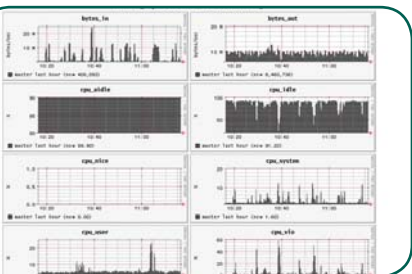


CASE STUDY

SAFL Cluster pumps new life into heart research



Specialized software ties the clusters together. Activity on the nodes can be monitored remotely via an internet browser.



The Challenge

Scientists at a research arm of the University of MN specializing in fluid-dynamics, had a microscopic problem that required a very large resolution.

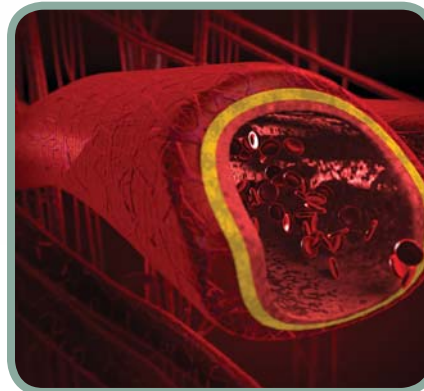
As part of ongoing research that will ultimately help build better heart-valve replacements, scientists are studying the effects of the blood flow through mechanical valves and the force that is applied to blood cells. The studies will assist in the development of superior heart-valve designs.

The lab needed a system that could deliver an exceedingly high-resolution image, high enough to analyze blood cells only 8 microns wide (smaller than a droplet of fog). In addition to extremely fine imaging, the project required a network of nodes powerful enough to support the transfer of information at very high speeds and shift workloads on the fly.

Oh, and the entire system needed to be up and running within 30 days...

The Solution

Nor-Tech provided a cluster of 54 compute nodes, each powered by two dual-core Opteron 275 processors, chosen for their low energy requirement and on-chip memory controllers. All-told, Nor-Tech delivered a cluster boasting 216 processor cores, plus a master node containing two dual-core Opteron processors.



Ultra-high-resolution imagery is required for cellular analysis.

In addition to remarkable power and efficiency, the nodes also house Supermicro motherboards featuring the Intelligent Platform Management Interface, which allows for remote monitoring of system conditions (ie. node temperature, voltage, fan operation, etc.)

All of the nodes are connected together with both ethernet and myrinet. Myrinet provides inter cluster communications at 5x faster than ethernet.

Thanks to expert project management, a few late nights and only a handful of heart-stopping complications, Nor-Tech's custom cluster solution was in place and pumping out data on day 30, allowing blood pressure for a few engineers to return to normal.

Nor-Tech is the Exclusive Manufacturer of

