OSG Area Coordinators

Network Monitoring Update: **February 2014**

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Key Initiatives in Network Area

- OSG modular dashboard service / OSG network service
  - Original Modular Dashboard **orphaned**: still in GitHub: https://github.com/PerfModDash but no developers active since Tom Wlodek left.
  - Replacement prototyped over December holidays (more later)
  - OSG has basic network service up, but really needs new capabilities
    - Need to address data-store issue and how best to deploy prototype in test/production
    - Will require Operations help to integrate the new services as they are ready
- Improving perfSONAR-PS toolkit for OSG
  - We had 3.3.2 released on February 3. Fixed all known issues except intermittent PingER DNS lookup issue (under investigation)
  - Significant security improvements and minor bug fixes.
  - Push within OSG should now start; get ALL OSG sites to install (Rob/Shawn)
- Documentation updates: network tools & troubleshooting
  - New "WhyPerfSONAR" page setup to encourage adoption/installation.
  - Installation guide for perfSONAR-PS Toolkit in place and updated for 3.3.2

    https://twiki.grid.iu.edu/bin/view/Documentation/PerfSONARToolKit
- Outreach and community interaction
  - Attended LHCONE/LHCOPN and Grid Deployment Board meetings at CERN last week. Presented on perfSONAR deployment and plans.

Top Concerns

- Orphaned **modular dashboard** needs addressing
  - Had a call of stakeholders Dec 17th.
  - Choose **MaDDash** for the metrics visualization
  - Choose **OMD** for basic service monitoring/tests.
  - Prototyped and working but now needs to migrate into OSG
- Getting the OSG Network Service into "production"
  - **Current service in OSG works and gathers data**
    - **Misses traceroute and pinger data.**
    - **Based upon orphaned dashboard code**
  - Replacement needs to be implemented and evolved
    - Need OSG "home" to migrate prototype replacements into.
    - Need to determine technology and API for "datastore" component
  - We should start migrating/consolidating into OSG Operations
- Automating generation of the mesh-configs from OIM/GOCDB
  - Need to determine what is missing to do this
- Breadth of deployment: Basically we have only WLCG-OSG sites with deployments. *Need to pursue the rest but now well positioned with 3.3.2 and documentation.*

Recent Accomplishments

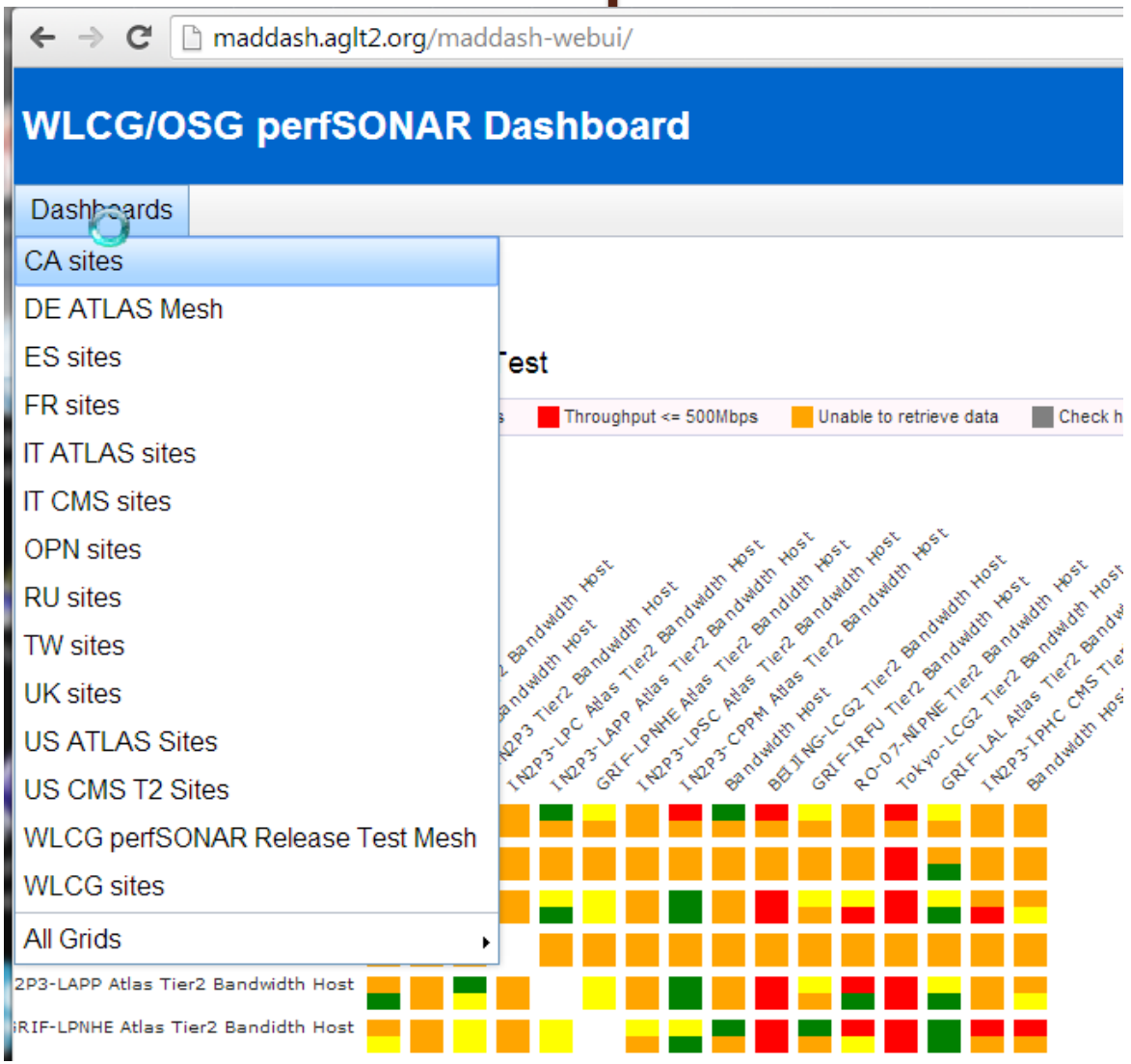
- Prototyping of alternative components for the Modular Dashboard
  - See http://maddash.aglt2.org/maddash-webui for MaDDash implementation
  - See https://maddash.aglt2.org/WLCGperfSONAR/check_mk for OMD (login is WLCGps and pw given on call) See following slides
  - ESnet is very supportive. MaDDash will be supported for foreseeable future
- Release and deployment of perfSONAR-PS 3.3.2
  - Security fixes for EGI issue and NTP amplification
  - Improvements in resiliency of services
  - Minor bug fixes
- Updated docs on installing PS (3.3.2), troubleshooting issues
- Engagement with LHCONE/LHCOPN, WLCG and GDB communities at February meetings at CERN
  - Positive feedback.
  - Strong interest in being able to ACCESS the network metrics

Modular Dashboard Replacement

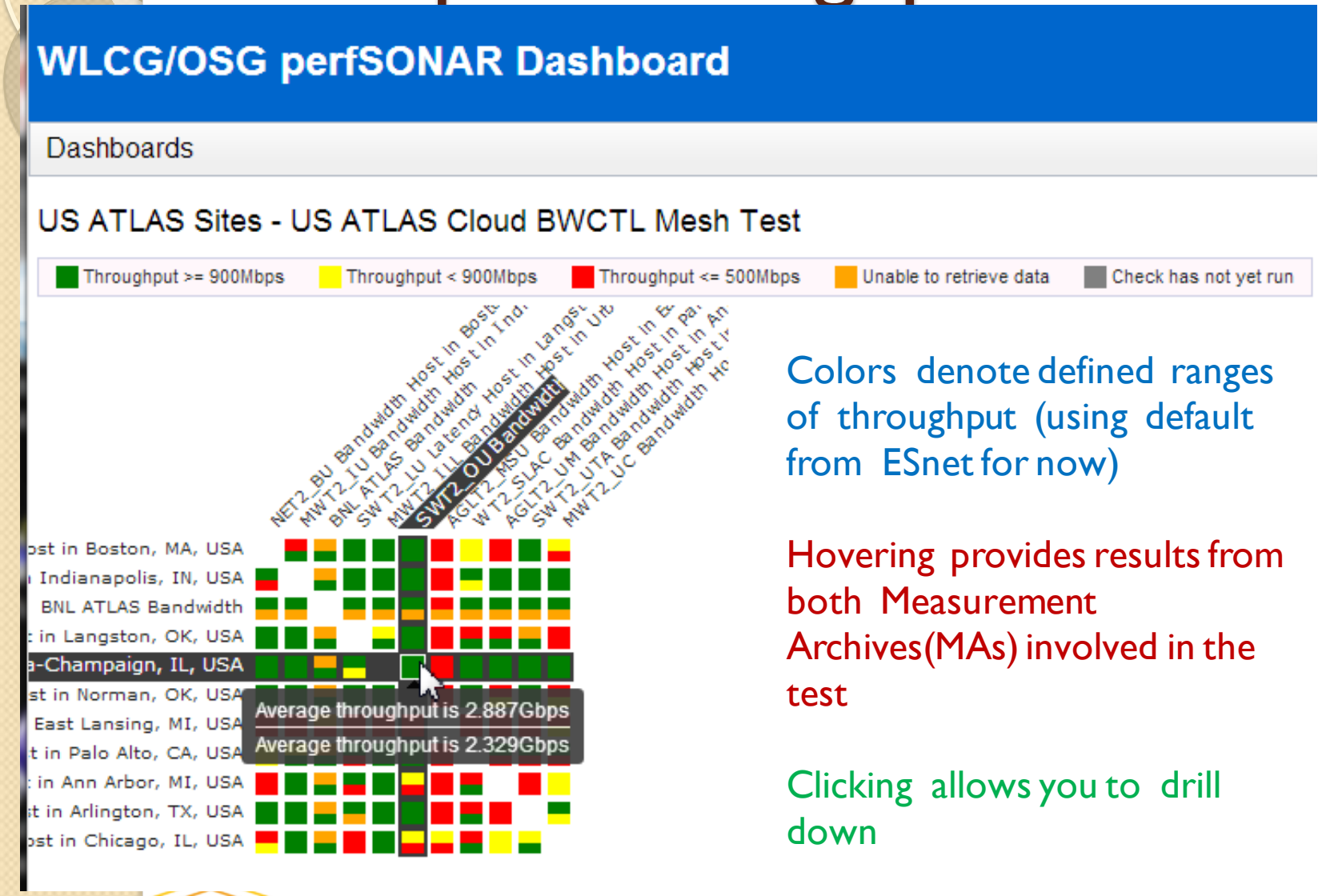
MaDDash (Monitoring and Debugging Dashboard) is a perfSONAR-PS project developed and maintained by ESnet.

It is **easy to install**, provides drill-down capability and will be supported for the foreseeable future. (Install details at https://twiki.cern.ch/twiki/bin/view/LCG/MadDashWLCG)

It doesn't provide any primitive service monitoring nor the ability to create/edit meshes via the GUI.



Example Throughput Mesh



Colors denote defined ranges of throughput (using default from ESnet for now)

Hovering provides results from both Measurement Archives(MAs) involved in the test

Clicking allows you to drill down

MaDDash Drill-down to Graphs

WLCG/OSG perfSONAR Dashboard

Dashboards

ps2.ochep.ou.edu to mwt2-ps02.campuscluster.illinois.edu (Throughput Reverse)

Status: OK **Last Checked:** February 11, 2014 18:47:56 PM Eastern Standard Time **Next Check:** February 12, 2014 02:47:56 AM Eastern Standard Time

Summary | History | Check Details

▾ Current Results

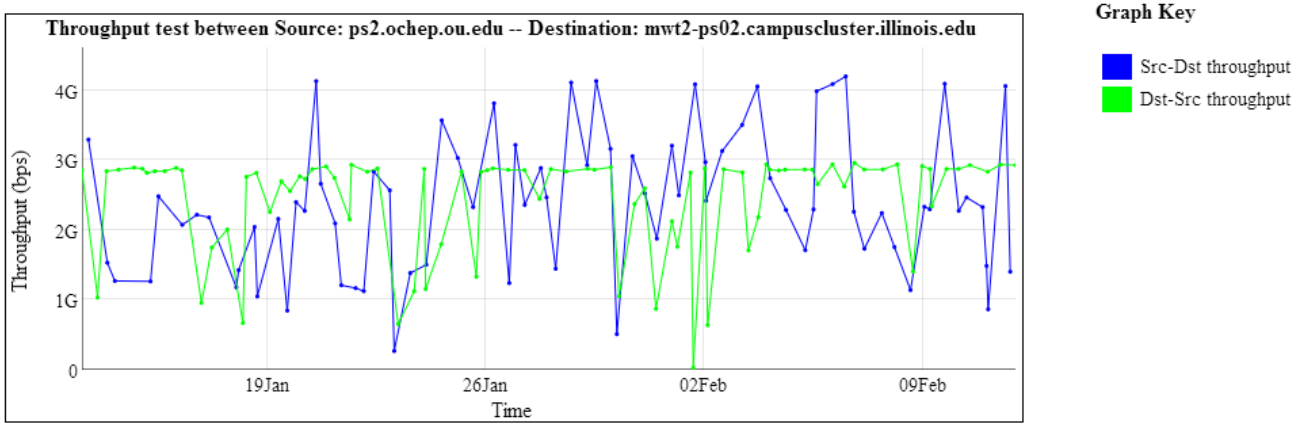
Current Status: OK
Result of last check: OK
Message For Current Status: Average throughput is 2.887Gbps

▸ Statistics

▾ Graph

perfSONAR BWCTL Graph

perfSONAR



OMD Description and Capabilities

- OMD (Open Monitoring Distribution) was selected to complement MaDDash and replicate the service testing component present in the Modular Dashboard.
  - OMD bundles Nagios/Icinga/Shinken with various tools in a single RPM. Easy to deploy and configure; provides nice features.
- For those familiar with Nagios there is a low barrier to use.
- The Check_MK (rule-based configuration) is a very powerful component we can leverage.
- Installation via yum by : 'yum install omd-1.10' (once repo setup)
- Currently prototype for WLCG evaluation is running at: https://maddash.aglt2.org/WLCGperfSONAR/omd

WLCG OMD Check_MK Mainpage

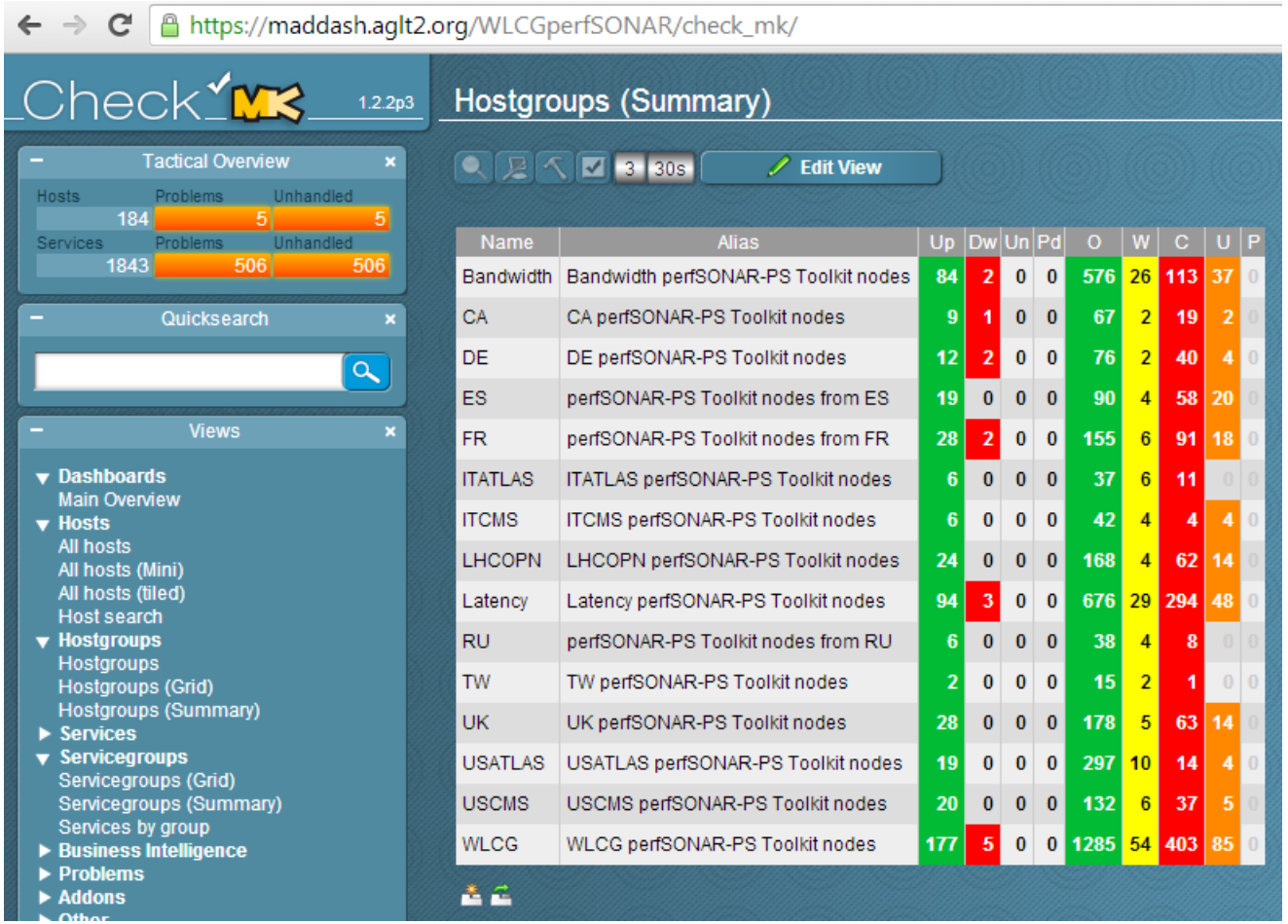
Grouping By Hosts

Check_MK rules were used to setup host groups

Easy to track Regional/VO cloud status this way

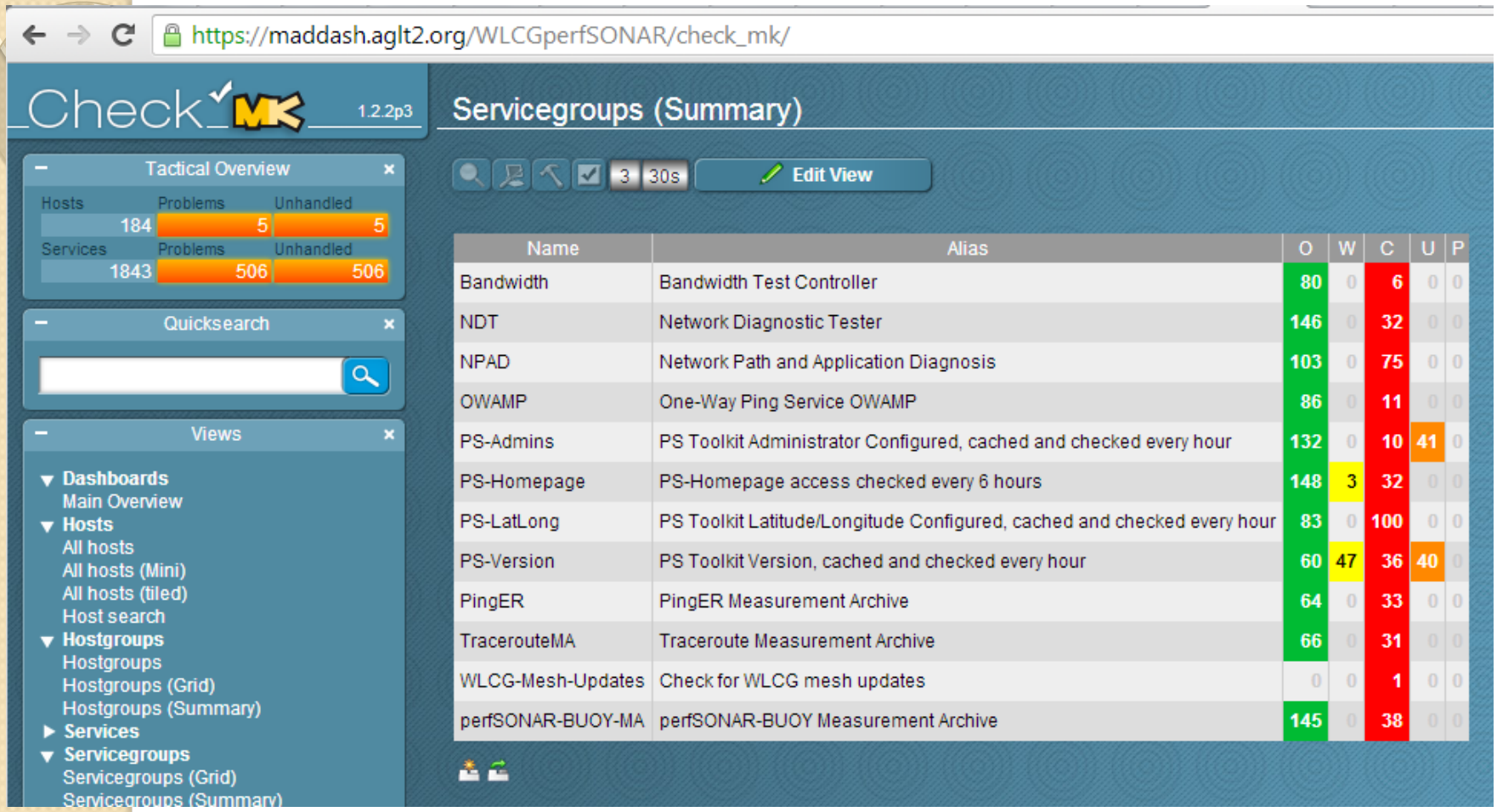
Can also organize by perfSONAR node type

The "Name" column is a link you can use to drill-down to host lists



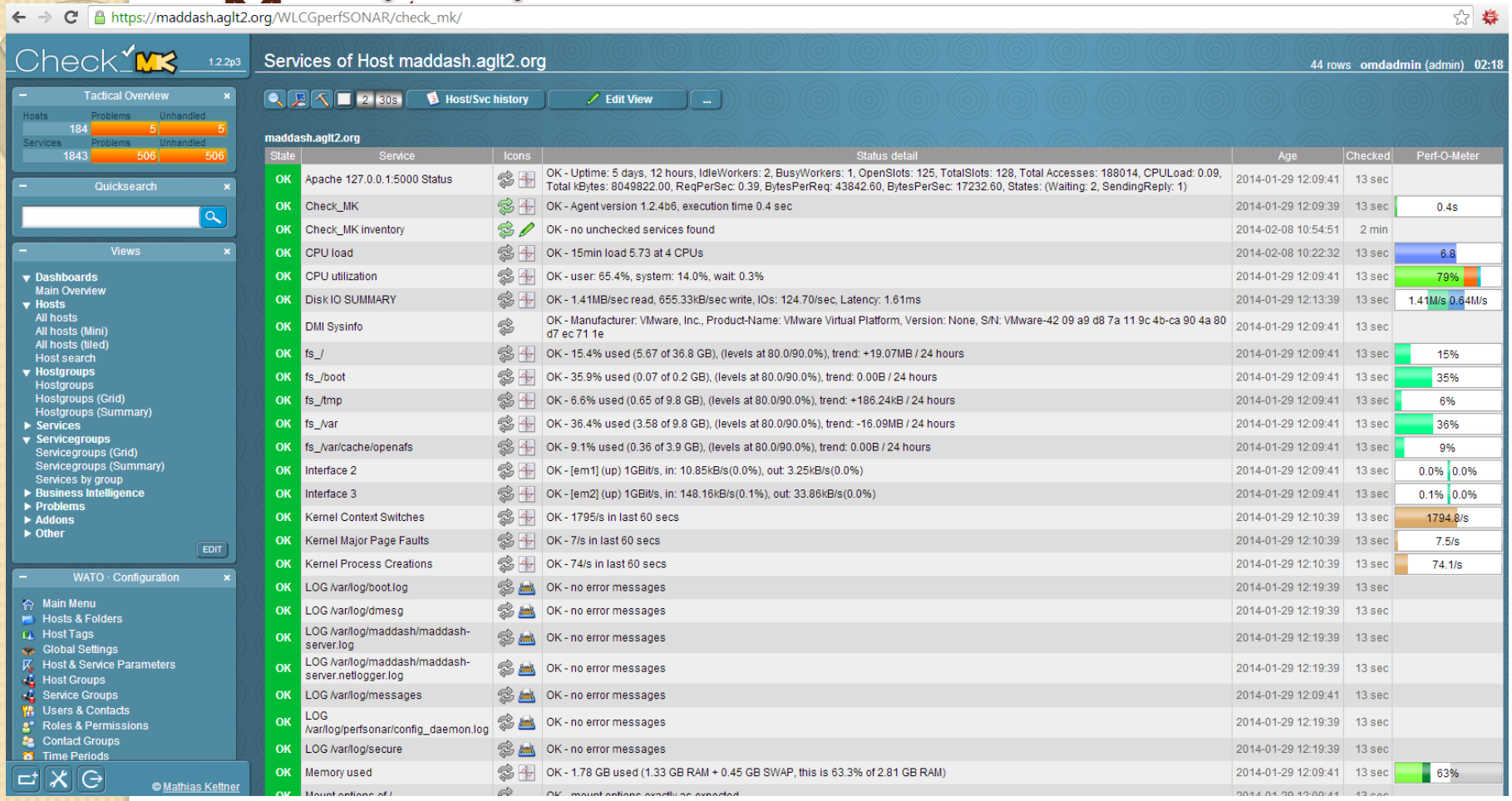
Name	Alias	Up	Dw	Un	Pd	O	W	C	U	P
Bandwidth	Bandwidth perfSONAR-PS Toolkit nodes	84	2	0	0	576	26	113	37	0
CA	CA perfSONAR-PS Toolkit nodes	9	1	0	0	67	2	19	2	0
DE	DE perfSONAR-PS Toolkit nodes	12	2	0	0	76	2	40	4	0
ES	perfSONAR-PS Toolkit nodes from ES	19	0	0	0	90	4	58	20	0
FR	perfSONAR-PS Toolkit nodes from FR	28	2	0	0	155	6	91	18	0
ITATLAS	ITATLAS perfSONAR-PS Toolkit nodes	6	0	0	0	37	6	11	0	0
ITCMS	ITCMS perfSONAR-PS Toolkit nodes	6	0	0	0	42	4	4	4	0
LHCOPN	LHCOPN perfSONAR-PS Toolkit nodes	24	0	0	0	168	4	62	14	0
Latency	Latency perfSONAR-PS Toolkit nodes	94	3	0	0	676	29	294	48	0
RU	perfSONAR-PS Toolkit nodes from RU	6	0	0	0	38	4	8	0	0
TW	TW perfSONAR-PS Toolkit nodes	2	0	0	0	15	2	1	0	0
UK	UK perfSONAR-PS Toolkit nodes	28	0	0	0	178	5	63	14	0
USATLAS	USATLAS perfSONAR-PS Toolkit nodes	19	0	0	0	297	10	14	4	0
USCMS	USCMS perfSONAR-PS Toolkit nodes	20	0	0	0	132	6	37	5	0
WLCG	WLCG perfSONAR-PS Toolkit nodes	177	5	0	0	1285	54	403	85	0

Grouping By Service



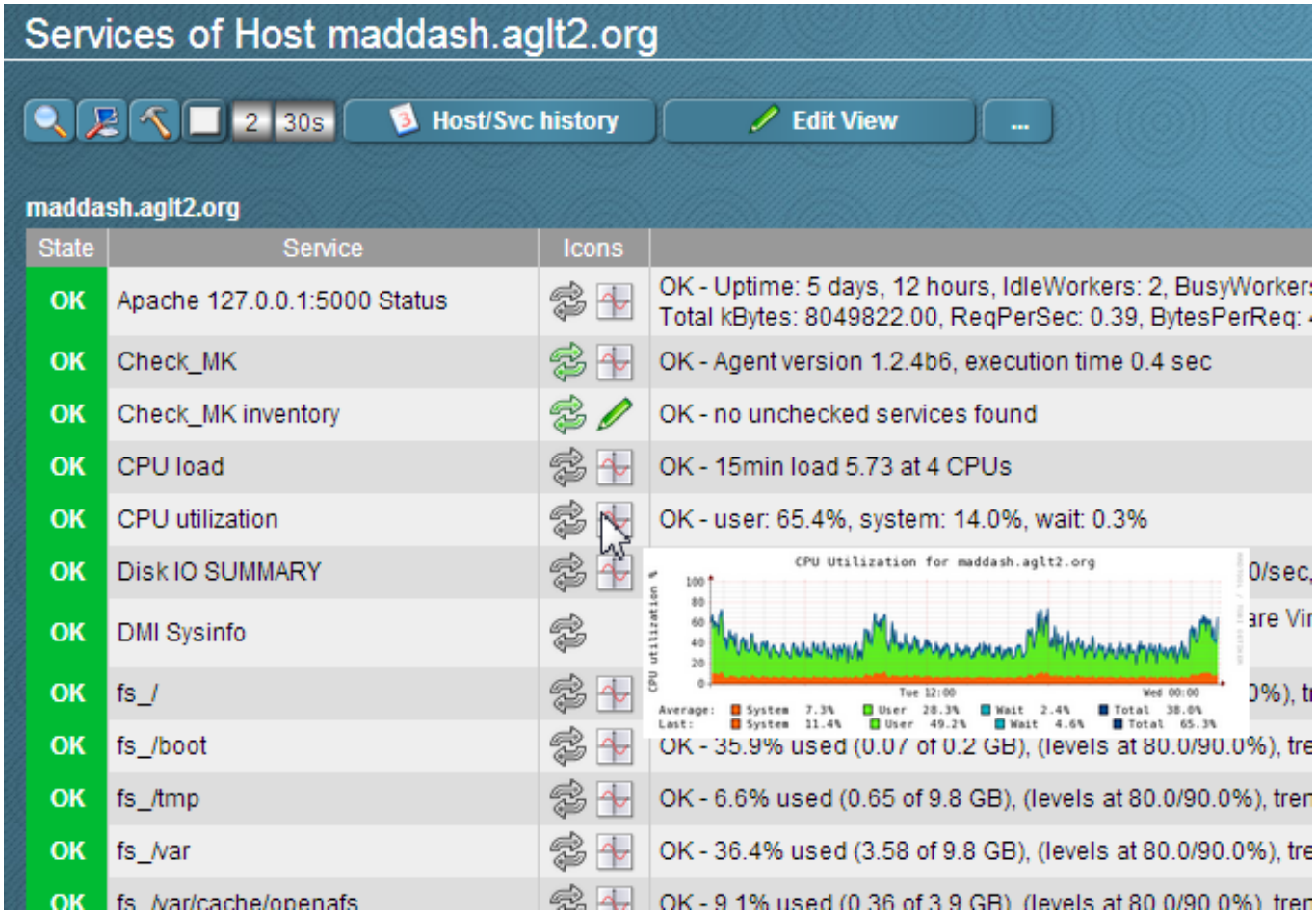
We can also group by service type, allowing us to quickly check service status by grouping. Name column is clickable. Note we check needed PS services but don't yet have a good check of sites mesh-configuration (use dashboard for now)

Example of Detailed Host Monitoring



Individual hosts can be monitored in detail by installing check_mk-agents
See https://twiki.cern.ch/twiki/bin/view/LCG/WLCGperfSONARMonitoring

Feature: Graphs Automatically Created



Graphs are created automatically where checks provide performance data. Hovering over the "graph" icon shows a thumbnail. Clicking takes you to a page will larger graphs sequenced by timescale (RRD).

Near term items

- **Migrate prototypes into OSG?**
  - **Goal is one service/dashboard for OSG (and WLCG)**
  - **Lots of questions about integration with MyOSG vs standalone components**
  - **Define Operations responsibilities vs OSG/WLCG's**
- Complete upgrades for sites with perfSONAR-PS versions prior to 3.3.2 and ensure mesh-config use
  - Identify and lobby non WLCG OSG sites to install
- Expand automated creation of "mesh-configs"
  - Prototype and test creation of WLCG meshes.
  - Needs interaction between Soichi and CERN/GOCDB experts.
- Using and improving the OSG network service
  - As sites upgrade and use the mesh, verify data, displays
  - Begin testing "clients" of OSG network metrics
    - Will require some API changes to get certain typical queries
- Continued documentation updates and additions
  - Maintain/update documented procedures
  - Augment as we develop new components (generation of mesh-config, datastore and API, use-cases, etc.)

URLs of Relevance

- Network Documentation
  https://www.opensciencegrid.org/bin/view/Documentation/NetworkingInOSG
- perfSONAR-PS OSG Installation Instructions
  https://twiki.opensciencegrid.org/bin/view/Documentation/PerfSONARToolKit
- Modular Dashboard Replacement Prototypes
  - http://maddash.aglt2.org/maddash-webui
    https://maddash.aglt2.org/WLCGperfSONAR/check_mk
- perfSONAR-PS Installation Motivation:
  https://twiki.grid.iu.edu/bin/view/Networking/WhyPerfSNOAR
- Initial OSG mesh details
  http://confluence.grid.iu.edu/display/CENTRAL/Perfsonar+Mesh+Configs

Questions or Comments?

Thanks!