Containers info mesh

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OS and Version

- To run containers in the pilots installing singularity on the WNs will be a requirement for sites moving to CentOS7.

- Latest singularity version 2.3.1 has become the baseline in WLCG.

  - https://wlcg-mw-readiness.cern.ch/baseline/current/

  - For now only available from the singularity site.

    - OSG and WLCG repositories are under discussion.

- Most of the features work only on CentOS7 family of OS

  - In particular the latest is the possibility to run singularity without setuid in the pilot which works only on **CentOS7.4**.

    - It will require some changes to the /etc/default/grub files that can be added at installation time.

Site or pilot

- Some sites are running containers as part of the WN infrastructure.
    - More normally Docker but also singularity
- Running containers in containers is possible but for now only if the external container is docker.
- Site singularity and pilot singularity are incompatible at least for now.

Images

- Images are distributed by ATLAS via CVMFS.

- ATM single file images

  - /cvmfs/atlas.cern.ch/repo/images/singularity/

  - Too big too scale

  - Work ongoing to unpack them in cvmfs to access them as normal directories and let CVMFS work as usual.

- CVMFS must be binded inside the image in this model

- Sites without CVMFS (HPC) can use 'fat images' (See Wei's presentation)

Binding and setuid

- Some WNs directories have to be binded inside the image.

- Images can be created with a set of standard directories (/cvmfs, /scratch,...) but sites are varied not all dirs can be put in the image.

- Bind points can be passed to the command line as parameters. That's how currently pilot is running

  - Set of singularity parameters in AGIS

    - singularity_options="-B bind_path[:bind_target_path], bind_path[:bind_target_path] –contain"

Binding and setuid

- This requires allowing users to bind any directory in their images.

  - ATLAS(/CMS) run singularity in the infrastructure but this is general WN setup and other users can access singularity.

- Having only system bind paths though using images that don't contain the target requires setuid.

  - Not all sites want that (infact was major objection to glexec)

- Singularity can run in non setuid mode even allowing users to mount bind points.

  - Hence recommendation for CentOS7.4 and singularity 2.3.1 for this.

Docs

- ADC Deployment twiki

- E-group: atlas-adc-containers-deployment

- Meetings: by-weekly after ADC weekly on Tuesday.

  - ADC Ops category: https://indico.cern.ch/category/1706/