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BA

Address Resolution and Routing in the

Web of Trust

Introduction

The intermediate to advanced computer user is able to set up a home network which provides services like file sharing, music streaming, home automation, as well as communication channels like own mail or chat servers. In previous work we have discussed various mechanisms for establishing trust between such home networks (so called "Domains"), so that authenticated and authorized service sharing becomes possible.

By realizing an overlay network shared services can then be addressed by URIs like *Mobile.Dave.Bob* which means, that Alice can contact Dave's mobile phone while specifying Dave by his friendship (trust relationship) to Bob who again is a friend of Alice.
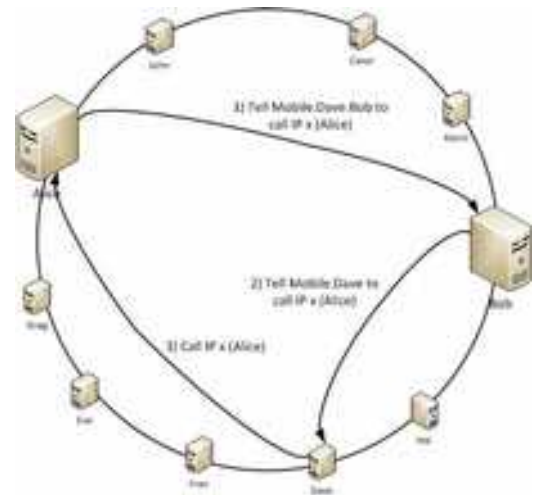
Problem

The overall concept and the administrative infrastructure, like a domain manager, which is able to handle authentication requests, has already been developed and analyzed. Nevertheless the concept of actually addressing services and realizing routing in created network is still an open problem.

Task Description

Your task is to get to know with the current state of the prototype and develop an addressing and routing concept. Afterwards the goal of this work is to extend the prototype in such a way that nodes are organized as a Peer-to-Peer network. For this purpose state of the art P2P network implementations, such as TomP2P or Kademlia can be used. A further goal is to rethink the iterative address resolution process of the prototype and compare this mechanisms to a recursive address resolution process. For this purpose routing protocols used in similar P2P networks, such as Freenet, could be compared.

Requirements

You should have a basic understanding of P2P-Systems and DHTs.

Miscellaneous

This thesis can be performed in German or English.