Remote & Collaborative Visualization
TACC Remote Visualization Systems

- **Longhorn** – Dell XD Visualization Cluster
  - 256 nodes, each with 48 GB (or 144 GB) memory, 8 cores, 2 NVIDIA Quadro FX 5800 GPUs with 4 GB graphics memory each
- **Spur** – Sun Visualization Cluster
  - 8 nodes, each with 128 GB (or 256 GB) memory, 16 cores, 4 NVIDIA Quadro FX 5600 GPUs with 1.5 GB graphics memory each
- Available for use by TACC and XSEDE users
- Both mount Ranger’s filesystems
Remote Visualization Model

- HPC System
- Data Archive
- Large-Scale Visualization Resource
- Display
- Pixels
- Mouse
- Wide-Area Network
- Remote Site
- Local Site
Methods of Remote Access

• SSH
  – Basic command-line interface, useful for managing files, submitting jobs, etc.

• Longhorn Visualization Portal
  – Simplified web-based interface for:
    • Viewing your allocations
    • Submitting jobs
    • Interacting with remote vis sessions (VNC or EnVision)

• Direct VNC connection
SSH Access

• Start the “Secure Shell Client” application

• Click “Quick Connect”
  – Host Name: longhorn.tacc.utexas.edu
  – User Name: <your training account>
  – Click “Connect”
SSH Access

- You’re now on a Longhorn login node
- Can run usual shell utilities
- Manage data, etc.
SSH Access

• For later reference (more details in Longhorn User Guide):
  – Can submit a remote VNC job from here
    • `qsub /share/doc/sge/job.vnc`
    • `tail -f vncserver.out`
    • Connect to address in output file with a VNC viewer
Longhorn Visualization Portal

- [http://portal.longhorn.tacc.utexas.edu](http://portal.longhorn.tacc.utexas.edu)
- A web-based interface that lets you:
  - View your allocations
  - Submit jobs
  - Interact with remote VNC or EnVision sessions
- Avoids the hassle and complexity of manually managing your jobs
- For many users this can be the primary method of interacting with Longhorn
- Advanced users may still use SSH
Login as a **TACC** user with your training account (Firefox)
Start a VNC job
First time only: Set a VNC password
First time only: Set a VNC password
Start a VNC job (submit again)
VNC Session
Running Vis Applications through VNC

• To see available applications:
  – module avail

• Examples:
  – Run ParaView:
    • module load python paraview
    • vglrun paraview
  – Run VisIt
    • module load visit
    • vglrun visit
Accessing your VNC session with a stand-alone viewer

- Navigate to the Jobs tab
- Copy the server address
Accessing your VNC session with a stand-alone viewer

- Navigate to the Jobs tab
- Copy the server address
- Run the “TightVNC Viewer” application
  - Enter the server address from the Jobs tab
  - Click Connect
  - Enter your VNC password set previously
  - Click Okay
Accessing your VNC session with a stand-alone viewer

- Navigate to the Jobs tab
- Copy the server address
- Run the “TightVNC Viewer” application
  - Enter the server address from the Jobs tab
  - Click Connect
  - Enter your VNC password set previously
  - Click Okay
- You can now interact with your VNC session (and share this session with your collaborators)
Parallel Visualization

• You can specify how many nodes (or slots) to use during job submission
• Run vis applications in the parallel environment

Start a Job

Resource: Longhorn
Project: Admin.Longhorn

Session type: VNC
EnVision guided visualization

Number of nodes: 16 (128 slots)

Note: increasing the number of nodes will only increase performance for parallel applications (e.g. ParaView or VisIt).

Click here to set your VNC password.