

## Service Case Study GÉANT Plus and SMARTFire

The SMARTFire project [[SMARTFire](#)] is one of the Future Internet (FI) projects. It is an EU-South Korea collaboration aimed at building a shared large-scale infrastructure federating and expanding existing FI testbeds in Europe and South Korea. The platform enables research on advanced wireless technologies, exploring SDN, innovative network protocols, OpenFlow, etc. The project was funded under the Seventh Framework Programme for a duration of 26 months, from November 2013 to December 2015.

### Challenge

The requirement for the project was to have Layer 2 connections between the sites, as the need was to explore the use of network and transport protocols other than TCP/IP. The bandwidth was not a critical factor, since the traffic between the sites was mainly control-plane data, so the estimated volume was below 1 Gbits/s. The sites participating in the testbed were:

- University of Murcia, Spain.
- Korean Advanced Institute of Science and Technology (KISTI), South Korea.
- Seoul National University (SNU), South Korea.
- iMinds, Belgium.
- University of Thessaly, Greece.

The connection of sites in South Korea was complicated by the fact that they were connected to different NRENs (KISTI is connected to KREONET; SNU is connected to KOREN), and the NRENs do not peer between themselves, so there was the need to establish two different multi-domain network paths.

### Solution

After a requirements analysis performed with the project coordinators, the proposed solution was to establish two separate intercontinental L2 end-to-end circuits, using the GÉANT Plus service on the segment of the path covered by the GÉANT network, i.e.:

- University of Murcia, Spain to the KISTI, South Korea.
- University of Thessaly, Greece to SNU, South Korea.

The first circuit was established from RedIRIS through GÉANT, then to Internet2 through the StarLight Internet Exchange, then to KREONET. The second circuit was established from GRnet to KOREN, via the Madrid-Mumbai link from GÉANT to TEIN. The role of GÉANT was not only to gather the requirements and deploy the solution on the GÉANT network, but also to coordinate the activity among all the partners (i.e. the end sites, NRENs and project coordinators).

### Benefits

GÉANT has provided a complete end-to-end solution for the SmartFIRE project, allowing them to make full use of the service for the life of the project. This solution was deployed over the existing network infrastructure, with no additional costs for the users or the NRENs, since there was no requirement for reserved capacity. Using the GÉANT Plus service allowed the use of existing ports on the routers, avoiding any port fees