BASNET – Belarusian Academy of Sciences Network
Minsk, Belarus

National Supervisory Board of Belarusian NREN BASNET
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9 November 2010

Presentation plan

- BASNET Development Stages
- BASNET today
- BASNET core network topology
- Connection of BASNET and NIKS to GEANT
- International projects participation
- Geant network (10 years anniversary in November 2010, plan 100 Gbps)
- Perspective maps of BASNET connections in GN3 (Lithuania, Russia, ORIENTplus)
- Extract from the Statute on the Research Computer Network of the NASB – BASNET, clause 5
- Common project initiative in Eastern Europe and the Caucasus (proposal)

BASNET Development Stages

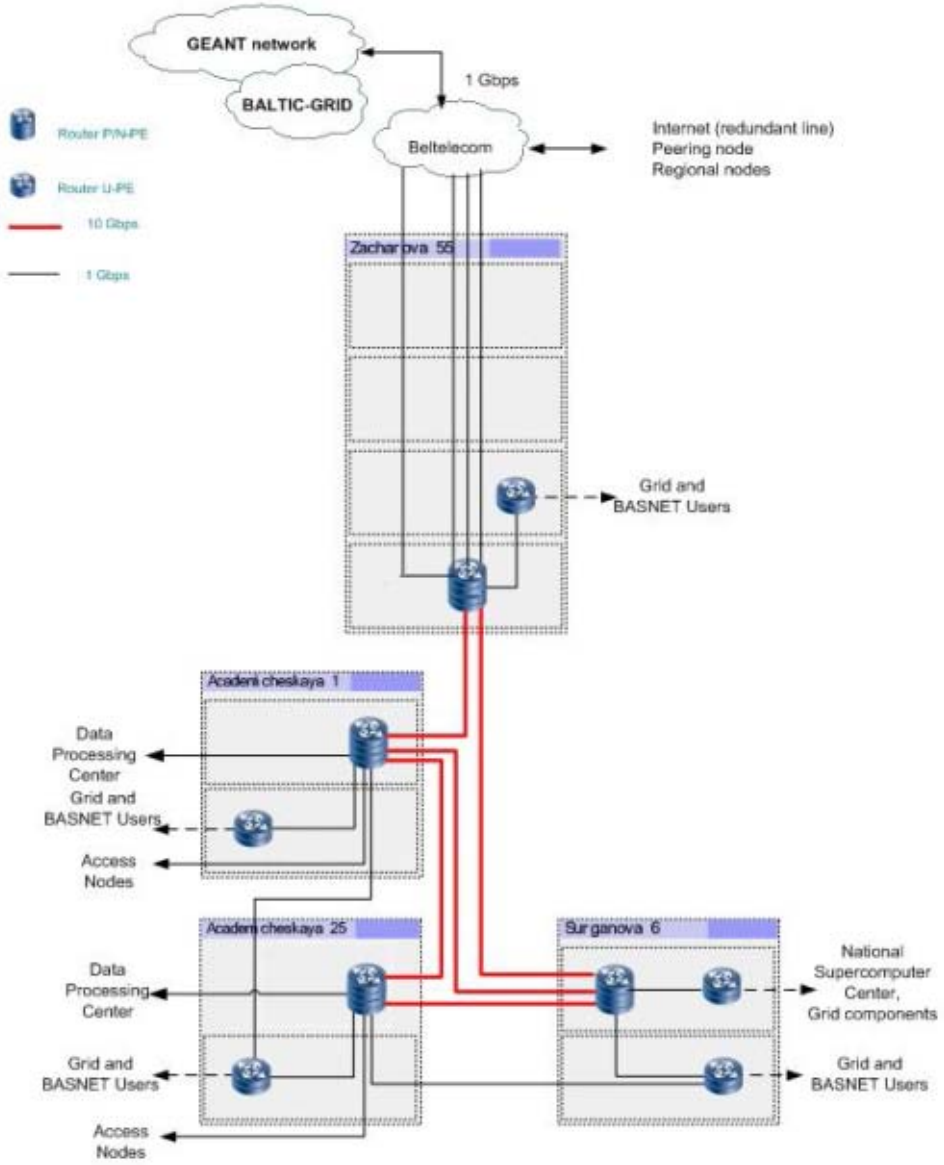
1994-1998	Creation of BASNET fiber-optical backbone with Internet access
1996-1999	BASNET node at Beltelecom, 1st stage of NIKS network (NASB, BSU, Ministry of Education)
2000	Satellite Internet access channel for NIKS Exchange station for NIKS networks (NASB, BSU, Ministry of Education) National center of Internet registration, LIR status in RIPE NCC
2001	Regional nodes in Gomel, Vitebsk, Brest
2002	BASNET radio-ethernet segment
2003	Regional nodes in Mogilev, Grodno
2004	Connection of BASNET to GEANT (34 Mbps) Creation of network infrastructure providing access to SKIF supercomputer resources
2005	Creation of corporate library network in Belarus Creation of telecommunication infrastructure of the Belarusian space system of remote sensing of Earth
2006	Increase in capacity of the communication channel BASNET - GEANT up to 155 Mbps
2007	Connection of BASNET nodes at Kuprevicha str. and Kazincza str. by fiber-optics
2008	Membership in TERENA
2009	Increase in capacity of the communication channel BASNET - GEANT up to 622 Mbps
2010	Cross-boarder fiber BASNET-PIONIER Communication channel BASNET - GEANT 1 Gbps

BASNET today

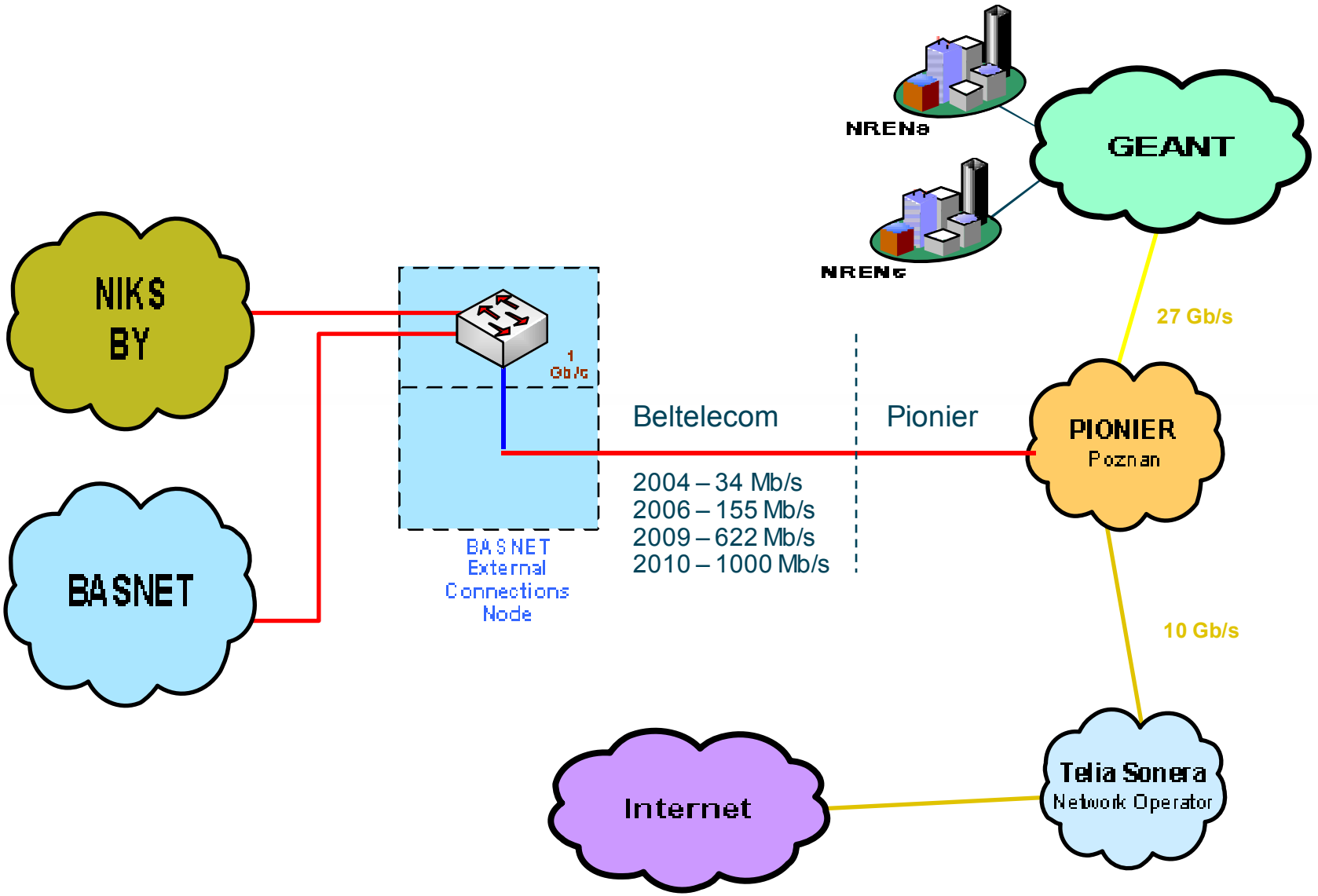
20 network nodes
90 km FO channels
720 ports
Backbone 10 Gbps
110 corporate users, including:

- 61 research institutions
- 11 universities
- 14 republican and regional libraries
- State Committee of Science and Technologies
- Ministry of Health
- Ministry of Industry
- Ministry of Agriculture
- State Committee of Chernobyl

BASNET core network topology



Connection of BASNET and NIKS to GEANT



BASNET
International Projects Participation

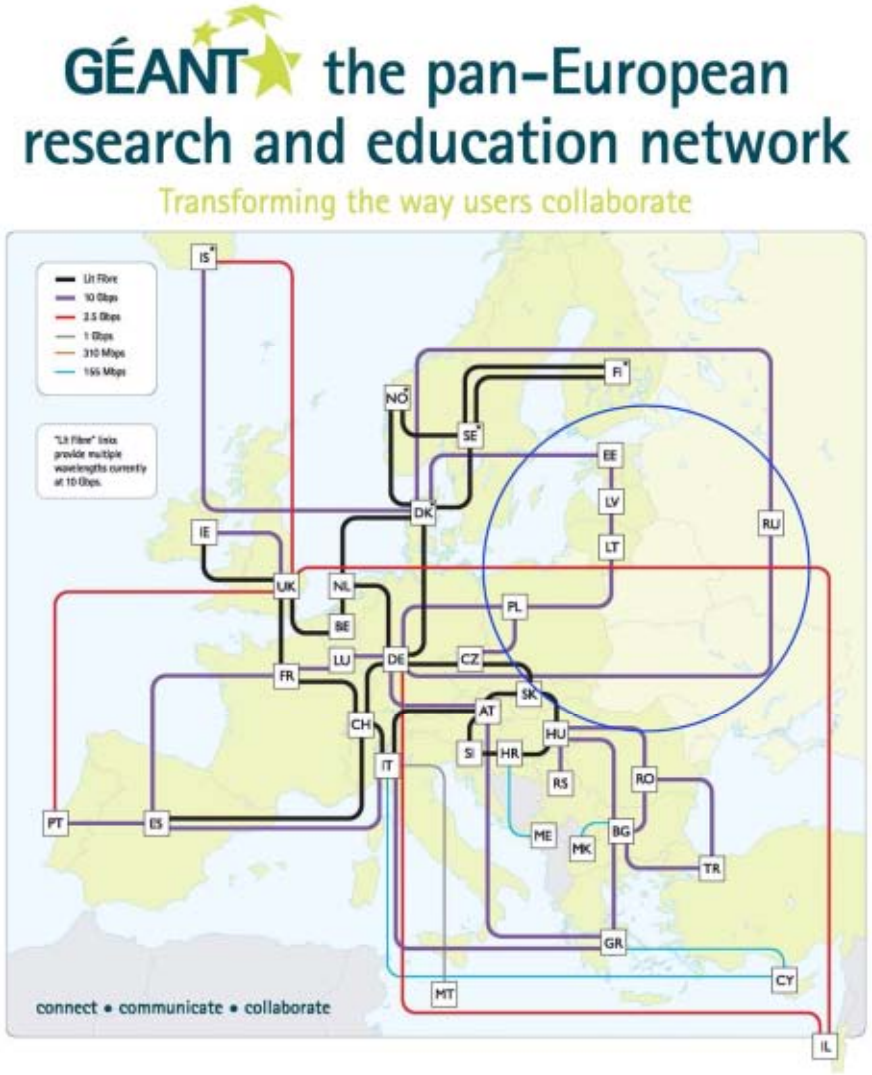
Belarusian partners are already cooperating with Polish and other EU partners in the scientific projects:

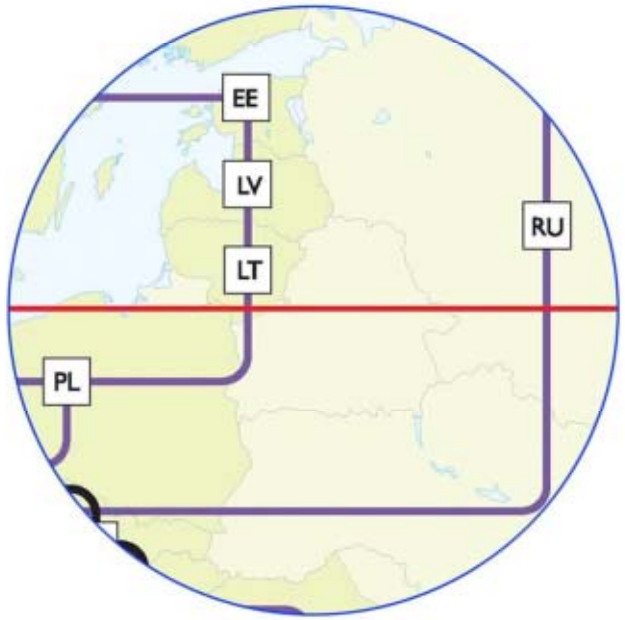
- **EGI-InSPIRE (2010 – 2014)**
  - *EU FP7 project*
  - *European Grid Initiative: Integrated Sustainable Pan-European Infrastructure for Researchers in Europe*
  - *Belarus is an associated member of EGI.eu*
  - *UIIP NASB is the NGI and a full member of the EGI-InSPIRE project*
- **GN3 (2009 – 2013)**
  - *EU FP7 project*
  - *Pan-European network and services enabling research communities to collaborate on ground-breaking research*
  - *Belarus is associated member of GÉANT*
  - *Belarus gets access to GÉANT through the Polish PIONIER network*
- **BalticGrid II (2008 – 2010)**
  - *EU FP7 project*
  - *two Belarusian institutions are involved*
    - *Research Division of Belarusian National Technical University*
    - *United Institute of Informatics Problems of National Academy of Sciences of Belarus*
- **Porta Optica Study (2006 – 2007)**
  - *preparation of network development plans for Eastern Europe and Southern Caucasus*
  - *EU FP6 project, finished in 2007,*
  - *One Belarusian institution was involved (The National Center for Information Resources and Technologies of the Republic of Belarus, BASNET predecessor)*

Geant network today

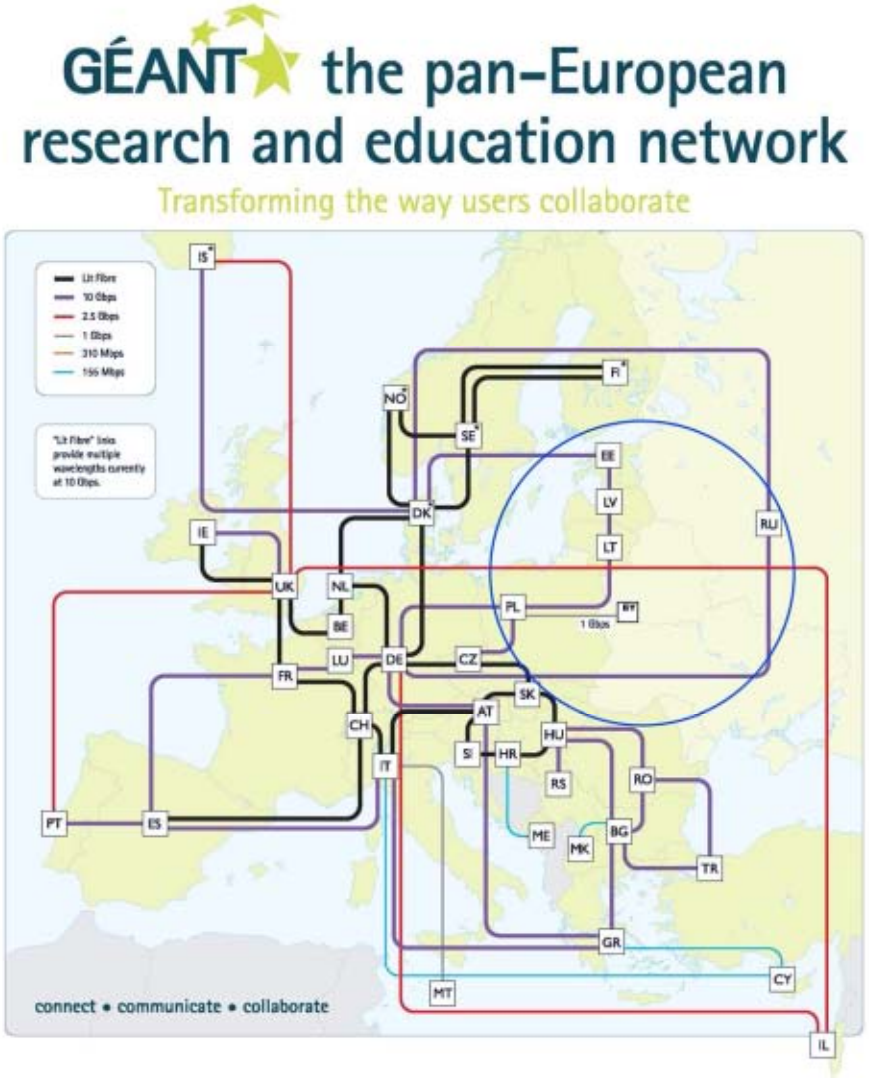
- GÉANT was launched this week 10 years ago, in November 2000.
- Today GÉANT is the high speed European communication network dedicated to research and education. In combination with its NREN partners, GÉANT creates a secure, high speed research infrastructure that serves 40 million researchers in over 8,000 institutions across 40 European countries.
- Operating at speeds of up to 40 Gbps, GÉANT is the world's largest and most advanced multi-gigabit network dedicated to research and education.
- The new 100 Gbps connections will light fibre on GÉANT's existing 12,000 km of optical fibre links in 2011-2012.

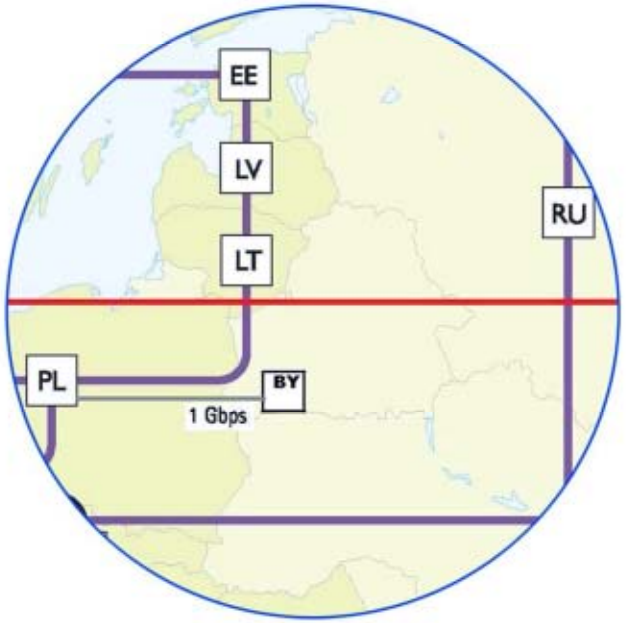
Geant network topology, September 2010



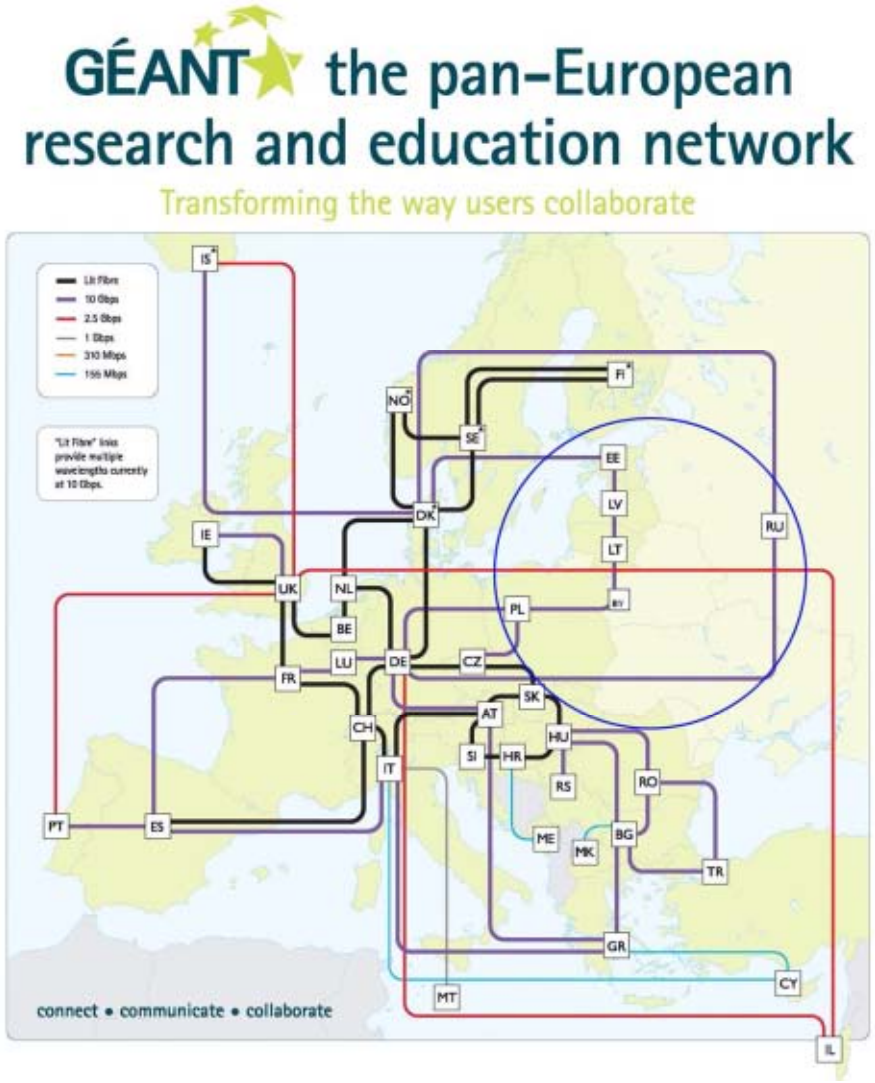


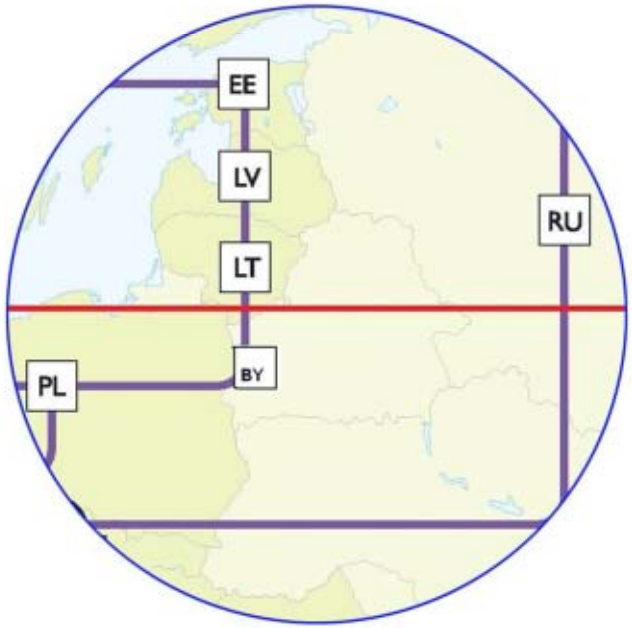
BASNET - Current Connection to GEANT



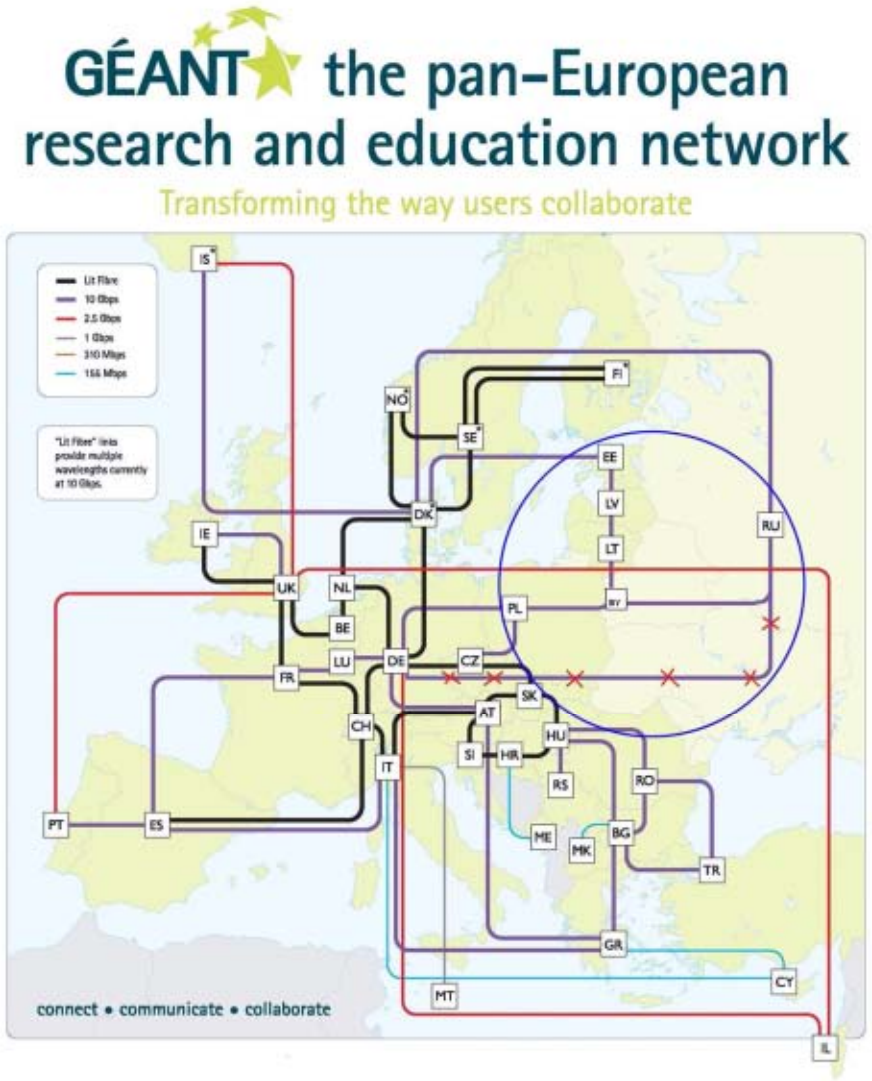


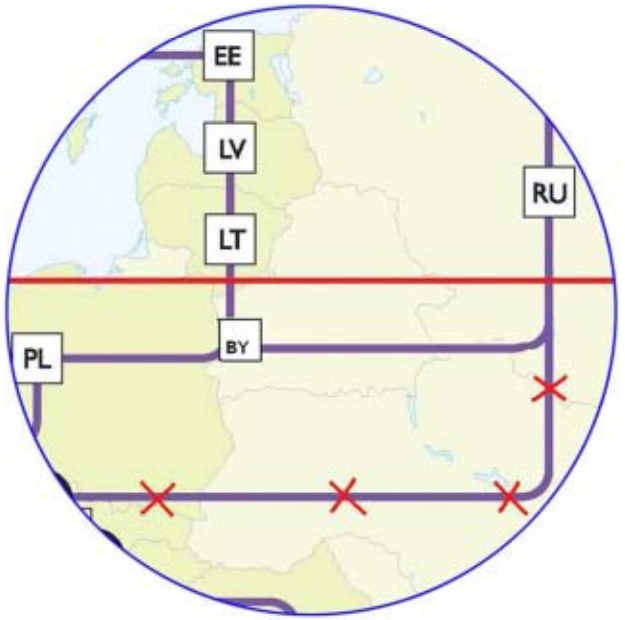
BASNET Plan TASK 1 - redundant channel to LITNET



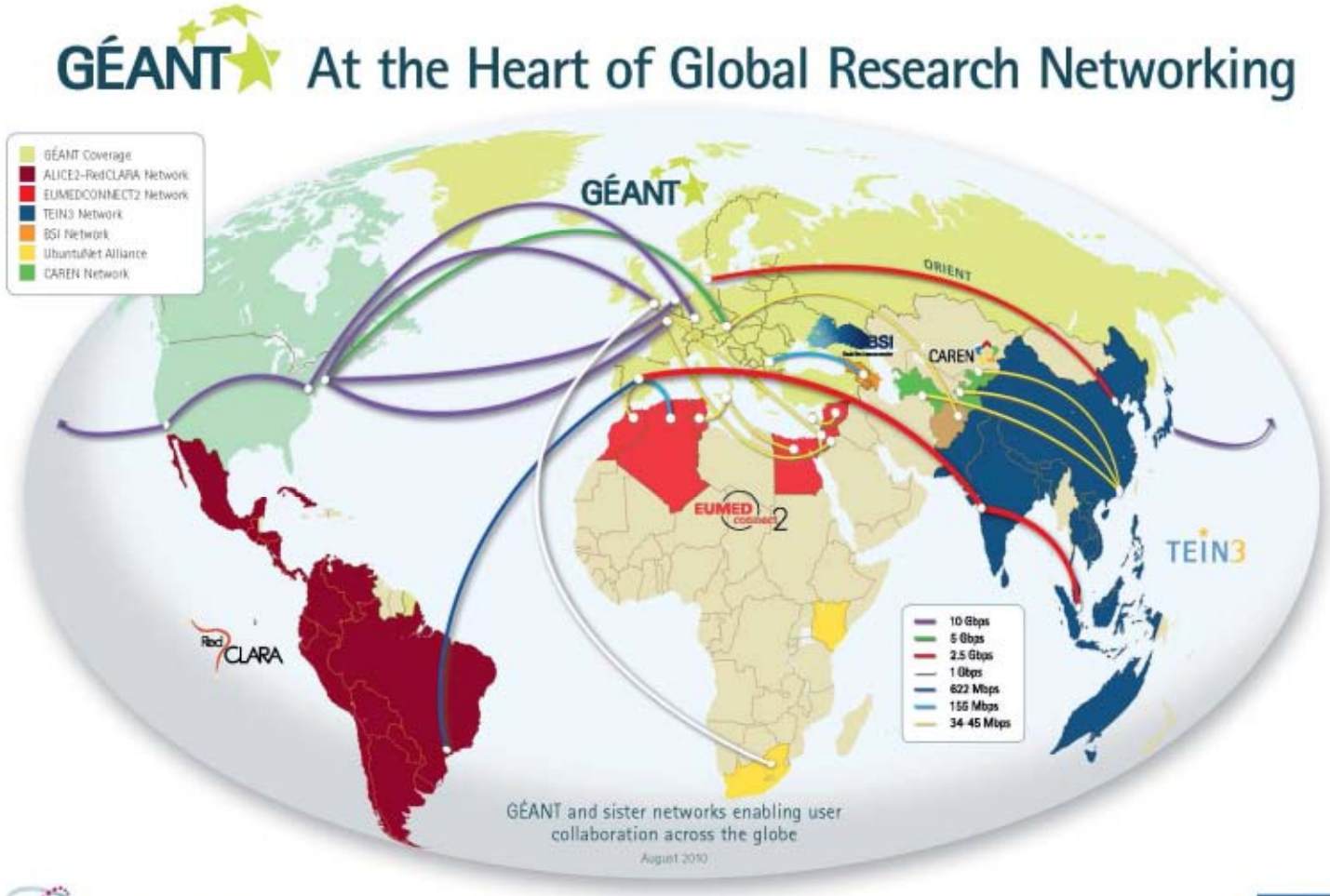


BASNET Plan TASK 2 - redundant channel to e-ARENA





GEANT Global Connectivity

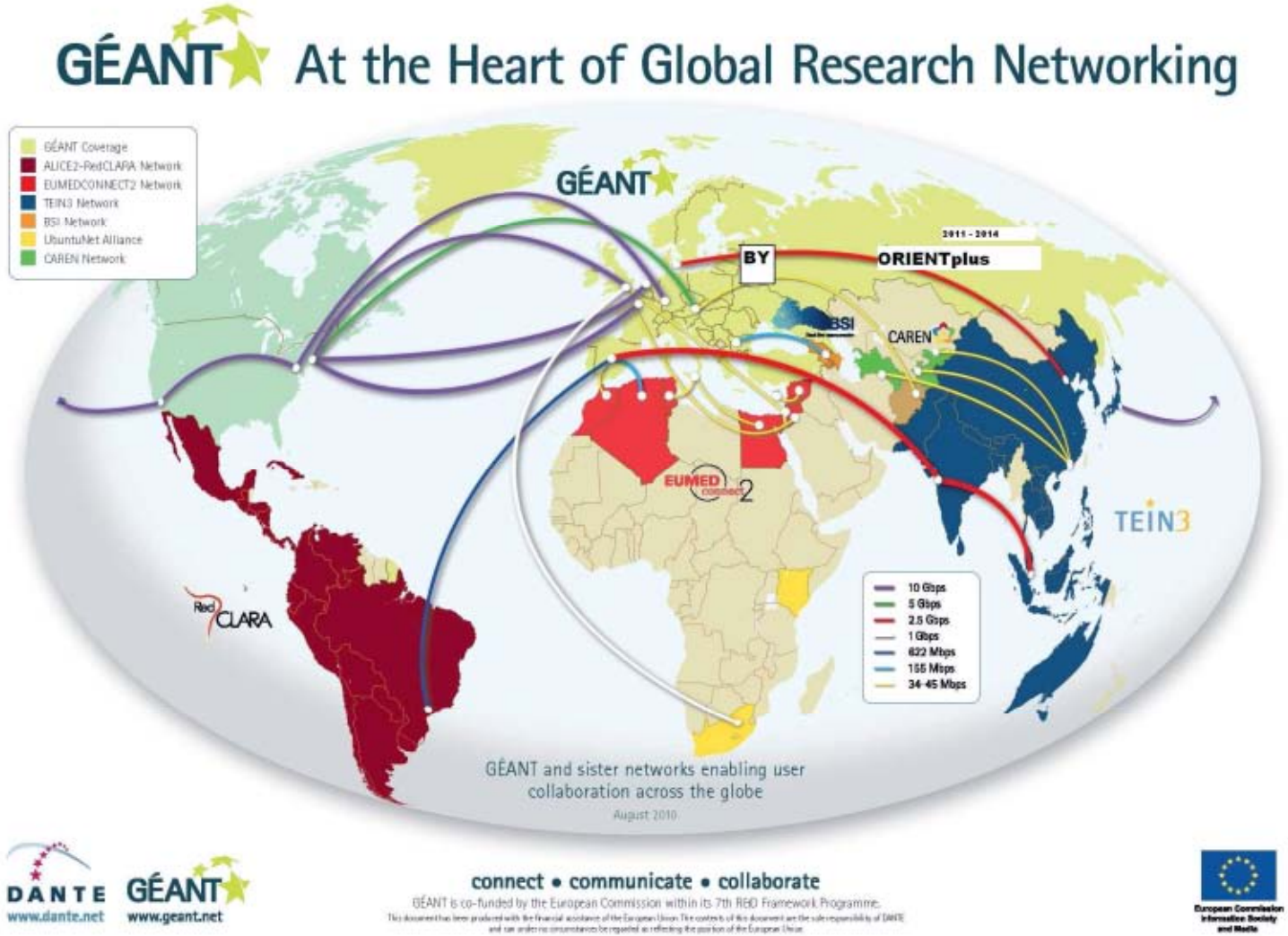


DANTE www.dante.net GÉANT www.geant.net

connect • communicate • collaborate

GÉANT is co-funded by the European Commission within its 7th RED Framework Programme.

BASNET Plan TASK 3
Global Connectivity ORIENTPlus



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European Commission Information Society and Media

The National Supervisory Board of the Belarusian Research and Education Network

Extract from the Statute on the Research Computer Network of the National Academy of Sciences of Belarus – BASNET, clause 5.

- The national supervisory board of the Belarusian Research and Education Network (Board) is the coordinating and scientific-advisory body working pro bono
- Board is formed of representatives of the National Academy of Sciences of Belarus (NASB), the Ministry of Education of Belarus, the Belarusian State University, other ministries and government departments
- The quantitative and personal structure of the Board is established by the decision of the Bureau of Presidium NASB upon presentation of the United Institute of Informatics Problems NASB
- The Board structure:
  - Chairman of the Board;
  - Deputy Chairman of the Board;
  - Secretary of the Board;
  - Members of the Board
- Term of appointment to the Board is 5 years

The National Supervisory Board - goals

- The analysis of conditions and definition of basic directions and tendencies in development of computer networks;
- Work out of perspective planning for development of research and education computer networks of Belarus;
- Scientific and methodical management and coordination of development of research and education computer networks of Belarus;
- Development of proposals on strengthening of information security in research and education computer networks of Belarus;
- Coordination of works, researches and developments in the field of telecommunications and information technologies for science and education;
- Assistance in integration of material, technical, information and communication resources for research and education computer networks of Belarus;
- Assistance in development of national information resources - databases and knowledge bases, electronic libraries, information systems, systems of remote training, communication media and information exchanges, network services and technologies of new generation.

The National Supervisory Board - functions

- Coordination of works and development of coordinated decisions and recommendations on development of the research and education computer networks of Belarus supporting provisions of the state policy and the concept of information society of Belarus
- Coordination of the basic directions of international cooperation in field of research and education computer networks
- Consideration of proposals of organisations (investors) related to their participation in the projects of development of the research and education computer networks of Belarus, work out of corresponding recommendations.

The National Supervisory Board - rights

- To get knowledge on structure and technical state of the research and education computer networks of Belarus;
- To make proposals and recommendations on development and modernization of the research and education computer networks of Belarus;
- To make proposals to Presidium NASB, other ministries and government departments related to current activities and prospects of development of the BASNET network.

Final ideas on promoting ICT cooperation for science and education in Belarus in scope of EU initiatives

1. **The major result of cooperation with EU** (PORTA OPTICA, BalticGrid-II, GN3, EGI-InSPiRE) and SKIF GRID program: **1 Gbps connection to GEANT**

2. However, EU within the Eastern Partnership program sets new objectives of higher integration in research and education spheres (including cooperation with Belarus):

- - via participation in 7th Framework program, via cross-boarder cooperation programs PL-BY-UA and LT-LV-BY
- Belarusian research and education community has similar tasks:
- - in joint programs with Russia Federation on creation of integrated cyber-infrastructure (for supercomputing, Grid, space programs, science and education)
- - in regional development of research and education networks (BASNET, UNIBEL) and implementation of Geant network services (eduroam, eduPKI, etc..)

3. The Mechanism:

- - President Decrees 60 and 515 states elimination of Beltelecom monopoly in providing external connectivity and approach the concept of dark fiber rented on demand (via National Center of Traffic Exchange governed by Operative Analytical Center under President Administration).
- - Eastern Partnership initiative – we propose to create a special committee on ICT. With similar purpose Valentino Cavalli is organizing with Belarus and other Eastern Europe countries an ICT political event of high level to gather senior ICT officials from EU and countries of the Eastern Partnership.
- - EU could assist in integration of Belarusian research and education community to ERA not only via the 7th framework program and EGI-InSPiRE (ORIENTplus), but probably EC could recommend to use part of dark fiber built under EU-funded project “Enhancing Border Management in the Republic of Belarus” (BOMBEL), the third phase, for building BASNET communication channel to LITNET.

Common project initiative
in Eastern Europe and the Caucasus
Objective 1: Development of partners NRENs

- Establish and operate a dedicated high-performance broadband Internet for research and education across EEC;
- Facilitate communication, information exchange and collaboration between universities and research institutions within EEC partner countries, and between EEC and Europe and the rest of the world;
- Harmonize and support end – user services in the global federated environment for partner countries and EU MS;
- Support deployment of Eduroam in the partner countries' higher educational and research community;
- Support establishment of the EEC Eduroam service with emphasis on development and deployment of specifications for measurement of the Eduroam usage and information flows in the partner countries' federations;
- Reduce the digital divide in the regions of EEC partner countries.

Common project initiative
in Eastern Europe and the Caucasus
Objective 2: Cooperation among regulatory authorities

- Preparing a stimulus of fiber providers to share their resources;
- Removal for scarceness of fiber footprint;
- Improving a regulations to support creating CBDF points for NRENs;
- Increasing a proper funding and support for partners NRENs from the government;
- Creating measures for sustainability of partners e-Infrastructures;
- Preparing regulations and directives for implementing network services, for example, Eduroam.

GÉANT

Thank you!