# TNC18 session: GÉANT Network Evolution

Session chair: Bram Peeters, CNO GÉANT

keywords: GÉANT Network Evolution, Software Defined Networking, Disaggregation, Open Line System, Data Centre Interconnects.

## Presenters:

**Guy Roberts**: Guy joined GÉANT in 2006 and is Senior Network Architect. He is responsible for the introduction of new transmission technology into the GÉANT network. As co-chair of the NSI working group in the Open Grid Forum he is joint author of several GFDs. He is also an active participant in the Telecom Infra Project. Guy received his PhD in photonics from the University of Cambridge in 2006 in the area of DWDM subsystem design based on integrated photonic components.

**Sebastiano Buscaglione**: Sebastiano is a professional in the field of networking with several years of experience working in large-scale service provider networks. Before joining DANTE, now GÉANT, in 2012 where he is currently employed as a senior network engineer, he worked as part of the AT&T global operations department supporting global enterprise VPN services. His main interests revolve around extraction and analysis of network data and its use in driving optimization in network architectures. His study includes networking at the Cisco Networking Academy at Metropolitan University, London, United Kingdom, and industry certifications such as CCNP and MEF-CECP.

**Mian Usman**: Mian is the Network Architect at GÉANT, Mian received his BSc in Network Management and Design from University of Portsmouth in 2007 and MBA from Manchester Business School in 2017. Mian's work is focused on GÉANT network evolution, network architecture and design he led the technical IP team responsible for designing and deploying GÉANT's IP/MPLS platform and the migration of EoSDH services to EoMPLS. He is also the lead author of the GÉANT Network Evolution plan.

## Session overview

The three 25 minute presentations will provide an update on the architecture and new technologies planned to be deployed in the GÉANT network over the next 3-5 years

The first presentation by Guy Roberts will explain the regional studies and what they have found. The second presentation by Sebastiano Buscaglione will describe how GÉANT has used the input to develop a network architecture and strategy for GN4-3. The third presentation by Mian Usman will explain the network technology strategy.

## Presentation 1: GÉANT Network Regional Studies

Guy Roberts

The regional studies have been a community intelligence gathering exercise. The studies are run by the NRENs in each region to discover the connectivity requirements and the NREN and commercial infrastructure available in their region.

GÉANT SA1 Task 1 and JRA1 Task 2 are running four regional connectivity studies. The regional studies will complete their work in by May 2018 and JRA1 also plans to update the infrastructure sharing study by June 2018. Based on the outcomes of these studies GÉANT fibre procurement strategy will be written and a GÉANT fibre request for procurement will be issued in 2018/19.

This presentation will share the process and outcome of the regional connectivity studies.

## Presentation 2: GÉANT Network Topology

Sebastiano Buscaglione

In the past few years the traffic shifted by the GÉANT network has increased greatly, challenging the possibility of maintaining an affordable, high-performance, lossless network. R&E-based traffic growth in particular has outpaced Internet growth by a large margin, making it harder for GÉANT to rely on classic solutions tailored for internet service providers and making it necessary to look elsewhere for innovative solutions to address demand. At the same time the historical short to medium term infrastructure funding cycles have become ineffective in addressing cost challenges. A new, longer term infrastructure strategy is needed if GÉANT is to keep providing its value to the European research community.

This session will provide an overview of the plans for the future of the GÉANT Network with emphasis on the network topology design process.

## Presentation 3: GÉANT Network Infrastructure

Mian Usman

The SDN and Open Line Systems are proving to be major disrupters in the networking industry. These initiatives are being driven by the big content providers and their need for low cost and high flexibility solutions. Most of these technologies have been proven in the data centre environment and now being adopted for the service provider environment.

The presentation will discuss how GÉANT plans to leverage these technologies in the next generation of our network to improve flexibility, support enhance services and reduce costs.