Enhancing IRCCS high-bandwidth network connection

GARR and the **Ministry of Health** signed an agreement for extending the provision of network connectivity and services to Scientific Institute for Research, Hospitalization and Health Care (IRCCS) for the period 2009-2011.

The agreement acknowledges and brings further the results achieved in the framework of the previous project, approved in 2005 and involving 39 IRCCSs. The new project, that will include 6 new institutes and the headquarter of the Ministry itself, will upgrade the network access and will provide backup lines, thus ensuring resilience and resistence to faults.
The project will last through 36 months and will include the provision of a multi-video conferencing service.

Besides catering for high-quality network connectivity and services, accessing to GARR newtork empowers scientific cooperation, both amongst the IRCCS community and towards the Research and Education community in Italy and worldwide: the GARR network is part of the worldwide system of Research and Education Networks (NRENs), and it connects to other NRENs in Europe and worldwide through a 10 Gbps link to the GÉANT2 pan-European backbone.

Network Architecture

The proposed network architecture foresees:

- access infrastructure interconnecting IRCCS sites to the GARR Network PoP (Points of Presence),
- access to Global Internet thorugh the GARR Network,
- direct connection with all Italian Universities and Research organizations, interconnected on the GARR network and, through it, to the worldwide NREN system.

Furthermore, the project for the period 2009-2011 introduces **important enhancements,** including a higher reliability of the service.
Each IRCCS user site will access the networks with **two links**: a primary, high capacity link and a secondary backup one, with lower capacity. The two links will be fully independent from each other, as they will exploit two separate routers, that will link to two different Network PoPs. This solution will ensure network connectivity and key services even in case of fault of one of the links. A service for remote configuring and managing the access router installed at the user's premises is also provided. The service is maintained by the GARR Network Operations Center (NOC), in collaboration with those of telecom operators who provide the physical circuit.
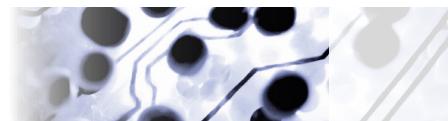
Access links may be implemented exploiting different technologies according to specific requirements. The **minimum access bandwidth** guaranteed by the project spans from 8 to 20Mbps, is symmetrical and bidirectional (i.e. available both in downstream and upstream) and it is guaranteed around the clock.
For each institute, technical and financial feasibility studies individuated the most effective access solution.
In case of institutes located in the same metropolitan area of a GARR Network PoP or a connected institutes, the provision of a higher access bandwidth than originally forseen by the project may be feasible.
The project includes the provision of all services dedicated to the Italian Research and Education community, including the leading-edge **Vconf multi-videoconferencing service,** that allows interconnecting up to 40 user sites at the same time (http://vconf.garr.it).
Furthermore, connected institutes can join I**DEM-GARR, the first Italian Identity Management Federation** that enables simplified access to services amongst different organizations.

PoP
A PoP (Point of Presence) is a point for accessing the network, capable of routing the traffic of connected end-users.
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Vconf
GARR multi-videoconferencing service (Vconf) is an advanced tool enabling audio-video communication between different sites through the GARR network and beyond.
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Downstream/Upstream
The term Downstream designates data tranfers from the network to the end-user. Conversely, the term Upstream designates data tranfers from the end-user to the network.

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Institutes for Research, Hospitalization and Health Care currently connected to the GARR network

Institute name	City	Region	Website
Istituto Giannina Gaslini	Genova	Liguria	www.gaslini.org
Istituto Nazionale per la Ricerca sul Cancro	Genova	Liguria	www.istge.it
Istituto Eugenio Medea	Bosisio Parini (LC)	Lombardia	www.emedea.it
Centro Cardiologico Monzino	Milano	Lombardia	www.cardiologicomonzino.it
Fondazione Don Carlo Gnocchi	Milano	Lombardia	www.dongnocchi.it
Fondazione San Raffaele del Monte Tabor	Milano	Lombardia	www.fondazionesanraffaele.it
Istituto Auxologico Italiano - San Luca	Milano	Lombardia	www.auxologico.it
Istituto Auxologico Italiano - San Michele	Milano	Lombardia	www.auxologico.it
Istituto Europeo di Oncologia	Milano	Lombardia	www.ieo.it
Istituto Nazionale Neurologico Carlo Besta	Milano	Lombardia	www.istituto-besta.it
Istituto Nazionale dei Tumori	Milano	Lombardia	www.istitutotumori.mi.it
Fondazione Ospedale Maggiore Policlinico	Milano	Lombardia	www.policlinico.mi.it
Istituto Clinico Humanitas	Rozzano (MI)	Lombardia	www.humanitas.it
Fondazione Salvatore Maugeri	Pavia	Lombardia	www.fsm.it
Istituto Neurologico Casimiro Mondino	Pavia	Lombardia	www.mondino.it
Policlinico San Matteo	Pavia	Lombardia	www.sanmatteo.org
Centro S.Giovanni di Dio Fatebenefratelli	Brescia	Lombardia	www.irccs-fatebenefratelli.it
Centro di Riferimento Oncologico	Aviano (PN)	Friuli-Venezia Giulia	www.cro.sanita.fvg.it
Ospedale Infantile Burlo Garofolo	Trieste	Friuli-Venezia Giulia	www.burlo.trieste.it
Ospedale San Camillo	Venezia-Lido	Veneto	www.ospedalesancamillo.net
Istituto Oncologico Veneto	Padova	Veneto	www.ioveneto.it
Istituto Ortopedico Rizzoli	Bologna	Emilia-Romagna	www.ior.it
Fondazione Stella Maris	Calambrone (PI)	Toscana	www.inpe.unipi.it
Istituto Nazionale di Riposo e Cura per Anziani	Ancona	Marche	www.inrca.it
Fondazione G.B. Bietti	Roma	Lazio	www.fondazionebietti.it
Fondazione Santa Lucia	Roma	Lazio	www.hsantalucia.it
Istituto Dermopatico dell'Immacolata	Roma	Lazio	www.idi.it
Istituto Nazionale Tumori Regina Elena	Roma	Lazio	www.ifo.it
Istituto Nazionale per le Malattie Infettive L.Spallanzani	Roma	Lazio	www.inmi.it
Ospedale Pediatrico Bambino Gesù	Roma	Lazio	www.ospedalebambinogesu.it
San Raffaele Pisana	Roma	Lazio	http://pisana.sanraffaele.it
Istituto Neurologico Mediterraneo Neuromed	Pozzilli (IS)	Molise	www.neuromed.it
Istituto Nazionale Tumori Fondazione G.Pascale	Napoli	Campania	www.fondazionepascale.it
Casa Sollievo della Sofferenza	S.Giovanni Rotondo (FG)	Puglia	www.operapadrepio.it
Istituto Oncologico	Bari	Puglia	www.oncologico.bari.it
Azienda Ospedaliera Saverio de Bellis	Castellana Grotte (BA)	Puglia	www.irccsdebellis.it
Centro Neurolesi Bonino Pulejo	Messina	Sicilia	www.centroneurolesi.it
Associazione Oasi Maria SS	Troina (EN)	Sicilia	www.irccs.oasi.en.it

Institutes to be connected in the period 2009-2011

Institute name	City	Region	Website
Istituto Dermatologico San Gallicano	Roma	Lazio	www.ifo.it
Istituto Ortopedico Galeazzi	Milano	Lombardia	www.galeazzi-gsd.it
Policlinico San Donato	S.Donato Milanese (MI)	Lombardia	www.sandonato-gsd.it
Istituto Multimedica	Sesto S.Giovanni (MI)	Lombardia	www.multimedica.it
Istituto CSS-Mendel	Roma	Lazio	www.css-mendel.it
Ministero della Salute	Roma	Lazio	www.ministerosalute.it
S.D.N. Istituto di Diagnostica Nucleare	Napoli	Campania	www.sdn-napoli.it
Centro di Riferimento Oncologico della Basilicata (CROB)	Rionero in Vulture (PZ)	Basilicata	www.crob.it

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