AGENDA

• Introduction - 3rd Annual Grad Halloween session
• Help Centre and requests
  • Department Grad reps
• Collaboration projects
• Graduate Student Computing
• LaTeX/Mendeley
• Math Linux environment
• Group discussions with technicians
  • Mac minis
  • Microsoft Remote Desktop to access Windows - Jim
MFCF Help Centre

- MC 3017  x36323
- Help with Mac minis - reimaging, admin access
- Laptop connections - wired connections
- Printing, accounts, Nexus passwords...
- Grad rep - meetings once a term
  - communication between MFCF and grads regarding computing - new developments
- Request Tracker
- Lynda.com - online training
Grad Collaboration Projects

- Collaborate projects other grads or supervisors
- Post projects
- Browse projects

https://uwaterloo.ca/math-faculty-computing-facility/grad-collaboration-projects
Graduate Student Computing

- including Compute Canada
- SHARCNET

Marek Stastna
Director of MFCF
Associate Dean, Computing
Presentation and demonstration
by
Justin Shaw, Applied Mathematics
Linux environment

Brief overview of Linux machines:

• types of Linux machines
  • aliases linux.math, biglinux.math and fastlinux.math

• how to access them

• how to save/retrieve your files

• what they can be used for

Robyn Landers
FASTLINUX

What is fastlinux?:

• four computers with fastest cpus, but only 2 cores per machine
• low core count
• not a large amount of memory

What is fastlinux for?:

• jobs where processor speed is most important
What is biglinux?:

- three computers, each with 4 high-core-count CPUs and large memory

- cpu125.math, cpu131.math and cpu139.math (cpu139 is newest, Xeon rather than Opteron)

What is biglinux for?:

- very last or multi-threaded jobs
GPU SERVER

- gpu01.student.math
- two 14-core CPUs, 128GB RAM
- four NVIDIA TESLA K80 GPUs
- CUDA and other parallel GPU tools
  - K80: ~5000 cores, ~2.9 teraFLOPS DP
- authenticate using Nexus password
- home directory is undergrad file server

![TESLA K80 DELIVERS 5-10X BOOST IN KEY APPLICATION PERFORMANCE](image)
Rocks Cluster

- MPI programming across multiple machines
- a cluster of eight two-CPU compute nodes
- head node is mf-hpc.math.private
- authenticate using Nexus password
  - account needs be enabled - contact mfchelp@uwaterloo.ca
- home directory is research file server
- submit jobs using SGE queue manager
Access Linux using ssh

• You will need:
  • uwuserid@uwaterloo.ca
  • password: same as your email password
• From Mac mini - Go -> Utilities -> Terminal
• From Windows - putty or winssh
• Linux: open up a terminal window and type:
  • ssh uwuserid@linux.math.uwaterloo.ca
  • you will be prompted for your password
How to save and back up your files

- Use Virtual private network when accessing files from off campus
  - files.math icon on the Mac mini
  - storing files on Math file server:
    - Mac: smb://files.math.uwaterloo.ca
    - Windows standalone: \files.math.uwaterloo.ca\<UWuserid>
    - Windows remote desktop: windows.math.uwaterloo.ca P: drive
    - Linux: ssh to linux.math, biglinux.math or fastlinux.math
  - https://uwaterloo.ca/math-faculty-computing-facility/remote-access
Why use the Linux servers

- Math applications/IDEs
  - Maple, Matlab, R, RStudio, Julia, CPLEX, Sage, NumPy, SciPy
- compilers and numerical libraries (gcc, GSL)
- parallel tools on biglinux (OpenMP, MPI)
- lots more memory than your laptop or Mac mini
- long running jobs
Happy Halloween

uwaterloo.ca/mfcf/resources/graduate-students