WP2 Session-
Summary of Requirements Consolidation

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(on behalf of the whole team)

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WP2 plan

- Identify key Grid actors (end users, administrators, managers, developers, operators, …)
- Ask identified Grid actors to provide their input through the use cases (UC)
- Analyse, consolidate and organize UC content
- Map functionality revealed in UC to WP3 functions
- Provide input for WP3
- Make UC publicly available to stimulate further feedback from all actors
WP2 progress report

- Identified Grid actors contacted
- UC from various Grid actors obtained
- UC content analysed, critical issues derived
- UC exposed in EGI Knowledge Base
- UC-related content of D2.1 written
Timeline

- Identification of Grid actors: August 2007
- Preparation of use case letter: 10 Aug 2007
- Contact of primary recipients (NGIs): 14 Aug 2007
- First use case arrival: 12 Sep 2007
- Broadcast message to all EGEE VOs: 23 Sep 2007
- First analysing steps: 30 Sep 2007
- Publication of use cases in EGI KB: 17 Dec 2007
- Use cases-related chapter of D2.1: 15 Jan 2008
Actors identified

• NGI representatives
  » Leaders of National Grid Initiatives in Europe

• EGEE application domains
  » Representatives of influential application communities

• EGEE ROC managers
  » Representatives of geographical subdomains of EGEE

• EGEE related projects
  » EGEE external Grid-related projects

• EGEE VOs
  » Virtual organizations within EGEE project

• Supercomputing area
  » Representatives of supercomputing-related projects

• Networking area
  » Representatives of networking-related projects
Use case collection

• A template and examples prepared
  – However, free form submission also accepted
• A formal letter for all the NGI representatives
  – Personalized request from the EGI_DS coordinator
• Used also to contact other actors
• Use of EGEE mailing lists and distribution tools
  – Especially for the VO contacts
Use cases

• Information about any aspect of the Grid
  – Operation
  – Management
  – Monitoring
  – Use by end users (including VO setup and operation)

• But also related aspects like
  – Middleware
  – Relationship to industry
  – Relationship to governmental and other bodies
  – Interaction with other infrastructures
## Use case collection statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of Contributors</th>
<th>No. of UC</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGI representatives</td>
<td>11</td>
<td>105</td>
</tr>
<tr>
<td>EGEE application domains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGEE ROC managers</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>EGEE related projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGEE VOs</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Supercomputing area</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Networking area</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>162</td>
</tr>
</tbody>
</table>
Consolidation of use cases

• Contributions typically composed from multiple UC
• Transformation from contribution into single, individual use cases
• Reformatting into unique, easy readable / accessible text form
• All individual use cases uploaded to the EGI Knowledge Base (KB)

knowledge.eu-egi.org/index.php/Use_Cases:Main
Organization of UC in KB

- Individual text use cases exposed in KB as single pointers
  - Each use case stored as a separate pre-processed file in a textual form
  - Easy to make reference to an individual use case

- Consistent naming of use cases
  - Name created according to the use case origin (contributor)
  - Makes navigation more intuitive and straightforward
KB use cases main page

Use Cases:Main

This area has been built to contain an overview and links to the use cases gathered in relation to e-Infrastructures. Following distinct areas have been identified:

- The list of previously collected original use cases obtained as results from an EGEE project survey.
- The current list of Individual use cases gathered by the EGI preparation team in 2007. The list of individual use cases obtained from NOIs, projects, institutes and VO's within the EGI DS project phase in the preprocessed ( txt) form retaining the original information provided and mapped to corresponding proposed EGI functions.
- The suggested list of derived clustered information based on detailed analysis of individual contributions.
- Moreover, there is also a list of either individual or clustered use cases mapped into EGEE activities to easily allow identification of areas not covered by individual use case obtained.

You are welcome to either send us a new specific use case describing your way of grid environment utilization and/or you are invited to provide us your comments/suggestions concerning the current list of individual use case. For those willing to send us their new, specific use case an example template is available. The template can be used as an illustration of the information that we are looking for, however, it is not mandatory if its structure does not match your view on the topic. Free-form use case descriptions are welcome. Please, contact us at usecases@eu-egi.org.

EGI DS Use Case Letter with Template
## Individual use cases in the KB

<table>
<thead>
<tr>
<th>No.</th>
<th>Provider</th>
<th>Use Case Pointer</th>
<th>EGI Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AssessGrid</td>
<td>UC-assessgrid</td>
<td>Operation of a reliable Grid infrastructure</td>
</tr>
<tr>
<td>2</td>
<td>Bazaar</td>
<td>UC-bazaar-resources-I</td>
<td>Mechanisms for resource provisioning to Virtual Organizations</td>
</tr>
<tr>
<td>3</td>
<td>Bazaar</td>
<td>UC-bazaar-resources-II</td>
<td>Mechanisms for resource provisioning to Virtual Organizations</td>
</tr>
<tr>
<td>4</td>
<td>Bazaar</td>
<td>UC-bazaar-resources-III</td>
<td>Mechanisms for resource provisioning to Virtual Organizations</td>
</tr>
<tr>
<td>5</td>
<td>BioInfoGrid</td>
<td>UC-bioinfogrid</td>
<td>Application support</td>
</tr>
<tr>
<td>6</td>
<td>CERN</td>
<td>UC-cern-middleware</td>
<td>Coordination of middleware development and standardization</td>
</tr>
<tr>
<td>7</td>
<td>CERN</td>
<td>UC-cern-user</td>
<td>Training efforts, Outreach and Dissemination</td>
</tr>
<tr>
<td>8</td>
<td>CSC</td>
<td>UC-CSC-applications</td>
<td>Application support</td>
</tr>
<tr>
<td>9</td>
<td>CSC</td>
<td>UC-CSC-broker</td>
<td>Mechanisms for resource provisioning to Virtual Organizations</td>
</tr>
<tr>
<td>10</td>
<td>CSC</td>
<td>UC-CSC-ca</td>
<td>Security</td>
</tr>
<tr>
<td>11</td>
<td>CSC</td>
<td>UC-CSC-licenses</td>
<td>Application support</td>
</tr>
<tr>
<td>12</td>
<td>CSC</td>
<td>UC-CSC-resources</td>
<td>Mechanisms for resource provisioning to Virtual Organizations</td>
</tr>
<tr>
<td>13</td>
<td>CSC</td>
<td>UC-CSC-settingup</td>
<td>Mechanisms for resource provisioning to Virtual Organizations</td>
</tr>
<tr>
<td>14</td>
<td>CSC</td>
<td>UC-CSC-tailoring</td>
<td>Components selection, validation, integration and deployment</td>
</tr>
<tr>
<td>15</td>
<td>EELA</td>
<td>UC-EELA-infrastructure</td>
<td>Operation of a reliable Grid infrastructure</td>
</tr>
<tr>
<td>16</td>
<td>EELA</td>
<td>UC-EELA-newcomers</td>
<td>Training efforts, Outreach and Dissemination</td>
</tr>
<tr>
<td>17</td>
<td>EELA</td>
<td>UC-EELA-WISDOM</td>
<td>Application support</td>
</tr>
<tr>
<td>18</td>
<td>EGI-ChipGrid</td>
<td>UC-EGI-ChipGrid-infrastructure</td>
<td>Creation of a reliable Grid infrastructure</td>
</tr>
</tbody>
</table>
Exemplary use case in the KB

Use Case title: Guide novice users to the Grid

Short description: Today’s procedure, from the request for a personal digital certificate up to data retrieval from a site is too complex. The chain Authentication – Authorisation – Job submission – access to results needs to be simplified. Integration of new communities to the Grid has to become faster and easier. Already within existing VOs, a lot of effort is spent to train new users, despite the experience available in their environment. Today, Grid usage is reserved to computing ‘experts’. This is not a good forecast for funding.

Autors involved: Grid architects, Middleware designers and developers, User supporters.

Related requirement: Users who don’t belong to large communities but need to use the Grid cannot today unless they register a new VO. This situation doesn’t scale and certainly will never make the Grid as popular as the Web.

Pre-conditions: (optional) Important middleware re-design effort needs to be invested. Security policies must be re-thought in a, still secure, yet more flexible way.

Steps: The actual steps required, so that the use case can be materialised.

- The Joint Security Policy Group to revise policies in the light of a large Grid community.
- Simplify or abandon certificate-based authentication for users and hosts.
- The middleware security group, which includes policy makers and developers, to review the Authentication and Authorisation procedures and tools.
- The VO Registration Procedures, VO Management and User responsibilities to be re-defined.
- Grid Storage and Data Management experts to re-design their code in the new ‘plug-and-play’ spirit.

Post-conditions: (optional) Audit, monitoring and security update procedures should be well established and scrupulously applied for the Grid to be more easily accessible but remain secure.

Project(s) involved: (optional): All special-purpose projects under the glite software umbrella. Security experts, CAs and commercial partners from the computer industry, databases and, even, mobile telephony projects can foresee for the era, when Grid usage becomes really easy.

WP3 Consolidation Meeting, Geneve
Analysis of use cases

• Two main approaches to the analysis
• Bottom-up
  – Use cases are clustered and sorted into categories based on their relation
  – Identification of primary areas of interest as present in use cases
• Top down
  – Use cases mapped to a set of predefined areas of interest
  – Two types of predefined input sets available
    • Proposed EGI functions
    • EGEE activities
Analysis of use cases
Results of the bottom up analysis

- Infrastructure access and operations
- Middleware development/deployment/enhancements
- Application scenarios
Infrastructure access and operations

- Joining the Grid
- Working with the Grid
- Organization of operations
- Policies
- Commercial related issues
- Training & User Support
- Monitoring and Accounting
Infrastructure access and operations
Middleware
development/deployment/enhancement

- Smooth integration of new components
- Component lifecycle
- One or more middleware stacks
- Support of interactive use
- Security issues
- Large redesign is required
- Other specific functionality requests
Middleware
development/deployment/enhancement
Application scenarios

- Commercial software licenses
- Parallel jobs
- Interactive jobs
- User support for individual application groups
Application scenarios
Clustering – tree
Clustering – detail

Smooth integration of new components

EGI should be prepared for accepting new MW components, coming from external or internal development, which will co-exist or replace one another eventually.

- Interoperability is critical. Despite interface standardization is necessary UC-NGI-D-standardization, it does not solve the problem completely.
- UC-NGI-SW-elmroth, UC-NGI-NT-II.
- Replacable small components with well-defined functionality are preferred to huge monoliths UC-NGI-SW-elmroth.
- Procedures have to be defined to accept new components coming from external development, including roles of EGI and NGIs.
- It is useful to share MW components (and even service instances) among different user groups/communities. How candidates for sharing are identified?
- UC-NGI-D-tools
- User communities may require completely new or tailored components. How these are provided, who triggers, decides and is responsible for the development?
  [UC-CERN-En-V, UC-NGI-FR]

Component lifecycle

- Contributed components may not arrive in a state ready for production EGI has to define procedures for their "hardening", "experimental services" deployment may be an efficient way UC-NGI-CZ-VII
- Maintenance and production updates of all components is an issue in the large-scale deployment. EGI should define procedures for both fast propagation of security updates to avoid vulnerability risks, as well as gradual deployment of new versions which may introduce backward incompatibility UC-cern-middleware

One or more MW stacks

- Running multiple middleware stacks is perceived unavoidable, at least in mid-term UC-KnowARC, UC-NGI-SW-elmroth
- Applications tend to build "grid of grids" UC-KnowARC, even defining services at the meta-level UC-VO-ILDG access; the approach is probably unavoidable when extending outside Europe

Support of interactive use


Security issues

WP3 Consolidation Meeting, Geneve

www.eu-egi.org
Top down – Proposed EGI functions

- Operation of a reliable Grid infrastructure
- Coordination of middleware development and standardization
- Development and operation of build and test systems
- Components selection, validation, integration and deployment
- Mechanisms for resource provisioning to Virtual Organisations
- Application Support
- Training efforts
- Outreach and Dissemination
- Industry take-up
- Contribution to the Open Grid Forum and other standards bodies
- Policy, Strategy, e-IRG
- Representation of European Grid efforts, International Cooperation, and ESFRI
- Security
- Management
Mapping UC to functions
Missing topics

• Industry take-up
• Contribution to the Open Grid Forum and other standards bodies
• Policy, Strategy, e-IRG
• Representation of European Grid efforts, International Cooperation, and ESFRI
• Management
Top EGI Functions as seen from the use cases

- Operation of a reliable Grid infrastructure
- Application support
- Coordination of middleware development and standardization
- Development and operation of build and test systems
Mapping UC to EGEE activities
Mapping UC to EGEE activities

EGEE activities within EGI DS use cases

- SA1: 45%
- NA4: 12%
- JRA1: 7%
- SA3: 4%
- NA3: 3%
- NA2: 29%
- 29%
## Comparison of approaches

<table>
<thead>
<tr>
<th>Bottom-up</th>
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<tbody>
<tr>
<td>• Infrastructure access and operations</td>
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- Legal, organizational, and administrative issues, management
- Policies and strategy
- Industrial take up
Use cases in D2.1

• 1. Requirements and Use cases presentation
  – 1.1 Background
    • Input and experience gained in EGEE II project with requirements collection
  – 1.2 Mechanism for collection, processing and dissemination of use cases
    • Selection process and list of targeted communities (NGIs, VOs, projects, individuals)
    • Use case template and its rationale
    • Methodology used to process/aggregate the use cases
    • Mechanism for use case dissemination
    • Link to KB deliverable/milestone
    • The access policy, ...
Use cases in D2.1

– 1.3 Statistics of collected input
  • who contributed, covered areas, ...

– 1.4 First and second level processing of use cases
  • reformatting, clusterings, identification of key fields
  • mapping into expected EGI functions
  • identification of missing areas
  • mapping to EGEE activities
  • first community feedback
  • further aggregation

– 1.5 Conclusions and further plans
  • Final mapping of use cases into defined EGI functions

• 2. Annexes
  – use case template, use case guidelines, presentation of clustered use cases through individual examples
Further plans

• UC collection use as a “validator” of EGI model

• Targeted questionnaire for missing areas
  – Management (NA1 in terms of EGEE II)
  – Legal matter/policy (partly NA5 in terms of EGEE II)
  – Administrative matter
  – Business model (also explicitly considered in EGEE III)

• Specific use cases “life”
  – Addition, extension and modification of use cases
  – Processing and incorporation of additional use cases

• Evolution of use cases
  – Broadens the knowledge
  – Feedback on the infrastructure, organization, support, …