Integration Program Status

Rob Gardner
10-12-10

US ATLAS Facilities Meeting
SLAC

Evolving the Integration Program

- Starting now Phase 15 (FY11Q1) – our fourth year of Integration work!

- Core principles remain the same, tweaked to evolve with changing ATLAS requirements
  - Integrate all Facility components in the US Cloud (Tier 1, 2 3)
  - Phased program over 3 months
  - Includes fabric, grid, ATLAS services
  - Capacity, reliability, performance

- However focus has shifted to usage & access (both CPU and storage)
  - We have some well-established analysis usage patterns at the Tier 1,2 now (pathena,prun & fetching of job output)
  - With Tier 3 may come new modes requiring better and global access to storage

Phase 15

"We got some work to do"

- CREAM CE
- Analysis Triage
- Network & Throughput
- Tier 3 integration
- Global data access
- CPU & disk capacity upgrades

CREAM CE

- Anticipate CREAM CE update or significant integration testing during Phase 15

- CREAM-CE as a replacement to the LCG-CE, OSG-CE (Globus 2 based). Used in production >1 year

- No plans to deprecate OSG-CE, but all LCG-CE to be decommissioned by end of year

- Widely discussed in ATLAS ADC, see Graeme Stewart's talk, etc

  - http://indico.cern.ch/conferenceDisplay.py?confId=107126
  - Pilot factory submission issues have been addressed in a recent condor release 7.5.3
  - Sites are being encouraged to update

- Integration into OSG in progress – schedule later this week

Analysis Triage (Site Level)

- # analysis jobs in the facility continues to grow
- # analysis job types is unlimited and constantly changing
- Required storage access increasing
- # analysis job slots increasing
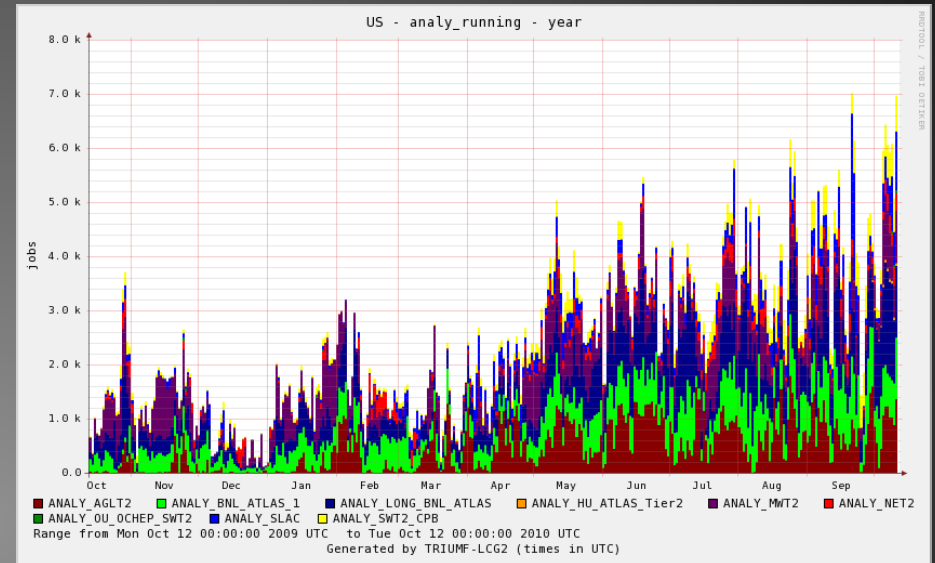
- Strategy
  - Sort failures by job set/user
  - Distinguish site-user errors
  - Contact users if necessary, cc DAST

Tier 3's and the Facility

- New Tier 3's coming online
  - Focus is on "T3g" type
  - See https://twiki.cern.ch/twiki/bin/view/Atlas/Tier3gSetupGuide
- As Tier 3 program evolves and requirements change we need to examine points of contact and required support from the Tier 1 and Tier 2 centers
- Immediate areas
  - Panda-Tier3 & worker-data affinity
  - Managed dataset transfers via dq2-FTS
  - LFC and local data management

Network & Throughput

- Shawn will describe in detail tomorrow
- Expect all Tier 2's to update to latest PerfSonar release (we'll have a demo from Jason)
- Bring the infrastructure into a routine "go-to" operational mode for periodic monitoring, troubleshooting, trend analysis, etc

Global Data Access

- In the US Facility (today) we have over 12 PB of disk deployed, over 5 PB deployed at the Tier 2s
- Access to this data comes is provided by a number of services, and clients for the various processing tasks supported (production, analysis, reprocessing, tag-skim, etc)
- User level access is a particular challenge
  - Local area versus wide-area
  - Direct (network reads) versus stage-in of whole files
  - User resource characteristics (storage caching) and modes
- WLCG demonstrator finding will be key in identifying directions forward

Summary

- Major accomplishment over past several months has been deployment storage capacity to meet the production and analysis needs of ATLAS this past summer

- Analysis needs met with good performance – though challenges remain

- In Phase 15 of Integration Program we likely see some major site-level upgrades
  - CPU & disk upgrades
  - CREAM CE (evaluation, +)
  - Network monitoring

- Lots of new work ahead – equipment, T3 integration, data access, … ☺