



Federating Resource Exposure Paradigms

A Case for the Convergence
of Grid and Cloud Standards

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The Story so far

- Grid Computing reached maturity
 - enthusiast users transformed to customers
 - “nice to have” platform now provides value
- Cloud Computing reached market
 - Many providers playing
 - Plethora of offerings at different levels
 - *aaS generates revenue



Use Case: Plasma Physics



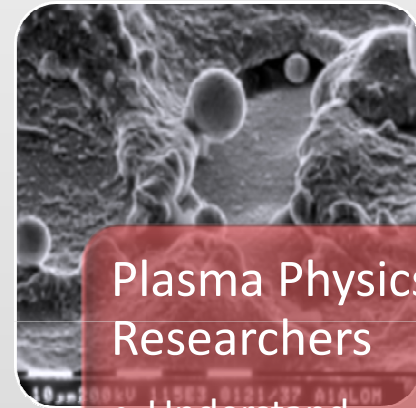
Mechanical Engineering SMEs

- Build machinery
- Provider next-gen material science



Specialized Modeling Consultants

- Assess feasibility
- Evaluate and modify designs



Plasma Physics Researchers

- Understand particle-level interaction
- Provide more accurate models

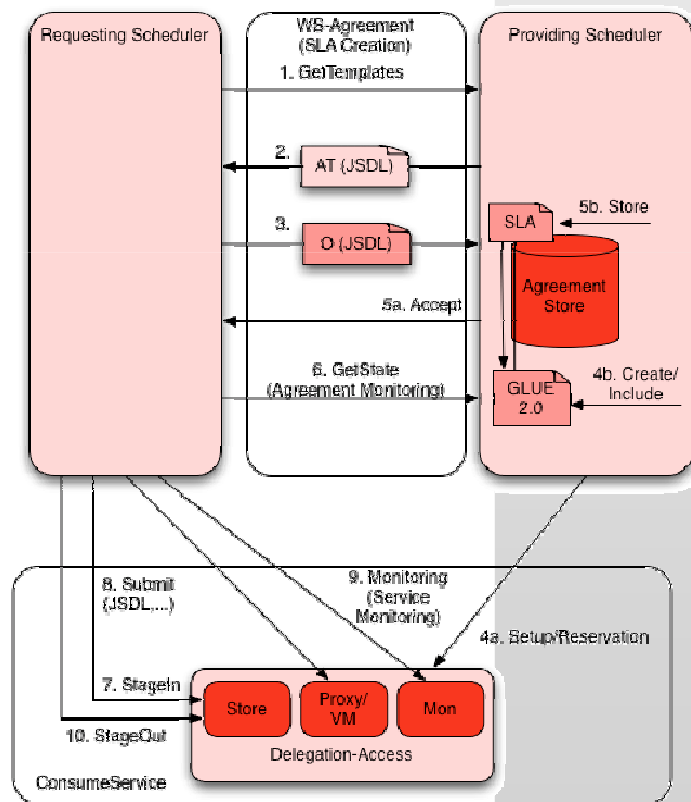


Federation: Why?

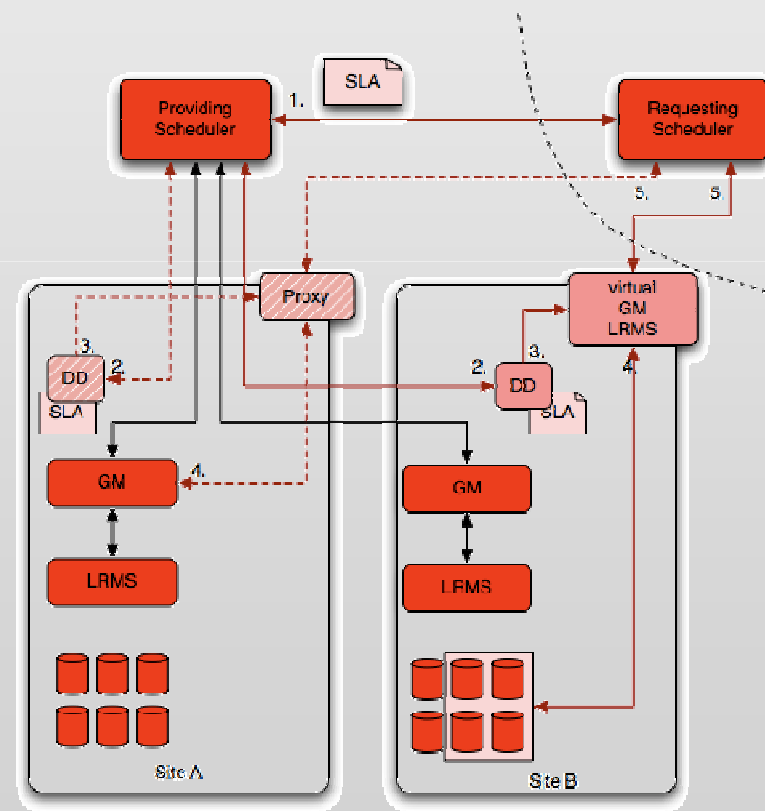
- The natural thing: move to Cloud Computing
- On the other hand, Grids
 - Provide an in-place infrastructure
 - Offer community-specific, high level services
 - Allow for collaboration over a common platform
- Wish for convergence

Federation Mechanisms

Activity Delegation



Resource Delegation





Standards in Charge

GLUE
resource description

OCCI
resource provisioning
and management

Activity Instance
progress tracking

WS-Agreement
negotiation and SLAs

OGSA-BES
workload delivery

UR
accounting

JSDL
customer requirements

OGSA-RSS
provider discovery



Collating Things Together

- On a technology level, have standards to
 - Describe user requirements and service offerings
 - Allow negotiation between consumer/provider
 - Set agreement on offered services
 - Provision (virtual) infrastructure
 - Expose on-demand infrastructure
- ◎ Support resource leasing and workload delegation in a business-compatible manner



Usage Paradigms

- Service Grid collaboration
 - Climate Research and Humanities
 - Physics and Engineering
- Cloud Bursting
- Platform interoperation
 - Extend your Service Grid on-demand
 - Add specialized resources to the Cloud



Wrapping up

- Federation is a key issue
 - “Griddy” people don’t throw away what they have
 - “Cloudy” people don’t feel like building on legacy

WANTED

cross-community, cross-infrastructure interoperation

- Convergence will provide a strategic technology platform
 - Adoption
 - Collation
 - Back-contribution



Questions?

Thank you for listening.

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