perfSONAR Deployments
Setting up a perfSONAR mesh

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Overview

- **Setting up a mesh**
- Maddash
- Maddash Web UI

Mesh Configuration

- Hosts all perform the same set of tests with other hosts in the mesh
- Central description, available at a specific URL, that defines the properties of the mesh

- *yum install perl-perfSONAR_PS MeshConfig-Agent*

Mesh Configuration (cont.)

- Configuration management software allows tests to be defined and published in a JSON format
- *build_json -input example.conf -output example.json*
- When configuring for the first time run
  - /opt/perfsonar_ps/mesh_config/bin/generate_gui_configuration

Mesh Configuration (cont.)

- This software installs the following cron file
  - /etc/cron.d/cron-mesh_config_gui_agent
- Edit this file to change the frequency of when the service is restarted
- It is required to restart after the configuration is regenerated

Configuring gui_agent_configuration.conf

- Edit the following file to define meshes and set other maddash parameters
  - /opt/perfsonar_ps/mesh_config/etc/gui_agent_configuration.conf
  - Defines the meshes to use
  - Defines where other config files are
  - Other administrative information including:
    - Send error emails
    - Admin email

The Agent

- The agent script downloads the mesh configuration file
- Generates a new configuration for the testing software
- Restarts the daemons (optionally)
- The script itself is located in /opt/perfsonar_ps/mesh_config/bin/generate_configuration
- If running mesh on a toolkit host make sure the following are enabled
  - Use_toolkit
  - Restart_services

perfSONARBUOY MA

- The perfSONARBUOY config file is located at /opt/perfsonar_ps/perfsonarbuoy_ma/etc/owmesh.conf
- The perfSONARBUOY MA needs to have a Secret Name and passwords for BWCTL and OWAMP shared between mesh members in the owmesh.conf file
  - BWSecretName BWPassword
  - BWPassword bwctlp4ssw0rd
  - OWPSecretName OWPPassword
  - OWPPassword 0w4mpp4ssw0rd

perfSONARBUOY MA (cont.)

- If running on a toolkit host, the following are available:

  BWCTL available at:

  – read_url: http://[host]:8085/perfSONAR_PS/services/pSB
  – write_url: [host]:8570

  Owamp available at:

  – read_url: http://[host]:8085/perfSONAR_PS/services/pSB
  – write_url: [host]:8569
- If running on a non-toolkit host then the perl-perfSONARBUOY-server package must be installed

perfSONARBUOY MA (cont.)

- You can edit the following variables in the owmesh.conf file
  - OWPCentralHost: sets the address/port for the owamp collector to listen on
  - OWPCentralDBHost: sets the database host (defaults to localhost) for owamp data
  - OWPCentralDBPort: sets the database port to use for owamp data
  - OWPCentralDBName: sets the database name to use for owamp data
  - OWPCentralDBUser: sets the database username to use for owamp data
  - OWPCentralDBPass: sets the database password to use for owamp data

  - BWCentralHost: sets the address/port for the bwctl collector to listen on
  - BWCentralDBHost: sets the database host (defaults to localhost) for bwctl data
  - BWCentralDBPort: sets the database port to use for bwctl data
  - BWCentralDBName: sets the database name to use for bwctl data
  - BWCentralDBUser: sets the database username to use for bwctl data
  - BWCentralDBPass: sets the database password to use for bwctl data
- Then build the databases
  - /opt/perfsonar_ps/perfsonarbuoy_ma/bin/bwdb -i root # create the bwctl db
  - /opt/perfsonar_ps/perfsonarbuoy_ma/bin/owdb -i root # create the owamp db
- Restart the perfSONARBUOY services

Traceroute MA

- You can edit the following variables in the owmesh.conf file
  - TRACECentralDBHost: sets the database host (defaults to localhost)
  - TRACECentralDBPort: sets the database port
  - TRACECentralDBName: sets the database name
  - TRACECentralDBUser: sets the database username
  - TRACECentralDBPass: sets the database password
- Then build the databases
  - /opt/perfsonar_ps/traceroute_ma/bin/tracedb -i root
- Restart the traceroute_ma services
- The results are available at
  - read_url: http://[host]:8086/perfSONAR_PS/services/tracerouteMA
  - write_url: http://[host]:8086/perfSONAR_PS/services/tracerouteCollector

PingER MA

- PingER does not currently support centralized collection
- Results are available on each host at
  - read_url: http://[host]:8075/perfSONAR_PS/services/pinger/ma (default)

Overview

- Setting up a mesh
- **Maddash**
- Maddash Web UI

Maddash

- Install the software
  - yum install maddash
- The following packages are installed
  - *maddash* - Container package that has dependencies on the *maddash-server*, *maddash-webui*, and perl-perfSONAR_PS-Nagios packages. The package itself does not install any additional software, it simply pulls in the aforementioned packages.
  - *maddash-server* - The backend server that schedules checks and makes results available via a REST/JSON interface running on an embedded web server. This package has a dependency on java which will also be installed during the yum installation process.
  - *maddash-webui* - The web pages that display the dashboard. It consists of a set of CGI scripts that run under Apache. The server contacts the REST server run by the maddash-server package and then presents the data on the web page.
  - *perl-perfSONAR_PS-Nagios* - Installs the perfSONAR Nagios checks that can alarm based on throughput, loss and other data returned by perfSONAR services.
  - *perl-perfSONAR_PS-serviceTest* - Provides the performance graphs used by the maddash-webui package for perfSONAR checks.

Maddash (cont.)

- The main configuration file is
  - /etc/maddash/maddash-server/maddash.yaml
- Maddash has the following major configuration options
  - Groups
  - Grids
  - Dashboards
  - Checks

Maddash Groups

- Groups define the resources that will compose the rows and columns of a grid
- Groups take the following format:
  - groups:
    - groupName:
      - - "member”
      - - "member"

Maddash Grids

- Grids associate *groups* with *checks*
- Grids arrange them in a two-dimensional structure.

Maddash Dashboards

- Dashboard group grids together
- Dashboards determine what you see on the Web page

Maddash Checks

- Checks provide instructions as to how results should be obtained
- Checks have the following format
  - checks:
    - checkName :
      - ...check-parameters...

Maddash Checks (cont.)

- Available check parameters are:
  - Name, Description, Type, Params, CheckInterval, RetryInterval, RetryAttempts, and Timeout
- Supported type parameters are:
  - *net.es.maddash.checks.NagiosCheck*
  - *net.es.maddash.checks.PSNagiosCheck*
  - *net.es.maddash.checks.RandomCheck*

Maddash Checks (cont.)

- The following check commands are available
- check_gls.pl
- check_hls.pl
- check_ls.pl
- check_ls_probe.pl
- check_owdelay.pl
- check_perfSONAR.pl
- check_pinger.pl
- check_ps_version.pl
- check_sls.pl
- check_snmp.pl
- check_throughput.pl
- check_throughput_probe.pl
- check_topology.pl
- check_traceroute.pl

Maddash Checks (cont.)

- Maddash uses a Nagios style checks
- The Nagios script is a perfSONAR client
- Can perform echo or data request
- Valid return status values are *ok*, *warning*, *critical*, *unknown* and *notrun*

Overview

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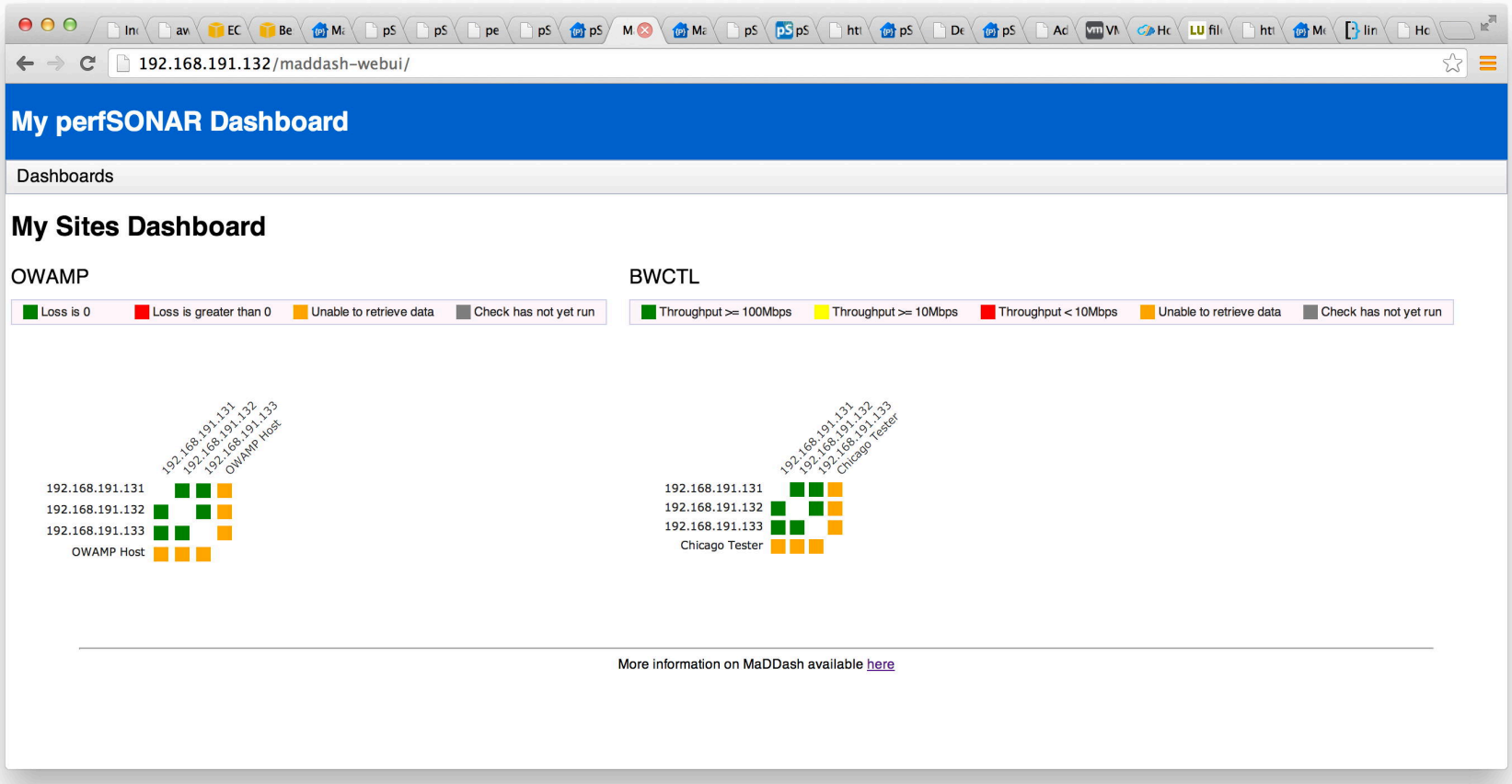
- **Maddash Web UI**

Web UI


192.168.191.132/maddash-webui/
My perfSONAR Dashboard
Dashboards
My Sites Dashboard
OWAMP
Loss is 0
Loss is greater than 0
Unable to retrieve data
Check has not yet run
192.168.191.131
192.168.191.132
192.168.191.133
OWAMP Host
BWCTL
Throughput >= 100Mbps
Throughput >= 10Mbps
Throughput < 10Mbps
Unable to retrieve data
Check has not yet run
192.168.191.131
192.168.191.132
192.168.191.133
Chicago Tester
More information on MaDDash available here

References

- perfSONAR
  - http://psps.perfsonar.net/toolkit/
- Performance tools:
  - http://www.internet2.edu/products-services/performance-monitoring/performance-tools/
- Mesh Configuration
  - https://code.google.com/p/perfsonar-ps/wiki/MeshConfigurationInstallation
- Maddash Stable release:
  - https://esnet-perfsonar.googlecode.com/svn/tags/maddash-1.0-rc1/
- Maddash Development release:
  - https://esnet-perfsonar.googlecode.com/svn/trunk/maddash/