GRIDSTART
and its perspectives

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- Summary
  - what is GRIDSTART
  - what are we trying to achieve
  - which EU Grid projects have been funded
  - where is the Grid going in Europe
    - some personal opinions
  - conclusion and questions

- **What is GRIDSTART?**
  - GRIDSTART is an Accompanying Measure Cluster project
    - cluster projects are Commission tool designed to encourage cross-project dialogue and community-building
  - started 1st April 2002
  - runs for 3 years
  - €1.5 million total funding
  - EPCC are coordinating partner

GRIDSTART

- **Objectives are to**
  - encourage interaction between EU Grid projects
  - identify synergies between different Grid application areas
  - consolidate technical advances
  - play a full role in setting Grid standards
  - stimulate early takeup by industry and commerce
  - be inclusive

- Tasks include
  - exploitation of synergies
    - technical committee – audit and roadmap
    - cluster plenary meetings
    - directory of projects
  - setting of standards
    - definition of standards plan
    - standards committee
  - international cooperation
    - encouraging closer working across continents
    - this activity is being driven forward by GRIDSTART with full EU support

- **Tasks (continued)**
  - **dissemination**
    - dissemination material – flyers, folders etc
    - three newsletters
      - technical bulletin
      - technical newsletter
      - business newsletter
    - external and internal websites
    - participation at conferences and exhibitions
    - press information stream
    - workshops

- Tasks (continued)
  - market assessment and feedback
    - gathering of information
    - company contacts
    - face to face meetings
    - industrial seminar
    - market reports
  - crucial to understanding how best to draw industry and commerce into Grid arena

- ## Newsletters
  - ### technical bulletin
    - aimed at Grid developers
    - issue 1 now online
      - http://www.gridstart.org/downloads.shtml
  - ### technical newsletter
    - aimed at technically aware researchers and managers in non-Grid academia and business
    - issue 1 delayed – we need more articles – Nov 2002
  - ### external newsletter
    - aimed at general business audience – April 2003

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- **Informal partners**
  - the coordinating partners of
    - 9 further EU Grid projects
    - funded under Call 8 of Framework 5
    - BIOGRID, COG, FLOWGRID, GEMSS, GRACE, MAMMOGRID, MOSES, OPENMOLGRID, SELENE
- Membership
  - any organisation contractually involved in a Framework 5 EU Grid Project is a GRIDSTART member - that means ESA!

- **Pre-2001 projects**
  - 3 projects in total
  - DAMIEN
    - Total costs €2million, 6 partners
    - Middleware building blocks for simulation and visualisation
    - CAE (aerospace) and industrial simulations
  - DATAGRID
    - Total costs €15million, 21 partners
    - European scale testbed and middleware development
    - Particle physics, Earth observation and Biology

- Pre-2001 projects (continued)
  - EUROGRID
    - Total costs €3.5million, 11 partners
    - Testbed linking EU HPC centres with industry
    - Biology, Meteorology, Industrial design, ASP
- Total funding €15million

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- 2001 projects
  - 7 projects in total
  - CROSSGRID
    - Grid infrastructure component development
    - 21 partners
    - Large CERN centric project
  - DATATAG
    - Transatlantic Grid networking testbed
    - 4 partners
    - CERN networking focus

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- 2001 projects (continued)
  - EGSO
    - European Solar Observatory virtual archive
    - 10 partners
    - Led by Bob Bentley from MSSL at UCL
  - GRIA
    - Testbed for industrial applications – focus on eBusiness
    - 5 partners
    - One of the most commercially focussed projects
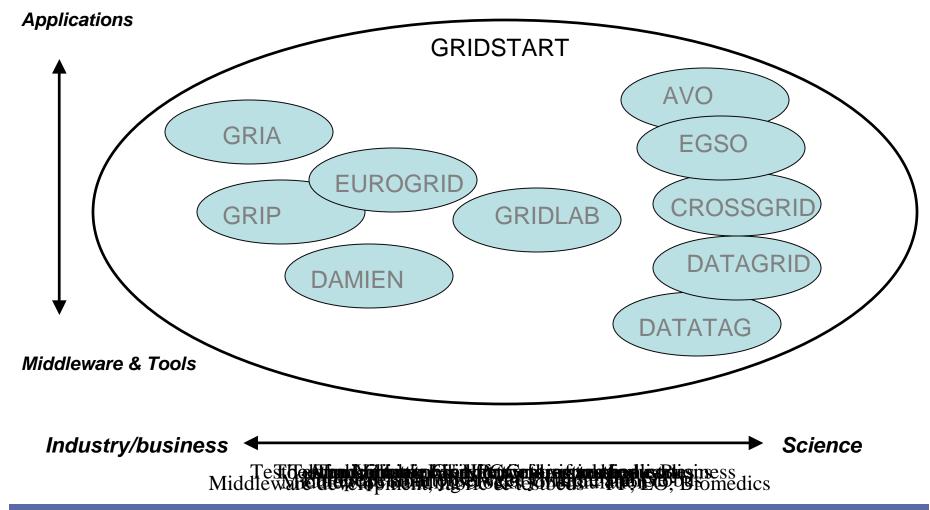
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- 2001 projects (continued)
  - GRIDLAB
    - General application toolkit for Grid codes and services
    - 11 partners
    - Led by Jarek Nabryzski from PSNC
  - GRIP
    - Interoperability between UNICORE and GLOBUS
    - 7 partners
    - Increasing interest in UNICORE
- Total funding €20million

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- **2002 projects**
  - 9 projects in total – last call of FP5
  - FLOWGRID
    - Establishment of a CFD virtual organisation using GRID infrastructure
  - OPENMOLGRID
    - Development of a unified environment for solving molecular design/engineering tasks
  - GRACE
    - Development of a just in time distributed search and categorization engine

- **2002 projects (continued)**
  - COG
    - Use of Grid technologies in industry. Ontologies of modelling of data in dispersed locations
  - MOSES
    - Enabling content providers to build modular and scalable Knowledge Grid, Semantic Web - management tools etc.
  - GEMSS
    - Testbed for medical computing and resource/service provider to clinical environment

- **2002 projects (continued)**
  - BIOGRID
    - Perform a trial for the introduction of the Grid approach in biotechnology industry
  - SELENE
    - Feasibility study on Grids in the context of e-Learning application.
    - Bridging the gap between semantic web technology and peer-to-peer computing
  - MAMMOGRID
    - Using Grid technology develop a EU wide database of mammograms for healthcare research

- # Where is the Grid going in Europe?
  - ## personal comments
    - based on my experience over past 24 months
    - very happy to be disagreed with!
  - ## over next 4-6 years Grids must start providing production quality services
    - must meet needs of wide variety of users
      - led initially by scientific communities
      - must not let this obscure deployment of infrastructure for industrial and commercial organisations

– we must move from testbeds to working Grids

- problems of deploying such infrastructures are now well understood
  - experienced by both European and National projects
  - we understand the problems but *not* how to solve them
- support for heterogeneous infrastructures is vital
  - focussing on one OS is the road to failure
  - good code comes from heterogeneity *not* homogeneity
- solving the problems of charging and accounting must be a priority
  - this must be discussed at an EU and International level

- communication between network providers and the scientist in their lab must be improved
  - how do we find out what bandwidth is available?
  - who tells us it's improved?
- Europe mustn't be afraid to take a lead role in defining what the Grid becomes
  - the US is not ahead of us
- Grid standards
  - we need to understand how Grid standards are set
  - does the GGF set them or just prepare them?
    - more clarity is needed and more WG involvement from EU

- major technical challenges face all Grid projects
  - OGSA migration is central challenge
    - will it deliver what is needed
      - » on time
      - » in a robust form
    - do we really believe XML Web services are the way forward
      - » everyone seems to believe this but ASP model has not been a commercial success
      - » a lot is riding on the success of Web services
  - managing access is also major problem
    - many EU projects have faced this
    - easy to manage in particle physics context – much more difficult in more disparate communities

- managing access (continued)
  - how is Europe-wide access to HPC and other resources managed
  - EU access to resources paid at National level is only available on ad-hoc basis at present
    - » Governments need to discuss this in context of European Research Area

- we neglect sociological issues at our peril
  - usage patterns
    - do we understand how people will use data sources?
  - requirements capture – are we asking people in business what they want? Do we understand their problems?

– little thought is going into support for commercial off the shelf software - COTS

- this is a major issue for ESA
- also think solving it will be crucial to widespread uptake of Grid concept
- much more research is needed in this area
  – or does Entropia solve all of the problems?

– we must also consider multiple access models

- Grid middleware should be multi-modal
  – support for mobiles, handhelds, laptops, PCs, workstations …

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– distributed terascale facilities in Europe

- the US is leading the way in constructing DTFs
- if Europe is to have an equivalent we need to
  - understand what applications are driving this need
  - understand charging models
  - greatly improve security and manageability
  - do a lot of work on system managers
    - » their hearts and minds are not with us yet

– Framework 6

- great opportunities for further Grid projects but
  - money versus delivery
    - » large amounts of money have been invested in the Grid
    - » the challenge we face is delivery of existing commitments not new money
  - linkage between National projects and Framework 6 projects will be much larger than in previous FPs
  - many of the EoIs I've seen to date do not really understand what an Integrated Project is
    - » there needs to be greater vision, more breadth
    - » IPs are not just a big Framework 5 project

- Conclusion
  - GRIDSTART is 6 months old
    - proceeding well but lots to do
    - hope you have a good picture of the project
      - http://www.gridstart.org has lots more info
  - the Grid is at a critical point in its development
    - some of the points I've made are contentious
      - but firmly believe we need to start discussing these issues
      - it's too easy to write positive proposals
        - » we need more honest debate about the challenges facing the Grid community