Calcul Québec

Colosse & Helios
TCL Modules to Lmod journey

Maxime Boissonneault <maxime.boissonneault@calculquebec.ca>
SuperComputing 2014

UNIVERSITÉ LAVAL

compute • calcul CANADA

Colosse and Helios

- Université Laval (Québec City)
  - Part of Calcul Québec, Compute Canada
- Colosse (2009, Sun/Oracle)
  - 960 nodes, 7680 cores, Infiniband, Lustre
  - Moved from CentOS5 + TCL Modules to CentOS6 + Lmod
  - 237 different builds of various softwares/libraries
- Helios (2014, Cray)
  - 15 nodes, 8 K20/node, Infiniband, Lustre
  - Lmod from the start
- Shared filesystems
- Shared ldap

Challenges

- Challenges are not with using Lmod
- Challenges are with changing philosophy/ organisation of modules
- #1 : Hierarchies
- #2 : module avail does not show all modules
- #3 : Frequent updates/bug fixes

Benefits

- #1 : Hierarchies
  - Allows for a sane organization of modules
- #2 : module avail
  - Hiding «useless» (with your current compiler/MPI) modules is good
- #3 : Frequent updates
  - They come with new and useful features!

Lmod enables...

- Share part of module tree with Colosse/Helios
  - Core, Core-colosse, Core-helios
  - Compilers, Compilers-colosse, Compilers-helios
  - MPI, MPI-colosse, MPI-helios
  - Cuda (Helios only)
  - Yet, users only see «Core modules», «Compiler-dependent modules», «MPI-dependent modules», «Cuda-dependent modules»

Lmod enables...

- Module tree caching
  - Our modules and softwares are on Lustre. Caching improves speed a lot!
- Coloring (categories)
- Customization of display (module avail)
- Easy logging through load hooks
- «Easy» customization of Lmod behavior in a sane language (Lua vs Tcl)
- Output in «stdout» rather than «stderr» (configuration option)
- Auto swap

User feedback

- Many got confused by renaming of modules
- Once confusion is gone, people find it easier to use.