What is GÉANT?
GÉANT is the pan-European research and education network that interconnects Europe’s National Research and Education Networks (NRENs).

Together, as the GÉANT project, we connect over 50 million users at 10,000 institutions across Europe, supporting research in areas such as energy, the environment, space and medicine. Operating at speeds of up to 5000Gbps, and offering unrivalled geographical coverage, GÉANT remains the most advanced research network in the world.

What is the GÉANT Innovation Programme?
As a flagship project of the European Union, GÉANT is key to keeping Europe at the forefront of the global research race.

By investing in the research and development of an advanced portfolio of technologies, the GÉANT Innovation Programme seeks to shape the internet of the future, developing the right services, tools and network capabilities to support tomorrow’s researchers.

The programme encompasses all research and innovation activities under the GÉANT project and is represented by a vast community of NRENs and other partners who collaborate to deliver the Joint Research Activities (JRAs).

Harnessing the skills of this huge resource pool the GÉANT Innovation Programme encompasses Open Calls, standards development and Testbeds for disruptive and experimental new uses of the network.

Further Information
Go online to learn more about GÉANT and keep up to date with the latest developments

www.twitter.com/GEANTnews

www.facebook.com/GEANTnetwork

www.youtube.com/GEANTtv

www.geant.net

Also available in this series:
Transforming the way researchers collaborate
Delivering user services across borders

www.geant.net/innovation

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Future Network Architectures
This area of research investigates three high-speed mobile architectures: Network Architectures for Cloud, Advanced Applications, and High-Speed Mobile Architectures. Can current network architectures accommodate increasing capacity and emerging services? This investigates how GÉANT and the NREN communities will work with cloud service offerings and disruptive experimentation, particularly for advanced research activities.

Identity and Trust Technologies
Research and education is increasingly virtualised. Identity and trust are crucial for ensuring authorised users can access data and services, and that those services are trustworthy.

Supporting collaboration for research activities whilst guaranteeing users’ privacy and security requires careful balancing. The NREN community and the GÉANT project have been amongst the greatest innovators in this area, demonstrated by the success of eduGAIN and eduroam®.

This research focuses on two core areas:
1. Attributes and Groups. How to extend the current services provided by Identity Federations (such as eduGAIN) to support managing user groups and user attributes to allow finer-grained identity management.
2. Identity and Trust Technologies. How to extend the benefits of these services in three ways:
   - Linking the R&E Identity Federations to Commercial providers to enable greater access to commercial services.
   - Investigating the use of physical telecom systems to enhance user security.
   - Working to extend Identity Services beyond the current web-based systems.

Technology Testing for Advanced Applications
The purpose of this research is to deliver the next generation of innovative services. It will investigate prototyping and testing innovative services to enhance and extend the current service portfolio.

By focusing on the needs of specialisation and disruptive experimentation, particular emphasis will be placed on the special needs of projects and all-embracing community initiatives (such as cloud service offerings).

GÉANT Open Call Research
As part of the GÉANT Innovation Programme, the Open Call projects will bring in fresh ideas and support new uses of the network. GÉANT has invested £3.3 million into 21 independent projects for research into advanced networking technologies.

In support of the Horizon 2020 aims, each project is aligned to one of the GÉANT Joint Research Activities, divided into four themes:

- Applications and Tools – supporting advanced research activities and projects.
- Authentication – helping support secure end-to-end authentication of systems and projects.
- Network Architecture and Optical Projects – studying future networking systems.
- SDN – exploring Software Defined Networking potential to meet new networking demands.

Find out more: www.geant.net/opencall

GÉANT and Standards
Ensuring interoperability with other networking organisations is essential to effective collaboration at all levels. GÉANT works with a range of standards bodies in network technologies, protocols, security and identity management to help guide the future of networking standards.

Members of the GÉANT project have leadership roles in the IGF (Open Grid Forum) and IETF (Internet Engineering Task Force) standards organisations and make significant contributions to the formation of standards.

GÉANT Testbeds
The objectives of the GÉANT project are to provide a next-generation pan-European network and related services that meets the communications needs of research communities. These require a transport facility for production data and a network environment where experiments can be conducted.

“Testbeds as a Service” will provide two types of network capability to support the network research community. The first is a Dynamic Packet Network Testbed Service intended to address higher layer network research, and the second is a Dark Fibre Testbed intended to provide physical layer long haul facilities for testing novel optical/photonic technologies in the field.

Find out more: www.geant.net/innovation