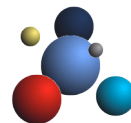# Interoperability Issues Developing GridWay

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Contents

1. Our Approach to Interoperability

2. GridWay Adaptors

3. GridGateWay

4. Issues Found Developing Interoperability Solutions

1. Our Approach to Interoperability

A) GridWay Adaptors

➢ **Characteristics**

- Single layer (one or more meta-schedulers) with *plain* access to the underlying Grids
- Global name spaces (e.g. user DN's)
- Based on different middleware stacks

➢ **Scheduling**

- Enforcement of organization-wide Grid-aware policies
- Adapters to interface different middleware stacks

B) GridGateWays

➢ **Characteristics**

- Multiple meta-scheduler layers in a hierarchical structure
- Resource provision in a utility fashion (provider/consumer)
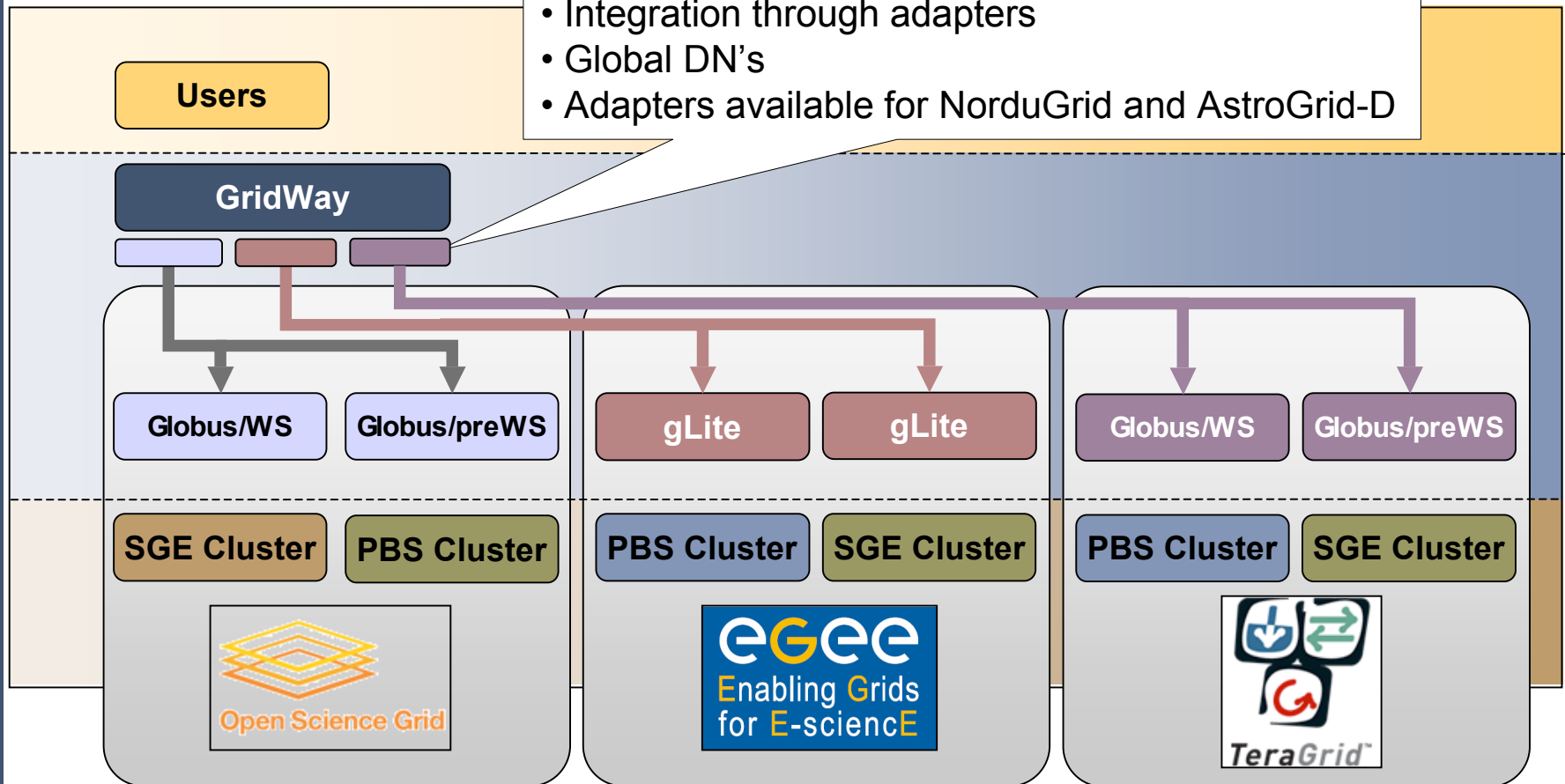- Use standard interfaces to virtualize a Grid infrastructure

➢ **Scheduling**

- Each Grid is handled as any other resource
- Characterization of a Grid as a single resource

2. GridWay Adaptors

- Different Middlewares (e.g. WS and pre-WS)
- Different Data/Execution architectures
- Different Information models
- Integration through adapters
- Global DN's
- Adapters available for NorduGrid and AstroGrid-D

Users

GridWay

| Globus/WS | Globus/preWS | gLite | gLite | Globus/WS | Globus/preWS |

| SGE Cluster | PBS Cluster | PBS Cluster | SGE Cluster | PBS Cluster | SGE Cluster |

Open Science Grid

eGee
Enabling Grids
for E-sciencE

TeraGrid™

See it running at TG'07 !!

Also, demo available at the GridWay booth

Users

Applications

GridWay

- Access to different infrastructures with the same adapters
- EGEE managed as other resource

Globus

GridWay

- Delegate identity/ "VO" certificates
- In-house/provider gateway

Globus   **Globus**   **gLite**   **gLite**

Middleware

SGE Cluster   **PBS Cluster**   **PBS Cluster**   **SGE Cluster**

Infrastructure

GRIDIMadrid

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- Regional infrastructure
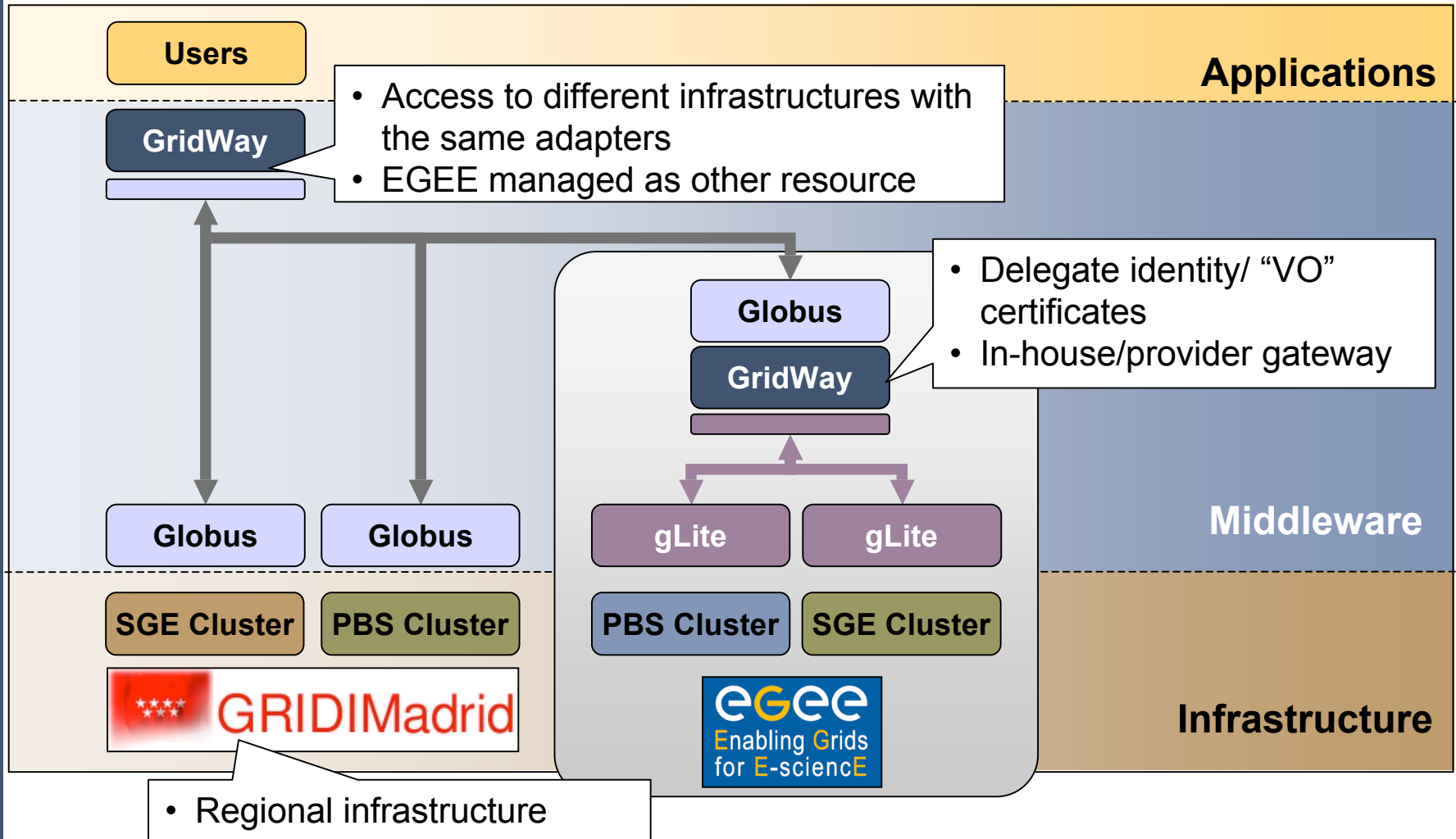
4. Issues Found Developing Interoperability Solutions

➢ **Different perspectives**

- Different organizations have different ways of doing things
- Data staging
  - EGEE   - same machine for EH and SE
  - Teragrid   - different machines for EH and SE
- Information managers
  - Teragrid   - different MDS, some with custom extensions
  - AstroGrid-D - customized IM (Stellaris)

➢ **Identity crisis**

- Different organizations have different users
- Accounting and billing issues when traversing organizations
- Two solutions:
  - Common DN   : all billing of one organization as one user
  - Use original DN : orgs have to recognize DNs and CAs (nightmare)

➢ **Resistance to change**

- Different organizations have different objectives
- Questions is : Why should they try to be interoperable?
- Our answer : Grid for Utility - Outsourcing

Thank you
for your attention !
Questions?