



Enabling Grids for E-science

# A Glance Towards the Future

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- **Now**
- **Near future**
- **Not quite so near future**



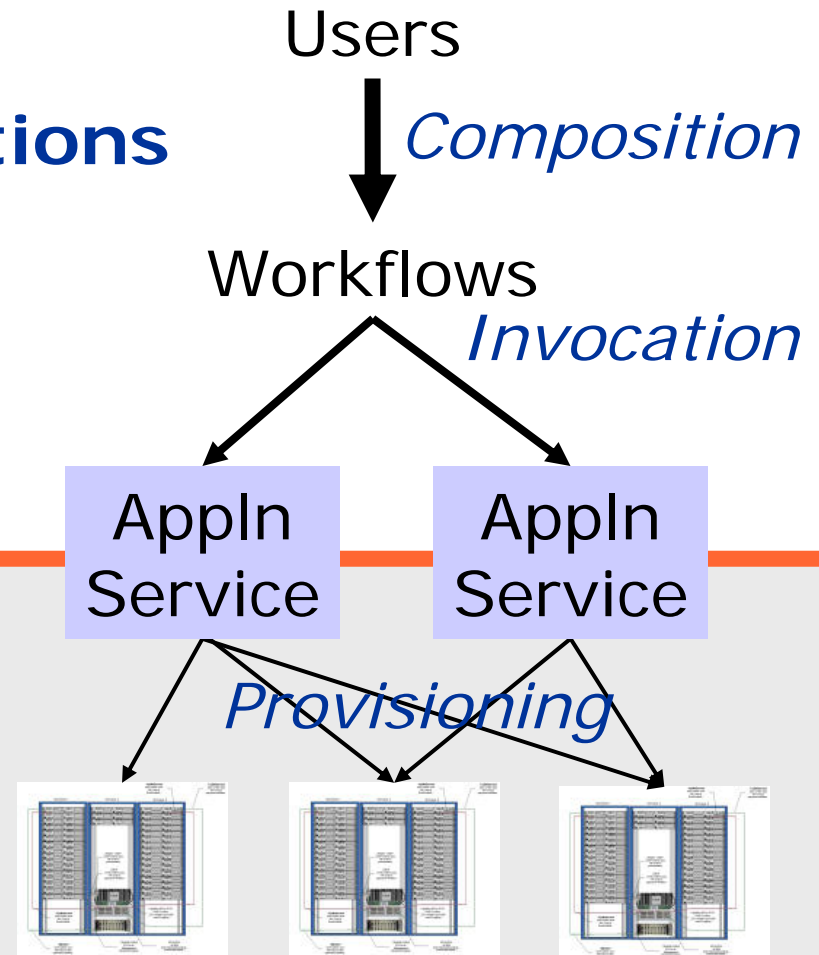
# Service-Oriented Systems: The Role of Grid Infrastructure

- Service-oriented **applications**

- ◆ Wrap applications as services
- ◆ Compose applications into workflows

- Service-oriented **Grid infrastructure**

- ◆ Provision physical resources to support application workloads



- **Moving toward “utility view” – computation and data services provided by a grid**
  - Applications that can be instantiated on chosen grid resources
- **Effect: people work in their specialisms....**
  - Researcher does research!
  - Service providers provide services!
  - Resource managers manage resources!
    - EGEE: So 100 years CPU time in a fast response to bird-flu
- **And... there is a role for application hosting environments e.g.**
  - **GEMLCA** <http://www.cpc.wmin.ac.uk/gemlca/>
  - **AHE** <http://www.realitygrid.org/AHE>

# The Application Hosting Environment

- Based on the idea of applications as Web Services
- Lightweight hosting environment for running unmodified applications on grid resources (NGS, TeraGrid) and on local resources (departmental clusters)
- Community model - expert user installs and configures an application and uses the AHE to share it with others
- Simple clients with very limited dependencies - can run from the desktop, command line or PDA

# AHE: Further Information

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- RealityGrid web site:  
<http://www.realitygrid.org/AHE>
- NeSCForge:  
<http://forge.nesc.ac.uk/projects/ahe/>
- Mailing list:  
<http://www.mailinglists.ucl.ac.uk/mailman/listinfo/ahe-discuss>
- OMII <http://www.omii.ac.uk>

- Near future
- **Not quite so near future**

- **EGEE is cooperating with many projects.... Most relevant to application developers are:**
- **OMII-Europe** <http://www.omii-europe.com/>
  - Amongst goals: Applications can be deployed and run on multiple grid environments through adherence to common services
    - Not required to develop different solutions for different grids
- **ETICS – [www.eu-etics.org](http://www.eu-etics.org)**  
**E-infrastructure for Testing, Integration and Configuration of Software**
  - **Mission:** Provide a generic service that other projects can use to efficiently and easily build and test their grid and distributed software.  
Set up the foundations for a certification process to help increasing the quality and interoperability of such software



**New infrastructure for  
“service-oriented research”**

**Grids permit  
collaborative  
“virtual computing”**

**Improvised cooperation**

**People with shared goals**

- **Grids allow research with best models, data, timeliness, .....**
- **Add service orientation**
- **Take these concepts a step further**

- **Now**
  - Grids as providers of resources
  - Roles of researcher, provider more defined
- **Near future**
  - Application hosting will become a 3<sup>rd</sup> role
  - Services supporting the testing of applications
- **Not quite so near future**
  - Interoperability amongst grids
- **Not so near as not quite so near future**
  - Service oriented research