perfSONAR Update

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WP6T3

STF16, Bucharest, 26-27 February 2019

Public

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Agenda

- perfSONAR update
- perfSONAR engagement
- Grafana integration POC
- perfSONAR in Juniper testing
- PMP update

# perfSONAR latest changes (v. 4.1.6)

- 4.1.x contains a number of changes including:
  - A new component called pSConfig to replace the MeshConfig component
  - A new TWAMP tool
  - Support for docker containers of the "tools" and "testpoint" bundles
- 4.1.x not available on CentOS 6 or Debian 7 (wheezy)
  - 4.0, BWCTL EOL announced

- Visit **https://www.youtube.com/perfSONARProject/**
  - Know Your Limits
  - TWAMP implementation in perfSONAR
  - pShooter Demo

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Updated Architecture
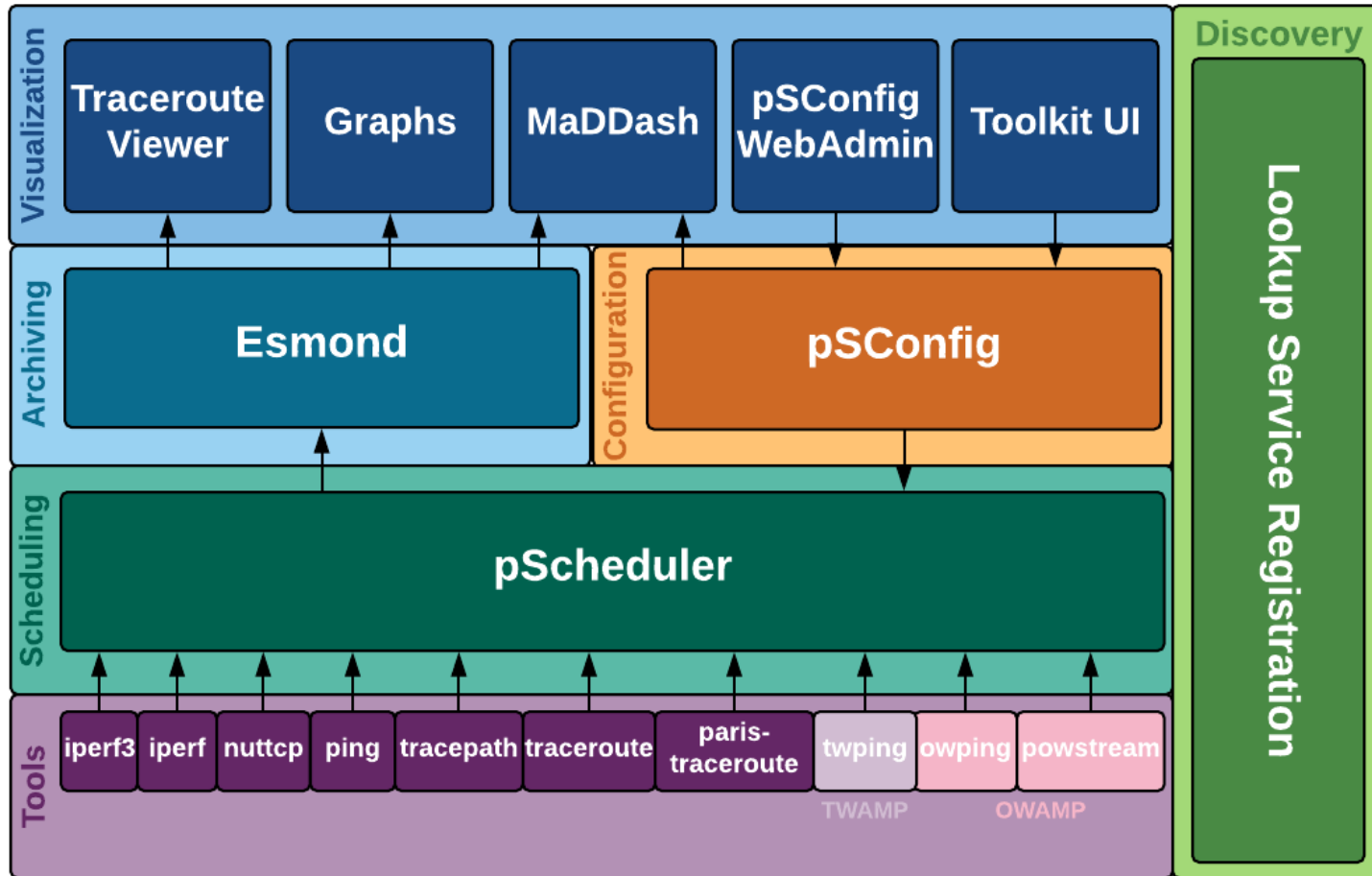
- See also http://docs.perfsonar.net/intro_about.html

pShooter (POC) – A Tool for Automatic Trubleshooting with pS

Two Topics

- Adding performance data to existing visual traceroute tools

- Identifying perfSONAR nodes near points along a path
  - Initially for finding stored measurements

INTERNET₂ **TechEX18**
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[5]

- Demo: https://youtu.be/2HUY6b5T9DM

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perfSONAR 4.2 release plans (beta@April)

- GridFTP plugin (disk-to-disk tests)
- pScheduler priorities and task pre-emption
- New psconfig CLI utilities and Web Admin (PWA)
- Improved SELinux support (aim to run with SElinux enabled in the future)
- Some AppArmor support on Ubuntu
- Preview of a new traceroute visualisation tool
- OWAMP/TWAMP fixes and improvements
- BWCTL support completely removed
- Lots of minor fixes

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perfSONAR engagement in Europe

LoLa project, https://lola.conts.it/

STFC, https://stfc.ukri.org/

PRACE project, http://www.prace-ri.eu/

ASTRON workshop

perfSONAR and Grafana integration – current Proof Of Concept

Grafana

Esmond datasource

Esmond helper

Esmond MA

Redis

Datasource/Helper Protocol:
- Datasource:
  - Parameter = MA address
- Time Series Panel:
  - Parameters = measurement selection

Cache:
- Full measurement list
- Time series data

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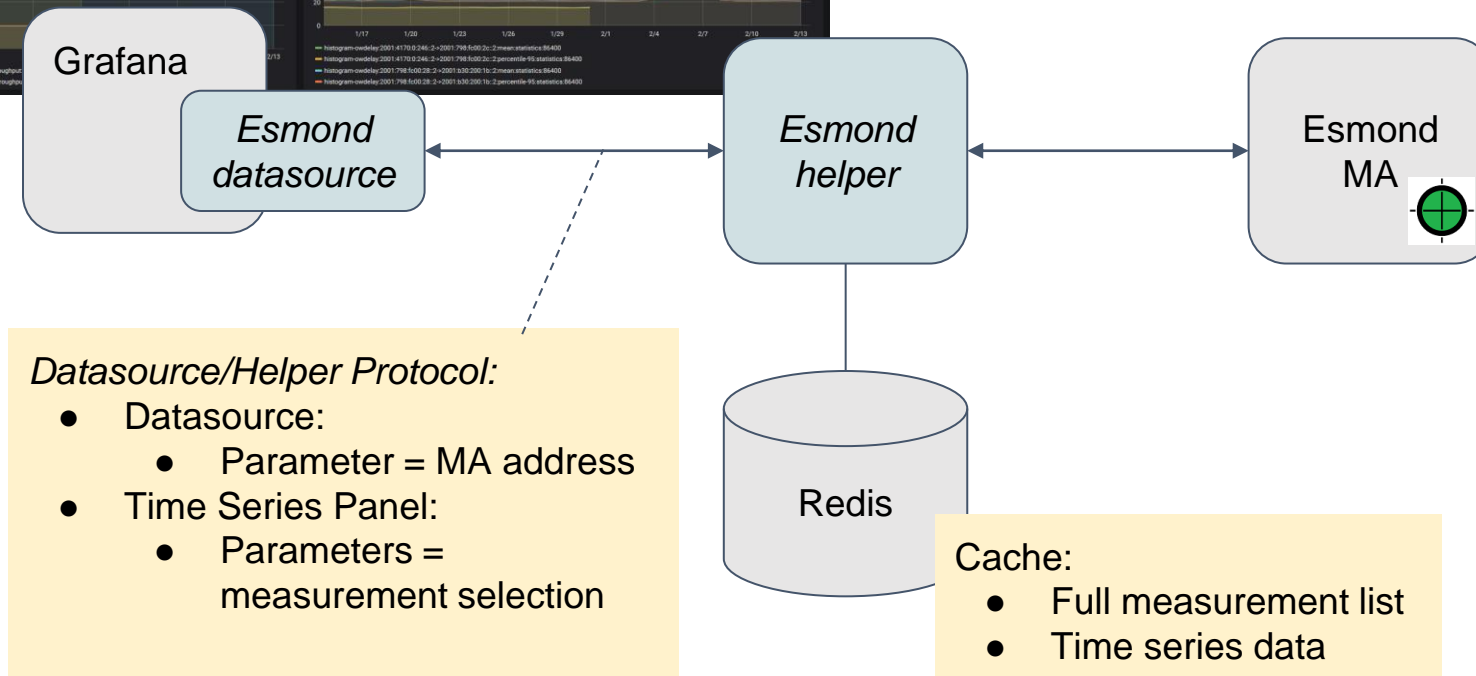
perfSONAR and Grafana integration - Details

- Sources:
  - https://github.com/erik-geant/esmond-poc-datasource
  - https://github.com/erik-geant/esmond-helper

- Demo:
  - http://test-psui-vis.geant.org:3000/d/BxStjTYmk/esmond-ivan?orgId=1

- Next Steps:
  - MA schema is too large/complex for nice navigation with Grafana. Create an external GUI for measurement selection and use the Grafana rest API to generate/manage dashboard panels

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pScheduler/Grafana Integration, near-term plans

Grafana

pScheduler datasource

pScheduler REST:
- Launch measurements
- Handle results

pScheduler MP

pScheduler Helper and UI

Dashboard API:
- Panel configuration

- MA selection
- Measurement parameter selection
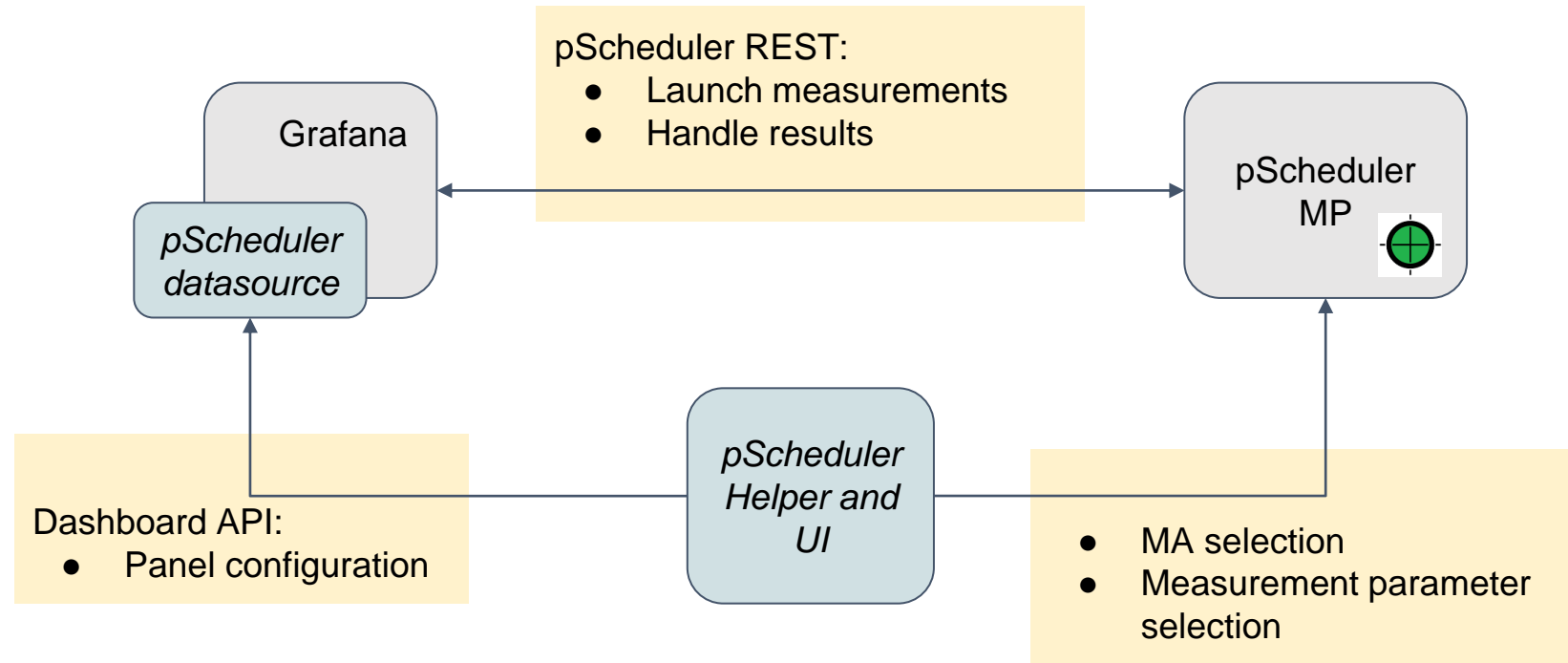
## pScheduler/Grafana Integration, near-term plans

- First Phase (in progress)
  - Finish the POC in the previous slide

- Second Phase
  - Add measurement parameter selection to the Grafana pScheduler datasource query editor. If the result is nice or useable, then eliminate the helper UI component

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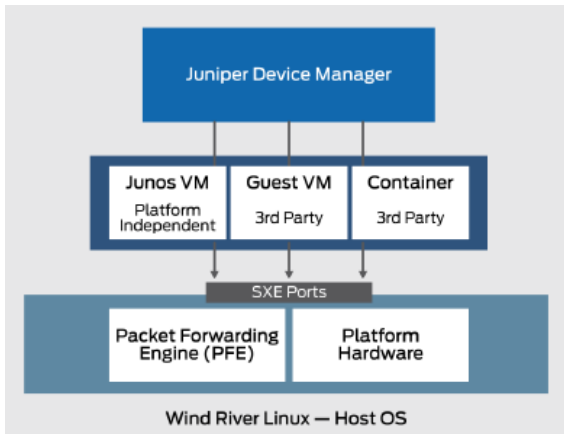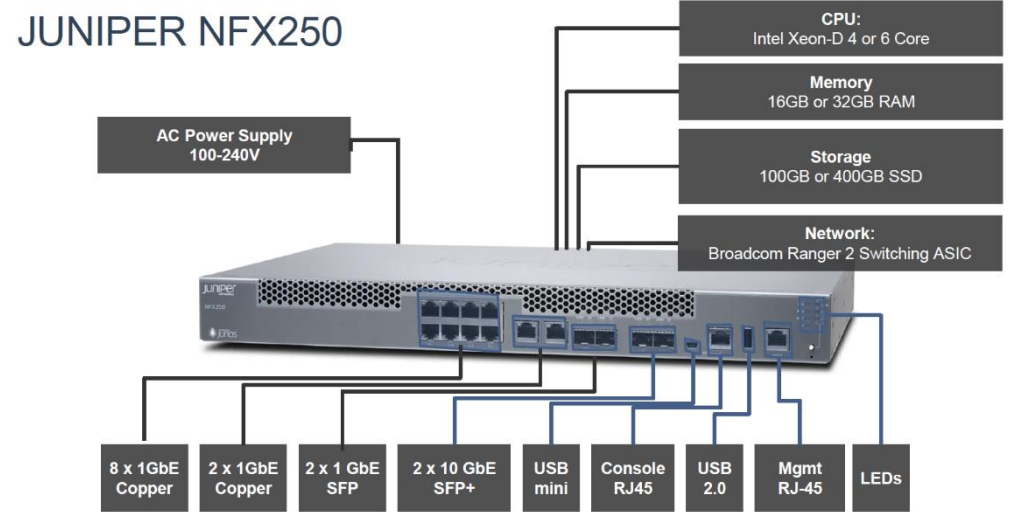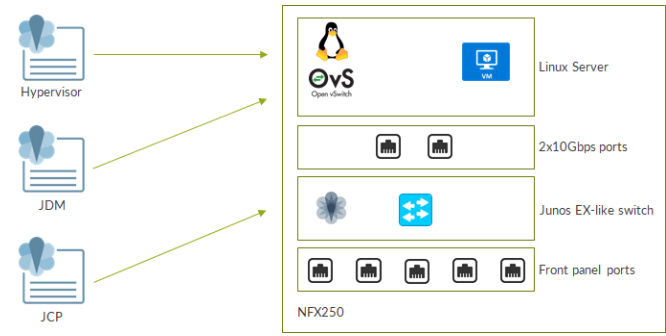## perfSONAR in Juniper testing (1/4)

- Why
  - Lower costs of deployment – reuse devices already in place
  - Put perfSOANR as close as possible to the network and resources monitored
  - Interoperability testing
- What
  - A pair of Juniper NFX250
  - Deploy perfSONAR in a third party VM

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perfSONAR in Juniper testing (2/4)

- CentOS 7.5 Cloud image
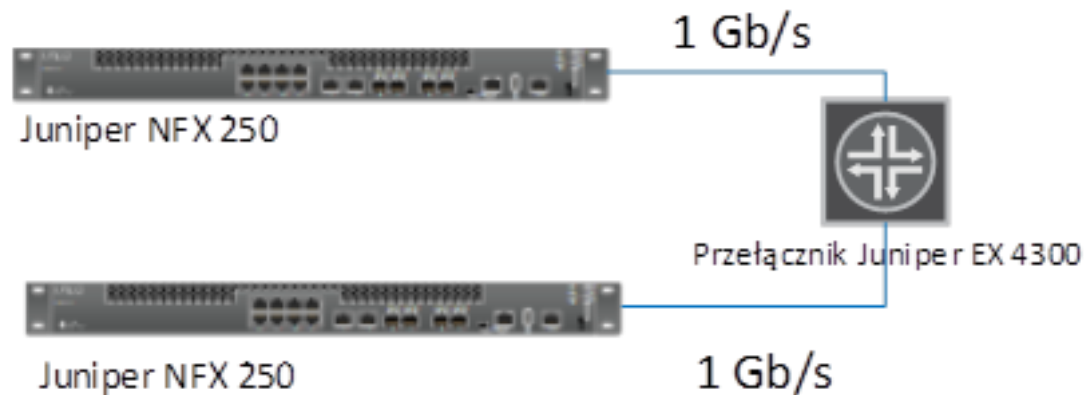- perfsonar-toolkit

server + EX = NFX
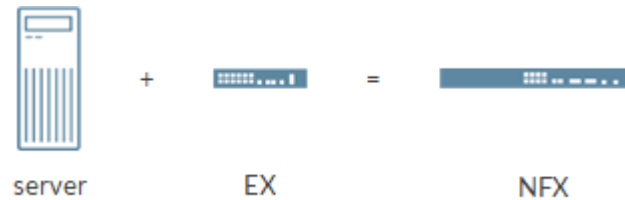
NFX250 is a device that sits at customer premises and runs multiple virtual services from Juniper and third parties. "It's not a router or a switch. It's whatever you want it to be,"

JUNIPER NFX250

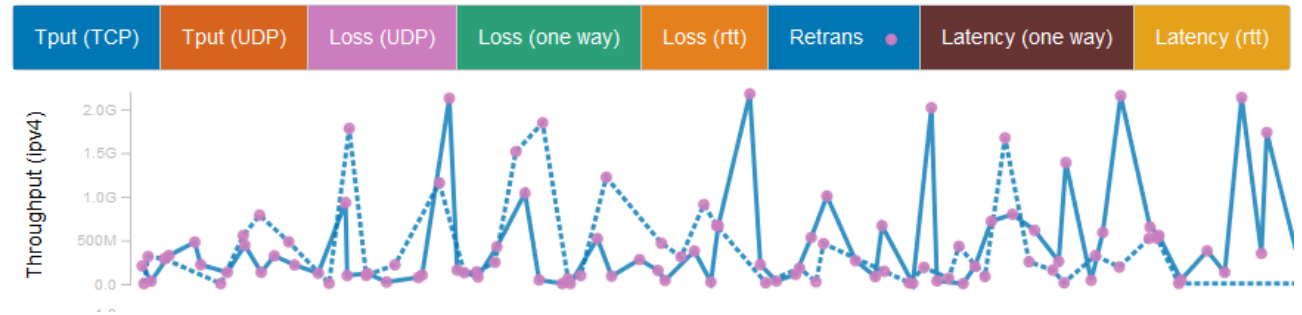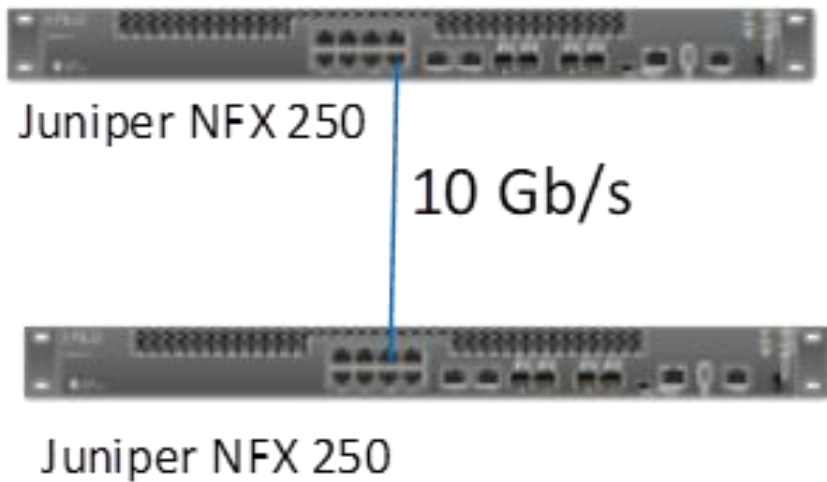# perfSONAR in Juniper testing (3/4)

- Throughput tests (virtio)

1 Gb/s

Juniper NFX 250

Przełącznik Juniper EX 4300

Juniper NFX 250

1 Gb/s

Link	Result
1 Gb/s	950-985 Mb/s

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perfSONAR in Juniper testing (4/4)

- Throughput test

Link	Results	Remarks
10 Gb/s and virtio	500 - 2000 Mb/s	100 - 600 retransmits
10 Gb/s and single-root I/O virtualization (SR-IOV)	~ 6 Gb/s (CLI) 1 – 6 Gb/s (scheduled)	0 retransmits

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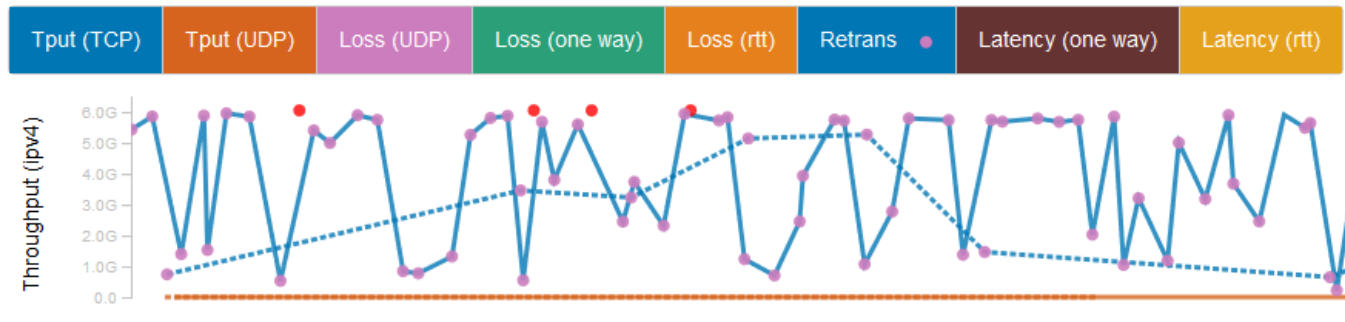
PMP update (1/2)

- Performance Measurement Platform
  - Consists of set of low-cost hardware nodes with preinstalled perfSONAR software
  - The central components that manage the platform elements, gather, store and represent the performance data, are operated and maintained by the GÉANT project
  - Coupled with GEANT MPs to create a partial mesh for NRENs
  - Small nodes users can shape the predefined setup and configure additional measurements to their needs and get more familiar with the platform
    - Can become example measurement experimentation and training platform about network measurement, network management, network performance
    - Can provide an easy way to setup a new perfSONAR small nodes on new small devices (not tied to the hardware) through providing ways for image creation and guidelines

PMP update (2/2)

- PLM production gate for central PMP infrastructure passed

- Looking forward to upgrade old nodes
  - Migration procedure already in place
    - https://wiki.geant.org/display/gn43wp6/PMP+Upgrading+Instruction+from+CentoOS+6+to+7
  - Central infrastructure ready
    - Automatization in place
  - Operation team ready
  - Details sent to node administrators

- Welcoming new NRENs (CyNET, GRENA, RENAM, RedIRIS)

TNC19 „GEANT PMP Service Training" open event
- Sunday 9:00 – 12:30, June 16, 2019, Tallinn
- No separate fee or registration required

Thank you

Any questions?

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