

« networking the networkers »



John DYER  
Business & Technical Strategist  
TERENA

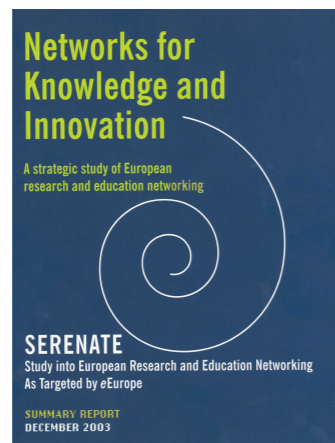
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**GN3 Innovation Workshop**  
**9/10 October 2011**  
**Copenhagen**



- › **Foresight Update Study**
- › **GÉANT GN3 NA2 task**
- › **Policy input for initiatives to keep ERA networking at the worldwide forefront**



**2002-2003**



**2006-2008**



**2011-2012**



# Timeline



- › **Phase 1 (April 2011 – October 2011)**
  - › **Consultation – workshop Berlin 23/24 May**
  - › **Interviews with Industrial Sector player**
  - › **Participation in workshops and conferences**
  - › **Identification of study areas**
  
- › **Phase 2 (November 2011 – July 2012)**
  - › **2-4 studies**
  - › **Report delivery – summer 2012**



# Candidate Topics at the Berlin Workshop



- › **Security / Privacy / Trust / Legal Issues**
- › **Dynamically Provisioned Networks as a Substrate for Science**
- › **Cloud Services**
- › **Social Media adoption R&E**
- › **Virtualization, mobility and traffic flows**
- › **Data deluge**
- › **Mobile connectivity**



# Topic Choice



- › **The adoption of cloud services**
- › **The integration and use of mobile device connectivity**
- › **Middleware and managing data and knowledge in a data rich world**
- › **The future roles of NRENs**

<http://www.terena.org/aspire/docs/topics.pdf>

## › **Cloud Services**

- › **Email; Storage; Compute; Documents; Social; Spam filtering; Sharing . . . .**
- › **For FREE? . . . . Really?**

## › **Users know what they want**

- › **A Rich Portfolio of Services**
- › **Own Devices; Phone; Tablet; Netbook . . .**
- › **We all want to be a bit greener**

## › **Can/Should the R&E Community Provide all this**

- › **If not**
  - › **Why do we need NRENs and GÉANT**

# Clouding the Issues

- › **How much will you trust for Cloud Provider**
  - › **Security; Legislative; Access; Sanitization**
  
- › **Cost of getting your Petabytes back**
  - › **Upload 1PB costs zero**
  - › **Store 1PB for a month 140k\$**
  - › **Fetch 1PB once 150k\$ Ten people read it: 1.5M**
  - › **1PB over 100G theoretically more than 1 day**
  
- › **Performance Issue**
  - › **My data is 10,000Km from my supercomputer**



# Solutions?



- › **Community Niche Clouds**
  - › **Hybrid of Private and Public Cloud**
- › **Cut Traffic Costs**
  - › **Put the clouds on your backbone**
- › **Interoperability**
  - › **Use the standards**
- › **Ease of Use and Access**
  - › **Federate**





# The integration and use of mobile device connectivity



- › **Students; Researchers; Even Managers**
  - › **Mobile Devices Everywhere; Whenever**
  - › **They will become the preferred device of most**
  
- › **Wi-Fi**
  - › **Eduroam – GREAT!**
  - › **Limited Geographic Reach**
  - › **SOLUTION: Put eduroam everywhere – do deals**
  
- › **3G/4G/LTE**
  - › **Eventually everywhere**
  - › **Cost when roaming is prohibitive**
  - › **SOLUTION: Do collective international deals**



# Middleware Managing Data and Knowledge



- › **LHC**                   **15 PB per year**
- › **SKA**                   **1 EB per day**
- › **John**                   **6 TB so far**
  
- › **Experimental Datasets; Digital Art; E-Books;  
Discipline related databases and repositories**
  
- › **Extension of Middleware to convey  
ontologies and semantic meaning**



# The Future roles of NRENs

## Current Issues



- › **Rapidly Evolving Environment**
  - › **Technologically; Organisational**
- › **Global Economic Crisis**
  - › **Vital to demonstrate VALUE**
- › **Commodity Service Providers – Institutions**
  - › **Cutting out the need for NRENs**
- › **No longer seen as innovative**



# The Future roles of NRENs Assets



- › **Cohesive Community**
- › **Unique set of skills & experience**
- › **Operate mostly as a public good**
  - › **Education; research and related groups**
- › **European Vision for 2020**
  - › **Connected to the global e-planet**
  
- › **NRENs must develop clear strategies**
- › **Scanning; Scenario Planning; Implement**
- › **and importantly measure and review**

**ADAPT or FADE AWAY!**



# ASPIRE Team at TERENA



## › **Leader:**

› **Pierre Bruyère – TERENA President**



## › **Project Management**

› **John Dyer**

› **Magda Haver**



## › **Workshop & Documentation**

› **Jim Buddin**





**dyer@terena.org**



**www.terena.org/aspire**



**@john\_terena**  
**@ASPIRE4sight**



**john terena**



**John Dyer**