July 2015

Data Analysis Services Group - *July 2015*

News and Accomplishments

VAPOR Project

Project information is available at: http://www.vapor.ucar.edu

TG GIG PY6 Award:

XD Vis Award:

KISTI Award:

After two code reviews Scott came to a settling point where the Vapor Array Job scripts are mostly complete. He ran more aggressive tests on the scripts than he had before his code reviews were finalized. The current plan is to deliver the scripts in their current state to KISTI so that they can verify functionality outside of Irfan's HPCFutures Lab.

A four page user- document was written to cover script usage for LSF and SGE. It also covers how to adapt these scripts for new schedulers. Scott utilized the consultant team to see if they thought its understandability was adequate for non-computational scientists. Davide DelVento, BJ Smith, Dan Nagle, Dick Valent, and Rory Kelly all responded with positive feedback and few minor adjustments.

Scott also reviewed technical specifications for implementing 3D Stereoscopic Rendering. After understanding the hardware and software requirements of this deliverable, he began its implementation into the 2.5 branch. He is currently debugging an OpenGL error that regards the left and right framebuffers in the VisLab.

John wrapped up efforts to add OSGeo Tiled Mapping Services (TMS) support to vaporgui. vaporgui can now read arbitrary resolution tiled images following the TMS convention. John also wrote example python scripts for converting global lat-lon images into TMS format. The scripts have been added to the VAPOR distribution. As part of the development process John added support for reading global Mercator images to vaporgui. While TMS supports lat-lon tiled images the gdal conversion utilities used to generate a tiled hierarchy will only read Mercator images.

Development:

2.x

Scott made GUI changes to the 2.5 branch to support two new text rendering techniques: 3D and in--plane annotations. Alan suggested that Scott should also incorporate these changes into the 3.0 branch, which was subsequently done by making changes in the [isoline] Event Router, Params, PanelCommmand, and Renderer classes. GUI changes were also made to the 3.0 branch for this feature. While the text rendering is 90% complete, there is currently a bug where OpenGL bleeds state during an isoline rendering, resulting in black lines being drawn instead of the selected color. This work has been put on hold for now in favor of finalizing the last KISTI deliverables.

3.x

Our reviews for the 3.0 gui are wrapping up soon, and Scott wanted to make a suggestion before we closed the discussion. He believes that there are too many sub-tabs in each renderer; for example the isoline renderer has five (Appearance, Basic, Layout, Image, and Isovals). Furthermore, some of these tabs are not using all of the real-estate they are given, which makes them feel empty. Scott proposed a solution where the tabs be consolidated into "Basic", "Advanced", and "Layout" categories. The "Basic" and "Advanced" tabs would be abstract categories, and would let us gather settings that might otherwise need their own tabs. Since all of our renderers have a relatively complex "Layout" tab, that one could be kept. Alan provided generic layout and variables tabs that can be used for various renderer guis

Scott also emphasizes that this change would not mean that we would need to create new classes such as BasicParams, AdvancedParams, BasicEventRouter etc. Only the GUI's widgets would need to be nested into the Basic and Advanced tabs, with the Params and EventRouter classes remaining largely untouched.

Alan provided generic layout and variables tabs that can be used for various renderer guis. Alan made extensive changes to the visualization code to make it easier for developers to add new renderers. The code associated with manipulators, visualizer features, text rendering, and other code in support of rendering was removed from the visualizer class, to make the visualizer code more readable.

Administrative:

John reviewed NSF CISE proposals and attended a panel review at NSF.

Education and Outreach:

Scott gave a presentation on Vapor to the 2015 WRF Workshop attendees before their lab session on July 29th. He noted that the short demo sparked more interest during the lab session than he has seen in the past, with multiple students gathering around individual workstations to hear how to use Vapor. These crowds formed on both the Thursday afternoon and Friday morning sessions. Additionally, he did not experience any downtime and had every minute of his time used by the students which is atypical.

Scott participated in the Visualization Showcase for XSEDE 2015 among eight other submissions. The showcase had a contest where attendees could vote on their favorite visualization, which has not been tallied yet. Scott does not suspect that he is going to win because he was simply out-classed by Donna Cox of the NCSA; who utilized a team of seven engineers over a fourteen month time span for her submission

A DOE led panel on in situ visualization was accepted for SC15. John is one of the panelist.

Visitors:

John continued helping Oregon's Samuel Lee with SPIHT and SPECK compression experiments. John also continued supporting his two SCIparCS students, who competed their projects.

Software Research Projects

Feature Tracking:

Climate data compression:

Production Visualization Services & Consulting

Scott:

- Willian Evonosky - - SOARS student presented who presented his ionospheric research with VAPOR on 7/27
- Michael Howland - - User asking for help with the Model renderer
- Seyed Nabavi - - User asking for help with NetCDF data conversion and projection strings

Alan:

- Jim Schiavone (at Rutgers) visualizing the hurricane Sandy data.

ASD Support

- xxx

Publications, Papers & Presentations

- xxx

Systems Projects

Data Services

- xxx

Accounting & Statistics

- xxx

Security & Administration

- xxx

System Monitoring

- xxx

System Support

ML - Data Analysis & Visualization Clusters

- xxx

GLADE Storage Cluster

- xxx

Data Transfer Cluster

- xxx

Experimental Clusters

- xxx

Test Clusters

Storage Usage Statistics

NWSC+GLADE+Usage+Report

Other

- xxx