

## ASPIRE Study – Mobility section

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- **A Study on the Prospects of the Internet for Research and Education**
- Four topics:
  - Adoption of Cloud Services in the R&E Community
  - Content, Data Deluge and Middleware in a Data Rich World
  - The Future of NRENs
  - **Integration of Mobility Services into NRENs service portfolios**
- Panelists for Mobility topic:
  - Stefan Winter, RESTENA, Luxembourg (lead)
  - Maurice van den Akker, SURFnet, The Netherlands
  - Amnon Dekel, Shenkar College, Israel
  - Mike Norris, HEAnet, Ireland
  - Klaas Wierenga, Cisco Systems

- Infrastructure
  - Mobility = wireless access to data
  - Several technologies exist, and more to come
  - Considerations include 3G, LTE, WiFi
- Services
  - Distance learning services
  - Learning management systems
  - Making services usable regardless of physical location
- Enabling Factors
  - Regulatory issues
  - Incentives for mobility

- Current situation
  - WiFi: eduroam (and more)
    - *Widespread on campuses*
    - *Few deployments beyond campuses*
    - *Mix of “native” and “after-thought” deployments*
    - *Captive portals are in use by some*
  - 3G/LTE
    - *Business deals with commercial operators in some NRENs*
    - *Study will include examples of business deals and statistics on data usage and general uptake*
    - *No coordinated efforts beyond national borders*
    - *LTE still in experimental stage*

- Likely future developments
  - WiFi: eduroam (and more)
    - *eduroam de-facto standard on campuses*
    - *Should be the default network, also for local users*
    - *Cooperation with 3rd-parties to cover off-campus areas (pending “Enabling factors” allow so)*
    - *Hotspot 2.0, WiFi-Offload & Roaming Consortium identifiers*
  - 3G/LTE
    - *Effect of Trans-National MVNOs*
    - *Abolishment of roaming fees altogether by 2018?*
    - *Academic sector to become their own operator?*
    - *GEANT SA3-T5: Mobile Connectivity Feasibility Analysis*
    - *Own spectrum?*

- Services

- Traditional NREN-hosted services erode towards commercial operators (Gmail...)
- Lecture streaming & archival gets educational content to students
  - *On a campus-by-campus basis*
  - *Often on commercial platforms (YouTube EDU, ...)*
  - *Case study: MIT*
- Location-based services not used to a significant extent
- Studying / researching abroad (Bologna process):
  - *Good that WiFi works without hassle, but ...*
  - *Paperwork (ECTS...) needs to follow as seamlessly*
  - *Pension records follow you?*

- Enabling Factors
  - NREN statutes
  - NREN AUPs
  - limits for enabling mobility infrastructure on- oder off-campus
    - *Example: 3G operator to deploy femtocells on a campus – can be used also by regular customers; can cell be hooked up into NREN backbone?*
    - *Example: commercial WiFi operator willing to deploy eduroam on its infrastructure; can eduroam networks on campuses enable the commercial network as well? Would again mean commercial user traffic running over NREN backbone.*
  - Incentivise users to become mobile!

- Text is still being drafted, so exact topics are still in flux
- Mobility panel is expected to have concluded work by beginning of April 2012
- Publication of entire ASPIRE study: **July 2012**