



NetMonitoring@IT-INFN-CNAF

LHC-OPN Meeting
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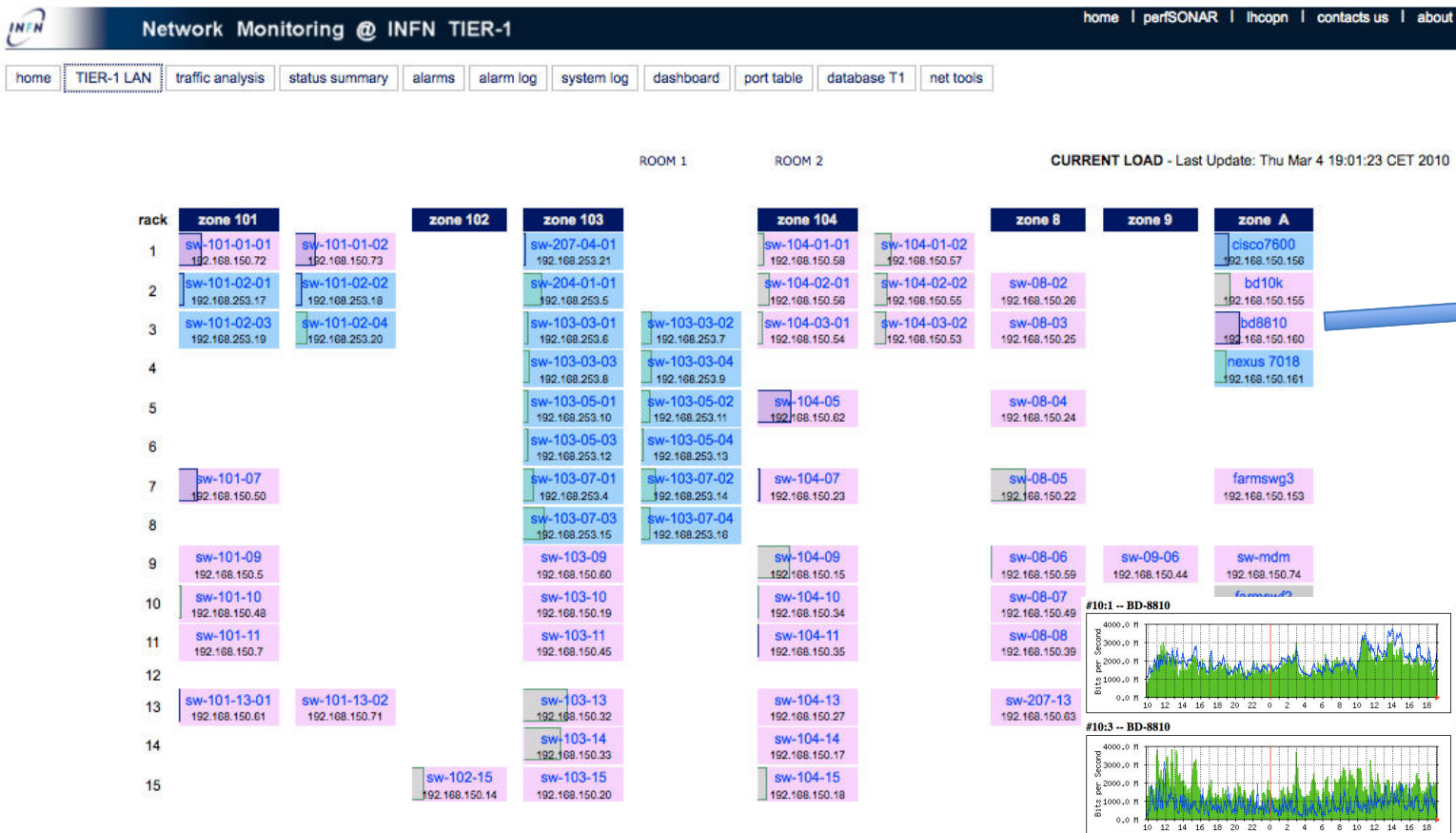
The network monitoring system at CNAF consists essentially of three elements

- Traffic volume accounting on all the switches and routers of the center using MRTG
- Status availability and alert system performed by Nagios and an SMS gateway
- Flow analysis using a Netflow and S-Flow analyzer.

MRTG monitoring



- Every port on every switch is monitored by MRTG
- A graphical interface has been designed to give presentation “at a glance” of the load level for all the uplinks.

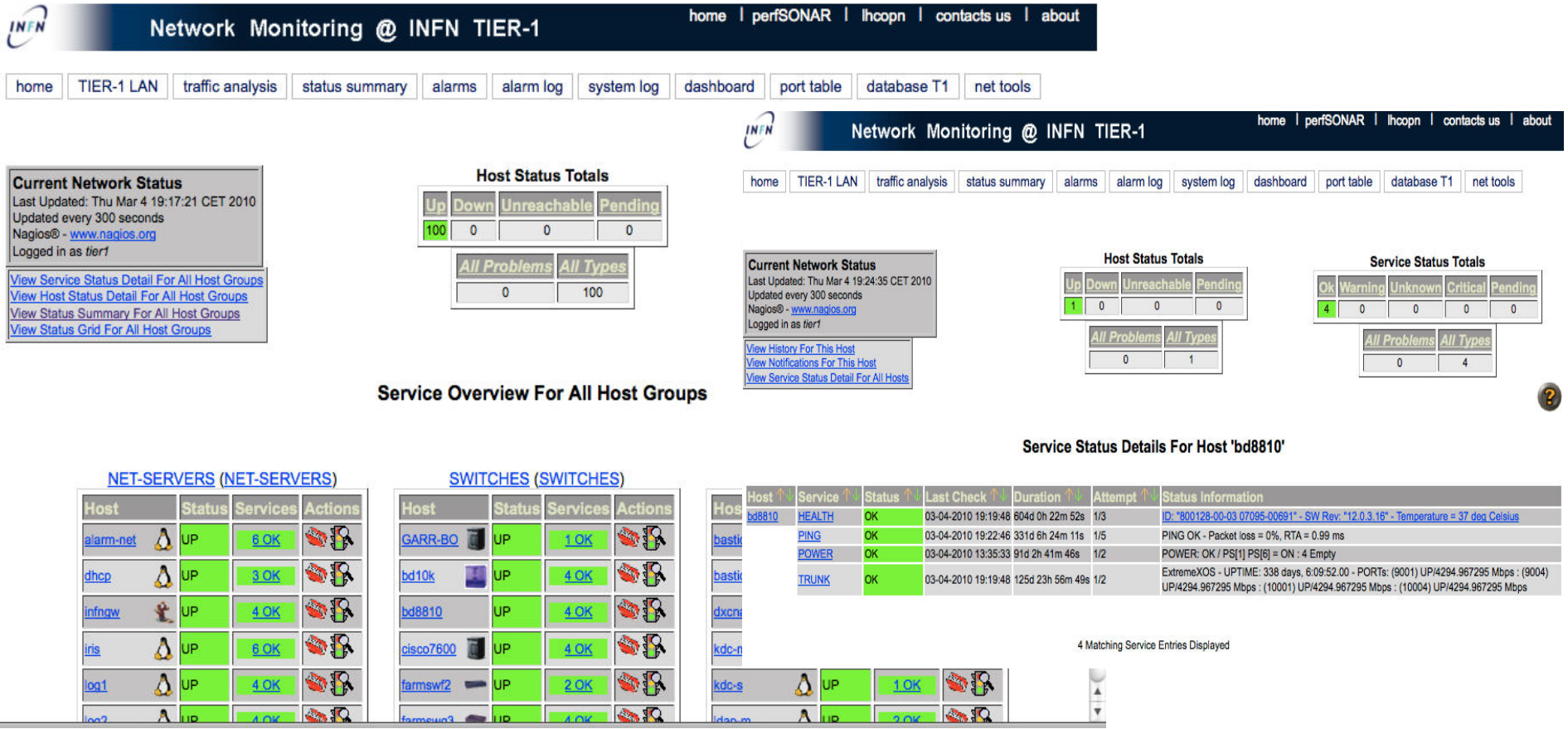


On every switch a semi transparent Bar represents the load average of the uplink trunks

Clicking on a switch
The complete MRTG output is displayed

Status availability and alarm ticketing

- A Nagios server collects all the information regarding: status of all the uplink ports, CPU load, operative temperatures of every switch and generates automatic E-mail alerts and for the main problems sending SMS alerts to the network staff.



The screenshot shows the Nagios Network Monitoring @ INFN TIER-1 interface. At the top, there is a navigation bar with links for home, perfSONAR, lhcopn, contacts us, and about. Below this, there are several panels:

- Current Network Status:** Last Updated: Thu Mar 4 19:17:21 CET 2010. Updated every 300 seconds. Nagios@ - www.nagios.org. Logged in as tiert1.
- Host Status Totals:**

Up	Down	Unreachable	Pending
100	0	0	0
- Service Status Totals:**

Ok	Warning	Unknown	Critical	Pending
4	0	0	0	0
- Host Status Totals (Detailed):**

Up	Down	Unreachable	Pending
1	0	0	0
- Service Status Totals (Detailed):**

All Problems	All Types
0	4
- Service Overview For All Host Groups:**
 - NET-SERVERS (NET-SERVERS):**

Host	Status	Services	Actions
alarm-net	UP	6 OK	[Icons]
dhcp	UP	3 OK	[Icons]
infngw	UP	4 OK	[Icons]
iris	UP	6 OK	[Icons]
log1	UP	4 OK	[Icons]
log2	UP	4 OK	[Icons]
 - SWITCHES (SWITCHES):**

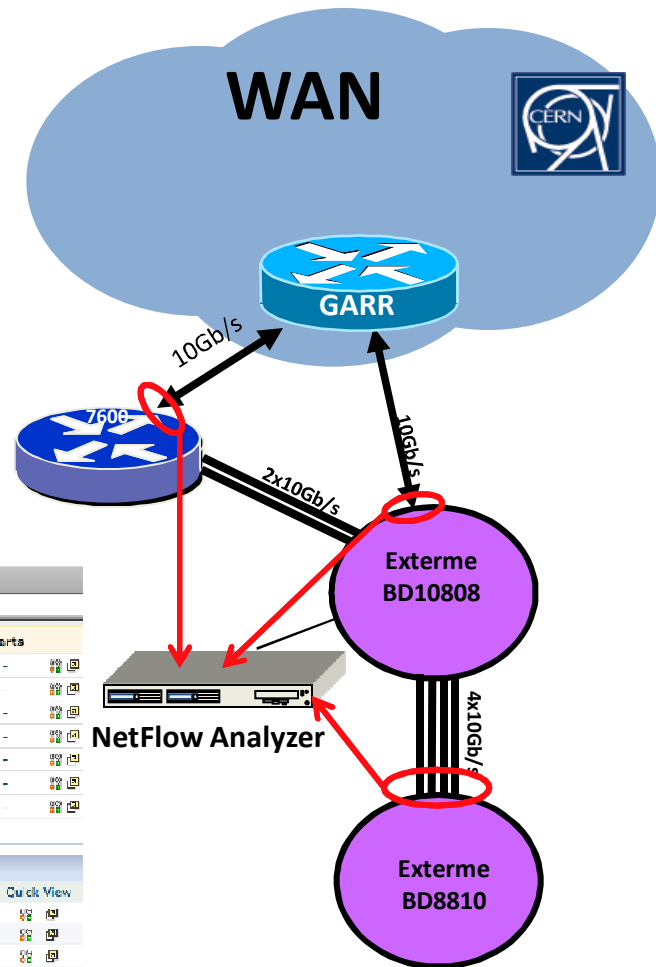
Host	Status	Services	Actions
GARR-BO	UP	1 OK	[Icons]
bd10k	UP	4 OK	[Icons]
bd8810	UP	4 OK	[Icons]
cisco7600	UP	4 OK	[Icons]
farmswf2	UP	2 OK	[Icons]
farmswf3	UP	4 OK	[Icons]
 - Service Status Details For Host 'bd8810':**

Host	Service	Status	Last Check	Duration	Attempt	Status Information
bd8810	HEALTH	OK	03-04-2010 19:19:48	604d 0h 22m 52s	1/3	ID: "800128-00-03 07095-00691" - SW Rev: "12.0.3.16" - Temperature = 37 degrees Celsius
basti	PING	OK	03-04-2010 19:22:46	331d 6h 24m 11s	1/5	PING OK - Packet loss = 0%, RTA = 0.99 ms
basti	POWER	OK	03-04-2010 13:35:33	91d 2h 41m 46s	1/2	POWER: OK / PS[1] PS[6] = ON : 4 Empty
basti	TRUNK	OK	03-04-2010 19:19:48	125d 23h 56m 49s	1/2	ExtremeXOS - UPTIME: 338 days, 6:09:52.00 - PORTS: (9001) UP/4294.967295 Mbps : (9004) UP/4294.967295 Mbps : (10001) UP/4294.967295 Mbps : (10004) UP/4294.967295 Mbps

Flow Analysis

Flow analysis is done by enabling Netflow and S-Flow on the core Switches and router.

Using a software tool like (Netflow Analyzer 7 Pro) is possible to classify the traffic between the WAN and the internal resources discriminating for example on the base of the Tiers



ManageEngine NetFlow Analyzer 7

http://netflow.cnaif.infn.it:8080/netflow/jsou/index.js?grID=-1&view=global&Disp=2&snapshot=§ion=

BD-10808

Interface Name	IN Traffic	OUT Traffic	Alerts
BD-10808 Port 1-1	47%	2.03 Gbps	0%
ifindex1004	7%	304.98 Mbps	0%
ifindex1006	41%	1.75 Gbps	0%
ifindex2001	5%	1.93 Gbps	0%
ifindex2004	0%	236.08 Mbps	0%
ifindex2006	41%	1.75 Gbps	0%
UPLINK LHCOPN	22%	953.25 Mbps	0%

BD 8810

Interface Group - [Details for Last Hour]

Interface Group Name	View Description	IN Traffic	OUT Traffic	Alerts	Quick View
DOWNLINK BD10K BD8810	View Description	44%	7.47 Gbps	0%	0.00
UPLINK BD10K-CISCO600	View Description	7%	561.07 Mbps	0%	0.00
UPLINK BD8810-BD10K	View Description	41%	6.97 Gbps	0%	0.00
UPLINK STORE	View Description	8%	7.6 Gbps	0%	0.00

IP Group List - [Details for Last Hour]

IP Group Name	View Description	IN Traffic	OUT Traffic	Alerts	Quick View
All TIER-2	View Description	2%	99.1 Mbps	3%	108.86 Mbps
CA-TRIUMF	View Description	0%	101.46 Kbps	0%	208.95 Kbps
CH-CERN	View Description	6%	240.43 Mbps	42%	1.79 Gbps
DE-KIT	View Description	1%	22.02 Mbps	1%	27.18 Mbps
FR-PIIC	View Description	1%	62.15 Mbps	1%	23.41 Mbps
FR-CCIN2P3	View Description	2%	82.62 Mbps	1%	21.57 Mbps
NDGF	View Description	0%	1.47 Kbps	0%	20.48 Kbps
NLT1	View Description	1%	22.82 Mbps	0%	583.88 Kbps
TW-ASGC	View Description	0%	177.51 Kbps	0%	10.36 Mbps
UK-T1-RAL	View Description	2%	83.54 Mbps	1%	44.14 Mbps
US-FNAL-CMS	View Description	1%	23.1 Mbps	1%	26.1 Mbps
US-T1-BNL	View Description	0%	70.57 Kbps	0%	390.46 Kbps