Tier-1 Status & Plans

R. Tafirout

WLCG MB meeting, July 19 2016

Canadian WLCG Scene

- Tier-1: *dedicated facility* located at TRIUMF
  - Managed and operated by ATLAS-Canada & TRIUMF (Simon Fraser University as lead institution).
- Tier-2's: *shared facilities* located at Compute Canada centres
  - National organization serving all research communities
  - Management structure and operations are more complex
  - Each ~year, ATLAS-Canada submits a proposal to the National Resource Allocation Committee (NRAC) to secure resources.
  - Two federations across 4 sites (was 5 prior to 2013).
- One funding agency: Canada Foundation for Innovation (CFI)
  - Tier-1: very successful in securing own funding since 2006
  - Compute Canada is refreshing all of its infrastructure and aging equipment (going from ~27 to 4-6 larger centres)
  - CFI would like a Tier-1 integration within Compute Canada, to minimize infrastructure and operating costs.

Tier-1 relocation plans

- Current hardware resources (2016):
  - 4830 cores, 7.8 PB disk (usable), 12 PB tape, 90 servers
  - providing 10% of required Tier-1 resources worldwide (ATLAS)
- TRIUMF infrastructure is aging and floor space limited: requires a new server room to expand further and to be able to provide the necessary tape capacity for 2017 (~18 PB). Disk and CPU are OK.
- New Compute Canada centres are coming online this fall
  - One of these is at Simon Fraser University (Vancouver)
    - 2 x 0.5 MW UPS capacity, backed up by a generator
    - Large floor space (new building being renovated)
    - Ensures proper expansion going into the future, overall power capacity not an issue.
- Most of TRIUMF Tier-1 equipment will reach 5 years in 2017, we will extend warranties and support contracts for an additional year during the transition phase.
- New Tier-1 funding decision for equipment expected summer of 2017 (full proposal will be submitted in fall of 2016)

New Tier-1 deployment plan

- We would like to minimize downtimes at all costs and implement a smooth plan as much as possible.
- Need to operate two centres in a federated mode during the transition phase
  - Only relevant and critical to storage services
    - achievable with dCache (NDGF is a good example)
    - new data will be written only onto the new centre
  - New compute elements, etc. should not be an issue
- Phase 0: pre-production of initial services and testing (fall 2016)
  - Network configuration (new address space), bring LHCOPN to the new site (LHCONE already there). WAN will be 100G.
  - New tape library commissioning and federation testing
- Phase 1: full production by April 1 2017 with the new tape capacity and related services fully online. Initiate tape migration.
- Phase 2: end of 2017/early 2018, bring online new disk and cpu; complete data migration (mostly disk).
- TRIUMF Tier-1 will remain online till ~ Q2 of 2018.