NordicHIP

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HIIT/ARU Portfolio Seminar

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NordicHIP

- Andrei Gurtov, Martti Mäntylä, Bengt Ahlgren, Antti Ylä-Jääski, Pekka Nikander
- Focus: Serve as a collaboration tool for national HIP activities by supporting mutual visits, summer schools, and some core technical work on Internet architecture, IPv4/v6 co-existence and naming infrastructure
- NORDUNET3 call
- Partners: HIIT, TML, SICS
- Duration: 4 years
- Tentative project budget: 170 000 €/year

People

- People to be involved in the project from Finnish side:
  - Professor Martti Mäntylä, HIIT, research director
  - Prof. Antti Ylä-Jääski, TKK, Internet technologies group leader
  - Dr. Pekka Nikander, L.M. Ericsson Finland, developer of HIP
  - Dr. Andrei Gurtov, HIIT, project manager of the InfraHIP project
- From Sweden, the following people will be involved:
  - Dr. Bengt Ahlgren, SICS, director of the project at SICS
  - Dr. Ian Marsh, SICS, VoIP expert

Approach

- NordicHIP will adopt an experimental approach to research work. Whether possible, working prototypes of developed systems will be implemented. In the past, experience from real implementations proved to be invaluable in constructing reality-proof systems and nowadays a requirement for publication in leading conferences and journals on computer networking. Standardization of the protocols "on-the-wire" will be an important activity in the project to facilitate future interoperable implementations from commercial parties.

Research Plan

- WP1: Secure Internet architecture based on HIP
- WP2: Interoperability between IPv4 and IPv6
- WP3: Support of moving networks in HIP
- WP4: Network and service management

WP1

- WP1 will study architectural aspects of next-generation Internet with an assumption that HIP can be widely deployed. The issues include implementation and evaluation of HIP name and rendezvous services. Items that may require more fundamental changes of the architecture include session identifiers and real-time application support.

WP2

- WP2 will study what is needed in terms of global routing when HIP is used as a new Internet protocol to bridge over v4/v6. In particular, keeping track of the net (v4/v6) a host is currently present in and finding the "best" v4/v6 gateway to that host are challenging research areas.

WP3

- WP3 will study HIP support for dynamic networks (or you may want to call them nomadic networks). A potential approach would be using a chain of Rendezvous Services that implement the reverse chain of a default route up to a host's home RVS.

WP4

- WP4 will study management aspects of HIP enabled networks and services
- A specific research topic is the deployment and use of multiple HIP identities per each host
- The implications from the HIP layer to the above service grid will be addressed and system solutions will be developed

Timeline

- M1 2Q2006: Common secure network architecture defined
- M2 4Q2006: Specifications of the system
- M3 2Q2007: First prototype implementation
- M4 4Q2007: Evaluation of the first prototype
- M5 2Q2008: Second prototype implementation
- M6 4Q2008: Evaluation of the second prototype
- M7 2Q 2009: System integrated and tested
- M8 4Q 2009: Results are publicly disseminated