speed 10 Mbps



meatball: Dialer1 - 6 hours from 14-Feb-2013 12:02:26 to 14-Feb-2013 18:32:26

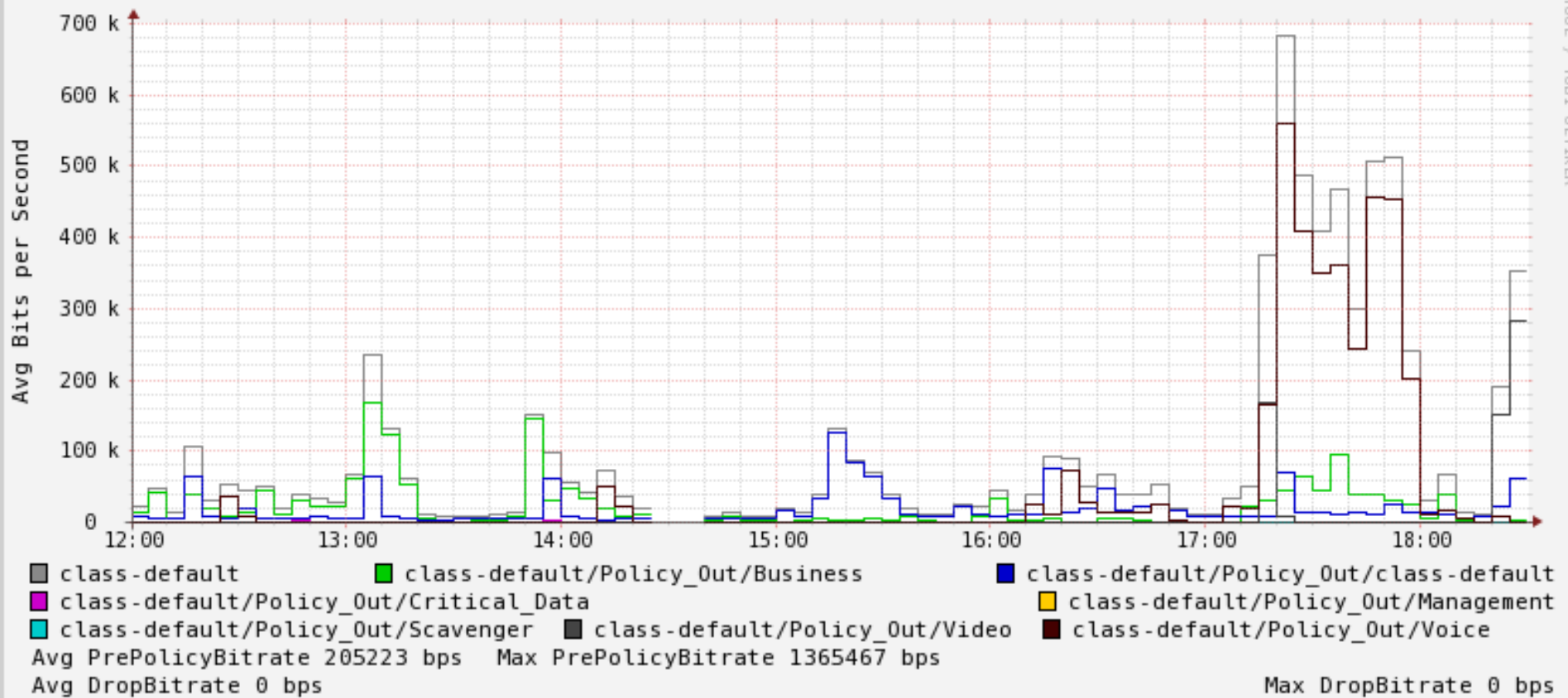


■ ifInUcastPkts/sec Avg 112.80
■ ifInNUcastPkts/sec Avg 0.00
■ ifOutUcastPkts/sec Avg 66.77
■ ifOutNUcastPkts/sec Avg 0.00
■ ifInPkts/sec Avg 112.80 Max 608.47 Avg In Packet Size 767.21
■ ifOutPkts/sec Avg 66.77 Max 419.16 Avg Out Packet Size 163.62
ifPkts Avg 179.57 Avg Packet Size 535.08
Avg In bits/sec 1.00M Avg Out bits/sec 101.18k Avg In bytes/sec 125.28k Avg Out bytes/sec 12.65k

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d1 output - CBQoS from 14-Feb-2013 12:00:00 to 14-Feb-2013 18:30:00



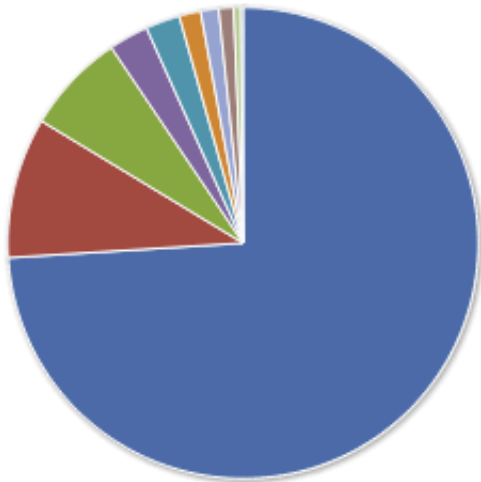


Top 10 Application Sources, Flow Summary by bytes



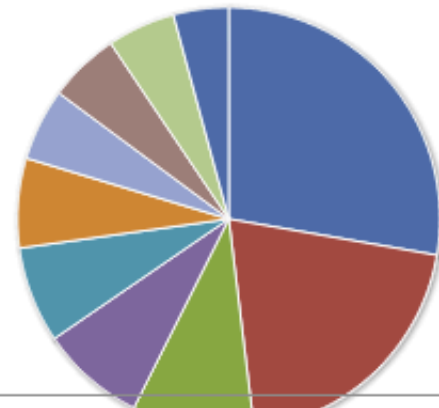


Top 10 Applications by total bytes



http	ipsec-nat-t	UDP:16402	https	imaps
Other	snmp	cleanerliverc	galaxy4d	UDP:12104

Top 10 Application Sources by total bytes



Other	http:72.21.215.54
ipsec-nat-t:74.88.3.196.l.sta.codetel.net.do	http:203-215-2-12.gc-syd2.iinet.net.au
http:72.21.194.107	http:203-215-2-13.gc-syd2.iinet.net.au
http:74.125.109.141	http:72.21.211.0
http:203-206-129-19.deploy.akamaitechnologies.net	http:74.125.109.172

