

Simplified NIF for GN4 Input

Purpose: This NIF form is to be used for the submission of New Ideas suggested for inclusion in the GN4 Phase1 and beyond proposals. Budget estimates, information about objectives, impact, benefits, etc. as well as scope must all be supplied.

Submit to: pmo@GÉANT.net by January 31st, 2014 with the subject label starting: GN4Input

Overview

Project Name:	GEANT intercontinental evolution study	Project Proposer:	Lars Fischer & Erik-Jan Bos (NORDUnet)
Project Type: GN4 Phase1 or longer term	GN4 Phase1	Estimated Project Costs (best effort!)	
Duration proposed	1 year (Year 1)	Manpower in person-months also identifying specific expertise required	12 Person-months (6 for the chair and 6x 1 month for collaborators)
Deliverables proposed (If any can be defined at this stage)	Report: How to evolve GEANT's intercontinental connectivity	Hardware and equipment:	None
Milestones proposed (If any can be defined at this stage)	Publication of the report.	Other costs	Travel: 40 kEuro (6 meetings for 7 persons).

1 Background and Reasoning

Provide background information and the context of the project. Explain the reason for the project. What do you want to be different? What do you hope to improve? Why is the project needed? This should be the reason for the project, not the solution.

GÉANT has had connectivity to North America and other regions of the world since many years. This has grown organically, and more often than not is the result of successful projects with funding from the European Commission and other governmental sources, e.g., the ACE project funded by the US National Science Foundation. A substantial number of these links are there for a limited number of years, as the project that funds them is limited in time.

The proposed Global Network Architecture (GNA) looks at rationalizing and harmonizing intercontinental connectivity on a global scale. The GNA work has a horizon of 5 to 10 years, and aims at interconnecting the world's leading regional and national networks using an architecture consisting of large transmission pipes and Global Open Exchange Points (GXPs)

that have been jointly procured and more often than not are longer term leases or IRUs. This proposal for an activity aims to investigate the consequences of the GNA work for GÉANT and identify how GÉANT can prepare itself and make most of the GNA work for the benefit of the European NRENs and their constituencies.

2 Objectives, Impact and Benefits

Provide one or more bullet points to briefly describe the primary objective(s) of the project in terms of the desired outcomes. This should be expressed in the form: 'To ensure...', 'To implement...', 'To service...', 'To improve...', 'To innovate...', 'To optimize...', 'To save...', etc. For each objective mention the benefits to identified stakeholders (e.g. end-users, NRENs, large international research projects, industrial research partners, high level education, etc.) should be mentioned. A description of the expected overall impact must also be provided.

- To investigate the direction of the Global Network Architecture and how this would best interface with the (future) GÉANT Network.
- To give advice on the direction of development of the GÉANT Network.
- To give input from the GÉANT perspective towards the Global Network Architecture work.

The overall impact is that to align evolution of GÉANT developments and the development of the GNA, to the advantage of both, yielding an optimal interconnect between GÉANT and the GNA, enhancing the world-wide connectivity of GÉANT. From this work, we might be able to bring advice to the European R&E Networks on service developments.

3 Scope

Describe the areas expected to be covered or impacted by the proposed activity, such as organisational areas, systems, processes, resources.. i.e. what is 'in scope'. This is not a list of what will be done but identifying the services, areas or what, will be affected.

Also please enumerate specific items which although they could perhaps be related are intentionally not addressed by your proposal ("Out of Scope").

1. In Scope

Two areas are explicitly in scope for this work, as these will be closely watched in the light of

- The architecture of the GÉANT Network, especially the way intercontinental connectivity is attached.
- The services portfolio of the GÉANT Network, available to the participating R&E Networks in Europe, in the light of what the GNA enables.

It is explicitly deemed in scope as well that architecture elements of the GÉANT networks that are not envisioned on the GNA yet, are brought forward to the GNA work. Having this adopted in the GNA is a measure of the success of the GÉANT network.

2. Out of Scope

- The actual services delivered on individual European R&E Networks, as that is the sole domain of each R&E Network. Eventually, an NREN might want to adopt a (new or existing) service present on the GNA and on GEANT, but this is outside the scope of this work.

4 General Information

Outline any potential issues, risks, dependencies, assumptions, constraints and limitations or any other points that may be useful to help assess the proposal.

We envision this work to be done as part of SA1, in close collaboration with NRENs participating in the GNA, and under supervision of the Advisory Board for Network Services, as this does not impact “today's” GÉANT network but has an impact on the GN4 Phase2 and Phase3 periods when the GEANT Network will be further developed, possibly adopting new architectures and new technologies. Ideally, at the end of the GN4 period, the GEANT network and the GNA interconnect seamlessly. Many global R&E destinations are reachable through the GNA, using a broad portfolio of relevant and high-performance network services.

A potential risk from not performing this work is that there is a divergence between the work of the GNA and the future evolution of the GÉANT architecture, in which Europe might be missing out on important elements of global connectivity. Looking at it from the other angle, performing this work as proposed in this NIF, means that a deeper insight and understanding of the GÉANT architecture, its global connectivity and the work of the GNA emerges. This can only help the GÉANT network in its future development.