

IPv6 perfSONAR performance measurements

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- » Network monitoring tool developed by ESnet, GEANT, Indiana University and Internet2
- » 'perfSONAR is a widely-deployed test and measurement infrastructure that is used by science networks and facilities around the world to monitor and ensure network performance.'
- » 'perfSONAR's purpose is to aid in network diagnosis by allowing users to characterize and isolate problems. It provides measurements of network performance metrics over time as well as "on-demand" tests'
- » <http://www.perfsonar.net/about/what-is-perfsonar/>



perfsonar-bandwidth.esc.qmul.ac.uk at 194.36.11.37, 2a01:56c0:4033::25 [Edit](#)

Organization:
Address:
Administrator:

Services				Enable/disable services
SERVICE	STATUS	VERSION	PORTS	SERVICE LOGS
bwctl ▾	Running	1.6.2-1.el6	4823	View
esmond ▾	Running	2.1-2.el6		View
lsregistration	Running	4.0-1.el6		View
meshconfig-agent	Running	4.0.0.2-1.el6		View
owamp ▾	Disabled	3.5.4-1.el6	861	View
pscheduler ▾	Running	1.0.0.4-1.el6		View

Test Results (73 Results)

Configure tests

Search:

Results for the last...

Host Information ([Log in](#) for more info)

Interfaces [Details ▾](#)

Primary Interface p1p1

NTP Synced **Yes**

Globally Registered **No**

Virtual Machine **No**

RAM 12 GB

More Info [Details ▾](#)

Host Details [and testing tools](#)

Close

Vendor [ping](#) Dell Inc.
Model [tracert](#) PowerEdge R610
CPUs / Cores [tracert](#) 2 / 16
CPU Speed [tracert](#) 2394 MHz
OS [tracert](#) CentOS 6.9 (Final)
perfSONAR version 4.0.0.2
Toolkit package version 4.0.0.2-1.el6

[Global node directory](#)

perfSONAR Toolkit on perfsonar-bandwidth.esc.qmul.ac.uk

Log in

Configuration

Help

perfsonar-bandwidth.esc.qmul.ac.uk at 194.36.11.37, 2a01:56c0:4033::25 [Edit](#)

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[Log in](#)
[Configuration](#)
[? Help](#)

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- » WLCG is using perfSONAR to measure network characteristics between meshes of hosts e.g. UK/GridPP, CMS etc
- » However, with large meshes it is difficult to check status of all the hosts regularly
- » Centralised dashboards really help visualise overall performance
- » MaDDash (Monitoring and Debugging Dashboard) displays results from meshes of perfSONAR hosts
- » Production: <http://psmad.grid.iu.edu/maddash-webui/>
- » Development: <http://maddash.aglt2.org/maddash-webui/>

Rate thresholds

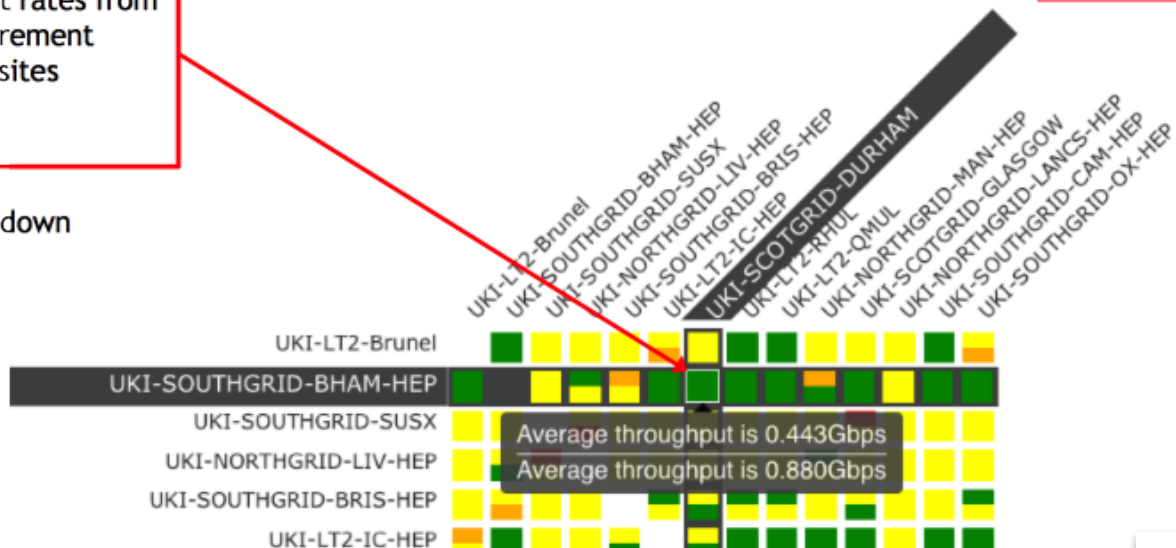
Throughput \geq 400Mbps
 Throughput < 400Mbps
 Throughput \leq 100Mbps
 Unable to retrieve data

Hover to get **rates** from both measurement archives of sites involved

Click to drill down (next slide)

destination

source



- » perfSONAR supports IPv4 and IPv6 measurements
- » Can leave perfSONAR hosts to default to using IPv6 if it exists but then not always clear which is in use
- » Otherwise can force with "ipv6_only": "1" parameter
- » The UK/GridPP mesh is now dual-stack – both IPv4 and IPv6 results are shown

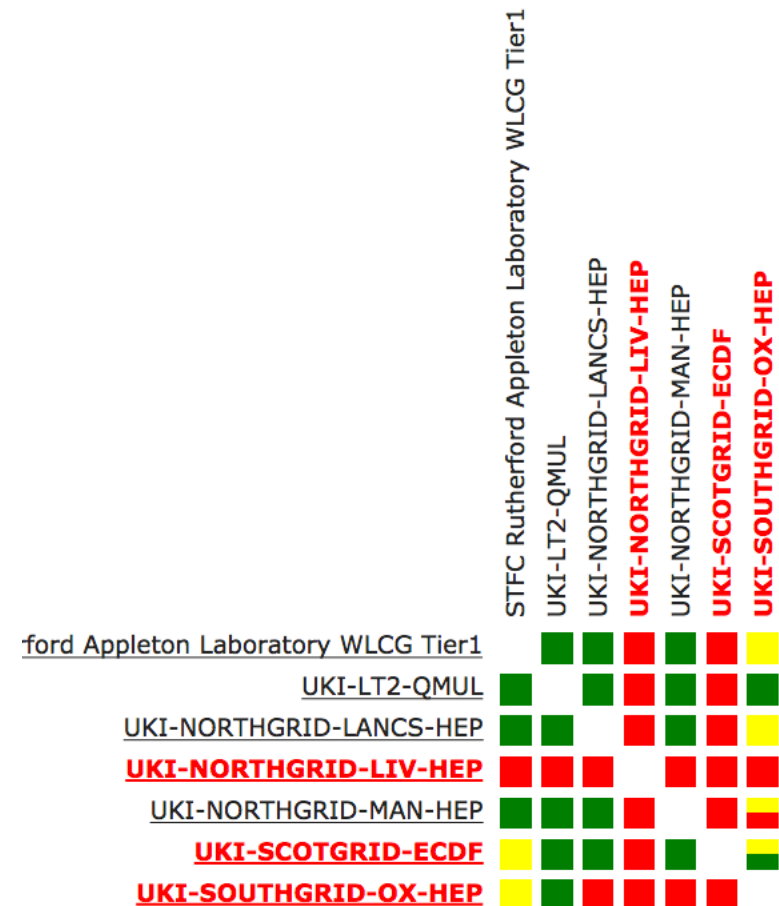
UK Mesh Config - IPv4 Latency Tests

IPv6 Latency Tests



UK Mesh Config - IPv4 Bandwidth Tests

IPv6 Bandwidth Tests



WLCG/OSG perfSONAR Dashboard

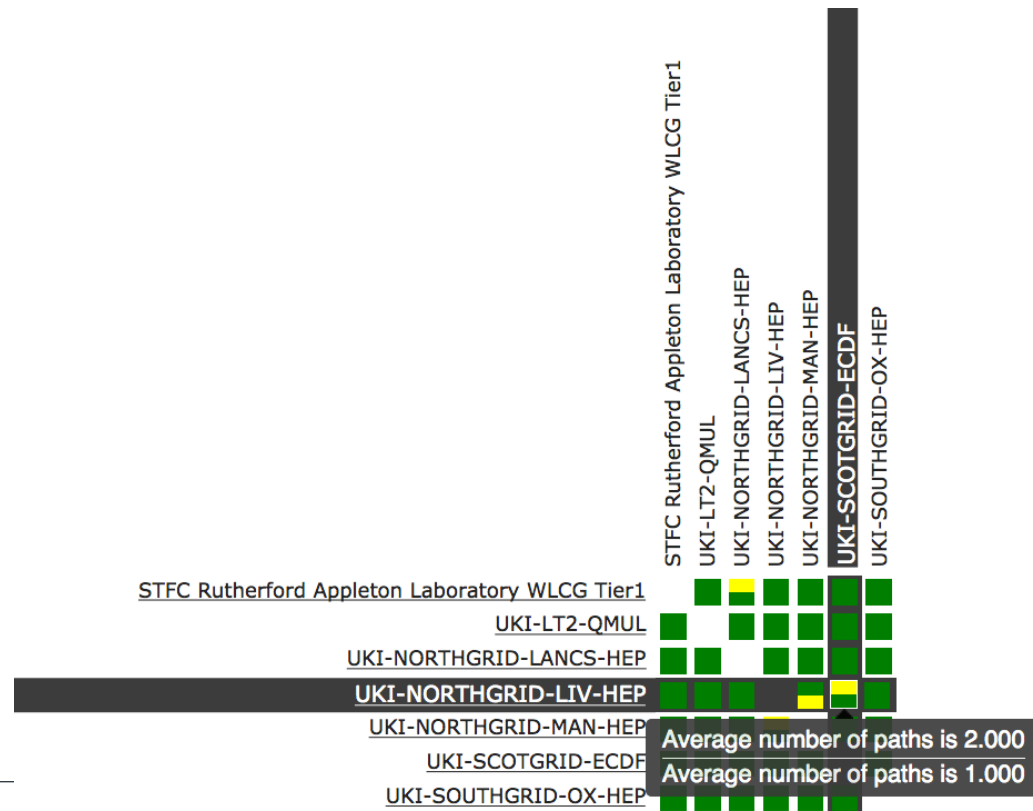
[Dashboards](#)
[Reports](#)
[Settings](#)
[WLCG/OSG Networking Resources](#)

UK Mesh Config Dashboard

UK Mesh Config - IPv6 Traceroute Tests

■ Number of Paths is ≤ 1
■ Number of Paths is ≥ 1
■ Number of Paths is ≥ 2
■ Unable to retrieve data
 ■ Check has not yet run

✓ No problems found in grid



perfSONAR test results

[Share/open in new window](#)

Source

t2ps-latency.physics.ox.ac.uk
163.1.5.210,2001:630:441:905:0:0:d2

[Host info](#) ▾

Destination

perfsonar-latency.esc.qmul.ac.uk
194.36.11.38,2a01:56c0:4033:0:0:0:0:26

[Host info](#) ▾

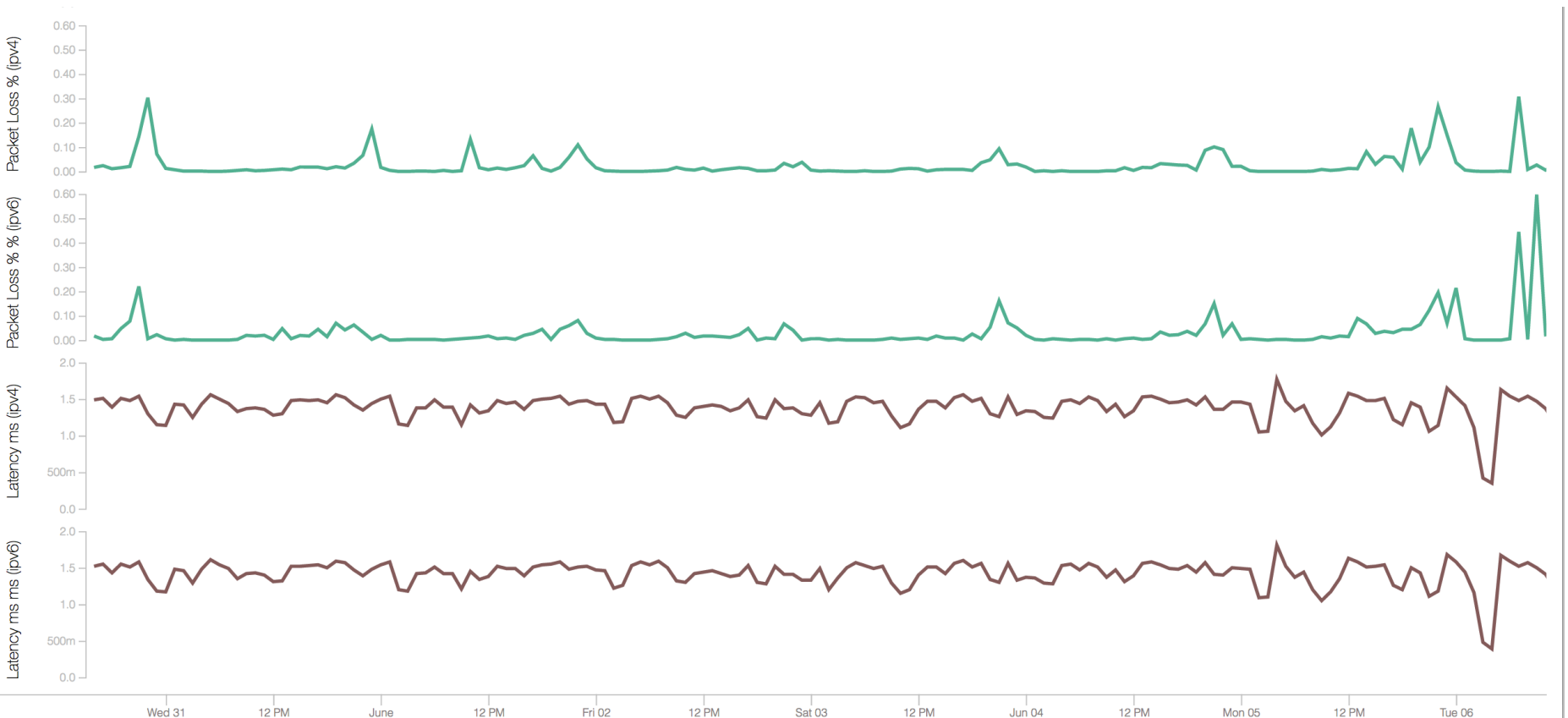
Report range

← 1 week →

Tue 05/30/2017 15:02:05 (GMT+1) to Tue 06/06/2017 15:02:05 (GMT+1)

Tput (TCP) Tput (UDP) Loss (UDP) Loss (owamp) Loss (ping) Retrans Latency Latency (ping)

Forward — Reverse ... Failures ●



perfSONAR test results

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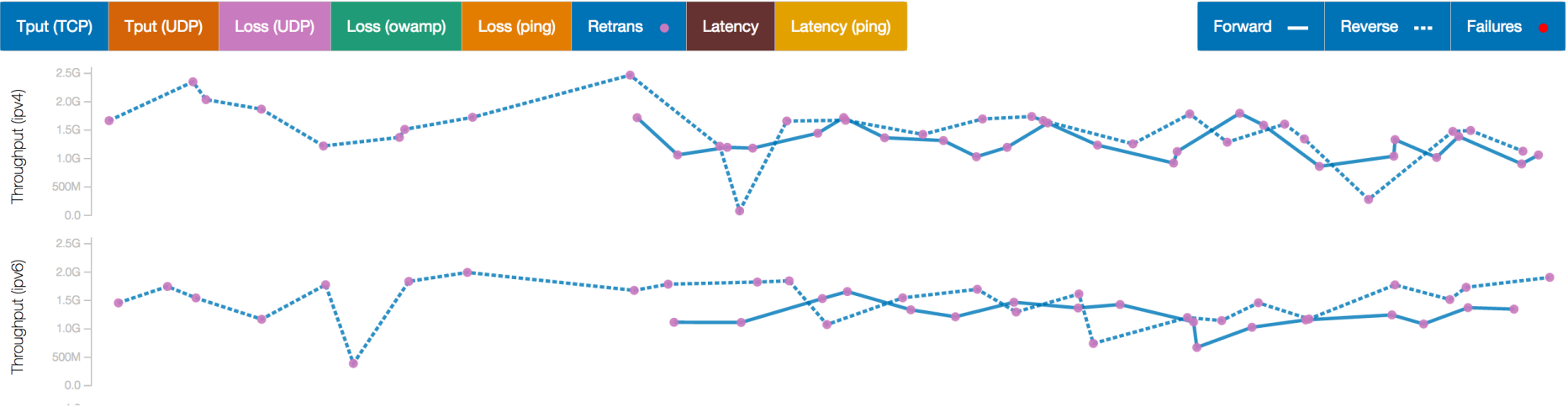
Source
t2ps-bandwidth.physics.ox.ac.uk
163.1.5.211,2001:630:441:905:0:0:0:d3
[Host info](#) ▾

Destination
perfsonar-bandwidth.esc.qmul.ac.uk
194.36.11.37,2a01:56c0:4033:0:0:0:0:25
[Host info](#) ▾

Report range

← 1 week →

Tue 05/30/2017 15:06:32 (GMT+1) to Tue 06/06/2017 15:06:32 (GMT+1)



- » perfSONAR is a valuable resource for characterising and diagnosing network performance
- » Bandwidth nodes typically record throughput and traceroute data; latency nodes record latency and loss
- » Meshes together with MadDash dashboards allow relatively easy monitoring of groups of hosts
- » Future perfSONAR meshes should include IPv6 testing where relevant