

perfSONAR Update

5th European perfSONAR Users Workshop, Paris, France

May 6 & 7, 2026

Lætitia Delvaux, PCSS

perfSONAR is developed by a partnership of

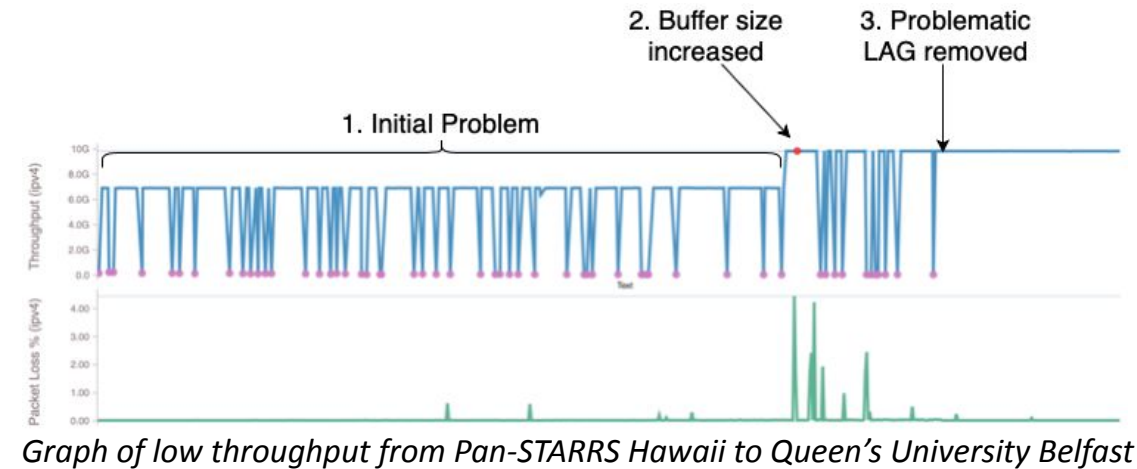


perfSONAR

- perfSONAR is an **open source software suite** that runs, stores and displays **active measurements** such as **throughput, packet loss, latency and traceroute**
- Primarily maintained by consortium of **ESnet, GEANT, Indiana University, Internet2, RNP** and the **University of Michigan**
- **Over 2000 registered public deployments** around the world across hundreds of institutions



Map of perfSONAR deployments around the globe



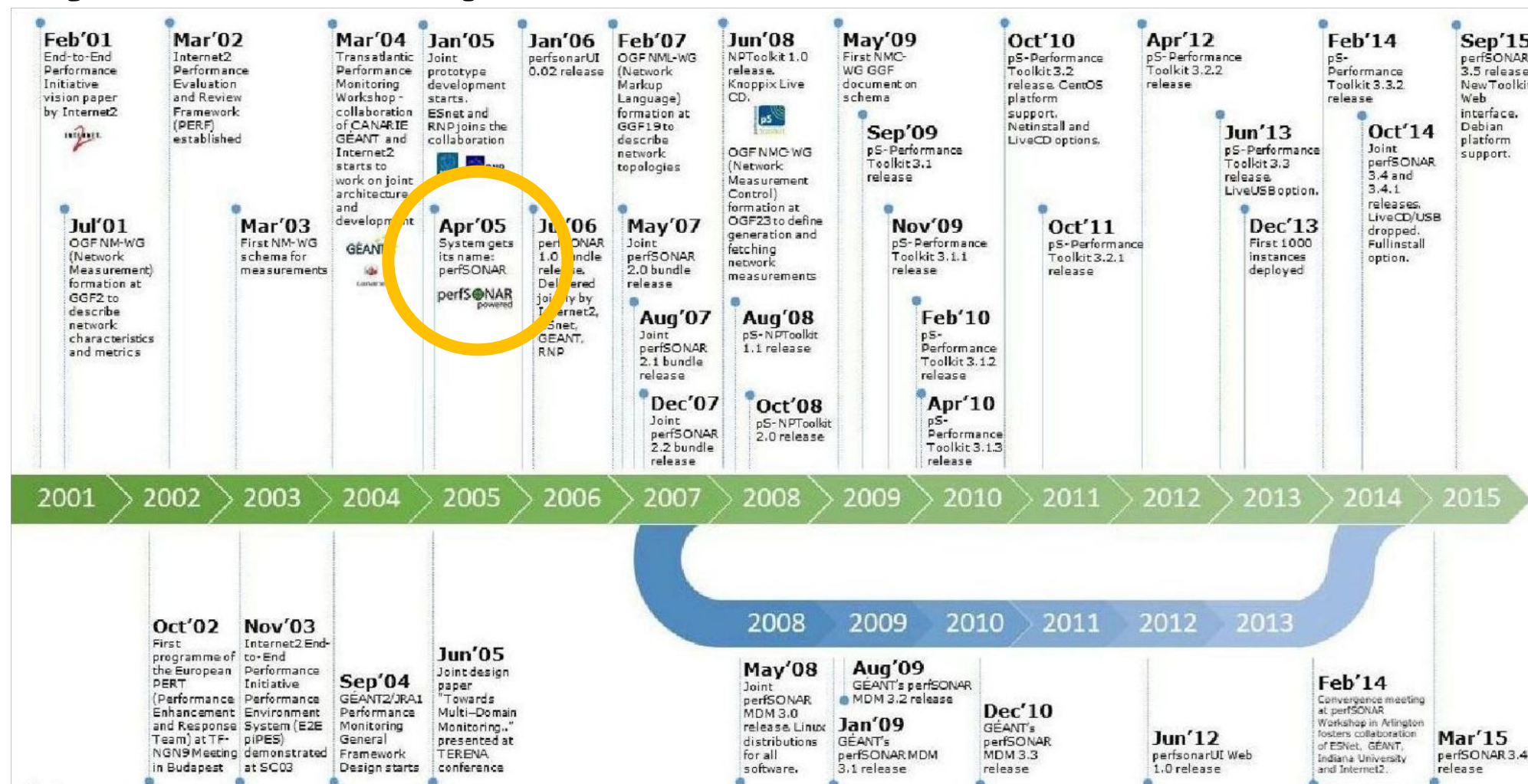
Graph of low throughput from Pan-STARRS Hawaii to Queen's University Belfast

Example perfSONAR use cases:

- Solving global network performance issues for researchers transmitting data from **Pan-STARRS Hawaii to Queen's University Belfast** (*see above graph*)
- Identifying packet loss issues at **UT Arlington**
- Identifying performance bottlenecks as **Large Hadron Collider (LHC)** prepares for the “high luminosity” era

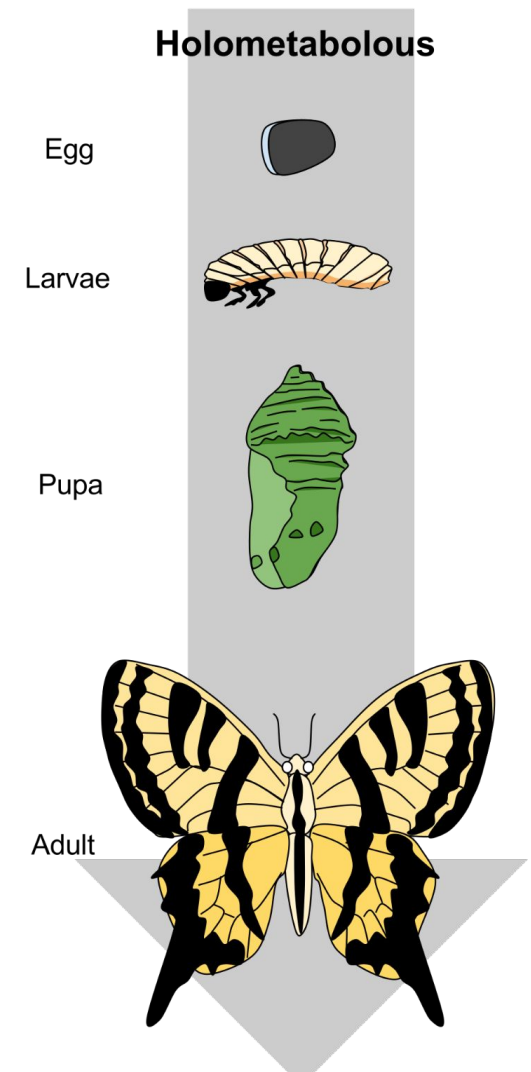
perf20NAR years

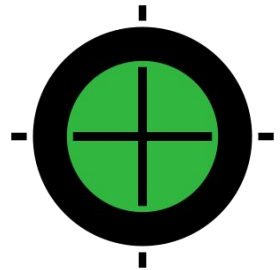
20 years of experience



perfSONAR's Metamorphosis

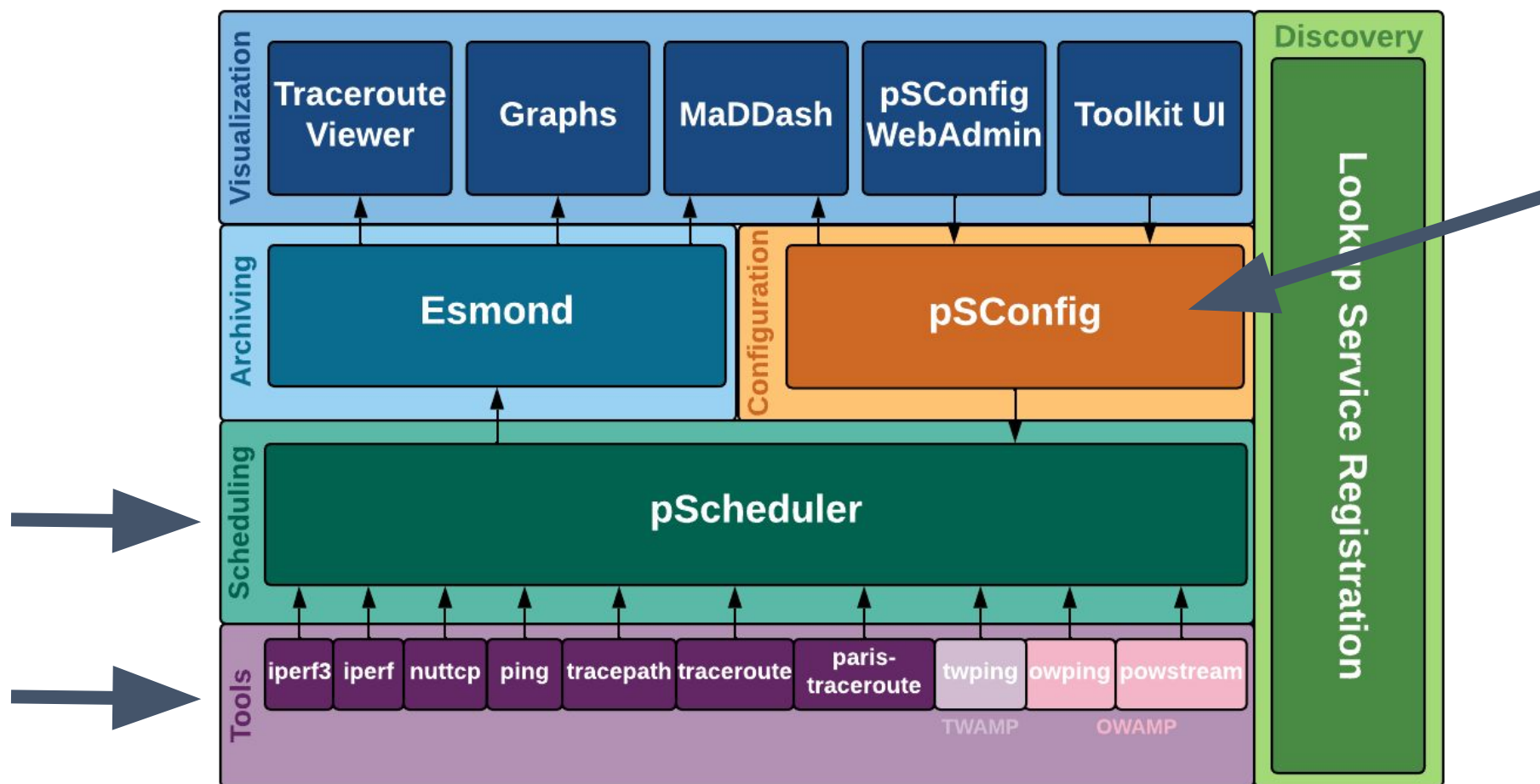
- As perfSONAR reaches 20 years old, it also approaches an important point in its history
- 5.0 kicked off a stage of metamorphosis that will largely wrap-up by the time we hit 5.3.0 later this year
- Let's take a step back and look at these changes...



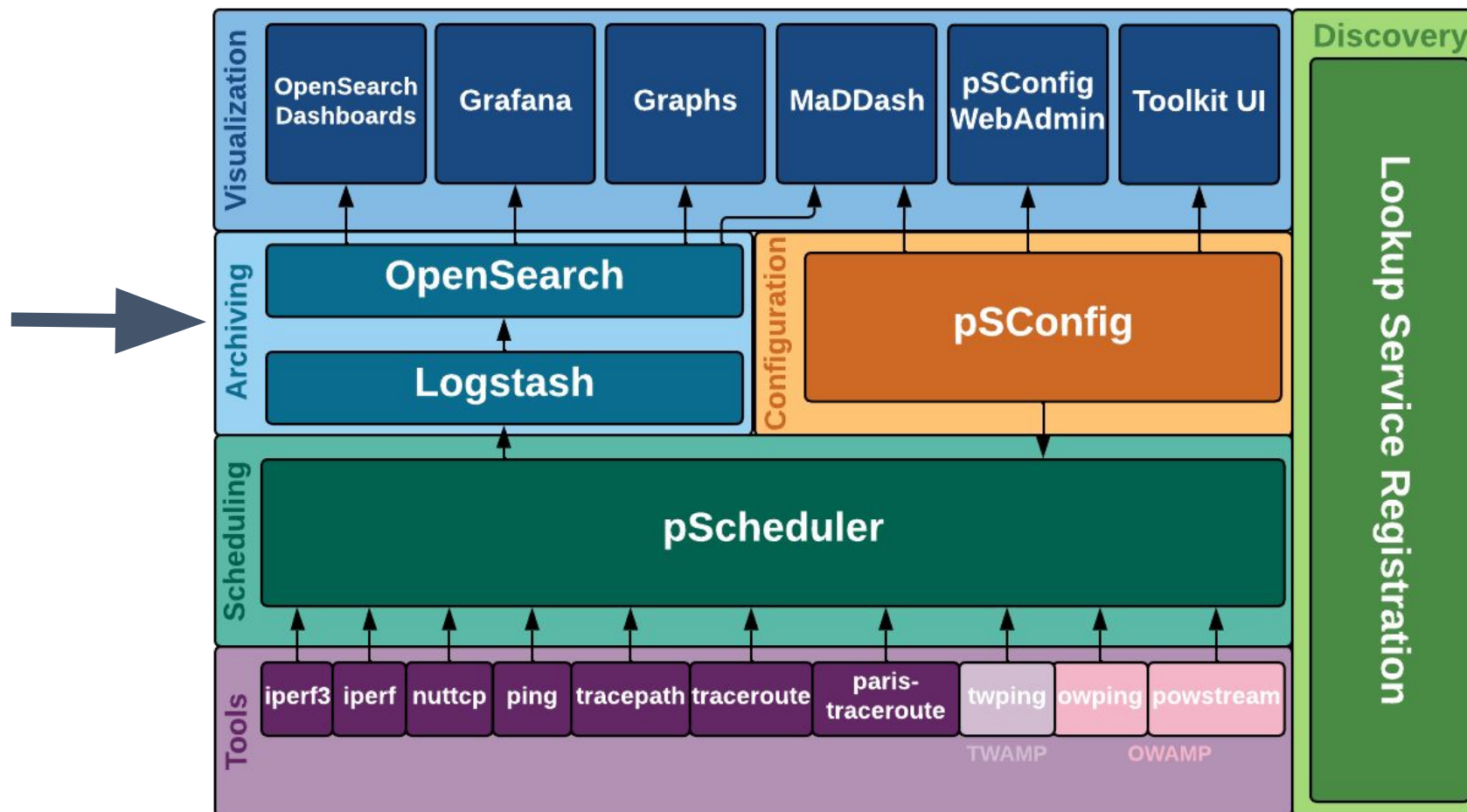


What's been happening the past few years?

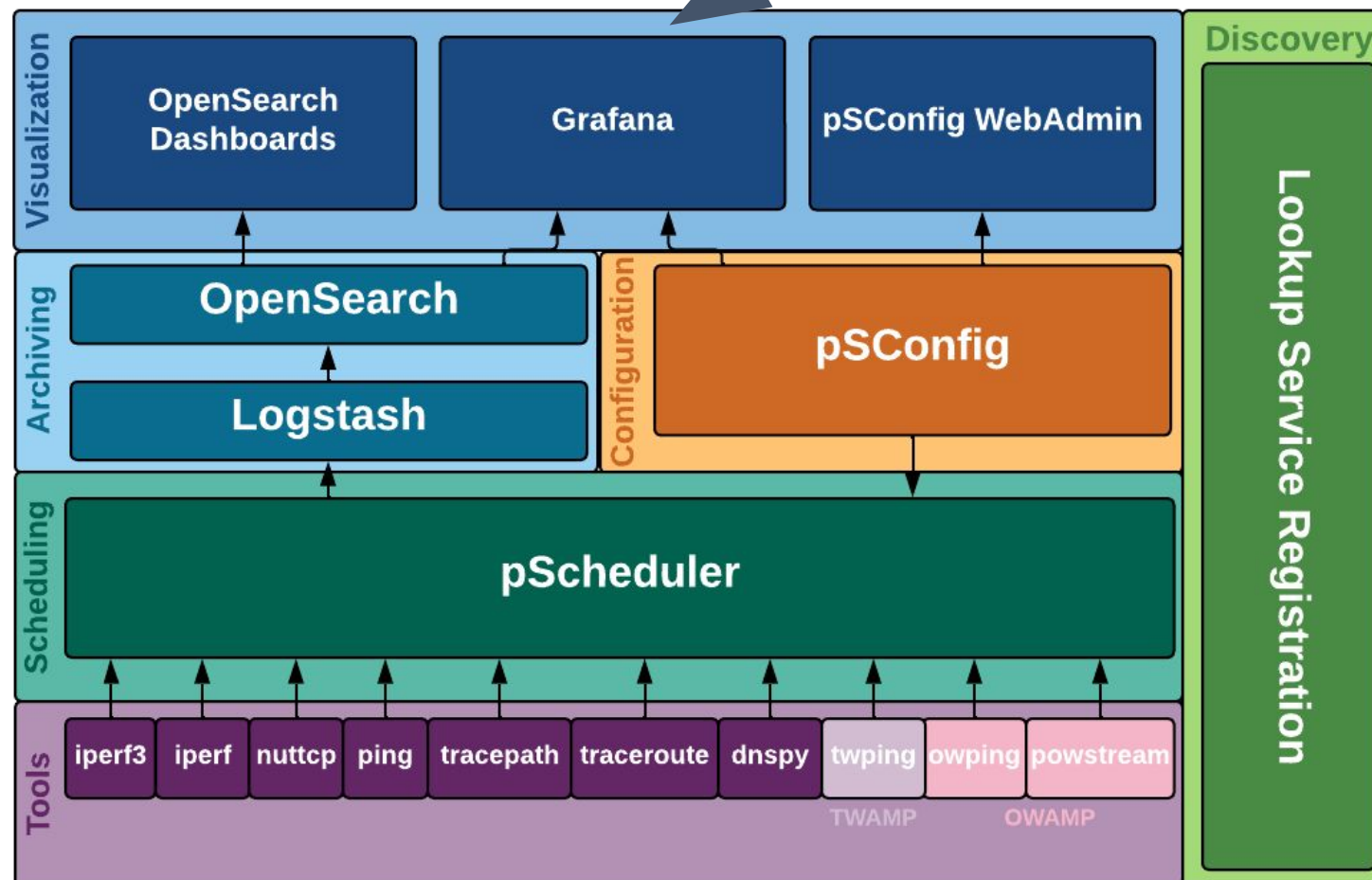
perfSONAR in 2020 (4.X)



perfSONAR 5.0 (2023)

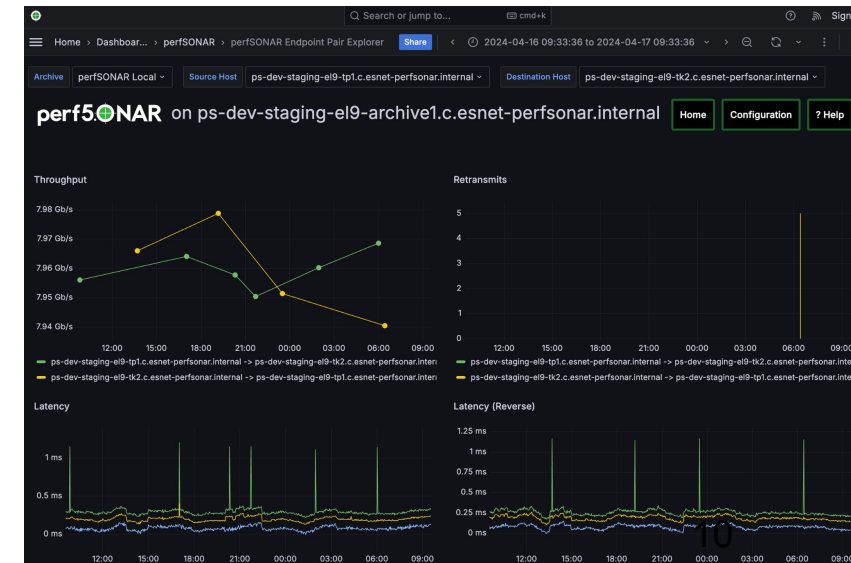


perfSONAR 5.1-5.2 (2024-Early 2025)



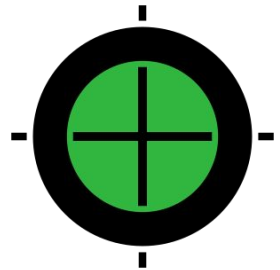
perfSONAR 5.1.0-.4

- **New Grafana Interface**
 - Customizable visualization, better integration with other data
- **Threaded iperf3 Support**
 - Ability to test at 100Gbps+
- **Python pSConfig**
 - Better maintainability of more modern codebase
- **Better Instrumentation and Troubleshooting Tools**
 - Makes it easier to identify issues when perfSONAR misbehaves
- **OS Support**
 - Debian 11, Debian 12 and Ubuntu 22 support. No CentOS 7 support.



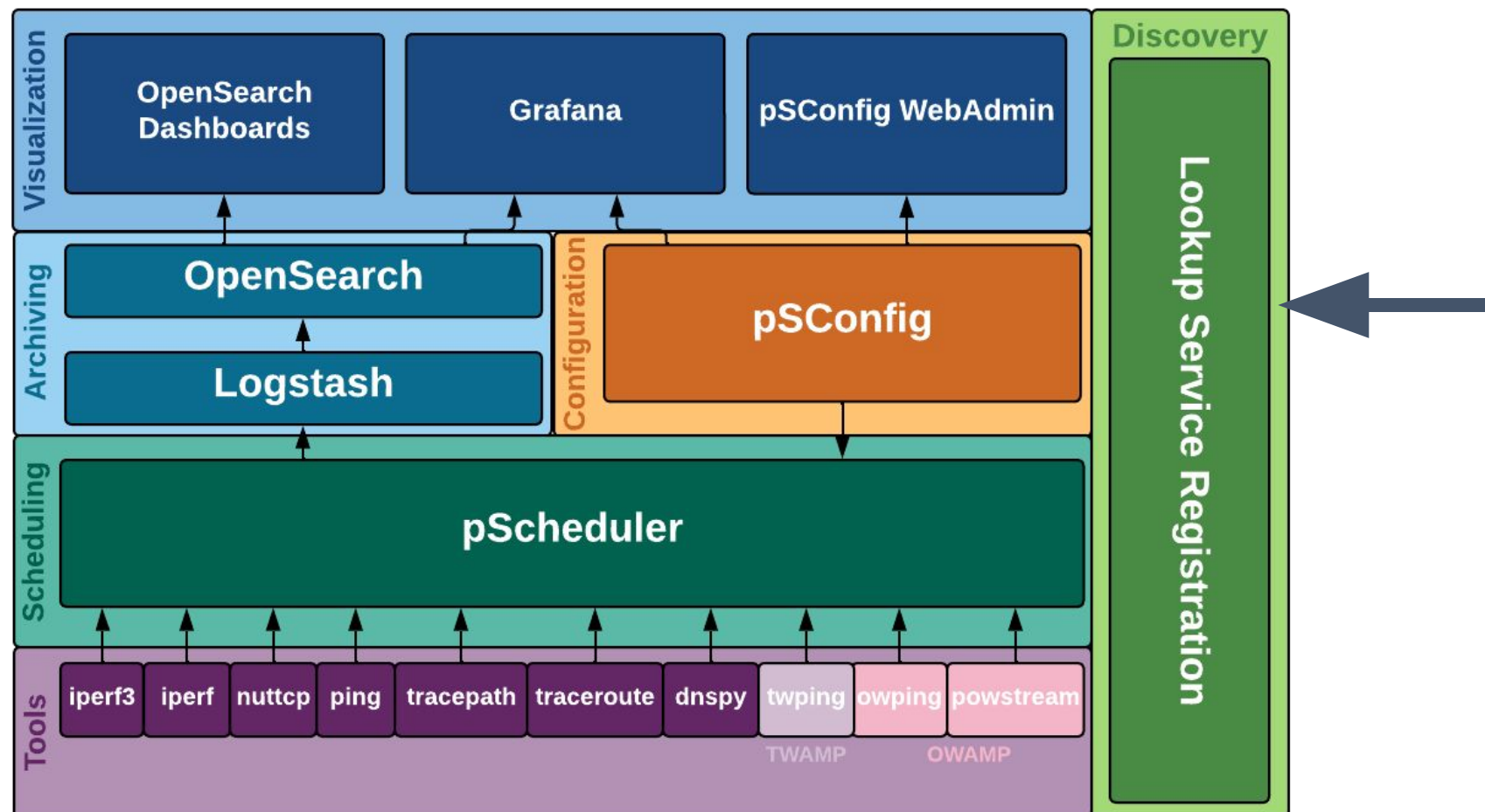
- **5.2.0/.4 released a few weeks ago (.0 last June)**
 - 20th anniversary release
- **No major new features**
 - Inside components updates (Grafana, OpenSearch)
- **New OS Support: Ubuntu 24**
 - Debian 11 & 12 and Ubuntu 20, 22 and 24
 - Alma Linux 9 or Rocky Linux 9
- **Docker image for ARM64**
- **Install it with our installer script**



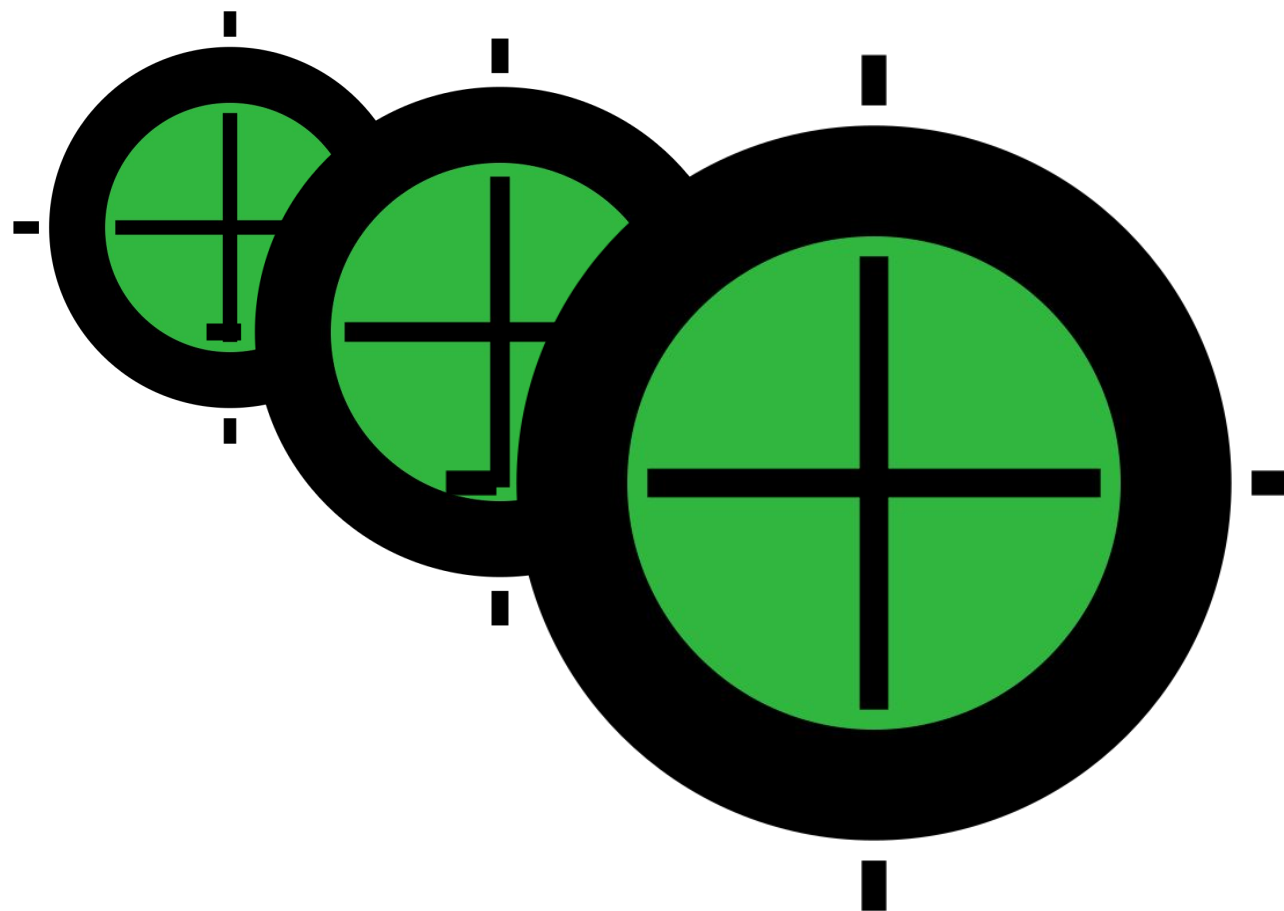


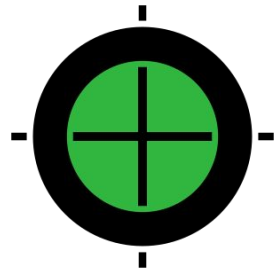
What will version 5.3 bring?

perfSONAR 5.3 (2026)



Let's zoom in on a few specific features....





pSCompose

Next generation UI for test configuration

pSConfig Test Configuration

- **Current situation**
 - Need to edit file by hand, start from a template or an existing example
 - JSON, easy to make errors
- **Make it easier**
 - A distinct UI, for toolkit and for a whole mesh
 - Leverage Lookup Service for host completion
 - Make it easy and clear to set common fields needed for Grafana, etc
- **Leverage Flexibility of pScheduler and pSConfig**
 - We don't want to issue a code update everytime a new test type is implemented or new options added

Development Underway...

psCompose README

Getting Started

Welcome to psCompose!
Are you starting a template from scratch? Start by entering hosts.
Do you need to import an existing template?

Import Template

Import an existing template json by uploading the file or copying and pasting the json directly.
You can make edits as needed once imported

Create New Template

This will walk you through creating a new template from scratch

Published Templates

Name	Tasks	Interval	Test Members	Enabled	Actions
My First Template	Task A, Task B	6 hours	1 host		
My Next Template	Throughput - TCP	6 hours	1 host		

Recently Edited

- Test Template**
September 7, 2024 08:50
- ESnet Test Group**
September 6, 2024 09:15
- Andy's Template**
September 6, 2024 00:23

Favorites

- My Favorite Test**
September 7, 2024 08:50
- ESnet Test Group**
September 6, 2024 09:15
- Andy's Template**
September 6, 2024 00:23

Left sidebar menu: Templates, Tasks, Contexts, Tests, Archives, Schedules, Groups, Hosts

psCompose README

New Template

← Previous Next →

Step 5) Tests

Next, make sure your test is in the list or add one now.

Existing Tests

- Test A
- Test B
- Test C
- Test D**
- Test E
- Test F
- Test G
- Test H
- Test I
- Test J

New Test

Test D

Name: Type:

Protocol:

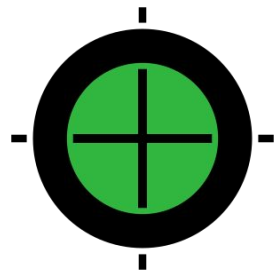
Source: Destination:

Intervals: Durations:

Other Meta

Save Cancel

Left sidebar menu: Templates, Tasks, Contexts, Tests, Archives, Schedules, Groups, Hosts

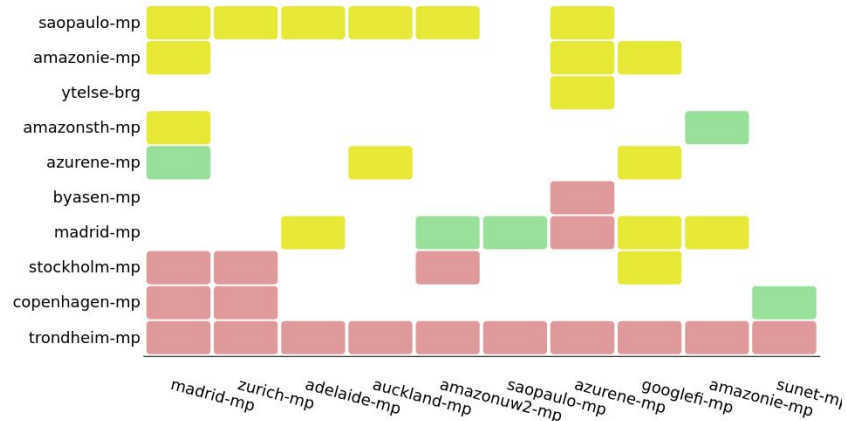


Micro-dependency

Microdep: spot micro outages

Heatmap dragonlab, gap from 2022-02-07 for 24 hours for down_ppm

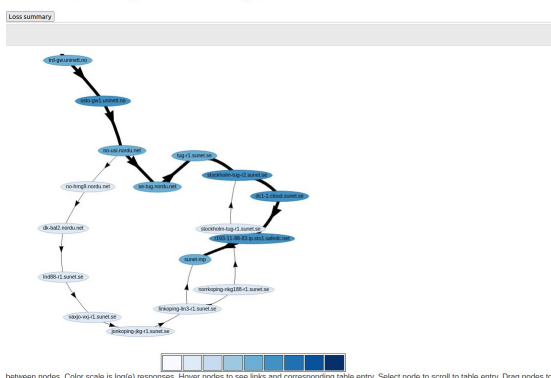
Range: [0.6, undefined]



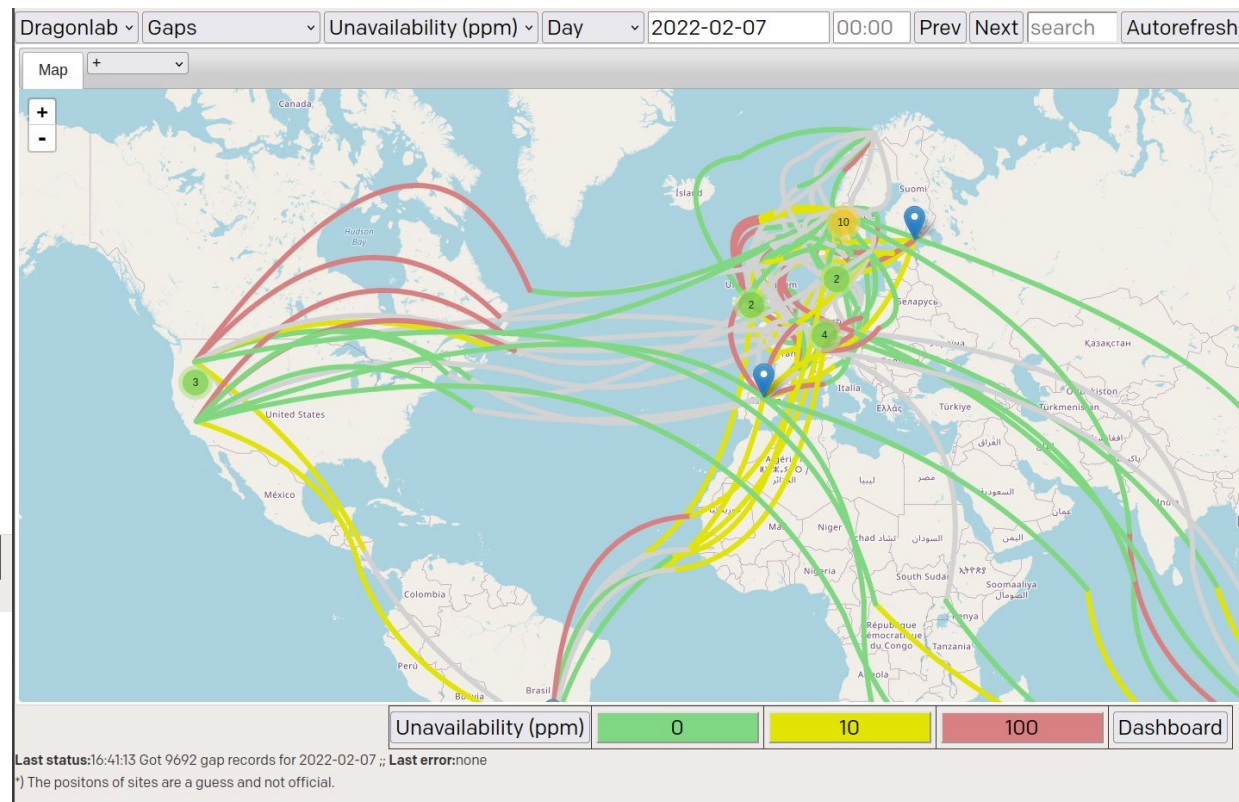
Unavailability (ppm) 0 10 100 Dashboard

Last status:16:41:13 Got 9692 gap records for 2022-02-07 ;; Last error:none
The positions of sites are a guess and not official

trondheim-mp to sunet-mp(89.45.232.192) on 2022-02-07

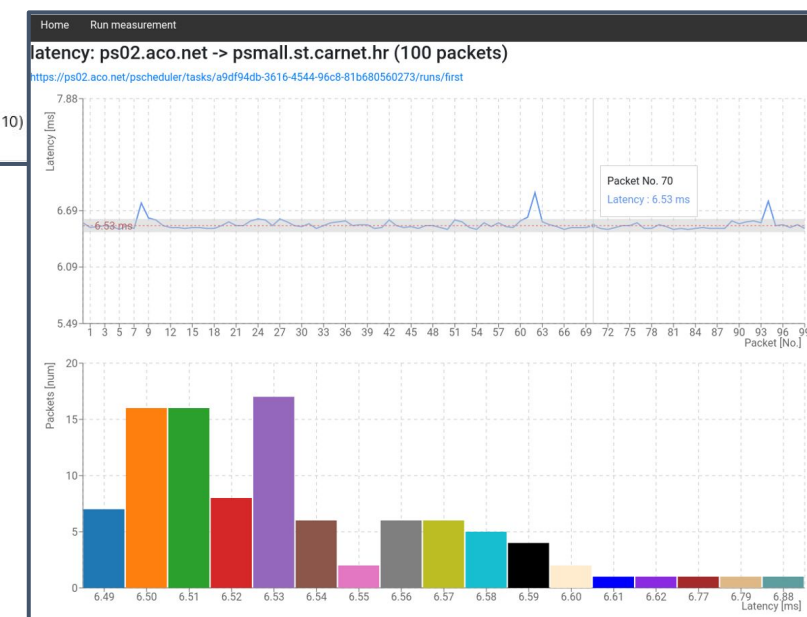


between nodes. Color scale is log(s) responses. Hover nodes to see links and corresponding table entry. Select node to scroll to table entry. Drag nodes to fit





A pScheduler on-demand UI



Latency, throughput, trace

psGUI installation

- Available as a **Docker image**, with a very few configuration items:
 - The remote pSConfig file URL
 - Authentication
 - Some customisation if you need it
- **Integration with Grafana dashboard**
 - Direct link to psGUI from the Endpoint Pair Explorer dashboard

Source Host

ps-small.amres.ac.rs

Destination Host

psmp-gn-owd-lon2-uk.geant.org

psGUI latency



This site is asking you to sign in.

Username

Password

Sign in

Cancel



Source:

Serbia - ps-small.amres.ac.rs

Toggle choices

Destination:

GN - London OWD - psmp-gn-owd-lon2-uk.geant.org

Test:

latency

☒ IPv4

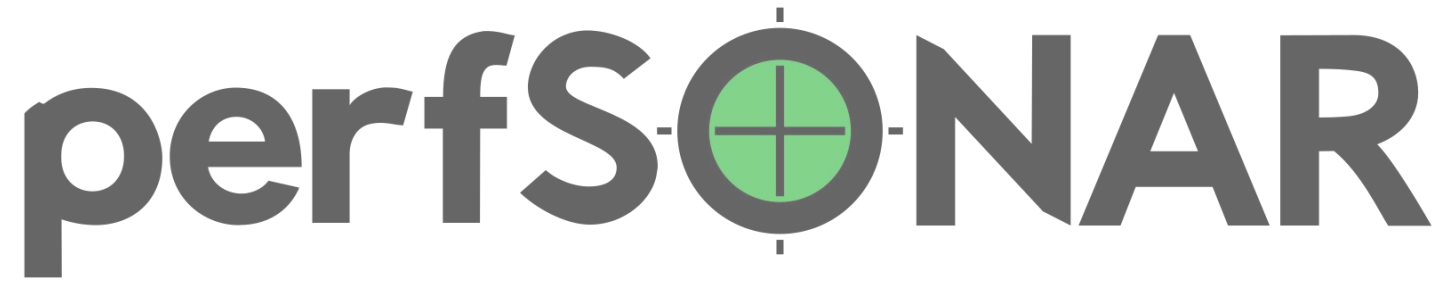
☐ IPv6

Advanced parameters

Submit

perfSONAR 5.3 is also

- Improvements to the dashboards
- Improvement to the documentation
- Lots of bug solving
- And hopefully soon:
 - support for new OS: Debian 13 and Ubuntu 26
- Soon to be released...



Thanks!

For more information,
please visit our web site:
<https://www.perfsonar.net>

Thanks icon by priyanka from The Noun Project

perfSONAR is developed by a partnership of

