Containers in GridPP/CMS

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GridPP
UK Computing for Particle Physics

Containers in CMS

- CMS uses containers (mainly) to run SL6 jobs on SL7
- CMS requires all sites to provide Singularity
  - Singularity must be installed by the sites themselves
  - Images are stored in /cvmfs/singularity.opensciencegrid.org/bbockelm/
- CMS pilots detect Singularity and run some verification
- Each user job is started up in its own container
  - Consistent environment for job
  - Isolates job from pilot: replaces glexec
- CMS plans to run everything from cvmfs once user namespaces are enabled (~ RHEL 8 ?)

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Containers at Imperial College

- Imperial College has a CentOS 7 only cluster
  - CentOS 7 grid jobs run directly, i.e. without containers
- We use Singularity to provide an standard SL6 workernode:
  - Image used is CernVM from /cvmfs/cernvm-prod.cern.ch/cvm3/
- Containers are automatically started if a job arrives at the cluster via a CE advertising CentOS 6:
  - Via a prolog script in the batch system
- This works transparently including for jobs arriving via DIRAC
- Singularity cannot be nested: We advertise only CentOS 7 to CMS

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Containers in DIRAC

- SingularityCE implemented after the last workshop
- It turns out, we don't currently need it:
  - This is very low priority for us
  - If one of our user communities really needs it, we will get back to it
- All details are in: https://github.com/DIRACGrid/DIRAC/issues/3381
- SingularityCE might be a suitable replacement for SudoCE in some cases (VAC ?)

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