

# BIENNIAL REPORT 2007-08

Computer Networks Group  
Institute of Computer Science  
Faculty of Mathematics and Computer Science  
Georg-August-University of Göttingen

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University of Göttingen

## Preface

The Computer Networks Group was established as an independent research unit within the Institute of Computer Science, as a result of my appointment as a University Professor at the University of Göttingen. Prior to that, as an Assistant Professor (C1) since September 30, 2002 with Prof. Dr. Dieter Hogrefe's Telematics Group at Göttingen, I was always given the highest possible freedom in research, teaching and services, resulting a couple of awards and publications, and successful EU projects (e.g. VIDIOS, IPT, Daidalos-II, ENABLE): I would like to present my deep thanks to him for his constant passion and support over all these years. One interesting thing to mention about the Institute of Computer Science, which was founded in November 2002, relatively new, is that it always keeps growing all the time, so that we kept moving our offices nearly every year due to the limit in space and arrival of new projects. Probably I am the most dynamic staff in the institute and maybe the whole university: within 6 years I moved firstly from Lotzestr. 16-18 east roof, then east first floor, then west third floor, west first floor, west ground floor, then Sternwarte central-west building first floor, Sternwarte Nebengebäude building. Luckily (or sadly since we had to move out from the beautiful Sternwarte and the Gauss's garden), we finally have our more *permanent* home in September 2008: the newly built Computer Science building in Goldschmidtstr. 7 in the north campus!

Founded in April 10, 2007, the Computer Networks Group is devoted to cutting-edge leading research and education programs in the field of network architectures, protocols and applications. Besides publications in peer-reviewed scientific journals and international conferences, collaborations and joint projects with a number of international as well as national institutions including the industry, are essential and extremely helpful for our continuous growth and further development.

This report series intends to review the most relevant and important activities performed by the Computer Networks Group. The present report summarizes 2007-08 and is organized as follows:

1. Group Overview
2. Teaching and Student Supervision
3. Research Areas and Projects
4. Publications, Technical Reports and Theses
5. Scientific Contacts
6. Professional Services

Xiaoming Fu, Professor and Head of Computer Networks Group

## 1. Group Overview

When the Computer Networks Group was established, there was a part-time postdoc Dr. Xiaodong Yang working on EU MING-T project; seven PhD students/research employees who used to work with Prof. Fu in the Telematics Group joined the new group.

New PhD students joined the group after its establishment include Martin Stiemerling (May 2007), Niklas Neumann (November 2007), Ralf Lübben (January 2008), Filippo Ammazalorso (Mar 2008), Florian Tegeler (August 2008), and Nikunj Modi (November 2008). Ingo Juchem, Deguang Le, and Filippo Ammazalorso discontinued their PhD due to personal reasons.

In addition, there have been master and bachelor student assistants working on various projects and thesis work; they are important part of the team.

By the end of year 2008, the group comprised 1 professor, 1 postdoc, 8 PhD students, 7 master students and 1 bachelor student. Besides, the Group shares a secretary and a system administrator with the Software Engineering for Distributed Systems Group and the Database and Information Systems Group. See Table 1 for detailed information.

Table 1: Member of Computer Networks Group (as of 31.12.2008):

Administrative staff	Head	Postdoc	Research employees/PhD students	Part-time researchers	Master students	Bachelor students
Secretary: A. Kadziora System administrator: G. Krull (shared with other groups)	Prof. Dr. X. Fu	Dr. J. Lei	F.-C. Kuo L. Shi M. Arumathurai (extern) M. Stiemerling (extern) N. Neumann R Lübben F. Tegeler N. Modi (extern)	Dr. X. Yang H. Tschofenig	C. Dickmann L. Reimann R. Rex B. Schäffler S. Weiland M. Cohrs F. Meyer	J. Engelhardt

## 2. Teaching and Student Supervision

During 2007-2008 the Group has provided the following courses:

### Lectures:

Telematics (Computer Networks), 4ECTS

Mobile Communications II (\*), 9ECTS

*NOTE: WS - Winter Semester, SS - Summer Semester, \* - only partly*

WS2007/08, WS2008/09

WS2007/08\*, WS2008/09

### Exercise classes:

Telematics/Computer Networks

WS2007/08, WS2008/09

### Lab courses:

Practicum Telematics (Computer Networks), 6 ECTS

SS2007, WS2007/08, SS 2008

Practicum Adv. Networking, 6ECTS

WS2008/09

### Seminars:

Adv. Topics in Mobile Communications, 6ECTS

SS2008

Adv. Topics in Computer Networking, 6ECTS

SS2007, WS2007/08, WS2008/09

Internet Technologies, 4ECTS

SS2008, WS2008/09

Digital Video Broadcasting, 4ECTS

SS2007

Completed bachelor theses (3): Benedikt Schäffler (Oct 2008), Swen Weiland (May 2008), David Weiss (Nov 2007)

Completed master theses (6): Nikunj Modi (May 2008), Michael Cohrs (Mar 2008), Florian Tegeler (Jan 2008), Niklas Neumann (Nov 2007), Bernd Schloer (Oct 2007), John-Patrick Wowra (Sept 2007)

Completed PhD dissertations (2): Jun Lei (July 2008), Niklas Steinleitner (September 2008)

### 3. Research Areas and Projects

The Computer Networks group is committed to explore innovative networking technologies and utilize its full potential, knowledge and experience in the design and evaluation of emerging and future network technologies and systems.

#### Research Areas:

- New architectures and platforms for large-scale networks and distributed systems, for instance the design and evaluation of a resilient overlay system (GONE) and experimentations with PLANET-LAB, XORP and other platforms, including their system performance and security implications and enhancements.
- Internet QoS and NAT/firewall middlebox control: in scope of collaborative effort SIGNET and NGSIG we study the design, development and standardization of a new extensible network-layer signaling protocol suite after RSVP, including CASP/NSIS signaling protocols for QoS resource reservations and NAT/firewall middlebox traversal, among the others, and work closely related to DIME WG. This effort has been also extended in the scope of EC FP6 ENABLE and VIDIOS projects.
- Internet multimedia and services. This includes P2P, SIP/IMS, overlay multicast and signaled edge-to-edge QoS for media streaming over the Internet, and the effort towards a converged network framework design integrating the different mobile and digital broadcast technologies.
- Internet mobility, autonomic communications and cross-layer design. We develop and validate architecture and solutions for IPv6 based mobility networks providing advanced authorization services, middlebox traversal (such as flexible and dynamic configuration of firewalls) and resource control, multihoming and QoS support, as well as investigate emerging mobility management paradigms and performance optimizations, towards the future generation mobile networks (B3G/4G).
- Modeling, validation and analysis of communication protocols: to identify various issues in the spec flaws, undeterministic behaviors and security holes introduced during the protocol design and development phase, we utilize formal tools such as SDL/MSV/UML/Casper to model the functional behaviors and to detect possible design flaws, deadlocks, or livelocks. Moreover, to analyze performance and to optimize protocol parameters we use analytical, simulation and modeling tools such as queueing theory and Markovian chains, ns-2, OPNET and OMNeT++.

#### Research Projects:

Funded projects:

- NGSIG – New Advances and Applications of Next Generation Signaling, a project in collaboration with Columbia U., funded by the DAAD PPP USA program (2008-2009).
- 4G Mobility – Advanced Mobility Management in 4th Generation Mobile Networks, a research project directly funded by the industry (2008-2010).
- ENABLE – Enabling efficient and operational mobility and large heterogeneous IP networks, an EC FP6 IST funded Specific Targeted Research Project (STREP) (2006-2008).
- MING-T – Multistandard Integrated Network Convergence for Global Mobile and Broadcast Technologies, an EC FP6 IST funded Specific Targeted Research Project (STREP) (2007-2009).

Other projects:

- SIGNET – Development of New, Extensible Internet Signaling Protocols, collaborators: Columbia University, Siemens, Nokia, NEC, University of Cambridge
- GONE – DoS-Limiting and Resilient Infrastructure Overlay and Virtualization Architecture, collaborators: University of Cambridge, and NEC Europe
- TCPNP – TCP/IP Wireless Network Performance Enhancements
- Wireless Networking Coding, collaborator: Microsoft Research Asia
- IPTV Resilience, ollaborator: AT&T Labs – Research
- PlanetLab – An Open Platform for Developing, Deploying, and Accessing Planetary-Scale Services

## 4. Publications, Technical Reports and Theses

### Editorial:

1. Xiaoming Fu, Martin Stiemerling and Henning Schulzrinne, Implications and Control of Middleboxes in the Internet, IEEE Network, Sept/Oct 2008.

### Book:

2. Xiaodong Yang, Handover in DVB-H, 168 pages, Springer Verlag, ISBN 978-3-540-78629-0, April 2008.

### Journals:

3. Xiaoming Fu, Dieter Hogrefe and Henning Schulzrinne, Kein Tempolimit für die Datenautobahn - Visionen für das Internet der Zukunft, Special Issue "Year of Mathematics - Numbers, Formulae, Unsolved Riddles" of the Georgia Augusta (the Research Magazine of the University of Göttingen), ISSN 0016-8157, December 2008.
4. Xiaodong Yang and Thomas J. Owens, Intersystem Soft Handover for Converged DVB-H and UMTS Networks, IEEE Transactions on Vehicular Technology, 57(3): 1887-1898, May 2008.
5. Fang-Chun Kuo and Xiaoming Fu, Probe-Aided MulTCP: An Aggregate Congestion Control Mechanism, ACM SIGCOMM Computer Communication Review, 38(1): 19-28, January 2008.
6. Martin Stiemerling, and Marcus Brunner, A Peer-to-Peer SIP System, Praxis der Informationsverarbeitung und Kommunikation (PIK), Special Issue on Voice over IP, December 2007.
7. Qazi Mussabbir, Wenbing Yao, Zeyun Niu and Xiaoming Fu, Optimized FMIPv6 using IEEE 802.21 MIH Services in Vehicular Networks, IEEE Transactions on Vehicular Technology, Special Issue on Vehicular Communications Networks, 56(6): 3397-3407, November 2007.
8. Jun Lei, Xiaoming Fu, Dieter Hogrefe and Jianrong Tan, A Comparative Study of Authentication and Key Exchange Methods for 802.11 Wireless LAN, Elsevier Computers & Security, 26(5): 401-409, August 2007.

### Conferences:

9. Niklas Neumann and Xiaoming Fu, Diameter WebAuth: An AAA-based Identity Management Framework for Web Applications, The 51th Annual IEEE Global Telecommunications Conference (GLOBECOM 2008), New Orleans, LA, USA, IEEE, December 2008.
10. Mayutan Arumaithurai, Xiaoming Fu, Bernd Schloer, and Hannes Tschofenig, Performance Study of the NSIS QoS-NSLP Protocol, The 51th Annual IEEE Global Telecommunications Conference (GLOBECOM 2008), New Orleans, LA, USA, IEEE, December 2008.
11. Jan Seedorf, Frank Ruwolt, Martin Stiemerling, and Saverio Niccolini, Evaluating P2PSIP under Attack: An Emulative Study, IEEE GLOBECOM 2008, New Orleans, LA, USA, December 2008.
12. Niklas Neumann, Ralf Lübben, Mayutan Arumaithurai, and Xiaoming Fu, Decoupling Congestion Control Using Traffic Aggregates and Middleboxes, IEEE International Conference on Network Protocols (ICNP 2008), poster session, Orlando, FL, USA, October 2008.
13. Jun Lei and Xiaoming Fu, Evaluating the benefits of introducing PMIPv6 for localized mobility management, in the Proceedings of IEEE International Wireless Communications and Mobile Computing Conference 2008 (IWCMC 2008), Crete, Greece, IEEE, August 2008.
14. Martin Stiemerling, Xiaoming Fu, and Marcus Brunner, A Network Virtualisation Concept Based on Ambient Networks SATO System, 1. GI/ITG Fachgespräch Virtualisierung, Paderborn, Germany, pages 33 - 36, February 2008.
15. Deguang Le, Jun Lei, and Xiaoming Fu, A New Decentralized Mobility Management Service Architecture for IPv6-based Networks, in Proceedings of the 3rd ACM International 2007 Workshop on Wireless Multimedia Networking and Performance Modeling (WMuNeP'07), in conjunction with the 10th ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM'07), Chania, Greece, pages 54-61, October 2007, ACM Press, ISBN 978-1-59593-804-6.

16. Niklas Steinleitner, Xiaoming Fu, Dieter Hogrefe, Thomas Schreck and Hannes Tschofenig, An NSIS-based Approach for Firewall Traversal in Mobile IPv6 Networks, in Proc. 3rd Wireless Internet Conference (WICON 2007), Austin, Texas, USA, October 2007, ACM Press, ISBN 987-963-9799-4-2, 11 pages.
17. Roland A. Burger, Giovanni Iacovoni, Cliff Reader, Xiaoming Fu, Xiaodong Yang, and Wang Hui, A Survey of Digital TV Standards in China, Proceedings of 2nd International Conference on Communications and Networking in China (ChinaCom 2007), Shanghai, China, August 2007, IEEE, ISBN 1-4244-1009-6.
18. Lei Shi, Peter Sjödin, A VLAN Ethernet Backplane for Distributed Network Systems, IEEE Workshop on High Performance Switching and Routing (HPSR) 2007, New York, USA, IEEE, May 2007.
19. Deguang Le, Xiaoming Fu, Xiaoyuan Gu and Dieter Hogrefe. E2T: End-to-End Tunneling Extension to Mobile IPv6, in Proceedings of the 4th IEEE Consumer Communications and Networking Conference (CCNC 2007), Las Vegas, Nevada, USA, January 2007, IEEE, ISBN 1-4244-0667-6
20. Jun Lei, Xiaoming Fu, and Dieter Hogrefe. DMMP: A New Dynamic Mesh-based Overlay Multicast Protocol Framework, Proceedings of the 4th IEEE Consumer Communications and Networking Conference (CCNC 2007) – Workshop on Peer-to-Peer Multicasting (P2PM 2007), Las Vegas, Nevada, USA, January 2007, IEEE, ISBN 1-4244-0667-6, pages 84–88.

### Technical reports

No. (IFI-TB-)	Authors	Title	Date
2008-03	Fang-Chun Kuo, Kun Tan, Xiang-Yang Li, Jiansong Zhang, and Xiaoming Fu	Network coding-aware fair opportunistic scheduling in wireless networks	Aug 2008
2008-02	Jun Lei, Xiaoming Fu, and Dieter Hogrefe	D-MORE: Dynamic Mesh-based Overlay Peer-to-Peer Infrastructure	Aug 2008
2008-01	Xiaoming Fu and Dieter Hogrefe	Reports of Advanced Topics in Computer Networking and Mobile Communications (Summer 2004 - Winter 2006/2007)	Feb 2008
2007-03	Jun Lei, Lei Shi, and Xiaoming Fu	An Experimental Analysis of Joost Peer-to-Peer VoD Service	Oct 2007
2007-02	Jun Lei and Xiaoming Fu	Evaluating the Benefits of Introducing PMIPv6 for Localized Mobility Management,	June 2007
2007-01	Fang-Chun Kuo and Xiaoming Fu	Probe-Aided MultTCP: An Aggregate Congestion Control Mechanism	Apr 2007

### PhD Dissertations:

2	Niklas Steinleitner	Firewall Traversal in Mobile IPv6 Networks	Sept 2008
1	Jun Lei	Media Distribution using Overlay Multicast and Peer-to-Peer Technologies	July 2008

### Master Theses:

2008-06	Nikunj Modi	Performance Evaluation of TCP Variants over UMTS Networks	May 2008
2008-04	Michael Cohrs	Implementation and Evaluation of a New Peer-to-Peer SIP Protocol	Mar 2008
2008-01	Florian Tegeler	Security Analysis, Prototype Implementation and Performance Evaluation of a New IPSec Session Resumption Method	Jan 2008
2007-39	Niklas Neumann	Diameter WebAuth: An AAA-based Identity Management Framework for Web Applications	Nov 2007



2007-37	Bernd Schlör	Implementation and Performance Evaluation of the IETF QoS NSLP Protocol	Oct 2007
2007-28	John-Patrick Wowra	RTP over Datagram TLS	Sep 2007

### Bachelor Theses:

2008-05	Swen Weiland	TCP Performance Enhancement in Wireless Environments: Prototyping in Linux	May 2008
2008-04	Benedikt Schäffler	Implementation and Analysis of HTTP Enabled Location Delivery and Location-to-Service Translation Clients for IP-based Emergency Calls	Oct 2008
2007-41	David Weiss	Performance Evaluation of a Novel Overlay Multicast Protocol	Nov 2007

## 5. Scientific Contacts

### Visitors to NET Group:

Incoming visitors	Institution (from)	Detailed information	Date
Prof. Lixia Zhang	UCLA, USA	Dr. Zhang (ACM Fellow and IEEE Fellow) is a Professor of Computer Science at University of California at Los Angeles. She visited NET group during 01.-02.10.2008 and discussed with the group member on a variety of issues including Internet architecture, protocols and security. On 01.10.2008 she gave a Colloquium talk on "Designing A New Routing Architecture for Future Internet".	Oct 2008
Prof. Wolfgang Effelsberg	Univ Mannheim, Germany	Dr. Effelsberg is a Full Professor of Computer Science at the University of Mannheim. He gave an interesting talk at the Computer Science colloquium on "Multi-Camera Image Stitching for Video Sensor Networks" and discussed with the NET group on vehicular networks and mobile sensing technologies etc.	July 2008
Prof. Henning Schulzrinne, Andrea Forte, Kumiko Ono	Columbia University, NY, USA	The First Columbia-Göttingen Workshop on Internet Research, held on 30.06.2008 attracted about 20 participants from both Göttingen and Columbia Universities. With a mixture of emerging and future network technologies and services, the workshop bridged the gap among the networking researchers from both universities, and identified a number of interesting open issues for further research and collaboration.	June 2008
Prof. Jorg Liebeherr	Univ Toronto, Canada	Dr. Liebeherr (IEEE Fellow) is a Professor at the Department of Electrical and Computer Engineering, University of Toronto and Nortel Chair of Network Architecture and Services. He visited NET group on 25.-26.06.2008 and had extensive discussions on interested research topics with the group. On 26.06.2008 he gave a Computer Science Colloquium talk on "A System Theoretic Approach to Bandwidth Estimation".	June 2008
Dr. K. K. Ramakrishnan	AT&T Labs – Research, USA	During 11.-12.06.2008 Dr. Ramakrishnan (IEEE Fellow and AT&T Fellow) visited NET group and gave a colloquium talk on "CPM: Combining the power of multicast and P2P for Video-on-Demand" on 12.06.08. He had extensive discussions with the group members on congestion control and multipath transport, and provided very constructive comments.	June 2008
Pan Hui	Univ Cambridge, UK	Pan Hui, a final year PhD candidate at Computer Lab at the University of Cambridge, gave a talk on "Social-based Forwarding in Delay-Tolerant Networks". His work spans from opportunistic wireless networking to social network structure with solid experimental results.	Sept 2007

Hamed Haddadi	Univ Coll. London, UK	Hamed Haddadi, final year PhD candidate at EE Dept of UCL, gave a talk on "The Internet topology: Inference, Evolution and Dynamics", highlighting his experiences on generating network topology and providing insights for future studies.	Sept 2007
Dr. Christer Åhlund	Lulea Univ of Technology, Sweden	Dr. Åhlund is a Senior Lecturer and Head of Division of Mobile Networking and Computing, Lulea University of Technology (LTU). He gave a colloquium talk on "Next generation networks with multiple access technologies" on 26.09.2007.	Sept 2007
Prof. Jörg Ott	Helsinki University of Technology (TKK), Finland	Dr. Ott is Professor for Networking Technology with a focus on Protocols, Services and Telecommunications Software at the Networking Laboratory at Helsinki University of Technology. He gave a colloquium talk on "Drive-thru Internet: Enabling Opportunistic Internet Access on the Road" on 14.06.2007.	June 2007
Wolfgang Fritsche	Industrieanlagen-Betriebsgesellschaft mbH (IABG), Germany	Mr. Fritsche is manager for Advanced Internet Services at IABG. He gave a colloquium talk on "IPv6 Mobility Support in the Internet".	Feb 2007

### Outing research visits:

Outgoing visitors	Host institution	Detailed information	Date
X. Fu	Deutsche Telekom Laboratories (T-Labs), Berlin, Germany	Invited talk: "D-MORE: Dynamic Mesh-based Overlay Peer-to-Peer Infrastructure"	Dec 2008
X. Fu	Fraunhofer FOKUS, Berlin, Germany	Presentations from both MOTION and NET groups and discussed possible collaborations	Dec 2008
X. Fu	Univ South Australia, Adelaide, Australia	Research visit for 1 week	Nov 2008
X. Fu	Univ Adelaide, Australia	Invited talk: "D-MORE: Dynamic Mesh-based Overlay Peer-to-Peer Infrastructure"	Nov 2008
N. Neumann, Mayutan A	Columbia Univ, NY, USA	DAAD research visit for 1 week	Nov 2008
J. Lei	Columbia Univ, NY, USA	DAAD visit for 2 months	Aug-Sept 2008
S. Weiland	Columbia Univ, NY, USA	DAAD visit for 6 weeks	Aug-Sept 2008
X. Fu	Microsoft Research, Redmond, USA	Invited talk: "Edge-to-edge overlays using aggregated congestion control"	Aug 2008
X. Fu	Columbia Univ, NY, USA	DAAD visit for 2 weeks	Mar 2008
F.-C. Kuo	Microsoft Research Asia, Beijing, China	Research internship for 6 months	Jun 2007-Feb 2008
X. Fu	Univ Cambridge, UK	Research visiting for 3 weeks	Sept 2007
X. Fu	Univ Coll. London, UK	Invited talk: "Edge-to-edge overlay and aggregated congestion control"	Sept 2007
X. Fu	AT&T Labs, NJ, USA	Extensive discussions with AT&T colleagues	June 2007
X. Fu	Bell Labs, NJ, USA	Invited talk: "Edge-to-edge overlay and aggregated congestion control"	June 2007

X. Fu	Columbia Univ, NY, USA	Extensive discussions with Columbia colleagues; presented an overview of the group.	June 2007
X. Fu	Microsoft Research Asia, Beijing, China	Invited talk: "Edge-to-edge overlay and aggregated congestion control"	Feb 2007

### Conference Attendance and Presentations:

Participant	Conference/Event	Detailed information	Date
F. Tegeler	ACM CoNEXT 2008, Madrid, Spain	CoNEXT is a premium conference on future Internet research.	Dec 2008
N. Neumann, X. Fu	IEEE GLOBECOM 2008, New Orleans, LA, USA	We presented two papers "Diameter WebAuth: An AAA-based Identity Management Framework for Web Applications" and "Performance Study of the NSIS QoS-NSLP Protocol". X. Fu chaired the ComSoc TCCC meeting.	Nov-Dec 2008
N. Neumann, Mayutan A	IETF 73 <sup>rd</sup> meeting, Minneapolis, MN, USA	Mayutan presented a talk on "QoS Attributes" in the DIME WG and another talk on "Diameter QoS Attributes and Diameter QoS Parameters" NSIS WG, a demo for ECRIT WG. N. Neumann discussed extensively with collaborators and NETEXT & MULTIMOB BoF members on PMIP extensions and other issues.	Nov 2008
X. Fu, R. Lübben	IEEE ICNP 2008, Orlando, FL, USA	R. Lübben presented the poster "Decoupling Congestion Control Using Traffic Aggregates and Middleboxes" and received helpful feedback. X. Fu attended the TPC meeting and exchanged a number of research ideas with peer researchers	Oct 2008
D. Le	ACM WMuNeP 2007, Chania, Crete Island, Greece	Presented the paper "A New Decentralized Mobility Management Service Architecture for IPv6-based Networks"	Oct 2008
N. Neumann	L3S Research Workshop, Goslar, Germany	Participated in the discussions at L3S Research Workshop.	Sept 2008
X. Fu	ACM SIGCOMM 2008, Seattle, USA	Organizational committee of MobiArch 2008 workshop	Aug 2008
X. Fu	IEEE IWCMC 2008, Crete, Greece	Presented the paper "Evaluating the benefits of introducing PMIPv6 for localized mobility management" over the Next Generation Mobile Networks Symposium.	Aug 2008
N. Neumann, Mayutan A, X. Fu	IETF 72 <sup>nd</sup> meeting, Dublin, Ireland	N. Neumann presented the I-D on "Inter-Domain Handover and Data Forwarding between Proxy Mobile IPv6 Domains" in the NETEXT Bar-BoF, and discussed the Diameter WebAuth: An AAA-based Identity Management Framework for Web Applications in the DIME WG. X. Fu presented the ID update on "GIST over SCTP" at NSIS WG.	July 2008
R. Lübben	IEEE ICC & CoCoNet 2008, Beijing, China	IEEE International Conference on Communications & Cognitive and Cooperative Wireless Networks Workshop	May 2008
X. Fu, J. Lei	NOSSDAV 2008, Braunschweig, Germany	NOSSDAV is an international workshop on Network and Operating Systems Support for Digital Audio and Video	May 2008

H. Tschonfenig	IEEE INFOCOM 2008 MCN workshop, Phoenix, USA	Co-chair of the workshop	Apr 2008
X. Fu	IEEE INFOCOM 2008, Phoenix, USA	Participated in the discussions and exchange of ideas.	Apr 2008
X. Fu	IETF 71 <sup>st</sup> meeting, Philadelphia, PA, USA	Presented the ID update on “GIST over SCTP” and the FreeNSIS implementation report at NSIS WG.	Mar 2008
R. Lübben	PFLDnet 2008, Manchester, UK	Attended the International Workshop on Protocols for Fast Long-Distance Networks. Received good feedbacks to our outgoing research and got to know several relevant works.	Mar 2008
X. Fu, M. Stiemerling	KUVS Fachgespräch Virtualisierung, Paderborn, Germany	Martin presented the paper “A Network Virtualisation Concept Based on Ambient Networks SATO System”	Feb 2008
X. Fu, N. Steinleitner	IETF 70 <sup>th</sup> meeting, Vancouver, BC, Canada	X. Fu presented the ID update of “GIST over SCTP” and discussed on NSIS mobility issues at NSIS WG. N. Steinleitner attended the MEXT WG.	Dec 2007
T. Schreck	ACM/ICST WICON 2007, Austin, Texas, USA	Presented the paper “An NSIS-based Approach for Firewall Traversal in Mobile IPv6 Networks”	Oct 2007
X. Fu, J. Lei	L3S Research Workshop, Goslar, Germany	L3S Research Workshop is a research oriented three-day workshop, discussing variety of recent topics.	Sept 2007
X. Fu	ACM SIGCOMM 2007, Kyoto, Japan	Chaired the MobiArch 2007 Workshop	Aug 2007
X. Fu	OpenNet Workshop, Brussels, Belgium	Presented ENABLE QoS architecture	Mar 2007
C. Dickmann, N. Steinleitner	IETF 68 <sup>th</sup> meeting, Prague, Czech Republic	C. Dickmann presented the ID update on “GIST over SCTP” and discussed extensively on various NSIS design and implementation issues at NSIS WG.	Mar 2007
J. Lei	IEEE CCNC and P2PM 2007, Las Vegas, NV, USA	Presented the paper “DMMP: A New Dynamic Mesh-based Overlay Multicast Protocol Framework” and attended the IRTF SAMRG meeting.	Jan 2007

### Project Meetings and Other Event Attendance:

Participant	Host institution/location	Detailed information	Date
X. Fu	Columbia Univ, NY, USA	IEEE INFOCOM'09 TPC Meeting	Dec 2008
J. Lei	Nokia Siemens Networks, Beijing, China	EU MING-T project meeting	Aug 2008
X. Fu, J. Wowra	ENESYS, Rennes, France	EU MING-T project meeting	June 2008
X. Fu, N. Steinleitner	Telecom Italia, Turin, Italy	EU ENABLE project final review meeting	Feb 2008
X. Fu, R. Luebben	Deutsche Telekom, Darmstadt, Germany	Meeting on QoS, traffic engineering, and traffic modeling	Feb 2008
N. Steinleitner, S. Weiland, J. Demter	Telecom Italia, Turin, Italy	EU MING-T project review preparation meeting	Jan 2008
X. Fu, J.	Create-NET, Trento,	EU MING-T project meeting	Nov 2007

Wowra, A. Kadziora	Italy		
X. Fu, J. Lei, N. Steinleitner	IABG, Ottobrunn, Munich	EU ENABLE project meeting	Oct 2007
X. Fu, N. Steinleitner	Huawei, Shanghai, China	EU ENABLE project meeting	Oct 2007
J. Lei	TSSG, Waterford, Ireland	EU ENABLE project meeting	July 2007
X. Fu	DePaul U., Chicago, USA	IEEE ICNP 2007 TPC meeting	June 2007
X. Fu F. Tegeler,	NSN, Munich, Germany	Meeting at NSN for thesis related discussions	May 2007
F.-C. Kuo	INT-EVRY, Paris, France	TAROT Mid-Term Assessment Meeting	May 2007
X. Fu, N. Steinleitner, J. Lei	Brunel Univ, London, UK	EU ENABLE project meeting	Apr 2007
X. Fu	EU, Brussels, Belgium	EU ENABLE project review meeting	Mar 2007
X. Fu, X. Yang	Tsinghua Univ, Beijing, China	EU MING-T project kick-off meeting	Feb 2007
X. Fu, N. Steinleitner, J. Lei	Univ Murcia, Spain	EU ENABLE project meeting	Jan 2007

### Organized Events and Workshops:

Location	Event	Details	Date
Göttingen	First Columbia-Göttingen Workshop on Internet Research	<a href="http://www.net.informatik.uni-goettingen.de/announcements/1550.html">http://www.net.informatik.uni-goettingen.de/announcements/1550.html</a>	June 2008
Kyoto, Japn	ACM SIGCOMM 2007 MobiArch Workshop	<a href="http://user.informatik.uni-goettingen.de/~mobiarch">http://user.informatik.uni-goettingen.de/~mobiarch</a>	Aug 2007
Göttingen	EU MING-T project meeting	<a href="http://www.net.informatik.uni-goettingen.de/announcements/1419.html">http://www.net.informatik.uni-goettingen.de/announcements/1419.html</a>	July 2007

### University Press News:

Source	Detailed information	Date
Uni press	Niklas Neumann received a best thesis award ( <a href="http://www.uni-goettingen.de/de/3240.html?cid=2918">http://www.uni-goettingen.de/de/3240.html?cid=2918</a> )	Mar 2008
Uni press	ENABLE final review meeting ( <a href="http://www.uni-goettingen.de/de/80799.html">http://www.uni-goettingen.de/de/80799.html</a> )	Feb 2008
Uni press	DAAD cooperation with Columbia Univ established ( <a href="http://www.uni-goettingen.de/de/3240.html?cid=2840">http://www.uni-goettingen.de/de/3240.html?cid=2840</a> )	Dec 2007

## 6. Professional Services

### Elected Position:

- Secretary, IEEE Communications Society Technical Committee on Computer Communications (TCCC), 2008-

### Conference Organization:

- Steering Committee, ACM International Workshop on Mobility in the Evolving Internet Architecture (MobiArch)
- Organizer, First Columbia-Göttingen Workshop on Internet Research, Göttingen, June 2008
- Session Chair, German Activities in IETF, ITG/GI Würzburg Workshop on Future Internet, July 2008
- Session chair, Intrusion Detection II, IEEE GLOBECOM 2008 Computer and Communications Network Security Symposium (CCNS)
- Session Chair, Mobility Architectures, ACM MobiArch 2008 (in conjunction with ACM SIGCOMM 2008)
- TPC Chair, ACM MobiArch 2007 (in conjunction with ACM SIGCOMM 2007)
- TPC Chair, ACM/IEEE MobiArch 2006 (in conjunction with IEEE GLOBECOM 2006)
- Session chair, Service Overlays, IEEE International Conference on Computer Communications (INFOCOM) 2007

### Technical Program Committees:

- IEEE International Conference on Network Protocols (ICNP) 2008, 2007
- IEEE International Conference on Computer Communications (INFOCOM) 2007
- IEEE GLOBECOM 2008, Symposium on Computer and Communication Network Security (CCNS)
- IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC) 2008
- IEEE LCN Workshop On User MObility and VEHicular Networks (ON-MOVE) 2008, 2007
- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)
- IEEE International Conference on Communications (ICC) 2007, Computer and Communications Network Security Symposium
- IEEE Wireless Communications & Networking Conference (WCNC 2007)

### Journal editorship:

- Guest Editor, IEEE Network, Special Issue on Implications and Control of Middleboxes in the Internet, Sept 2008.
- Area Editor, Elsevier Computer Communications Journal (2008-).

### Journal reviews (incomplete list):

- ACM/IEEE Transactions on Networking
- Proceedings of the IEEE

- IEEE Transactions on Computers
- IEEE Transactions on Parallel & Distributed Systems
- IEEE Transactions on Mobile Computing
- IEEE Transactions on Wireless Communications
- IEEE Transactions on Vehicular Technology
- IEEE Journal on Selected Areas in Communications
- IEEE Communications Letters
- IEE/IET Electronics Letters
- Elsevier Computer Communications
- Springer Telecommunication Systems
- Springer Mobile Networks & Applications
- Wiley Wireless Communications & Mobile Computing
- Ad Hoc & Sensor Wireless Networks: an International Journal

#### **Conference reviews (incomplete list):**

- IEEE International Conference on Computer Communications (INFOCOM) 2007, 2008
- IEEE International Conference on Network Protocols (ICNP) 2007, 2008
- IEEE Global Communications Conference (GLOBECOM) 2007, 2008
- IEEE ICC 2007
- IEEE LCN Workshop On User MObility and VEhicular Networks (ON-MOVE) 2007, 2008
- ACM International Workshop on Foundations of Wireless Ad Hoc and Sensor Networking and Computing (FOWANC) 2007
- IFIP International Conference on Formal Methods for Networked and Distributed Systems (FORTE)
- IFIP International Conference on Testing of Communicating Systems (TestCom)