Issue tracking and version control services: status update

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

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on behalf of IT/PES/IS

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CERN

Outline

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

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Issue Tracking Service
http://cern.ch/its

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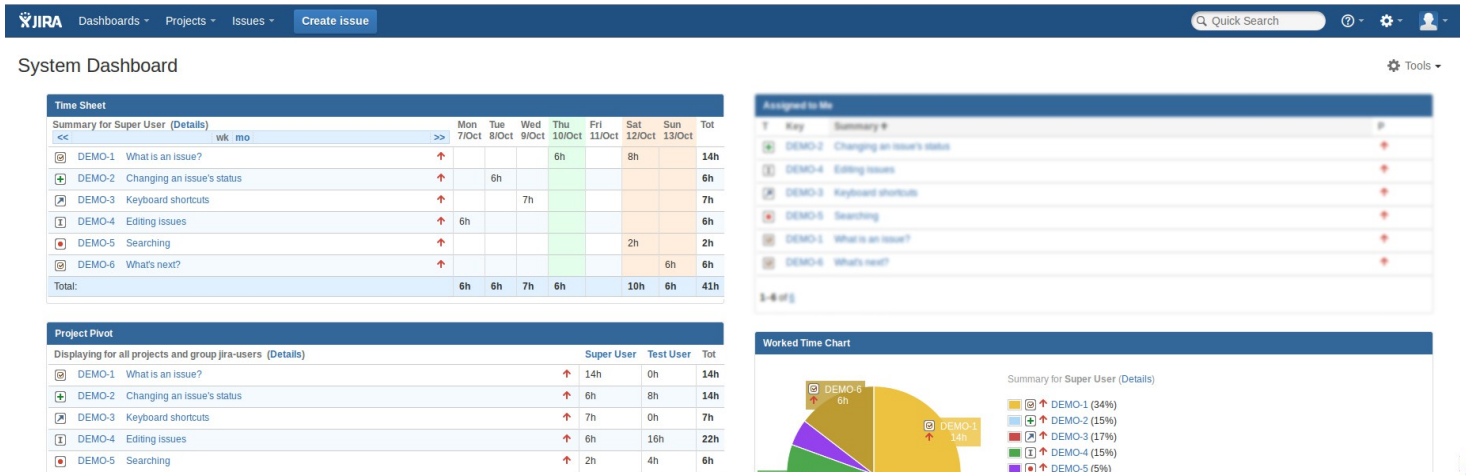
Jira

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



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Jira Instances

- 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

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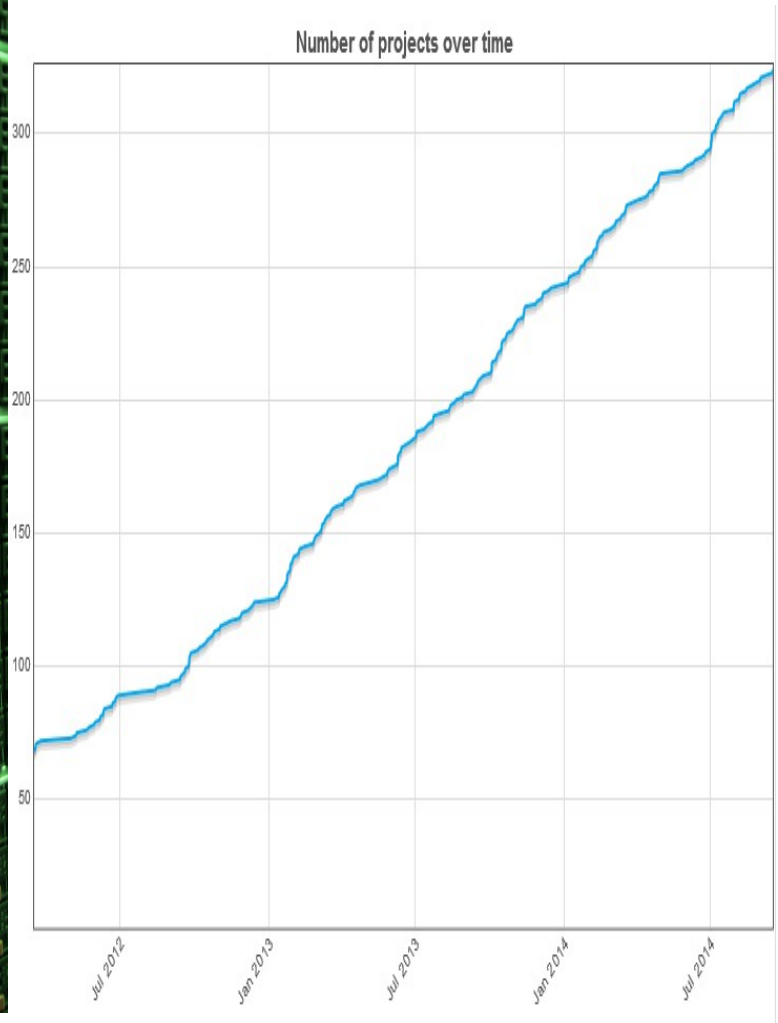
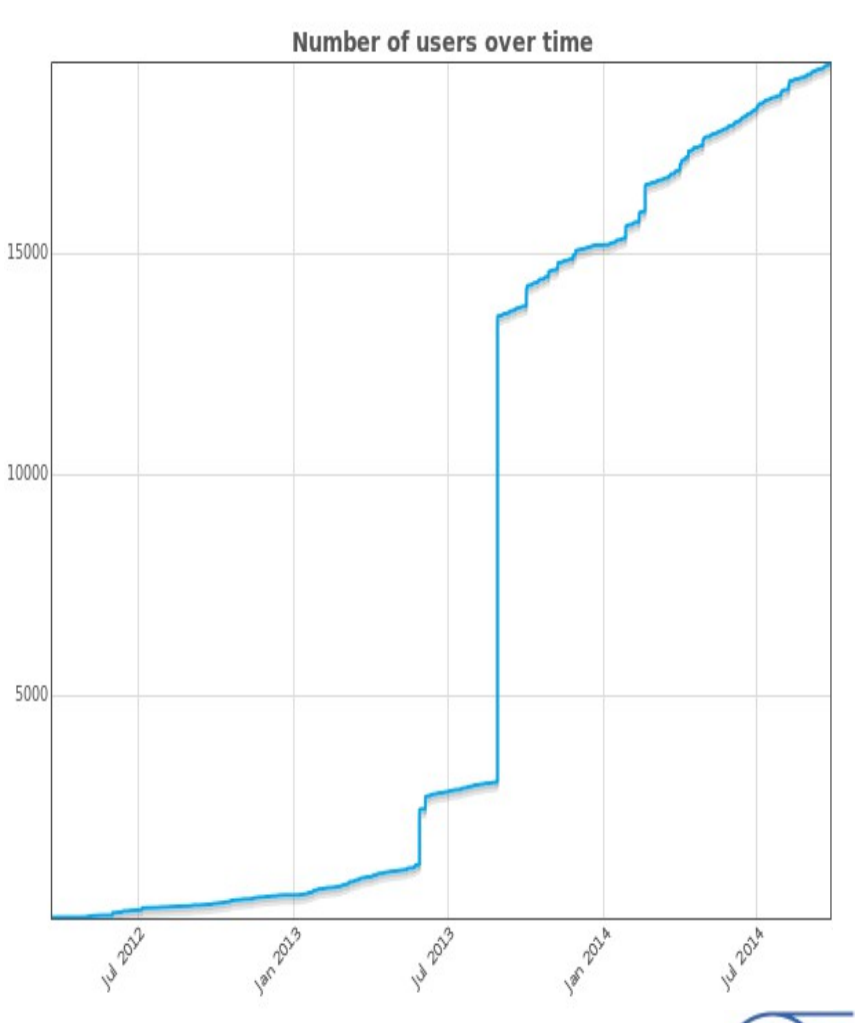
Central Jira Statistics





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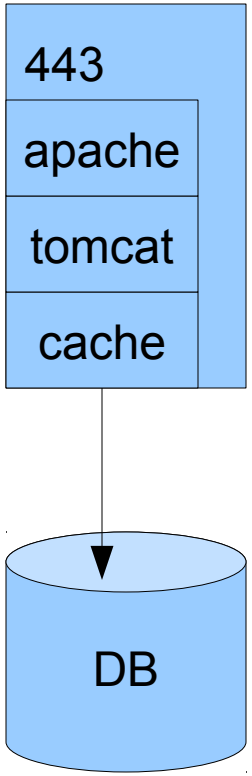
Jira Integrations

- 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

Schema

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



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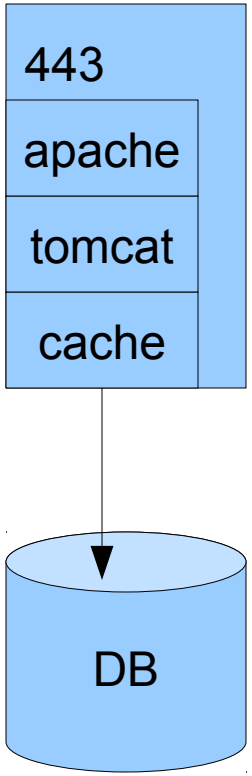
- Why not a cluster?



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Schema

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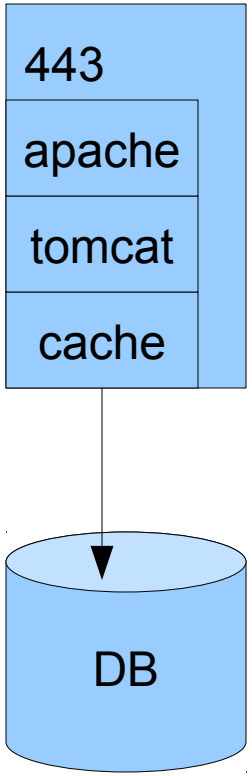
- Why not a cluster?
  - ~400.000 reasons
  - Let's wait to sales period



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Version Control services

http://cern.ch/svn

http://cern.ch/git

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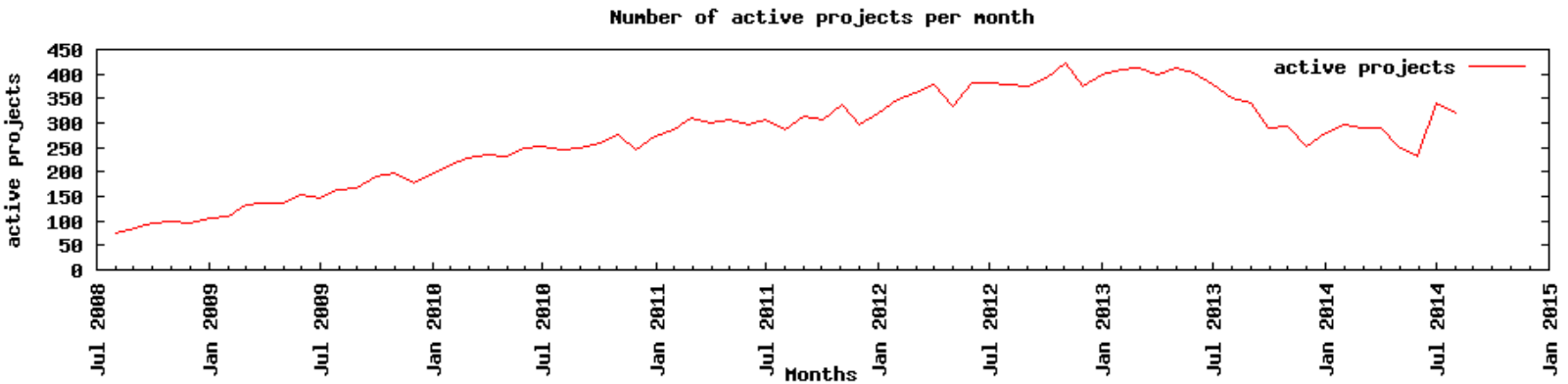
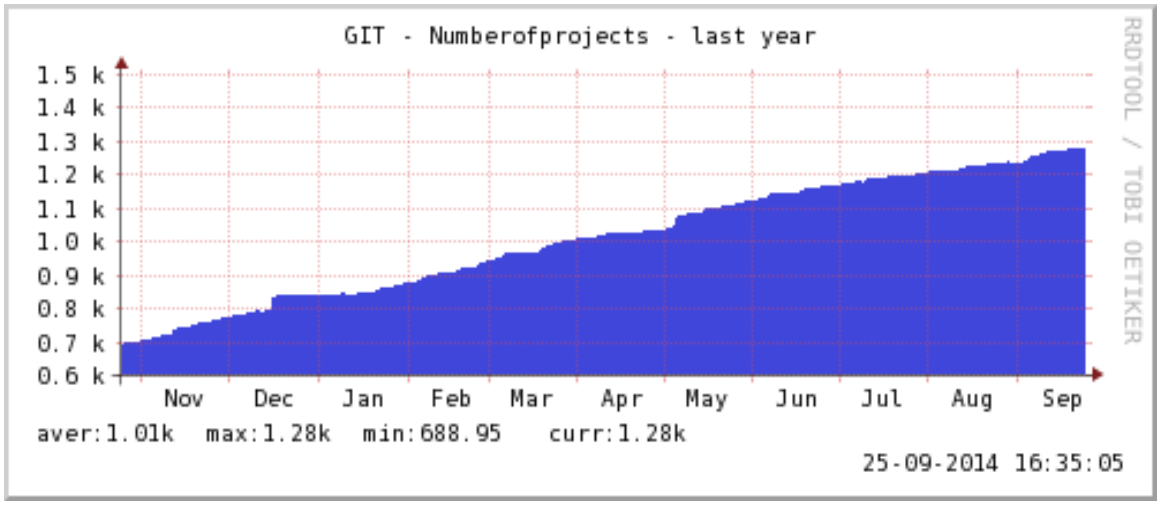
SVN

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



GIT

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



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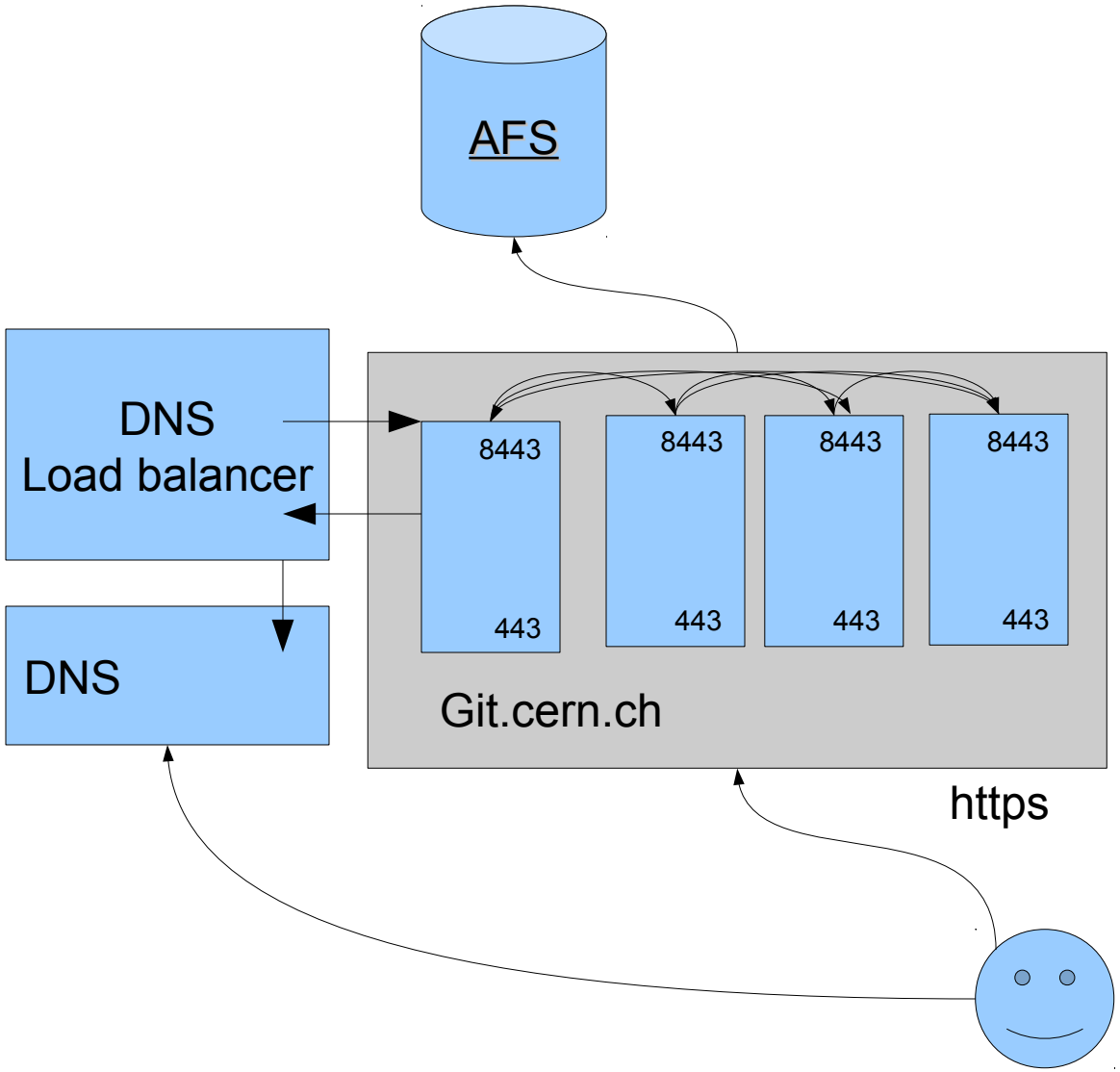
GIT service schema



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

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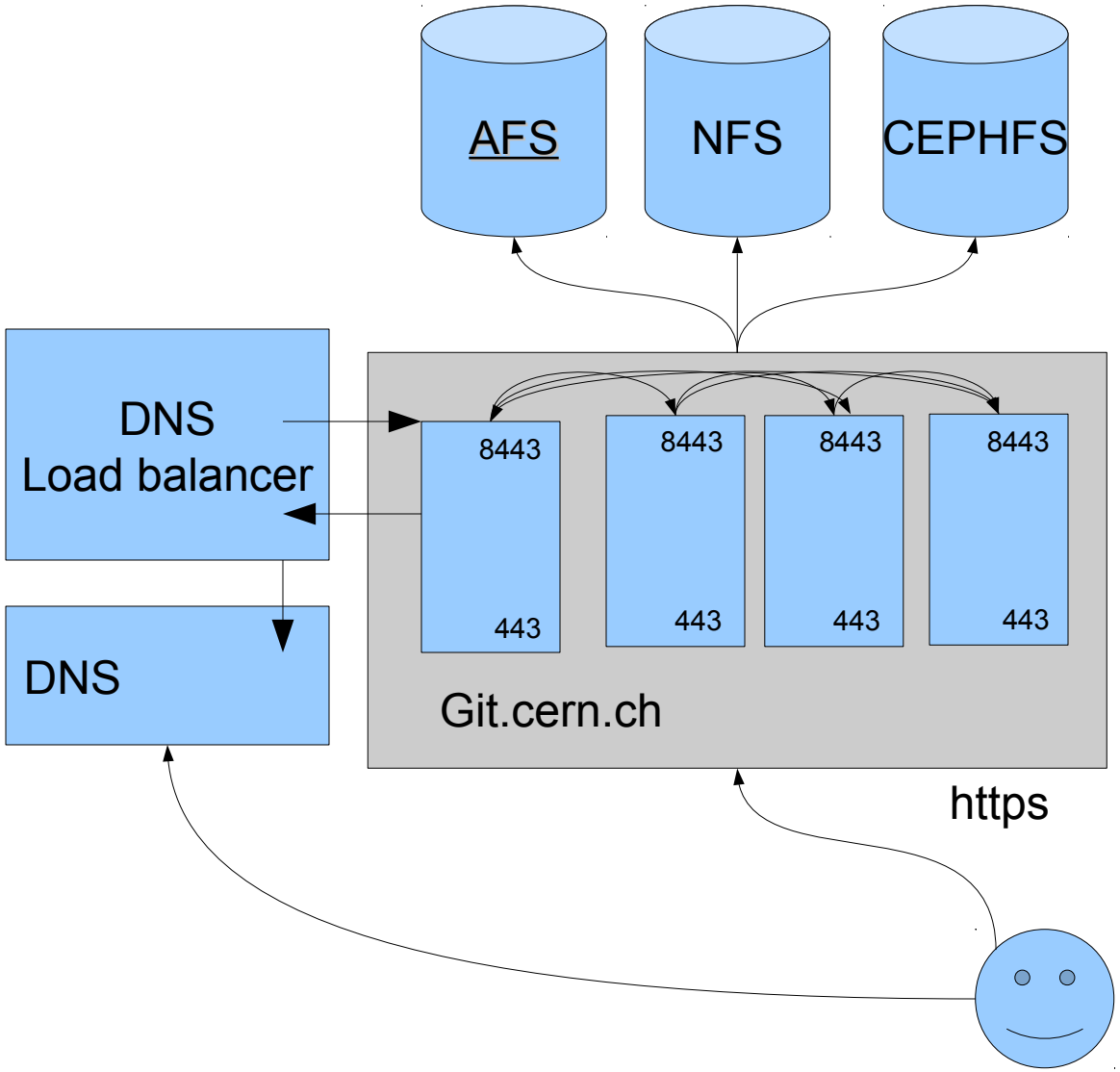
GIT service schema



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

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CERN "central" GIT

- 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)

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SSH for GIT

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

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What's next

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

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What's next

- We've got the Issue Tracker and the VCS but...
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  - “It worked for me. Don't know why even the coffee machine stopped working after deploying”

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  - 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

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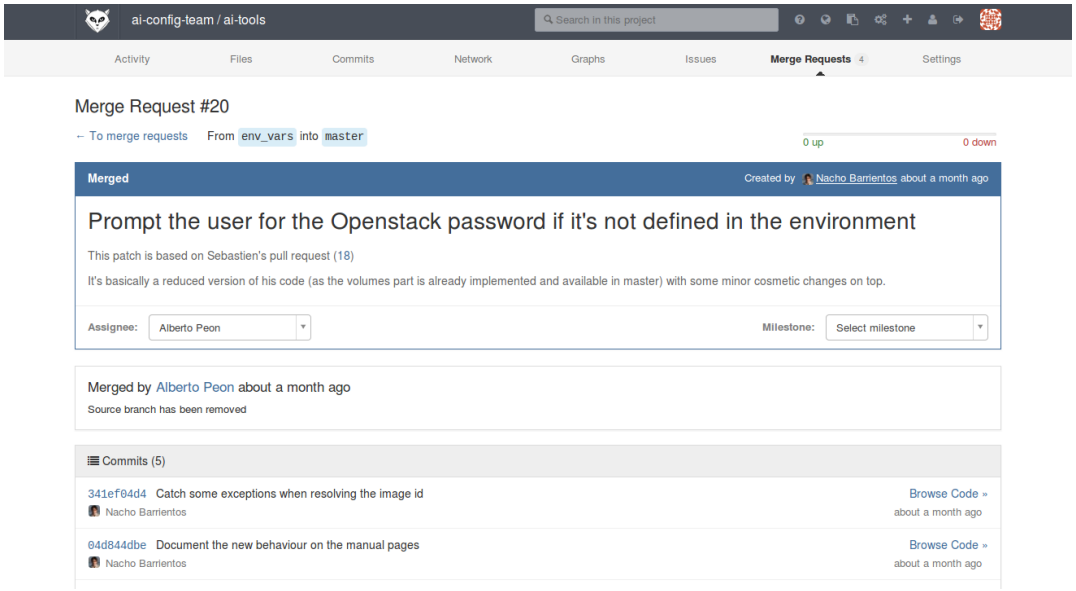
GitLab

- 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”



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GitLab

- Open Source
- Ruby based

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- 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

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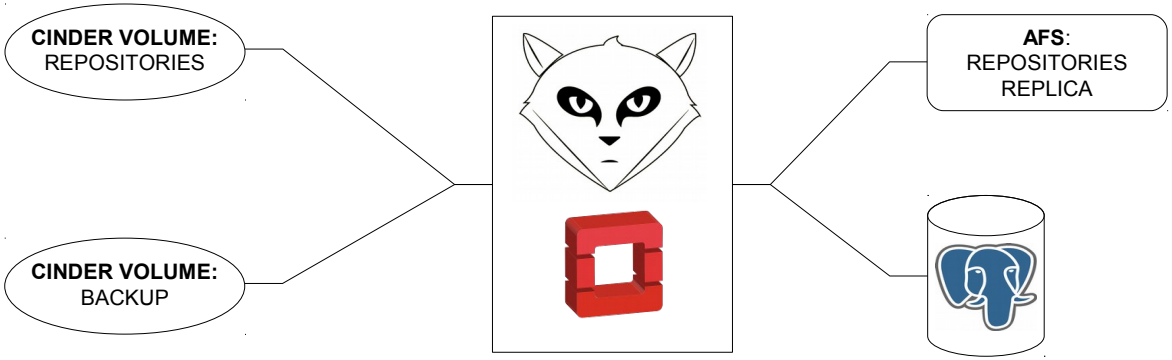

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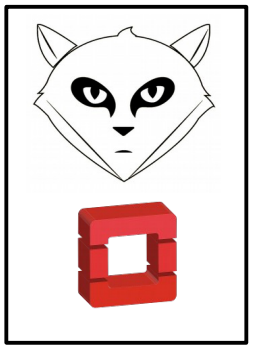

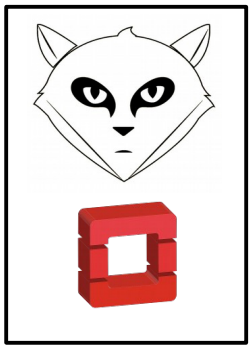

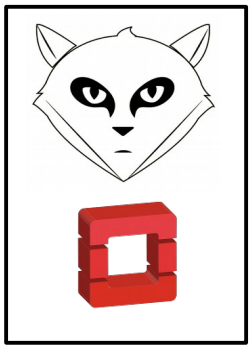

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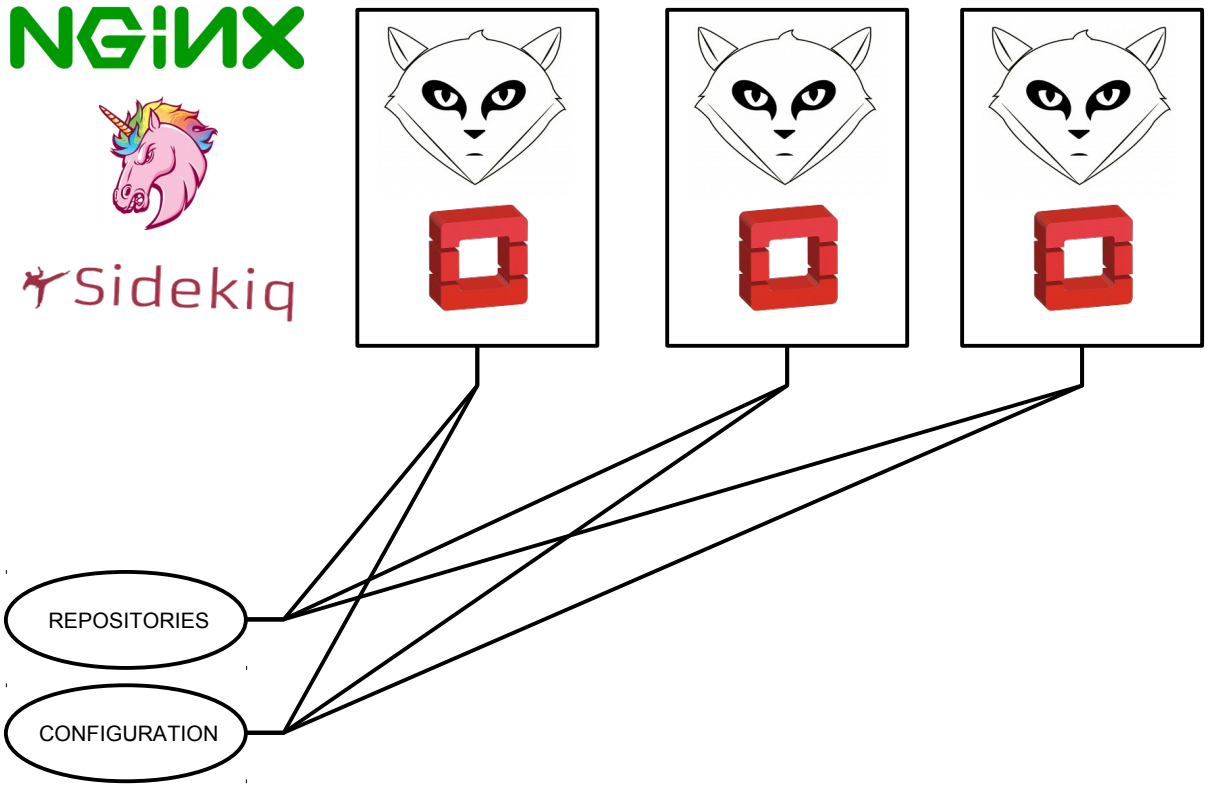

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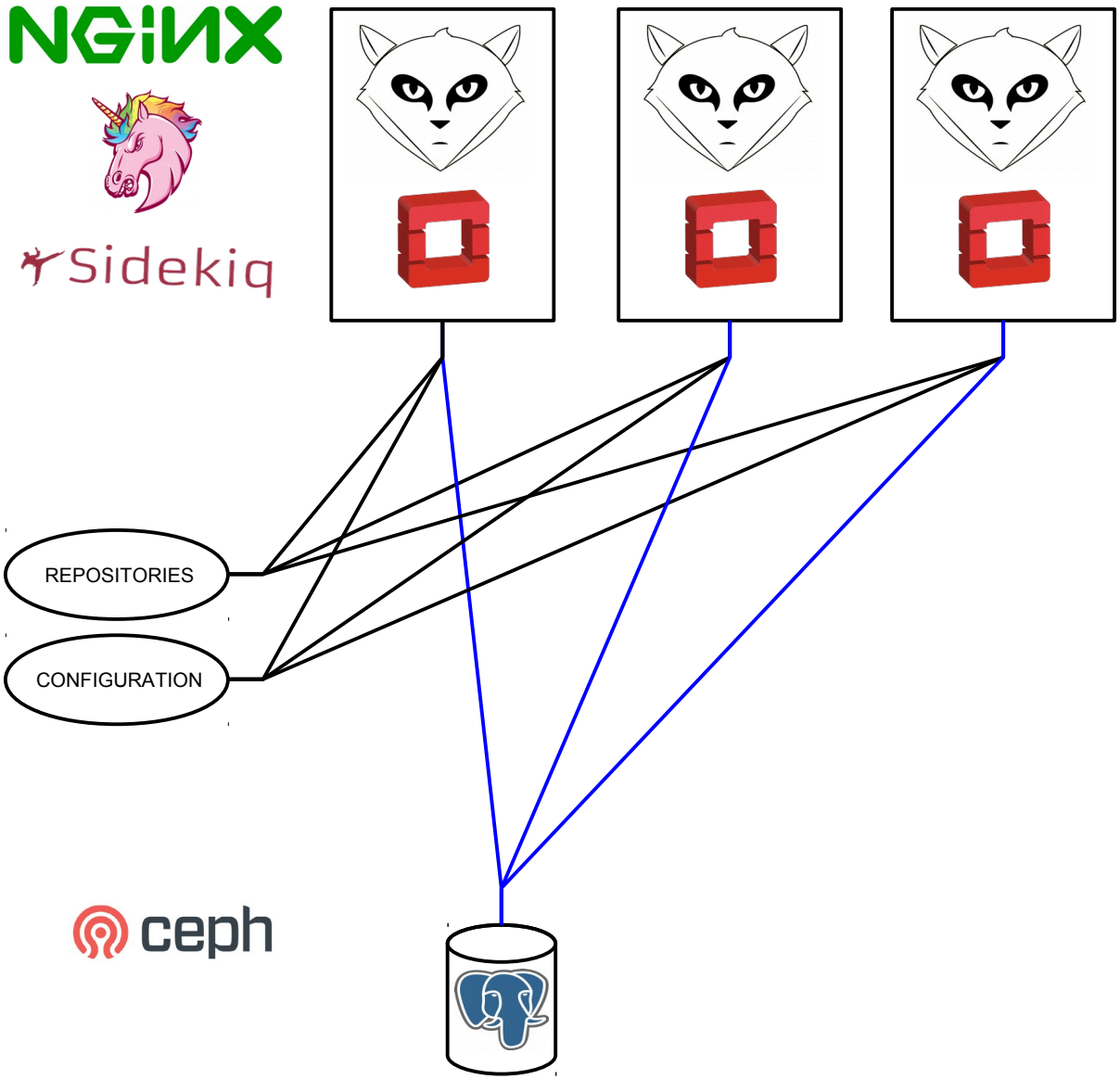

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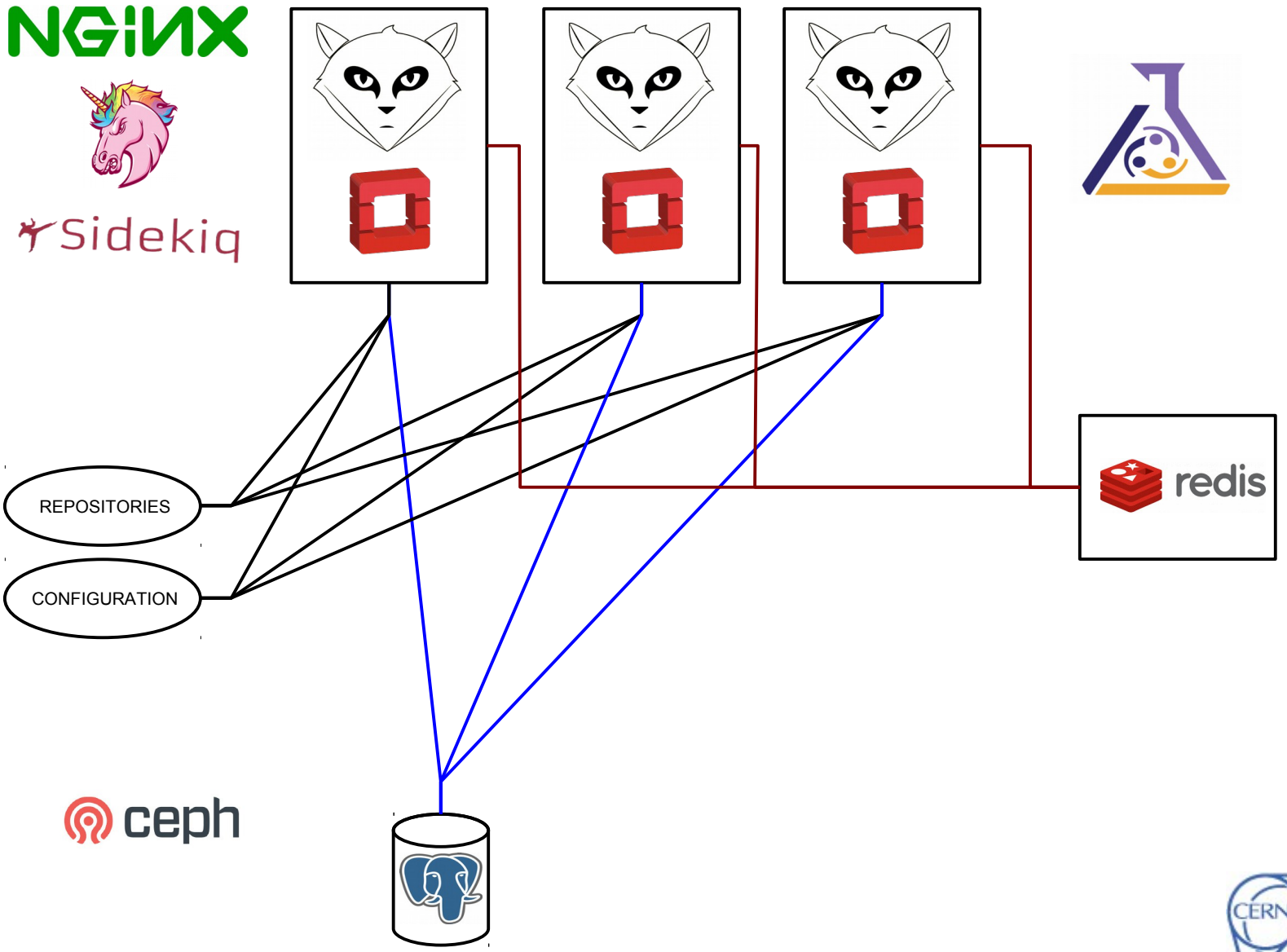

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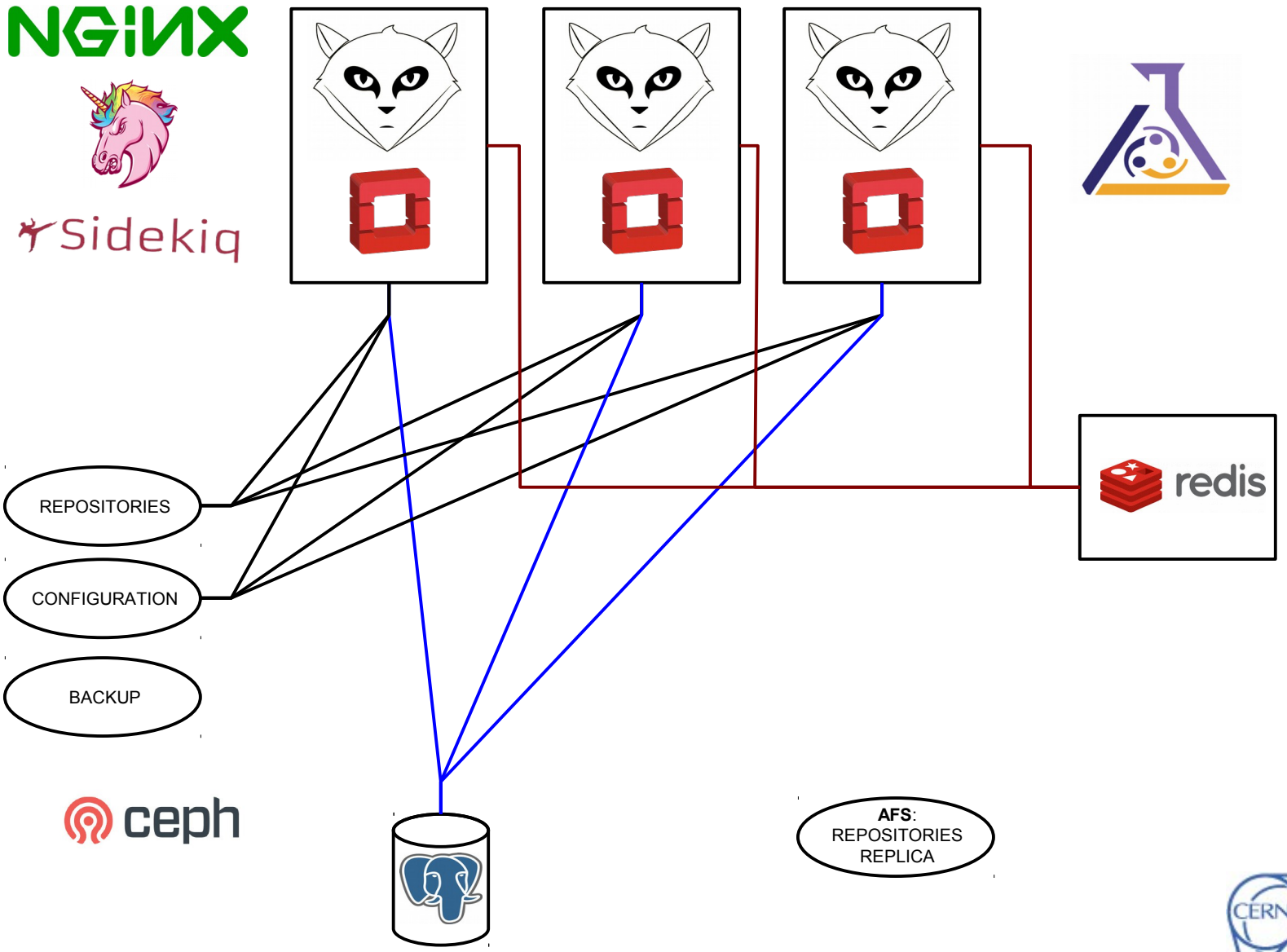

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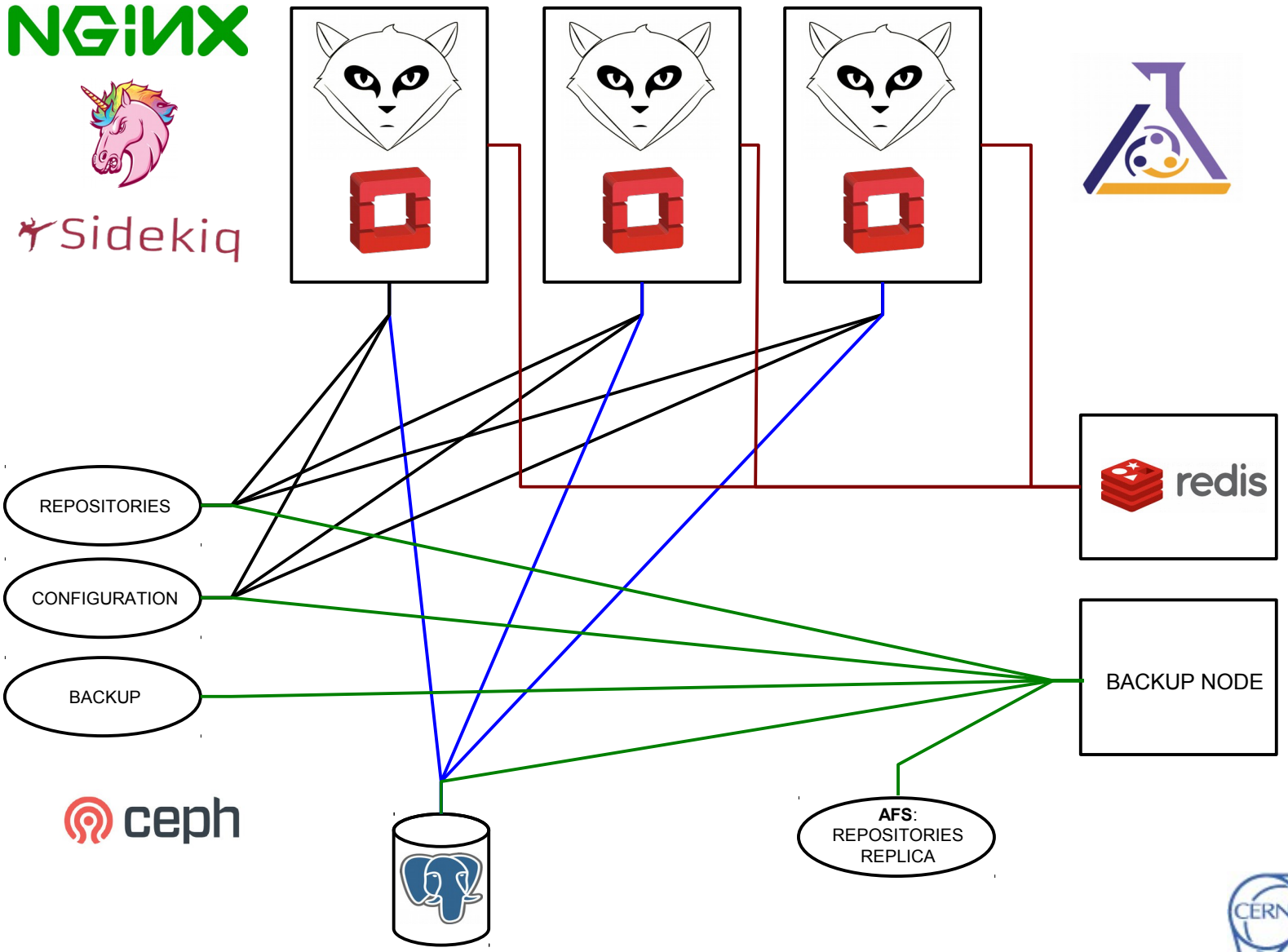

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Jenkins

- CI: Software change introduced...

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Jenkins

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

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- Open Source
- Widely used

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- Widely used
- Already in use by several groups at CERN
- PaaS manner

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- Integration with GitLab and Jira
  - Merge request automatically tested
  - Report to Jira status of operation

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CERNforge

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

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CERNforge

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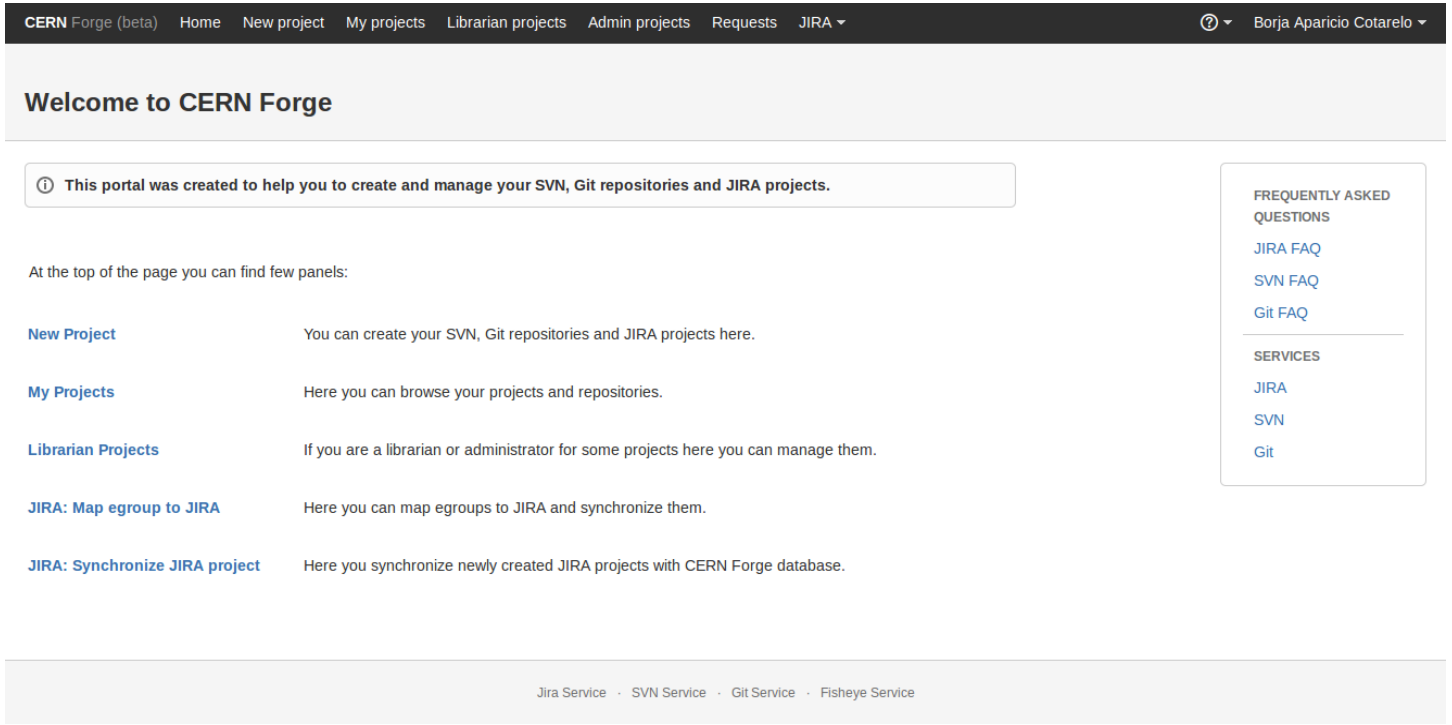

  - Still growing
  - http://cern.ch/forge

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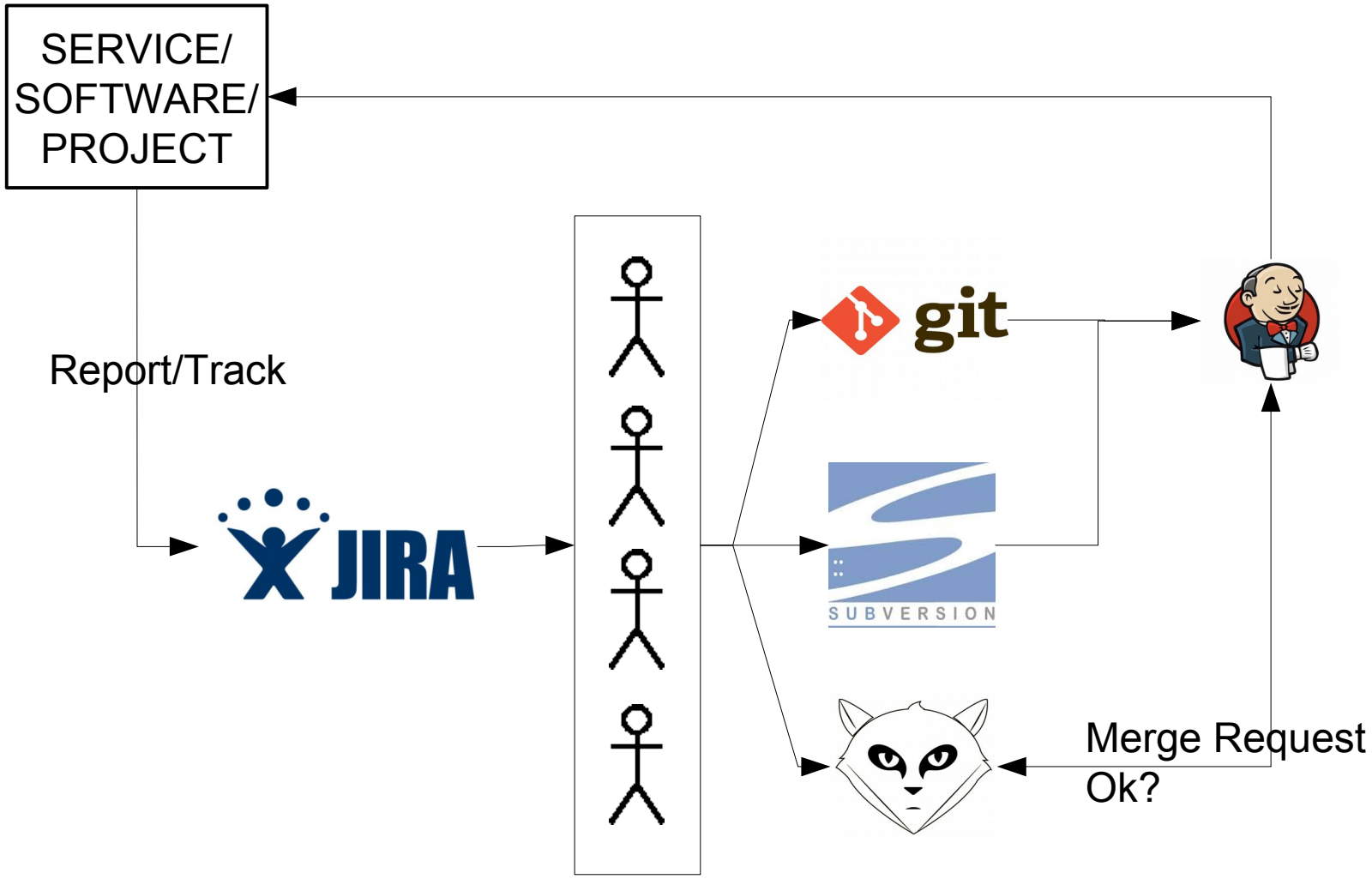
Let's sum up



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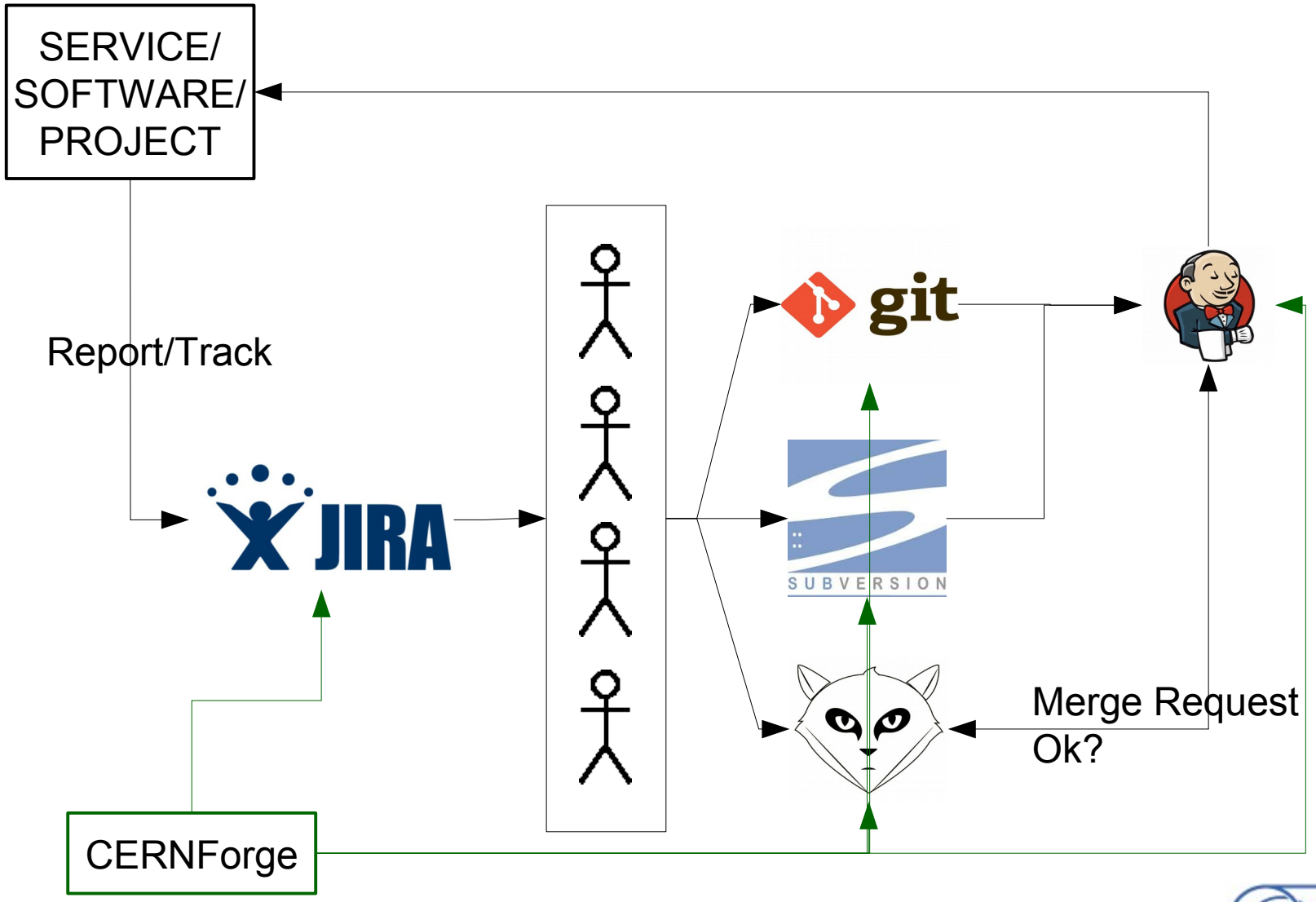

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Thanks...

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

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Questions?

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- Backup slides

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What is GiT? (just in case)

- 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

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Gitolite3

- Why not …<insert_other_solution>?
  - Gitosis. 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

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