

Network Evolution Studies

Background

Input from project participants and partner NRENs is essential in planning the future of the GÉANT network. Several regional studies were carried out in the GN4-2 project. These regional studies helped in understanding the regional traffic demands and the planned physical changes in the national networks. This led to identify the areas where GÉANT connectivity could be redesigned and new routes could be procured using GN4-3N funds.

The outcomes of regional studies were used to draw up the options for GÉANT fibre network. These options were discussed in the CTO workshops and finalised. At the start of the GN4-3N project, a Network Infrastructure Advisory Committee (NIAC) was installed to manage interactions with the project participants and member NRENs to maintain consensus during the project and advise the implementation team.

The GÉANT fibre procurement is underway, and the optical line system procurement is complete. During the remaining 2 years of the GN4-3 and GN4-3N project the fibre and optical line system roll out will be completed. Due to COVID-19 there may be some delays.

Introduction

The Network Core Infrastructure and Core Services Evolution work package (WP7) would like to initiate similar group studies to gather input from project participants and partner NRENs.

The purpose of these network evolution studies is to gather information about NREN network plans and to understand the future requirements and needs of the NRENs. The NRENs should provide insight into their plan and future network infrastructure and services requirements and expectations of their users.

Based on the output from these studies GÉANT will identify the common challenges faced by the NRENs and the unmet needs of the NRENs that GÉANT can address now and in future via GN5 project. A set of CTO workshops will be organised to go over the output of these studies and to get input from CTOs of the NRENs.

The outcome of the studies and CTO workshops will help shape up the next 18 months of the WP6 and 7 in GN4-3 project and may also be used as an input to GN5 planning.

The purpose of organising these network evolution studies instead of a single CTO workshop is to have a discussion in smaller groups. This will give an opportunity to all the participants to contribute and provide their input. The output of these studies will be collated by WP7 and shared with all the NRENs.

Scope and Purpose

The scope of these studies is to understand NRENs plans and future requirements for network infrastructure and services and their operational challenges. This will help in developing a coherent network evolution plan and in identifying the common challenges and areas of interest amongst different NRENs.

The following topic areas give an overview of the type of information NRENs should provide:

- How do you see the environment, that the NRENs operate in, changing and what impact will it have on the NREN networks?
- Network Infrastructure and Technologies
 - What are the key network infrastructure and technologies in use?
 - What are your infrastructure and technology challenges that you will need to solve in next 3-5 years?
 - What are you doing to address those challenges?

- Network Services
 - What are the key network services?
 - What network services will your NREN need to support future requirements of the users?
- Network Operations, Management and Monitoring
 - What are the key network management and monitoring tools and technologies currently in use?
 - What are the network operations, management, and monitoring challenges? What are you doing to address those challenges?
 - Will you be interested in jointly developing a common solution to those challenges?

These three broad topic areas provide an opportunity for NRENs to give information based on their priorities and their user’s needs. GÉANT will then review the information and identify areas of common interest and unmet needs that GÉANT can fulfil in this and future GN projects. The output from these studies will be collated and presented at the CTO workshop. The CTO workshop will be an opportunity for all the NRENs to see the input from different group and give their feedback.

The individual(s) appointed by the NRENs to take part in these studies will have the responsibility to represent the NRENs and should be a technical lead/expert and familiar with the network and network services requirements of the NREN and their future network plans.

The individual(s) appointed by the NRENs to take part in the CTO workshops should be senior technical person.

Process and Timeline

The objectives of starting these studies is to gather input from the NRENs and use that to identify the common challenges and unmet needs and use that information to plan the network evolution and next phase of the project. The process will start with information gathering via the network evolution studies. The CTO workshops will be used to review the information gathered and build consensus on the final draft. The information will be used in the final deliverable of WP7 and as an input in to GN5 network roadmap.

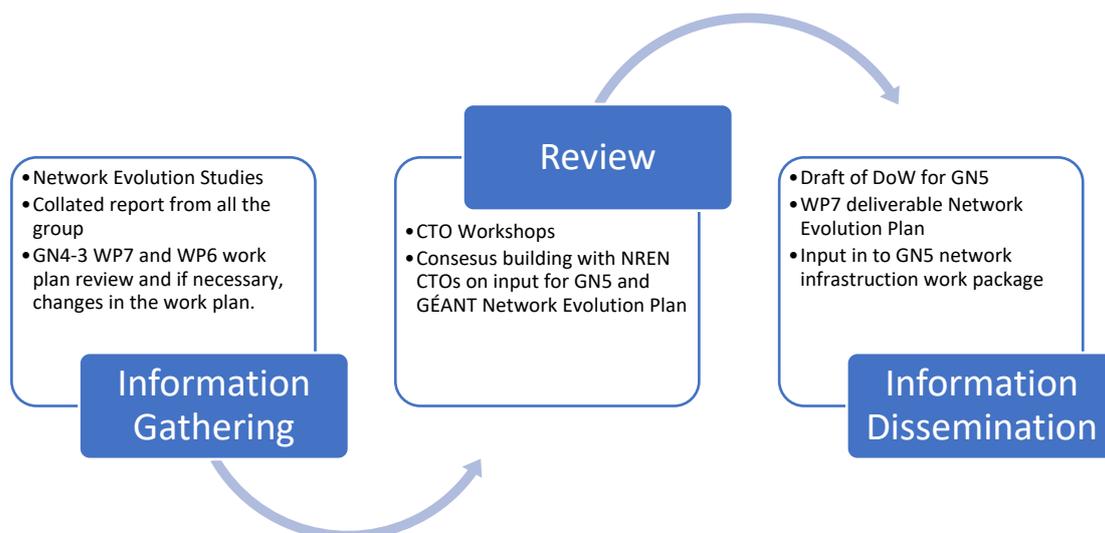


Figure 1: Network Evolution Studies Process

Figure 1 above shows the high-level process for these network evolution studies. The information gathering process will also be iterative to ensure the input received from the NREN is collated and interpreted correctly.

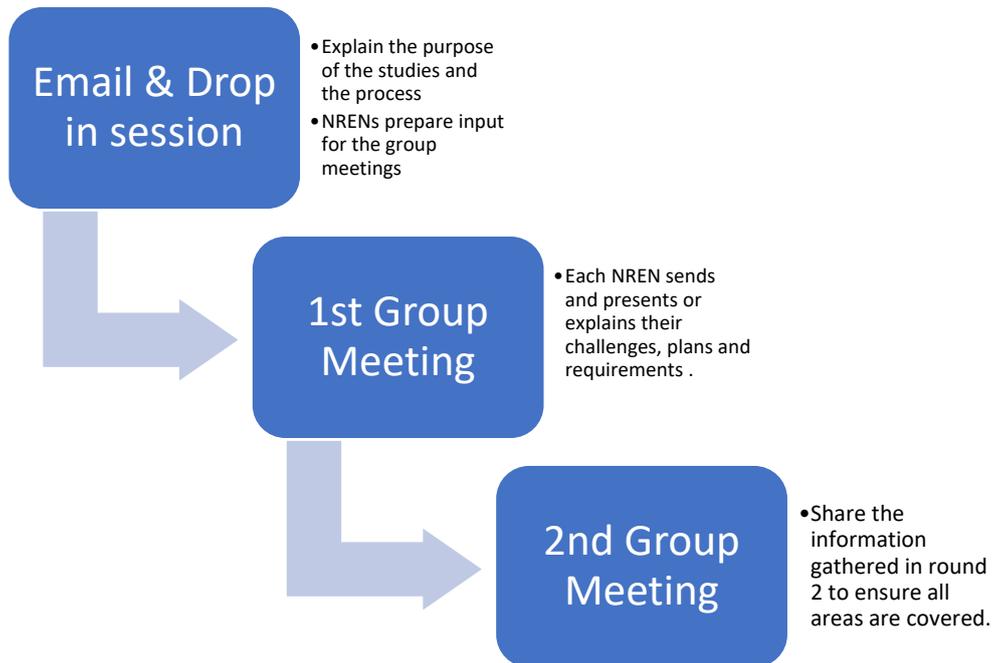


Figure 2: Information gathering phase

Timeline

The first draft for GN5 description of work will be completed by early November. The figure 2 above shows the initial stage of information gathering. We aim to conclude the information gathering stage by end of July. The information will be collated and planning for CTO workshop will be carried out during the summer period of June – Sep. The CTO workshop(s) will then be organised between September and October.