Education

Driving
HPC excellence

University of Tartu

The HPC Center at the University of Tartu keeps Estonia at the forefront of HPC innovation with Lenovo ThinkSystem servers powered by dual AMD EPYC™ 7003 Series processors and Lenovo storage.

Powered by

AMD

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Who is the University of Tartu?

The University of Tartu is a public research university located in the city of Tartu, Estonia. The university's High Performance Computing Center (HPC Center) was established in 2008. By providing computing resources to research groups from the university, Estonian scientific and research institutions, the public sector, and commercial users, the center plays a key role in maintaining Estonia's reputation as a destination for scientific innovation.

UNIVERSITY OF TARTU
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The
Challenge

The University of Tartu's HPC Center undertakes regular technology refreshes to ensure that it can offer the resources to drive research breakthroughs. Each time the center tunes the underlying infrastructure, it steps up service for users, helping it to cope with fast-growing data and to accommodate more parallel processes.

Dr. Ivar Koppel, CEO of the HPC Center, University of Tartu, explains: "The majority of our users have very little technical IT knowledge, so they rely on us to provide the optimal infrastructure for their requirements. When our existing HPC cluster was a few years old, we decided the time was right for a new one that offered more capacity, cost-efficiency, and ease of management."

"We had petabytes of data to move to any new infrastructure and can't tolerate any significant interruption to our operations. So, choosing a new HPC cluster that we could migrate to smoothly and with minimal disruption was critical."

Dr. Ivar Koppel
CEO, HPC Center, University of Tartu

Teaming up for **success**

The HPC Center at University of Tartu worked with long-time partner Kernel AS to build a new HPC cluster based on Lenovo ThinkSystem SR665 Rack Servers featuring powerful AMD EPYC™ 7003 Series processors and Lenovo Distributed Storage Solution for IBM Storage Scale (DSS-G) Appliances. The AMD EPYC™ CPUs deliver leadership performance and energy efficiency.

Dr. Koppel adds: "We've worked with Kernel for around 15 years, and they have always been competent and helpful. Together, we came up with the design for a new HPC cluster using Lenovo solutions that was competitively priced."

Hardware
Lenovo ThinkSystem SR665 Rack Server
Lenovo DSS-G Appliance
AMD EPYC™ 7003 Series Processors

Making the
move

Working closely with Kernel, the center achieved a smooth migration to the new Lenovo infrastructure. The cluster is deployed over two sites connected by Infiniband to minimize latency.

"None of our users noticed the cutover to the new HPC cluster, which is exactly what we hoped would happen," says Dr. Koppel. "We successfully integrated the Lenovo infrastructure with our cloud and Kubernetes environments and were able to keep using the resource management scripts we'd set up previously."

"We had a very positive experience when it came to migrating to our new Lenovo HPC cluster—everything ran to plan and to time. We attribute that to a combination of our own expertise, help from Kernel, and the quality of the Lenovo technology."

Dr. Ivar Koppel
CEO, HPC Center, University of Tartu

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Results

Supported by powerful Lenovo and AMD technology, the University of Tartu's HPC Center is ensuring that Estonia remains a big hitter when it comes to scientific research.

The organization supports a range of exciting projects that will advance human knowledge significantly. For example, the Estonian Genome Center is using the center's resources to aid their work in discovering more than 35,000 of the genetic variants associated with complex human characteristics. Other studies are focused on self-driving cars, digitizing medical records, and Estonian language models.

✓ **Supports ground-breaking research**

✓ **Returns results to users faster thanks to higher performance**

✓ **Supports more parallel processes and data**
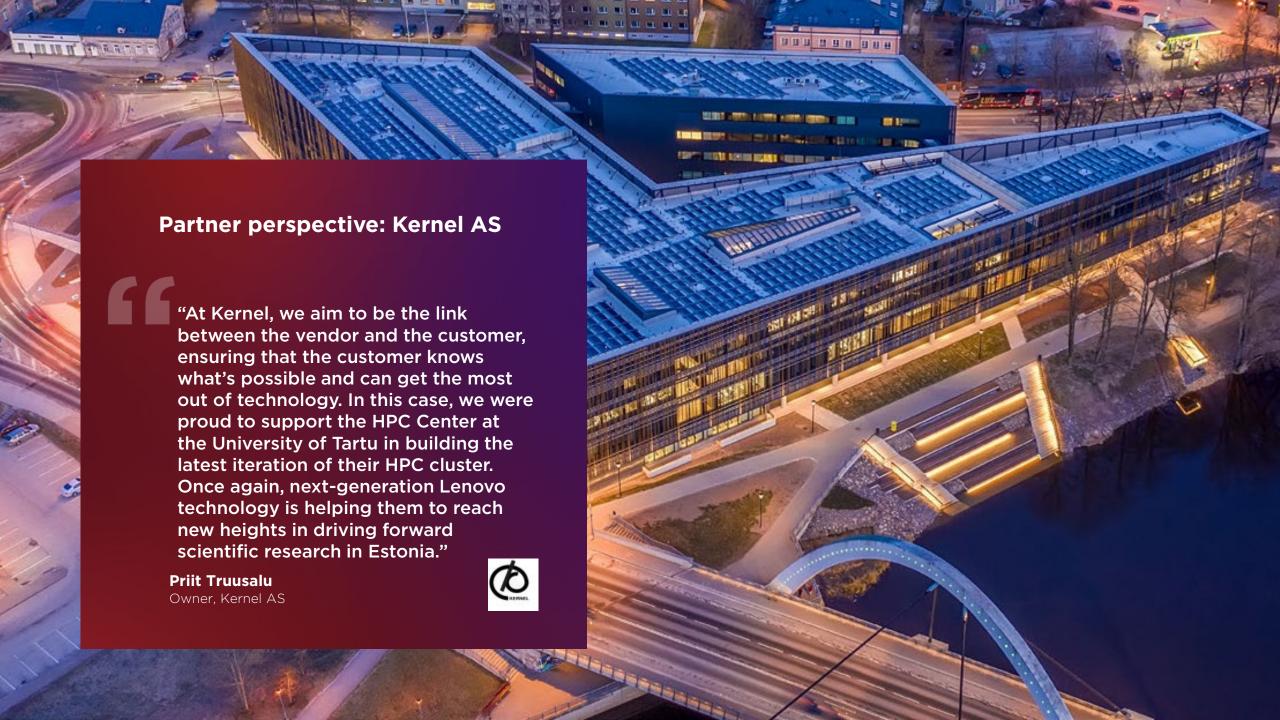
Stepping up capabilities

With greater performance driven by AMD EPYC processors, the University of Tartu's HPC Center is ready for the next phase in its development. The center is cutting down on response times for users and supporting increasingly data-intensive simulations, all while maintaining a low total cost of ownership.

"Our users must trust that we are handling their data securely at all times," comments Dr. Koppel. "Thanks to Lenovo and AMD, we have the stable, secure infrastructure and easy access to support that we need to reassure them that their data is in safe hands with us. We've compared the cost of our HPC cluster to services from the big cloud hosting providers and there is no comparison—our approach is far more cost-effective. That allows us to remain competitive in business terms."

Why **Lenovo**?

When the HPC Center at the University of Tartu reviewed its options for an infrastructure refresh, it narrowed down its choices to Lenovo versus IBM, ultimately selecting Lenovo as the more cost-effective choice. The organization has had many years of positive experience of Lenovo technology and was attracted to the reliability and performance of the latest generation of servers and storage.

Partner perspective: Kernel AS

"At Kernel, we aim to be the link between the vendor and the customer, ensuring that the customer knows what's possible and can get the most out of technology. In this case, we were proud to support the HPC Center at the University of Tartu in building the latest iteration of their HPC cluster. Once again, next-generation Lenovo technology is helping them to reach new heights in driving forward scientific research in Estonia."

Priit Truusalu
Owner, Kernel AS

How can HPC centers reach new heights of excellence?

With an HPC cluster based on Lenovo and AMD technology, the University of Tartu's HPC Center unlocked new performance and cost-efficiency.

Explore Lenovo and AMD Solutions

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