

Supercomputer Titan to get world's fastest storage system

April 17 2013, by Bob Yirka



Credit: Oak Ridge National Laboratory

(Phys.org) —Officials at Oak Ridge National Laboratory (ORNL) have announced the selection of the Spider II data storage and retrieval system from DataDirect Networks (DDN) to replace the existing system on the Titan supercomputer. They say it will give Titan the fastest such system in the world.

The Titan supercomputer (built by [Cray Inc.](#)) on the ORNL campus was named the fastest in the world in November of last year, and currently still holds that title. Adding the fastest [data storage](#) and retrieval system will increase the entire computer's [computational efficiency](#).

At the heart of Spider II are 36 SFA12K-40 [hardware devices](#)—each capable of handling 1.12 petabytes of data. Together they will allow

Titan to move 40 petabytes of data at 1.4TB/s. According to ORNL, that's equivalent to the amount of information in books stacked high enough to reach the moon. The system will have 20,000 disk drives to hold all that information and will use Lustre, the open source file-system software. In contrast, the current system is able to manage 10 [petabytes](#) of storage, running at 240GB/sec.

Titan is a more advanced version of the supercomputer Jaguar—initial costs, paid for by the U.S. Department of Energy, were approximately \$60 million. New additions, including the beefed up [storage system](#), have raised that price to nearly \$100. It's a big machine—it takes up 404 square meters of floor space, and consumes 8.2 MW of electricity. At peak times it can perform 27,000 trillion calculations per second courtesy of 18,688 AMD Opteron CPUs and 18,688 Nvidia Tesla K20X GPUs—it's ten times faster than any prior computer at ORNL. It also has 710TB of memory at its disposal.

The new upgrade will help scientists conduct research efforts that ORNL reps say either cannot be done any other way, or are too dangerous or costly. Expected uses for the computer will likely involve running applications that typically involve an enormous amount of data crunching such as developing models for weather or economic forecasting, searching for oil deposits or putting together information from millions of sources to help track and stop terrorist activity. Currently, ORNL has chosen 31 projects to run this year.

© 2013 Phys.org

Citation: Supercomputer Titan to get world's fastest storage system (2013, April 17) retrieved 25 April 2024 from <https://phys.org/news/2013-04-supercomputer-titan-world-fastest-storage.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.