

CVMFS and Nightlies

- The ATLAS multi-platform software nightly build system is a major component in the ATLAS collaborative software organization, validation and code approval schemes
 - The nightly releases are lead up to, and are the basis of, stable releases used for data processing worldwide
 - There are several varieties of nightly releases:
 - Full multi-project development and bugfix releases
 - Full specialized releases (e.g. for Heavy Ion run)
 - Migration nightlies for development of specific software domains
 - Production cache nightlies (updates for major ATLAS releases)
 - Analysis cache nightlies (analysis specific additions to major ATLAS releases)
 - Currently ATLAS nightly system produces 55 (69 if each platform build counted separately) nightly releases that are tested immediately on a farm of 50 powerful multiprocessor nodes (and then many branches are thoroughly tested in standalone RTT testing framework)

CVMFS and Nightlies (2)

- Software developers use ATLAS nightly releases worldwide
 - Compile against nightlies
 - Test against nightlies
- Kits, rpm, pacballs are available for remote nightly release installation
 - Several major nightly branches are installed at U.S. ATLAS Tier I center daily
- CVMFS allows to get a faster and more reliable access to important nightly releases
 - Opens a possibility of nightlies validation on sites with different machines architectures (e.g. AMD chips)
 - U.S. ATLAS Tier I Center is particularly interested
 - Also hosts CVMFS replica that just started to work

Technical Details

- Use separate repository for nightlies (and conditions DB)?
- Nightly branches for CVMFS upload:
 - 2 branches that include all ATLAS software projects
 - Includes all ATLAS and external software
 - 7 releases in the loop (rel_0 ... rel_6), size: 10 GB each
 - Daily reload of one release (rel_0 on Sunday, rel_1 on Monday etc)
 - 4 branches of cache (patch) releases
 - Includes patches to full stable [not nightly] ATLAS release
 - 7 prototypes of stable cache releases in the loop (e.g. AtlasProduction/16.6.1.2)
 - Size: 1 GB each
 - Cache releases depend on full base releases that should be available elsewhere on CVMFS (base release is needed to run any ATLAS job)
 - Current version of sw-mgr needs to download the base release ALONGSIDE the cache release. This effectively adds 10 GB to each cache release download

Upload Details

- Upload script is based on sw-mgr tool
 - Working prototype is ready
 - Successfully tested for ATLAS cache release uploads (on AFS)
 - Requires AFS access for communication with nightly build system
 - Get a signal that kit is ready
 - Post a signal that release is published (so that nightly system can run brief tests and post the info on the web)
- Directory structure (release numbers are examples)
 - Full nightly releases

```
$VO_ATLAS_SW_DIR/nightlies/<name>/rel_0/
```

```
...
```

```
rel_6/
```

```
AtlasCore/rel_6/
```

```
AtlasConditions/rel_6/
```

```
.....
```

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Upload Details (2)

- Directory structure: cache nightly releases

`$VO_ATLAS_SW_DIR/cache_nightlies/<name>/rel_0/`

`...`

`rel_6/`

`16.2.2/AtlasProduction/16.2.2.3`

*Temporary rel_N includes copy of the base stable release
(required by current version of sw-mgr, but it is not generally
required for ATLAS runtime setup)*

`16.2.2/AtlasCore/16.2.2`

`16.2.2/AtlasEvent/16.2.2`

`....`

`16.2.2/external`

First CVMFS Tests in Nightly System

- Test: build ATLAS nightly cache release based on stable ATLAS release located on CVMFS
- Results: fast builds, no problems (such as timeouts, broken connections)

Nightly build time (min)

