

# Current status and directions of development of TARENA

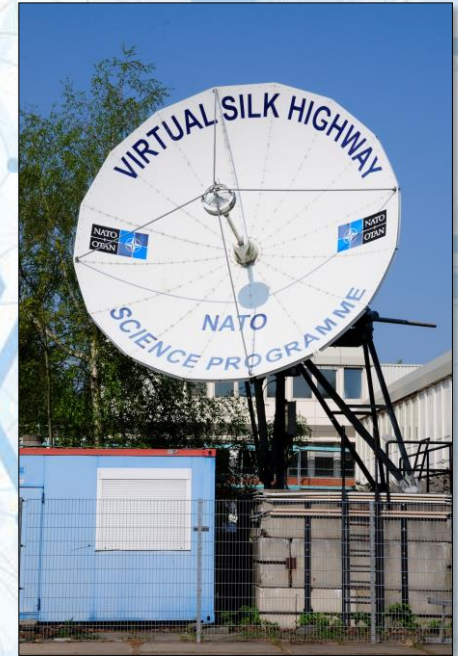


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## TARENA

Tajik academic research and education network  
TARENA was established in 2002 to assist in the implementation of the international project of the NATO Science Committee "Virtual Silk Highway" and for creating a national highly developed information environment for research, educational, medical, cultural and educational institutions of the Republic of Tajikistan. In 2005, TARENA created a city network and connected Dushanbe Universities and research institutes of the National Academy of Sciences of the Republic of Tajikistan to this network.





With the financial support of the NATO Science Committee, a number of projects have been implemented for the creation, modernization and transfer of the TARENA core network and local networks of collective users to the technology using fiber optics. This made it possible to significantly improve the quality of services and expand the number of TARENA users by connecting a secondary schools, libraries, NGOs, non-connected research institutions of the National Academy of Sciences of the Republic of Tajikistan and universities of Dushanbe.

## Users

Currently, 63 collective users, approximately 125,000 users, are connected to the network TARENA. Collective users are only universities, research institutions of the National Academy of Sciences of the Republic of Tajikistan, libraries, museums, medical institutions, lyceums, gymnasiums and public organizations related to education and science.

As the cable communication infrastructure is not so well developed in the Tajikistan, most educational institutions cannot be connected by the fiber optic or the cost of connection is very high.



Currently there are no opportunities available to expand NREN TARENA by connecting regional scientific and educational organizations to the TARENA network.

The solution to this issue is being delayed due to the fact that the national operator and commercial Internet providers don't have a reliable high-speed communication with the regions.

This is due to the fact that 93% of the territory of Tajikistan is located at an altitude of more than 3000 m, and the installing of a reliable fiber optic cables will be very difficult and very expensive.



Also, for scientific and educational organizations of the regions, the budget does not include enough funds to connect to high-speed Internet and for the development of IT.

But despite all these difficulties, several projects have been developed to create a national network for connecting all settlements to the network by the high-speed connection.

## Financial support

Financial resources to support current expenses and the implementation of TARENA plans are provided by the funds received from the provided services, the training center, test centers and consulting services. All earned funds are spent for employee salaries, communication services, taxes and partially for the purchasing of equipment.



Unfortunately, TARENA, like all the commercial Internet providers, pays all taxes (15% VAT, 5% license fee, and 7% excise tax on communication services.)

Repeated appeals to the government regarding the provision of benefits and tax exemptions did not give a positive response.



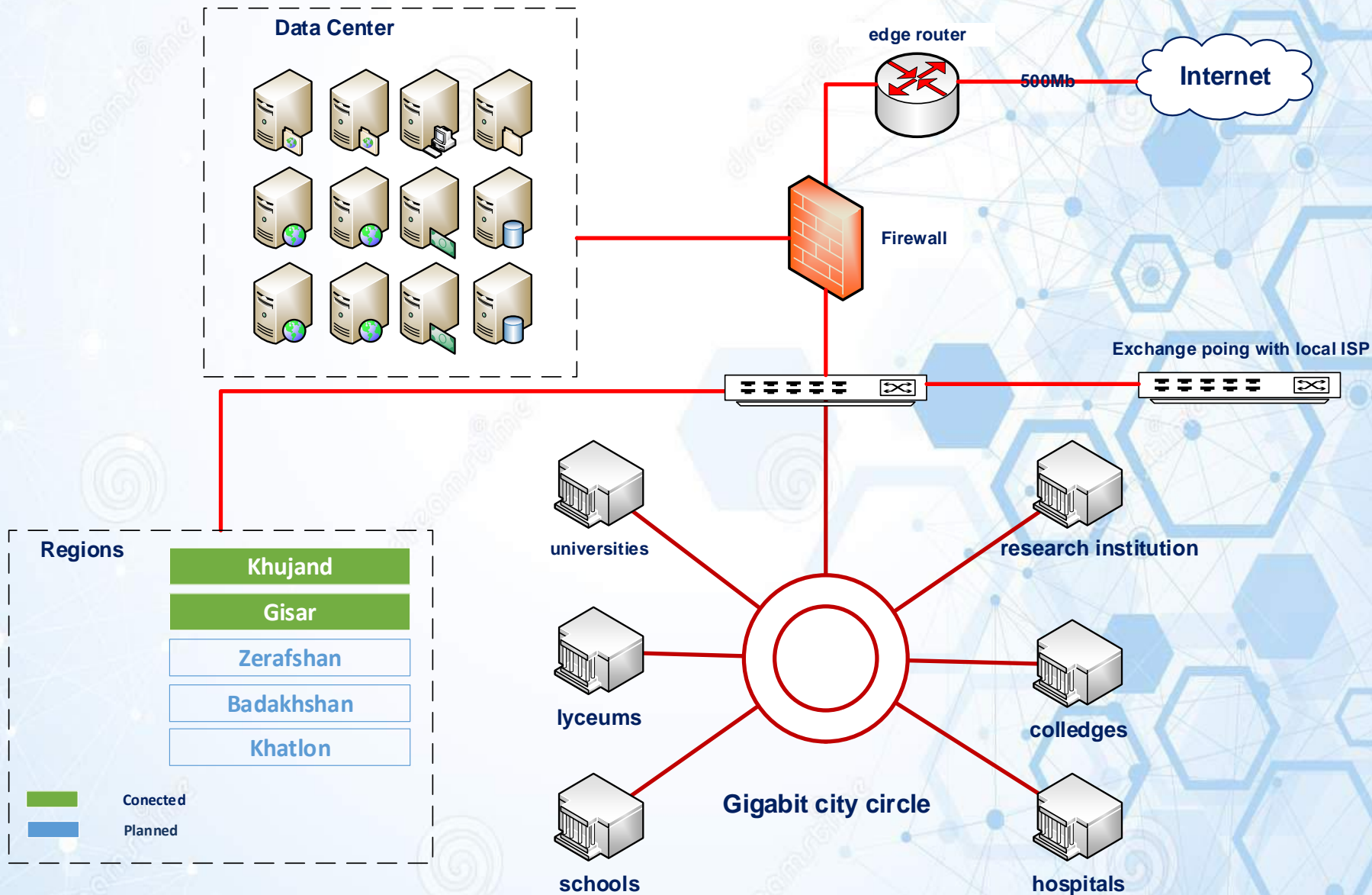
# Services

- **Hosting**
  - Server colocation
  - Website
- **E-mail**
  - Email Hosting
  - Webmail
- **DNS**
  - Domain registration
- **Virtual Server**
- **Filesender**
- **Eduroam**
  - National coordination of eduroam
  - eduroam identity provider
- **Network connectivity**
  - Fiber access
  - Wireless
  - Performance monitoring
  - Time Synchronization
- **Training Services**
  - Cisco Academy
  - Certification center

## Planned Services

- **Computer Security**
  - Computer Security Incident Response Team (CSIRT)
- **EduGAIN** (request for registration sent, but not approved yet)
- **Video Conferencing**
- **10G Network connectivity**
- **Exchange point for local ISP**
- **IPv6**
- **Access to electronics libraries**

# Network of TARENA





The current infrastructure of the TARENA network allows the scientific and educational community of the Republic of Tajikistan to take an active part in solving regional problems in the following fundamental areas in the educational and scientific activities:

- Improvement of the educational process (creation of electronic educational resources, interactive teaching methods, self-training and self-control, distance learning, etc.).

- Conducting video conferences, seminars and visual theoretical and experimental analyses.
- Establishment of continuous creative communication between teachers and students, scientific supervisors and graduate students.
- Conducting comprehensive research on issues aimed at reducing the risk of natural disasters.
- Conducting regional scientific research in the areas of seismology, water problems, renewable energy sources, telemedicine and others.

## Directions of development

For the sustainable development of NRENs of Central Asia, the financial support of international organizations is very important.

The main directions of development:

- Increasing data center capacity
- Increasing local and international bandwidth
- Development of network infrastructure to support modern protocols and technologies
- Creation and support of regional nodes
- Improving the quality of provided services
- Improving the level of information security
- Support for new learning technologies



- Increasing an information resources of the network
- Development of remote access systems
- Annual training and advanced training for employees of universities that ensure the functioning of the TARENA network on the basis of the training center and other specialized organizations
- Increasing the level of information security
- Support for new learning technologies

## CAREN-4

For the development of Central Asian NRENs the CAREN-4 project will play an important role and will be a bridge that connect the scientific and educational community of Europe and Central Asian countries. The CAREN-4 project can provide a high-speed communication channel between Central Asia and Europe and organize access to GEANT services for the scientific and educational community of Central Asia and can offer students, scientists and researchers the opportunity for collaboration and participate in global initiatives.

**Thank you!**