

# DOE Computer Graphics Forum 2012 Site Survey

**Site Name:** John Clyne

**Site Division or Group:** Data Analysis Services Group (DASG)

**Site Representative:** John Clyne

**Site Representative Contact Information:**

John Clyne

C/O NCAR

PO Box 3000

Boulder, CO 80307

clyne@ucar.edu

## Group Overview

**Mission:**

DASG is comprised of two teams: the systems team, responsible for the operation of DAV compute and storage resources; and the VAPOR team, primarily responsible for the development of VAPOR.

The mission of the systems team is “Enhancing scientific workflow by providing the research community with a highly advanced computing environment tailored toward the specialized needs of interactive data post-processing, analysis and visualization.”

The mission of the VAPOR team is to develop, maintain, and support the VAPOR package; provide advanced user support visualization services; and conduct research in scientific visualization.

**Past Year’s Activities:**

The systems team spent much of last year planning for the acquisition of new storage, compute, and DAV resources, all acquired under a single RFP.

Activities of the VAPOR team will be presented at the workshop.

**Plans and Priorities:**

Priorities for the system team are the deployment of new shared storage and DAV resources at NCAR’s new computing facility located in Cheyenne, Wy.

Priorities for the VAPOR team are driven by two funding awards, revolving around improved handling of large data, and adding support for ocean model data.

## **Funding Sources**

Core funding and some (~1/3) soft money.

## **Current Resources**

### **Hardware:**

Mirage cluster:

- 6 nodes, each with:
- 128 GBs RAM
- 8 – 16 cores
- No graphics

Storm cluster:

- 6 nodes, each with:
- 64GBs RAM
- 4 – 8 cores
- 1 nVidia GPU (Fermi based consumer graphics)

2 PBytes shared storage (GPFS file system)

### **Software:**

VAPOR, VisIt, ParaView, NCL, and IDV.

### **Staff:**

Currently 4 staff on the VAPOR team including one student.

## **Planned Growth**

### **Hardware Acquisitions**

Two new DAV clusters are under contract. A “fat node” system, and a parallel vis cluster.

Fat node cluster:

16 IBM x3850 X5 nodes; Intel Westmere-EX processors, each with:

- 1 TB RAM
- 40 cores,
- 1 nVIDIA Quadro 6000 GPU
- Mellanox FDR full fat-tree interconnect

Visualization and GPGPU cluster:

16 IBM dx360 M4 nodes; Intel Sandy Bridge EP<sup>†</sup> processors with AVX, each with:

- 16 cores, 64 GB memory
- 2 nVIDIA Tesla M2070Q GPUs<sup>‡</sup> per node
- Mellanox FDR full fat-tree interconnect

11 PBs shared storage (GPFS file system)

### **Software Acquisitions**

None

### **Personnel Acquisitions**

Not likely.

### **Additional Comments**