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## Deliverable DN7.0.4,3: CD-ROM or Website Presentation of the TERENA Networking Conference 2007 (TNC2007) Papers and Presentations



### Deliverable DN7.0.4,3

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### Abstract

This deliverable makes the presentations of the TERENA Networking Conference 2007 available, including, but not limited to, any presentations and papers at the GN2 workshop and exhibition/demonstration.

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## 0 Executive Summary

The GN2 project organises an annual event in conjunction with the TERENA Networking Conference. These conferences serve as a focus for the exchange of information between research and education networking organisations in Europe and in the world-wide research networking community, making them, and the Internet community at large, aware of relevant developments. The TERENA Networking Conferences are prominent annual events, offering an opportunity to present and discuss technical and strategic aspects of the provision of networks and services to the research and education community, and the corresponding research and development activities. They bring together leading people from the research and education networking community in Europe and world-wide, and provide a unique opportunity to learn about the latest developments and plans. The TERENA Networking Conferences are one of the major events at which the GN2 project is demonstrated. In particular, every year there is a specific GN2 workshop as part of the overall programme of the conference, and the GN2 project also presents itself in the exhibition/demonstration area of the conference.

The TERENA Networking Conference 2007 took place in Lyngby, Denmark on 21-24 May 2007. This Deliverable makes the presentations and papers from that conference available, including, but not limited to, any papers and presentations at the GN2 workshop and exhibition/demonstration. The papers and presentations from the entire conference are available at the conference website (<http://tnc2007.terena.org/programme.php>), which also includes the complete programme, slide presentations, speaker information, the video archive of the live stream and a photo gallery. The same information, specifically about the GN2 workshop at the conference, is also available on a CD-ROM. A copy of that CD-ROM is attached to printed copies of this report.

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# 1 TERENA Networking Conference 2007 (TNC2007) and website

The TERENA Networking Conference 2007 took place in Lyngby, Denmark on 21-24 May 2007. The papers and presentations from the entire conference are available at the conference website (<http://tnc2007.terena.org/programme.php>), which also includes the complete programme, slide presentations, speaker information, the video archive of the live stream and a photo gallery.

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"Services to users" was the mainstream at this year's TERENA Networking Conference, going with the flow of the chosen theme "Visible Services, Transparent Networks".

The TERENA Networking Conference 2007 attracted more than 470 participants. The event was hosted by the Danish national research and education networking organisation UNI-C and took place on the campus of the Technical University of Denmark in Lyngby, north of Copenhagen. The conference programme was composed of four parallel tracks of presentations by invited speakers, complemented by presentations of selected papers. Each day, there was a plenary session in which prominent experts delivered keynote presentations introducing topics that were discussed further in parallel sessions.

The event was officially opened by Inge Mærkedahl, Director General of the Danish Agency for Science, Technology and Innovation. She emphasised the human touch that is needed to achieve fundamental steps, which originate from the ability to think innovatively.

The opening keynote speaker works at the limits in her field, biological oceanography. Professor Katherine Richardson of the University of Copenhagen also proved to be a very satisfied user of network services. She

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described how cutting-edge research was made possible during an eight-month around-the-world expedition. Vast amounts of data from 71 projects were collected, transmitted and analysed, facilitated by Forskningsnettet, the research network run by UNI•C. With this information, Katherine Richardson and her colleagues are piecing together how global interactions between the atmosphere, oceans and marine organisms could relate to climate change. Without the data and network systems we have today, such complex research projects simply would not be possible, she said.

In a follow-up session on networks for e-science, Martin Bech of UNI•C explained how his organisation had provided the expedition with satellite-linked services, with support 24 hours a day, seven days a week. He also described how school children in Denmark had been able to follow the expedition 'live' on a daily basis, with a national content portal provided for schools.

Other plenary speakers included Jun Murai of Keio University in Japan, who is the leader of the famous WIDE (Widely Integrated Distributed Environment) project. He highlighted the spectacular development of Internet use in Japan and also discussed pan-Asian developments. Although recent land-speed records demonstrate the enormous progress being made in connectivity around the world, latency is a real problem. This can only be ameliorated if the loop of international networks is completed, he argued. A map of global Internet topography should show a complete circle, and Japan should not remain the 'Far West'.

Kevin Almeroth from the University of California at Santa Barbara assessed in his plenary presentation the status of multicast. While the popular perception is that multicast was a failure, he pointed out that it is being used effectively in enterprise and company networks, campus networks and in the military. Current developments will make it a very relevant application for research networks and their users.

Mobile computing was the focus of keynote speaker Otthein Herzog of the University of Bremen in Germany. He identified it as a key technology for the 21st century and shared his experiences of researching and demonstrating advanced services, with wearable computing pilot projects currently under way to assist fire fighters, medical staff and engineers.

In her keynote talk, Claudia Natanson of Diageo discussed how security should be a visible benefit and not just an overhead. Awareness of security issues was relatively high at the conference, reflecting a general trend in the world at large, with the subject cropping up in a wide variety of discussions.

In a session on Protecting Users, Christoph Graf of the Swiss national research and education networking organisation SWITCH explained that progress was being made in the co-operative approach to securing the GÉANT2 network. Colleen Shannon of CAIDA (Cooperative Association for Internet Data Analysis) spoke in sessions on monitoring and on protecting infrastructure. She described how her institute has witnessed a change in emphasis from the vandalism of 'script kiddies' to more professionally orchestrated organised crime.

A panel session on campus issues also rapidly shifted focus from performance to security, with two themes emerging: availability of services, and management - rather than prevention - of risk. Making services available and friendly to guest users was also a concern, tied up with the question whether possible attacks are more likely to come from within or from outside the campus circle of users. Another challenge is the need for appropriate policies in order to have a well-functioning network, an issue that also arose in other presentations, for example, on eduroam®.

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In a packed final plenary session, Max Ibel of Google Switzerland explained the company's file system, highlighting a topic of growing interest to research networks – storage. Make it simple so you can keep it simple, was his core message.

Each day's plenary lectures set the scene for the ensuing sessions. Of the 106 presentations given during 32 sessions, those on security, identity management, campus networks, optical networking, and mobility and roaming drew the largest audiences.

Workshops and birds-of-a-feather sessions, together with TERENA business meetings, made up a sizeable set of activities in addition to the conference programme.

A birds-of-a-feather session organised by staff from the British national research and education networking organisation UKERNA revealed that prototype 'dating agency' services to foster collaboration between educators are under development in several countries, and meeting participants evaluated how these services can be made to interconnect compatibly. Other birds-of-a-feather sessions examined optical and transport technologies, development of services of national research and education networking organisations, and views on the next-generation research network infrastructure for 2010 and beyond.

A technical workshop, 'Using Authentication and Authorisation Techniques in Multiple Environments', explored how to use authentication and authorisation for different applications such as eduroam®, bandwidth on demand and videoconferencing. One of the results of the workshop was that the TERENA Task Forces on Enhanced Communication Services (TF-ECS) and on European Middleware Co-ordination and Collaboration (TF-EMC2) agreed to meet again in September to continue discussions on the scenarios presented during the TERENA Networking Conference.

Other workshops related to the SEEREN2, GN2 and MUPBED projects. Like last year, the GN2 project was presented in a "distributed workshop" with twelve presentations on many of the current activities and achievements included in the appropriate topic sessions.

A special training workshop provided an opportunity to get 'hands-on' experience with SIP (Session Initiation Protocol) technologies. Fifteen videoconference administrators from national research and education networking organisations took part in this, gaining practical experience with a range of current technologies for running voice and video services.

Audiovisual coverage of the conference itself was available, with live streaming of all the presentations provided by UNI•C. For the first time, with co-operation from TERENA, these materials were made available via the online conference programme within 24 hours – a new feature which proved very popular. Almost 600 people used this service, with an average of 70 viewers at any one time.

Conference participants were pleased with the excellent wireless connectivity provided at the venue, this year for the first time offering eduroam®. Around a quarter of the conference participants used this facility.

The exhibition area at the conference was particularly well filled and frequented, with almost 25 posters on display, demonstrations of projects and technologies, and more than ten stands where networkers could mingle and meet, among others, some of the sponsors of the event. Generous sponsorship for the conference was

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provided by Cisco Systems, Ciena, Juniper Networks, Global Crossing, Alcatel-Lucent, GlobalSign, Extreme Networks, Level 3 Communications, Google, Sun Microsystems, ADVA Optical Networking, Nortel, Force10 Networks, Arkena A/S, the Technical University of Denmark and UNI•C.

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## 2 GN2 workshop at TNC2007

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In consultation with the European Commission services it was decided that, like in previous years, the GN2 workshop at the TERENA Networking Conference 2007 would not take the form of separate sessions; instead, the GN2 presentations were included in the appropriate topic-oriented parallel sessions throughout the conference programme.

The list of presentations was as follows:

1. edugain: Policy Issues, Underlying Technology of edugain - Diego López, RedIRIS, Spain
2. The Metadata Service: Distributing Trust in AAI Confederations - Manuela Stanica, DFN, Germany
3. Deploying Authorisation Mechanisms for Federated Services in eduroam® (DAMe) - Antonio F. Gomez-Skarmeta, University of Madrid, Spain
4. AMPS & ANStool: Interoperability of Automated Tools for the Provisioning of QoS Services - Vangelis Haniotakis, GRNET/UoC, Greece
5. The Security Model of GÉANT2: a Co-operative Approach - Christoph Graf, SWITCH, Switzerland
6. Implementing Multi-Domain Monitoring Services for European Research Networks - Szymon Trocha, Poznań Supercomputing and Networking Center, Poland

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7. Extending the IPFIX Protocol for Better QoS Monitoring - Olav Kvittem, UNINETT, Norway
8. Stitching of Technology Domains in GN2-JRA3 - Victor Reijs, HEAnet, Ireland
9. Using Temporal Locality for a Better Design of Flow-Oriented Applications - Martin Zadnik, CESNET, Czech Republic
10. Design and Implementation of an Anomaly Detection System for the GÉANT2 Network: a Statistical Approach - Janos Mohacsi, HUNGARNET, Hungary
11. A Bandwidth-on-Demand System Case Study Based on GN2 Project Experiences - Radek Krzywania, Poznań Supercomputing and Networking Center, Poland
12. Crashing Spacecraft and Crossing Continents: Summary of a Network Performance Investigation - Pekka Savola, CSI, Finland

The following information is provided on the CD-ROM:

- GÉANT2 presentations. Abstracts of the presentations, final papers (optional), slide presentations, and links to profiles of the speakers for the twelve GN2 presentations.
- Conference programme. The GN2 presentations were tagged with a GÉANT2 logo in the printed conference programme.
- Conference schedule. The GN2 presentations were also indicated by a GÉANT2 logo in the pocket-sized folding schedule.
- Conference website. In the conference programme on the TERENA website, the GN2 presentations were indicated by a GÉANT2 logo before the presentation title and also included a GÉANT2 logo on the individual presentation pages.
- TNC 2007 Programme Committee. Ruth Kirkman and later Dale Robertson from DANTE were members of the conference TNC 2007 Programme Committee with special responsibility for the GN2 presentations in the programme. Ruth Kirkman took an active role in the planning of the programme, inviting speakers and reviewing papers up until the end of March, and Dale Robertson participated in the conference events as well as chairing a session.
- Poster presentations. DANTE submitted two posters about GN2 activities for the poster exhibition at the conference. These were prominently displayed in the poster exhibition area during the conference and members of the DANTE staff were available on Tuesday and Wednesday during the afternoon coffee break to answer questions.
- Published papers. Selected papers from the conference will be published in the autumn of 2007 in special editions of two Emerald Publishing Group journals: 'Campus-Wide Information Systems' and 'Internet Research'.

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### 3 Conclusions

The TERENA Networking Conference 2007 was a very successful event. The same holds for the "distributed" GN2 workshop at the conference. The GN2 presentations and the project's presence in the exhibition area have succeeded in achieving the objective of spreading information about the project and its various activities, and of raising interest with target communities.

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## 4 Acronyms

<b>AAI</b>	Authentication and Authorisation Infrastructure
<b>CAIDA</b>	Cooperative Association for Internet Data Analysis
<b>DAMe</b>	Deploying Authorisation Mechanisms for Federated Services in the eduroam® Architecture
<b>eduGAIN</b>	Education GÉANT Authorisation Infrastructure
<b>eduroam®</b>	Education Roaming <sup>1</sup>
<b>GÉANT</b>	Gigabit European Academic Network Technology
<b>GN2</b>	Multi-Gigabit European Academic Network
<b>IP</b>	Internet Protocol
<b>IPFIX</b>	IP Flow Information Export
<b>JRA</b>	Joint Research Activity
<b>MUPBED</b>	Multi-Partner European Testbeds for Research Networking
<b>QoS</b>	Quality of Service
<b>SEEREN2</b>	South-Eastern European Research & Education Network
<b>SIP</b>	Session Initiation Protocol
<b>TERENA</b>	Trans-European Research and Education Networking Association
<b>TF-ECS</b>	Task Force on Enhanced Communication Services
<b>TF-EMC2</b>	Task Force on European Middleware Co-ordination and Collaboration
<b>TNC</b>	TERENA Networking Conference
<b>WIDE</b>	Widely Integrated Distributed Environment

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<sup>1</sup> eduroam® is a registered trademark of TERENA

## Appendix A **CD-ROM "GÉANT2 Workshop at TNC2007"**

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