

perfSONAR

in the WACREN region

Update 2021

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WACREN 2021

perfSONAR is developed by a partnership of



ESnet



GÉANT



INDIANA UNIVERSITY



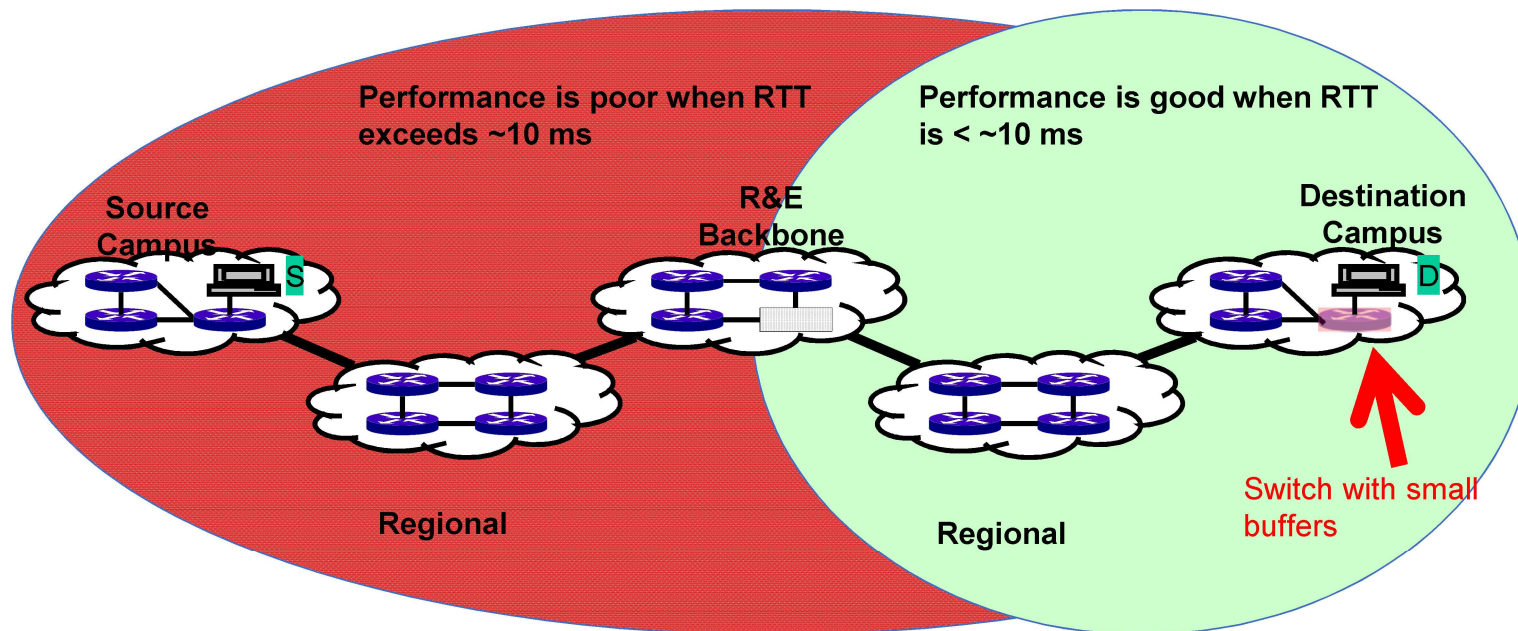
Outline

- What is perfSONAR?
- Measurement examples
- perfSONAR in WACREN region
- Latest perfSONAR releases
 - 4.1 to 4.3
 - And beyond

What is perfSONAR?

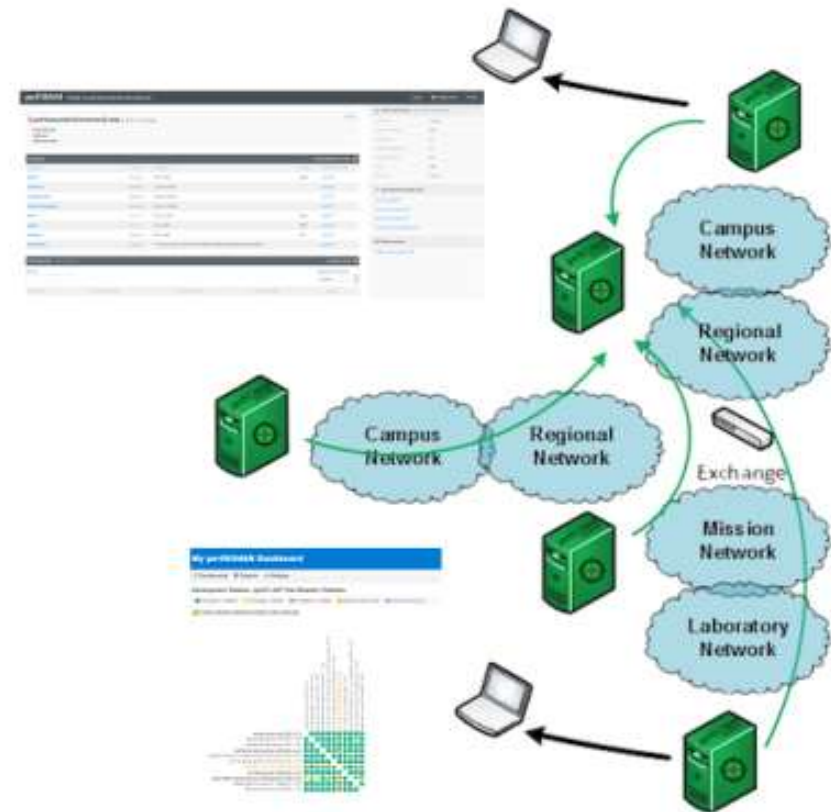
- perfSONAR is a toolkit to
 - Sets network performance expectations
 - Find network problems, focus on soft failures
 - Particularly useful between different domains
- Multi-domains, R&E community
 - 2000+ measurement points around the world on many different networks
 - From Regional Networks (WACREN, GÉANT) to Universities
- Deployment map (Service Directory)
 - <http://stats.es.net/ServicesDirectory/>
 - Deployed on all continents (except Antarctica)
- Open Source
 - 6 partners on 3 continents (open to new partnerships)

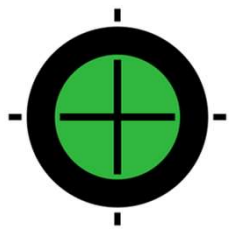
Local testing cannot find everything



Multi-domain use case

- Team of researchers, scientists in different countries or continents
- Assess performance, end-to-end, on a multi-domain path
 - University — NREN — Regional Network(s) — NREN — Research Center





Demonstration icon by luketaibai from The Noun Project

Measurement Examples

Lagos to London: weekly view

Source
lagos-10g.ps.wacren.net
196.216.190.18
[Host info](#) ▾

Destination
london-10g.ps.wacren.net
196.216.190.2
[Host info](#) ▾

Report range

← 1 week →

2021-03-07 21:12

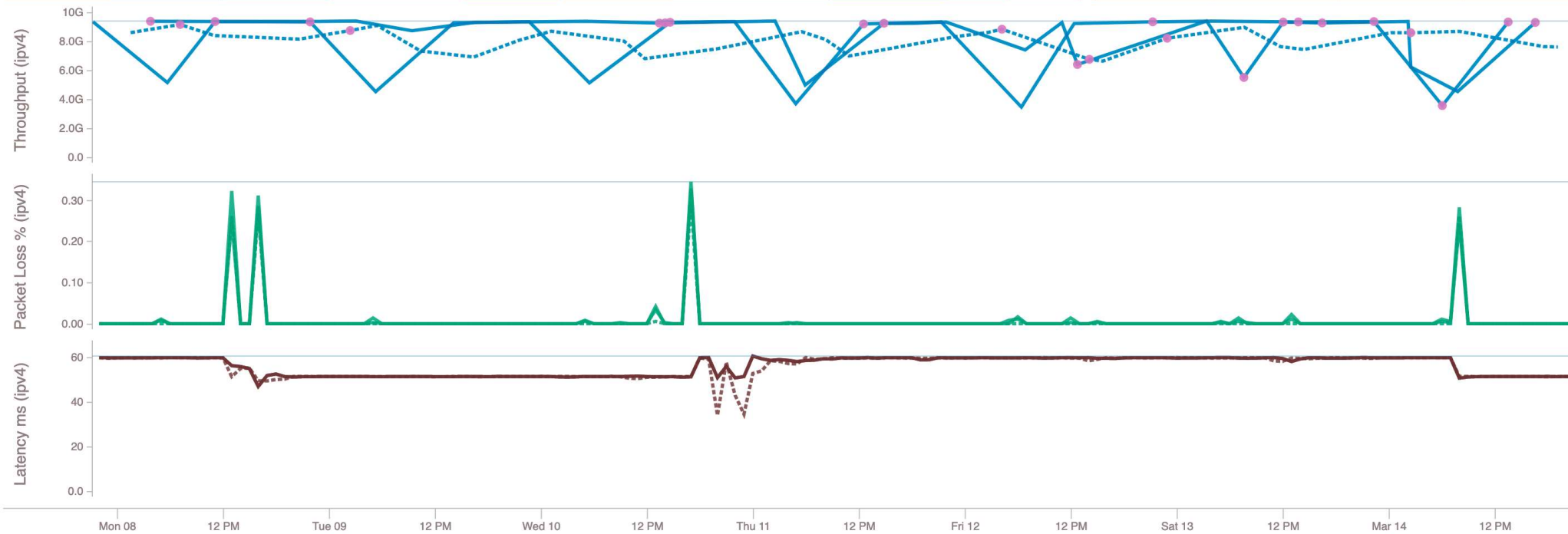
2021-03-14 21:12

Submit

Sun, 07 Mar 2021 20:12:36 GMT to
Sun, 14 Mar 2021 20:12:36 GMT

Show/hide chart rows Throughput Packet Loss Latency Application Response Time

Tput (TCP) Tput (UDP) Loss (UDP) Loss (one way) Loss (rtt) Retrans ● Latency (one way) Latency (rtt) DNS HTTP Settings Forward Reverse Failures ●



Lagos to London: yearly view

Source
lagos-10g.ps.wacren.net
196.216.190.18
[Host info](#) ▾

Destination
london-10g.ps.wacren.net
196.216.190.2
[Host info](#) ▾

Report range

← 1 year →

2020-03-14 21:13

2021-03-14 21:13

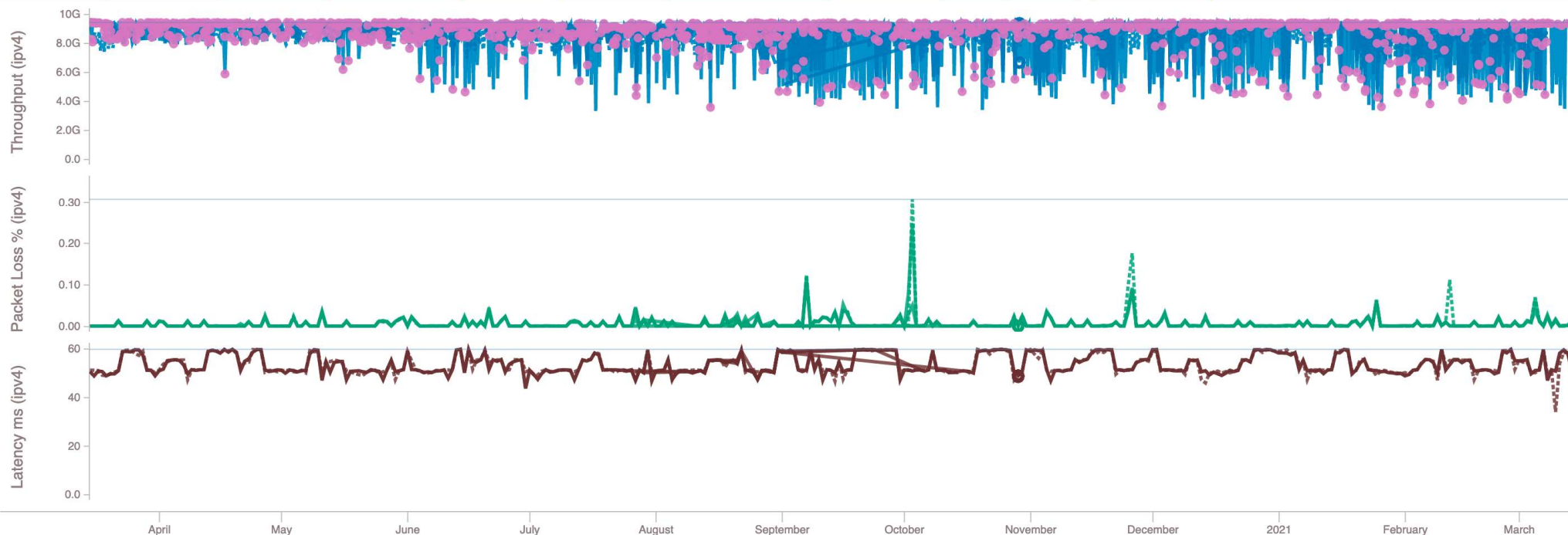
Submit

Sat, 14 Mar 2020 20:13:47 GMT to

Sun, 14 Mar 2021 20:13:47 GMT

Show/hide chart rows Throughput Packet Loss Latency Application Response Time

Tput (TCP) Tput (UDP) Loss (UDP) Loss (one way) Loss (rtt) Retrans Latency (one way) Latency (rtt) DNS HTTP Settings Forward Reverse Failures

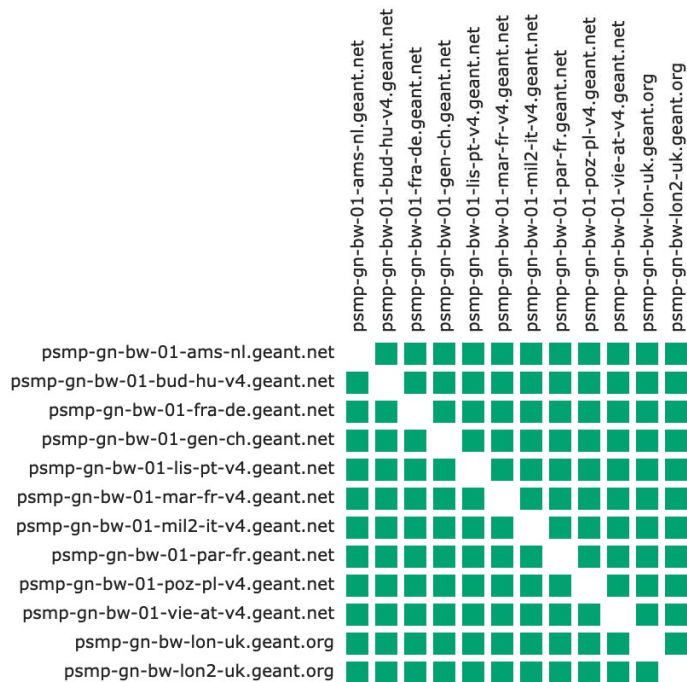


Dashboard example: GÉANT

GEANT Global Mesh - IPv4 iperf3 @4h - Throughput avg of 6 tests

■ Throughput >= .5Gbps
 ■ Throughput < .5Gbps
 ■ Throughput <= .25Gbps
 ■ Unable to find test data

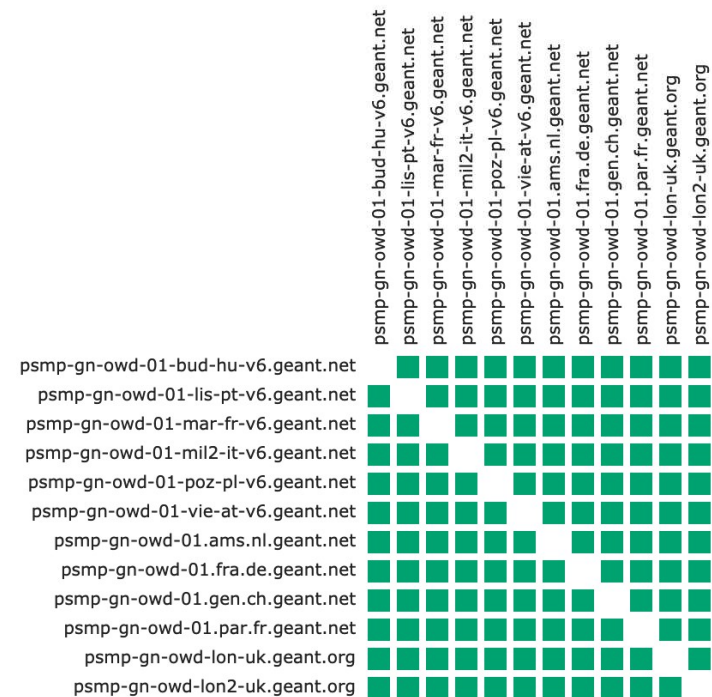
✓ No problems found in grid

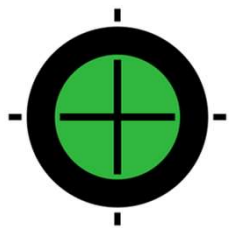


GEANT Global Mesh - IPv6 OWD - Loss in 30min

■ Loss rate is <= 0.11%
 ■ Loss rate is > 0.11%
 ■ Loss rate is >= 0.5%
 ■ Unable to find test data

✓ No problems found in grid





perfSONAR in WACREN

In the WACREN network and West Africa

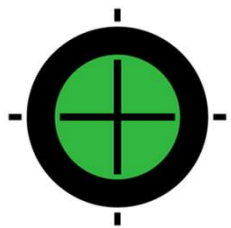
perfSONAR in WACREN

- 2 measurements points up and running
 - London and Lagos
 - 10 Gbps
- Future deployments
 - Accra, Lomé
 - Other PoP
- WACREN Region
 - GARNET (Accra)
 - Kwame Nkrumah University (Kumasi)
 - Université d'Abomey-Calavi (Cotonou)
 - UCAD/SNRER (Dakar)

Public perfSONAR nodes in Africa



- We need more!
- NREN, University, Research Center, ...
- The more MP the better the performance view
- <https://www.perfSONAR.net>



perfSONAR update

Latest releases

perfSONAR 4.1.x

- Release dates: 2018-2019
- Main new features:
 - pSConfig
 - TWAMP
- pSConfig: Manage measurements between a set of pS hosts
 - Central config self hosted on your network
 - Each pS mode reads the central config
 - Measurements automatically scheduled
 - Central or local archive
 - Central self hosted dashboard

perfSONAR 4.2.x

- Release dates: 2019-2020
- Main new feature: pSConfig Web Administration (PWA)
 - Graphical User Interface
 - List hosts, tests and parameters
 - No need to deal with JSON file anymore
- New pScheduler plugins:
 - Disk to Disk measurements (FTP, Globus)
 - DNS and HTTP response time
- Ansible roles and example playbooks
 - Deploy and configure any pS bundle
 - Centrally maintain your pS hosts
- End of BWTCL support (pS 3)

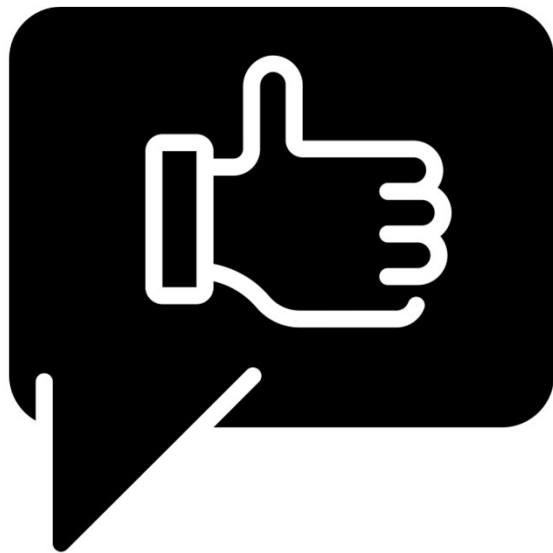
perfSONAR 4.3.x

- Release date: November 2020
 - 4.3.3 in February 2021
- Stabilisations, performance improvements, technical debt
 - Python 3 port
- New pScheduler plugins:
 - S3 benchmark
 - ethr (Microsoft) for throughput tests

Next perfSONAR

- Sometime this year
 - Will probably be a 4.4 and then a 5.0
- 4.4
 - Minor new features and improvements
 - Ubuntu 20 support
- 5.0
 - ElasticSearch backend to replace Esmond
 - Opening more visualisation possibilities

perfSONAR



Thanks icon by priyanka from The Noun Project

Thanks!

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

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