SA1

Forschungszentrum Karlsruhe
in der Helmholtz-Gemeinschaft

Universität Karlsruhe (TH)
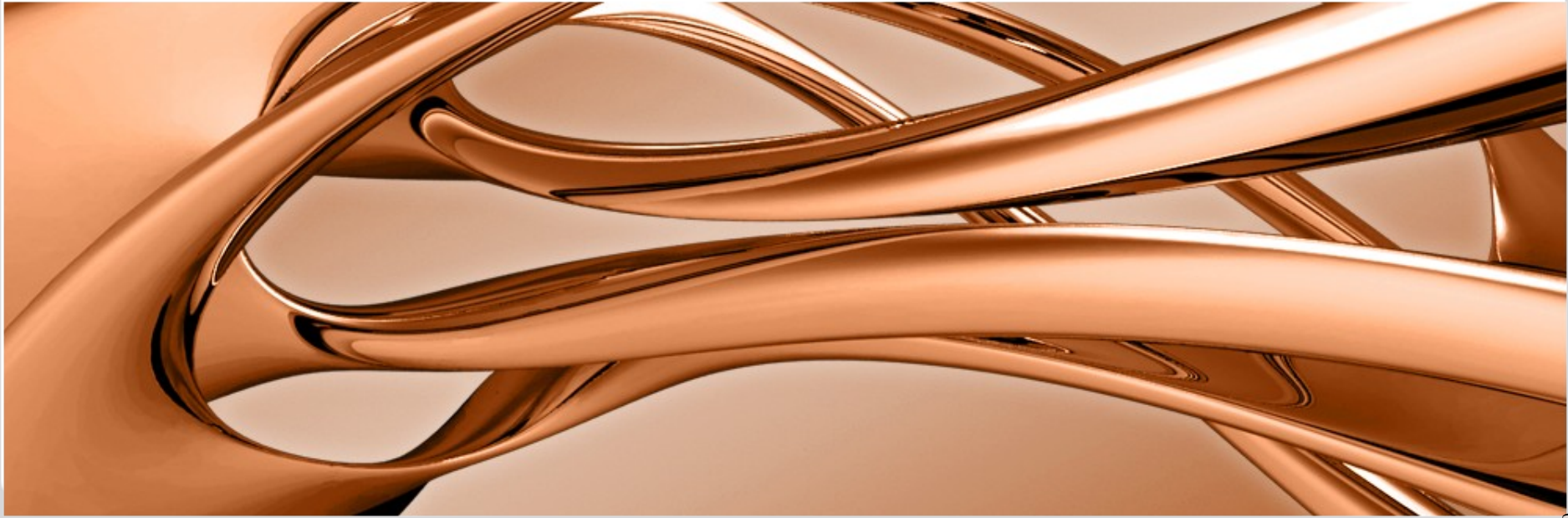Forschungsuniversität · gegründet 1825

Improvements to the middleware

- CrossBroker / User Interface
  - Update to follow the (changed) gLite interface to CEs
  - Support for
    - Parametric jobs
    - Job collections
  - SL5 support

Status of sites

- Most sites are present in BDII
    - CETA CIEMAT
    - IFCA
    - CHALMERS
    - FZK
- Updated to latest software
    - scientific linux 4.8
    - gLite upgrade
    - CrossBroker and UI packages upgraded 0.7.29
- No new sites
    - IPP announced resources only

Central services

- Redundant, to avoid single failures on that level
  - VOMS at IFCA and LIP
  - CrossBroker + Monitoring at IFCA and LIP

Events

- Stress tests by Antonio Gomez
  - Sent few thousand jobs, it went fine
- Several tests by Christian Konz
  - Apparently happy
- Successful demonstrations for the Kepler integration tools of JRA3
- EMC3-Eirene went through a peak of usage

Software development in SA1

- Yes, we do that ;-)
- Goals
  - Simplify grid commandline usage
  - Simplify software installation and deployment
- Solutions:
  - Submitter
  - S.t.a.r.t (Fusion tool for application runs and transfer of data)
- Non-duplicated Effort
  - Provide easier integration with JRA3
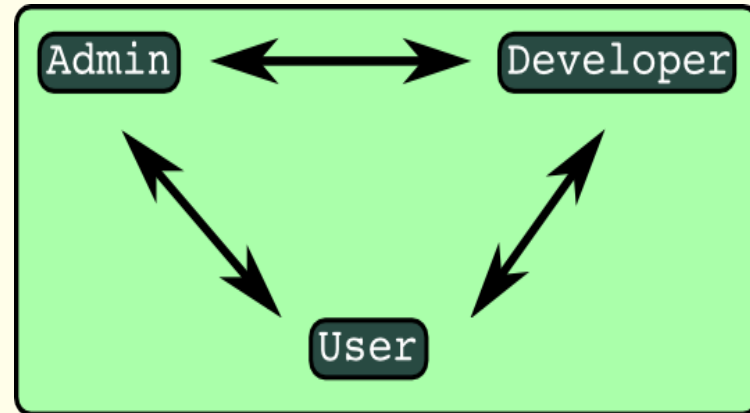
From Workstation to the Grid

- Workstation
  - User = Developer = Admin
    => No conflicts
    => Problem: Too slow

- Cluster / Supercomputer

  - Developer provides sourcecode

  - User requests Admin to install
    - Libraries
    - Compiler
    - Sourcecode

  Iterative procedure

  ~ 1 week

  Code updates one request

  ~ few hours

The use case

- Developer or User modifies code
- For testing he needs the grid
  - Local testing has no MPI
  - Local testing is too slow
  - Developer has to use Windows
  - ...
- Code changes about 10-50 times per day
  - => Productivity increases with deployment speed

The solution

- Two fold solution...
- Central component: **"s.t.a.r.t"**
- Cmdline interface around it: **"submitter"**

s.t.a.r.t

```
s.t.a.r.t.sh [<arguments>] -- <executable> [<arguments to executable>]
 --input <[Archive] URL>
 --output <file> <URL>
 --software <[Archive] URL>
 --libs <Archive URL>
 --mpiflavor [OpenMPI|Mpich]
 --prepare <Script URL>
 --postpare <Script URL>


Supported URLs: Downstream          Upstream
          http://          lfn://
          ftp://           gsiftp://
          lfn://
          Gsiftp://    Supported archives:  .tar
                                 .tar.gz
                                 .tar.bz2
                                 .zip
```

submitter

- Create a jdl
- Submit, remember, poll several jobs
- Fetch output, when done
- Support i2g extensions
  - => Run s.t.a.r.t. Via pre & post run hooks
  - => Avoid confusing the RB, and the user

```
submitter.sh [<commands>] -- [<arguments to s.t.a.r.t.>]
                          -- <executable> [<arguments program>]
 -n|--numjobs            number of nobs
 -j|--jdl                jdl file
 -f|--flavor             Specify the flavor to use
                            [i2g|glite|glite-wms|glite-wms-dgrid]
 -s|--syncronuous        Exit after the last job finished
 -o|--output             Specify output dir
 -c|--ce-id <CE_ID>      Output of `lcg-infosites --vo iusct ce`
 -s|--syncronuous        Exit after the last job finished
 --options               Additional option to glite job commands
 --openmpi-np <CPUS>     How many CPUs to allocate in an OPENMPI job
 --pacxmpi-np <CPUS>     How many CPUs to allocate in an PAXCMPI job
 --dry                   Exit right after JDL creation (and show JDL)
 --env KEY=VALUE         Set environment variable for the job
 --inputsbx  <file>      Add <file> to input sandbox
 --outputsbx <file>      Add <file> to output sandbox
```

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Example (i.e. why is it cool?)

```
echo -e "Hello\nWorld"
```

```
submitter.sh -n 10 -- -- echo -e "Hello World"
```

Example2

```
fusioncode --parameter a=10 --inputfile bigdata.blob --ctrl job.nfo
```

```
submitter.sh      --njobs 10 --openmpi-np 128
                  --env DEBUG=TRUE --inputsbx job.nfo
               --
                  --libs http://myserver.com/~user/libs.tar.gz
                  --libs ftp://otherserver.org/otherlibs.tar.bz2
                  --input lfn://grid/euforia/bigdata.blob
                  --software http://autobuild.org/fusioncode.zip
                  --software http://tools.edu/nicetools.tgz
               --
                  fusioncode --parameter a=10 --inputfile bigdata.blob
                     --ctrl job.nfo
```

- Yes, it's all one line

- But at least the original command is untouched

Future plans

- Extend it to support JSDL and BES (to access Unicore and OGF standardised resources)

- Provide an alternative commandline interface
  - The current one proved to be too confusing

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Questions?

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