

The UK HPC Ecosystem and ARCHER

Current state, ARCHER access routes

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EPSRC

NERC SCIENCE OF THE ENVIRONMENT

CRAY
THE SUPERCOMPUTER COMPANY

| epcc |



www.epcc.ed.ac.uk
www.archer.ac.uk



Outline

- UK HPC Ecosystem
- Why use ARCHER?
- ARCHER Access Routes
 - Test access
 - Large scale access: EPSRC
 - Large scale access: NERC
 - Others



Discussion



Possible Topics

- How do users find out what is out there?
 - UK HPC catalogue?
 - What software/tools are supported on each facility?
- How do we document access routes?
- How do we enable user mobility between facilities?
- How do we combine our expertise?
 - Local staff may have particular areas of expertise and local contacts?
 - Other people around the UK will have complimentary expertise – how can this be accessed?



UK HPC Ecosystem



Idealised picture



- Users enter at most appropriate level
- Can also move vertically depending on need
- Can link together access to different resources as required by workflow



Actual Picture



University Facilities



Other Providers



- Access routes?
- Which is most appropriate?
- How do I use a different facility?



Future Directions

- Drive from RCUK level to be more joined up and strategic
 - Top-down approach
- Community needs to be prepared for this
 - So we can provide most benefit to researchers
 - So we can coherently drive the direction of integration to meet user requirements
- HPC-SIG, UK RSE, ARCHER Champions
 - Bottom-up approach
- Neither top-down nor bottom-up will work in isolation



Joining things up

- ARCHER Champions trying to work from the bottom up to help researchers
 - What resources are available?
 - Which resource is best for me?
 - How can I get access?
 - How can I get help to port and improve my software?
 - How can I move between different HPC facilities?



Why use ARCHER?



Possible technical requirements

- I need to be able to run large parallel jobs
 - > 8,000 cores
- I need high throughput for parallel jobs
 - e.g. Want to run 1,000 512 core jobs
- I need extreme throughput for serial jobs
 - e.g. Want to run millions of serial calculations
- Need PGAS programming model
 - CAF, UPC, SHMEM
- ...and other technical reasons



Other reasons

- I cannot get access to any other HPC system?
 - Is this really true?



Access Routes to other UK HPC...?

Discussion and information sharing



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