



**Recetga
Communications**

science and technology network of Galicia:

The Science and Technology Network of Galicia (RECETGA) is a high-capacity communications infrastructure that provides connectivity and Internet services of the highest quality standards to the research community in Galicia. It was established in 1993 and, after successive technological changes in accordance with the new technologies of transmission and transport, today it interconnects 43 technological centres, research units in hospitals, research institutes, and the totality of Galician university campuses. RECETGA's main mission is to provide advanced network services as well as a technological environment that makes possible research, development, and innovation in the field of communications and that favours the development of the Galician Information and Knowledge Society.

RECETGA is managed by CESGA who is licensed as a Class C

Internet Service Provider by the Spanish Telecommunications Authority (CMT).

The network is based on Gigabit Ethernet lines and ATM circuits. RECETGA permits access to services supplied by CESGA, interconnects research centres, allows access to other academic networks, and to the Internet.

RECETGA is connected with European scientific and academic networks by way of RedIRIS10. This Spanish academic network has one of its most important nodes located at CESGA. It is through RedIRIS10 that CESGA's users have access to the European Science and Technology Network, GEANT.

Network users include:

- Research Centres and Laboratories of the Regional

RECETGA TECHNICAL SPECIFICATIONS

BACKBONE NETWORK

- Based on Dark Fibre and SDH Radio Links
- Gigabit and ATM Links
- JUNIPER M20, M10 & M10i Gigarouters
- FORE ATM Switches

ACCESS NETWORK

- Based on Fibre Optics SDH Radio Links and other technologies such as WIFI, WIMAX, ISDN, etc...
- Up to multiple Gigabit Ethernet as needed
- JUNIPER Gigarouters, FORE, CISCO and ENTERASYS Switches

NETWORK MANAGEMENT

- Own developments based on open source software

CONNECTION TO RedIRIS

- Five links at 2.5 Gbps

CESGA INTERNAL NETWORK

- Gigabit Ethernet-Fast Ethernet
- 3COM, JUNIPER & ENTERASYS Switches
- DELL, HP & 3COM Switches
- JUNIPER & ENTERASYS Switchrouters

SERVICES AVAILABLE TO CONNECTED CENTRES

- DNS
- WEB HOSTING
- E-MAIL (with antivirus) AND ANTISPAM
- MAILING LISTS
- WEBMAIL
- USAGE STATISTICS
- FTP
- MIRRORS (contents of interest)
- MULTICAST
- VIDEOCONFERENCE/ ACCESSGRID/ STREAMING
- MCU/GATEWAY
- ILS
- EDUROAM
- NETWORK MANAGEMENT TOOLS
- SECURITY SERVICES (audits, incident management)
- HOUSING
- VIRTUAL HOUSING

Government, Xunta de Galicia.

- University System of Galicia.
- Spanish National Research Council (CSIC) Centres in Galicia.
- Other Public and Private R&D institutions.

The Communications department staff at CESGA provides support to RECETGA, RedIRIS, CESGA's internal communications, and other internal services. They also manage network security and technical coordination with connected centres.

RECETGA's most relevant activities during 2008 are summarised below.

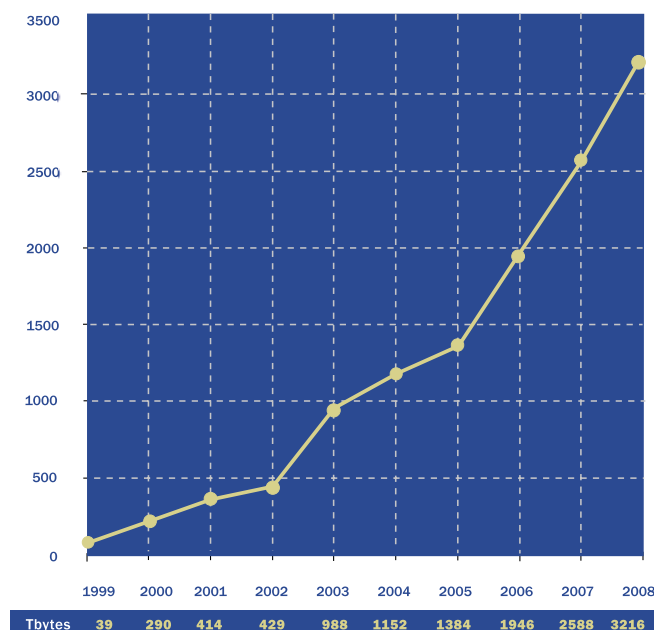
Network management and monitoring:

The Galician Science and Technology Network offered its services with 99.743 % availability. This percentage of availability was affected in some centres because they do not have personnel working on the weekends and, for that reason, such events such as cuts in electrical supply are not attended to until the next work day.

Activities were undertaken in 2008 to guarantee the evolution and improvement of the network. They are listed below.

- A comparative study of the costs of different network maintenance alternatives.
- The migration of FEUGA and DXIDI to gigabit technology.
- A study of the migration of SERGAS and the CHUS to gigabit technology.
- The set up of a backup link for the Institute of Marine Research in Vigo (CSIC).
- The migration of the CEIDA connection to Fast Ethernet.
- The signing of a Collaboration Agreement with the DGT (Spanish Motorway Traffic Authority) to share computing and telecommunications infrastructures of interest including highway service galleries.
- The signing of an Agreement of Collaboration with RED.es to connect the Portuguese Science & Technology Network with RECETGA and RedIRIS.

TRAFFIC EXCHANGED IN RECETGA



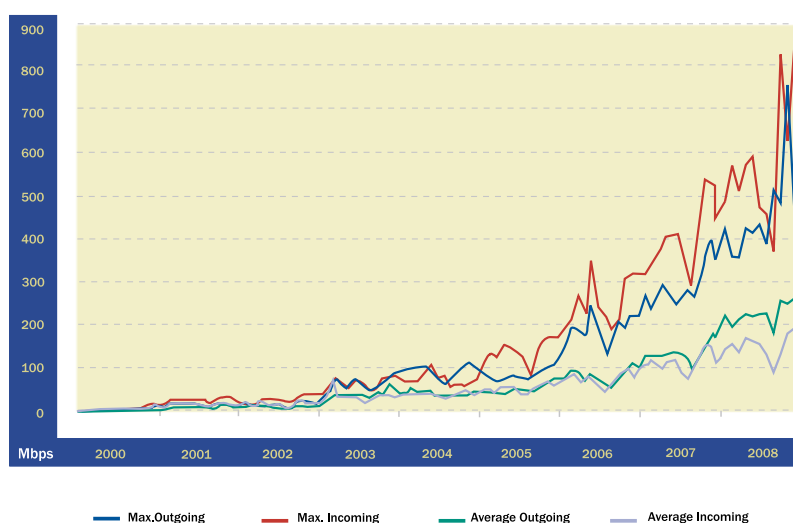
Diffusion and conference activity during 2008:

- Contribution to the diffusion of multimedia technologies via a presentation in the IIR Tele-Presence in Spain Conference.

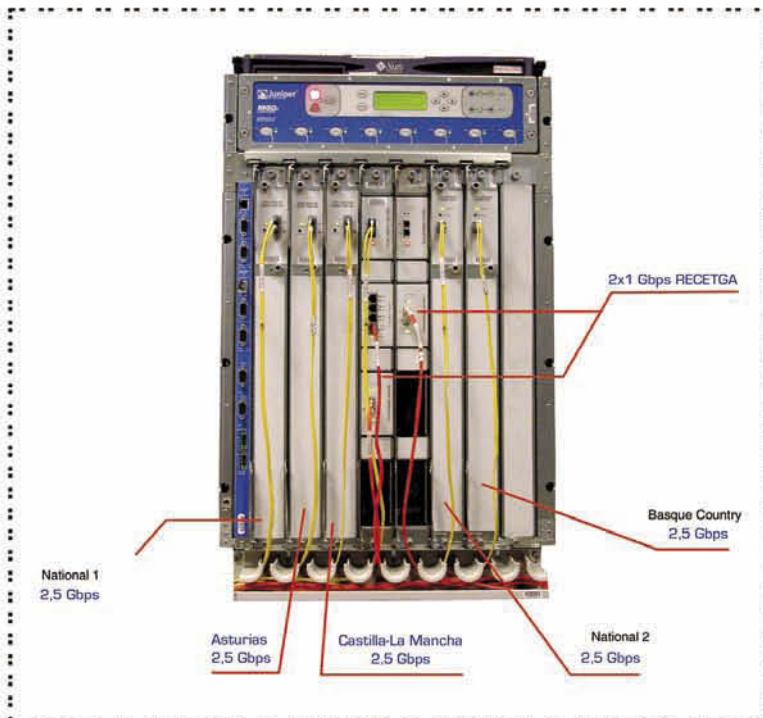
Adaptation of internal network infrastructures to accommodate the Finis Terrae Supercomputer:

Due to the arrival of Finis Terrae, CESGA had to adopt various measures in order to adequately adjust the infrastructure to the requirements of this new system. These operations affected the area of communications. The work initiated in 2007 continued during the first months of 2008.

RECETGA-RedIRIS EXCHANGED TRAFFIC 2000-2008



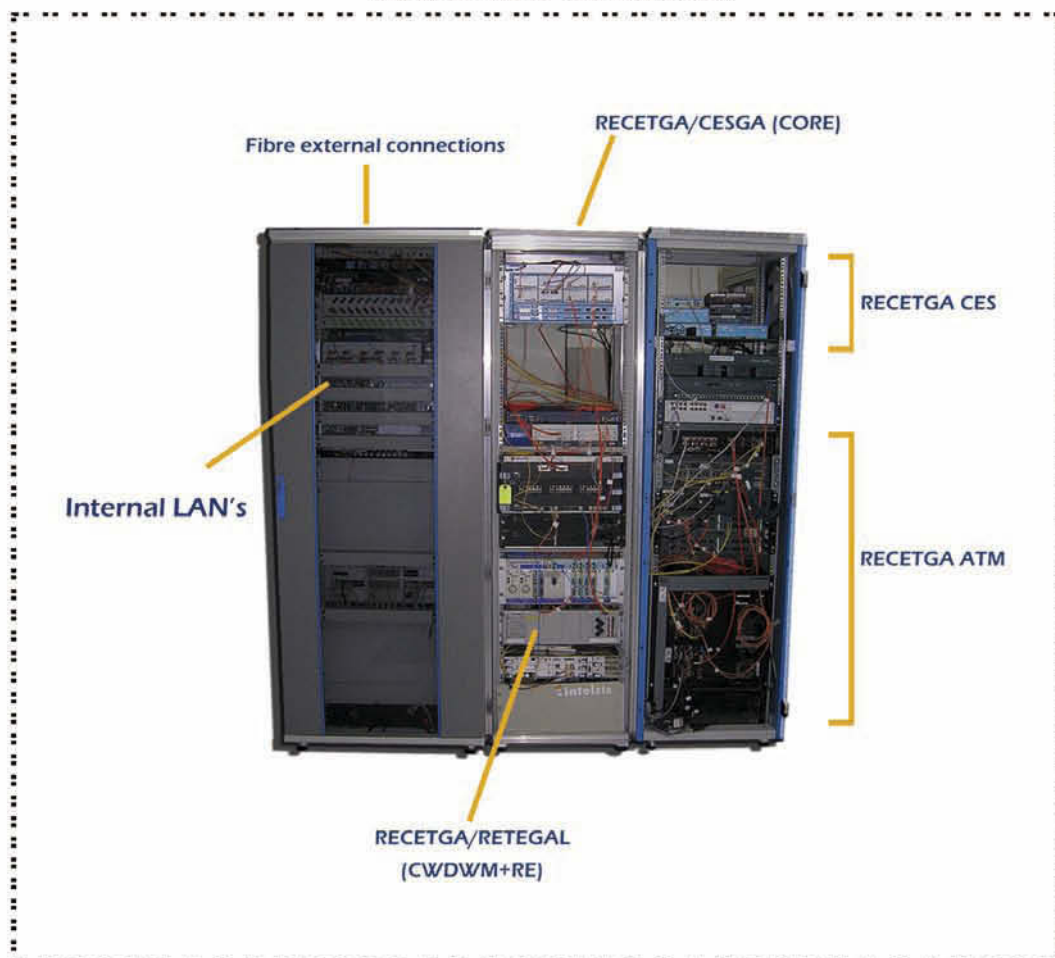
RedIRIS PoP IN GALICIA (JUNIPER M40E)



EXTERNAL CONNECTIONS THROUGH



RECETGA CENTRAL NODE INSTALLED AT CESGA

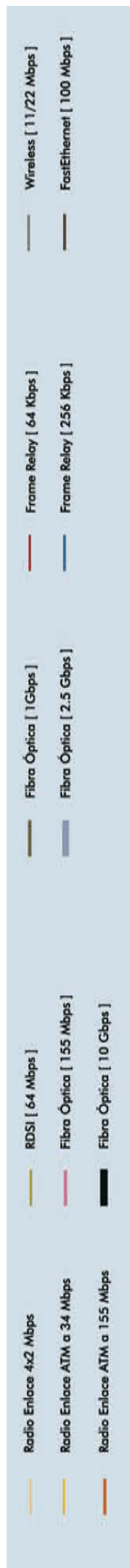


Centres Connected to RECETGA

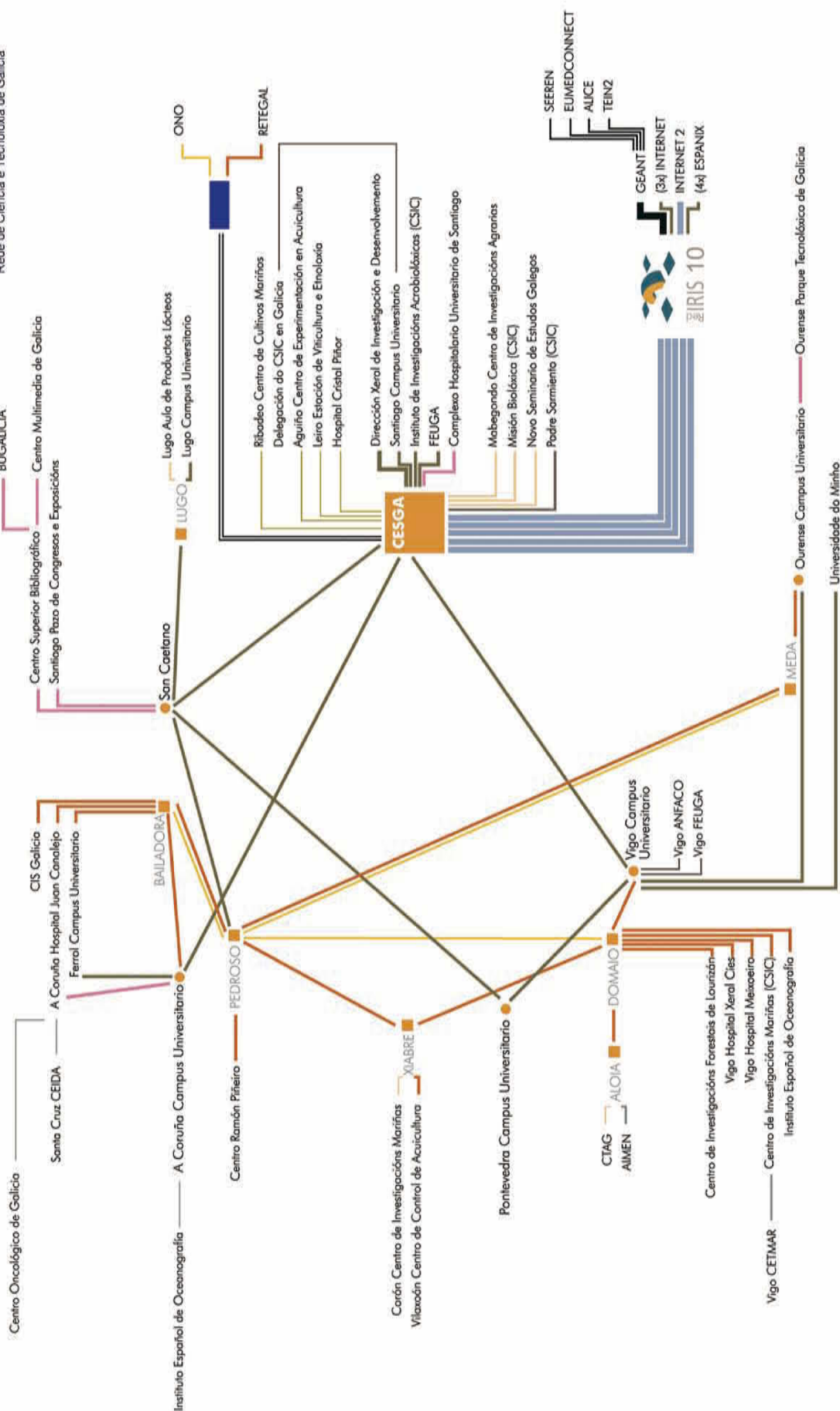
CENTRE	LINK	AVAILABILITY
Universidade da Coruña		
Coruña Campus	Fibre Optics (1Gbps) + ATM Radio Link at 155Mbps	99,999%
Ferrol Campus	Fibre Optics (1Gbps) + ATM Radio Link at 155Mbps	99,972%
Universidade de Santiago de Compostela		
Santiago Campus	2 Fibre Optics (1Gbps)	99,999%
Lugo Campus	Fibre Optics (1Gbps)	99,943%
Universidade de Vigo		
Vigo Campus	2 Fibre Optics (1Gbps)	99,925%
Pontevedra Campus	Fibre Optics (1Gbps)	99,940%
Ourense Campus	Fibre Optics (1Gbps)	99,946%
Universidade de Minho		
BUGALICIA		
Consorcio de Bibliotecas Universitarias de Galicia	Fibre Optics (155Mbps)	98,805%
RTD Centres		
ANFACO - CECOPESCA (Vigo)	FastEthernet (100Mbps)	99,859%
Aula de Produtos Lácteos (USC - Lugo)	Radio Link 4x2 Mbps	99,810%
Centro de Investigacións Forestais (Lourizán)	ATM Radio Link at 155 Mbps	98,833%
Centro Superior Bibliográfico de Galicia	Fibre Optics (155Mbps)	98,985%
Centro de Investigacións Lingüísticas "Ramón Piñeiro"	ATM Radio Link at 155 Mbps	99,999%
Centro Tecnolóxico Armando Priegue AJMEN	Radio Link 4x2 Mbps	99,400%
Estación de Viticultura e Enoloxía (Leiro)	ISDN (64 Kbps)	NA
Centro de Cultivos Mariños (Ribadeo)	ISDN (64 Kbps)	NA *
Centro de Investigacións Agrarias de Mabegondo	Radio Link 4x2 Mbps	99,973%
Centro de Control de Calidade do Medio Mariño (Vilaxoán)	ATM Radio Link at 155 Mbps	99,977%
Centro de Investigacións Mariñas (Corón)	Radio Link 4x2 Mbps	99,985%
Centro de Supercomputación de Galicia	2 Fibre Optics (1Gbps)	99,997%
Centro Tecnolóxico del Mar (CETMAR)	Wireless (11/22 Mbps)	99,394%
Centro de Innovación e Servicios (Ferrol)	ATM Radio Link at 155 Mbps + Wireless (11/22 Mbps)	97,430%
Fundación Empresa - Universidade de Galicia (Vigo)	FastEthernet (100Mbps)	99,859%
Fundación Empresa - Universidade de Galicia (Santiago)	Fibre Optics (16 Gbps)	99,628%
CEIDA (Santa Cruz)	Wireless (11/22 Mbps)	99,725%
Dirección Xeral de I+D+i	Fibre Optics (1 Gbps)	99,999%
Centro Tecnolóxico del Automóvil (CTAG)	Radio Link 4x2 Mbps	99,984%
Centro Multimedia de Galicia		99,996%
Hospitals		
Hospital Clínico Universitario de Santiago de Compostela	Fibre Optics (155Mbps)	99,996%
Complexo Hospitalario "Xeral - Cies"	Radio Link ATM at 155 Mbps	99,605%
Complexo Hospitalario Universitario "Juan Canalejo"	ATM Radio Link at 155 Mbps	99,999%
Unidade de Investigación do Hospital do Meixoeiro	ATM Radio Link at 155 Mbps	99,841%
Centro Oncolóxico de Galicia	Wireless (11/22 Mbps)	99,734%
IEO		
Instituto Español de Oceanografía - A Coruña	Wireless (11/22 Mbps)	99,889%
Instituto Español de Oceanografía - Vigo	ATM Radio Link at 155 Mbps	99,844%
I.E.O Delegación de Vigo sede Bouzas		99,868%
CSIC		
Misión Biológica de Galicia	Radio Link 4x2 Mbps	98,392%
Instituto de Investigaciones Agrobiológicas de Galicia	Fibre Optics (1Gbps)	99,999%
Instituto de Investigaciones Marinas	Fibre Optics (155 Mbps)	99,413%
Instituto de Estudos Galegos "Padre Sarmiento"	Radio Link 4x2 Mbps	99,982%
Delegación Institucional del CSIC en Galicia	FastEthernet (100 Mbps)	99,999%
Other Centres		
Palacio de Exposicións e Congresos de Galicia	Fibre Optics (155 Mbps)	NA **
Parque Tecnolóxico de Galicia	Fibre Optics (155 Mbps)	99,723%
Meteogalicia	Fibre Optics (155 Mbps)	99,805%
Exchange with other Networks		
ONO		
RedIRIS	2x100 Mbps	99,985%
RETEGAL	5x2,5 Gbps	99,998%
SERGAS	155 Mbps	99,984%
	155 Mbps	99,993%

* Disconnected February 08

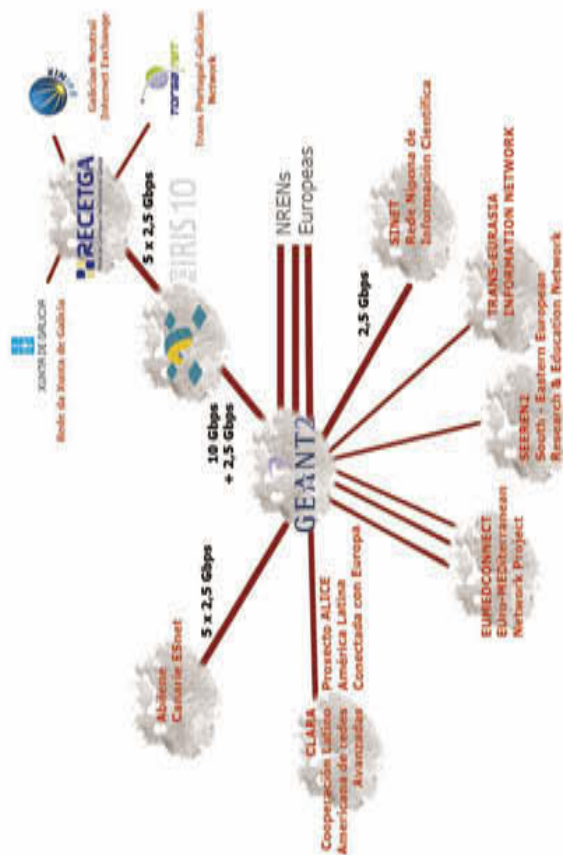
** 100% Connectivity provided on demand



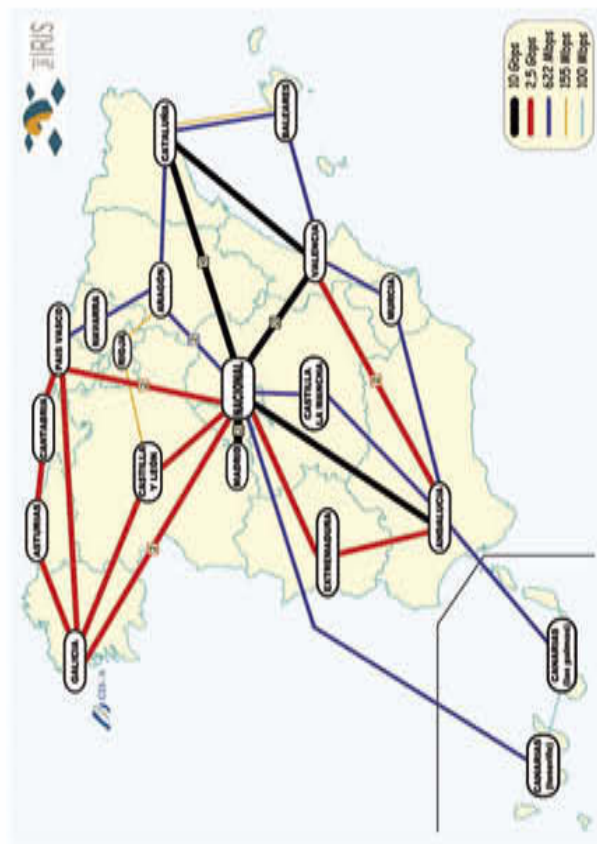
RECETGA Rede de Ciencia e Tecnoloxía de Galicia



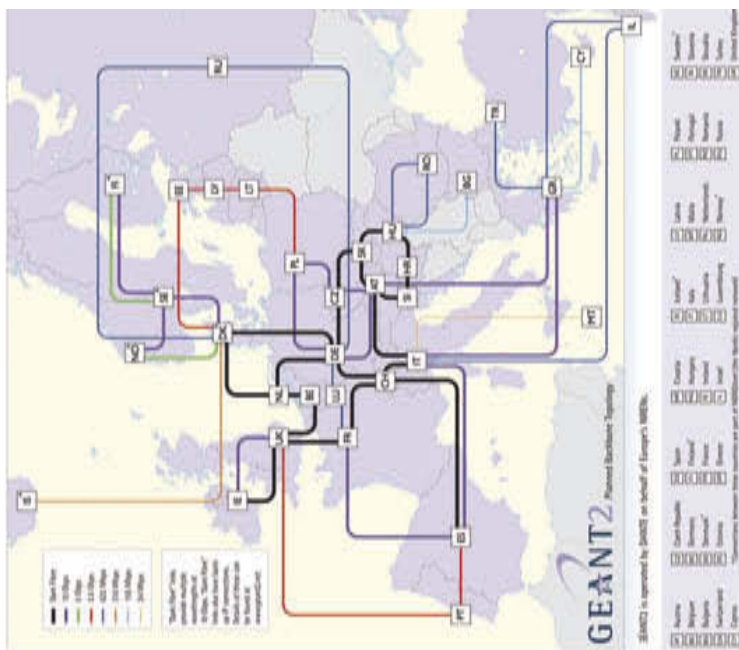
CONNECTIONS THROUGH GEANT



Rediris TOPOLOGY



GEANT TOPOLOGY



CONNECTIONS THROUGH REGIONAL NETWORKS

