



Enabling Grids for E-scienceE

Training and Induction

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Training the Trainers

17th April 2005

www.eu-egee.org



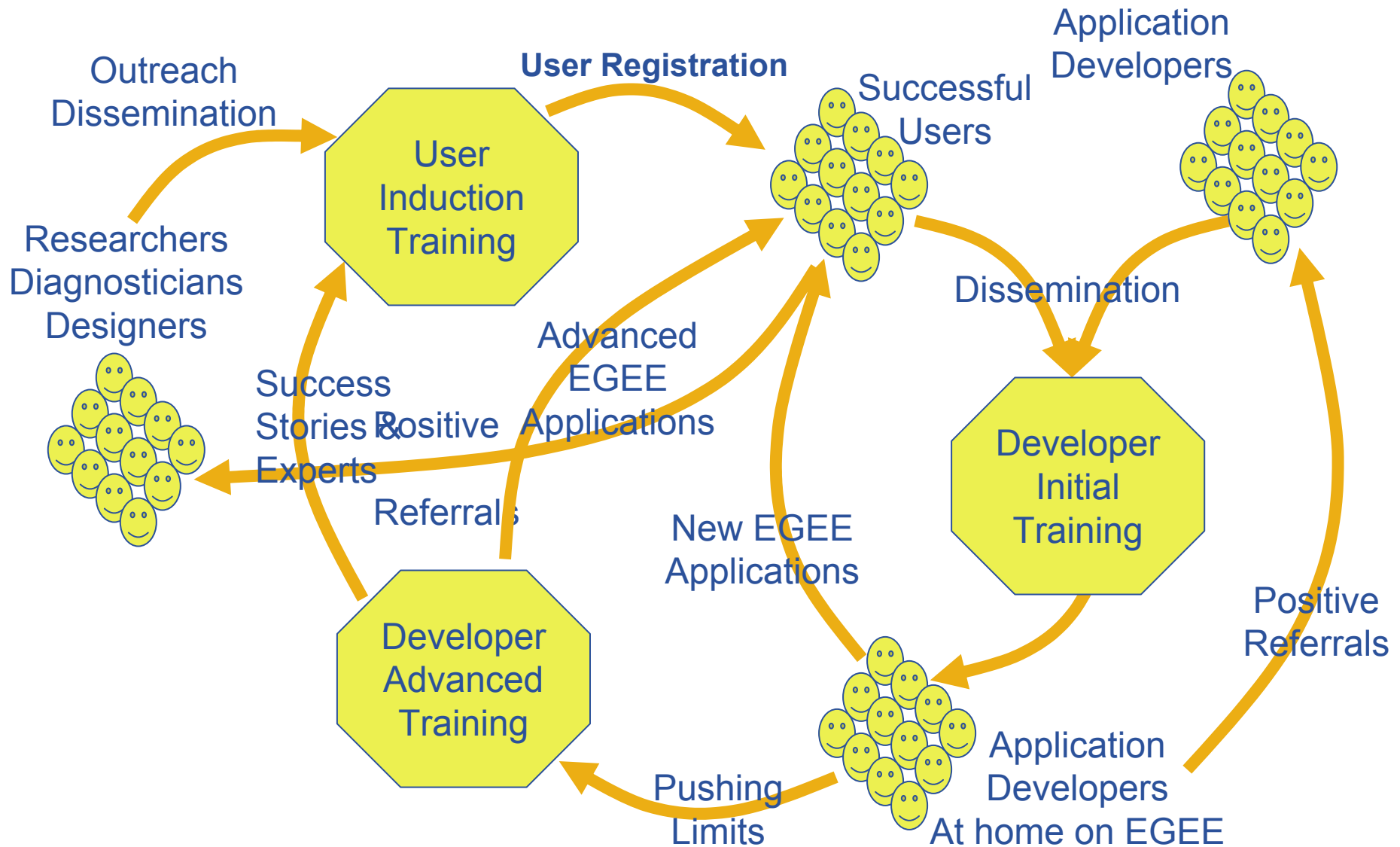
- **Training, Education & Outreach**
 - Difficult, Challenging & Worthwhile
 - Have an established Modus Operandi
 - Proud of our achievements
- **We're here to talk about what we do**
 - Share ideas & plan collaboration
- **Danger of Complacency**
- **Danger of stuck in last year's thinking**
- **Sure we could do better**
- **We ask you**
 - To point out our weaknesses
 - Alert us to new opportunities
 - Suggest improved methods and strategies

- **Who are the trainers and what are they for?**
- **Highlights of the Training Year**
- **Training Achievements**
 - Exceeding planned targets
 - Effective federation and collaboration
 - Pioneering new training infrastructure
- **T-Infrastructure Provision**
 - GILDA/GENIUS
 - Operations training
 - Training Repository & Course Support
- **Outcome of NA3 External Review**
- **Plans**
- **Conclusions**

- **The EGEE training programme is built on a federation of 22 partners and close collaboration with other activities**
- **EGEE training has delivered well above planned targets**
 - raising grid awareness
 - gaining users
 - building teams
 - empowering developers

What do trainers do?

Trainers power Virtuous Cycles

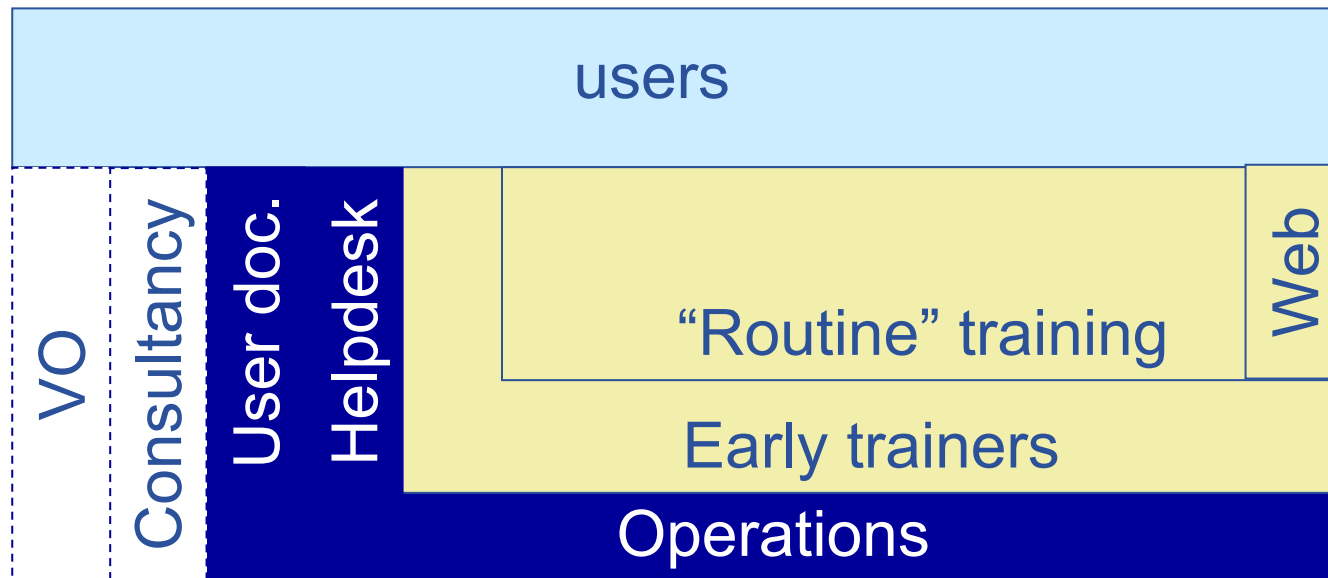


That is just the start of building an active & happy user community → rest of EGEE

Why do we train?

What are trainers for?

- **EGEE Goal**
 - many effective and active users in many locations
- **Technology is supported by a small number of people**
- **Training helps to make this feasible and scalable**
 - EDG demonstrated the necessity of training

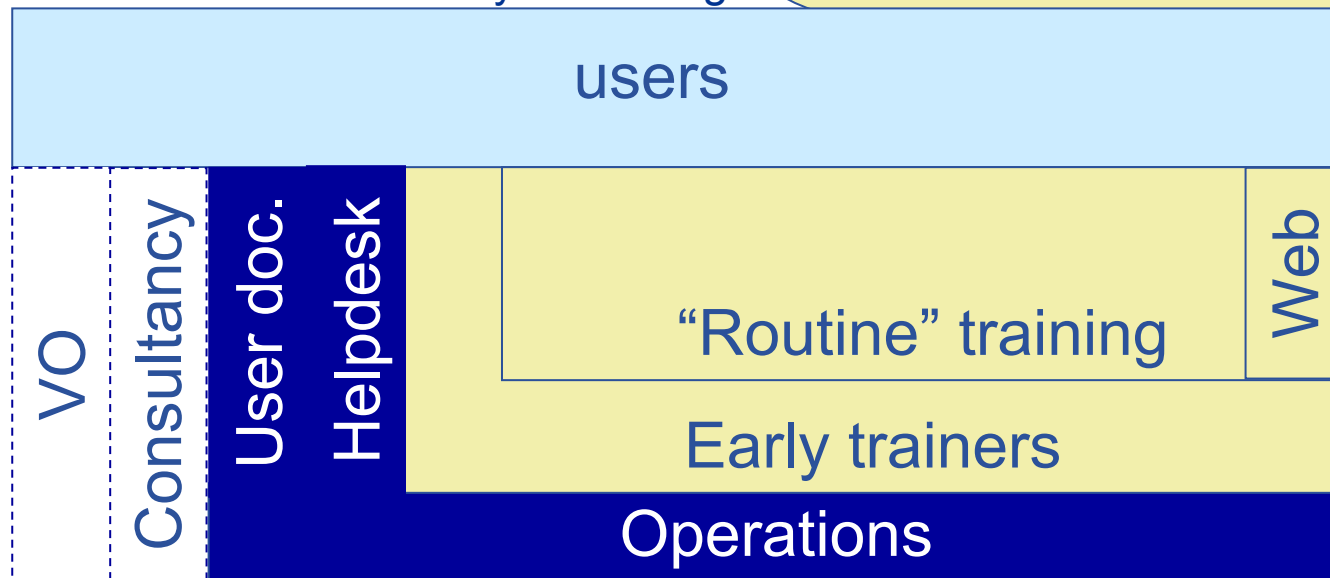


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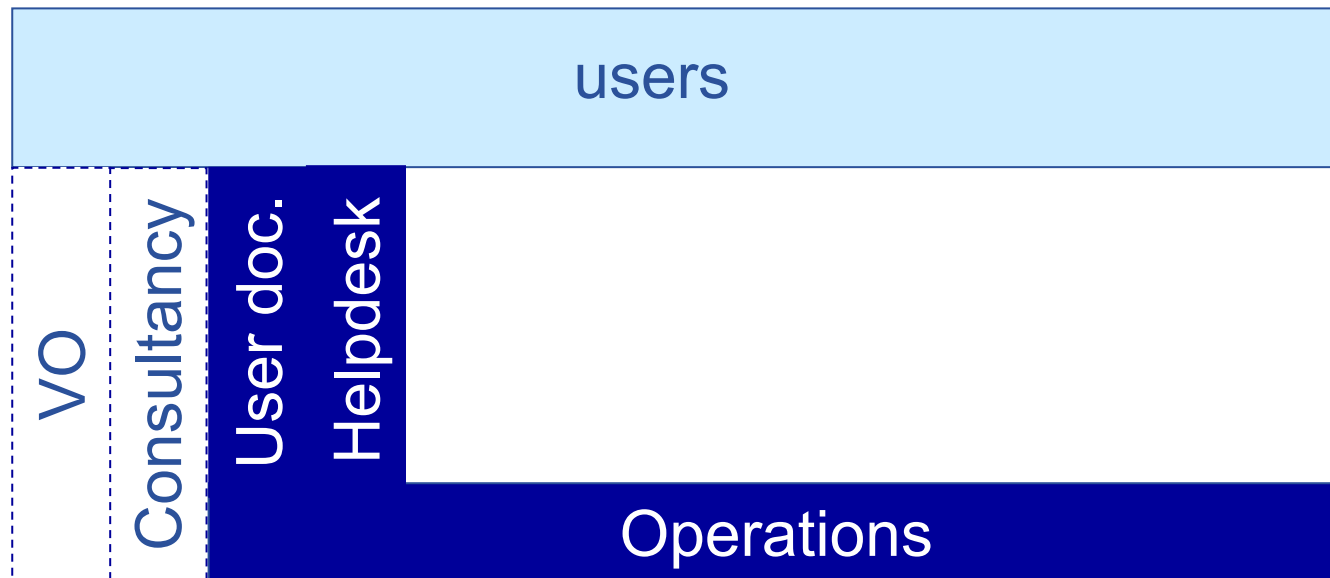
Increase trainer effectiveness

- Repository of Training Material
- Courses to train new trainers
- Self-paced Learning support



Poor training ⇒

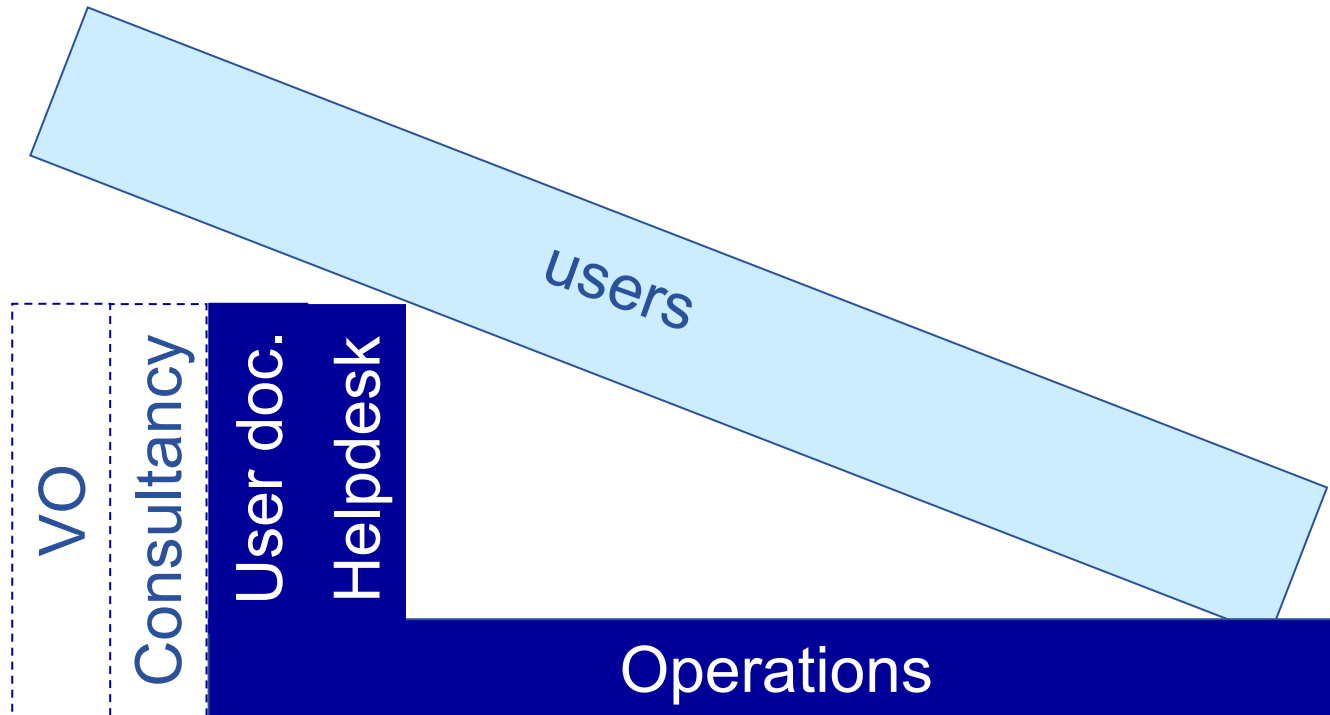
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 - Unproductive and dissatisfied
- Support staff overloaded
 - With mundane questions



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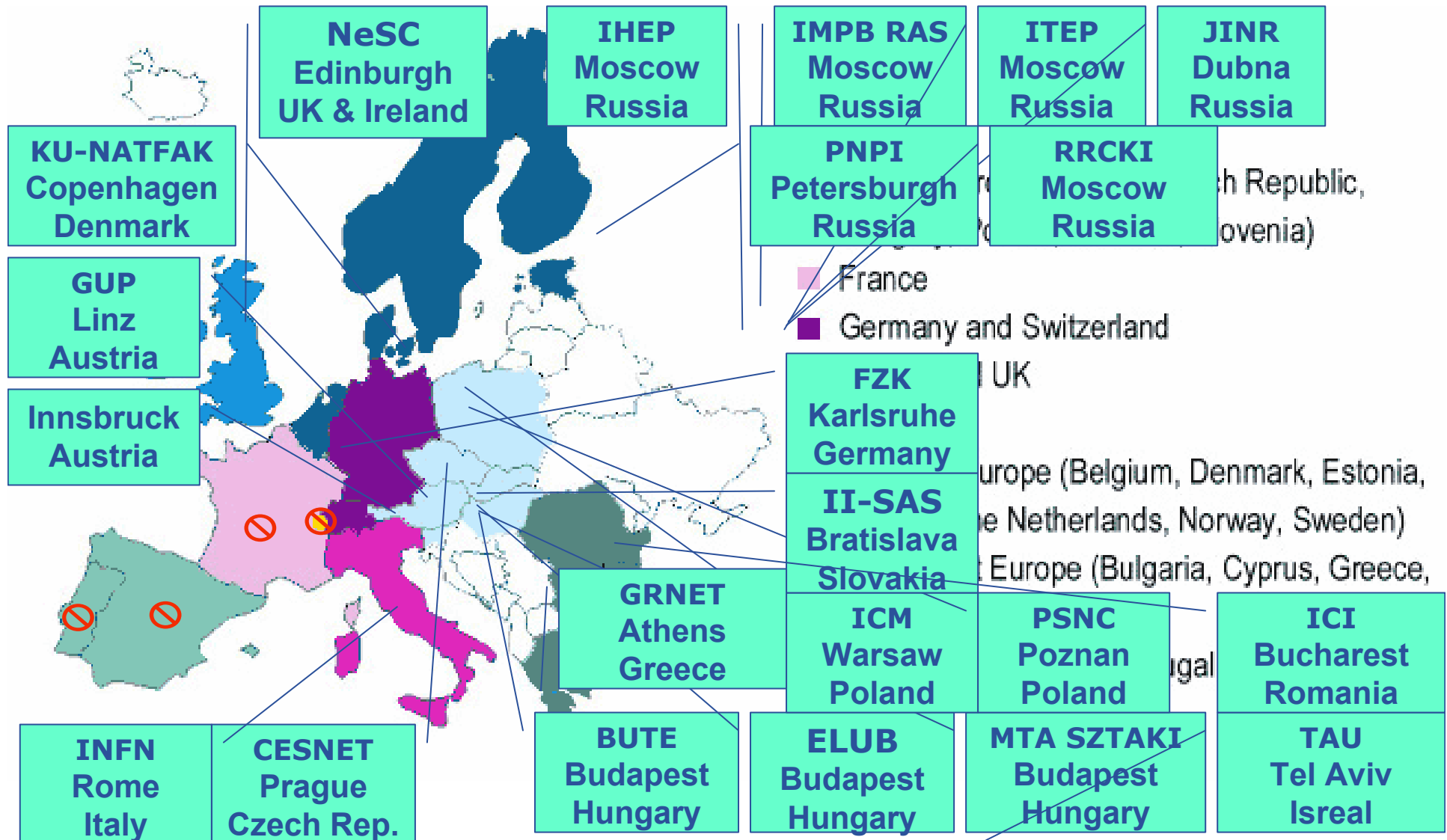
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If you think training is expensive,
try ignorance
Roy Crock, Founder of M^cDonalds



Who are the trainers?

EGEE 22 Training Partners





One of the smallest activities – 4% of budget

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

~ 1 FTE per partner in NA3 (22 partners)

~ 0.3 FTE per partner within EGEE (given 70 partners).

- **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 ~70 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 ~1250.**

Highlights of a training year

NA3 produces courses based on commitments in the execution plan and training requests which have been received

👉 from SA1, NA4 & NA2

- Induction
- LCG2 installation
- LCG2 APIs
- gLite preparation
 - Web Services
 - WSDL
 - WSRF
 - GT4



GT Course, Edinburgh

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Biomed Application Developers Course, Madrid



NA3 contributed

- planning
- organisation
- courses

Presentations

- Grid applications – a portal-based approach
- Introduction to Web Services
- Introduction to GENIUS and GILDA
- An Introduction to Data Services & OGSA-DAI

The event was attended by 84 *selected* advanced international students

ISSGC'05
10-22 July 2005
Send your students
Tell your Friends
Suggest topics and experts

contributed
planning



Courses for grid administrators
Protvino, 17.01.05



- **We are organising the Regional EGEE Summer School in Budapest, 11-16 July**
 - <http://www.egee.hu/grid05>
 - Induction Course mainly, but includes an Application Developer Training Course, and Advanced Course on gLite
 - target audience:
 - Researchers mostly from CE and SE partner countries, SEE-GRID project members but also from anywhere.
 - Scientific researchers from Chemistry, Biology, Physics and others.

- FZK is responsible for organising and / or running of Grid Training activities for the Swiss / German federation
- Originally: Commitment of 4 training courses until March 2005
- So far **8 courses**
 - 6.7.04: LCG-2 induction course for internal and external (Uni Karlsruhe)
 - 20. - 23.9.04: LCG-2 induction course (40 people)
 - 20.- 23.9.04: LCG-2 induction course (24 people)
 - 11. - 14.10.04: LCG-2 induction course during „Heidelberg“
 - LCG-2 installation workshop, November, FZK, 15 people)
 - 10th of December 2004: AliEn Introduction, Bochum University (7 people)
 - 3rd of February 2005: LCG-2 and AliEn Introduction, Sydney (APAC, AusGrid; 12 people)
 - 23./24.3.05: LCG-2 Introduction, DESY / Hamburg (23 people)

Goal accomplished with approx. 143 people trained in 8 courses by March 2005.

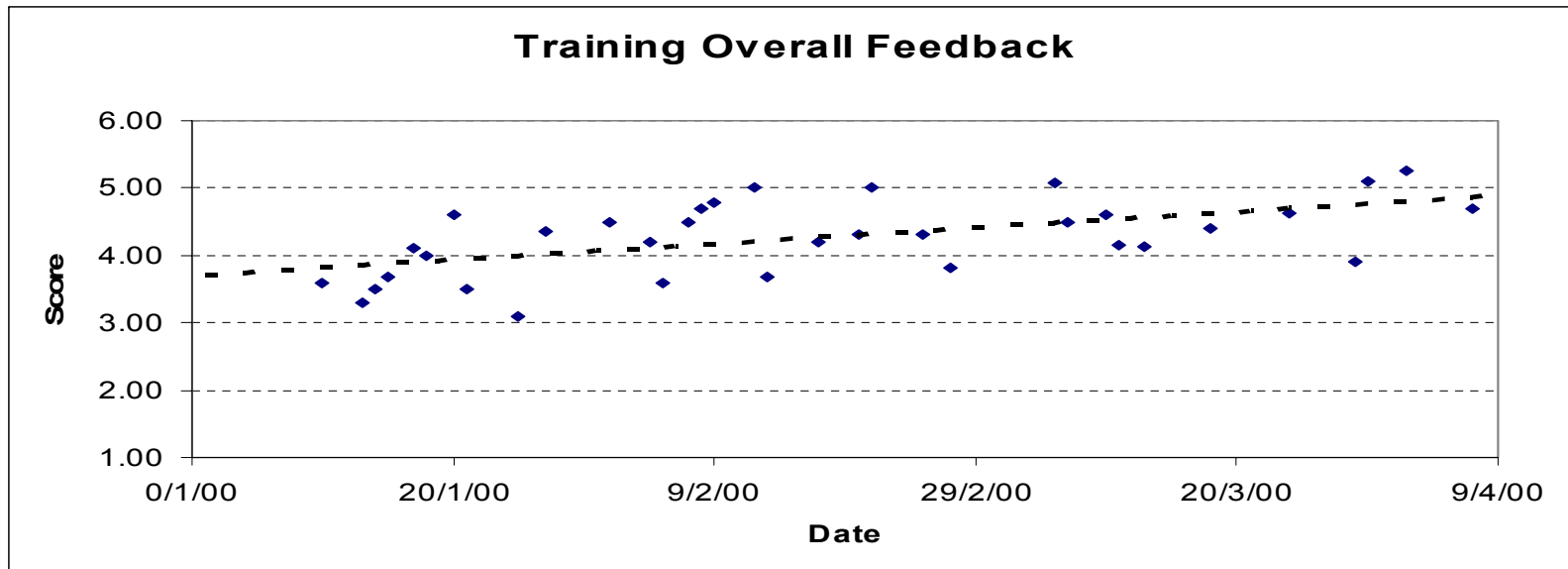
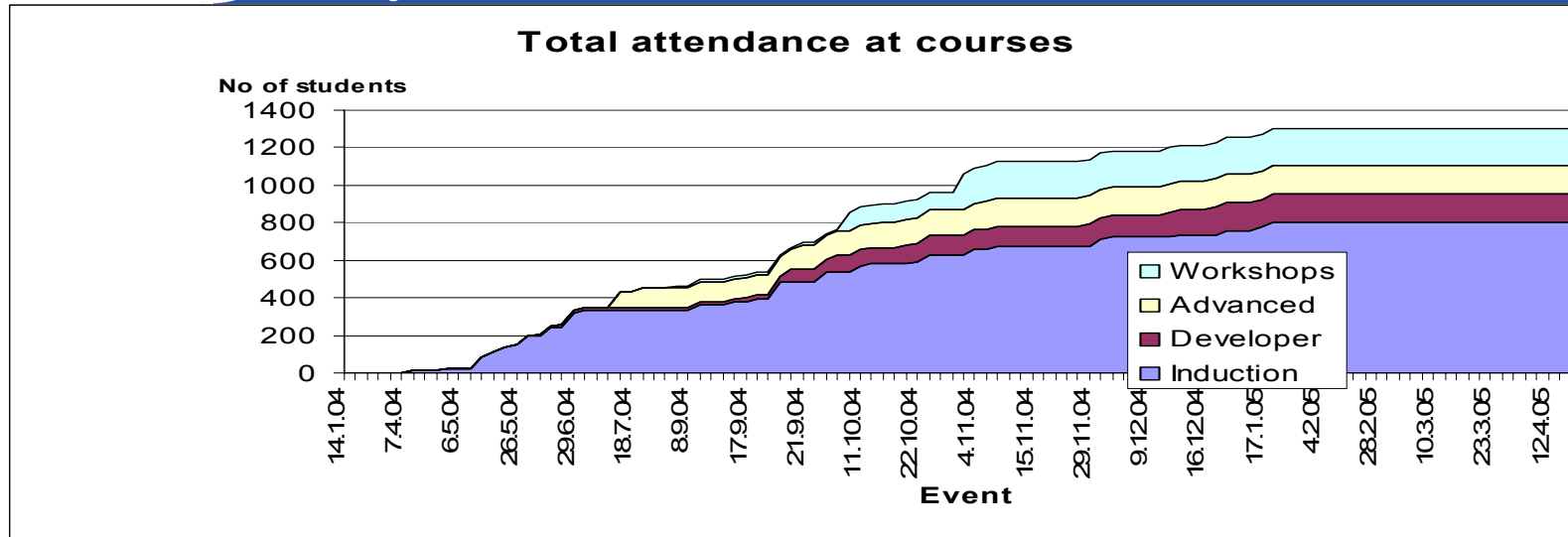
- **Developed and ran WS, WSDL, WS-RF courses**
 - Generic technology for the changing Grid world
- **Ran GT3, Condor & GT4 weeks**
- **Established NGS induction**
 - Workshop in Dec 04
 - 2 courses in March, more in May, June, Sept,..
 - NGS runs a training CA
 - Users access core NGS resources
- **Collaborated in LCG Sys admin / installation course in May 04 (Oxford)**
- **UK events: <http://www.nesc.ac.uk/training/events>**

- **Build NGS user communities who are alert to EGEE via**
 - NGS induction ~every 2 months
 - NGS application developer courses – from Sept.
 - NGS Systems administrators – from Sept.
 - installing NGS / LCG client software – to be included in induction, subject to lighter weight methods being established. (Knoppix?, CCLRC / Cambridge's WS interface to a UI)
- **Add courses in m/w that will be deployed on NGS**
 - Hosting a course by OMII in May
 - Waiting on Engineering TaskForce assessments of gLite, GT4, OMII
- **Enable migration from LCG-2 to gLite middleware**
 - gLite application developer courses (from June)
 - gLite Sys admin / installation courses ~ 3 or 4Q 2005
- **1-day “emerging middleware” events**
 - Update on EGEE, NGS, WS-RF for the grid-aware
 - First run , May 27th
- **PPARC summer school, May 9-13th**

First NA3 organised course on gLite

Training Achievements

Training: Quantity & Quality



Trainers review grades and revise course material and training plans

Targets for year 1, **but demand exceeds original estimates**

Course type	No of Attendees	% of 1-year target	No of courses	% of 1-year target
Induction	805	161	61	610
Application Developer	150	75	25	312
Advanced	151	300	8	400
Technical Activity Retreats	627	348	34	567

Total trained >1733 so far – 2 year target 1500, so >2/3 target in 1/2 time

	Event Type							
	Induction Courses		Application Developer Training		Advanced Courses		Technical Activity Retreats	
Number per Year	10	61	8	25	2	8	6	34
Average Attendance	50	30	25	17	25	30	30	64
Course Length (days)	2	2	4	2	5	4	2	2
Course Equipment	Web Access		Workstations		Workstations			
Num. of EGEE Staff	2		2		2		2	
Number of non-EGEE Experts	0		1		3		0	

Planned in TA per year

Actual in first 12 months

<u>Participant Days</u>	<u>Target</u>	<u>% of year 1 target</u>	
3813	1000	380%	Induction
319	800	40%	Developer
1255	250	500%	Advanced
737	360	207%	Workshops

Subset of courses run – for which data is available

>1200 Gilda Certificates issued – 10% renewed

- **Resources per course higher than initially estimated**

- reduced number of days per course
- more administration per participant day
- fewer participants per course
- greater numbers of trainers required
- increased e-Infrastructure requirements

**Demand is rising
EGEE is responding
Response is limited
by availability
of experts**

- **Reduced numbers of participants per course**

- necessary for training quality

- **Shorter courses**

- necessary to fit with participants' constraints

- **More courses & Participants**

- **because so many work on or want to use EGEE**

Induction, France (NA4)	4 + 11 th January
Grid conference tutorials, Russia	17 -19 th Jan
Operations & Trainers training, Athens	20-21 st Jan
Induction, France (NA4)	18 th Jan
Induction, Grid Conference Amsterdam	16 th February
Induction for NA2	28 th Feb-1 st Mar
WSRF, UK	23 - 24 Feb
GATE tutorial, Germany	7- 9 th March
Web Services (with AG), Germany	16 - 18 th March
Induction, France (SA1)	22 - 23 rd March
Application Developer course, Spain	late Mar/Apr
GT4 week, Edinburgh	4- 8 th April
DILIGENT training, Athens	16 th April

Courses at Athens Conf, Athens	17 th April
PPARC Grid Summer School, UK	10 -13 th May
Tutorial, Grid conference, Russia	11-15 th July
Regional Grid Summer School, Budapest	11-16 th July
International Grid Summer School, Italy	July
Induction, Austria	Sept
Plus 7 UK regional events	

Many additional courses expected matching Commitments & Requirements

See web site for more information <http://www.egee.nesc.ac.uk/schedreg/index.html>

- **Top 3 training achievements**
 - achieved by NA3 working with NA4, SA1 & JRA1
- **An effective and federated collaboration for training**
 - across the whole of the EGEE geographic area
- **Significantly exceeding first year goals**
 - in the provision of training and induction
- **Pioneering t-Infrastructure provision**
 - GILDA
 - Hands-on operations training
 - Shared training resources repository

- **Contribution to Outreach & Dissemination**
- **Training extended to many other countries**
 - bringing new communities to EGEE

- Rapid response to unanticipated need
 - **advanced installation/administration course**
 - **SA1 identified requirement**
 - **SA1 provided initial courses**
 - **Required hands-on system**
 - **Several computers + network / learning group**
 - **Full systems-administrator access**
 - **Must be a free-standing system**
 - Course in Oxford
 - Course in Karlsruhe
 - Training trainers
 - T-Infrastructure investment now underway

t-Infrastructure provision

Training often requires special e-Infrastructure

- **T-Infrastructure emulates e-Infrastructure**
 - technical, operational & management aspects required by courses
- **T-Infrastructure may anticipate a future platform**
 - Preparing for gLite
 - Preparing for next scheduled release
- **Authentication at (or just before) a course**
 - Flexibility, light-weight – don't frighten the participants
- **Authorisation may restrict imposed loads**
 - Limit student & course impact – e.g. from errors
- **T-Infrastructure may be operated in isolation**
- **Guarantees of availability and response**
 - Student exercises generate peak loads
 - Pedagogical requirement for a quick response

- **GILDA provides a prototyping mechanism to bring applications and communities to EGEE**
- **GENIUS provides a user friendly portal for introducing users to grids**
- **GILDA/GENIUS provide support to training activities**
 - Demo mode, no certificates required
 - Certificated users – special VO, portal access to many applications
 - Developer access to GILDA

- **Metadata**
 - Date, course topic, module, author, location, language, version, file type, practical resources, external resources, comments, course level
 - used to search for material through query interface
- **Archive now has**
 - over 100 presentations, over 300 files, 34 modules
 - 7 course topics
 - EGEE induction
 - Globus ToolKit
 - LCG2 APIs
 - LCG2 Installation and Administration
 - UML for developing web services
 - Web Services
 - <http://www.egee.nesc.ac.uk/trgmat/index.html>
- **Web-based centralised registration & scheduling of courses**
 - Supported by UEDIN
 - Integrated support using database infrastructure

Revision and refinement of material improves its quality

Issues and Plans

The training team's primary concerns are

- **Sustain high-quality training across the region needs**
 - Continuous collaboration
 - Focus
 - Leadership
 - Communication
 - Resources
- **Experts (in other activities) under heavy demand**
- **Their time & effort is needed**
 - to inform planning, preparation and delivery of new courses
 - Consequence of rapidly developing e-Infrastructure
- **Demand for training is growing rapidly**
 - expands with each new community and operational advance

- All deliverables and milestones met for first 9 months
- Next milestones and deliverables:
 - MNA3.3 External review of User Training and Induction
 - External technology experts, educators & students
 - Independent view to influence planning
 - Follow up survey – what impact does our training have?
 - Do people now use EGEE?
 - Work with other e-Infrastructure?
 - Work more effectively within EGEE?
 - ...
 - DNA3.1.3 Training Plan revision
 - DNA3.3.2 Training Progress Report update

Happened Friday
Useful suggestions
More tailored
More resources

Informed answers
require a period of
post-course
experience

Given the impressive achievements of NA3, we have identified the following domains for improvement

Match course offering with participants' profile and expectations

Sustain access to t- infrastructure and course material beyond course

Facilitate regular improvement/ review course format and material

Improve match between courses and participants' skills and expectations (1)

- Take difference in backgrounds and skills into account when tailoring courses
- Involve domain specialists in the design and delivery of courses
- Contact pilot applications for status update
- Profile participants' skills and expectations
- State expected prior knowledge level and expected learning outcomes in the course outline
 - "Profile of student versus profile of course"
- Engage in drop out analysis
 - History of subscribers; participants

Improve match between courses and participants' skills and expectations (2)

- Establish expectations management protocol for workshop subscription: background; current work; planned application of knowledge gained
- Add to evaluation form: “Did the event give you the knowledge you hoped to develop? If not, what did you hope for?”; provide open-ended response possibility
- Use established (validated?) evaluation form
- Free up resources throughout EGEE to allow experts to participate in training
- Enhance NA3 role to support the training role of experts
- Expect an increase resource need for NA3



**Input into
EGEE II
proposal**

Sustain access to t-infrastructure and course material beyond course

- Allow participants to learn how to use their application on the Grid framework
- Provide online discussion communities via Wiki and e-learning
- Establish global t-infrastructure
- Sustainable, homogenous infrastructure rather than one-off installations
- Dedicate and maintain nodes to t-infrastructure to facilitate post-course training environment
- Possibility to establish standards
- But: issue of authentication and authorisation

Facilitate regular improvement/review course format and material

- Provide feedback protocol on website for archive
- Track user needs and feedback
- Establish systematic, regular evaluation of modifications of training materials
- Organize regular review panel for training material
- Take into account potential language barriers
- Harmonize with dissemination and the user support activities
- Worry about scalability – how to train more people within the constraints of limited number of trainers

- **Focus on Application Developer courses**
 - Support new application domains brought in by NA4
 - Partners have been asked for new commitments in this direction
- **The limitations of *ad hoc* t-Infrastructure recognised**
 - UEDIN physical resources to address this requirement.
- **Expansion of the materials archive**
 - Improvements to structure and interface
 - Based on feedback from trainers and self-paced learners

- **Use grid-based technology to present courses**
 - Trialed Access Grid at UEDIN
 - Expect to increase the use of video conference in courses
- **GRNET explored SMIL extensions to XHTML**
 - Associating presenter's audio & video with slide presentations
 - Expect to use extensively for e-Learning
- **Expand e-Learning technology and materials**
 - To provide increased support for training
 - To support self-paced learners
 - New staff member appointed at UEDIN
- **Established User Information Group (UIG)**
 - To improve the provision of information to all EGEE users
 - Accessible, consistent, well-organised for new users
 - Spanning NA2, NA3, NA4, and SA1

- **Established an effective and *federated* collaboration for training**
 - Across the whole of the EGEE geographic area
- **Significantly exceeding our first year goals**
 - In the provision of training
- **Identified and met the requirement for t-Infrastructure**
 - Pioneering its provision with GILDA
 - Establishing shared training material repository
- **Training has been extended to many other countries**
 - Bringing new communities to EGEE
- **Plans**
 - New gLite courses – decisions in Athens – **start May 2005**
 - Focus on application developer and advanced courses
 - Further develop training support mechanisms
 - t-Infrastructure, e-Learning & gLite migration support
 - Respond adroitly to new requirements

Comments and Questions Please