« networking the networkers »

Networkshop 42
Leeds, UK
2 April 2014

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www.terena.org

TERENA, the NRENs, GÉANT & promoting Campus Best Practice

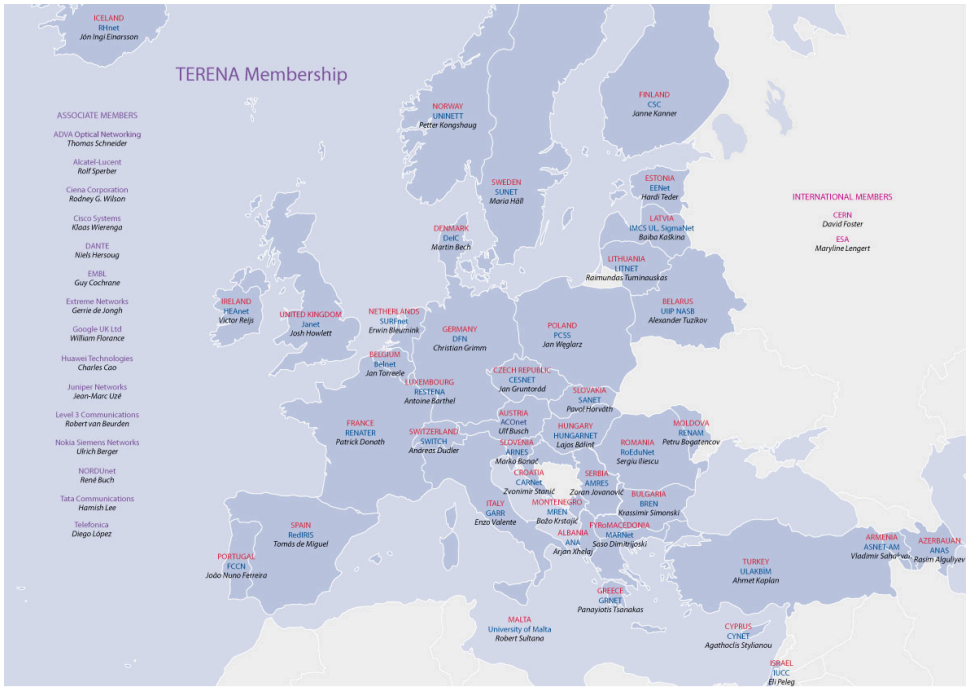
Karel Vietsch

24/11/1952
to
23/02/2014

About TERENA

- A not-for-profit association of NRENs.
  - 1986 – RARE: 1994 - TERENA
- Main goals:
  - Open grass-roots organisation
  - Community, Consensus, Collaboration
  - Explores Technologies and Services
  - Fostering & Piloting new services
- Activities:
  - Task Forces; Projects; Conferences; Training . . ..
- Major Partner in GN3plus

TERENA Membership



› 41 European NRENs

› International Members
  › includes: CERN; ESA

› Associate Members
  › includes 12 commercials
  › EMBL; NORDUnet; DANTE

TERENA Compendium of NRENs

Thirteen Years of Benchmarking

www.terena.org/compendium

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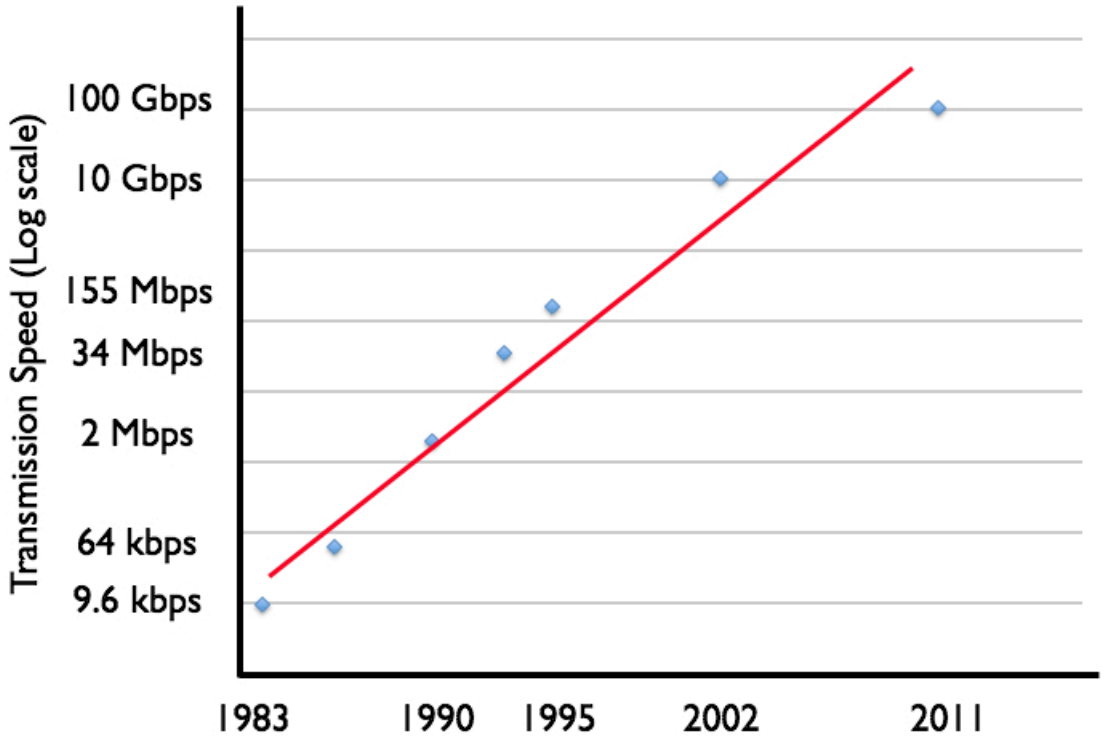
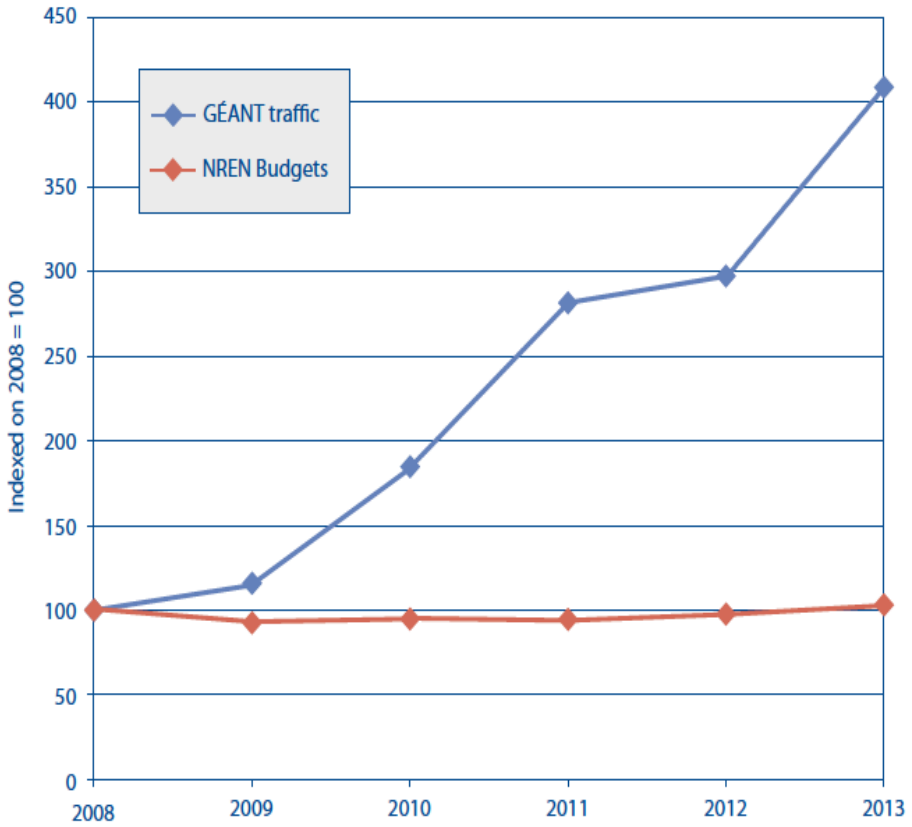
Growth in Capacity



Traffic and Budgets 2008-2013

Graph 7.3.6 – Total NREN budgets and traffic growth, 2008-2013, GÉANT partner countries



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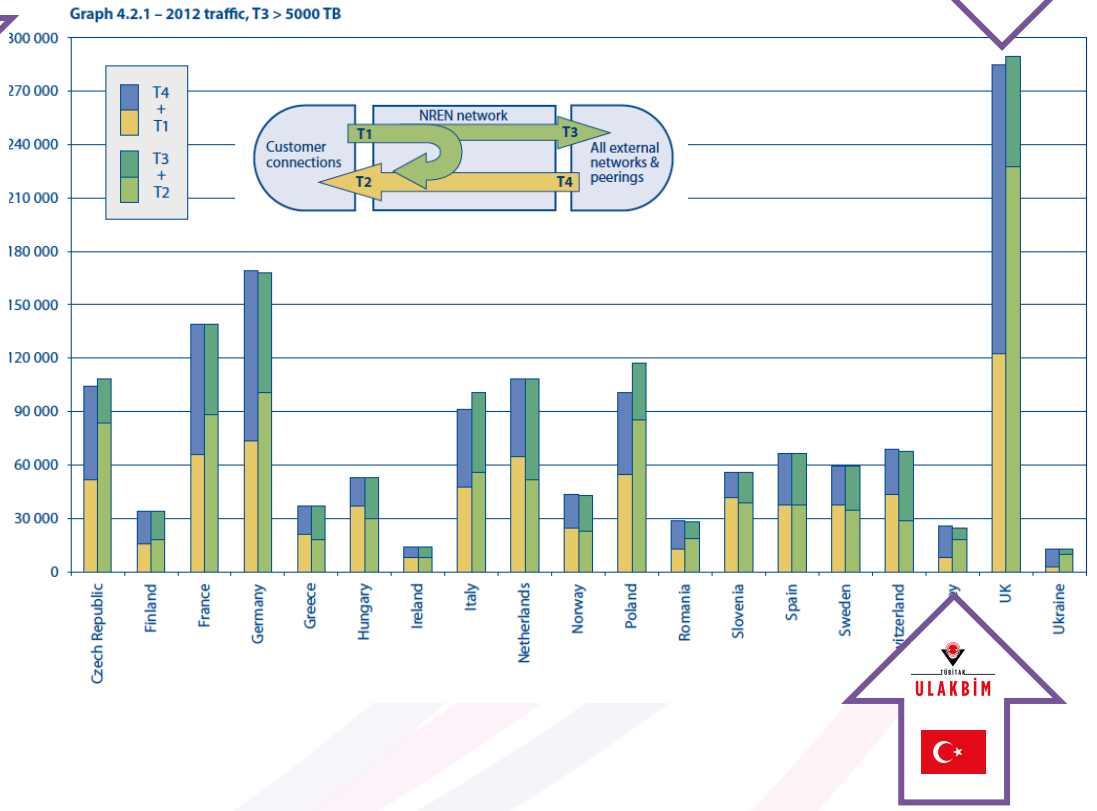
Benchmarking Users and Bandwidth

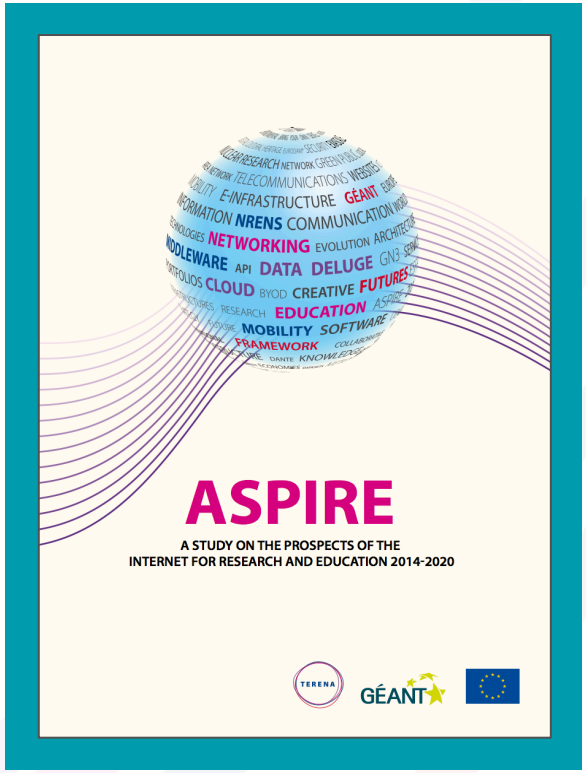


ASPIRE - Summary

- **GÉANT; NRENs; R&E Community**
  - Major Driver for Europe
  - Simpler Governance – Single Voice

- **Users are key**
  - Global Collaboration
  - NRENs, R&E, Users; Industry
  - Data, Big and Small
  - Federation
  - Mass Mobile Access

  Users need a voice in governance



www.terena.org/aspire

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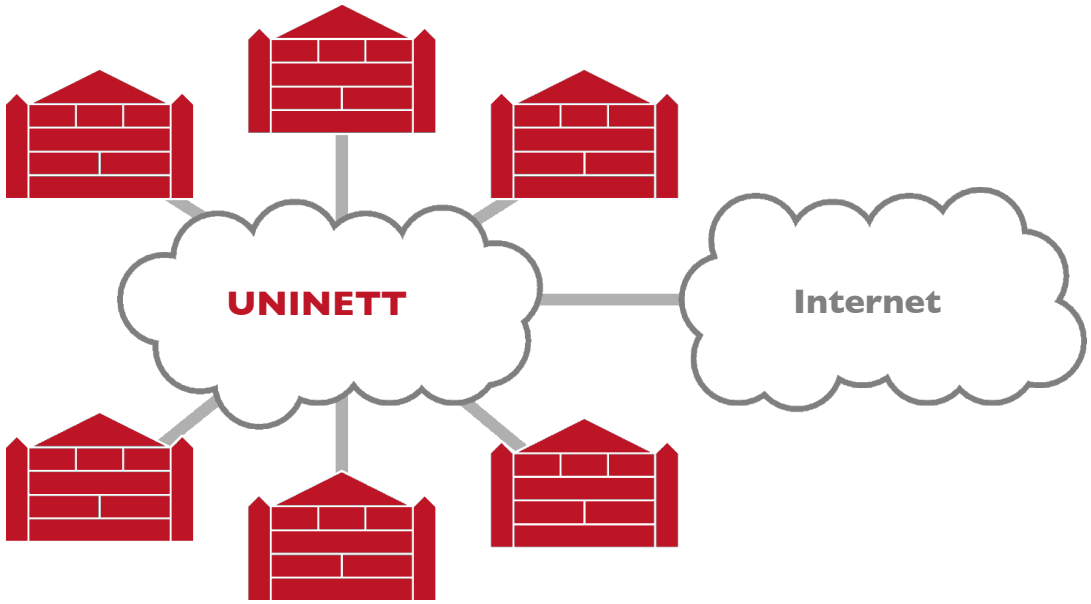
Important Future NREN Services

- Demand Aggregation / Brokerage
  - Commodity service availability is ubiquitous
  - NRENs add value (AAI, QoS, Contractual, Expertise)
- Authorization and Authentication AAI
  - vital to scalable access control
- Integration of Wi-Fi & cellular data networks
  - connection of ubiquitous mobile devices
- Expand the community
  - Include all of R&E and e-Infrastructure users
  - **Serving Users at the Campus**

GigaCampus 2006 – 2009



Vidar Faltinsen
GigaCampus Programme Manager

GigaCampus Vision

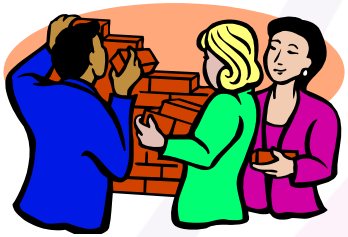
Provide and coordinate top international level campus IT infrastructures

GigaCampus Approach

- **Workshops – share practice**
- **Working group**
- **Develop national best practice**
- **Consulting on campus**
- **Assistance in implementation**
- **Procurement**

Stakeholders

- The Government
  - Showed responsibility
  - Provided initial funding
- The NREN (UNINETT)
  - Dedicated campus project team
  - Facilitator
  - Got happy customers
- The Universities and colleges
  - Participates in working groups
  - Benefits from results



Campus Best Practice Introduced as a task within GN3

Task Leader:
Vidar Faltinsen
UNINETT

- Four countries:
  - Norway (UNINETT)
  - Finland (CSC/Funet)
  - The Czech Republic (CESNET)
  - Serbia (AMRES)

Campus Best Practices

- Addresses key challenges for European campus networks
- Contributing NRENs organise working groups within their country
- Six areas of focus 
- Best Practice Documents
- Workshops

Campus Best Practice continues in GN3plus

Task Leader:
Jari Miettinen
CSC, Finland

- Norway (UNINETT)
- Finland (CSC/Funet)
- The Czech Republic (CESNET)
- Serbia (AMRES)
- France (RENATER)
- Portugal (FCCN)
- Bulgaria (BREN)
- Montenegro (MREN)
- Macedonia (MARNET)

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Physical Infrastructure

9 BPD published

- Generic Cabling Systems
- Design/layout of ICT rooms
- Power supply in ICT rooms
- Cooling in ICT rooms
- Fire protection in ICT rooms

- AV requirements in lecture halls and meeting rooms

- Overall guidelines for the Design of HE Buildings (ICT and AV)

Campus Networking

17 BPD published

- Redundant campus network
- Requirements for edge routers
- Recommended config of campus switches
- Recommended HP Procurve setup

- IPv6 migration plan
- Measuring IPv6 uptake
- IPv6 autoconfiguration
- IPv6 and IPv4 multicast setup
- IPv6 config for HP procurve

- Light paths in campus network

- Virtualization of critical network services

Wireless

8 BPD published

- Radio planning
- WLAN design in a controller environment
  - configuration examples
- WLAN security (802.1X, encryption)
- FreeRADIUS to database setup
- Setting up eduroam with a Cisco controller
- Configuring HP wireless
- Legal aspects

Network Monitoring

11 BPD published

- Requirements for network monitoring
- Monitoring tools
- IDS and honeypots
- Monitoring based on IP data flows
- Security monitoring with flows
- Anonymity issues
- IPv6 monitoring

Real-time communications

5 BPD published

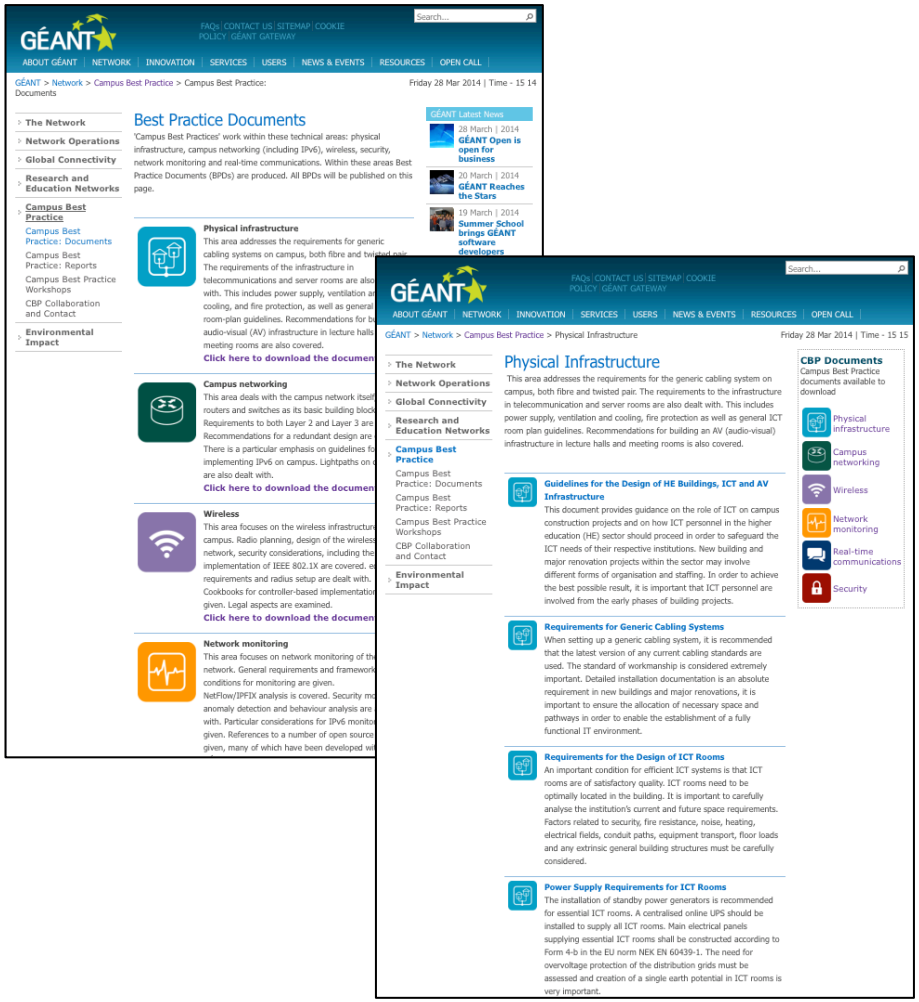
- IP telephony best practices across Europe
- Evaluating SIP performance
- SIP penetration testing
- VoIP anomaly detection

Security

8 BPD published

- Recommended security policy
- Guidelines for information classification
- Recommended security architecture
- Traffic filtering techniques
- Digital certificate deployment
- 802.1X in the wired network
- Cisco Ironport VPN recommmendations

geant.net/cbp



TNC2014
19 - 22 May 2014
Dublin, Ireland
"NETWORKING WITH THE WORLD"
tnc2014.terena.org

Keynotes:

Tracy Futhey	The Future of the Global University
Barend Mons	Open and Big Science
Jelmer Ever	Future of Education and Research
Lord David Puttnam	Learning in a Digital World - No Silver Bullet?
Stephen Farrell	Dealing with Pervasive Monitoring
Martyn Dade-Robertson	Hidden Dimensions of the Web

DANTE and TERENA Preparing for the Future