

Enabling Grid and e-
Science Projects in
the North-West

<http://www.esnw.ac.uk>

Professor Carole Goble
Dr. John Brooke



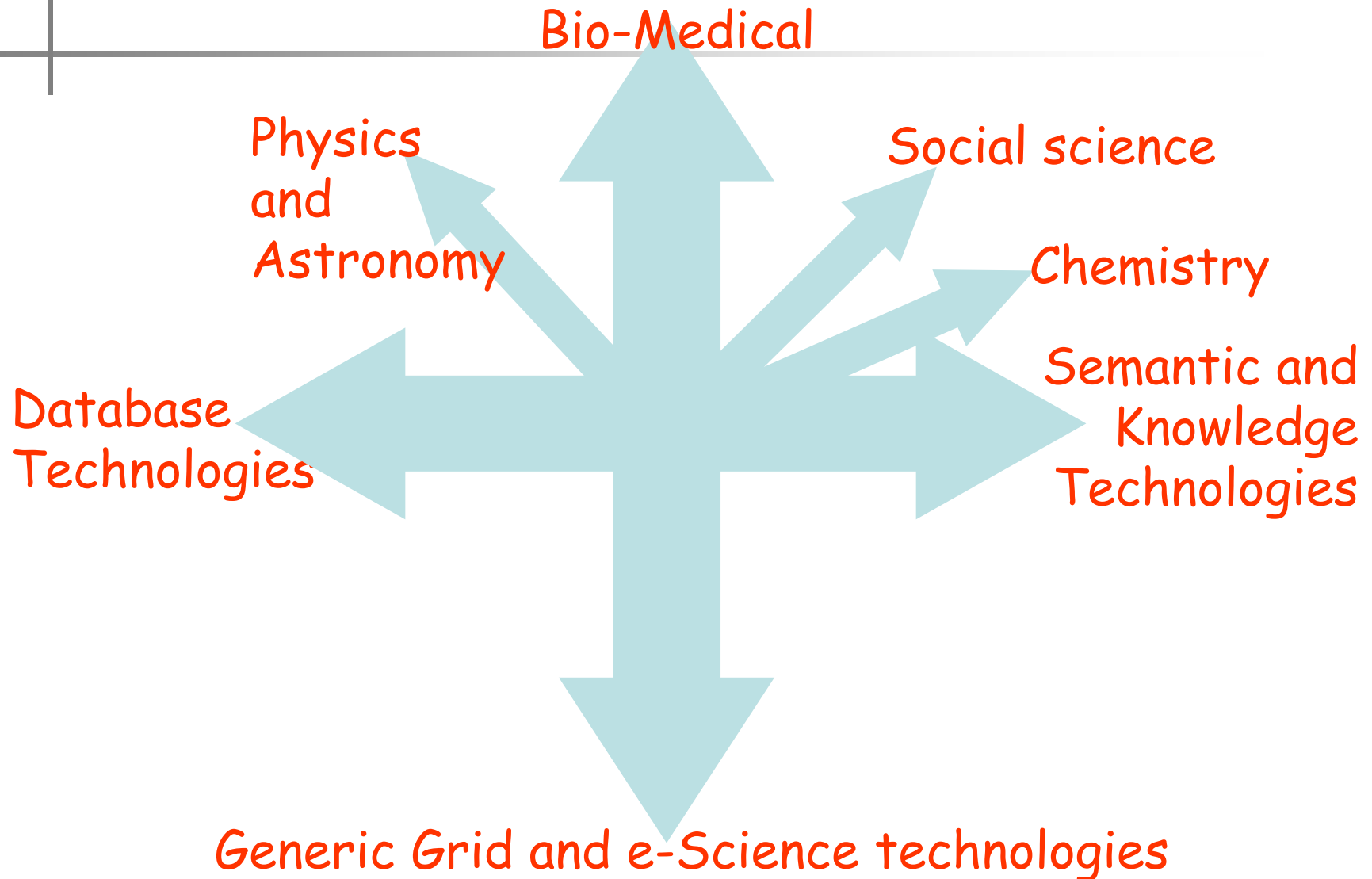
Summary of talk

- Role and structure of ESNW
- Hub and spoke model
- Networking and AccessGrid
- Two examples of applications
- Future strategy

Enabling Science in the North
West



ESNW Strategy-



ESNW links and outreach

RealityGrid

myGrid

Text Mining

Local
e-Science

GOSC

NERC projects

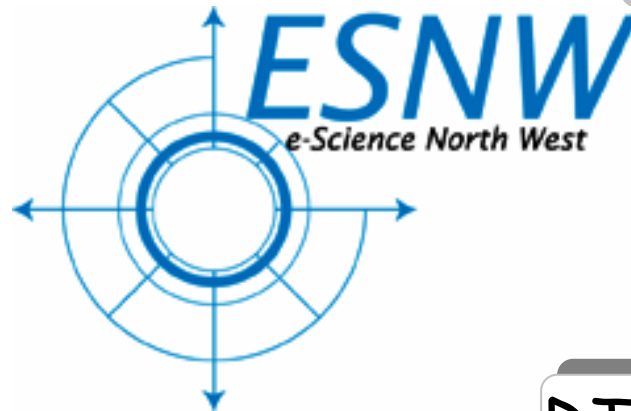
MRC projects

ESRC projects

JISC projects

DTI projects

NWDA
NW-Grid





ESNW Strategy

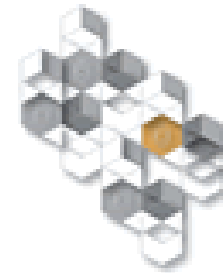
RASH
RASH

CO-ODE

MIAS-Grid

An Umbrella
to
NW
e-Science
Activities

Infrastructure
UK activities
e-Science pilots
EU e-Science



myGrid



OGSA-DAI

GODIVA

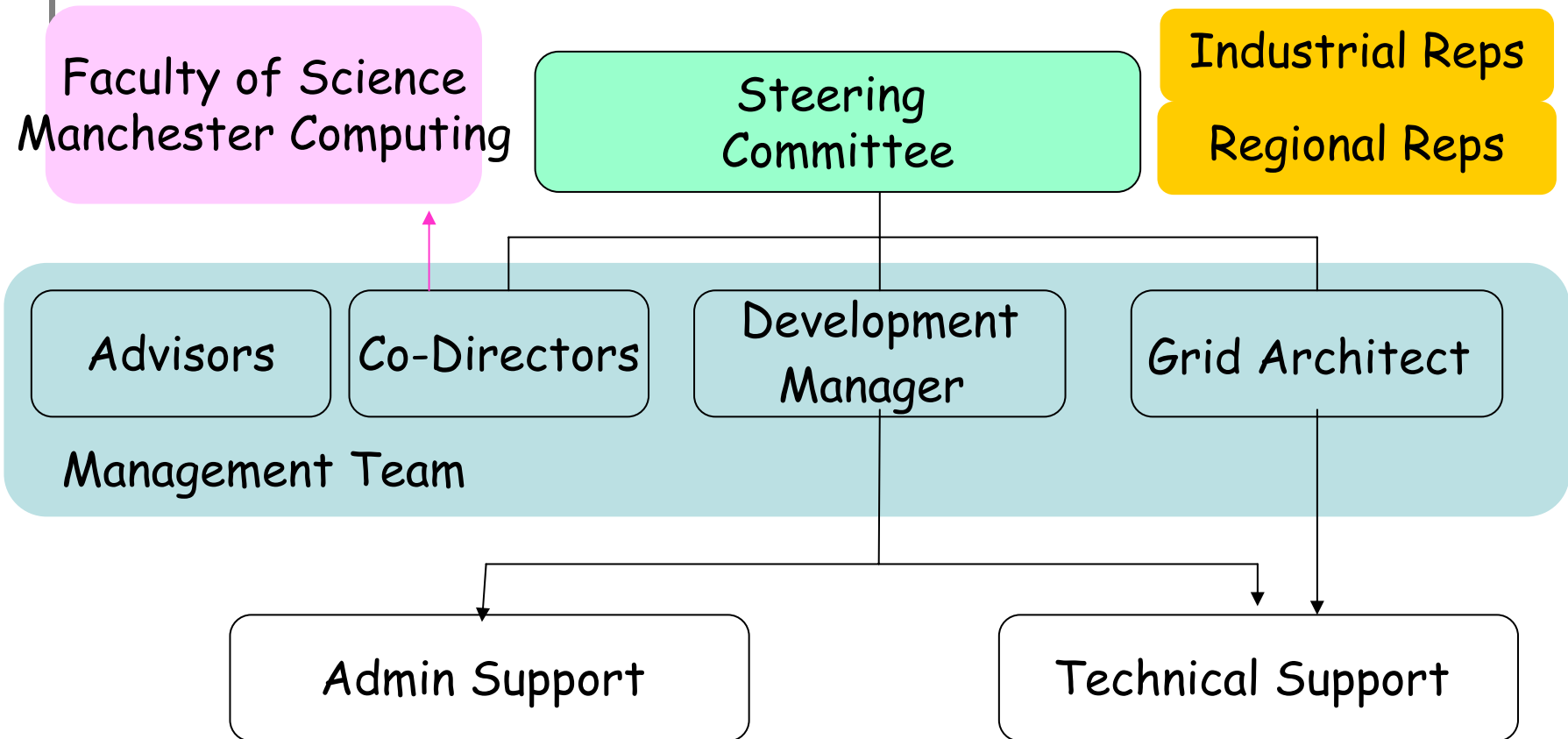
EUROGRID

HyOntUse



Pedro

ESNW Structure



Rolling out ESNW: Hub and Spoke

•£3.18 million UoM investment supplements £1.7 million DTI/EP SRC

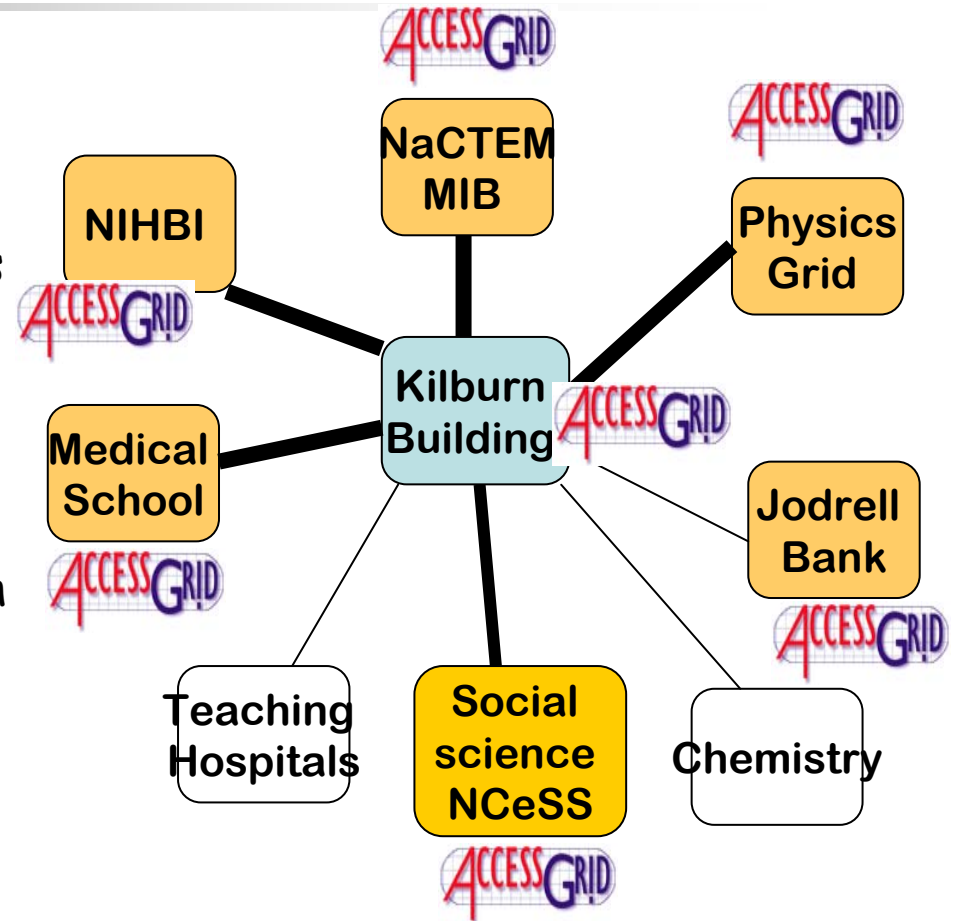
•Virtual presence in spoke nodes

- Access Grid - deployment of 6 AGs more funded by other means
- High performance comms fabric implemented in July 2004

•Spoke node strategy

- PhysicsGrid refurb, re-equip & comms case
- National Institute for Bio-Health Informatics (funded by NWDA)
- National Centre for e-Social Science
 - National Centre for Text Mining

•Core Staff





Multi-site collaboration

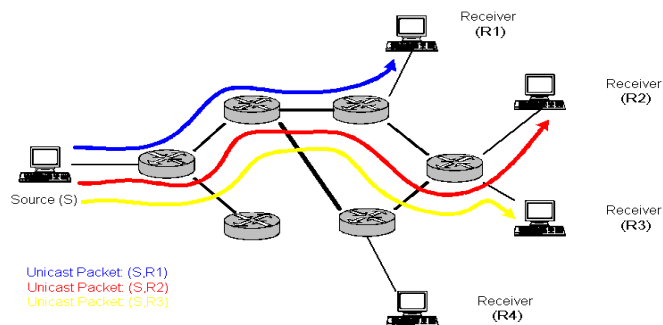




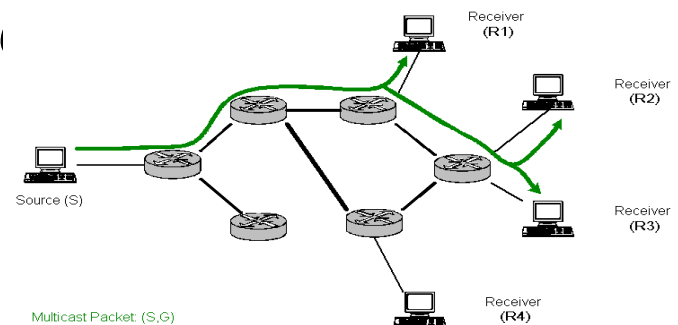
Multicast

- AG uses multicast networking
- Enables more efficient use of bandwidth
- Multicast deployed over JANET core and

a



b





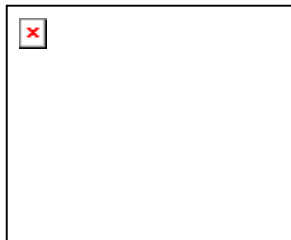
Other hub and spoke models



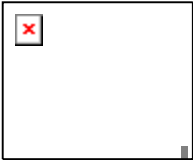
Hub at Manchester, nodes have specialisms
e.g. Collaboratory for Quantitative e-Social
Science (Lancaster)



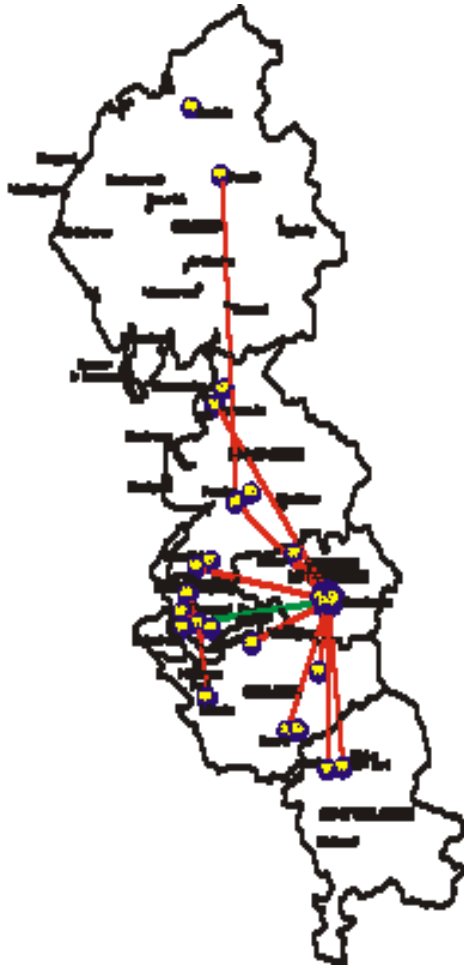
NW-Grid £4.9 million from NWDA 2005-8



- A regional infrastructure but linked to NGS
 - FOUR grid computational nodes linked to rich facilities, for experiment and visualization.
- Explore bioinformatics databases for organism gene expression analysis
 - Molecular simulation of environmental chemical processes
 - Design of nano-structures with specific material properties
 - Remote access to experimental facilities (e.g., SRS, 4GLS, Jodrell Bank)
 - Statistical modelling of labour market efficiency in social sciences
 - Aiding drug discovery via high throughput screening of molecules



NetNorthWest



- Core connects NW HE institutions at 155 Mbps
- Research facilities, e.g. Jodrell Bank
- Hospitals, Science parks
- Connects to SuperJanet 2.5 Gbps
- Then to Dante(EU), Abilene(US), APAN (Japan)



Collaboration and networking

- Collaborative technology is critical in e-Science
- So is advanced networking
- ESNW pursues both on a regional, national and global scale

Collaboration - SCGlobal

- Manchester official UK Constellation site



Solar Terrestrial Physics Workshop



Teleradiology, Denver



Future Strategy - linking institutions

- Access Grid Support Centre
- Grid Operations Support Centre
- National Centre for e-Social Science
- National Centre for Text Mining
- CCLRC e-Science programme
- Lancaster e-Social Science
- HEP groups via NorthGrid



Future Strategy - exploiting Grids and networks

- NWGrid as organiser and attractor for over 50 NW projects
- Compatibility with UK NGS, US TeraGrid, EU EGEE and DEISA
- Advanced Networking, ESLEA project, NetNorthWest
- Move into broadband, especially linking schools and homes - GRENADE project
- Economic basis for self-sustaining Grids, MCS project



More information

- John Brooke

j.m.brooke@manchester.ac.uk

- Web site

<http://www.esnw.ac.uk>

- Thanks to all ESNW staff and friends who are too numerous to mention individually