Smarter
gravitational wave simulating

Lenovo
High performance computing

SciNet achieves faster discoveries in astrophysics, biomedicine and climatology with a Lenovo HPC cluster, powered by Intel®, that delivers a 10X increase in computing power.

(intel®)

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Background

SciNet is the largest supercomputing center in Canada, dedicated exclusively to the advancement of science. From teaching hospitals to universities to national observatories, the center provides high performance computing (HPC) resources to the country's greatest minds, fueling research that advances our understanding of the world.

With a research focus that extends from the depths of the ocean to outer space, and everywhere in between, SciNet needed to accommodate a diverse range of workloads, from advanced data processing and high performance analytics to modeling and simulations.

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Challenge

When it came to crunching more data, faster, SciNet was starting to feel the pressure. Its existing cluster was nearly a decade old and starting to show its age.

Calculations were taking too long, and the outdated cluster could no longer support the large-scale jobs that scientists need to do breakthrough work.

SciNet wanted to equip researchers with smarter, more powerful solution that could handle their current workloads.

And they needed a partner who could help them design, test, and implement it.

Supporting future breakthroughs

SciNet partnered with Lenovo's Data Center team of sales and services professionals, who assisted their team at every step in the process, from onsite facilities assessment, design, customization, optimization and integration through to deployment.

Together, we implemented a 1,500-node cluster of Lenovo ThinkSystem SD530s with a total of 60,000 cores, interconnected with Mellanox InfiniBand EDR switches in a Dragonfly+ topology with adaptive routing.

This provided SciNet's researchers with the compute they needed and ensured the system could scale quickly to meet future research requirements.

> " What set Lenovo's proposal apart was the innovative network topology design and the impressive price-performance ratio. The Lenovo system performed very well in benchmarking tests, and we liked the fact that they came up with an unusual, exciting design within our budget. "

Dr. Daniel Gruner
Chief Technology Officer, SciNet

SciNet

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Results

Our solution delivers 10 times more performance than the previous cluster—using only two-thirds of the energy—making it the most powerful supercomputer in Canada.

Now, scientists are discovering unprecedented insights at a dramatically increased pace.

THE NOBEL PRIZE

Climate researchers are running oceanic simulations at a higher resolution than ever before, furthering our understanding of how oceans respond to climate change. Astrophysicists are using the cluster to run simulations of gravitational waves—work which recently won the Nobel Prize.

With a powerful new tool at their fingertips, researchers at SciNet can focus on what they do best—asking bigger questions, delving deeper into their data, and accelerating discoveries that change our world.

✅ **10x compute power**
to run bigger, more complex jobs

✅ **Higher-resolution simulations**
for deeper, faster insights

✅ **33% reduction**
in energy usage

✅ **Scales up quickly**
and efficiently to meet
new research needs

> The size and speed of the Lenovo cluster means that we can now handle even the largest and most complex jobs, and that researchers will get results back fast. We're really excited that users will be able to conduct research on the Lenovo system that hasn't been possible in Canada before, advancing scientific knowledge.

Dr. Daniel Gruner
Chief Technology Officer, SciNet

SciNet

Let's break new ground together.

Get faster, smarter outcomes with flexible, scalable HPC solutions and a proven partner who's with you every step of the way.

Explore Lenovo HPC

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