

General Information

<i>i-Space Name</i>	ICE datacenter RISE SICS North
<i>Label Category</i>	Silver



ICE, the Infrastructure and Cloud research & test Environment, is a research datacenter inaugurated in January 2016. The facility is open to use primarily for European projects, universities and companies. However, customers and partners from all over the world are welcome to use ICE for their testing and experiments.

The ICE mission is to contribute to Sweden being at the absolute forefront regarding competence in sustainable and efficient datacenter solutions, cloud applications and data analysis. This will be accomplished by increasing innovation capability, helping product and service companies excel, as well as attracting more researchers and companies to Sweden to make the business branch even stronger nationally.

The datacenter is situated in an old storage facility at walking distance from the Luleå University of Technology campus. There are three different modules open for testing and experiments, along with a demo space that can fit 50+ people.

The first module, a stable environment optimized for testing of IT/cloud-related applications and big data handling, has been running since February 2016. Measurement data from equipment and sensors is collected for modelling, simulation and optimization.

The second module is more flexible in its physical setup and is therefore optimal for testing of facility/utility innovations. It is fitted with quick couplings for power, water and network to enable easier exchange of equipment.

The third module is specifically designed for testing of the datacenter as part of the utility/energy system.

The ICE offer covers all parts of the stack:

- Big data and machine learning – Computing capacity, platforms and tools for handling big data and machine learning;
- IT and cloud – testing and experiment environments for software development, scaling and infrastructure optimization;
- Facility and IT HW – possibilities for testing disruptive innovations concerning the facility and hardware of a datacenter;
- Utility – measurements and research securing a sustainable society with efficient datacenters as a part of the energy system.

The ICE facility is operated and owned by RISE SICS North, which is a subsidiary of the non-profit organization RISE SICS, which carries out advanced and focused research in strategic areas of computer science, in close collaboration with Swedish and international industry and academia. The research

creates cutting-edge technology, invigorating companies beyond their own R&D.

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<i>Web site</i>	<i>http://ice.sics.se</i>

Platform and Services Information

Platform(s) & Service(s)

Big data services for test and experiments are available on our platform. The range of what we offer extends from choosing to just use our Hadoop application HOPS, all the way to full service with tool experts, analysts and even the possibility to use the data we own and store ourselves. All of this, safely tucked away in our secure datacenter in Luleå.

Example projects are:

- Experiment with Hadoop development before deciding on implementation;
- Refinement of big data analysis using the HOPS platform;
- Sharing data between different projects on the same Hadoop cluster;
- Deep learning development on a GPU accelerated Hadoop cluster;
- Run an analytics project with many partner organizations involved.

The platforms, tools and methods we provide are primarily a tailor-made data science platform, containing:

- HOPS – Hadoop as-a-service;
- Tensorflow-as-a-service;
- Streaming analytics-as-a-service;
- Apache Spark;
- Apache Flink;
- Customized common development environment.

More options can be provided upon request.

Selected Projects and/or Success Stories

The aim of the **D-ICE project** is to establish an arena for data driven innovation. The objective is to improve the conditions for value creation based on advanced data analytics in the industry and society.

The project is financed by national funding (Vinnova) over 21 months and the partners are Ericsson, RISE SICS and the start-up Logical Clocks.

The objective is to strengthen the Swedish competence in data handling, analysis and processing. The project will build a collaboration (meeting and tools) platform for data owners and data analysis providers. The basis for the project is the national datacenter initiative ICE with all server capacity, analytic tools for example Flink and HOPS and the data analytics and industry knowledge that is within all parts of RISE.

The first pilot case in the project is done together with Scania, supplier of heavy trucks on a global market.

The number of connected Scania vehicles exhibits an exponential growth, resulting in large amounts of streaming telematics data. In their own project FUMA, Scania's objective is to develop a big automotive data analytics framework that utilizes the geolocation data collected by Scania to analyze behavior of vehicles from both an individual vehicle perspective and a fleet perspective.

When connecting FUMA to the D-ICE project, new possibilities were created for Scania, to be able to use our collaboration platform for testing new big data platforms, and meet and work together with other organizations in our neutral third-party development environment.

The second pilot, for Volvo Global Truck Technology, is also just starting up.