



# BalticGrid-II Project

## SA2 - Network Provisioning

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# SA2 Team in BalticGrid-II

- IMCS UL
- KTH
- EENet
- NICPB
- VU
- RTU
- ITPA
- NICH BNTU
- UIIP NASB





# BalticGrid-II Project

**TODAY, 14:00 - 15:30**  
**TOMORROW, 9:00 - 10:30**





# Contents

- SA2 in BalticGrid
- Objectives
- Tasks
- Risks





# SA2 in BG

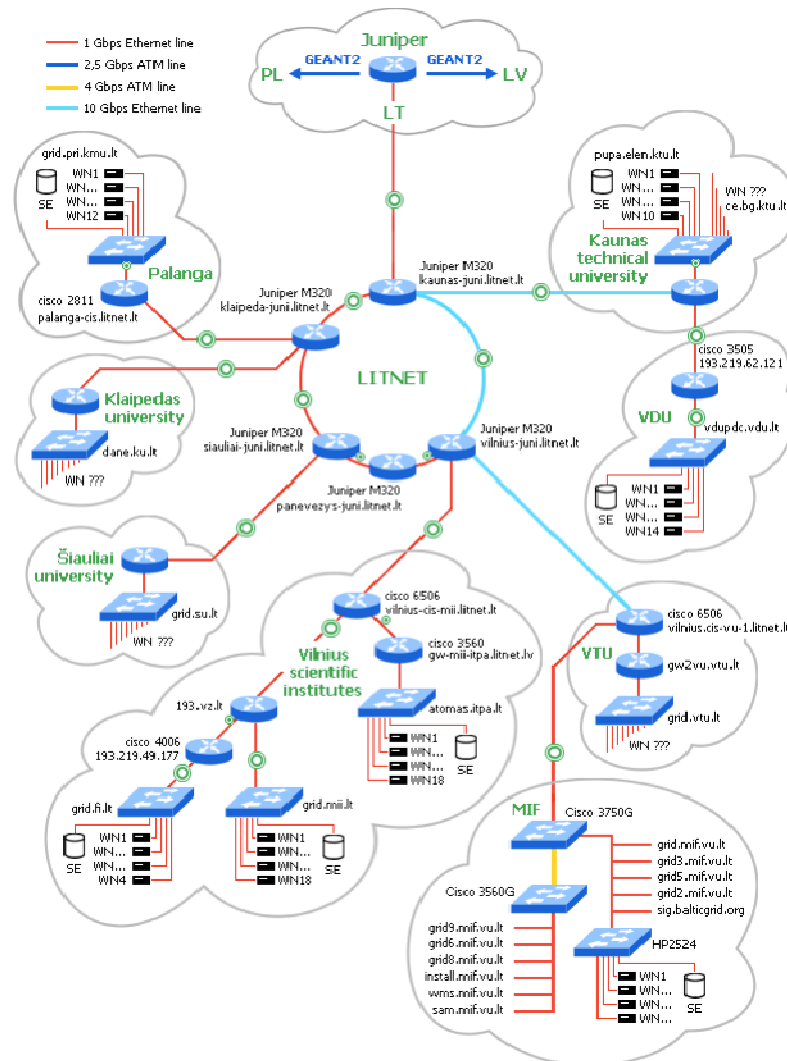
- GEANT connectivity - 1Gbps
- All BalticGrid resource centres connected to NREN network through 1Gbps ports
- SLAs signed with all Baltic NRENs
- Network monitoring system established to monitor SLA adherence





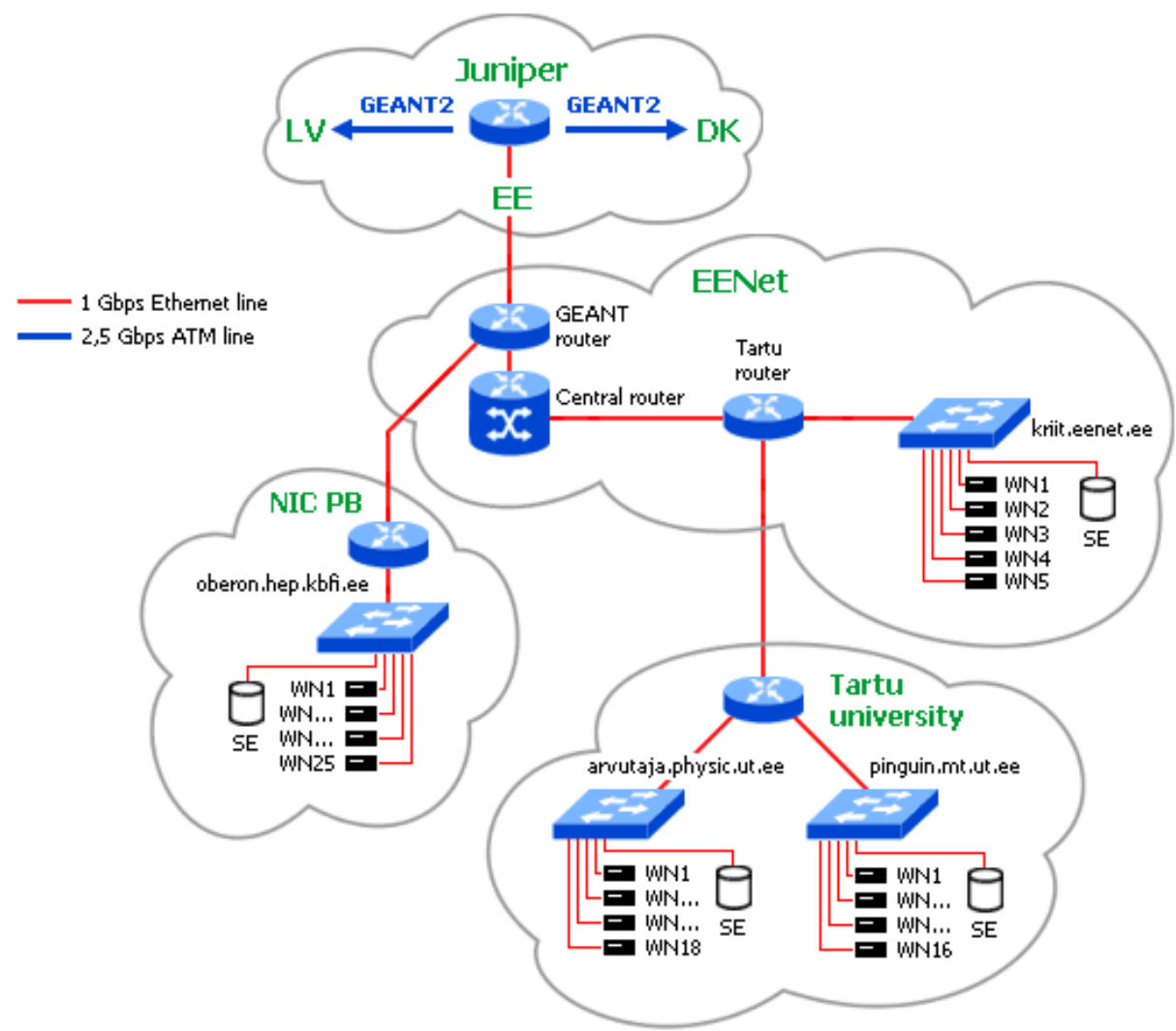
# Grid topology in Lithuania

home > Lithuania



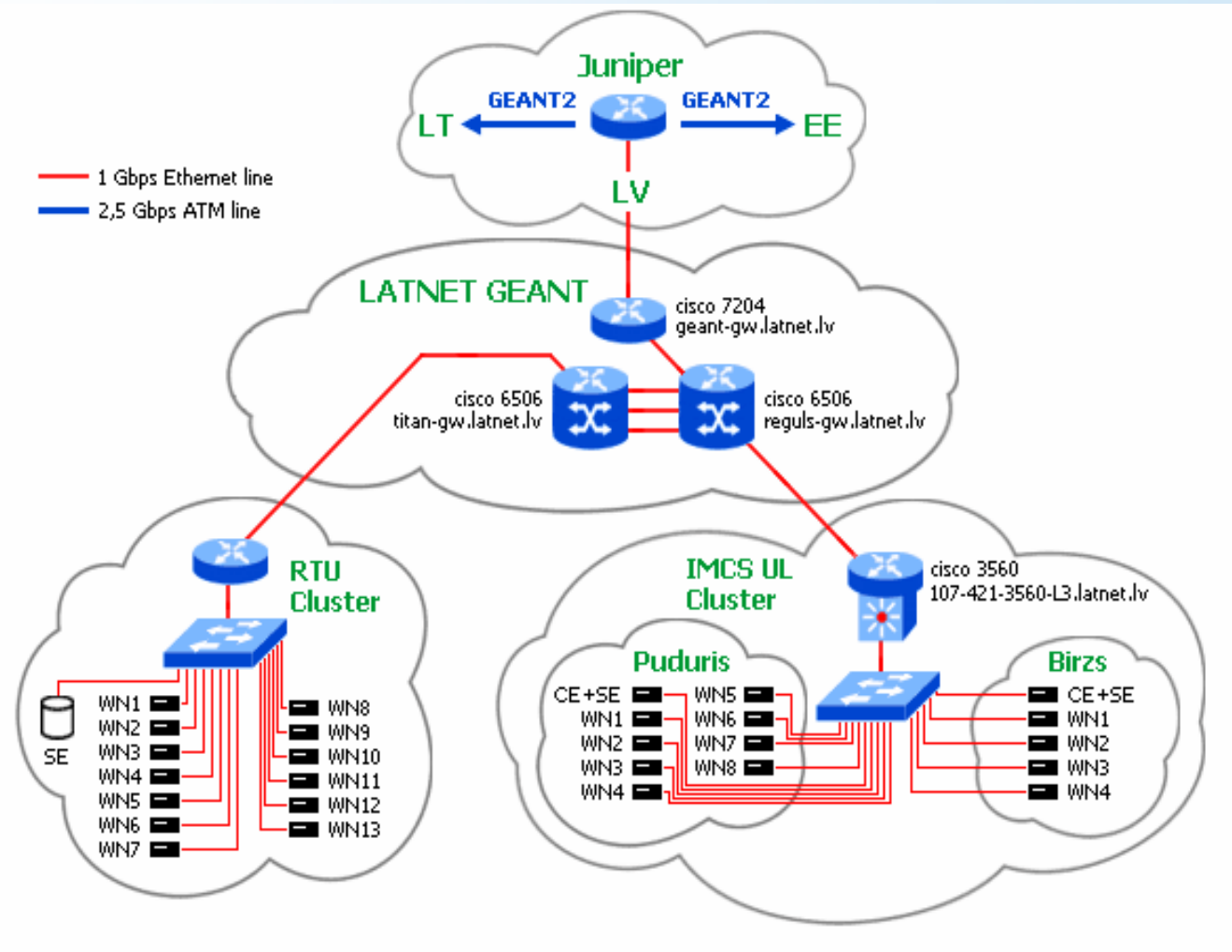


# Grid topology in Estonia





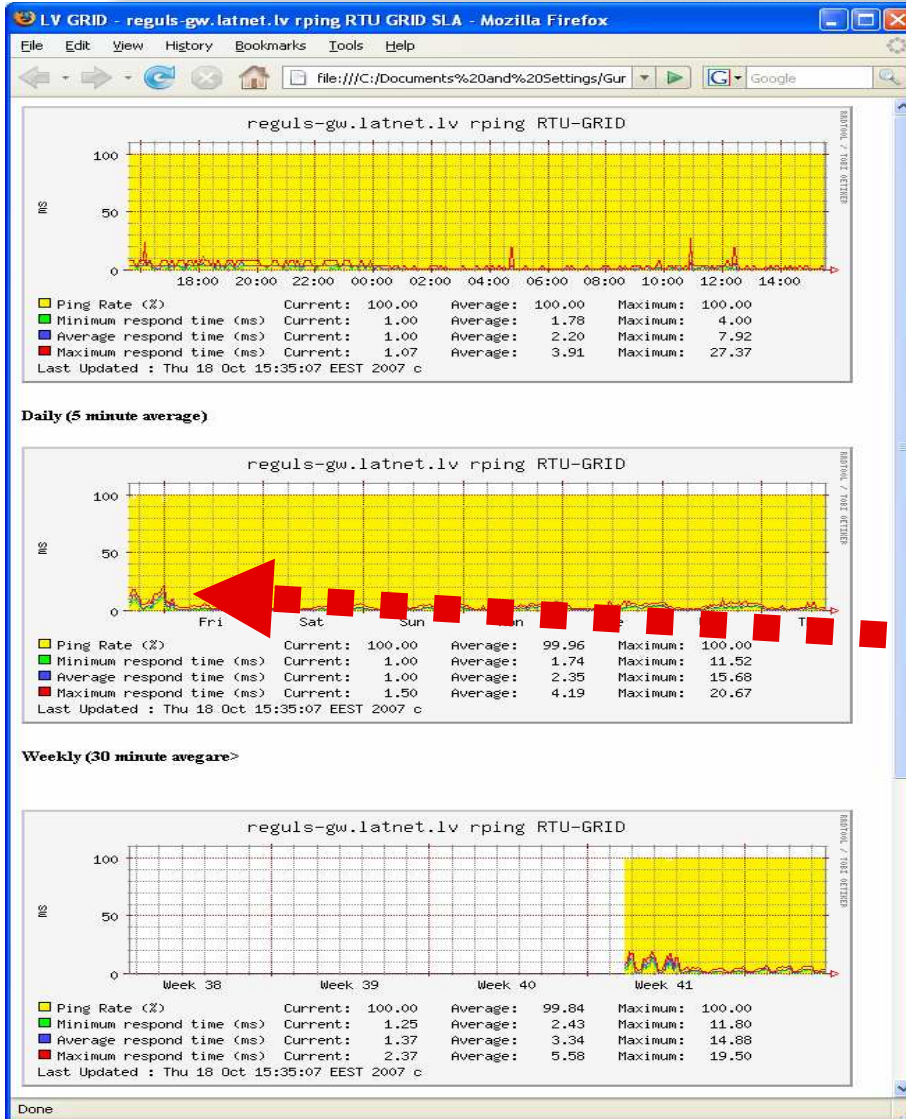
# Grid topology in Latvia







# SNMP rping monitoring



## Monitoring the SLA parameters

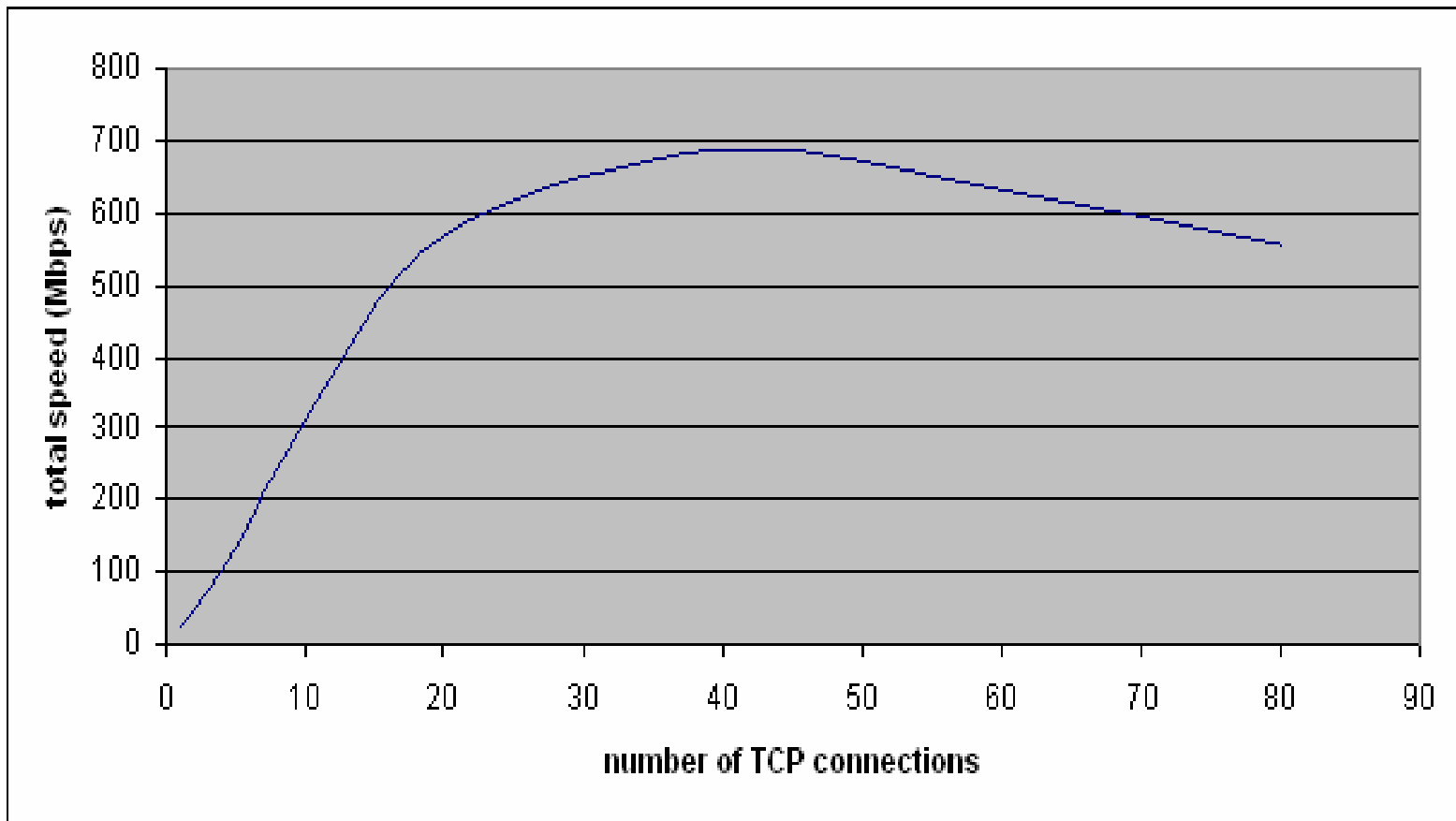
- ❖ Delay (RTT)
- ❖ Jitter
- ❖ Packet loss

At least one real problem detected and fixed



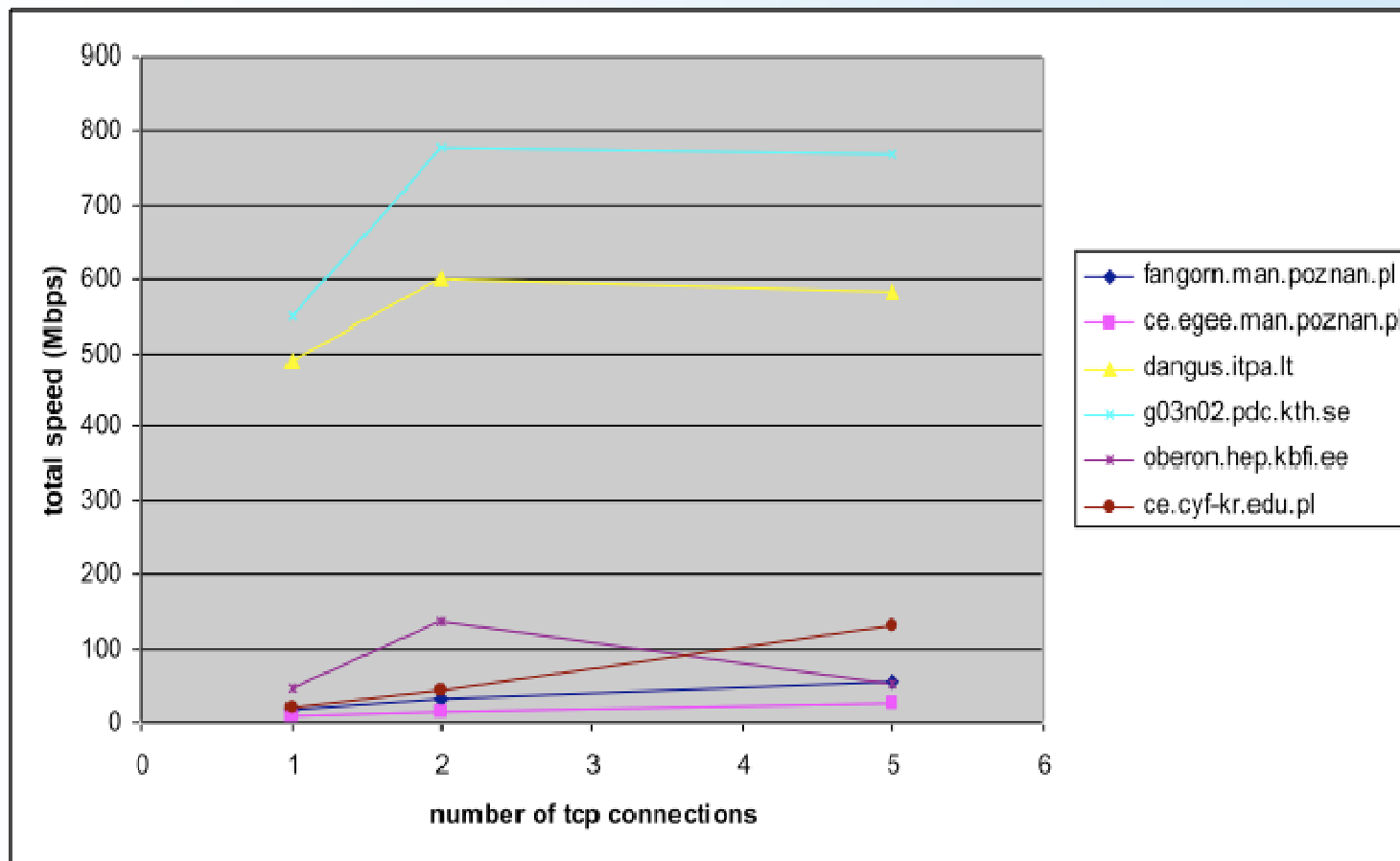


# Data transfer





# Bottleneck identified





# Overall SA2 Objective

- The overall strategy of SA2 is to ensure reliable network connectivity for Grid infrastructure in the Baltic countries and Belarus, as well as to ensure optimal network performance for large file transfers and interactive traffic associated with Grid.





# SA2 Objectives

- coordinate network services in all partnering countries, monitor network performance
- improve network provisioning
- provide efficient handling of security incidents
- coordinate the work of SA2 with other projects





# SA2 Tasks

- **Task 1** Expanding BalticGrid infrastructure to new partners (P01-P6)
- **Task 2** Establishing and operation of CNCC, NNCCs, and BalticGrid-IRTs (P01-P24)
- **Task 3** - Policy development (P03-P09)
- **Task 4** - Network monitoring and cooperation with other projects (P01-P24)
- **Task 5** - Deployment of high-speed TCP and scalable TCP (P06-24)





# SA2 Task 1

- **Task 1 - Expanding BalticGrid infrastructure to new partners:**
  - Gathering application requirements (VU, UIIP NASB, NICH BNTU)
  - Analysis of application requirements (IMCS UL)
  - SLS development (IMCS UL)
  - SLA drafting (IMCS UL, UIIP NASB)
  - Negotiating SLAs with network operators (IMCS UL, UIIP NASB, KTH)
  - Conclusion of SLAs (KTH)





# SA2 Task 2

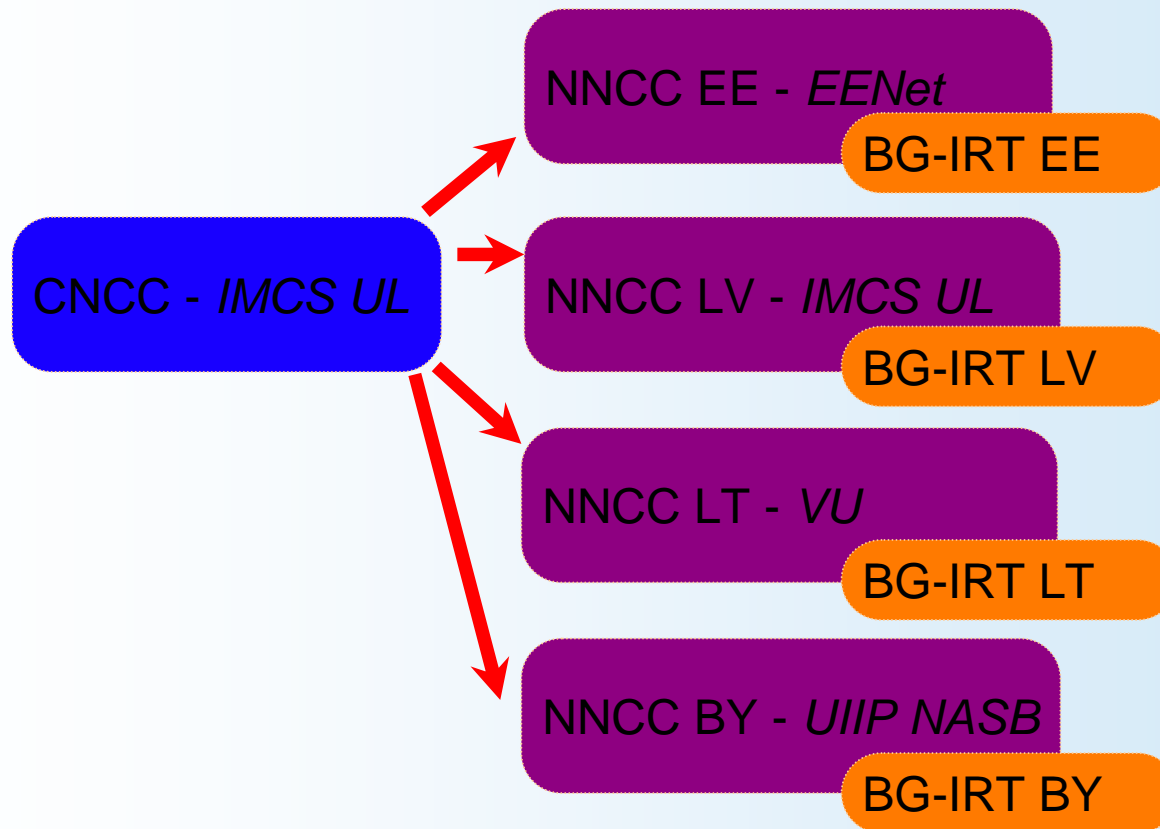
- **Task 2 - Establishing and operation of CNCC, NNCCs, and BalticGrid-IRTs:**
  - IMCS UL will set up the CNCC
  - NNCC in Latvia will be run by IMCS UL
  - NNCC in Lithuania will be run by VU
  - NNCC in Estonia will be run by EENet
  - NNCC in Belarus will be run by UIIP NASB.





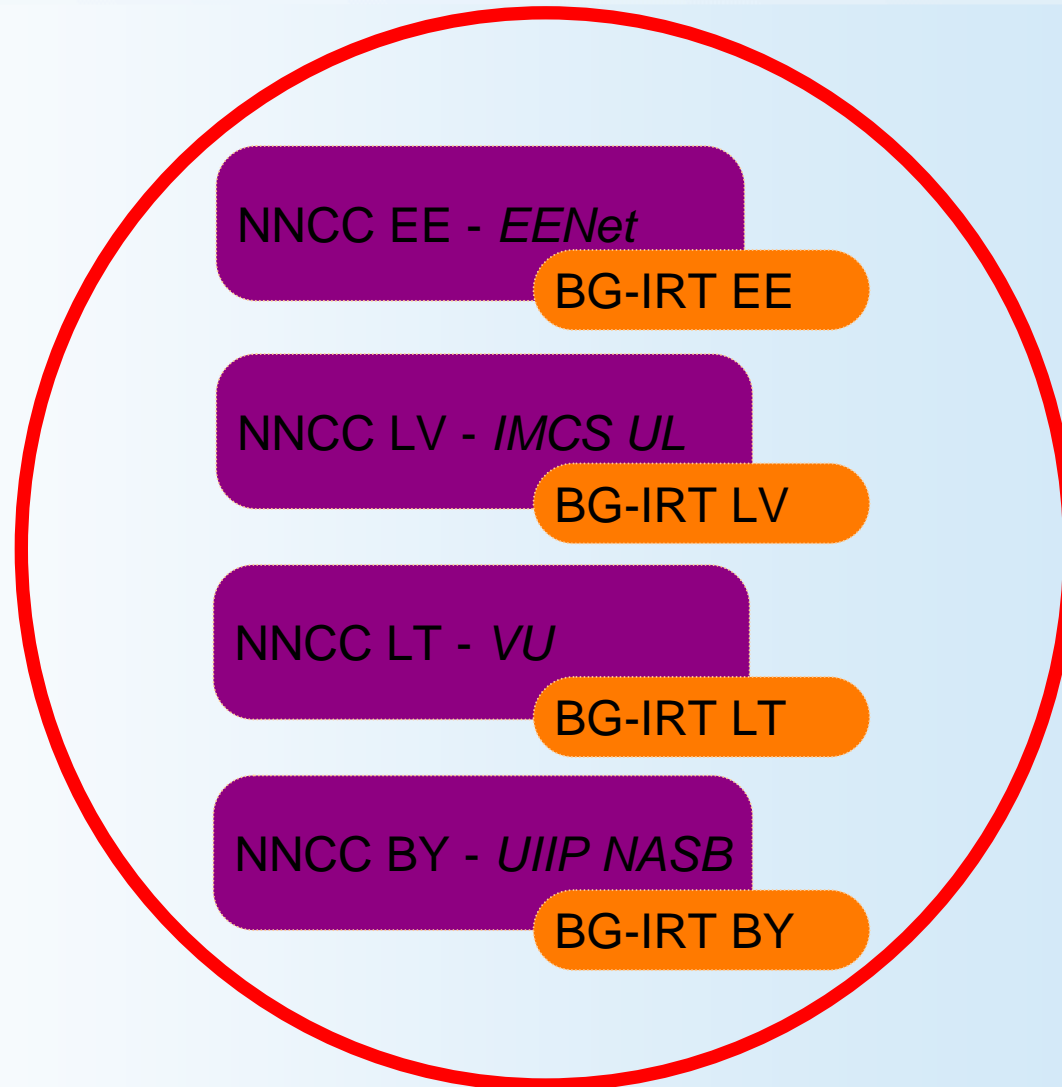


# CNCC, NNCCs, BG-IRTs





# CNCC, NNCCs, BG-IRTs





# Responsibilities of NNCC

- Monitoring network and storage elements 24x7
- Study and identification of observed network problems
- Notification of local Grid users about security incidents and solutions implemented
- Communication with service providers about daily operations
- Testing and approbation of new solutions for full utilisation of available network bandwidth
- Development and implementation of security policy and handling of security incidents





# SA2 Task 3

- **Task 3 - Policy development:**
  - Risk analysis for BalticGrid network (IMCS UL, all partners)
  - Studying experience of other Grid projects (IMCS UL)
  - Grid Acceptable Use Policy development (IMCS UL, all partners)
  - Security Policy development (IMCS UL, all partners)
  - Incident Handling and Response Policy development (IMCS UL, all partners)
  - Implementation of developed policies (all)





# SA2 Task 4

- **Task 4 - Network monitoring and cooperation with other projects:**
  - Investigation of requirements for joining the global European monitoring infrastructures (IMCS UL)
  - Obtaining and installation of software and hardware participate in these infrastructures (all partners);
  - Liaison with GN-2 and EGEE project respective activities will be fostered by CNCC (IMCS UL).





# SA2 Task 5

- **Task 5 - Deployment of high-speed TCP and scalable TCP:**
  - Deployment and testing of new approaches to data transfer (all partners);
  - Suggestions to standards and policies (IMCS UL, RTU);
  - CNCC and NNCC ensure that the modified high-performance TCP data transfer sessions do not interfere with the traffic of other users (IMCS UL, EENet, VU, UIIP NASB);
  - Optimal alternatives for the Grid storage element middleware considered and tested (all partners)





# Risks

- Wrongly estimated network requirements
- Unwillingness of NRENs to cooperate
- Occurrence of unforeseen security incidents





# BalticGrid-II Project

**THANK YOU!**  
**Have a successful project!**

