



Update on ESnet's perfSONAR Activities

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TIP2013

Honolulu HI

January 15, 2013



ESnet Network, Jan 2013



- SUNN ESnet PoP/hub locations
- 100 ESnet managed 100G routers
- 10 ESnet managed 10G router
- 10 100 Site managed routers
- LOSA ESnet optical node locations (only some are shown)
- ESnet optical transport nodes (only some are shown)
- ★ commercial peering points
- ★ R&E network peering locations
- LBNL ● Major Office of Science (SC) sites
- LLNL ● Major non-SC DOE sites

Routed IP 100 Gb/s	
Routed IP 4 X 10 Gb/s	
3 rd party 10Gb/s	
Express / metro 100 Gb/s	
Express / metro 10G	
Express multi path 10G	
Lab supplied links	
Other links	
Tail circuits	

*Geography is
only representational*

perfSONAR-PS Toolkit 3.3-rc1



- perfSONAR-PS Toolkit 3.3-rc1 released. 3.3 is a major overhaul so we expect multiple RCs and need everyone's help to test!
- **New Features in RC1**
 - CentOS 6 (32-bit and 64 bit support)
 - LiveUSB distribution in addition to NetInstall and LiveCD
 - Completely rewritten and re-designed lookup service
 - Centralized mesh configuration management software
 - Integration with MaDDash performance monitoring dashboard
 - Numerous other bug fixes and enhancements
- **More to come in coming weeks from future RCs before final release**
 - Traceroute visualization developed by University of Wisconsin
 - Iperf3 integration with BWCTL
 - Web10G integration



Since it's a release candidate should be considered "beta" software and not used to upgrade existing production toolkit hosts

ESnet's perfSONAR Involvement



Currently ~1.5 developer FTEs working on perfSONAR-PS

- Work closely with Internet2 to manage releases, address bugs, and set roadmap
- Weekly collaboration meetings Monday's at 2:30pm ET

Deployment of 86 perfSONAR hosts on network

- 36 throughput nodes
- 34 latency nodes
- 10 combined nodes
- 6 additional host for lookup, topology and SNMP MA services

ESnet's Current Priorities



New Lookup Service

Dashboard

Replacing SOAP APIs with REST APIs

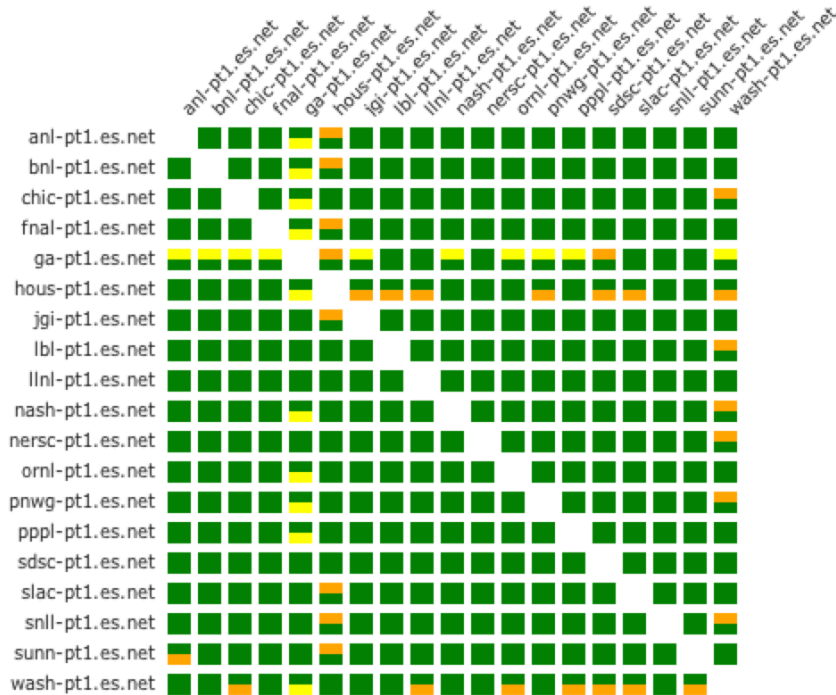
iperf3 integration (<http://code.google.com/p/iperf/>)

perfSONAR Dashboard: See ps-dashboard.es.net



ESnet Hub to Large DOE Site Border Throughput Testing

■ Throughput >= 1Gbps
 ■ Throughput >= 100Mbps and < 1Gbps
 ■ Throughput < 100Mbps
 ■ Unable to retrieve data
 ■ Check has not yet run



New Lookup Service: the sLS (Simple Lookup Service)



- Had performance and reliability problems with the old lookup service
- sLS Design Goals
 - scalable and high performance
 - simple to use REST-based API
 - general purpose: not just for perfSONAR
 - Security support
- Lead developer: Sowmya Balasubramanian, ESnet (sowmya@es.net), with lots of design help from Eric Pouyoul (lomax@es.net)
 - Design inspired/influence by discussions with Ahmed El-Hassany and Martin Swamy at IU.
- Requirements and Design Documentation at:
 - <http://code.google.com/p/perfsonar-ps/wiki/NewLSprojectPlan>

sLS Design



- REST/JSON API
- Backend: MongoDB
- Data is stored as “record”
 - A “record” is a list of key-value pairs

Example:

```
{  
  service-type: "bwctl",  
  domain: "ESnet",  
  accesspoint: http://someaccesspoint/  
}
```


sLS (cont)



New sLS **100x faster** than old LS for the same queries

Try it out!

<http://ps4.es.net:9095/lookup/records/?service-type=bwctl>



Links:

perfSONAR Toolkit: <http://psps.perfsonar.net/>

New Release: <http://software.internet2.edu/pSPT3.3-rc1/>

Dashboard:

- <https://code.google.com/p/esnet-perfsonar/wiki/MaDDashInstall>

sLS: <http://code.google.com/p/perfsonar-ps/wiki/NewLSprojectPlan>