

Networking Activities and Plans

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OSG 2022 All-Hands, Joint LHC Session

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To start our networking discussion inside OSG/PATh, it is important to provide a quick overview of what this area does.

Primarily network monitoring to support distributed science across OSG and beyond

- We have developed and operate a global network metrics data pipeline, gathering **perfSONAR** and other metrics
- We provide tools and user support to find and localize network problems.
- We track future networking technologies and plan for possible use cases supporting OSG and WLCG

Today: Five Topics to Cover

- **Site specific monitoring:** one of the main deficiencies identified in the first WLCG Network Data Challenge was missing site specific network traffic data
 - The WLCG Monitoring TF is working to provide a template site network description
 - Most important part is for site's to provide network monitoring link (IN/OUT traffic)
- The Research Networking Technical Working Group is working on three areas:
 - **Network visibility** via Packet Marking / Flow Labeling
 - **Network usage optimization** via Packet Pacing / Traffic Shaping
 - **Network management** via Network Orchestration / GNA-G DIS / SENSE / NOTED
- **Network Upgrade Planning:** ESnet is planning to engage with every US-ATLAS / US-CMS site to provide some coherent planning for network upgrade timelines.
 - What are the current plans to upgrade, if any?
 - What scale is the planned upgrade, e.g., going to n X 100G, 400G, other?
 - Timing and funding issues?

We have set up a Google document to allow everyone to add questions, comments and responses at

https://docs.google.com/document/d/1QbgO8i9xZzNrP_Q45HCQV54PE6gTNGICyD_Tc-0VvYg/edit#

Starting questions:

Where can we (USATLAS/USCMS) work together in networking?

What are the priorities?

Are sites aware of the various network activities that are ongoing?

What are the site plans regarding upgrades or network changes?

Is anyone interested in participating in any of the activities identified?

Do the experiments or sites have concerns about any of the activities?

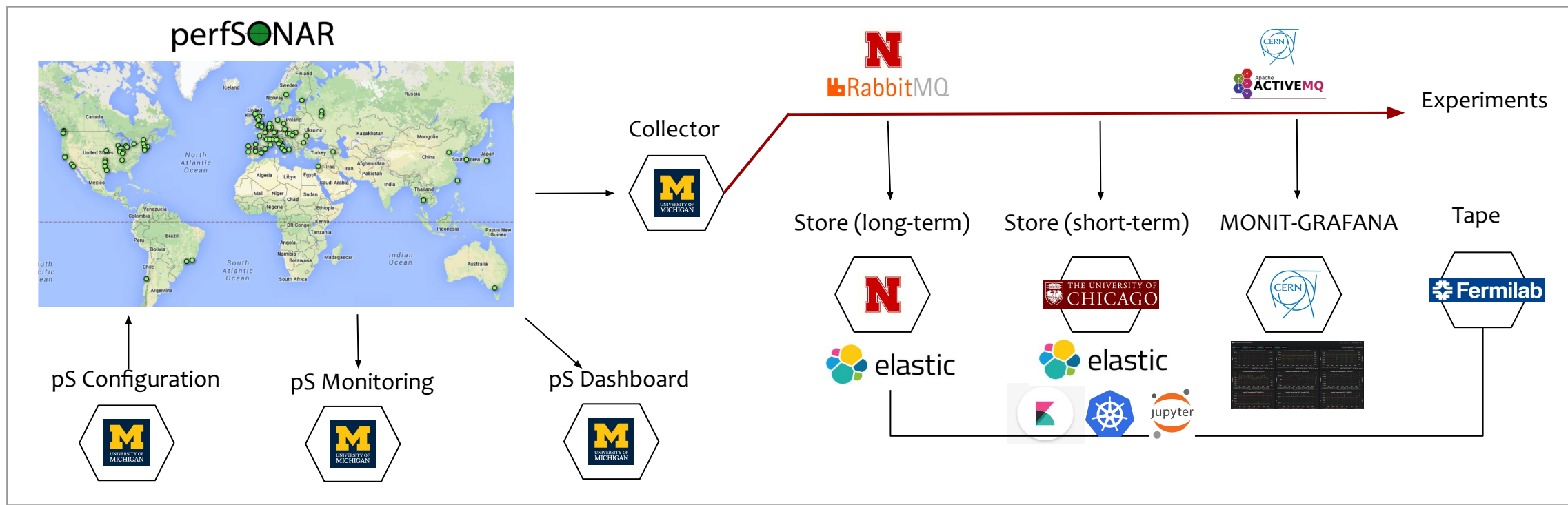
Questions about any of the activities? Who wants more details about what?

Let's Discuss

- Current OSG network documentation
 - <https://opensciencegrid.org/networking/>
- pS Toolkit Info Page: <https://toolkitinfo.opensciencegrid.org/>
- Kibana UC ingest monitoring: <https://tinyurl.com/ydhb4ea6>
- Kibana (protected) pS Infrastructure Status Dashboard:
<https://tinyurl.com/y8abhofm>
- The psetf check_mk pS monitoring page:
https://psetf.opensciencegrid.org/etf/check_mk/index.py?start_url=%2Fetf%2Fcheck_mk%2Fdashboard.py
- SAND: <http://sand-ci.org>
- Research Networking Technical WG
<https://docs.google.com/document/d/1I4U5dpH556kCnoIHzyRpBI74IPc0gpgAG3VPUp98lo0/edit#heading=h.l010d9hjisa>

The focus in OSG Network Monitoring for many years has been the deployment and configuration of our global **perfSONAR** monitoring framework

- The **deployment** and **operations** of **perfSONAR** has been stable
- The **network pipeline** has been hardened and is operating reliably.



Network Data Volume (2018-2021)

Net Pipeline	Data Type	Total Tests	Tests/day	Storage Size
perfSONAR	Latency	6.91B	7.95M	3.1TB
	Packet Loss	7.00B	8.08M	2.4TB
	Retransmits	14.7M	18.8k	6.3GB
	Throughput	15.6M	19.2k	7.0GB
	Network Path	1.28B	2.14M	1.5TB
ESnet	Traffic	1.1B	44.7M	1.74TB
	Interfaces	3.2M	11.8k	530MB
HTCondor	Job Transfers	734M	446k	610GB
Total		17.1B	64.4M	9.4TB