

Network integration with PanDA

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AGIS side

- PanDA uses AGIS as information system, network metrics were put into source-destination matrix for ATLASites in AGIS: http://atlas-agis-dev.cern.ch/agis/close_sites/atlassites_links/
- RESTful API was prepared to bulk fill the data: <http://atlas-agis-dev.cern.ch/docs/latest/restfullapi/atlassitesmatrix.html>
- For bootstrap AGIS was instrumented with SSB collector
- To transfer data to PanDA, export JSON API was prepared: http://atlas-agis-api-dev.cern.ch/request/site/query/list_atlassites_links/?json

SchedConfig side

- SchedConfig controller application serves software releases updates, SchedConfig parameters, etc.
- Network metrics collector part implemented as part of SchedConfig controller
- Metrics part downloads data and mapping from AGIS, prepares and then inserts network data into SchedConfigDB

Metrics collected

- Sonar small files, deviation
- Sonar medium files, deviation
- Sonar large files, deviation
- Perfsonar transfer speed average
- Xrdcp transfer speed average
- Each with last update datetime

- Optimization ideas:
 - Do we need them all?

Tests, AGIS

- Executed from Ixplus
- AGIS update metrics for all source-destination pairs, one client
- Full cycle - 100sec/45Hz
- No real bulk update, each record updated separately
- Keep in mind that updates can be executed from several clients
- Optimization ideas
 - Try real bulk update?
 - Use AGIS collectors?

Tests, controller

- Development machine voatlas142 (2 cores, 4Gb RAM)
- Get all data from AGIS
 - 2.2Mb source-destination matrix with data – 5sec
 - 220Kb ATLAS sites-to-PanDA sites mapping – 1sec
- Build panda sites source-destination matrix with data - 35sec
- Bulk insert into db (one transaction for all) - 20sec/325Hz
- Full cycle – 1min10sec
- Optimization ideas:
 - Reduce data volume by using filters to download the latest data or only desired metrics
 - Better work with data structures

How network data should be used?

- Raw data is data collected from sources
- Processed data is data after weight calculation
- Should we keep raw data in the database or should we calculate and keep only weights?
- Who, how and when will retrieve info from the database and use it for task brokerage and decision making?

Usage scenario

- Extend current brokerage implementation
- Start from xrdcp data
- For each request containing source
- Prepare 5 best destinations
- Maximum network weight should not exceed 0.5 in general brokerage formula so that these xrdcp-enabled sites to be used only when normally selected sites are unavailable

Status & plan

- Transport layer is ready: data is being delivered from AGIS to SchedConfig DB
- Tuning is available:
 - Check possibility of optimization data bulk update on AGIS side
 - Add filters to reduce data volume downloaded from AGIS
 - More sophisticated work with data structures on collector' side
- Start filling PerfSonar data (waiting for green light from Ale)
- Web UI for monitoring network data development
- Move tables to production database
- Update SchedConfig controller on prod machines
- Implementation of decision making algorithm
- These steps can be done till next ATLAS S&C Workshop