18.01.08

Deliverable DN6.0.1,3: Annual Report on Task-Force Activities Year 3

Deliverable DN6.0.1,3

Contractual Date:	31/10/07
Actual Date:	29/11/07
Contract Number:	511082
Instrument type:	Integrated Infrastructure Initiative (I3)
Activity:	NA6
Work Item:	n/a
Nature of Deliverable:	R (Report)
Dissemination Level	PU (Public)
Lead Partner	TERENA
Document Code	GN2-07-238v3

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Abstract

In the third year of the GN2 project, there were six TERENA technical task forces covering the following topics: Middleware, Security, Mobility, Lower Layer Technologies and Voice/Video Collaboration. This document explains the relationship between the individual TERENA task forces, the JRAs and SAs, reports on the status of the work and discusses plans for the future.

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0 Executive Summary

The GN2 Networking Activity 6 (NA6) provides support for the work of the TERENA technical task forces with the aim to help catalyse the co-ordination and the pooling of resources and technical knowledge among GN2 participants as well as with other groups that are active in the technical development work that is directly relevant to research and education networking. This includes co-ordinating collaboration and information exchange between the GN2 Joint Research Activities and the TERENA technical task forces. This report summarises the activities and achievements of the third year of the GN2 project.

TF-CSIRT is the TERENA task force where members of Computer Security Incident Response Teams (CSIRTs) collaborate, exchange information and experiences, and develop a cohesive environment of trust. In the reporting period, TF-CSIRT worked among others on a clearinghouse for incident-handling tools, the upgrading of the RTIR tool, a Vulnerability and Exploit Description Exchange Format, and assistance to the establishment of new CSIRTs. TF-CSIRT has been collaborating with JRA2, providing the GN2 project participants with advice on specific topics, information on the evolution of network security and incident handling as well as recommendations for work in the subsequent years of JRA2.

The GN2 JRA5 activity on roaming and authorisation collaborates tightly with two TERENA task forces: TF-EMC2, the task force on European Middleware Co-ordination and Collaboration, and TF-Mobility. JRA5 and these task forces have been holding back-to-back meetings during the reporting period and frequently exchanged information and feedback via the relevant email distribution lists.

TF-EMC2 has regular intercontinental participation, which enriches the GN2 RTD developments with the perspectives and developments from North America, Australia, Asia and the global Grid community. The most relevant and recent achievements of TF-EMC2 are: the Server Certificates Service (SCS), SCHAC (the Directory Schema Harmonisation) and the creation of an ad-hoc group, REFEDS, to discuss issues related to the interoperability of different federations. TF-EMC2 has been active in promoting advances in campus middleware issues through EuroCAMP workshops.

The collaboration between TF-Mobility and GN2 JRA5 focuses strongly on providing network access for roaming users. TF-Mobility focuses on the exploration of new technologies not covered by JRA5. Important TF-Mobility successes include the operation and expansion of the eduroam® pilot. Work in this area has included the integration of commercial offerings such as iPass, the development of access-point directory services and the development of generic eduroam clients and tools for monitoring and control. The task-force participants have been assisting the work of JRA5 in rolling out a high-quality roaming service for GN2 users.

The TERENA task force TF-NGN (Next-Generation Networking) had a long tradition of working with the pan-European interconnect networks on the evaluation and development of new lower-layer technologies needed to support innovative networks. The mandate of TF-NGN ended in October 2006 and was not renewed.

In the reporting period, TERENA has created two task forces on voice and video collaboration: TF-ECS (Enhanced Communication Services) and TF-VSS (Videoconferencing Service Study).

In line with the goals of NA6, TERENA task forces have contributed also in the third year of the GN2 project by providing a unique resource with leading experts from the global networking community collaborating in open fora. Particularly close collaboration took place between GN2 activities and the following task-force activities:

- Information exchange and back-to-back meetings were held between JRA2 and TF-CSIRT.
- TF-EMC2 provides a forum for JRA5 participants to discuss ongoing developments in middleware; developments in the areas of Schemas (SCHAC) and Federations (REFEDS) provide input to JRA5 work in Authentication and Authorisation and the evolution of eduroam into a confederation.
- TF-Mobility is supporting and easing the deployment of eduroam, by maintaining the confederation website and providing liaisons with other eduroam federations worldwide; participants in the task force have contributed to the definition phase of the European eduroam policy.
- TF-VSS has worked closely with GN2 in defining a proposal for a Europe-wide videoconferencing service, which has been included in the Year 4 plan of GN2 as a new service activity (SA6).

1 Introduction

The goals of NA6 "Co-ordination of RTD Activities" are:

- to help catalyse the co-ordination and the pooling of resources and technical knowledge among GN2 participants as well as with other groups that are active in technical development work that is directly relevant to research and education networking, with the aim of fostering a culture of co-operation among them;
- to provide forums where persons active in the GN2 project can discuss the progress and results of their work with experts from a wider European community and receive their feedback;
- to provide forums to generate and discuss plans for new technical development work.

The activity is implemented through the TERENA task forces. The task forces that were active during the third year of the GN2 project are:

- TF-CSIRT - Collaboration of Security Incident Response Teams
- TF-ECS - Enhanced Communication Services (since October 2006)
- TF-EMC2 - European Middleware Co-ordination and Collaboration
- TF-Mobility
- TF-NGN – Next-Generation Networking (until November 2006)
- TF- VSS - Videoconference Service Studies (since October 2006).

TF-VVC ended at the start of September 2006. In the same month, the TERENA Technical Committee (TTC) renewed the mandate of TF-EMC2 and TF-Mobility and created two new task forces: TF-ECS and TF-VSS. TF-ECS explores synchronous communication and collaboration technologies that go beyond voice and video conferencing. TF-VSS investigated the feasibility and suitability of developing a Europe-wide videoconferencing service for the higher-education and research communities. The mandate of TF-NGN ended at the end of October 2006 and was not renewed.

All task forces met several times in the reporting period, face-to-face and via videoconference when appropriate. The minutes of all meetings and the slides of presentations are available on the respective task-force webpages of the TERENA website.

In the following chapters, this document reports on the major achievements of the task forces that were active during the reporting period. TF-VVC, having terminated all actual work before the start of Year 3, will not be mentioned in the following of this document. Administrative information about each task force is provided in Appendix A.

2 TF-CSIRT - Collaboration of Security Incident Response Teams

The task force on Collaboration of Security Incident Response Teams (TF-CSIRT) provides a forum for collaboration between CSIRTs from NRENs, universities, government bodies and industry. The mandate of the task force had been renewed from 15 May 2006 for another two years. A detailed description of the constituency as well as work items covered by TF-CSIRT is included in Appendix A.

The task force met three times during the reporting period, on 20-21 September 2006, 29-31 January 2007 and 3-4 May 2007. A half-day seminar on issues related to computer security was organised on one of the two days of each of the meetings. The TF-CSIRT meeting in January 2007 was co-located with a FIRST Technical Colloquium. The minutes of the TF-CSIRT meetings are available on the TF-CSIRT website. On average, around 80 people attended the meetings of TF-CSIRT.

The close collaboration between TF-CSIRT and the GN2 JRA2 activity continued throughout the reporting period. Meetings of the JRA2 team were held back-to-back with TF-CSIRT meetings. TF-CSIRT participants were regularly updated on the latest developments of JRA2 via reports presented by the JRA2 activity leader.

Updates on the activities of other fora in the computer security area such as FIRST, APCERT and E-CoAT were regularly presented at TF-CSIRT meetings. The special relationship developed between TF-CSIRT and ENISA was maintained. Some TF-CSIRT participants are members of the Permanent Stakeholders Group that advises the ENISA Executive Director on general issues.

The TRANSITS training courses for CSIRT staff members continued during the reporting period. The memorandum of understanding between TERENA and FIRST was not extended after it expired at the end of October 2006. However, TERENA decided to continue the organisation of these workshops in Europe on its own and also to continue making the materials available for training events organised by others. At the start of 2007, TERENA signed a contract with the company S-CURE for the continued maintenance of the materials. Two workshops were organised in Europe during the reporting period, in November/December 2006 and July 2007. TERENA was successful in obtaining sponsorships from ENISA for these workshops, which allowed reducing the fees for the participants. Experienced experts from the TF-CSIRT community volunteered to teach at the courses.

In September 2005, TERENA had signed a contract with Best Practical Solutions LLC, the original developer of the Request Tracker for Incident Response (RTIR) software. Within the framework of this contract, Best

Practical developed and integrated into RTIR a set of features as specified by the RTIR working group of TF-CSIRT. The third and final milestone build under the contract was delivered in June 2007. However, the milestone build was rejected due to bugs and problems with the software. An additional round of testing was scheduled for October 2007.

3 TF-ECS – Enhanced Communication Services

The task force on Enhanced Communication Services (TF-ECS) was established in October 2006, with a two-year mandate. TF-ECS explores collaboration tools and technologies that go beyond simple voice and video conferencing. It also co-ordinates current national activities and assists in the rollout of next-generation collaboration services. The task force investigates the impact of future developments in real-time communications and is working on defining architecture and trust models for peering such deployments in NRENs. A detailed description of the constituency as well as the work items covered by TF-ECS is included in Appendix A.

The task force met five times during the reporting period. Three of the meetings were held face-to-face in Amsterdam (2 October 2006), Athens (21 February 2007) and Lyngby (24 May 2007). The other meetings were organised by videoconference, on 13 December 2006 and 4 July 2007. In addition to the formal meetings, short informal discussions were organised almost every Wednesday during the reporting period. On average, about 11 participants attended the formal TF-ECS meetings. In addition to the meetings, a one-day hands-on workshop on SIP-related topics was organised in Lyngby after the TNC 2007 conference.

The activities of TF-ECS have been centred on three of the items in the Terms of Reference document. In the context of the first item, “Update of the TERENA IP Telephony Cookbook”, TERENA obtained a free license for an enterprise-grade wiki software package to be used for this work item. The software was installed on TERENA equipment and was made available to the members of the task force. In addition to this resource, the task force benefits from an online collaboration environment provided, also free of charge, by SURFnet. This environment is used by TF-ECS participants for the weekly meetings and includes document sharing, Web-based voice and video conferencing and chat capabilities.

As part of a second work item, a survey was carried out to obtain a complete overview of national activities and deployments in the field of enhanced communication services. The survey was conducted by direct interviews. Ten videoconferencing service administrators in NRENs participated in the survey. A draft document describing the results of the survey is available on the task-force website. The final document would be made available online after being discussed at a task force meeting planned for 5-6 September 2007.

A third work item summed up the functional requirements for interconnecting deployments of enhanced real-time communication services in NRENs. The focus of this work was on providing such interconnection in a

secure and scalable way. An informal collaboration with TERENA's TF-EMC2 was started. The chairs of the task force presented the case of enhanced real-time communication services during the TERENA technical workshop on "Using Authentication and Authorisation Techniques in Multiple Environments" held on 20 May 2007 before the TNC 2007 conference in Lyngby. The collaboration will continue with a view to defining an architecture for the interconnection of services, covered by another work item in the Terms of Reference document. A joint meeting of TF-ECS and TF-EMC2 was planned to be held in Prague on 5 September 2007.

4 TF-EMC2 - European Middleware Co-ordination and Collaboration

The task force on European Middleware Co-ordination and Collaboration (TF-EMC2) was established in September 2004 and extended in 2006 for another two years. A detailed description of the constituency as well as work items covered by the current mandate of TF-EMC2 is included in Appendix A.

TF-EMC2 focuses on the adoption of common standards to ease the interoperability of different middleware components used in the various research and education networks in Europe. TF-EMC2 also looks at authentication, authorisation and directories as elements of what is identified as middleware. TF-EMC2 is also looking much more in detail at federation issues, due to increased involvement of NRENs in this area.

One of the most important added values of the task force is to provide an international forum where discussion about state-of-the art technologies can take place. The task-force meetings offer an opportunity for people coming from different communities (such as GN2, Grids, Internet2, European NRENs, the industrial sector) to meet and discuss the ongoing developments in the field of middleware.

TF-EMC2 has established very close liaison with ongoing Grids activities, bringing the NRENs and the Grids communities close to each other and providing the two worlds with an opportunity to exchange information about the technologies in use.

TF-EMC2 is a well-established TERENA activity, which attracts interest and participation from the international academic community, as well as from the larger community involved in e-government AA-related activities and other not-for-profit middleware activities worldwide.

The sections below report on the TF-EMC2 work items where most progress has been made during the reporting period.

4.1 SCHAC

SCHAC, which stands for SChema HArmonisation Committee, is a dedicated working group that operates since February 2005 within TF-EMC2 with the aim of defining and promoting common schemas for inter-institutional data exchange in higher education.

For computational purposes, information is stored as schemas; each schema is a collection of attributes definitions, where the attributes describe the characteristics of the object that the schema is meant to represent. SCHAC was established to address the need of agreeing on common definitions among the various schemas used by various institutions when these institutions need to exchange information with each other. Interoperability between different software and/or different federations translates in fact into exchange of attributes defined by a common schema. In different contexts (in other words, schemas used in different countries), the same attributes can mean different things, not to mention that different regulations deal with privacy issues related to attributes in different ways.

The final release of "SCHAC Individual Attributes Specification" v.1.3.0 was issued in December 2006. This release defines a set of attributes to describe individuals in academic and research institutions and contains also an appropriate LDAP profile as an appendix. With this release, SCHAC has definitely reached a level of maturity that makes its use attractive. Use of SCHAC and integration in local schema is easy, due to the modular approach of multiple lightweight object classes instead of big monolithic classes.

SCHAC aims to provide support for international research activities, such as the work on authentication and authorisation being carried out in the GN2 project, eduroam, development of federations and the Bologna process.

SCHAC is currently used in the Finnish federation Haka, in Spain by RedIRIS and some universities, and in Croatia and Slovenia. The Australian NREN, AARNet, is also investigating the use of SCHAC in their federation efforts.

The SCHAC committee is intensifying the collaboration with its American counterpart, Internet2's working group MACE-Dir.

4.2 Server Certificate Service – SCS

Although many NRENs have set up a Certification Authority (CA), they have not been able to issue server certificates, due to the well known 'pop-up' problem that occurs using server certificates issued by a CA whose root is not listed among those recognised as trusted by Web browsers. The increased awareness of security mechanisms to protect sensitive on-line resources and the foreseen demand for server certificates for AAI middleware services, Grid applications and federations, have led some of the NRENs whose staff participate in TF-EMC2 to explore ways to provide the academic community with 'pop-up free' server certificates at lower costs than what is available on the market.

After a preliminary cost analysis of the available options, a number of organisations have joined forces to contract via TERENA a commercial CA to issue server certificates to these organisations and their constituencies. A call for tender was issued in August 2005 to ask commercial CAs to submit a proposal to offer 'pop-up free' server certificates available to the participating NRENs at a much lower cost per certificate through combined buying power. A committee of experts from the participating NRENs was appointed to review the proposals received and in December 2005 GlobalSign NV/SA of Leuven (Belgium) was selected as preferred supplier. The contract between TERENA and GlobalSign was signed in early 2006 and ran for an

initial year. At the end of 2006, a contract renewal was negotiated and signed, now running for three years, until January 2010.

The service is known as SCS, Server Certificate Service. SCS makes the cost per certificate very low when large numbers of certificates are issued; this enables a large-scale use of SSL certificates in the research and academic community. The NRENs initially involved were ACOnet, CARNet, CESNET, RENATER, RedIRIS, SWITCH, SURFnet and UNI•C. Other NRENs have joined SCS later: ARNES, BELNET, GARR, SUNET, JANET(UK) and UNINETT. It is expected that more NRENs will join after the reporting period.

4.3 REFEDS

The necessity to share resources between different administrative domains (such as different departments inside the same faculty, different universities, or even different countries) and the need to reduce the number of usernames and passwords that users are requested to remember and store, have led to the creation of identity federations. Within these federations, individual entities agree to allow access to each other's resources and adopt compatible technology to enable this.

A federation makes it possible for end-users to access information from another entity (which is also part of the federation) without the necessity of requesting new credentials from this entity. The benefit is a reduced number of credentials that users are requested to manage. In addition, different federations can make agreements to share resources among them (in arrangements known as confederations), but the functionality of the required trust models and how to manage the increased complexity are still open questions.

Federations build upon two elements: technologies to allow for authentication and authorisation, and policies to be agreed by the parties involved in the federations. To ease the interoperability, federations are recommended to use a 'common language'; today the preferred choice is SAML, the Security Assertion Markup Language developed by OASIS (the not-for-profit consortium that drives the development, convergence and adoption of e-business standards). SAML is a vendor-neutral, XML-based framework for exchanging security-related information, called "assertions," between business partners over the Internet.

The number of federations keeps increasing and building federations appears to be the way forward. There are various examples of federations in the academic community in Europe and beyond. Roughly they can be grouped into three main categories:

- Federations to access on-line (mostly Web-based) resources. Examples of these federations in Europe are: the Finnish federation Haka and the Swiss federation SWITCH-AAI, both based on customised implementations of Shibboleth authentication and authorisation technologies; the Spanish federation PAPI; the Norwegian federation Feide; the Dutch federation A-Select. All the federations mentioned above are SAML-standard based or compatible.

- Federations to access the network. The most successful example of this is eduroam, the pan-European educational roaming infrastructure to provide wireless access to visited institutions. eduroam allows users visiting another institution connected to eduroam to log on to the WLAN using the same credentials as the user would use if she/he were at her/his home institution. eduroam is evolving today

into a confederation, where each individual federation is run at national level by the local NREN or a similar organisation.

- Federations to support Grid applications. The best example of this is represented by the International Grid Trust Federation (IGTF), the body to establish common policies and guidelines between its regional and continental Policy Management Authorities (PMAs).

REFEDS (Research and Education Federations) is a dedicated working group created by some of the most active people within TF-EMC2 to define technical specifications as well as policy guidelines to allow for interoperability of federations. REFEDS explores ways to allow users from one federation to become part of another federation or to use resources belonging to different federations. REFEDS meetings have been held in conjunction with other relevant events, such as TF-EMC2 meetings and EuroCAMP workshops. The plans for the future are to have focused workshops (probably once per year) to discuss specific topics related to the federation usage in the higher-education environment as well as in other areas, technical and policy implementations, etc.

REFEDS has set up a wiki where all NRENs upload the information related to their local federations and keep that information up-to-date. The wiki is on-line at http://www.rediris.es/wiki/tf-emc2/index.php/Federations .

4.4 TACAR

TACAR, the TERENA Academic Certification Authority Repository, is a well-established TERENA service. TACAR is currently used mainly by the IGTF members to retrieve Grid CAs' trust anchors. The system has been improved, allowing users to download multiple trust anchors at the same time and in different formats.

TACAR policy has also been modified to allow applying CAs to join in an easier and quicker way. The major change in the policy foresees the role of a Trusted Introducer, who is the person appointed by TERENA and by the TACAR members to represent TERENA during the first face-to-face meeting with a new applying CA. During this meeting, the Trusted Introducer verifies the identity of the person representing the applying CA and collects both the documentation and the root CA for joining TACAR.

4.5 ECAM

ECAM (European Committee for Academic Middleware) was established in September 2006 to facilitate information exchange and liaison with other relevant middleware activities and bodies worldwide and to provide some technical guidelines to both TF-Mobility and TF-EMC2.

ECAM members are the work item leaders of TF-Mobility and TF-EMC2, as well as representatives from Australia and the United States. The list of the current ECAM members can be found at http://www.terena.org/activities/tf-emc2/ecam/index.html .

ECAM meets once per month via phone conferences to discuss technology issues that the task forces should look at, to discuss new local projects and to provide feedback on some of the TERENA middleware activities.

5 TF-NGN

The task force on Next-Generation Networking (TF-NGN) was aimed at investigating the suitability of advanced networking technologies to be deployed at the lower layers in research and education networks. The reporting period covers only the last few months of the mandate of TF-NGN, which expired at the end of October 2006. A detailed description of the constituency as well as the work items covered by TF-NGN is included in Appendix A.

A debate on the future of the task force took place mainly via email messages on the TF-NGN mailing list during the autumn of 2006. The interest of the community in continuing the activities under the TF-NGN umbrella was very limited. Therefore, it was decided not to renew the mandate of the task force. Activities in the lower-layers area were mainly pursued within GN2 JRA1 and JRA3. A more informal exchange of opinions took place during the European Future Networking Initiatives Workshop, organised and hosted by TERENA on 22 February 2007.

TERENA organised several consultations with members of the community on the opportunities for creating a new task force in this area. The subject was discussed in meetings of the TERENA Technical Committee and at the TERENA Technical Advisory Council meeting held on 20 May in Lyngby, before the TERENA Networking Conference 2007.

6 TF-Mobility

The task force on Mobility (TF-Mobility), established in 2002, focuses on exploring new roaming technologies as well as security issues that may affect roaming services. The TERENA Technical Committee approved the new terms of reference in September 2006. Under the new charter, the task force will run for another two years.

TF-Mobility provides an international forum for discussing mobility-related issues with other communities that have a potential interest in using mobility technologies, like the Grids community and American and Asia-Pacific research and academic networks. Most of the activities of TF-Mobility are carried out over the mailing list, which is a very active discussion forum and plays an important role in the exchange of ideas and experiences related to testing new technologies and equipment.

Over the last year, TF-Mobility work has focused mainly on testing new mobility devices (i.e. access points), on exploring new technologies in the mobility field and on supporting and easing deployment of eduroam®, the European roaming network infrastructure for research and education. In addition, by making available the experience gained over the years in setting-up eduroam, TF-Mobility has provided valuable support and an on-line forum to help new institutions and NRENs to join eduroam.

TF-EMC2 and TF-Mobility keep co-operating very closely, also with the support of ECAM.

Over the last year, considerable work has been undertaken by the task force to liaise with some IETF activities concerned with NEA (Network Endpoint Assessment). NEA comes into play whenever a machine enters a network: the network might want to perform some verification to make sure that this machine does not carry any viruses or other malware. There are various implementations of NEA, which are currently not interoperable.

TF-Mobility plans to start looking at new areas in the roaming field, such as location-based services, MobileIP etc.

TF-Mobility, like TF-EMC2, also provides a dissemination forum to discuss the results of the Joint Research Activity on Roaming and Authorisation (JRA5) in the GN2 project with international counterparts in America and the Asia-Pacific region. In this respect, TF-Mobility has made significant progress concerning support for eduroam deployment, liaison with other eduroam federations worldwide and WLAN monitoring.

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6.1 Support for eduroam deployment

Part of this work consists of the maintenance of the eduroam website, making sure that the content is constantly up-to-date. The eduroam website provides the first level of information to learn about eduroam, eduroam members and the essential information to join eduroam.

With the aim to promote eduroam deployment, the TF-Mobility group has made ad-hoc tools available to the community to support the installation and configuration of all necessary elements to run eduroam and to help end-users to solve problems when roaming between institutions. An example of this activity is the Web-based open software known as eduroam-in-a-box developed by ARNES, the Slovenian NREN, to ease the configuration of eduroam especially in the case of small institutions with a limited number of technical staff.

Once eduroam is up and running, users can still experience problems connecting to eduroam when they visit other institutions. This is due to the multiplicity of SSIDs and encryption ciphers in use. Even when the newly agreed policy states that 'eduroam' is the SSID to use, in practice legacy problems make the change to uniform SSIDs slower than planned. TF-Mobility has therefore investigated how to develop an intelligent user client that makes the process to connect to eduroam at visited institutions transparent to the users. Unfortunately the client has not been finalised yet, due to the limited resources available.

6.2 Liaison with other eduroam federations worldwide

eduroam is evolving into a federation of federations: almost all countries in Europe have established a national eduroam federation, in which the NREN (or equivalent entity) runs the national top-level RADIUS server and where each institution that intends to join eduroam signs an agreement with the relevant NREN. This allows users to roam within their own country.

Each eduroam federation defines and rules (at the national level) the way institutions and research centres can join eduroam in that particular country. Typically, the national policy takes into account the agreements already in place between the NREN and its constituency as well as some specific privacy regulations.

The major benefit of eduroam is to allow eduroam-enabled users to roam not only in their own countries but also internationally; this is becoming increasingly relevant in Europe. For this purpose, the national federations are part of regional federations, which are also called confederations: to date, the regional confederations are the European eduroam confederation and the Asia-Pacific eduroam confederation (the latter is still in the process of being built).

TF-Mobility has worked very closely with JRA5 in the definition phase of the European eduroam policy, which specifies conditions for NRENs that intend to join the European eduroam federation.

The growth of eduroam has brought on board non-European countries such as Australia, China, Japan and Taiwan; some preliminary tests to join eduroam have also been performed by some American universities.

The Grid community has expressed a lot of interest in using eduroam and some studies are ongoing to verify the possibility of using the Grid collaborative environment (managed by Virtual Organisations) to provide user authentication. If this makes eduroam very attractive and hence successful, it opens other problems related to the way the trust is built among the various parties and how the policy model should work. TF-Mobility is working closely with Asia-Pacific, American and Grid communities in order to build a model that could allow different eduroam federations (or to be more precise: confederations) to peer with each other. The field is very new, so a lot of work still needs to be done, but international co-operation is crucial to implement a model that will work for everybody.

6.3 WLAN monitoring

The WLAN monitoring task is one of the activities that TF-Mobility started to work on under the new mandate. CESNET, CARNet and SURFnet have been particularly pro-active in this area. National eduroam weather maps were created and initial tests to monitor eduroam at international level started to take place.

Due to the developments in the Joint Research Activity JRA5 and the plans to migrate eduroam to a service, it was agreed to move this task inside the new eduroam service activity of GN2.

7 TF-VSS - Videoconference Service Studies

The task force on Videoconference Service Studies (TF-VSS) was established in October 2006, with a one-year mandate. TF-VSS explored the feasibility and suitability of developing a Europe-wide videoconferencing service for the higher-education and research communities. The task-force members evaluated the need for such a service as well as the types of equipment and technology that would be required for its technical realisation. A detailed description of the constituency as well as the work items covered by TF-VSS is included in Appendix A.

The task force met formally seven times during the reporting period. One meeting was face-to-face (in Athens on 22 February 2007, after a TF-ECS meeting) and the other meetings were held by videoconference.

The TF-VSS survey of videoconferencing service administrators in NRENs and some connected institutes determined that there is a clear need for co-ordinating activities at a European level. The results of the survey are available on the website of the task force. Fuelled by the positive results of the survey, the task force continued into elaborating specifications to explain the actual requirements for a Europe-wide videoconferencing service. A document describing the proposed requirements for a basic service and suggesting future enhancements to provide a complete solution was published on the website of the task force.

The solution proposed by TF-VSS was presented and discussed with high-ranking technical and managerial representatives of NRENs at the two GN2 Year-4 Planning Meetings, which were held on 2 April 2007 in Amsterdam and on 6 June 2007 in Cambridge. The task-force chair edited and submitted the final proposal for a European videoconferencing service to the GN2 consortium as Service Activity 6. At the time of writing this report, the proposal had been included in the Year-4 contract amendment for the GN2 project.

8 Acronyms

AA	Authentication and Authorisation
AA-RR	Authentication and Authorisation Requester-Responder
AAAI	Authentication, Authorisation and Accounting Infrastructure
AAI	Authentication and Authorisation Infrastructure
APCERT	Asia Pacific Computer Emergency Response Team
CAMP	Campus Architectural Middleware Planning
CA	Certification Authority
CSIRT	Computer Security Incident Response Team
DANTE	Delivery of Advanced Network Technology to Europe
ECAM	European Committee for Academic Middleware
E-CoAT	European Co-operation of Abuse-fighting Teams
ENISA	European Network and Information Security Agency
eduroam	Education Roaming
ENUM	Telephone Number Mapping
EU	European Union
EuroCAMP	European CAMP
FIRST	Forum of Incident Response and Security Teams
GÉANT	Gigabit European Academic Network Technology
GN2	Multi-Gigabit European Academic Network
IETF	Internet Engineering Task Force
IGTF	International Grid Trust Federation
IODEF	Incident Object Description and Exchange Format
IP	Internet Protocol
IPv6	Internet Protocol version 6
JRA	Joint Research Activity
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
MACE	Middleware Architecture Committee for Education
MPLS	Multi-Protocol Label Switching
NA	Networking Activity
NEA	Network Endpoint Assessment
NREN	National Research and Education Networking Organisation
OASIS	Organization for the Advancement of Structured Information Standards
OGF	Open Grid Forum

PAPI	Point of Access to Providers of Information
PKI	Public Key Infrastructure
PMA	Policy Management Authority
RADIUS	Remote Authentication Dial-in User Service
REFEDS	Research and Education Federations
RTC	Real-Time Communications
RTD	Research and Technological Development
RTIR	Request Tracker Incident Response
SA	Service Activity
SAML	Security Assertions Markup Language
SCHAC	Schema Harmonisation Committee
SCS	Server Certificate Service
SIP	Session Initiation Protocol
SPIT	Spam over IP Telephony
SSID	Service Set Identifier
SSL	Secure Sockets Layer
TACAR	TERENA Academic CA Repository
TCP	Transmission Control Protocol
TERENA	Trans-European Research and Education Networking Association
TF-CSIRT	Task Force on Collaboration of Security Incident Response Teams
TF-ECS	Task Force on Enhanced Communication Services
TF-EMC2	Task Force on European Middleware Co-ordination and Collaboration
TF-Mobility	Task Force on Mobility
TF-NGN	Task Force on Next-Generation Networking
TF-VSS	Task Force on Videoconference Service Studies
TF-VVC	Task Force on Voice, Video and Collaboration
TNC	TERENA Networking Conference
TRANSITS	Training of Network Security Incident Teams Staff
TTC	TERENA Technical Committee
VEDEF	Vulnerability and Exploit Description Exchange Format
VPLS	Virtual Private LAN Service
VPN	Virtual Private Network
WLAN	Wireless Local Area Network
XML	Extensible Markup Language

Appendix A Description of Task Forces

A.1 TF-CSIRT

TF-CSIRT is the task force where members of Computer Security Incident Response Teams (CSIRTs) meet, collaborate, exchange information and experiences, and develop a cohesive environment of trust. The task-force participants come from different communities: national research and education network organisations, universities, government institutions and commercial companies.

The task force activities started in the year 2000; the TERENA Technical Committee approved the current Terms of Reference of TF-CSIRT on 6 June 2006.

TF-CSIRT is chaired by Gorazd Božič from SI-CERT (ARNES). The task force has a deputy chair in the person of Kauto Huopio from CERT-FI. Staff members of several NRENs, such as ARNES, SURFnet, JANET(UK), SWITCH, ACOnet and DFN, are among the most active participants in TF-CSIRT. In addition to formal commitments for collaborating with FIRST (Activity G) and GN2 JRA2 (Activity J) and liaising with ENISA (Activity K), E-CoAT (Activity L), the Trusted Introducer initiative (Activity B) and the European Commission (Activity K), the following work items are included in the Terms of Reference document that defines the current TF-CSIRT mandate:

Activity A. Organise meetings and seminars to exchange experiences and discuss common interests of CSIRTs

Activity C. Security Contact Information for Internet Resources

The task force will continue to track and support the deployment of abuse contact lookup mechanisms, help with improving documentation and propose changes in technology and procedures as appropriate; investigate the usefulness of extending those mechanisms to other unique Internet Resources (e.g. Autonomous System Numbers); track the impact of applying privacy and data-protection laws and regulations to this particular set of data, in particular with regard to the diverse legal landscape (national, EU-coordinated, international); and investigate possibilities, as well as support activities, to implement similar mechanisms in other Regional Registry or Routing Registry environments.

Activity D. Clearinghouse for Incident Handling Tools

The task force maintains a Web-based clearinghouse for security software, covering both free software and commercial products. The focus of the clearinghouse is on tools that are in actual use in CSIRTs whose staff members participate in TF-CSIRT. Developments in the clearinghouse service are reported to the task force.

Activity E. Training of new (staff of) CSIRTs

The task force reviews the needs for specific training for staff members of CSIRTs and promotes the development and delivery of appropriate training materials to meet these needs. The task force receives reports on the TRANSITS trainings organised by TERENA, and on the measures that are taken to guarantee the continuity of the TRANSITS training effort.

Activity F. Assistance to the establishment of new CSIRTs

The task force develops and maintains appropriate resources and services to assist the establishment and development of new CSIRTs. Where appropriate this is done in collaboration with other groups or organisations working in this area.

Activity H. Request Tracker for Incident Response

The task force sets requirements, investigates ideas, develops new modules and generally monitors the progress of the RTIR incident-handling tool. This work is carried out under a statement of work with Best Practical Solutions or by task force participants themselves. The aim of the activity is to extend the current application, by making it more stable and adding new functionality, thus making it more adaptable for the general use of new, as well as established CSIRTs.

Activity I. Collaboration with Information Security Metadata Activities

The task force collaborates with relevant activities in the production and maintenance of information security metadata, such as Incident Description (IODEF) and Vulnerability and Exploit Description (VEDEF), both of which were formerly activities of the task force. Progress reports are provided on a liaison basis by task-force participants who have an existing co-ordination function in this area and collate inputs from other task-force participants as appropriate.

Activity M. Incident handling and security guidelines for NREN Grids

Task-force members work with Grid communities to identify, and to encourage the adoption of, good security practice. Key areas of work are in Grid incident response and vulnerability management. Other activities such as development of Grid-related risk assessments, security policies, security guidelines and technical security implementations may also be considered. Results are disseminated through a website and mailing list and are reported to the task force.

TF-CSIRT meetings held in the reporting period:

- 20-21 September 2007, Espoo, Finland
- 29-31 January 2007, Budapest, Hungary

- 3-4 May 2007, Prague, Czech Republic.

A.2 TF-ECS

The task force on Enhanced Communication Services (TF-ECS) explores collaboration tools and technologies that go beyond simple voice and video conferencing. The task force investigates the impact of future developments in real-time communications and defines an architecture and trust model for peering such deployments in national research and education networks.

The goals of the task force are:

- to provide a forum for exchanging experiences and knowledge;
- to promote the benefits of the new communication technologies and assist the rollout of enhanced communication services;
- to co-ordinate current national activities;
- to provide a technical-knowledge repository containing information about standards, products for communication services and best-practice documents;
- to provide an information portal listing organisations already offering enhanced communication services and giving useful hints how to contact members of the European academic community;
- to test, update and extend the existing communication deployment among NRENs and beyond;
- to investigate the impact of future developments in real-time communication;
- to define a national and international architecture and propose a trust relationship model within the international NREN community to avoid abuse.

The work items of TF-ECS are the following:

A) establishing the task-force information site on the TERENA server, containing links to information on communication-related issues, reports and presentations;

B) update of the online IP Telephony Cookbook, publishing a second on-line edition focusing more on enhanced communication services and less on telephony;

C) overview of national activities and deployments;

D) requirements definitions for inter-NREN RTC peering:

- regulatory issues
- security levels;

E) architecture design for an international trusted RTC system; define a standardised architecture for NRENs in order to create trusted RTC peerings; these trusted RTC connections are fundamental in order to implement

Spam-over-IP-Telephony (SPIT) prevention systems, authenticated origin/destination connections, and any legal issues forced by regulatory bodies; this architecture design focuses on:

- security
- AAAI
- PKI / trust infrastructure
- definition of a dialling schema based on ENUM
- multi-lateral peering agreements;

F) design of the testbed and creation of the test-plan based on the concepts selected out of work item E.

TF-ECS will run between October 2006 and September 2008. The task force is co-chaired by Erik Dobbelsteijn (SURFnet) and Fabio Vena (SWITCH).

TF-ECS face-to-face meetings held in the reporting period:

- 2 October 2006, Amsterdam, the Netherlands
- 21 February 2007, Athens, Greece
- 24 May 2007, Lyngby, Denmark.

A.3 TF-EMC2

The TERENA task force TF-EMC2 aims to provide a forum to discuss middleware issues and foster collaboration in the middleware arena.

TF-EMC2 objectives are:

- to provide a forum for exchanging experiences and knowledge;
- to promote the development and testing of innovative middleware technologies;
- to promote the use of common standards and procedures in the middleware infrastructures;
- to promote the actual use of middleware infrastructures at the campuses;
- to liaise with other middleware activities at international level, such as OGF (Open Grid Forum) and Internet2.

Diego Lopez (RedIRIS) chairs the task force. Staff members from many NRENs are actively involved, including RedIRIS, SURFnet, FUNET, CESNET, UNINETT, ARNES and RENATER. The participation from universities (especially from the United Kingdom and Spain) is also quite high.

The Terms of Reference document states that the task force shall focus on the activities listed below:

- TERENA Academic CA Repository (TACAR)
- AuthN/AuthZ Requester Responder (AA-RR)
- campus AA middleware issues
- directory schema
- diagnostic-related activities
- federation co-ordination
- collaboration with the Grid community.

TF-EMC2 meetings held in the reporting period:

- 16-17 October 2006, Malaga, Spain
- 28-29 March, 2007, Florence, Italy.

A.4 TF-Mobility

The TERENA task force on Mobility investigates the issues that arise when users move between different organisations (generally campuses and NRENs) and try to gain access to the Internet using their own mobile devices.

The goals of the task force are:

- to provide a forum for exchanging experiences and knowledge;
- to promote the benefits of the technology and assist in the rollout of the roaming infrastructure;
- to provide a technical-knowledge repository containing information about standards and products for roaming services;
- to test, update and extend current roaming infrastructure among NRENs and beyond;
- to consider the impact of future development in roaming.

The task force is co-chaired by Klaas Wierenga (SURFnet) and David Simonsen (UNI•C). Staff members from many NRENs are actively involved, including SURFnet, SWITCH, RedIRIS, UNI•C, DFN, FCCN, ARNES and CESNET.

The Terms of Reference document states that the task force shall focus on the activities listed below:

- standardisation process
- support for the development of the next generation of eduroam
- metering and statistics
- new mobile technologies
- sensor nets etc.
- dissemination
- co-operation with other initiatives.

TF-Mobility meetings held in the reporting period:

- 20 September 2006, Luxembourg, Luxembourg
- 12 January 2007, Cambridge, United Kingdom.

A.5 TF-NGN

TF-NGN aimed to investigate the suitability of advanced networking technologies for possible implementation in GÉANT2 and other research and education networks. The main goals of the task force were as follows:

- to provide a forum for exchanging experience and knowledge;
- to promote development and testing of innovative networking technologies;
- to define, develop and test new networking services which can subsequently be introduced by national research and education networks and/or in the European research networking backbone infrastructure;
- to provide a forum for wider discussion of the work of the GN2 Joint Research Activities, and the Service Activity on end-to-end Quality of Service.

The task force was chaired by Michael Enrico from DANTE. Staff members from many NRENs were actively involved, including HEAnet, GRNET, PSNC, UNINETT, RENATER and GARR.

The Terms of Reference document stated that the task force would focus on the activities listed below:

- improvement of current multicast services
- IPv6
- IP routing
- MPLS for Layer 2/3 VPNs and VPLS
- intelligent control-plane architectures
- transport protocols (TCP limitations and tuning, fast TCP, new transport protocols)
- optical networking
- hands-on evaluation of new router and switching hardware.

No TF-NGN meetings were held in the reporting period.

A.6 TF-VSS

The task force on Videoconference Service Studies (TF-VSS) explored the feasibility and suitability of developing a Europe-wide videoconferencing service for the higher-education and research communities. The mandate of the task force, which was chaired by András Kovács (NIIF/HUNGARNET), ran from October 2006 to September 2007.

The aims of the task force were:

a) to provide an organisational framework in support of preliminary discussions among NREN videoconference experts both on the justification and on the technical plans for a future Europe-wide videoconference service;

b) to define a set of commonly acceptable architectural principles to apply when negotiating the plans mentioned.

The work items of TF-VSS were:

A1: Setting up a task-force mailing list and webpage on the TERENA website and collecting contacts of NREN videoconference representatives.

A2: Survey on NREN videoconference services: a Web-based survey on partners' requirements regarding a future Europe-wide videoconference service and on short-term NREN videoconference service development plans in order to effectively support the service design activity (A4) later on.

A3: Service specification preparation of a future Europe-wide videoconference service depending on output of A2.

A4: Designing high-level technical plans for a future Europe-wide videoconference service. Service architecture elements and their interconnection would be determined and documented.

TF-VSS meetings held in the reporting period:

- 5 October 2006, by videoconference
- 28 November 2006, by videoconference
- 22 February 2007, Athens, Greece
- 12 March 2007, by videoconference
- 26 March 2007, by videoconference
- 23 April 2007, by videoconference
- 25 May 2007, by videoconference.