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Recent Evolution of the Offline Computing Model of the NOvA Experiment

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The NOvA experiment at Fermilab is a long-baseline neutrino experiment designed to study ν_e appearance in a ν_μ beam. Over the last few years there has been intense work to streamline the computing infrastructure in preparation for data, which started to flow in from the far detector in Fall 2013. Major accomplishments for this effort include migration to the use of offsite resources through the use of the Open Science Grid and upgrading the file handling framework from simple disk storage to a tiered system using a comprehensive data management and delivery system to find and access files on either disk, dCache, or tape storage. NOvA has already produced more than 6.5 million files and more than 1 PB of raw data and Monte Carlo simulation generated files which are managed under this model. The current system has demonstrated sustained rates of up to 1 TB per hour of file transfer to permanent storage. NOvA pioneered the use of new tools and this paved the way for their use by other Intensity Frontier experiments at Fermilab. Most importantly, the new framework places the experiment's computing infrastructure on a firm foundation, which is ready to produce the files required for NOvA's first physics results. In this talk we discuss the offline computing model and infrastructure that has been put in place for NOvA and how we have used it to produce the experiment's first neutrino oscillation results.

Primary authors: NORMAN, Andrew (Fermilab); GROUP, Robert (University of Virginia)

Co-author: HABIG, Alec (Univ. of Minnesota Duluth)

Presenter: HABIG, Alec (Univ. of Minnesota Duluth)

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