"HANDS-ON PERFSONAR "

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LAB SERIES: PERFSONAR

Lab Series: perfSONAR

- Lab 1:   Configuring Admin. Information Using perfSONAR Toolkit GUI
- Lab 2:   PerfSONAR Metrics and Tools
- Lab 3:   Configuring Regular Tests Using perfSONAR GUI
- **Lab 4:   Configuring Regular Tests Using pScheduler CLI Part I**
- **Lab 5:   Configuring Regular Tests Using pScheduler CLI Part II**
- Lab 6:   Bandwidth-delay Product and TCP Buffer Size
- Lab 7:   Configuring Regular Tests Using a pSConfig Template
- **Lab 8:   perfSONAR Monitoring and Debugging Dashboard**
- Lab 9:   pSConfig Web Administrator
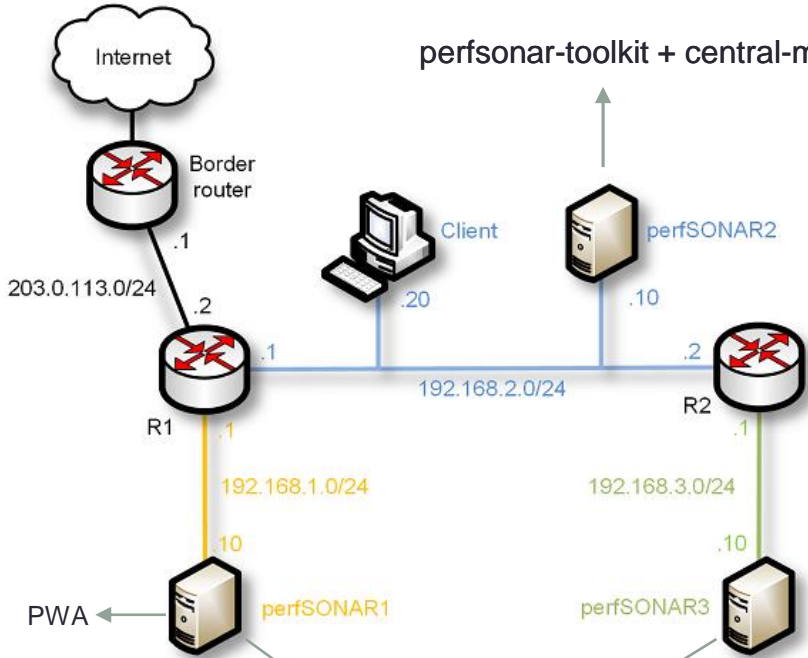- Lab 10: Configuring pScheduler Limits

Organization of Lab Manuals

- Each lab starts with a section *Overview*
  - ➢ Objectives
  - ➢ Lab topology
  - ➢ Lab settings: passwords, device names
  - ➢ Roadmap: organization of the lab
- *Section 1*
  - ➢ Background information of the topic being covered (e.g., fundamentals of TCP congestion control)
  - ➢ Section 1 is optional (i.e., the reader can skip this section and move to lab directions)
- *Section 2… n*
  - ➢ Step-by-step directions

Pod Design

- **perfsonar-tools**
  - ➢ command-line clients for on-demand measurements
- **perfsonar-testpoint**
  - ➢ tools + scheduler for regular tests + registration to be centrally managed
- **perfsonar-core**
  - ➢ perfsonar-testpoint + esmond measurement archive used to store results locally
- **perfsonar-toolkit**
  - ➢ perfsonar-core + web interface to manage tests + scripts for tuning and security settings
- **perfsonar-central-management**
  - ➢ tools to centrally manage hosts and display their results

perfSONAR
installation options

https://docs.perfsonar.net/install_options.html
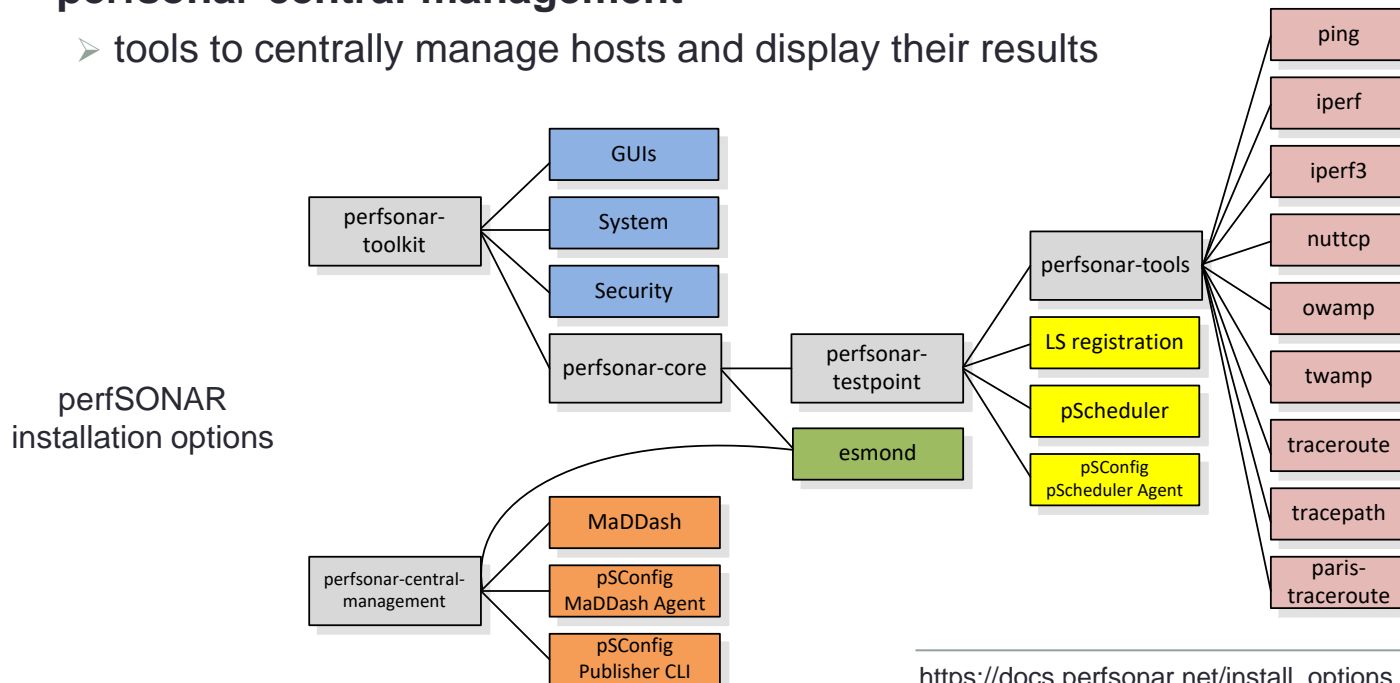
Pod Design

perfsonar-toolkit + central-management

Topology

perfSONAR layers
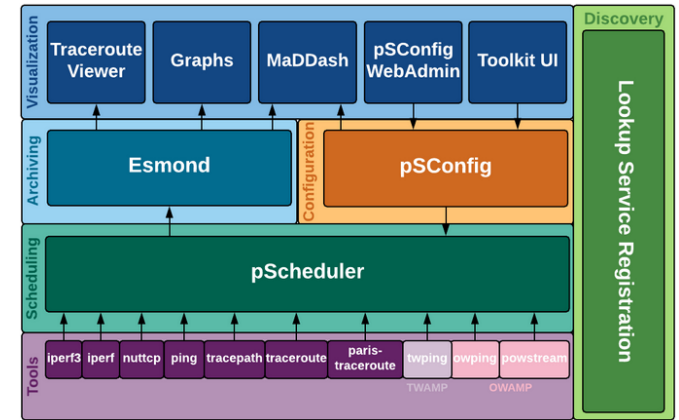
perfSONAR
installation options
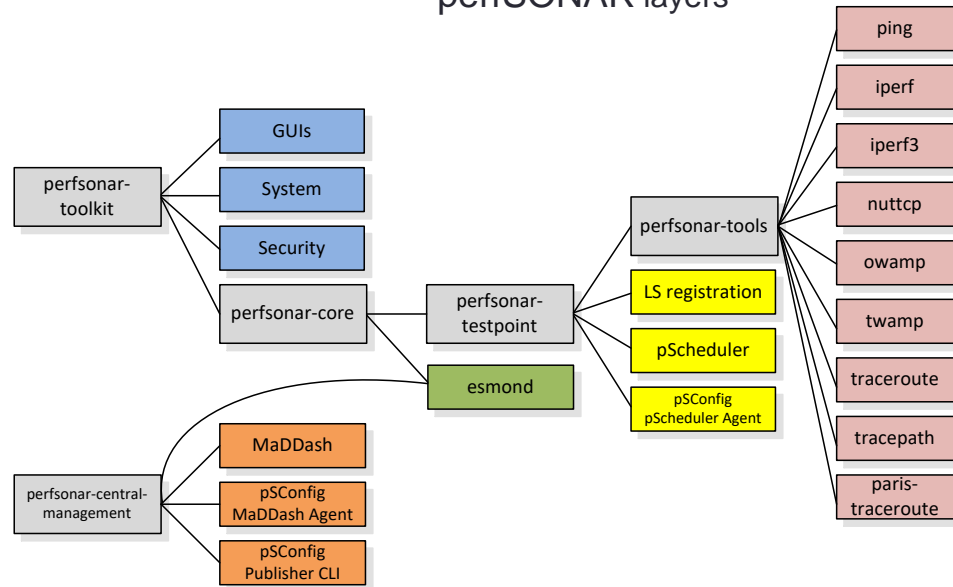
DEMO 1
CONFIGURING REGULAR TESTS
PSCHEDULER CLI

Demo activities are described in Lab 4, 5, , perfSONAR Lab Series

The pScheduler Command

- The pScheduler coordinates, executes, and optionally stores network measurements
  - ➤ E.g., latency, packet loss rate, throughput
- The pScheduler can be invoked via CLI or GUI
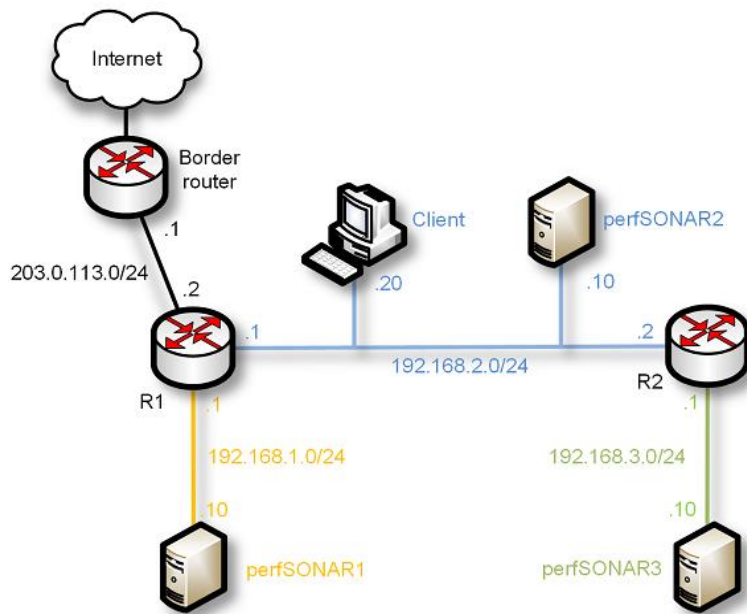
Lab topology
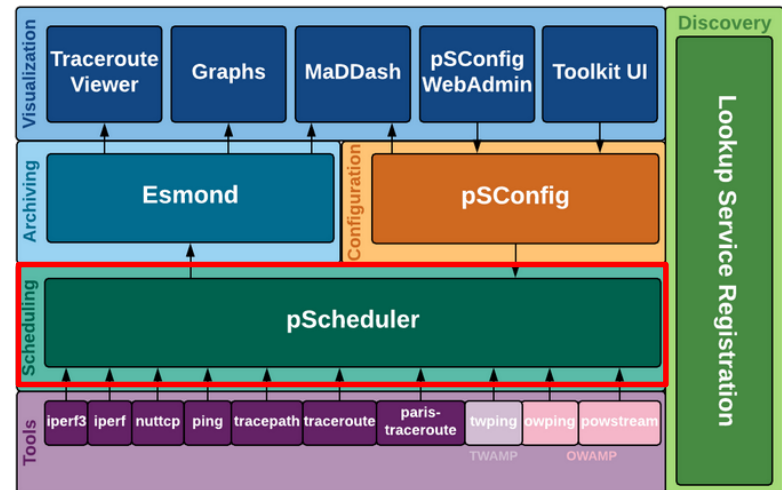
perfSONAR layers

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

```
pscheduler task latency --source 192.168.1.10 --dest 192.168.2.10
```


Lab topology

Latency task

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

```
pscheduler task latency --source 192.168.1.10 --dest 192.168.2.10
```


Lab topology

Latency default tool

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

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pscheduler task latency --source 192.168.1.10 --dest 192.168.2.10
```


Lab topology

Packet statistics

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

```
pscheduler task latency --source 192.168.1.10 --dest 192.168.2.10
```
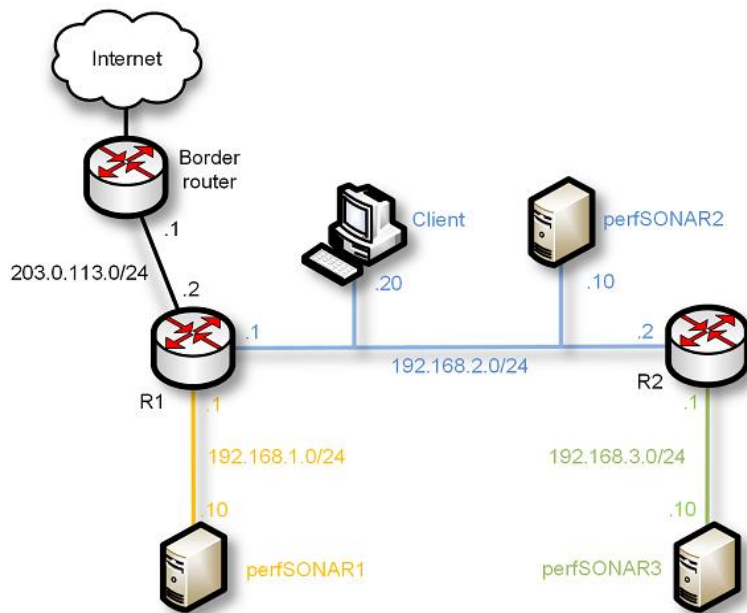

Lab topology

Packet statistics

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

```
pscheduler task throughput --source 192.168.1.10 --dest 192.168.2.10
```


Lab topology

Throughput task

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

```
pscheduler task throughput --source 192.168.1.10 --dest 192.168.2.10
```


Lab topology
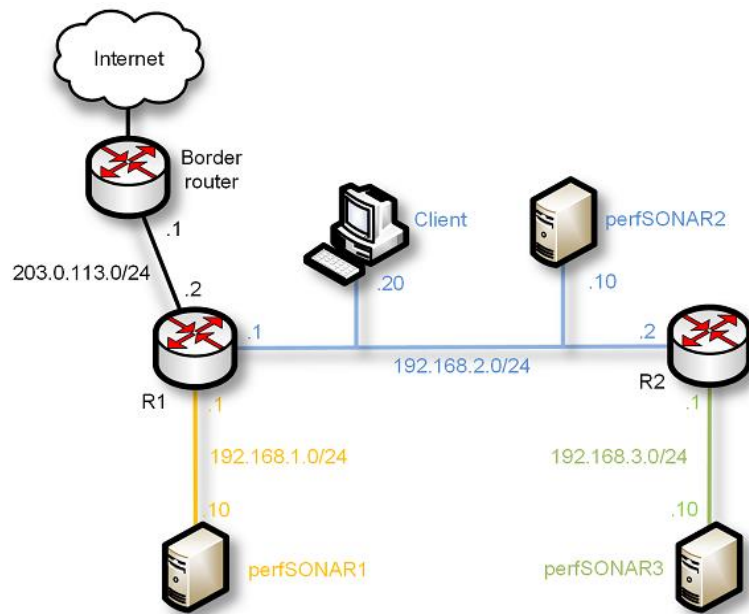

Throughput tool

The pScheduler Command

- The pScheduler command is used to create new tasks
- E.g.,

```
pscheduler task throughput --source 192.168.1.10 --dest 192.168.2.10
```


Lab topology

Throughput tool
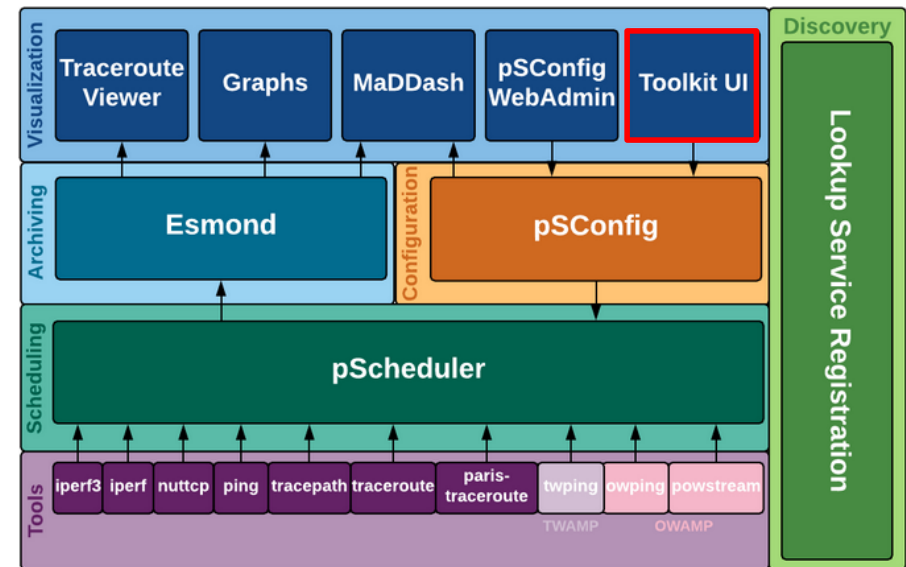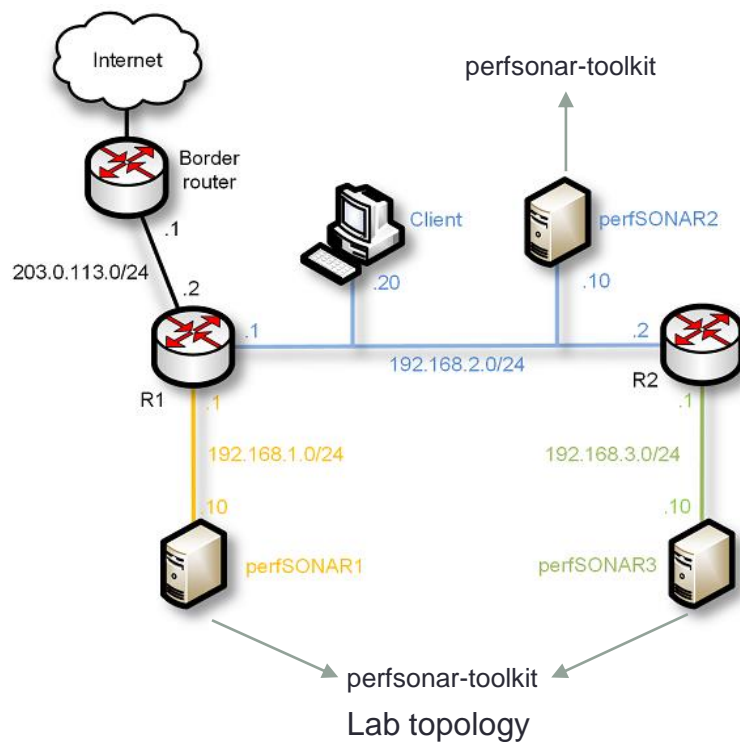
DEMO 5
VISUALIZING PERFORMANCE METRICS ON MADDASH

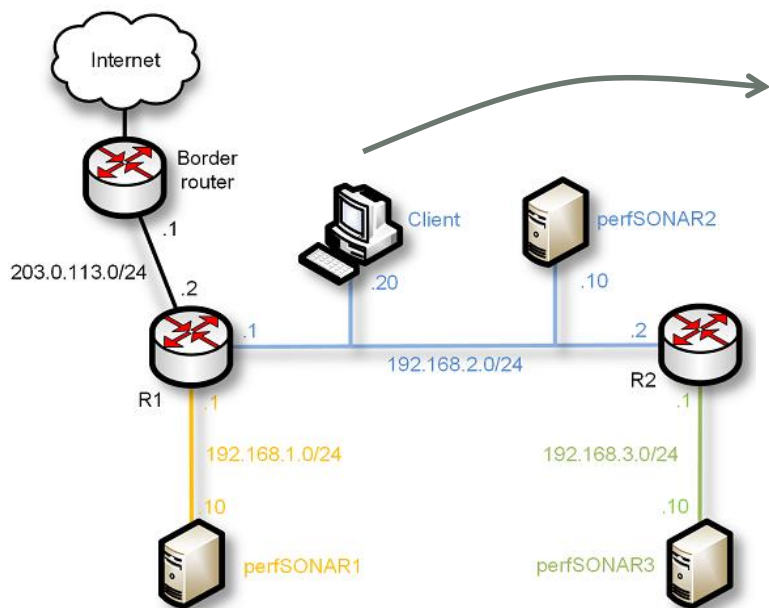Demo activities are described in Lab 8, perfSONAR Lab Series

perfSONAR Toolkit UI

- perfSONAR Toolkit UI allows the user to add administrative information about a perfSONAR node

Lab topology

perfSONAR layers

perfSONAR Toolkit UI

- perfSONAR Toolkit UI allows the user to add administrative information about a perfSONAR node
  - ➢ E.g., organization name, node location, administrator information, services and host information
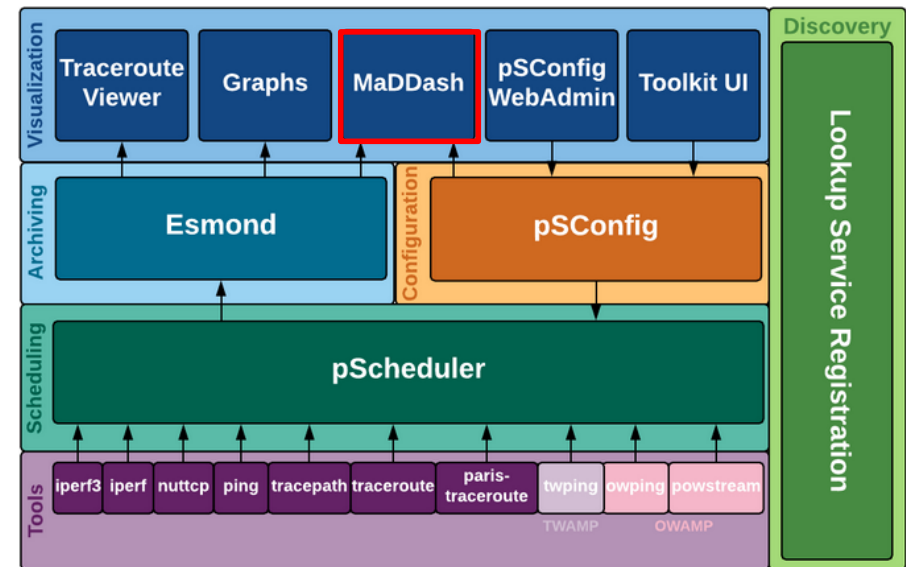

Lab topology

perfSONAR toolkit UI

MaDDash

- MaDDash collects and presents two-dimensional monitoring data as a set of grids referred to as a dashboard
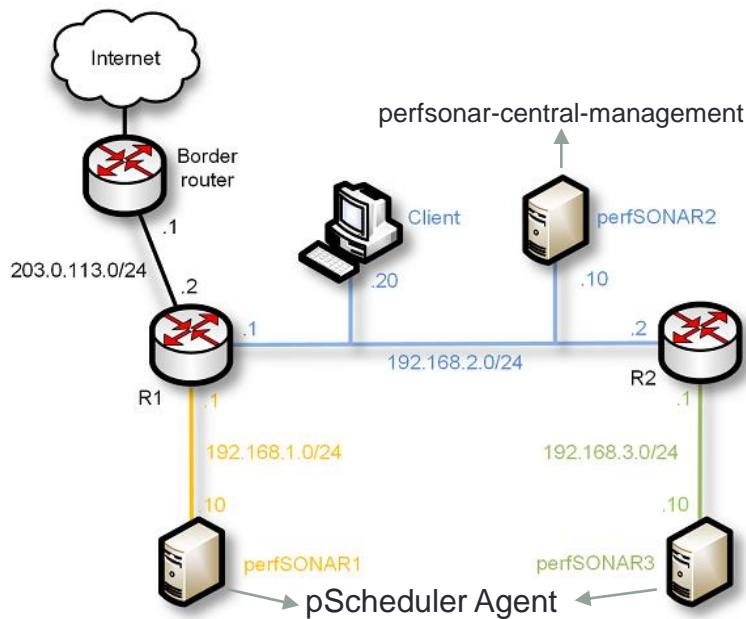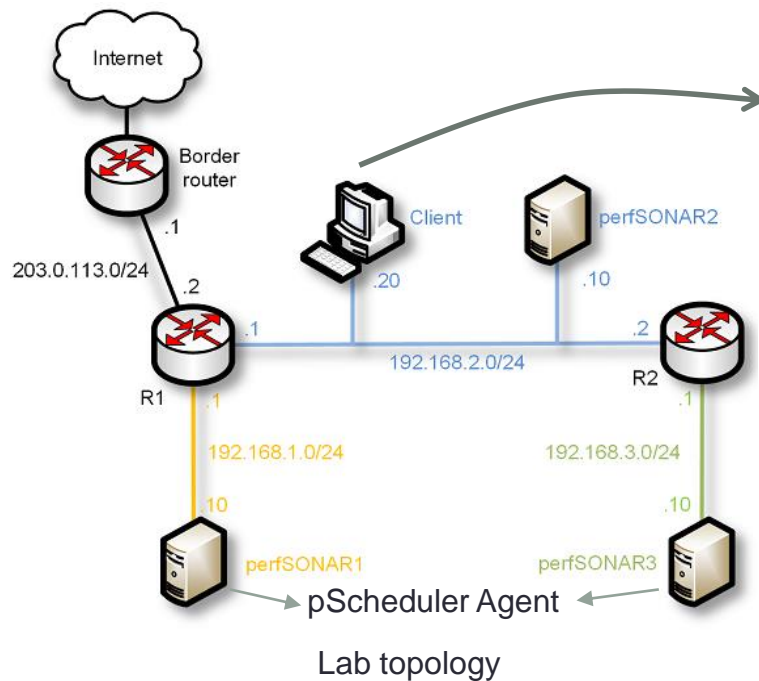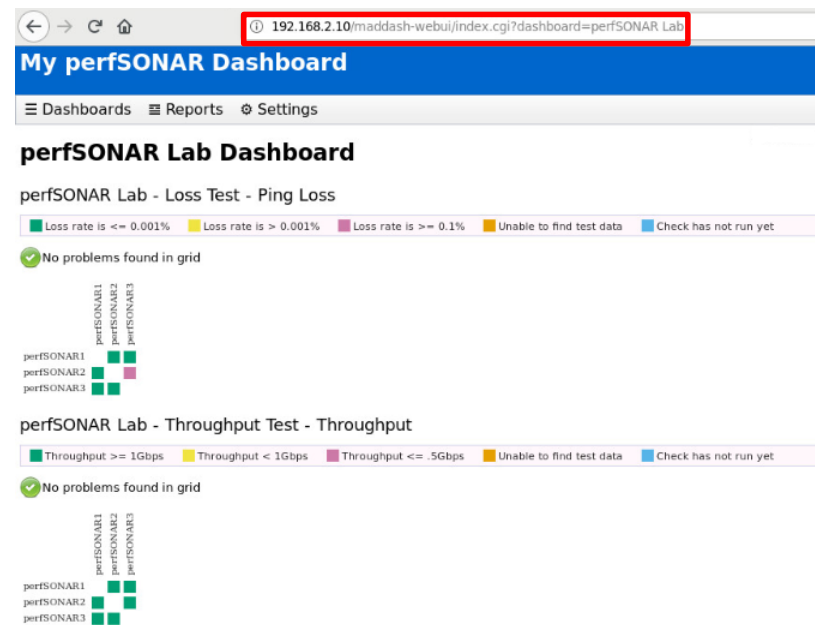

Lab topology

perfSONAR layers

MaDDash

- MaDDash collects and presents two-dimensional monitoring data as a set of grids referred to as a dashboard
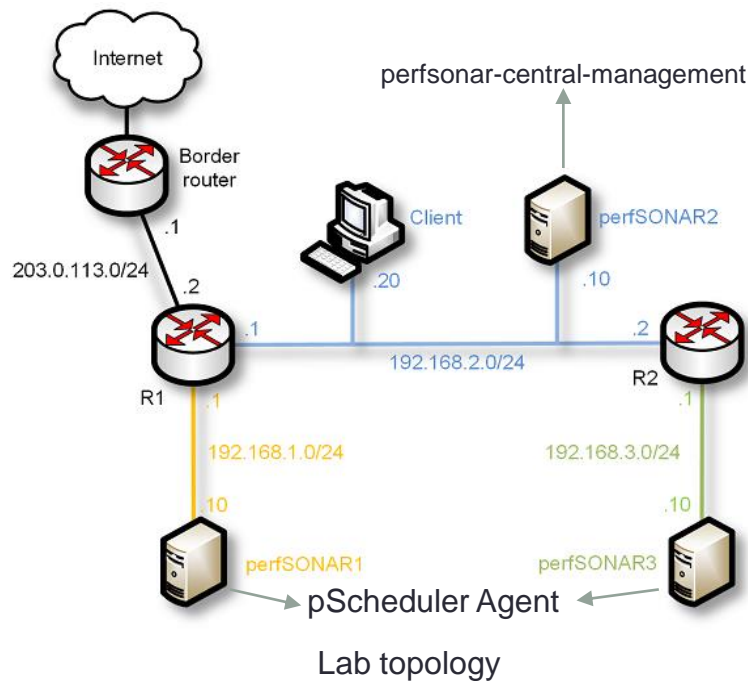

Lab topology

Dashboard

MaDDash

- perfSONAR nodes run measurement tests
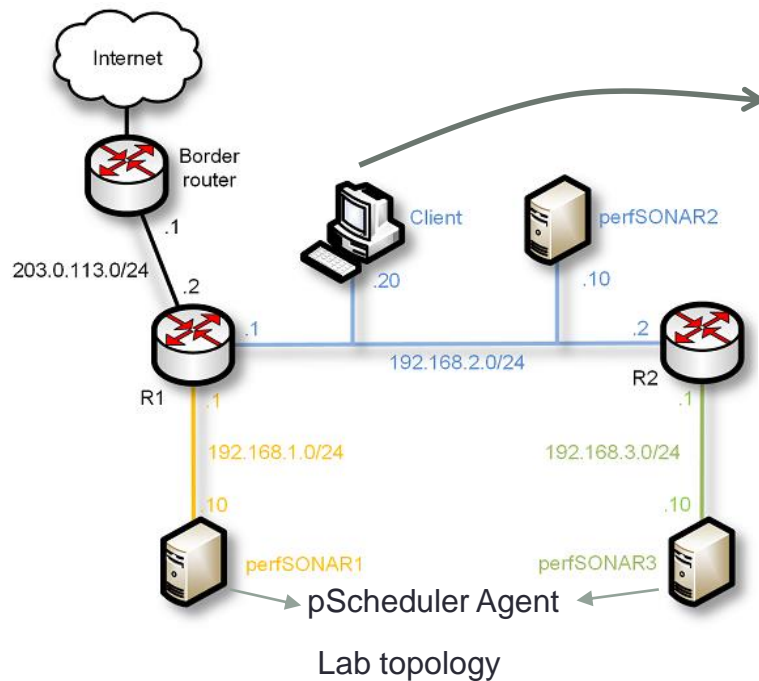- Tests are specified in the pSConfig template in the central management

Lab topology

Dashboard

MaDDash

- The measurement results are collected by perfSONAR2 and displayed on a dashboard and a timing graph
- The user can see the results of a pair of nodes clicking on a square in the dashboard

Lab topology

Timing Graph