NERSC Visualization Update

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Outline

- Year in review.
- New Visualization Platform at NERSC.
  - *davinci.nersc.gov*
  - Current davinci FAQ.
- Upcoming Program Directions.

NERSC Visualization Activities

- License management improvements.
  - Remote use of licensed software.
  - Direct response to 2002 Vis Greenbook.
- Website improvements.
  - vis.lbl.gov, www.nersc.gov
- Many interesting and challenging visualization projects (next slide).

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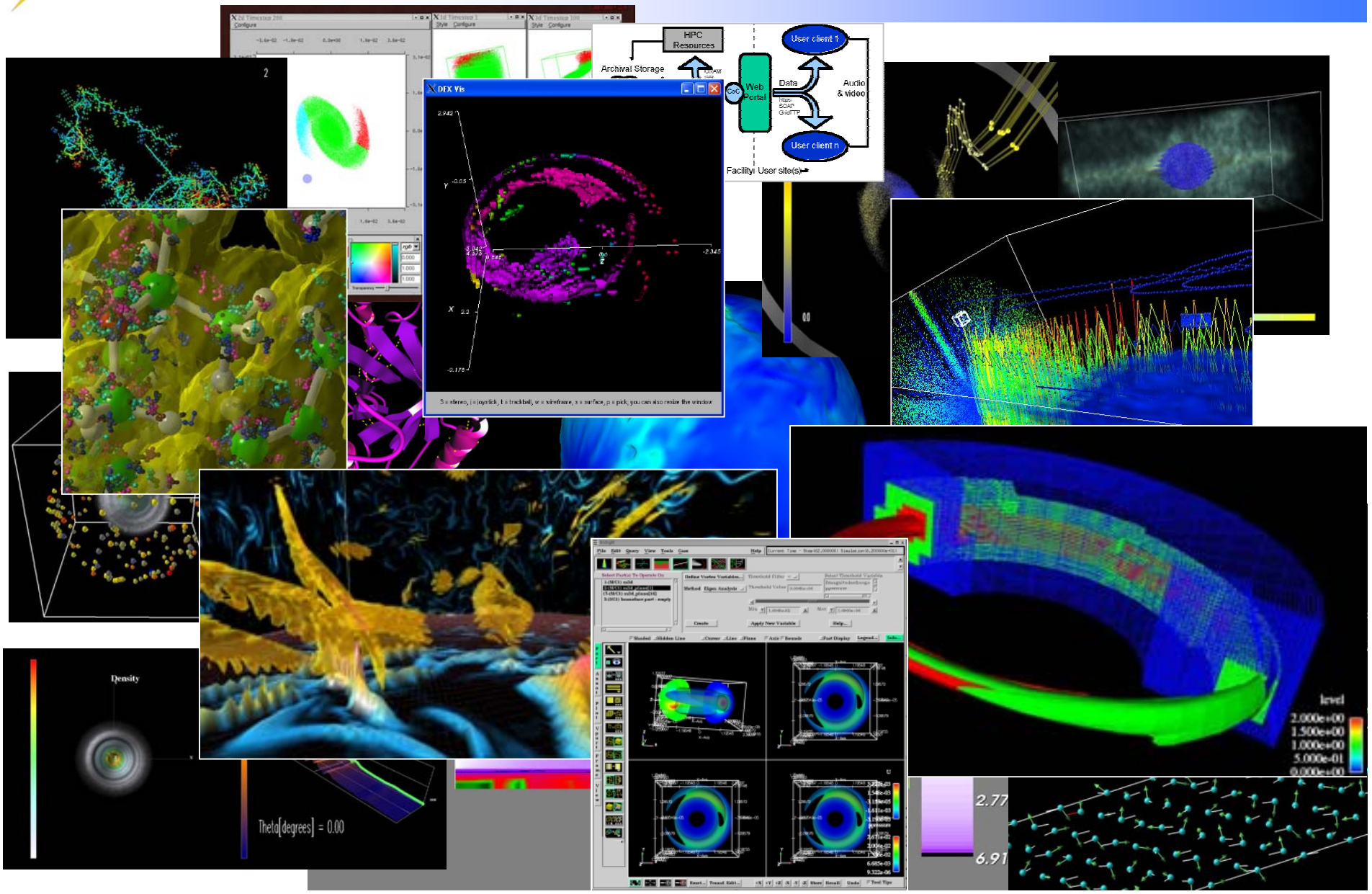
NERSC Visualization Activities



New Visualization Platform

davinci.nersc.gov

- **SGI Altix**
- **8 1.4 Ghz IA64 Processors**
- **48 GB RAM**
- **3TB attached FCAL RAID storage**
- **Dual-channel bonded Gigabit Ethernet, 10Gb Ethernet**
- **(No graphics hardware at this time.)**

Davinci.nersc.gov – FAQ

- **Current Status?**
  - **Preproduction.**
  - **Full production ETA March 2005.**
- **User accounts?**
  - **Yes! Please request an account and try out the machine.**
  - **Be advised the machine is in preproduction status.**

Davinci.nersc.gov – FAQ

- What Center role does davinci play?
  - Primary: interactive visualization and data analysis.
  - Secondary: batch queue run in “off hours” (exact schedule TBD) to help fulfill allocations.
- Charges?
  - Yes: for jobs that fulfill allocations.
  - No: no charges for interactive use.

Davinci.nersc.gov – FAQ

- **Key characteristics:**
  - **SMP, shared-memory, CC-NUMA.**
    - **Visualization tends to be more I/O and memory bound rather than CPU bound.**
  - **Parallel programming environment flexibility: OpenMP, MPI.**
  - **Excellent for serial analysis/vis requiring large amounts of memory.**
  - **6.4 GB/s internal bidirectional bandwidth.**

Davinci.nersc.gov – FAQ

- **Shared filesystem?**
  - Yes, we are moving in that direction.
  - Will share a filesystem with Jacquard.
- **Filesystem quotas:**
  - Center policy for home, project.
  - Purge policy on local scratch storage.
- **Backup policy?**
  - Consistent with center policy.

Davinci.nersc.gov – FAQ

- **Visualization software?**
  - **Nominally, same as on seaborg and escher.**
  - **Some IRIX-only applications will be missing.**

Davinci.nersc.gov – FAQ

- **What about escher?**
  - **Escher will remain in production status at least until davinci is fully commissioned.**

Future Directions

- **Production visualization:**
  - **Populate davinci, commission.**
- **Continued focus on tactics for remote visualization.**
  - **Pipelined-parallel visualization tools and architectures.**
- **Institutional Visualization support.**
  - **Challenging, non-OTS solutions.**

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Future: Greenbook Input

- **What can the Center do to better support your science's analysis and visualization needs?**
  - **Capacity: data size, temporal requirements.**
  - **Capability: scalability, multidimensional, multivariate, domain-specific needs, …**

The End