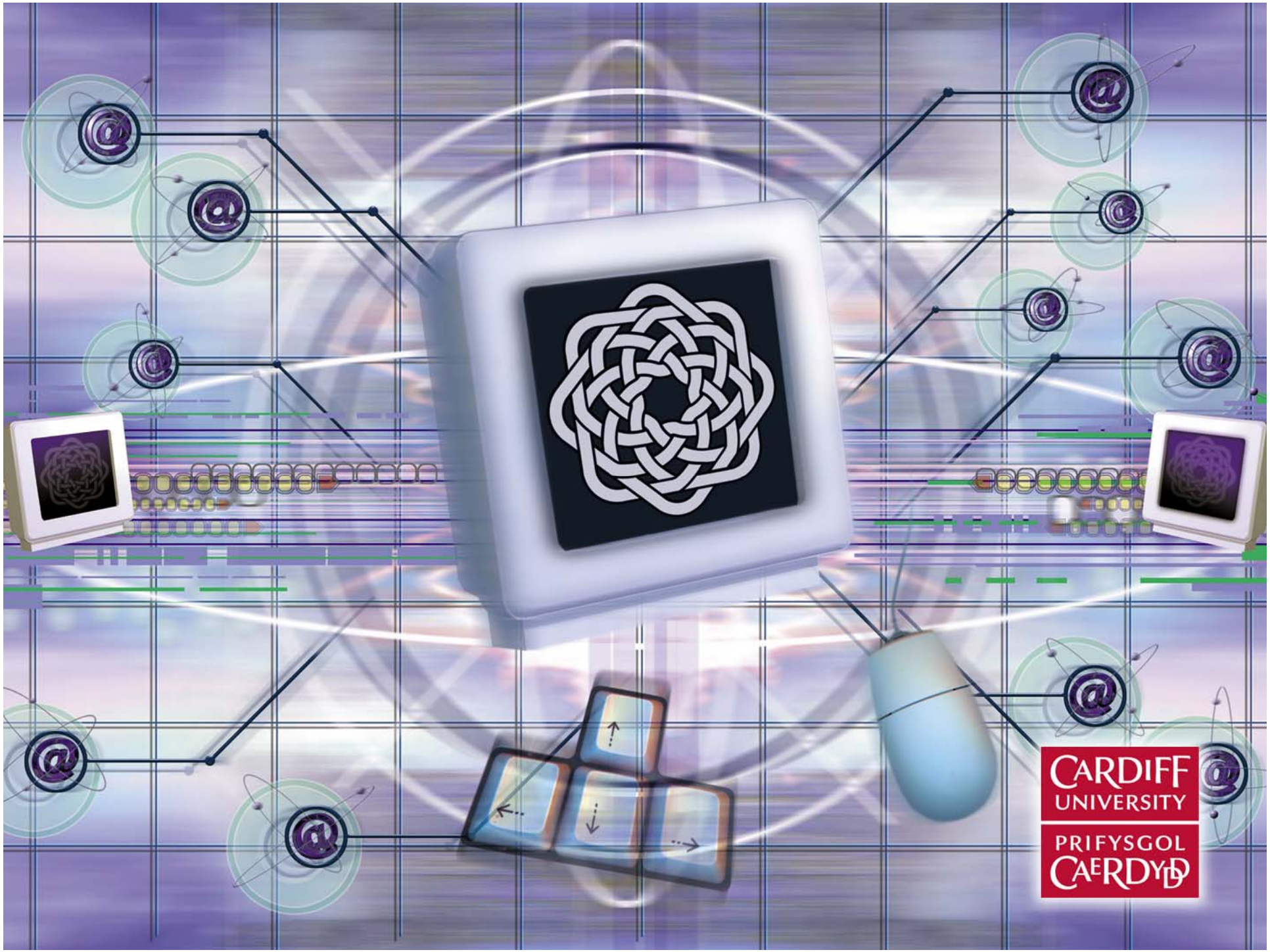
CARDIFF
UNIVERSITY
PRIFYSGOL
CAERDYDD

Welsh e-Science Centre

Canolfan e-Wyddoniaeth Cymru

Regional Grid Centre

e-Research at Cardiff -
Welsh e-Science Centre

John Oliver
Commercial Coordinator

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

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Synopsis

- Grid & Benefits
- Welsh e-Science Centre – Aims
- WeSC Competence & Unique Assets
- Local Initiatives

“The Grid is tomorrow’s Internet”

“A powerful new ICT Infrastructure enables sharing of raw computing power and resources, including data, instruments, sensors and visualisation over networks.”

Grid Benefits

- Collaborative Working
  - increasing in science/engineering projects
  - face-to-face remote communication
    Access Grid
- Knowledge Management
  - Data ► Information ► Knowledge
  - Scalability

Grid Benefits

- Service Oriented Approach
  - Pay-as-you-go, electrical power analogy
  - Choice of services
  - Access to specialist services – lower cost
- Problem Solving Environments
  - Work benches/toolsets for problems of a specific order

WeSC Aims

- Promote Grid R & D in Wales
- Encourage technology exploitation
- Pursue research – 3 areas

Aims - Promotion of R & D

DIRECT		INDIRECT
Invitations Visits Events - Own - Third Party Exhibitions Demonstrations	INDUSTRY/COMMERCE UNIVERSITIES/HEI'S ► Develop Relationships ◄ ▼ PARTNERSHIPS	Web Site Newsletter Brochures Case studies Third party referrals

Aims - Technology Exploitation

- **Education**
  - Training Courses
  - Literature
  - Expertise
- **Partnerships ► Joint Projects ► Win-Win**
  - Industrial/Academic
- **People**
  - > 40 experts/technologists at Cardiff

Aims – Promote Research

- Data knowledge management
  – diverse resources
- PSE's
  – Science/engineering
- Distributed Visualization
  – Immersive/collaborative

WeSC Competence

- **Highly skilled/respected people**
  - >40 research/teaching
- **Track record**
  - 30 successful collaborative projects
  - 6 industrial partnerships

Unique Assets

- **Grid Test Bed** – used to test Grid middleware
- **Cardiff University Distributed Visualization Facility**
  - multi processors
  - high end Graphics (inc 3D)
  - high speed/bandwidth network at CU
- **High capacity Grid storage and search facility**
  - 4 TB flexible storage
  - advanced data pattern matching facility
  - first installation in world

Company Links

Industrial Projects

- BT Exact
- BAE Systems
- HP
- SGI
- Activeplan
- Avantis World
- Sea Marine Engineering
- Evotec

Others

- IBM
- Zarlink Semiconductors
- Smart Holograms

International Partners/Links

- **Industrial Projects**
  - GECEM – Institute of HPC, Singapore
  - RAVE – Oakridge Lab, Tennessee
- **Others**
  - NIMROD – Monash University, Australia
  - Prof Alec Gray – Global Biodiversity Information Facility

Welsh e-Science Projects

30+ in progress

- Applications,
- Industrial Partnerships
- Middlewares
- Tools

Applications

- Biodiversity World – Reading, Soton Nat Hist Museum

  PSE for collaborative exploration and analysis of global biodiversity patterns

- RT Grid - Velindre Cancer Care Centre

  Radiotheraphy dose calculation – Monte Carlo techniques

- e-HTPX – **Daresbury/Oxford/York/Cambrige/EBI**

  Resource for High Throughput Protein Crystallography

Industrial Partnerships

- CONOISE-G - BT Exact, Soton, Aberdeen

  A distributed environment in which multi-agents provide diverse services

- GECEM – BAE Systems, HP, IHPC, Swansea

  Grid-Enabled Computational Electromagnetics

- RAVE - SGI

  Resource Aware Visualisation Environment

Middlewares

- Access Grid VRE- **Manchester, Soton, Edinburgh, OU**

  Videoconferencing - services for meeting co-ordination & replay

- UDDI- e - **Cardiff**

  An extended registry for web services

- MANGO – **Cardiff**

  Messaging and Notifications for Grid Organisations

Tools

- Triana Cardiff

  Graphical environment to create programs

- JACAW Cardiff

  Java-C Automatic Wrapping

- SWFL Cardiff

  Service Workflow Language - Scientific

Summary

- Grid & Benefits
- Welsh e-Science Centre – Aims
- WeSC Competence & Unique Assets
- Local Initiatives

Welsh e-Science Centre
Canolfan e-Wyddoniaeth Cymru

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