



# **GÉANT Plus Service Description**

**High Performance Cost-effective Connectivity**

# GÉANT Plus

## Overview

The GÉANT Plus service is offered on the GÉANT network to all GÉANT National Research and Education Networks (NRENs). The service allows NRENs to request point-to-point Ethernet circuits between end points at GÉANT European points-of-presence (PoPs), and to North America and other destinations, on request. The NRENs then provide onward connectivity within their regional network to the required destinations.

GÉANT Plus is built on common infrastructure, but appears to its private users to be dedicated to that user's needs. This combines the privacy and availability advantages of a private circuit with the cost efficiency of a shared network. This service is very useful for projects with participants in multiple locations who wish to cooperate as if they were operating over the same local network.

Multi-national circuits are typically expensive, have long lead times for delivery and tie the user into lengthy service contracts. The GÉANT Plus service enables user access to point-to-point circuits of between 100Mbps and 10Gbps across an existing, pre-provisioned network that is quick to configure.

Although built on common infrastructure, GÉANT Plus looks like a dedicated service to users. This combines the privacy and availability advantages of a private circuit with the efficiency gains of a shared network.

**Flexible:** Point-to-Point (PoP-to-PoP) capacity delivered from 100Mbps to 10Gbps included in the GÉANT IP subscription.

**Fast delivery:** Only five days to deliver, no additional hardware requirements.

**Extended footprint:** Available to all GÉANT NRENs, allowing for connectivity to North America, China and more.

**Robust:** Service supported by the GÉANT IP service.

**Cost effective:** No additional cost to setup a point-to-point circuit with the standard GÉANT Plus service subscription.

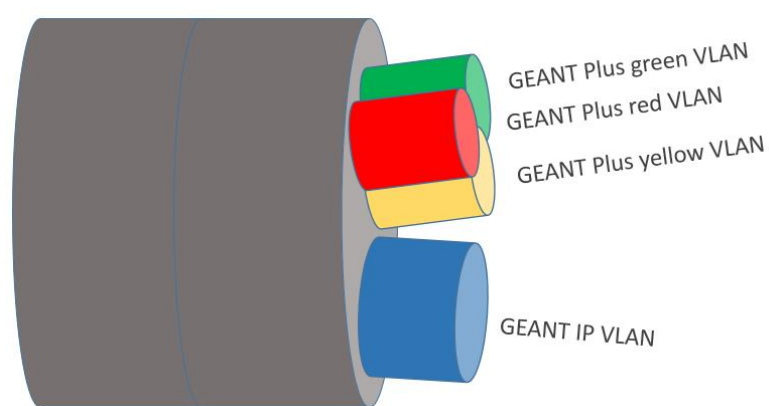
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## Technical Description of the Service

### Infrastructure

GÉANT Plus offers point-to-point Layer 2 connectivity across GÉANT IP interfaces. It is delivered over dedicated VLANs on the NREN interface.

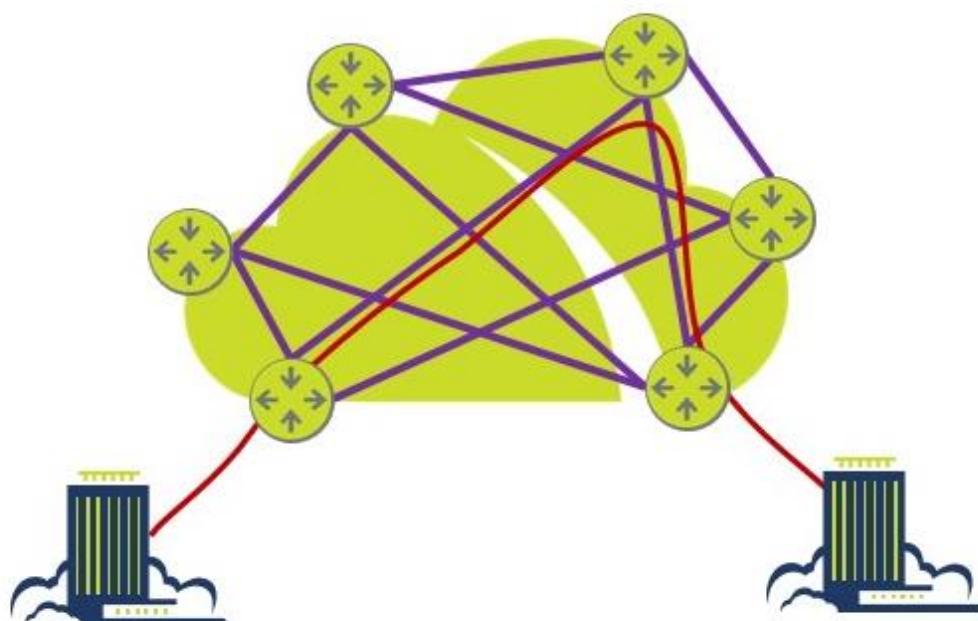
The standard physical interface to access the GÉANT network can be either 10GE or 100GE. Currently, 100Gbps interfaces are only available for NRENs on GÉANT dark fibre.



**Figure 1: Representation of the VLANs within the physical access**

### Implementation

The GÉANT Plus service appears as a point-to-point connection which NRENs can extend deliver all the way to their users at the local campuses.



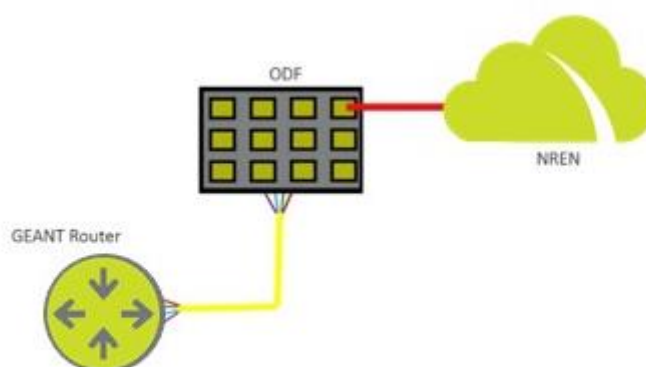
**Figure 2: Full mesh of Labelled-Switched Paths supporting the GÉANT Plus service**

In the GÉANT backbone, the service is supported by a full mesh of Labelled-Switched Paths (LSPs), ensuring resilience across the entire GÉANT footprint. This dynamic infrastructure allows for a self-healing service, where faults in the backbone are automatically handled by the underlying Interior Gateway Protocol (IGP).

### **Demarcation Points**

The management demarcation point between GÉANT and the NREN is a port on the Optical Distribution Frame (ODF) rack, as shown in Figure 3, below.

The exact port will be specified at the time of the connection. The responsibility of the GÉANT Operations Centre (OC) ends at the declared demarcation point, patching beyond that point is the responsibility of the ordering NREN.



**Figure 3: Illustration of the management demarcation point**

### Circuits to Destinations Outside of Europe

The primary focus of the GÉANT Plus service is to offer European NRENs the ability to quickly and flexibly provision point-to-point connections. It is also possible to extend the network reach by connecting to non-European links. As GÉANT Plus leverages the IP infrastructure, an NREN connected to the GÉANT network can reach Internet2 and ESnet in the US, Canarie in Canada and China via the OrientPlus link

Requests concerning other destinations can be discussed on a case-by-case basis, as the remote end of the connection needs to be able to accept circuits. For further information please contact the GÉANT Partner Relations Team ([partner-relations@geant.org](mailto:partner-relations@geant.org)).

### Access to Bespoke Solutions

If the requirement for a point-to-point connection does not fit in the current description of the service, the GÉANT Partner Relations Team can be contacted to evaluate the feasibility of a bespoke implementation. Such implementation may incur extra cost.

Please liaise with the GÉANT Partner Relations Team as listed above to discuss possible solutions.

## Service-Level Target

### Availability Target

GÉANT Plus is delivered over the highly resilient IP network, and as such, offers extremely high availability:

The GÉANT Plus is considered unavailable when the point-to-point virtual connection is not able to transit traffic because of an outage on the GÉANT backbone.

### Time to Fix a Fault and Time to Respond Target

The Time to Fix a Fault applies only to hardware issues in the GÉANT backbone.

The GÉANT Operations Centre (OC) provides 24×7 support throughout the year. Notifications are issued to the partner experiencing the incident within 15 minutes of incident detection by the central monitoring system.

Please refer the GÉANT Service Level Target documentation on the GÉANT Partner Portal for more information.

# Request procedure, service implementation and delivery time

## Requesting additional GÉANT Access Capacity

In order for an NREN to increase its GÉANT Plus capacity, the NREN only needs to increase its subscription level for the GÉANT IP service.

Additional IP capacity can be requested via the GÉANT Partner Portal (<https://partner.geant.net/sites/Partner/SitePages/Service%20Request.aspx>).

## Service Implementation and Delivery Time

Please refer the GÉANT Service Level Target documentation on the GÉANT Partner Portal for more information.

## Pricing

The GÉANT Plus Service is available for all GÉANT NRENs wishing to use it, at no extra cost, within their GÉANT IP subscription. This service is included in the IP subscription, and the configuration of the VLANs supporting the different circuits is completed, upon request.

Charges will apply for any bespoke solution, including dedicated interfaces. For more information, contact the GÉANT Partner Relations Team at: [partner.relations@geant.org](mailto:partner.relations@geant.org).

Service	Price
GÉANT Plus delivered on an existing interface	No additional cost (included as part of standard service subscription).
GÉANT Plus delivered on a new interface	Interface prices are available on the GÉANT Partner Portal at <a href="https://partner.geant.net/sites/Partner/SitePages/Service%20Catalogue.aspx">https://partner.geant.net/sites/Partner/SitePages/Service%20Catalogue.aspx</a>

## GÉANT Plus Summary Table

<b>Supported Nominal Data Rates</b>	<ul style="list-style-type: none"><li>• From 100Mbps to multiple 10Gbps (100Mbps increment) for all NRENs</li><li>• Up to 100Gbps, where available</li></ul>
<b>Protocols Supported</b>	<ul style="list-style-type: none"><li>• Ethernet IEEE 802.3-2005</li></ul>
<b>Supported Client Interfaces</b>	<ul style="list-style-type: none"><li>• 10GE</li><li>• 100GE</li><li>• (1GE for dedicated interfaces)</li></ul>
<b>Optical Connectors</b>	<ul style="list-style-type: none"><li>• 1000BASE-LX</li><li>• 10GBASE-LR</li><li>• 100GBASE-LR4</li></ul>
<b>Protection Options</b>	<ul style="list-style-type: none"><li>• No client-side protection</li><li>• Fully protected in the core (IP-based service)</li></ul>
<b>Operations Centre Coverage</b>	<ul style="list-style-type: none"><li>• 24/7/365</li></ul>

## Service Level Targets

Please refer the GÉANT Service Level Target documentation on the GÉANT Partner Portal for more information.