



perf2ONAR

Past, present and future

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Public (PU)

GN5-2

Outline

- perfSONAR today
 - 5.1.4 and 5.2.0-beta
 - iperf3
- 20 years of experience
 - ... and of collaboration
- Future of perfSONAR

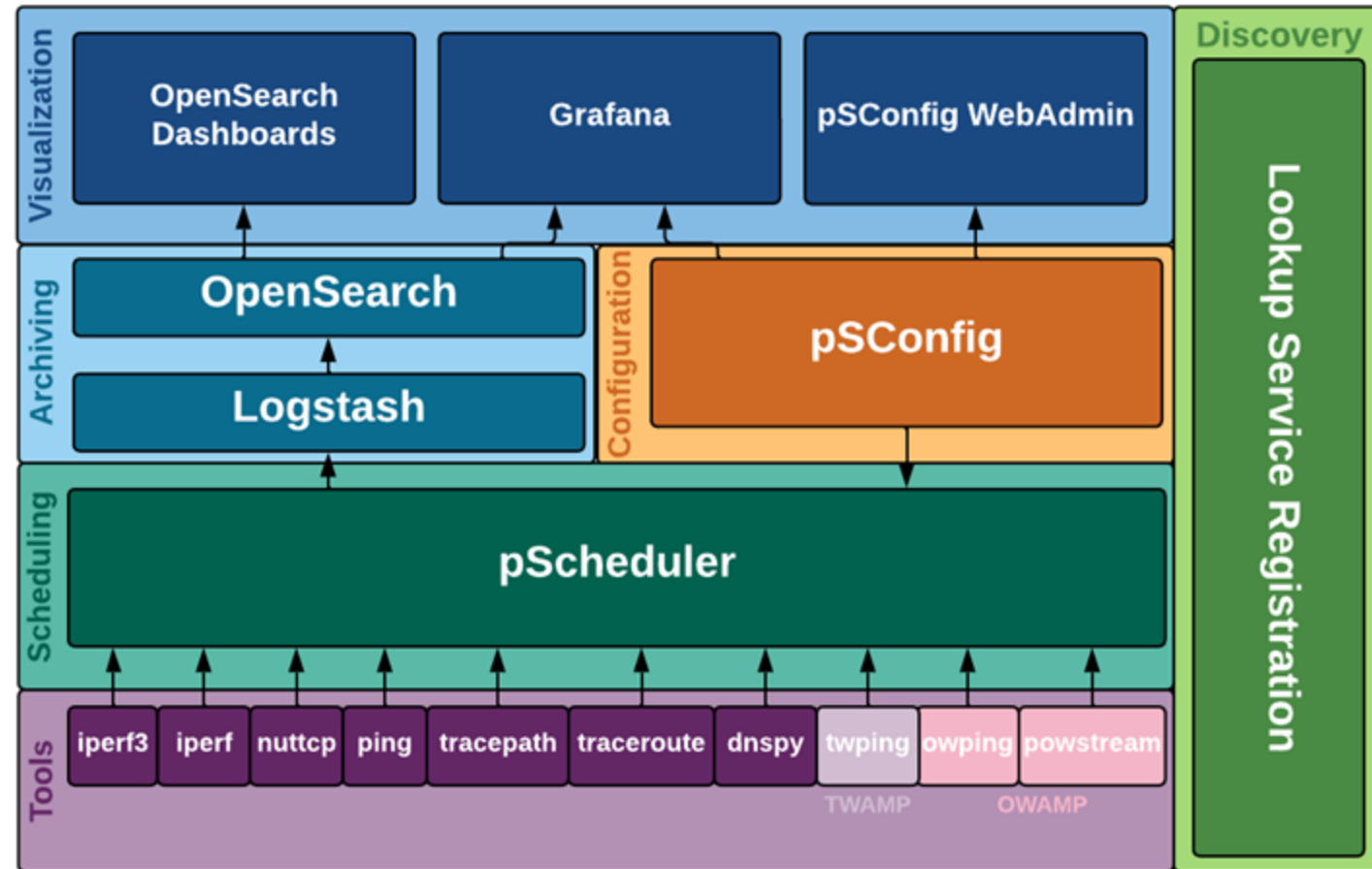


perfSONAR today

5.1.4 ... 5.2.0-beta

What is perfSONAR?

- An open source software collaboration
- A platform for network monitoring and measurements across networks on various performance metrics
 - Throughput
 - One-way delay and jitter
 - Packet Loss
 - Traceroute
 - RTT



perf5.0NAR 5.1.4

- **Released October 17 2024**
 - (5.1.0 was June 2024)
- **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
- **More recent OS Support**
 - Debian 11, Debian 12 and Ubuntu 22 support. On top of EL9 (Alma, Rocky) and Ubuntu 20.

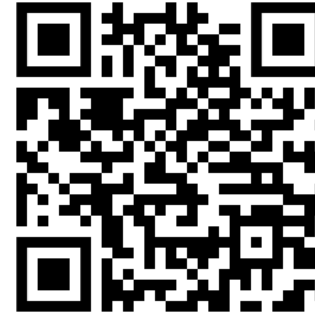
perf5.0NAR 5.2.0-beta

- **Released March 2025**
 - perfsonar-5.2-staging or perfsonar-minor-staging repository
- **Improved OS support: Ubuntu 24**
 - Debian 11 and 12, Ubuntu 20 and 22, EPEL 9 (Alma and Rocky linux)
 - ARM64 Docker image
- **Some upgrades**
 - OpenSearch 2.18
 - Grafana 11
 - iperf3 3.18
- **Bug fixes**
 - Improved dashboards and panels
 - Multiple pScheduler and pSConfig fixes

beta release

perf5.0NAR 5.2.0-beta

- Test it for yourself
 - https://docs.perfsonar.net/install_rcs.html



... and report bugs

- <https://github.com/perfsonar/project/issues>

beta release

What is iperf3?

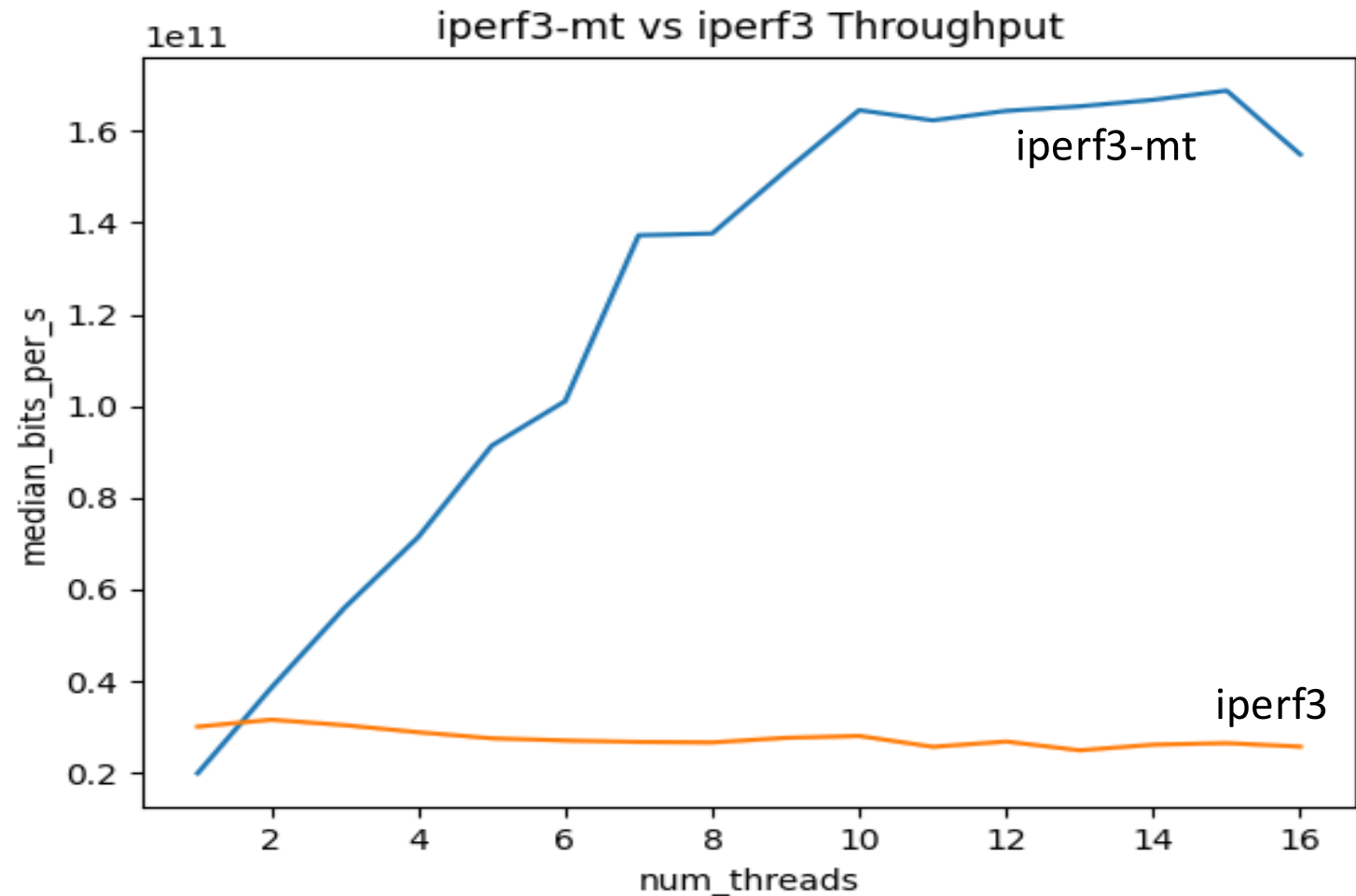
- iperf3 is an open-source tool that measures network traffic performance between a client and server
- It was designed to be used in perfSONAR, but can also be used on its own
- Linux, MacOS, and FreeBSD are all officially supported
- Different from iperf2

iperf3 Multi-Threading

- Before multi-threading, iperf3 was capable of 30-50 Gbps, with single stream TCP, possibly more with tuning
- Many links are faster than iperf3
 - Site connections: N x 100G
 - Backbone: 400G +
- So what if we want to support connections with higher bandwidth? How do we get more throughput?
- The problem: Adding more parallel connections doesn't increase throughput
- Solution: Adding multi-threading to iperf3 to use multiple CPU cores

Effects on Performance

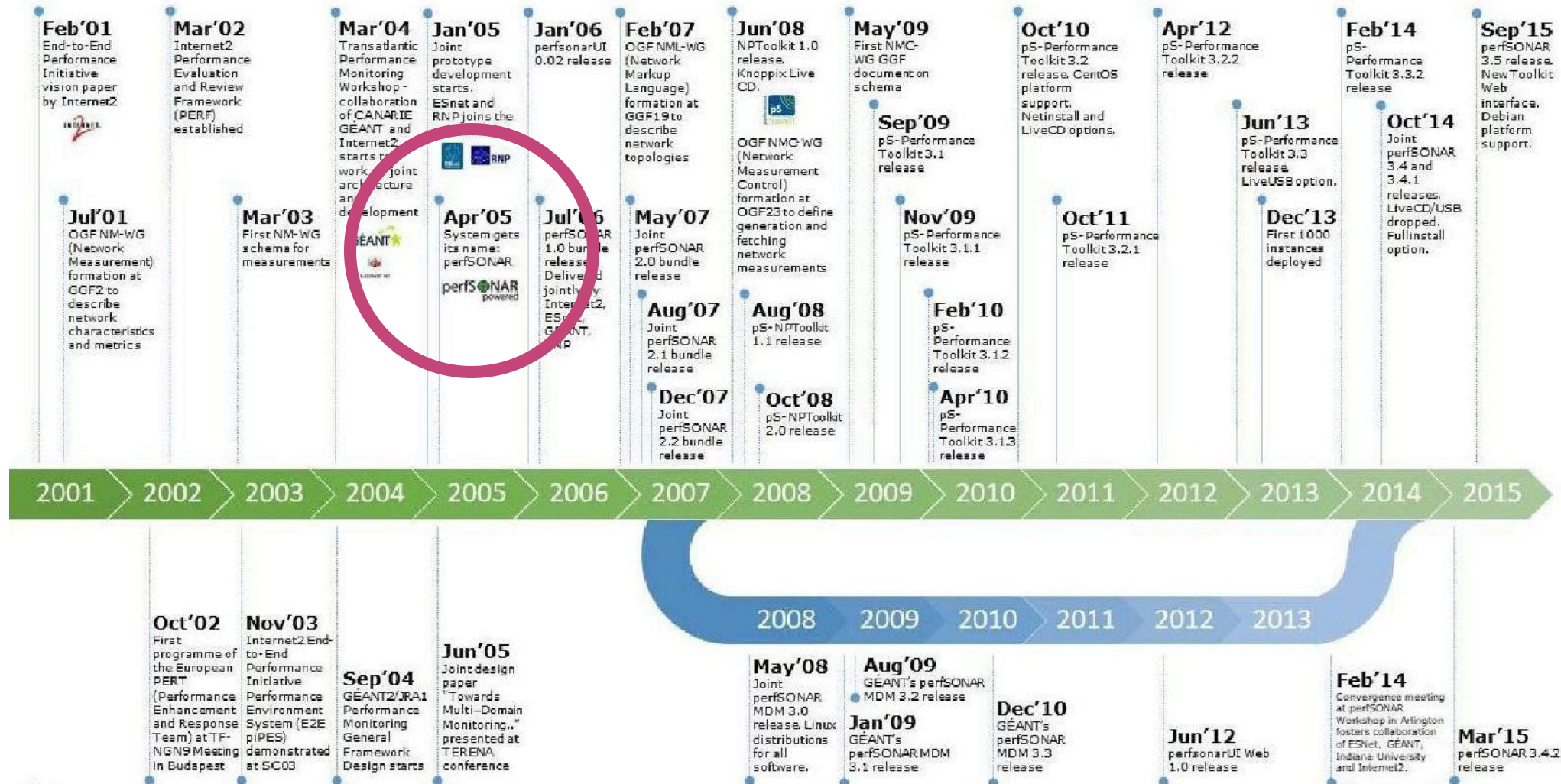
Internal testing showed that iperf3-mt has significant improvements in throughput performance over iperf3



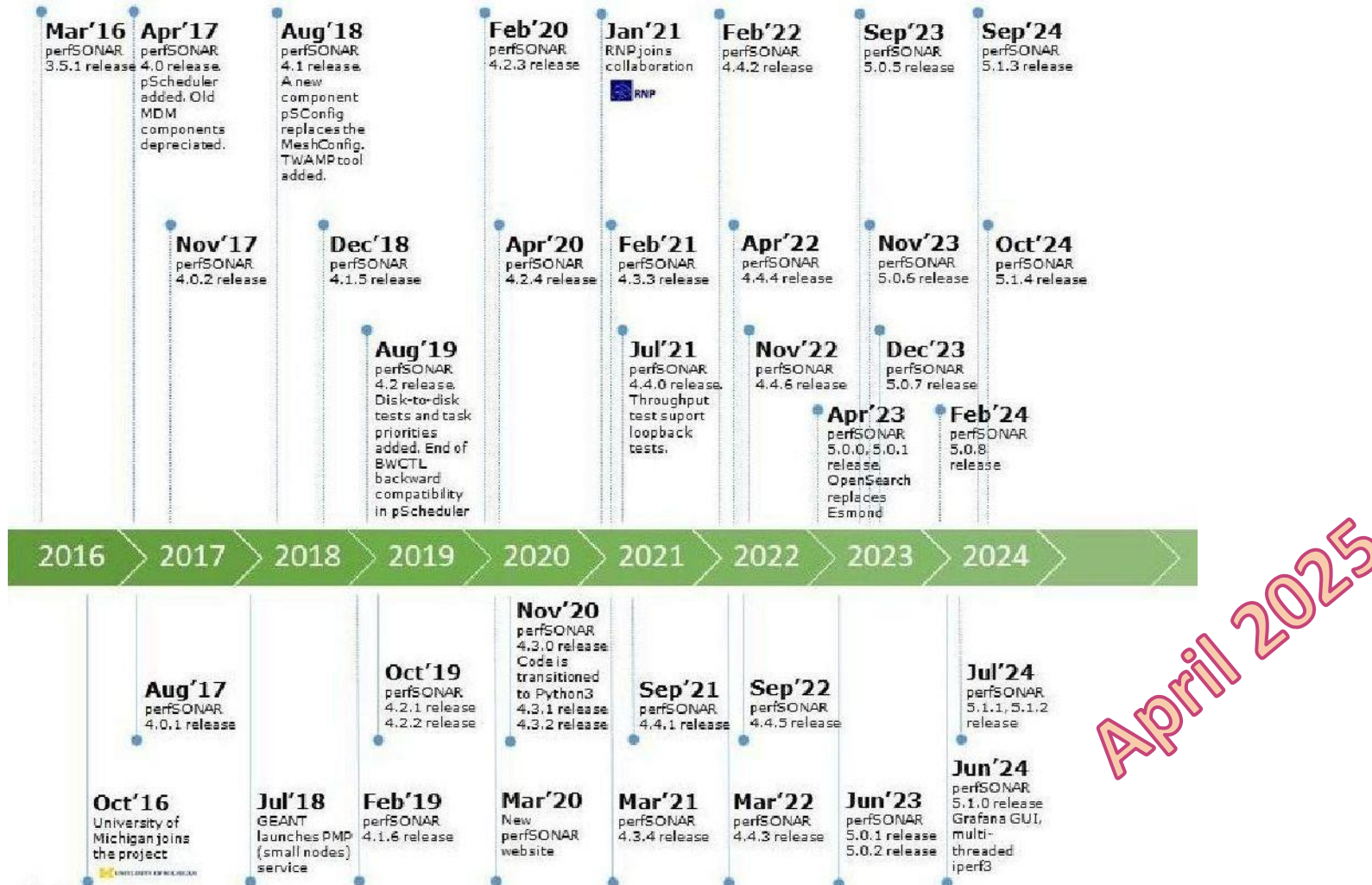


perf20NAR years

20 years of experience

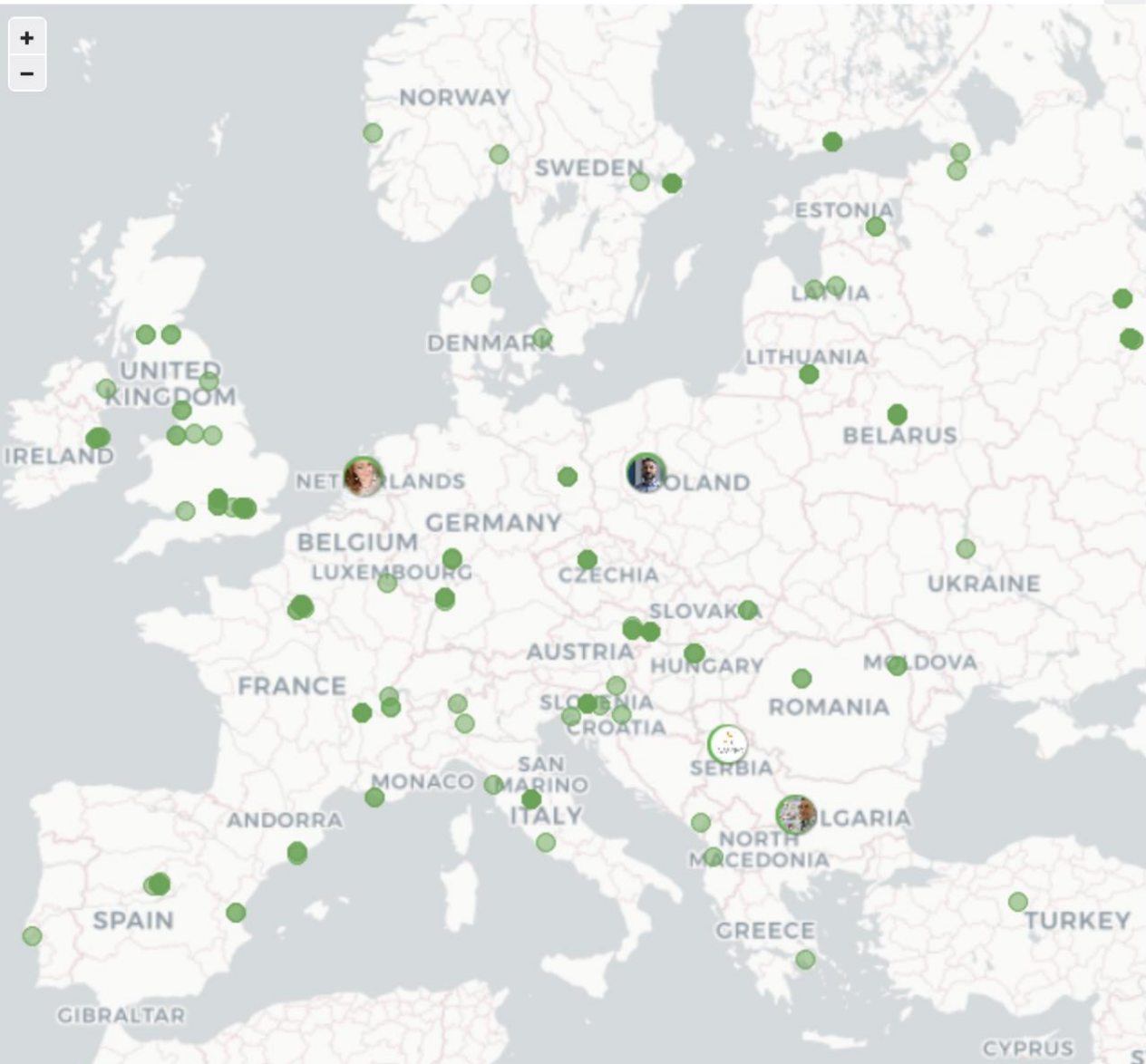


20 years of experience



April 2025

20 years of perfSONAR



20 years of collaboration

Put yourself (or your organization)
on the map!

<https://forms.gle/vsYmetjvyQRWwKUIJ8>



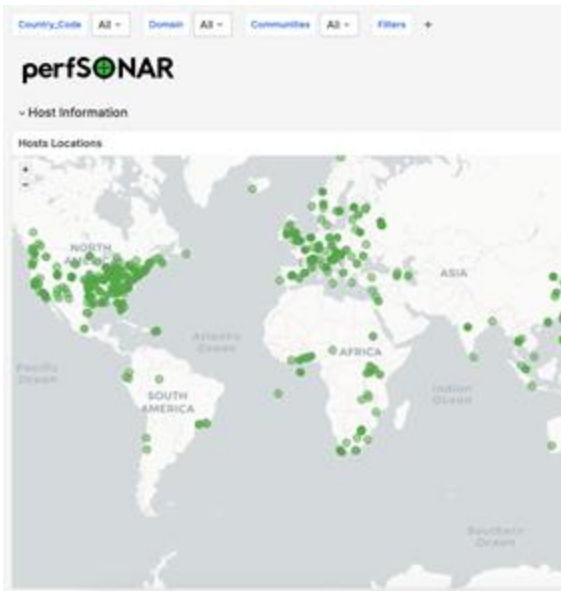
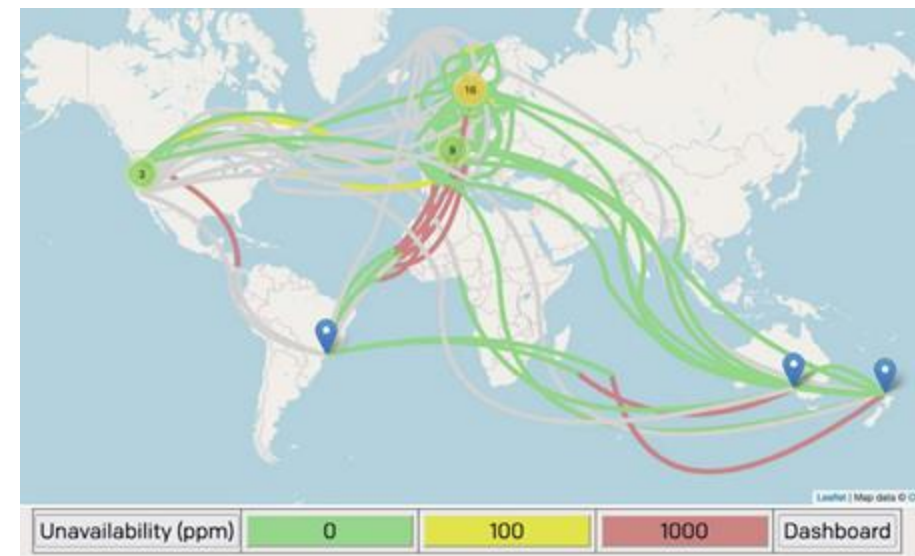
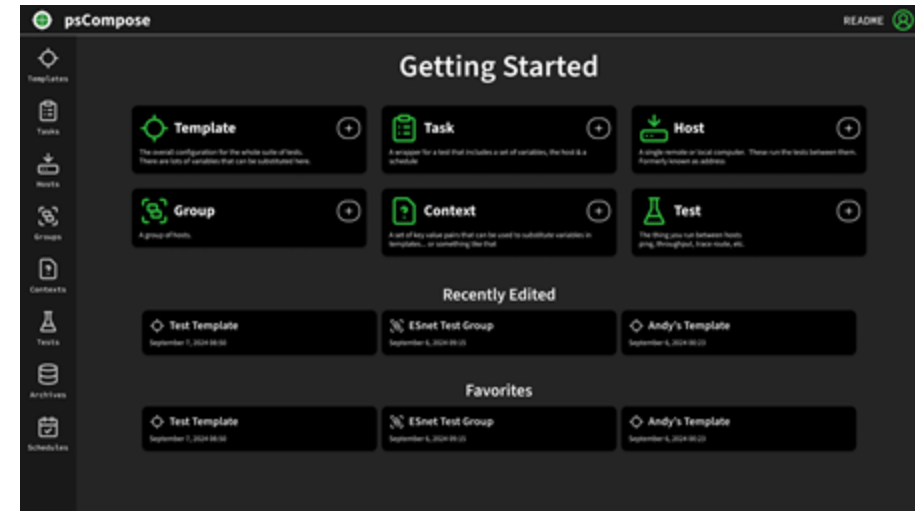


The Future of perfSONAR

5.3.0 ?

perfSONAR 5.3.0 (end 2025?)

- **psCompose**: Improving test configuration experience
- **psGUI**: On-demand measurement UI
- Lookup Service enhancements
- **Microdep**: Micro-outages analysis



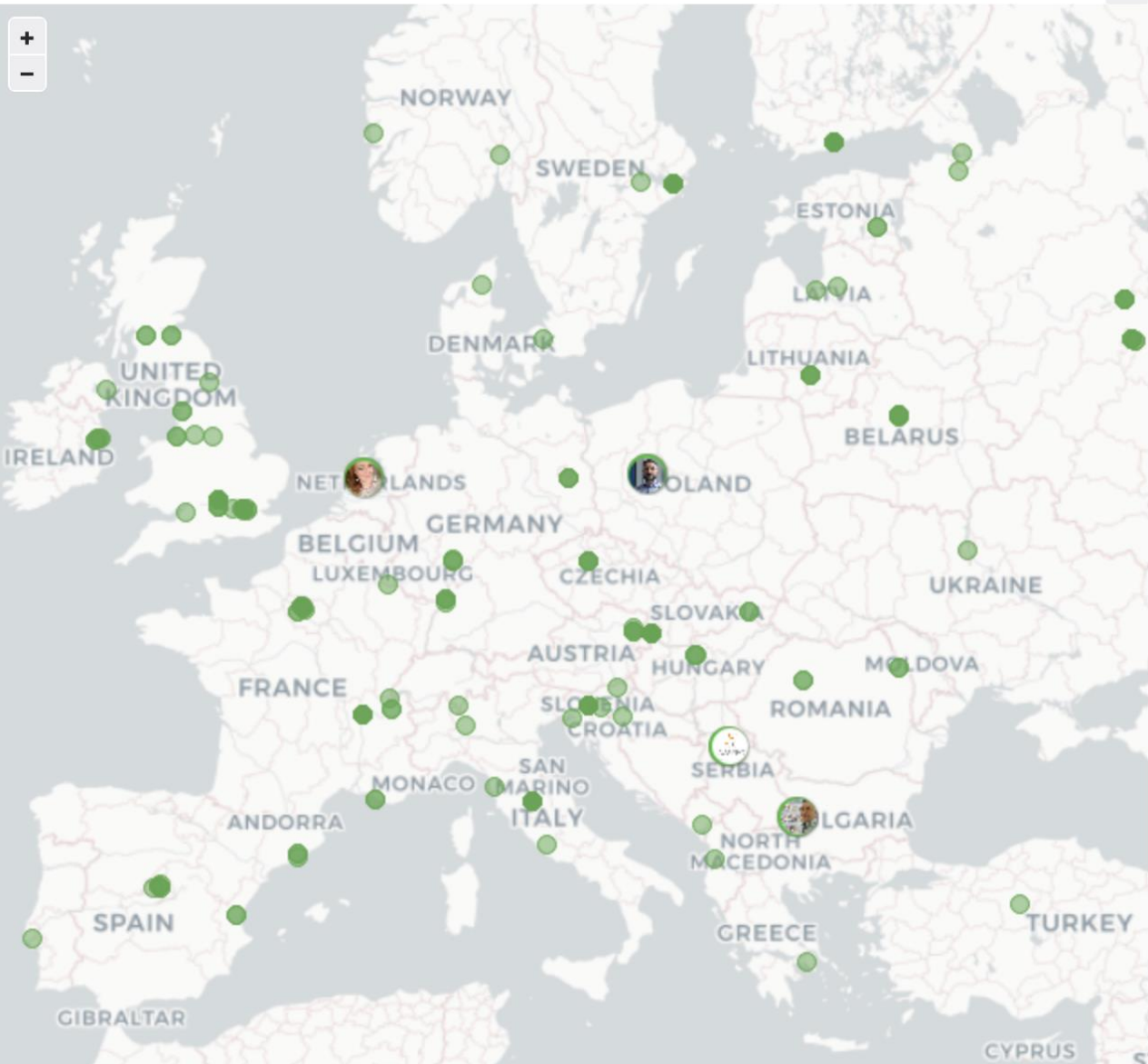
Future areas of focus

- **Operational analysis and alarming**
 - Leverage features of current technology stack
 - Better orchestration of debugging process
 - Integration with existing data, processes and projects (e.g. MetrANOVA)
 - Explore possibilities in AIOps for identifying relevant measurements
- **Training the community on the new generation of perfSONAR**
 - Publish to the Network eAcademy and update our perfSONAR channel on YouTube
 - Organise workshop events for the community

Additional Resources

- Bug report (beta) <https://github.com/perfsonar/project/issues>
- perfSONAR Website <http://www.perfsonar.net/>
- perfSONAR Documentation <http://docs.perfsonar.net/>
- Lookup Service Dashboard <https://stats.perfsonar.net/>
- YouTube Channel <https://www.youtube.com/perfSONARProject>
- FasterData Knowledge Base <http://fasterdata.es.net/>

20 years of perfSONAR



20 years of collaboration

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Past, present and future

Questions?

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perfSONAR is developed by a partnership of

