

ATLAS Frontier Update

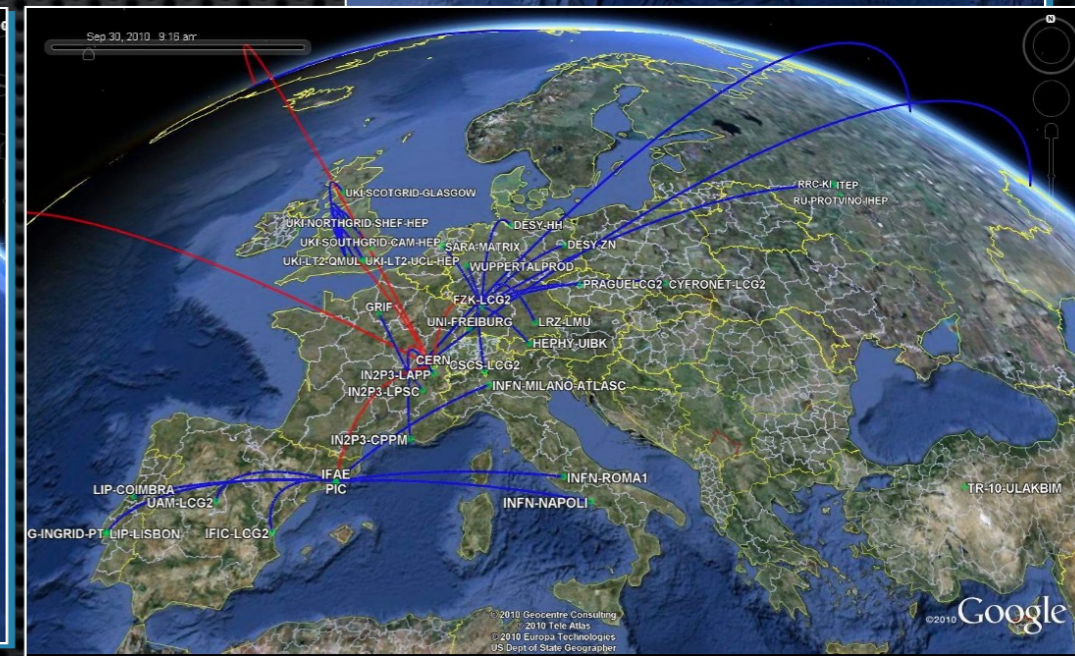
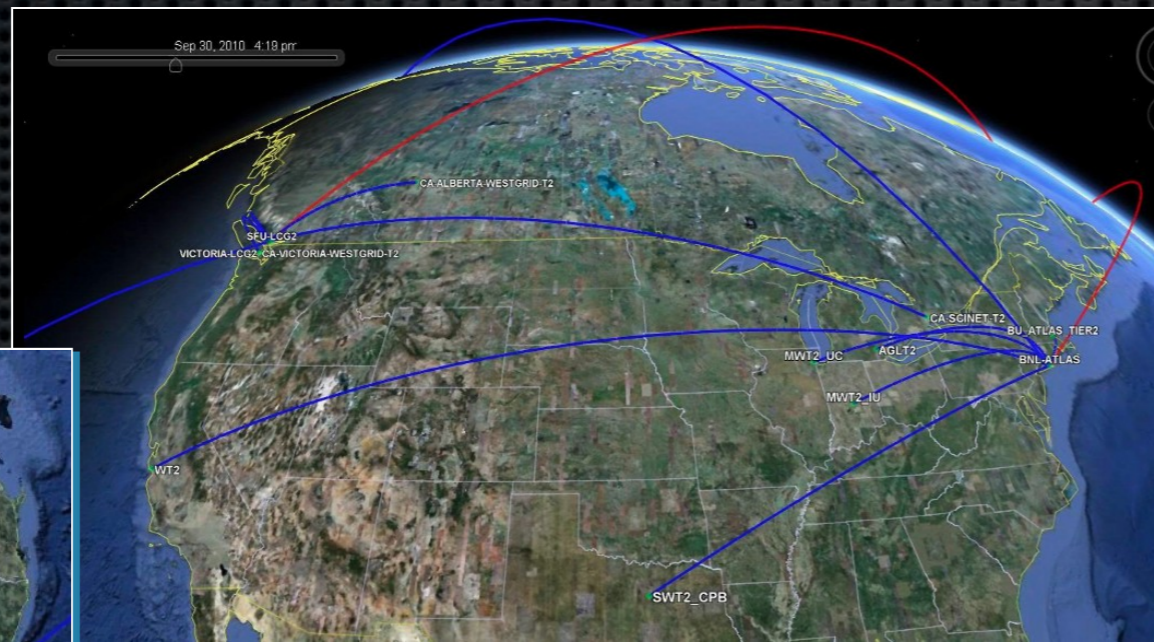
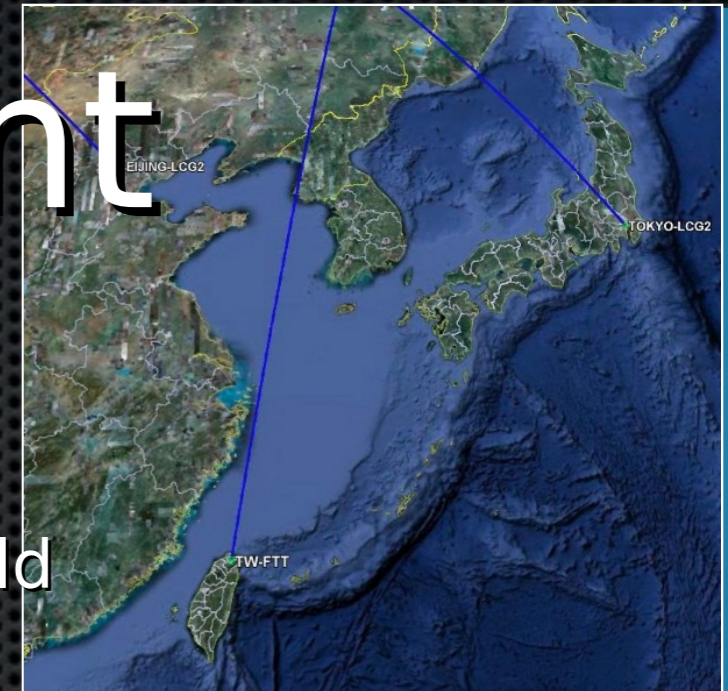
ATLAS Software & Computing Workshop

Autumn 2010

- Rod Walker, LMU Munich, 2nd Dec 2010
(Slide mostly from John DeStefano)

Current deployment

- Frontier servers at seven ATLAS sites:
 - BNL, CERN, IN2P3, KIT, PIC, RAL, TRIUMF
- Squid cache servers at Tier-N sites around the world



Images by Google Earth, from CHEP poster "Frontier in ATLAS", organized for ATLAS by Douglas Smith.

Current deployment

- T1 Oracle RAC updated by streams from T0
- Most sites comprised of a single Frontier “launchpad”
 - Single Tomcat plus single accelerator Squid
- Many sites do not offer local jobs a local Squid cache

Site deployment details

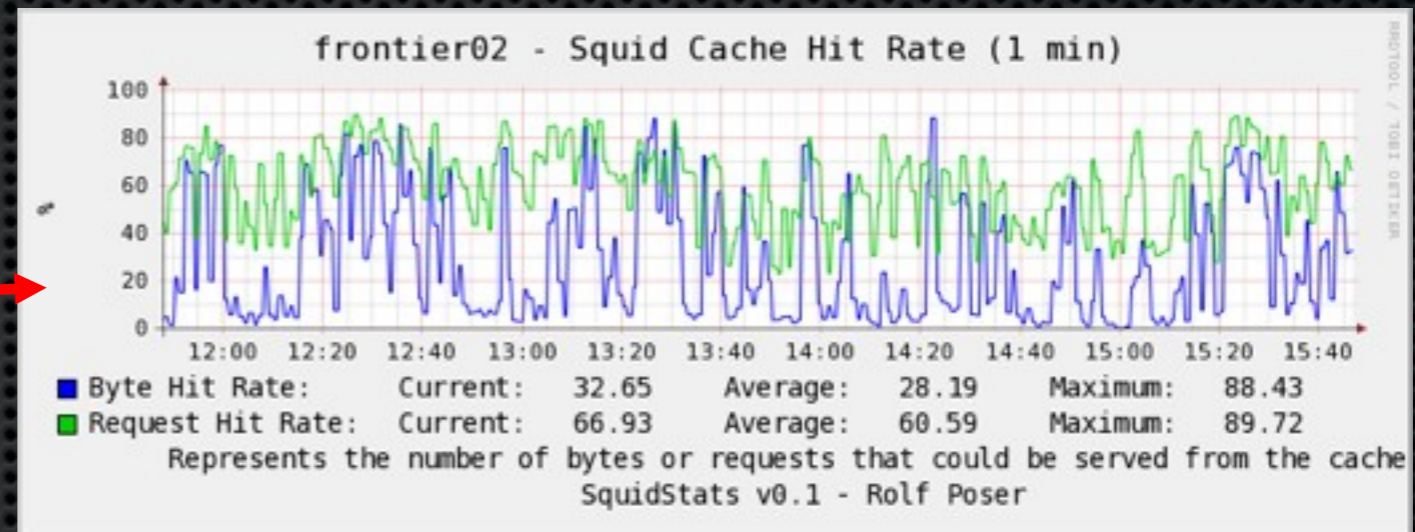
- Common ATLAS Frontier site deployment
 - Single Frontier tomcat and accelerating Squid

- Recommended ATLAS Frontier site deployment
 - 2 launchpads, for T2 Squids
 - 2 Squid proxies, for T1 WNs

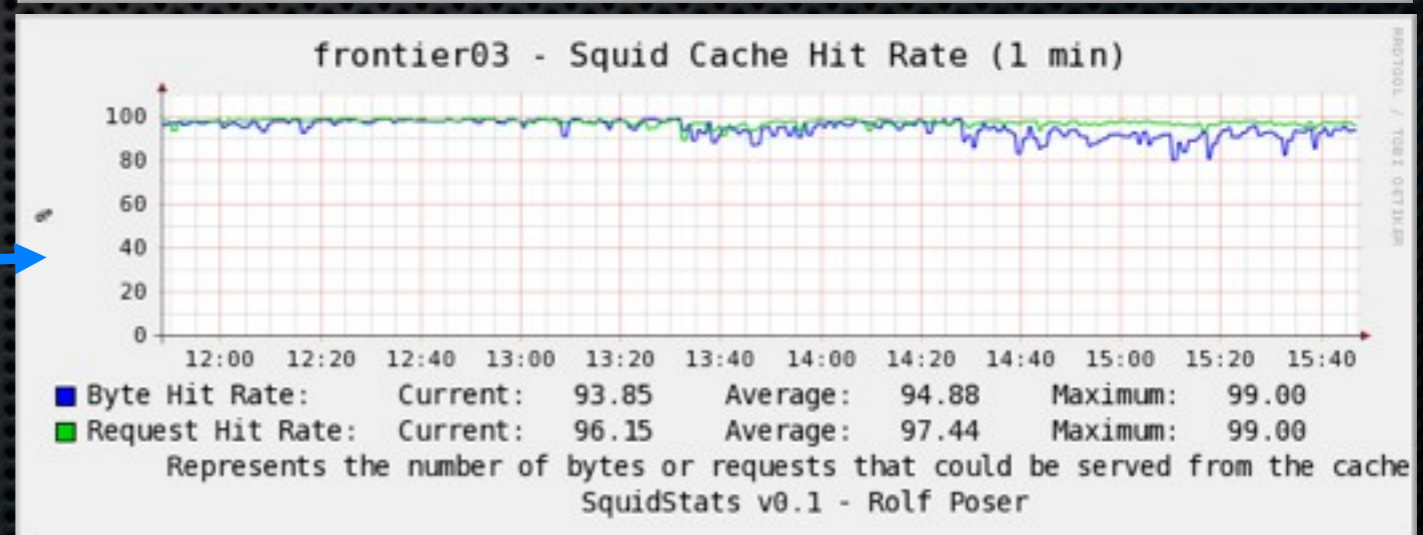
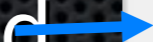
Site deployment details

- Does a separate site Squid cache really make a difference?

BNL Launchpad Squid



BNL Site Cache Squid

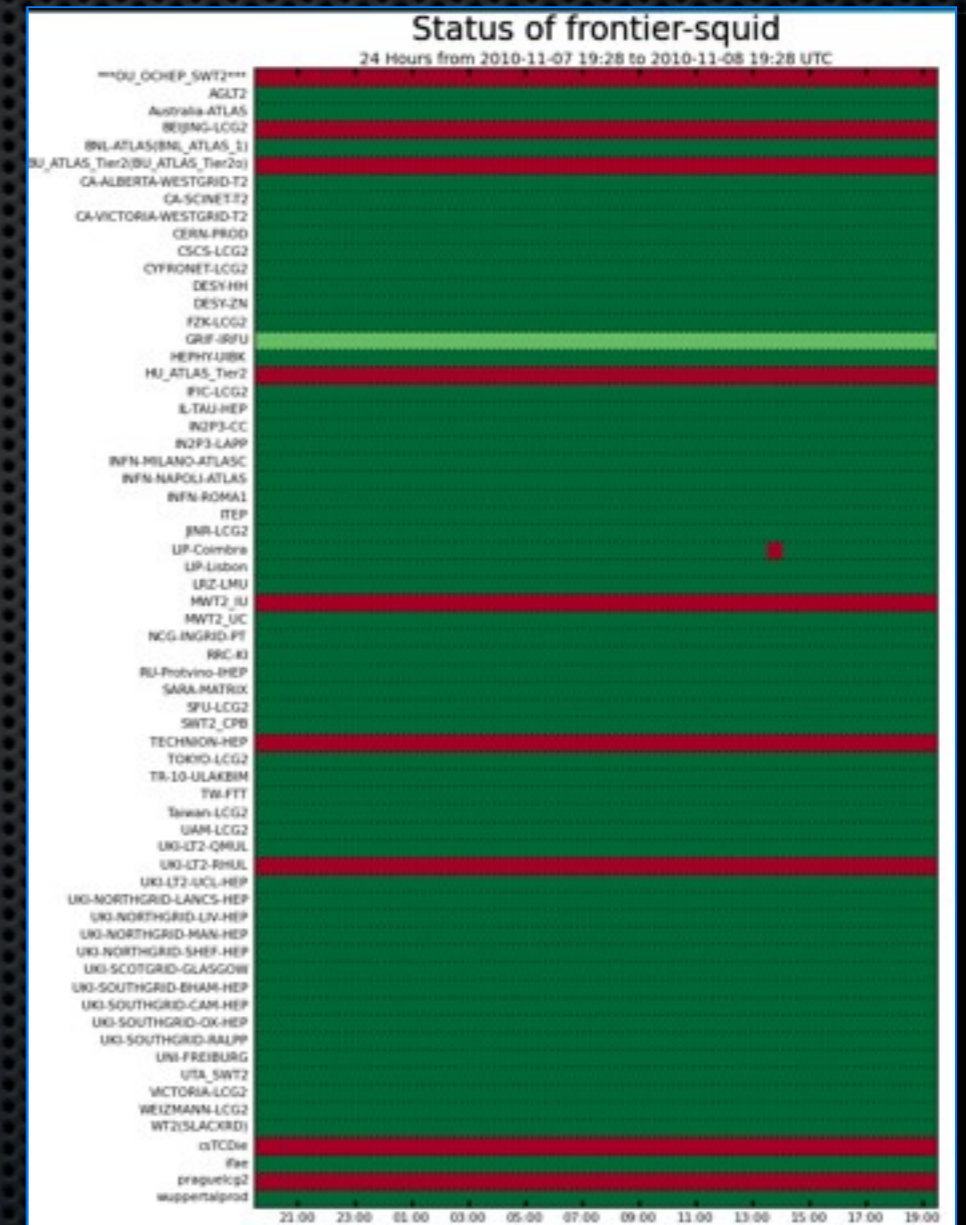
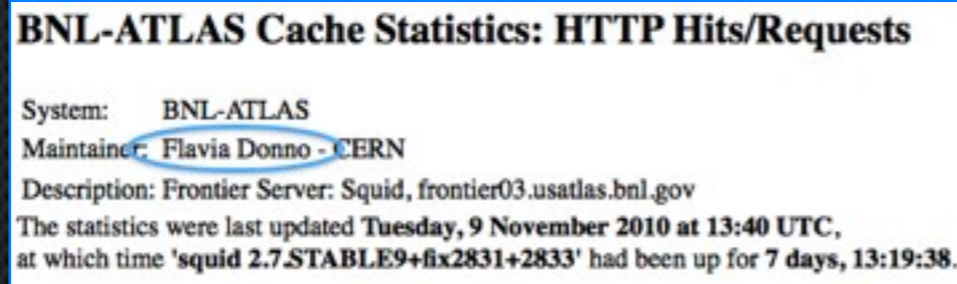


Current deployment

- Site reports:
 - BNL: recent site power failure caused brief downtime
 - KIT: recent Frontier upgrade and reconfiguration
 - RAL: Frontier working well despite unforeseen traffic and load
 - TRIUMF: Frontier working well

Production updates

Squid site cache status added to ATLAS dashboard



- <http://dashb-atlas-ssb.cern.ch/dashboard/request.py/siteviewhistory?columni>


Production updates

Frontier site status added to CERN Service Level Status dashboard


Additional information

full name: **ATLAS Frontier Service**
short name: ATLAS-Frontier
group: IT-ES-VOS
site: CERN

email: **Flavia.Donno@cern.ch**
web site: <http://frontier.cern...>

manager: **Flavia Donno** 








ATLAS-Frontier

availability: 
(more)

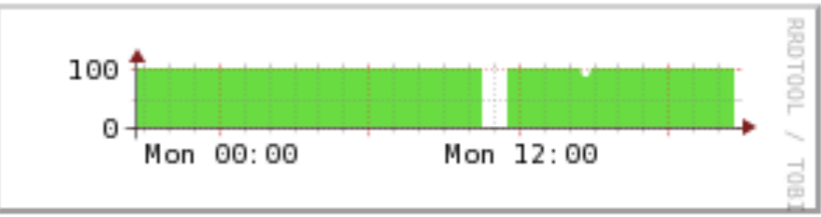
percentage: 100%

status: **available**

this service consists of:

-  ATLAS-CERN-Frontier
-  ATLAS-BNL-Frontier
-  ATLAS-KIT-Frontier
-  ATLAS-LYON-Frontier
-  ATLAS-PIC-Frontier
-  ATLAS-RAL-Frontier
-  ATLAS-TRIUMF-Frontier

availability in the last 24 hours (more):



- <http://sls.cern.ch/sls/service.php?id=ATLAS-Frontier>

Production updates

Additional ATLAS Frontier monitoring (currently problematic):

- AWStats for Frontier servers:

<http://frontier.cern.ch/awstatsatlas.html>

- MRTG for Squids:

<http://frontier.cern.ch/squidstats/indexatlas.html>

- SAM:<https://lcg-sam.cern.ch:8443/sam/sam.py>

Production updates

ATLAS RPM packages for Squid, Tomcat, Frontier, and AWStats now available

- <https://twiki.cern.ch/twiki/bin/view/LCG/WLCGFrontier>
- <https://twiki.cern.ch/twiki/bin/view/PDBService/SquidRPMsTier1andTier2>

Current available rpms

- <http://grid-deployment.web.cern.ch/grid-deployment/flavia/frontier-awstats-1.0-1.noarch.rpm>
- <http://grid-deployment.web.cern.ch/grid-deployment/flavia/frontier-tomcat-1.0-1.noarch.rpm>
- <http://grid-deployment.web.cern.ch/grid-deployment/flavia/frontier-servlet-1.0-3.24.0.noarch.rpm>

Frontier Savannah reports

- 72011,73387,73405 (closed): Problems with some Frontier site configurations
- 73387 (closed): Some sites missing local Squid cache
- 74441 (closed): Frontier used for reconstruction jobs instead of analysis

Other problems and solutions

- Site installation and configuration of cache revalidation scripts
 - Ensure ATLAS_FRONTIER_READER database schema and triggers are installed
 - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/ScriptsDepotContent#Script_for_creating_DB_user_sche
 - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/ScriptsDepotContent#Script_for_creating_FRONTIER_rea
- Ensure Frontier servlet is properly configured

Other problems and solutions

- Database connection time-outs and disconnects during long-running queries
 - MaxDbExecuteSeconds=60

```
ServerName=frontieratbnl
DataSourceName=jdbc/frontieratbnl
XsdTableName=frontier_descriptors
UseFdoCache=no
ShortCacheExpireSeconds=3600
LongCacheExpireSeconds=3600
LastModifiedTableName=ATLAS_FRONTIER_TRACKMOD.LAST_MODIFIED
ValidateLastModifiedSeconds=300
MaxDbExecuteSeconds=60
```

<https://www.racf.bnl.gov/docs/services/frontier/servlet>

- Athena default time-out (3600 sec) can be disabled with
`svcMgr.PoolSvc.ConnectionRetrialTimeOut=0` (R. Hawkings)

Other problems and solutions

- Errors on missing database tables
 - Connect with ATLAS_FRONTIER_READER
 - Enable ATLAS_FRONTIER_TRACKMOD tables

```
driverClassName="oracle.jdbc.driver.OracleDriver"  
maxIdle="2" maxActive="2" maxWait="-1" logAbandoned="true"  
minEvictableIdleTimeMillis="60000" timeBetweenEvictionRunsMillis="20000"  
username="ATLAS_FRONTIER_READER" password="ASecretLocalPassword"
```

```
ServerName=frontieratbnl  
DataSourceName=jdbc/frontieratbnl  
XsdTableName=frontier_descriptors  
UseFdoCache=no  
ShortCacheExpireSeconds=3600  
LongCacheExpireSeconds=3600  
LastModifiedTableName=ATLAS_FRONTIER_TRACKMOD.LAST_MODIFIED  
ValidateLastModifiedSeconds=300
```

<https://www.racf.bnl.gov/docs/services/frontier/servlet>

ATLAS

recommendations

- Squid:
 - Frontier server sites should maintain at least one site Squid (two for > 500 analysis slots) to offset load on Frontier servers, and for reliability (when server/database is down)
- Frontier (caveat: ongoing discussion by ATLAS management):
 - Choices:
 - Leave existing Frontier sites to operate as they are
 - Minimize and fortify a subset of existing Frontier server sites

Ongoing issues and discussion

- Current fail-over scheme: “ordered chaos”
 - ToA does not currently permit multiple server entries for local cache server definitions

```
fsquidmap={  
# CERN  
'CERN-PROD': {'mysquid': 'http://atlast0fsquid.cern.ch:3128' 'frontiers': [fcer, flyo], 'squids': ['local', '']},
```


Ongoing issues and discussion

- Current fail-over scheme: “ordered chaos”
 - Frontier server Squid ACLs are not consistent or permissive enough at all T1 Frontier sites to support fail-over from other sites
 - Tier 2 Squids have fail-over pairs
 - Fail-overs are not currently tested sufficiently

Ongoing issues and discussion

- Frontier T1 access tests from BNL worker nodes:

Site	Cache	Frontier	Off-site
BNL	OK	OK	OK
CERN	refused	OK	OK
KIT	time-out	OK	forbidde n
LYON	refused	OK	OK
PIC	no cache	OK	OK
RAL	no cache	OK	OK
TRIUMF	no cache	OK	time-out

Future

- CMS have single Frontier site, and developer recommends for ATLAS
- ATLAS has T1 RACs, and many have Frontier
 - future CD access unknown, maybe heavy(e.g. alignment)
 - hardware and manpower exists
 - maintain query power and flexibility
- Some T1s may not have Frontier or RAC
- T1s with Frontier need robust, monitored, maintained
 - attend (bi)weekly meetings – until stabilize.
 - KIT,IN2P3,PIC do not
 - currently rely too much on Dave(CMS&dev) for ATLAS Ops

Documentation

- ✦ <http://frontier.cern.ch>
- ✦ <https://www.racf.bnl.gov/docs/services/frontier>

Miscellaneous

- “Frontier in ATLAS” poster at CHEP
 - Organized and presented by D. Smith
- Frontier weekly meetings: Wed. 4:30 PM CET
 - Agenda rotates bi-weekly: site admins/project
 - <https://www.racf.bnl.gov/docs/services/frontier/meetings/>

Acknowledgements

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