

Baltic Ring – Final report

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1 Introduction

1.1 Purpose of the document

This document is the final report of the Baltic Ring project. This report summarises the work done in the project.

1.2 Target group

Project steering group and the project group.

1.3 References

Feasibility Study on a Knowledge Infrastructure for the Fifth Freedom in the Baltic Sea Area, Nordic Council of Ministers, <http://www.norden.org/en/publications/publications/2010-516> (2009).

Project proposal for a Baltic Ring network, proposed as follow-up action to the above-mentioned study, Nordic Council of Ministers, (2010).

2 Background and Starting Points

In 2009, the Nordic Council of Ministers asked a group of e-Science and e-Infrastructure specialist, under leadership of NORDUnet, to produce a feasibility study on knowledge infrastructures in the Baltic Sea area. Among the conclusions in the final report was a recommendation to create a joint network infrastructure in the area – a Baltic Sea network ring.

Such a Baltic Sea ring will interconnect the e-Science communities in the region, strengthen collaboration, and strengthen the role of the region in European collaboration. As described in the report, the ring is envisioned as a federated network – a network created from resources contributed by, and owned and operated by, the national research and education networks (NRENs) of the countries in the region.

As a follow-up action on that recommendation, the Nordic Council of Ministers has decided to fund a design study. The study is tasked with investigating available resources, deliver a design blueprint, and describe organizational and operational models for such a federated optical network in the Baltic Sea area.

The project is expected to interact with the NRENs around the Baltic Sea and gather initial ideas, propositions and suggestions for the resources that support the blueprinting. Practically, the work requires a comprehensive survey. The core of the project is to

investigate and explore the means to make the federated model work on an international level.

There are few known examples of similar resource sharing. One of the known examples is GLORIAD. The GLORIAD consortium has succeeded in building up a global ring for scientific applications.

2.1 Project progress

2.1.1 Progress of the tasks

Date	Main activities accomplished	Responsible persons
Jul 2010	Scoping the project	LF, JM
Aug 2010	Project manager starts the work.	LF, JK, JM
Sep 2010	Project group is established. Background studies and finding of early solutions	LF, TB, JM, JMO
Oct 2010	Tentative result summary delivered, project kick-off for CSC personnel.	Project group
Nov 2011	Contacts to the liaison NRENS	Project group
Dec 2011	Meeting preparations	Project group
Jan-Apr 2011	NREN visits and meetings, feedback incorporated into the planning	Project group
Apr 2011	Interim result summary delivered	JM
May 2011	Results are introduced in the International meeting in Copenhagen	René Buch, LF, TB, JM
Jun 2011	Project is introduced in the NORDUnet2011 conference	JM
Jul-Aug 2011	Deliverables finalized, peer reviews and technical writing process	JM, TB, JMY, JMO, BBM, Sue Tyley (Dante)
Sep 2011	Final deliverable versions delivered	Project group

Table 2.1.1.1: Table of accomplished tasks.

2.1.2 Planning development

Date	Main activities accomplished	Responsible persons
Jul 2010	The project task assignment is written.	LF, JM

Date	Main activities accomplished	Responsible persons
	Composing the project work plan.	
Aug 2010	Meeting between Nordic Council of Ministers, NORDUnet and CSC (Copenhagen). Early versions of the deliverables (tables of content). The work content is decided.	LF, TB, JM
Sep 2010	Project personnel is assigned and their roles are defined. Refining the content of the deliverables.	LF, JM, JMO
Oct 2010	NORDUnet-CSC agreement ready	LF, JM
Nov 2011	Project plan ready, liaison responsibilities are assigned	JM, Project group
Dec 2011	The liaison contact plans are ready. The work of PortaOptica becomes known.	Project group
Jan 2011	Feedback and information from Litnet and SigmaNet is received.	Project group
Feb 2011	Investigations of the operations in the similar federated systems. Deliverable planning.	Project group
Mar 2011	Major content and layout updates to deliverables. Contact to EENet. The project group meetings are paused and the project internal communication is changed to person-to-person mode.	JMY, TB, JM
Apr 2011	Feedback and information from EENet, RUNNet and PSNC is received.	JMO, TB, JM
May 2011	The use of peer review and technical writing process is decided.	TB, JM
Jun 2011	Deliverable review planning. NORDUnet2011 conference presentation planning.	Project group
Jul-Aug 2011	The scope and extent of the deliverables are decided.	JMY, TB, JM
Sep 2011	Last project meeting.	Project group

Table 2.1.1.2: Table of planning development. The person acronyms can be found from Section 3 after the corresponding name.

3 Organization and alliances

3.1 Steering group

Consistency and roles:

Lars Fischer (LF, NORDUnet), CTO, the organization of collaboration

Janne Kanner (JK, CSC/Funet), director, the architecture and international collaboration

Fredrik Melander (FM, Nordic Council of Ministers), senior advisor, research policies and administration

Helene Norberg (HN, Nordic Council of Ministers), senior advisor, research policies and administration

3.2 Project group

Consistency and roles:

Jari Miettinen (JM, CSC), project manager, specialist on contractual and administrative matters

Tony Breach (TB, NORDUnet), network specialist (transport networks)

Jani Myyry (JMY, CSC), network specialist (transport networks)

Matti Laipio (ML, CSC), network specialist (transport networks)

Juha Oinonen (JMO, CSC), specialist on contractual and administrative matters, network specialist (IP and transport networks)

Kaisa Haapala (KH, CSC), network specialist (IP and transport networks)

Janne Oksanen (JTO, CSC), network specialist (transport networks), retired in spring 2011

Brian Bach Mortensen (BBM, NORDUnet), network specialist (transport networks), joined project in spring 2011

In addition to the project personnel, technical writer services were purchased from Dante. The technical writing for the deliverables was done by Sue Tyley.

3.3 The project assigner, owner and customer

The project assigner

NORDUnet management group

The project owner

Lars Fischer, NORDUnet

The project customer

The Nordic Council of Ministers

3.4 The project portfolio and program

The project portfolio

This project belongs to the NORDUnet project portfolio.

Program

This project is related to the NORDUnet strategic pillar 2: Coordination of network research and development, and falls under strategic initiative 3: Nordic Community Build.

4 Contextual success

Goal	#	Realisation
Provide a technical description of a federated Baltic Ring network	1	Discussed about the possibilities and alternatives with the liaison NRENs. Planned and drafted the alternatives. Provided solution and descriptions in the deliverable D2.
Provide a decision framework for partners willing to participate and collaborate	2	Evaluated different alternatives and possibilities for decision-making framework. Asked for comments and peer reviews from the liaison NRENs. Drafted a framework, which consist of a organizational model and agreement framework.
provide sufficient information to the liaison organizations	3	Visited several NRENs. Having videoconferences and e-mail correspondence with all the liaison NRENs except DFN. Given presentations in the peer-to-peer meetings and the Nordic Council of Ministers events. Given a public speech at the NORDUnet2011 conference. Submitted information about the project and the interim deliverable versions to the liaison NRENs.

Table 4.1: Table of project goals. The goals were stated in the project assignment.

Results	#	Realisation
Technical	1	Evaluated different technical implementation alternatives. Specified

Results	#	Realisation
network design		the network services. Suggested a feasible solution for the physical network.
Resource map and cost matrix for available resources	2	The existing resources related to the Baltic Ring network in the liaison NRENs have been mapped. The resources are enlisted and the missing parts and sections are identified.
Deployment budget for the Baltic Ring	3	Calculated the CAPEX and estimated the man power need for two different scenarios.
Agreement framework	4	Developed a three-layer agreement model. Written the templates of each level of agreements.
Design for an organizational setup and governance model for a federated operating consortia	5	Evaluated different possibilities for the co-operation governance. Proposed a consortium or loose association model with two initial and two second-phase organs. Fine-tuned the agreement templates to fit the consortium. Described on a high-level the workings and relations of the different organs.
Requirements for an operations model	6	Investigated the operational arrangements in selected federated infrastructures. Suggested high-level operational requirements for network operations, monitoring, reporting and communications. Stated the need for clear definition of operations processes.
Operations cost analysis and suggestions for a cost-sharing model	7	Calculated OPEX costs and estimated the man power needs in two different scenarios. Introduced the principles of cost-sharing model. Discussed the costs and identified the various cost factors in detail. Described the future use with an example and scenario analysis. Highlighted the need to start a tariff information exchange.

Table 4.2: Table of tasks and the achievements. The results were stated in the project assignment.

Deliverable	#	Results	Description
Project plan	1	-	Project work planning document
Network design and resources	2	R1, R2, R3	Technical study of a feasible implementation
Organisation and operational model	3	R4, R5	Proposition for a co-operation model

Deliverable	#	Results	Description
Support and funding	4	R6, R7	Suggestive plan for sustainable supporting structures
The project final report	5	-	Summary of the project work

Table 4.3: Table of deliverables. The distribution of the project results (R#, see Table 4.1) was stated in the project assignment.

5 Temporal success

Aspect	Criticality	Result
Keeping time schedules on deliveries	high	Summaries and presentations have been delivered in time. The final versions of the deliverables were delivered in September due to the review and technical writing process.
NREN visit timetable	medium	The visits were conducted early 2011. The visits were delayed as the key contact persons in liaison NRENS proved hard to reach.
Project overall time consumption	medium	The project work time lasted one year in calendar time. The overall time consumption could have been made shorter with larger work time usage and by lowering the quality of the written deliverables.

Table 5.1: Table of temporal success analysis. The criticality is evaluated with attributes "Low", "Medium" and "High".

6 Resourcing success

6.1 Man months

Partner	Budgeted (person hours)	Realisation (person hours)	Comment
CSC	1025	1007h 8mins	Based on CSC work time reports
NORDUnet	675	N/A	

Table 6.1: Project man power resourcing and realisation.

6.2 Monetary resources

Partner	Budgeted (DKK)	Realisation (DKK)	Comment
CSC	125000	41086	5521.02 euro
NORDUnet	170000	N/A	

Table 6.2: Project monetary resourcing for running costs e.g. travels and services acquisition.

7 Stakeholder satisfaction

Role	Party	Project estimate	Assessment
Project customer	Nordic Council of Ministers	Medium	Not available
Project owner	Lars Fischer (NORDUnet)	High	Not available
External liaisons	NRENs around the Baltic Sea	Medium	Not available
Internal liaisons	CSC - Center for Scientific Computing Ltd	Medium	High
Project group	Project staff from CSC and NORDUnet	High	High

Table 7.1: The estimated appreciation of the different stakeholder groups. The levels are evaluated with attributes "Low", "Medium" and "High".

8 Project self-assessment

In general the project achieved it's goals very well and within reasonable timeframe. The timetable was prolonged of the original aspirations by quality factors. The project group thinks, that the work done has built trust between the liaison NRENs.

9 Lessons learned

From the project group point of view the work seemed to be very special. Partially this was due to the novel cross-border fibre approach for building the connectivity for the NRENs. As well it enabled a new dialogue between the NRENs, which otherwise may not have taken place. Project has supported bilateral discussion between the NRENs about CBF initiatives. The project group believes that the work done and the deliverables have also convinced many, that the CBF approach is possible and a feasible way to build networks in the Baltic Sea area.

The deployment work after the Baltic Ring project will be at least equally challenging. A multi-phased development with a joint vision and joint steering could provide the best results.

10 Future work

It is expected that the Baltic Ring project work is followed by the establishment of the Baltic Ring Consortium. In addition, it is expected that several development projects will be started for implementing the physical ring structure with services. CSC, NORDUnet, EENet (Estonia) and SigmaNet (Latvia) have already submitted a project proposal for getting funding to Latvia-Estonia-Finland connectivity ("BRAIN - Baltic Regional Academic Infrastructure Network", August 2011).

11 List of project deliverables and events

- [TS]** Jari Miettinen, Matti Laipio, Jani Myyry, Tony Breach: "Baltic Ring - Tentative Summary", (25.10.2010).
- [SigmaNet2011]** Tony Breach, Matti Laipio, Juha Oinonen, Jari Miettinen: visit to Sigmanet, Riga, Latvia (10.1.2011).
- [LITNET2011]** Tony Breach, Jani Myyry, Jari Miettinen: visit to Litnet, Vilna, Lithuania. (19.1.2011).
- [RUNNET]** Jari Miettinen: Skype meeting with Yury Izhvanov (5.4.2011).
- [EENet2011]** Juha Oinonen, Jari Miettinen: visit to EENet, Tartu, Estonia. (11.-15.4.2011).
- [EENetRUNNet2011]** Jari Miettinen: EENet-RUNNet meeting. (14.4.2011).
- [PSNC2011]** Jari Miettinen: Skype meeting with Artur Binczewski (19.4.2011).
- [IS]** Jari Miettinen: "Baltic Ring - Interim result summary", (27.4.2011).
- [NFS]** René Buch, Lars Fischer, Tony Breach, Jari Miettinen: "Baltic Ring pre-study, project result summary", International meeting on Infrastructure for Free Movement of Knowledge in the Baltic Sea Area , Nordic Council of Ministers, Copenhagen (6.5.2011).
- [NDN2011]** Jari Miettinen: "Baltic Ring - Blueprinting the Network", a presentation given in the NORDUnet2011 conference (8.6.2011).
- [D1]** Jari Miettinen: "Baltic Ring - Project plan", (2011).

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- [D2]** Jani Myyry, Jari Miettinen, Tony Breach, Brian Bach Mortensen: "Network Design - Network architecture, technology and service selection for the Baltic Ring network" (2.9.2011).
- [D3]** Jari Miettinen: "Organisational and Operational model", (2.9.2011).
- [D4]** Jari Miettinen, Juha Oinonen, Jani Myyry: "Support and Funding", (2.9.2011).
- [D5]** Jari Miettinen: "Baltic Ring - Final report", (27.9.2011).