

Grid computing with IVOA standards and VOTech components

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EuroVOTech redux

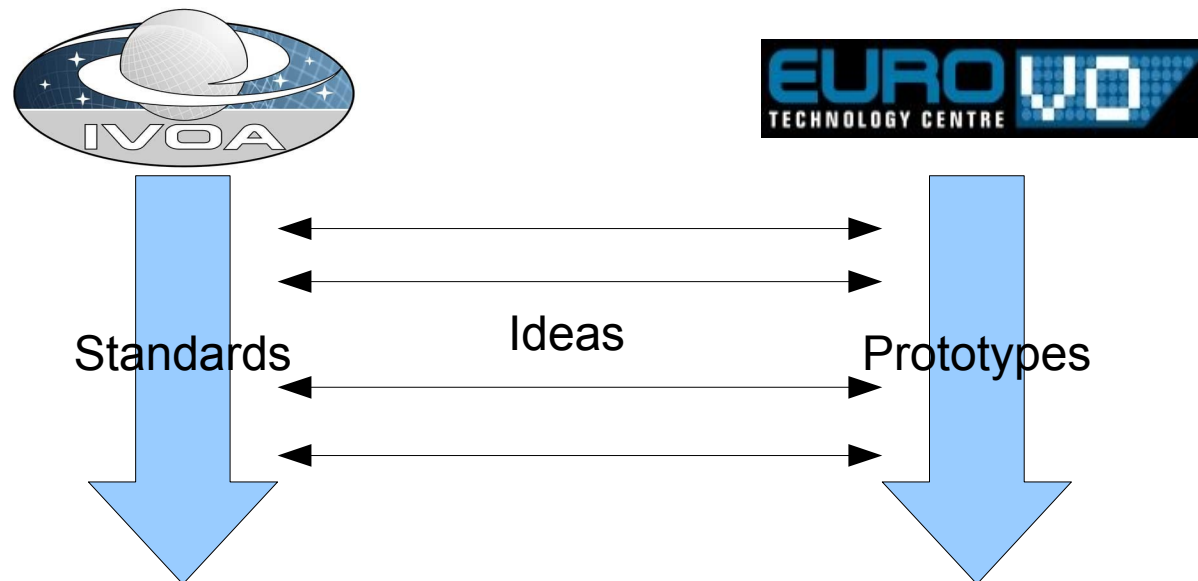
“The VOTECH project is an EU FP6 funded **design study** which aims to complete the technical preparation for the construction of the European Virtual Observatory

“... feasibility studies and design work ... intelligent resource discovery ... data mining ... visualisation ... interoperability standards ... **grid computing** ... **mass scale computational process** ... EGEE backbone...”

(from <http://eurovotech.org/votech.htm>)

VOTech working with IVOA

- <http://www.ivoa.net/> (IVOA)
- VOTech *implements* IVOA standards
- VOTech *proposes* standards to IVOA
- VOTech *fills gaps* between IVOA standards



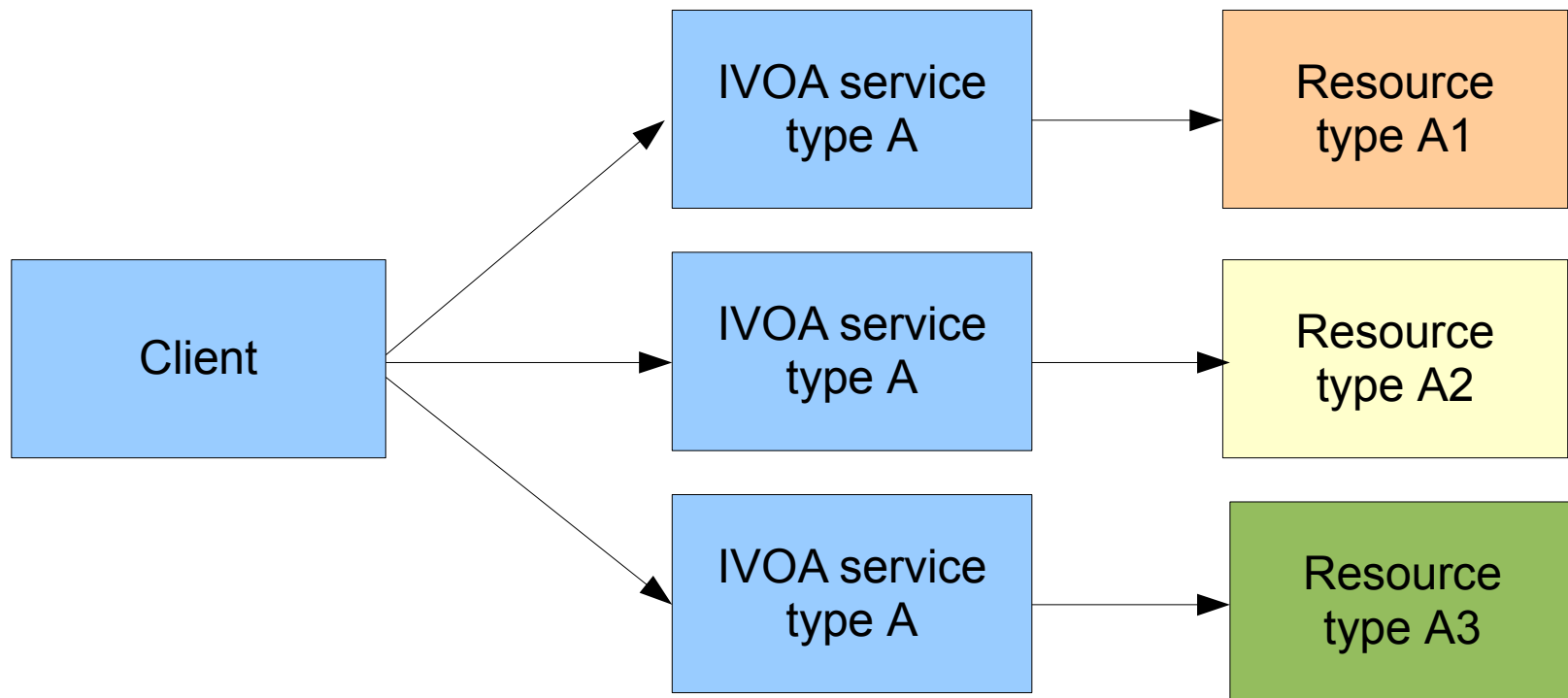
IVOA policy on compute grids

- GWS-WG standard for grid middleware:
 - There *is* no one, true standard
 - We're not going to pick one
 - We're not going to write one
 - Don't expect a standard interface for compute grid in IVO



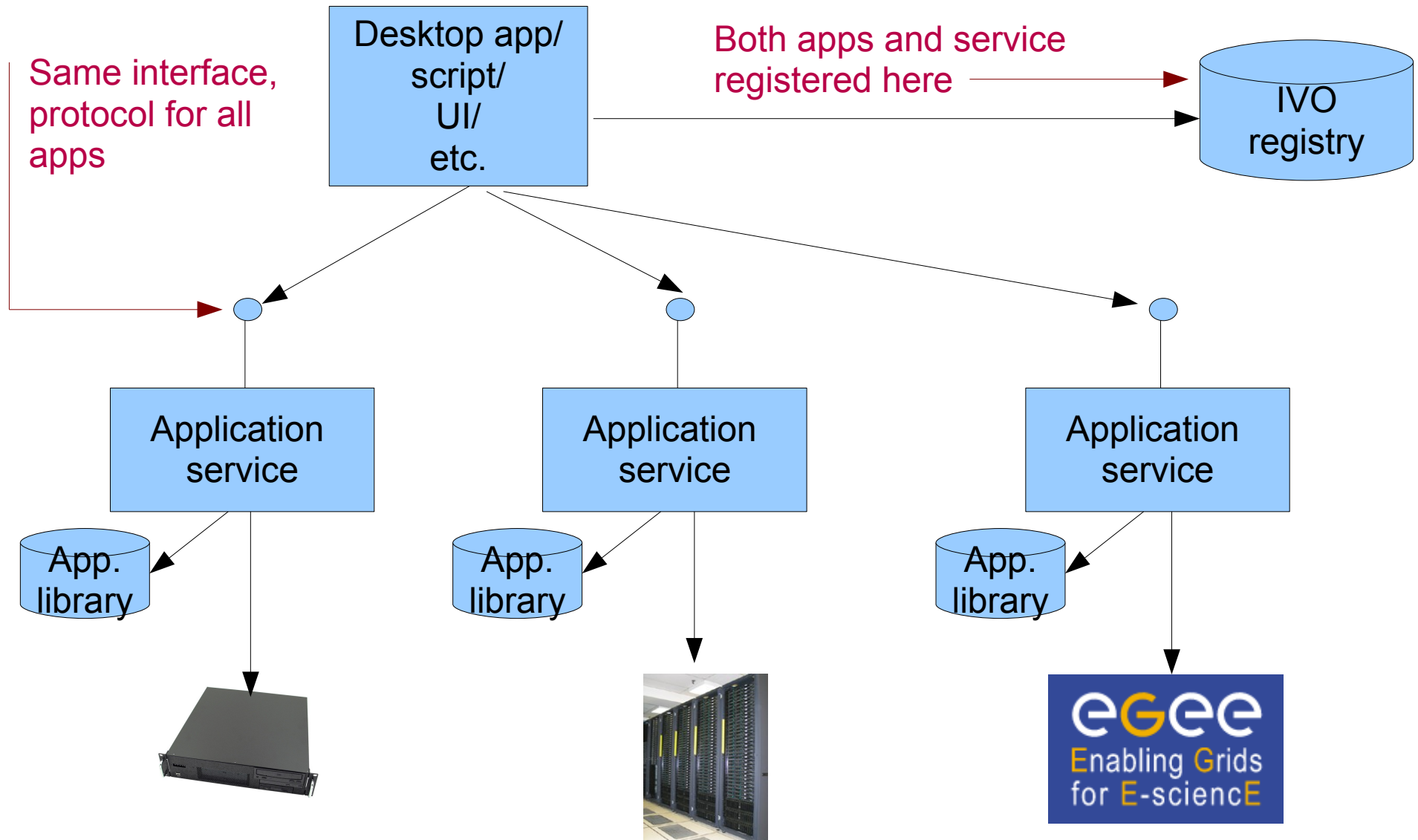
Unicore
GLite
Globus
Condor
Sun Grid Engine
PBS
UTC&A

IVOA standards describe facades



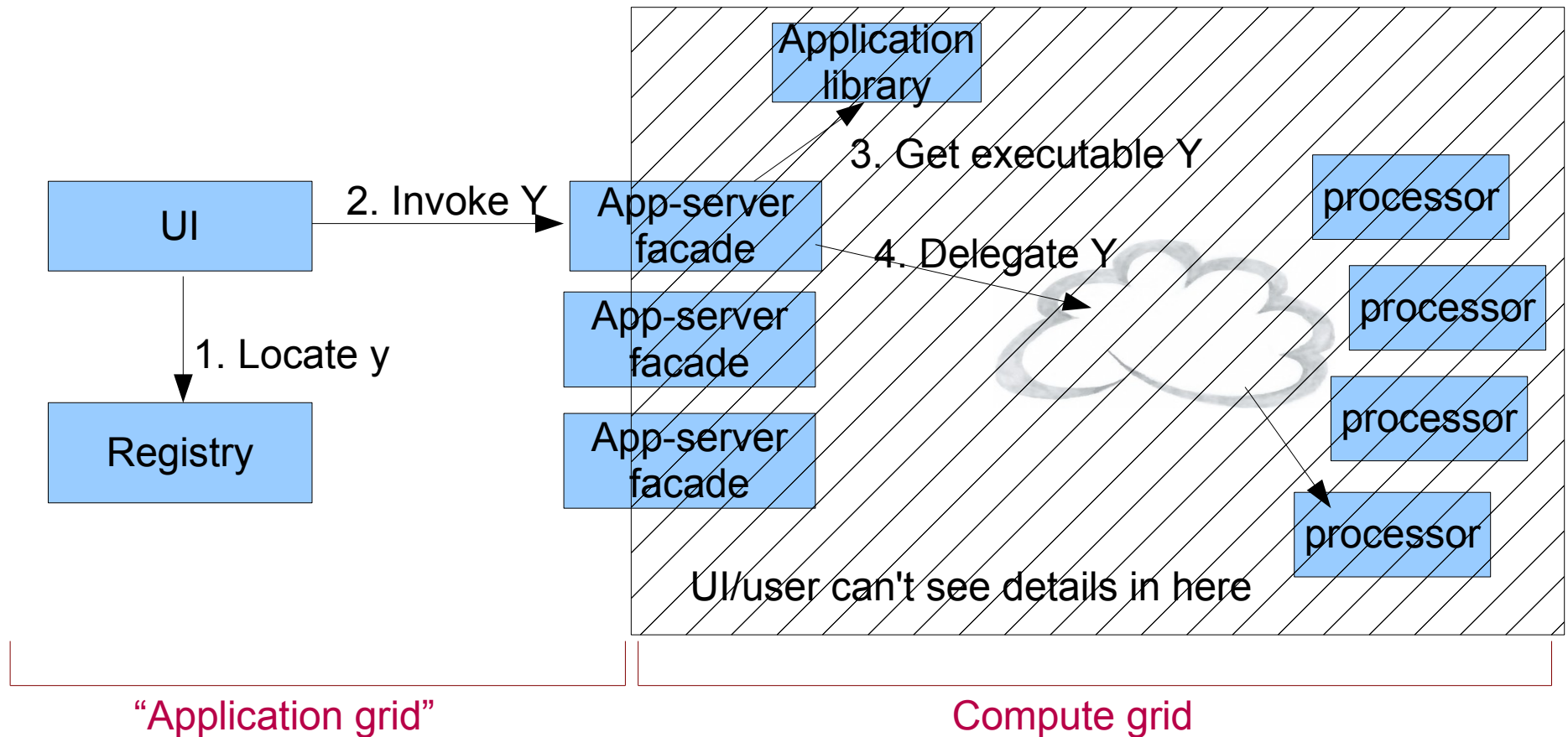
- “Any problem in computer science can be solved with another layer of indirection.” -- David Wheeler

A facade for compute grids



Encapsulation of data processing

- “I want to use this application Y (which I read about in a journal) [...] **Don't bother me with the details.**”



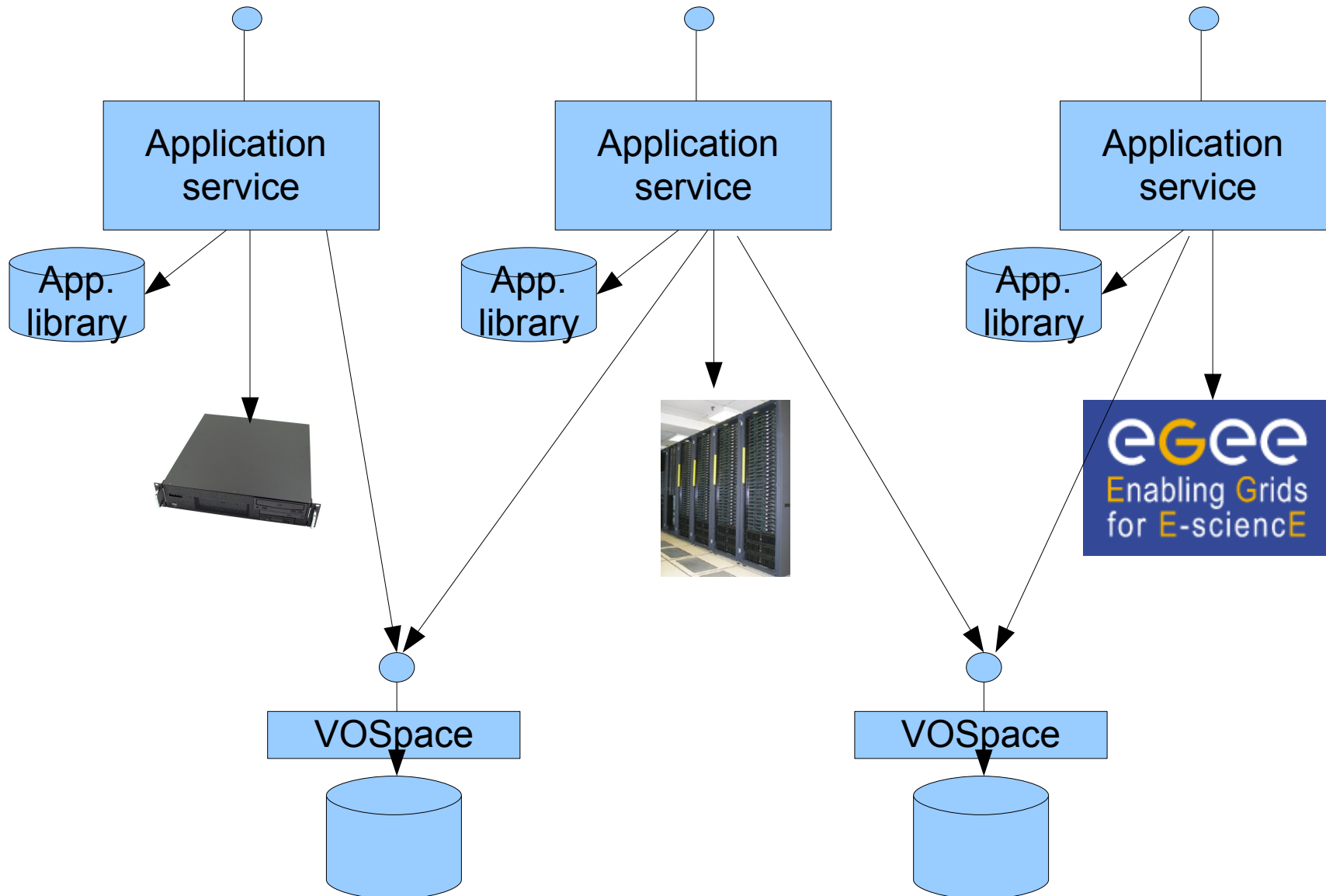
Naming the technology

- EuroVO's app grid uses EuroVO's own middleware
- **CEA** = “Common Execution Architecture”; the whole thing, including metadata standards
- **CEA v1**: what AstroGrid (UK) donated
- **CEA v2**: revised by VOTech and **IVOA**; emergent
- **CEC** = “Common Execution Connector”; standard web-service interface
- **UWS** = “Universal Worker Service”; **IVOA** replacement for CEC

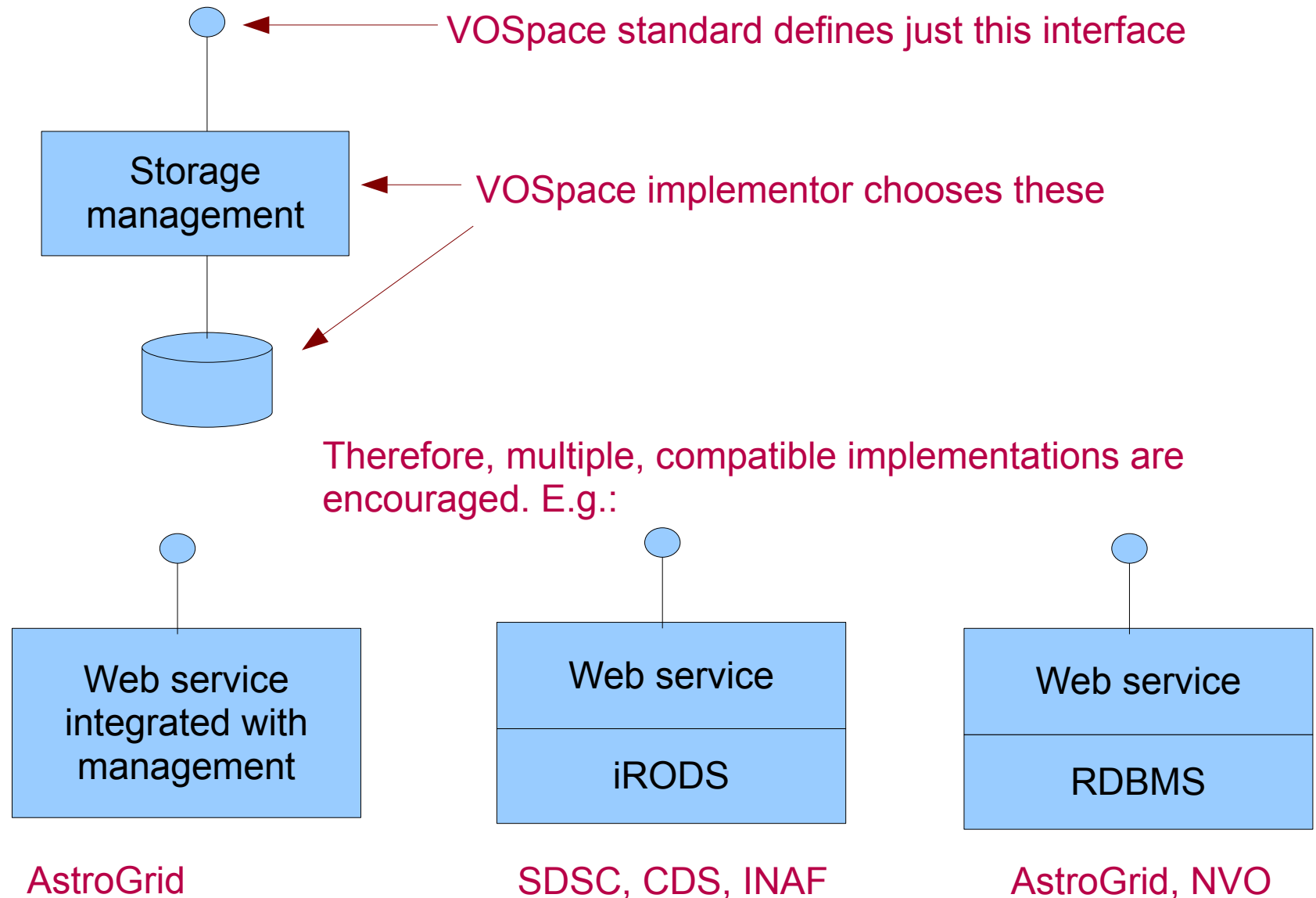
Showcase: app-grid providers

- **Meudon PDR code** by OPM
 - Modelling code established in the app grid
 - Exploits local grid inside OPM
 - Has custom UI for CEA app
- **VONeural** by VONeural consortium (INAF)
 - Neural-network tools for data mining
 - Delegates to external compute-grid
- **MERLIN imager** by JBO
 - Generates radio maps from MERLIN (u, v) archive
- **Catalogue cross-matchers** by AstroGrid (UK)
 - Mirrored app, multiple services in app grid

App grid backed by data grid

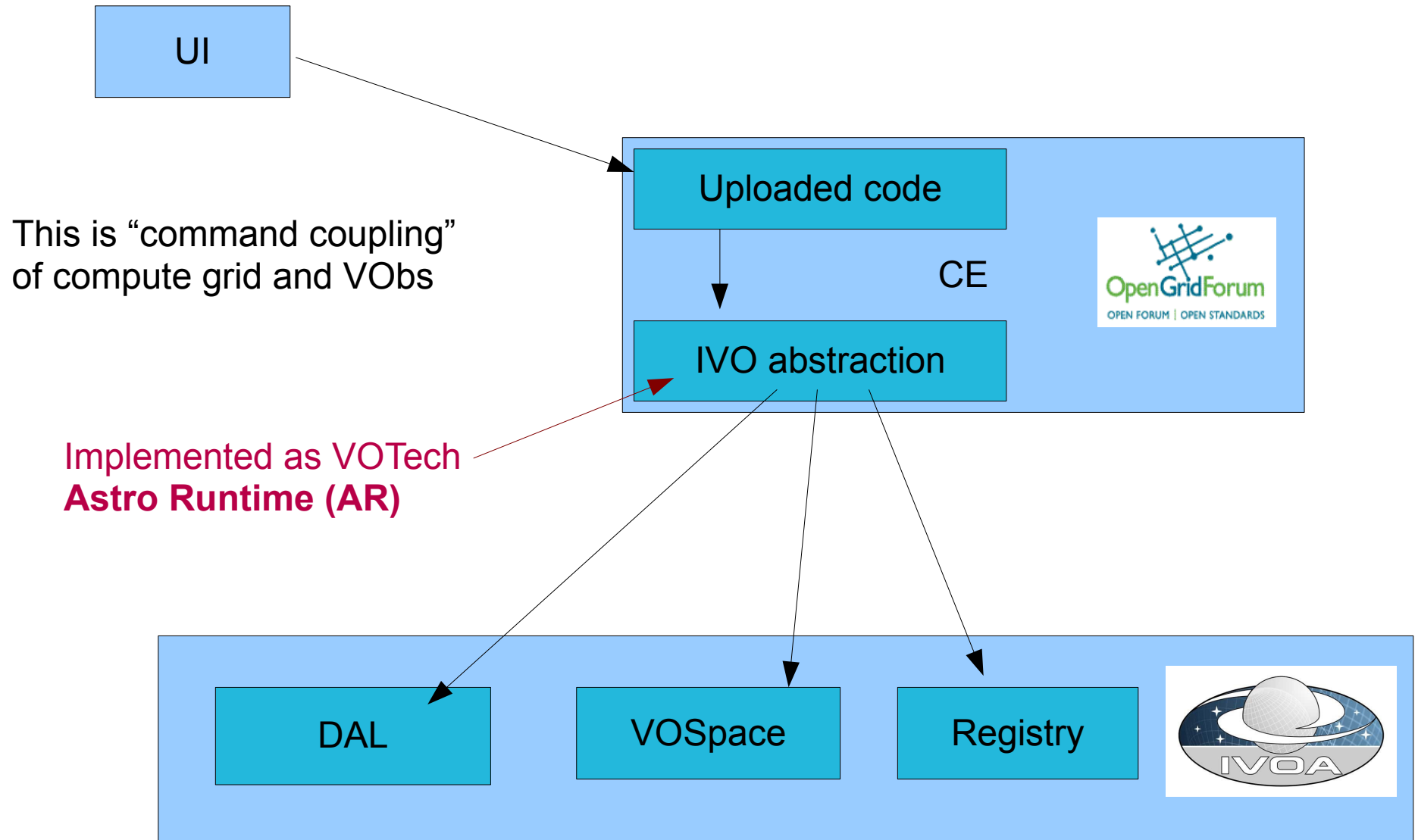


VOSpace

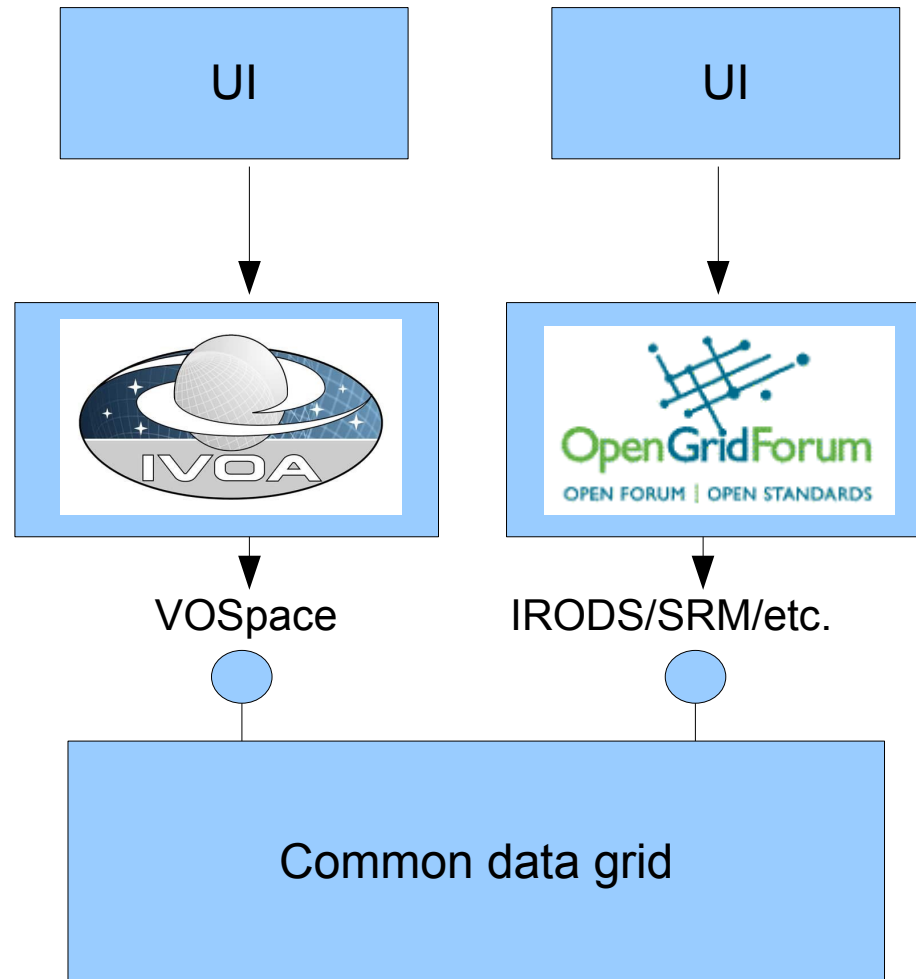


IVOA

Grid job as ~~EuroVO~~ client



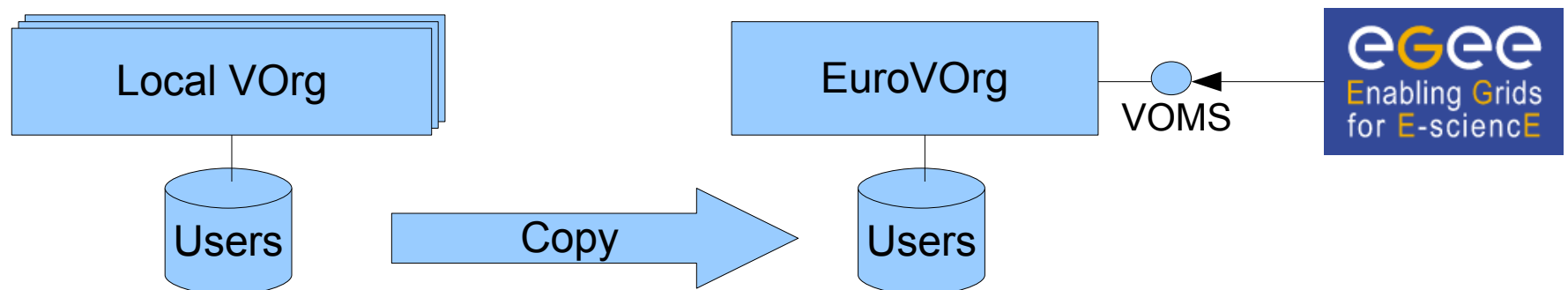
Data-grid coupling



An alternative to command coupling between comp. grid and IVO.
Think “mailbox”.

Concerning EGEE

- Biggest hurdle for end users is VOrg membership
- Proposed that all EuroVO members get EGEE access automatically
 - Form an umbrella VOrg within EGEE for all astronomers
 - EuroVO users need accounts for app-grid & VOSpace
 - All EuroVO accounts get added to the VOrg



What EuroVO needs from IVOA

- (In respect of grid computing; IMHO)
- **VOSpace 1.1+**
 - So it can be linked to IRODS etc.
- **SSO standards:**
 - Authentication
 - PKI/community/attribute services/VOMS
 - Delegation of identity
- **UWS**
 - For CEA v2