

# Overview of Networking Research Group

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*on behalf of*

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October 29, 2008



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# HIIT in brief

- Joint research institute of University of Helsinki and Helsinki University of Technology founded in 1999
- Operates through four research programmes led by professor-level Programme Directors
  - ADA (Algorithmic Data Analysis)
  - FI (Future Internet)
  - NS (Network Society)
  - PAS (Probabilistic Adaptive Systems)
- Programmes operate through projects covering basic, strategic and innovation-oriented research, plus EU activities

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# HIIT in brief (con't)

- 16 research groups located in three sites
  - Spektri, Otaniemi
  - UH, Kumpula
  - TKK, Otaniemi
- Partners include Finnish ICT and media companies, research institutions, universities and international partners
- Directors
  - Prof. Martti Mäntylä (Advanced Research Unit)
  - Prof. Esko Ukkonen ( Basic Research Unit)

# HIIT in figures 2007

- Funding: €7.5 million
- Person-years: 129
- Original publications: 187
- Doctoral degrees earned by the HIIT personnel: 9



# Networking Research Group

- Established in 2004 as a new group in Future Internet (FI) program at HIIT, TKK
- Leader – Principal Scientist, Adj. Professor Andrei Gurtov
- Consists of 15-20 members including postdocs, postgraduate students, master students, summer interns
- Located at HIIT Spekti Business park, Espoo
- Focuses on network security, mobility and multihoming protocols, distributed systems, performance evaluation.

## Networking Research Group (cont'd)

- Includes members of 7 nationalities, strong international collaboration
  - Swedish Institute of Computer Science (SICS)
  - International Computer Science Institute (ICSI), Berkeley, California, USA
  - RWTH Aachen University, Aachen, Germany
  - Petrozavodsk State University (PetrSU)
  - Russian Academy of Science, Russian Federation
  - Tsinghua University, Beijing, China
  - Indian Institute of Technology Kanpur (IIT), India

# Active projects

- InfraHIP II  
Infrastructure for Host Identity Protocol (HIP) II
- Trustworthy Internet
- WISEciti  
Wireless Community Services for Mobile Citizens
- NordichIP
- ICT SHOK
- ICSI-Finland Center for Future Internet Architecture

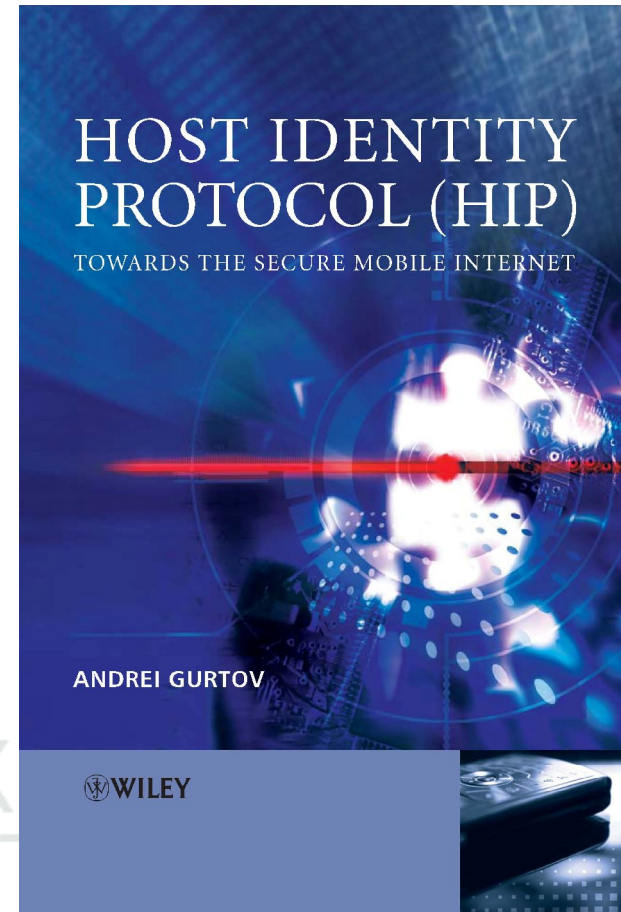
# NRG research topics

- Distributed network authentication
- IP security on lightweight devices
- Secure routing in P2P overlays
- Usability of security
- Enterprise traffic analysis
- Game-theoretic approach to Internet modeling
- P2P SIP pilot on N810 Internet tablets
- Prevention of SPAM calls using buddy lists and web of trust
- Name resolution using DHT
- Many HIP-related activities



# Host Identity Protocol (HIP)

- New protocol between TCP-UDP and IP that solves many of Internet problems
  - secure mobility and multihoming
  - interoperating IPv4/v6
  - Host authentication, end-to-end IPsec encryption
- Open-source implementations for Linux, Windows, BSD, MacOS
- Specified by IETF in RFC 5201-5207



# Thank you!

- Interested in doing research with us?
  - Send CV to [gurtov@hiit.fi](mailto:gurtov@hiit.fi)
- Looking for partners in deploying and experimenting with HIP
- We are interested in Symbian
- More information available at:
  - <http://www.hiit.fi>
  - <http://www.hiit.fi/networking-research>