NOvA SAM Based Data Processing

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The NOvA Production Model

- NOvA has moved to a SAM based file production model.
- Production model is designed to be as similar as possible between Data and MC.
- SAM system is fully integrated within are analysis framework (ART/nutools).

Use Cases

- MC Production
  - Configuration for MC Generation catalogued into SAM
- Detector Data archiving
  - Raw data is catalogued into SAM as it come off the detector
- Event Reconstruction
  - Reconstruction is done from SAM datasets, defined using SAM metadata.
- OSG Integrated
  - SAM system has been fully integrated with OSG

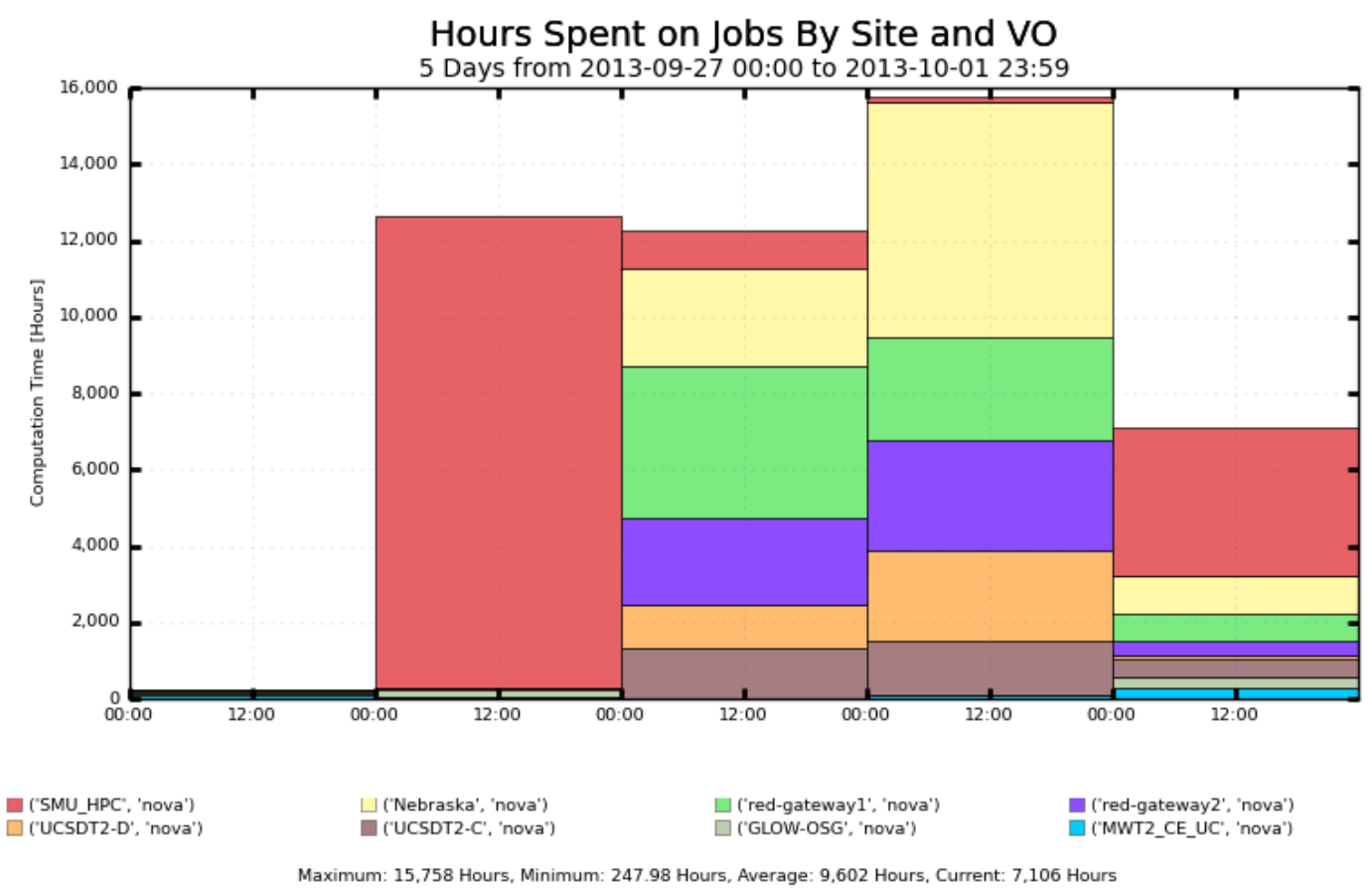
Use Case: MC Generation

- NOvA generates a collection of MC generation .fcl job configuration files.
- These .fcl files are committed to the SAM DB.
  - One .fcl configuration file per generated file.
- A wrapper script provided by Marc Mengel runs the job on worker node (either at FNAL or OSG).
- Output file is transferred back, already containing required metadata for SAM.

Use Case: OSG Processing

- Transparent between processing on OSG and processing at FNAL.
- SAM serves up, an input file (either .fcl or data file).
- ART Module queries the SAM DB to retrieve the metadata from the input file. Metadata that should be carried over the output file is stored there as well.
- Output files are transferred back to FNAL and catalogued.

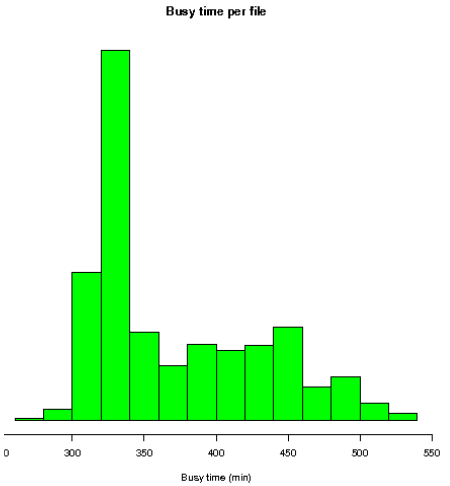
Use Case: OSG Processing



Red	= SMU	= NOvA Institution
Yellow+Green+Purple	= U. Nebraska Lincoln	= General OSG site
Orange+Brown	= UCSD	= General OSG site
Light Bluew	= U. Chicago	= Atlas Tier 2
Grey	= U. Wisc	= CMS Farm

Notes:

- Global set is 9740 fcl files worth of cosmics



- Average Run Time is ~330 minutes (5.5 hrs) for 100 events

Monitoring Details:
http://samweb.fnal.gov:8480/station_monitor/nova/stations/nova/projects/anorman-nova_production_sam_wrapper.sh_20130930_173021_18510
http://samweb.fnal.gov:8480/station_monitor/nova/stations/nova/projects/anorman-nova_production_sam_wrapper.sh_20131003_101139_1738