



ATLAS Frontier Plans

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Consolidation of Distributed Databases

- During the last year we tried to consolidate and robustify the distributed database services
- Now we have 6 Oracle servers
 - CERN, RAL, IN2P3-CC, KIT, BNL, TRIUMF
 - All have the same data for Conditions (COOL), Geometry and Trigger DB
 - Replicated using the Oracle Streams technology
- Each Oracle site has a Frontier server
 - Acting as front-end for Oracle and cache for the SQL queries
- Each Tier-1/2/(3) has a Squid service
 - Acting as local cache for the SQL queries from local jobs/users
- Each site has also a fail-over Squid (at a neighbouring site) and a fail-over Frontier server
 - 4 combinations to choose from, of course with different speed but the same functionality



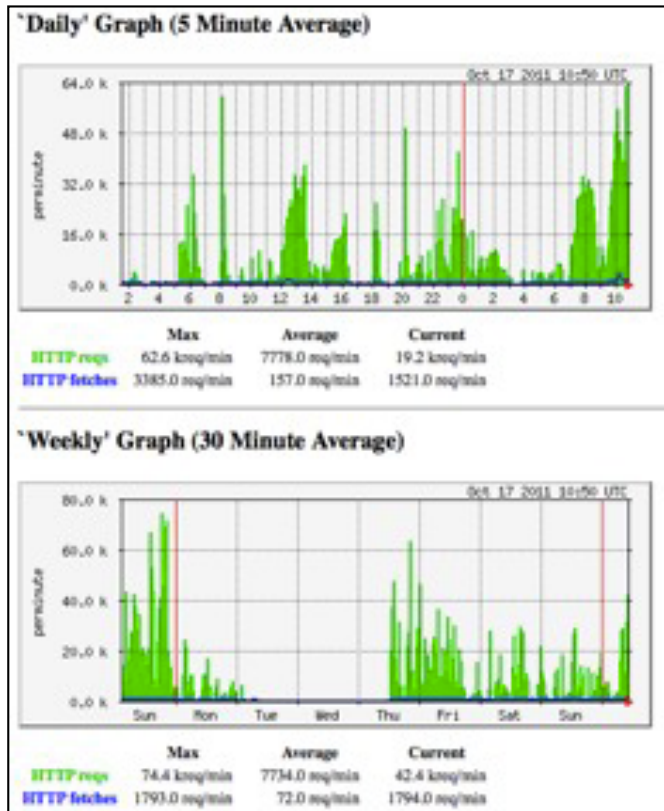
Condition data files

- Conditions data files are pointed to by COOL tables in the Conditions DB
- These files are available in all HOTDISK space tokens on each Grid site
- Sites that have already moved to CVMFS for software distribution get conditions files with the same mechanism
 - Eventually HOTDISK areas will disappear when all sites adopt CVMFS
 - This will bring a great simplification in data distribution and management as only used data files will remain in the caches
 - About 150 TB will be recovered for more useful data



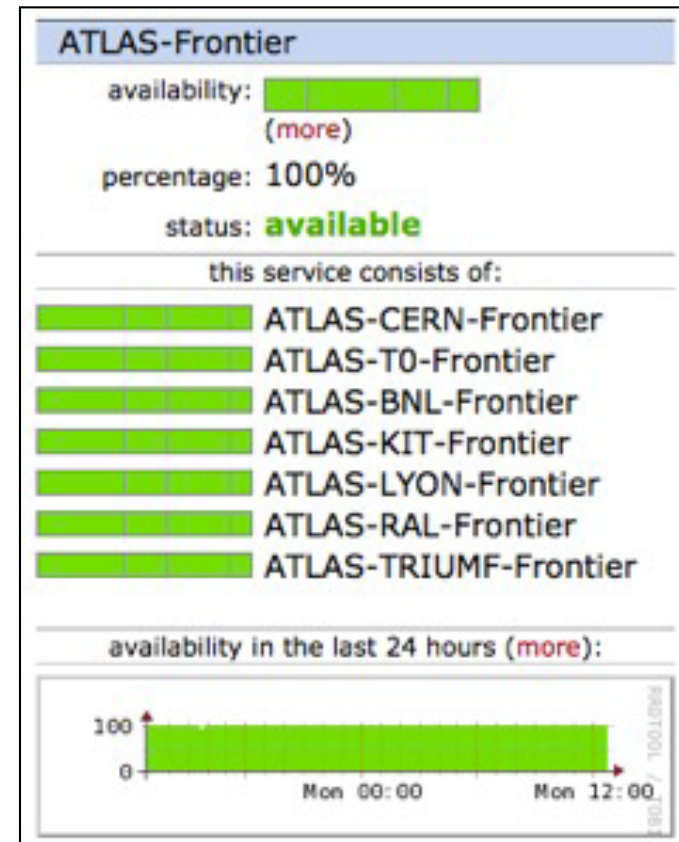
Monitoring (1)

- SLS monitoring of Frontier launchpads works well
 - MRTG Squid monitoring shows all sites but not individual squids yet
- Work in progress



← MRTG

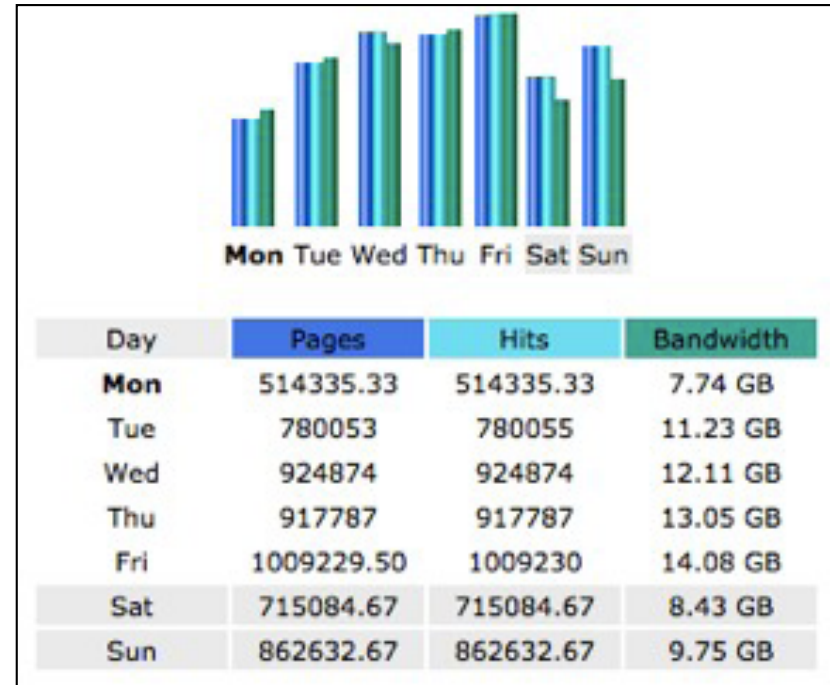
SLS →





Monitoring (2)

- AWstats allows us to monitor Frontier load and observe site failover.
 - Not configured on all sites (yet)
- Fngget tests in SAM/Nagios being worked on
 - Including display in the SiteStatusBoard
- Examples: RAL Frontier usage one week mid-October (AWstats monitoring)



Domains/Countries			Pages	Hits	Bandwidth	
	United Kingdom	uk	8607856	8607856	111.08 GB	
	Italy	it	2037674	2037674	21.98 GB	
	Slovenia	si	746594	746594	11.65 GB	
	Norway	no	675470	675470	8.27 GB	
	South Africa	za	458099	458099	6.31 GB	
	Germany	de	393940	393940	8.82 GB	
	Sweden	se	256816	256816	5.51 GB	
	USA Government	gov	104303	104303	1.30 GB	



Frontier for Tier-0

- High load regularly being seen on ATLR database.
- Accessing 3D database through Frontier will reduce the load.
 - But is not the only source of load
- Tests have demonstrated that with correct configurations, Frontier produces identical results to direct Oracle access.
- 2 new virtual machines have been setup to handle this load and separate it from general usage.
 - Tier-0 operations must be protected from any external interference
- Ready for production, test jobs have been running for the last month.
 - Some resistance to put a new system in Tier-0 operation during LHC data-taking but now is a good time to do it



Summary

- For analysis:
 - Consolidation of Oracle DB + Frontier servers
 - Access to conditions data through Squid+Frontier+Oracle for Grid and local users
 - Transition to CVMFS for conditions data files
- For production:
 - Conditions Database Releases for simulation and reprocessing jobs
- Tier-0:
 - New Frontier launchpad ready for operation
- New Oracle version:
 - Move to Oracle 11g next January