

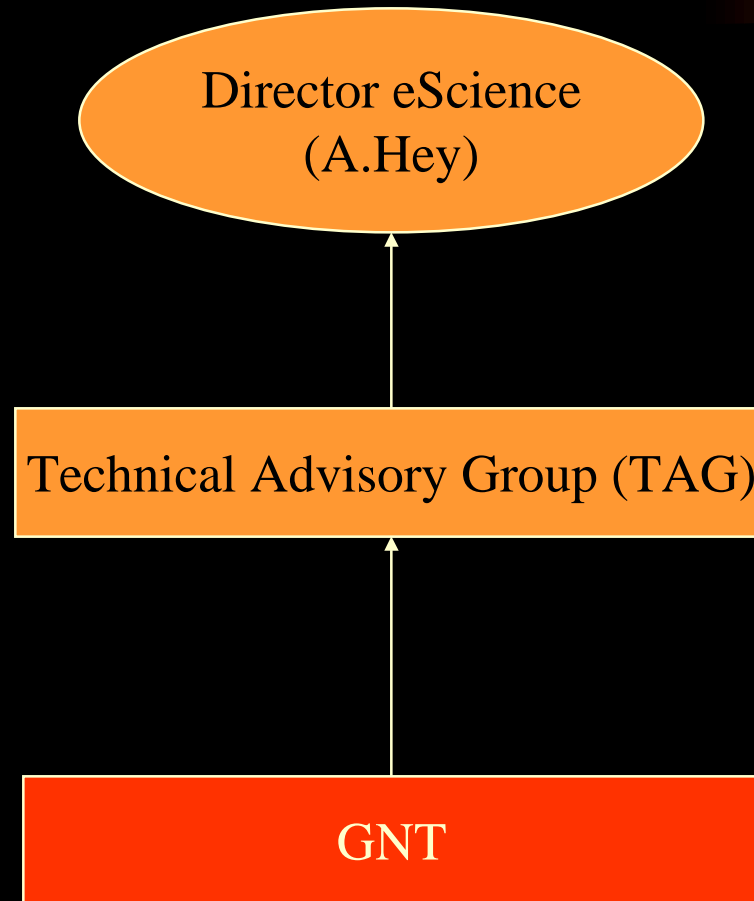
*Grid Network Team  
Networking for e-Science*



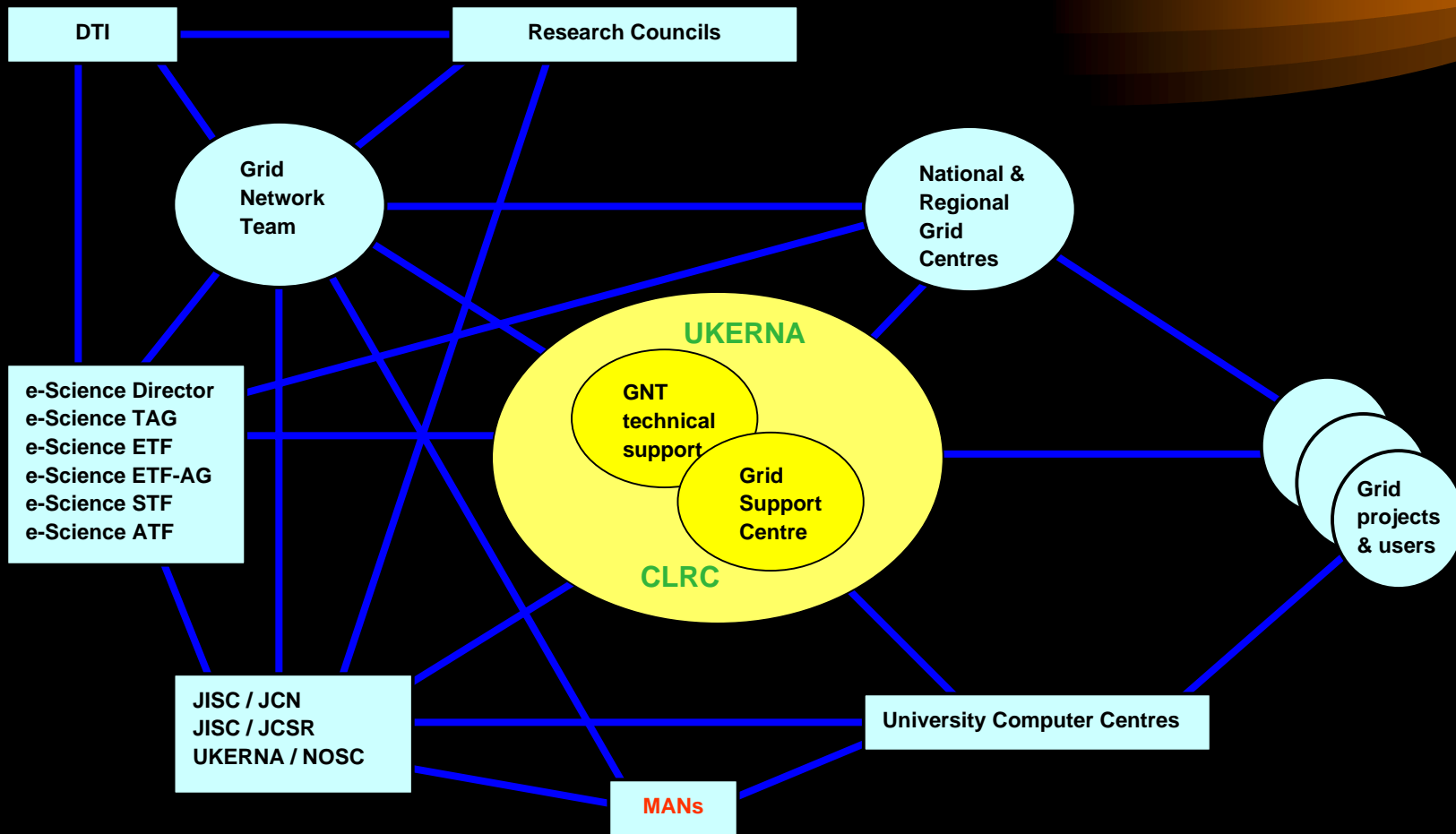
*Chris Cooper  
UKERNA / Oxford Brookes*

# *Role of GNT*

## GNT set up by Director of e-Science



# What links does the GNT have?



# *Role of GNT*

## Role in respect of general issues:

- Maintain awareness of the impact of the wide area network infrastructure and its evolution on Grid operations & vice versa
- Liaise with other bodies as needed (UKERNA, GGF, JCN..)
- Address any strategic issues for future Grid needs
- Advise e-Science Directorate (TAG)

# *e-Science Centres and Projects*

- Understand network requirements
  - represent those needs when required
  - develop holistic, global end-to-end view from Grid application viewpoint
- Assess policy or funding issues and advise Directorate
- Liaise with relevant bodies as required
- Provide technical advice relating to e-Science network usage
- Monitor end-to-end network performance
- Encourage use of normal support channels
  - assist in special cases

# Who are the GNT?

- **David Hutchison** (Computing, Lancaster University, Chair)
- **David Salmon** (Network Development, UKERNA, Secretary)
- **Peter Clarke** (Physics, UCL., Deputy Chair)
- **David Boyd** (GSC & e-Science Centre, CLRC)
- **Tim Chown** (Electronics & Computer Science, Southampton University)
- **Chris Cooper** (Network Development, UKERNA & Computing, Oxford Brookes)
- **Jon Crowcroft** (Computer Laboratory, Cambridge University)
- **Scott Currie** (Computer Centre, Edinburgh University)
- **Mike Daw** (Computer Centre, Manchester University)
- **Bob Day / Jeremy Sharp** (Network Development, UKERNA)
- **Roland Rosner** (Information Services, UCL)
- **Paul Jeffreys** (Oxford University Computing Services & e-Science Centre)
- **Robin Tasker** (Networking, BITD, CLRC)
- **David Williams** (Networking Division, CERN)
- **Anne Trefethen** (e-Science Directorate)
- **Jim Fleming** (for EPSRC & e-Science Directorate)
- **Ray Browne** (for DTI & e-Science Directorate)

# *GNT support effort*

- **Daresbury Laboratory**
  - Grid monitoring development & deployment
    - development programmer
- **UCL**
  - project & centre future requirements capture
    - fixed-, short-term assistant
- **UKERNA**
  - technical (including monitoring) support
  - administrative, liaison, advice
    - project support officer
    - management & development effort

# Activities

- **Support**
  - Liaison & requirements capture — visits
  - Policy
  - Provisioning
- **Monitoring**
- **Initiatives**
  - UKLight
- **International liaison**
  - GridPP, DataGrid
  - Future FP6 projects
    - EU testbeds???



# *Support: visits & liaison*

- **Centres:**
  - Belfast, Cambridge, Cardiff, Imperial, Manchester, Newcastle, Oxford, Southampton
  - NeSC, GSC / CLRC
- **Application projects**
  - funded via Research Councils & Core Programme
- **Network projects**
  - funded via Core Programme or EPSRC ICT programme
    - MB-NG
    - Grid Probe
    - GRIS: Grid Resource Scheduling
    - XenoServers (50%): servers for pervasive computing
    - Trustworthy Grid Resource Management
    - FutureGrid

# Monitoring Grid Network information services

- Network monitoring needed for two purposes
  - State of network as seen by Grid applications
  - Publish network resource information into Grid information services (for use by resource brokers)
- GNT steering development for UK Grid
  - based upon:
    - Round trip packet delay
    - TCP / UDP max throughput
    - GridFTP transfer rates
    - Bottleneck measurements
    - .....
- Monitoring at Centres

- **Policy**

- JISC AAA Call (JCSR / JCIE) – e-Science requirements
- Connection Policy for Industrial Partners – revised cost structure and terms of use to accommodate SMEs as well as large companies
- e-Science contribution to (interminable) charging debate

- **Operation**

- Multicast – induced by requirement to run Access Grid
- Firewalls – performance and site security policy issues
  - GNT, STF, e-Science workshops
- Security – co-operation / liaison / joint policy development with NHSnet
  - access issues for bioinformatics and medical projects (MRC)

# Issues – 2

## Provisioning

- **Access links**
  - **MANs**
    - e.g., Network North West, TVN
  - **Institutions**
    - e.g., Hinxton, Jodrell Bank
  - **Future requirements capture & simple modelling**
- **Future development provisioning**
  - **Developing test & development network**
    - multiple use
    - extending access
  - **Future network trial & development**
    - e.g., UKLight (multiple wavelength use)
  - **SJ5 requirements**

- **Who pays?**
  - **It varies!**
    - JISC (via UKERNA)
    - SRIF (via HEFCE, JCSR)
    - external (e.g., Wellcome)
    - and .... ?
- **Real requirements for Grid service; timescales?**
  - **Unclear yet**
    - Grid concept is unproven, projects starting up
    - SR2 further funding, more service-oriented programme?
  - **Different from 'regular' provision?**
    - not much, so far
    - big flows predicted
      - TE, BoD, management needed
    - general reinforcement of some need for QoS
    - AAA for virtual organizations
    - firewall issues for virtual-organization based Grids

# *Help requested*

- **Funding**
  - No matter source, case has to be made
    - science, prestige, whatever
  - Whether for resources to
    - manage, operate
    - upgrade capacity, capability
- **Capture of e-Science-related special needs**
  - GNT would welcome assistance in requirements capture
  - Please forward requirements — with case!
  - NB: not an open invitation for upgrades which should be part of ‘well-found’ institution, network, etc.