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Enabling Grids for E-sciencE

NA4: Application Identification and Support

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NA4 Activity Leader

CNRS

EGEE-II 1st EU Review (CERN)

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www.eu-egee.org

Information Society and Media

- **NA4: Application Identification and Support**
  - Goals
  - Organization
- **Usage of the EGEE infrastructure**
- **Achieving goals:**
  - Support
  - Communication
  - Middleware
- **Summary**

- **Presentation based (mainly) on DNA4.2.1:**
  - *For consistency, statistics end in February 2007.*
  - Accomplishment and plans for each discipline not repeated here.
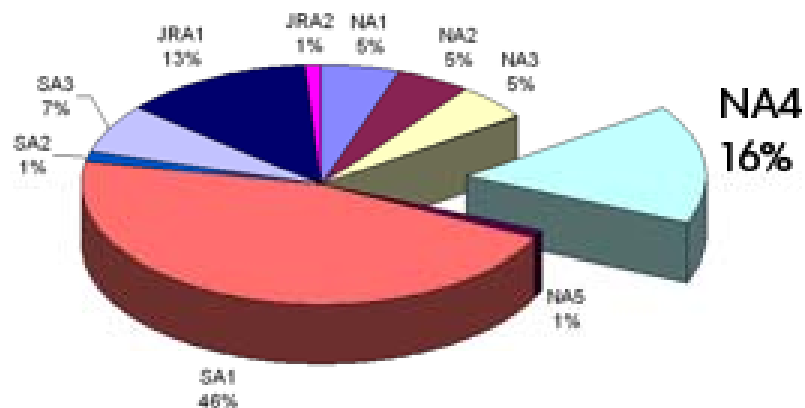
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- **Expand use of EGEE infrastructure:**

  - User: Person utilizing EGEE services.

  - Virtual Organization: Groups of users, federating resources.

  - Applications: Codes, programs run by users on the grid.

- **Ensure current users are satisfied.**

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NA4 Partners

EGEE-II Budget

NA4
16%

40 (42) Partners, 25 (27) Countries

Federation	FTE	People
Cent. Europe	6	56
CERN	12	17
FR	16	72
DE/CH	3	12
IT	18	44
N Europe	3	26
Russia	2	6
SE Europe	5	51
SW Europe	11	25
UK/IRE	1	4
Asia	0	3
US	0	0
Total	77	316

25%

- **Activity Coordinator (C. Loomis)**
- **Scientific Discipline Coordinators:**
  - Astronomy & Astrophysics (C. Vuerli)
  - Computational Chemistry (M. Sterzel)
  - Earth Sciences (M. Petitdidier)
  - Fusion (F. Castéjon)
  - High-Energy Physics (M. Lamanna)
  - Life Sciences (C. Blanchet, V. Breton, J. Montagnat)
  - GILDA training infrastructure (R. Barbera)
- **VO Mgr. Group Coordinator (F. Schaer)**
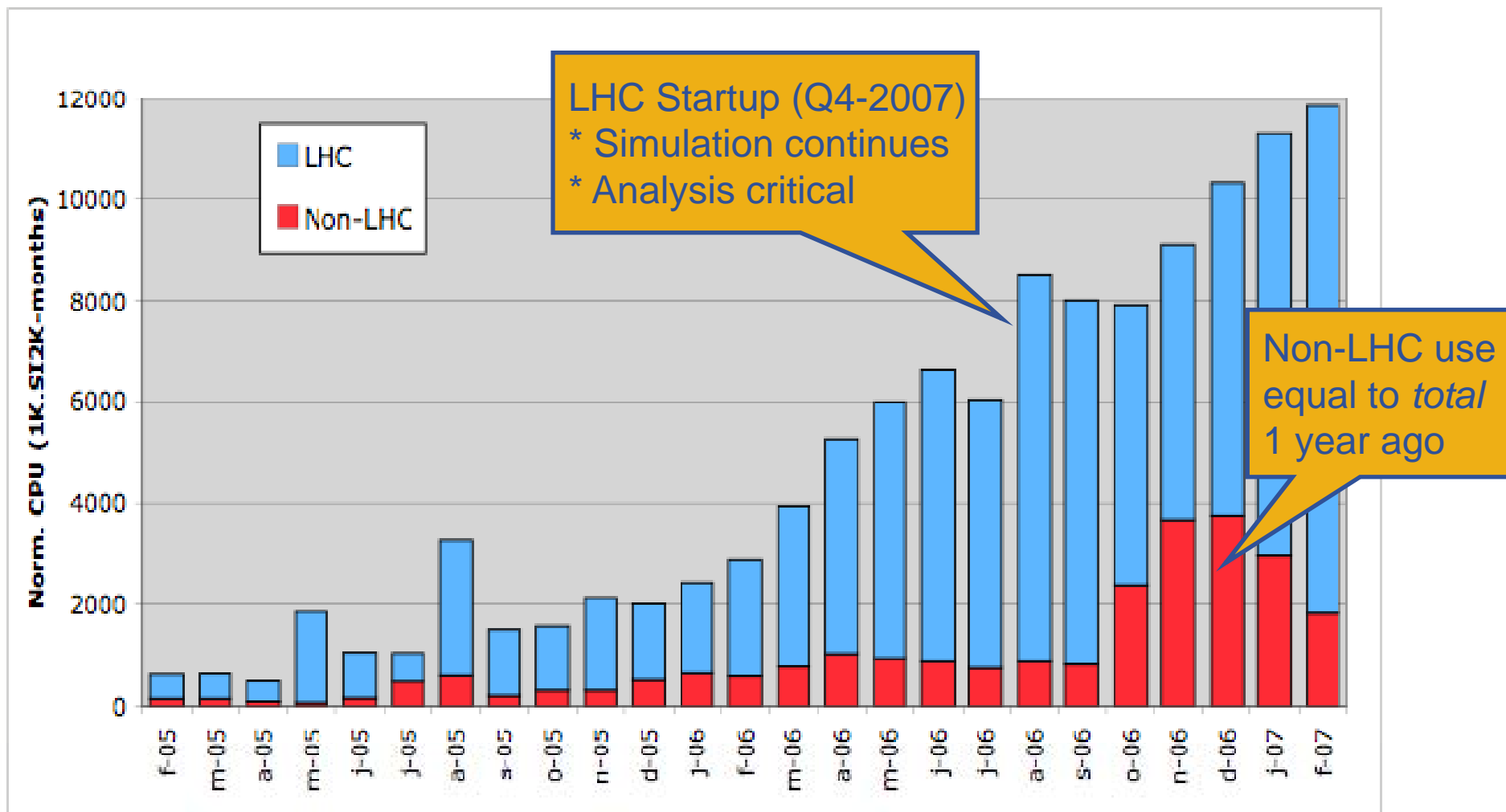- **Advisor (F. Harris)**

Total VOs: 204
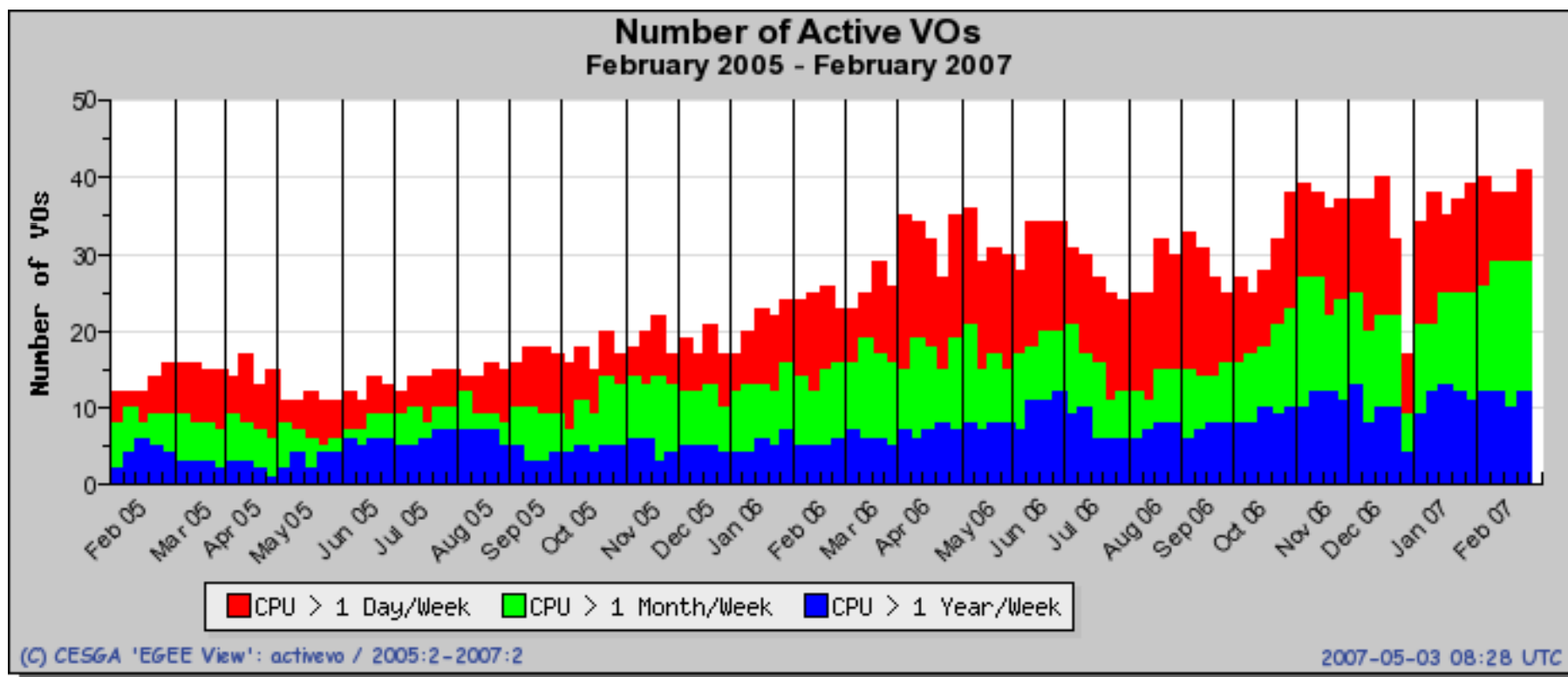Registered VOs: 116
Median sites per VO: 3
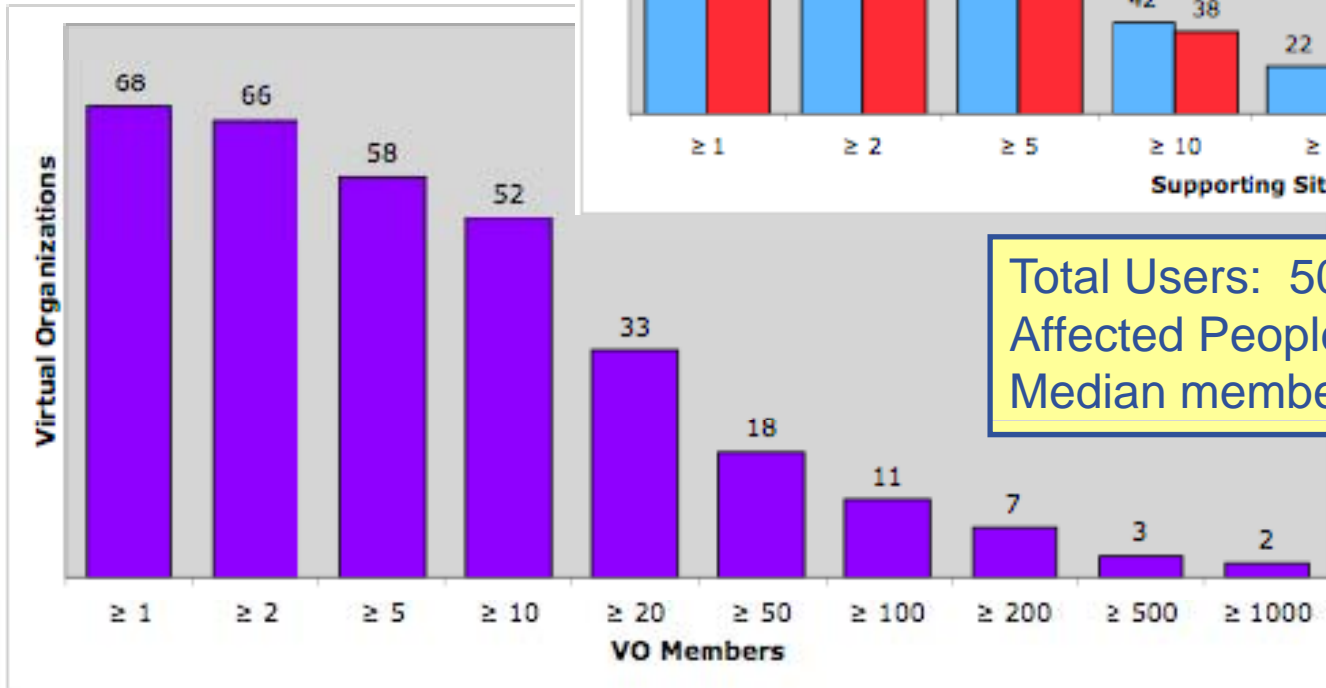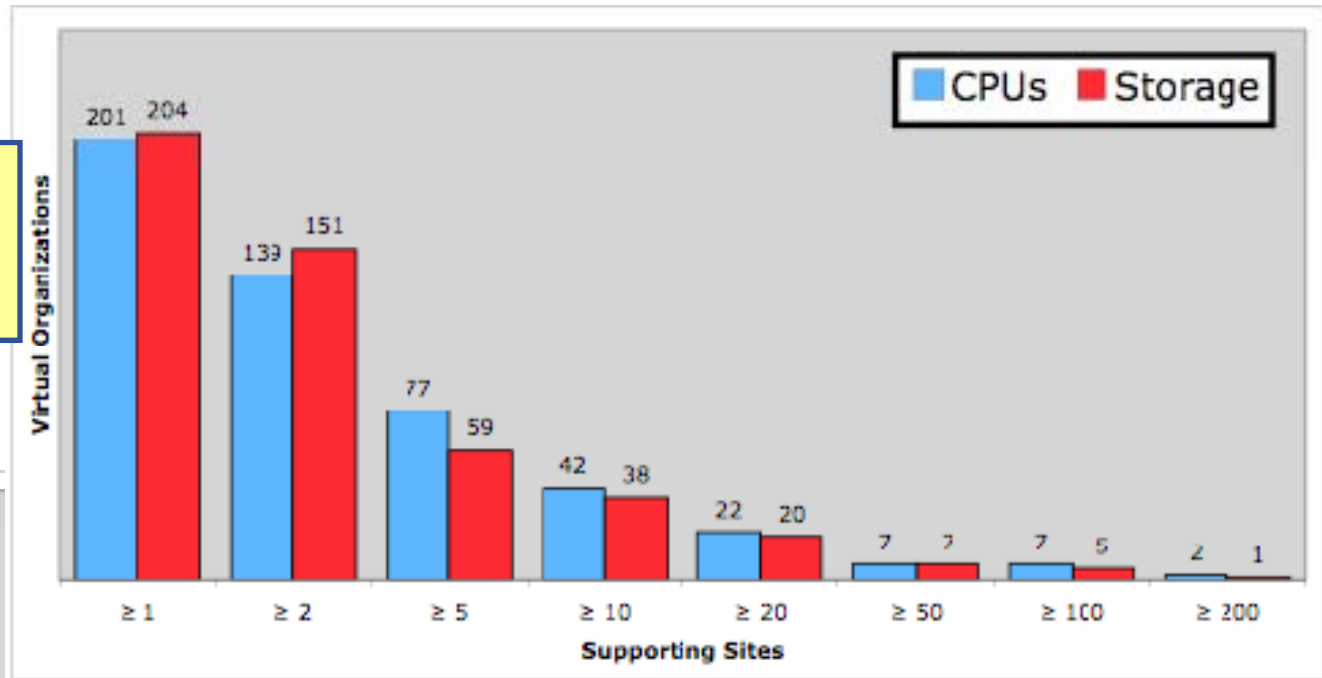
Total Users: 5034
Affected People: 10200
Median members per VO: 18

Underestimates!
Incomplete information.

- **Recent level equal to ~11000 CPUs in continuous use.**

LHC Startup (Q4-2007)
* Simulation continues
* Analysis critical

Non-LHC use equal to *total* 1 year ago

- **Number of "active" VOs growing with time.**
- **Turnover not shown: not same VOs every week!**

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- **Disciplines: 10**
- **Sub-disciplines: 36**
- **See growth and diversification of applications.**
- **Reported apps. only ⇒ *underestimate!***
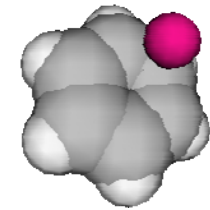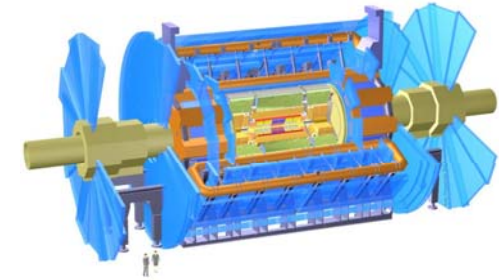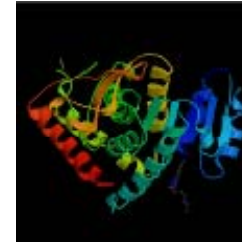
	PM3	PM11
Astronomy & Astrophysics	2	8
Computational Chemistry	6	27
Earth Science	16	16
Fusion	2	3
High-Energy Physics	9	11
Life Sciences	23	39
Others	4	14
Total	62	118
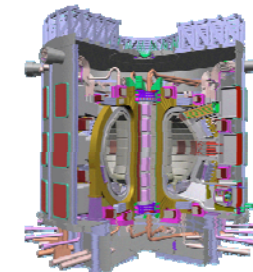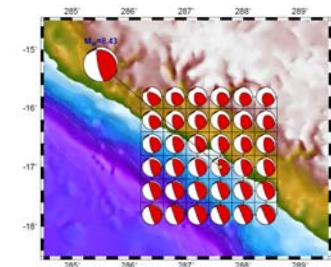
Condensed Matter Physics
Comp. Fluid Dynamics
Computer Science/Tools
Civil Protection

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- **EGEE and NA4 aim primarily at Virtual Organizations.**

- **VO Registration**
  - Identifies contacts for each VO.
  - Configuration information:
    - § VO managers provide and maintain it.
    - § Site administrators to find it easily.
  - Helps users to find appropriate VOs.
  - Central location for other tools to extract VO information.

- ***Issue: Motivating VOs to register***
  - VO managers must see registration as net benefit for them.
  - Working to make this single point for VOs to provide information.

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- **EGEE have comprehensive and efficient support system to ensure that users are satisfied.**

- **Support from other activities:**
  - GGUS (SA1)
  - Training (NA3)
  - Middleware (JRA1)

- **Support activities within NA4:**
  - Administrative support
  - User support
  - Application porting support

- **Operations Advisory Group (SA1/NA4)**
  - Ombudsman: resolving high-level procedural problems
  - Resource allocation: primarily central VO services
  - Procedural aid: mostly VO registration

- **Resource Allocation:**
  - Started GGUS support unit to track and manage requests.
  - *Issue: No EGEE computing and storage resources to allocate to new virtual organizations as bridge to production use.*

- **VO Registration:**
  - Working with SA1 to streamline registration process.
  - Working to make registration info more accessible and useful.

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- ## NA4 web site
  - Tool for disseminating information to full user community.
  - Some (procedural) documentation directly on NA4 web site.
  - Intended as good first step to find further support or materials.

- ## Documentation
  - Working with User Information Group (UIG) to provide typical "use cases" as useful examples and to provide organizational framework.

- ## Direct user support
  - Major VOs have setup GGUS support units.
  - Most direct user support comes from NA4 partners.
  - *Issue: Providing user support to "outside" users.*

- **Porting an application to the grid usually requires expertise that new virtual organizations do not have.**

- **Training infrastructure (with NA3):**
  - GILDA team advises new users on EGEE grid technology.
  - t-infrastructure provides resources for testing new applications.
- **Porting to production service:**
  - Some prefer porting directly to production service.
  - SZTAKI now offers hands-on consulting to do this.
- **Direct support from NA4 partners:**
  - Motivated to port "local" applications.

- ***Issue: Porting support is most efficient "in person". How to finance travel for unfunded people?***

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- **Communication vital to ensure that EGEE provides the services needed by the user community and to make community as self-supporting as possible.**
  - NA4 management to/from users, participants, and partners.
  - Conveying information to and between users and VOs.

- **Contacting users, participants, and partners:**
  - Web site has regular news items and useful information.
  - Targeted mailing lists for each group.
  - *Issue: Efficient, timely feedback from participants, partners.*
- **Community building**
  - Meetings for specific scientific disciplines.
  - User Forums & EGEE Conferences

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- **Extremely successful and popular mechanism for:**
  - Increasing interactions between users.
  - Presenting what has been achieved using grid technology.
  - Discussing problems and solutions.

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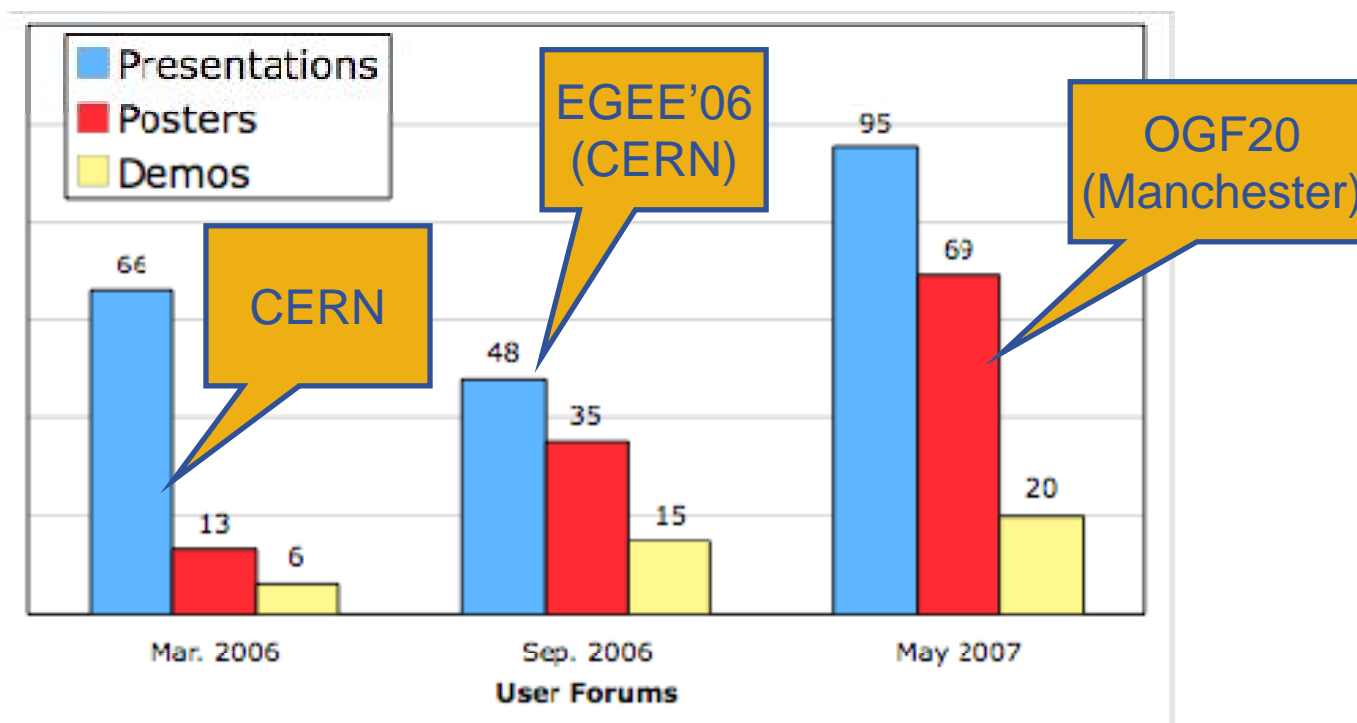
- **Middleware critical for success of NA4:**
  - gLite provides important core services
  - Application-level code and services supplements core services

- **Provide functional requirements for middleware.**

- **Collaborate:**
  - Provide more functionality
  - Deploy better configurations

- **Make grid technology and infrastructure easier to use.**

- **Test services for scalable, efficient implementations.**

- **Identify and/or provide additional high-level services.**

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- **Collaborate through targeted working groups:**
  - MPI: improve parallel job support on grid
  - SDJ: reduce scheduling latencies for quasi-interactive apps.
  - MDM: mgt. of medical data on the grid
  - Priority: provide mechanisms to define VO-level job priorities
  - Portal: define best practices for grid portals
  - VO Config.: improve sharing via simpler VO configuration
  - *Issue: Ensure recommendations are acted upon.*

- **Extensive testing of services**
  - HEP and life science communities leaders in this area
  - Recent work with gLite WMS indicative of positive results.
  - Advanced testing of prototypes, like Hydra for data encryption.

- **gLite concentrates on core middleware functionality. VOs complement that with other high-level services.**

- **RESPECT**
  - Rec. External Software Pkgs. for the EGEE Community
  - Identify useful, 3rd-party software that works with gLite.
  - Make people aware of that software to avoid duplicated efforts.
  - Examples: GridWay, MOTEUR, …

- **Development**
  - Some services are truly specific to a VO; many can be shared.
  - Advertise existence through the RESPECT program.
  - Examples: Ganga/DIANE, AMGA, Parroquet, …

- **Commercial software**
  - Gaussian, MATLAB, …

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- **Continue with current plan, but address issues.**

- **Communication**
  – VO registration
  – Resource allocation
  – Efficient feedback from participants and partners

- **Support**
  – Improve documentation (use cases, etc.)
  – User support for "outside" users
  – How to finance travel for hands-on app. porting support?

- **Middleware**
  – Ensure WG recommendations are acted upon
  – Promote easier use of grid

Enabling Grids for E-sciencE

- **Heavy utilization of the EGEE production service:**
  - 116 registered VOs, 200+ using infrastructure
  - 118+ applications running from 10+ scientific disciplines
  - 5000+ direct users of the infrastructure with 10200+ affected

- **NA4 working to expand reach of EGEE:**
  - See expanded use by current users.
  - See growing diversity in applications running.
  - Demos will show methods and results of NA4's work.

- **Work plan for NA4 has been largely successful and will continue along same lines in second year of project.**