OSG Area Coordinators

Network Monitoring Update: **Sept 9 2015**

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Key Initiatives in Network Area

- Improving perfSONAR-PS toolkit for OSG
  - Track adoption at http://grid-monitoring.cern.ch/perfsonar_coverage.txt
  - Testing 3.5RC1 in OSG testbed revealed a few issues
  - Version 3.5RC2 just out. Planned release end of month
- OSG modular dashboard service / OSG network service
  - "Datastore" targeting "production" status next Monday
  - Lots of work involved in getting this production ready
  - RSV probes testing publishing to ActiveMQ hosted at CERN
- Outreach and community interaction
  - Co-chairing WLCG Network and Transfer Metrics WG
    - Last meeting Sept 3; next meeting Sept 30th
    - Ramping up "full mesh" of WLCG / OSG latency tests (more later)
  - Ongoing meetings/interactions with perfSONAR developers
  - PuNDIT continues testing on perfSONAR testbed in OSG..

Recent Accomplishments

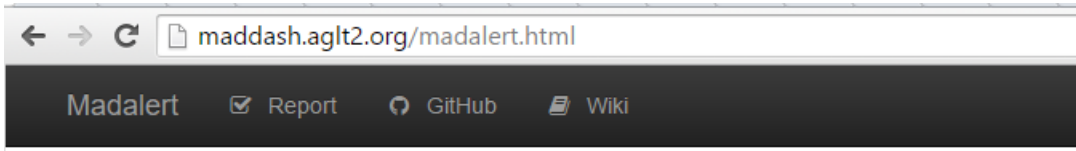
- Full WLCG/OSG mesh updated; target 100 latency instances
  - Hit problem at 81. Paused while we evaluate solutions
- OSG Datastore almost "production";
  - All datastore hardware operational except for 2 additional disks (ordered)
  - Documentation ("living operations guide") written: https://docs.google.com/document/d/11144BSo-88M0cLMMjKcKMIE-Q5s21X-w3IYI-0Pn_08/edit?usp=sharing
  - Risk assessment document written https://docs.google.com/document/d/182O18IF_5CLPHKeOioHJjfYjVFC0JkEjL_vD4GUevLU/edit#heading=h.kpx7wu1vzcq7
  - SLA at https://twiki.grid.iu.edu/bin/view/Operations/PSServiceLevelAgreement
- Project to monitor meshes underway: "MadAlert"
- Proximity service under test. Example:
  - http://proximity.cern.ch/api/0.3/geoip/nearest?se=head01.aglt2.org&count=3
- Effort from WLCG to follow-up with problematic perfSONAR instances successful (~20 instances fixed)
  - Now "paused" while we fix problems identified during ramp-up

Project Update: MadAlert

- Recap: Gabriele Carcassi (original author of GUMS) is working with me at Michigan on a new project for one of our OSG Networking Goals: alerting on problems
- The idea is to use the MaDDash API to analyze the data we are acquiring to identify problems based upon patterns in the data collected.
- Seeking input on which problems we might be able to identify
- Example view on next slide

MadAlert

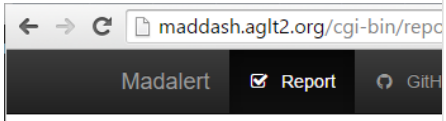
http://maddash.aglt2.org/madalert.html



Madalert Report

Madalert analyzes a mesh to find problematic patterns. Here are some examples:

- **Latency tests between all WLCG hosts Dashboard (psmad.grid.iu.edu)**: Mesh - Report
- **Latency tests between all WLCG hosts Dashboard (maddash.aglt2.org)**: Mesh - Report
- **USATLAS Mesh Config**: Mesh - Report



Madalert Report

Mesh name: Latency tests between all W

Mesh location: http://psmad.grid.iu.edu/maddash/grids/Latency tests between all WLCG hosts - Latency Tests Between WLCG Latency Hosts

Infrastructure problems

Site	Description
CIEMAT-LCG2_perflat	Site can't test
DESY-HH_perfsonar-ps-01	Site mostly can't test
GRIF_perfsonar01	Site can't test
INFN-ROMA1_perfsonar2	Site can't test
JP-KEK-CRC-02_perfsonar2	Site can't test
KR-KISTI-GSDC-01_ps-gsdc01	Site mostly can't be tested
RO-02-NIPNE_atrogr007	Site can't test
T2_Florida_LT	Site is down
Taiwan-LCG2_lhc-latency	Site can't test
US-FNAL_LT	Site can't test
USC-LCG2_perfsonar-ps-latency	Site can't test
perfSONAR_lat_SLAC	Site mostly can't test

Test failures

Site	Description
BEgrid-ULB-VUB_ps01	Outgoing tests failure (Loss rate is >= 0.01)|Incoming tests failure (Loss rate is >= 0.01)
BUDAPEST_psbud01	Outgoing tests failure (Loss rate is >= 0.01)|Incoming tests failure (Loss rate is >= 0.01)
CERN-PROD_perfsonar-lt	Incoming tests failure (Loss rate is >= 0.01)
Caltech_PerfSonar_Latency	Incoming tests failure (Loss rate is >= 0.01)
DESY-ZN_perfson1	Outgoing tests failure (Loss rate is >= 0.01)|Incoming tests failure (Loss rate is >= 0.01)
EELA-UTFSM_psl	Outgoing tests failure (Loss rate is >= 0.01)|Incoming tests failure (Loss rate is >= 0.01)
IN2P3-CC_ccperfsonar2	Incoming tests failure (Loss rate is >= 0.01)
IN2P3-LAPP_lapp-ps02	Incoming tests failure (Loss rate is >= 0.01)
PerfSONAR_CBPF_lt	Incoming tests failure (Loss rate is >= 0.01)

Open Science G

Known Issues

- Still a bug in the RSV probe -> Datastore process. Soichi may have identified culprit. Fixes being created.
- OWAMP tests impacted by nightly service restarts. Fix from Andy Lake only partially successful. Load issue?
- Underpowered perfSONAR instances (<=4GB ram) having problems in some cases. Was <4GB but at testing scale for WLCG even 4GB not enough.
  - Campaign to upgrade/replace them. Not always possible.
  - Next: we are adjusting testing to be uni-directional; results soon.
- Publishing network metrics from ITB to CERNs test instance running
  - Useful to quickly debug data content issues
  - Load on OSG endpoint is too large; investigating

Top Concerns

- OSG Network Datastore is still primary concern
  - **Plan : "production" next Monday (Sep 14)**
  - Weekly meetings of a subgroup very fruitful
  - Validity testing has exposed bugs; almost all resolved.
  - **Main concern is having the service function smoothly**
- Hardware/software configuration still being tweaked to support datastore operation.
  - Resource issues for MaDDash & Message Publishing
- Some operational bumps with "normal" maintenance caused downtime.
  - Not critical now but worried about "production"
- We must address the data migration process.
  - How do we move "older" data off the primary system and onto a new location while retaining some means of access? Waiting for process from Esnet…

Questions or Comments?

Thanks!

URLs of Relevance

- OSG Network Datastore Documents
  - Operations https://docs.google.com/document/d/11144BSo-88M0cLMMjKcKMIE-Q5s21X-w3IYI-0Pn_08/edit#
  - Risk Assessment https://docs.google.com/document/d/182O18IF_5CLPHKeOioHJjfYjVFC0JkEjL_vD4GUevLU/edit#heading=h.kpx7wu1vzcq7
  - SLA https://twiki.grid.iu.edu/bin/view/Operations/PSServiceLevelAgreement
- Network Documentation https://www.opensciencegrid.org/bin/view/Documentation/NetworkingInOSG
- Deployment documentation for both OSG and WLCG hosted in OSG (migrated from CERN)

  https://twiki.opensciencegrid.org/bin/view/Documentation/DeployperfSONAR
- perfSONAR-PS Installation Motivation:

  https://twiki.grid.iu.edu/bin/view/Networking/WhyPerfSNOAR
- Esmond install info http://antg-dev.es.net/esmond-docs/rpm_install.html
- Mesh-config in OSG https://oim.grid.iu.edu/oim/meshconfig
- perfSONAR homepage: http://www.perfsonar.net/

Logical Diagram of Datastore