

# Issue tracking and version control services: status update

HEPiX Fall 2014 Workshop, October 2014  
University of Nebraska - Lincoln

Borja Aparicio, CERN IT-PES  
on behalf of IT/PES/IS

- Issue Tracking service
- Version Control services
  - SVN
  - GIT
- Code Review & Continuous Integration
  - GitLab
  - Jenkins
- CERNforge

## Issue Tracking Service

<http://cern.ch/its>

- Atlassian product
  - Track issues
    - Internal team organization
    - Collecting requests



JIRA Dashboards Projects Issues Create issue Quick Search Tools

### System Dashboard

**Time Sheet**

Summary for Super User (Details)

	Mon 7/Oct	Tue 8/Oct	Wed 9/Oct	Thu 10/Oct	Fri 11/Oct	Sat 12/Oct	Sun 13/Oct	Tot
DEMO-1 What is an issue?	↑			6h		8h		14h
DEMO-2 Changing an issue's status	↑	6h						6h
DEMO-3 Keyboard shortcuts	↑		7h					7h
DEMO-4 Editing issues	↑	6h						6h
DEMO-5 Searching	↑					2h		2h
DEMO-6 What's next?	↑						6h	6h
<b>Total:</b>	<b>6h</b>	<b>6h</b>	<b>7h</b>	<b>6h</b>		<b>10h</b>	<b>6h</b>	<b>41h</b>

**Project Pivot**

Displaying for all projects and group Jira-users (Details)

	Super User	Test User	Tot
DEMO-1 What is an issue?	↑ 14h	0h	14h
DEMO-2 Changing an issue's status	↑ 6h	8h	14h
DEMO-3 Keyboard shortcuts	↑ 7h	0h	7h
DEMO-4 Editing issues	↑ 6h	16h	22h
DEMO-5 Searching	↑ 2h	4h	6h

**Assigned to Me**

Key	Summary	P
DEMO-2	Changing an issue's status	↑
DEMO-4	Editing issues	↑
DEMO-3	Keyboard shortcuts	↑
DEMO-5	Searching	↑
DEMO-1	What is an issue?	↑
DEMO-6	What's next?	↑

**Worked Time Chart**

Summary for Super User (Details)

- DEMO-1 (34%)
- DEMO-2 (15%)
- DEMO-3 (17%)
- DEMO-4 (15%)
- DEMO-5 (15%)

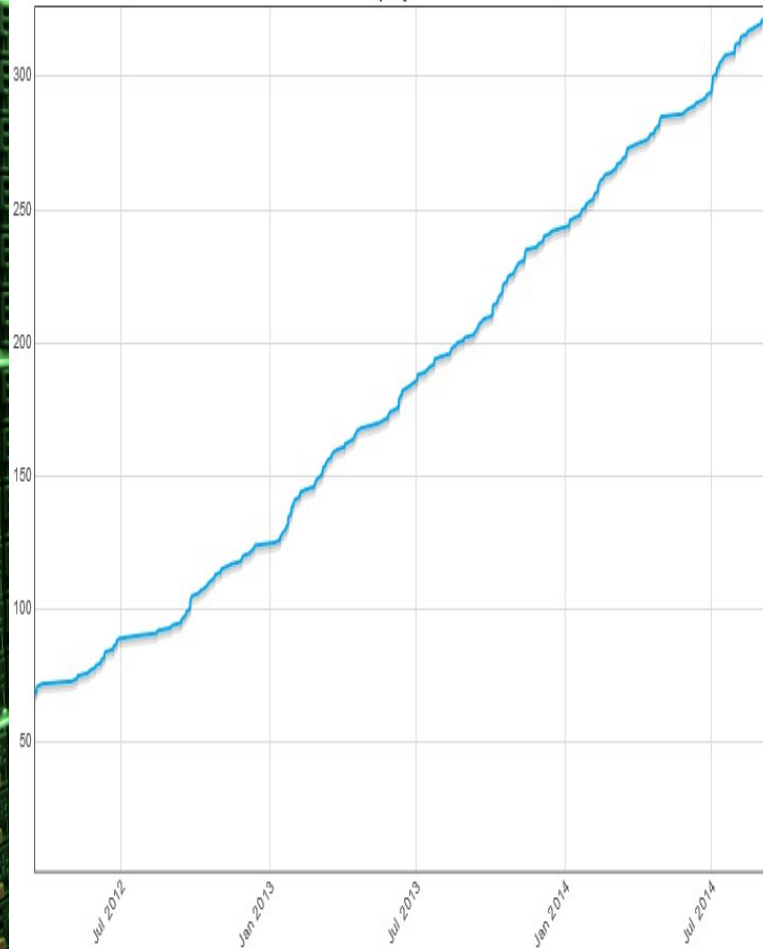


- Two Central instance for most needs
- 4 production private instances, for people with special needs
- Savannah (ROOT, GEANT4, ...) is being migrated to Jira in collaboration with CERN PH-SFT
- Migrated to Puppet managed infrastructure

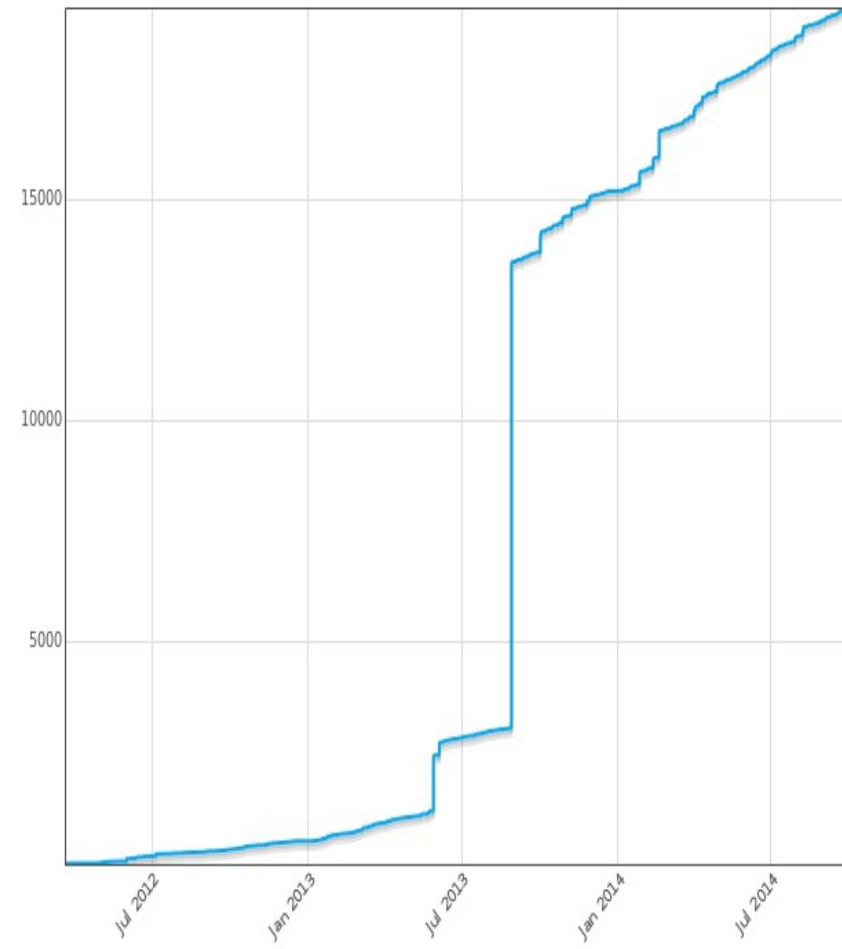
# PES Central Jira Statistics



Number of projects over time

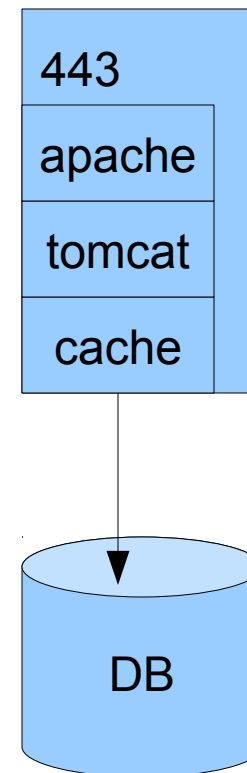


Number of users over time



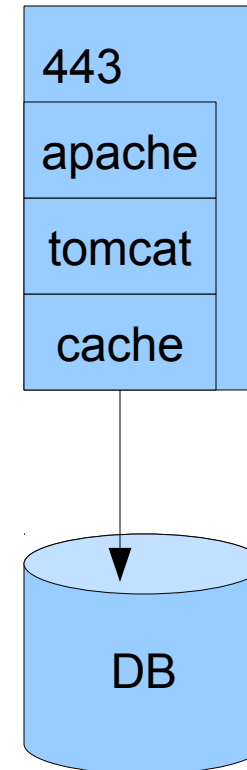
- CERN Single Sign On (SSO) integration login
  - Use egroups as Jira groups transparently
  - Using Crowd SSO as well so other Atlassian products can be integrated transparently
- GIT and SVN, reference Jira tickets from commits, see them in Jira
- Fisheye+Crucible integration, code review and create issues in Jira
  - Lots of administration overhead, scalability issues

- Single machine per instance
- Apache
- Tomcat
- Oracle DB

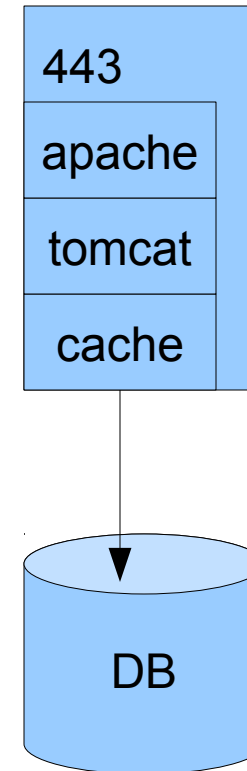




- Single machine per instance
- Apache
- Tomcat
- Oracle DB
- Why not a cluster?



- Single machine per instance
- Apache
- Tomcat
- Oracle DB
- Why not a cluster?
  - ~400.000 reasons
  - Let's wait to sales period



## Version Control services

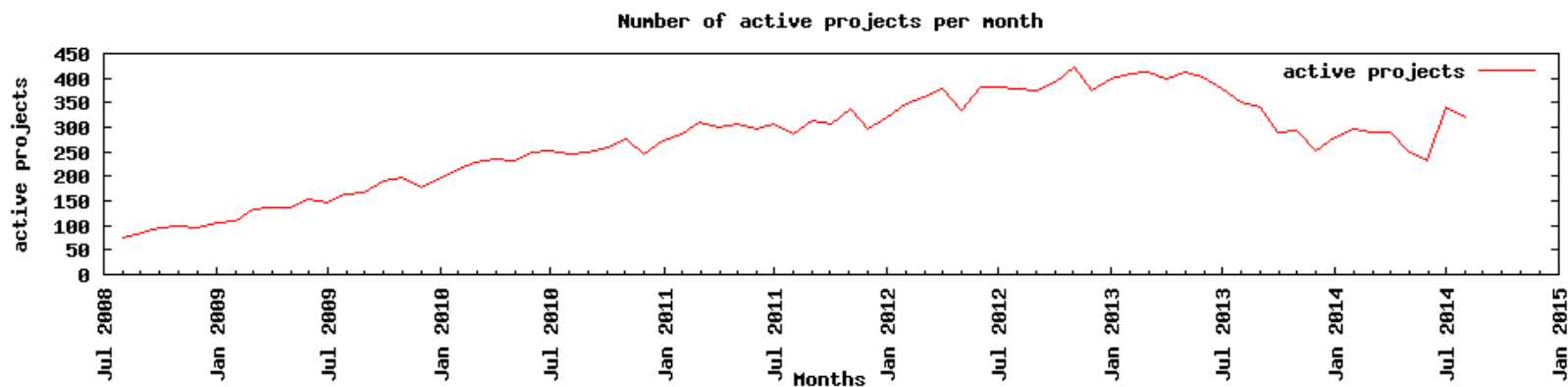
<http://cern.ch/svn>

<http://cern.ch/git>

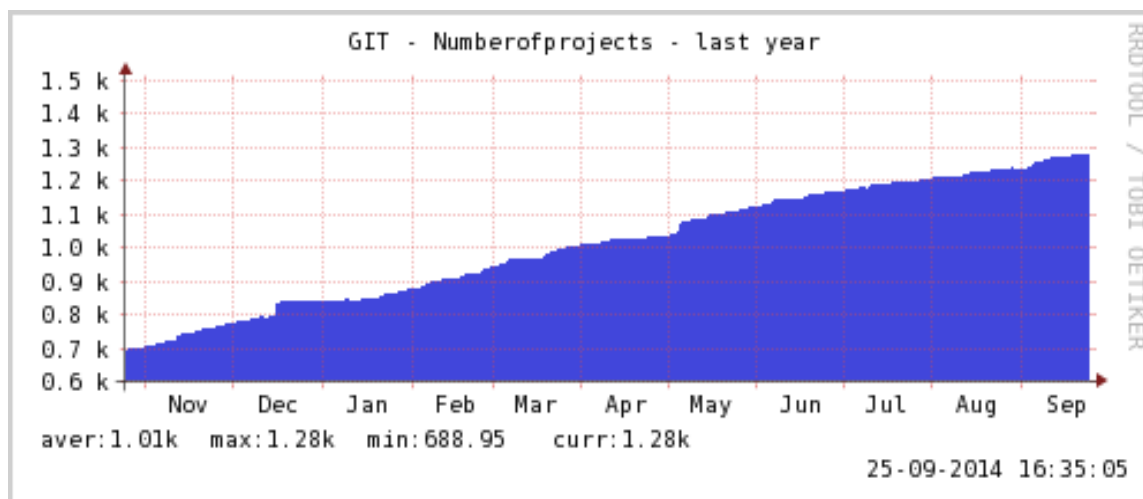


- Main VCS for CERN

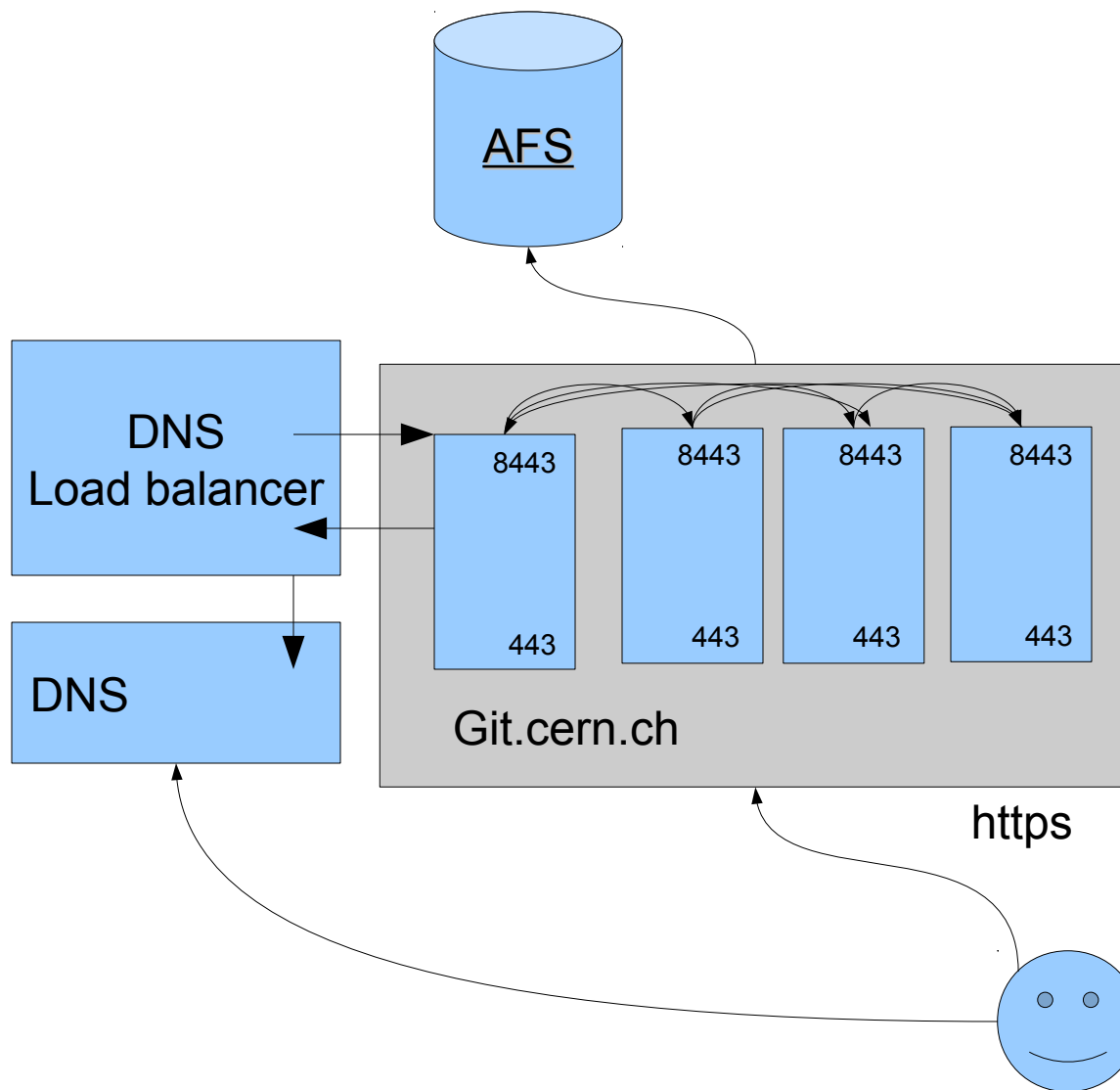
- Consolidating the service (learning from GIT)
- 2573 projects ~350 active
- Migrated to Puppet managed infrastructure



- 1.5 year old
  - High growth
  - Consolidating the service
  - 1279 projects

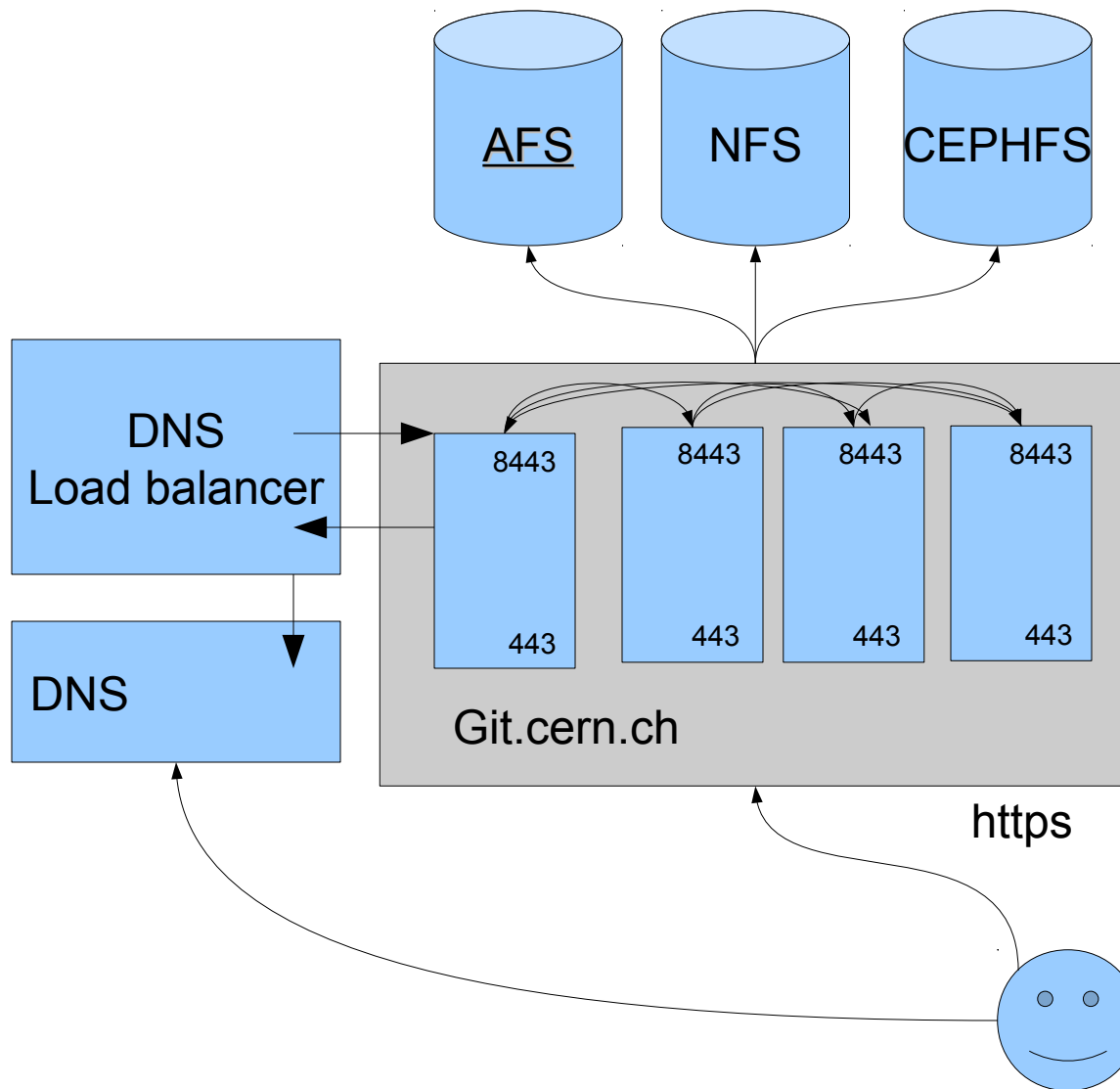


# PES GIT service schema



- Puppet
- DNS LB
- Apache LB
- HTTP
- Gitolite3

# PES GIT service schema



- Puppet
- DNS LB
- Apache LB
- HTTP
- Gitolite3
- FS agnostic

- Http
  - Public repositories, read only. Web and client
  - CERN public repositories, read only. Web and client. Only CERN IPs
- Https
  - Gitolite3 permissions
  - Caged user hook scripts (chroot)
  - Client authentication methods:
    - Ldap
    - Kerberos
  - Web:
    - Gitweb (SSO integration)



- SSH access for GIT
  - Pilot phase
    - Security evaluation ongoing
  - Multiple authentication methods
    - SSH keys
    - Kerberos access
    - Password



- We've got the Issue Tracker and the VCS but...

- We've got the Issue Tracker and the VCS but...
  - Anybody to check your fix?

- We've got the Issue Tracker and the VCS but...
  - Anybody to check your fix?
  - Do I decide to push it to production?

- We've got the Issue Tracker and the VCS but...
  - Anybody to check your fix?
  - Do I decide to push it to production?
  - Not only me working on this... merge conflict...

- We've got the Issue Tracker and the VCS but...
  - Anybody to check your fix?
  - Do I decide to push it to production?
  - Not only me working on this... merge conflict...
  - “It worked for me. Don't know why even the coffee machine stopped working after deploying”

- We've got the Issue Tracker and the VCS but...
  - Anybody to check your fix?
  - Do I decide to push it to production?
  - Not only me working on this... merge conflict...
  - “It worked for me. Don't know why even the coffee machine stopped working after deploying”
- Collaboration + Code Review + CI
  - Get your task
  - Submit the fix
  - Verify/Test/Integrate
  - Approve

- Whole stack
  - Version Control based on Git
  - Gitlab “github lookalike”
  - Code review
  - Collaboration
  - Merge request
  - Projects organization and roles for individuals
  - Edit functionality from the UI
  - Issue tracking: Jira integration
  - “Cluster-able”

ai-config-team / ai-tools

Search in this project

Activity Files Commits Network Graphs Issues Merge Requests 4 Settings

Merge Request #20

– To merge requests From env\_vars into master 0 up 0 down

Merged Created by Nacho Barrientos about a month ago

Prompt the user for the Openstack password if it's not defined in the environment

This patch is based on Sebastian's pull request (18)

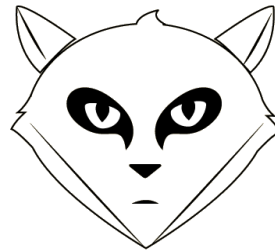
It's basically a reduced version of his code (as the volumes part is already implemented and available in master) with some minor cosmetic changes on top.

Assignee: Alberto Peon Milestone: Select milestone

Merged by Alberto Peon about a month ago  
Source branch has been removed

Commits (5)

341ef04d4	Catch some exceptions when resolving the image id	<a href="#">Browse Code</a> about a month ago
64d844d8e	Document the new behaviour on the manual pages	<a href="#">Browse Code</a> about a month ago





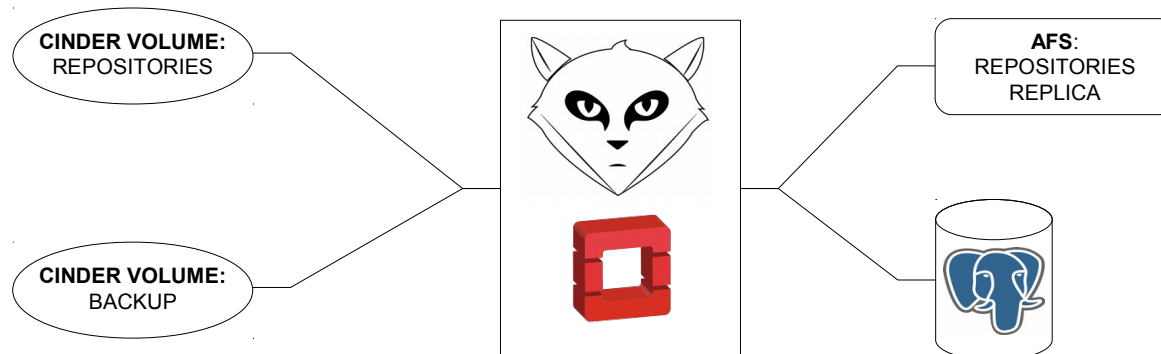
- Open Source
- Ruby based



- Open Source
- Ruby based
- Pilot service
  - Gathering of requirements
  - Evolution of GitLab from upstream
  - Positive feedback from CERN IT-Dept and experiments
  - Better user experience compared with FishEye



- Open Source
- Ruby based
- Pilot service
  - Gathering of requirements
  - Evolution of GitLab from upstream
  - Positive feedback from CERN IT-Dept and experiments
  - Better user experience compared with FishEye



# PES

# GitLab

CERN IT  
Department



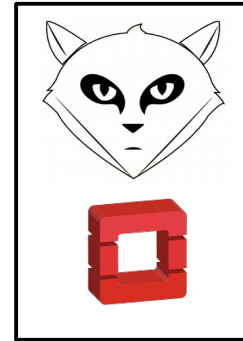
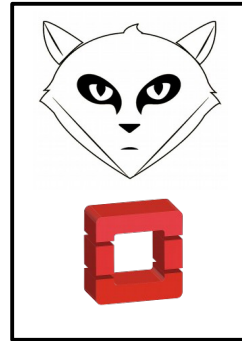
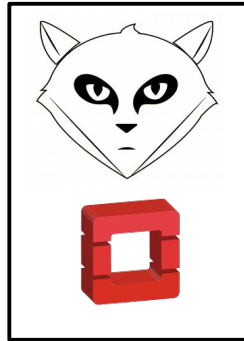
CERN IT Department  
CH-1211 Genève 23  
Switzerland  
[www.cern.ch/it](http://www.cern.ch/it)



NGINX



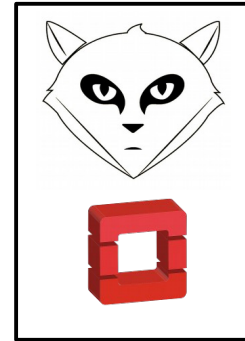
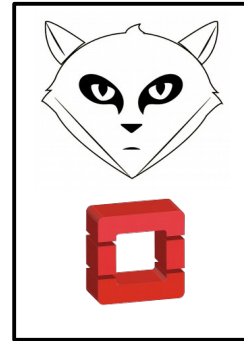
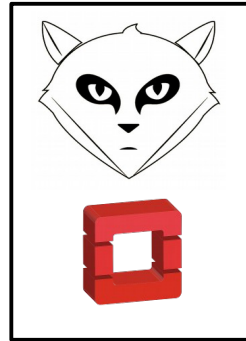
Sidekiq



NGINX



Sidekiq



REPOSITORIES

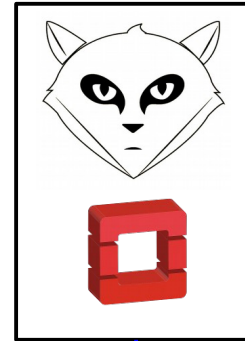
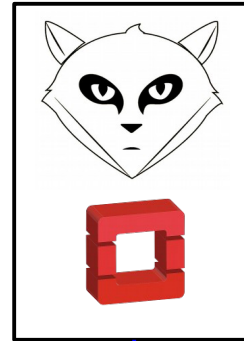
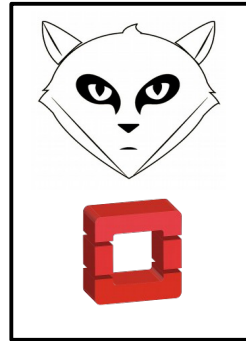
CONFIGURATION



NGINX



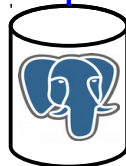
Sidekiq



REPOSITORIES

CONFIGURATION

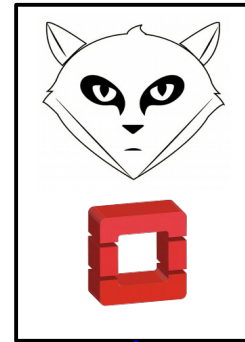
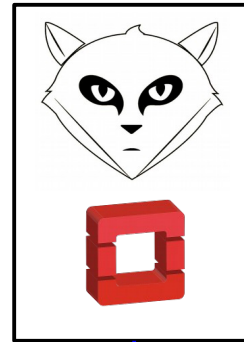
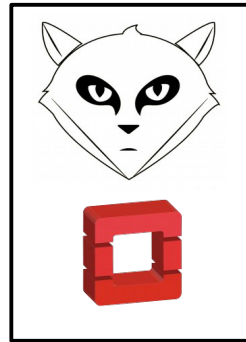
ceph



NGINX



Sidekiq



REPOSITORIES

CONFIGURATION



ceph

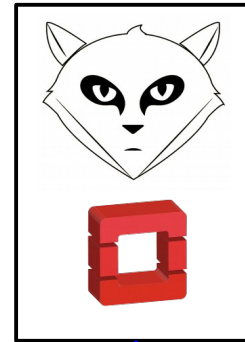
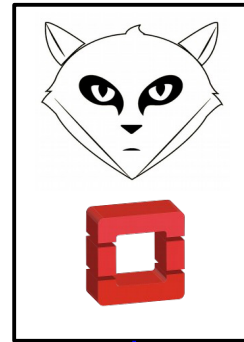
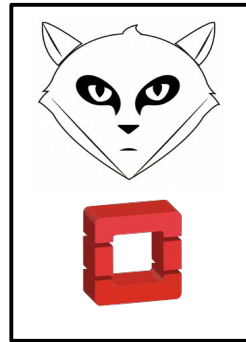




NGINX



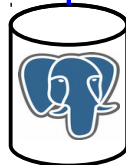
Sidekiq



REPOSITORIES

CONFIGURATION

BACKUP

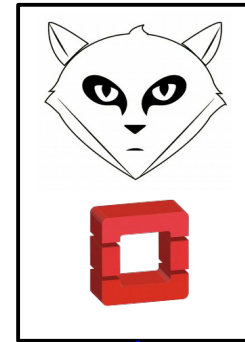
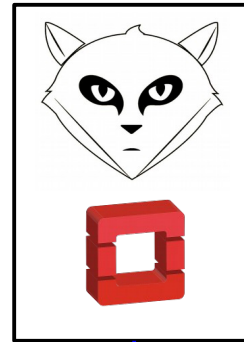
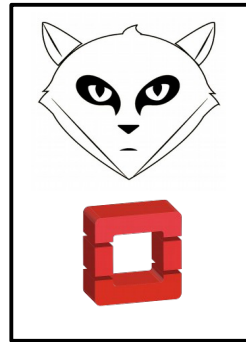


AFS:  
REPOSITORIES  
REPLICA

NGINX



Sidekiq



REPOSITORIES

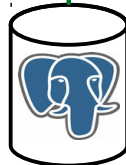
CONFIGURATION

BACKUP



BACKUP NODE

ceph



AFS:  
REPOSITORIES  
REPLICA

- CI: Software change introduced...



- CI: Software change introduced...
  - Validate
  - Compile
  - Test
  - Package
  - Deploy



- CI: Software change introduced...
  - Validate
  - Compile
  - Test
  - Package
  - Deploy
- Open Source
- Widely used



- CI: Software change introduced...
  - Validate
  - Compile
  - Test
  - Package
  - Deploy
- Open Source
- Widely used
- Already in use by several groups at CERN
- PaaS manner



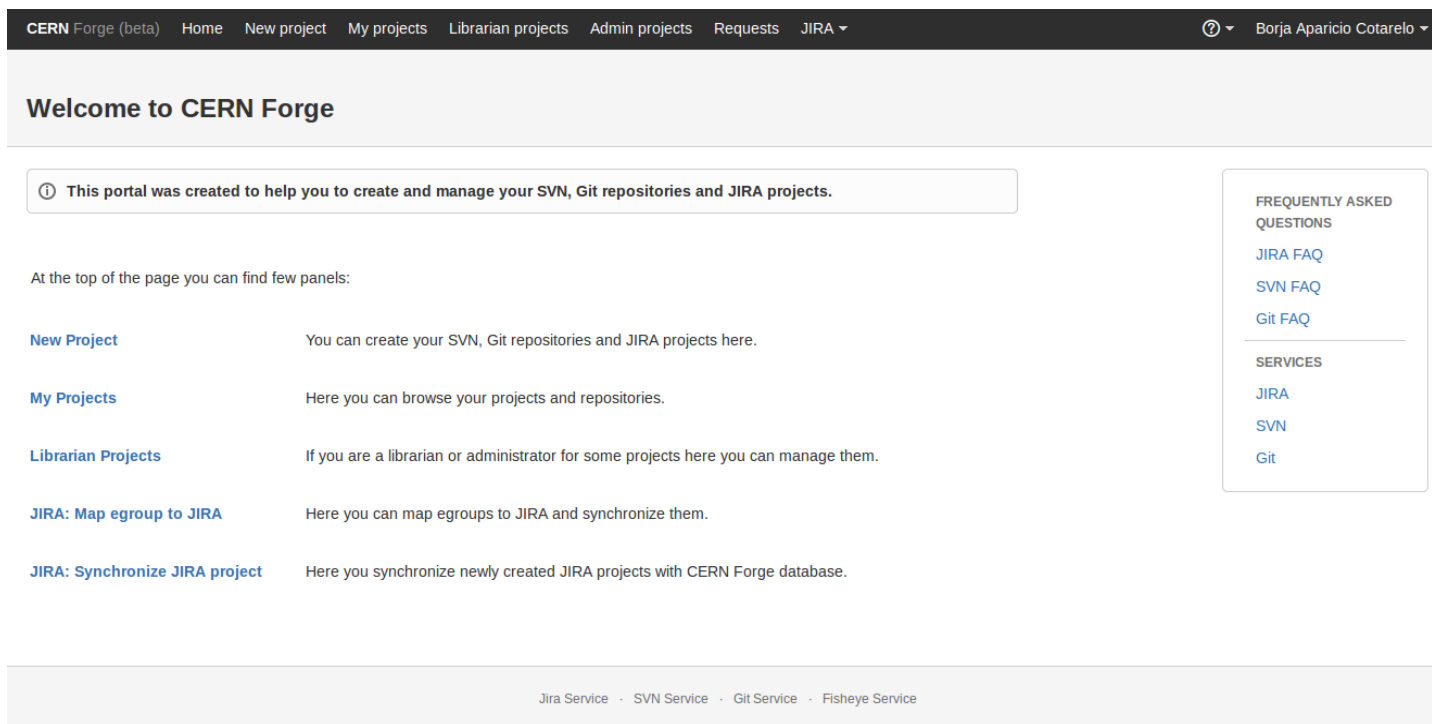
- CI: Software change introduced...
  - Validate
  - Compile
  - Test
  - Package
  - Deploy
- Open Source
- Widely used
- Already in use by several groups at CERN
- PaaS manner
- Integration with GitLab and Jira
  - Merge request automatically tested
  - Report to Jira status of operation



- How do admins/managers/users handle all this?
  - Request
  - Manage
  - Administer



- How do admins/managers/users handle all this?
  - Request
  - Manage
  - Administer

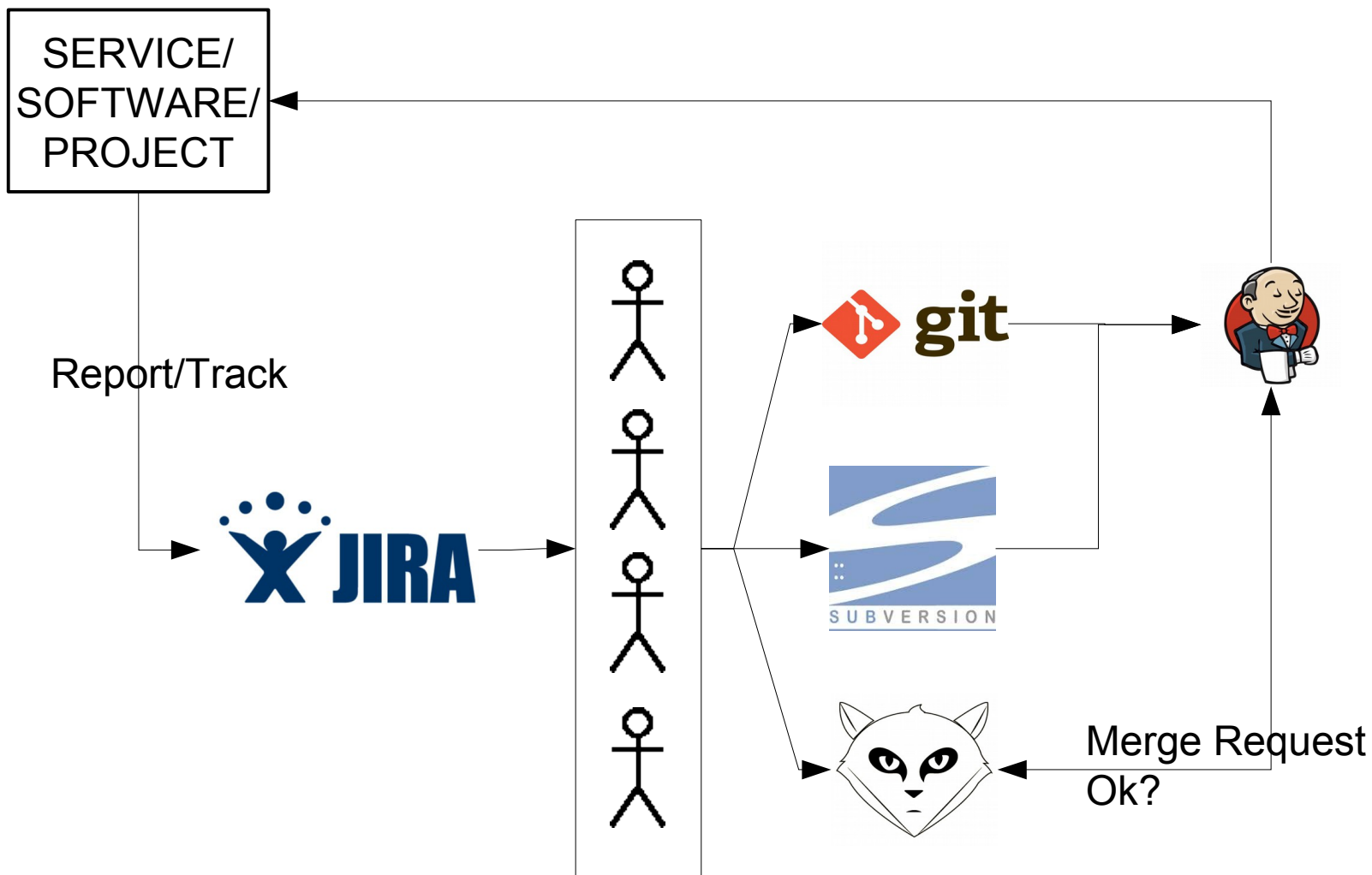


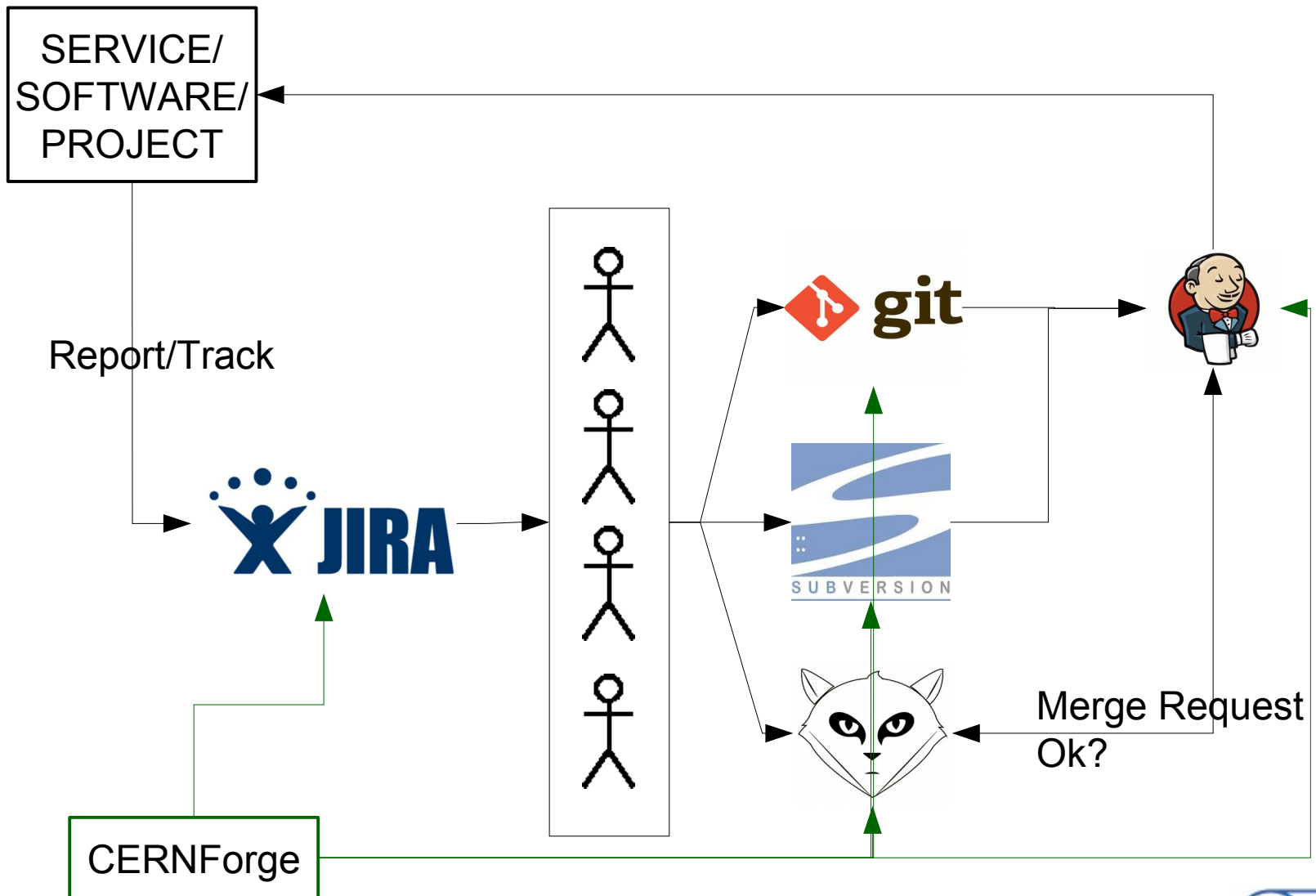
The screenshot shows the CERN Forge website interface. At the top, there is a navigation bar with links: CERN Forge (beta), Home, New project, My projects, Librarian projects, Admin projects, Requests, and JIRA. The user name 'Borja Aparicio Cotarelo' is displayed on the right. Below the navigation bar, a welcome message reads 'Welcome to CERN Forge'. A central message box states: 'This portal was created to help you to create and manage your SVN, Git repositories and JIRA projects.' Below this, a section titled 'At the top of the page you can find few panels:' lists several panels with descriptions:

- New Project**: You can create your SVN, Git repositories and JIRA projects here.
- My Projects**: Here you can browse your projects and repositories.
- Librarian Projects**: If you are a librarian or administrator for some projects here you can manage them.
- JIRA: Map egroup to JIRA**: Here you can map egroups to JIRA and synchronize them.
- JIRA: Synchronize JIRA project**: Here you synchronize newly created JIRA projects with CERN Forge database.

On the right side, there is a 'FREQUENTLY ASKED QUESTIONS' section with links for JIRA FAQ, SVN FAQ, and Git FAQ. Below that is a 'SERVICES' section with links for JIRA, SVN, and Git. At the bottom of the page, there is a footer with links: Jira Service, SVN Service, Git Service, and Fisheye Service.

- Still growing
- <http://cern.ch/forge>





# PES Thanks...

- Nils Hoimyr
- David Asbury
- Anna Trzcinska
- Terje Andersen
- Álvaro González



Questions?

- Backup slides

- GiT is a distributed version control system.
- It is *mainly* used to track changes of *source code* for an individual or a group of people.
- In contrast to subversion, it does not need a central point to share the code.
- In production since:  
Feb 2013
- <http://cern.ch/git>



# git

- Why not ...<insert\_other\_solution>?
  - Gitis. deprecated
  - Gitorious. Non really free
- Free software
- Used widely
- Easy to adapt to our needs (egroups integration)
- Easy to manage permissions, supports delegation and version control