09102 Abstracts Collection

Perspectives Workshop: Naming and Addressing in a Future Internet

— Dagstuhl Seminar —

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Abstract. From 01.03. to 04.03.2009, the Dagstuhl Seminar 09102 "Per-
spectives Workshop: Naming and Addressing in a Future Internet " was
held in Schloss Dagstuhl – Leibniz Center for Informatics. During the
seminar, several participants presented their current research, and on-
going work and open problems were discussed. Abstracts of the presen-
tations given during the seminar as well as abstracts of seminar results
and ideas are put together in this paper. The first section describes the
seminar topics and goals in general. Links to extended abstracts or full
papers are provided, if available.

09102 Report – Perspectives Workshop: Naming and Addressing in a Future Internet

This article summarizes the presentations and discussions during a workshop
on naming and addressing in a future Internet that was held in March 2009
at "SchloSS Dagstuhl" in Germany. The aim of the workshop was to explore
the different roles that names have in an internetwork architecture, as well as
attempt to come to some agreements on what characteristics are important or
desirable for names in these various roles. The goal of this report is to attempt a
faithful reflection of the workshop itself, presenting the different views, positions
and issues discussed at the workshop in a structured way.

Joint work of: Jari Arkko, Marcelo Bagnulo Braun, Scott Brim, Lars Eggert, Christian Vogt, Lixia Zhang

Full Paper: http://drops.dagstuhl.de/opus/volltexte/2011/3278

REAP or Multipath: Should we Bother?

Scott Brim (CISCO Systems - Ithaca, US)

The issue of whether to probe for liveness in a multi-connected situation is investigated. The conclusion is that probing brings little incremental value, but multipath may bring more value. That depends on what routing and addressing architecture is adopted.

Keywords: Shim6 trilogy multipath routing addressing

Internet layer naming and addressing from the Application layer's Eye-view

Leslie Daigle (Internet Society - Reston, US)

The Internet's layered architecture permits a large degree of insulation between one layer's constructs and the next layer's implementation. However, development of protocols and technologies at one layer does typically involve some assumptions about the fixed points/architectural concepts in another. As an obvious example, at one point in time it was natural to assume that Internet endpoints were fully-equipped hosts (servers) and addresses were global and fixed. Applications were built assuming that IP addresses were static references to those hosts. Deployment realities and routing technology evolution have challenged that assumption. This talk will review some of the architectural expectations of upper layers upon the Internet layer's naming and addressing constructs, with a view to making it clear what expectations need to be set in evolving the Internet layer's constructs for new routing developments.

How to get to Future Internet?

Andrei Gurtov (HIIT - Helsinki, FI)

We discuss the current state of Future Internet research, existing large international projects, and path towards deployment of Future Internet.

Infrastructure Structure Implications of a Name-Address Separation

Benno Overeinder (NLnet Labs - Amsterdam, NL)

With the introduction of a name-oriented protocol stack, different and possibly new requirements define the design of name-address resolver infrastructure. A non-conclusive overview of functional and operational requirements for a name-address resolver are presented to initiate discussion; in particular how this relates to various name-address separation proposals like HIP, LISP, or name-oriented protocoll stack. Finally, the question whether DNS can be used for a name-oriented protocol stack resolver infrastructure is briefly discussed.

Identity & Privacy and Name-Address separation

Klaas Wierenga (CISCO Systems - Utrecht, NL)

An attempt to answer the following 3 questions:

1. are there identity issues that make name/address separation difficult?
2. are there implications for identity due to name/address separation?
3. does name/address separation offer new opportunities wrt identity?

Keywords: Privacy, identity, name, address, locator, identifier, roaming

What Are the Problems?

Lixia Zhang (Univ. California - Los Angeles, US)

This talks approaches the naming and addressing problems from a longitudinal view: how did we get to where we are today? It reviews the the history of network addressing, and points out that as time went on, new demands continued to arise that the existing name structure could no longer meet. It is observed that, although we designed protocols by modularity, we did not enforce modularity in identifier usage, which led to a number of problems facing us today. Various solutions have also been proposed over time, and this seminar aims to synergize the efforts and synchronize up the understanding.

Keywords: IP address, DNS names, protocol layers, modularity, mobility, routing scalability

What to Use as Host Identifier: there is theory, and there is practice

Lixia Zhang (Univ. California - Los Angeles, US)

The need for a topologically-independent host identifier has long been recognized. This talk describes a simple realization of such an identifier using a set of existing protocols. The implementation offers NAT traversal, data encryption, and mobility supports all at once, and is currently used by millions of users.

Joint work of: Cheshire, Stuart; Zhang, Lixia