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Deliverable DN7.0.2,1: CD-ROM or website presentation of the TERENA Networking Conference 2005 (TNC2005) papers and presentations



Deliverable DN7.0.2,1

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Abstract

This deliverable makes the presentations of the TERENA Networking Conference 2005 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 at least three major events per year at which the GN2 project is demonstrated. In particular, every year there will be a specific GN2 workshop as part of the overall programme of the conference, and the GN2 project will also present itself in the exhibition/demonstration area of the conference.

The TERENA Networking Conference 2005 took place in Poznań, Poland on 6-9 June 2005. 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://www.terena.nl/conferences/tnc2005/>), 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 2005 (TNC2005) and website

The TERENA Networking Conference 2005 took place in Poznań, Poland on 6-9 June 2005. The papers and presentations from the entire conference are available at the conference website (<http://www.terena.nl/conferences/tnc2005/>), which also includes the complete programme, slide presentations, speaker information, the video archive of the live stream and a photo gallery.

The GN2 project organises an annual event in conjunction with each 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.

A preliminary assessment of the evaluation forms of the TERENA Networking Conference 2005 clearly indicates that the conference was rated by participants as the best ever TERENA conference - in particular, in the most important aspect, the conference programme.

It was certainly the biggest. The actual conference programme began on Monday afternoon, 6 June and ended on Thursday noon 9 June with over 130 presentations in five parallel sessions for participants to choose from, and with six prominent keynote speakers to open on Monday, Tuesday and Wednesday and, finally, to close the conference on Thursday. With approximately 480 participants, there was a record crowd of over 520 in the building during the days of the conference.

Events, workshops and meetings planned in conjunction with the conference started as early as Saturday, with the annual meeting of the CCIRN (Co-ordinating Committee for Intercontinental Research Networking) and a TF-PR hands-on workshop on usability testing of websites. The TERENA Task Forces TF-PR, TF-Mobility and TF-EMC2 held meetings on Sunday, along with a workshop on Voice over IP, organised by the TERENA Task Force TF-VVC and well-attended by over 80 participants. An unprecedented number of other meetings and

workshops were held in the evenings, on Monday morning, on Thursday afternoon and continuing on through Friday.

Conference participants were welcomed by the Mayor of Poznań, Ryszard Grobelny, and by Grzegorz Zbikowski on behalf of the Minister of Science and Information Technologies.

The keynote speaker in the opening plenary session, Ed Seidel of Louisiana State University, challenged the network community to build the networks that scientists want to have. These networks would not only be bigger and faster, but pervasive; available anywhere, at any time and offering a large new range of applications. But they must also be simple, with easy-to-use toolkits and end-to-end quality of service, so that they can connect even to Grids and high-speed optical networks as if "connected with a wire". This transforming technology would enable scientists to work in large collaborative environments and to do work they could not do before, with complex applications using vast amounts data, such as those required to produce complicated simulations. And scientists would eventually like these applications to be developed into on-demand services, like the "black hole finder" and tools for earthquake predication.

In his keynote address, Dai Davies of DANTE described the new GÉANT2 European backbone network, which will be rolled out between mid 2005 and mid 2006, the most visible result of the EU-sponsored GN2 project that will strive to provide European research and education with just the sort of backbone network and services as on Ed Seidel's wish-list. Many of the applications and services under development were presented in fourteen additional GN2 presentations, included in the appropriate topic sessions throughout the conference. This distributed form of the workshop encouraged a broad range of conference participants to learn about the activities of the project.

Grids will play an increasingly important role in facilitating the large applications that scientists and researchers want, and four sessions were devoted to advances in Grid technology, Grid access and the administration of Grids. Optical networks are also poised to play a key role in delivering network facilities on the scale required for big, distributed scientific collaborations and advanced e-Science applications, and two conference sessions heard presentations on advances in new transmission and switching technologies, the VIOLA test bed for advanced networks services, the development of optical fibre itself as well as on projected timeframes for deployment.

Two EU-funded projects, MOME and LOBSTER, held workshops in the form of a dedicated stream throughout one whole day, including presentations and panel discussions on network monitoring; two further sessions were devoted to network performance. The bigger, faster networks create new opportunities in many fields such as real-time streaming, conferencing and multicast, and the challenges were addressed in two sessions on the new technology and organisation required. Middleware becomes an even more vital element to paste it all together and two sessions were devoted to technology and applications to deliver all of these services to the user in a pervasive way. The often neglected third A of middleware AAA (Authentication, Authorisation and Accounting) was also addressed.

Mobility was the subject of three popular sessions at the conference including talks on future directions, on academic roaming with EduRoam and Edupass and on the deployment and management of large-scale wireless networks.

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Bob Cowles of the Stanford Linear Accelerator Center lectures worldwide on computer security. In his keynote talk, he warned that security is an ongoing struggle: your computer cannot ever be secure, only more secure. The hackers and attackers are getting smarter and the frequency and scope of attacks is increasing (fake service providers, phishing, pharming, spyware, Google-hacking, backdoor key logging, etc.). Co-ordinated international efforts, a global approach to information sharing and some practical research are required to protect the networks, which now offer the hackers even more vulnerabilities than before because of increased mobility and wireless networks, Bluetooth, insecure protocols, new VoIP services, large collaborative environments and Grids, to name a few.

Two sessions on security reinforced the messages from the keynote talk. Pervasive core security is now required, as the hackers are not just attacking the servers but also the network devices and the whole Internet. The GN2 project is assisting the national research and education networks to provide the security services they need to meet these threats.

Bob Kvavik of the University of Minnesota spoke for the network administrators, explaining the current state of practice and expectations for the (very near) future. At present, results from his survey of a selection of universities in Canada and the United States indicate that 80% of a university network is used for administrative activities and only 20% for academic and research purposes. The new networks coming on line are expected to be used 80% for academic and research activities and will change the way research is done, empowering researchers to do things they never dreamt of. The challenge for network administrators will be to provide, organise and manage the new services that the users require.

Consequently, user issues are becoming more important for the national research and education networks. With the launch of the new GÉANT2 backbone network as well as the availability of Grids and optical networks, bigger, faster networks and an explosion of new applications mean that the NRENs need to manage the services they offer and to communicate with the institutions, scientists and researchers, students, government and funding bodies, other stakeholders and the world at large. Three sessions at the conference were dedicated to the subjects of broadening the research network user community, reaching the users and managing the products and services offered.

Sessions on new global connectivity and networking in other world regions provided participants with an international look at initiatives like GLIF (the Global Lambda Integrated Facility) and GLORIAD, which will build a network ring for advanced applications in the northern hemisphere. Shigeki Goto, chairman of APAN, outlined the work being done in the Asia-Pacific region to provide data-intensive scientific applications for a broad range of research areas, including applications to support collaborations of many researchers in joint research projects such as tsunami prediction. Special attention was paid this year to networking in Eastern Europe, including a panel discussion on future developments in the countries in the region.

Jochen Schiller of the Free University Berlin gave a fascinating keynote talk on (ad hoc, multi-hop) sensor networks, their uses, the technology involved and future requirements. Production sensor networks are already in use in such areas as monitoring environmental changes for agriculture and for nature studies, the safety of firemen and disaster relief personnel, the temperature loss of buildings, and water temperature and movement. Future research is needed to make the networks self-healing, and also on routing and management issues, on the use of energy, data transfer and on new applications and tools.

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In the closing plenary session, Kevin Warwick of the University of Reading challenged his audience with some ideas that seemed to be almost science-fiction, but will, in reality be influencing our lives in the near future. His research into connecting the human brain to computers and sending the neuro-signals over the Internet will offer the possibility of giving people new senses such as infrared vision, ultrasound hearing or the ability to calculate as fast and as accurately as a mainframe computer. It opens up the possibilities for soldiers to fight a war while not actually being on the battlefield or men to explore space without physically leaving earth. It can also guide rats to find and disable bombs. At present, electronic drugs or medicines are being developed as well as wheelchairs and prosthetic arms and legs that can be operated by the person's thoughts.

The conference programme committee, under the experienced leadership of Olivier Martin of CERN was composed of a hard-working group of European and international experts in their fields.

Selected papers from the conference will be published in a special edition of Computational Methods and as a Web publication in the library of the TERENA Website.

The social events in Poznań were planned to provide lots of opportunities for discussion and for the 'other kind of networking' so essential to a TERENA conference. The new, state-of-the-art Congress Centre of the Technical University of Poznań provided generous facilities and further opportunities to talk with colleagues, meet old friends and make new ones. Many considered this to be the most important and enjoyable activity of the conference.

The conference was organised by TERENA and hosted by the Poznań Supercomputing and Networking Centre (PSCN), operators of the Polish Research and Education Network, PIONIER, with local support from IKANOR. The following companies and organisations provided generous sponsorship: ALMA and Cisco Systems, who were the main sponsors and also sponsored the gala evening, Juniper Networks, IBM, ADVA, ATM, COLT, Exatel, Intel, TELE-PERN, TeliaSonera, Nortel, Extreme Networks, Global Crossing, Level3, Sun Microsystems, Glimmerglass, TANDBERG, Ericsson and PSNC. A very well-attended press conference followed the plenary session on Tuesday morning, and the media sponsors who supported the conference are also listed on the "sponsors" page of the conference website.

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2 GN2 workshop at TNC2005

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In consultation with the European Commission it was decided that the GN2 workshop at the TERENA Networking Conference 2005 would not take the form of separate sessions; instead, the GN2 presentations have been included in the appropriate topic-oriented parallel sessions throughout the conference programme. In addition, the GÉANT2 network was the topic of a keynote presentation by Dai Davies of DANTE in one of the plenary sessions of the conference.

The list of presentations was as follows:

1. GÉANT 2: A Very Different Sort of Network - Dai Davies, DANTE
2. NA4 Support for Research and Education Networking in Less-advanced Countries - Valentino Cavalli, TERENA
3. NA4 TERENA Compendium of Research and Education Networks in Europe - Bert van Pinxteren, TERENA
4. The Development of Global Research Networking - Dai Davies, DANTE
5. Towards a Pan-European Bandwidth-on-demand Service - Michael Enrico, DANTE

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6. The Role of Security in NRENs - Christoph Graf, SWITCH, Switzerland
7. Combining RADIUS with Secure DNS for Dynamic Trust Establishment between Domains - Henk Eertink, Telematica Instituut, Netherlands
8. The Performance Enhancement Response Team: Origins and Evolution - Ann Harding, HEAnet, Ireland
9. Towards Multi-domain Monitoring for the European Research Networks - Nicolas Simar, DANTE
10. Segmenting the European Research and Education Networking User Base: Approach and Findings to Date - Dale Robertson and Helga Spitaler, DANTE
11. The Authentication/Authorisation Initiative in GN2: First Steps towards an Integrated Infrastructure - Diego R. López, RedIRIS, Spain
12. Support by GÉANT2 and NRENs for eVLBI in Europe - John Chevers, DANTE
13. Network Operations in a Multi-Domain, Hybrid Environment - Dai Davies, DANTE
14. GN2 Activities and the LOBSTER Project Community - Nicolas Simar, DANTE

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 as well as to the video archive of the live stream for the fourteen GÉANT2 presentations.
- Conference bag leaflet. A leaflet listing the GÉANT2 presentations was included in the conference bag.
- Press briefing sheet. A press briefing sheet about the plenary address, " GÉANT2: A Different Sort of Network" was included in the press pack for the press conference on Tuesday 7 June 2005 immediately following the plenary session. The leaflet was in English and Polish and included both an abstract of the presentation and a short biography of Dai Davies, who was also available after the press conference for personal interviews.
- Conference programme. The GÉANT2 presentations were tagged with a GÉANT2 logo in the printed conference programme.
- Conference schedule. The GÉANT2 presentations were also indicated by a GÉANT2 logo in the pocket size folding schedule
- Conference website. In the conference programme on the TERENA website, the GÉANT2 presentations were indicated by (GN2) before the presentation title and also included a GÉANT2 logo on the individual presentation pages.

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- TNC 2005 Programme Committee. Dale Robertson of DANTE was a member of the TNC 2005 Programme Committee with special responsibility for the GÉANT2 presentations in the programme. She took an active role in the planning of the programme, inviting speakers, reviewing papers, controlling slide presentations and chairing sessions.
- Poster presentations. Simon Watts of DANTE submitted a set of six posters about GÉANT2 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.

In addition, DANTE presented GÉANT2 in a dedicated stand in the exhibition area.

The evaluation forms completed by conference participants rated the GÉANT2 presentations at TNC 2005 very highly, with an average of 3.93 compared to an overall rating of the conference presentations of 3.77. High were "The TERENA Compendium" (Bert van Pinxteren) with 4.27 and "Segmenting the European Research and Education Networking User Base" (Dale Robertson) with a rating of 4.23 (where 5 is excellent and 1 is very poor).

3 Conclusions

The TERENA Networking Conference 2005 was a highly successful event. The same holds for the GN2 workshop at the conference. The GÉANT2 presentations and the project's presence in the exhibition area, in the various printed materials and at the press conference have succeeded in achieving the objective of spreading information about the project and its various activities, and of raising interest with relevant target communities. The decision not to have the workshop in the form of separate sessions but to include the GN2 presentations in the appropriate topic-oriented parallel sessions throughout the conference programme appears to have been a very good one.

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Appendix A **CD-ROM "GÉANT2 Workshop at TNC 2005"**

Attached to printed copies of this report.

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