TUTORIAL S1 OUTLINE

- Linux clusters overview
  - Linux community and relation to HPC
  - Linux clusters today - impact on top500
  - Linux clusters projected futures
- Usage and Management model
  - Using and programming clusters
  - Managing clusters – high-level perspective setting tone for day
- Purchasing & Installation
  - Basic choices; hardware, form factor; network; power;
  - CPU choices
  - Network basics
  - Control fabric
  - Purchasing lessons learned
  - Installation lessons learned
- Network choices
  - Understanding the implications of networks on performance
  - MPI and clusters
  - External interface choices
  - Practical issues in IP number management
- Software choices
  - Linux – distros, kernels, etc.
  - HPC Suites
    - Overview of OSCAR, NPACI Rocks, Clustermatic/Scyld, SSS, others
    - Distilling the essentials
  - Commercial offerings, relying on vendors
- Administration
  - Physical management
  - Naming and addresses
  - Booting
  - OS management
  - File systems
  - Software installation and support
  - Application environment
  - Monitoring
  - Accounts
  - Security
  - User Communication
  - Solving problems
- Resource Management
  - Schedulers, Queuing Systems, and Interactive Use
  - Job Launching
  - Projects, Allocations, and Usage Tracking
- Applications and Environment
  - The development environment
  - MPI and variants
  - Libraries
  - Managing the environment
- User Support
  - Performance tuning, problem solving, training, etc
  - Documentation
- Reference
  - Tools, URLs, books, example clusters