



CAREN

Innovative Internet for Research and Education across Central Asia

From ancient trade route to high-speed data highway



Images courtesy of Robert Janz

For many centuries the Silk Road was the long-distance highway not only for goods, but also for the transmission of knowledge and ideas between east and west. Over 2000 years on, the European Union funded Central Asia Research and Education Network (CAREN) project is upgrading this route to a 21st century high-speed internet highway for research and education (R&E) communities across the region.

A fruitful EU-Central Asian partnership

Between 2009 and 2015 the CAREN project, in partnership with the national research and education networks (NRENs), benefited from EU and partner funding to set up a regional R&E data-communications network linking half a million scientists, academics and students at more than 300 universities and research institutes across Central Asia. Thanks to its interconnection with the pan-European GÉANT network, CAREN provided a gateway for international R&E collaborations.

A new phase of CAREN is now

underway with EU funding currently committed up to 2019. The vision for CAREN3 is to create and consolidate a powerful and sustainable data network at Gigabit speeds serving all higher education and research institutions across Central Asia. It sets out to provide capacity, services and support to meet their increasing needs for international communication and collaboration.

Backed by government financial commitments, CAREN already connects the Kyrgyz and Tajik higher education and research communities; work is underway to also re-establish project participation for Kazakhstan and Turkmenistan's user communities, with Uzbekistan also eligible to join.

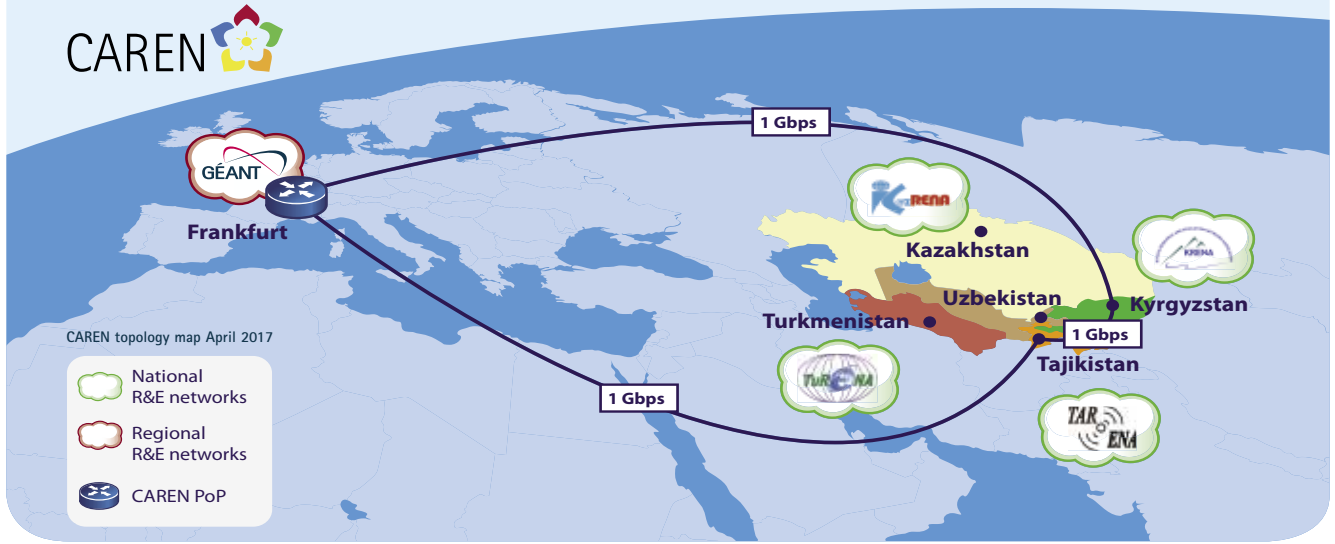
Real network – real benefits

CAREN's high-speed connectivity brings opportunities for Central Asia to participate in regional and global collaborative projects with high societal impact and direct relevance to the region, including environmental studies, seismology, astrophysics, telemedicine and preservation of natural and cultural heritage. In addition, e-learning and remote training opportunities make education and knowledge transfer more accessible.

- **Tackling climate change and natural disasters**

The Central Asian Institute for Applied Geosciences (CAIAG) in Kyrgyzstan is collaborating closely with partner institutes in the region as well as with the German Research Centre for Geosciences (GFZ) to monitor and mitigate the impact of climate change and natural disasters, such as earthquakes, floods, avalanches and mudslides. High-speed CAREN links allow geoscientists to collect and exchange monitoring data in near-real time for improved hazard assessment, risk management and effective emergency response.





“ We have a dreadful history of seismic disasters. We cannot prevent earthquakes, but we can minimise their effects. CAREN's high-speed connectivity allows us to better understand and get prepared for them. ”

Dr Bolot Moldobekov, Co-Director of the Central Asian Institute for Applied Geosciences (CAIAG), Kyrgyzstan

• **Revolutionising healthcare**

By linking doctors, patients and hospitals via high-quality, real-time video, CAREN enables remote diagnoses and consultations and provides access to world-class, interactive medical training, thus improving patient care, reducing costs and saving lives.

• **Safeguarding World Heritage**

CAREN helps protect precious UNESCO world Heritage sites along the ancient Silk Road by enabling video links between archaeologists and historians, and by supporting UNESCO's plans for a virtual museum and remote site monitoring.

“ TARENA and CAREN enable us to join in data-intensive global scientific efforts to identify, study and monitor asteroids that threaten the Earth. ”

Dr Gulchehra Kohirova, Director of the Institute of Astrophysics of the Academy of Sciences of the Republic of Tajikistan

Providing access to global connectivity

CAREN builds on the achievements of the NATO-funded Silk project which pioneered research networking in the Caucasus and Central Asia. It has replaced the earlier primarily satellite-based connectivity with terrestrial fibre, thus enabling the countries along the ancient Silk Road to become part of the global research networking community.

“ The development of a high-capacity, yet cost-effective data-communications infrastructure for research and education is high on the EU agenda as it is key to bringing the best minds together. In this context, we welcome the CAREN project that has recently entered its third phase and, for the first time, brings connectivity at Gigabit speed to Central Asia. In partnership with the NRENs, we look forward to extending CAREN's benefits to the research and education communities across the whole region. ”

Ambassador Cesare de Montis, Head of the Delegation of the European Union to the Kyrgyz Republic

As well as providing high-speed connections for collaborations between the Central Asian partners, CAREN links to the GÉANT network, connecting the region with the whole European scientific and academic community of over 50 million users, as well as globally. This is part of the European Union's overall strategy to connect researchers around the world, increasing collaboration and stimulating development through high-speed network infrastructures.

“ Kyrgyzstan has a very active academic community. The CAREN project is providing high-capacity connectivity which is giving our universities and research centres unprecedented opportunities for international collaborations to fulfil their potential as global players. ”

Dr Kadyrkul Karabukaev, Director of KRENA, Kyrgyzstan

Global reach with regional focus

CAREN is a distinctly Central Asian project, yet with European support and global reach.

The CAREN Network Operations Centre (NOC), located in Bishkek in Kyrgyzstan, proactively monitors the network to ensure high quality and performance for users. It acts as a technical centre of excellence for developing and deploying new network services and providing technical support to the NREN partners.

The CAREN Competence Centre (CAREN*CC) was established by the CAREN partners as a not-for-profit organisation, also based in Bishkek, to promote R&E networking within Central Asian and to maximise the impact of CAREN.

These functions are key building blocks towards achieving long-term sustainability of research and education networking within the Central Asian community.

Partners and funding

Up to August 2019, CAREN is co-funded with €10M by the European Union via the European Commission's Directorate-General for Development and Cooperation. Additional contributions are being provided by the participating countries through financial agreements between the European Commission and their governments.

The project is operated and managed by research networking organisation GÉANT, in partnership with the NRENs of the participating partner countries (initially Kyrgyzstan and Tajikistan).

<http://caren.geant.org>
www.icaren.org



EU-funded project