

# Service presentation

- **Problem:** Modifying systems **in production** is risky
  - No control of versions in production
  - Many people involved
  - Lack of methodology and discipline
- **Solution:** Provide a CERN-wide service for automated back-up and versioning control of industrial automation systems **in production**.



# VersionDog. Timeline

- Market survey. MDT's AutoSave and Auvesys' VersionDog.
- Evaluation of both tools in 2014.
- VersionDog selected in September 2014.
- Service operational November 2015.



# Service presentation

- Systems in production ONLY (limited resources and many users)
  - 6000 components (items in the versiondog servers)
  - 2000 jobs (back-up, compare)
- Only technologies supported by ICS
  - PLC Projects: Siemens and Schneider
  - HMI Projects: Siemens WinCC (Flexible or TIA Portal)
- License and annual maintenance fee in charge of ICS
- Administration and maintenance by ICS
- Service usage regulation depending on amount of users and available resources.



# Service presentation

## Infrastructure

- Virtualization. OpenStack. 2 servers and “unlimited” agents.
- Cluster with enhanced availability and performance.
- Parallel (redundant) Versiondog server
- Automatic back-ups of all projects in DFS
- Documentation and Procedures (under construction and migration)  
<https://wikis.web.cern.ch/wikis/display/EN/VersionDog>
- Support: [ICEcontrols.support@cern.ch](mailto:ICEcontrols.support@cern.ch)
- BE/ICS manages support requests to Auvesy



# VersionDog. Infrastructure

General purpose network



# Roles

- Only two levels of access control (Admin and Users) !!
- Groups of users (project oriented)
- BE/ICS gives
  - admin rights to one person from every group of users.
  - Placeholder to store projects



# Roles

The BE/ICS admin is allowed to

- Define group admins
- Define component types
- Define group placeholders and tree organization

The group admin is allowed to

- Define the users of his group. (e-groups)
- Configure the jobs schedule for his projects.



# Roles

The users are allowed to:

- Add and manage projects from his group
- Execute compare and back-up.

The group admin (**can but**) **SHOULD NOT**:

- Modify versiondog settings
- Modify applications of other groups
- Create new admins





# versiondog usage

## **PRESENT**

- 499 components
- 338 jobs
- 4 components types:
  - Siemens S7
  - Siemens S7 TIA Portal
  - Schneider Unity
  - WinCC Flexible

## **FUTURE ESTIMATE**

- 1500 components
- 800 jobs
- additional components types:
  - Magelis



# versiondog usage

**Very positive 2 years of experience !!**

## **STRENGTH**

- User friendly
- Information display
- Performance
- Good support from AUVESY

## **TO IMPROVE**

- Only 2 access rights levels, admin and user.
- SCL compare
- Massive import of applications



# Introduction to

versiondog



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versiondog    Versioning and documentation

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Project compare

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Automated backup

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Life-Cycle Management

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Disaster Recovery

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## Versioning

Check-out/check-in mechanism

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Cooperation of multiple users

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Self-documenting by detailed change detection

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Lifetime archiving of the version history

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Documentation tools with standards support

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# Compare

Version compare

Detailed difference between arbitrary versions

Online compare

Different options for connection

Executed on agents

Free compare

Compare not versioned resources

Jobs: task schedule

Automated execution

Detects changes in production

Native support for the tools

PLC projects (S7, TIA Portal, Unity)

HMI/SCADA

Other files (Office, xml, etc)



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# Backup

Automatic data saving

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Fast system restore

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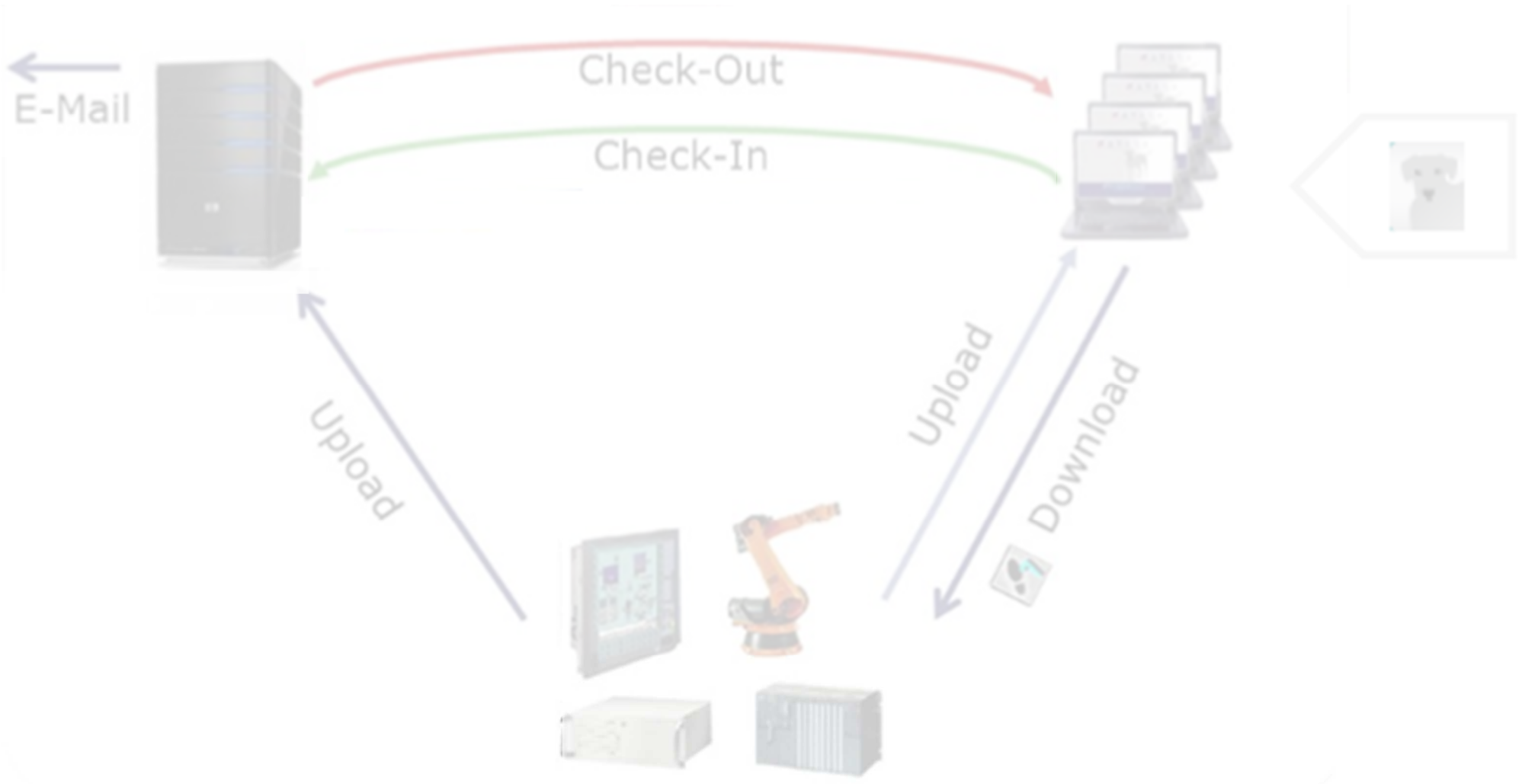
Avoid data loss by accidental overwriting

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Backup is not assigned to any version....

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# Workflow





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## Issues & problems

No support for concurrent administrators work  
Admin modules can be used only in one place at once

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Backup is not automatically matched to any version  
Hard to determine what really is in the PLC

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Server version is always treated as in production  
No 'development' versions on server

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One local archive for multiple users sharing PC  
Risk of overwriting local, not versioned copy

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No link between different components  
Lack of relation e.g. between PLC project and TouchPanel project

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Schedule managed only by Administrator

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