



Enabling Grids for E-science

Trials and Tribulations of Grid Training

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www.eu-egee.org



Information Society
and Media



- **Logistic problems of grid training**
- **Current grid training models**
- **Practical experiences**
- **A look to the future**

- **Complex subject matter, few useful text-books**
 - *No “gLite for dummies” available (yet....)*
- **Wide geographical coverage**
- **Relatively few trainers**
 - *Most involved in other activities*
- **Constantly growing requirements as new VOs and users join EGEE**

NA3
statistics:

32 Partners
in 26
countries

~31 FTEs

194
individuals

4.8% of
project
budget



Training Events and Registration

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**Events &
Registration**

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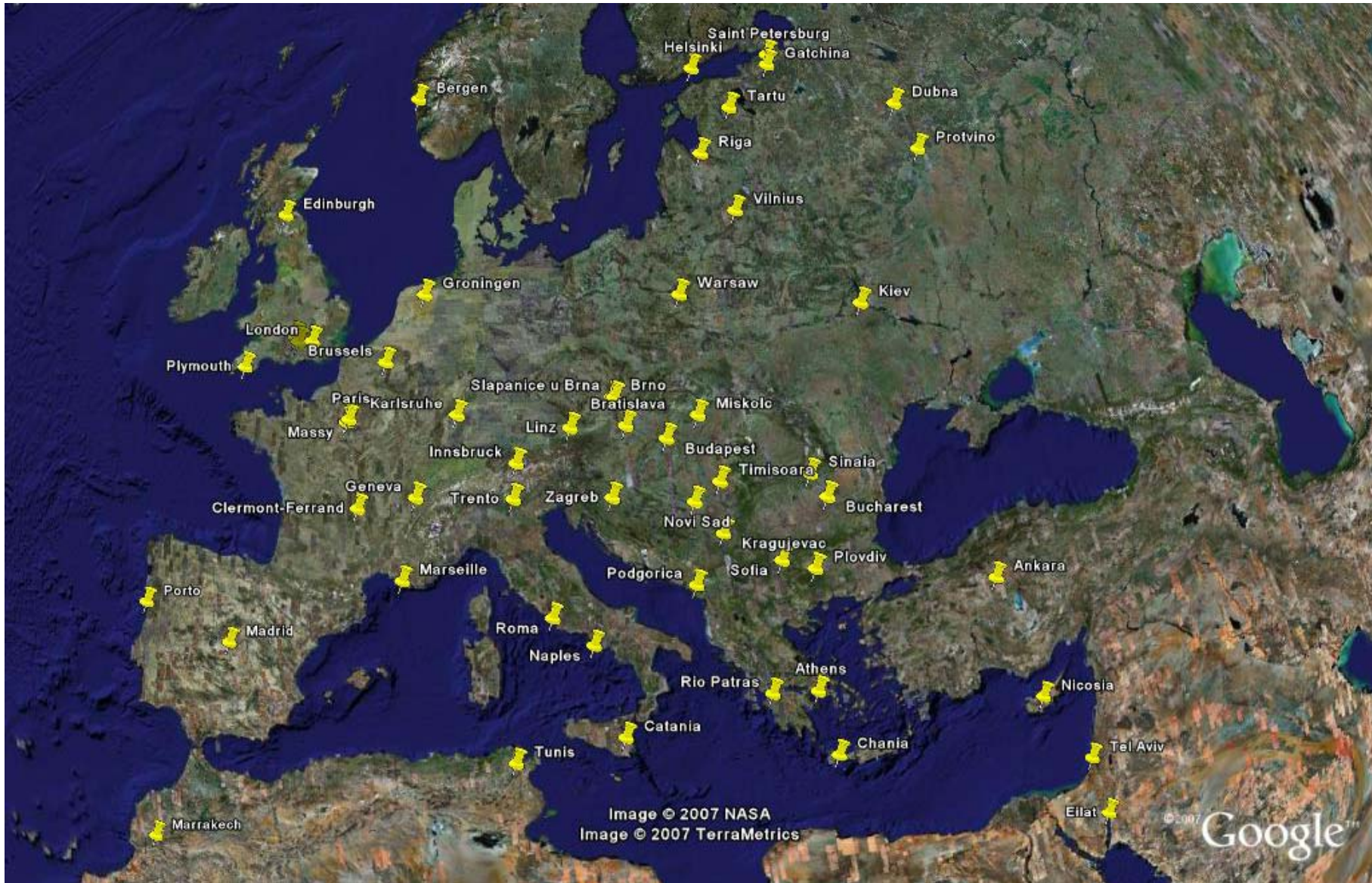
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No	Title	Location	Dates	Summary/Registration
61.	GCCP 2006 - the 2nd International Workshop on Grid Computing for Complex Problems	Bratislava, Slovakia	27 - 29 November, 2006	Summary
62.	EUMEDGRID Site Managers Tutorial	Tunis, Tunisia	27 - 29 November, 2006	Summary
63.	EUChinaGrid 3rd tutorial	Beijing, China	25 - 26 November, 2006	Summary
64.	Porting applications to the EGEE and the NGS using the P-GRADE/GEMICA portal	Reading, United Kingdom	24 November, 2006	
65.	Grid Computing EGEE and the gLite middleware - Induction	Reading, United Kingdom	22 - 23 November, 2006	Summary
66.	Grid Technologies: Introduction and Practice	Nicosia, Cyprus	21 - 22 November, 2006	
67.	Grid Computing and the National Grid Service - Induction	Reading, United Kingdom	20 - 21 November, 2006	Summary
68.	Advanced Course on Grid Technologies	Warsaw, Poland	15 - 18 November, 2006	Summary
69.	EGEE tutorial: Practical introduction to the EGEE middleware	Saint-Petersburg, Russia	14 November, 2006	Summary
70.	Grid Computing and the National Grid Service - Induction	Edinburgh, United Kingdom	9 - 10 November, 2006	Summary
71.	Advanced Issues in Grid Technologies NDC Greece	National Documentation Center Athens, Greece	9 - 10 November, 2006	Summary
72.	User training and induction	Bucharest, Romania	8 November, 2006	
73.	Tutorial traitement sismique sur Géocluster	Massy, France	7 - 10 November, 2006	Summary
74.	7th EELA Tutorial (Users)	Merida, Venezuela	7 - 9 November, 2006	Summary
75.	GGUS Training	Karlsruhe, Germany	6 - 7 November, 2006	
76.	EGEE-II/SEE-GRID-2 gLite Training Event	Podgorica, Montenegro	2 November, 2006	Summary
77.	Grid Computing - gLite introduction course	Bergen, Norway	1 November, 2006	
78.	Advanced Issues in Grid Technologies UOA Greece	University of Athens, Greece	25 - 26 October, 2006	Summary
79.	EGEE Grid Tutorial	Saint Petersburg, Russia	24 October, 2006	Summary
80.	Advanced Issues in Grid Technologies	University of Athens, Greece	23 - 24 October, 2006	Summary

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Training Event Locations

Location	Events	Location	Events	Location	Events
Ankara	2	Itacuruca	1	Porto	1
Athens	8	Karlsruhe	4	Protvino	1
Beijing	3	Kiev	1	Reading	3
Bergen	2	Kragujevac	1	Riga	1
Bratislava	1	La Plata	1	Rio de Janeiro	2
Brno	1	Linz	1	Rio Patras	1
Brussels	8	London	5	Roma	1
Bucharest	2	Madrid	4	Saint Petersburg	7
Budapest	2	Manila	1	Sinaia	1
Catania	1	Marrakech	2	Slapanice u Brna	1
Chania	1	Marseille	1	Sofia	3
Clermont-Ferrand	2	Massy	1	Taipei	1
Didcot	1	Merida	2	Tartu	1
Dubna	1	Miskolc	1	Tel Aviv	1
Edinburgh	4	Naples	1	Timisoara	1
Eilat	1	Nicosia	2	Trento	1
Gatchina	4	Novi Sad	1	Tunis	2
Geneva	6	Paris	2	Vilnius	2
Groningen	1	Plovdiv	1	Warsaw	1
Helsinki	1	Plymouth	1	Zagreb	3
Innsbruck	2	Podgorica	1	TOTAL LOCATIONS	62









Venezuela

Argentina, Brazil



Current models of grid training

- Induction Courses
- Application Development
- Site administration/installation
- Training Trainers

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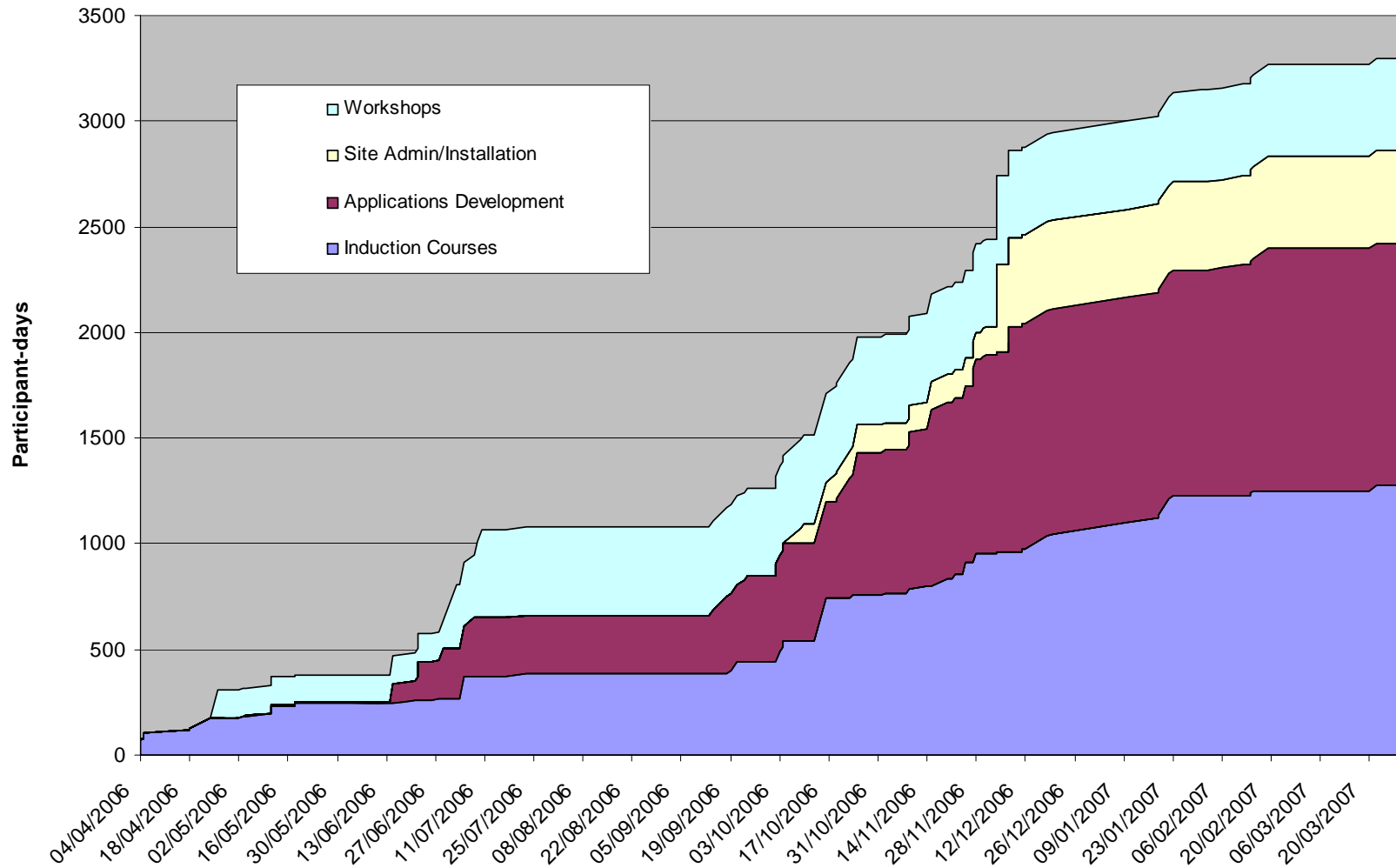
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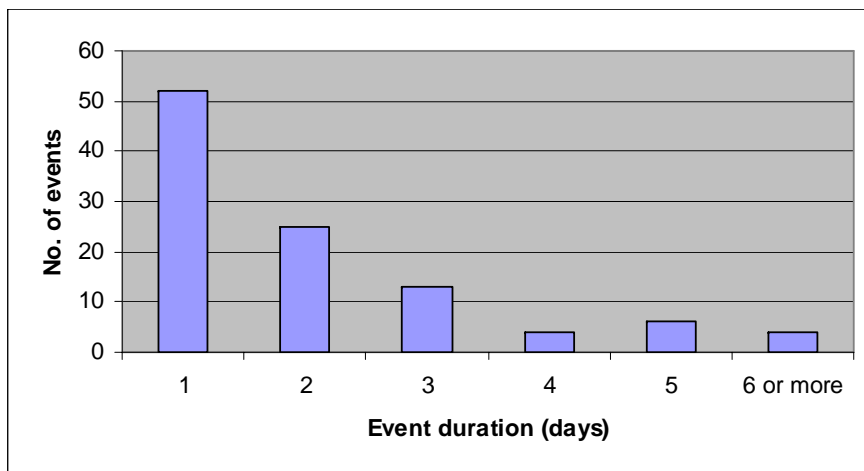
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Cumulative Participant Days - EGEE-II Training Events



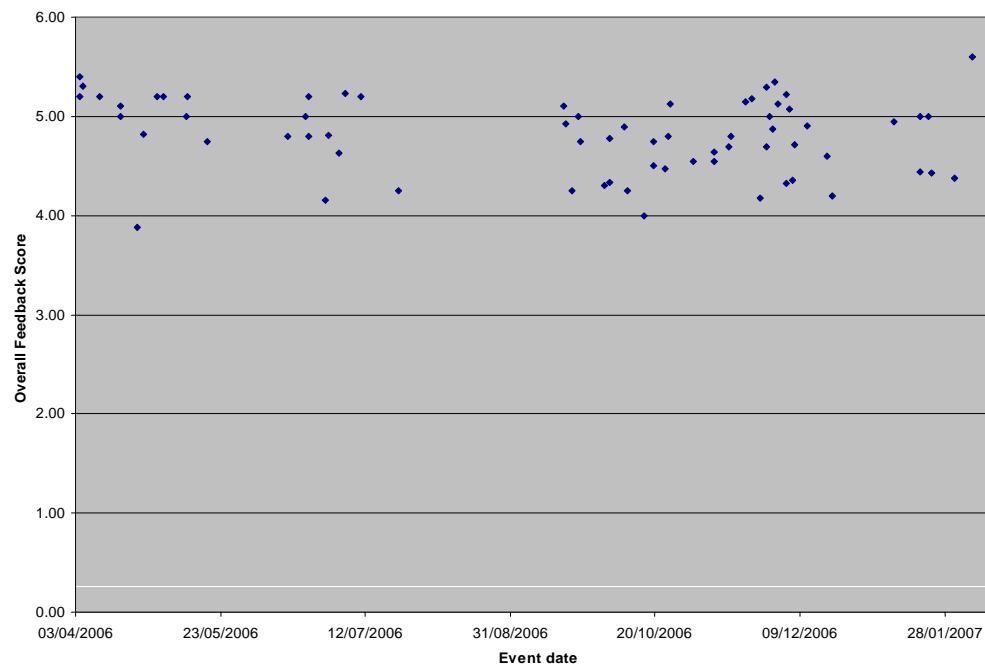


< Event Duration

Average course length 2.2 days

Feedback Ratings over time >

Average evaluation score 4.82 (out of 6)



- **“Training the Trainers” events are designed to enhance the expertise and autonomy of project partners in running training events**
- **Four “Training Trainers” events have now been held during EGEE-II**
- **A directory of accredited trainers has been drawn up:**
 - Currently includes 21 entries:
 - 14 from NA3 activity
 - 4 from SA1 and NA4 activities
 - Expected to expand to >50 entries in year 2 of project



- **More subject areas**
- **Broader spectrum of grid use**
- **Increasing demand for provision of online resources:**
 - e-Learning modules
 - digital libraries
 - online user documentation
 - user support

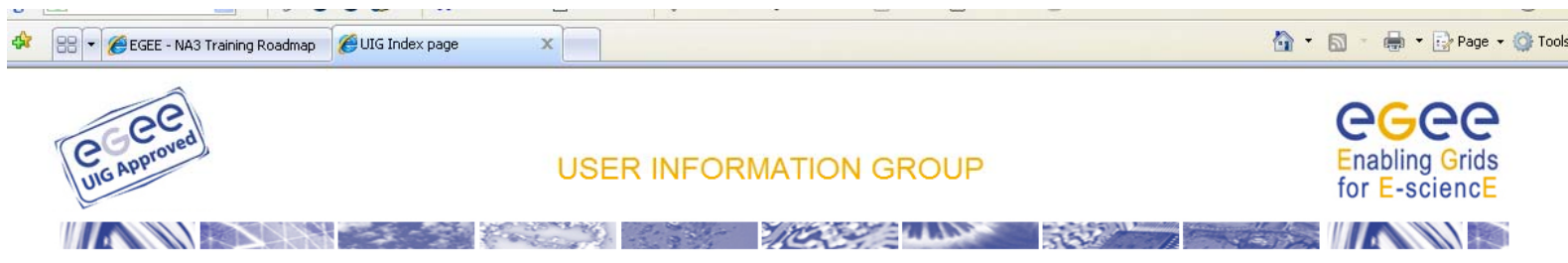
The Digital Library now contains over 4000 learning resources derived from EGEE events

- 73 articles
- 13 courses
- 316 events
- 53 modules
- 3926 presentations
- 70 tutorials
- 97 videos
- 27 ETF Exemplars

- **Improved searching and sorting functionality**
- **Help system (“how to” articles)**
- **Web-content authoring service (> HTML files)**
- **Federated content support**
- **More multi-lingual content
(Russian, French, Greek, Bulgarian, Spanish)**

- **Editorial Task Force (ETF):**
an internal NA3 group, which recommends existing training materials which can be downloaded for use in future training events.
- **User Information Group (UIG):**
A cross-activity group, performing an editorial and commissioning function to provide “core” user information, certified as up to date.

- **Set up ETF wiki and web-pages**
- **Established exemplars for Induction, Sys Admin, Installation, Training Trainers courses**
 - 27 exemplars now identified
- **Started on Application Developer courses**
 - All trainers encouraged to submit updated modules to improve exemplars and increase App. Dev. material



Site Index

The table below lists the titles of the current set of User Information Group Pages. Click on any title in the table to view the corresponding page. You may also view an abstract of each page by clicking the adjacent link.

Page No	Title	
1-01	Getting an account on a User Interface	abstract
1-02	Getting a certificate	abstract
1-03	Registering with a Virtual Organisation	abstract
1-04	Setting up the UI environment	abstract
1-05	Proxy certificates	abstract
1-06	Preparing a simple job	abstract
1-07	Running a job	abstract
1-08	Monitoring a job	abstract
1-09	Getting back the output	abstract
1-10	Retrieving job output	abstract
1-11	Retrieving job history	abstract
1-12	List resources compatible with a job	abstract
1-13	Simple data management	abstract
2-01	Using the proxy renewal service	abstract
2-02	Job requirements on data	abstract
2-03	Advanced sandbox management	abstract
2-04	Preparing complex jobs	abstract
2-05	Running complex jobs	abstract
2-06	Querying the Information System	abstract
2-07	Service Discovery	abstract
3-01	Advanced data management	abstract
3-02	Using the Short-Deadline Job (SDJ) configuration	abstract

<http://www.egee.nesc.ac.uk/uiq>



Getting a certificate



UIG Page No	Version No	Last review date	Next review date	Contact
1-02	1.01	10/01/2007	09/07/2007	uig-support@nesc.ac.uk

X.509 Certificates

The first requirement the user must fulfill is to be in possession of a valid X.509 certificate issued by a recognized Certification Authority (CA). The role of a CA is to guarantee that a user is who she claims to be and is entitled to own her certificate. It is up to the user to discover which CA she should contact. In general CAs are organised geographically and by research institute. Each CA has its own procedure to release certificates.

The following URL maintains an updated list of recognised CAs, as well as detailed information on how to request certificates from a particular CA:

<http://lcg.web.cern.ch/LCG/users/registration/certificate.html>

For many purposes it may be useful to install the root certificates of Grid CAs in a web browser and/or email client, as this will enable the validation of Grid certificates used in web servers and to sign email. (The way to do this is specific to each piece of software and hence cannot be covered here.) In particular users should usually install the root certificate for their own CA. The root certificates can be obtained from this URL:

<https://www.tacar.org/certs.html>

Requesting the Certificate

In order to obtain a certificate, a user must create a request to a CA. The request is normally generated using either a web-based interface or console commands. Details of which type of request a particular CA accepts can be found on each CA's website.

For a web-based certificate request, a form must usually be filled in with information such as the name of the user, home institute, etc. After submission, a pair of private and public keys are generated, together with a request for the certificate containing the public key and the user data. The request is then sent to the CA, while the private key stays in the browser, hence the same browser must be used to retrieve the certificate once it is issued.

The user must usually install the CA root certificate in her browser first. This is because the CA has to sign the user certificate using its private key, and the user's browser must be able to validate the signature.

For some CAs the certificate requests are generated using a command line interface. The following discussion describes a common scenario for command-line certificate application using a hypothetical `grid-cert-request` command. Again, details of the exact command and the requirements of each CA will vary and can be found on the CA's website.

Application Developer courses need to be enriched

- Higher level services and tools
 - must be validated by EGEE - *RESPECT procedure*
(Recommended External Software Packages for EGEE Communities)
 - currently include P-GRADE and Ganga
- What other tools should we be using?
- Develop more courses in collaboration with individual VOs

More detailed and varied case studies of “success stories” are needed

- we invite VOs to cooperate with us on these
- need to include details of:
 - patterns of software deployed
 - types of services that VOs used
 - what problems they overcame
 - what "building blocks" (*script/code/higher level service*) were created?
 - can NA3 help to propagate these across other (or all) VOs?

Site installation and site administration courses

- Demand for these course types from SA1
- Problems:
 - low numbers of participants for more specialised courses
 - can't provide "one-off" courses for individuals
 - wider range of expertise/experience required from trainers

- Collaboration with related projects (e.g. BEinGRID)
- Market survey of potential for commercial Grid training being performed by external consultants (Qi3, Cambridge, UK) – results due end July 2007
- Analysis of participants in past training events showed ~13 came from industrial backgrounds
- Grid School for Industrial Applications scheduled for July 2007, Catania, Sicily (not an EGEE event but will involve EGEE partners)
- Ongoing collaboration with Industry Task Force on training provision for industrial partners

- **Frequent changes needed to respond to:**
 - New or amended middleware
 - Former middleware functions deprecated
- **VOs – scope for cooperation to:**
 - identify specific requirements for new applications areas
 - generate new course modules
- **Provision of training in a “bleeding-edge” technology environment is challenging**

<http://www.egee.nesc.ac.uk>