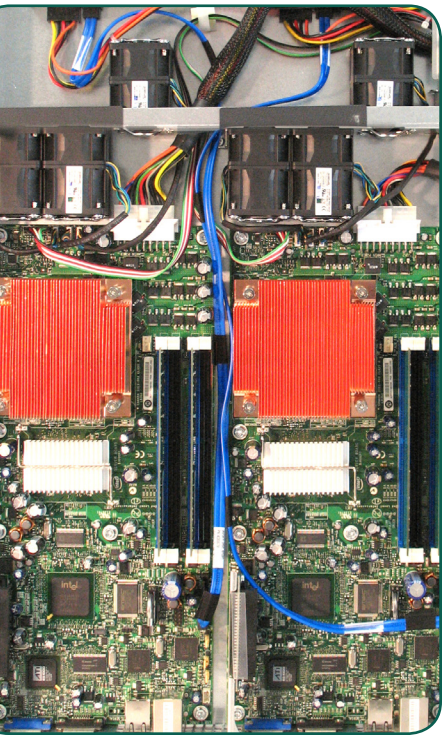
CASE STUDY

Nor-Tech
HPC Clusters™

Nor-Tech cluster goes nuclear with Windows CCS 2003



The solution that Nor-tech provided to Holtec uses a Cicso InfiniBand interconnect and GigE. Intel Xeon 53XX based servers do the computing for this cluster.

The Challenge

When nuclear fuel has been irradiated to the point where it is no longer useful in sustaining a nuclear reaction it needs to be disposed of... preferably in ways that don't inspire ridiculous sci-fi monster movies.

Holtec International's Spent Fuel Systems division provides robust and reliable solutions to manage this detritus for use by commercial nuclear power plants.

In order to guarantee their solutions will remain reliable over extraordinarily long periods of time and withstand extreme environmental conditions, Holtec performs finite element analysis and thermal analysis on its spent nuclear fuel storage products.

One of the tools Holtec employs for analysis is LS-DYNA, software for simulating complex real-world problems. Even though they were using the fastest engineering workstations on the market, just one analysis job could take from three days to three weeks to complete! They needed to speed up this process, or else they would fail to meet customer deadlines.

The Solution

Holtec approached Nor-Tech with interest in a high-performance cluster that would directly attach to their Active Directory and make job assignments and results easier to access on their existing computers. After some research, Windows CCS 2003 was determined to be as fast as the Linux-based clusters Holtec had been considering, but also offered the advantages of direct attachment to the existing Active Directory.

The cluster that Nor-Tech developed for Holtec uses both Cisco InfiniBand interconnect and Gigabit Ethernet for interprocessor communication. The computing for the cluster is done on Intel Xeon 53XX based servers. Nortech engineers did an onsite installation of the cluster and helped integrate it into Holtec's Active Directory.

Holtec has seen an 80% improvement in the time it takes to perform their analysis, allowing them to hit deadlines.

This solution is very scalable and as Holtec moves more analysis jobs onto the cluster from their other divisions it can continue to grow and meet demands, allowing Holtec to further develop and perfect their turnkey spent fuel storage solutions.

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901 East Cliff Road
Burnsville, MN 55337
TEL: 952.808.1000 FAX: 952.808.1001
TOLL FREE: 877.808.1010 www.nor-tech.com