

Abriding Scientific Communities Integration with a General Purpose Grid and Cloud Portal

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On behalf of
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Italian Grid Initiative

NGI_IT

Cores: ≈ 30000 ;

Disk storage: ≈ 20 PB;

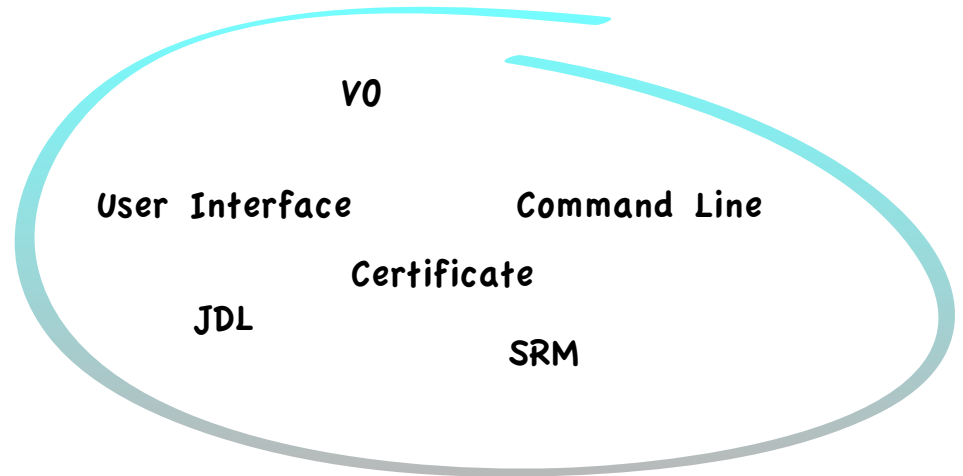
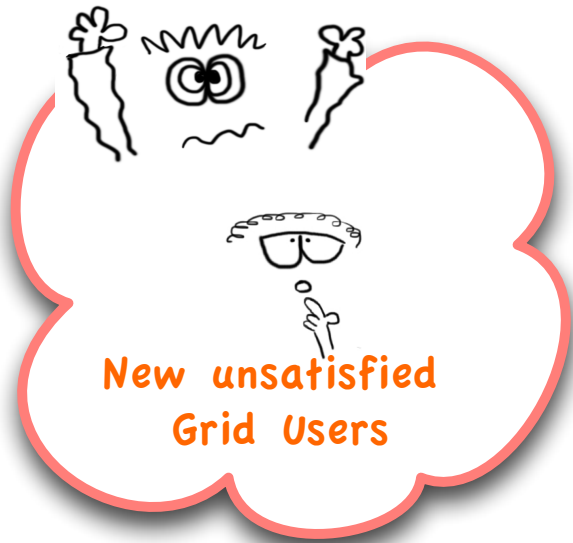
Tape storage: ≈ 7 PB;

V0s: 50

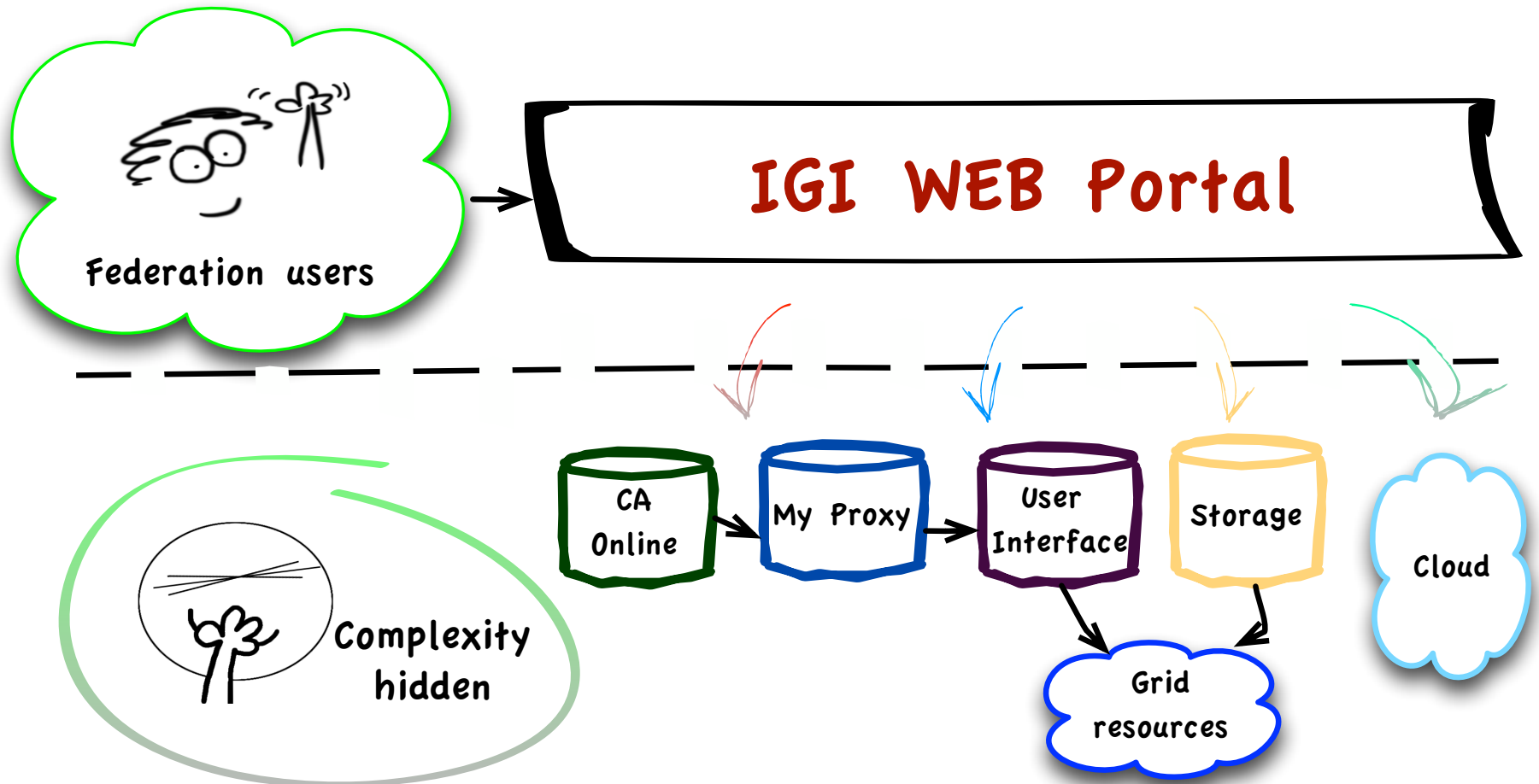


Grid Approach Problem

- For new Users Grid is complex, they must:
 - have a recognized certificate
 - belong to a Virtual Organization (Certificate is necessary)
 - know JDL and commands syntax
 - know some basic Grid concepts



Our solution



Why another portal?

- Several Grid portals already exist: WS-Pgrade, GridSphere and many others....
- Our Requirements:
 - Portal open source and modular
 - General Purpose (as defined by http://www.jspg.org/wiki/VO_Portal_Policy)
 - CA-online integration
 - Workflow
 - Authentication based on Identity Federation
- Do the existing portals satisfy our requirements?

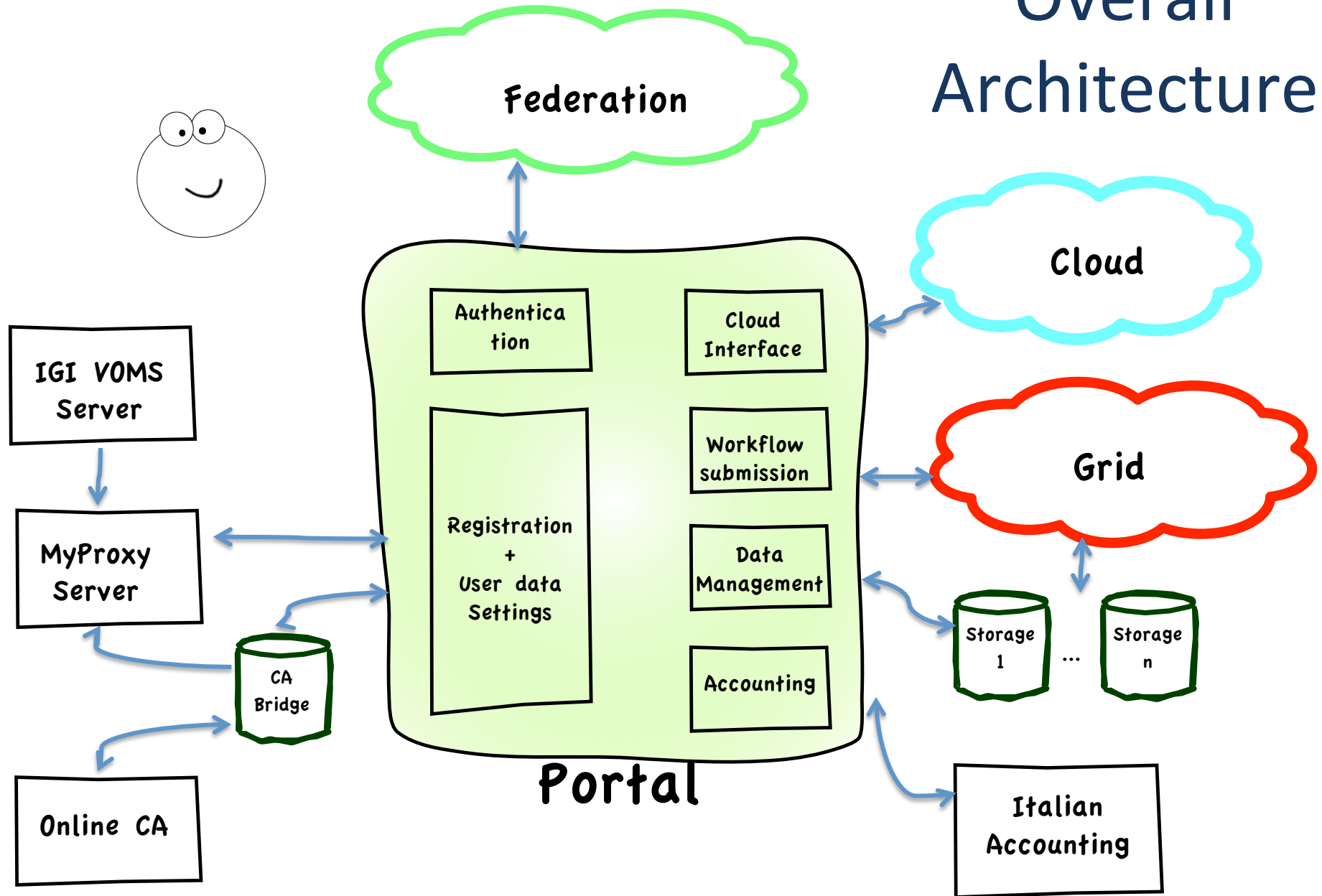
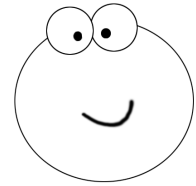
Portals comparison (2011-Q1)

| | Open Source | Personal certificate | Workflow | Cloud | Modular | Federated Auth |
|---------------------------------|-------------|----------------------|----------|-------|---------|----------------|
| Gridsphere | ✓ | | | | ✓ | ✓ |
| WS-Pgrade | ✓ | ✓ | ✓ | | ✓ | |
| Others (not General Purpose) | | | | | ✓ | ✓ |
| | | | | | | |

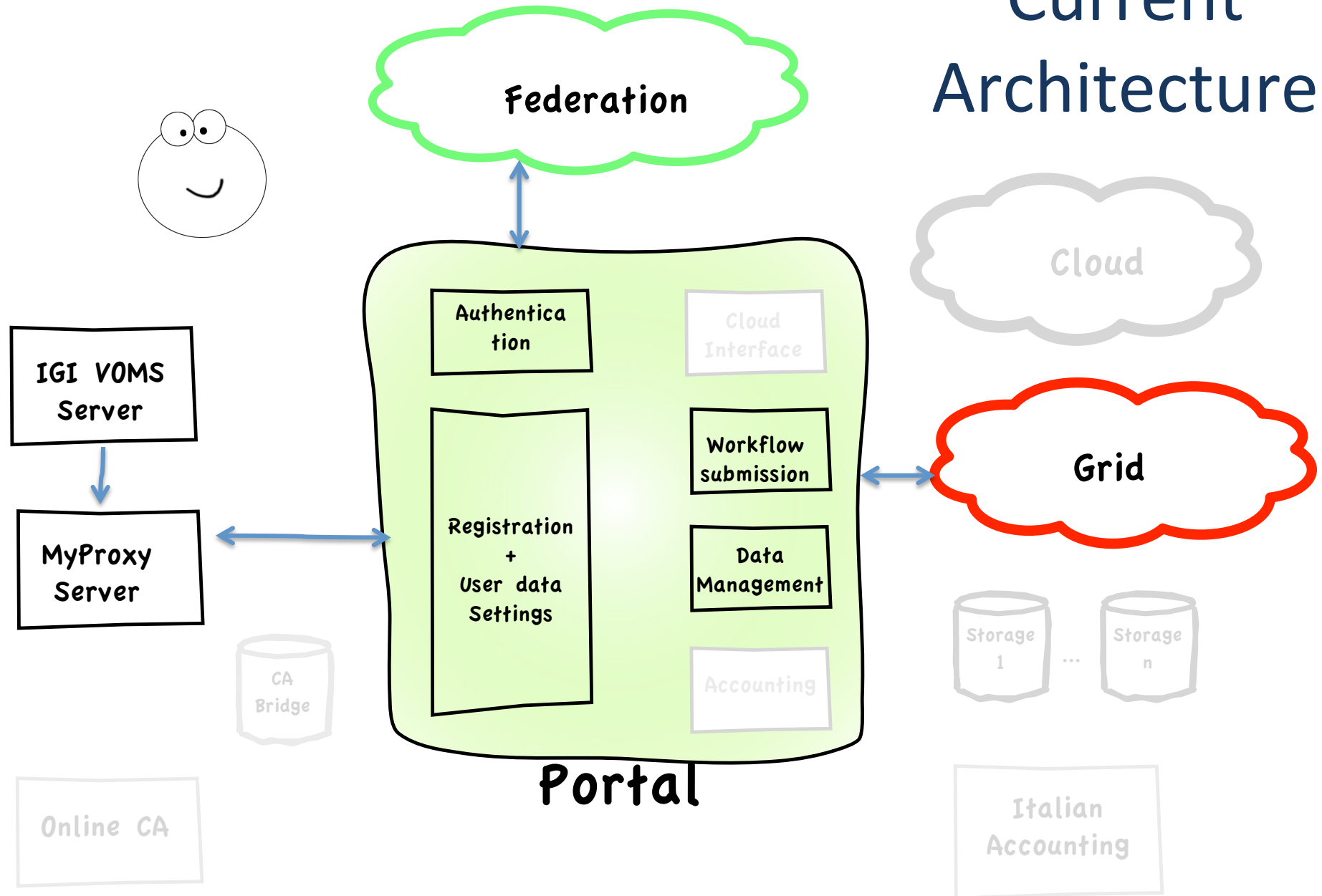
Starting point

- We have taken WS-Pgrade as a base of our work
 - Liferay based (opensource and modular due portlet concepts)
 - Workflow supported
- We started to develop new portlets to integrate new services and customize WS-Pgrade portlets:
 - Federated Authentication (completed)
 - Data Management (in development)
 - Cloud integration (to be developed)

Overall Architecture

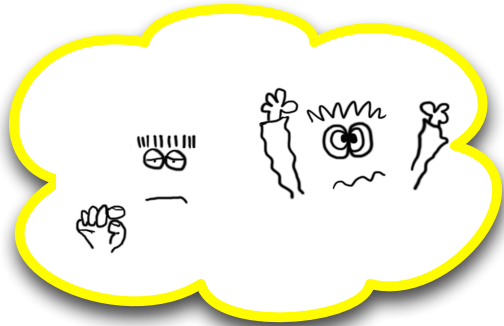


Current Architecture



Federated authentication

- Few users have a certificate
- Many users belongs to a Federation



Users with x.509
certificate IGTF accredited

VS



Federation Users (with or without
x.509 certificate IGTF accredited)

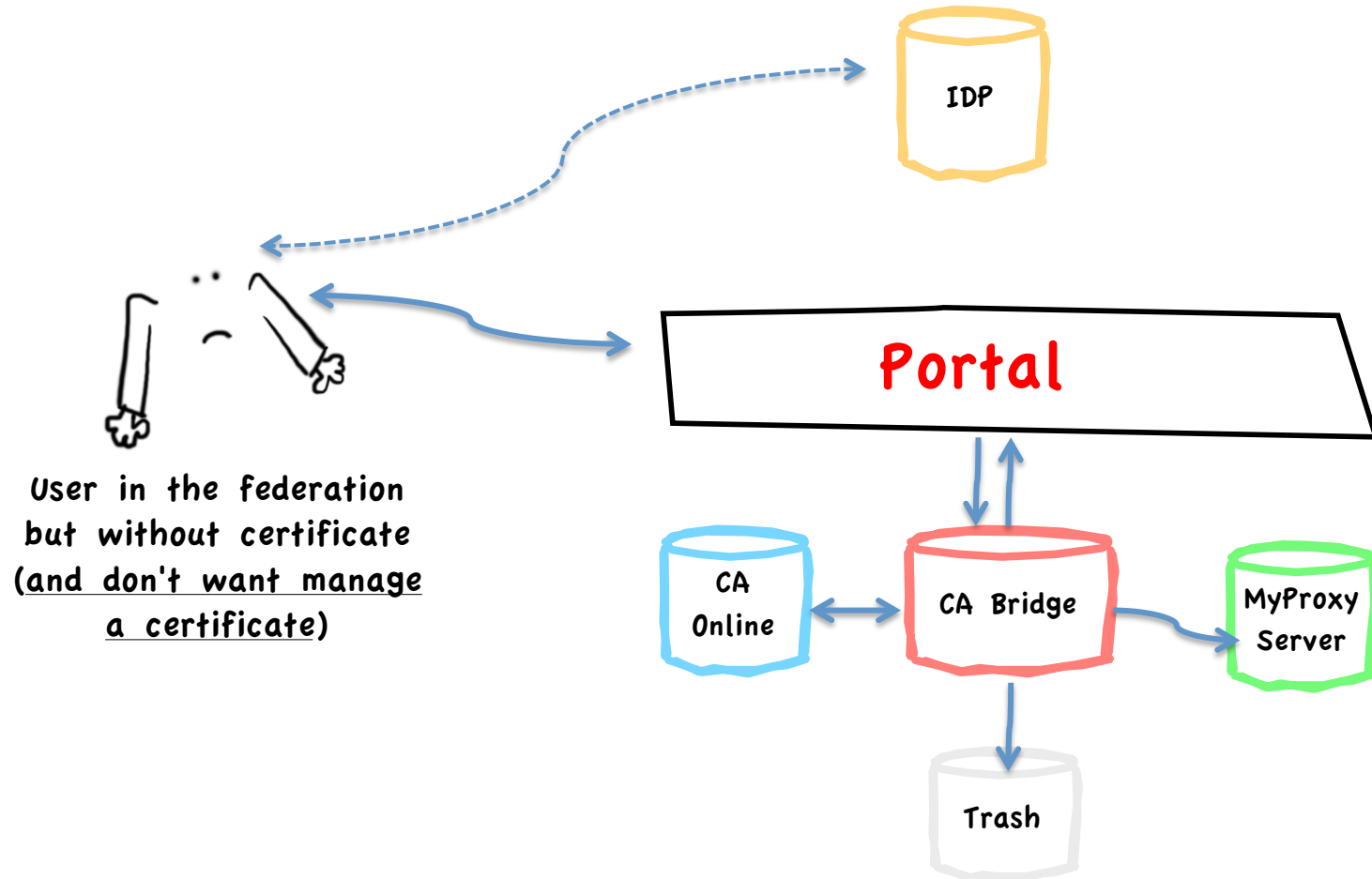
Online CA

- A user with certificate → upload it

<http://www.eugridpma.org/guidelines/pkp/pk-protection-1.1-20100921.pdf>

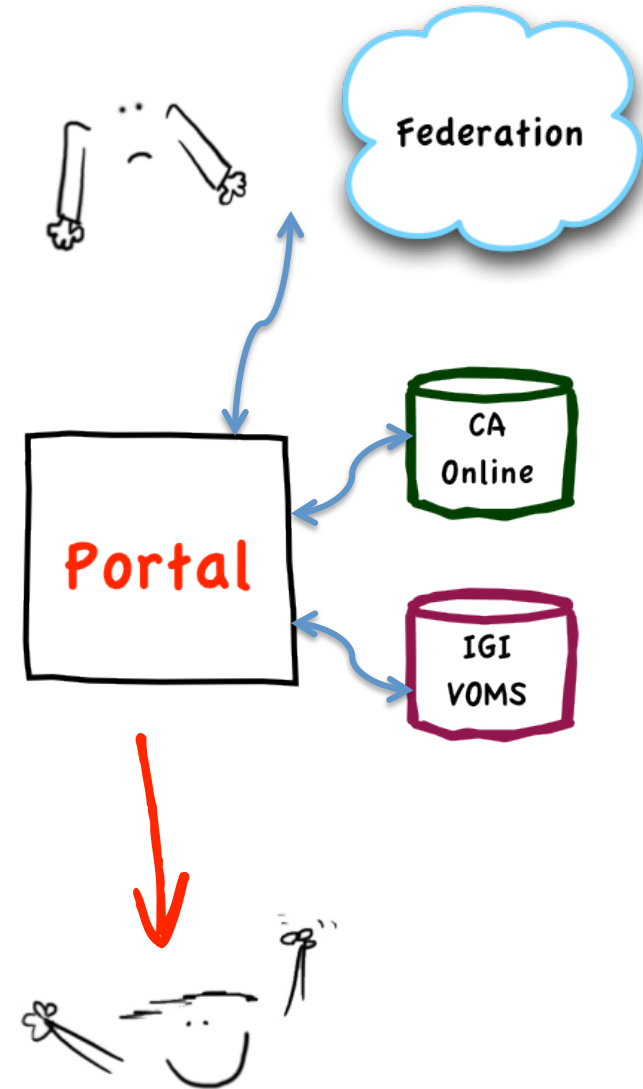
- A user without certificate → online CA
 - We use the strong IDP based identification to provide users a certificate in a completely transparent way
- In this way, in both cases, the user is totally identified in any GRID environment and can use the Grid resources without (legal) limitations

Workflow to have a certificate

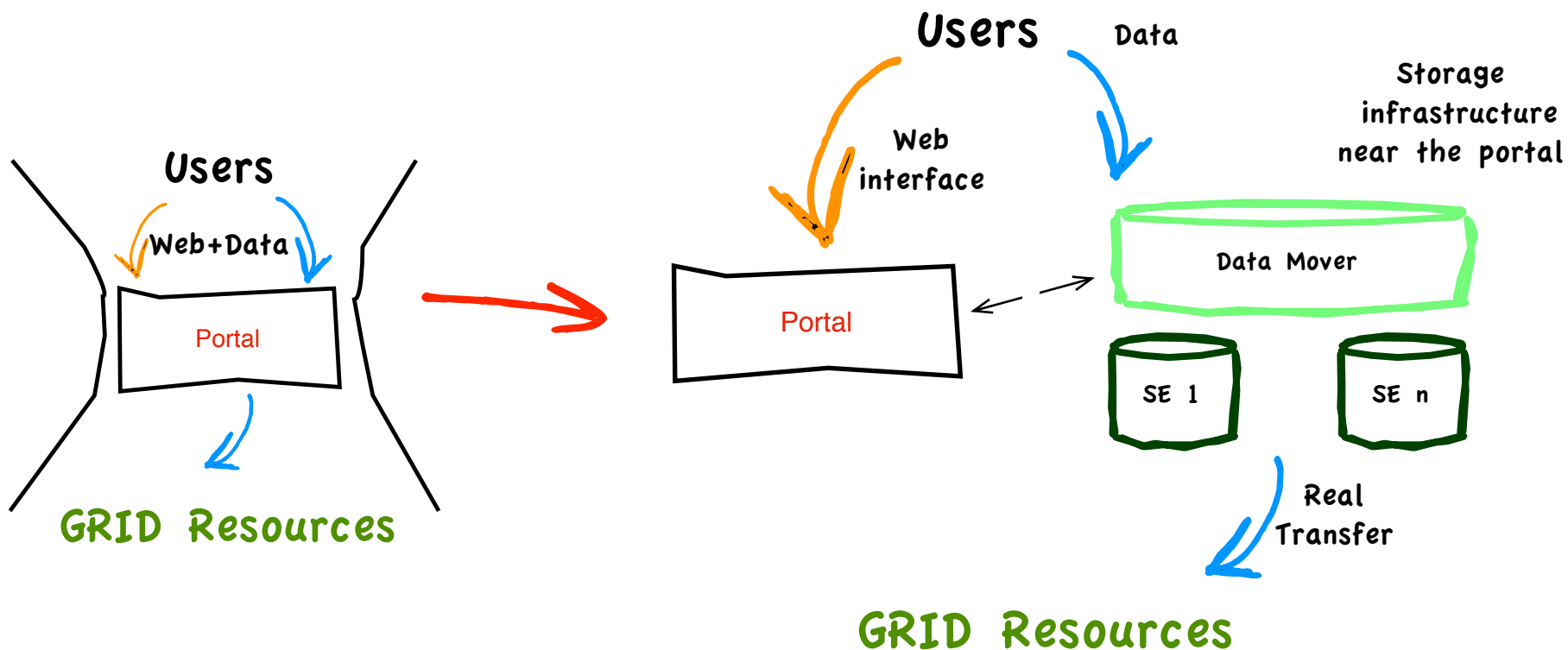


Virtual Organization

- Through CAonline we provide users with a certificate
- These users automatically belong to IGI Virtual Organization
- In future they can ask to belong to other VOs through the portal (using VOMS API)
- Users who are already members of one or more VOs can specify for each one Roles and Groups they want to use



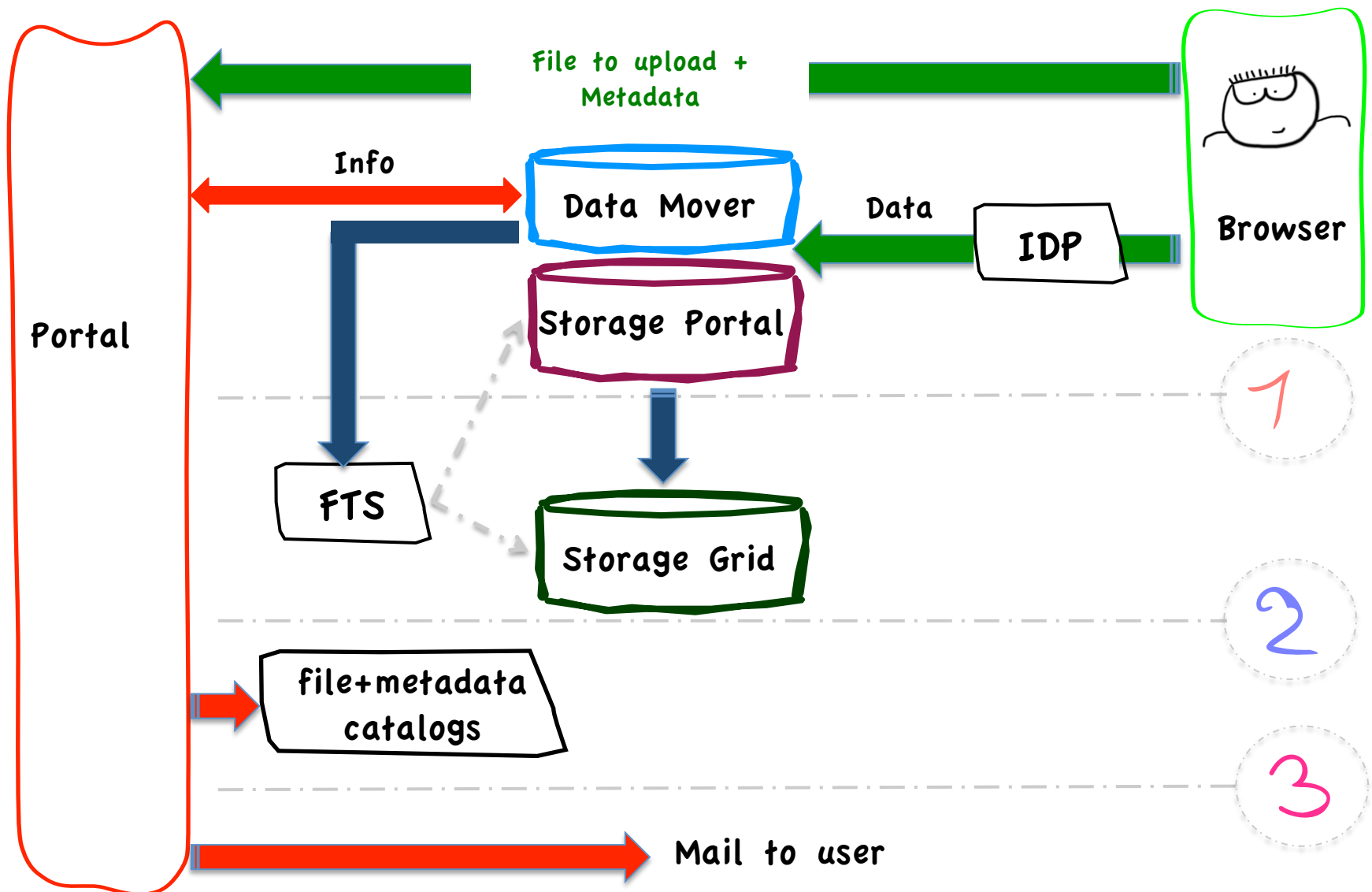
Data Management Problem



Data Management Requirement

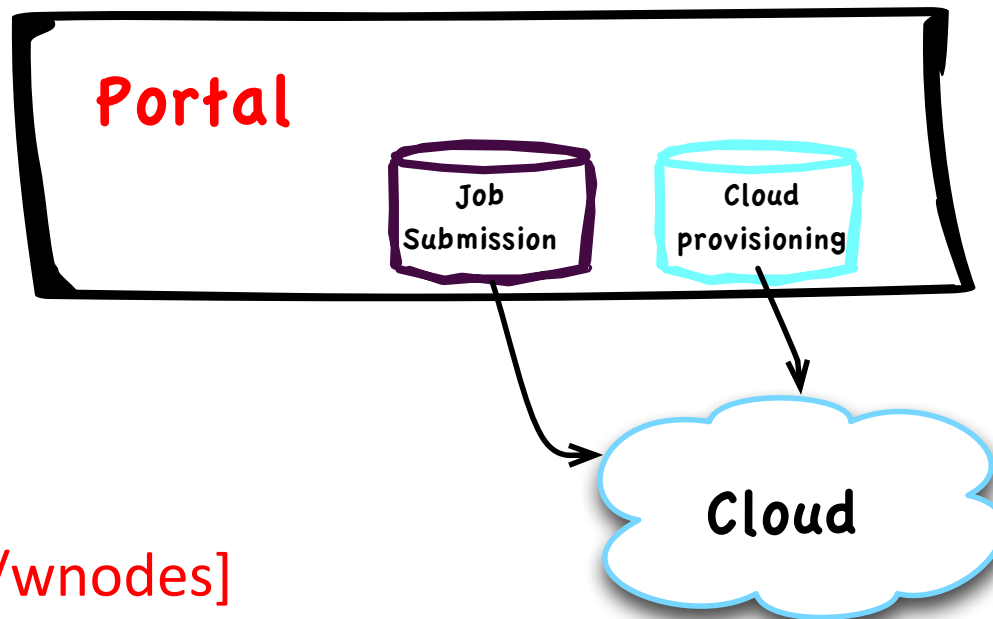
- **Upload**
 - From local PC or remote Server
 - Very large files (10 GB)
 - Many little files (10000 files)
- **Download**
 - My job output
 - To local PC or remote Server
- **Management**
 - Move, replicate, delete my uploaded files
 - Interacts to File and Metadata Catalogs
- **Notifications**
 - User has to be notified: Mail, RSS, SMS ecc

Data Management Architecture



Cloud

- WNoDeS integrations
- Possibility to submit Grid jobs in a Cloud Environment
- Interactive Cloud resources provisioning

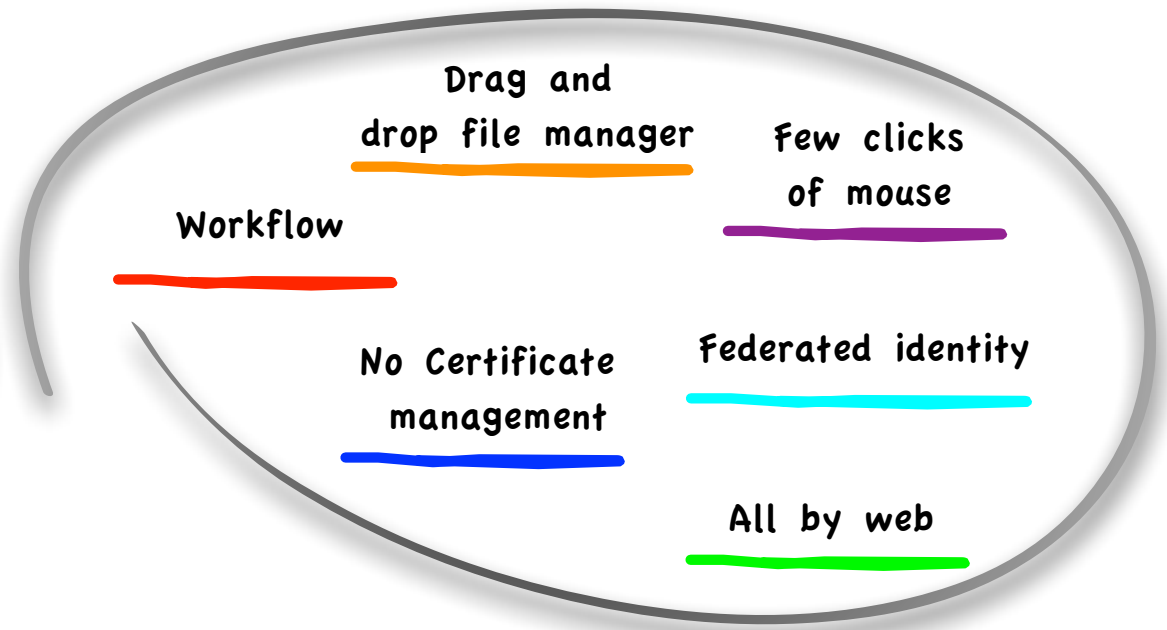
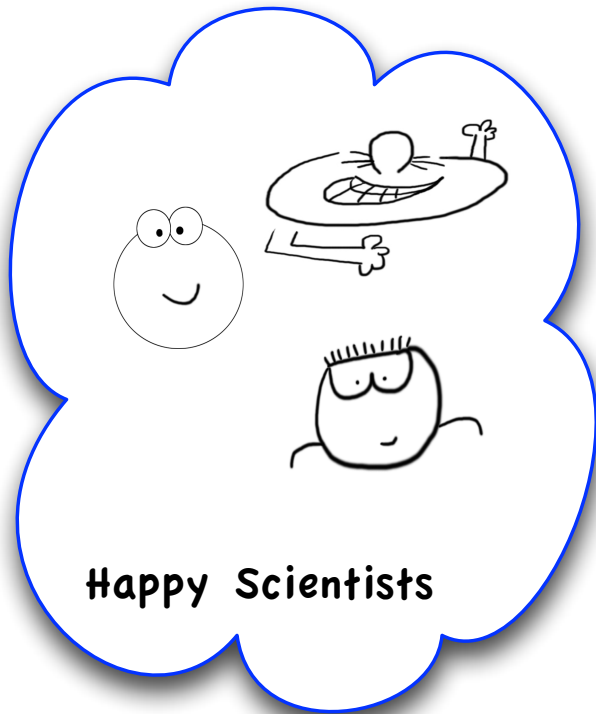


[web.infn.it/wnodes]

2012 (quarterly) - Roadmap

- 1 — { Identity Federation
Workflow
Role and Group } Completed
- 2 ————— Data Management — (In Progress)
- 3 ————— Cloud Integration
- 4 ————— CA Online
(In Progress)

Summary



Thanks



Collaborations
or
questions

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