



# **GÉANT 10Gbit/s Guaranteed Bandwidth Service Description**

**High Performance Cost-effective Connectivity**

# GÉANT Guaranteed Bandwidth Service

## Overview

GÉANT Guaranteed Bandwidth 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 IP MPLS services between end points at GÉANT European points-of-presence (PoPs). The NRENs then provide onward connectivity within their regional network to the required destinations.

GÉANT Guaranteed Bandwidth Service 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 Guaranteed Bandwidth Service enables user access to point-to-point IP/MPLS services at 10Gbps across an existing, pre-provisioned network that is quick to configure.

Although built on common infrastructure, GÉANT Guaranteed Bandwidth Service 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) IP/MPLS capacity delivered at 10Gbps included in the GÉANT IP subscription.

**Extended footprint:** Available to all GÉANT NRENs

**Dependable:** Service supported by the GÉANT Backbone service.

**Reliable:** Resilience options offering up to 99.999% availability.

**Cost effective:** No additional ongoing cost to setup a point-to-point circuit with the standard GÉANT Guaranteed Bandwidth Service subscription. (Interface charges will apply)

# GÉANT Guaranteed Bandwidth Service - Service Description

## Technical Description of the Service

### Infrastructure

GÉANT Guaranteed Bandwidth Service offers point-to-point Layer 3 connectivity across the GÉANT IP/MPLS interfaces. It is delivered over dedicated IP interfaces. The GÉANT 10G Guaranteed Bandwidth Service (10G GBS) is delivered on our Juniper MX IP/MPLS backbone platform, provisioned as RSVP-TE label-switched paths (LSPs).

Use of RSVP-TE allows for explicit routing of the circuit's path.

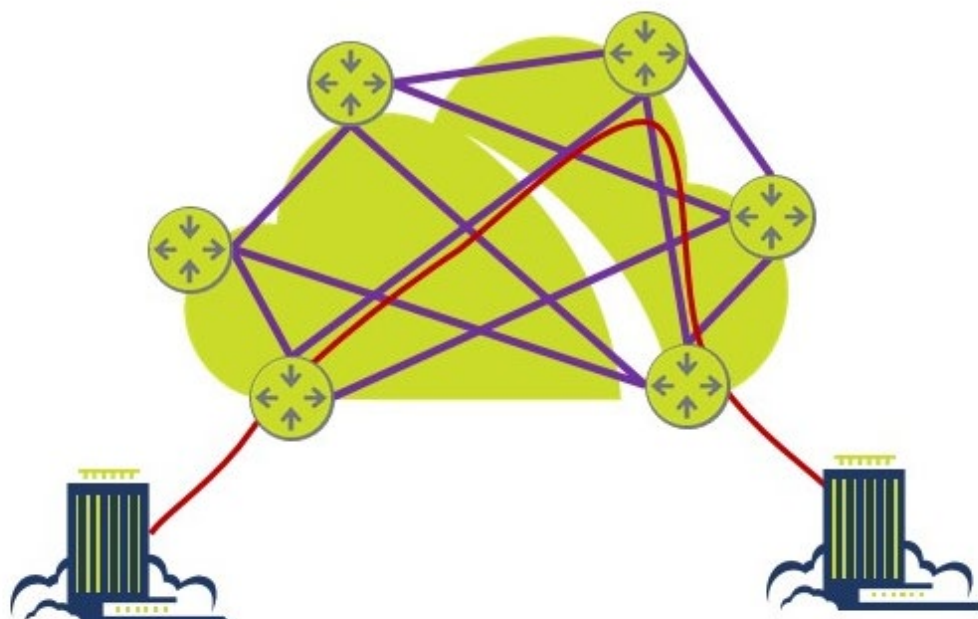
### Bandwidth Guarantee:

LSPs are assigned to a 'strict-high' priority CoS queue. This queue is for exclusive use of this service type, and ensure minimal latency and jitter (~3.5uS) as 'strict-high' traffic is always served first.

No more than 40% of any link's capacity will carry 'strict-high' traffic; this capacity planning policy ensures a reliably performant service with no possibility of contention in 'strict-high' queue, and no adverse impact to other traffic classes.

### Implementation

The GÉANT Guaranteed Bandwidth Service appears as a layer 2 point-to-point connection which NRENs have the option to further extend all the way to their users at the local campuses using their own equipment and services.



**Figure 1: Labelled-Switched Paths supporting the GÉANT Guaranteed Bandwidth Service**

In the GÉANT backbone, the service is supported by Labelled-Switched Paths (LSPs), ensuring resilience across the entire GÉANT footprint.

### **Demarcation Points**

The management demarcation point between GÉANT and the NREN is a port on the Optical Distribution Frame (ODF) rack.

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.

### **Protection:**

10G GBS services all have a STRICT primary path. If any link on the primary path fails, then There are two pre-defined service options:

(1) Protected circuit - A strict primary path is defined, and a failure anywhere along the path will cause the circuit to go down. The path can be determined and agreed with GEANT Operations during the ordering process. Bandwidth is guaranteed, latency and jitter are deterministic. A loose secondary path is defined, and the circuit will re-route to this path if the primary fails. The secondary path is pre-signalled for fast failover. The secondary path follows IGP and will itself re-route upon further failures. The secondary path is only used during failure of the primary path – be it due to maintenance or incident – and the circuit will always revert to the primary path when it is restored; the secondary path is a 'best effort' feature of the service.

(2) Unprotected circuit – This option is available if it is more desirable for the service to fail than follow a secondary path.

1+1 – not offered; however users may order two services and use them to effect 1+1 redundancy – separate network paths, and redundant client interfaces.

#### **Service options:**

10 GE LAN-PHY Ethernet presentation is offered, on dedicated interfaces only; not available on AP interfaces.

#### **SLA – Lead Time:**

All 10G GBS services will be on DEDICATED 10 GE interfaces only, therefore lead time is up to 10 weeks.

## **Service-Level Target**

### **Availability Target**

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

The GÉANT Guaranteed Bandwidth Service 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 subscribe to its GÉANT Guaranteed Bandwidth Service, the NREN should contact Partner Relations.

## Service Implementation and Delivery Time

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

## Pricing

GÉANT Guaranteed Bandwidth Service is available for all GÉANT NRENs wishing to use it

For more information, contact the GÉANT Partner Relations Team at:

[partner.relations@geant.org](mailto:partner.relations@geant.org).

Service	Price
GÉANT Guaranteed Bandwidth Service delivered on a new interface	Interface prices are available on the GÉANT Partner Portal

## GÉANT Guaranteed Bandwidth Service Summary Table

<b>Supported Nominal Data Rates</b>	<ul style="list-style-type: none"><li>• 10Gbps</li></ul>
<b>Protocols Supported</b>	<ul style="list-style-type: none"><li>• Ethernet</li></ul>
<b>Supported Client Interfaces</b>	<ul style="list-style-type: none"><li>• 10GE</li><li>• SR - 1310nm</li><li>• LR - 1310nm</li></ul>
<b>Optical Connectors</b>	<ul style="list-style-type: none"><li>• The host provider will determine the optical presentation at the MMR ODF, please contact your hosting provider.</li></ul>
<b>Protection Options</b>	<ul style="list-style-type: none"><li>• Unprotected</li><li>• Backup path</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.