



GÉANT Open Service Description

**High Performance Interconnectivity to Support
Advanced Research**

GÉANT Open Exchange

Overview

Facilitating collaboration has always been the cornerstone of GÉANT, GÉANT Open enables NRENs and researchers to interconnect with commercial teams and third party organisations.

GÉANT Open allows National Research and Education Networks (NRENs) and commercial connectors to establish efficient connections without requiring dedicated circuits. This capability enables seamless interconnection between cloud providers, research facilities and the Research and Education users. The service uses shared switches for connecting circuits and facilitating inter-organisational communication. Connections can be configured to support various configurations, such as full port capacity, one-to-many, or many-to-many connections, based on the specific needs of participants.

This provides significant benefits to international partners who need to manage multiple interconnections and streamline their global circuits, fostering mutual benefit for all parties involved. Additionally, approved commercial organisations can connect to GÉANT Open, with potential for enabling R&E users access to a range of commercial third-party services. This facilitates collaboration in private/public research projects and provides access to privately operated facilities and services, benefiting both research institutions and commercial entities alike.

Supports European and global connectivity

Protocol Neutral: Open, layer 2 interconnectivity allows maximum flexibility.

Supports Multiple Virtual Connections: One physical interface can be logically subdivided into separate VLANs allowing the participant to connect with many other members simultaneously.

Onward Connectivity: Participants can also make connections from GÉANT Open through the GÉANT network to support multiple uses such as commercial research facilities or cloud service providers.

Flexible: GÉANT Open allows interconnections to be made for short or medium terms – for example to support a major event or project - without the need to contract a long-term dedicated circuit.

GÉANT Service Description

Technical Description of the Service

Infrastructure

GÉANT Open offers a neutral interconnection facility between Research and Education (R&E) networks, users and commercial operators and connectivity to the GÉANT network.

The entities that can connect are:

- GÉANT and other international research and education network providers
- National and regional research and education networks
- Commercial entities that directly support or offer services to GÉANT's Members and their users
- International research organisations (where connection is supported by the NREN).

GÉANT will operate the GÉANT connection(s) to the Open Exchange. Other connectors are responsible for operating their own connections to the Open Exchange.

Service Options

The Open Exchange offers two core services:

1. Peer-to-peer policy-neutral interconnections between participating organisations connecting on GÉANT Open (with the exception of GÉANT).
2. Interconnectivity between GÉANT and other participating organisations.

These are described in more detail below.

The two services are not differentiated on a technical basis. At the technology level, the connectivity between the GÉANT network and the Open Exchange is similar to that of any other peering partner.

1. Peer-to-Peer Policy-Neutral Interconnections

This service provides connectivity between any two members. The service can be offered in two options: VLAN ID and Port to Port (or "transparent"). These are described in more detail below. The VLAN-ID and Port-to-Port-based modes are mutually exclusive. It is not possible to provision a Port-to-Port service together with a VLAN-ID service based on the same port.

The default service will be the VLAN-ID-based service.

VLAN-ID-Based Interconnection

The VLAN-ID-based mode interconnects two GÉANT Open Exchange members with a Layer 2 (L2) circuit ("pseudowire"). Multiple VLAN-ID-based circuits can be provisioned for a single connector on a single port. This is shown conceptually in Figure 1 below.

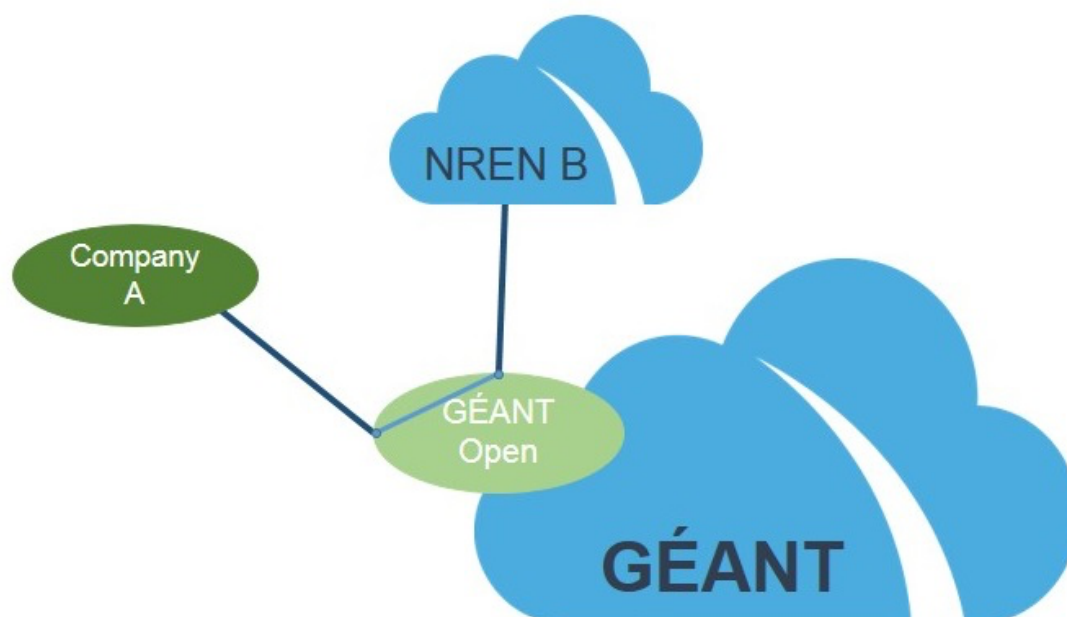


Figure 1: Peer-to-peer switching within the Open Exchange

Port-to-Port-Based Interconnection

The port-to-port-based or transparent mode interconnects two GÉANT Open Exchange members' ports together and in this mode, GÉANT Open Exchange is fully transparent and agnostic to any VLAN ID tags.

2. Partner Access to GÉANT Network

Access from GÉANT Open into the GÉANT network infrastructure is available to eligible connectors for access to the GÉANT network and for onward connectivity to services on the GÉANT network. This is shown conceptually in Figure 2 below. This connectivity will be via the VLAN-ID mode.

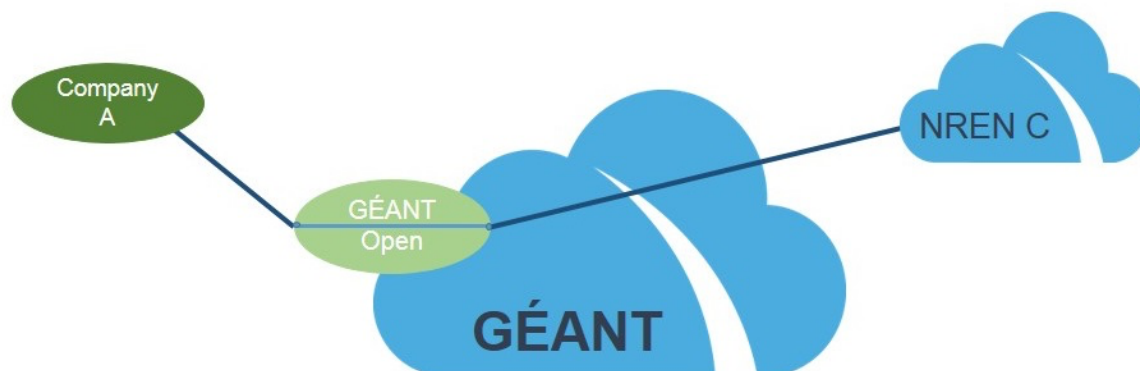


Figure 2: Access into the GÉANT infrastructure

Demarcation Points

GÉANT and The Connector will each connect to the Co-Location meet me room from their own co-location spaces. GÉANT will provide letters of authority for the connections and The Connector will arrange meet me Room cross connects to connect to GÉANT.

The Management demarcation between GÉANT and the Connector is the Co-Location/ Point of Presence (PoP) Meet Me Room. The responsibility of the GÉANT Operations Centre (OC) ends at the declared demarcation point.

Service-Level Target

Availability Target

Availability is defined as the total number of minutes in a calendar month during which the GÉANT Open service is available to exchange data between two connectors, divided by the total number of minutes in a calendar month and represented as a percentage.

The GÉANT Open Exchange service is considered unavailable when a connection is not able to transit traffic. The target availability for the service is greater than 99.9%.

Time to Fix a Fault and Time to Respond Target

The GÉANT Operations Centre (OC) is responsible for supporting the GÉANT Open service and provides the point of contact for all trouble ticket reports. The first-level support coverage is 24/7/365. Notifications are issued to the partner experiencing the incident within 15 minutes of incident detection by the central monitoring system.

Critical, service impacting incidents

Support availability	24 hours a day, 7 days per week
Interaction method	Email and telephone call

A critical incident service level applies only to incidents relating to a total loss of traffic for a service instance. Other service degradation levels will be investigated in-line with the non-critical incidents' response level.

Non-critical incidents

This service level will apply in the event of an incident which does not result in a total loss of traffic for the service instance.

Support availability	08.00-18.00 UK Local time
Interaction method	Email and telephone call

Request Procedure, Service Implementation and Delivery Time

Service Implementation and Delivery Time

Service	Delivery Target Time
GÉANT Open connection	5 working days from order acceptance (8 where new hardware is required)
Peering with GÉANT for eligible partners (via GEANT Open)	5 working days from order acceptance
Moves, adds and changes to existing service	5 working days
Approval Process for non-Member NREs	8 weeks

Requesting connection to the GÉANT Open service

Interested connectors should address their request to connect to the GÉANT Open service to their GÉANT representative. For European partners this will be through the GÉANT Partner Relations team: partner-relations@geant.org.

Eligibility and Connection Policies

Once an organisation is connected to a GÉANT Open Exchange Point (GXP) it is entitled to interconnect with any other connectors at that GXP where mutually agreed, for the purpose of exchanging R&E related traffic. Connection to a GÉANT Open GXP does not constitute any permission for transit over the GÉANT network.

Pricing

GÉANT Open is provided only on a contractual basis arrangement between GÉANT and the customer. To connect, the organisation must:

- Finance their own way to the Open Exchange point
- Pay an annual connection fee

Members of GÉANT can access pricing and ordering information via the Partner Portal, <https://partner.geant.org>, other connectors, please contact your GÉANT representative.

GÉANT Open Exchange Summary Table

Supported Client Interfaces	<ul style="list-style-type: none">• 10GE LR• 100GE LR4
Service Options	<ul style="list-style-type: none">• Connection to GÉANT Open• Connection to GEANT IP network (via GÉANT Open) where eligible
Connection Locations	<ul style="list-style-type: none">• GÉANT London and Paris PoPs
Operations Centre Coverage	<ul style="list-style-type: none">• 24/7/365