

Ranger

Hardware and Environment

Drew Dolgert (Nate, Susan, others)

- Connect
- Compile
- Run
- Transfer files

Chunks

- What is TeraGrid?
- What is Ranger?
- Secure Shell
- Basic Shell Scripting
- Make
- Modules
- Secure Copy
- GridFTP

TeraGrid!

kilo 1000

mega 1000,000

giga 1000,000,000

tera 1000,000,000,000

peta 1000,000,000,000,000

Grid





Consortium



AB 09681382E

Robert E. Rubin
Secretary of the Treasury

100

ONE HUNDRED DOLLARS

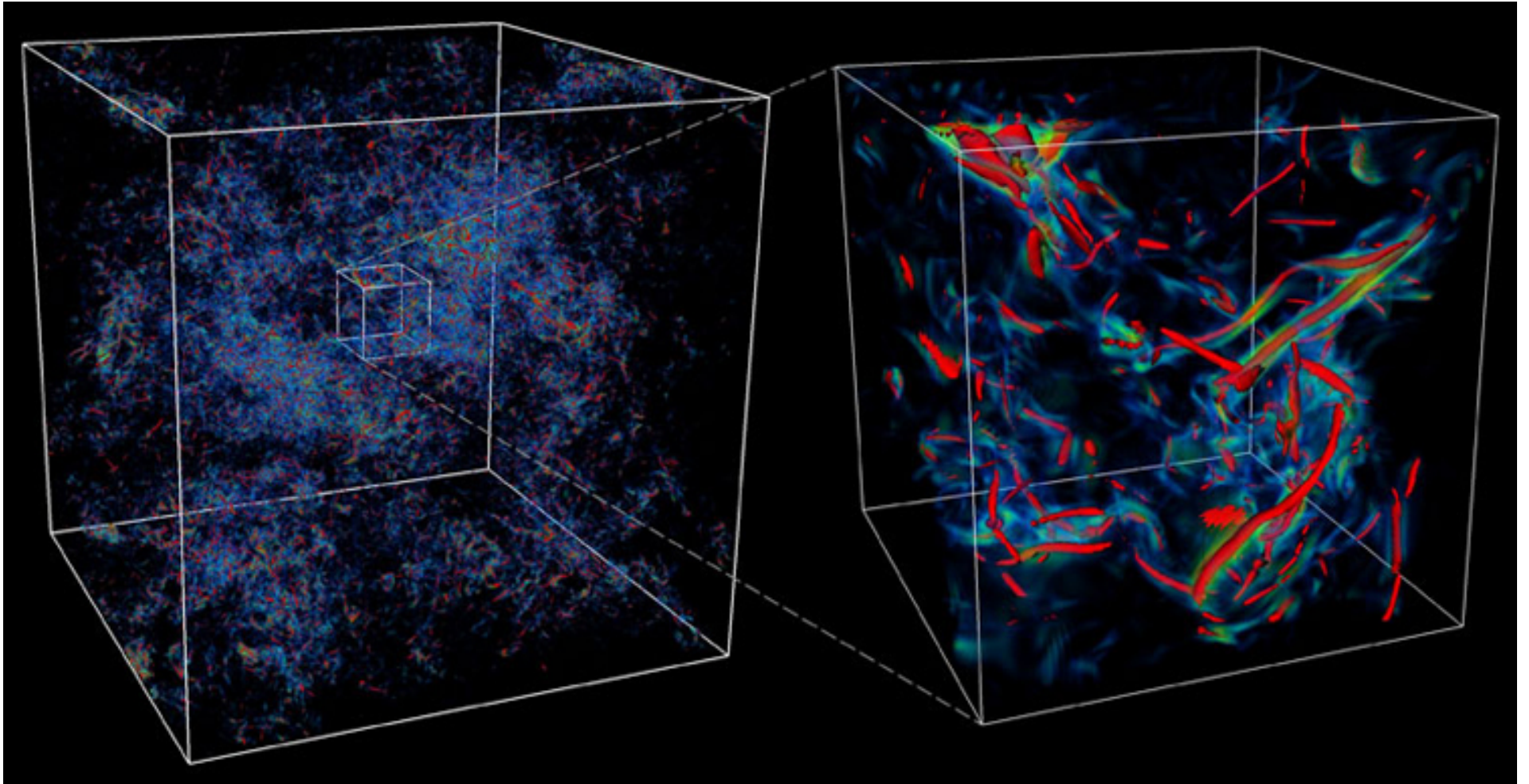
Computing



Storage



Visualization



Data Courtesy of: Diego A. Donzis, P.K. Yeung
Visualization by: Gregory P. Johnson, Kelly P. Gaither

Consulting

A 3x3 grid is overlaid on the page. The word 'Consulting' is centered in the top-middle cell. The grid lines are thin and light gray.

Portal

portal.teragrid.org

Allocations

Startup & Education

Research

Jan 15

April 15

July 15

October 15





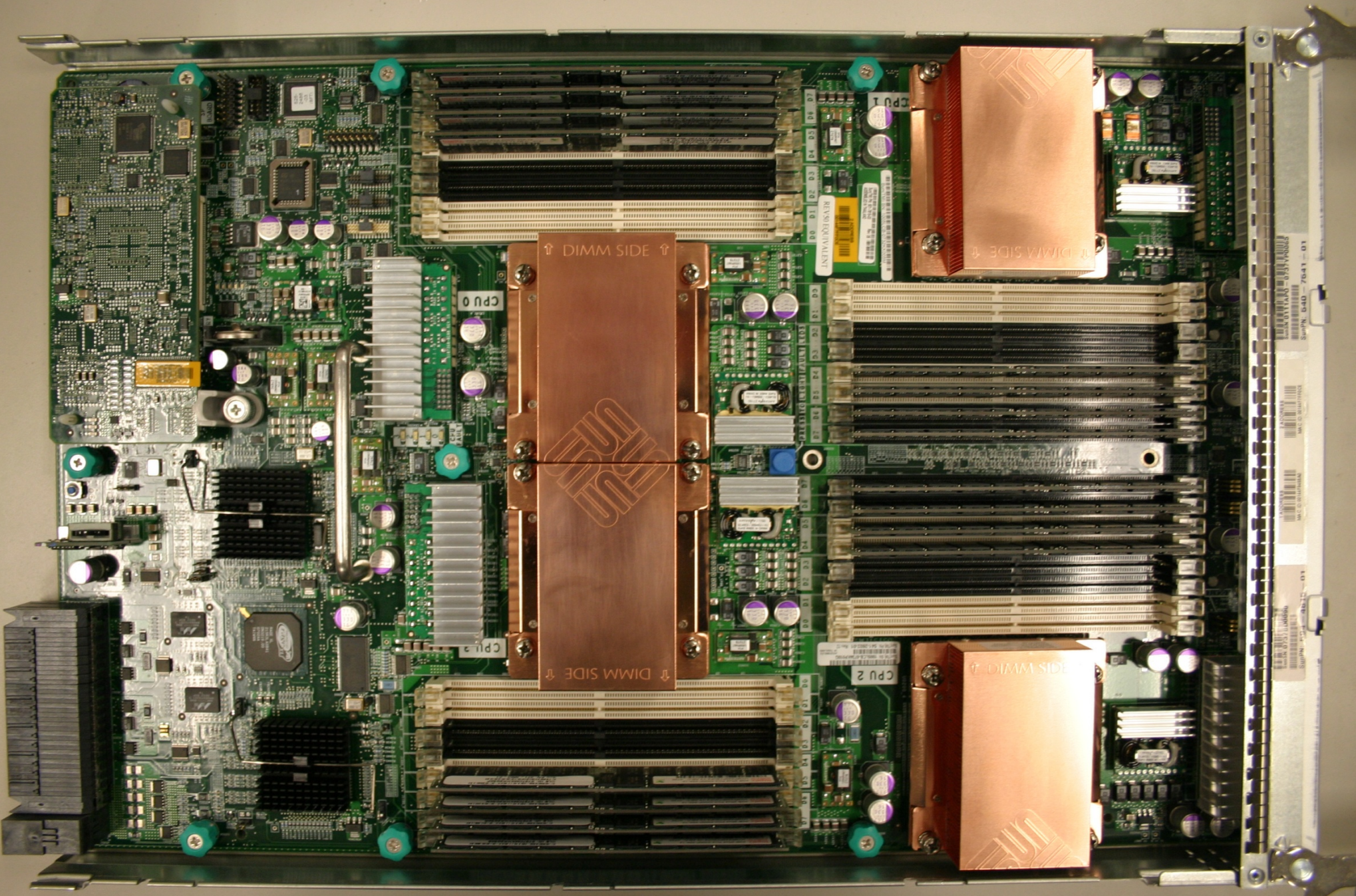
62976

579

123

1700





↑ DIMM SIDE ↑

CPU 0

↓ DIMM SIDE ↓

CPU 2

JENTYVA03V0R
CPU 1
100 01 02 03 04 05 06 07

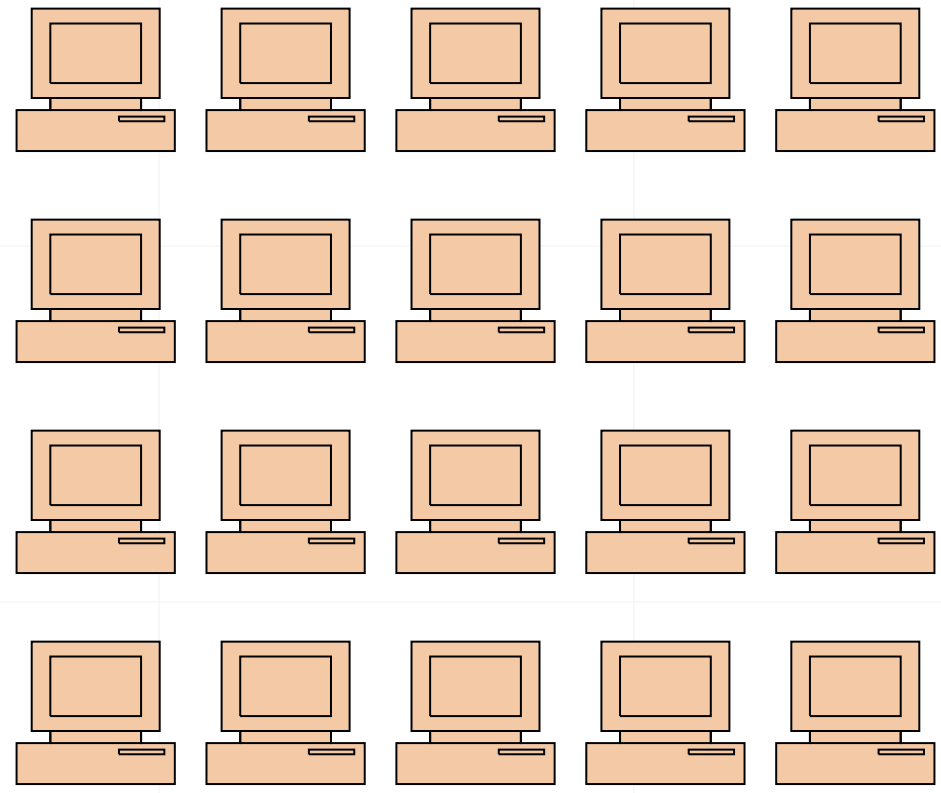
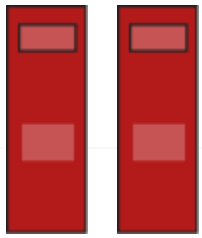
08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

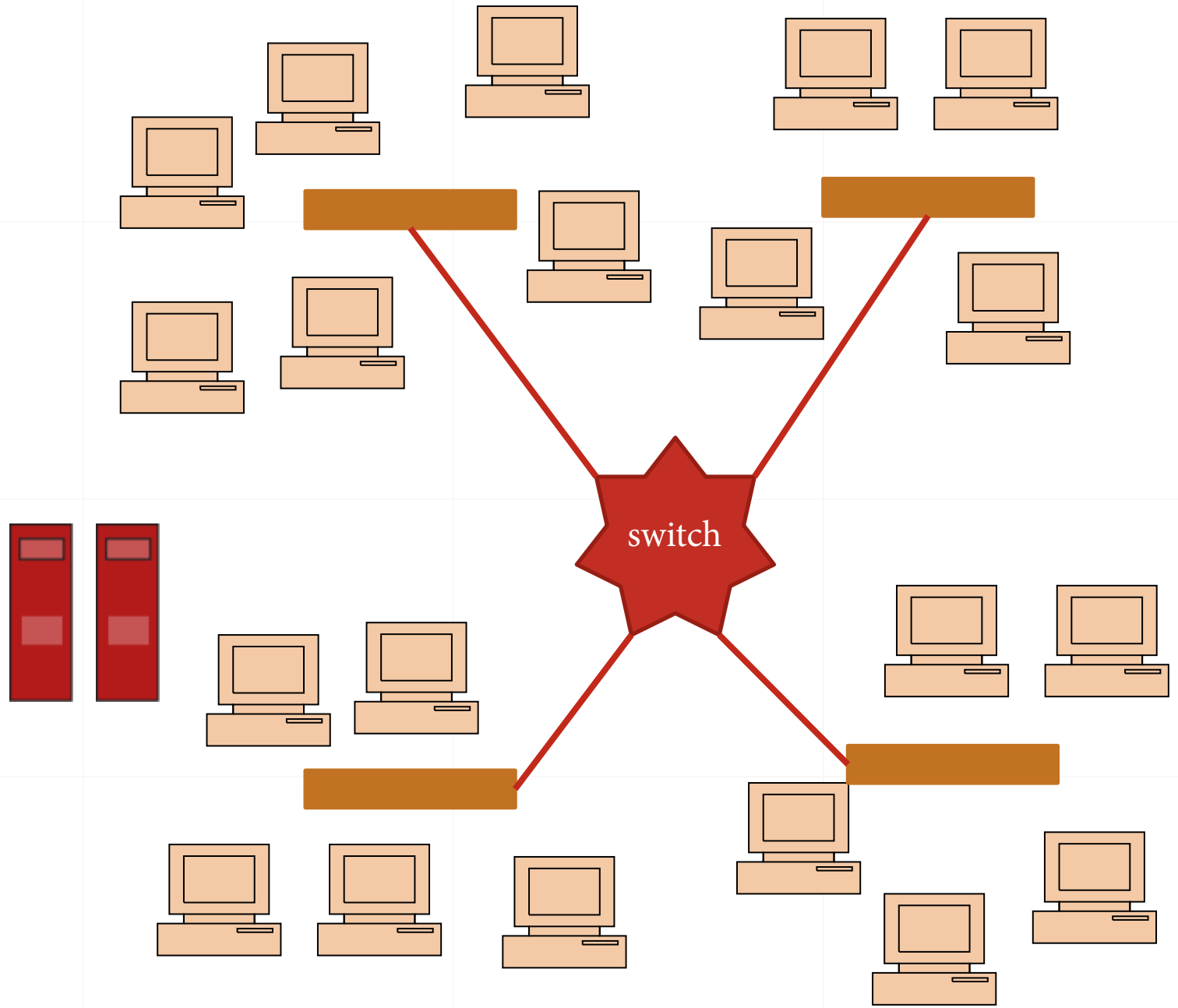
Suppn. 040 - 7641 - 01

Suppn. 040 - 7641 - 01









`train4xx@ranger.tacc.utexas.edu`

`train4xx@tg-login.ranger.tacc.teragrid.org`

`train4xx@login3.ranger.tacc.utexas.edu`

Exercise

2.2 Use SSH to Connect

2.3 Starting: Read Examples

- or -

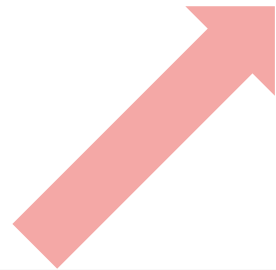
2.4 Further: Using X-Windows

Working
Directory

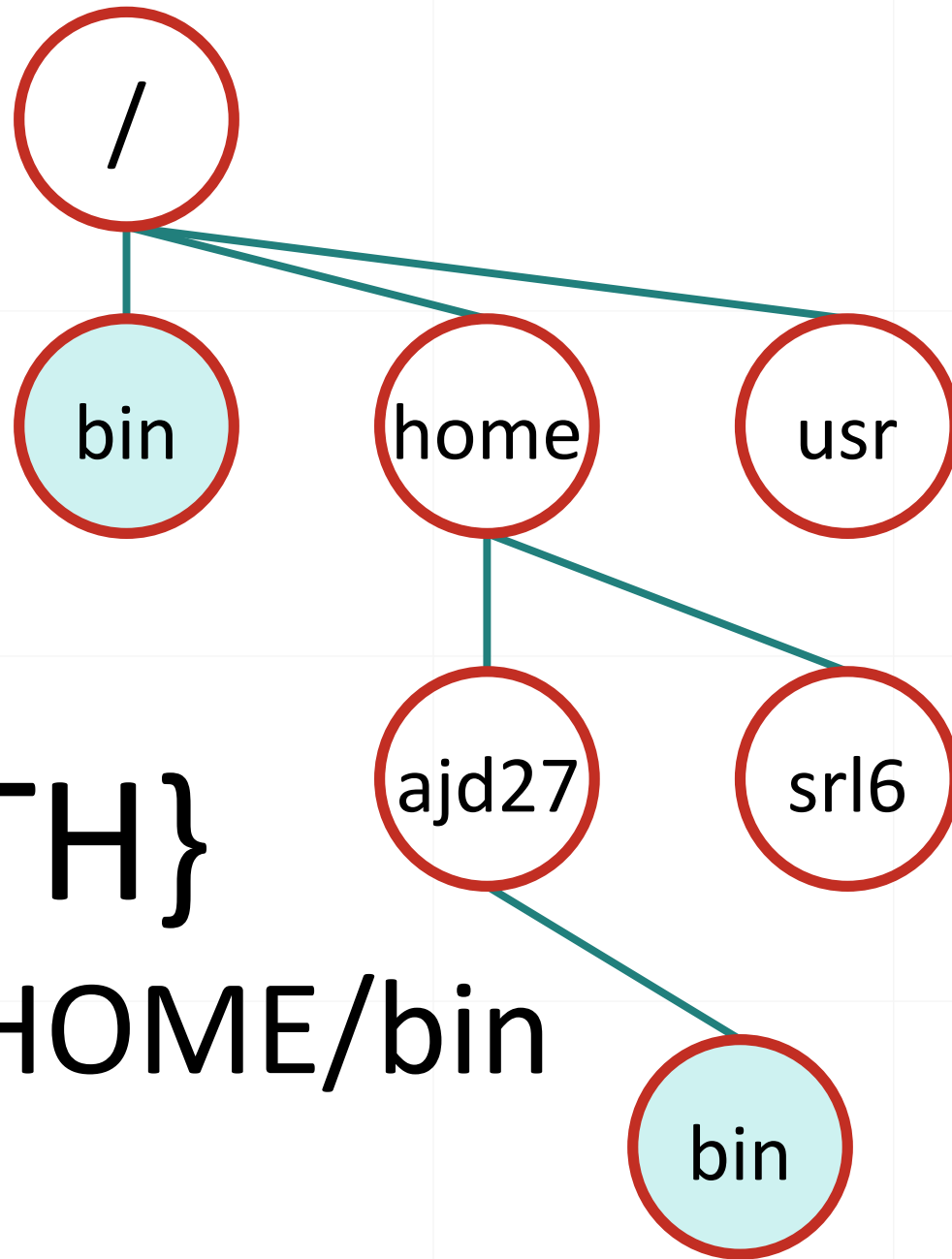
Variables



S H E L L



(other things)



`{PATH}`

`/bin:$HOME/bin`

Exercise

3.3 Learn Modules

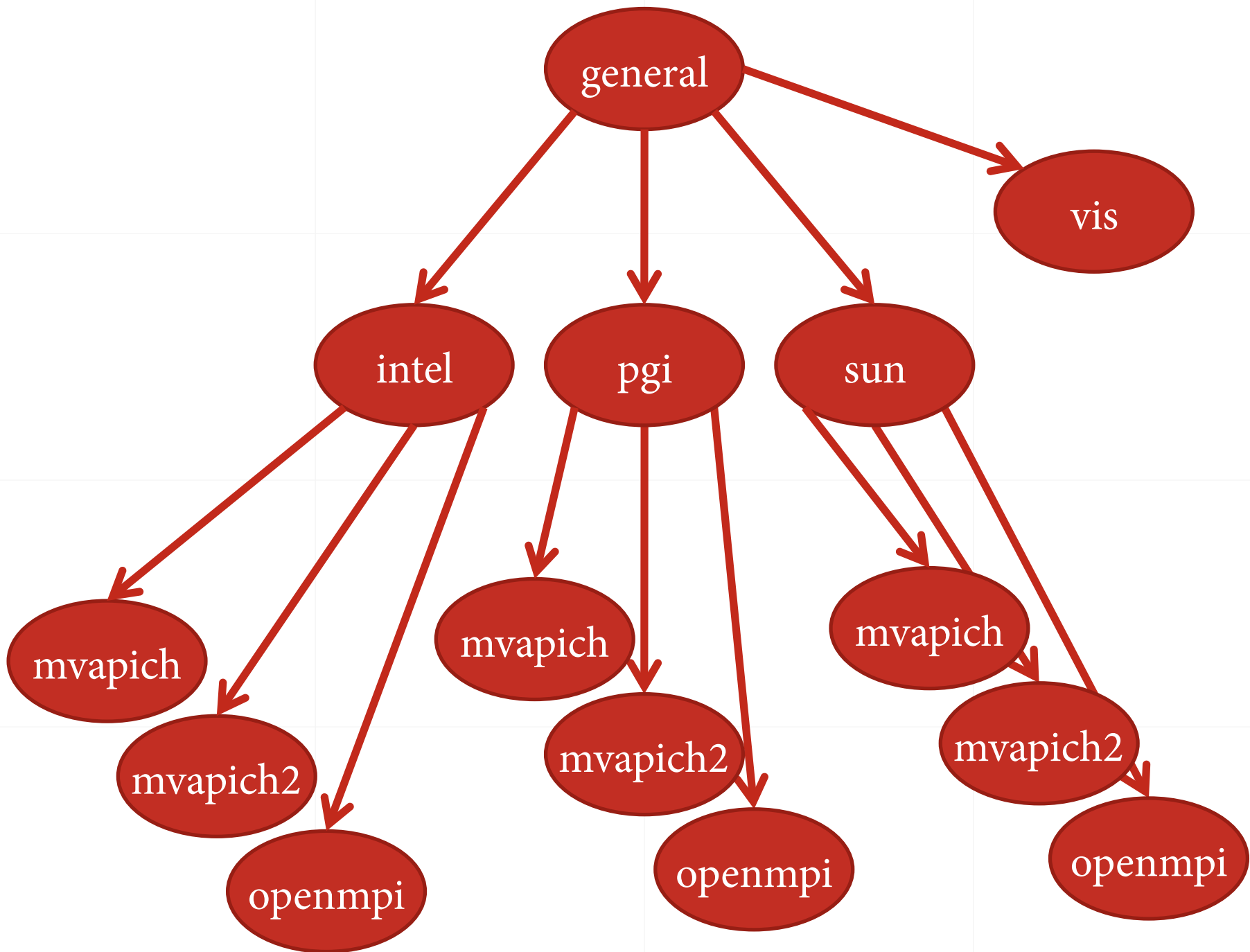
\$PATH

\$LD_LIBRARY_PATH

\$TACC_PACKAGE_INC

\$TACC_PACKAGE_LIB

\$TACC_PACKAGE_DIR



Make

Target: dependency, dependency
command line
command line

Compile with Make

```
sciprogram: main.c main.h  
    cc main.c -o sciprogram  
archive:  
    zip archive.zip main.*
```

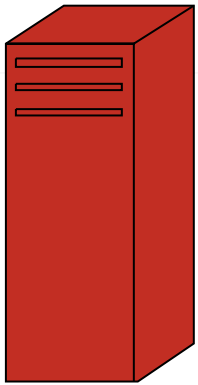
```
make sciprogram  
make archive
```

Exercise

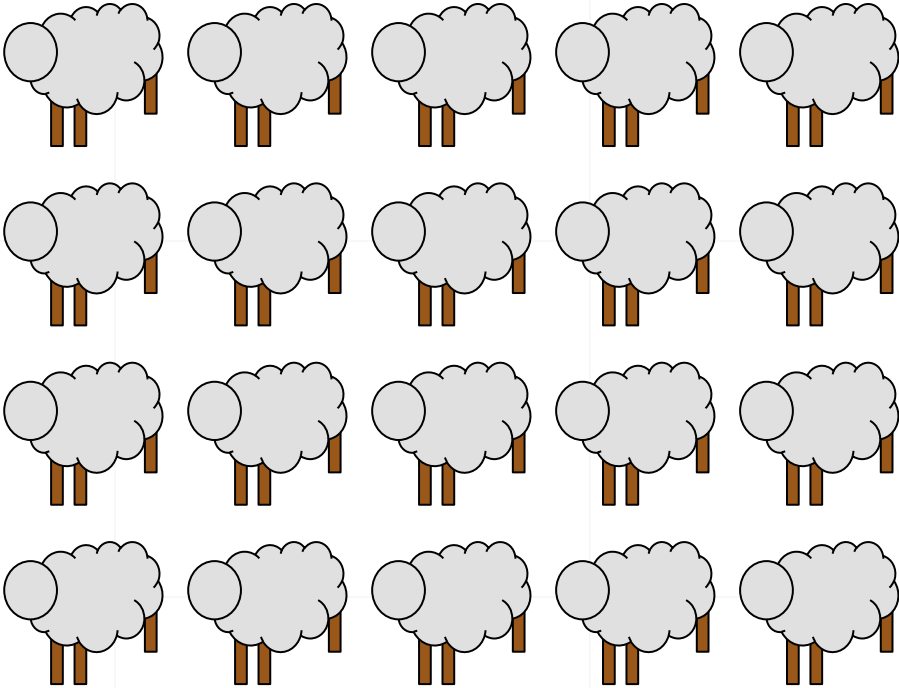
3.5 Exercise: Compilation

A photograph of a flock of sheep in a lush green field. One sheep in the center-right is dyed a vibrant red, standing out from the rest of the white and grey flock. The sheep are gathered around a mossy stone wall. In the background, there is a blue sea and distant mountains under a clear sky. A white speech bubble with a red border is overlaid on the image, containing the text "Run in batch!".

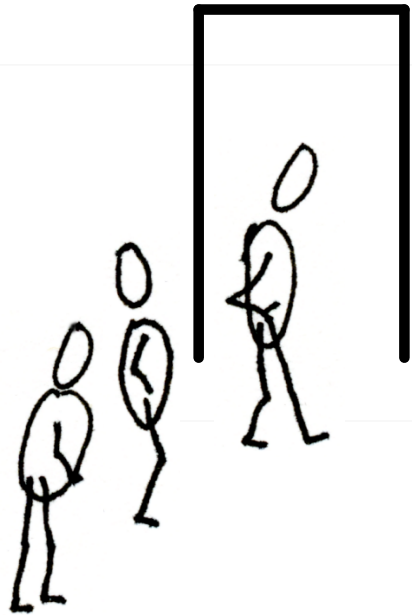
Run in batch!



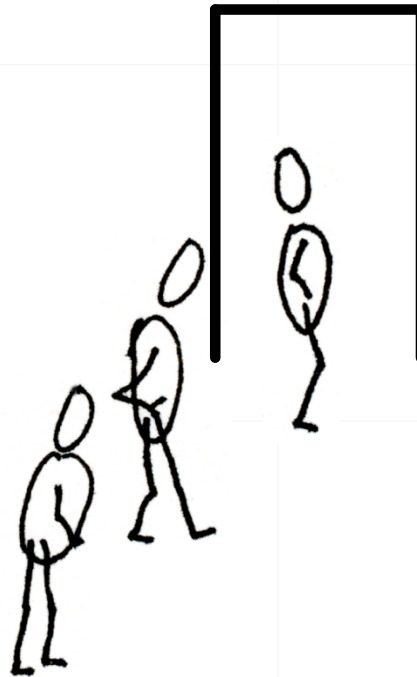
Login
Node



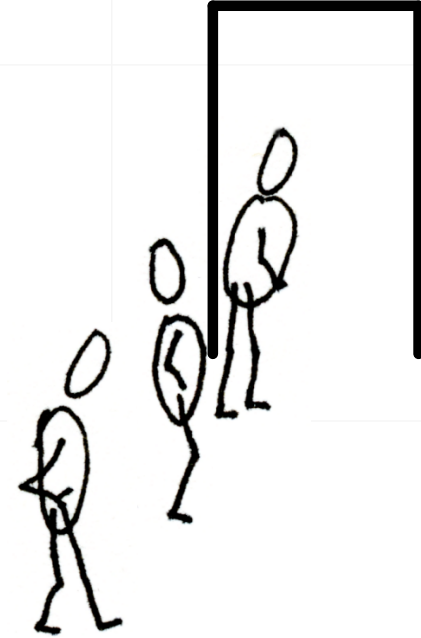
normal



development



large



Check out Section 4.3.

account

name

variables

join

#\$ Dear Scheduler,

TODO

Exercise

4.6 Exercise: Run in Batch

A close-up photograph of a red squirrel with its mouth full of a large, round nut. The squirrel's fur is a mix of reddish-brown and white, and its whiskers are prominent. The background is blurred, showing green foliage. The text "Got it!" is overlaid in the upper right corner in a white, serif font.

Got it!



\$HOME



\$WORK

\$SCRATCH



scp from to

user@machine.domain.edu:path

scp

sftp

OpenSSH

Exercise

5.5 Exercise: Retrieve Files with SCP

GridFTP

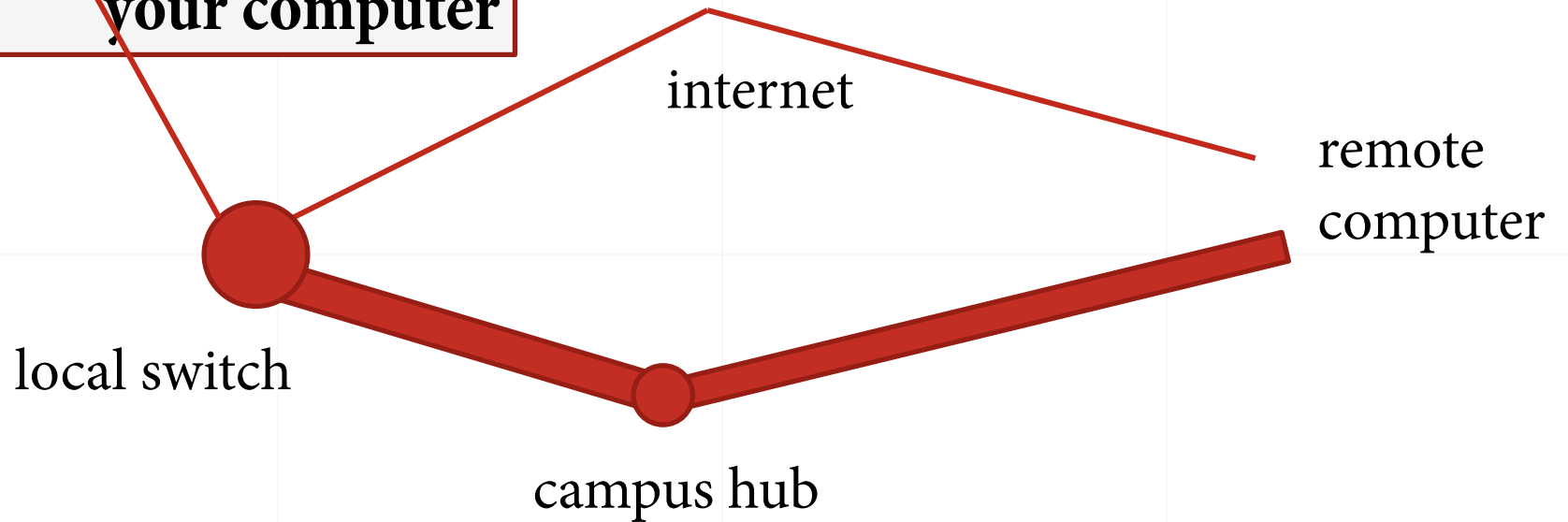
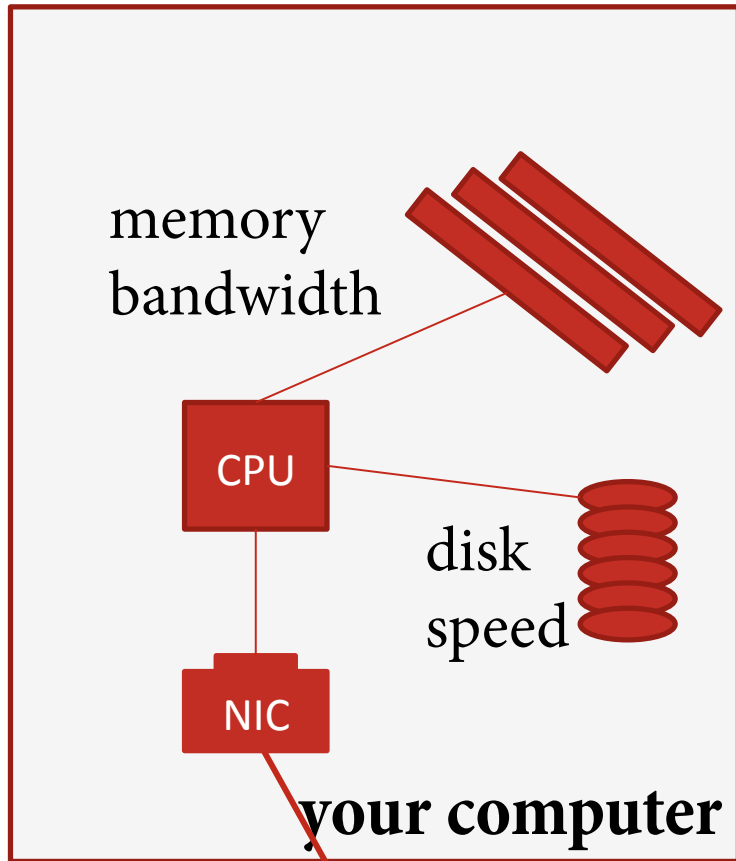


TeraGrid Credentials

uberftp

globus-url-copy

Getting Good Speeds





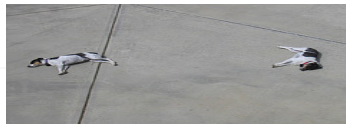
<http://www.flickr.com/photos/musebrarian/3231408047/>



<http://www.flickr.com/photos/kenmccown/3174273793/>



<http://www.flickr.com/photos/squeakywheel/478967864/>



<http://www.flickr.com/photos/kruggg6/107764366/>



<http://www.flickr.com/photos/robbaldwin-photography/4094297085/>



Source: U.S. Department of Commerce,
National Oceanic and Atmospheric
Administration [\[1\]](#)



<http://www.flickr.com/photos/amagill/3367543296/>



<http://www.flickr.com/photos/johncohen/55582632/>