Department of
Electrical Engineering & Computer Science
COLLEGE OF ENGINEERING

Announcement of a Defense of a Project in Lieu of Thesis

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"The Constellation Project: Representing a High Performance File System as a Graph for Analysis"

ABSTRACT

The Titan supercomputer utilizes high performance file systems that change significantly as scientists run simulation algorithms that generate and modify millions of files within a short period of time. The metadata of the files, applications, jobs, groups, and users on these file systems are a rich source for data analysis to extrapolate similarities between the various entities with modern graph algorithms. Since a single snapshot of the metadata is significantly large, an efficient graph library must be utilized in order to perform analysis in real time. This project in lieu of thesis (PILOT) examines the Constellation graph library and implements graph analytics algorithms, including PageRank and SimRank, so that a user can rank vertices and find patterns among the graph efficiently. Results from the analysis are examined to determine if importance in the graph correlates to power users of the system in a given period of time.