



eTICS2
The Grid Quality Process



European Commission
Information Society and Media

INFSO-RI-223782

ETICS in Plain English

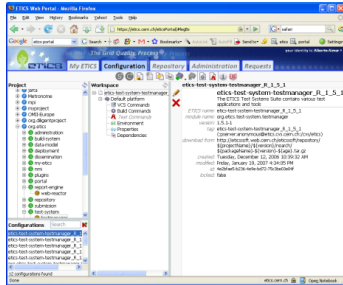
Lorenzo Dini
CERN

CERN, 24 February 2011

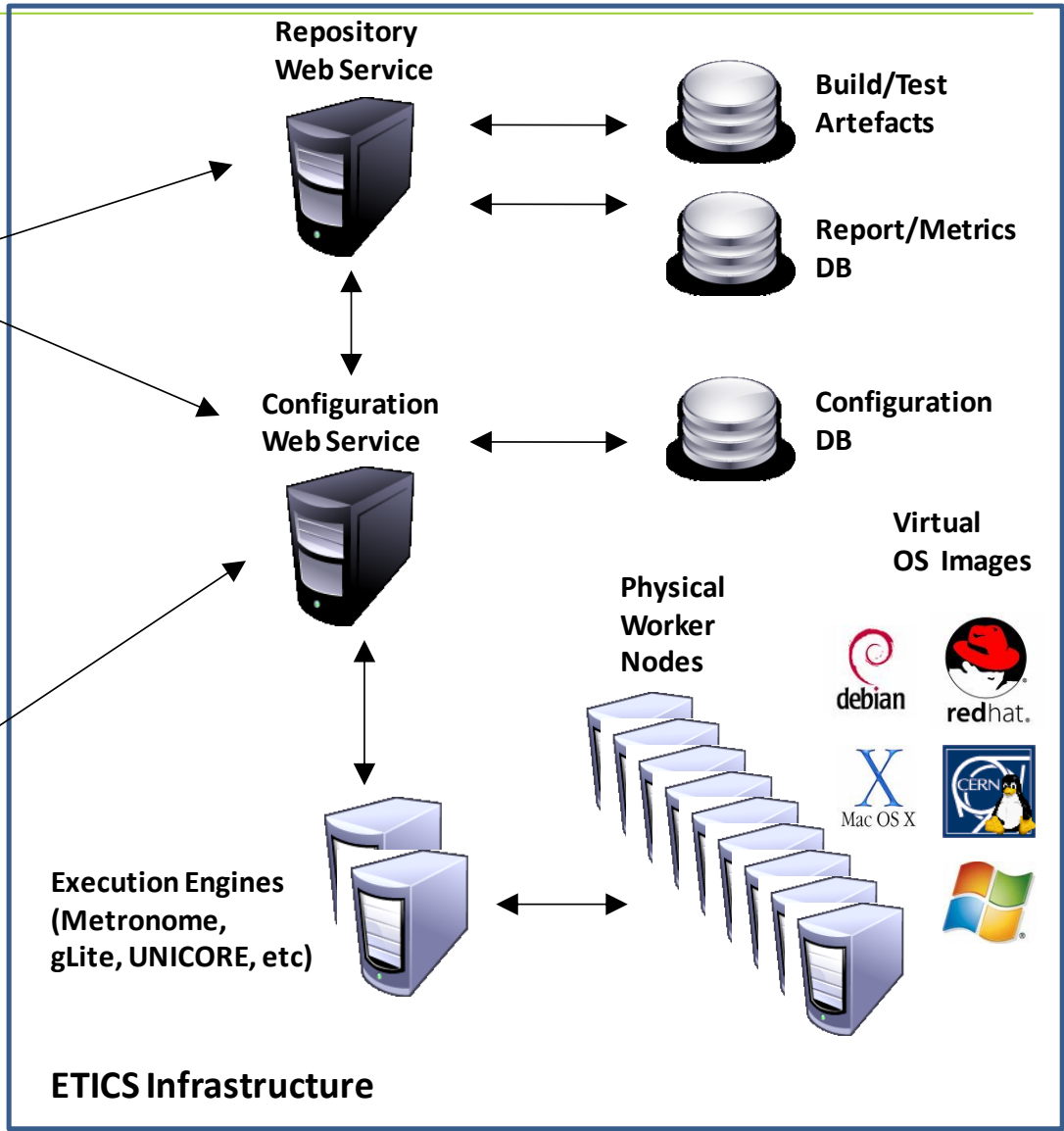
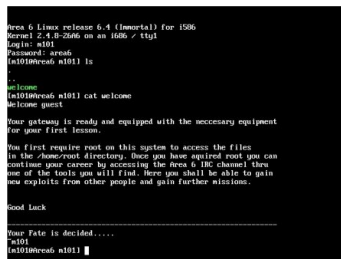


Architecture

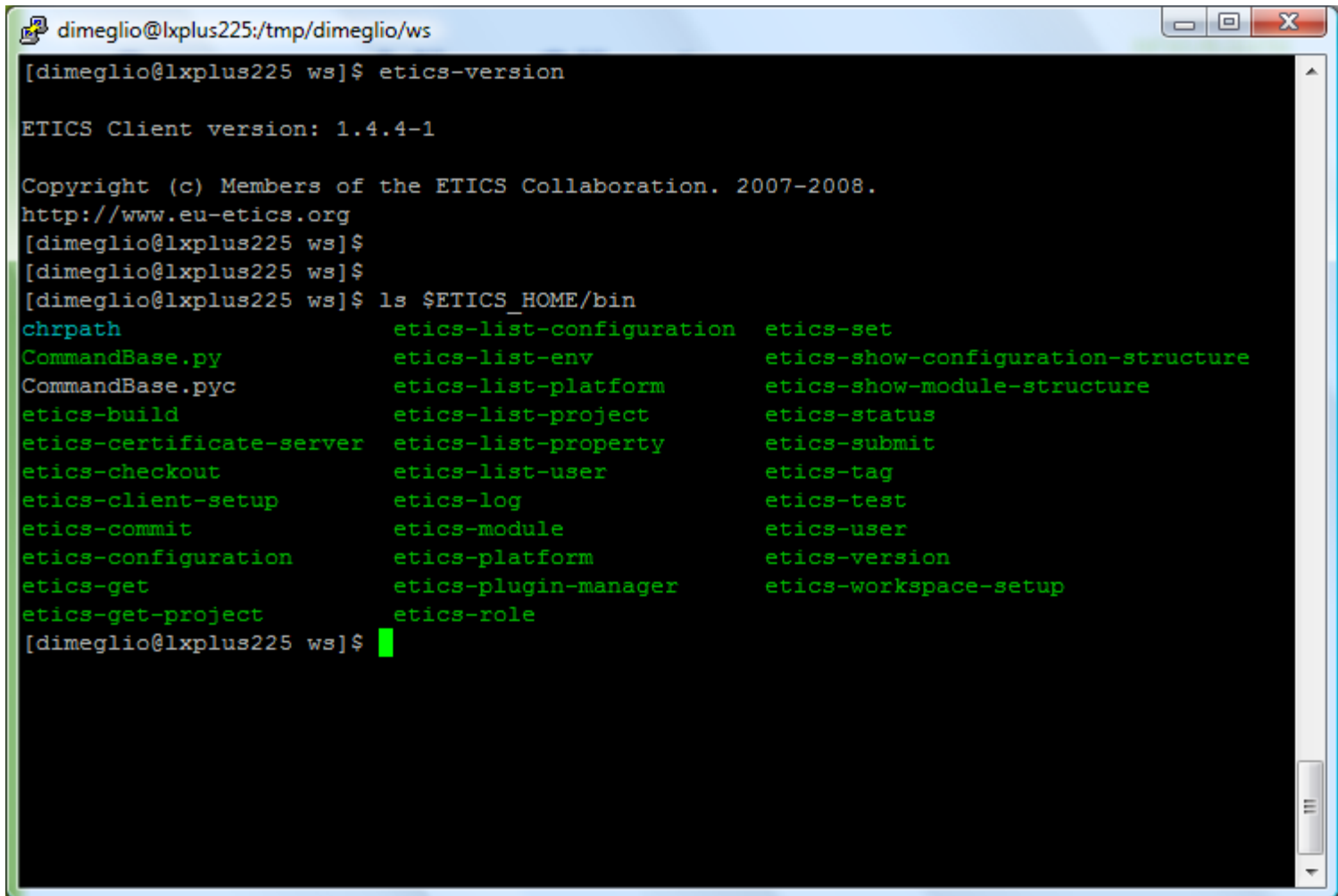
Web Portal



Command Line User Interface



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 $ETICS_HOME/bin
chrpath                etics-list-configuration  etics-set
CommandBase.py        etics-list-env            etics-show-configuration-structure
CommandBase.pyc       etics-list-platform      etics-show-module-structure
etics-build            etics-list-project        etics-status
etics-certificate-server etics-list-property      etics-submit
etics-checkout         etics-list-user           etics-tag
etics-client-setup     etics-log                 etics-test
etics-commit           etics-module              etics-user
etics-configuration    etics-platform           etics-version
etics-get              etics-plugin-manager      etics-workspace-setup
etics-get-project      etics-role
[dimeglio@lxplus225 ws]$
```



The ETICS Portal

ETICS Web Portal - Mozilla Firefox

File Edit View History Delicious Bookmarks Tools Help

https://etics.cern.ch/eticsPortal/#welcome

search email money travel dictionary ajax programming music etics cern graphics shopping networking

your identity is: **Lorenzo Dini**

The Grid Quality Process

ETICS Welcome Submissions Configuration Repository Administration Requests

Welcome to the ETICS portal!

ETICS stands for "*Infrastructure for Testing, Integration and Configuration of Software*". It provides a service to help software developers, managers and users to better manage complexity and improve the quality of their software. The service allows to fully automate the way a software is built and tested. It provides "*out-of-the-box*" build and test system, powered with a product repository.

ETICS portal is your entry point to the ETICS system. The portal has been divided into panels that corresponds to different system areas - they have been pictured as tabs on the top of the page. Fell free to maneuver between them by simply clicking on the tab title. It is not recommended to use *back*, *forward*, *refresh* buttons in the browser.

News and announcements

The new ETICS Repository service v. 1.3 has been released [2009-11-23]
The new repository addresses the problem of generating YUM repositories for SL5-like platforms and provides a better management of the internal storage.

New ETICS Client v. 1.4.10-1 has been released [2009-10-29]
This revision release adds several QA plugins (COCOMO Cost and Effort estimates, PyCoverage, PMD and JCCN) and fixes a bug that prevents user defined spec files to build both binary and source RPMs.

New ETICS Client v. 1.4.9-1 has been released [2009-09-14]
This revision release fixes a critical bug that prevents the RPATH entries to be stripped from executables and libraries.

There are **24 old** items - please open the ETICS news RSS channel (RSS icon above) if you want to read them.

ETICS support

If you are looking for more information about the system or the portal, please visit: [ETICS Support](#), [ETICS home page](#), [ETICS User Manual](#), [ETICS TWiki \(getting started, FAQ, etc.\)](#)
Feel free to send your request to the **ETICS support** ([ETICS support tickets](#)). If you have any other questions regarding the system or if you encounter any problems you can also contact by email (etics-support@cern.ch).

Your identification in the ETICS system

name: Lorenzo Dini



The Configuration Web Client

ETICS Web Portal - Mozilla Firefox

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https://etics.cern.ch

Most Visited Getting Started ETICS Web Portal Latest Headlines

The Grid The Grid Quality Process

your identity is: Alberto Di Meglio »

ETICS Welcome Submissions Configuration Repository Administration Requests

Project

- metronome
- mpi
- npm
- OGF-Interop-Demo
- OMII-Europe
- org.diligentproject
- org.etics
 - administration
 - build-system
 - data-model
 - deployment
 - dissemination
 - my-etics
 - nmi
 - plugins
 - portal
 - report engine

Configurations Search

- etics_branch_2_3_0_with_disseminator
- etics_R_2_3_0_1
- etics_branch_2_4_0
- etics_R_2_3_1_1
- etics_R_2_3_2_1
- etics_R_2_3_3_1
- etics_R_2_4_0_1
- etics_R_2_3_4_1
- etics_branch_2_5_0_1

71 configurations found

Done

Workspace

- etics_R_2_3_4_1
 - CERN Scientific Linux 4 (ia32) with gcc 3.4.6
 - Default platform
 - Scientific Linux 5 (ia32) with gcc 4.1.2
 - VCS Commands
 - Build Commands
 - Test Commands
 - Environment
 - Properties
 - 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_3_9_1
 - etics-repository_R_1_2_5_1
 - etics-test-system_R_1_2_8_1
 - etics-utilities_R_1_0_2_1

The ETICS System v. 2.3.4-1

The ETICS System v. 2.3.4-1

New client 1.4.5-1 with new options for packaging formats

ETICS name: etics_R_2_3_4_1

module name: org.etics

version: 2.3.4-1

created: Tuesday, 10 February 2009 15:45:23

modified: Tuesday, 10 February 2009 15:45:23

id: 068f47d9-da7e-4d8b-9a82-3a26f6cfb8e4

locked: false

etics.cern.ch



The Repository Web Client

ETICS Web Portal - Mozilla Firefox

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https://etics.cern.ch/etcsPortal/#repository

your identity is: **Lorenzo Dini**

ETICS Welcome Submissions Configuration **Repository** Administration Requests

Tree Details

- ETICS Repository
 - Registered
 - Volatile
 - andretto
 - bertocco
 - canaparo
 - carpene
 - cgalli
 - externals
 - Reports
 - Metronome
 - org.etics
 - Packages
 - Reports
 - administration
 - build-system
 - data-model
 - deployment
 - dissemination
 - my-etics
 - nmi
 - plugins
 - portal
 - repository
 - submission
 - utilities
 - etics_int
 - slc4_ia32_gcc346
 - 18/12/2009 16:09:54 - build
 - 16/12/2009 14:07:49 - build
 - condor
 - default
 - delcanonovales
 - dibenedetto

Welcome to the ETICS Repository

The ETICS repository is the standard location where all the software artefacts generated by the ETICS Build and Test System: **packages**, **metrics**, **build** and **test reports**, are stored and made publicly available.

The repository also gathers **third part packages** (externals) that are used by the ETICS Build and Test System as dependencies to build the software.

36 Projects, 1131 Modules, 60327 Packages, 815 Main Reports, 15257 Module Reports, 1418712 Metrics

[Main Build Reports](#)
[Module Build Reports](#)
[Main Test Reports](#)
[Module Test Reports](#)
[Packages](#)

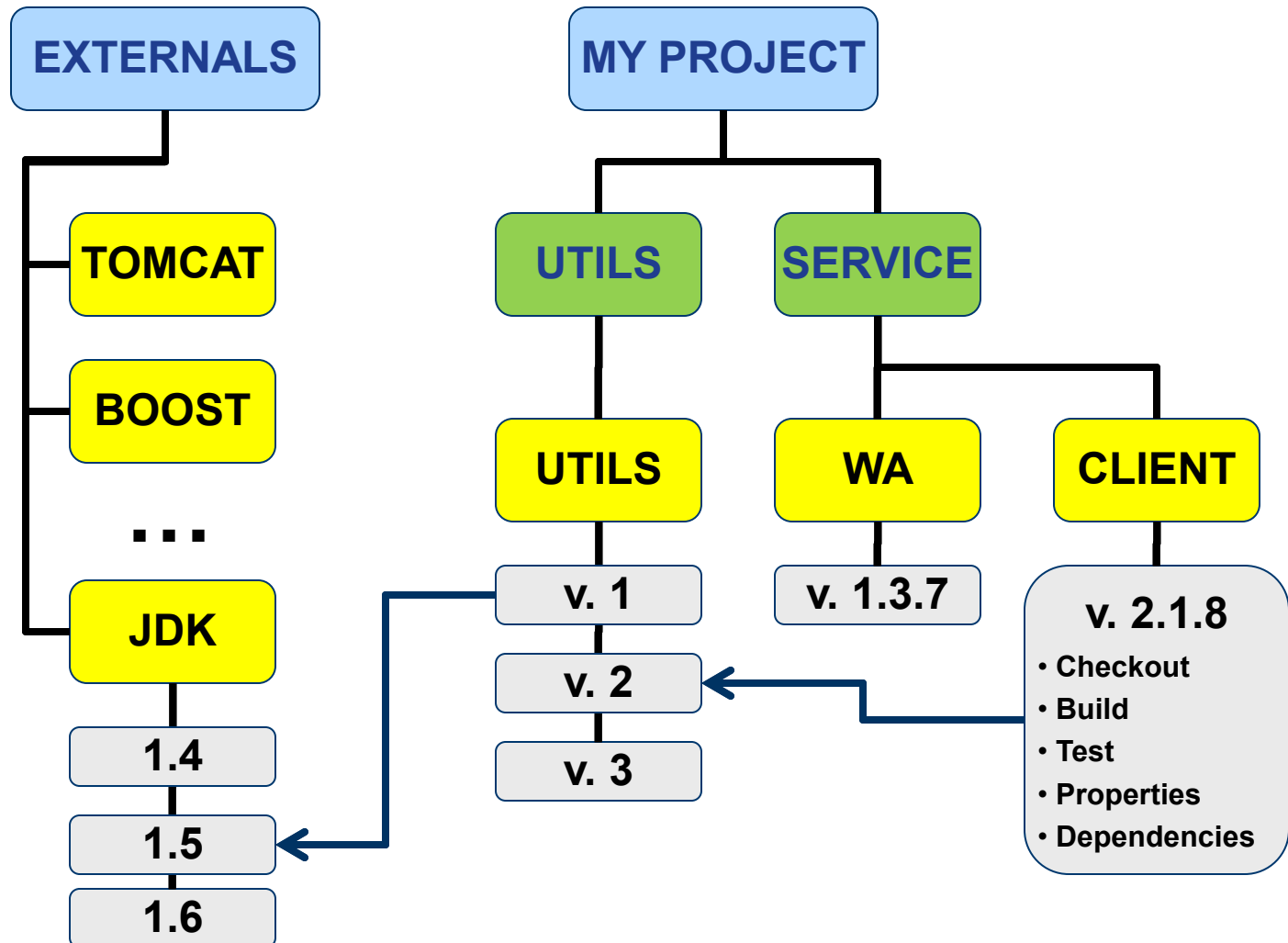
Namespace	Project	Module	Configuration	Platform	Date	Status	Reg
glite_3_2_0_dev	org.glite	org.glite	glite_branch_3_2_0_dev	slc4_x86_64_gcc346	15/01/2010 00:01:11	Failed	
glite_3_2_0_dev	org.glite	org.glite	glite_branch_3_2_0_dev	sl5_x86_64_gcc412	14/01/2010 23:14:47	Failed	
glite_3_2_0_dev	org.glite	org.glite	glite_branch_3_2_0_dev	sl5_x86_64_gcc412	14/01/2010 20:31:36	Failed	
tutorial	tutorialProject	frozen-bubble	frozen-bubble.HEAD	slc4_ia32_gcc346	14/01/2010 19:26:58	Success	
tutorial	tutorialProject	frozen-bubble	frozen-bubble.HEAD	deb4_ia32_gcc412	14/01/2010 19:25:46	Success	
tutorial	tutorialProject	frozen-bubble	frozen-bubble.HEAD	slc4_x86_64_gcc346	14/01/2010 19:25:01	Success	
tutorial	tutorialProject	frozen-bubble	frozen-bubble.HEAD	slc4_ia32_gcc346	14/01/2010 18:45:15	Success	
tutorial	tutorialProject	frozen-bubble	frozen-bubble.HEAD	deb4_ia32_gcc412	14/01/2010 18:44:07	Success	
tutorial	tutorialProject	frozen-bubble	frozen-bubble.HEAD	slc4_x86_64_gcc346	14/01/2010 18:43:22	Success	

Transferring data from etics.cern.ch...



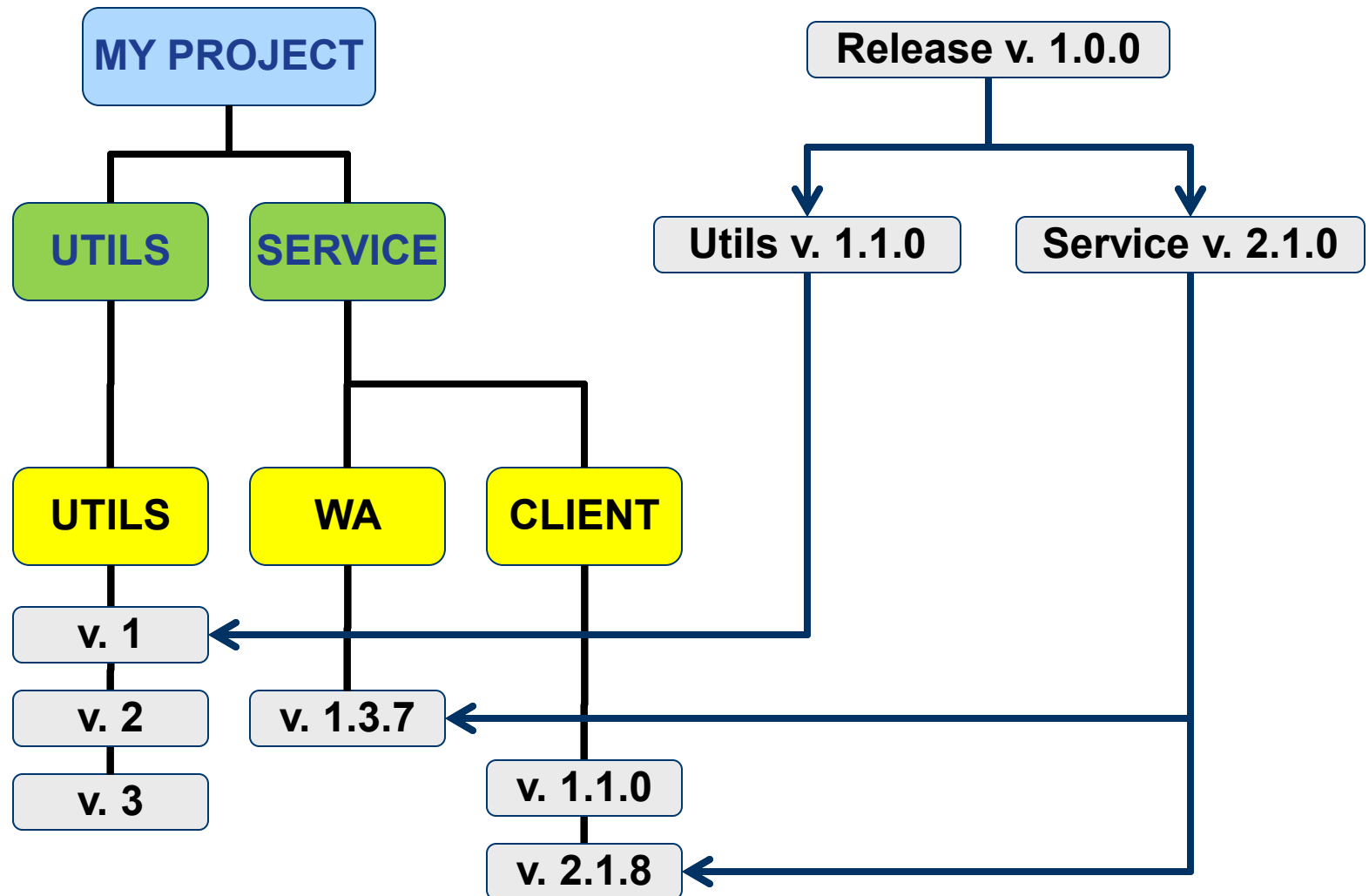
Data Model

Component versions and dependencies



Data Model

Defining releases



Dependencies

- Automatic build-order resolution
- WHEN?
 - **Build-time:** pointer to binaries made available
 - **Run-time:** REQUIRES added in package
- WHAT VERSION?
 - **Static:** hardcoded by the component
 - **Dynamic:** decided at project level
 - **Version based:** Dynamic with $\geq X.Y.Z$

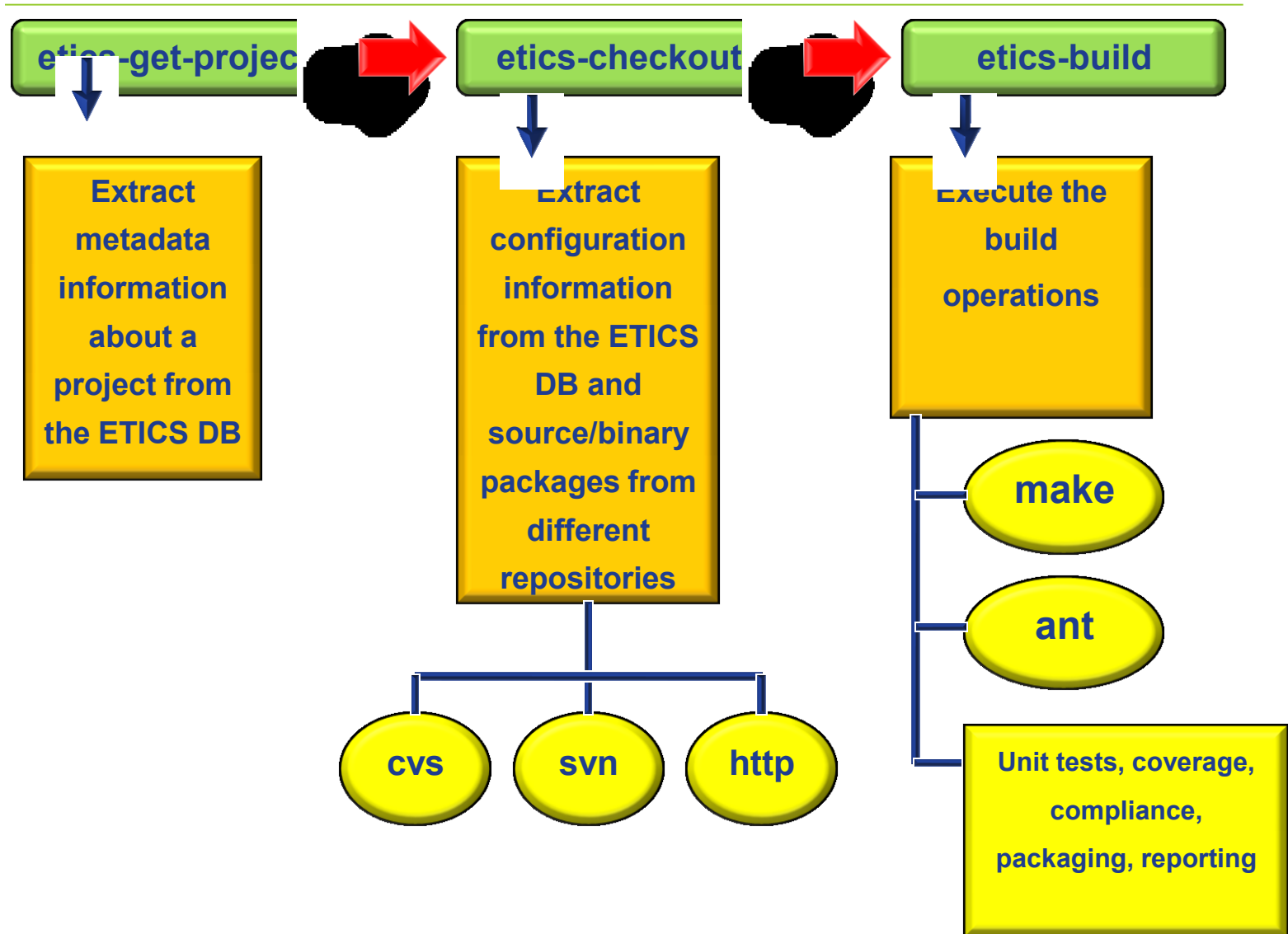


Properties

- Key-Value Pairs for customization
- **CUSTOM**
 - **Inherited, overwritable**
 - `enable.optimization=yes`
- **DEFAULT**
 - **Used to manipulate dependencies**
 - `MySQL.DEFAULT=mysql v. 5.0.28`
- **SYSTEM**
 - **Used to tune the system**
 - `package.buildarch=noarch`



Typical ETICS Build Execution Sequence



The ETICS Packager

- ETICS contains an automated packaging system, the **ETICS Packager**
- It uses **configuration metadata** to create package or packages for a given platform (RPMS, deb, MSIs, tarballs, zip files etc)
- It covers about 80% of the packaging needs of a typical software component
- It **can be overridden** by the users in various ways to get more specific behaviours
- Developers **focus on the code** not the packaging for N different packaging systems, it allows to **enforce** consistent **packaging guidelines**



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 (XPath and SQL syntax), a command-line client or a mountable file system (AFS-based)



Plugins and Metrics Collectors

- The ETICS system is **plugin-based**
- Plugins are **wrappers** around existing or custom tools providing specific functionality
- Can be activated by **user choice (profiles)** or letting ETICS decide which tools are **most appropriate (autoprofile)**
- Plugins can publish information in the ETICS system as **metrics** used to do trend analysis and quality monitoring using the ETICS reporting tools



Examples of metrics collectors

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 PyCoverage, LCOV	JUnitemmaPlugin JcoberturaPlugin
Unit tests success rate	dynamic	Java Python	JUnit PyUnit	JUnitPlugin JUnitreportsPlugin.py PyUnitPlugin.py
Compliance with standards	static	IPv6 WSI		IPv6Plugin WSInteroperabilityPlugin
Profiling	dynamic	C/C++ Java	Jrat Valgrind	JRatPlugin CValgrindPlugin



Thanks!



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