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Deliverable DN4.0.3,4: Annual Report on Activities to Support Research Networking in Less Advanced Regions



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Abstract

This is the fourth of a series of annual deliverables reporting on the activities that have been undertaken within NA4 during the previous 12 months to provide assistance to the development of research and education networking in less advanced regions and countries

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0 Executive Summary

The status and the development of research and education networking vary significantly across Europe. There are wide gaps, spanning multiple dimensions - technical, financial, political - between the countries that are connected to the GÉANT2 network directly. The gaps are even wider between those countries and neighbouring regions that are connected to GÉANT2 via regional networks or international links procured in collaboration with national research and education networking organisations (NRENs) that participate in the GN2 project. Narrowing these gaps is of the utmost importance for achieving the European Union's political goal of equal opportunities for researchers throughout the European Research Area.

Through its NA4 activity, the GN2 project contributes to narrowing the digital divide in research and education networking in Europe, by:

1. monitoring the status and the evolution of NRENs in different European countries, and
2. actively providing support to countries and regions where networking services for the research and education community are less advanced.

This is reflected in the two distinct but interrelated parts of NA4:

- a. the production of annual editions of the TERENA Compendium of National Research and Education Networks;
- b. assistance to the development of research and education networking in less advanced regions.

This report describes the activities carried out in part b. of NA4 during the fourth year of the GN2 project (i.e., from 1 September 2007 until 31 August 2008). Some of the activities that started in the reporting period were followed up by several events that took place in the remainder 2008; these developments are reported in this document as well.

The activity to support the development of research and education networking in less advanced regions focuses on a number of selected countries. Assessments of the needs of research and education networking in two focus countries were carried out in the reporting period: Ukraine and Montenegro.

The work concerning Ukraine started in March 2008 and was complemented by a visit of a GN2 team of experts on 21-22 April 2008; the result of the assessment study was reported in a confidential document that was distributed in July to key stakeholders of research and education networking in Ukraine and to the European Commission.

The work concerning Montenegro started in July 2008 and was complemented by a visit to the Montenegrin NREN on 10-11 September 2008. The confidential report documenting the findings of the study was produced immediately after the visit and was distributed to the European Commission and local stakeholders in October.

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In spring 2008, TERENA Secretariat staff members working in GN2/NA4 started collaboration with GN2/JRA2 participants in supporting the creation of Computer Security Incident Response Teams (CSIRTs) in those NRENs participating in GN2 that did not yet have a formally established CSIRT. As part of this collaboration, NA4 identified BREN (Bulgaria) and RoEduNet (Romania) as the target organisations of highest priority. A joint NA4-JRA2 team of experts met with management and security staff members of BREN in Sofia on 8 July 2008, and a similar meeting with RoEduNet staff was held in Bucharest on 11-12 August 2008.

A number of activities were carried out during the year in support of other countries, partly as a follow-up from previous country needs assessments, particularly in the Mediterranean region and in Bosnia and Herzegovina. Two major events that took place in the reporting period were the EU-Med Event, which was held in Brussels on 23-24 October 2007, and the Round Table on research and education networking in Bosnia and Herzegovina, which was held in Sarajevo on 20 November 2007.

The EU-Med Event focused primarily on the responsibility of national and international stakeholders of research and education networking in Europe and in countries around the southern shore of the Mediterranean concerning the stability of connectivity to support e-Infrastructures. The discussion that took place during the event provided input to further decisions by the EU and ministries in Mediterranean countries, which ultimately led to continued funding of the EUMEDCONNECT network that links these countries to GÉANT2. Special reference to EUMEDCONNECT was also made during a Euro-Mediterranean Ministerial Conference on the Information Society, held in Cairo on 28 February 2008.

Following on from the success of the Brussels event, a second EU-Med Event was organised in 2008. This event focused on sustainability of e-Infrastructures in the region, targeting politicians and other stakeholders of research and education networking. The event was held in Amman, Jordan on 4 November 2008, followed by the official launch of the EUMEDCONNECT2 network.

The Round Table on research and education networking in Bosnia and Herzegovina was the main action arising from the country needs assessment of Bosnia and Herzegovina and attracted about fifty participants representing all stakeholders of research and education networking in the country. The meeting participants discussed a number of resolutions aimed mainly to interconnect universities in the Federation of Bosnia and Herzegovina – one of the two country's entities¹ – via a network called FARNET, and to the revitalisation of BiHARNET, the official NREN of Bosnia and Herzegovina, which had not been functional in practice for several years.

In September 2008, ten months after the Sarajevo event, progress concerning Bosnia and Herzegovina was presented at the final review meeting of the SEEREN2 project².

¹ At the time of the Sarajevo event, the other Entity of Bosnia and Herzegovina, the Republika Srpska, had already established a networking organisation called SARNET, which had an optical fibre backbone in Banja Luka and a cross-border fibre connection to Serbia. SARNET had very specific plans to extend the backbone to all universities in the Republika Srpska.

² <http://www.seeren.org>

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1 Introduction

Networking Activity 4 (NA4) of the GN2 project consists of two parts:

- a. the TERENA Compendium of NRENs , and
- b. assistance to the development of research and education networking in less advanced regions.

The goal of the NA4 development support activity is to address the challenge of the digital divide by providing assistance to NRENs and local networking organisations in the less-advanced regions in the geographical area covered by GN2.

The main components of the activity can be summarised in the following three points:

- The selection of a limited number of countries on which the development support activities are focused in particular. The selection of focus countries is reviewed on an annual basis with assistance from an advisory panel.
- The assessment of the needs in each of the focus countries. This provides a basis for the various activities to assist in the development of research and education networking. The result of each country needs assessment is laid down in a report that includes recommendations to the relevant actors in the country and to the European Commission.
- The actual actions to support the development of research and education networking in less advanced countries and regions. Such actions can take different forms, including technical, managerial and policy workshops, training, consultancy etc.

The three components listed above can be seen as subsequent phases: theoretically the actual support actions would follow from the selection of focus countries and the assessment of their needs. However, it is neither advisable nor necessary to postpone the start of support actions until needs assessments have been carried out for a large number of countries. Where there is an obvious need and an opportunity to provide support, actions are started on the basis of the information already available to the GN2 team working in the activity.

TERENA Secretariat staff members and experts from NRENs as appropriate carry out the work. A development support advisory panel, which provides assistance in the selection of focus countries, assists these staff members in setting the priorities for needs assessments. The panel advises on the actions to be undertaken, and acts as a quality control panel for the country needs assessment reports and individual support actions. The TERENA Executive Committee appoints the members of the panel. The composition of the panel during the reporting period included senior representatives from CYNET, SigmaNet, RENATER and PSNC.

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The objectives and the method of work of activity NA4 have been described in great detail in deliverable DN.4.0.2, which was written at the end of 2004 and submitted to the European Commission early in 2005. The activities carried out in the fourth year of the GN2 project have followed the methodology described in that deliverable and are reported in this document.

At the beginning of the GN2 project, based on the advice of the development support advisory panel, an initial long-list of beneficiary countries was defined, which includes a subset of the countries represented in the GN2 project, as well as all SEEREN and EUMEDCONNECT³ beneficiary countries, plus countries having an agreement with a neighbouring NREN connected to GÉANT2. At the end of the second year of GN2, this list was revised and a few countries that took part in the Porta Optica study⁴ were added, namely Belarus, Georgia and Ukraine. A number of countries from the long-list were selected to be the focus of specific activities and the subject of a country needs assessment in the reporting period.

Between November 2007 and February 2008, a detailed plan for development support activities to be carried out from March 2008 onwards was discussed at various meetings of the advisory panel as well as among TERENA Secretariat staff members and with individuals from organisations and projects involved in the development of research and education networking in less advanced regions. The plan, which was endorsed by the TERENA Executive Committee on 20 February 2008, classified development support activities into three groups: a) high-priority candidates for country needs assessment, b) low-priority candidates for country needs assessment and c) other specific support actions.

Ukraine, Bulgaria, the Former Yugoslav Republic of Macedonia (FYROM) and Latvia were considered high priority. All four countries were approached by TERENA in the following months in order to assess their interest in collaborating in a country needs assessment. Ukraine responded very positively and a country needs assessment was indeed carried out there in the spring of 2008. TERENA Secretariat staff had visited and advised Latvia and FYROM before the start of GN2, and therefore it was felt that a country needs assessment of those countries was not needed. However, government support for the NRENs in both countries was somewhat at risk, and during 2008 the TERENA Secretariat remained in contact with the respective NREN managers. At the time of writing this report, an informal meeting with stakeholders of the Macedonian NREN had taken place in Skopje, whereas plans for a similar meeting in Latvia were still being discussed. Instead of a country needs assessment, a different type of action was carried out in Bulgaria (see below), focusing on supporting the Bulgarian NREN in the establishment of a Security Incident Response Team (CSIRT).

Lower-priority candidate countries were Belarus, Georgia, Montenegro, Slovakia and Tunisia. A country needs assessment of Montenegro was carried out in the summer of 2008, while a country needs assessment of Belarus was ongoing at the time of writing this report. Initial informal talks were held between TERENA, CEENet and the Georgian NREN in spring, but the idea of a country needs assessment was not pursued further during the summer. For time reasons, no approach was attempted with Slovakia and Tunisia.

The following specific support actions, not directly related to a recent country needs assessment, were part of the planning agreed in February 2008:

³ <http://www.eumedconnect.net/>

⁴ The study was funded via the EU FP6 Porta Optica project (see <http://www.porta-optica.org/>)

- raising awareness of AAI;
- collaborate with GN2/JRA2 on CSIRT mentoring;
- support embryonic CSIRTs in Mediterranean countries;
- miniCAMP events on eduroam;
- follow-up from the EU-Med Event.

Collaboration with GN2/JRA2 took place in the summer of 2008, when joint NA4-JRA2 teams visited Bulgaria and Romania (see below). A number of activities to follow up from the EU-Med Event were carried out throughout 2008, as reported below.

In this report, the activities carried out in year 4 of the GN2 project have been classified in three ways: 1) new country needs assessments, 2) follow-up actions from previous activities, 3) other support activities. This document also provides information about ongoing activities as well as activities to be carried out between the time of writing and the end of the GN2 project in the spring of 2009.

All activities are highlighted in the remaining sections of this introduction. The body of this document is based on the reports produced during the year. However, in some cases the text of the original reports has been slightly modified in order to omit confidential and sensitive information.

1.1 New country needs assessments

As already mentioned, country needs assessments were carried out during the reporting period with respect to Ukraine and Montenegro.

The country needs assessment of Ukraine was carried out in March and April 2008. During a visit to Kiev on 21-22 April 2008, the GN2 team of experts, composed of Jacek Gajewski (CEENet), Kevin Meynell (TERENA) and Valentino Cavalli (TERENA), met managers and technical staff of URAN and UARNET, key representatives from the National Academy of Sciences of Ukraine and from the Ministry of Education and Science, as well as representatives from a few research institutions. The report of the country needs assessment of Ukraine was distributed to the European Commission and to local stakeholders of research and education networking in July. The report is summarised in section **Error! Reference source not found.** of this document.

The country needs assessment of Montenegro was carried out in the summer of 2008. During a visit to Podgorica on 10-11 September 2008, Kevin Meynell met members of the MREN Board and technical managers of the Montenegrin NREN, as well as the Minister for Education and Science and the Deputy Director of the Computer Centre for Primary and Secondary Schools. The report of the country needs assessment of Montenegro was distributed to the European Commission and to local stakeholders of research and education networking in October 2008. The report is summarised in section **Error! Reference source not found.** of this document.

1.2 Follow-up from previous years' activities

In previous years, NA4 carried out a country needs assessment and organised a number of technical workshops to support research and education networking in Morocco. In this context a liaison with the

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EUMEDCONNECT project was established, which led to the organisation of the EU-Med Event on 23-24 October 2007 in Brussels. The event was jointly organised by NA4 and the EUMEDCONNECT and EUMedGrid projects, and was supported with additional funding from GRNET.

As a follow-up to this, NA4 contributed to a booklet on e-Infrastructures in the Mediterranean region, which was developed in February 2008 in collaboration with EUMEDCONNECT and EUMEDGrid.

Following on the success of the Brussels EU-Med Event, a second EU-Med Event was organised in 2008. That event, which focused on sustainability of e-Infrastructures in Mediterranean countries in North Africa and the Middle East, targeted politicians and other stakeholders of research and education networking in the region. The second EU-Med Event was held in Amman, Jordan on 4 November 2008, followed by the official launch of the EUMEDCONNECT2 network. Details of the two EU-Med Events are provided in section 4.1 of this report. The programmes of those events are provided in the appendices.

The major support action following from the country needs assessment of Bosnia and Herzegovina⁵ was a Round Table on research and education networking in Bosnia and Herzegovina that was held in Sarajevo on 20 November 2007. Details of this meeting are provided in section 4.2 of this report.

1.3 Other Support Activities

The main support activities carried out in the reporting period that were not strictly related to a country needs assessment, stem from a collaboration between GN2/NA4 and GN2/JRA2 on CSIRT mentoring. A number of countries in Europe whose NREN does not have an established CSIRT were identified as candidates for this activity, and NA4 provided support to JRA2 in following this up with BREN and RoEduNet. This work is summarised in section 5.1 (BREN) and in section 5.2 (RoEduNet) below.

Other activities carried out during the year include the update of the development support activity web page (<http://www.terena.nl/development-support>), the meetings of the advisory panel, and the production of project reports (one annual deliverable and periodic highlight reports).

⁵ Details of the country needs assessment of Bosnia and Herzegovina are reported in the GN2 Deliverable DN4.0.3,3

2 The country needs assessment of Ukraine

The GN2 development support advisory panel identified Ukraine as a candidate for a country needs assessment because it is a large country in terms of both area and population, and has a well-developed research and education community.

The country needs assessment of Ukraine was carried out in the spring of 2008. The study was concluded with a visit of a team of experts from NA4 to Kiev on 21-22 April 2008. Kevin Meynell and Valentino Cavalli (TERENA) and Jacek Gajewski (General Secretary of CEENet) were the members of the team. The team met key representatives of URAN, UARNet and the National Academy of Sciences, managers and directors of research and education institutions and representatives of the Ministry of Education and Science of Ukraine.

The programme of the visit is provided in section 7.1 of this deliverable.

There are two organisations in Ukraine that currently provide networking services to research and education institutes. These are the Ukraine Research and Academic Network (URAN) and the Ukraine Academic and Research Network (UARNet). There were previously other, smaller organisations as well (namely KarNet and FreeNet), but these have now been incorporated under the umbrella of URAN.

The existence of two networking organisations is a result of historical developments, and of the fact that education and science were traditionally the responsibility of separate government ministries. Whilst at one time, the different organisations largely covered different types of institute and even focused on different geographical areas, these distinctions have become increasingly blurred over the years.

URAN was established solely as a provider of networking services to research and education institutes, but it has limited infrastructure of its own and primarily leases connectivity from commercial providers. It has been able to leverage NATO grants to roll out Metropolitan Area Networks (MANs) in the major cities, but intercity connectivity remains an issue. By the end of 2008, URAN was planning to buy two fibres to connect with PIONIER via cross-border dark fibre from Lviv.

By contrast, UARNet was established by the Ukrainian Academy of Sciences to connect its institutes, but also offered commercial services in order to offset operational costs. Over time, the commercial side has outstripped the academic role of the organisation, but this has also enabled keeping the cost of academic connections low. UARNet also owns a number of dark fibres, although it still leases connectivity for certain links.

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Unfortunately, having two organisations serving the Ukrainian research and education community complicates connectivity to other research and education networks such as GÉANT2. It also complicates the involvement of Ukraine in international initiatives such as the forthcoming GN3 project, as countries are required to have a single representative organisation.

The commercial nature of UARNet means that it is ineligible to connect to GÉANT2, so the GÉANT2 connection that was established in March 2008 is currently to URAN. However, URAN does not cover all institutes in Ukraine, and is unable to leverage the cross-border fibres that it potentially has access to in the west of the country. Furthermore, the apparent inability of UARNet to separate commercial and academic traffic means that its academic customers are unable to use URAN for transit to external networks.

The aims of the country needs assessment were therefore fourfold:

1. to assess the current state of research and education networking in Ukraine;
2. to establish how access to GÉANT2 by the Ukrainian research and education community can be maximised;
3. to consider how dark fibres may be leveraged to lower connection costs, and particularly the cost of the GÉANT2 connection;
4. to investigate whether there is any scope to better integrate the roles and functions of URAN and UARNet.

Conclusions and Recommendations

The main issue that arose during the discussions with URAN was the lack of government funding for research and education networking. While the funding received from the government covered the staffing costs, the costs of provisioning the network had to be recouped from the users themselves. This meant that URAN was not only in competition with commercial ISPs, but it was also difficult to persuade member institutions to invest in anything beyond basic Internet connectivity.

The Ministry of Education and Science suggested that they would be implementing a technology and research programme that would allocate funds to improving research and education networking. Unfortunately, the exact details of this seemed vague, and the amount of funding that would be used for networking was unclear. URAN therefore thought it would be useful if TERENA, CEENet and/or GN2 could write an open letter to the President and/or Prime Minister of Ukraine, stressing the advantages of research and education networks.

Recommendation – TERENA, CEENet and/or GN2 to write open letter to President and/or Prime Minister of Ukraine stressing the advantages of research and education networks.

Another difficulty was trying to explain the benefits of dedicated research and education networks, as these came relatively late to Ukraine. As a result, academic institutes were well used to obtaining their Internet connections from commercial ISPs, and it is therefore difficult to promote the advantages of NRENs unless they can provide equivalent or better service at no more cost than a commercial ISP.

This is particularly the case with the external connection to GÉANT2, because this is significantly more expensive in comparison to commodity Internet connections, which took most of the external traffic anyway. At

the moment, URAN's GÉANT2 connection was subsidised from other operational budgets, but institutes were questioning why they should have to pay for this link.

In the interests of promoting research and education networks and the merits of connecting to GÉANT2, it was suggested that TERENA, CEENet and/or GN2 could organise an informational workshop for the wider research and education community in Ukraine. This might involve selected government officials and other stakeholders as well.

Recommendation – TERENA, CEENet and GN2 to investigate possibilities for organising informational workshop on research and education networking. This would be primarily targeted at research and education users, government officials, and other stakeholders.

Another possible way of promoting the benefits of research and education networks was the organisation of technical workshops on subjects of interest to users. Some of the topics mentioned included IP telephony, IPTV, eduroam, certification, identity federations, Grids, metropolitan-area wireless networking, electronic libraries (particularly in English) and e-learning. As TERENA, CEENet and GN2 already organise workshops on some of these subjects, some consideration should be given to holding future events in Ukraine.

Recommendation – TERENA, CEENet and GN2 to consider which technical workshops can be organised in Ukraine.

In the discussions with UARNet, the main issues concerned access to GÉANT2 and the utilisation of the proposed cross-border fibre to Poland. Although UARNet connects a significant number of academic institutes, UARNet is currently prohibited from connecting to URAN, and therefore to GÉANT2. This effectively divides the Ukrainian research and education networking community and excludes UARNet's academic customers from international research and education networks, unless those customers also happen to have a connection to URAN. Similar issues would apply even if they could establish a bilateral link with PIONIER, so some sort of resolution is clearly desirable.

Ukraine is fairly unique within Europe in having two networking organisations serving the research and education community. However, it is noted that this situation evolved for particular reasons, and there is little evidence that it has been particularly detrimental to the community.

Nevertheless, having two unconnected networks does not allow use of the GÉANT2 connection to be maximised, while also making it difficult to leverage the possibilities offered by the cross-border fibre. Quite aside from these issues, not having a single NREN hugely complicates Ukraine's representation and involvement in wider European activities. It also means that there is no single point of contact for the Ukrainian research and education networking community from an external perspective.

This said, as it would seem that URAN and UARNet will continue to exist in their present forms for the foreseeable future, probably the only realistic solution is to reach some sort of co-operative agreement. In this, they would agree to exchange academic traffic with each other, although this would require UARNet to implement routing measures to ensure only academic traffic was forwarded to URAN and other research and education networks such as GÉANT2.

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It is therefore proposed that TERENA, CEENet and/or GN2 co-ordinate a joint summit between URAN, UARNet, the Ministry of Science and Education, the National Academy of Sciences and any other relevant stakeholders. This event would explore funding issues, how to improve accessibility for all research and education users, how existing infrastructure can be better leveraged by all stakeholders, and the issue of external representation.

Recommendation – TERENA, CEENet and GN2 to co-ordinate a joint summit between URAN, UARNet, the Ministry of Science and Education and the National Academy of Sciences. This may also involve other relevant stakeholders.

3 The country needs assessment of Montenegro

The country needs assessment concerning research and education networking in Montenegro was started as a desk study in the summer of 2008. The fact-finding mission took place on the 10-11 September 2008. Montenegro was identified as a candidate for a country needs assessment for several reasons. Firstly, it is a newly independent country and therefore only recently formed a national research and education network. Secondly, it currently has connectivity to the GÉANT2 network through the SEEREN2 project⁶, and plans to participate as a full partner in the forthcoming GN3 project. Finally, it was felt important to establish contact with key personnel of the Montenegrin NREN and to determine which ongoing European activities were interesting and relevant to the Montenegrin research and education networking community.

The country was previously a constituent republic of the former Yugoslavia, and during that time was connected to the Academic and Research Network of Yugoslavia (AMREJ). However, after the establishment of the confederation of Serbia and Montenegro, each republic assumed greater responsibility for its own affairs, and this led to the establishment of the Montenegrin Research and Education Network (MREN) in 2005. Upon independence in June 2006, MREN became the official national research and education network of Montenegro.

Montenegro is a small country in both area (approx. 14,000 sq km) and population (approx. 680,000), and therefore only has a limited higher-education and research community. The University of Montenegro⁷ is the only public university (with approx. 20,000 students), although there is also the private Mediterranean University⁸, and another private university (UDG) in the process of being established. In addition to these higher-education institutes, there are 161 primary schools and 49 secondary schools/training colleges.

MREN is an initiative of the Ministry of Education of Science, and does not yet have any formal legal structure. It is overseen by a board of six directors chaired by the Vice Prime Minister and comprised of representatives of the Ministry of Education and Science, the University of Montenegro, the Secretary of State for Development, and Telecom Montenegro. Technical management is provided by the University of Montenegro IT Centre, although as networking services are currently only provided to the university itself, MREN is essentially coterminous with that institution.

⁶ <http://www.seeren.org/>

⁷ <http://www.ucg.ac.me/>

⁸ <http://www.unimediterran.net/>

Conclusions and Recommendations

The main issue that arose during the discussions with MREN was the severe lack of international bandwidth, as well as bandwidth to university faculties outside Podgorica. The 4-Mb/s link to Belgrade was severely congested, even with the deployment of traffic filtering and caching measures, and it limited the use of all but the most basic applications. By way of comparison, countries such as Cyprus and Malta with similar-sized research and education communities as Montenegro, had 155- and 34-Mb/s connections to GÉANT2, respectively, and even these were several orders of magnitude less than the multi-Gigabit connections enjoyed by countries like Croatia and Slovenia.

The 2-Mb/s links to remote faculties represented an even more acute problem. Even though around 75% of the traffic on MREN is within Podgorica, the slow speeds to outlying sites made it completely impractical to run useful services such as videoconferencing to and from these locations. In addition, the fact that most schools had better connectivity through the commercial provider T-Com meant that it would be difficult to incorporate schools and private universities into the MREN network.

MREN estimates that it has a requirement for at least 100 Mb/s internationally, and something similar between municipalities. However, such services are not even offered by T-Com, even if sufficient funding would be available to pay for them. MREN is fortunate in that it has some additional funding available from the registration of .me domain names, but even this would not cover expected requirements, at least not at current prices. With MREN due to join the GN3 project, it is therefore unclear what sort of international connectivity it can expect to leverage through the tendering process.

As more competition enters the market, it is usually the case that services improve and prices drop, but MREN has the complication that it is somewhat constrained by the 20-year agreement between the government and T-Com (although it could in principle buy connectivity from elsewhere if sufficient funding could be found). The 2-Mb/s links are already totally inadequate, and will only become more so in future.

It was therefore suggested that TERENA and/or GN2 could write an open letter to the Prime Minister of Montenegro pointing out that the levels of research and education connectivity within parts of Montenegro and to other countries were inadequate and at odds with the Montenegrin government's stated intention of developing an information society. The government might also be advised to consider whether the agreement with T-Com could be re-negotiated, or whether MREN could be allowed to buy connectivity from elsewhere.

Recommendation – TERENA and/or GN2 to write open letter to Prime Minister of Montenegro with respect to improving levels of research and education connectivity.

It was also suggested that TERENA and/or GN2 might write to the Chairman of T-Com, stressing that the Montenegrin research and education community was being severely disadvantaged by the original connectivity agreement, and asking whether T-Com might consider upgrading the slow links at little or no charge. It should also be stressed the research and education networking community is not competing with them, and that promoting research and education networking may have benefits for their own business in future.

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Recommendation – TERENA and/or GN2 to write letter to Chairman of T-Com with respect to giving consideration to making research and education networking a special business case.

With respect to the development of services, the University of Montenegro already has wireless networking, so is an ideal candidate for joining the eduroam infrastructure. That infrastructure allows users to access wireless networks at institutions in more than thirty countries, using the same authentication credentials (e.g., username and password) as they would use at their own institution.

Information on how to set up eduroam is available on the eduroam website. Support is also available through the GN2/NA8 activity, which runs periodic training workshops in collaboration with GN2/SA5.

Recommendation – MREN to join eduroam infrastructure.

Identity federations are becoming increasingly important for handling access to remote services such as Grid and storage clusters, and to facilitate data mobility between institutions (as defined by the Bologna Process). Many NRENs in Europe have established such federations, so MREN should consider doing the same with the intention of establishing interoperability with institutions in the European Research Area.

Recommendation – MREN to establish identity federation for handling access to remote services and to facilitate data mobility.

One of the goals of the GN2 project is to encourage all NRENs connected to the GÉANT2 network to have an established Computer Security Incident Response Team (CSIRT). This is to ensure that there are designated contacts in each NREN that are able to handle and respond to any security incidents that arise within their constituency, particularly where these have international scope. As MREN will join the successor project GN3, it is desirable for MREN to establish its own CSIRT, although this can be as simple as developing incident handling procedures for existing staff members. Support is available from the GN2/JRA2 activity to help develop incident response procedures, while staff training can be undertaken through the bi-annual TRANSITS training courses organised by TERENA.

Recommendation – MREN to develop incident handling and co-ordination procedures, with a view to establishing an accredited CSIRT.

4 Follow Up from Previous Activities

4.1 EU-Med Events, Brussels 2007 and Amman 2008

Brussels Event

The policy workshop on e-Infrastructure in the Mediterranean region⁹ was organised during the spring and summer of 2007 by NA4 in collaboration with the EUMEDCONNECT and the EUMEDGRID projects. The EU-Med event, which helped progress collaboration between countries of the Mediterranean region and European Union countries, was held in Brussels on 23 and 24 October 2007. The day after the event, a meeting of senior ICT officials from Mediterranean countries was organised by the European Commission in Brussels. The dates and location of the policy workshop were chosen to ensure synergy with the Commission's event.

The theme of Day 1 was "Access to research infrastructures in the Mediterranean: status, perspectives and strategies for the future", while the theme of Day 2 was "Policy agenda for e-infrastructures in the Mediterranean countries". Almost 90 politicians, network operators, users, civil servants, and managers of national research and education networks from more than 15 countries attended the event, which was by invitation only. High-level keynote speakers provided views about their strategies and discussed the current status and perspectives of e-infrastructures in the region. Existing and potential applications from several fields were illustrated. Sustainability was the recurring concern of the event, with many questions about long-term support for projects that have been established across the Mediterranean region in recent years.

During the event, several speakers presented overviews of the status of e-infrastructures in their countries. These included dignitaries and ministers from a number of countries currently benefiting from European-supported e-infrastructures, including HRH Princess Sumaya Bint Al Hassan of Jordan, Dr. Najib Abdul Wahed of Syria and Mr. Mashour Abudaka of Palestine.

A final interactive session built on progress made by NRENs in the region to continue collaborative efforts, drew conclusions and identified follow-up actions. Representatives of the European Commission also emphasised the importance of building on recent achievements.

⁹ <http://www.terena.org/development-support/eumedevent/>

The EU-Med Event was described in detail in the GN2 deliverable reporting on Development Support activities in the third year of the GN2 project¹⁰. The agenda of the event is provided in Appendix 7.6.

At the time of the Brussels event, EU funding to support the EUMEDCONNECT network was ending and the future of the infrastructure was not assured. Following on from the success of the EU-Med Event, the vital importance of EUMEDCONNECT for collaboration in the region was discussed in a meeting of ICT Ministers held in Cairo on 28 February 2008. As a result, the issue of ensuring funding for the project became higher on the political agenda and this led to the establishment of the EUMEDCONNECT2 network, which was officially launched during a 2nd EU-Med Event, held in Amman on 4 November 2008.

Amman Event

The 2nd EU-Med Event was jointly organised by TERENA, GARR, DANTE and JUNet, the NREN of Jordan, with financial support from GN2/NA4, and the EUMEDCONNECT and LinkSCEEM projects¹¹. The programme of the event is provided in Appendix 7.7.

Around a hundred high-ranking public officials and specialists from twenty countries in Europe, the Mediterranean region and Middle East attended the Amman event, which highlighted ongoing projects that have benefits for the health, environment and education of people living in the Mediterranean region.

Four projects illustrating the innovative use of e-infrastructures and real benefits to people living in the Mediterranean region were presented during the event: WISDOM seeks drugs for emerging diseases, avian influenza and malaria; ITHANET shares clinical expertise and research about thalassaemia, an inherited blood disorder; CIRCE assesses the impact of climate change and provides recommendations to policy makers; and ICT-LEAP promotes an e-learning network between universities in Europe and the Middle East. A fifth project, ASTRA, was highlighted during the EUMEDCONNECT launch, further showing the range of applications becoming possible.

The event itself offered a forum for human networking and encouraged a spirit of co-operation, calling upon the experiences of public and private sector representatives from a number of Mediterranean countries, as well as other regions. Alongside government ministers from Jordan, Palestine and Morocco and other VIP participants, the audience included researchers and policy makers from around the region who used the event as an opportunity to gather ideas and contacts for future collaborative projects.

Human networking was further emphasised during a panel discussion about the role of the European Union, governments and the private sector in sustaining e-infrastructures in the Mediterranean region. Several speakers suggested that raising awareness about the opportunities that networks and associated services can offer, among both researchers and politicians, would increase demand for their long-term provision and encourage future funding.

Robert Klapisch, President of the Geneva-based Sharing Knowledge Foundation, illustrated the nature of the digital divide between different countries and regions and the “remarkable correlation” between the United

¹⁰ DN4.0.3,3

¹¹ <http://www.terena.org/development-support/eumedevent2/>

Nation's Human Development Index and development of the Internet. While European NRENs can innovate, set standards and can bargain with competitive bandwidth providers, southern NRENs face monopolies and high prices. Strong NRENs are required in the Mediterranean and surrounding region, he said. He called for more investment from within the region to support NRENs and e-infrastructures, but also more fundamental activities.

At the same time that the EU-Med Event 2 was taking place, the commitment of the European Union to the EUMEDCONNECT initiative was reconfirmed during the Council of the European Union's ministerial conference 'Barcelona Process: Union for the Mediterranean', which took place in Marseilles on 3-4 November 2008.

4.2 The Round Table on Research and Education Networking in Bosnia and Herzegovina, Sarajevo, 20 November 2007

The round table on research and education networking in Bosnia and Herzegovina that was held in Sarajevo on 20 November 2007¹² was the major action resulting from the country needs assessment of Bosnia and Herzegovina, which was carried out earlier in the same year¹³. The programme of the round table is provided in Appendix 7.3 of this report.

More than 50 attendees took part in the event, where discussions focused on various models for the management, governance, organisation and funding of BiHARNET, officially the NREN of Bosnia and Herzegovina, but in practice a non-functioning organisation for several years.

Participants in the Sarajevo event represented the following stakeholders:

- university rectors
- university researchers
- Ministers of Education and Communications at canton/entity/state level
- CEO of telecommunications operators
- Office of the High Representative in Bosnia and Herzegovina
- EU Delegation in Bosnia and Herzegovina
- international guests from SEEREN2, TERENA, the GN2 Policy Committee and the European Commission.

Participation in the round table was lively and led to a number of suggested resolutions to address the revitalisation of the NREN in Bosnia and Herzegovina, including clearing out administrative issues still outstanding in BiHARNET.

As was reported in Deliverable DN4.0.3,3, research and education networking in Bosnia and Herzegovina was relatively unbalanced, with universities in the Federation of Bosnia and Herzegovina – one of the two country's

¹² <http://www.terena.org/activities/development-support/sarajevo-ws/>

¹³ The country needs assessment of Bosnia and Herzegovina is reported in detail in DN4.0.3,3

entities¹⁴ – lacking any interconnection, whereas in the other entity, the Republika Srpska, a networking organisation called SARNET had been established. At the time of the Sarajevo event, SARNET had an optical fibre backbone in Banja Luka and a cross-border fibre connection to Serbia. SARNET had very specific plans to extend the backbone to all universities in the Republika Srpska.

At the round table, the Federal Ministry of Communications and Transport, the Federal Ministry of Science and Education, and BH Telecom – one of three network operators in Bosnia-Herzegovina – made their plans known for the provision of a network infrastructure to interconnect universities in the Federation of Bosnia and Herzegovina, as well as for the creation of an entity-level organisation, named FARNET.

In September 2008, ten months after the Sarajevo event, progress concerning Bosnia and Herzegovina was presented at the final review meeting of the SEEREN2 project. The main achievements were:

- FARNET, the network of the Federation of Bosnia and Herzegovina, connecting the universities of Sarajevo, Tuzla, Zenica, Bihac and (east) Mostar was implemented via a 100-Mb/s MPLS-based VPN. The interconnection of universities in west and east Mostar was still under way.
- The Rector's Conference of Bosnia and Herzegovina had proposed that the Minister of Civil Affairs take responsibility for BiHARNET, as a way of facilitating the organisational structure of the NREN of Bosnia and Herzegovina. At the time, it was still being discussed whether BiHARNET should be the only network in the country or it should be an umbrella organisation with the task of co-ordinating other networks at the entity and/or at the canton level. Talks concerning the organisation and sustainability of the NREN of Bosnia and Herzegovina were still ongoing at the time of writing this report.

¹⁴ Bosnia and Herzegovina is a Republic composed of two entities: the Republika Srpska and the Federation of Bosnia and Herzegovina. Each entity has its own independent government, although the Federation of Bosnia and Herzegovina is further divided into ten administratively independent cantons, each with its own government. In addition, the Brcko district, including the city of Brcko, has a special status and is part of both entities.

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5 Other Support Actions

One of the major goals of GN2/JRA2 is to encourage all National Research and Education Networks (NRENs) connected to the GÉANT2 network to establish a CSIRT. This is to ensure that there are designated contacts in each NREN that are able to handle and respond to any security incidents that arise within their constituency, particularly where these have international scope.

As BREN (Bulgaria) and RoEduNet (Romania) are two of just four NRENs participating in the GN2 consortium that have yet to formally establish a CSIRT, representatives of GN2/JRA2 and GN2/NA4 decided to meet directly with relevant stakeholders in order to encourage the formation of a security team, and discuss the steps that needed to be taken in this direction. As a result, Claudio Allocchio (GARR) and Kevin Meynell (TERENA) met with representatives of BREN on 8 July 2008 in Sofia. Christoph Graf (SWITCH) and Kevin Meynell met with representatives of RoEduNet on 11-12 August 2008 in Bucharest.

5.1 Support to the establishment of BREN CSIRT

BREN is a relatively new organisation that aims to consolidate several other research and education networking initiatives under the auspices of the Bulgarian State Agency for Information Technology and Communications (SAITC). As such though, BREN is essentially a project, with staff from other agencies and organisations being used to undertake the necessary activities. An organisation called iCentres (itself an initiative of the United Nations Development Agency) undertakes the actual project management, while the Information Society Technologies Foundation (ISTF), the Academy of Sciences, and the Ministry of Communications are involved with the network provisioning.

SAITC is also involved in the process to establish a Bulgarian government CSIRT, and has previously liaised with ENISA and CERT Hungary with respect to setting this up. As a result, they appeared supportive of the goals of GN2/JRA2 and seemed willing to formulate a plan to establish a CSIRT for the Bulgarian research and education community.

To this end, a series of meetings was held with these bodies, which were used to make the case for a BREN CSIRT, outline potential services and formulate the necessary steps towards establishing a CSIRT. In addition, the fact that the operation of a CSIRT was becoming an expected service of an NREN was highlighted, along with the issue that this may become a pre-requisite of joining the GN3 consortium and connecting to GÉANT3.

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Agreed Actions

The initial meeting involved the prospective staff of a BREN CSIRT, as well as representatives of the organisations involved with setting up the government CSIRT. This meeting was used to outline the advantages of a CSIRT, possible models of organisation, the various services that can and/or should be provided, and the support that can be offered by the international network security community. It was also used to gain knowledge of the organisational aspects of the Bulgarian research and education community.

There followed a short meeting with the BREN management that was used to make the case for a CSIRT, as well as to discuss funding issues. However, as the principle of a BREN CSIRT was already accepted, it was agreed that an action plan should be formulated and presented later in the day.

Discussions then resumed with the BREN staff, which were used to formulate the action plan. This defined the activities that should be undertaken, the resources that would be required, and a timeline for implementation.

The importance of developing good trust and co-operation between the various organisations and institutes in the BREN constituency was stressed, as this was key to the success of the CSIRT. However, it was recognised this might take some time, as BREN had only been established relatively recently. One possible method of raising awareness of the importance of incident handling and co-ordination might be to organise a workshop that involved all the relevant stakeholders in the constituency.

Action – BREN to organise a workshop for relevant stakeholders in its constituency, in order to raise awareness of the importance of incident handling co-ordination.

Further to this, there was a need to develop a comprehensive Acceptable Use Policy (AUP) that would apply to BREN users. This would essentially define what was permissible on the network, and therefore what action the CSIRT could take when this was contravened. In addition, a Service Level Agreement (SLA) needed to be formulated that would outline important details like operating hours, acceptable response times, and incident resolution procedures. TERENA was asked whether it could provide examples of AUPs and SLAs that could be adapted for use by the BREN CSIRT.

Action – TERENA to provide examples of AUPs and SLAs for CSIRTs.

Another important consideration was defining the relationship with the current and future network operators, as action would be needed from them in response to certain security incidents. The planned upgrade of the BREN network called for the establishment of 29 regional points of presence (PoPs), but the operation of these would likely be outsourced, and responding to incidents would therefore need to be specified in the contracts.

An action plan was presented to the BREN management at the end of the day, where it was accepted in principle. The plan defined milestones for implementing incident handling services, and the steps towards becoming an accredited CSIRT.

Action – BREN to implement CSIRT action plan.

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Timeline

The following timeline for establishing the CSIRT was agreed:

- develop the strategic plan for the CSIRT – by 30 September 2008.
- official approval by BREN Board – by 31 October 2008.
- begin CSIRT implementation – from 1 October onwards (this can hopefully commence before official approval is granted).
- disseminate the operational plan to the potential CSIRT constituency, possibly at a workshop – during November 2008.
- announce the operational CSIRT after initial trial – by 31 January 2009.
- evaluate effectiveness of CSIRT – around July 2009
- seek accreditation with Trusted Introducer Service – from August 2009.

5.2 Support to the establishment of RoEduNet CSIRT

RoEduNet was established in 1998 under the auspices of the Romanian Ministry of Education and Research, to connect academic, scientific and cultural institutions in Romania. The network is structured around one national and seven regional Network Operations Centres (NOCs), with 36 PoPs that are located in the main town of each county. Around 1,000 sites are connected in total, including approximately 60 universities. RoEduNet therefore has a well defined constituency from the perspective of providing CSIRT services.

The meeting with RoEduNet was used to make the case for a RoEduNet CSIRT, outline potential services, and formulate the necessary steps towards establishing a CSIRT. In addition, the fact that the operation of a CSIRT was becoming an expected service of an NREN was highlighted, along with the issue that this may become a pre-requisite of joining the GN3 consortium and connecting to GÉANT3.

Agreed Actions

The meeting involved the Director of RoEduNet, as well as the prospective CSIRT leader. It was used to outline the advantages of a CSIRT, possible models of organisation, the various services that can and/or should be provided, and the support that can be offered by the international network security community. It was also used to gain knowledge of the organisational aspects of RoEduNet.

RoEduNet explained that the main reason for not establishing a CSIRT had been a lack of staff resources. Funding was not really a problem, but RoEduNet was constrained by government regulations relating to employees' remuneration. This meant that it was difficult to attract suitable staff, and a number of positions remained unfilled as a result. Representations were ongoing to establish RoEduNet on a different basis than other governmental agencies, but this was proving a long process. However, there was the possibility to obtain separate funding (in the order of 2 million Romanian lei) from a forthcoming national project, which might provide flexibility to recruit more staff.

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In addition, the decentralised nature of RoEduNet meant that existing staff were located at a number of sites around the country, which made co-ordination more complicated. While there were plans to consolidate the number of operational centres, this was not likely to happen in the near future.

This notwithstanding, the NOC team already performed many of the functions of a CSIRT through operational necessity, so it should not require too many additional resources to formalise these procedures. As a first step, existing NOC staff could be utilised as a virtual CSIRT team, sharing the duties and rotating coverage between themselves.

An action plan was therefore formulated to define the steps to be taken towards establishing a RoEduNet CSIRT. This plan also considered which resources would be needed, and a timeline for implementation.

The initial issue was how to raise awareness of the importance of incident handling and co-ordination within the RoEduNet community. However, although time was short, it was thought that a BoF session might be organised at the forthcoming RoEduNet Conference that interested parties could attend.

Action – RoEduNet to organise BoF session at the RoEduNet Conference 2008, in order to raise awareness of the importance of incident handling co-ordination, and to get in touch with security stakeholders within their constituency.

Further to this, there was a need to review the current Acceptable Use Policy (AUP) that applies to RoEduNet users. The AUP essentially defines what is permissible on the network, and therefore what action the CSIRT can take if this is contravened. In addition, a Service Level Agreement (SLA) needed to be formulated that would outline important details like operating hours, acceptable response times, and incident resolution procedures. Examples of AUPs and SLAs could be provided by TERENA and/or SWITCH as necessary.

Action – TERENA and/or SWITCH to provide examples of AUPs and SLAs for CSIRTs.

It was also important to develop good co-operation between the CSIRT and institutes connected to the network, as action would be needed from them in response to certain security incidents. The CSIRT procedures and policies should therefore be defined in consultation with interested parties in the RoEduNet community, and disseminated as widely as possible. To this end, it was proposed that a workshop involving all the relevant stakeholders be organised towards the end of 2008.

Action – RoEduNet to organise a workshop for relevant stakeholders in its constituency, in order to disseminate CSIRT operational plan.

The resulting action plan was accepted in principle by the Director of RoEduNet, with a view to formalising incident handling services, and the eventual goal of becoming an accredited CSIRT.

Action – RoEduNet to implement CSIRT action plan.

Timeline

The following timeline for establishing the CSIRT was proposed:

- organise BoF session of potential stakeholders at RoEduNet Conference 2008 – 28-30 August 2008
- develop CSIRT procedures, policies and services – by 30 September 2008
- look to send CSIRT staff to next TRANSITS course – 22-24 October 2008
- organise workshop to disseminate operational plan to the CSIRT constituency – late-November/early-December 2008
- start CSIRT operations – from 1 January 2009
- evaluate effectiveness of CSIRT – around June 2009
- seek accreditation with Trusted Introducer Service – from mid 2009.

6 Ongoing and Future Work

At the time of writing this report, the specific follow-up from the recommendations contained in the country needs assessment reports of Ukraine and Montenegro, as well as the implementation of relevant action items, were still being discussed with the NRENs in these countries.

Belarus was initially identified as a candidate for a country needs assessment during a meeting of the development support advisory panel in May 2007, but at that time the situation of the Belarussian NREN was unclear, especially concerning the position of the Academy of Sciences and other academic institutions. During 2008, much progress was made. BASNET, officially part of the United Institute of Informatics Problems of the National Academy of Sciences of Belarus (UIIP NAS of Belarus) became a member of TERENA and has recently been invited to become an associate member of the GN3 consortium. BASNET leases optical cables from Beltelekom, the incumbent operator of Belarus, with transmission equipment being owned by BASNET. The BASNET backbone connects the nodes at Grodno, Brest, Mogilev, Vitebsk and Gomel to Minsk at a capacity of 2 Mb/s. BASNET plans to establish 2-10 Gb/s to GÉANT and 1-2 Gb/s to regional nodes within one or two years. It is currently working on the first equipment tender to provide at least 10 Gb/s. On 1 March 2008, BASNET joined the BalticGrid2 project.

Work on the country needs assessment of Belarus was ongoing at the time of writing. TERENA staff members were studying the information gathered via the Compendium of NRENs and additional information supplied by BASNET. A visit of TERENA Secretariat staff working in NA4 to stakeholders of the Belarussian NREN in Minsk was scheduled for 21-23 January 2009.

MARNET, the NREN of the Former Yugoslav Republic of Macedonia (FYROM) is one of three new participants from the Balkans peninsula (along with AMRES from Serbia and MREN from Montenegro) in the GN3 project. TERENA Secretariat staff had carried out a country needs assessment of FYROM in 2003 (before the start of the GN2 project). After the summer of 2007, the government of FYROM established an inter-ministerial committee to define organisation and funding issues related to MARNET, and the relevant resolutions became part of the government's Strategy of Electronic Communications, as well as of the Strategy of development of Broadband Internet (the latter was under preparation at the time of writing this report).

In this context MARNET invited TERENA, as the leader of GN2/NA4, to participate in a session on research networking that was part of a conference on e-Society held in Skopje on 10 December 2008. That occasion provided an opportunity for informal meetings with members of the MARNET Board and representatives from the Macedonian Ministry of Information Society.

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Since the autumn of 2007, the Latvian NREN SigmaNet (formerly LATNet) has gone through a number of significant changes. Early in 2008, SigmaNet faced some critical issues concerning government funding for connectivity to GÉANT2. Funding was granted by the Latvian Ministry of Education for one year and was renewed for just one more year in the spring of 2008, jeopardising the sustainability of research and education networking in the country. More recently, intense discussions have taken place in Latvia about the future of the academic network, with some parties talking about leaving provision of networking services for researchers, teachers and students to the commercial sector.

In this context, SigmaNet discussed with NA4 the need to make the case for research and education networking in the country, and to demonstrate the competence of the NREN and its capability to achieve benefits for society at large.

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7 Appendix: Programme of Visits and Events

7.1 Agenda of the meetings in Ukraine

Monday 21 April 2008

- Meeting with URAN Staff at Kyiv Polytechnic Institute
 - Dr. Mikhail Dombrougov, URAN Executive Director
 - Dr. Volodymyr Galagan, URAN Technical Director
 - Mrs. Oksana Kubichka, URAN Project Manager
 - Dr. Vyacheslav Shkarupin, URAN Head of International Relations
- Meeting with URAN Board Meeting at Kyiv Polytechnic Institute
 - Prof. Yuriy Yakimenko, KPI First Vice-Rector & Head of URAN Board
 - Dr. Vladimir Timofeyev, KPI Deputy First Vice-Rector
 - Dr. Mikhail Dombrougov, URAN Executive Director
 - Dr. Volodymyr Galagan, URAN Technical Director
 - Dr. Vyacheslav Shkarupin, URAN Head of International Relations
- Meeting with URAN Users at Kyiv Polytechnic Institute
 - Dr. Andriy V. Zhuravlov, National Academy of Public Administration, Head of the Distance Learning Centre
 - Mikhail Fuzik, National Aviation University, Director of Research and Development Institute of Integrated telecommunication technologies
- Meeting with Ministry of Education and Science
 - Mr. Victor Svizhenko, Director of Department of Science and Technology Development
 - Mr. Maxim Strikha, Vice Minister

Tuesday 22 April 2008

- Meeting with UARNet Staff at Academy of Sciences Presidium
 - Mr. Oles Girniak, UARNet Technical Director
 - Mr. Ihor Protsikevich, UARNet Executive Director
 - Mr. Ruslan Dubitski, System Administrator
- Meeting with UARNet Board at Academy of Sciences Presidium

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Prof. Pylyp Andon, Director of Institute of Software Systems
Dr. Yuriy Dushek, Academic Secretary of Scientific-Organising Department
Mr. Oles Girniak, UARNet Technical Director
Mr. Ihor Protsikevich, UARNet Executive Director

7.2 Agenda of the meetings in Montenegro

Wednesday 10 September 2008

- Meeting with MREN Staff
 - Dr. Božo Krstajić, Director of IT Centre
 - Dejan Abazović, Manager for Software and Communication
 - Luka Filipović, Application Software Project Manager

Thursday 11 September 2008

- Meeting with Minister for Education and Science
 - Dr. Sreten Škuletić, Minister for Education and Science
 - Dr. Božo Krstajić, Director of IT Centre
- Meeting with Computer Centre for Primary and Secondary Schools
 - Marina Matijević, Deputy Director
 - Dr. Božo Krstajić, Director of IT Centre
- Meeting with Vice-Rector of the University of Montenegro
 - Prof. Zdravko Uskoković, Vice-Rector of UoM
 - Dr. Božo Krstajić, Director of IT Centre
 - Dejan Abazović, Manager for Software and Communication

7.3 Round Table on Research and Education Networking in Bosnia and Herzegovina

20 November 2007

- 10:30-10:45 Welcome Address
- Zeljko Knezevic, Ministry of Communications and Transport of Bosnia and Herzegovina
- 10:45-11:00 Opening Keynote Speech
- John Pyres, European Union Delegation in Bosnia and Herzegovina
- 11:00-11:45 European Research and Education Networking and SEE: GÉANT2/SEEREN2

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Vasilis Maglaris, National Technical University of Athens, Chairman of the GÉANT2 Consortium and Yannis Mitsos, GRNET

11:45-12:30 Summary of the Findings and Recommendations from Country Needs Assessment

Valentino Cavalli and Kevin Meynell, TERENA

12:30-13:00 Working Discussion - Part 1

Chair: Vasilis Maglaris, National Technical University of Athens, Chairman of the GÉANT2 Consortium

14:00-15:00 Working Discussion - Part 2

Chair: Yannis Mitsos, GRNET

15:00-16:15 Conclusions - Agreed Actions

Chair: Ivan Maric, CARNet / SRCE / GN2 Executive Committee

16:15-16:30 Closing Keynote Speech

Christophe Kowalski, European Commission, DG Information Society and Media

7.4 Meeting with BREN

Tuesday 8 July 2008

- Meeting with prospective CSIRT staff

Spass Kostov, BREN Project Manager

Todor Dragostinov, SAITC Head of Euro-Atlantic Cooperation Department

Borislav Hristov, BREN Technology Expert

Tanya Nikolova, SAITC Information Technology Expert

Angel Panov, BREN Technology Coordinator

Petya Taleva, Lirex Project Manager

- Meeting with BREN Management

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Krasimir Simonski, SAITC Deputy Chair

Todor Dragostinov, SAITC Head of Euro-Atlantic Cooperation Department

Spass Kostov, BREN Project Manager

- Meeting to formulate Action Plan

Spass Kostov, BREN Project Manager

Todor Dragostinov, SAITC Head of Euro-Atlantic Cooperation Department

Borislav Hristov, BREN Technology Expert

Angel Panov, BREN Technology Coordinator

- Meeting to approve Action Plan

Krasimir Simonski, SAITC Deputy Chair

Todor Dragostinov, SAITC Head of Euro-Atlantic Cooperation Department

Spass Kostov, BREN Project Manager

7.5 Meeting with RoEduNet

Monday 11 August 2008

- Meeting to discuss options for establishing CSIRT

Octavian Rusu, Director

Manuel Subredu, Network Engineer

Tuesday 12 August 2008

- Meeting to formulate Action Plan

Octavian Rusu, Director

Manuel Subredu, Network Engineer

Florin Petre, Network Engineer

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7.6 EU-Med 1 Event: Programme

23 October 2007

Workshop Chair: Vasilis Maglaris, National Technical University of Athens, Chairman of the GN2 Policy Committee

13:45 – 14:00 Welcome Address

Mario Campolargo, European Commission, Head of Unit – DG INFSO. F3

14:00 – 14:30 Telecommunications markets and regulations in Mediterranean countries

Claire Milne, Antelope Consulting

14:30 – 15:00 Applications and end-user projects in Mediterranean countries: MedGeNet

Michele Bianco, Managing Director European Genetics Foundation

15:00 – 15:30 Applications and end-user projects in Mediterranean countries: EUMEDGRID

Federico Ruggieri, INFN, Italy

16:00 – 16:20 The NAP initiative and the evolution of network connectivity in the region.

Nisreen Araj, Ministry of Information and Communication Technology, Jordan

16:20 – 17:30 Panel Session: Access to infrastructure in Mediterranean countries

Gian Marco Badii, Telecom Italia Sparkle; Dimitris Botsis, OTEGlobe; Gil Sidis, Bezeq

International; Jean-Marc Uzé, Juniper Networks; Fernando de Paula, Telefónica

Chair: Vasilis Maglaris, NTUA, Greece

17:30 – 18:00 Infrastructure in Mediterranean countries: conclusions and ways forward

David West, DANTE

Abdelkader Khelladi, CERIST, Algeria

24 October 2007

Workshop Chair: Cem Sarac, TUBITAK-ULAKBIM, Turkey

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- 9:00 – 9:10 Welcome address
Cem Sarac, TUBITAK-ULAKBIM, Turkey
- 9:10 – 10:20 Keynote Addresses: e-Infrastructures as promoters of development
The following keynote speeches addressed the needs of deploying e-infrastructures for scientific and social development, providing a view of the strategies in Jordan, Syria and Palestine.
- 9:10 – 9:20 Introduction by European Commission
Mr Marcus Cornaro, European Commission, Director Europe, Southern Mediterranean, Middle-East and Neighbourhood Policy
- 09:20 – 09:40 e-Infrastructures in Jordan
Her Royal Highness Princess of Jordan, Sumayya Bint Al Hassan
- 09:40 – 10:00 e-Infrastructures in Syria
Dr. Najib Abdul Wahed Deputy, Minister of Higher Education for Scientific Research, Syria
- 10:00 – 10:20 e-Infrastructures in Palestine
Mr. Mashour Abudaka, Minister, Palestine
- 10:20 – 10:50 European and Mediterranean cooperation
Mr. Ahmed Badr, European Commission Delegation in Egypt
- 11:30 – 12:00 European Union support for e-infrastructures in Mediterranean countries
Ulf Dahlsten, European Commission, Director – DG INFSO.F
- 12:00 – 12:30 e-Infrastructures: the SESAME project
Prof. Hafeez Hoorani, Scientific Director of SESAME Project
- 12:30-13:00 The role of education and training towards exploiting e-infrastructures
Dr. Anas Tarah, Vice-President of Syrian Virtual University

Session Chair: Dany Vandromme, RENATER, France

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- 14:00 – 14:20 What are NRENs and why they are important?
Vasilis Maglaris, NTUA, Greece
- 14:20 – 15:00 Governments are the main stakeholders of NRENs
Enzo Valente, GARR, Italy
Said Belcadi, CNRST, Morocco
- 15:00 – 15:30 Management, sustainability and funding of NRENs
Alberto Pérez Gómez, RED.ES, Spain
Abdelkader Khelladi, CERIST, Algeria
- 16:00 – 16:45 Panel Session: Baseline assessment of NRENs and e-infrastructures in Mediterranean countries
Chair: Dany Vandromme, RENATER, France
Aouaouche El-Maouhab, CERIST, Algeria; Redouane Merrouch, MARWAN Morocco; Fotis Karayannis, GRNET, Greece; Yousef Torman, JUNet, Jordan
- 16:45 – 17:30 Panel Session: Wrap-up and conclusion
Chair: Dai Davies, DANTE

7.7 EU-Med 2 Event: Programme

4 November 2008

- 09.00-09.30 Welcome address
Omar Shdeifat - Jordanian Minister of Higher Education and Scientific Research
Patrick Renaud - Ambassador/Head of European Union Delegation in Jordan
Overview of progress in the Mediterranean region - one year on

Session 1: e-Infrastructures in Europe and the Mediterranean region

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09.30-10.00 Strategic importance and impact of e-Infrastructures for society and the economy in Europe and neighbouring Mediterranean countries

Robert Klapisch - President, Sharing Knowledge Foundation

10.00-10.30 An overall picture of the status of connectivity and deployment of e-Infrastructures

David West - DANTE, Project Manager of EUMEDCONNECT2

Session 2: e-Infrastructures to support projects and applications in the Mediterranean region

11:00-11:30 e-Infrastructures in Jordan: achievements and outlook

HRH Princess of Jordan Sumaya Bint El Hassan

11:30-12:30 Panel session: Drawing on the experience of Euro-Mediterranean collaborative projects enabled by e-Infrastructures

Vincent Breton - French Centre for Scientific Research (CNRS), Coordinator of WISDOM project

Antonio Navarra - Euro-Mediterranean Centre for Climate Change (CMCC), Coordinator of CIRCE project

Marina Kleanthous - Cyprus Institute of Neurology and Genetics, Coordinator of ITHANET project

Adi Anani - Umeå University, Coordinator of ICT-LEAP project

Chair: Federico Ruggieri - Italian Institute of Nuclear Physics, Coordinator of EUMEDGRID project

Session 3: Sustainability: research, applications and economic impact of e-Infrastructures

14:00-14:45 Policy, economic impact and sustainability of e-Infrastructures in the Mediterranean region

Mashour Abudaka, Minister of Transport, Palestine

Mohamed Saleh, Helwan University

Pr. Latifa Tricha, Secretary General, Ministère de l'éducation nationale de l'enseignement supérieur de la formation des cadres et de la recherche scientifique, Royaume du Maroc

14:45-15:45 Requirements for sustainability of e-Infrastructures and their funding in the Mediterranean, drawing on experiences in other regions

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South East Europe: Fotis Karayannis - Infrastructure Development and Planning Manager, Greek Research and Education Network (GRNET)

Eastern Europe: Marek Sredniawa - International Consultant on ICT, Sredniawa Consulting

Eastern Mediterranean: Constantia Alexandrou - Chair of the Interim Governing Board, Computation-based Science and Technology Research Centre (CSTRC), The Cyprus Institute

Session 4: Sustainability: organisational achievements, political issues and the way forward in the Mediterranean region

16:15-17:15 Panel session: Role of EU, governments and private sector in sustaining e-Infrastructures in the Mediterranean region

Prof. Turki Obeidat - Secretary General of the Jordanian Ministry of Higher Education and Scientific Research

Robert Klapisch - President, Sharing Knowledge Foundation

Yousef Torman - Executive Director, Jordanian Universities Network (JUNet)

Radha Nandkumar - Director, International & Campus Relations, National Center for Supercomputing Applications, University of Illinois

Co-chairs: Carmen Mena Abela, Project Officer - International Co-operation, DG Information Society and Media, European Commission and Daniel Weiss, European Commission Delegation in Cairo

17:15-17:30 Concluding remarks

17:30-19.00 Launch ceremony for the EUMEDCONNECT2 project

Recital performed by Francesco De Mattia, Director of Music Conservatory of Salerno, Italy: World premiere of a piece of ancient music played on an Epigonion reconstructed using the EUMEDCONNECT network

Ceremonial speech of Mr Basem Al Rousan, Minister of ICT of Jordan

Recognition of achievements of EUMEDCONNECT and official inauguration of EUMEDCONNECT2 via virtual presence of Viviane Reding, European Commissioner for Information Society and Media

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