Edinburgh e-Science TOE

Training Outreach and Education

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NGS National Grid Service

http://www.ngs.ac.uk

Creating and running applications on the NGS

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http://www.pparc.ac.uk/

egee

http://www.eu-egee.org/

Policy for re-use

- This presentation can be re-used for academic purposes.

- However if you do so then please let training-support@nesc.ac.uk know. We need to gather statistics of re-use: no. of events, number of people trained. Thank you!!

Acknowledgements

- This presentation re-uses material
  - on globus commands from Stephen Pickering (University of Leeds)

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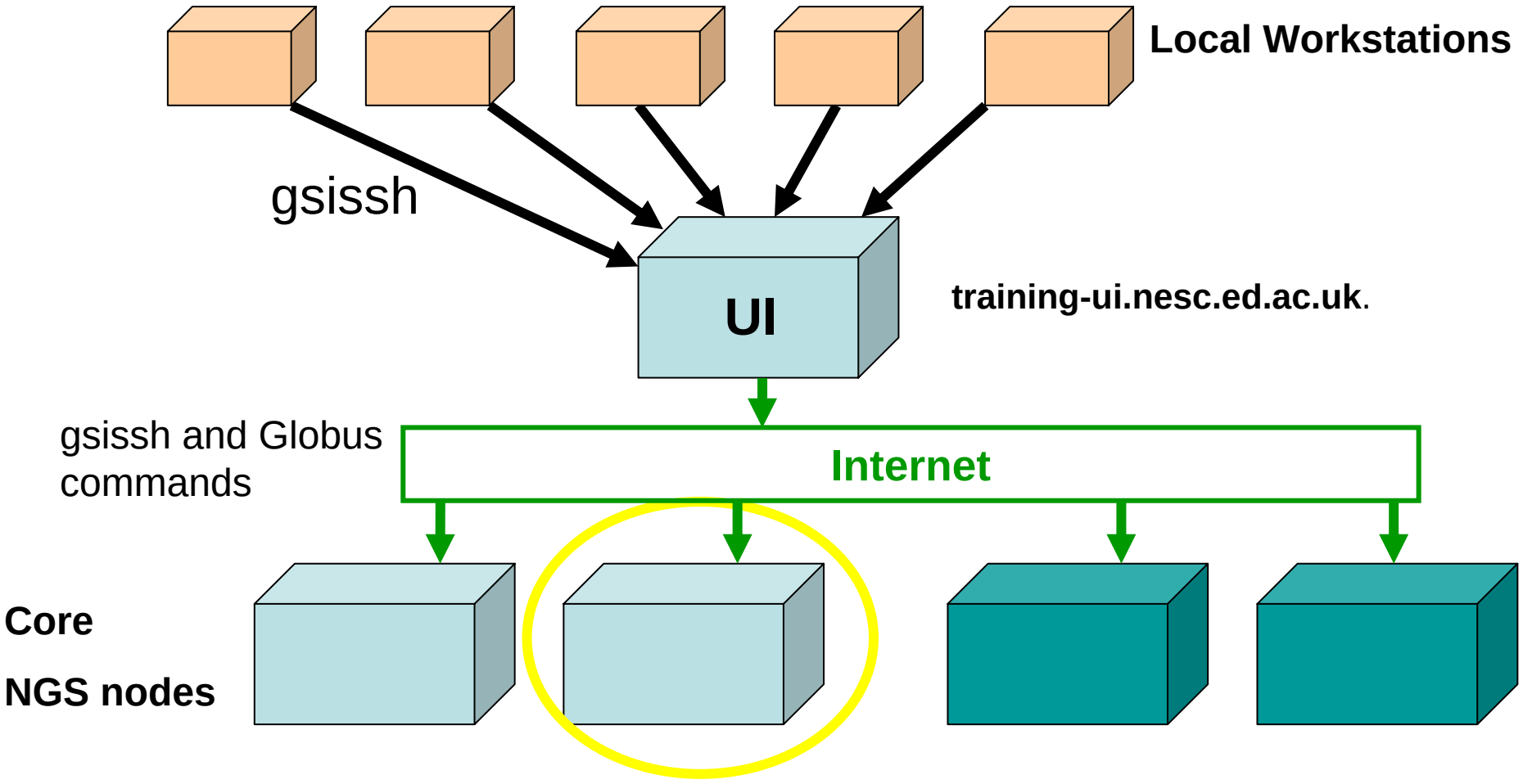
Outline

- A “User interface” machine and our set-up today
- How to:
  - Port code and data from desktop/UI to the NGS compute nodes
  - Compile and run code
  - Invoke your application from the UI machine
- Practical

The "UI" machine

- The users interface to the grid
  - Where you upload your certificate for your session
  - Where you create proxy certificates
  - Where you can run the various commands, including…
    - The clients and development tools from Globus Toolkit 4.0.3 pre-ws
    - GSI enabled Secure Shell
    - Storage Resource Broker (more on this tomorrow)
    - OGSA-DAI (more on this tomorrow)

Our setup

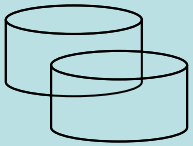

Local Workstations
gsissh
UI
training-ui.nesc.ed.ac.uk.
gsissh and Globus commands
Internet
Core
NGS nodes
grid-data.rl.ac.uk

GSI enabled Secure Shell and Secure CoPy

- Openssh patched to additionally use proxy certificate for authentication and authorization
- Often run on port 2222

Secure file copy

UI



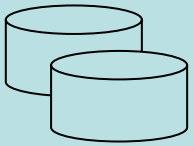
Code and data

gsiscp: copies file using proxy certificate to allow AA

NGS node

Open shell on NGS CN

UI

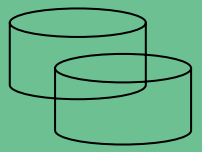


Code and data

gsissh

Can be an X-windows client

NGS node



Code and data

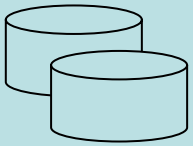
Compile, edit, recompile, build

SHORT interactive runs are ok (sequential)

Totalview debugger.

Run jobs from the UI

UI



Code and data

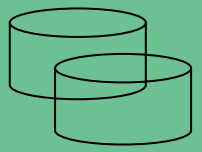
globus_job_run

Or

globus_job_submit / globus_get_output

Can pass files with these commands: e,g, parameters for a job.

NGS head node



Code and data

Executables

Job Submission Tutorial

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Overview

- This tutorial will look at
  - Job submission, monitoring and retrieving output
  - Error diagnosis.
  - Compiling code suitable for running on the NGS
  - Using NGS modules

- Please remember the systems you are using are part of a production level service.

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- http://agenda.cern.ch/fullAgenda.php?ida=a063420

R231647

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Questions -1

- "How do I know which compute node to use?"
  - Use the Information Service (Not covered in this event)
  - The core nodes of the NGS all run the same software
- Is my NGS Compute Node account shared across all machines??
  - NO – You must synchronise your accounts on different machines yourself. Your account names may be different on each machine. Use GridFTP (from portal) or gsi-scp
  - You can hold files in the SRB,(Storage Resource Broker –see tomorrow) and read/write these from any compute node

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Questions -2

- "Should I stage an executable?" (stage = Send it to a compute node from my desktop/UI)
  - Only if the UI is binary-compatible with the execution node
    - Not all nodes are running Linux.
    - Not all head nodes are running the same operating system as their execution nodes
  - Safer to
    - Check it compiles locally
    - Copy to a head node
    - Compile it there (or submit job to compile it)

Further information

- Globus 2.4.3 Documentation:
  http://www-unix.globus.org/toolkit/docs/2.4/

- NGS user pages
  http://www.ngs.ac.uk/users/userguide.html