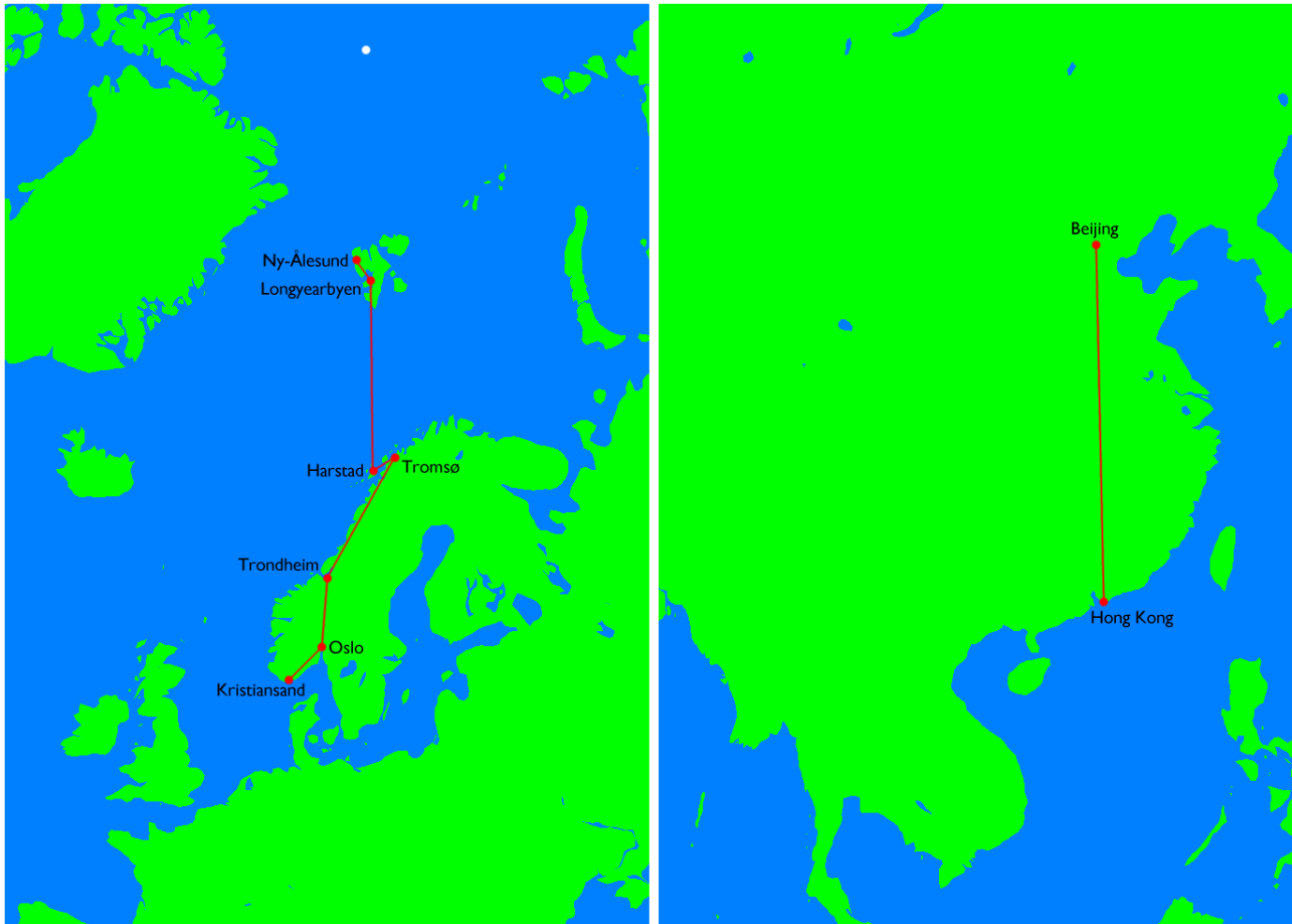




Chinese-Nordic workshop

Trondheim 19-21 April 2006  
Petter.Kongshaug@uninett.no

# Distance comparison



# History



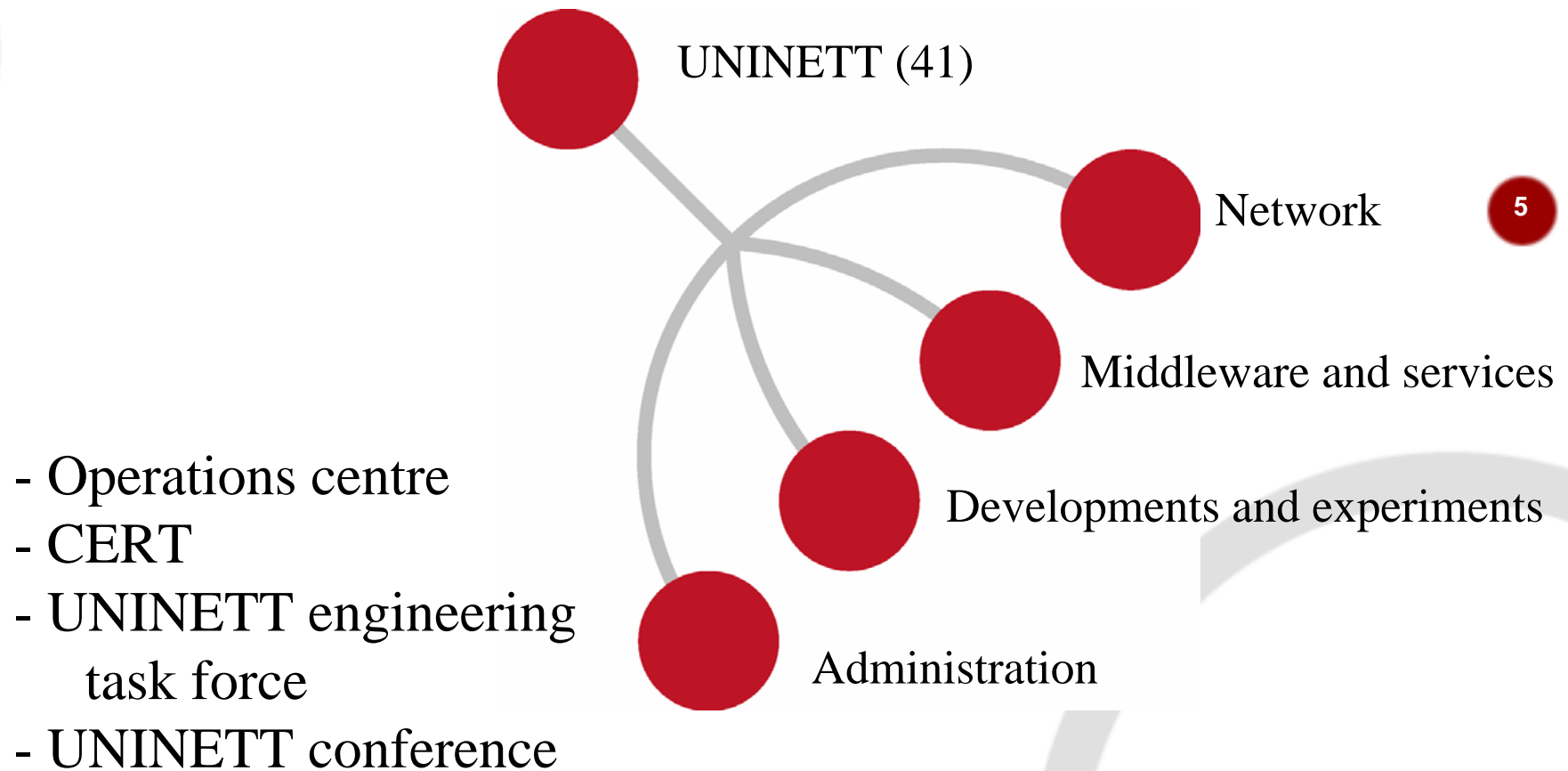
- UNINETT project 1987
- 9.6 Kbit/sec in core network
- Internet "only" since 1992
- Ltd company owned by R&E department 1993
- Partner of Centre of excellence appointed by Norwegian Research Council 2002
- 10 Gbit/sec in core network 2007 (capacity increased 1 million times)

# Network

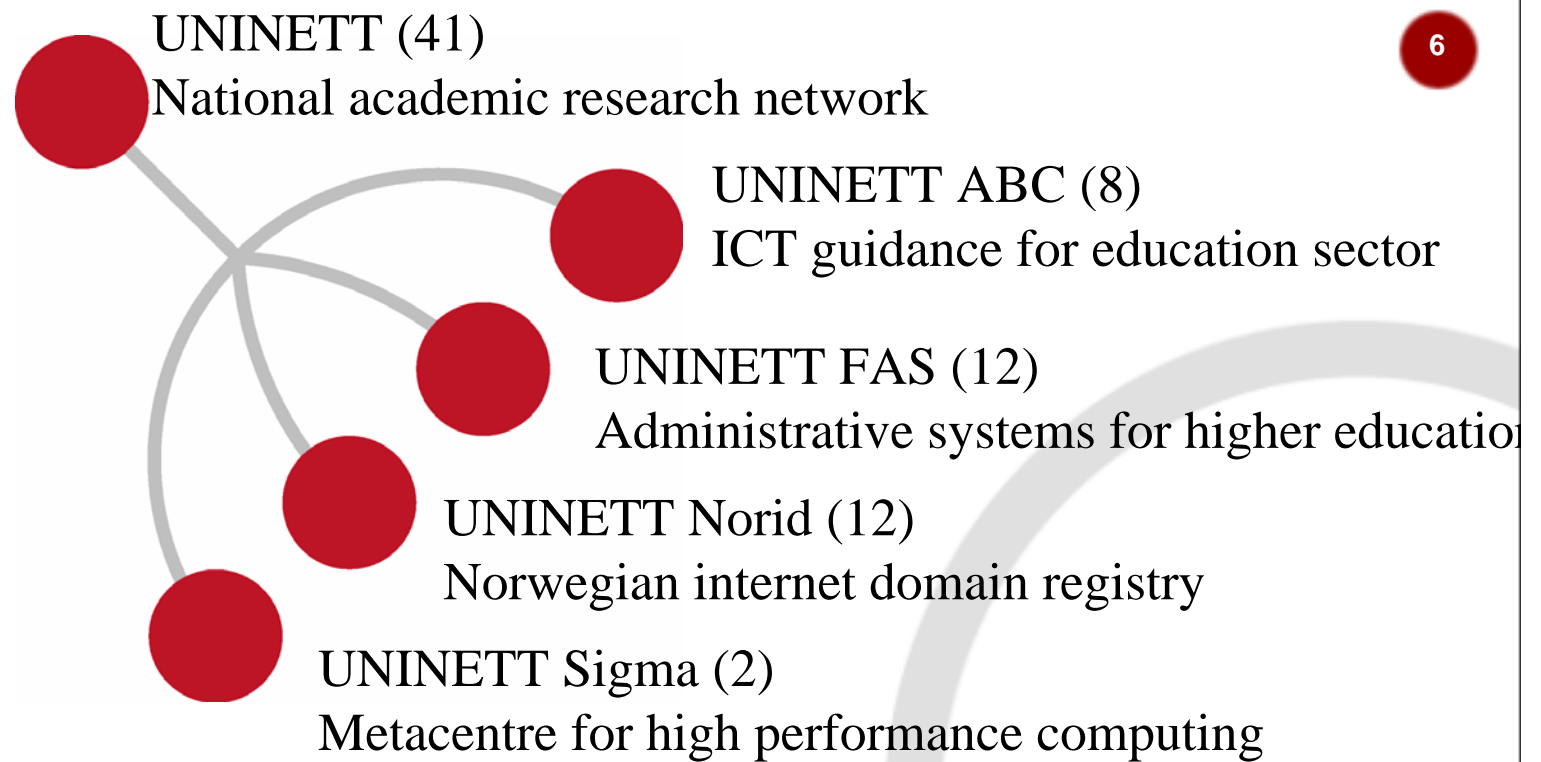
- 1-2.5 Gbit/sec
- Redundancy
- 15+5 Year IRU
- <40 Universities & university colleges
- >200 Institutions
- 250.000 users
- Op centre Trondheim



# Organisation UNINETT



# Organisation UNINETT group



# Financing



- Yearly budget ca 10 MEUR
- Ca 50-50 govnt and users
- Govnt pay developments
- Users pay operations
- Shift towards more user payments

## Main focus areas

- Hybrid research network
- Campus networks
- Authentication for all education in Norway
- e-Infrastructures
- ICT support for R&E

# Hybrid research network

- Dedicated lamdas to dedicated users (eScience is main driver)
- GÉANT and NORDUnet operational 2006/2007
- "No" dark fiber in Norway
- Coinvests in next generation WDM equipment with telco provider



# Campus networks

- Architecture since 1992
- ICT included in all aspects of R&E and administration – increased availability
- A 4-year program started 1.1.2000 - GigaCampus
- Probably European focus in next EU framework program

# Authentication for all education in Norway

- eID to all students in Norway – govnt decision
- Implemented by UNINETT FEIDE program
- Important middleware for all types of services: administration, education, grid, wireless access, etc.
- Govnt investment in PKI and security portal synchronized with FEIDE
- Coordinated with EUs eduroam

11



# eInfrastructure

- eScience the "3rd way"  
(following theory and experiments)
- eInfrastructure for eScience:  
network, cpu power and storage
- Grid: software for efficient  
use of eScience
- Norgrid, Nordic Data Grid  
Facility, EGEE, ao.

12



**e Infrastructure**  
(Grids empowered)

# ICT support for R&E

- Ongoing centralisation of administrative applications
- Ongoing change of ICT strategies
- Looking into:
  - ◆ PC/server operations
  - ◆ Local network operations
  - ◆ Security
- Shift of local ICT focus towards:
  - ◆ Support of research
  - ◆ Support of education

# Research/developments

- Measuring, statistics, control
  - ◆ GÉANT2/JRA1
  - ◆ LOBSTER
- Mobile and wireless
- Network architecture
  - ◆ Multicast
  - ◆ Routing
  - ◆ IPv6
- SIP architectures and end2end user services (IP telephony)

# e-infrastructure

- Legg inn teksten din her.

# Legg til tittel her

- Legg inn teksten din her.

## Helt tilslutt

- Sett inn url til presentasjonen, ev. hvordan deltakerne kan motta denne presentasjonen.
- Legg inn din epostadresse
- Legg inn annen url, eller telefonnummer for mer saks- eller kontaktinformasjon