

Using optimised s/w environment setup

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ADC Weekly Meeting, 28 April 2015

Overview

Background

Proposed solution

Deployment and testing

Utilisation

Background

- In plenary talk “HPC Status & Plans” at S&C Week on 21 October 2013, the environment setup load on the file system was mentioned as a potential problem for using some HPC sites
- Started [Atlas Infrastructure task #48303: environment setup optimisation](#) migrated to [Jira](#), [ATLINFR-562](#)

Proposed solution

Optimisations and modifications implemented in

- CMT v1r25p20140131, in particular, related to cached requirements file (for more details, see [CMT presentation](#) in SIT session of [February 2014 S&C Week](#))
- ATLAS CMT configuration
 - AtlasCommonPolicy-00-00-39: Generate standalone setup scripts making use of cached requirements
 - AtlasCommonPolicy-00-00-41: Check for AtlasSite package and (compiler) setup script in \$SITEROOT
 - ExternalPolicy-00-01-69, AtlasCoreRunTime-00-00-50: Introduce environment variable to disable unnecessary setup script
 - Tools/Scripts-00-01-85: Define completion for interactive shell only

Deployment and testing

- First fully deployed on CERN VM FS in April 2014 for AtlasProduction 17.7.3.12 in

```
/cvmfs/atlas.cern.ch/repo/sw/software/x86_64-slc6-gcc46-opt/↵  
17.7.3
```

- Test showed significant, ≈ 20 times, reduction of file system access calls number for setup command

```
source <path>/AtlasProduction/17.7.3.12/AtlasProductionRunTime/↵  
x86_64-slc6-gcc46-opt/runtime/cmt/standalone-setup.sh
```

- Compared environments set up by `asetup` and optimised procedure — essentially the same, except `FRONTIER_SERVER` variable not set up by the latter

Deployment issue

Bug in Grid installation procedure of patch projects, e.g., AtlasProduction, preventing generation of optimised setup related files upon installation for most of year 2014

- rendered optimisation unusable without a request to Grid s/w installation team to re-do post installation configuration
- finally filed [Jira, ADCSUPPORT-3927: AtlasProduction installation fails to run post-install script](#)
- resolved in November 2014

First utilisation

- Optimised s/w setup [last presented](#) and discussed at [June 2014 S&C Workshop](#)
- Since then used, to some extent, in HPC activities
- Agreed on its usefulness for both HPC and beyond (see, e.g., [EU HPC activity, slide 9](#) in [September 2014 S&C Workshop Splinter - HPC meeting](#)), requested that [it be rolled out](#)
 - now the case for “newer” releases
- Recently requested that [optimised s/w setup be default in production](#)

Utilisation in production

- Easiest way to use optimised setup by default in production is to implement, in the pilot, setup command as follows

```
source /cvmfs/atlas.cern.ch/repo/sw/software/<cmtconfig>/↵  
<base-release>/AtlasProduction/<patch-release>/↵  
AtlasProductionRunTime/<cmtconfig>/runtime/cmt/↵  
standalone-setup.sh
```

if file exists, otherwise do standard setup with `asetup`

- tested
- can be done immediately
- Additionally, one could request that optimised s/w setup be used internally by `asetup`
 - would need implementing, and testing, in particular, performance

Summary

- Optimised s/w environment setup
 - developed for computing activities on HPC resources, can be useful everywhere
 - released, and tested
 - CMT v1r25p20140131
 - ATLAS configuration packages modifications
 - $\approx$ 20 times decrease in file system load
 - deployed, and available for “newer” releases
 - requested for production utilisation
- Proposal
 - implement, in the pilot, direct utilisation of optimised s/w setup
 - watch out for possible implementation of [asetup using optimised s/w setup internally](#)