

perfSONAR

perfSONAR 5.1

May 14, 2024 — 4th European perfSONAR Users Workshop

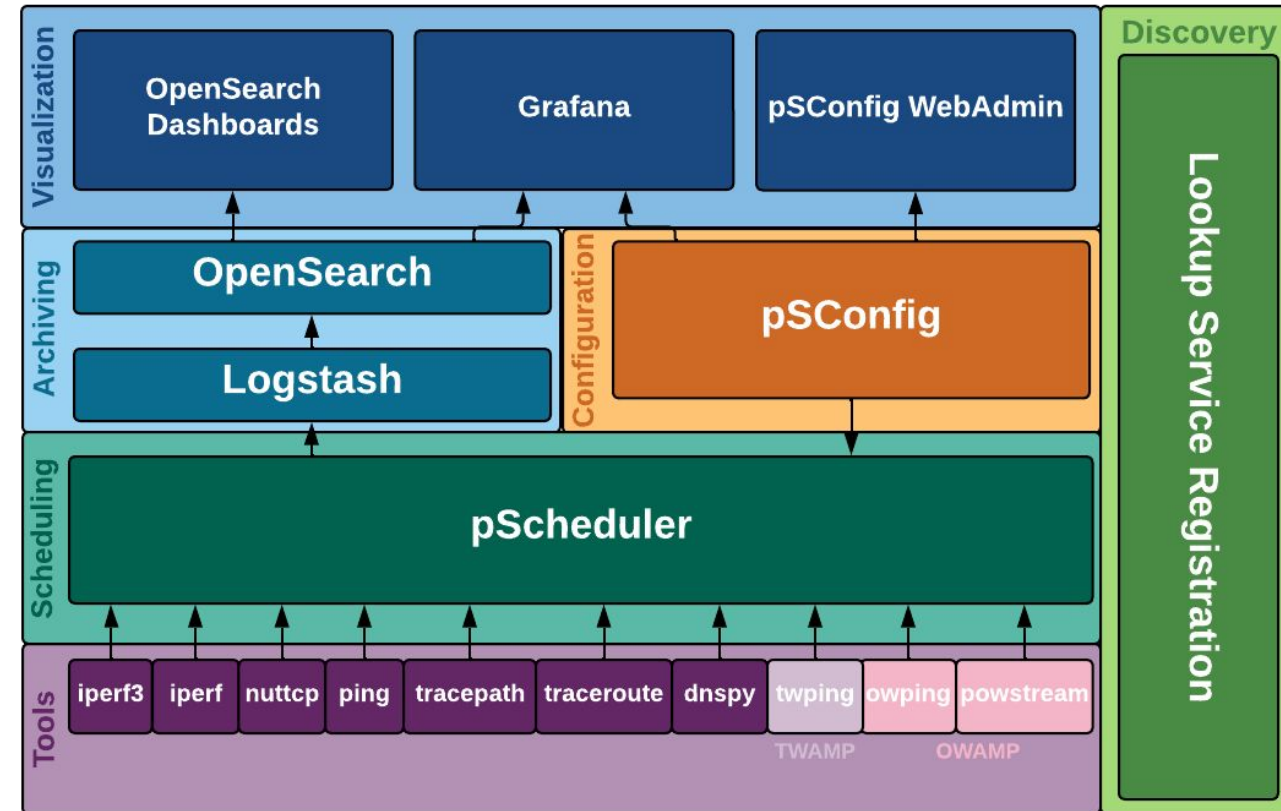
Lætitia A Delvaux • PSNC • laetitia.delvaux@man.poznan.pl

perfSONAR is developed by a partnership of



What is perfSONAR?

- An **open source software collaboration** led by ESnet, GEANT, Indiana University, Internet2, RNP and the University of Michigan.
- **Goal is to provide network measurements between organizations** to help identify and troubleshoot network issues. Most commonly these include (but are not limited to):
 - Throughput
 - Packet Loss
 - One-way latency
 - Traceroute



perfSONAR

- perfSONAR 5.0 released **April 17th, 2023**.
- **Over 60% of perfSONAR deployments currently running 5.0**
- **Enables greater visualization and analysis capabilities** through the replacement of the backend measurement storage database with OpenSearch
- **New pScheduler test plugins** to support WiFi BSSID, 802.1X authentication, DHCP response time and more
- **Ubuntu 20 support added** with additional OSes like
 - EL8 and EL9 added in early summer 2023

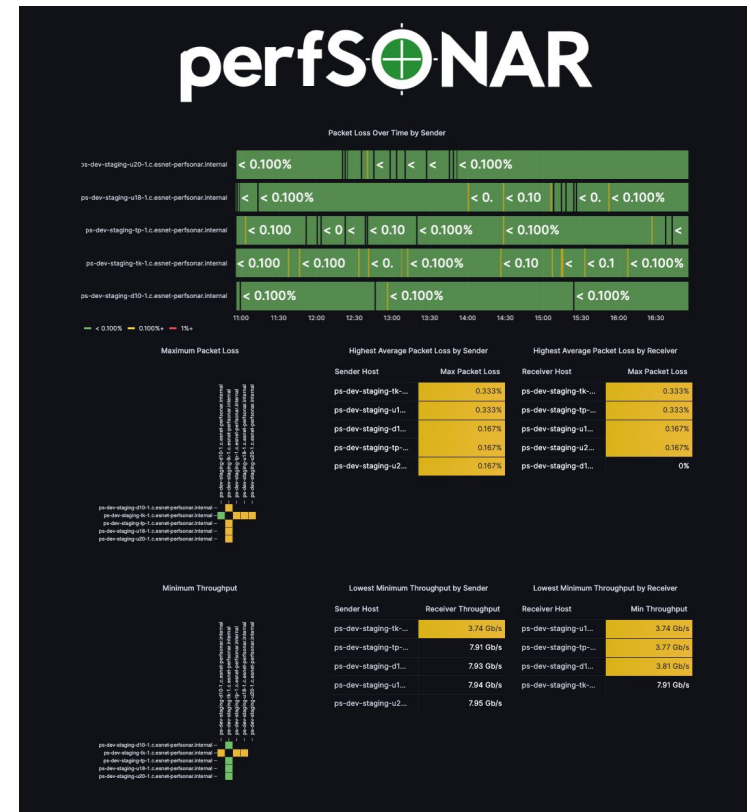


Image: Example of Grafana dashboard users can setup in 5.0 using our [guide](#)



perf5.0NAR 5.1.0

- **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
- **New OS Support**
 - Debian 11, Debian 12 and Ubuntu 22 support. No CentOS 7 support.



Image: New default Grafana UI

OS Support

- Enterprise Linux (EL)
 - EL9: Alma Linux 9 and Rocky Linux 9
- Debian
 - 11: Bullseye
 - 12: Bookworm
- Ubuntu
 - 20: Focal
 - 22: Jammy
- Might work:
 - EL8 (Oracle Linux 8)
- **All bundles supported on all distros**
- Discontinued: EL7, D10 and U18

Today's Toolkit UI

perfSONAR Toolkit on HOST

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

HOST Edit

All detected addresses are private, and private addresses are disabled. No addresses are being shown. To change this, edit /etc/perfsonar/toolkit/web/web_admin.conf

Organization:
Address:
Administrator:

Services			View services logs ↗
SERVICE	STATUS	VERSION	PORTS
archive ▾	Running	5.0.1-1.el7	
lsregistration	Running	5.0.1-1.el7	
owamp ▾	Running	5.0.1-1.el7	861
pscheduler ▾	Running	5.0.1-1.el7	
psconfig	Running	5.0.1-1.el7	
twamp ▾	Running	5.0.1-1.el7	862

Test Results (2 Results)
Configure tests ⚙

Search:
Results for the last...
1 week ▾

▲ SOURCE	⇅ DESTINATION	THROUGHPUT	LATENCY (MS)	LOSS
ps-dev-staging-el7-tk-2.c.esnet-perfsonar.internal 10.128.15.192	ps-dev-prod-el7-tk-1.c.esnet-perfsonar.internal 10.128.0.54	→ n/a ← n/a	→ n/a ← n/a	→ 0.001% ← 0.001%

[Graphs](#) | [Traceroute](#)

Host Information (Log in for more info)

Interfaces	Details ▾
NTP Synced	Yes
Globally Registered	No
Allow Internal Addresses	OFF
Virtual Machine	No
RAM	16 GB
More Info	Details ▾

[perfSONAR Privacy Policy](#) ↗

🔧 On-demand testing tools

- [Reverse ping](#) ↗
- [Reverse traceroute](#) ↗
- [Reverse tracepath](#) ↗

📄 Other services

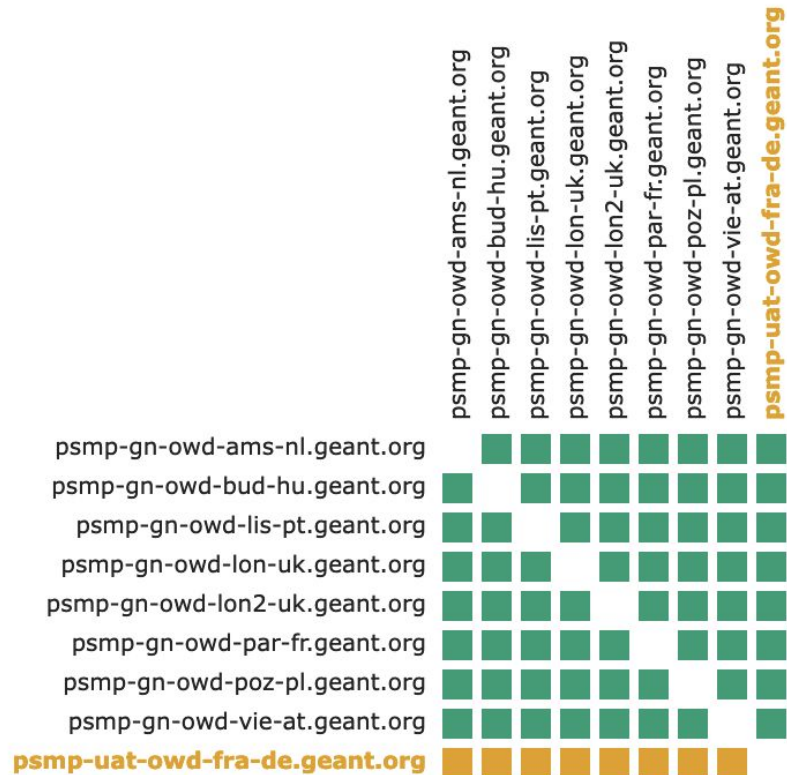
- [Global node directory](#) ↗

Today's MaDDash UI

GEANT Global Mesh - IPv4 OWD - Loss in 30min



! Found a total of 1 problem involving 1 host in the grid

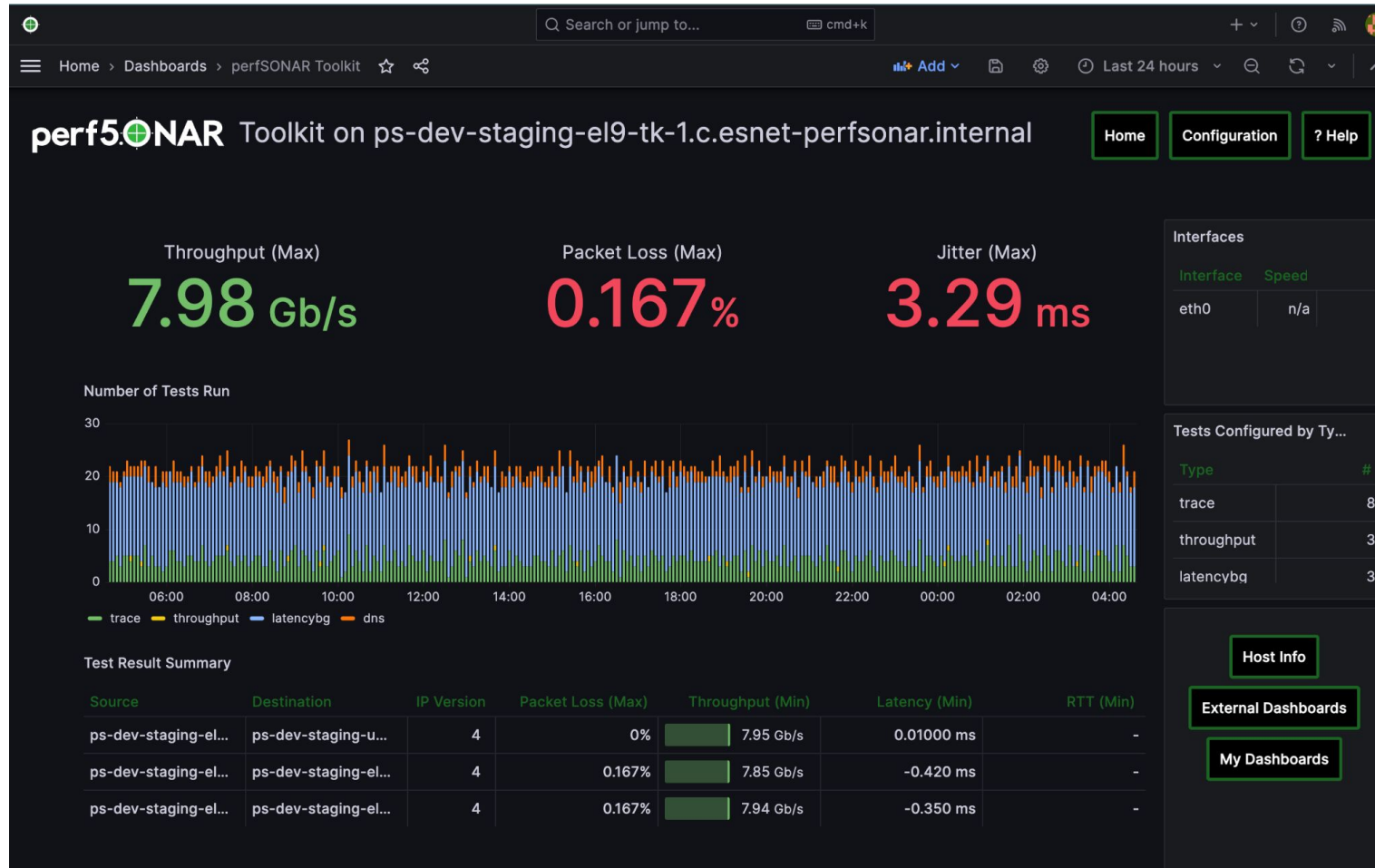


What is Grafana

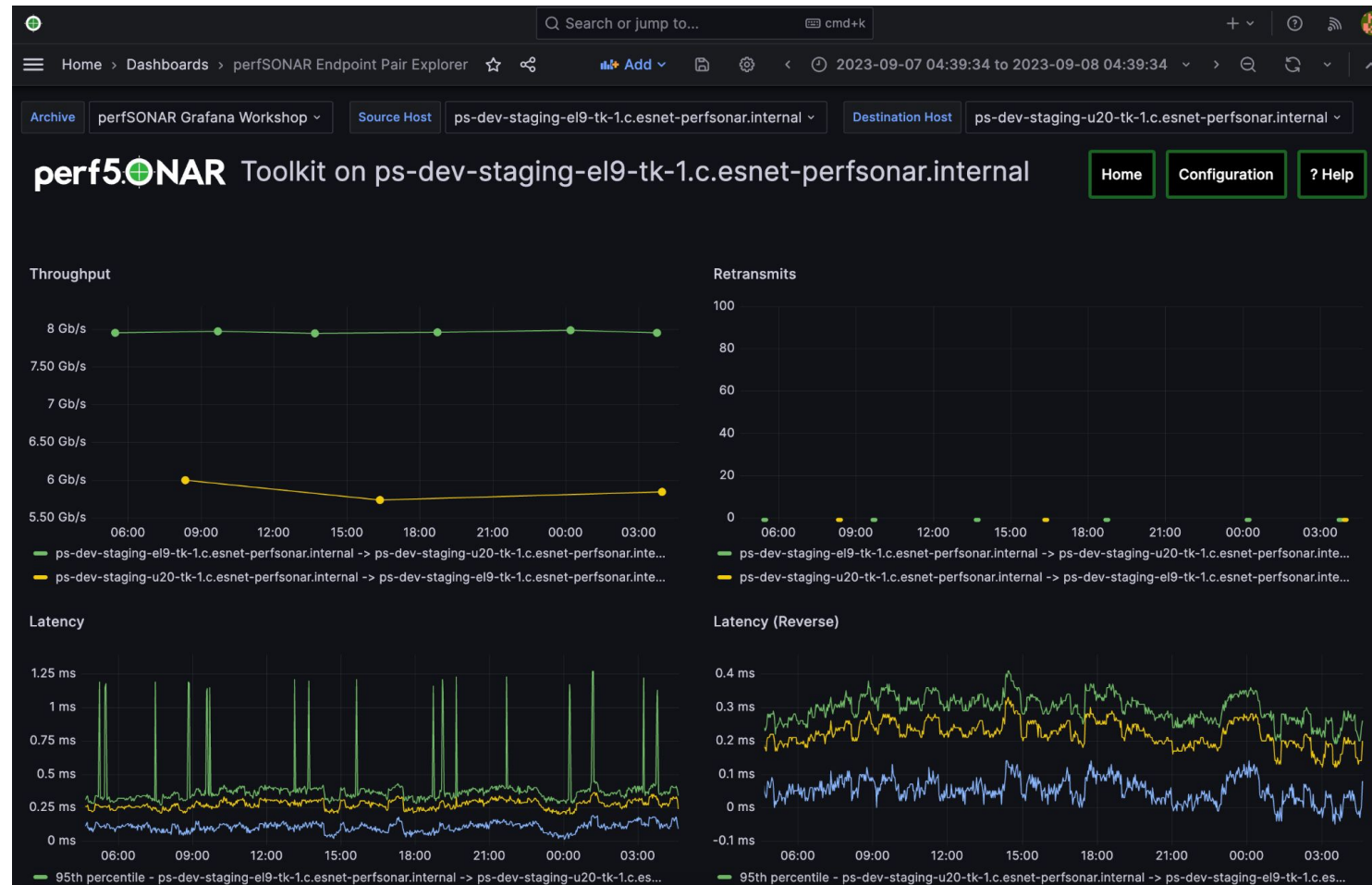
- Grafana is an **open source platform** for for exploring data from a variety of sources
- It has a few key features
 - Its **multi-data source**
 - It has a bunch of **built-in visualizations** that **don't require you to be a Javascript developer** to use
 - It has a **plugin framework** for all of the above so they can be extended and a process for becoming official plug-ins
- More Info:
<https://grafana.com/docs/grafana/latest/introduction/>



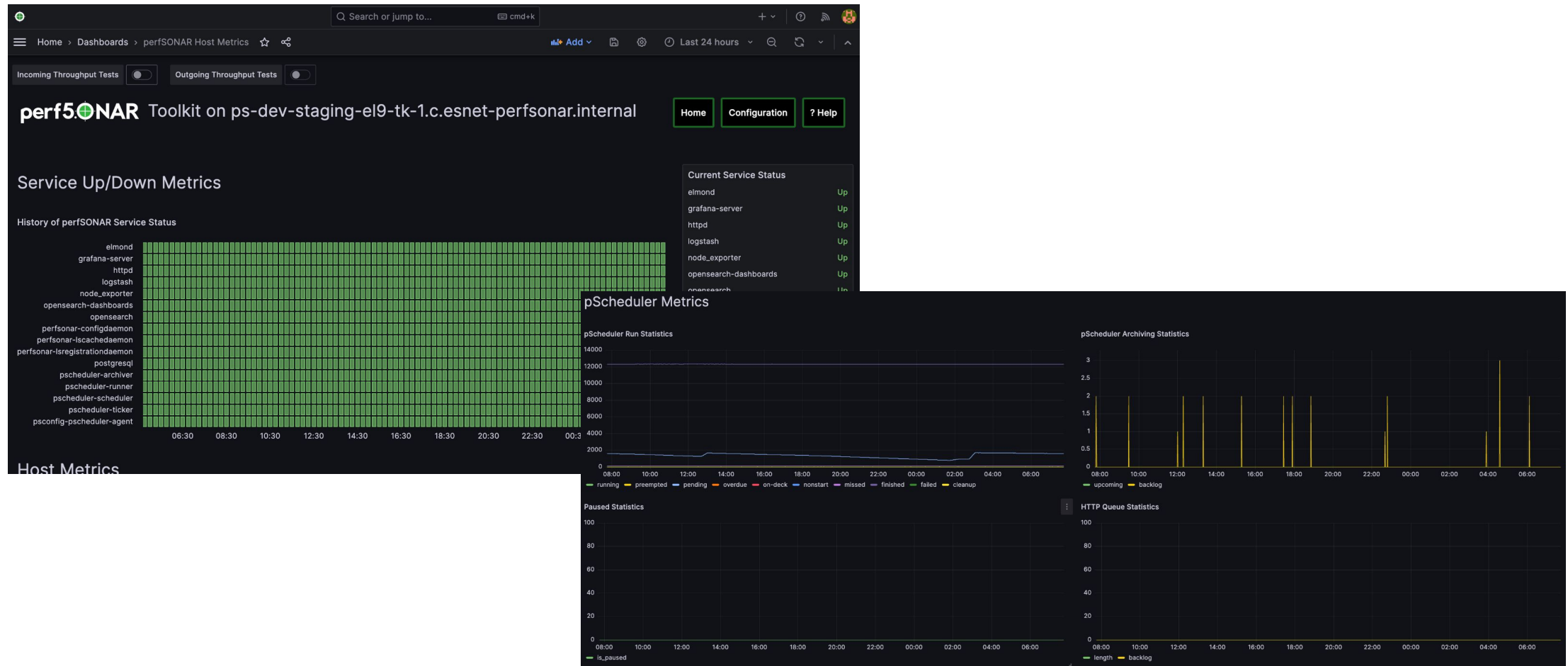
New UI: Focus on Measurements



New UI: Enhancing the Fundamentals



New UI: Instrumentation

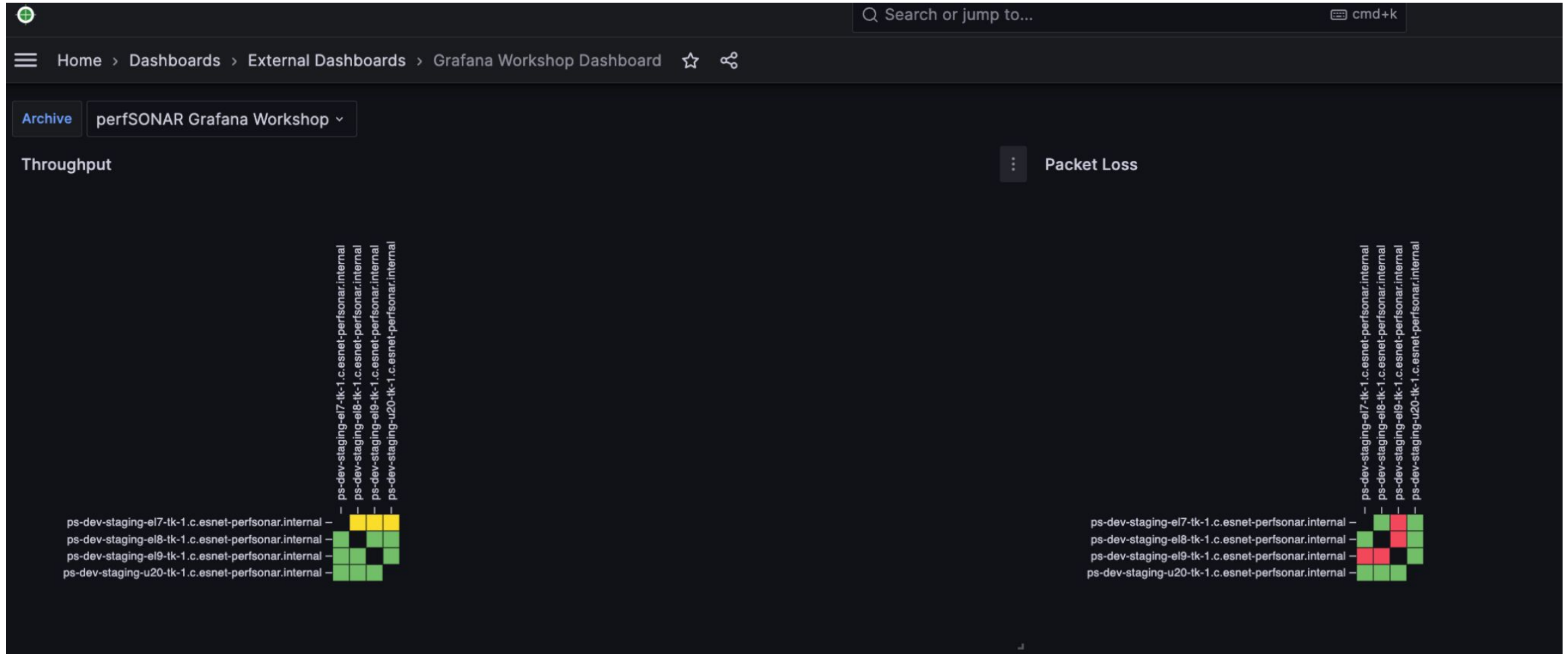


New UI: Data Correlation

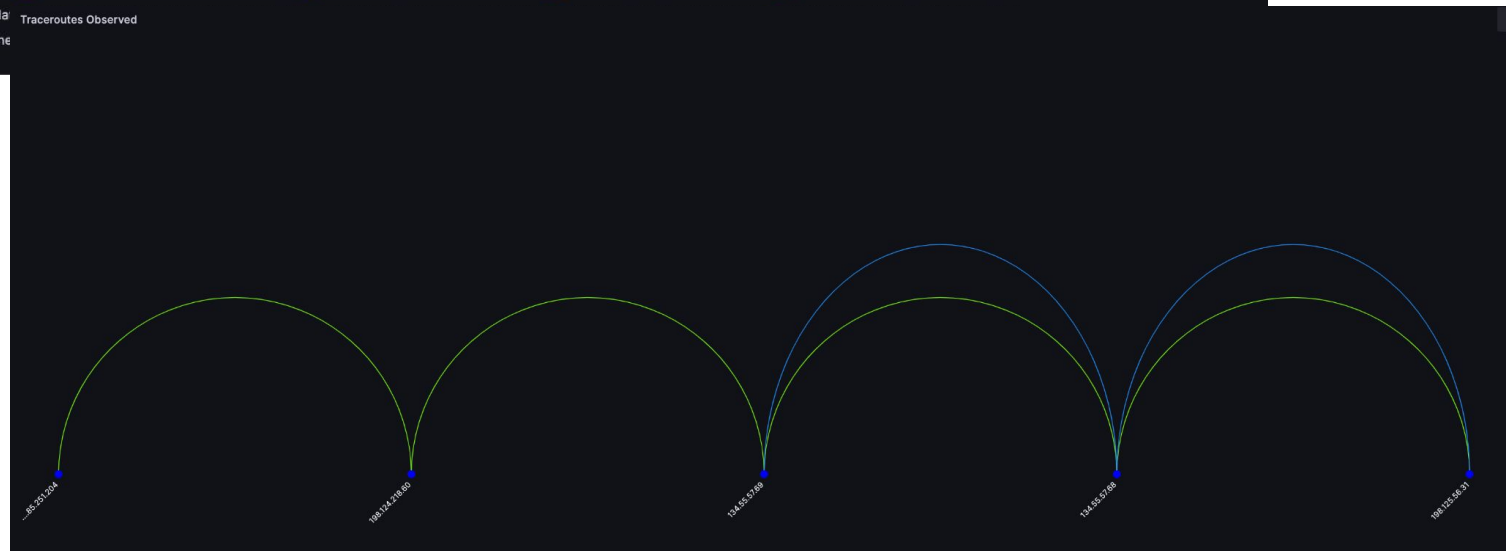
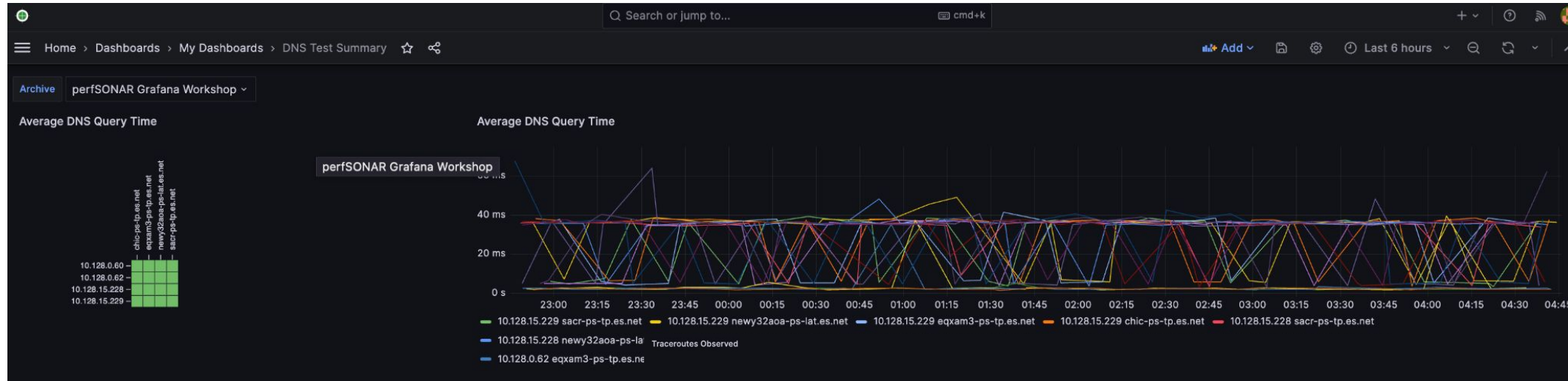
iperf3 overlay
on host
metrics



New UI: MaDDash Integration



New UI: Customization



This is what we're going to do

- Hands-on workshop
- Getting comfortable with Grafana
- Customising your Grafana dashboard
 - Adding data source
 - Correlating data
 - Modifying panels
 - Creating new dashboard

- And in general beta test 5.1

psarchive troubleshoot

```
[root@ps-dev-staging-el9-tk1 andy]# psarchive troubleshoot
OpenSearch running ..... OK
Logstash running ..... OK
OpenSearch API (Localhost) ..... OK
Logstash Endpoint (Localhost) ..... OK
OpenSearch API (HTTPS Proxy) ..... OK
Logstash Proxy Credentials ..... OK
Logstash Endpoint (HTTPS Proxy) ..... OK
Logstash->OpenSearch Credentials ..... OK
Logstash->OpenSearch Authentication ..... OK
OpenSearch Data Exists ..... OK
```

What to expect on update?

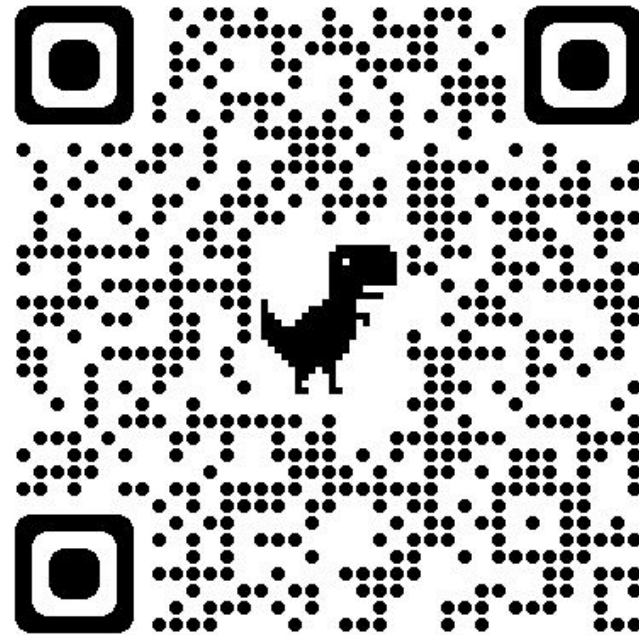
- Update process should be more straightforward than 5.0.0 since not as large as backend change
- Toolkits automatically get new UI
- Your MaDDash instance will be untouched. If you want to migrate to Grafana, look at cookbook [here](#)
- Need to check resources, 4GB might be low for a toolkit. If you are still on Debian 10, Ubuntu 18 or CentOS 7 you need to move to a newer operating system.

Looking Beyond 5.1.0...

- Improving test configuration experience
 - Lookup service enhancements
 - Exploring PTP support
-
- We'll talk about those topics later in the workshop

perfSONAR Community Survey

We need your feedback!



<https://forms.gle/nntfejYJUXfagMCV7>

How do I get perfSONAR 5.1.0 beta?

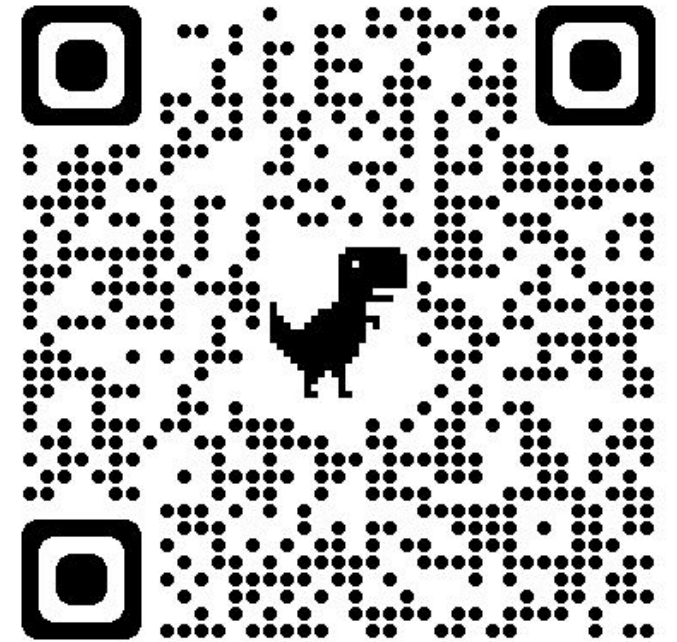
- perfSONAR 5.1.0 is currently in **beta**
- Install instructions [here](#)
- My favorite method is using new install script:

```
curl -s  
https://raw.githubusercontent.com/perfsonar/project/installation-script/install-perfsonar | sh -s - --repo staging toolkit
```

Target for final release is early summer

Note: The URL above may change after beta.

Install Instructions



https://docs.perfsonar.net/release_candidates/5.1.0/install_rcs.html

perf5.0NAR 5.1.0

- **New Grafana Interface**
 - **What?** The default Toolkit and MaDDash UIs replaced with Grafana
 - **Why?** Customizable visualization, better integration with other data sets
- **Threaded iperf3 Support**
 - **What?** This is first perfSONAR version to ship with multi-threaded iperf3
 - **Why?** Ability to test at 100Gbps+
- **Python pSConfig**
 - **What?** pSConfig rewritten from Perl to Python
 - **Why?** Better maintainability
- **Better Instrumentation and Troubleshooting Tools**
 - **What?** Increased stats available and added tools like *psarchive* *troubleshoot*
 - **Why?** Makes it easier to identify issues when perfSONAR misbehaves
- **New OS Support**
 - **What?** Debian 11, Debian 12 and Ubuntu 22 support. No CentOS 7 support.
 - **Why?** Users need modern OSES and CentOS 7 is EOL



Image: New default Grafana UI