



eTICS2
The Grid Quality Process



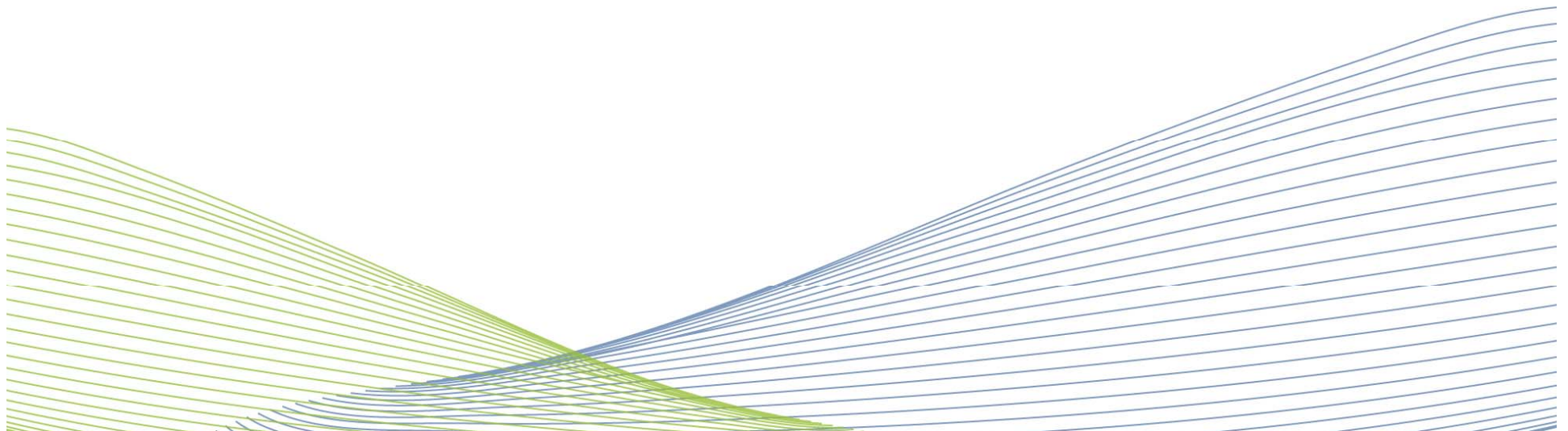
European Commission
Information Society and Media

INFSO-RI-223782

Module 01

eTICS2 Overview

Alberto Di Meglio



The Problem

Distributed Computing, Distributed Development



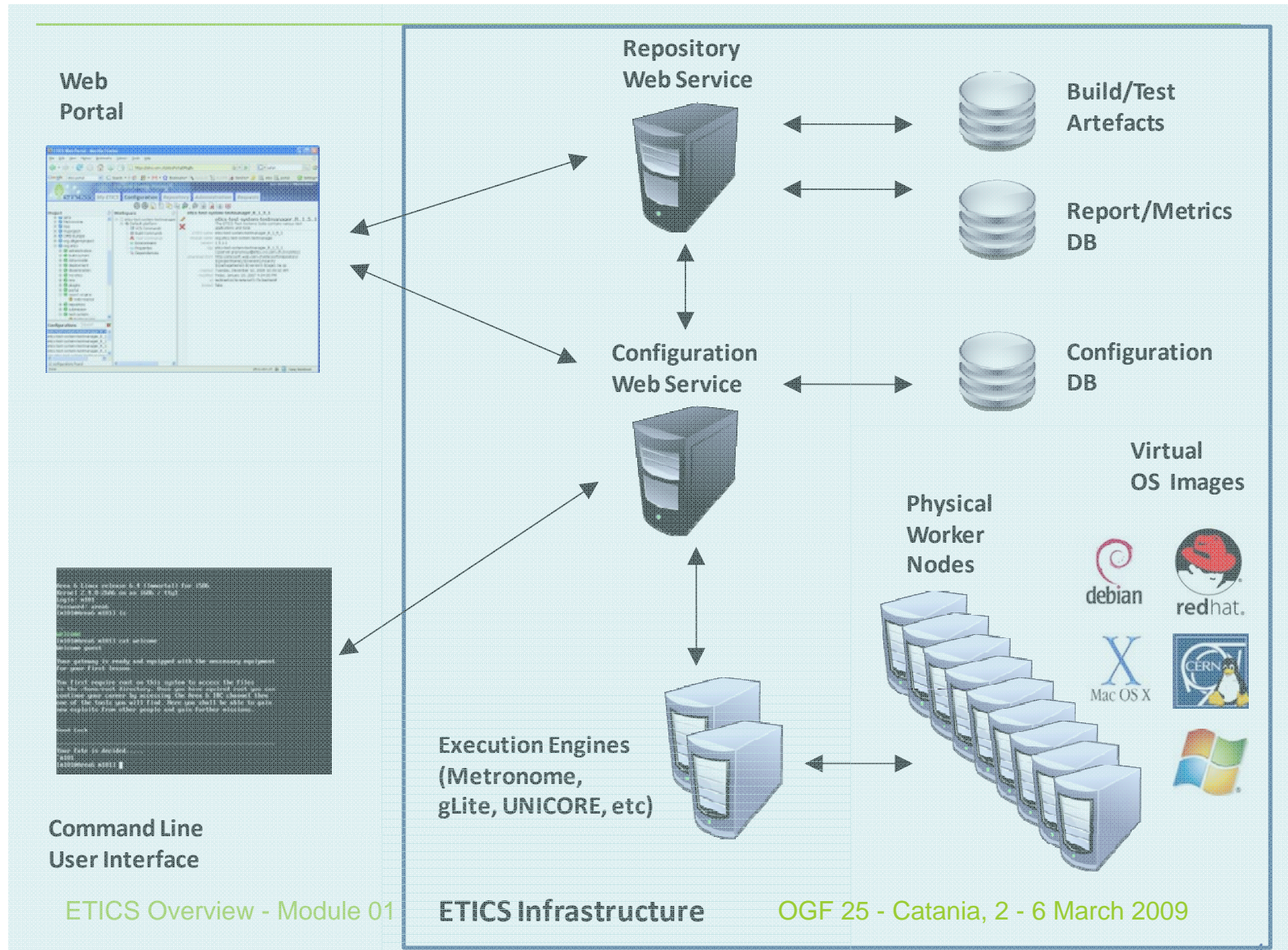
The ETICS System

- Continuous software build, test and QA verification system
- Set of core tools and services
- Easily extensible with additional plugins
- Scheduled (cron) or on-demand build and test jobs
- User computers or remote distributed infrastructures
- Built-in connectors to distribute build and test jobs on different types of infrastructures from standard job management systems to the grid
- Open repository of configuration metadata, packages and build, test and QA reports
- Support for standard package management systems like YUM
- It's multi-platform and independent from any specific language, build or test tool



Architecture

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The Configuration Web Client

The screenshot displays the ETICS Web Portal configuration web client interface. The browser window title is "ETICS Web Portal - Mozilla". The address bar shows the URL "https://etics.cern.ch". The page header includes the ETICS logo and navigation tabs: "Welcome", "Submissions", "Configuration", "Repositories", "Administration", and "Requests". A user identity bar indicates "your identity is: Alberto Di Meglio".

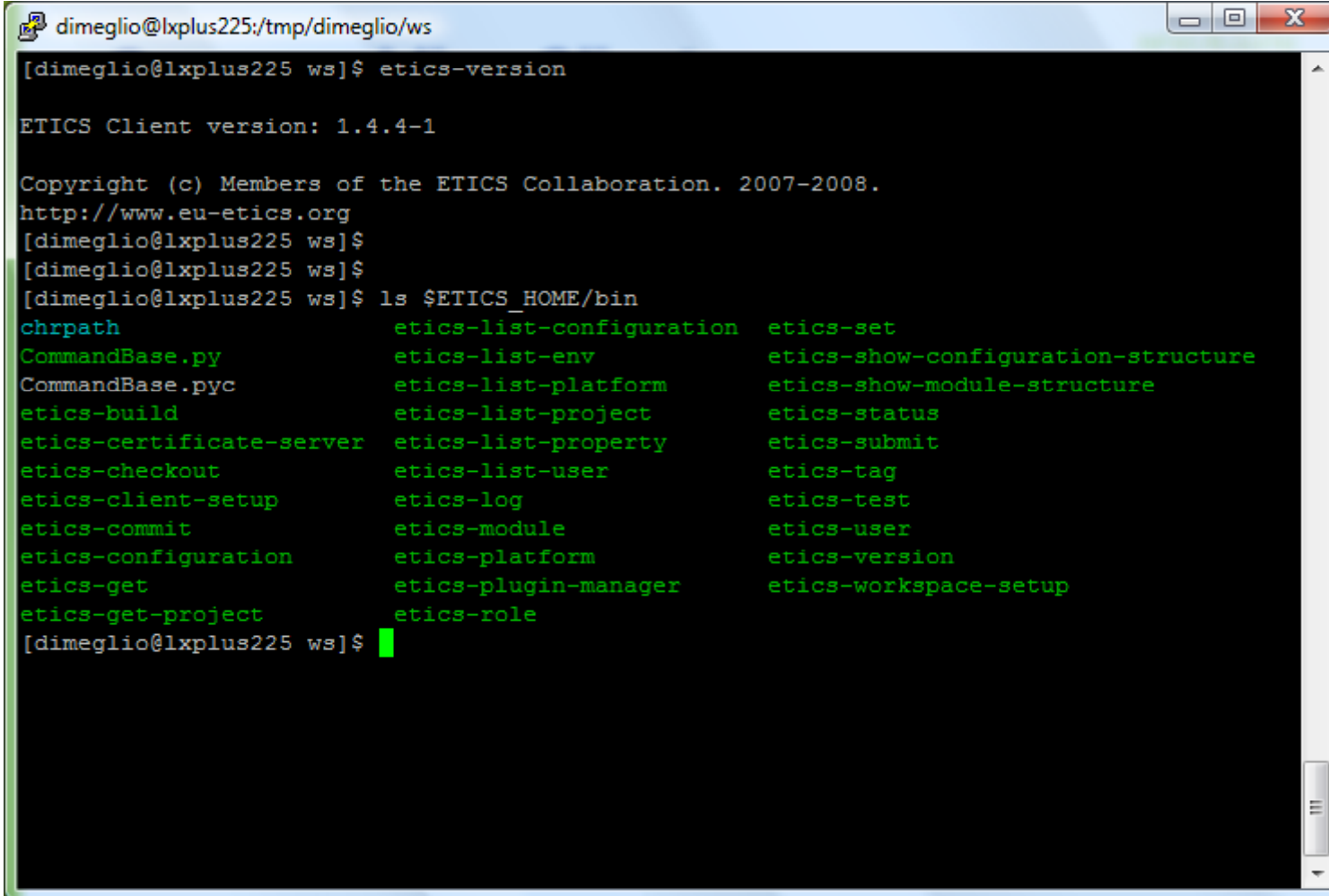
The main content area is divided into several sections:

- Project:** A tree view showing a project structure with folders like "meuronomie" and "mpi".
- Workspace:** A tree view showing a workspace structure with folders like "etics_R_2_3_4_1".
- The ETICS System v. 2.3.4-1:** A list of system components and configurations, including:
 - Build Commands
 - Test Commands
 - Environment (\$E)
 - Properties (\$p)
 - Dependencies
 - Scientific Linux 5 (x86_64) with gcc 4.1.2
 - Ubuntu 7 (ia32) with gcc 4.1.2
 - Windows 2000/XP/2003 (ia32) with vc 7.1
 - etics-administration_R_1_3_0
 - etics-build-system_R_1_4_5_1
 - etics-data-model_R_1_3_1_1
 - etics-deployment_R_1_4_1_1
 - etics-myetics_R_1_2_0_3
 - etics-nmi_R_1_4_1_1
 - etics-plugins_R_1_4_2_1
 - etics-portal_R_1_2_0_1
- Search:** A search bar with the text "disseminator" entered.
- Configurations:** A list of configurations found, including "etics_branch_2_5_0_1" and "71 configurations found".

The status bar at the bottom right shows "etics.cern.ch" and a lock icon.



Command-line Client



```
dimeglio@lxplus225:/tmp/dimeglio/ws
[dimeglio@lxplus225 ws]$ etics-version
ETICS Client version: 1.4.4-1

Copyright (c) Members of the ETICS Collaboration. 2007-2008.
http://www.eu-etics.org
[dimeglio@lxplus225 ws]$
[dimeglio@lxplus225 ws]$
[dimeglio@lxplus225 ws]$ ls $ETICS_HOME/bin
chrpath                etics-list-configuration  etics-set
CommandBase.py         etics-list-env            etics-show-configuration-structure
CommandBase.pyc        etics-list-platform      etics-show-module-structure
etics-build            etics-list-project       etics-status
etics-certificate-server etics-list-property      etics-submit
etics-checkout         etics-list-user          etics-tag
etics-client-setup     etics-log                etics-test
etics-commit           etics-module             etics-user
etics-configuration    etics-platform           etics-version
etics-get              etics-plugin-manager     etics-workspace-setup
etics-get-project      etics-role
```



Local and Remote Operations

- Build and test jobs can be executed on the user computer
- Or sent to remote distributed infrastructures
- ETICS has connectors for different types of infrastructures (like the grid or clouds) and different job management system (like PBS, LSF or Condor)
- The jobs can be scheduled using standard cron jobs and the ETICS command-line client
- All necessary dependencies are handled by ETICS
- Developers can build or test locally their software on a single platform and then submit the same build or test to be executed in parallel on multiple platforms



The Repository

- ETICS provides an online repository where all software packages and build, test and QA reports are stored
- The Repository generates dynamic YUM repository at every build to automate the execution of deployment, integration and functional tests
- It can be browsed and queried using a web application with a REST interface, a command-line client or a mountable file system (AFS-based)



The Repository Web Application

The screenshot shows the ETICS Web Portal interface in Mozilla Firefox. The browser address bar displays `https://etics.cern.ch`. The page features a navigation menu with tabs for Welcome, Submissions, Configuration, Repository, Administration, and Requests. The main content area is divided into a 'Tree' view on the left and a 'Details' view on the right. The 'Tree' view shows a directory structure with the file `etics-client-1.4.4-1.noarch.rpm` selected. The 'Details' view displays the following information:

File details

- name:* etics-client-1.4.4-1.noarch.rpm
- type:* RPM
- size:* 984 KB (1008150 bytes)
- created:* 10/02/2009 16:00:41
- download:* org.etics/org.etics.build-system.client-py/1.4.4/noarch/etics-client-1.4.4-1.noarch.rpm

Package details

- project:* org.etics
- module:* org.etics.build-system.client-py
- version:* 1.4.4-1
- platform:* noarch
- author:* CN=Alberto Di Meglio, CN=481794, CN=dimeglio, OU=Users, OU=Organic Units, DC=cern, DC=ch

Extensibility and Plugins

- ETICS comes preconfigured with extensive build and test features
- It can also be extended by adding additional plugins
- The plugins are provided by ETICS and by its user community and can be easily installed from the online repository



Examples of Plugins

Metrics	Type	Programming languages/ technologies	Tool	ETICS Plugin
Complexity	static	Java Python	Javancss	JCcnPlugin PyComplexityPlugin.py
Design quality	static	Java	Jdepend	JDependPlugin
N of potential bugs	static	C/C++ Python Perl PHP Java	Flawfinder, RATS PMD Findbugs	CFlawfinderPlugin CPyPhpRatsPlugin JPmdPlugin JFindbugsPlugin
N of potential bugs	dynamic	C/C++	Valgrind	CValgrindPlugin
Lines of code	static	All	SLOCCount	SLOCCountPlugin
Coverage	dynamic	Java	Emma Cobertura	JUnitemmaPlugin JcoberturaPlugin
Unit tests success rate	dynamic	Java Python	JUnit PyUnit	JUnitPlugin JUnitreportsPlugin.py PyUnitPlugin.py
Compliance with standards	static	IPv6 WSI		IPv6Plugin WSIinteroperabilityPlugin
Profiling	dynamic	C/C++ Java	Jrat Valgrind	JRatPlugin CValgrindPlugin



Distributed Testing

- One of most powerful features of ETICS is the “Distributed Testing” or “Parallel Testing”
- This features allows to design complex tests composed of several interacting nodes and to deploy automatically complete test environments
- This feature is currently being developed and will be available to the ETICS user community in the Summer 2009



Next Module

02 – The ETICS Portal and the Web Applications



Thanks!



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<http://www.eticsproject.eu>

