

# Collaboration in Research and Education

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# Agenda

- What is an NREN and what is NORDUnet
- What are the services we are developing and how do they help education collaborate, disseminate and share information using Internet
- Going forward discussion

# What is an NREN

- National Research and Education Network
  - Connecting educational institutions to each other and the Internet
  - Bridge the digital divide
  - Help users with high bandwidth requirements

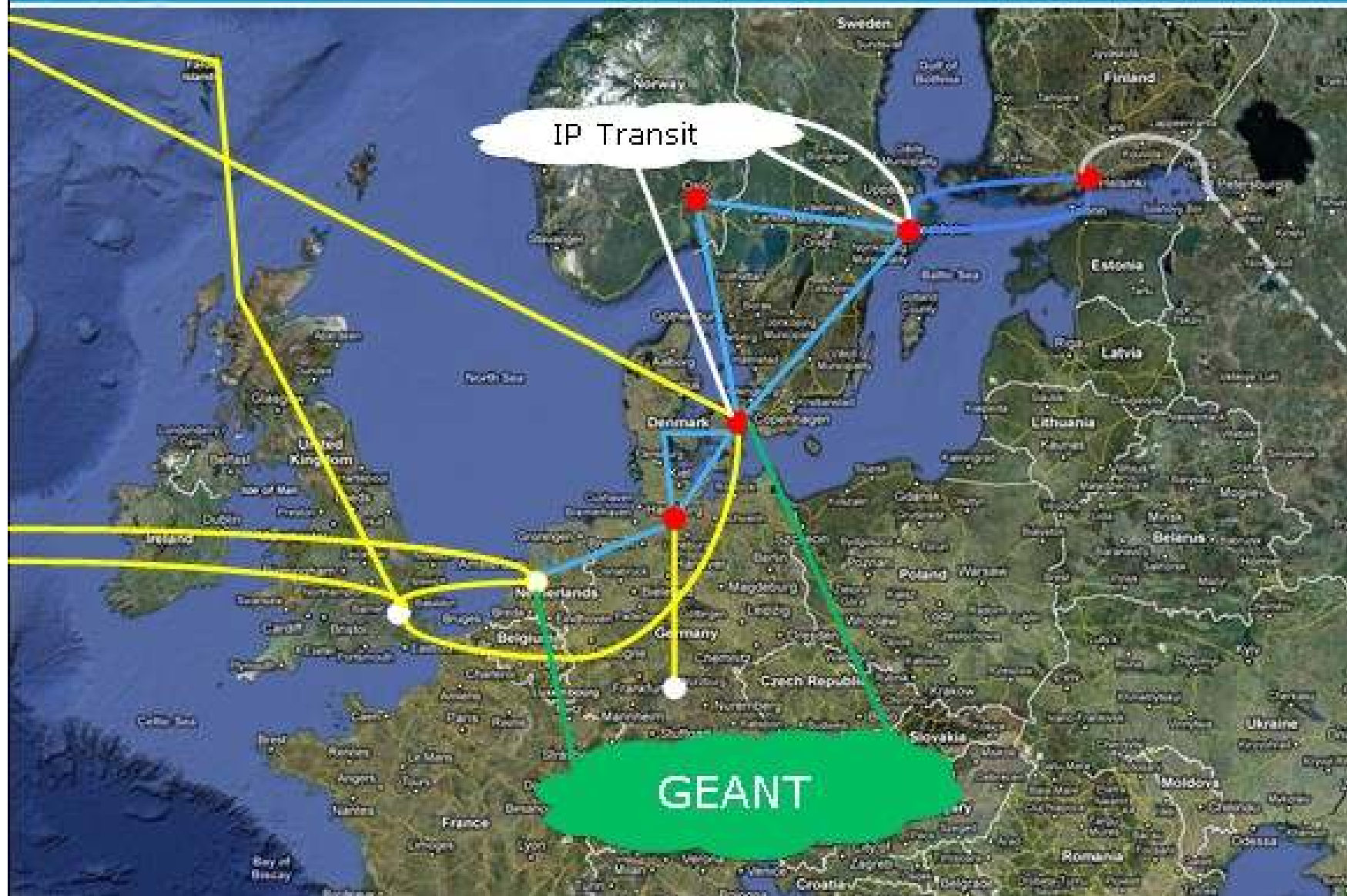
# What is NORDUnet

- Delivering internet connectivity to five Scandinavian National Research and Education Networks (Sweden, Finland, Norway, Denmark and Iceland)
- Also has presence in Amsterdam, Frankfurt, Copenhagen, Ashburn (Washington D.C.), Chicago, Palo Alto, London, Stockholm, Oslo, Miami, New York, Reykjavik
- Scandinavian success based on connectivity, transparency and collaboration

# NORDUnet

Nordic Infrastructure for Research & Education

# NORDUnet Europe 2011



# Peering presence



[illegible]

# Network and Services

- 2005 primary service was network
- 2012 there is a much larger focus on other services
- However infrastructure and connectivity still vital for future use and development of services



# Federations

- What is a federation
  - Collection of users in physically different places virtually collected in one place
- Why is it important
  - Enable users to use different services with only one account
  - Easier to connect to new services
  - Keep control of important user data

# e-learning

- Remote education and video conferencing
- Help people connect over long distances
- Decrease travel and get positive environmental impact

Stefans meeting (Sharing) - Mozilla Firefox

https://connect.sunet.se/?launcher=false

Support

Meeting


Layouts

Pods

Audio

Help

Share



Video

Start My Webcam

Attendees (1)

▼ Hosts (1)

**Stefan Liström**

► Presenters (0)

► Participants (0)

Chat (Everyone)

Sharing

Discussion

Collabor...

# Video distribution

- Online teaching can reach a larger group of people
- Disseminating the collected information in the world over Internet using video
- More common now to find free course material on the Internet

# Online storage

- Before data was more commonly stored on the personal computer hard disk drive, now it is getting more common to store data in remote locations using “cloud” services
- Data accessible from “anywhere”
- Makes sharing information and collaborating easier

# Mobility

- Travel anywhere but use your own (home) account for authentication using the eduroam service
- Service presence expanding through tendering and SSID swapping

# Operational knowledge sharing

- Operational issues and problems can be solved faster if we can work together easier
- fordrop, based on XMPP and activity flows in JSON
- More operational challenges; server configuration management and deployment, automatic deployment of network services and virtual networks, automatic network discovery and inventory creation, multidomain trouble ticket distribution system

# Summary

- NORDUnet services help education connect, collaborate and disseminate information using Internet
- Good connectivity, high transparency and collaboration very important factors for future use and development of services



# Going forward

- Is this relevant for Auroville?
  - Connectivity project in Auroville
  - Open source collaboration
  - Continued involvement of people collaborating with Auroville globally