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Foreword

For several years, we in the community of NRENs (national research and education networking organisations) have been facing an important transformation of our environment. At the same time, many of us have been suffering difficult economic conditions that may lead to significant budget cuts. Therefore, it is essential that we look, without taboo, at our development strategies and our positioning, in order to ensure our future. Expertise, efficiency, and effectiveness must be our watchwords.

In that perspective, 2012 was a year that heralded significant changes. Three major activities stand out for the collaborative effort put into them and for the positive opportunities that they support.

The first is ASPIRE (A Study on the Prospects of the Internet for Research and Education). This foresight study explored the implications of potential developments of the Internet up until 2020, and assessed their impact for the research and education networking community.

During the study, the community identified four topics most likely to have a significant impact on the sector. For each topic, a panel of experts published a report summarising the actual developments and the major trends, and proposing various recommendations. Thanks to this study, the NRENs are now better equipped to redefine their own strategies.

The second development was the setting up of the Reykjavík Group. The group was formed after the TERENA General Assembly meeting in Reykjavík in May 2012, to create a community strategy in preparation for the European Commission’s ‘Horizon 2020’ programme for research and innovation, and in response to the GÉANT Expert Group’s report, ‘Knowledge without Borders’.

The Reykjavík Group’s main recommendation was that TERENA and its sister organisation, DANTE, should develop a joint proposal for a simple but inclusive organisation to be responsible for community-building, and for the formulation of community-level strategy and policy-making. This proposal is to be developed under guidance from the Reykjavík Group, which continues to function with a restricted and refined mandate.

I hope this change will allow us to streamline our governance, to clarify the management of our activities, and to avoid duplication of effort.

The third achievement was the preparation of the proposal for the continuation of GÉANT, which will materialise in 2013. The staff and the community did a tremendous job to maximise the proposal’s chances of success. If this succeeds, the results of the evaluation will determine...
Foreword

the majority of our activities for the next months and will strengthen our financial position. Given the quality of the work produced, I have good hopes for the future.

With strategic objectives and fresh beginings in mind, it was decided to change the way the TERENA annual report is structured and published. It is now primarily an online document, complete with hyperlinks to supplementary information, and takes a thematic approach to our work. We hope you will find it easy to use, interesting to read, and attractive to the eye.

Unfortunately, 2012 also brought a major upheaval to the TERENA Secretariat, with the absence of Secretary General, Karel Vietsch, through illness. Karel has led the association since 1996. This was a major blow – although he has continued to contribute throughout his absence. I am very satisfied with the dedication and the professionalism of the Secretariat staff, who assured the perfect continuity of TERENA activities in these difficult circumstances. I take this opportunity to thank them and to wish Karel a quick recovery.

Pierre Bruyère
President
Governance and Strategy

**Strategic matters were of major importance for TERENA in 2012.** A detailed strategy was developed based on the high-level goals agreed by the General Assembly (GA) in 2011, and was presented to the GA in October. In addition, the GA established the Reykjavík Group to address strategic issues for the research and education networking community.

**TERENA strategy and future priorities**

Following the success of the first TERENA Community Satisfaction Survey in 2010, a further study was carried out in 2012, this time targeting GA representatives as the primary stakeholders. The results suggest there was greater satisfaction with TERENA’s performance than in the previous survey. Strategic suggestions put forward in the responses were used in developing the 2013 activity plan.

The new TERENA strategy elaborates how to achieve TERENA’s four key strategic goals over a period of three years:

- increase and demonstrate the value of TERENA for members;
- develop and strengthen relationships with members and stakeholders;
- ensure the long-term sustainability of TERENA;
- establish and maintain a position of influence for the TERENA community.

Following the strategy document, the priorities for TERENA activities in 2013 are to:

- continue to contribute to the GN3 (GÉANT) project, as well as ensure an appropriate role for TERENA in the GN3plus project;
- enhance services and set up a marketing function to assess user needs and demand;
- improve relationships with the European Union (EU) and other stakeholders.

**Community strategy**

A community strategy was discussed by the TERENA GA in May. This led to the formation of the Reykjavík Group, with a mandate to respond to the GÉANT Expert Group’s (GEG) ‘Knowledge without Borders’ report, which provided advice to the European Commission (EC) about the role of GÉANT in the Horizon 2020 Programme. The Reykjavík Group’s report was presented to the TERENA GA in October. It called on the community to re-organise itself in order to...
effectively achieve the goals set out in the GEG report. The Reykjavik Group recommended that TERENA and DANTE develop a joint proposal for an organisation to lead community-level strategy formulation, policy making, and community building.

This collaboration between TERENA and DANTE is in line with the increasing cooperation between the two organisations that has been developing in recent years. The managers of TERENA and DANTE met regularly throughout the year to streamline their respective areas of operation.

High-level recommendations of key strategic importance for policy and decision makers in the areas of cloud services, mobility, data management, and the future role of national research and education networking organisations (NRENs) were produced in 2012 by ASPIRE (A Study on the Prospects of the Internet for Research and Education). This foresight study was conducted by TERENA with funding by the EC via the GN3 project. Another strategically important study, funded by the EC and carried out by TERENA, was the Study on Authentication Authorisation and Accounting (AAA) Platforms for Scientific Data/Information Resources in Europe. This could pave the way for distributed and collaborative AAA for scientific data.

Consolidating European and global ties

Representatives of the TERENA Secretariat and DANTE had an informal meeting in January with officials from the EC's Directorate General (DG) CONNECT, to discuss possible follow-up to the GEG report. A second meeting in September included TERENA’s President, Pierre Bruyère, and Valentino Cavalli, TERENA’s Acting Secretary General, and discussed the work of TERENA and its future development in relation to the EC’s vision and future plans.

TERENA strengthened its relations with partners in other world regions in 2012. Through its participation in the ELCIRA (Europe Latin America Collaborative e-Infrastructure for Research Activities) project, TERENA collaborated with RedCLARA and other partners in Latin America and Europe on eduroam®, eduGAIN, and other authentication and authorisation infrastructure (AAI) developments. Organisations from Europe, Asia-Pacific, Latin America, and North America collaborate on AAI under the Research and Education Federations (REFEDS) banner. As in previous years, the Internet Society (ISOC) funded and shared work in REFEDS, as well as providing presentations at meetings of the Task Force on Communications and Public Relations (TF-CPR), and in sponsoring a student prize and providing a keynote speaker at the TNC.

For the second consecutive year, Ana Hunsinger (Internet2) joined the TNC programme committee, while Gyöngyi Horváth and Péter Szegedi (TERENA Secretariat) were members of the Internet2 Fall Member Meeting programme committee. Internet2 and TERENA also

TERENA governance

TERENA (Trans-European Research and Education Networking Association) is legally established in the Netherlands. Its highest governing body is the GA, in which representatives of TERENA member organisations meet twice a year. The GA elects members to the TEC, which manages and administers the organisation. Day-to-day operations are carried out by the Secretariat, based in Amsterdam, under the direction of the Secretary General.

An essential element of TERENA work is the Technical Programme. This is coordinated and supervised by the TERENA Technical Committee (TTC), a group of experienced and knowledgeable networking professionals, who are appointed by the TEC. Each year, senior technical managers nominated by member organisations meet in the Technical Advisory Council (TAC) to advise on the direction of the Technical Programme. The TAC meets at the TERENA Networking Conference (TNC).

GA meetings
24-25 May, hosted by RHnet, Reykjavik, Iceland
24-25 October, hosted by RENATER in Paris, France

TTC meetings
20 March, 14 June, 13 November, TERENA Secretariat offices

TTC members
Christoph Graf (chair)  Jan Meijer
Vicente Goyanes  Esther Robles
David Groep  Karel Vietsch (ex-officio)
Josh Howlett  Valentino Cavalli (ex-officio)

TAC meeting
21 May, Reykjavik, Iceland
Governance and Strategy

explored possible collaboration in strategic technical areas, marketing-communications, and management in a series of videoconferences. TERENA Secretariat staff participated in Asia Pacific Advanced Network (APAN) events and sat on the APAN conference programme committee.

Membership

TERENA has a commitment to strengthening its relationships with members. In 2012, TERENA welcomed the Armenian NREN, ASNET-AM, and approved the application from ANA (Albania) as new national member of the association. Armenia’s membership was part of a process that began within TERENA’s Networking Development Support activities, which make the case for development of e-infrastructures in Eastern Europe. Alcatel-Lucent and Telefónica were admitted as associate members.

TERENA’s roles in the GN3 (GÉANT) project

Some of TERENA’s core activities were co-funded by the EU through GN3: production of the annual TERENA Compendium, Networking Development Support activities, and support provided by the TERENA Secretariat to TERENA task forces. GN3 also provided funding for a ‘distributed GN3 workshop’ at the TNC, for GN3 training workshops, the ASPIRE study, the European eduroam service, the eduPKI and eduGAIN services, and the Partner Services Promotion activities. Two TERENA Secretariat staff members had a management role in GN3, as leaders of the activities ‘Multi-domain User Application Research’ and ‘Status and Trends’. The TERENA Secretariat also contributed to the organisation of several GN3 events and participated in the preparation of the GN3plus proposal.

Links

- www.terena.org/about/organogram.html
- www.terena.org
- Community Satisfaction Survey 2012 - goo.gl/YebgE
- TERENA strategy - goo.gl/WZXIG
- GEG report: goo.gl/puqzb
- Reykjavik Group report: goo.gl/q8wzk
- www.elcira.eu
- www.redclara.net
- www.internetsociety.org
- www.internet2.edu
- www.apan.net
- www.terena.org/development-support
- www.geant.net

Pierre Bruyère thanks outgoing VP conference Miroslav Milinović at TNC for his outstanding contribution over the past 6 years.
TERENA Membership in 2012 (as at 31 December)

ASSOCIATE MEMBERS
ADVA Optical Networking
Thomas Schneider
Alcatel-Lucent
Rolf Sperber
Cisco Systems
Rodney G. Wilson
EMBL
Guy Cochrane
Extreme Networks
Gerrie de Jongh
Huawei Technologies
Charles Cao
Juniper Networks
Jean-Marc Uzé
Level 3 Communications
Robert van Beurden
Nokia Siemens Networks
Ulrich Berger
NORDUnet
René Buch
Tata Communications
Yves Poppe
Telefónica
Diego López

INTERNATIONAL MEMBERS
CERN
David Foster
ESA
Maryline Lengert

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www.terena.org/about/terena-members-map.html
Outreach and Supporting Community Development

TERENA’s focus on fostering the development of research and education networking is reflected in its outreach activities, as well as in its Technical Programme. Increasing attention has been given to areas that facilitate the sharing of knowledge, the dissemination of information, the management of services, and support for the development of members and the wider community.

Bringing the community together

The 2012 TERENA Networking Conference welcomed more attendees than any previous TNC, with more than 600 participants engaging in sessions, side meetings and informal ‘birds of a feather’ (BoF) discussions, meeting sponsors at exhibition booths, and presenting posters, under the theme ‘Networking to Services’. Around 130 speakers from around the world presented their work and ideas. Keynote speakers were from Asia Pacific (APNIC), Iceland (CCP Games), Sweden (GARTNER), the United Kingdom (JISC), and USA (ISOC and the Tor Project). Streaming of the sessions was supported by NORDUnet and was viewed live by 800 remote participants from 61 countries: archived streams are available online, along with 29 posters. Twelve papers were selected for publication as conference proceedings.

ISOC and Cisco Systems joined forces to sponsor the student poster competition. Reykjavik University hosted the ten selected students. Other sponsorship was provided by Adva, Ciena Corporation, Comodo, DigiCert, EURid, the EC (European Commission), Extreme Networks, Huawei, Level 3 Communications, Men & Mice, Nokia Siemens Networks, NORDUnet, Reykjavik University, RHnet, RIPE NCC, SpamExperts, Tata Communications, The Next Web, University of Iceland, Vidyo Inc.

To celebrate the tenth anniversary of eduroam, TERENA presented Klaas Wierenga (Cisco Systems) with a small gift. This recognised his role in originating the service while employed at SURFnet, and in sharing his idea with the TERENA community.
Outreach and Supporting Community Development

Supporting community events, communication and services

In 2012, TERENA continued to support GN3 project events. Online registration and logistical support were provided for the fourth project symposium in October. This four-day event drew more than 300 participants. Network connectivity and eduroam were available, thanks to ACOnet, while NORDUnet provided videoconferencing and streaming of three parallel meetings. A gala dinner was a new addition to the event, as well as after-sessions drinks to encourage participant networking. TERENA also handled logistical and registration activities for, among others, the GN3 eduCONF training in February, the Green networking workshop and the PerfSONAR MDM deployment training in March, and the Secure Code training in July.

TERENA and GN3 communications and promotional activities continued to work closely in 2012, through Partner Services Promotion (PSP), and back-to-back meetings of the GÉANT PR Network and TF-CPR, the Task Force on Communication and Public Relations.

TF-CPR focused on integrating communications strategies into NREN (national research and education networking organisation) strategies, how to celebrate and communicate about NREN anniversaries, how to communicate effectively with scarce resources as the global economic crisis impacts NRENs, and what communications teams need from Customer Relationship Management (CRM) systems. Global participation continued, with presentations by the Internet Society and RedCLARA during the TF-CPR meeting co-located with TNC, where a BoF session was also organised by the task force to discuss the benefits of using social media. TF-CPR published an online ‘Jumpstart Pack’ to help the NREN community in its use of social media as part of its work item in this area.

At the GÉANT PR Network meetings, the PSP task, led by TERENA, coordinated discussions about the promotion of Campus Best Practices, eduroam, eduGAIN, and ASPIRE (A Study on the Prospects of the Internet for Research and Education). The set of materials that PSP had produced in 2011 to promote eduroam at campus level were requested and dispatched to a number of universities and NRENs during 2012. A video to promote NREN and GÉANT connectivity services was produced and shown at the TERENA booth at TNC. It was used by 11 NRENs in the course of the year. Work was started on a video to promote interfederation through eduGAIN and was discussed with meeting participants in October. It was agreed to take this into production in 2013.

Against the background of the mobility study within ASPIRE, a GN3 feasibility study on introducing a roaming mobile gsm service for GÉANT users across the community was discussed by the Task Force on Management of Service Portfolios (TF-MSP) in February. At the same meeting, representatives of the EC presented details about the Connecting Europe Program.
Outreach and Supporting Community Development

Facility (CEF) initiative. New terms of reference were approved for TF-MSP around this time, with its new mandate running until March 2014. In May, TF-MSP examined NREN-brokerage and customer-survey methodologies. The adoption and use of CRM systems within the NREN community was the focus of a meeting in September.

In 2012, TERENA continued to provide secretariat support to the Global Lambda Integrated Facility (GLIF). Staff members attended the GLIF Technical Working Group meeting and the 12th Annual Global Lambda Grid Workshop, both held in the USA.

**Fostering community development**

The ASPIRE foresight study that had begun in 2011 was completed in December 2012, following a final stakeholder meeting in September. Reports and recommendations on four topics were published, covering the adoption of cloud services, the adoption of mobile services, middleware and managing data and knowledge in a data-rich world, and the future roles of NRENs. The final report, which provides strategic recommendations related to these four topics that can be used in the community discussion on GN3plus, Horizon 2020 and CEF, was published early in 2013.

The economic and organisational challenges faced by NRENs amid today’s financial crisis, the evolution of technical innovation and changes in IP traffic and traffic growth were documented in the TERENA Compendium of National Research and Education Networks in Europe. This, the twelfth edition of the Compendium, the fourth produced under GN3 funding, was published in December.

The development of e-infrastructures in Eastern Europe was a priority for TERENA’s Networking Development Support activities in 2012. Under the auspices of the Eastern Partnership programme of the EC, TERENA and the Academy of Sciences of Moldova organised the Eastern Partnership Event (EPE) in December. This led to the signing of a joint declaration by key stakeholders supporting e-infrastructure for research and education in Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine. This was supported by 13 European e-infrastructure and NREN organisations. The declaration recognised the importance of GÉANT, NRENs and international organisations such as TERENA, DANTE and the European Grid Infrastructure (EGI.eu) in supporting the development of e-infrastructures, services and related expertise, and called for NRENs to be supported to the level necessary to fully participate in European e-infrastructure activities.

A country needs assessment of Russia was conducted by TERENA and DANTE staff. In January, TERENA co-organised a workshop with CASPUR (the Italian Inter-University

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**TF-MSP**

Chair: Walter van Dijk (SURFnet)
Co-chairs: Alberto Pérez Gómez (RedIRIS), Koen Schelkens (Belnet), Martin Bech (UNI•C)

**Meetings**

7-8 February, hosted by FUNET/CSC in Espoo, Finland
9-10 May, hosted by CARNet in Zagreb, Croatia
27-28 September, hosted by RENATER in Paris, France

**Compendium review panel**

Claudio Allocchio (GARR)
Helmut Sverenyák (CESNET)
Janne Kanner (CSC/Funet)
Laurent Gydé (RENATER)
Mike Norris (HEAnet)
Thomas Lenggenhager (SWITCH)
Tryfon Chiotis (GRNET)
Mirjam Kühne (RIPE) – advisory capacity

Prof. Acad. Gheorghe Duca (Academy of Science Moldova) hands over the EPE joint declaration to Konstantinos Glinos (EC).
Outreach and Supporting Community Development

Consortium for the Application of Supercomputing for Universities and Research), in which European research networking experts advised on the creation of ANA, the Albanian NREN. ANA later applied and was accepted as a TERENA member in October. Around this time, a European Campus Architecture Middleware Planning (EuroCAMP) training workshop was held in Vienna as a collaborative effort between the TERENA Secretariat, REFEDS, the GN3 project’s eduGAIN, and Networking Development Support tasks. This event was targeted at NRENs without identity federations or those that still lacked a policy for their identity federation.

Raising TERENA’s visibility

By participating in external research and education networking events, TERENA ensures the visibility of its own activities and maintains community contacts. As TERENA’s reputation has grown, organisations in Latin America have increasingly invited and offered to pay for TERENA Secretariat staff to present at workshop and events.

Brook Schofield was invited to give presentations about eduroam and eduGAIN at the September FORUM RNP in Brasilia as well as at a REUNA Technical Forum in Santiago, FAM12 in Birmingham, and in an EIFL webinar. Brook also presented on eduroam and eduGAIN at the ELCIRA.eu project kick-off meeting in Lima in July. He was invited to speak about federated identity at various universities in Chile and at the EDUCITIC Chile conference in Santiago.

In June, Péter Szegedi was invited to present ASPIRE at a EUNIS conference in Vila Real, where he also gave a poster presentation about a TF-Media survey. At an AARNET and CAUDIT Strategic Workshop (online), he provided a presentation about collaboration and service coordination across Europe and beyond. The TERENA Trusted Cloud Drive pilot was his topic at a Cisco Symposium during TNC2012, and the FORUM RNP. Péter also gave an online update on NRENum.net at a PHONEWORD Forum in November.

The Study on AAA (authentication, authorisation and accounting) Platforms for Scientific Data/Information Resources in Europe was the subject of Licia Florio’s presentations at an AAA-workshop in Brussels in July, a Virtual Organisation Architectural Middleware Planning (VAMP) workshop in Utrecht in September, and at the FIM4R workshop in Nijmegen in June. At the latter event, Licia also presented a proposal to tighten collaboration between identity federation and e-science communities. As a result, she produced a paper that was circulated to the REFEDS list in December. An update on REFEDS was provided by Licia at an APAN (Asia Pacific Advanced Network) conference in February. She also presented on TERENA’s past ten years of middleware activities at a ‘best of middleware’ session at TNC2012.

GN3 Status and Trends

TERENA leads the GN3 project’s Status and Trends activity, which consists of five tasks. Three of them, the TERENA Compendium, secretariat support to TERENA task forces, and the ASPIRE foresight study are managed by TERENA Secretariat staff. The Campus Best Practice task and the study on the environmental impact of research networking are led by UNINETT and HEAnet respectively.
John Dyer was invited to speak at an Arab States Research and Education Network (ASREN) e-AGE2012 conference in Dubai in November.

The Compendium was the topic of Bert van Pinxteren’s presentation at TNC2012, with a focus on the development of the services delivered by NRENs. He also explained TERENA’s training work at an EC workshop arranged in preparation for Horizon 2020. In November, he addressed the INHOPE General Assembly about TERENA’s organisational set-up.

**Links**

- https://tnc2012.terena.org
- https://tnc2012.terena.org/web/media/archive
- https://tnc2012.terena.org/core/poster/list
- www.terena.org/publications/tnc2012-proceedings
- www.terena.org/events
- www.terena.org/news/community
- www.glif.is/
- www.terena.org/activities/psp
- www.terena.org/tf-cpr
- Social media Jumpstart pack: goo.gl/iWc2K
- www.terena.org/campus-bp
- www.terena.org/tf-msp
- www.terena.org/aspire
- www.terena.org/compendium
- www.terena.org/development-support/epe2012
- www.caspur.it
- http://forum.rnp.br/
- www.reuna.cl
- FAM12 - goo.gl/2ZgdE
- www.eifl.net/eduroam
- www.eduticchile.cl
- AARNET & CAUDIT workshop: goo.gl/n6FSD
- www.asren.org
Security

With a long-term commitment to building and enhancing trust across the community, several TERENA activities support a more secure environment for research and education networking. Throughout 2012, TERENA strengthened its position in the security area by providing training, services, and fora for the exchange of expertise, as well as increasing the footprint of the TERENA Certificate Service. In order to streamline some of these activities, the task force, TF-CSIRT, now provides an umbrella for the Trusted Introducer service and TRANSITS training activities.

Bringing security experts together

The Task Force on Collaboration of Computer Security Incident Response Teams, TF-CSIRT, continued its cooperation with the Forum for Incident Response and Security Teams (FIRST), in the organisation of a joint event in January. This FIRST-TF-CSIRT Technical Colloquium, which was held in Rome, included meetings, a symposium, and training components and attracted participants from around the world to the TF-CSIRT meeting.

To identify the security interests of NRENs (national research and education networking organisations) beyond incident handling and response, TERENA organised a first meeting of Chief Security Officers (CSOs), co-located with a TF-CSIRT meeting in Slovenia in September. This had been suggested by the TAC (TERENA Advisory Council) during its meeting in May, and was held as an open discussion session to encourage collaboration and to raise awareness. The concept of CSOs was relatively new among NRENs: the meeting discussed why they are necessary, their role, which organisations have them, and what sort of disaster management plans, if any, the NRENs have in place.

Re-defining the task force

Following a proposal that was widely discussed by task force participants, new terms of reference for TF-CSIRT were approved by the TTC (TERENA Technical Committee) in June and took effect from 1 September. Under these new terms, Trusted Introducer (TI) and TRANSITS (Training of Network Security Incident Teams Staff) were brought under the TF-CSIRT umbrella as part of a portfolio of services and activities useful to the CSIRT community. In this vein,

TF-CSIRT Steering Committee
Lionel Ferette (chair)
Przemek Jaroszewski (CERT Polska)
Erika Stockinger (CERT-SE)
Wilfried Woeber (ACOnet-CERT)
Jacques Schuurman (XS4ALL) (since September 2012)

Meetings
30 January, hosted by GARR-CERT and Roma Tre University in Rome, Italy
10-11 May, co-hosted by NCSC, SURFcert and KPN-CERT/XS4ALL in Amsterdam, Netherlands
27-28 September, hosted by SI-CERT in Ljubljana, Slovenia
the TI Review Board became the TF-CSIRT Steering Committee, which is responsible for coordinating the activities of the task force, reviewing the performance of TI and TRANSITS, and advising on meeting programmes and future directions. Single chairmanship of all activities was established, and a two-year term of office was defined for the first time. A system of membership categories was also introduced, with CSIRTs that are accredited in accordance with the TI requirements automatically qualifying.

Developing Trusted Introducer

Throughout 2012, TERENA continued to operate as a clearing-house for the TI service, which is provided by PRESECURE GmbH. The service provides listing, accreditation, and certification of CSIRTS. DFN-CERT (Germany), FORTHcert (Greece), and KPN-CERT (Netherlands) were certified, and newly accredited teams were CERT-Bund (Germany), CERT-GOV.AZ (Azerbaijan), CERT-GOV-GE (Georgia), CERT-RO (Romania), Cisco CSIRT (worldwide), csirtPT (Portugal), DGC-IRT (Portugal), EGI CSIRT (Europe), ETHZ-NSG (Switzerland), GOVCERT.LU (Luxembourg), Handelsbanken SIRT (Sweden), and LIU IRT (Sweden).

Following agreements to update TI information, the website, and the overall look and feel, a set of logos and materials were created in 2012, with online implementation to be completed in early 2013.

Evolving security training

Acknowledging the evolving world of CSIRTS, a small investment was made in updating TRANSITS-I (basic) and TRANSITS-II (advanced) training materials. In 2012, the organisational module of TRANSITS-I underwent a major overhaul and was run successfully in November, for the first time. In order to keep overheads and registration fees as low as possible, a decision was made to use a single venue in Prague for all TRANSITS-I training, starting in 2013. Due to increasing demand for the more advanced training, two TRANSITS-II courses were organised this year.

Continuing the tradition of permitting experienced members of the CSIRT community to use the TRANSITS course materials for training events, TERENA licensed several community workshops in 2012.

Increasing number of certificates issued

Twenty-eight countries participated in the TERENA Certificate Service (TCS) in 2012, with EENet

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Security

Developing Trusted Introducer

Evolving security training

Increasing number of certificates issued
(Estonia) and AzScienceNet (Azerbaijan) joining this year. About 33,500 server certificates were issued, compared to around 28,000 in 2011. The number of e-science personal certificates issued nearly doubled.

In January, contracts were extended until 30 June 2013 for Austad IT (Norway) and Tilburg University (Netherlands) to continue to maintain the Confusa software for hosting the TCS Portal Service. This offers NRENs a simple, managed, and scalable solution for issuing personal certificates in their community. Following decisions made in 2011, two changes came into effect in July: restrictions on the use of TCS certificates to secure online financial transactions were lifted - a new feature offered free-of-charge to all members; and a new charging scheme was implemented, with fees paid by participating NRENs dependent on the size of their countries. In December, Comodo CA Ltd. and TERENA signed an agreement to prolong the TCS service until 1 July 2014, with an option to decide in 2013 whether to renew it for one more (and last) year.

**Trusted certificate store providing support**

The TERENA Secretariat maintains TACAR* (TERENA Academic Certification Authority Repository), the online repository of trust anchor certificates, related certificate policies and certificate practice statements registered by Certification Authorities (CAs). TACAR provides great value to the International Grid Trust Federation (IGTF) communities, which rely on digital certificates to authenticate their users. Two CAs joined the TACAR service during 2012, bringing the total number of root certificates stored in the repository to 65.

TACAR supports GN3 project services by including the eduPKI-CA, which issues certificates that comply with the service trust profiles. TERENA successfully led the eduPKI (European Public Key Infrastructure) service within the GN3 project throughout 2012.

* TACAR is a registered trademark of TERENA

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**Links**

- www.terena.org/tf-csirt
- www.first.org
- www.terena.org/csirt-training
- www.trusted-introducer.org
- www.terena.org/tcs
- www.tacar.org
- www.edupki.org

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**Certificates issued since 2009.**

- e-science personal
- code-signing
- e-science server

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Middleware, Identity, and Mobility

In 2012, TERENA developed its activities to broaden the deployment of middleware and federated identity technology and standards globally. TERENA played a significant community-wide role by leading a European study that produced recommendations for various stakeholders. Participation in TERENA’s middleware activities remained strong. For the first time, a workshop on architectural middleware planning was organised for IT architects of key international research groups. TERENA activities also contributed to the continued growth and development of eduroam.

Leading the European AAA Study

TERENA led the ‘Study on AAA (authentication, authorisation and accounting) Platforms for Scientific Data / Information Resources in Europe’ that investigated the feasibility of an integrated AAI (authentication and authorisation infrastructure) by collecting use-cases from across different disciplines and evaluating existing infrastructures. The study was carried out under contract with the EC (European Commission) by a consortium that included LIBER (The Association of European Research Libraries), University of Amsterdam (Netherlands), and University Debrecen (Hungary). Experts from the community contributed to the report by providing additional input and feedback. This was the first time that TERENA and LIBER had worked together, and it was the first opportunity for TERENA to collaborate with the individuals at the EC who are in charge of data and open access solutions. The final report was published in December 2012.

Productive REFEDS leads to new work plan

REFEDS (Research and Education Federations) progressed on a number of work items during 2012. In the summer, the development of the Public Endpoint Entity Registry (PEER) software was completed by Yaco Sistemas. PEER provides a secure metadata repository, look-up service, and web interface that allow end-entities – service providers and identity providers – to register, store, and easily retrieve each other’s metadata. Building on the PEER software,
preparations began for the REEP pilot service that is due for completion in 2013. In August, the same Spanish company that produced the PEER software was contracted to produce the Metadata Explorer Tool (MET). This became available as a beta version for testing at the end of the year and will replace the existing survey of federations that is hosted on the REFEDS wiki. In September, guidelines were completed for ‘The Discovery Project’, which offers recommendations for service providers to implement federated login in a way that improves user experience. Efforts then focused on creating a dedicated Discovery web presence. REFEDS also produced a Federation Policy Best Practice to be finalised in early 2013. Following this fruitful second year, the REFEDS Steering Committee approved a new work plan for January-December 2013.

REFEDS and eduGAIN synergies

The GN3 project’s eduGAIN collaborates with REFEDS, and this was strengthened in 2012. During the second half of the year, eduGAIN sought input via REFEDS meetings and mailing lists concerning changes to the eduGAIN Policy Framework, in order to include all active federations, not only those active in eduGAIN.

The collaboration between REFEDS and eduGAIN led to the production of three documents in 2012. A Code of Conduct defining behavioural rules for service providers wanting to receive user attributes from identity providers was drafted with GN3 funding, for use in the GÉANT community. In December, REFEDS produced a ‘roadmap’ to address the issues and requirements raised in the FIM4R (Federated Identity Management for Research) paper that had resulted from a series of workshops coordinated by CERN. Finally, the draft REFEDS Federation Policy Best Practice was used by the eduGAIN team as the basis for a template policy to be used by new identity federations. This was first presented during a EuroCAMP (European Campus Architecture and Middleware Planning) training event in Vienna in October to participants without a research and education identity federation or who were piloting a federation but did not have a policy.

Identity federations meet virtual organisations

The VAMP (Virtual Organisation Architectural Middleware Planning) workshop was one of the first attempts to bring together large collaborative projects and identity federation representatives from around the globe. Co-located with the September REFEDS meeting, VAMP aimed to foster the deployment of identity management and collaboration tools within the research community. Participants agreed that a new model to handle user attributes should

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**GN3 Multi-domain User Application Research**

TERENA led the joint research activity for multi-domain user applications in the GN3 project. This encompassed three different tasks:

- **GEMBus** provided the framework to support the composition of services using the functionality available in existing services. In 2012, GEMBus finished the development of the core components and started the set-up for demonstrations and tests.

- **Task 2** addressed issues arising when different identity federations interoperate. In 2012, work focused on the specification of a new protocol, VOOT (Virtual Organisation Orthogonal Technology), to dynamically manage groups in interfederation scenarios. Work also continued on the Federation Lab website, adding the support for OpenID Connect - a demonstration was given during the TERENA Networking Conference.

- **The roaming task** addressed developments to enhance the eduroam infrastructure and to explore new roaming technologies. In 2012, the task developed the Configuration Assistant Tool (CAT) to generate automated eduroam installers for users’ devices. Standardisation work proceeded in conjunction with TF-MNM.
be explored, and to hold a follow-up event in 2013. The workshop was hosted by SURFnet, which co-organised it with TERENA and Internet2. NSF, the USA’s National Science Foundation, provided sponsorship for some US participants to attend.

Task forces collaborate

The synergy between the Task Force on European Middleware Coordination and Collaboration (TF-EMC2) and the Task Force on Mobility and Network Middleware (TF-MNM), with additional coordination by the European Committee for Academic Middleware (ECAM), continued in 2012 with the co-location of task force meetings and the sharing of work items. ECAM teleconferences were held every two months.

To foster the development of new ideas in TF-EMC2 meetings, an ‘unconference’ or ‘openspace’ format was used in 2012. Participants were given the opportunity to bring emerging technologies to the attention of the task force.

The unconference approach was used successfully in the Joint Middleware openspace event in November, which brought together participants of both task forces for the first time, and was hosted by AMRES in Belgrade. Topics ranged from scaling federations to step-up authentication, to the use of OpenFlow for authorisation in eduroam. This highlighted a number of areas of mutual interest and the shared focus of the task forces.

TF-MNM – eduroam and beyond

A number of TF-MNM participants actively participate in Internet Engineering Task Force (IETF) working groups. Within the task force’s standardisation work item, and in collaboration with the GN3 project’s roaming task, the Transport Layer Security (TLS) encryption for the Remote Authentication Dial-in-User Service (RADIUS) was completed and published as RFC6614 by the IETF. This makes significant changes to the RADIUS protocol, making it more secure and scalable. In addition, a draft describing the eduroam architecture was submitted to the IETF.

In addition to providing a discussion forum for the research and service activities of the GN3 project’s eduroam-related activities, TF-MNM looked at new areas, such as scalable 2-factor authentication and next-generation trust infrastructure. The former relates to ways to strengthen authentication by requiring users to provide a second authentication token as well as their username and password. The latter relates to the Domain Name System (DNS)-based Authentication of Named Entities (DANE) and DNSSEC (DNS security extensions). Discussions set the landscape and tried to find out which NRENs are interested in engaging further in this area.

TF-EMC2
Chair: Roland Hedberg (Umeå University)
Co-chair: Victoriano Giralt (University of Malaga) (until July)
Meetings
8 February and 1 June via remote collaboration
27-28 June, hosted by SWITCH in Zurich, Switzerland
20 November, hosted by AMRES in Belgrade, Serbia

TF-MNM
Chair: Klaas Wierenga (Cisco Systems)
Meetings
9 February and 3 May, via remote collaboration
26-27 June, hosted by SWITCH in Zurich, Switzerland
22 November, hosted by AMRES in Belgrade, Serbia

TNC celebrated the 10-year anniversary of eduroam with special recognition for the role of Klaas Wierenga who had the original idea.
Many NRENs expressed interest in extending eduroam to public spaces, such as train stations and airports, as is already the case in Sweden and the Netherlands. The task force work item ‘enabling ubiquitous mobility’ coordinated presentations on these developments throughout the year.

The terms of reference of TF-EMC2 and TF-MNM expired in September. Participants in both task forces engaged in discussions about the future, and drafted new terms of reference that would be submitted to the TTC (TERENA Technical Committee) for approval early in 2013.

eduroam® infrastructure and global deployment enhanced

Efforts to further the deployment of eduroam were key in 2012. Implementation of pilot deployments in Latin America and Africa increased. Consequently, the Global eduroam Governance Committee (GeGC), whose members are appointed by TERENA, increased the number of committee representatives to include these regions. Every continent was represented during the GeGC’s first face-to-face meeting in May at the TERENA Conference. During its second term, which runs from November 2012 until November 2014, the GeGC will continue to ensure interoperability between eduroam regions, and to define technological and administrative improvements for the operation of eduroam at the global level.

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Links
AAA study - goo.gl/buczk
www.refeds.org
https://refeds.terena.org/index.php/Discovery_Project
Federation Policy Best Practice: goo.gl/PECzV
www.edugain.org
www.terena.org/eurocamp
www.terena.org/activities/vamp
www.terena.org/tf-emc2
www.terena.org/tf-mobility
www.terena.org/ecam
www.ietf.org
RADIUS: goo.gl/nZTHP
www.eduroam.org

GeGC Representatives
Asia
Neil Witheridge (AARNet)
Hideaki Goto (Tohoku University)

Europe
Paul Dekkers (SURFnet)
Miroslav Milinović (Srce - chair)
Stefan Winter (RESTENA)

North America
Jens Haeusser (UBC ) (until 19 April)
Philippe Hanset (University of Tennessee Knoxville)

Africa
Kennedy Aseda (KENET) (from 19 April)
Chris Phillips (CANAIRIE) (from 19 April)
Simeon Miteff (SANReN/TENET) (from 21 May)

Latin America
Leandro Marcos de Oliveira Guimarães (RNP) (from 21 May)
Jose Luis Quiroz (RAAP) (from 21 May)

Non-voting expert
Klaas Wierenga (Cisco Systems)

Meetings
23 May, face-to-face at TNC2012
19 April, 26 July, 11 September and 30 November via videoconference
Real-time Communication, Media, e-Learning and Culture

In recent years, the TERENA research and education networking community has shown an increasing interest in serving users in the areas of arts, humanities, cultural heritage, real-time communications, and e-learning. Several TERENA activities addressed these areas and provided relevant services and support.

Task force re-focused

As agreed in the terms of reference approved in 2011, and which took effect on 1 January 2012, TF-Media redefined itself as the ‘Task Force on Applied Media in Teaching and Learning’. This name-change reflected a shift in focus from multimedia tools to applied media solutions for the advancement of e-education.

Pilot Open Educational Resource portal

Under the new terms of reference, and following an initial proposal by IUCC in February, TF-Media developed a pilot European-level Open Educational Resource (OER) portal. The portal is intended to address the gap between institutional / national- and global-level repositories of audio-visual ‘learning objects’. The core team of OER consists of IUCC and Tel Aviv University (Israel), FCCN and the Polytechnic of Porto School of Engineering (Portugal), GRNET, and the University of Vigo (Spain). Other NRENs (national research and education networking organisations) and universities also expressed interest in joining the pilot.

Two potential software suites were identified to implement the metadata aggregation portal engine of OER: IUCC’s MAOR (Meta-data and Object Repository) and the ARIADNE Foundation’s ARIADNE toolset. In October, owners and operators of educational multimedia content repositories were invited to share their metadata to test these options. Around this time, repository owners were also surveyed to determine the minimum set of metadata required to share material through the pilot OER portal. Thanks to the liaison between TF-Media and the European University Information System Organisation (EUNIS), the survey

TF-Media

Chair: Andy Zbinden (SWITCH) (until June)
Zenon Mousmoulas (GRNET) (since June)

Meetings
16-17 February, hosted by CARNet in Dubrovnik, Croatia
18 June, remotely hosted by Cisco, using WebEx
25 June, remotely hosted by University of Vigo, using AdobeConnect
3 December, remotely hosted by University of Vigo, using AdobeConnect
was distributed to the EUNIS e-Learning Task Force. The survey results will be completed in 2013. The agreement on the final prototype will also be made in 2013.

**Comparing recording systems**

In its continued efforts to support the development and enhancement of lecture recording within the research and education community, TF-Media organised a recording session during the TERENA Conference. A report describing the seven portable streaming/recording systems used in the session and comparing their capabilities and features was published in November.

**Global growth of service supporting real-time communications**

In 2012, the TERENA-coordinated NRENNum.net service became global, with RNP (Brazil) joining in March as the first non-European participant, followed by NNOVA|RED (Argentina), AARnet (Australia) and Internet2 (North America). Consequently, changes were made to the service policy to accommodate for this new global environment. In Europe, PSNC and Janet also joined, bringing the total number of participants to 19.

NRENNum.net became increasingly recognised as a viable solution for seamless dialling interconnection between multiple technologies, whether or not the standard ‘Golden ENUM Tree’, using ENUM (E.164 Number Mapping), is available. A DNS (Domain Name System) crawler application, implemented in 2012, recorded that 148,637 ENUM numbers were delegated to NRENNum.net by the end of the year.

In November, a working group was launched to pilot the use of NRENNum.net to facilitate ENUM-based seamless dialling in the eduCONF service, and to determine the mutual policy agreements and technical developments required for this. The working group is jointly coordinated by NRENNum.net and the eduCONF service - a GN3 project task that supports the use and adoption of videoconferencing at the pan-European level, across the NREN community.

**Preparations for performing arts production workshop**

In 2012, work to organise the fourth European network performing arts production workshop continued. This event would be hosted by the University of Music and Performing Arts Vienna (mdw) in March 2013 in Vienna. As with the previous European workshops of this series, TERENA and Internet2 will coordinate the event, with technical expertise provided by GARR and additional technical support provided by ACOnet, CESCA and mdw.
Contributing to digital cultural heritage

In October, the FP7 project Digital Cultural Heritage Roadmap for Preservation (DCH-RP), to develop a roadmap for the implementation of a preservation federated e-infrastructure for digital cultural heritage, was launched. TERENA’s main task in the project, which runs until October 2014, is to produce a set of recommendations for suitable user authentication and access control system(s).

<table>
<thead>
<tr>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.terena.org/tf-media">www.terena.org/tf-media</a></td>
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<td>OER - goo.gl/EHrsy</td>
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<tr>
<td><a href="http://www.eunis.org">www.eunis.org</a></td>
</tr>
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<td><a href="http://www.terena.org/tf-media/rc/rc.html">www.terena.org/tf-media/rc/rc.html</a></td>
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<td><a href="http://nrenum.net">http://nrenum.net</a></td>
</tr>
<tr>
<td><a href="http://www.terena.org/activities/network-arts/vienna/">www.terena.org/activities/network-arts/vienna/</a></td>
</tr>
<tr>
<td><a href="http://www.dch-rp.eu">http://www.dch-rp.eu</a></td>
</tr>
</tbody>
</table>
Network Architecture and Operations

TERENA provided a new forum for network architects to collaborate and share expertise, and supported the on-going exchange of experience between network operating centres through TF-NOC.

Task force flash-talks and tools

A valuable achievement of the Task Force on Network Operation Centres (TF-NOC) in 2012 was the creation of a mash-up web page, where slides and videos of flash-talks were incorporated into a map linking to YouTube. These talks briefly introduce the NOCs of task force participants. New talks recorded in 2012 were pulled together with recordings made in previous years for this new overview of European NOCs. In addition, this year’s meetings also saw EGI.eu (European Grid Infrastructure) present its Grid operations and DANTE provide a summary of NOC visits made by its staff.

In June, a tools workshop was organised for the second time and the lead developers of two popular open-source monitoring tools – Icinga and Cacti – were invited to present their features. In follow-up discussion, the task force selected plugins and scripts that help NOC staff in their daily work and uploaded information and links about them in the online Script Library that had been created in 2011.

In December, the results of a survey were published, about the taxonomy and the software tools used by NOCs. Task force participants considered these extremely relevant to their daily operations. The report recommends the implementation of standards-based operational procedures and methodology to improve performance and facilitate communications among NOCs in the community.

By facilitating open communication and knowledge exchange among NOCs, several actions in TF-NOC’s terms of reference were accomplished. With these terms due to end in 2013, TF-NOC agreed that collaboration should continue, although not necessarily through a task force.

TF-NOC
Chair: Stefan Liström (NORDUnet)

Meetings
15-16 February, hosted by CARNet in Dubrovnik, Croatia
5-6 June, hosted by HEAnet in Dublin, Ireland
12-13 December, hosted by PSNC in Poznan, Poland

Contributors to TF-NOC Survey Report
Maria Isabel Gandía Carriedo (CESCA)
Stefan Liström (NORDUnet)
Suzy Limberg (Sentry)
Pavle Vuletić (ARNES)
Péter Szegedi (TERENA)
New workshop for network architects

Network designers and deployers shared their experiences and recommendations in building next-generation research and education networks during TERENA’s first network architects workshop in November. This event built on the series of end-to-end provisioning workshops that TERENA had organised from 2008-2010, and was based on a request from the 2011 TAC meeting for TERENA to organise an event for research and education network engineers to discuss and compare tools and technologies for future networks. Participants recommended that further workshops should be organised in future. Hosted in Copenhagen by NORDUnet, the event was held back-to-back with a workshop organised by the GN3 project’s Joint Research Activity on future network technologies.

Links

- [www.terena.org/tf-noc](http://www.terena.org/tf-noc)
- [www.terena.org/tf-noc/nocs.html](http://www.terena.org/tf-noc/nocs.html)
- [www.egi.eu](http://www.egi.eu)
- [Script library - goo.gl/z3PGP](http://www.terena.org/tf-noc/survey.html)
- [www.terena.org/activities/netarch](http://www.terena.org/activities/netarch)
- [www.terena.org/e2e](http://www.terena.org/e2e)
Storage and Clouds

The interest in cloud services that was manifested across a range of TERENA activities in recent years came to fruition in 2012 through the ASPIRE study, a new pilot service, and other developments. The storage task force, TF-Storage, that had contributed to community engagement in cloud matters succeeded in renewing its terms of reference.

Clouds gaining prominence

The ASPIRE (A Study on the Prospects of the Internet for Research and Education) report on ‘The Adoption of Cloud Services’, published in September, highlighted the need for NRENs (national research and education networking organisations) to collaborate and become leaders in the fields of cloud brokering and cloud middleware infrastructures. These recommendations will be taken up by the community in the GN3plus project’s work on clouds, starting in April 2013.

Within TERENA, discussions around cloud services have taken place in various groups in recent years: in 2012, a single access area was created on the TERENA website, providing links to all relevant materials. As part of the discussions, originating specifically from a focus on cloud storage within TF-Storage, TERENA took action in the area of clouds and the adoption of cloud services by NRENs with the development of a pilot activity for NRENs to experiment and gain experience with clouds and applications. The Trusted Cloud Drive pilot was launched in April 2012.

Trusted Cloud Drive pilot

A personal data storage service that NRENs can offer their academic and research communities is the ultimate goal of the Trusted Cloud Drive. In phase I of the pilot, a cloud broker platform was installed at the TERENA Secretariat and connected to a limited-storage back-end offered by TERENA. This platform was built upon an existing federated software platform, the ‘cloud broker facility’, that had been developed in 2010 in the NEON project. The platform was connected to national access federations and guest identity providers such as Google, Facebook, and Twitter. An update on phase I and a demonstration of the platform’s features were presented during the TERENA Conference in May. The first national adaptation of the service platform was established in early September by PSNC. In October, source codes, pre-installation images, and detailed documentation were made available to download via the TERENA wiki.

FileSender

FileSender is web-based software that makes the transfer of large files easy and uses SimpleSAMLphp to allow for a wide variety of federated authentication methods. It was an initiative of AARNet, HEAnet, SURFnet, and UNINETT, which provide sustained funding, staff, and resources. FileSender was originally inspired by discussions in TF-Storage and used the task force as one of its fora for building a funding, developer, and user community.

In 2012, the footprint of FileSender in the higher research and education community increased significantly, with the number of known sites growing by 100% to 26 – 12 of which are in Europe. Internet2 covered most of North America with its production service, and through TERENA’s liaison with the ELCIRA project, the prospects for a Latin-American service were looking promising. A FileSender fundraiser during an open discussion session at the TNC resulted in significant contributions by ARNES, CESNET, CSC/FUNET, the Hebrew University of Jerusalem, and UNiC.
In phase II, NRENs and other institutes joined the pilot, tested the usability of the software, and validated the potential of the service. Belnet, CESNET, Srce/CARNet, CESCA, FCCN, GRNET, PSNC, and RNP (Brazil) participated in this phase, and commercial companies approached TERENA to learn more about the pilot.

Throughout the pilot, TF-Storage was consulted and liaised with TF-MSP, which provided feedback on the business side of NRENs offering clouds or cloud brokerage services. This liaison was also meant to inform NREN service managers about the progress made. An evaluation report to provide recommendations will be provided upon the completion of phase II in April 2013.

**TF-Storage new terms of reference**

The terms of reference of TF-Storage were renewed in March for a two-year period. Under these new terms, the role and responsibilities of task force chair was divided between two co-chairs. As in previous years, commercial companies were invited to present their technology and service offerings at task force meetings: Cisco Systems, IBM, Joyent, and SpiderOak, among others. This platform to exchange information between commercial providers and the community is a feature unique to TF-Storage and is highly valued by the task force participants.

**TF-Storage**

Chair: Maciej Brzeźniak (PSNC) (until March)
Co-Chairs: Maciej Brzeźniak (PSNC) and Peter Stefan (NIIF) (since March)

**Meetings**

- 20-21 February, hosted by ARNES in Ljubljana, Slovenia
- 26-27 September, hosted by CARNet in Dubrovnik, Croatia
- TF-Storage - Joyent meeting 20 November, online

**Links**

- The Adoption of Cloud Service: goo.gl/jHM3L
- www.terena.org/tf-storage
- Trusted Cloud Drive - goo.gl/nxnLP
- TERENA wiki - goo.gl/uFWts
- www.filesender.org
Financial Statements

**Balance Sheet as of 31 December 2012 (in €)**

(After appropriation of the result)

<table>
<thead>
<tr>
<th></th>
<th>31 December 2012</th>
<th>31 December 2011</th>
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<tbody>
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<td><strong>Assets</strong></td>
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<td><strong>Fixed Assets</strong></td>
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<td><strong>Tangible Fixed Assets</strong></td>
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<td>Computer equipment</td>
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<td>Other fixed assets</td>
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<td></td>
<td><strong>63,816</strong></td>
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<td><strong>Current Assets</strong></td>
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<td>Accounts Receivable</td>
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<td>Cash at Bank and on hand</td>
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<td>2,917,006</td>
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<td></td>
<td><strong>3,458,585</strong></td>
<td><strong>3,411,922</strong></td>
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<tr>
<td><strong>Liabilities</strong></td>
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</tr>
<tr>
<td><strong>Equity</strong></td>
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<td>General Reserves</td>
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<td><strong>Current Liabilities</strong></td>
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<td>Creditors</td>
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<td>Taxes and social premiums</td>
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<td>Deferred income TERENA projects</td>
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<tr>
<td>Pre-issued invoices</td>
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<td>Other payables and deferred income</td>
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<td></td>
<td><strong>3,458,585</strong></td>
<td><strong>3,411,922</strong></td>
</tr>
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</table>
### Statement of Income and Expenditure, 2012 (in €)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>Budget 2012</th>
<th>2011</th>
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</thead>
<tbody>
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<td><strong>Income</strong></td>
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<td></td>
<td></td>
</tr>
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<td>Membership fees</td>
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<td>Earmarked contributions</td>
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<td>1,817,000</td>
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<td>Interest</td>
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<tr>
<td>Late payment charges</td>
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<td>2,194</td>
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<tr>
<td>Other income</td>
<td>5,964</td>
<td>1,000</td>
<td>1,316</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
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<td>2,938,000</td>
<td>2,979,864</td>
</tr>
<tr>
<td><strong>Expenditure</strong></td>
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<td></td>
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<tr>
<td>Personnel costs</td>
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<td>Other administrative costs</td>
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<td>Travel/meetings</td>
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<td>315,549</td>
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<td>Minor projects funding</td>
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<td>Membership subscriptions</td>
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<td>3,656</td>
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<td>Contracted services</td>
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<td>637,986</td>
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<tr>
<td>Financial expenses</td>
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<td>20,896</td>
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<tr>
<td>Bad debts written off</td>
<td>0</td>
<td>0</td>
<td>2,884</td>
</tr>
<tr>
<td>Project results from earlier years</td>
<td>12,547</td>
<td>7,000</td>
<td>-2,991</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>3,147,557</td>
<td>2,974,000</td>
<td>2,909,640</td>
</tr>
<tr>
<td><strong>Result</strong></td>
<td>90,452</td>
<td>-36,000</td>
<td>70,224</td>
</tr>
<tr>
<td><strong>Destination of the result</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General reserves</td>
<td>90,452</td>
<td>-36,000</td>
<td>70,224</td>
</tr>
</tbody>
</table>
TERENA Staff in 2012

Karel Vietsch  
Secretary General

Valentino Cavalli  
Acting Secretary General

Bert van Pinxteren  
Chief Administrative Officer

John Dyer  
Business and Technology Strategist

Kevin Meynell  
Project Development Officer

Licia Florio  
Project Development Officer

Péter Szegedi  
Project Development Officer

Brook Schofield  
Project Development Officer
TERENA Staff
in 2012

Wilma Overdevest
Financial Administrator

Mirko Ampt
Assistant Bookkeeper

Christian Gijtenbeek
Senior Software Engineer

Dick Visser
Senior System Engineer

Jim Buddin
Workshop Organiser

Gyöngyi Horváth
Conference and Workshop Organiser

Nadia Sluer
Project Management Assistant
(from 1 May)

Magda Haver
Project Management Assistant
TERENA Staff in 2012

Hanna Cherigui
Secretary

Laura Durnford
Senior Communications Officer

Marc van der Holst
Data analyst
(from 1 May until 14 November)

Cora Van den Bossche
Communications Officer
(since 1 November)

Anthony Hodge
Communications Officer
(until 30 September)