EGEE

TRAINING PLAN

TO BE REVISED AT M15

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Abstract:

The purpose of this document is to describe the first revision of the Training Plan for the EGEE Project. It describes the strategy adopted by EGEE Networking Activity 3 (NA3 – User Training and Induction) in carrying out the training and induction responsibilities assigned to it in the EGEE Technical Annex, summarises events held to date, and indicates the events scheduled and planned for the future. The roles assigned to the 22 partners involved in the work of NA3 are described, as are the mission and goals of the activity.

This Plan will be updated again at month 15 of the EGEE project.

Delivery Slip

	Name	Partner/Activity	Date	Signature
From	David Fergusson	UEDIN/NA3	12/12/04	
Reviewed by	Moderator and reviewers			
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Document Change Record

Issue	Item	Reason for Change

CONTENT

1. INTRODUCTION

1.1. PURPOSE OF THE DOCUMENT

The purpose of this document is to describe the training and induction strategy of the EGEE project. This work is the responsibility of Networking Activity 3 (NA3 – User Training and Induction).

1.2. APPLICATION AREA

All stakeholders in the EGEE project are potential recipients of EGEE training and contributers to activities:

- New members of the EGEE project, requiring to be introduced to the structure and methods used in EGEE. (Induction events intended specifically for such staff will be provided.)
- Project participants who are Grid-aware but not EGEE-aware.
- EGEE project members requiring to take part in advanced multi-day courses focusing on specific topics.
- Subject specialists who require to understand how Grid technology, and EGEE in particular, relates to their area of expertise and how they can engage with it. (New subject areas will be identified during the project by NA4, and will be provided with induction and training geared to their area.)
- Staff requiring to install and maintain EGEE middleware.
- Staff requiring to create and maintain EGEE websites to agreed standards of usability and accessibility.

Other categories may develop as the project proceeds. It is recognised that NA3 must be flexible enough to respond to training and induction requirements as they arise.

1.3. REFERENCES

[R1]	EGEE Technical Annex (TA) https://edms.cern.ch/document/400278
[R2]	NA3 Execution Plan https://edms.cern.ch/document/461605
[R3]	EGEE Induction & Training: Planning an Event https://edms.cern.ch/document/475027
[R4]	EGEE Induction & Training: Running an Event https://edms.cern.ch/document/475028
[R5]	NA3 Activity Quality Assurance Plan https://edms.cern.ch/document/483910
[R6]	NA3 Activity Report for first 9 months https://edms.cern.ch/document/533762

1.4. DOCUMENT AMENDMENT PROCEDURE

Requests to amend the Training Plan must be made to the main author (David Fergusson, email dfmac@nesc.ac.uk) in the first instance.

If the amendment relates to specific training or induction events, appropriate revisions will be made to the on-line tables of events in the NA3 Intranet pages (see http://www.egee.nesc.ac.uk/schedreg/), and the EGEE external website (http://public.eu-egee.org/); these revisions will also be publicised as appropriate through the normal channels for advertising training, induction and other events. At present these channels consist of the training pages on the external EGEE site, the home page in the internal EGEE site (http://egee-intranet.web.cern.ch/egee-intranet/), and the NA3 pages in the internal EGEE site (http://www.egee.nesc.ac.uk/). Since such changes *will* occur, we recommend referring to the on-line tables at http://www.egee.nesc.ac.uk/schedreg for the latest information.

Other requested changes to the text of this document will be recorded, and will be taken into account prior to the document's submission to the EGEE internal review process or to the EU as deliverable DNA3.1.2; or else the requested change will be taken into account when preparing the next update of the document, at month M15 of the Project.

1.5. TERMINOLOGY

Definitions

Glossary

Ant	A tool from the Apache Software Foundation that automates compilation and packaging of class files.
API	Application Programmer Interface
AUEB	Athens University of Economics and Business, Greece
BGConsortium	Bulgarian Grid Consortium
BUTE	NA3, partner 5: Budapest University of Technology and Economics, Hungary; Central Europe Federation
CEGTO	Central European Grid Training Organisation
CERN	European Organization for Nuclear Research, Geneva, Switzerland
CESNET	NA3, partner 4: CESNET z.s.p.o., Prague, Czech Republic; Central Europe Federation
CIS	Commonwealth of Independent States, the 12-member grouping of former Soviet republics
CYFRONET	Partner 10: Akademickie Centrum Komputerowe CYFRONET akademii Gorniczo-Hutniczej im.St. Staszica w Krakowie, Cracow, Poland; Central Europe Federation
EGEE	FP6 project: Enabling Grids for E-science in Europe

ELUB	NA3, partner 6: Eotvos Lorand University, Budapest, Hungary; Central Europe Federation
EMI	EGEE Member Induction
EPCC	Edinburgh Parallel Computing Centre
ERA	European Research Area
EU	European Union
FP6	Sixth Framework Programme of the EU
FZK	NA3, partner 28: Forschungszentrum Karlsruhe GmbH, Germany; Germany & Switzerland Federation
GAI	Grid-Aware Induction
GENIUS	A Grid portal made available by INFN and used in EGEE training
GILDA	A Grid testbed made available by INFN and used in EGEE training
GridPP	A collaboration of Particle Physicists and Computing Scientists from the UK and CERN, who are building a Grid for Particle Physics
GRNET	NA3, partner 51: Greek Research and Technology Network, Athens, Greece; South-East Europe Federation
GT3	Globus Toolkit 3, Grid middleware
GUP	NA3, partner 2: Institut für Graphische und Parallele Datenverarbeitung der Johannes Kepler Universität Linz, Austria; Central Europe Federation
IAG	Israel Academic Grid
ICI	NA3, partner 53: National Institute for Research and Development in Informatics, Bucharest, Romania; South-East Europe Federation
ICM	NA3, partner 11: Warsaw University Interdisciplinary Centre for Mathematical and Computational Modelling, Poland; Central Europe Federation
IG-BIGEST	The Italian Grid for Business, Industry, Government, E-science & Technology
IHEP	NA3, partner 41: Institute of High Energy Physics, Protvino Moscow Region, Russia; Russia Federation
II-SAS	NA3, partner 13: Ustav Informatiky, Slovenska Akademia vied, Bratislava, Slovakia; Central Europe Federation
IMPB RAS	NA3, partner 42: Institute of Mathematical Problems of Biology of Russian Academy of Sciences, Puschino, Moscow Region, Russia; Russia Federation
INFN	NA3, partner 31: Istituto Nazionale di Fisica Nucleare, Italy; Italy Federation
ITEP	NA3, partner 43: Institute of Theoretical and Experimental Physics, Moscow, Russia; Russia Federation
ITI-CERTH	Information and Telematics Institute of the Center for Research and Technology Hellas, Greece
IUCC	Israel's NREN
JINR	NA3, partner 44: Joint Institute for Nuclear Research, Dubna, Russia; Russia Federation
JRA2	EGEE Joint Research Activity 2: Quality Assurance Activity

KU-NATFAK	NA3, partner 34: Faculty of Science, University of Copenhagen, Denmark; Northern Europe Federation
MTA SZTAKI	NA3, partner 8: Magyar Tudomanyos Akademia Szamiastecnikai es Automatizalasi Kutato Intezet, Budapest, Hungary; Central Europe Federation
NA2	EGEE Networking Activity 2: Dissemination and Outreach Activity
NA3	EGEE Networking Activity 3: User Training and Induction Activity
NA4	EGEE Networking Activity 4: Application Identification and Support Activity
NEG	Northern European Grid
NeSC	UK National e-Science Centre, Edinburgh, Scotland
NGUI	Non-Grid User Induction
NICE	CERN computing service (Windows, Network Integrated Computing Environment).
NOA	National Observatory of Athens, Greece
NREN	National Research and Education Network
NTUA	National Techical University of Athens, Greece
PEB	EGEE Project Executive Board
PNPI	NA3, partner 46: Petersburg Nuclear Physics Institute of Russian Academy of Sciences, Gatchina, Leningrad District, Russia; Russia Federation
RDIG	Russian Data Intensive Grid – Russia federation in EGEE
RoGrid	Romanian Grid consortium
RRC KI	NA3, partner 47: Russian Research Centre “Kurchatov Institute”, Moscow, Russia; Russia Federation
SA1	EGEE Service Activity 1: European Grid Support, Operation and Management
SEE	South-East Europe: an EGEE federation including Bulgaria, Cyprus, Greece, Israel and Romania
SOAP	Simple Object Access Protocol
TA	EGEE Technical Annex
TAU	NA3, partner 52: Tel Aviv University, Tel Aviv, Israel; South-East Europe Federation
TCR	NA3 Training Component Repository
UEDIN	NA3, partner 17: University of Edinburgh, Scotland; UK & Ireland Federation; lead partner for NA3
UNINNSBRUCK	NA3, partner 3: Institut für Informatik der Universitaet Innsbruck, Austria; Central Europe Federation
UoC	University of Crete at Heraklio, Greece
UoI	University of Ioannina, Greece
UoPatras	University of Patras, Greece
UoPiraeus	University of Piraeus, Greece
WSDL	Web Services Description Language

XML	Extensible Markup Language, the foundation on which Web Services are built

2. EXECUTIVE SUMMARY

User Training and Induction is the responsibility of Networking Activity 3 (NA3). This document describes the EGEE training plan for the second year of the EGEE project, and explains how the training and induction targets detailed in the EGEE TA (see https://edms.cern.ch/document/400278) have been interpreted and assigned to the NA3 partner organisations.

In order to explain the context of this work, this document restates the mission and goals of the project and of NA3's part in it, summarises the 22 NA3 partner organisations, their particular strengths and the roles they are expected to play in the work, expands and interprets the types of training and induction events summarised in the TA, and explains how the partner organisations have been assigned components of the work based on their abilities and circumstances.

The first version of this document provided a preliminary analysis of requirements which identified some necessary adjustments to the delivery of training as had been envisaged in the TA. This adjustment did not reduce the target number of participant-days or depth of skill development to be achieved. In a similar manner, to respond to demand, experience and events, the program of training will have to be revised for the forthcoming period. In the main this will be a shift of emphasis recognising the increasing maturity of the project.

The training roadmap developed thus far is presented in tabular form. In some cases only the NA3 partner(s) responsible, the type of event and the project Year (1–2) and Quarter (1–4) within which the event is to be held are specified; in other cases partners responsible have supplied details of the courses, dates and venues. Details of past events, including registration details, materials used and summary statistics, are accessible on-line: see http://www.egee.nesc.ac.uk/schedreg/past.html.

EGEE partner 17 (UEDIN), the lead partner for NA3, is required to ensure that the NA3 partners carry out the training and induction events assigned to them, and collect statistics on the events, including feedback from trainers and participants, in order to ensure training quality and to improve the training plan.

The material gathered and created for the EGEE training events is being made generally available to the community as soon as possible. It is seen as an important resource to be reused and refined according to particular circumstances. This material is held in a database repository, and is accessible via the NA3 EGEE-internal web pages: see http://www.egee.nesc.ac.uk/trgmat/. While not directly related to the training plan, it is an important mechanism for enabling partners to gain early access to material and modify it for their own uses.

EGEE training activities and the development of the associated infrastructure, are well under way. However, in order to ensure a successful activity throughout the lifetime of the project, there are a number of issues which require continuous attention; in particular:

- the need to keep up the momentum so that the minimum requirements laid down by the TA are exceeded
- the need to keep in contact with other EGEE activities, especially the technical activities, so that the training courses offered remain relevant as the middleware and applications develop
- the need to ensure that the training repository is well maintained, and effectively used within the project
- the need to keep in regular contact with NA2, to ensure that potential EGEE users identified as a result of dissemination and outreach work are made aware of the EGEE induction and training available
- the need to ensure that EGEE expert resources are used effectively

- in the context of the previous issue, that e-learning methods – the delivery of courses via the Web – are successfully employed, in addition to conventional methods
- the need to deliver t-Infrastructure (e-Infrastructure specialised for and dedicated to training) to support effective, scalable training.

3. REQUIREMENTS ANALYSIS

3.1. PRELIMINARY ANALYSIS OF REQUIREMENTS

NB. The initial requirements analyses are quoted here to provide context for the discussion in the next section.

"As expected, the main experience at this early stage in the project has been in planning and running induction courses.

The expected average number of attendees (50) and length of induction courses (two days) are given in the TA. When induction courses were allocated to NA3 partners, it was noted that if for reasons related to local conditions the participant numbers or duration of a course required to be different from what was estimated in the TA, then this was acceptable; i.e. the partner(s) had discretion to make adjustments, *so long as* the total number of participant-days overall did not fall below the set targets. In practice it has been found that this adjustment is frequently made: the general experience of induction courses in particular indicates that there will be more induction events, but involving fewer than 50 people per event.

For induction events this is acceptable. For application and developer training events, particularly where specialist speakers are involved, it may be more difficult to make such adjustments. The indications are that more advanced courses will require more planning, and a longer lead time, to ensure a sufficient take-up and an efficient use of resources.

Two application developer courses were run in Edinburgh, Scotland in June 2004: on Web Services and on the GT3 toolkit; and an advanced course, on LCG-2 installation, is scheduled to be run in July 2004 in Oxford, England. From a recent training requirements exercise carried out within the UK, and from direct enquiries to NA3, it is clear that there is a current demand in the community for basic technical courses (such as on Web Services), and for specific installation courses (currently LCG-2 installation). In order for such courses to be properly focused within the EGEE context, however, it is necessary for NA3 to receive direct, *and timely*, input from other EGEE technical activities, specifically SA1 and NA4."

3.2. REVISED REQUIREMENT ANALYSIS

Requirements gathering exercises have been conducted at the 1st EGEE conference in Cork, the UK All Hands meeting and most recently at the 2nd EGEE conference in den Haag. The EGEE conferences provide a particularly valuable opportunity for this activity as they bring together a majority of the active participants and managers for the EGEE project. Being able to gather this information in a face-to-face manner is well understood, in the social sciences, to be more efficient and effective in this type of survey (indirect surveys have notoriously low response rates and can be similarly difficult to analyse).

At den Haag 49 structured interviews were carried out which represents at least 14% of the attendees at the meeting (estimates of exact numbers of attendees are difficult as there are full-time attendees, daily registrants and delegates from multiple projects attending the concertation meeting – of which some may be member of more than one project). Similarly this corresponds to something in the order of 10% of the total membership of EGEE (again this can only be a rough estimate as the EGEE membership is continually expanding due to new subject domains being added and the notional correspondence between EGEE FTEs and individuals). However, it is clear that the respondents represent the main group of active EGEE participants.

While there is still a steady requirement for induction courses to support new communities there is an increasing demand for Application Developer and Advanced courses. These cover the topics of: Web Services; Security; gLite components and architecture; LCG2 and gLite installation and administration.

4. OUTLINE TRAINING ROADMAP

4.1. APPROACH

The outline training roadmap was arrived at by the lead NA3 partner, UEDIN, allocating courses to partners by course type and year within the project, in accordance with the overall targets specified in the TA, making allowance for the experience and strengths of each partner and the EGEE budget assigned to them; and inviting a response from partners to give details of the courses which they planned to run within that broad framework. It was recognised that local conditions vary across Europe, and that the experience of the partners would be brought into play in refining the initial allocation.

It is stressed that the initial allocation was based on minimum targets: the expectation is that more training and induction events will be organised and run than are specified. The experience of the first yearly Quarter of the project bears this out.

Not all of the partners have yet responded with details of the courses they plan to organise. However as the project gains momentum it is anticipated that this will change, and that the on-line version of the roadmap (see http://www.egee.nesc.ac.uk/schedreg/future.html) will reflect rapid developments.

The current training roadmap is given in section 6.2.

4.2. EXPECTED TRENDS AND EVENTS

The following trends and events are expected to occur; some have already done so:

Trend: An initial emphasis on EGEE-internal training.

Trend: Early requirements for introductory courses – which will continue as the user community grows.

Trend: Incremental growth of progressively more advanced and more specialised courses.

Trend: Events becoming easier to organise when training material and procedures have been refined.

Trend: NA3 partners volunteering to put on courses additional to their initial allocation in response to local requirements.

Event: Introduction of new application communities as arranged by NA4.

Event: Material produced and short courses held to enable understanding and exploitation of new features in Grid releases.

The above trends are unchanged from the first version of this document, have been substantial

borne out by experience and remain relevant as detailed in the preceding sections.

The Training Plan has to be flexible enough to accommodate these trends and events. It is clear that a schedule of training events fixed at the start of the project would be too inflexible to meet the developing requirements of the community.

4.3. MECHANISM FOR FULFILLING THE PLAN

4.3.1. Links within EGEE

The importance of close ties within the EGEE project cannot be over-emphasised. It is essential for NA3 to receive information from the following sources within the EGEE project:

- From NA2, about enquiries from potential new users of EGEE following dissemination activities.

  UEDIN, the lead NA3 partner, also participates in NA2 and has close ties with TERENA, the lead NA2 partner. The link is two-way, in that NA2 manages the external EGEE website, which contains information about NA3 training and induction events.

- From NA4, about new application identification.

  The training team within UEDIN has been developed with the subject areas targeted by the EGEE activity NA4 in mind. Dr Mike Mineter originally studied Nuclear Physics, but in recent years has been worked on the application of Grid computing to Geography and Earth Science, with recent experience in the use of Condor. Dr David Fergusson has worked in industry and academia; his background is in Biochemistry and Bioinformatics. Dr Guy Warner's background is in Mathematics, applied (in his PhD) to Plasma Physics; and Dr Richard Hopkins has a strong Computer Science background, having worked in industry and taught for many years at University level.

  Dr Fergusson also participates in the NA4 activity, and this synergy combined with the expertise of team members will be put to good use in keeping the NA3 events relevant to the needs of new users identified by NA4.

- From SA1, about early notification of technical training requirements.

  Recognising the importance of matching the technical training effort with current progress within the EGEE project, an NA3/SA1 liaison has been identified: Dr Rhys Newman, University of Oxford, England – this has now been changed to Dr Alistair Mills at CERN. In addition, NA3 partners who are also involved in SA1, such as UNIINNSBRUCK, MTA SZTAKI, FZK and GRNET, will be used to ensure that the technical courses offered by NA3 match the requirements of the EGEE project within their federations.

  It has been recognised that there is an unforeseen requirement for administration/installation courses within SA1, for which resources have not been allocated from either SA1 or NA3. Work is on-going to identify resources which can be used to meet this need.

  At the 2nd EGEE conference the need for easily accessible and user-centric documentation was identified within EGEE and by the external advisors. To meet this need a group (User Information Group, UIG) spanning NA2, NA3, NA4, and SA1 has been brought together in order to update the provision of information from EGEE to users. The inclusion of a JRA1 representative on in this group would also be highly advantageous.

4.3.2. NA3 partner contributions

The lead NA3 partner, UEDIN, is in contact with all NA3 partners and has had detailed discussions during the first EGEE conference (April 2004, in Cork) and at EGEE All Activity meetings. All partners have accepted their initial allocation of courses. For further details see section 6.

5. NA3 TASKS AND RESOURCES

The NA3 Execution Plan [R2] (see https://edms.cern.ch/document/461605) describes the tasks assigned to NA3 by the EGEE project and describes how they are to be carried out. The training plan (this document) describes the different types of induction and training event specified in the TA. The NA3 Activity Report [R6] summarises the events which have been scheduled and run to date. Based on this the current document will provide a roadmap for the future.

Table 1: EGEE training FTEs per Federation, taken from the Training Plan (DNA3.1.1).

Federation	Effort in FTEs
South East Europe	3.44
Russia	4.13
Northern Europe	1.33
Italy	1
Germany/Switzerland	1
Central Europe	5.29
UK/Ireland	6
TOTAL	22.19

This equates to about 1 FTE per partner in NA3 (22 partners) or about 0.3 FTE per partner within EGEE (given 70 partners). As training is required over the whole geographical span of the project (and beyond) and for all activities these figures give a measure of the effort compared to the size of the task.

5.1. T-INFRASTRUCTURE

The need for t-Infrastructure that is a parallel infrastructure dedicated to training has been clearly identified within EGEE. As part of the provision of LCG-2 installation/administration courses this has initially been partially met in an ad hoc, temporary manner by the removal of production infrastructure components (for instance in courses at Oxford and Karlsruhe). While this expedient has been highly successful it is not sustainable in the long term. In order to begin to address this particular requirement UEDIN is putting in place a 20 node grid dedicated to this type of course.

The relationship between t-Infrastructure and e-Infrastructure can be characterised as follows:

1. The t-Infrastructure emulates the e-Infrastructure as accurately as possible with respect to the technical, operational and management issues being covered by courses using the t-Infrastructure.
2. The version of t-Infrastructure may correspond to a future e-Infrastructure deployment to prepare developers and operations staff for that deployment.
3. The arrangements for authentication will permit rapid certification at or just before the start of the course.
4. The arrangements for authorisation may restrict imposed loads compared with normal use or not exist because the t-Infrastructure is operated in isolation.

Typical requirements on e-Infrastructure of an introductory course are that demonstrations must run at the moment they are needed in that course and exercises must run just as the students, often in concert, reach that exercise, therefore, reserved / pre-booked capacity must exist to give guaranteed response during the course. Typical requirements on t-Infrastructure for a course developing systems administration expertise include direct access to a group of isolated machines for each group of students, so that they can make systems-level mistakes and reboot with affecting other students or production services. Self-paced learners require "always-on" t-Infrastructure with a self-explanatory portal, such as that provided by GENIUS (https://grid-demo.ct.infn.it).

5.2. WEB PORTALS

Web portals provide important static training sites which nevertheless can reflect a fast moving subject area in ways that are impossible for more traditional forms of publishing. This makes them invaluable resources for training in an environment like EGEE. The portals allow for self-paced learning outside the traditional class-room scenario.

5.2.1. GENIUS/GILDA

The GENIUS portal provided by INFN using the GILDA test-bed grid (https://gilda.ct.infn.it/) provides easy access to a variety of grid applications in many of the EGEE subject domains coupled with a user friendly interface and a series of tutorials on getting started with grids. Coupled to this INFN have also produced a video tutorial for the GENIUS interface (http://real1.rm.cnr.it:8081/ramgen/Grid/Grid.rm, http://real1.rm.cnr.it:8081/ramgen/Grid/Demo/DemoBarbera.rm).

In order to simplify the initial experience of grid applications the GENIUS portal also has a demonstration mode where prior certification of users is not required. This allows prospective users to access the grid applications immediately.

A CD based instantiation of a grid User Interface client has also been produced by INFN to allow users to interact from their own LINUX machines with the GENIUS/GILDA grid. This is provided as an ISO image using the KNOPPIX LINUX distribution (https://gilda.ct.infn.it/live-cd/gilda-live-ui.iso).

Those wishing to use GILDA facilities to support their own training should complete a web-request at https://gilda.ct.infn.it/request_tutorial/.

5.2.2. NA3 web portal

The UK NA3 partner (NeSC) has hosted a NA3 web site (http://www.egee.nesc.ac.uk/) which serves to advertise all of the EGEE courses, publish EGEE training statistics, provides facilities for requesting courses and makes EGEE course material available through a materials archive.

The UK partner also makes available web registration for courses for those engaged in training throughout EGEE.

5.3. E-LEARNING

AccessGrid (http://www.accessgrid.org/) has been used on an experimental basis for providing advanced course material for the Glasgow-based distributed computing MSc. This had the format of a traditional one hour lecture delivered over AccessGrid. The medium appeared to be satisfactory for this teaching format in the first instance.

The use of the SMIL web-based system for presenting video and slides (http://www.w3.org/TR/XHTMLplusSMIL/) was demonstrated at the NA3 Open Meeting in Karlsruhe by our GRNET partners.

5.4. MISSION AND GOALS

The principal aim of EGEE, a European project funded under the Sixth Framework Program (FP6), is to integrate existing national, regional and application Grid efforts in order to create a production-quality European Grid infrastructure operating 24 hours per day which will enable access to computing, storage, instrumentation and informational resources across the ERA, for a diverse range of e-Science user communities. (For more information on FP6 and the ERA, please refer to http://europa.eu.int/comm/research/fp6/.)

5.4.1. Objectives of NA3

Within the overall aim of the EGEE project, the objectives of the NA3 activity are:

- To produce a portfolio of training material and courses, from introductory to advanced.
- To use this material to train a wide variety of users, both internal to the EGEE consortium and from the external user groups across Europe who will make use of the EGEE infrastructure.
- To ensure that an EGEE Team Spirit is engendered early in the project's lifetime.

5.4.2. Event types

The types of training and induction event specified in the TA, with size, length and frequency of each, are as follows:

Table 2: EGEE Induction and Training Courses planned in the Technical Annex

	Event Type			
	Induction Courses	**Application Developer Training**	**Advanced Courses**	**Technical Activity Retreats**
Number per Year	10	8	2	6
Average Attendance	50	25	25	30
Course Length (days)	2	4	5	2
Course Equipment	Web Access	Workstations	Workstations	
Num. of EGEE Staff	2	2	2	2
Number of Experts from outside EGEE	0	1	3	0

A non-EGEE expert is a person imported from another project or organisation to give expert advice, often from outside Europe, e.g. Prof. Miron Livney from Wisconsin University for Condor Week in UK.

These can be compared with the actual values for the first 9 months shown below.

Table 3: EGEE Induction and Training Courses as delivered in the first 9 months

	Event Type			
	Induction Courses	**Application Developer Training**	**Advanced Courses**	**Technical Activity Retreats**
Number per Year	**30**	6	**5**	4
Average Attendance	23	10	**37**	30
Course Length (days)	2	2	**5**	2
Course Equipment	Web Access/Access to GENIUS/GILDA. High bandwidth networking	Workstations/Access to GENIUS/GILDA. High bandwidth networking	Up to 5 Workstations per participant group (requirements for LCG2). High bandwidth networking	
Num. of EGEE Staff	2 - 3	2 - 3	2 - 5	2
Number of Experts from outside EGEE	0	0	Varies as required	Varies as required

The shaded cells indicate where the targets have already been met or exceeded.

NB. LCG2 installation requirement is an example of t-Infrastructure – this number of machines available for exclusive use is necessary to emulate site installation.

The first 9 months of this training have been very successful, exceeding planned targets for the first full year by substantial margins. Overall, 1033 people have attended 39 training events that have delivered a total of 15,797 participant days.

This breaks down into:

- **11,584** participant days at induction events (1000 expected) or **1158.4% of targets**
- 286 participant days at developer courses (800 expected) or 35.75% of targets
- **3,732** at advanced courses (250 expected) or **1492.8% of targets**
- and **481** at workshops (360 expected) or **133.6% of targets**

Figure 1: Graphical representation of the training events by category over time

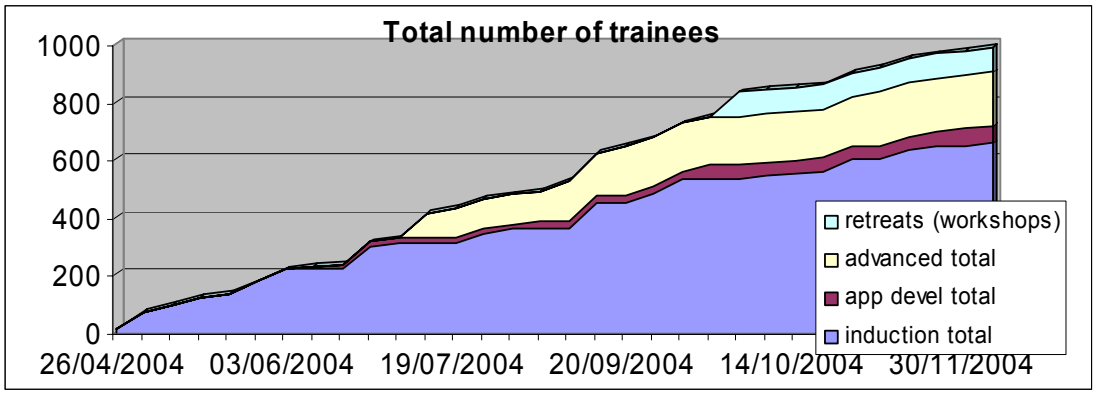


Figure 2 shows that the initial focus in training was on induction and, while this effort is continuing, more advanced course have been added over time. This is a function of the start-up phase of the project moving into the mature production phase.

In every case except developer courses, this is well in excess of the planned targets for the first 9 months. This has been achieved because of the enthusiasm and hard work of members of EGEE drawn from many activities across all regions. The developer courses have taken longer to prepare, have required higher trainer to participant ratios and have more diversity than originally anticipated. The increasing functionality and resources of the operational EGEE systems and the growing diversity of user communities from more and more disciplines guarantee that demand for developer courses will significantly increase – it already exceeds supply. We have already recognised the need and begun addressing it with:

1 – courses:

Courses focussing on Web Services, to prepare for gLite, and LCG2 APIs. These have been presented by UEDIN and CERN. These courses have created materials which can be used by other partners to present such courses.

2 – planning:

The creation of the materials archive in order to provide support to partners in running these m more complex courses.

3 – commitments:

The Russian partners are planning four such courses, the Czech partner, Isreali partner and the Danish partner to one each.

UEDIN, as lead partner will continue to work to provide support for theses courses in terms of materials and also to fill gaps in the NA3 geographical coverage in order to meet these requirements.

What is also clear is that the resources per course are higher than was initially estimated. This can be seen, from the table above (tables 2 and 3), reflected in the reduced number of days per course which results in more administration per participant day, fewer participants per course, greater numbers of trainers required and increased e-Infrastructure requirements. The reduced numbers of participants per course needs to be accepted as a necessary adjunct to maintaining quality in training provision. Shorter courses are necessary to fit with participants' constraints. We are therefore adapting our provision to match the participants' requirements and constraints.

5.4.3. EGEE induction courses

An induction course has the target of bringing new people in as EGEE participants or users. The majority will be new recruits to the EGEE project; they will all be new users.

Induction training material includes how to become a registered user of EGEE, the simple use, via portals, of established facilities run by EGEE, and Virtual Organisations (VOs). It also includes good real-world examples, and provides motivation for persevering with what can be a difficult technology. This uses the GILDA/GENIUS t-Infrastructure.

Induction includes an introduction to the further courses: e.g. the courses for application developers who then know how to integrate applications with EGEE infrastructure and deploy them.

Three different subclasses of user induction must meet the requirements of numbers trained, timeliness and quality.

1. EGEE Member Induction (EMI): for EGEE team members to be oriented and prepared to be effective in EGEE (New hires and old hands).
2. Grid-Aware Induction (GAI): for users already grid-aware to be inducted to be EGEE users.
3. New Grid User Induction (NGUI): for users who are grid-naïve to be inducted to be EGEE users.

Induction events have been staged in: UK, Austria, Switzerland, Italy, Greece, Slovakia, Netherlands, Russia, Germany, France, Lithuania, Czech Republic and Poland (including Isreal and Turkey within the period to end of December 2004).

The induction material has be re-used and updated in many courses. It has also been produced and delivered in languages other than English, e.g. German, Greek, French and Russian.

5.4.4. Application developer training courses

A developer is a person who can be external to EGEE or be within EGEE, but who intends to build new applications that:

- run in the context of EGEE
- exploit EGEE facilities
- will become available to other EGEE users.

The training assumes expert levels of programming in an application domain, but does not necessarily assume prior experience of Grids or Web Services.

An application-developer training course develops the necessary understanding of the computational context provided by the EGEE platform. It acquaints the developer with the commonly used functions of that platform and their APIs. Participants will also learn of the constraints on applications and on users, and the tools available for monitoring and debugging operational applications.

In terms of the initial Training Plan the expectation was that Application Developer courses would generally be 4 days long. In practice it has been found that developers are unwilling to commit this length of time to training courses, which reflects their work load. This has meant that these courses have in reality been run over two days (from experience a 2 – 3 day course also appears to be better in terms of maintaining participant focus).

In response to demand from the NA4 (Applications) activity the Application Developer courses have concentrated on the LCG-2 APIs, Globus Toolkit and Web Services, in anticipation of the gLite middleware. Topics covered have included: Web Services architecture and protocols; WSDL; JAX-

RPC; Ant; deployment using JWSDP and Tomcat and practicals on creating servers and clients from WSDL definitions.

Material on using UML modelling for good software design practice in conjunction with web services (WSDL) has also been produced and is available to help improve development practice.

5.4.5. Advanced courses

Participants on an advanced course will already be experienced users of Grid-based systems such as EGEE, and will have developed applications services, helped to establish new virtual organisations or have engaged in supporting EGEE site operation.. In other words they will be well experienced in the underlying technology, its management and use. Typically, their knowledge and skills will be at least on a par with someone who has completed an application developer course and reinforced this with several months of intensive work developing and using applications in the context of the EGEE platform. We now recognise that there is a separate contingent of operations staff who require advanced courses on middleware installation and site management.

They will come to such courses expecting to work intensively to acquire advanced knowledge and skills in a specific technological area: e.g. fabric management, system administration, job submission, workload management or scheduling. Another example might be large-scale data management and data integration. This type of course will require input from imported experts.

The aim is that after such a course the group of developers would be able to build better applications and systems infrastructure in the area on which the course was focused. They should act as effective advocates for the benefits of using EGEE infrastructure as an environment for applications. Many will also become important *well-informed* sources of requirements input to the design of future EGEE platform releases.

It was envisaged that such courses would not start before Q4 2004, and would be held either at NeSC or at CERN. In practice advanced courses have been already been staged in: Italy, Russia, UK and Germany due to the unforeseen high demand for these courses. As this is a previously unforeseen requirement, to which we wish to respond, we need to take care to balance this with other requirements, eg. Application Developers' training.

Materials produced have so far dealt with the installation and administration of LCG-2.

This type of course includes the LCG-2 installation and administration courses (and gLite in turn). Initially there was expected to be a relatively low demand for these courses as much of the training was expected to occur within operational centres and to have a degree of 'on the job training' character.

However it is becoming clear that middleware installation, and particularly configuration, requires more training at more sites (for instance university departments) than was initially expected. This is intimately tied with the provision of user support and these need to be coordinated.

One limitation on the provision of the courses outlined above is the heavy requirement for hardware for installation and the need to keep this separate from the production infrastructure.

5.4.6. Technical activity retreats

Technical activity retreats are intended to be intensive technical meetings focusing on a specific topic or area at an advanced level. It is anticipated that the need to have such retreats will be forthcoming from the technical activities within the EGEE project; that is, it is *not* expected that NA3 would initiate such an event (although this has in fact happened as part of the training effort in the first 9 months). It will be the task of NA3 to facilitate such retreats, by finding suitable venues, arranging for external speakers or session leaders, preparing paperwork, and undertaking registration and other

administrative arrangements. The technical input, however, is expected to come from the EGEE activity itself.

Workshops have been staged in: UK, Slovakia and Italy

5.4.7. The EGEE 'Virtuous Cycle'

The so-called EGEE 'virtuous cycle', described in the TA, is a graphical way of demonstrating how success can breed success in disseminating and developing the use of EGEE.

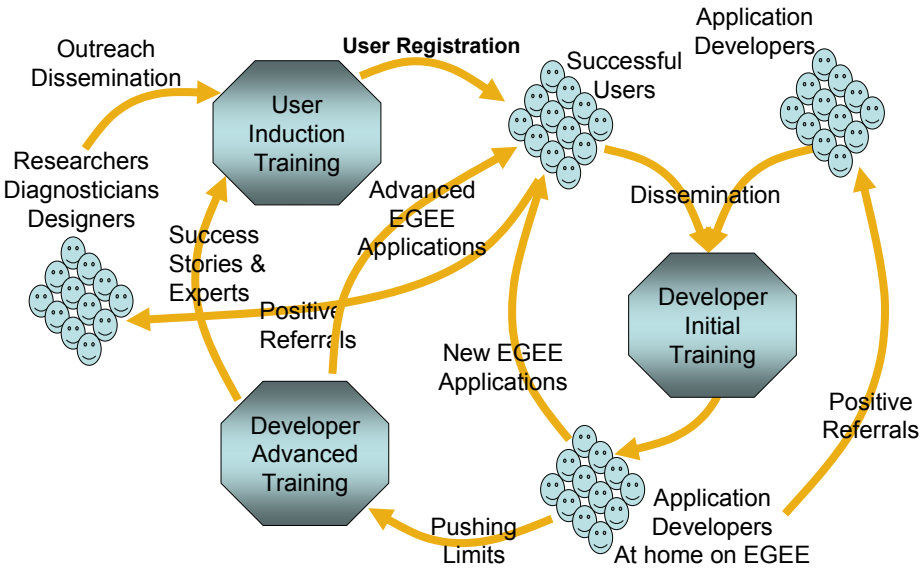
The following diagram represents an elaborated version of the original, in which additional feedback loops are described. NA3, together with NA2 and NA4, has a major part to play. A new scientific community makes first contacts to EGEE through outreach events organized by NA2 and NA4. Follow-up meetings by applications specialists may lead to a definition of new requirements for the infrastructure. They may require training by NA3, integrated with these meetings to inform and orient their deliberations. If approved, the requirements are implemented by the EGEE middleware activities. After integration and testing, the new middleware is deployed by the service activities. NA3 then provides appropriate training to the community in question, so that it becomes an established user. Peer communication and dissemination events featuring established users then attract new communities.

As existing Grid user groups develop new EGEE applications, participation in EGEE by new groups becomes more attractive. Positive referrals by Grid-aware members of a technical community attract other members of the community to try out the facilities offered by EGEE. As more advanced Grid users develop applications which push the limits of Grid computing, a further round of advanced courses becomes necessary, and a new level of sophistication within the community is reached.

The part played by NA3 in closing the 'virtuous cycle' is central: new participants can only become part of the established user community by being inducted and trained. But the training offered by NA3 can only remain relevant through close cooperation with other EGEE activities.

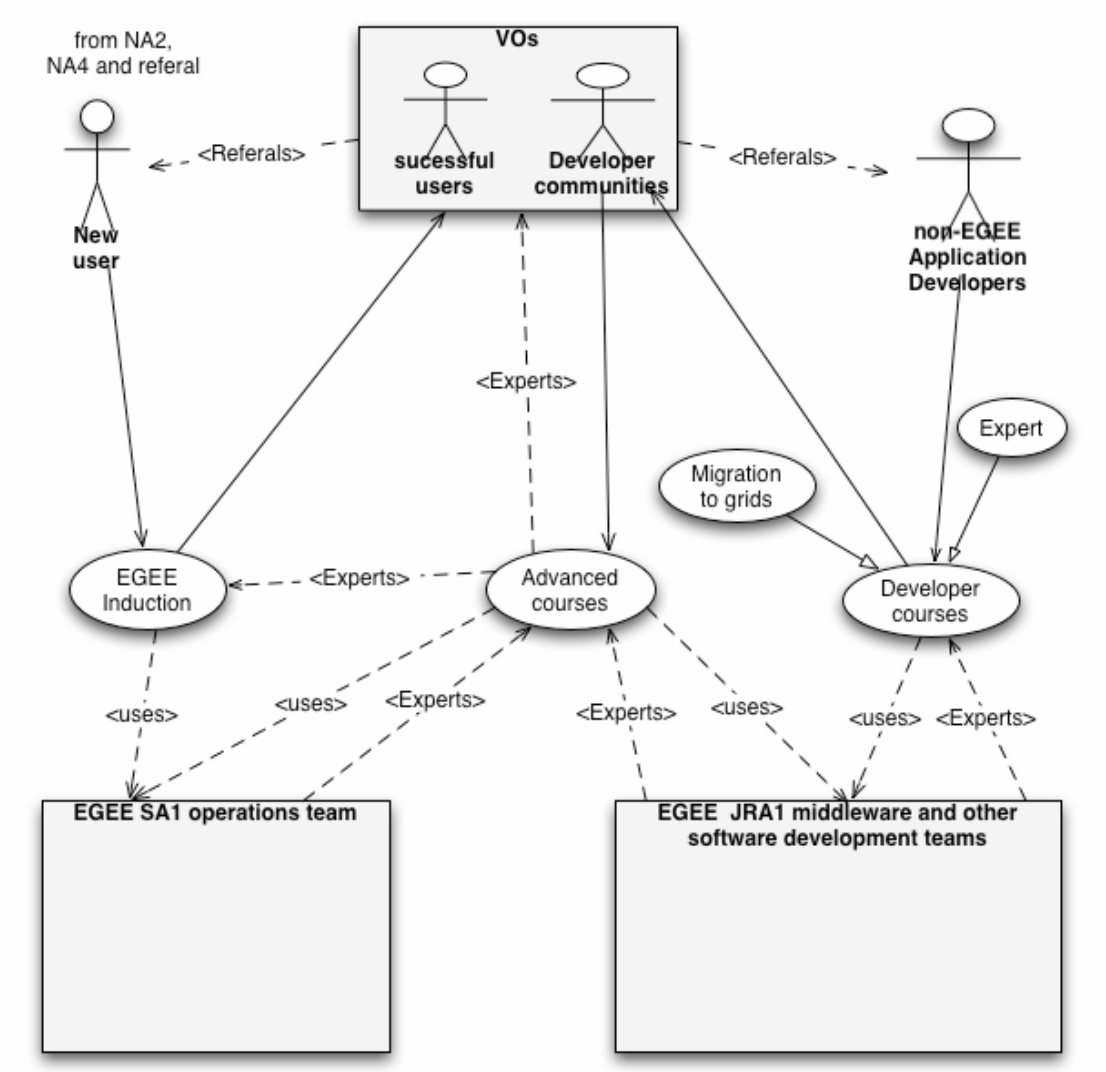
It is difficult to quantify the likely activity in these different processes. However, the TA (see table above) specifies that there will be at least, *per year*, 1,000 participant-days of induction, 800 participant-days of application developer training, 250 participant-days of advanced training and 360 participant-days spent in technical activity retreats. As discussed earlier, these targets have in general been exceeded in the first 9 months.

Figure 2: ***Elaborated 'Virtuous Cycle'***



The virtuous cycle can also be presented as below:

Figure 3: UML Use Case diagram of the relationships between course types, EGEE users and EGEE activities.



NB. As is customary with UML diagrams not all components and relations are explicitly shown, only those which are informative in context. For instance the Training (NA3) activity is omitted as it would be connected to all of the entities and therefore obscure the other relationships.

5.4.8. Quality control

There are a number of stages in the overall process where quality control can be applied. It is understood that partner organisations were included in the EGEE project because of their proven track record, and it is not appropriate (or feasible) for the lead NA3 partner, UEDIN, to attempt to confirm every aspect of a partner's performance in carrying out its NA3 responsibilities. However, it is deemed reasonable to provide checklists of items to be considered and used in preparing and running events, and confirming where possible that these guidelines have been adhered to. In addition, receiving feedback from events is not only a useful way of establishing whether the event was effective, but is

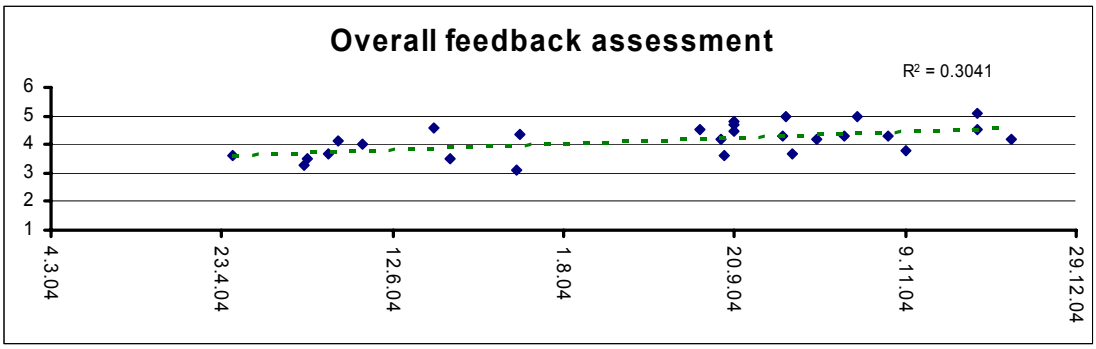
essential for UEDIN to be able to gather statistics in order to demonstrate the success of the NA3 activity as a whole in fulfilling its TA requirements.

The NA3 Activity Quality Assurance Plan [R5] is available at https://edms.cern.ch/document/476468.

For each training event feedback is collected from participants. Attendees are asked to score how well the event met its goals, the individual presentations, any practical work, the facilities used and to give an overall score for the event. The scores are collected using a scale of 1 – 6 where 1 is poor and 6 is excellent.

We have always achieved better than the mid point on this scale and generally significantly above. The trend shows steady improvement.

Figure 4: Graphical representation of the participant perception of the overall quality of EGEE training courses



The dashed line shows a regression of the quality data and the r^2 value is given.

As would be expected, in a project where training events are being presented across Europe by many different groups, the graph above shows that there is a degree of variation in the quality reported for courses. Encouragingly the general perception of the courses by attendees appears to be good and improving. It is likely that this reflects the re-use and iterative improvement of material as well as the improving focus of training and growing experience of trainers.

Measures are being put in place in the design of the materials repository (versioning) to assist in monitoring the re-use and development of course materials. Many of these presentations, particularly for induction courses, have been revised and improved in the light of the feedback received from participants. A simple example would be the re-focussing of the Web Services material from the details of the packages involved in the Java implementation to concentrate more on the understanding of WSDL as a representation of cross-platform service interfaces (APIs) and the relation to good software engineering practice through the use of UML.

5.5. FUNDED PARTNERS IN NA3

The following table, taken from the TA, summarises the EGEE partners involved in NA3, and the total (Funded and Unfunded) FTE effort assigned to each.

Table 4: Funded Partners

No.	Partner	Total Effort (FTE)	Total Effort (Person Months)	1st year effort (Person Months)	2nd year effort (Person Months)
	UK & Ireland				
17	UEDIN (NeSC)	6	144	72	72
	Central Europe				
2	GUP	0.4	9.6	4.8	4.8
3	UNIINNSBRUCK	0.2	4.8	2.4	2.4
4	CESNET	0.86	20.6	10.3	10.3
5	BUTE	0.32	7.6	3.8	3.8
6	ELUB	0.33	8	4	4
8	MTA SZTAKI	1	24	12	12
11	ICM	0.53	12.8	6.4	6.4
12	PSNC	0.53	12.8	6.4	6.4
13	II-SAS	1.12	27	13.5	13.5
	Germany & Switzerland				
28	FZK	1	24	12	12
	Italy				
31	INFN	1	24	12	12
	Northern Europe				
34	KU-NATFAK	1.33	32	16	16
	Russia				
41	IHEP	1.35	32.4	16.2	16.2
42	IMPB RAS	0.4	9.6	4.8	4.8
43	ITEP	0.67	16.1	8.05	8.05
44	JINR	0.65	15.6	7.8	7.8
46	PNPI	0.53	12.7	6.35	6.35
47	RRCKI	0.53	12.7	6.35	6.35
	South East Europe				
51	GRNET	1.25	30	15	15
52	TAU	0.73	17.5	8.75	8.75
53	ICI	1.46	35	17.5	17.5
	Total	**22.2**	**532.8**	**266.4**	**266.4**

There are 22 partners in total involved in NA3. The activity is led by the UK National e-Science Centre (NeSC) (partner 17: UEDIN), who represent the UK & Ireland region. The following regions are also represented: Central Europe, Germany & Switzerland, Italy, Northern Europe, Russia and South East Europe.

Delivery of courses across EGEE federations

Table 5: Delivery of courses by location (end of November 2004)

LOCATION	Number of Courses	Normalised for FTEs	Number of Days contact	Normalised for FTEs
Central Europe	10	1.9	19	3.6
United Kingdom	8	1.3	16	2.6
Italy	3	3	7	7
Northern Europe	2	1.5	4	3
Russia	6	1.4	11	2.7
Germany/Switzerland	8	8	17	17
South East Europe	2	0.6	3	0.8
Baltic	1	-	2	-
Spain	1	-	2	-
France	1	-	2	-
TOTAL	39	1.7	78	3.5

NB. The table above shows the courses and effort categorised by where the events were presented. This may not match the partner which provided the tutors (eg. Spanish and Baltic events had tutors from the UK as did two of the events in Switzerland and one in Italy).

As can be seen from table 5 (above) each of the NA3 federations has delivered at least two courses during the period under discussion. The first training plan (DNA3.1.1) calls for a total of 26 training events per year, whereas 39 have actually been delivered. The courses delivered have averaged almost exactly two days each across all of the federations. The total number of attendees so far reported is 1033.

The number of courses delivered is very roughly correlated to the effort, although it is clear that the German federation in particular has delivered more courses than might have been expected. Similarly this analysis does not show the effort contributed by partners in one region in support of courses in other regions. In this context it is worth noting the high value of the INFN contribution, particularly from Catania, Italy. They have provided support for many courses, through the GENIUS training portal and the GILDA platform, out of all proportion to their nominal effort. Edinburgh (UEDIN) has provided registration support for many courses and contributed in presenting courses in areas where NA3 is not represented (eg. Spain and the Baltic countries). UEDIN provides EGEE wide (geographically and by activity) support for training course and provides the central coordination and management of the NA3 activity.

The personnel resources available within the NA3 activity of EGEE are listed below:

It is becoming clear that the demand for training exceeds the original estimates and is likely to exceed the resources available within the NA3 activity. For instance the Biomedical Application Developers course held in Madrid (6^{th} – 8^{th} October 2004) had 20 places available but 60 applicants, and this has been repeated on other courses.

A short description of each participant and their role in the project is given below, organised by region; this is based on their descriptions in the TA.

5.5.1. UK & Ireland

The University of Edinburgh (**UEDIN**), represented in the project by the UK National e-Science Centre (NeSC) and drawing on the activities and experience of EPCC, will be the lead partner for activity NA3. NeSC (**UEDIN**) employs a full-time manager responsible to lead the activity. An event coordinator at NeSC is responsible for coordinating the events, and for planning, commissioning and managing those events. Some aspects of this may be delegated to other sites for events in their region or discipline constituency. A core unit of the training team is at NeSC. There will be trainers and user-support teams at other sites, to translate material into other languages as necessary, to improve accessibility, and to have a breadth of representatives on which all of these activities are built.

NeSC (**UEDIN**) will take responsibility for managing the formation and operation of the full training team, drawing on capabilities in various user communities and on existing national and regional training and outreach centres. This will include negotiating agreements with other sites to provide training, and oversight of that training to ensure the quality of training services. NeSC will manage the schedule of EGEE training and outreach and liaise closely with the lead partners of NA2 and NA4.

For each training event it will arrange planning, development, staffing, registration and programmes. It will also liaise with the Operations, Support and Management teams to ensure that users are correctly directed to the appropriate support mechanisms.

NeSC's main technical role will be to develop the courses and supporting material. To do this, they will expect specialist help from other EGEE teams, who will be expected to provide technical information and documentation, and some presentations.

Edinburgh will also take regional responsibility for outreach and dissemination for the UK and Eire.

5.5.2. Central Europe

The Central Europe region are represented by nine organisations in NA3 (**GUP**, **UNIINNSBRUCK**, **CESNET**, **BUTE**, **ELUB**, **MTA SZTAKI**, **ICM**, **PSNC** and **II-SAS**) that consist of a number of academic and research centres, out of which several already possess noticeable experience in Grid technology, owing to participation in the Framework 5 CrossGrid, DataGrid, Eurogrid, GridLab, GRIP and GRIDSTART projects. In the past years several members of the Federation have been organising events oriented towards dissemination of Grid technologies. These events often included "Grid tutorials" and/or "Grid open days". Many partners have also organised regular seminars on Grid technology at their institutions (e.g. Cyfronet), and several promoted Grid topics in lecturing and in student theses.

The central Europe NA3 activities in EGEE will be based on this experience.

The following NA3 activities will be carried out by the Central Europe region:

- include Grid technology in academic lectures and MSc/PhD theses at the technical universities of Cracow, Brno, Budapest, Innsbruck, Linz, Poznan and others;
- organise dedicated Grid seminars for researchers at every participating institution;
- prepare tutorials on layered software oriented towards interactive applications and organise dedicated training workshops (several per year) for students and potential users;
- during the first year of the project, develop one or more dedicated training centre(s) in one or two partner countries, serving the whole community;
- prepare dissemination brochures on applications which are relevant to the Federation (e.g. "Grids for flood crisis response");
- during the first two years of the project (2004 and 2005) – organise in every country of the Federation "Grid open days" (including demonstrations), oriented to attract and induct new users;

- develop and support dedicated web pages.

5.5.3. Germany & Switzerland

FZK, Karlsruhe, the largest non-commercial science and engineering institution in Germany, represents Germany & Switzerland in NA3. The centre has close cooperation with industry, universities and institutions of higher education. For this purpose FZK operates a training centre and will offer EGEE-related courses and tutorials on a regular basis in order to promote the use of the EGEE infrastructure in Germany.

The funded EGEE activity will fulfil the training and induction requirements of German users by:

- Presentation of EGEE training and course material
- Localisation of EGEE-related material

All activities will be performed in close collaboration with the German Grid User Support Centre and NeSC. A Web portal will be installed and supported to serve as a single point of contact for the German Grid community and all other interested parties.

5.5.4. Italy

INFN, who represents Italy in NA3, has a long tradition of dissemination and training, to the scientific community and to the general public.

INFN intends to build upon their existing successful Grid dissemination activities at national and international level. INFN activities envisaged in the context of NA3 will concentrate on:

- The organisation of dedicated tutorials and training sessions all over Italy for industry, government and other sciences taking part in the IG-BIGEST initiative; this will include the production of documentation and all needed dissemination material. Subject to EGEE funding, INFN Grid can also contribute to support the EGEE participation in general European or international events.
- The set up of an EGEE separate test bed in Italy for demos, running the official middleware released within the project. This testbed, called GILDA (see http://gilda.ct.infn.it/), is fully dedicated to dissemination activities to be used during the tutorials and training events and by application users. It is assumed that other EGEE partners will take the responsibility of providing resources and support for this test bed outside Italy to gain a European dimension.
- The development, installation and maintenance of the GENIUS grid portal (see https://genius.ct.infn.it/) on the dedicated EGEE demo test bed in order to help new users to get started. INFN Grid will provide unfunded efforts with NICE to keep the evolution of this portal in line with the evolution of the EGEE middleware and LHC experiments grid application layer.

5.5.5. Northern Europe

The networking activity for the Northern European Grid (NEG) Federation is a challenge because of the variety (seven) of very different languages and cultures. As the NEG Federation started prior to (and independent of) the EGEE initiative, some measures have been taken already to improve communication and dissemination among the NEG partners. Websites and mailing lists have been established and NEG partner meetings have been organised. These measures are in addition to similar activities going on within the countries in the context of national grid activities: DutchGrid, EstGrid, NorduGrid and SweGrid have organised meetings, conferences, tutorials, etc. and website and mailing lists exist also at a national level.

Within the NEG Federation, who are represented within NA3 by **KU-NATFAK**, there is an increasing need of training at various levels. Use will be made of the material to be prepared by NeSC for the

introductory training courses, but those courses will have to be translated into the various languages and be maintained. More specialised courses will be developed within the NEG Federation itself, depending on the requests from the users and developers.

As many of the NA3 active participants from the NEG Federation are also university professors, we intend to develop academic classes at introductory and more advanced level. This material will be disseminated among the other partners in EGEE for further use.

To achieve coordination among the various NEG efforts, which are spread over seven countries, appropriate experts from all NEG partners will be delegated into a *NEG networking group*. This group will coordinate dissemination and outreach (NA2), training and induction (NA3) and application identification and support (NA4) within NEG and towards the whole of EGEE.

5.5.6. Russia

Russia is represented in NA3 by six organisations – **IHEP**, **IMPB RAS**, **ITEP**, **JINR**, **PNPI** and **RRCKI**, known jointly as RDIG (Russian Data Intensive Grid). Each of the organizations undertakes a specific role, as follows:

- IHEP – Training and Induction of users from the Moscow region. Prepare user training and course material, and support and distribute it.
- IMPB RAS – Produce training and course materials on GRID in Biology. Undertake training and induction of users in Biology.
- ITEP – Produce training and course material. Undertake training of users from Russian nuclear centres.
- JINR – Organise the Grid tutorials, training and education for the EGEE user community in CIS countries. Provide support for distributed courses on the project.
- PNPI – Provide user training and GRID tutorials for St Petersburg region.
- RRC KI – Training of the users for CA and Security. Prepare training and course material, and support distributed courses on these topics.

The work of the NA3 Russian partners is coordinated by Elena Slabospitskaya, of IHEP.

5.5.7. South East Europe

GRNET is the partner coordinating the South East European regional efforts and leads the South East Europe (SEE) effort within NA3. Two further SEE partners are represented in NA3: **TAU** and **ICI**.

GRNET coordinates the HellasGrid Task Force and operates the National Research and Education backbone Network (NREN). In NA3, GRNET undertakes the coordination of the training and induction activities in the SEE region, involving production and localisation of training material, running of courses from introductory to advanced, and interaction with the other SEE and EGEE partners for feedback and improvements. GRNET is responsible for training in Greece and Cyprus and provides the appropriate hardware infrastructure and facilities when the courses are delivered.

TAU (Tel Aviv University) coordinates the Israeli Grid collaboration (Israel Academic Grid – IAG) and the IUCC, Israel's NREN. In NA3, TAU undertakes to develop the necessary skills to provide a series of training sessions in Israel, first to the HEP users and then to other user groups in the IAG. Feedback and interaction between other training teams is seen as a priority.

ICI, the National Institute for Research and Developments in Informatics based in Bucharest, is the coordinator of the Romanian Grid Consortium (RoGrid). In NA3 it undertakes to provide the course infrastructure and material for training sessions in Romania and Bulgaria covering the RoGrid partners and BGConsortium.

In summary, the EGEE SEE area countries have considerable needs for training sessions and tutorials. Keeping in mind the diverse languages in the area and the difficulties this entails, local support is needed. There are considerable needs for different types and levels of tutorial on EGEE specifics and on the relevant background middleware.

6. TABLES OF EVENTS

6.1. PAST EVENTS

Information, including quality assurance einformation about past events can be found at: http://www.egee.nesc.ac.uk/schedreg/index.html

6.2. EVENTS ROADMAP

This is a series of three tables (Induction courses, Application Developer courses, other courses), which will be kept up-to-date. Please refer to:
http://www.egee.nesc.ac.uk/schedreg/future.html
It is stressed that the on-line versions will contain up-to-date information.

The initial allocation of numbers and types of event to the NA3 partners was carried out by UEDIN on the basis of the following factors:

- The expertise of the partners
- The resources allocated to each partner
- The likely induction and training requirements of the EGEE project at different stages
- The need for a wide geographical spread of each type of course.

6.2.1. Event Roadmap: Induction Courses

The EGEE NA3 partner organisations are expected to run courses on several topics. For each topic a table is provided showing each Partner's assigned courses. When further information is known about a course a link is added to this information.

Note that the year in EGEE terms runs from April to March and hence Quarter 1 is April to June, and so on.

Numbers without brackets in the columns under "Year 1" and "Year 2" are the number of courses that are required to be run. Numbers in brackets represent the actual number of courses that have either taken place or are scheduled to take place. For year 1 the shaded cells show where the requirement has been met.

The table shows that, except in one case, partners have met or exceeded their commitments for this type of course in the first year.

NB. IT SHOULD BE NOTED THAT THESE TABLES SHOW ONLY THE COMMITMENTS OF PARTNERS AND DO NOT REFLECT ALL OF THE COURSES HELD – SOME COURSES HAVE BEEN PRESENTED BY OTHER EGEE FEDERATIONS (FOR EXAMPLE NIHKEF).

Table 6: Induction events Roadmap

EGEE Number(s)	Partner	Location	Year 1					Year 2				
			Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
17	NESC (UEDIN)	United Kingdom	2 (3)		(2)	(2)	2 (7)	1 (1)	1 (1)	1	1	2
2	GUP	Austria	(1)				(1)	1				1
3	UNIINNSBRUCK	Austria	(1)				(1)					
4	CESNET	Czech Republic			1		1(1)					
5 + 6 + 8	BUTE, ELUB, MTA SZTAKI	Hungary						1 (2)		(2)	(1)	1 (5)
11 + 12	ICM, PSNC	Poland			1(1)		1(1)					
13	II-SAS	Slovakia	1 (1)				1(1)	1				1
28	FZK	Germany	1 (3)				1 (3)	1				1
31	INFN	Italy	1 (1)				1 (1)					
34	KU-NATFAK	Denmark						1				1
41 + 42 + 43 + 44 + 46 + 47	IHEP, IMPB RAS, ITEP, JINR, PNPI, RRC KI	Russia	1 (1)	(2)	(1)	1	2 (4)	(4)				(4)
51	GRNET	Greece	1 (1)		(1)		1 (2)	1 (10)				1 (10)
52	TAU	Israel	(1)				(1)	1				1
53	ICI	Romania	1				1	1				1
		Overall Total					10 (14)					12 (5)

6.2.2. Event Roadmap: Application Developer Courses

The EGEE NA3 Partner organisations are expected to run courses on several topics. For each topic a table is provided showing each Partner's assigned courses. When further information is known about a course a link is added to this information.

Note that the year in EGEE terms runs from April to March and hence Quarter 1 is April to June, and so on.

Numbers without brackets in the columns under "Year 1" and "Year 2" are the number of courses that are required to be run. Numbers in brackets represent the actual number of courses that have either taken place or are scheduled to take place. For year 1 the shaded cells show where the requirement has been met. As can be seen from the table below, that in the majority of cases partners have not met their commitments for this type of course.

NB. IT SHOULD BE NOTED THAT THESE TABLES SHOW ONLY THE COMMITMENTS OF PARTNERS AND DO NOT REFLECT ALL OF THE COURSES HELD – SOME COURSES HAVE BEEN PRESENTED BY OTHER EGEE FEDERATIONS (FOR EXAMPLE CERN).

Table 7: Application Developer's courses Roadmap

EGEE Number(s)	Partner	Location	Year 1					Year 2				
			Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
17	NESC (UEDIN)	United Kingdom	1(2)		(2)		1(4)	1 (2)				1 (2)
2	GUP	Austria										1
3	UNIINNSBRUCK	Austria										
4	CESNET	Czech Republic	1				1	(1)				(1)
5 + 6 + 8	BUTE, ELUB, MTA SZTAKI	Hungary						1				1
11 + 12	ICM, PSNC	Poland	1				1					
13	II-SAS	Slovakia						1				1
28	FZK	Germany	1				1	1				1
31	INFN	Italy	1 (1)				1 (1)					
34	KU-NATFAK	Denmark	1				1	2 (1)				2 (1)
41 + 42 + 43 + 44 + 46 + 47	IHEP, IMPB RAS, ITEP, JINR, PNPI, RRC KI	Russia			1		1	1 (1)	(1)	(1)	(1)	1 (4)
51	GRNET	Greece			1		1			1 (1)		1 (1)
52	TAU	Israel						1 (1)				1 (1)
53	ICI	Romania						1				1
		Overall Total					8 (5)					8 (2)

6.2.3. Event Roadmap: other courses

Over the next two years, the EGEE NA3 Partner organisations are expected to run courses on several topics. For each topic a table is provided showing each Partner's assigned courses. When further information is known about a course a link is added to this information.

Note that the year in EGEE terms runs from April to March and hence Quarter 1 is April to June, and so on.

Numbers without brackets in the columns under "Year 1" and "Year 2" are the number of courses that are required to be run. Numbers in brackets represent the actual number of courses that have either taken place or are scheduled to take place. For year 1 the shaded cells show where the requirement has been met. As can be seen while no courses were required nine were actually presented.

NB. IT SHOULD BE NOTED THAT THESE TABLES SHOW ONLY THE COMMITMENTS OF PARTNERS AND DO NOT REFLECT ALL OF THE COURSES HELD – SOME COURSES HAVE BEEN PRESENTED BY OTHER EGEE FEDERATIONS (FOR EXAMPLE CERN).

Table 8: Other courses Roadmap

EGEE Number(s)	Partner Acronym(s)	Location	Year 1					Year 2				
			Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
17	NESC (UEDIN)	United Kingdom		(3)	(1)		(4)					
2	GUP	Austria										
3	UNIINNSBRUCK	Austria										
4	CESNET	Czech Republic			(1)		(1)					
5 + 6 + 8	BUTE, ELUB, MTA SZTAKI	Hungary							(1)		(1)	(2)
11 + 12	ICM, PSNC	Poland										
13	II-SAS	Slovakia										
28	FZK	Germany			(3)		(1)					
31	INFN	Italy		(1)			(1)					
34	KU-NATFAK	Denmark										
41 + 42 + 43 + 44 + 46 + 47	IHEP, IMPB RAS, ITEP, JINR, PNPI, RRC KI	Russia			(2)		(2)					
51	GRNET	Greece			(1)		(1)	(1)		(1)		(2)
52	TAU	Israel							1			
53	ICI	Romania										
		Overall Total					(9)					(4)

7. RISK ANALYSIS

In summary, can we identify, produce and deliver the training that is wanted to the right people at the right time?

1) Uneven spread of NA3 partners within Europe.
   - For example, there are no NA3 partners in France and Iberia

     The NeSC team in conjunction with NA4 and partners from neighbouring regions will attempt to cover this requirement.

     This task has been successfully met by the NeSC team presenting courses in Iberia and SA1 and NA4 members presenting courses in France.

2) Too many introductory courses.
   - There is a risk that there will be many introductory courses and insufficient follow up to attain depth of understanding.

     This will be addressed by targeted emails (and advertising) to former course participants, with target quotas being assigned to each region for more advanced level courses.

3) Partners failing to engage properly.
   - With over 20 partners in NA3, it becomes impractical to 'chase' partners who are slow to fulfil their training quotas or to respond to email requests.

     It is too early to know if this will be a problem.

     As noted earlier all the federations have become engaged in the activity and presented courses.

4) Insufficient participants.
   - There is a risk that the supply of participants at training events will diminish, particularly for the application developer and advanced courses.

     This should be ameliorated by outreach through NA2 and concerted approaches to communities with NA4.

     While the ability to accommodate participants at courses is lower than expected, demand for courses remains strong.

5) Courses provided too late to be useful.

   This should be ameliorated by engagement with SA1, NA2 & NA4.

6) Courses not offered at the right venues.

   A request mechanism has been set up via the EGEE NA3 website to encourage the statement of requirements to which NA3 can respond: see http://www.egee.nesc.ac.uk/suggreq/

8. CONCLUSIONS

NA3's training and induction activities, as discussed in this document, and the development of the associated infrastructure, have made a good start in the first nine months of the EGEE project and developed well over the succeeding six months. In all areas we have substantially exceeded the targets for courses, except in Application Developer courses where we have met the targets for the first nine months and it was accepted that these will be increasingly developed after completion of the initial period of the activity. However, it is recognised that momentum must be maintained within NA3 in order to achieve essential developments to the training schedule.

The success of this work has been indicated by an increasing number of induction and training events recorded in the roadmap, and in due course reported to the PEB. Further the demand that has been generated for these events clearly exceeds the resources available to fulfil them. Thus in order to avoid becoming a victim of our own success the activity will have to put strong emphasis on developing remote delivery of courses and facilities for self-paced learning over the next portion of the project.

Achievements:

- An effective federated training network for EGEE across Europe has been created.
- Induction material has been created and courses presented. The numbers have greatly exceeded targets.
- Induction material has been re-used, modified and translated.
- The GENIUS/GILDA t-infrastructure has been successfully used by many induction courses.
- Application developer material (web services and LCG2 APIs) has been created and courses presented.
- The, previously unrecognised, need for advanced installation/administration courses has been identified early in the project and is being addressed by the provision of courses and material across EGEE. Although this type of course was not expected to be required in the first year, partners have responded well to the appearance of the requirement.
- A materials archive to provide support for trainers throughout EGEE has been created and made available. This now contains over 100 presentations and over 300 files and will be expanded to include a wide variety of resources, including practical tutorials, video tutorials, middleware images and example software.
- NA3 partners, particularly INFN, UEDIN, the Russian federation, FZK and GRNET, have been closely involved in presenting training outside EGEE and encouraging new regions to join the project.

Plans:

- Effort must be focussed on Application Developer courses to help support new application domains brought in by NA4. Partners have been asked for, and responded with, new commitments in this direction.
- The limitations of ad hoc solutions to providing t-infrastructure has been recognized at UEDIN and physical resources are being put in place to address this requirement.
- We plan to expand of the content of the materials archive and improvements in its structure and interface based on feedback from users.

- Encouraging the expansion of the use of grid-based communications technology in presenting courses, for instance the use of AccessGrid to remotely present courses has been trialed at UEDIN and GRNET has experience in the use of SMIL extensions to XHTML for providing material over the web.
- Expanding the use of eLearning technology in order to provide increased support for training.
- A group (User Information Group, UIG) spanning NA2, NA3, NA4, and SA1 has been brought together in order to update the provision of information from EGEE to users.

The 22 NA3 partners have all been working well to achieve the goals of EGEE both in collaboration with each other and with the other EGEE activities.

9. ANNEXES