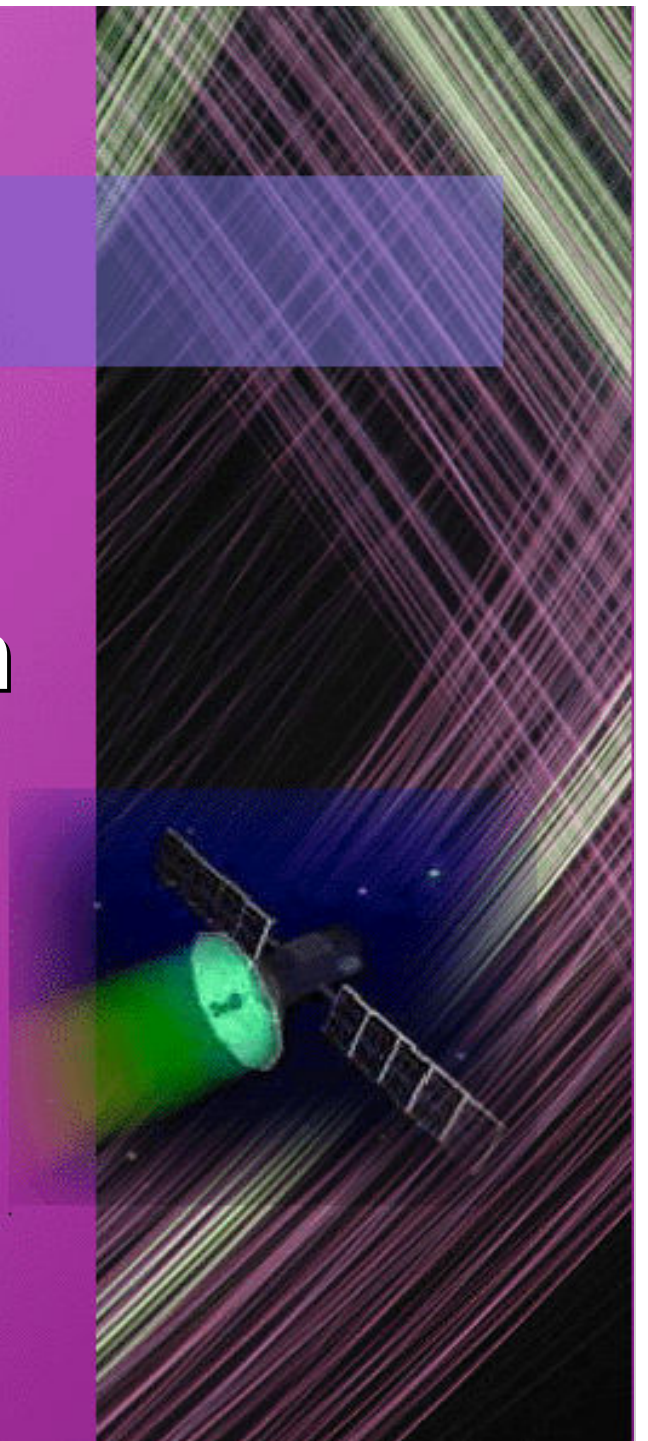


*State Institute of Information  
Technologies and  
Telecommunications (Russia)*

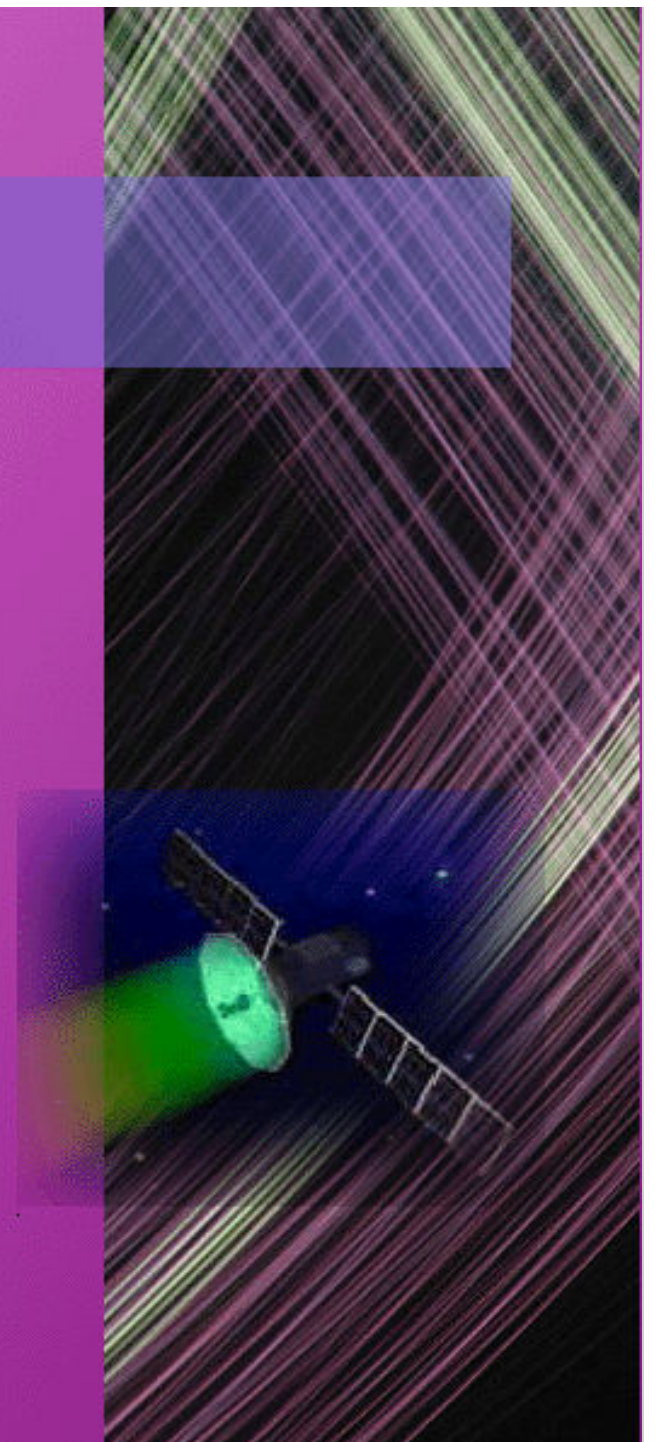
# **Telecommunication infrastructure of Russian Education**

**V. Vasiliev, Y. Gugel, Y. Izhvanov,  
A. Tikhonov**



# State programs

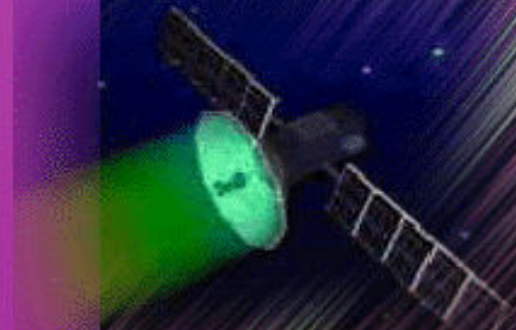
- Development of Unified Educational Information Environment (2001-2005)
- Electronic Russia (2002-2010)
- Development of national computer network for research and education (1995-2001)
- Integration of fundamental science and higher education (2002-2006)





# Russian Research and Education Telecommunication Networks

- *RUNNet – Russian University Network*
- *<http://www.runnet.ru>*
- *RBnet – Russian Backbone Network*
- *<http://www.rbnet.ru>*
- *Radio-MSU – Radio MSU Network (RUHEP)*
- *<http://www.radio-msu.net>*
- *FREEnet - The network For Research, Education and Engineering*
- *<http://www.free.net>*
- *RSSI - Russian Space Science Internet*
- *<http://www.rssi.ru>*



# NATIONAL COMPUTER TELECOMMUNICATIONS NETWORK FOR RESEARCH AND EDUCATION



## National Computer Telecommunications Network

- ☆ - base terrestrial POP
- ★ - terrestrial POP
- ☎ - satellite POP
- } terrestrial channels

## New Information Technologies Centers and Institutes (ITCs) and Regional Centers of Informatization (RCIs)

- 🇷🇺 State Institute of Information Technologies and Telecommunications (SIT&T "Informika")
- RIPN Russian Institute of Public Networks (RIPN)
- 🌐 Internet Center
- ⚠️ Regional ITC on Computer security problems

- ▲ Specialized ITC (16)
- Regional ITC (10)
- RCI (24)
- ◆ Republican ITC (12)
- ◆ Province ITC (26)
- ◆ Territory ITC (4)
- ◆ City ITC (8)

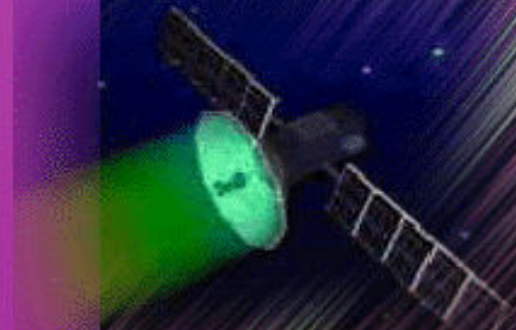
## Population density people on 1 square km

- 100 and more (1)
- 50 - 100 (16)
- 20 - 50 (27)
- 5 - 20 (18)
- 0 - 5 (27)



# Networks of largest universities

- Moscow State University  
<http://www.msu.ru>
- Saint-Petersburg State University  
<http://www.spbu.ru>
- Ural State University  
<http://www.usu.ru>
- Rostov State University  
<http://www.rsu.ru>
- Novosibirsk State Technical University  
<http://www.nstu.ru>



# Regional RRENs

- RELARN-IP (Moscow)

<http://www.relarn.ru>

- UMOS (Moscow)

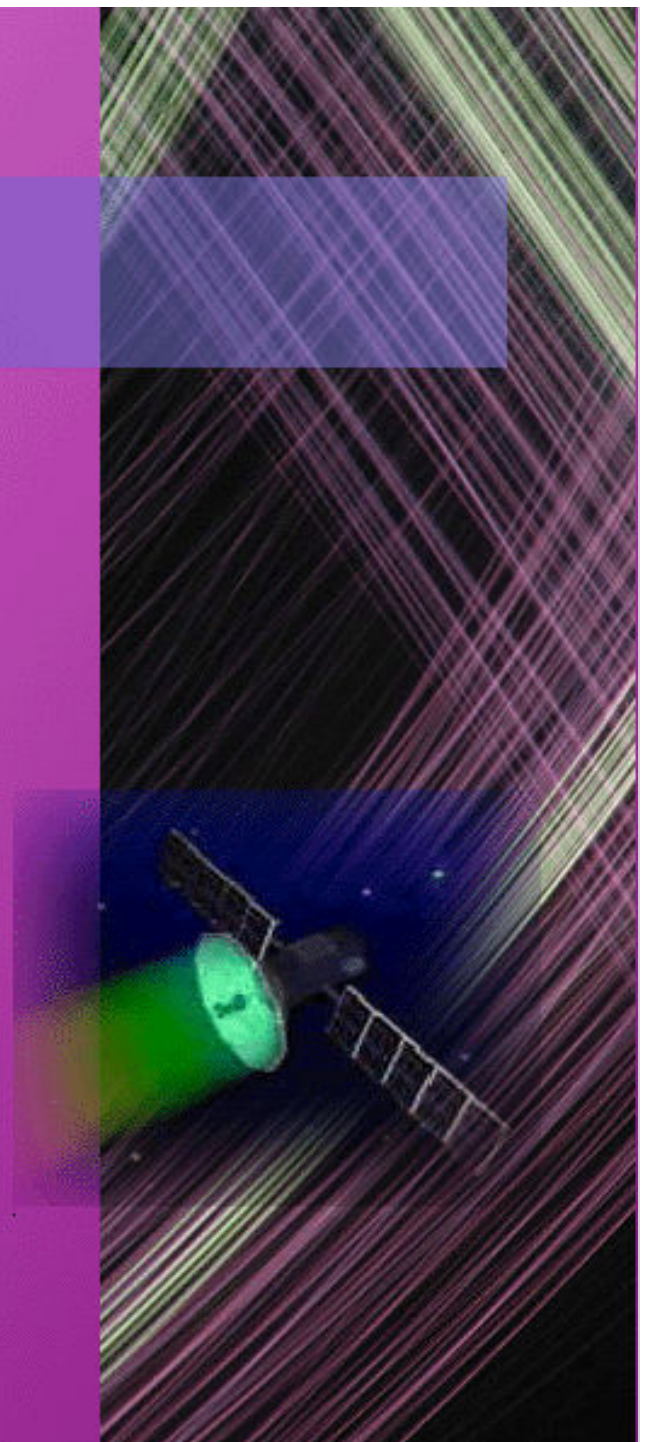
<http://www.umos.ru>

Rokson (Saint-Petersburg)

<http://www.rokson.nw.ru>

- Rusnet (Saint-Petersburg)

<http://www.stu.neva.ru>





# RUNNet announces

Number of announced networks

– 3000 (Class C)

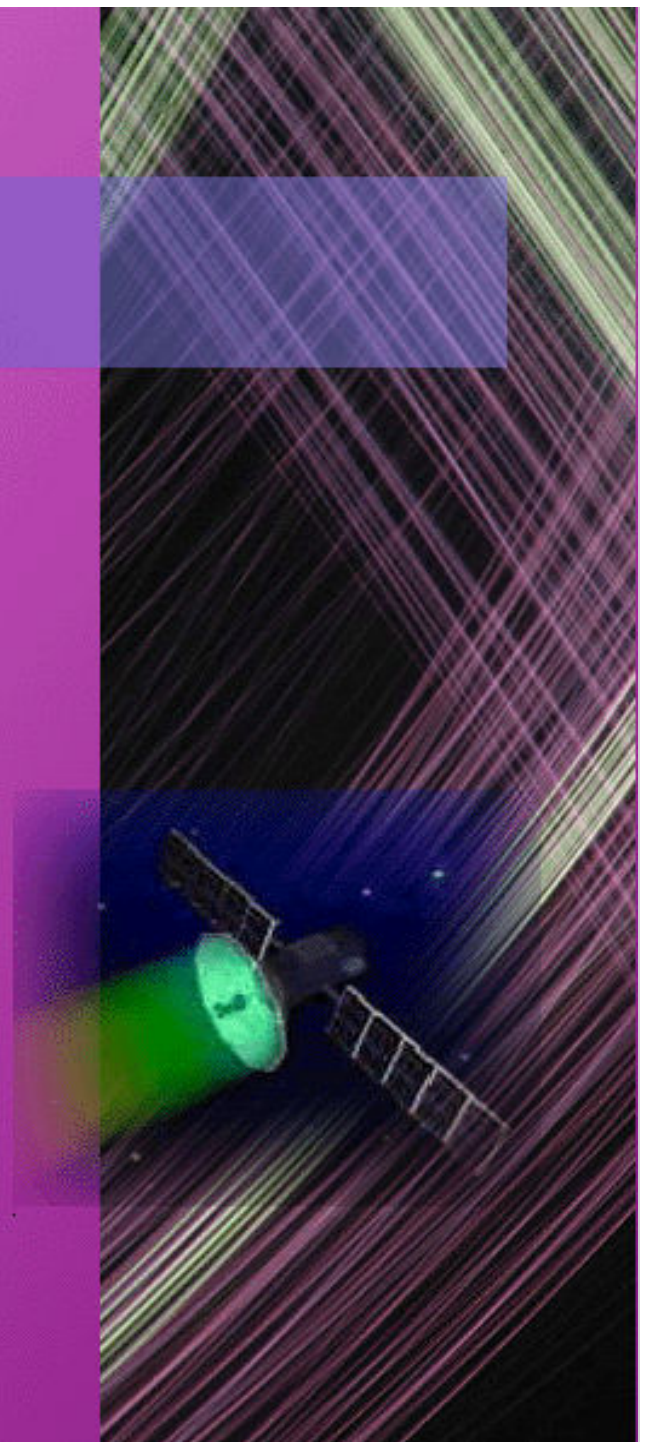
Own RUNNet networks

- 900 (Class C)

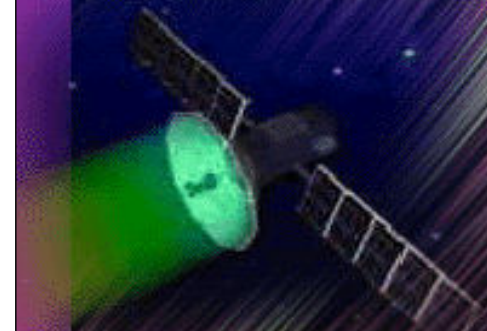
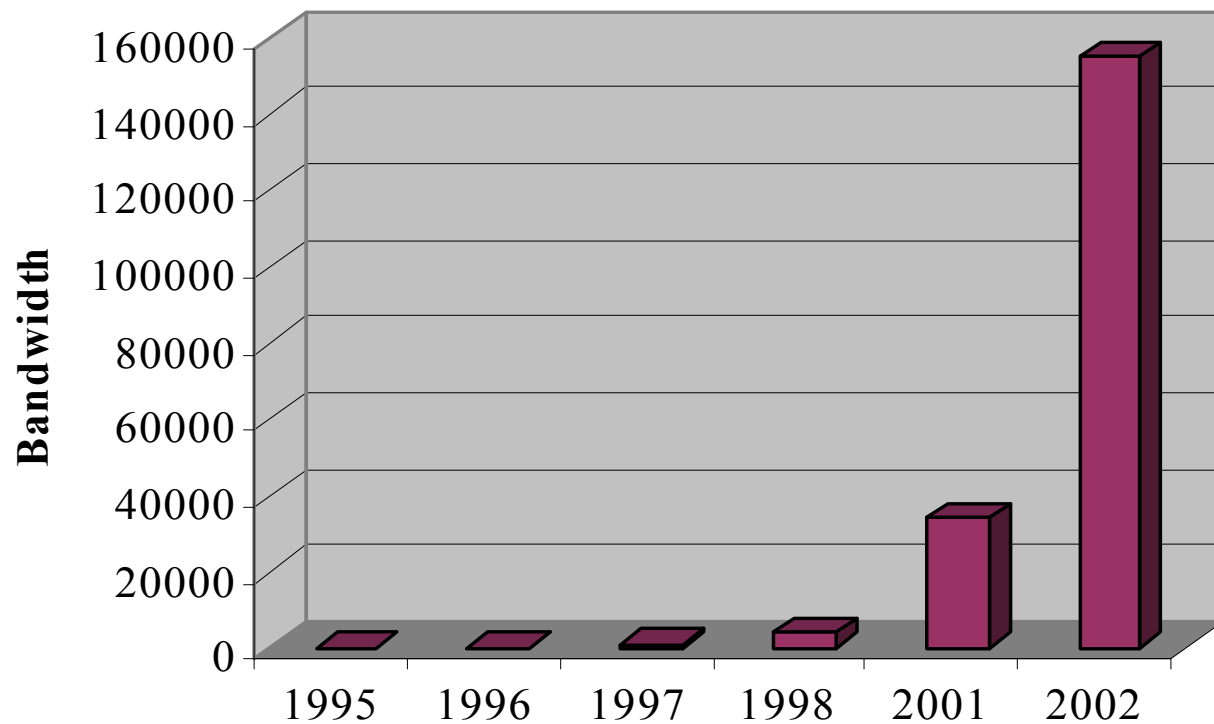
<http://www.nordu.net/connectivity/>

<http://www.level3.com/LookingGlass/>

<http://noc.runnet.ru/lg>

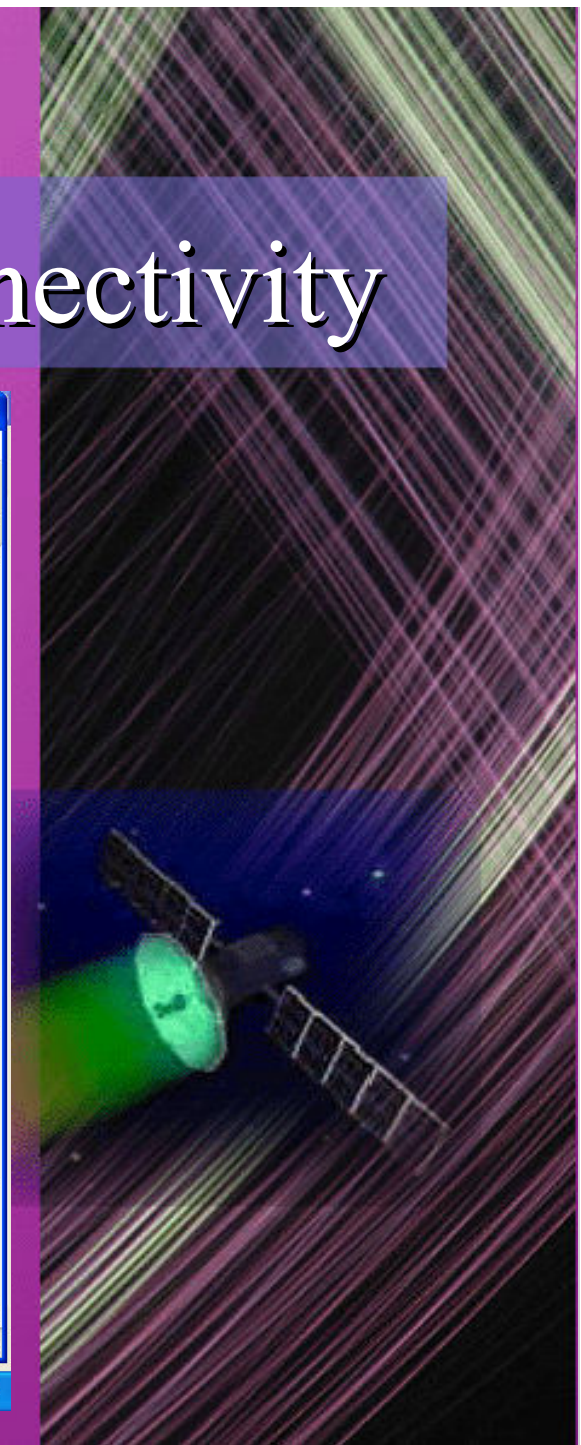
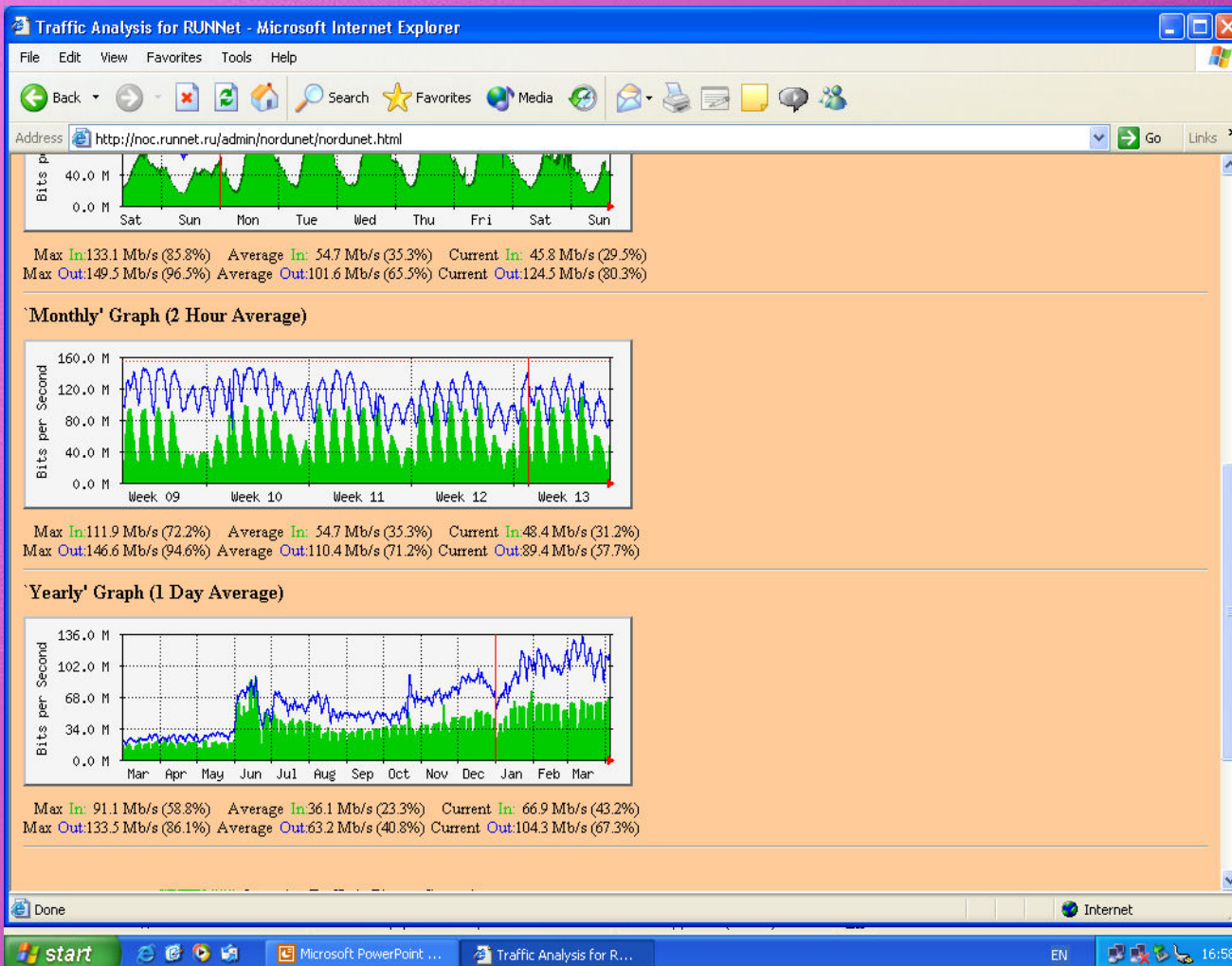


# RUNNet-NORDUnet connectivity



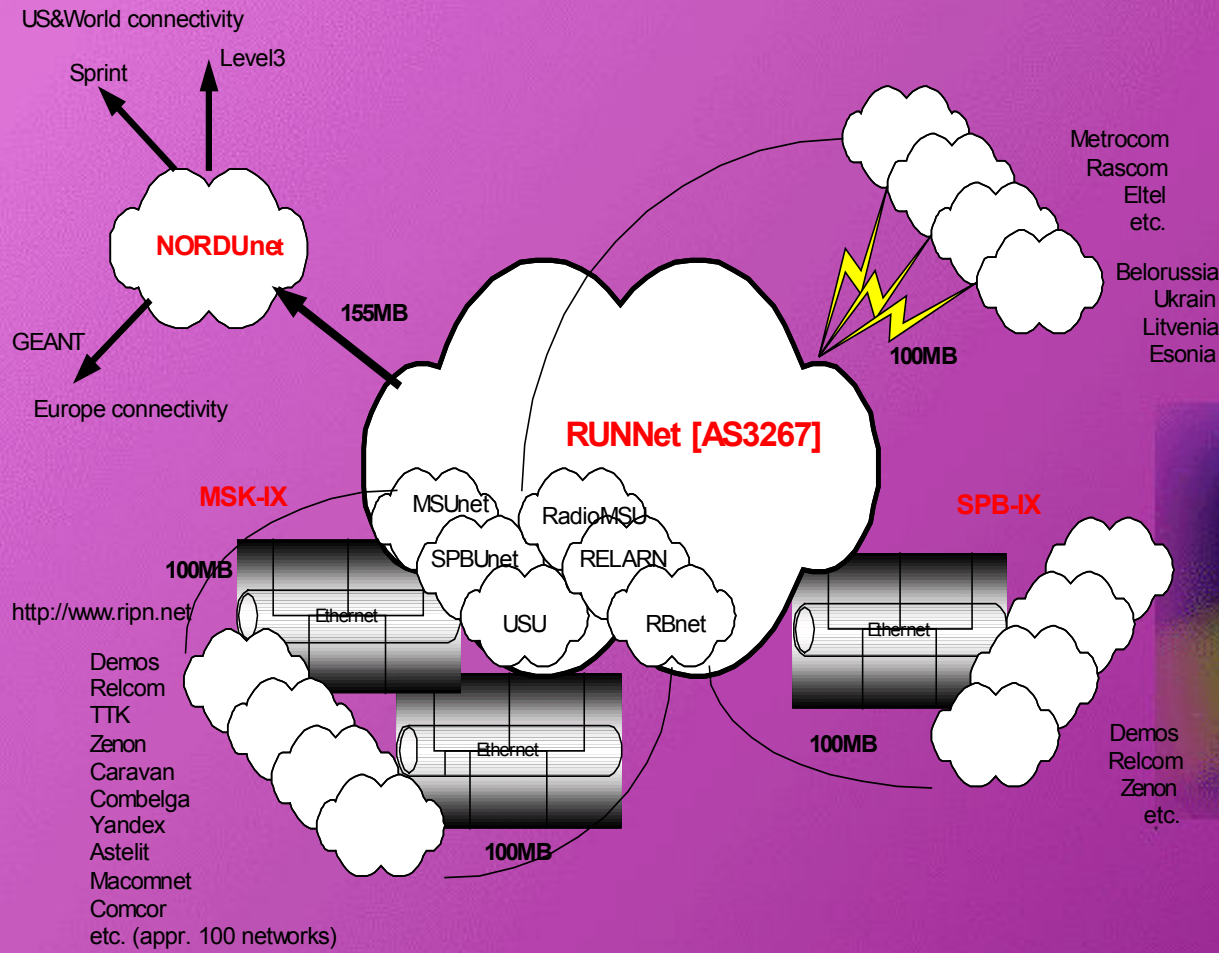


# RUNNet – NORDUnet connectivity





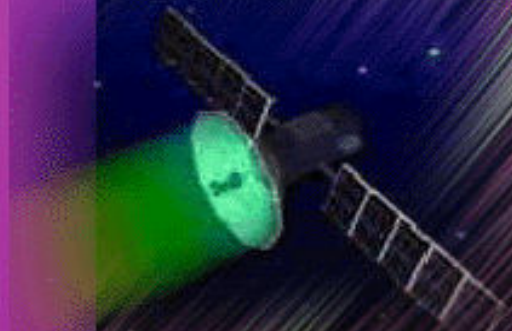
# External RUNNet channels





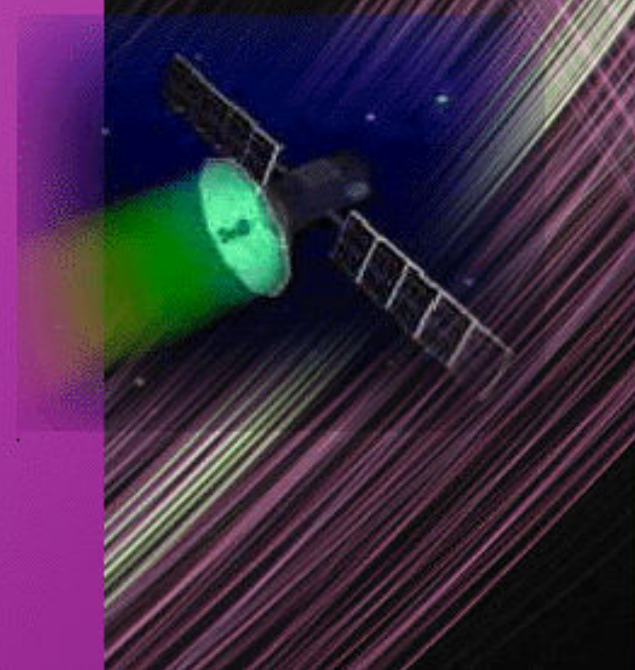
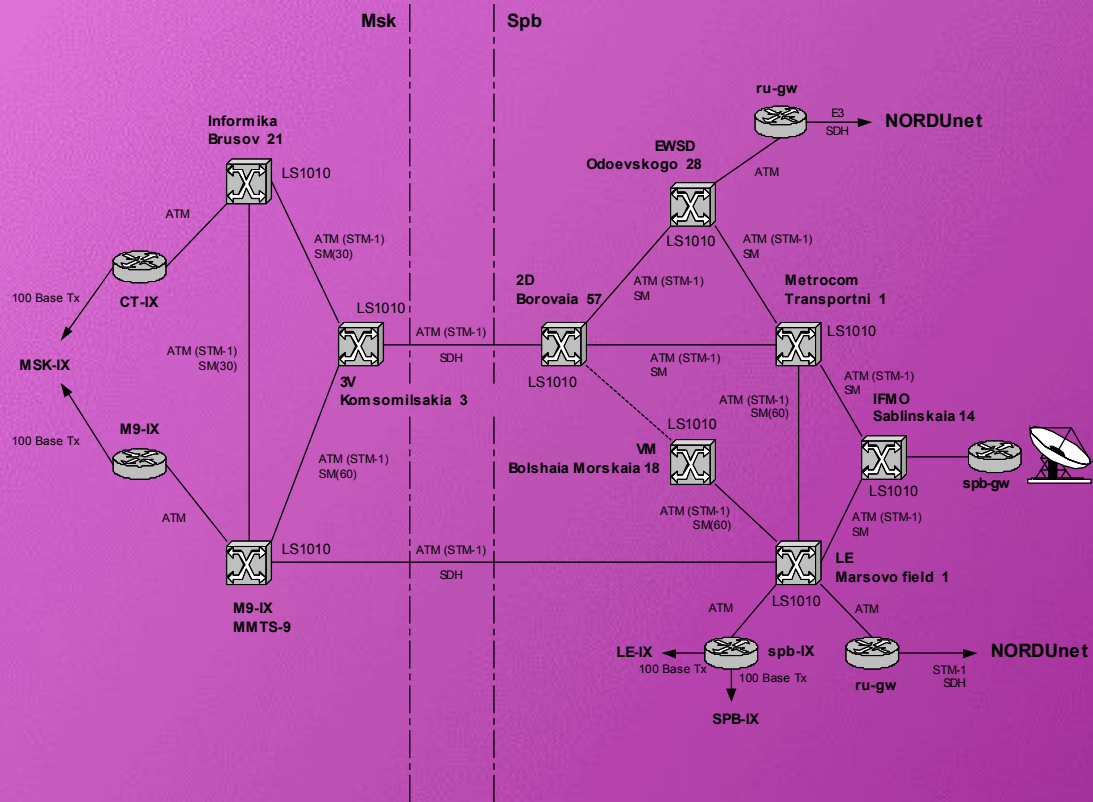
# RUNNet connectivity with regional POPs (Mb/s)

- Yaroslavl - Moscow 10
- Samara –Moscow 45
- N.Novgorod – Moscow 45
- Kazan – Moscow 10
- Rostov-na-Donu – Moscow 45
- Krasnodar – Rostov-na-Donu 10
- Novosibirsk – Moscow 65
- Ecaterinburg – Moscow 65
- Khabarovsk – Novosibirsk 2



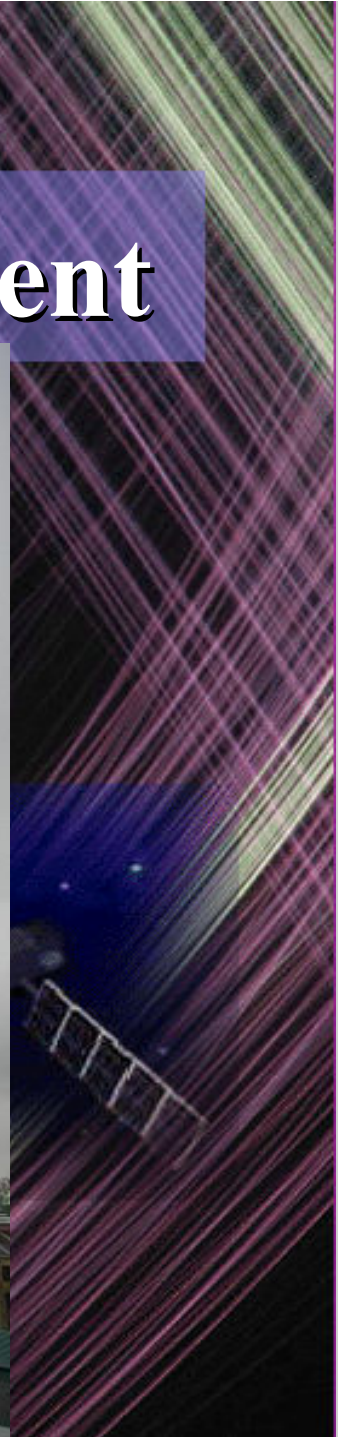


# msk-spb-ATM Network





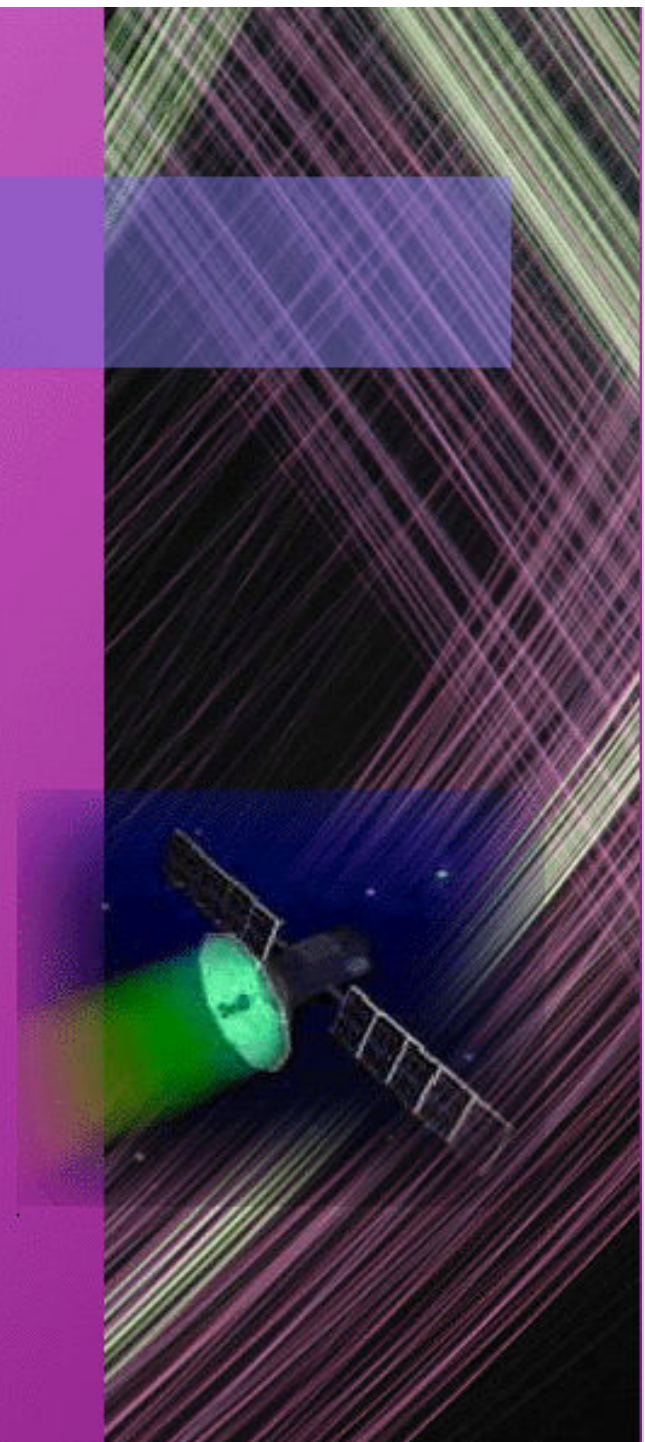
# RUNNet has a satellite component





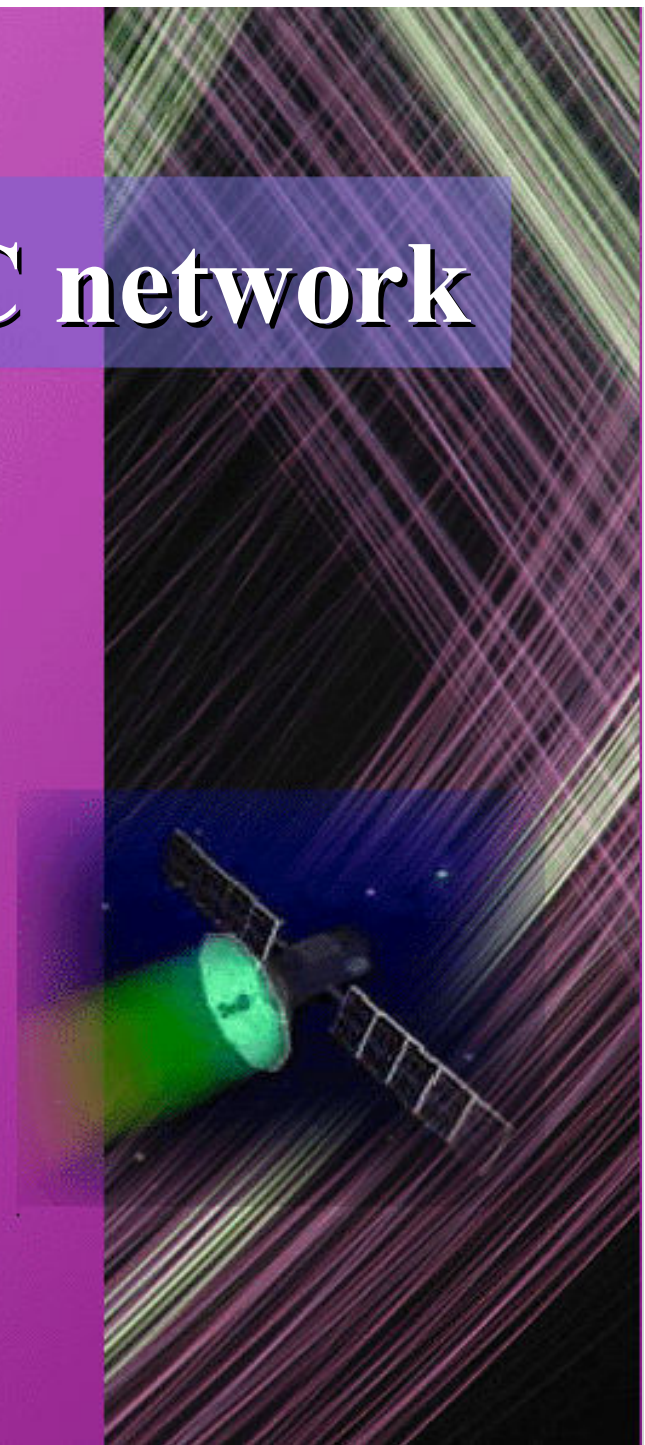
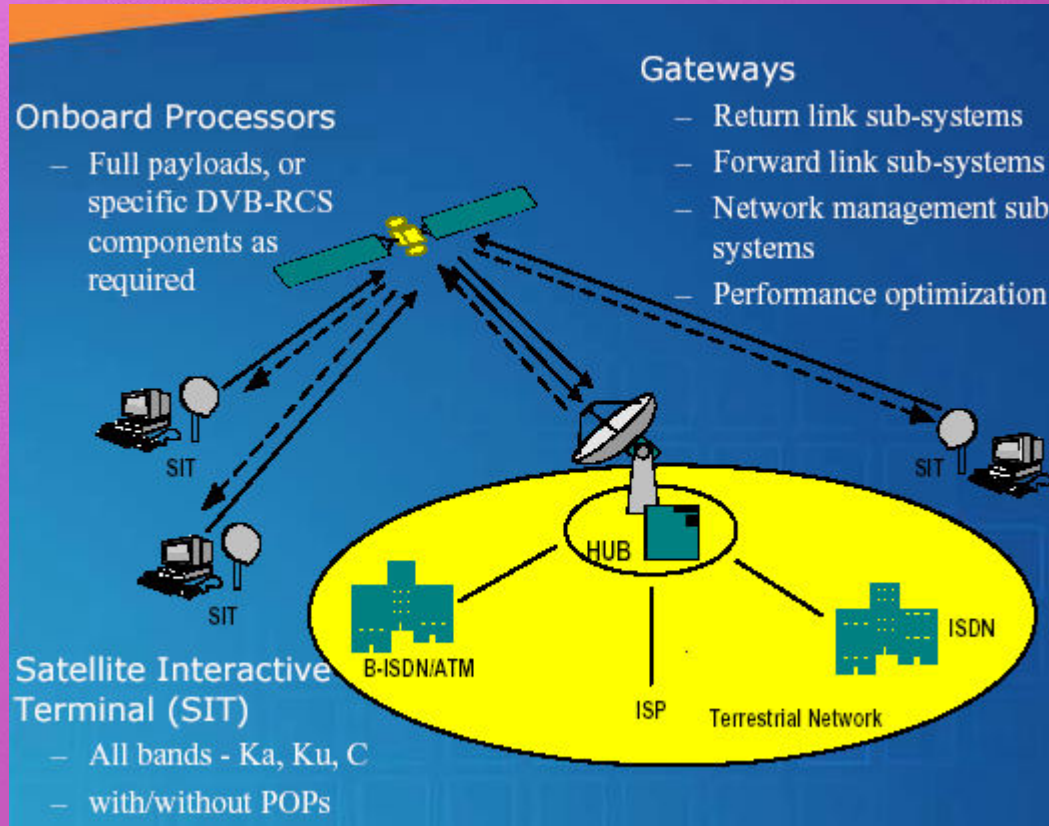
# Satellite nodes

Altay State University  
Dagestan State University  
Dagestan State Technical University  
Saint-Petersburh Institute of Nuclear Phisics RAS  
Izhevsk State University  
Krasnoyarsk State Technical University  
Kabardino-Balkaria State University  
Orenburg State University  
Saratov State University  
Severo-Kavkazski State Technical University  
Severo-Kavkazski State Technological University  
Tambov Sate Technical University  
Tomsk State University  
Tomsk State Technical University  
Vladivostok State University





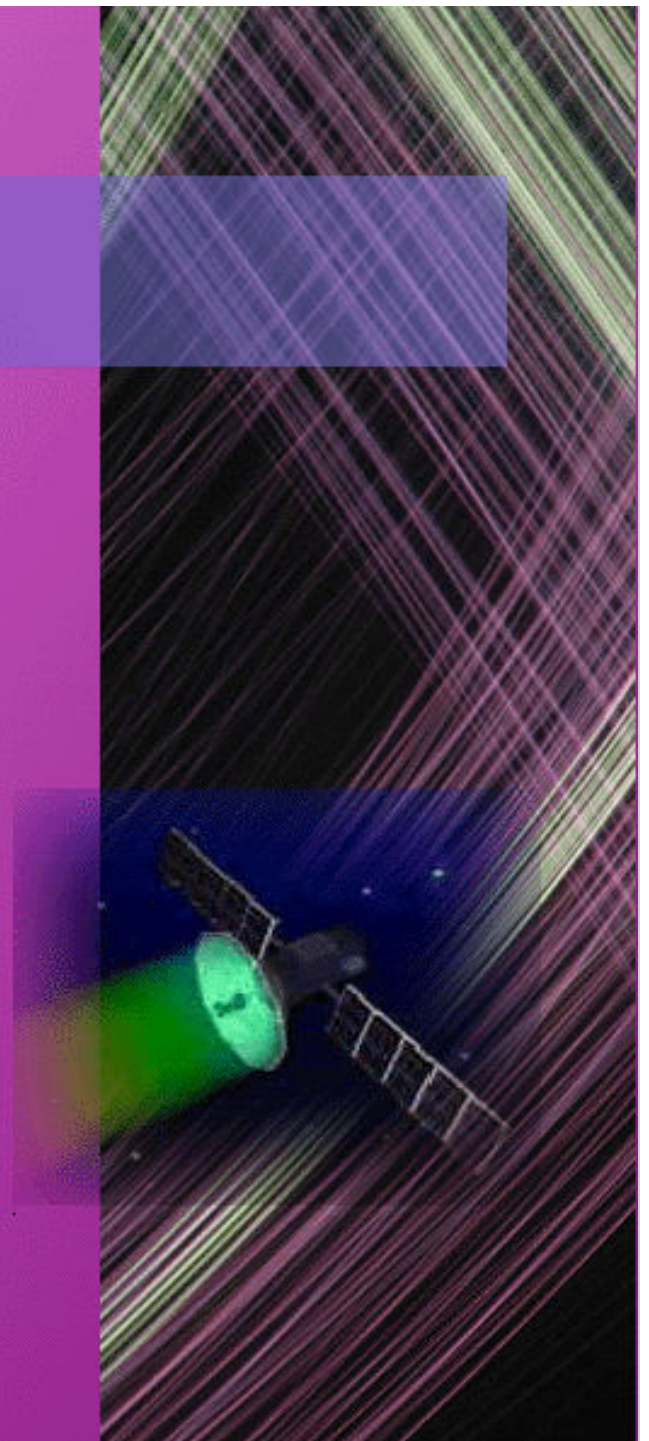
# Future DVB-S/DVB-RCS network





# RUNNet Services

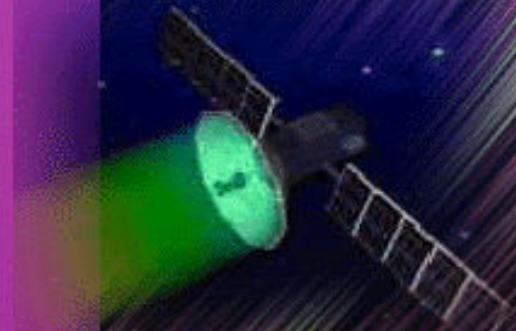
- Classic (sec. DNS, Usenet, ftp, http proxy, hosting,...)
- Russian education Internet domain support - edu.ru
- Mbone
- Internet2 & GEANT connectivity (through NORDUnet)
- IP telephony
- VPN VLAN, MPLS etc.
- Videoconferencing, Video on demand
- IPv6 (RUNNet-RBNet-FREENet)
- IP telephony
- Supercomputing (35 centers)





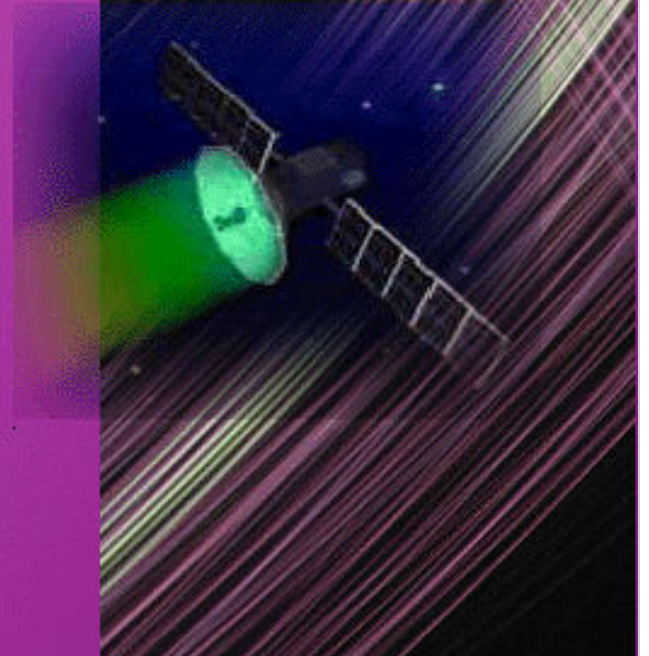
# Educational portals

- Federal portal «Russian Education»  
<http://www.edu.ru>
- Physics, Chemistry, Biology  
<http://en.edu.ru>
- Economics, Management, Sociology  
<http://www.economics.edu.ru>
- Law Science  
<http://www.law.edu.ru>
- Humanitarian Sciences  
<http://www.humanities.edu.ru>



# Educational portals

- Pedagogy  
<http://www.school.edu.ru>
- Unified State Examination  
<http://ege.edu.ru>
- Open Education  
<http://www.openet.edu.ru>
- Education in CIS  
<http://inform.mtuci.ru>





# http://www.ed.gov.ru/eng/



THE MINISTRY OF EDUCATION OF THE RUSSIAN FEDERATION

SEARCH



16.05.2003

▼ MENU

Russian version

Preschool education

▼ Secondary education

- primary, basic and secondary education

- supplementary education of children

- teaching and upbringing of children left without parents' care

- special (correcting)

▼ Vocational training

- primary

- secondary

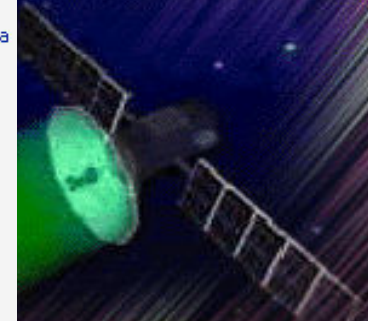
- higher

- supplementary vocational training

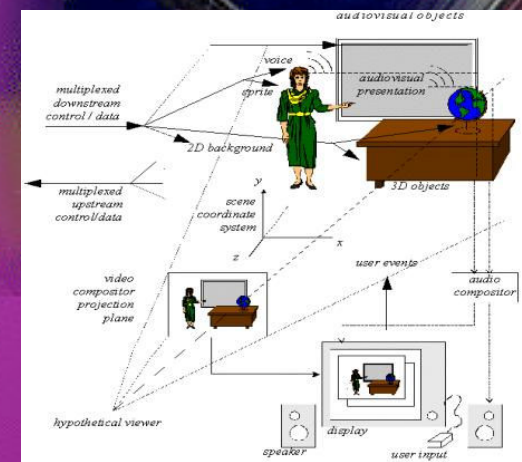
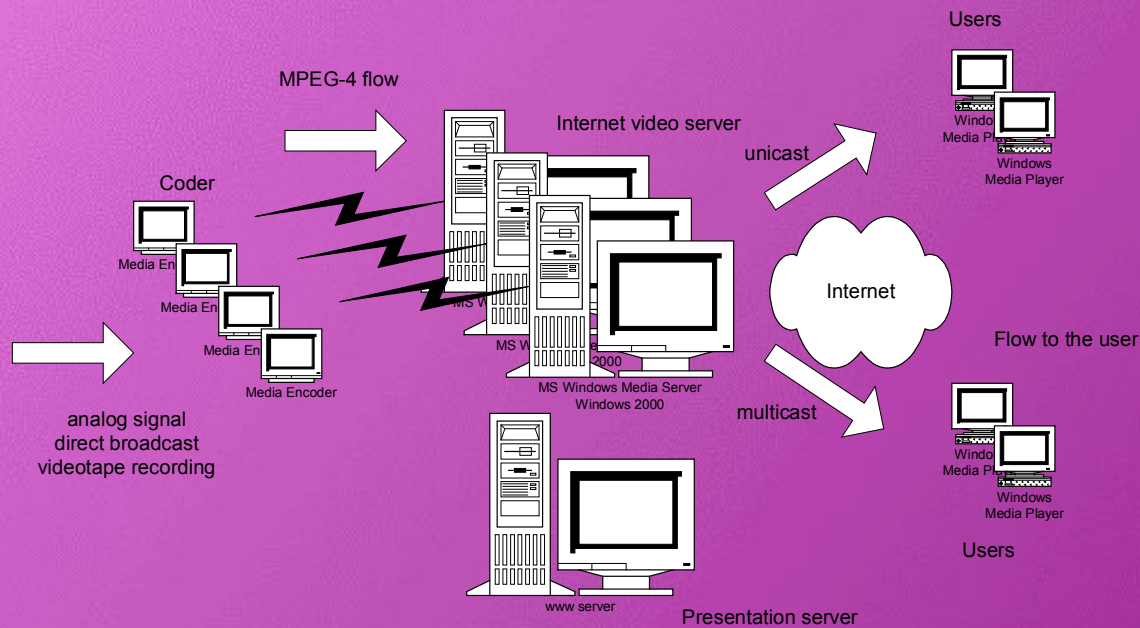
Scientific and technical and innovative activities

International cooperation

- Official requisites of the Ministry of Education of Russia
- Regulations about the Ministry of Education of the Russian Federation
- ▼ Organisational structure
  - Structure of the central office and management personnel of the Ministry of Education of Russia
  - Local Administrations of Education
  - Subordinated establishments and enterprises
  - Phone directory of the Ministry of Education of Russia
- The statutory acts regulating activity of the Ministry of Education of Russia
- ▼ Normative-Legal Documents issued by the Ministry of Education of the RF (*in Russian only*)
  - HTML-version
  - Database
- Information about present situation in the sphere of Education (*in Russian at the moment*)
- Current, coming and latest events of the Ministry of Education of Russia
- Federal programs, Federal target programs
- Press Office information (*in Russian*)
- Daily survey of the Russian periodicals(*in Russian*)
- Official Requisites and Schedule of Business hours of Reception&Information Service of the Ministry of Education of the Russian Federation



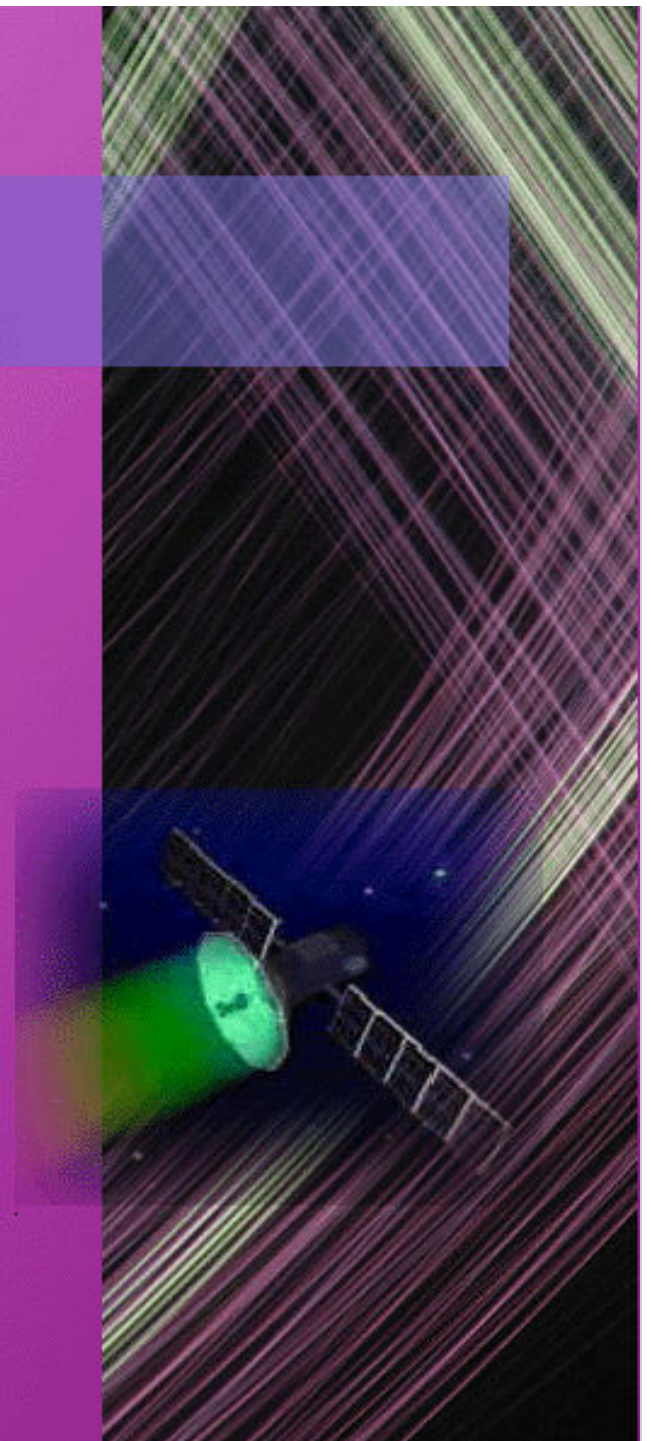
# <http://iptv.spb.ru>





# Tasks and goals

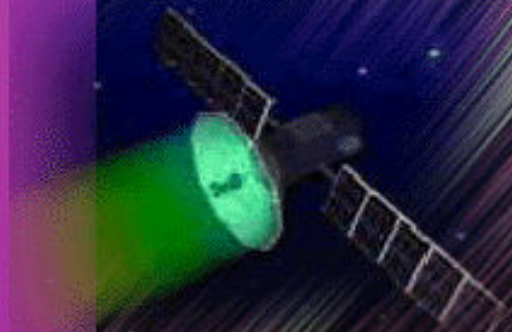
- Modernization of RUNNet backbone infrastructure
- Improvement of international connectivity (622Mb/s)
- Upgrade of last mile channels for educational enterprises
- Modernization of satellite network
- IPv6, GRID, MBONE projects
- Educational information resources development and delivery
- Integration to European infrastructure



# From Russia with love

Invitation to Saint-Petersburg  
300 year anniversary

<http://www.300.ru>



— Informika —



# Thanks a lot for your attention

- Yury Gugel  
Gugel@run.net
- Yury Izhvanov  
Yli@informika.ru

