Nordic e-Infrastructure Collaboration

NeIC Overview

DeIC Conference 2016
4 October 2016

On behalf of NeIC:
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NeIC overview presentation

- NeIC general information: history, governance, directions and processes
- Pooling Competences focus area
- Nordic sharing and exchanging resources project - Dellingr
- Nordic sensitive data project - Tryggve
- Nordic scientific software project - CodeRefinery
- Nordic cloud project - Glenna
History

1. Nordic Data Grid Facility (NDGF) pilot project started in 2003
2. Operational NDGF hosted by NORDUnet from 2006
3. Nordic e-Infrastructure Collaboration (NeIC) hosted by NordForsk from 2012
   - NeIC initially governed by national e-Infrastructure providers and research councils
   - NeIC governed by national providers from June 2015
NeiC Governing Partners (Board)
Organisation

- NordForsk is hosting organisation and legal entity
- NordForsk Board delegates strategy and funding authority to NeIC Board
- NeIC Director is employed by NordForsk
- NordForsk provides admin support and office space
- NeIC personnel are contracted from partner organisations to provide services in 2-4 year increments
- NeIC Executive Team (Director + 5 Coordinators) handles daily operations, stakeholder engagement, coordination of activities
The Nordic e-Science Action Plan 2.0

Solicited by Nordic Council of Ministers to Working Group (2015)

• 10 Actions:
  A-6: Nordic Sharing and Exchange of e-Infrastructure Resources
  A-7: A Nordic Federated Cloud
  A-8: Nordic High Performance Computing Collaboration
  A-9: Nordic e-Infrastructure for Sensitive Data
  A-10: Nordic infrastructure for Scientific Software

• Nordic Council of Ministers have requested NordForsk to implement the plan
• NeIC is working to address the e-infrastructure actions
The Nordic e-Science Action Plan 2.0

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- 10 Actions:
  A-6: Nordic Sharing and Exchange of e-Infrastructure Resources (Dellingr)
  A-7: A Nordic Federated Cloud (Glenna)
  A-8: Nordic High Performance Computing Collaboration (Dellingr)
  A-9: Nordic e-Infrastructure for Sensitive Data (Tryggve)
  A-10: Nordic infrastructure for Scientific Software (CodeRefinery)

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In 2020, NeIC is a global role model for cross-border distributed and sustainable e-infrastructure services

- Map stakeholders and partnerships
- Create engagement plan (frequency, means)
- Implement stakeholder and partnership monitoring (incl. surveys)

- Map skills, identify and prioritise needs
- Establish NeIC and cross-border training programmes
- Make NeIC more attractive to competent personnel

- Launch pilot projects to establish ambition levels
- Create framework agreement (scope, CPU/storage)
- Establish enabling processes and technologies

- Map funding sources, modalities and application mechanisms
- Agree on total funding and share from each funding source
- Adapt to unaligned funding periods

- Secure Long-Term Funding

- Strengthen Stakeholder Dialogue

- Share Resources

- Pool Competencies

Accelerate development and provisioning of cost-effective, best-in-class e-infrastructure services beyond national capabilities
**Project initiation: Top down and bottom up**

**Top-down:** by NeIC Board

**Bottom-up:** by communities, researchers, RIs, e-infra staff

**NeIC**

- Project Idea Development
- User requirements, Feasibility, Nordic Dimension
- Review
- Collaboration Agreement
- 50% Partner funding
- 50% NeIC funding
- Collaborative Nordic Project
- Research Use Cases
- Task 1
- Task 2
- Task 3
Pooling Competences Focus Area

- Pooling Competencies defined as focus area in the NeIC Strategy for 2016-2020
- Wide range of competencies within operation and development of services at the national providers
  - Partially fragmented and not coordinated across countries.
- GOAL: making the Nordics capable of tackling e-infrastructure challenges beyond what is currently possible on singular national scales.
- Initial work has been in the area of training within the Nordics
- Potential next topics:
  - Procurements (including technical benchmarking, acceptance testing and acquisition condition
  - Software roll-out
  - Security
  - Advanced user support and user support in general
  - Data management and data analysis
Pooling Competences Focus Area Achievements

• Establishment of a joint calendar and a training metaportal to coordinate and survey the present training offerings in the Nordics
  – https://neic.nordforsk.org/training/
  – NeIC training policy and recommendations under discussion
    – Match up with national policies
• NeIC Mobility Enhancement Programme under formulation
  – Training course attendees and courses in other Nordic countries
  – Trainers to provide their courses in other Nordic countries

• Cross cutting NeIC activity affects multiple areas and projects
Nordic Resource Sharing and Exchange: Dellingr Project

• How to share resources across national boundaries?
• The benefits for researchers
  • Access to a broader set of computational resources
  • Consistent process for resource requests and user support
• The benefits for e-infrastructure providers include:
  • Greater ability to focus on areas of strategic value
  • Increased capability to support national users with unique requirements through partnerships with other providers
  • Greater capability to support national users during system transitions or peak periods
  • Broader understanding of the capabilities of a larger range of systems and capabilities
    • Pooling competences
Nordic Resource Sharing and Exchange: Dellingr Project

- Initiated in Sept 2016 to explore the possibilities of exchanging access to computing and data resources for Nordic researchers across national boundaries
- Participation by DeIC/Denmark, CSC/Finland, RHnet/Iceland, Sigma2/Norway with SNIC/Sweden as an observer
- Two phase project
  - Phase 1: define and scope the challenges for two concepts
    - Researchers applying for allocations in other countries
    - Nordic HPC collaboration between the national providers
  - Phase 2: Implementation
- Phase 1 will complete Spring 2017
- Decision step by participating national providers
- Phase 2 will run Spring 2017-2019 for those countries participating
Nordic Sensitive Data Project: Tryggve - collaboration for sensitive biomedical data

- Tryggve is a Nordic project that develops services for cross-border use of sensitive biomedical data for research
  - Partners and funders are NeIC and ELIXIR Nodes in Denmark, Finland, Norway and Sweden
- 3-year project with volume of ca. 100 PMs/year (ends in Oct 2017)
- Project builds on strong collaboration in Nordic countries and supports research projects through a continuous call for use cases
  - More info: https://wiki.neic.no/tryggve
Tryggve Project: Mission and goals

*Tryggve develops services for biomedical research to enable secure, efficient and easy use of human data for research across borders*

What this means in practice:

- Develop and provide secure storage and computing environments
- Support the process for accessing and moving the data
- Develop solutions for mobility of data, software and users
- Support research projects through use cases
- Transfer knowledge between Nordic developers and service providers

• **Goal:**
  – Establish a software development e-infrastructure
    • Couple with necessary technical expertise and extensive training
    • Address the growing needs of computational communities.
  
• **Major Components**
  – Train Nordic research groups in modern software development state-of-the-art tools
  – Assist groups in migrating to collaborative industry-strength community solutions
    • Encouraging code review and test-driven development.
  – Increase visibility of Nordic software projects for software sharing

• **Outcomes:**
  – *Maintainable software:* Train groups in building modular and maintainable code.
  – *Reproducible science:* Encourage open science and enable reproducible science.
  – *Community:* Building a community by aggregating and providing courses and organizing training, summer schools, meet-ups, tutorials and forums

• [http://coderefinery.org/](http://coderefinery.org/)
Nordic Cloud Project: Glenna Project Objectives

1. Enable easy access through the KALMAR2 federated trust service
2. Sharing technologies to improve quality and security of cloud services
3. Sharing user experiences on a Nordic level to improve quality and to increase the available set of services
4. Sharing cloud administrative work - improving the service availability to the users
5. Enable data sharing (enabling new research) and - increasing overall availability and security of data (avoiding data loss)
6. Create a resource sharing solution to simplifying the usage and sharing of Nordic Cloud resources
7. Enable billing and accounting within the Nordic Cloud - to create a fair sharing of resources and funding. This will also simplify for external funding of research.
Glenna Facts

Members from all Nordic countries participating.
Budget 1.2 million € (50% Nordforsk/NeiC 50% national providers)
Personnel ~12

Danish e-Infrastructure Cooperation
CSC - IT Center for Science Ltd. Finland
Swedish National Infrastructure for Computing
Uninett Sigma2 A/S. Norway
University of Iceland
Glenna Cloud Platforms

Infrastructure as a Service (IaaS)
CSC - Finland, SNIC - Sweden,
Uninett Sigma2 - Norway

IaaS Cloud Data
DeIC Denmark & University of Iceland

Software as a Service (SaaS)
CSC Finland & Uninett, UiO
Norway

Containers as a Service (CaaS): Uninett Norway
Building strong distributed teams working on challenging problems that matter to the national e-infrastructure providers and users