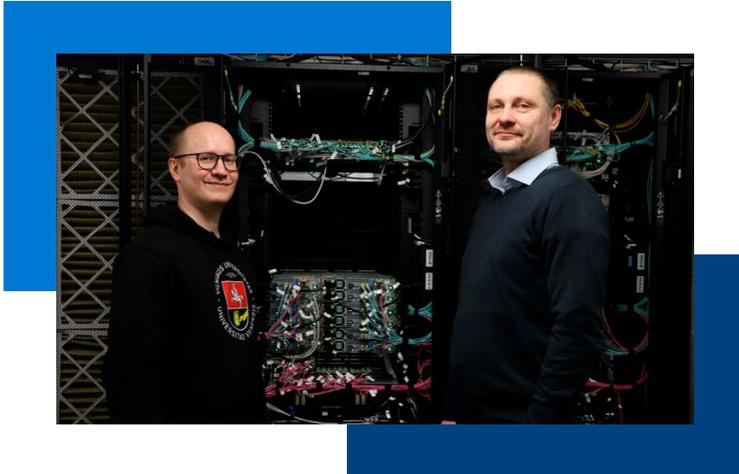


Building a world-class research community

Vilnius University introduces a new era of scientific investigations in Lithuania with a tenfold boost in processing power from its new high-performance computing cluster.



Business needs

Vilnius University's Faculty of Mathematics and Informatics needed to enable students and researchers to undertake new areas of scientific investigation. It decided to build a new high-performance computing (HPC) cluster, replacing an existing stack that was expensive to maintain and approaching its end of life.

Business results

- Tenfold performance improvement.
- Supports new areas of scientific investigations.
- Helps educate graduates to fill the IT skills gap in Lithuania.
- Enables areas of research that benefit society.

Customer profile



Faculty of
Mathematics
and Informatics

Education | Lithuania



“One word sums up Dell Technologies and Novian Technologies (formerly BAIP), and that word is ‘professional.’ It’s a pleasure working with them. Everything happens when it should.”

Povilas Treigys

Vice Dean for Information Technologies,
Faculty of Mathematics and Informatics,
Vilnius University

Solutions at a glance

- [Dell Technologies High Performance Computing Solutions](#)
- [Dell EMC PowerEdge R640 servers](#)
- [Dell EMC PowerEdge C6420 servers with NVMe drives and NVIDIA GPUs](#)
- [Dell EMC PowerVault ME4024 and ME4084 storage arrays](#)
- [Dell EMC PowerVault ME484 storage expansion with HDD drives](#)
- [Dell EMC PowerSwitch S4048-ON, S3048-ON and Mellanox InfiniBand switches](#)

Lithuania's Vilnius University was founded in 1579 and is one of the oldest higher education institutions in Eastern and Central Europe. It has 11 faculties and other academic departments, including the Faculty of Mathematics and Informatics, which educates students in fields such as information systems engineering, cyber security, big data, data science, actuarial maths and econometrics.

Lithuania has a shortage of around 13,000 IT professionals, so the Faculty of Mathematics and Informatics at Vilnius University plays an important role in bridging the skills gap. Undergraduates are allowed to work within businesses outside the university while carrying out their studies.

Upgrading to a new level of performance

Researchers and students in the faculty were using a high-performance computing (HPC) cluster that was nearing the end of its life and expensive to maintain because of the high energy costs required to run it. It was impossible for the faculty to pursue some of its research goals because the current system did not provide enough processing power.

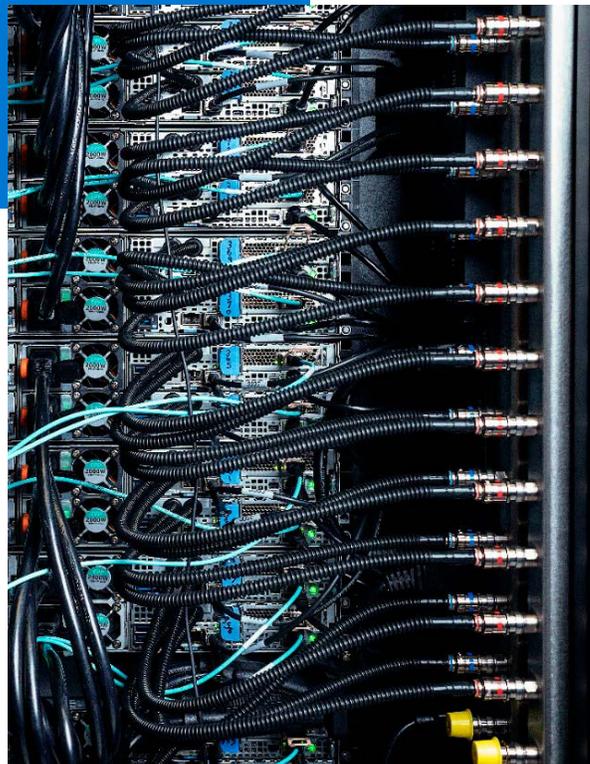
The faculty secured financing from the Lithuanian government to invest in a new HPC cluster. It already knew and trusted Dell Technologies from using its laptops and desktops. So, as part of a stringent public-sector procurement process, Dell Technologies and local partner Novian Technologies (formerly BAIP) proposed a solution.

The university chose the Dell Technologies HPC cluster because it would be simple to manage and could support the faculty for at least eight years and be easily expanded if needed. And with 10 times the processing power, the HPC cluster could run a wide range of teaching and research applications.

Eduardas Kutka, lecturer and HPC network administrator at Vilnius University, says, "Having most of the stack from one vendor will make this HPC cluster much easier to manage than the previous one. It also uses power more efficiently."

A groundbreaking implementation

The HPC cluster solution provides a full stack of carefully selected and powerful hardware technologies including more than 750 TB of storage, 1,728 computing cores and NVIDIA GPUs.



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“The Dell Technologies HPC stack will extend our scientific community around the university and could even open up new revenue streams.”

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This is the first time that Dell EMC PowerEdge C6420 servers have been installed within Lithuania’s scientific community. The faculty worked closely with Dell Technologies and Novian Technologies (formerly BAIP) to identify the high-performance components required to meet its needs.

Povilas Treigys, Vice Dean for Information Technologies, says that the partnership worked well. “One word sums up Dell Technologies and Novian Technologies (formerly BAIP), and that word is ‘professional.’ It’s a pleasure working with them. Everything happens when it should.”

The power-hungry processing applications that will run on the HPC stack include neural networks, artificial intelligence, cyber security and medical research. Among many other uses, it will be particularly beneficial for cancer research programs. Treigys explains, “Together with partners, we have to analyse medical images that contain millions of cells, which we then have to count and classify. Up until now, we didn’t have the resources for all that storage and analysis.”

Establishing a strong research resource

The HPC stack means the faculty will be able to open up access to the rest of the university as well as commercial businesses, helping to build a research ecosystem around the university. “The Dell Technologies HPC stack will extend our scientific community around the university and could even open up new revenue streams,” says Treigys. “We can share resources and widen areas of research as well as prove our capabilities globally.”

The new HPC stack will also help attract academics, researchers and students who want to work with the most powerful and up-to-date technologies. Treigys says, “This is a new era of computational and experimental investigations at the university. Researchers and students will have access to HPC with GPU technologies, which means they will not only be familiar with their capabilities, but also with what can be achieved by employing this kind of technology in the future.”

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