

3.5 Total External Links

NRENs have been asked to list all of their external connections in January 2003.

Several NRENs are connected to GÉANT or NORDUnet via two 2.5 Gb links. Because typically one of these two is used for backup purposes, these two links have only been counted as one.

Connections to CERN, Abilene and StarTAP have been grouped as 'Other research', because these connections are essentially for research traffic only.

The 'other' category is comprised of national peering arrangements and of connections to the commodity Internet.

The Nordic NRENs (FUNET of Finland, RHnet of Iceland, SUNET of Sweden, UNINETT of Norway and UNI•C [Forskningsnettet] of Denmark) share their external connections through NORDUnet. Therefore, the data for NORDUnet has been given in the graph below, instead of the data from the individual countries. In addition to the shared NORDUnet links, FUNET had a peering of 1622 Mb/s with the local Internet exchange; RHnet had a similar peering of 1000 Mb/s. SUNET had several national connections, with a total capacity of 6976 Mb/s. UNI•C and UNINETT did not provide information about any additional national arrangements. The NORDUnet networks are connected to one another with 2 x 2.5 Gb/s connections each, with the exception of RHnet, which has a connection of 155 Mb/s.

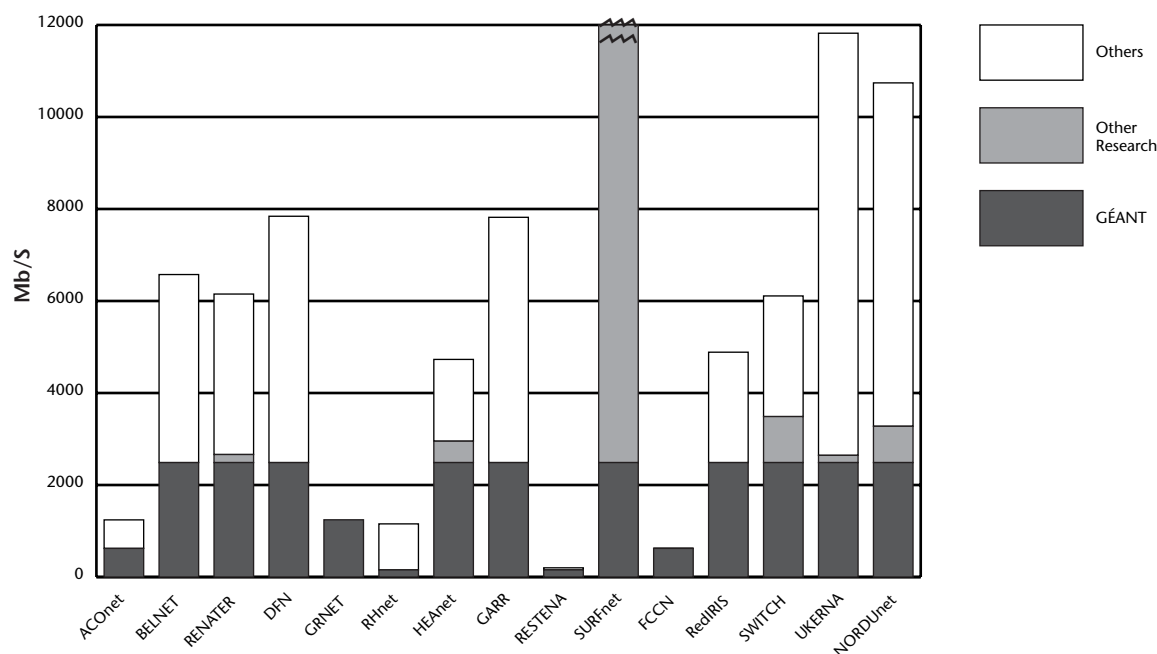
GÉANT users jointly make use of GÉANT's global connectivity to the US, Canada and Japan. NORDUnet users jointly use NORDUnet's connections to the US, Canada, Russia and the commodity Internet.

For presentational purposes, three graphs are presented.

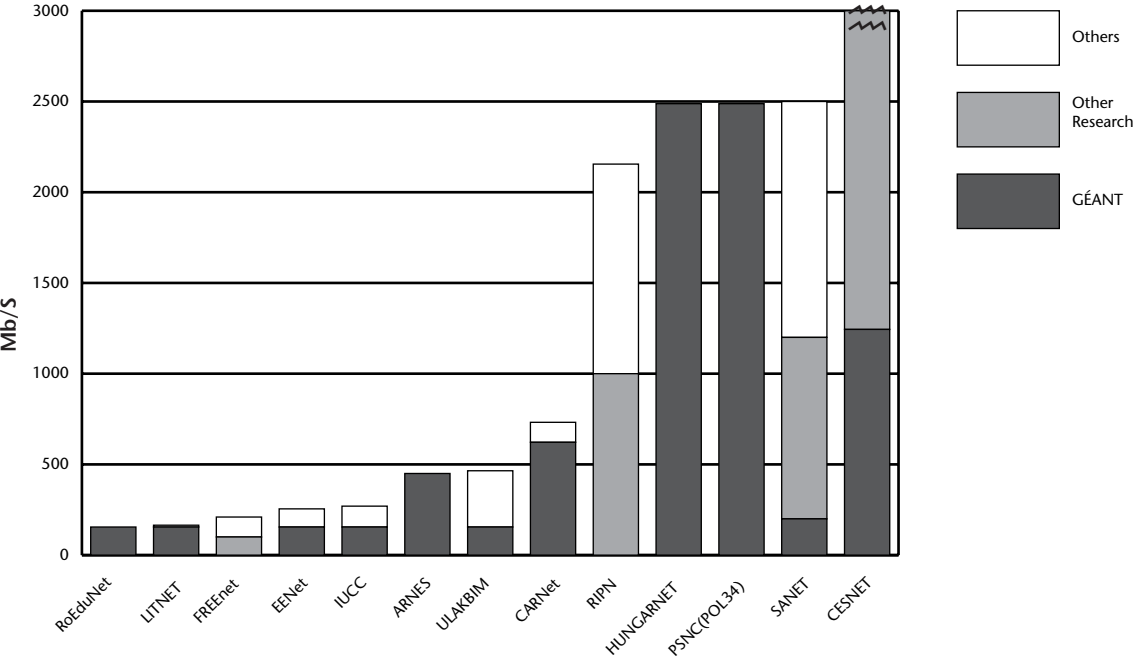
Graph 3.5.1 gives the information for the EU and EFTA countries. SURFnet (Netherlands) is outside of the range of the scale: it has a number of lambda connections to the US and to CESNET; the joint capacity of these is 32.5 Gb/s; in addition, SURFnet has peerings and connections to the commodity Internet with a total capacity of 8 Gb/s.

Graphs 3.5.2 and 3.5.3 give the information for the candidate and other countries. In graph 3.5.2, CESNET is outside of the scale because of its 2.5 Gb connection to SURFnet; in addition, it has peerings and connections to the commodity Internet with a total capacity of 1777 Mb/s.

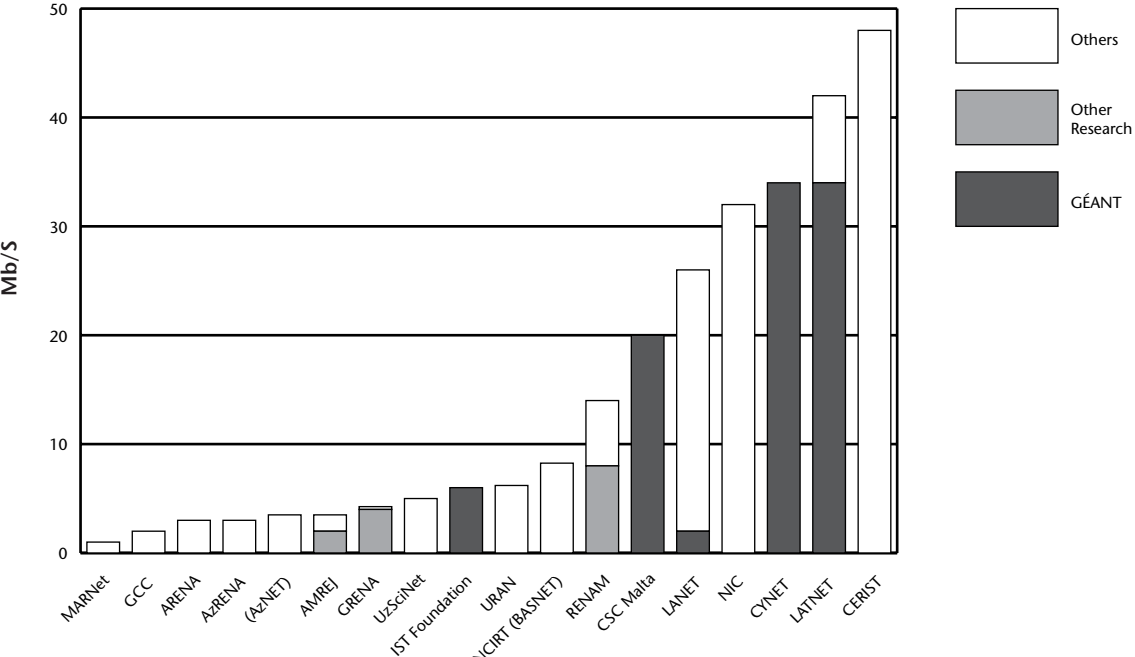
Graph 3.5.1 External Connectivity: EU and EFTA Countries



Graph 3.5.2 External Connectivity: Candidate and Other Countries, > 100Mb



Graph 3.5.3 External Connectivity: Candidate and Other Countries, < 100Mb



Graph 3.5.4 Total External Links: 2002 and 2003

Graph 3.5.4 gives the total external links for 2002 and 2003 for those countries that provided the information. Note that the scale is *logarithmic*. Many countries upgraded their links in 2001 and did not upgrade again in 2002 -- typically, the increases go in leaps and do not grow gradually.

