

NNSA/CEA Collaboration: Visualization

SC19 Update

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3.1 Partner on Common VTK Needs

1. Explore hypertree grids for use with SNL physics applications.(Q2 CY20)
COMPLETE!
 - Yohann Berzi presented HTG API and the group discussed potential usage of HTG at ASC Fall Quarterly meeting on 8/30/19.
2. Develop a parallel HTG source for integration into ParaView. (Q4 CY19) **ON TRACK!**
 - Current status.
3. Load balancing of HTG. (Q1 CY20) **ON TRACK!**
 - Current status.
4. Direct Volume Rendering of HTG. (Q4 CY20) **ON TRACK!**
 - Current status.

3.2 Deliver In-Situ Analysis and I/O Improvements for Large Data

1. Deliver sampling filter, Lagrangian flow filter, and a topology filter into Ascent.(Q3 CY19) **COMPLETE!**
 - Current status.
2. Evaluate HTG Data Model for use in Ascent. (Q2 CY20) **ON TRACK!**
 - Current status.
3. Develop and integrate a parallel HTG ghost cell generator. (Q4 CY19) **ON TRACK!**
 - Current status.
4. Explore performance implications of in situ vs. in transit analysis using ParaView Catalyst. (Q2 CY20) **ON TRACK!**
 - Gary Templet is heading up the L2 milestone studying workflows between SPARC and Catalyst, adding FAODEL (a SNL distributed object store) as an IOSS backend. The workflow will be driven by Sandia Analysis Workbench.

3.3 Data-Driven Visual Analytics

1. Experiment with installing Slycat client-server on an open CEA machine.(Q2 CY20) **ON TRACK!**
 - Current status.
2. Evaluate structured grid to HTG parallel reader in VTK. (Q2 CY20) **ON TRACK!**
 - Current status.
3. Evaluate a resample to HTG filter in VTK. (Q2 CY20) **ON TRACK!**
 - Current status.
4. Develop client-server, containerized Slycat server. (Q2 CY20) **COMPLETE!**
 - Docker-compose instructions for building containerized Slycat™ server are at <https://github.com/sandialabs/slycat/tree/master/docker/compose/slycat-compose>

3.4 Color for Visualization

1. Make colormoves available for local CEA users.(Q2 CY20) **ON TRACK!**
 - Current status.