

# NREN Services and Support for Schools

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- Needs
- Services + Support
- Why NREN?
- Benefits
- Impacts & challenges

- All they can get 😊
- Depending on curriculum, availability, determination and skills
- Basics: connectivity, mail, own web space...
- Advanced services
  - Significant educational potential of real-time collaboration: videoconferencing, interactive experiments, music lessons
- Managing their local network and services
- Security and safety
- Help with introducing new technologies

## ➤ Basic or specific services:

- DNS, access control, firewall
- User administration, identity management
- Mail, lists, virus&spam filtering
- web space, active pages, CMS, VLE – any integrated content sharing or collaboration tools
- Forums, chat, videoconferencing
- Usenet news, FTP archive, content depository
- Custom applications for administration or teaching

## ➤ Using centralized or hosted service

## ➤ Setting up own server

## ➤ Common WAN/MAN servers

- Connectivity+
- Basic internet services
- Advanced or specific services
- Project based involvement
  - Designing a “school network”
    - Network & service standards development
    - “common servers” pilot
  - Introducing new technology
- Education, training, awareness raising

- Over 90% schools (primary, secondary, high) use ARNES network for national & international connectivity
- L2 access to ARNES PoP directly or in clusters (Arnes' managed MANs)
- Guidance in choosing and setting up the connection
- Coordination and communication with telco and with Ministry of Education

## ☰ Uniform level of services

- Configuration and remote management of school's router (upgrades according to school network standards)
- Monitoring, troubleshooting (coordination with telco)
- Standard access control setup, DOS attack prevention
- Design for QoS and multicast

## ☰ Local network

- Technical standards for school LANs (adopted\* by Ministry of Education)
- Security & policy (admin, teaching and “public” network)
- Support in choosing technology and setting up services

- IP registration
- Domain registration, DNS, virtual domains
- Email and web hosting for schools/teachers/students
  - free, unlimited space, AVS mail filtering (custom spam level)
  - also internet access (dial-up) accounts, diminishing
  - AUP abuse - working with teachers
- FTP archive, Usenet News server
- Chat, mailing lists and forum service (for projects)
- Advanced services
  - Videoconferencing service (MCU, setup, testing, troubleshooting, QoS, end-to-end user support)
  - Custom access control
  - New: virtual server hosting (active pages and CMS/VLE)
- Introducing AAI, support for Eduroam wireless networks

- Assistance to Ministry of Education
  - Technical expertise (network technologies, security)
  - National projects concerning ICT in schools,
  - Advising/tendering for connectivity
  - International cooperation (European Schoolnet)
  - Introducing new technologies
    - Teacher training
    - ICT conference for teachers
- Server for national projects
  - Content management, national educational portal, project support
- Safer Internet projects (national awareness node)
- [Content filtering]

- Schools are a natural part of Education network (resources, cooperation)
- NREN acts as a part of the community rather than ISP
- Good for image
- Schools are a special customer group
  - They have high demands and require a lot of attention
  - Limited funding
  - National importance
- Need for some kind of uniform educational network (standard and shared services)

- Higher connectivity and service standards
- Friendlier user support
  - Knowledge transfer (beyond ordinary user support)
- Free central & hosted services
  - Practically unlimited disk space
  - Reliable email service
    - Efficient virus and spam filtering
- Intermediate service level between schools and government
- TERENA added value
  - Human network – support coordinating international projects
- GÉANT2 network

- With more support they can focus on the use of technology
- They venture much further than they would, given just “internet”
- They gain more knowledge and become aware of new potentials
- They may be able to exploit services not available commercially (or expensive)
- They feel somebody listens to their feedback so they can influence the development of services for schools

- Natural historical development (was not much choice back then)
- Small country: economy of scale
- Important user segment
- Somebody has to take special care of schools
  - Services and support inseparable
  - We've accumulated experience
- Introducing new technologies or services
  - Schools can be enthusiastic partners - mutual benefit

- NREN vs. commercial ISP: Support!
- End-to-end control over the network
- End-to-end support and services
- Essentially uniform level of services to all institutions
- Ideally: SLA with the operator or ISP
- Overkill? Not if you can do it 😊

## ➤ Scalability

- Lots of work, especially support
- Danger of affecting services for other user segments

## ➤ Market disturbance?

## ➤ Distribution of tasks and collaboration

- Local IT staff
- Outsourcing
- Commercially available services
- Coordination

## ➤ Dilemma: what is our job to provide?

- Work with front-runners introducing new ICT
- Provide certain service/support to all
- Coordination, expertise and fostering collaboration

- There are 3 Universities and around 1000 schools in SI
- Majority of Arnes customers are schools:
  - 66% of all institutions connected to Arnes
  - 65% of all “individual” accounts
- Appr. 20 people work mainly for schools
  - Network & services management
  - Connecting new schools
  - Administration IT support
  - User support (basic & helpdesk done by students)
  - Collaboration with ME, projet co-ordination
  
- But: backbone and international connectivity are here

- Assumption: Need for some kind of “school network”
  - Coordination and support
  - Facilitate collaboration
  - Standard or shared services
- Collaboration models
  - Connectivity regional, telco or ISP
  - Specifications, SLA, standards... tenders?
  - Commercial services
    - Maintenance
    - Widespread services (webhosting?)
  - Who can do LAN management?
- What about the support?
- Real challenge: unbalanced education of teachers

- School invests in LAN (proper cabling)
  - cofinanced by the Ministry if complies with recommendations
- School pays for local communication equipment
  - cofinanced by the Ministry if complies with recommendations
- School pays to the operator costs of access network to Arnes PoP
  - Or invests in own local or luster infrastructure (optic fiber)
- Special agreements with operators
  - Arnes involved in market research, negotiations with the operators, technical & service level specifications
- All other services are provided by Arnes for free.
- Problem: needed services vs. available funding