

## Minutes of the OGF21 Education and Training Community Group Sessions

The Education and Training Community Group held five sessions at OGF21 covering the topics:

- E&T Framework – Professional Grid Certification
- National and International Grid Education & Training Policy
- Towards Professional Grid Certification (presentation to Industry Track)

*Managing IPR for Educational Repositories and Implementation of Policies for Cooperation on t-Infrastructure* were scheduled but dropped by common consent to allow more time for the topics above.

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## ***Planning: The Future of the ET-CG***

We began the sessions with a discussion of the future plans for our community group. It was agreed to rescope the group and choose a set of documents for whom we could identify volunteers.

The results of these discussions are available at  
<https://forge.gridforum.org/sf/go/doc14909?nav=1>

The following documents were chosen to be further developed:

### **Training Requirements Document**

Lead Editor: Anitha Ohri

Timescale: Initial Draft end Nov. '07

### **t-Infrastructures Experiences Document**

Lead Editor: Roberto Barbera

Timescale: Initial Draft end Dec. '07

### **Education and Training Policy Document**

Lead Editor: Malcolm Atkinson, Elizabeth Vander Meer, Kathryn Cassidy

Timescale: proposed publishable document by OGF22

### **Standard Syllabi**

Malcolm Atkinson to organise a workshop to be held in Edinburgh. A lead editor would be chosen at that workshop.

Timescale: Workshop before end Feb. '08. Draft document by end Mar. '08 and publishable document by OGF23.

### **IPR Document**

Lead Editor: Boon Low

Timescale: Proposed publishable document by end Dec. '07

### **Certification Document**

Lead Editor: Kilian Schwarz

Timescale: Proposed publishable document by mid Nov. '07.

## **Background and Support Documents**

The following may not be published as separate documents the will be referenced by the published documents and should be further developed:

- Existing Courses List (Editor: Morgane Artacho)
- Gap Analysis (Editor: Alex Voss)
- Glossary (Editor: Kathryn Cassidy)

## ***National and International Training & Education Policy***

### **Participants**

Malcolm Atkinson – e-Science Institute  
Mathias Dalheimer – Fraunhofer ITWM  
Wolfgang Gentzsch – D-Grid  
Jysoo Lee – KISTI  
Shahbaz Memon – Forschungszentrum Juelich  
Anitha Ohri – Platform Computing Inc.  
Thomas Prokosch – GUP, Joh. Kepler University Linz  
Kathryn Cassidy – Trinity College Dublin  
Donal Fellows – University of Manchester  
Chris Higgins – EDINA, University of Edinburgh  
Nishadi De Silva – University of Southampton  
Anand Patil – DANTE  
Daniel Templeton – Sun Microsystems  
Alex Voss – National Centre for e-Social Science, University of Manchester  
Feikje Hielkema – University of Aberdeen  
Elizabeth Van Der Meer – NeSC  
Killian Schwarz – GSI

### **Proceedings**

Elizabeth Vander Meer presented a policy document of the e-Infrastructures Reflection Group (e-IRG) Education and Training Task Force (ETTF). The general outline of the document was discussed, copies were distributed to participants and feedback requested.

This document naturally focusses on the EU and there is also an education-only focus. However, it is loosely based on the structure of the document in the ET-CG wiki at <https://forge.gridforum.org/sf/wiki/do/viewPage/projects.et-cg/wiki/NationalAndInternationalGridEducationTrainingPolicy> and it was agreed that we would continue to develop these documents in tandem. The ET-CG document should have a broader scope taking into account US and Asian issues.

### **Future Work**

The draft document at <https://forge.gridforum.org/sf/wiki/do/viewPage/projects.et-cg/wiki/IPRForGridEducationTraining> should be updated with any relevant content

from the e-IRG document.

**ACTION Kathryn Cassidy:** Update the wiki document with any relevant content from the e-IRG document.

**ACTION ALL:** Read the document and provide feedback to Elizabeth.

## ***Professional Grid Certification – workshop session***

### **Participants**

Malcolm Atkinson – e-Science Institute  
Mathias Dalheimer – Fraunhofer ITWM  
Wolfgang Gentzsch – D-Grid  
Jysoo Lee – KISTI  
Shahbaz Memon – Forschungszentrum Juelich  
Anitha Ohri – Platform Computing Inc.  
Thomas Prokosch – GUP, Joh. Kepler University Linz  
Kathryn Cassidy – Trinity College Dublin  
Donal Fellows – University of Manchester  
Chris Higgins – EDINA, University of Edinburgh  
Nishadi De Silva – University of Southampton  
Anand Patil – DANTE  
Daniel Templeton – Sun Microsystems  
Alex Voss – National Centre for e-Social Science, University of Manchester  
Feikje Hielkema – University of Aberdeen  
Elizabeth Van Der Meer – NeSC  
Killian Schwarz – GSI

### **Agenda**

1. Presentation of document "Towards professional Grid certification"  
(<https://forge.gridforum.org/sf/go/doc14419?nav=1>)
2. Finalisation of document "Towards professional Grid certification"
3. Discussion forum on how to proceed with E&T Framework

### **Proposed changes to the document**

#### **Terminology**

It was agreed that the term “Engineer” should be changed to “Professional” as “Engineer” has a fairly specific meaning in some regions.

The term “module” was also changed to “exam” as the definition of “module” in the ET-CG glossary relates specifically to courses.

#### **Role of OGF and the ET-CG**

The role of OGF was discussed and it was pointed out that while the OGF ET-CG

could kick off the process, OGF would not take responsibility for running certifications or exams, oversight or quality assurance of the certification (or associated courses) once it was up and running.

It was agreed that the ET-CG's focus should be on the curriculum, basic structure of the certification along with requirements analysis to show that there is a market for Grid certifications. To this end it was agreed that a training requirements document should be developed with the input of industry.

In general the idea of the ET-CG working to catalyse effort in this area was stressed and some changes were made to the document to reflect this. The ET-CG cannot do the work itself, rather it needs to encourage others to do the work and then gather that effort together, collate results, etc.

### **Do we need a new organisation or should we work with existing certification bodies?**

The benefit of creating a completely new organisation (the Grid Professional Institute referred to in the document) was questioned. The general feeling seemed to be that the certification should be administered by an existing certification body such as the BCS (<http://www.bcs.org/>), the ACM (<http://www.acm.org/>) or IEEE (<http://www.ieee.org/>). These organisations have existing QA processes including accreditation visits, etc. and have experience in the field of certifications.

### **Three certification levels**

The need for a higher level than the proposed “Technician” and “Professional” level certifications was discussed and a “Certified Grid Architect” was proposed. The levels would work together as follows:

- Architect plans the infrastructure
- Professional administers the infrastructure
- Technician runs day to day processes on the infrastructure, under direction of professionals

### **Need to make the case for certification**

The need to more strongly make the case for the need for Grid certification programs was raised, and a section discussing the current crisis in distributed systems was added to the document. The Training Requirements Document will also help with this. Some notes from the discussion have been added to a skeleton wiki Training Requirements Document available at <https://forge.gridforum.org/sf/wiki/do/viewPage/projects.et->



[cg/wiki/TrainingRequirementsDocument](#)

### **Keeping an individual's certification up-to-date**

It was pointed out that we should look at the notion of how a certified person stays current. Do they have to retake the exam every two years or so, or can we devise some clever mechanism whereby a certificate holder can show that they are updating their skills? This was left as an open question but should be revisited.

ACTION Kilian Schwarz: update the document to reflect changes in terminology.

ACTION Kilian Schwarz: update the document to reflect the modified scope and role of OGF and the ET-CG.

ACTION Kilian Schwarz: update the document to take account of the three certification levels.

ACTION Anitha Ohri: draft a Training Requirements Document to make the case for training and certification, this will be largely based on material Kilian and Rüdiger have already produced.

### **University Curriculum**

Anitha Ohri described an interesting case study from Platform's involvement in designing a university course curriculum for a US University. Anitha agreed to provide some details about this (as far as confidentiality allows).

ACTION Anitha Ohri: provide some details on Platform's work on University course curriculum

## ***Professional Grid Certification - industry session***

### **Participants**

Kilian Schwarz – GSI  
Elizabeth Vander Meer – NeSC  
Gerd Behrmann – NDGF  
Kathryn Cassidy – Trinity College Dublin  
Anitha Ohri – Platform Computing Inc.  
Adriano Rippa – Engineering R&D  
Daniel Templeton – Sun Microsystems

### **Agenda**

1. Presentation of Towards professional Grid certification document to Industry
2. Discussion

### **Proposed changes to the document**

#### **Certify certifications rather than create our own?**

Issues of IPR and branding of certifications were raised as potential stumbling blocks in getting the support of technology providers.

It also became evident that identifying commonalities in different middlewares, particularly commercial middlewares, could be difficult.

Two examples to illustrate how seemingly basic concepts can be quite different in different technologies were given:

- In the Data Synapse technology a *job* is a collection of *tasks*
- In most technologies *scheduled* means submitted but not yet executed, however on Sun Grid Engine it means sent to the execution node and running

A suggested way to get both the IP issues and the problem of exhaustively identifying commonalities was to certify the existing certifications as being equivalent rather than designing a single certification which was general enough to apply to all technologies. Most commercial technologies already have certification programs and we could work with technology providers to determine the equivalence of these.

This might work well for the Grid Technician level while a separate Professional and Architect level exams could still be developed.

The issue of how to fit non-commercial grid technologies into this model would need

to be investigated.

### **Should certifications be cumulative?**

All industry participants agreed that the Technician level exam should be a prerequisite for the Professional and Professional a prerequisite for Architect. One should not be able to take the Professional exam without first becoming certified to Technician level. This is how the majority of professional certifications work.

### **Requirements for each level**

#### Grid Technician

Requires certification in a single middleware and possibly also an additional general (non-technology-specific) exam.

Define the tasks a technician must be able to perform on their chosen middleware, e.g.:

- find the logs for a technology
- use the administration console/tools (to do?)
- ... etc.

Alternatively it was suggested that a technician might need a smattering of a few different technologies, but just the basics, e.g. how to look at a queue status in a few different technologies.

#### Grid Professional

Requires:

- Grid Technician Certification in a single technology
- one or more Grid Professional level general (non-technology-specific) exams
- a higher level technology-specific exam
- some practical experience gained in work or a project

#### Grid Architect

Requires:

- Grid Professional Certification in at least one technologies
- Grid Technician Certification in at least two technologies
- one or more Grid Architect level general (non-technology-specific) exams
- possibly additional Grid Professional level exams?
- practical experience gained in work

## **Marketing**

Two points were raised in relation to the selling of any certification:

1. The term Grid may not appeal to potential employers in the same way that terms such as “Distributed Computing” and “Virtualisation” would. We need to look carefully at how we describe the certification.
2. It will not be possible to make a successful certification without support from the technology providers and we should not assume that they will be on-board. It is necessary to make the case to sell the certification to technology providers too and a separate document should be developed at some point for this process.

## **Future Work**

A matrix should be created showing which skills are required for each level of certification.

It was agreed that a monthly conference call should be arranged and the wiki, mailing list, and other tools will also be used to progress this.

**ACTION** Kathryn Cassidy: Create skeleton matrix in the wiki for people to fill in

**ACTION** Kilian Schwarz: Organise conference calls

***Actions List***

<b>Member</b>	<b>Action</b>
ALL	Read the document and provide feedback to Elizabeth Vander Meer.
Kilian Schwarz	<p>Update the Certification document to reflect changes in terminology.</p> <p>Update the Certification document to reflect the modified scope and role of OGF and the ET-CG.</p> <p>Update the Certification document to take account of the three certification levels.</p> <p>Organise conference calls to progress Certification.</p> <p>Ensure work progresses towards publishable Certification document by mid Nov. '07.</p>
Anitha Ohri	<p>Draft a Training Requirements Document by end Nov. '07 to make the case for training and certification, this will be largely based on material Kilian and Rüdiger have already produced.</p> <p>provide some details on Platform's work on University course curriculum.</p>
Kathryn Cassidy	<p>Create skeleton certification skills matrix in the wiki for people to fill in.</p> <p>Update the wiki document with any relevant content from the e-IRG document.</p> <p>Ensure work progresses towards publishable Policy document for OGF22.</p> <p>Progress work on the Education &amp; Training Glossary.</p>

<b>Member</b>	<b>Action</b>
Roberto Barbera	Draft a t-Infrastructures experiences document by end Dec. '07.
Malcolm Atkinson	Organise Syllabus workshop before end Feb. '08.  Ensure work progresses towards publishable Policy document for OGF22.
Elizabeth Vander Meer	Ensure work progresses towards publishable Policy document for OGF22.
Boon Low	Ensure work progresses towards a publishable IPR document by end Dec. '07.
Morgane Artacho	Progress work on the list of courses in the wiki.
Alex Voss	Progress work on a gap analysis document in the wiki.