



Irish Centre for High-End Computing

ICHEC



ICHEC Conference, Royal Irish Academy,
Dublin – 29th October 2008



Outline of talk

- Policies and philosophy of ICHEC
- Resources.....compute.....staff
- Plans for the future

ICHEC's clients

1. The Higher Education Institutions
= 7 universities, 2 Institutes (DIAS and Tyndall), RCSI, IoTs
2. Met Éireann and other semi-state bodies
3. Technology transfer to industry and to SMEs

Creation and development of ICHEC

- SFI/HEA funds ICHEC for 3 years.... to be hosted at NUI Galway in Dec 2004
- Staff hired and equipment installed in 2005 (IBM and Bull clusters) and service begins in 2006
- Users grow to 260+ now
- Staff in offices in Dublin and Galway

The National HPC Service

- Institution-blind and discipline-blind
- Core function: provide advanced compute resources and assist researchers in tuning/optimising code
- Strong focus on institutional partnerships
 - ICHEC hosted by NUI Galway
 - UCD hosts ICHEC's new compute clusters
 - TCD subsidises ICHEC'S Dublin offices
 - UCD and NUIM buy into new compute cluster
- Developing relationships other HPC national services (ARCCA at Cardiff and epcc....)
- Developing EU contacts...PRACE,DEISA...

New Compute Clusters

Walton (IBM)	SGI ICE
3 Tflops	25 Tflops sustained
948 cores (single core AMD Opteron)	2560 cores (quad core, Intel Harpertown)
Gbit ethernet	ConnectX Infiniband
MPI latency 40 μ sec	MPI latency 1-1.5 μ sec
Limited scalability (128 cores max) for tightly coupled applications	Good scalability (prob >512 cores) even for the most demanding, communication-bound applications

Staff resources

- Total staff numbers at present = 13

Divided between Galway and Dublin offices

- 3 to 4 System Administrators
- 1 to 2 Software Developers
- 6 Support Scientists
- 2 to 3 management/administration

Plans for the future

- Employ additional staff: aim is to increase
 - support scientists from 6 to 9
 - software developers to 3 to 4
- Create a national HPC hub to facilitate the dissemination of skills/solutions/expertise across and within institutions/disciplines/research groups

National HPC Hub

- New open plan office
- Multiple open access desks
- Large guest area for PIs, postdocs, grad students, visitors
- Outreach/training/mentoring/tuning code on site with ICHEC staff and others/sharing experience/expertise
- Video-conferencing facilities/meeting room /self-catering facilities

Vision

ICHEC aims to enable world-class research in Ireland by providing integrated services to support advanced computing to the research community and aspires to become an internationally recognised centre of excellence for high-end computing.