

SECOND TERENA WORKSHOP ON CONNECTING SCHOOLS TO NATIONAL RESEARCH AND EDUCATION NETWORKS

TERENA and UKERNA organised the Second Workshop on Connecting Schools to National Research and Education Networks (NRENs) in London on 24-25 October 2005. The two-day event was sponsored by UKERNA and the British Educational Communications Agency, Becta .

The first TERENA workshop on connecting schools to NRENs was held in February 2005 and focused on sharing information and best practices among the participants. A dedicated area on the TERENA website was created to collect additional information about the current status in different countries (<http://www.terena.nl/schools/>). There was also a short meeting during the TERENA Networking Conference 2005 in Poznań, Poland in June, and discussions here focused on value-added services that NRENs could provide to schools.

The second workshop focused on in-depth information sharing and on areas where NRENs can collaborate. The workshop included a case-study session about connecting schools in particular countries and a brainstorming session about success factors and problems faced.

The case-study session featured three in-depth presentations about NRENs connecting schools in Slovenia, Ireland and Luxembourg. The speakers discussed technical issues of connecting schools, e.g., the connecting method, the speed, the network monitoring tools used, what kind of value-added services are provided by the NREN, as well as the funding and managerial situation, user support and historical background. Participants shared their experiences on how NRENs are engaged in the business of connecting schools.

This session highlighted challenges that NRENs face when connecting schools and providing services to them, including management complexity, security and content filtering issues, user support and issues of perceived competition with other Internet service providers.

The conclusion from this session was that people would like to have information about particular solutions that each country has chosen and would also like to be able to consult other people and get advice when needed.

Parallel Sessions were held on technical matters and on management/funding/political issues.

The technical session was chaired by Robert Symberlist from UKERNA. He spoke about the needs of the schools and how to ensure the quality of the services NRENs are providing to schools. Multiple areas of potential collaboration among NRENs were identified, e.g., security and safety, services and support - with particular focus on videoconferencing, security and content delivery networks.

Participants were invited to discuss success factors and problems faced in their experience with schools as well as about the collaboration possibilities.

The experience of NRENs in connecting schools and the ownership of fibre networks were mentioned as success factors. Among the problems faced are:

- availability of technology and means of connectivity in some regions or schools;
- lack of feedback from schools about their needs;
- awareness raising regarding the available services and technologies as well as knowledge of using them and the need for a register of available services;
- difficulties in reaching teachers directly;
- the need for standardisation.

It was agreed that the NRENs should collaborate in order to enable schools from different countries to participate in joint projects. Possible areas for collaboration include the sharing of information and the exchange of tools, targeted workshops, content hosting and access (middleware infrastructure for authentication, authorisation and accounting), video and voice, Europe-wide policy development, dissemination of 'best practice' among schools and access to national heritage resources.

The participants discussed how schools could benefit from the high speed and the quality of the GÉANT network, and which services the NRENs could provide better than other Internet service providers. The consensus is that videoconferencing is the service that is most in demand. The NRENs should try to involve teachers by providing training and by informing them about available services in their own country and Europe-wide.

The parallel session on management/funding/political issues was chaired by Dorte Olesen, Managing Director of UNI•C, the Danish IT-Centre for Research and Education, and President of TERENA. She spoke about the need for political agreement before NRENs start connecting schools. In Europe, it has often been easier to get funding for setting up the network than to secure funding for running costs. Economies of scale have also played a role – the NRENs of smaller countries (e.g., Luxembourg, Portugal, Greece, Slovenia, Estonia and Ireland) connect schools to increase their customer base, while the NRENs of larger countries do not share this priority.

On the issue of communication with teachers, she outlined a "top-down" approach. Initiatives from ministries can make the process faster. The ministries can be influenced by officials from the European Commission and these officials can be approached by TERENA representatives.

A significant part of the discussion was devoted to identifying the benefits of connecting schools to NRENs, the added-value in terms of the quality of the services schools are able to get and the benefits of the synergy between school networks and research networks.

The technical session on the second day of the workshop focused on three areas where NRENs could begin collaborating and can share valuable experience:

Videoconferencing

Videoconferencing has been identified as a topic of great interest for both schools and NRENs. The videoconferencing session covered developments in this area in the United Kingdom and discussed the technical and administrative challenges faced by schools in order to use videoconferencing for collaboration and learning.

The technical issues of videoconferencing, including the Global Dialling System and videoconferencing standards, were presented and discussed. John Martin, Manager of the JANET Videoconferencing Service Management

Centre, emphasised that collaboration requires guaranteed interoperability among the Multipoint Control Units (MCUs) and between the end-points and the MCUs. Also technical issues should be well-documented and connections tested before the real event takes place. Connectivity requirements for schools increase if schools want to do videoconferencing; this should be taken into account when planning and procuring connections.

A large number of schools in the United Kingdom were involved in videoconferencing during the last year. The speakers emphasised the need to consider videoconferencing not as a goal, but as a tool for schools to participate in various activities. Some very interesting initiatives in the United Kingdom were presented, including e-missions with museums, national archives, the space centre and the Eden Project. UKERNA has taken the initiative to find the content providers (upon request from schools) and, if necessary, to provide the schools with better connectivity so they are able to deliver the content. This sets a good example for other NRENs.

Schools in the United Kingdom are actively looking for international collaboration with other schools. To support international collaboration, a register of interested schools or a “dating agency” should be created. Involvement with content providers from other countries could enrich the collaboration.

Security

Security has been identified as an area to which the NRENs should devote a lot of resources in order to provide safe and secure connections to schools. Depending on agreements, NRENs may have to provide IP filtering, anti-spam and anti-virus filtering, content filtering, management access, router IOS upgrade and other services.

Solutions and experiences about these security issues were presented from two countries, Denmark and Portugal. In both cases, schools have access to a web-based “toolbox”, where they can influence settings for content filtering, spam and IP filter as well as the DNS and mail configuration. A standard “base” configuration could be useful in the beginning, but later it should be possible for a school to customise the settings. Wireless access points for schools were mentioned as a major security concern.

Lino Santos from FCCN, the NREN of Portugal, spoke about security incident response from the perspective of CERT.PT, the security incident response team of FCCN. They have not received any reports coming from schools themselves, but about 65% of all of the reports they have received did compromise schools. About half of those incidents were probes: the rest were spam, malware and copyright violation. It could be concluded that:

- pupils experience their first “hacker” trials from schools;
- school computers very often become parts of botnets
- peer-to-peer programs are used to violate copyright.

The situation can be improved by raising awareness: issuing “lightweight” security bulletins and teaching pupils about security issues.

The delegates agreed that sharing information about the security solutions of NRENs would be very valuable and could potentially improve the services they provide. These solutions could include white lists and black lists.

Content Delivery Networking

Mike McKeown of Cisco Systems made a presentation entitled "Enabling a Media-rich Curriculum with Content Delivery Networking (CDN)". He explained that while caching is a reactive action, CDN is a proactive one. To use CDN, teachers identify the content and download it before the event (lesson) takes place. CDNs are suitable for schools with small bandwidth and can improve their experience of rich content usage. CDN systems have been implemented for all schools in Scotland.

The closing session of the workshop focused on the way forward for the initiative. The two main areas of activity for the group were identified as:

- collaboration and exchange of information to provide better services to schools
- documentation to assist NRENs in all aspects of the business of connecting schools.

It was evident from the workshop that many NRENs are interested in sharing experience and best practices as well as in participating in projects that could improve and enrich the services that they are providing to schools. The delegates were very keen to improve the information exchange mechanism and to start more concrete collaboration in particular areas, for example, videoconferencing. Robert Symberlist of UKERNA will head up a project within the group to enable schools from different countries to hold videoconferences with each other.

TERENA will provide a dedicated and password-protected wiki area on the TERENA website where NRENs will be able to share information about available services, service models, goals and reports on the activities of the group.

As a result of the discussions at this workshop, a whitepaper will be prepared, clearly setting out the pros and cons of connecting schools, to assist the NRENs in preparing arguments for negotiating with their local authorities and funding bodies.

The workshop was attended by about 40 people from European NRENs, from vendors and regional networks and from organisations responsible for funding and policy. All of the presentations are available on the TERENA website:

<http://www.terena.nl/schools/workshop-2/>