



perfSONAR in GÉANT

2023 edition

Lætitia A Delvaux, PSNC / GÉANT Project
GN5-1 WP6T3 Task Leader

TechEX23, Minneapolis, MN, USA

20 September 2023

Public (PU)

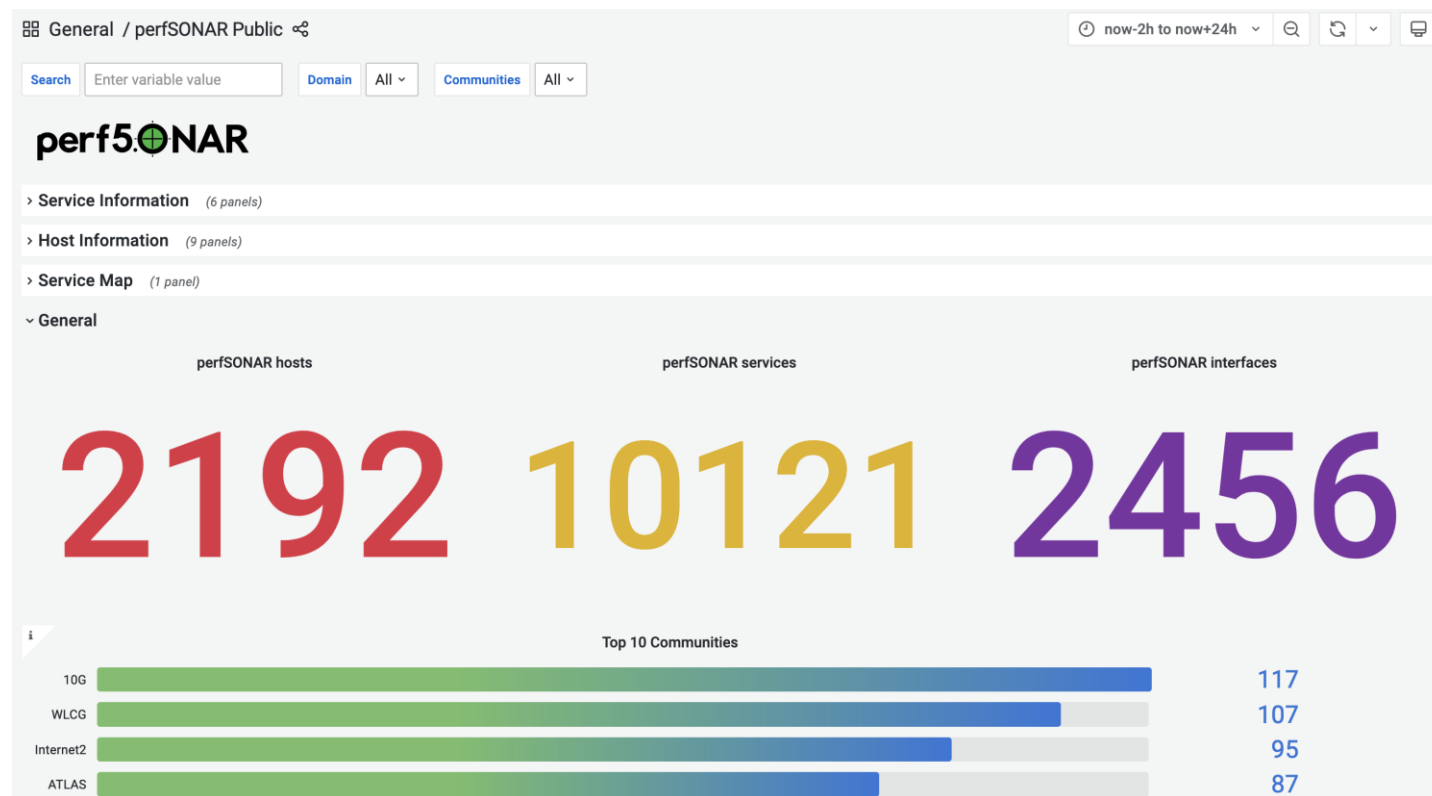
GN5-1

Multiple perfSONAR activities in GÉANT

- Lookup Service dashboards
- perfSONAR deployments
- Microdep integration
- On-demand perfSONAR Graphical User Interface (psGUI)

Lookup Service dashboards

- Display, filter and search the content of the Lookup Service
- Grafana 8 based
 - Filtering on text, domains, communities
 - Stats on hosts and services, maps
- <https://stats.perfsonar.net>
 - Replaces ESnet Service Directory
- Next steps:
 - Port to Grafana 9
 - Filter on multiple values



perfSONAR deployments in the GÉANT network (1/2)

- 10 public deployments on the core network: <https://network.geant.org/perfsonar/>



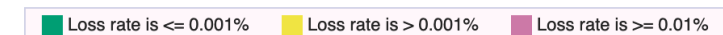
perfSONAR deployments in the GÉANT network (2/2)

- Performance Measurement Platform (PMP)
 - Small nodes (Intel NUC) and VM
 - Deployed in GÉANT partners organisations
- Measurements
 - Diverse set of measurements
 - Regularly to GÉANT core network
 - Verify GÉANT access links
 - International connections (ESnet, Internet2, RNP, ...)
 - 2nd tiers: University networks
- <https://pmp-central.geant.org>

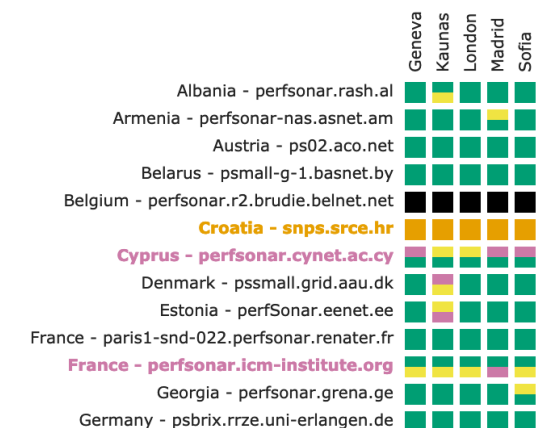


PMP IPv4 Dashboard

PMP - IPv4 OWD - Loss

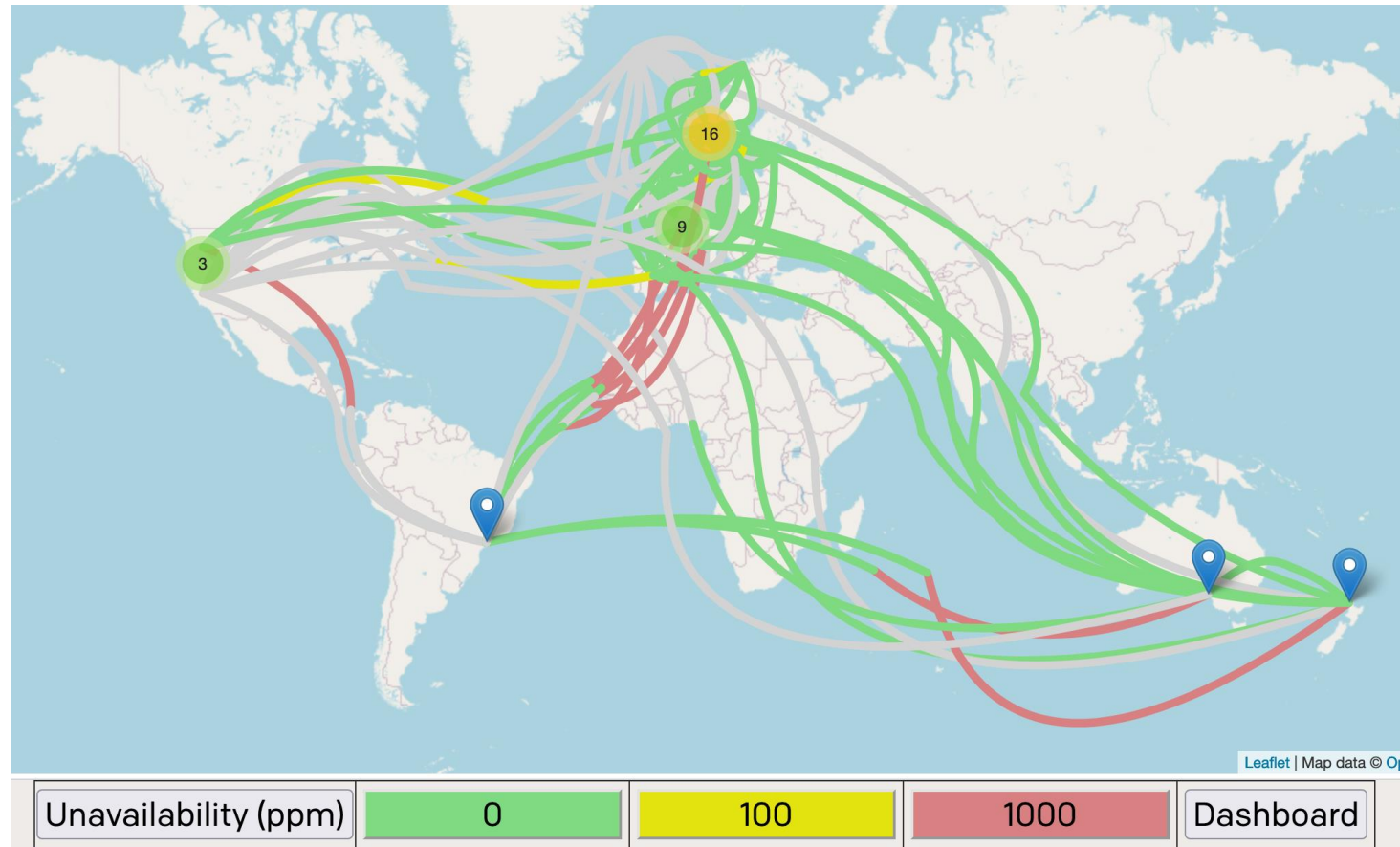


⚠ Found a total of 6 problems involving 6 hosts in the grid



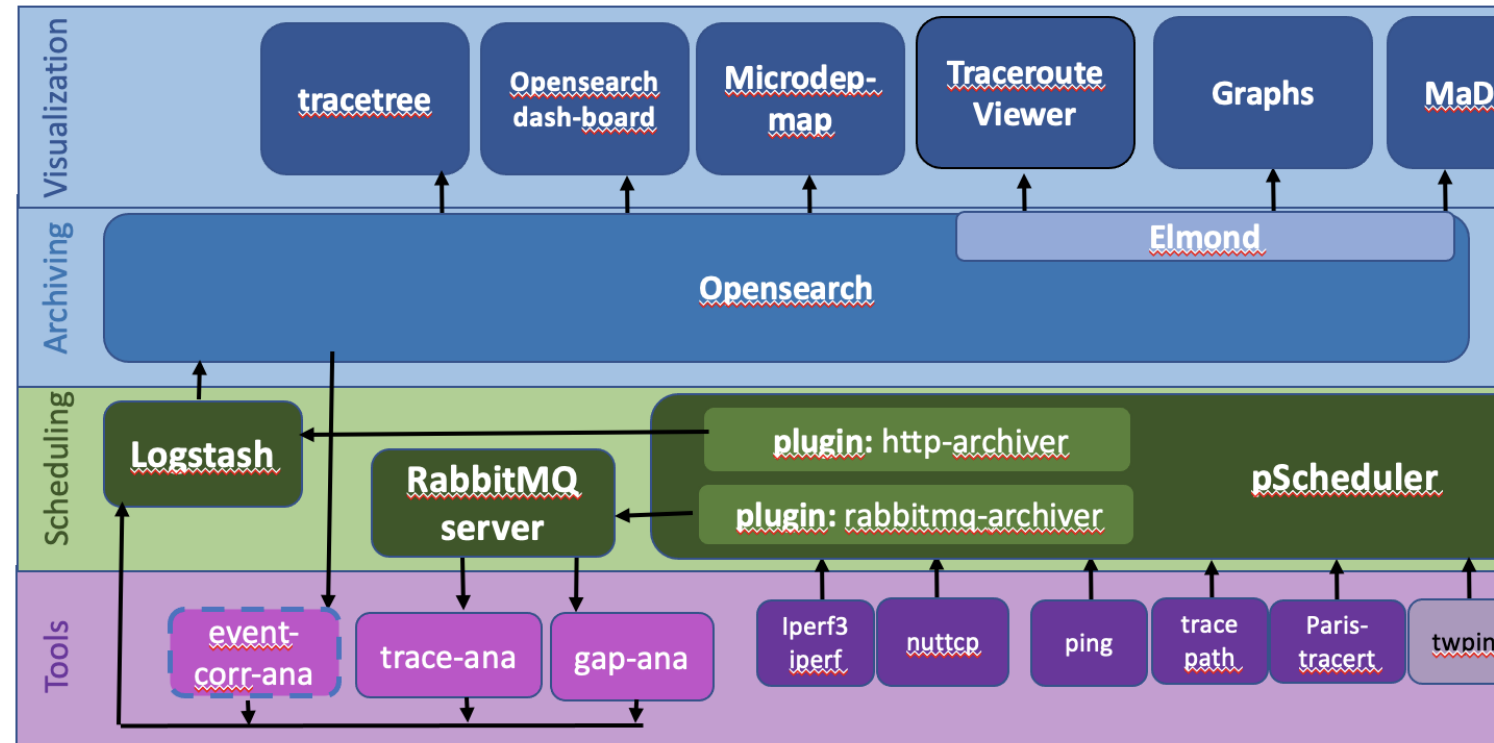
Microdep integration with perfSONAR (1/2)

- Microdep is a packet loss analysis and visualisation tool
 - Spotting packet gaps, micro failures, ~10 packets loss
 - Using 100 packet/sec probes
 - Traceroutes and ICMP response monitoring
- Realtime event analysis:
 - Packet-loss (gaps)
 - Queues (jitter)
 - Route failures and changes (traceroute)
 - Joint event anomaly and alarms (ELK and ML)



Microdep integration with perfSONAR (2/2)

- Using perfSONAR to generate probes
 - OWAMP for paced packets
 - Traceroute
 - Rely on 2000+ public perfSONAR hosts
 - Use pSConfig and pScheduler
- Adding a data pipeline to
 - Analyse packet gaps
 - Store history for further analysis
- Next steps:
 - Package and bundle with pS



On-demand perfSONAR Graphical User Interface (psGUI) (1/2)

- GUI to drive perfSONAR / pScheduler
- Use case:
 - MaDDash setup, grids, regular measurements
 - Want to do a one off, on-demand additional test
 - List of pS nodes coming from pSConfig file, MaDDash grids
- GUI list all possible tests and main parameters

Test:

IPv4 IPv6

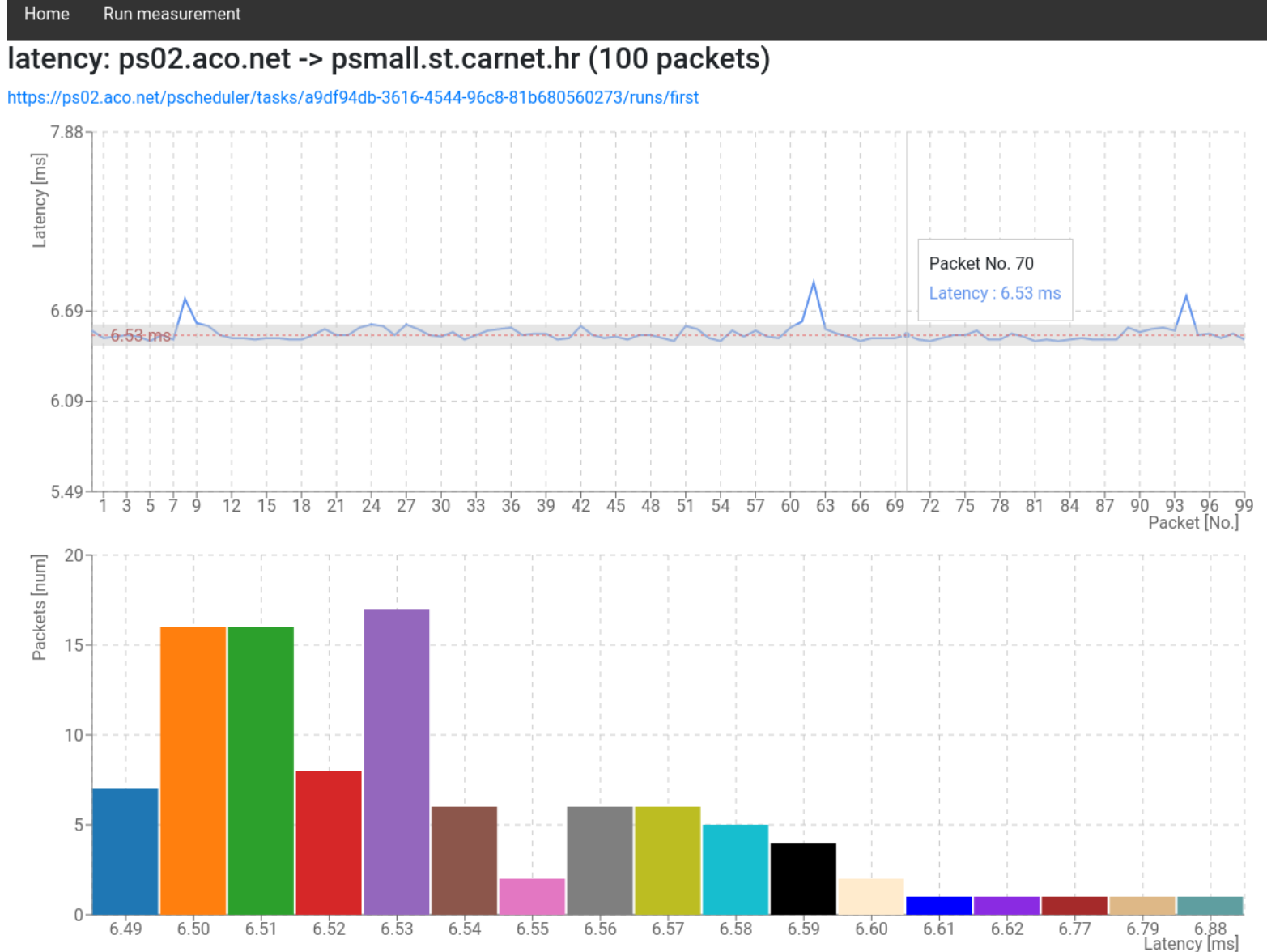
[Advanced parameters](#)

Packet Count: <input type="text" value="100"/> <small>The number of packets to send (10 - 1000000)</small>	Packet Interval: <input type="text" value="0.1"/> <small>The number of seconds to delay between sending packets (0.000001 - 1)</small>
Packet Timeout: <input type="text" value="2"/> <small>The number of seconds to wait before declaring a packet lost (1 - 10)</small>	Packet Padding: <input type="text" value="20"/> <small>The size of padding to add to the packet in bytes (14 - 20000)</small>

On-demand perfSONAR Graphical User Interface (psGUI) (2/2)

- Results:

- Packaged as a Docker Image to be built
- <https://github.com/perfsonar/psgui/>





Thank You

Contact: perfsonar@lists.geant.org

www.geant.org



Co-funded by
the European Union