POSITIVELY IMPACTING RESEARCH

Ever wondered why GÉANT and the NRENs do what they do? Ever wanted to explain this to friends or family members who don’t get – or don’t really care about – the more technical aspects of connectivity, or federated identities?

You’re not the only one!

To help, GÉANT has launched impact.geant.org, a new way to see how GÉANT and the NRENs support amazing projects within research communities such as Earth Sciences, Social Sciences and Physical Science. Below is just a snapshot of some of the initial projects featured – visit impact.geant.org to read more!

MORE DATA IN A DAY THAN THE ENTIRE INTERNET

The Square Kilometre Array, known as the SKA, will become the world’s biggest radio telescope, surveying the sky ten thousand times faster than ever before. You might be imagining a vast, single telescope. But the reality is more like thousands of antennas, all dotted across remote areas of South Africa and Australia.

When linked together, they form the equivalent of a single dish with a surface area of, you guessed it, a square kilometre. The SKA is expected to generate more data in a day than the entire internet’s daily output – tenfold. Processing that lot will be a job of epic proportions.

“SKA is expected to generate more data in a day than the entire internet’s daily output – tenfold. Processing that lot will be a job of epic proportions.”

It all requires flexibility, continuity, IT security, and constant monitoring. Challenges that need a coordinated response and a robust, hard-working infrastructure.

See impact.geant.org/SKA for more.

DELIVERING WEATHER AND CLIMATE MONITORING DATA

The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) is a global operational satellite agency at the heart of Europe that delivers weather and climate monitoring data to partners and users all over the world.

A vital collaboration between 30 Member States; EUMETSAT exists to protect human life, property and the economy, by monitoring weather, climate and the environment.

Real-time data transfer is critical to accurate weather forecasting, nowcasting and other weather and climate related applications. And weather agencies all over the world rely on the data.

Yet making it simultaneously accessible, 24-hours a day, is a huge challenge. Add to this: constantly evolving satellite technologies and changing user needs; and it’s clear the seamless observation and collecting, storing and analysing that data.

Every year, Copernicus disseminates a whopping 40 petabytes of data. And the number of users is doubling, year on year. As of May 2018, Copernicus had 170,000 users. In fact, every citizen has full, free and open access to Copernicus data; every user needs a robust, hard-working infrastructure.

See impact.geant.org/EUMETSAT for more.

CONSTANTLY MONITORING OUR PLANET’S HEALTH

Copernicus is the EU’s Earth Observation Programme, looking at our planet and its environment for the benefit of all European citizens. The project is a partnership between the Member States, and eight participating organisations, including the European Space Agency (ESA).

If we are to tackle global warming, prepare ourselves for man-made and natural disasters, and protect our environment, we constantly need to monitor our planet.

Copernicus helps us achieve this by observing our environment, atmosphere, living organisms, rivers, oceans and ice sheets—and collecting, storing and analysing that data.

This data comes from a set of dedicated satellites,—the Sentinel — plus dozens of contributing missions that ensure a whole range of observational requirements are met.

Every year, Copernicus disseminates a whopping 40 petabytes of data. And the number of users is doubling, year on year. As of May 2018, Copernicus had 170,000 users. In fact, every citizen has full, free and open access to Copernicus data; opening up potential for innovators and start-ups to improve our well being and the long term sustainability of our planet.

Coping with this surge in data and high volume of users requires a robust, hard-working infrastructure.

See impact.geant.org/Copernicus for more.

HELPING TO UNDERSTAND THE UNIVERSE

When the Large Hadron Collider (LHC) at CERN began smashing protons together, the world held its breath. As scientists prepared to recreate the big bang in a 17-mile tunnel beneath the French-Swiss border – it was the stuff of science fiction.

Yet the world’s largest and most powerful particle accelerator is a very real attempt to understand the universe. And its home to some of the most important physics experiments of our time.

As you might imagine, the computational, storage and networking challenges involved in a project like this are colossal. Processing the data generated by 100-200 events each second relies not only on a community of 13,000 scientists – at 170 computing centres in 100 countries – but also vast storage for permanent archiving of this valuable data.

With 80% of the LHC data processed outside of CERN, a rather special computing solution was needed. The Worldwide LHC Computing Grid (WLCG), an enormous collaborative effort shared between GÉANT and its European NREN and international partners.

See impact.geant.org/CERN for more.

“It is thanks to the GÉANT community that world class science collaborations can continue to push the limits of knowledge.”

David Foster, Head of Data Privacy Protection, CERN

See impact.geant.org/SKA for more.