Adding Network Measuring to Data Federation Caches

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Project Goal

- set up two perfSONAR instances on two data caches.
- schedule network measuring tests between them.
Background: Data Federation

- It is provided by OSG.
- LHC experiments store data on origin servers.
- Data is streamed from data origins to distributed data caches all over the world.
Background: perfSONAR

- It is a performance Service-Oriented Network monitoring ARchitecture
- perfSONAR tests all nodes on the network path and looks for areas of low performance
- user can set different test types based on test purposes. (Latency tests, Throughput tests, etc)
Set up perfSONAR

- build a perfSONAR image that pulls test configs from psconfig web admin
- deploy perfSONAR on docker container using the image

=== pScheduler Agent ===
Added remote configuration http://psconfig.opensciencegrid.org/pub/config/osg-xache

=== pScheduler Agent ===
[
  {
    "url": "http://psconfig.opensciencegrid.org/pub/config/osg-xache"
  }
]
Set up perfSONAR on Tiger cluster:

- deploy the container alongside the data cache deployment on Tiger cluster.
- set up public ip
- set up ports needed for perfSONAR to communicate with other nodes
Set up perfSONAR on River cluster

- deploy the container alongside the data cache deployment on River cluster.
- set up public ip
- set up ports needed for perfSONAR to communicate with other nodes
Schedule network measuring tests

- set up test configs on psconfig web admin at https://psconfig.opensciencegrid.org/
Major issues countered

- Container does not run properly in Kubernetes cluster (stuck in some failing states)
- Container cannot receive test configs from web admin (container network fails, wrong ports opened)
- Upstream perfsonar image does not provide full services for network tests
Schedule network measuring tests

- perfSONAR instance pulls test config from web admin and schedule the tests based on the config
- possible future work: a Central Measurement Archive to save test output is needed.
Thanks!

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