DATI GROUP

CMS Tier2 development in Latvia

Jānis Irbe, Systems Architect

CERN Baltic Conference (CBC 2021)

The challenges

1) A cross-institutional HPC resource integration challenge

Four academic organizations involved – Riga Technical University, University of Latvia, Latvia National Library and Ventspils International Radio Astronomy Center (VIRAC).

2) Reliable and scaleable utilization of multi-vendor HPC hardware

Several hardware vendors – HP and DELL worker nodes, DELL Isilon storage.

3) A short implementation timeframe of 3 months

Latvia Cern CMS TIERII implementation project

A cross-institutional HPC resource integration challenge

Solution

- Strong support from the Ministry of Education and Science of Latvia;
- Active promotion across the organizations involved;
- Vanilla OpenStack cloud platform was adapted for multi-tenancy;
- Utilization of the Latvian National Academic Network and gateway to the GEANT.

Latvia Cern CMS TIERII implementation project

Reliable and scaleable utilization of multi-vendor HPC hardware

Solution

- Planning and deployment of a hardware agnostic, scaleable private cloud platform
- All-open-source building blocks: Linux + OpenStack + Kubernetes + Ceph;
- Successful utilization of mixed Ethernet and Infiniband networking;
- Bare metal provisioning (OpenStack Ironic).

Latvia Cern CMS TIERII implemenation project

A short implementation timeframe of 3 months

Solution

- experience shared by Lauri Liibert and National Institute of Chemical Physics and Biophysics, Estonia;
- effective utilization of existing pledged hardware;
- cross-institutional planning and implementation team working in sprints;
- DATI Group former experience in OpenStack cloud deployments.

CMS TIERII infrastructure additional use-cases (2020-2021)

- Participation in CERN Folding@Home COV-19 initiative;

- 11 parallel COV-19 genome sequencing data processing workflows for covid19.galaxyproject.org and **Latvian Biomedical Research and Study Centre (BMC) via Genomcs Data Network (gdn.lv)**
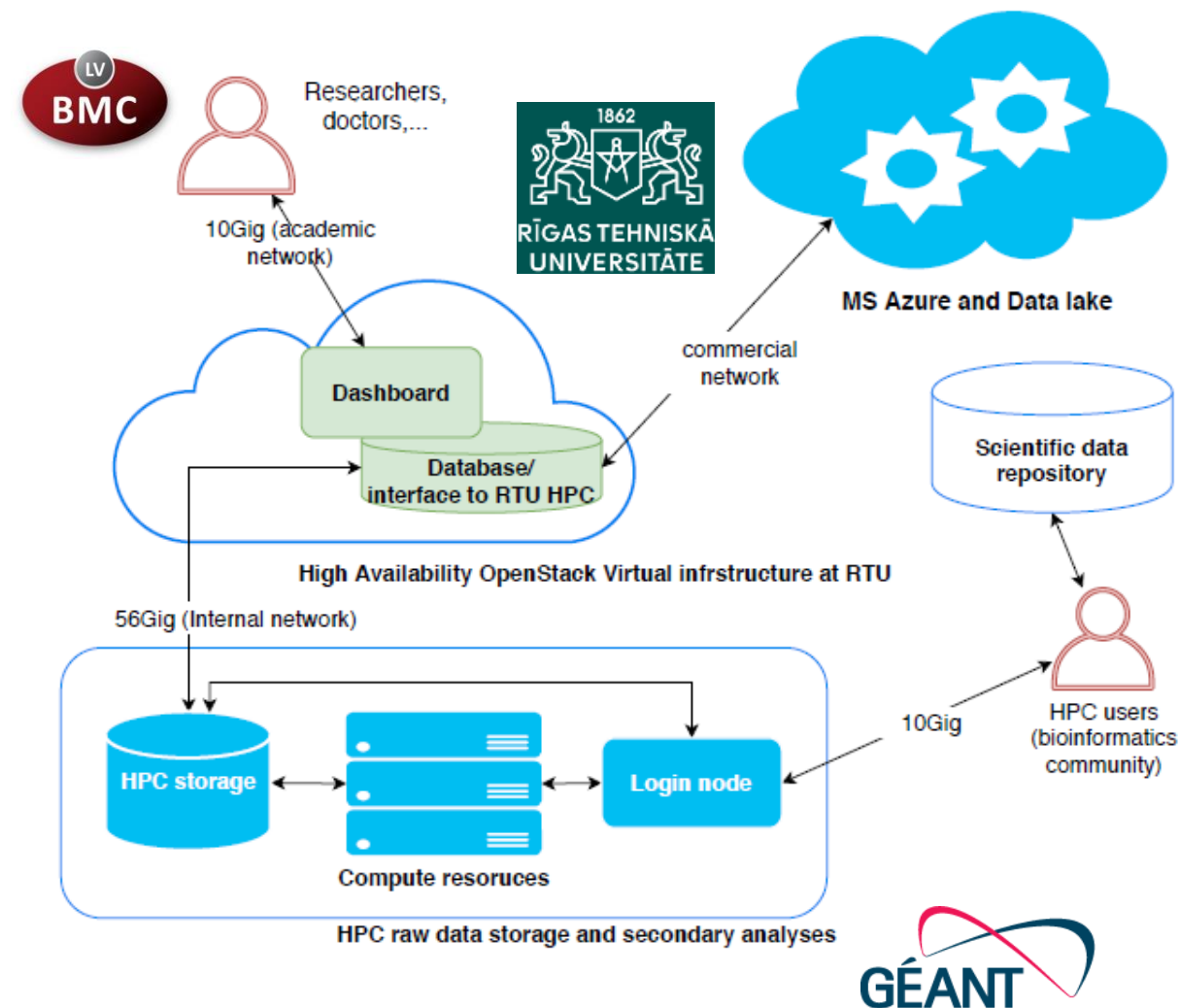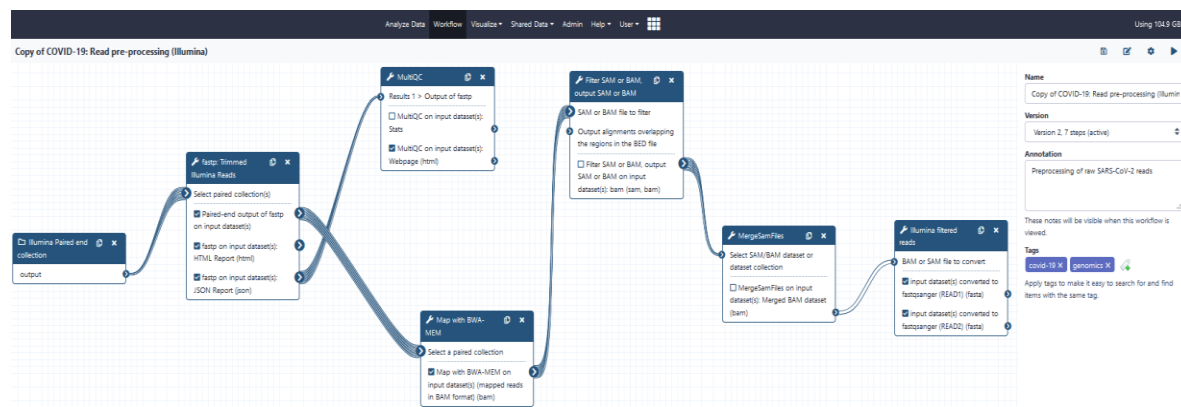
CMS TIERII implementation team members

Lauris Cikovskis, RTU, HPC Center ICT lead

Jānis Eidaks, RTU, HPC Center ICT specialist

Kristaps Bergfelds, University of Latvia ICT specialist

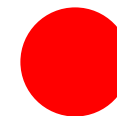Jānis Freimanis, Latvia National Library, ICT lead

Aija Ruse, RTU, Coordinator

Toms Torims, RTU, CERN, a «wall-breaker»

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THANK YOU!