

Synergizing ETICS and UNICORE Software

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UNICORE Summit 2010

Outline

- Short introduction to ETICS
- UNICORE benefit: Building UNICORE software components with ETICS
- Demo: creating an UNICORE RPM package with ETICS
- ETICS benefit: Extending ETICS infrastructure with UNICORE submission service
- Demo: submitting an ETICS job with UNICORE plug-in

The ETICS Project



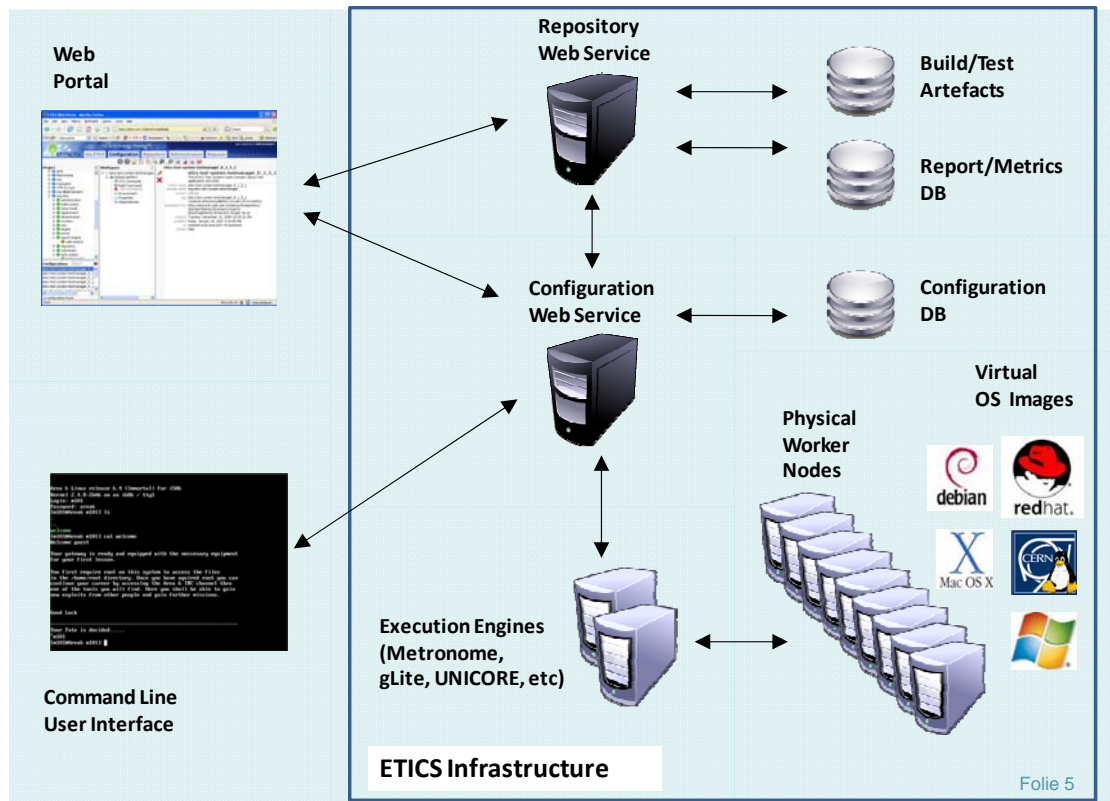
- ETICS stands for “E-infrastructure for Testing, Integration and Configuration of Software”
- Partially funded by the European Commission
- Started in January 2006, ended as ETICS-2 in February 2010.
- 8 partners led by CERN
- Software released in the open source community and incorporated in other projects, e.g. EMI

The ETICS software in a nutshell



- Integrated infrastructure for the automated **build**, configuration, integration, testing and **QA verification** of software
- **Scheduled** or **on-demand** build and test jobs
- Built-in **connectors** to distribute build jobs on infrastructures **locally** or **remotely** from standard job management systems to grid communities
- **Repositories** of configuration metadata, packages and build, test and quality reports
- It's **multi-platform** and **independent** from any specific programming language, build or test tools

Architecture



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Authentication and Authorization



- ETICS is based on standard X.509 user and server certificates
- Every operation is authorized based on roles attached to registered user accounts (edit, submit builds or tests, manage users, etc) and ACLs on objects (projects, modules, configurations, etc)

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Benefits for UNICORE - Development



- The UNICORE 6 development is centralised at the SourceForge source code repository
- UNICORE software components are maintained by state-of-the-art tools like Maven, Ant, or Subversion
- ETICS provides these tools as well, so that all common UNICORE development processes can be managed in the ETICS system
- Of course, UNICORE major development will remain at SourceForge.
- Why is it in spite of that advantageous to UNICORE to use also ETICS for development?

Synergy Effects Building UNICORE with ETICS



- Benefits for UNICORE
 - Build components and modules on different hard- and software architectures
 - Testing components periodically on miscellaneous operating systems
 - Getting automatic quality verification and certification of the software by ETICS A-QCM plug-in
 - Creating end-user packages of components in common formats like RPM or Debian

Demo: Building a RPM package of the UNICORE command line client - UCC

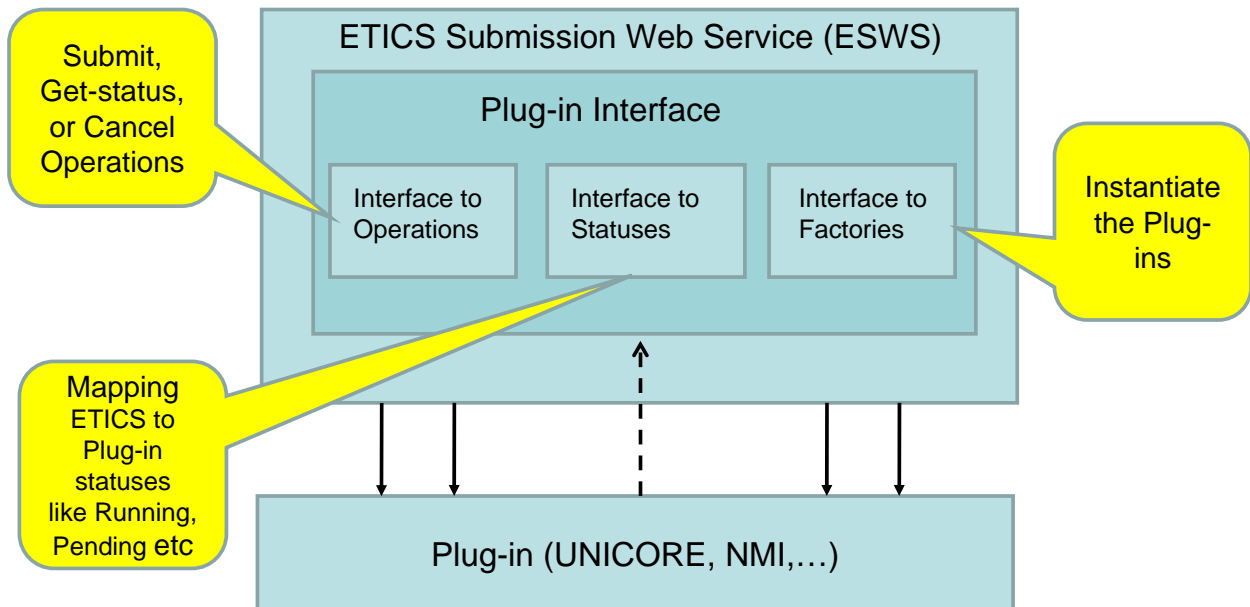
- ETICS comes up with a built-in packaging system that is able to build distribution packages on several supported platforms (e.g. tar balls, RPMS, debs, MSIs)
- However, UNICORE wants to distribute the files to particular directories, so the built-in packager is overwritten by appropriate custom packaging (custom spec-file)
- ... Demonstrating the RPM build with the ETICS Web Client...

Synergy effects Extending the ETICS system by an UNICORE-based submission service



- Originally, ETICS job submission relied on an execution system based on the NMI Metronome software
- However, during ETICS-2 the resource management logic was re-engineered to allow the integration of different job engines in the system
- As a result the new standalone ETICS Submission Web Service (ESWS) was designed providing a generic submission interface
- Goal: Open ETICS to different HPC and grid communities using their own grid middleware

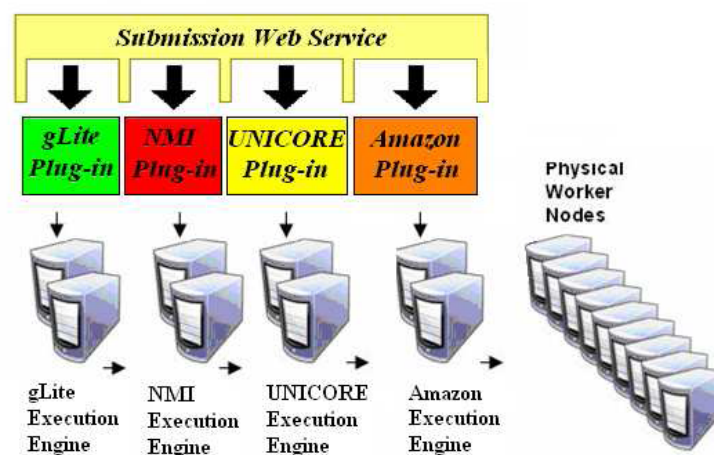
ESWS Architecture



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Available ESWS Plug-ins



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The UNICORE ESWS plug-in

- The UNICORE plug-in implements the job operations of the ESWS interface by calling the UNICORE Command-line Client UCC
- Typical lifecycle of a job in the plug-in:
 - connecting to a UNICORE Server
 - submit ETICS job
 - fetching job status
 - get-output when finished
- When getting the output, the ETICS job files are exported from the UNICORE worker node to the ESWS and from there to an ETICS repository

ESWS instance at Jülich

- An ESWS is installed at Forschungszentrum Jülich which is using further ETICS services at CERN and INFN (Bologna)
- ESWS instance at Jülich has got plugged in a UNICORE submitter
- Several UNICORE Servers are registered to that UNICORE submitter
- The ESWS instance is accessible from all ETICS users or services whose X.509 certificate are registered at the ESWS machine

Demo:
Submitting an ETICS remote build
by using the UNICORE ESWS plug-in



ETICS²
The Grid Quality Process

UNICORE

- The UNICORE plug-in is integrated in the release candidate of the latest ETICS version
- The demo will build the UNICORE plug-in itself with ETICS using the ETICS Web Client...