

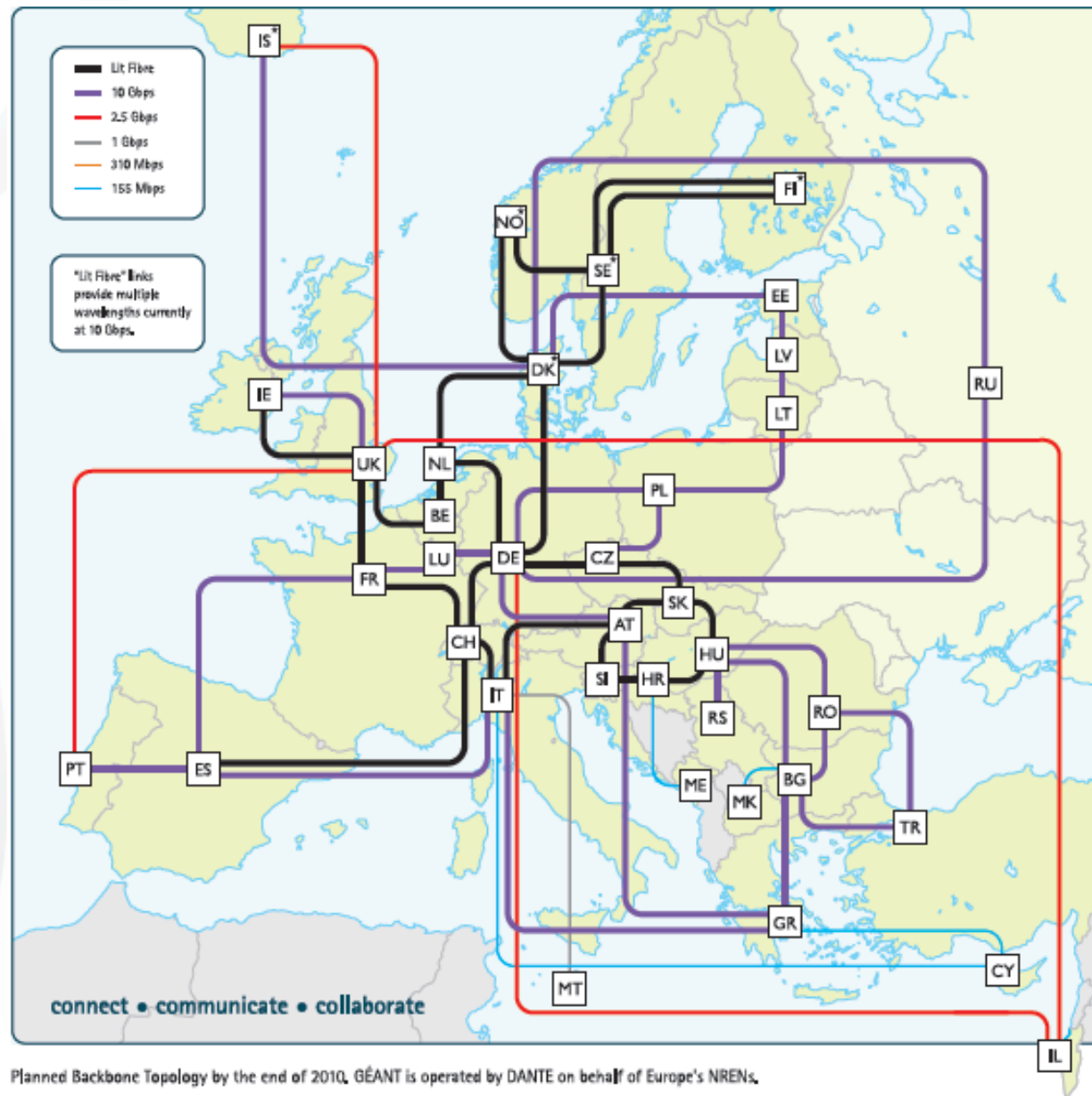


# Cost sharing principles and practice in developing and using e-infrastructure facilities and services

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# Example: GÉANT network



# Cost Sharing Principles

- Fair and equitable
- Related to underlying costs
- Encourage the use of new services
- Stable

# Basic Network Access and Services

- Basic Network access and services
  - GÉANT access = IP access up to 20 Gbps or
  - GÉANT+ access = IP access up to 20 Gbps + Point to Point Service up to 20 Gbps
  - Services: EduROAM, EduPERT, EduPKI, EduGAIN etc
- One PoP per country
- Approximate cost: 29 M EUR/year



# GEANT consortium

- 32 NRENs (one per country) + DANTE + TERENA
- NREN Policy Committee
  - Adopts from time to time a special resolution how to share the cost among NRENs
- Voting structure: each NREN has a number of votes which is connected to the Purchasing Power Parity of that country
- NRENs in smallest countries have 1 vote, NRENs in biggest countries have 7 votes
- Cost Sharing Working Group
  - Prepares proposals for NREN PC



# Cost elements – the easy part

- Dark fibre lease costs
- Leased circuits within Europe
- Global leased costs
- Transmission equipment costs
- PoP housing
- .....

The difficult part: how to share this



# Factors that influence the subscription for individual NREN

- Access capacity
- Type of access (GÉANT or GÉANT+)
- Cost of the circuits/dark fibre to that NREN (average of the cheapest two)
- A discount for NREN with a single connection
- Number of votes NREN has (in relation to Purchasing Power Parity of a country)



# The Model

- The model is realised with formulas in a big excel table
- Input:
  - factors that influence cost
  - parameters which define the influence of all the above factors
- Output:
  - subscription table for all NRENs
- The model is flexible but quite complex and difficult to understand





# Problem of the small countries

- Purchasing Power Parity is one of the factors which influences the subscription, this benefits the small countries
- Other factors
  - relatively larger access needed and
  - more expensive infrastructure

increase the subscription for the small countries



# Example Arnes/Slovenia : DFN/Germany

- Arnes subscription is 752 kEUR/year
- That is €188/year/researcher or  
37 c/year/inhabitant
- DFN subscription is 1.615 kEUR/year
- That is €13/year/researcher or  
2 c/year/inhabitant



# Other (non-realistic) possibilities for cost sharing

## Arnes/Slovenia

- Present subscription: 752 k EUR/y
- According to population: 97 kEUR/y
- According to PPP: 96 kEUR/y
- According to R&D expenditure: 57 kEUR/y
- According to # of researchers: 123 kEUR/y



# Other (non-realistic) possibilities for cost sharing

## DFN/Germany

- Present subscription: 1.615 kEUR/y
- According to population: 3.889 kEUR/y
- According to PPP: 4.243 kEUR/y
- According to R&D expenditure: 6.989 kEUR/y
- According to # of researchers : 3.810 kEUR/y



# Is is this fair ?

- Slovenia needs relatively bigger access (any research project is international)
- It is costlier to connect all users in a bigger country (larger network inside country) (GÉANT cost is 12 % of Arnes and 4 % of DFN budget)
- It is more expensive to connect Slovenia than Germany into GÉANT.
- Political reality: researchers in Slovenia are more interested to be connected to their German colleagues than the opposite and any other option would be even more expensive



Well, it is the best compromise

..... all European NRENs participate.

and

I think that EC cofunding is decisive  
for the inclusiveness.

