Atlas projects for LS1 and beyond

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CC-IN2P3, Villeurbanne,
19 June 2012

Projects for upgrade of Computing at LHC

- CHEP2012
  - ➤ Summary to come

- ATLAS Software and Computing meeting 11 to 15th of june at CERN. Purpose:
  - Upgrade of Software and Computing during LS1 and beyond.

➤ https://indico.cern.ch/getFile.py/access?contribId=51&sessionId=8&resId=1&materialId=slides&confId=169698

■ Long list of tasks (taken from A.Klimentov talk + addups)

- NoSQL databases R&D – *finished* ➔*Hadoop*
- Cloud Computing R&D
- XROOTD Federation and File level Caching Task force
- WAN Data Access and Caching Task Force (Torre's talk)⬅*NEW*
- Tier3 Monitoring Task Force - *finished*
- CVMFS Task Force - *finished*
- Multicores Task Force
- Network Monitoring...
- DDM to Rucio transition

CLOUD Computing

➤ https://indico.cern.ch/getFile.py/access?contribId=5&sessionId=2&resId=1&materialId=slides&confId=169698

- Goal:
    – Integrate cloud resources in the grid
    – Use cases:
        ➤ Centrally managed: data processing,
        ➤ Institute managed: T3 analysis clusters
        ➤ User managed: Personal analysis.
- Main activities:
    – Develop and evaluate running on different clouds
        ➤ Panda queues OK
        ➤ Cloud scheduler to use IaaS clouds
    – Cloud storage and retrieval
        ➤ Hardest part
        ➤ Short term data caching to accelerate data processing
        ➤ Test xrootd native with S3, EBS, ephemeral storages
    – Building Grid of Clouds with partners: BNL, CERN, LAL, PIC..
        ➤ Support for newcomers

XROOTD Federation Storage

> ➤ https://indico.cern.ch/getFile.py/access?contribId=3&sessionId=3&resId=0&materialId=slides&confId=169698

- Defined at CC Workshop in November 2011:
  - *A collection of disparate storage resources managed by cooperating but independent administrative domains transparently accessible via a common namespace.*

- Goal:
  - Allowing easily for a job in a site to get quickly its file from any other site of the federation
  - New access modes and redundancy

- How:
  - global name for files, system of redirectors (proximity functions): local, regional, cloud, global
  - A lot of Monitoring developped to follow up

- Who: US, DE (with dcache), UK (DPM, Castor)
  - Next workshop at CC-IN2P3 in September

Monitoring

- **Network Monitorings**
- **Monitoring: Global dashboards including all sites, all FTS, etc.**
  - SSB: Site Status Board: Allows to monitor all the activities on any cloud
    - ➤ per job, per queue, per efficiency, per CE, per factory,..
  - http://dashb-atlas-ssb.cern.ch/dashboard/request.py/siteview#currentView=Cloud&highlight=false
  - Global WLCG transfer Monitoring:
    - ➤ FTS queues status, historical view
    - ➤ integration of XrootD
  - **http://dashb-wlcg-transfers.cern.ch/ui/**
- **Monitoring Tier3 (Off-Grid)**
  - Package installed in T3: Russia, US, Spain
  - Data export to the Dashboard
  - Xrootd transfers

More Experiment-related Projects

- **Common analysis framework: ATLAS, CMS, IT-ES**
  - Feasability study done: no show-stoppers.
  - Next: proof of concept
- **DDM fully revisited: Rucio in production in 2013. Large migration foreseen (change of naming conventions)**

Client side   **Server side**   **Grid resources**

- Data Mgmt Services
- (Optional) Client Service
- Data Adaptor
- PanDA Server
- VO-specific client
- Job trans
- Job trans
- PanDA pilot
- PanDA Pilot
- Computing Element
- PanDA monitor and Dashboard Historical views
- PanDA Pilot Factories
- GlideIn WMS
- glideIns

- PanDA components
- VO specific, external components
- GlideInWMS components