News

Christoph Sorge, doctoral student at the Institute of Telematics, received the Graduate Prize of the German Foundation for Law and Computer Science (DSRI) in Augsburg on October 7th, 2005 (fig. 1).

http://www.uni-oldenburg.de/presse/mit/2005/359.html
http://www.dsri.de/
07.10.2005, Christoph Sorge sorge@tm.uka.de

New staff member Stefan Stefanov

Stefan Stefanov joins the Telematics team. He will work on the ScaleNet project, moreover in the field of providing QoS and AAA in heterogeneous networks. He graduated as a M.Sc. in Communications Engineering from the RWTH Aachen. He completed a M.Sc. thesis ‘Scalability Analysis of Service Discovery Protocols in Random Ad Hoc Networks’ in DoCoMo Eurolabs.

02.11.2005, Stefan Stefanov stefanov@tm.uka.de

Götz Lichtwald earns PhD

Today Götz Lichtwald (fig. 2) successfully defended his dissertation about FaSRO (Fast Scoped re-Routing for BGP), a new method to stabilize the routing in the Internet. Second examiner was Mrs. Prof. Dr. Dorothea Wagner from the Institute for Algorithmics of our faculty. During the PhD party, a few funny games reminded Mr. Lichtwald of all the embarrassing incidents during his years at the institute. Mr. Lichtwald already left us to fill a job at merlin.zwo InfoDesign here in Karlsruhe starting December 1st. We wish him the best for his professional career as for his private life!

http://www.merlin-zwo.de/
09.12.2005, Mark Doll doll@tm.uka.de

Teaching restructured

This semester the new “Telematik” lecture is held for the first time. Telematik is the basic lecture for students selecting telematics as their major in computer science, covering the most important topics from the physical layer (i.e. coding) up to the application layer (i.e. remote procedure calls). All content overlapping with the compulsory lecture “Kommunikation und Datenhaltung” has been removed and more in-depth information, i.e. about IPv6 or BGP, have been added.
Furthermore, a completely new lecture “Multimedia Kommunikation” complements the old “Next Generation Internet”. The lecture covers the hot topics of the last years in multimedia communication in the Internet, like IP telephony, topics, that now have become fundamental knowledge in the area of internet communication.

http://www.tm.uka.de/itm/teaching.php
24.10.2005, Mark Doll doll@tm.uka.de

Heidelberger Innovationsforum

At the Heidelberger Innovationsforum, the best 44 business ideas of the German IT research were presented. IT developers and IT users were invited to visit the Villa Bosch in Heidelberg at 29th and 30th November to meet research cooperation partners.

Marcus Schöller and Hans-Joachim Hof represented the ITM. Marcus Schöller gave a talk about the usage of programmable networks. Hans-Joachim Hof presented an approach for secure usage and fast adaption of sensor networks.

http://www.heidelberger-innovationsforum.de/
29.11.2005, Hans-Joachim Hof hof@tm.uka.de

Conferences & Workshops

Figure 3  Participants of the 1. Security Workshop of the University of Duisburg-Essen.

Security Workshop

On the 6th and 7th of October the first security workshop “new challenges in network security” (fig. 3) of the Universität Duisburg-Essen was held at the “Lehrstuhl Technik der Rechnernetze” in Essen. The workshop took place in the context of the DFG graduate college “Mathematische und ingenieurwissenschaftliche Methoden für sichere Datenübertragung und Informationsvermittlung” and covered a broad field of research topics in network security including WLAN, RFID and sensor networks, intrusion detection, VoIP and access control. The participating members of the Institute of Telematics gave two talks on the topics security mechanisms in sensor networks (Ingmar Baumgart) and intrusion detection in backbone networks (Thomas Gamer).

07.10.2005, Thomas Gamer gamer@tm.uka.de

Report meeting

All seven project within the research programm “internet economics” met at the “Alte Reithalle” in Stuttgart. The SESAM project demonstrated its prototyp which realizes a virtual energy trading market based on P2P technologies. This prototyp is a joint work of PhDs from the computer science, the economic and the law department.

http://www.internetoekonemie.uni-karlsruhe.de/
21.10.2005, Marcus Schöller marcus.schoeller@tm.uka.de

Workshop SPP1041 Phase II in Rostok

From the 10th to the 11th of november 2005, the annual colloquium of the Schwerpunktprogram (SPP) 1140 (funded by the German Research Foundation, DFG) was held at the conference center in Warnemünde. The extensive agenda comprised numerous presentations about advances in the development of middleware for mobile systems. As a highlight, the colloquium included several demonstrations of fully functional middleware, that was jointly developed by cooperation of different SPP projects.

14.11.2005, Peter Baumung baumung@tm.uka.de

GI-Dagstuhl Research Seminar: Algorithms for Sensor and Ad Hoc Networks

Hand-Joachim Hof and Erik-Oliver Blass joined the GI-Seminar. The goal of the seminar was to elaborate the relevant algorithmic aspects of the field and inspire young—and not yet established—researchers. The young researchers get to know each other and initial points of contact for joint research can be worked out. The participants worked on topics based on selected basic literature, which were presented and discussed during the seminar. The focus was on
the algorithmically interesting aspects. Hans-Joachim Hof held a talk about “Applications of Sensor Networks”. Erik-Oliver Blass talked about “Security in Sensor Networks”.

http://i11www.ira.uka.de/gisa/
23.11.2005, Erik-Oliver Blass blass@tm.uka.de

Bachelor and Master for the IT place Germany

Mrs. Prof. Zitterbart was invited by the Initiative D21 to take part in a panel discussion during the congress “Bachelor und Master für den IT-Standort Deutschland: Chance und Herausforderung für Wirtschaft und Hochschule” (bachelor and master for the IT place Germany: Chance and challenge for economy and academy). She emphasised the importance for universities of a research-oriented master, which in turn has consequences for the bachelor, that has to establish the basics for the master. A substantial education in the fundamentals was regarded very important also by other members of the panel, i.e. Prof. Broy, Technical University of Munich. Lifelong Learning and continuing education during the job benefits from such lasting knowledge.

http://www.initiatived21.de/
28.11.2005, Prof. Dr. Martina Zitterbart zit@tm.uka.de

Seventh Annual International Working Conference on Active and Programmable Networks

Marcus Schöller attended the seventh IWAN workshop in Sophia Antipolis, La Cote d’Azur, France from November 21-23 2005. He presented his work on packet sampling to build an intrusion detection system based on the programmable networking platform Flexinet. He also was a discussion panelist on “The guises of active networking - strategy or destiny?”.

http://www.iwan2005.net/
http://www.tm.uka.de/projects/flexinet/
21.11.2005, Marcus Schöller marcus.schoeller@tm.uka.de

Publications


This memo suggests a new and enhanced route optimization security mechanism for Mobile IPv6. The primary motivation for this new mechanism is the reduction of signaling load and handoff delay. The performance improvement achieved is elimination of all signaling while not moving, and most of the per-movement signaling can be done when payload traffic flow has already been moved.


http://doc.tm.uka.de/2005/scan-ws-essen05.pdf (slides)


Due to the growing importance of Internet connectivity and the increasing pressure of competition, network providers must be able to realize and operate modern Next Generation Networks (NGN) in an economically efficient manner. We present the architecture and function of a Network Control Server (NCS) prototype that has been developed for deployment in an NGN to keep that in an acceptable operating condition. For this task, the NCS gathers statistical data from the network and uses this information to generate a global view of the current operating condition. Using this information, the NCS follows its internal strategy and uses optimization algorithms to adapt the network to changing operating situations. Among the benefits of the presented approach are an increased network resilience with a quick reaction towards changes in the offered traffic, a reduced QoS request blocking rate and a more efficient network operation. These have been evaluated in simulations and shown in a functional lab prototype.

http://doc.tm.uka.de/2005/WaZiCh_Architecture_ICTSMA_final.pdf


This document describes and evaluates strategies to enhance Mobile IPv6 route optimization, on the basis of existing proposals, in order to motivate and guide further research in this context.