

Project Prism

(DANTE DWDM Transmission Equipment Framework Procurement)

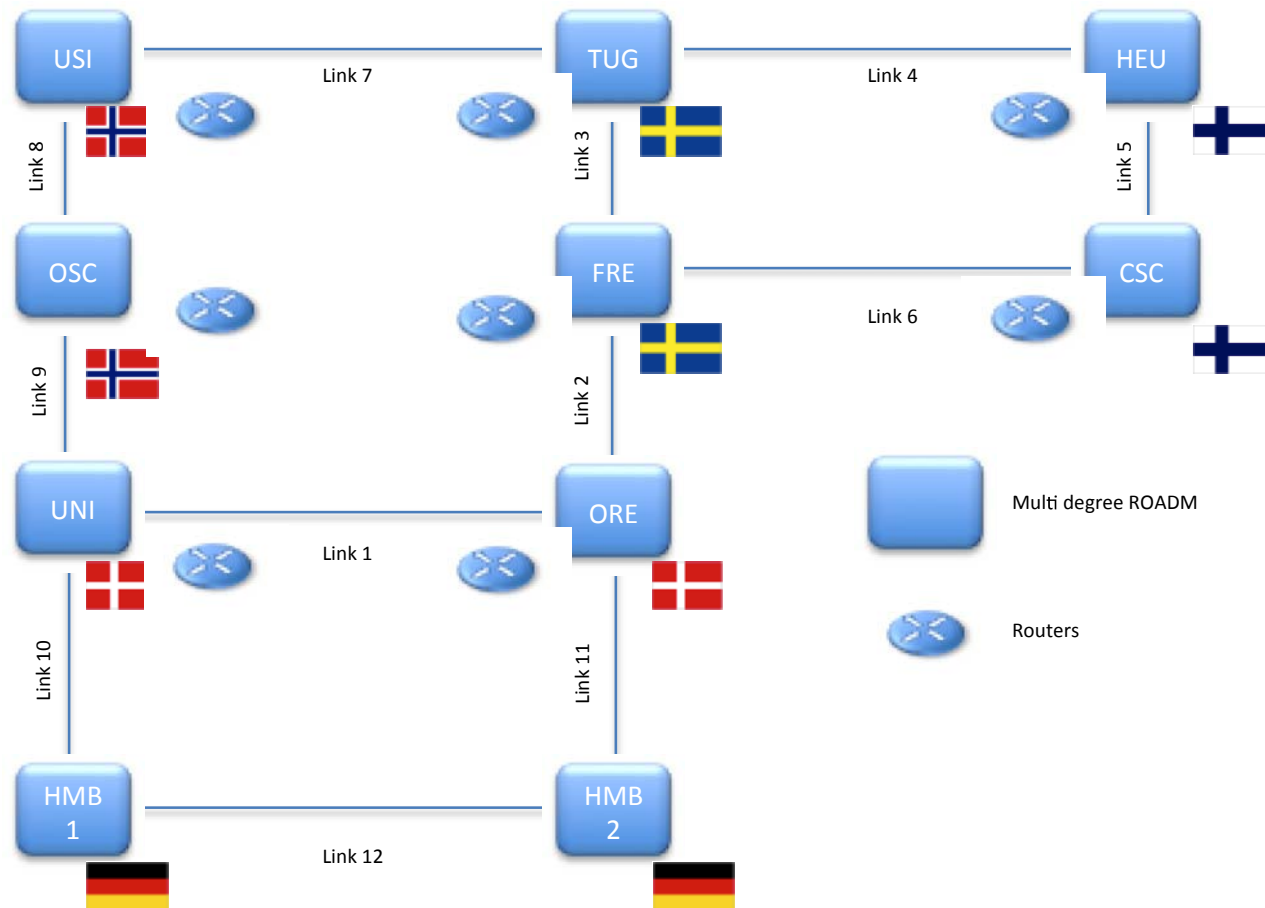
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- Background
- Framework
- Solution requirement
- Assessment
- PRISM Results
- Nordunet - Timeline

- In DANTE's 2012–2015 strategy, "More for all", there is a focus on leveraging the collective purchasing power of the network community
- This procurement is designed to enable European NRENs to purchase optical transmission equipment and services that will allow them to build and deploy 100G transmission networks within their respective countries.
- Potentially, all the NRENs associated with DANTE in the GÉANT project may elect to use the framework agreements

- The NORDUnet network was used in order to help applicants understand the likely characteristics of an NREN, and the way the equipment and services procured through the framework may be used
- The current NORDUnet optical transmission solution was installed in 2006 and is approaching its end of life
- Alcatel-Lucent Tuneable-ROADM 1626 LM
- NORDUnet currently operates an optical transmission system that covers the Nordic area (Denmark, Finland, Iceland, Norway and Sweden) and Germany (Hamburg).

NORDUnet network



- The NORDUnet network is operated by the Nordic University Network Operations Centre (NUNOC), which is the operations part of the NORDUnet organisation.
- NUNOC currently operates and supports the NORDUnet and the national Swedish Research and Education Network (SUNET) fibre, optical and IP networks, as well as various services.
- The NUNOC 24/7 Network Operations Centre (NOC) is located in Stockholm, with a combined office and state-of-the-art hosting facility. The NOC is supported by pan-Nordic technology-expert teams covering all aspects of IP and optical networking.

- DANTE has awarded four framework agreements with an eight year term.

- Procurement and Legal:
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- Commercial:
 - Toby Young, Dante
 - Jorgen Qvist, NORDUnet
- Technical:
 - Lars Lange Bjorn, NORDUnet
- Operational:
 - Jonny Lundin, NORDUnet
 - Per Nihlen, NORDUnet

- A four-stage procurement process using a competitive dialogue process
 - as defined in the UK Public Contracts Regulations 2006
- Stage One comprises this prequalification process
- Stage Two is the dialogue process.
 - During dialogue, Applicants will receive an Invitation to Submit Outline Proposals (ITSOP) to meet more detailed requirements, and to discuss the requirements and their proposed solution with the PT

- Stage Three is the final bid process .
 - Applicants remaining at the end of Stage Two will receive a draft Invitation to Submit Final Bid (ITSFB), and an invitation to participate in a further round of dialogue.
 - A final ITSFB will then be issue,
 - up to four Applicants will be identified,
 - intention of awarding contrac
 - **Applicant ranked in position 1 with the highest score following the evaluation may receive the first call-off order to meet the NORDUnet requirements.**
- Stage Four is the contract production and contract award

- The solution shall have an easy-to-use Network Management System (NMS) with an Application Programming Interface (API) that allows integration with third-party provisioning, alarming and monitoring tools.
- The solution shall be operationally stable with a long Mean Time Between Failure (MTBF).
- The solution shall have a road map that ensures continued development and support for the full duration of the framework and any call off contract.
- The solution shall be based on coherent DWDM technology,.
- The solution shall support 10G, 40G and 100G client interfaces.

- The solution shall have a method to limit manual intervention on intermediate nodes, e.g. an Optical Transport Network (OTN) switching layer or optical switching using Reconfigurable Optical Add-Drop Multiplexers (ROADMs).
- The solution shall accept injection of alien wavelengths.
- The solution shall support generation of wavelengths that can be injected into other DWDM systems as alien wavelengths.
- Each service should be easily configurable for robust protection providing intermediated and high-end protection schemas.

- The Applicant shall be able to handle the migration from the existing solution in an efficient manner.
- The Applicant shall offer an operational support service with regard to software, spare parts and on-site support, with guaranteed repair times.
- Elective professional services throughout the life of the agreement shall be provided, for example, but not limited to, decommissioning and consultancy.

- Applicants should be able to provide equipment and services in the relevant geographic areas for the GEANT NREN's

- The solution should be able to integrate with external systems, for example, for reporting, inventory and provisioning using a well-defined API / northbound interface.

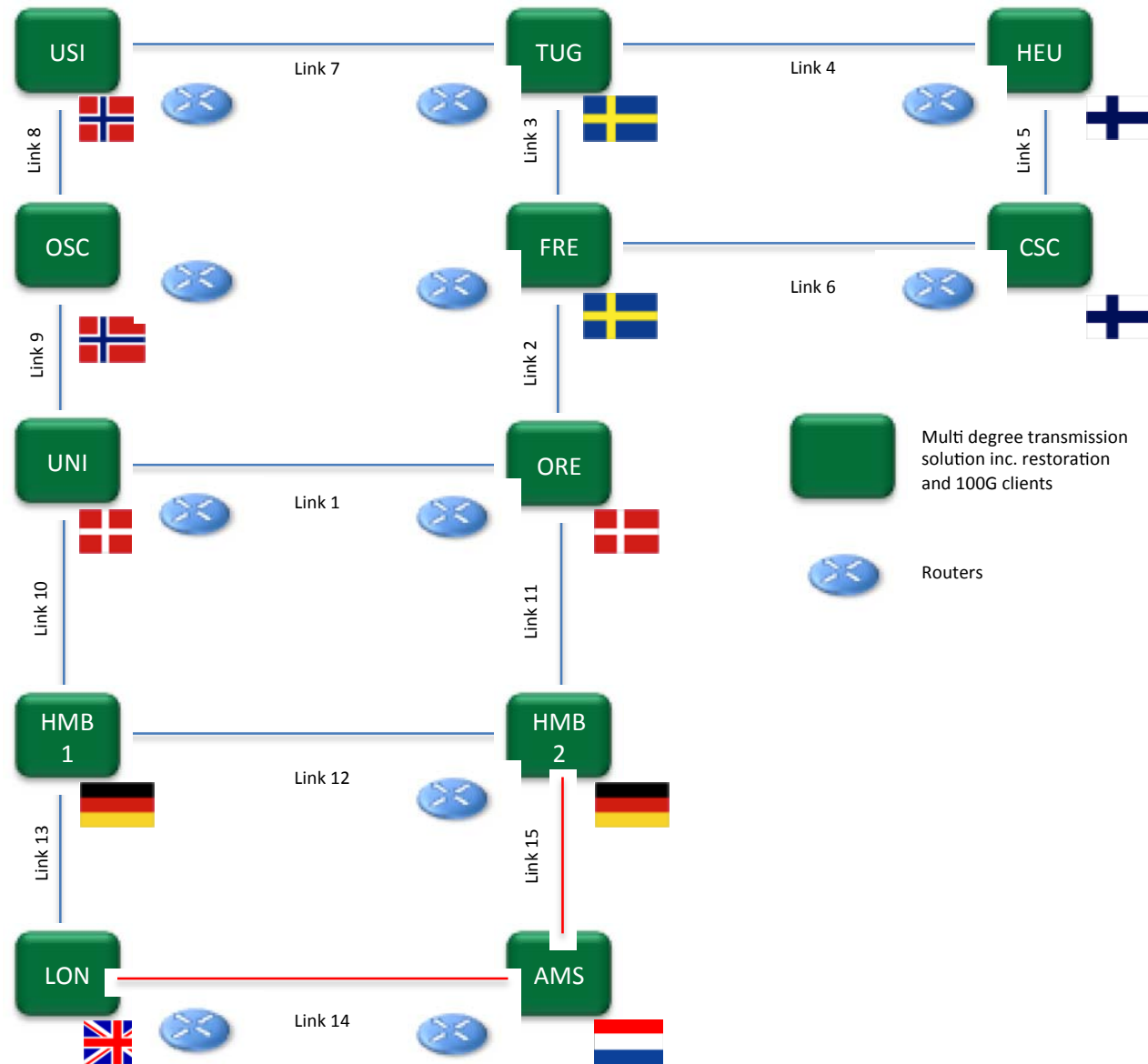
- The commercial proposal should recognise the potential economies of scales for purchases by NRENS through the frameworks and ensure the implications of international trade are considered. The framework should have a fair balance of risk.

- For the technical assessments lab testing was also carried out at the applicants premises

- A framework agreement for DWDM equipment, software, support and services
- 8 year framework
- 4 suppliers
 - Alcatel-Lucent
 - Ciena
 - Coriant (Nokia Siemens Networks)
 - Infinera
- All GEANT NRENs are eligible to benefit
- Service Catalogue
- Further Competition
- Collective Benefit

- Call off contract – CIENA
- Detailed project plan
- Training
- Lab setup
- NMS setup

NORDUnet future network



- Link 13 is a dark fibre link; 14 and 15 are dark fibre links lit by SURFnet.
- In the near future, 14 and 15 will be capacity only, allowing NORDUnet to fully integrate Amsterdam (AMS) into the routed network as well integrate in an electrical transmission solution, e.g. OTN.
- Later on, SURFnet and NORDUnet will jointly try to push the limits for optical networking by deploying alien wavelengths. It is therefore expected that NORDUnet eventually will have optical transmission equipment at the Amsterdam PoP (AMS).
- **Forecast**
 - Link 10 completed by Q1 2014 (First link)
 - It is estimated to have all links in place by Q3-Q4 2014

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