



networking the networkers • www.terena.org



EUROPEAN PARLIAMENT

*Scientific Technology
Options Assessment*

STOA

Computer networks for research and education:

A European success story – New challenges for policy makers



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Some political messages from the EARNEST Foresight Study

Dorte Olesen,

President of TERENA, the Trans-European Research and Education Networking Association &

Director General, UNI-C, The Danish IT-Centre for Education and Research



« networking the networkers »

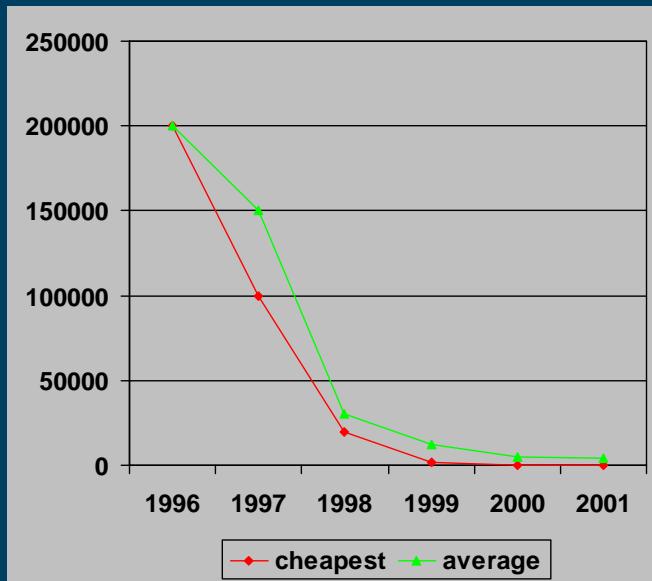


UNI•C

The liberalisation of the EU telecommunications markets has changed the world of research networks



- Competition has made connections 40 to 6000 times cheaper
- Research networks can now own or lease their own cables, fibre etc.



Self-owned infrastructure has opened up new possibilities for research networks



- to use whatever protocol (standard) they want
- to introduce *hybrid* networks, which offer:
 - classic Internet for many-to-many traffic
 - lightpaths for very demanding few-to-few traffic



Technical challenges remain

- The SERENATE foresight study (2002-2003) predicted the paradigm shift to **self-owned networks** and **hybrid networking**



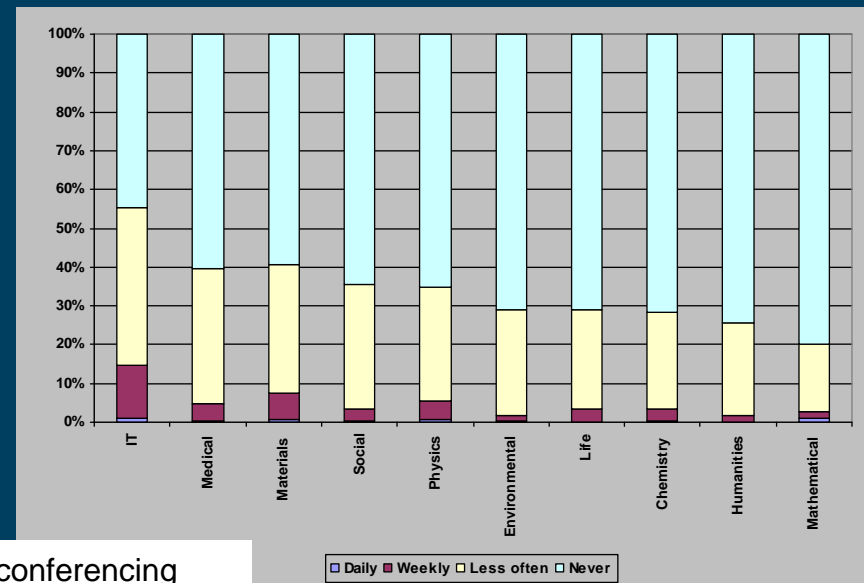
- EARNEST (2006-2008) does not predict such revolutionary changes
 - but still there remain technical challenges, e.g.
 - the automation of hybrid optical / Internet networks
 - automated identification of users to give them access to networks, electronic libraries, supercomputers, databases etc.

A major challenge: promote the actual use of services



- In the EARNEST study, thousands of researchers emphasised that networks and related services have had a huge and very positive impact on their work
- Nevertheless, we have a big challenge, namely to ensure that services that are possible, **will actually be used more**:
the EARNEST study provides evidence that many tools and services that are available in principle, are not being used in practice, e.g.

- videoconferencing
- guaranteed Quality of Service
- IPv6
- multicast



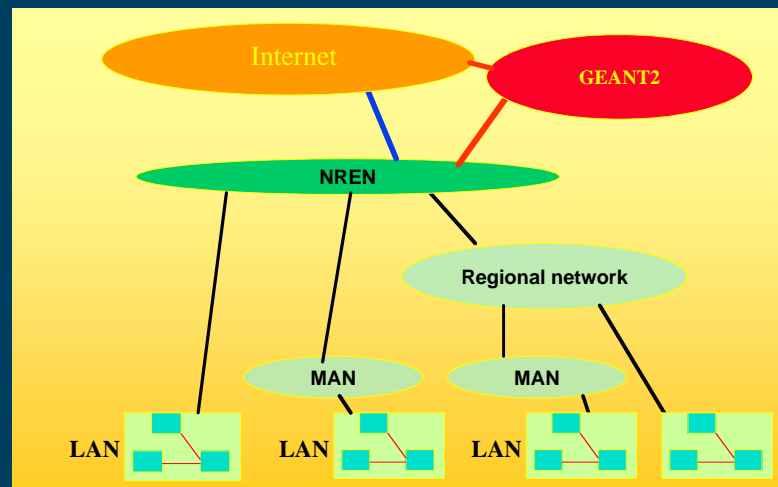
Use of videoconferencing

Legend: Daily (light blue), Weekly (yellow), Less often (red), Never (dark blue)

More emphasis needed on networking at the campus level

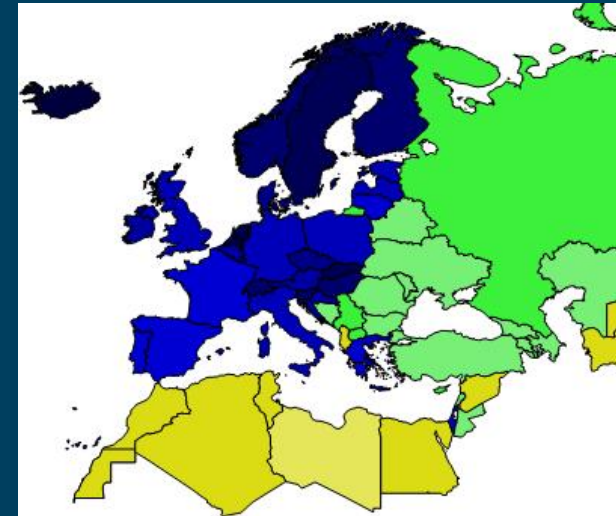


- The new developments need **reinforcement of IT and network support at campus level**, and closer collaboration between networkers at campus, national and international level
 - actually providing services to users is done at campus level
 - training researchers/students in using services
 - identifying researchers and students (to give them access to resources) can only be done at local level
 - *end-to-end* services need close collaboration between networkers at all levels



Digital divide is a political issue

- There is a significant **digital divide** in research networking
 - can Structural Funds help?
 - can other EU policies help?



- In addition, we now see a **geographic divide**, which puts 'outlying member states' at a disadvantage
 - which EU policies will address that problem?