



Riga Technical University and CERN

“DATI Group” is a significant CERN Latvia group member that has contributed to the Latvian high performance computing resource connection in a joint network by offering advanced technological solutions in CERN Tier2 project. Thanks to this project it is now possible to execute knowledge-intensive computing tasks on a national level.




Toms Torims, Riga Technical University professor
Representative of Latvia in CERN

Challenge

As preparation for Latvia to become a CERN member state it was necessary to unite high performance computing (HPC) resources from multiple institutions in the Baltics to create a unified HPC cluster as a single Tier-2 site. Convenient HPC resource and load management system was required for large-scale data parallel processing for nuclear particle research.






Solution

-  A pilot project was launched in 2019 that united RTU HPC center and LU Institute of Numerical Modelling resources into a single open source cloud platform with a software-defined storage solution.
-  Existing physical infrastructure reused; resources from the National Library of Latvia connected afterwards.
-  Connection to CERN infrastructure in European GEANT network and centralized resource and HPC load management system.

Products and services

- Platforma:**
FLEX Cloud private cloud based on CentOS, OpenStack, CEPH, and SWIFT.
- Iekārtas:**
HPC servers from various manufacturers.
- Apmācības:**
OpenStack trainings for personnel during the implementation process.

Results

-  HPC resources from three Latvian academic institutions united in a federated cloud platform using Latvian Academic network infrastructure.
-  Capability to simultaneously run large scale resource-intensive HPC computing tasks with a combined power of more than 6 TFLOPS.
-  Unlimited scalability potential for HPC virtual servers and data storage capacity.

Why “DATI Group”

- Positive past experience of working with “DATI Group”.
- The highest level of competence in federated cloud platform implementation in Latvia.
- The innovation culture of the company.