

# Interoperability of FLOSS forges; lessons from the COCLICO project, implemented in FusionForge and other platforms

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# Short bio

- Olivier BERGER

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Research Engineer at TELECOM SudParis, expert on software development forges, and interoperability in Libre Software development projects. Contributor to FusionForge, Debian, etc. Participated to COCLICO project (ended 10/2011).

- Christian BAYLE

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Research engineer at Orange Labs, in Grenoble (France), in charge of deploying FLOSS software for developers, like Software Forges, Continuous integration as a service. Contributes to FusionForge and Tuleap forges, Debian maintainer, and participated in COCLICO project (FUI7) in the previous years.



# FusionForge

<https://fusionforge.org/>

- Formerly known as GForge (Libre version)
  - inherited its codebase from the initial SourceForge (year 2000)
- Host your own forge (Linux, Postgres, PHP, etc.)
- FLOSS + Open Community (loose consensus)
- Used in many academic institutes (INRIA, SourceSup RENATER, IFREMER, ...), FLOSS projects (Debian's Alioth, ...)
- Boosted by project COCLICO in 2010-2011
- Christian and Olivier co-maintainers of the Debian packages
- FusionForge 5.2 released on 2012/09/28

# Recap 2011

Last year at OWF 2011 (OSDCFr) :

Jailbreaking the Forges : project export/import efforts

Since then :

- COCLICO project finished
- Codendi -> Tuleap
- Some contributions to FusionForge in 5.2
- Some interest in OSLC
- ADMS.SW 1.0 specification released
- not much effort in ForgePlucker

*Forge architecture*  
*Integration strategies*

# Architectures & development models

- From scratch / comprehensive
  - Can you compete with GitHub or other proprietary tools?
- Integration of other FLOSS projects
  - SSO, APIs, via Unix / Apache / PHP glue/hacks
- Services
  - Components / Web Services
- Web 2+ mashups
  - REST, Ajax
- Unhosted  
(.org)?

## Git SCM code

```

cueb6526@g-t3130-cb: ~/git/fusionforge
cueb6526@g-t3130-cb: ~/git/fusionforge 94x48
*
* You should have received a copy of the GNU General Public License along
* with this program; if not, write to the Free Software Foundation, Inc.,
* 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.
*/

forge_define_config_item('default_server', 'scggit', forge_get_config('web_host')) ;
forge_define_config_item('repos_path', 'scggit', forge_get_config('chroot') . '/scmrepos/git') ;

class GitPlugin extends SCMPPlugin {
    function GitPlugin() {
        $this->SCMPPlugin();
        $this->name = 'scggit';
        $this->start = 'git';
        $this->addhook('scm_browser_page');
        $this->addhook('scm_update_repolist');
        $this->addhook('scm_generate_snapshots');
        $this->addhook('scm_getter_stats');
        $this->addhook('widget_instance', 'MyPageBox', false);
        $this->addhook('widgets', 'widgets', false);
        $this->addhook('activity');
        $this->register();
    }

    function getDefaultServer() {
        return forge_get_config('default_server', 'scggit') ;
    }

    function printShortStats ($params) {
        $project = $this->checkParams($params);
        if (!$project) {
            return false;
        }

        if ($project->usesPlugin($this->name) {
            $result = db_query_params("SELECT sum(commits) AS commits, sum(adds) AS adds FROM stats_cvs_group WHERE group_id=?",
                array ($project->getID())) ;
            $commit_num = db_result($result, 0, 'commits') ;
            $add_num = db_result($result, 0, 'adds') ;
            if ($commit_num) {
                $commit_num++;
            }
            if ($add_num) {
                $add_num++;
            }
        }
    }
}

```

```

12: cueb6526@g-t1500-cb - /git/zuul/dev/137x48
13:
14: require_once 'constants.php';
15: require_once 'common/plugin/class.plugin.class.php';
16: require_once 'common/system_event/SystemEvent.class.php';
17:
18: /**
19:  * GitPlugin
20:  */
21: class GitPlugin extends Plugin {
22:
23:     /**
24:      * Service short_name as it appears in 'service' table
25:      *
26:      * Should be transfered in 'ServiceGit' class when we introduce it
27:      */
28:     const SERVICE_SHORTNAME = 'plugin_git';
29:
30:     public function __construct($id) {
31:         parent::__construct($id);
32:         $this->setScope(Plugin::SCOPE_PROJECT);
33:         $this->addhook('cssFile',
34:             $this->addhook('javascriptFile',
35:                 $this->addhook(Event::JAVASCRIPT,
36:                     $this->addhook(Event::GET_SYSTEM_EVENT_CLASS,
37:                         $this->addhook(Event::GET_PLUGINS_AVAILABLE_KEYWORDS_REFERENCES,
38:                             $this->addhook('getReferencKeywords',
39:                                 $this->addhook('getReferencKeywords',
40:                                     'changeProjectRepositoriesAccess',
41:                                     'systemEventProjectName',
42:                                     'project is deleted',
43:                                     'file exists in data dir',
44:                                     // Stats plugin
45:                                     $this->addhook('plugin_statistics_disk_usage_collect_project',
46:                                         $this->addhook('plugin_statistics_disk_usage_service_label',
47:                                             $this->addhook('plugin_statistics_color',
48:                                                 $this->addhook('project admin remove user',
49:                                                     $this->addhook(Event::DUMP_SSH_KEYS,
50:                                                         $this->addhook(Event::SYSTEM_EVENT_GET_TYPES,
51:                                                             $this->addhook('permission get name',
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57:                                     'cssFile',
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59:                                     'getSystemEventClass',
60:                                     'getReferencKeywords',
61:                                     'jsFile',
62:                                     'javascript',
63:                                     'getSystemEventClass',
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65:                                     'jsFile',
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351:                                     'permission get object
```

# Common plugins

- Common Sourceforge™ inheritance
  - Common Theme functions
  - Codendi™/Tuleap™ plugin system derivated from Gforge OSE/FusionForge
- They made it because they didn't know it was impossible
  - Common plugin were realized for Mailman/Forumml/Hudson/Mediawiki
  - Possible continuation with ADMS.SW, industrialisation of Mediawiki
- But hard to industrialize and keep synced
  - Leading to duplicated effort



*Hosted, cloud...*

*Silos*

*Who owns your data/code*

*Can you escape?*

# Data portability

- software is libre (well most of it ;-)
- (software development) data jailed in services (silos)
  - even worse at the Cloud scale?
    - “Freedom in the Cloud” by Eben Moglen
    - “Franklin Street Statement on Freedom and Network Services”

# (Semantic) Web Standards

- REST (not yet so much of a standard... but *LDP* WG @ W3C)
- RDF (not necessarily XML)
- Linked (Open) Data

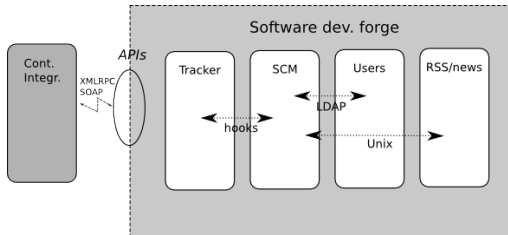


*Some solutions*

# Software development tools integration issues

- Lots of different (legacy) systems in respective silos
- Integrated suites
  - Open Source tools or Proprietary Software alike
  - Software development *forges*
- Agile methodologies vs. monolithic suites
- Traceability
- Scalability
- Very poor interoperability
  - Syntactic
  - Semantic

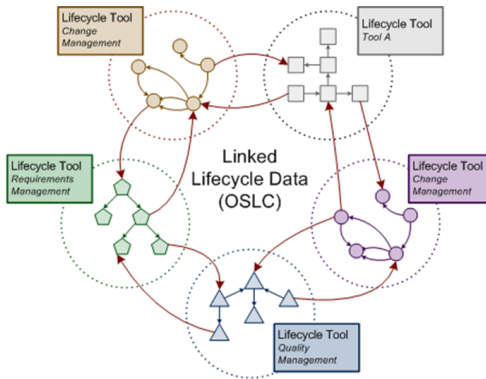
# Integration with silos



- Tools are “natively” integrated in isolated suites
- Ad-hoc interfaces : no standardization

# Linked lifecycle data

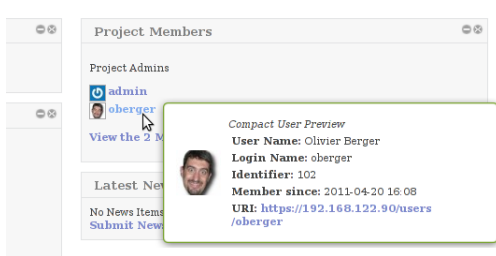
OSLC (Open Services for Lifecycle Collaboration) : <http://oslc.co/>



Source : IBM/Rational

## Example : OSLC *Compact* preview of FusionForge users

Resources linking and preview through standardized mechanism for URIs + AJAX preview



<http://fusionforge.org/plugins/mediawiki/wiki/fusionforge/index.php/OslcCompactPreviewTooltips>



# Continuous integration : FusionForge + JenkinsCI

http://192.168.122.169:8080/job/test/lastUnsuccessfulBuild/OSLC-CM/DelegatedBugReport

Jenkins

Jenkins » test » #10 » Delegated Bug Report Creation

Back to Project  
Status  
Changes  
Console Output  
Edit Build Information  
Previous Build

Delegated Bug Report Creation

https://192.168.122.169/plugins/oslc/cm/project/6/tracker/101/ui/creation

Title \*

Hudson Build #10 Failure

Description \*

Follow the build url for more details about the failure:  
http://192.168.122.90:8080/job/test/10/

Priority

3

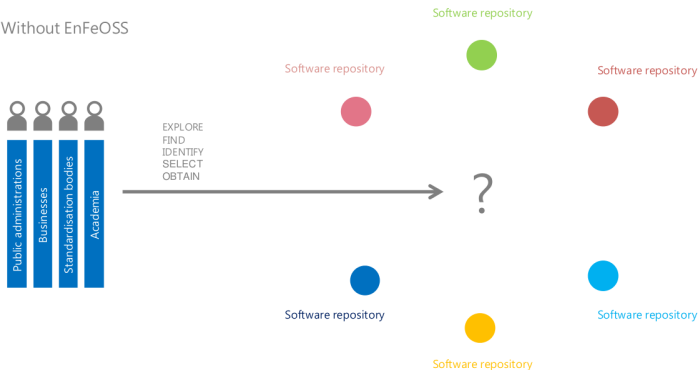
CREATE CHANGE REQUEST

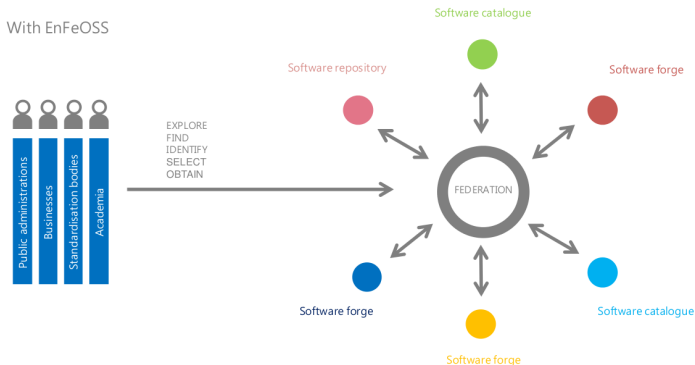
Demo : <http://vimeo.com/23480321>

# Vision EC / ISA

## Vision for an enhanced federation of software forges

Without EnFeOSS





Source : SEMIC.EU D5.1.1 – “Vision document : The vision for an enhanced software description metadata schema and federated software catalogue”

# ADMS.SW

## *Asset Description Metadata Schema for Software (ADMS.SW)*

- Pilot : EC / Interoperability Solutions for European Public Administrations (ISA) - cf. Joinup site
- Exchanging project / packages / releases descriptions across development platforms and directories

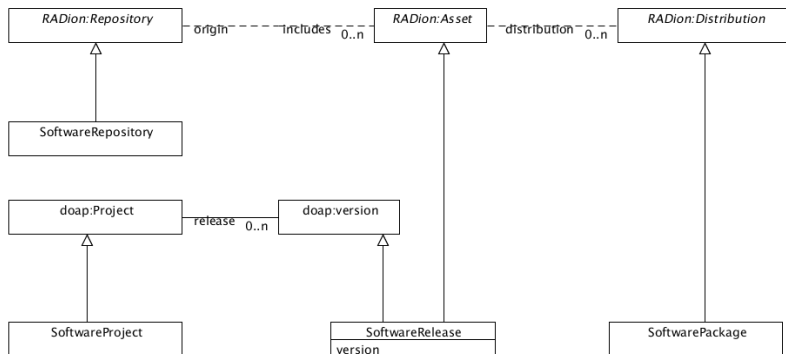


Interoperability Solutions  
for European Public Administrations

# Specifications + RDF Schema

- Reuse :
  - ADMS / RADion (generic meta-data for semantic *assets* indexing)
  - DOAP (*Description of a project*)
  - SPDX™ ( *Software Package Data Exchange* ®)
  - W3C Government Linked Data (GLD) Working Group
- version 1.0 issued 2012/06/29

# ADMS.SW main concepts



# Implementation

- FusionForge plugin for project meta-data (reuse of the **DOAPRDF plugin** developed in COCLICO)
- **Debian PTS** (Package Tracking System) : 1.5 M triples

**PREFIX** doap: <http://usefulinc.com/ns/doap>

**SELECT \* WHERE**

```
{
  GRAPH <http://packages.qa.debian.org/>
  {
    ?dp doap:homepage ?h
  }
  GRAPH <http://projects.apache.org/>
  {
    ?ap doap:homepage ?h
  }
}
```



# Matching packages

## Example (Matching upstream project homepages with Debian source packages')

dp	h	ap
ivy	ant.a.o/ivy/	ant.a.o/ivy/
apr	apr.a.o/	apr.a.o/
apr-util	apr.a.o/	apr.a.o/
libcommons-cli-java	commons.a.o/cli/	commons.a.o/cli/
libcommons-codec-java	commons.a.o/codec/	commons.a.o/codec/
libcommons-collections3-java	commons.a.o/collections/	commons.a.o/collections/
libcommons-collections-java	commons.a.o/collections/	commons.a.o/collections/
commons-daemon	commons.a.o/daemon/	commons.a.o/daemon/
libcommons-discovery-java	commons.a.o/discovery/	commons.a.o/discovery/
libcommons-el-java	commons.a.o/el/	commons.a.o/el/
libcommons-fileupload-java	commons.a.o/fileupload/	commons.a.o/fileupload/
commons-io	commons.a.o/io/	commons.a.o/io/
commons-jci	commons.a.o/jci/	commons.a.o/jci/
libcommons-launcher-java	commons.a.o/launcher/	commons.a.o/launcher/
...	...	...



*Perspectives*  
*Conclusion*



# Large scale bug-tracking

- Lots of duplicate or related bug **reports**
- Not a single place where to monitor bugs
  - OK, *launchpad*, maybe... too much a silo anyway
- No interoperability of tools
- Manual work of maintainer / QA (bug triaging, etc.)

# Bugtracker interoperability prerequisite

- No existing standard for bugtracker APIs
- ... until *OSLC-CM* (2009-)

# More interoperability in FLOSS tools

- Push standardization in tools development
  - Eclipse Mylyn support of OSLC (in the FLOSS parts), based on Eclipse Lyo roots? ... When?
- New opportunities
  - Open Linked Data for direct “mining” of FLOSS projects development process metrics
- Large scale bug tracking and QA process in the FLOSS ecosystem
- *Qui vivra verra...*

Merci.  
Questions ?

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