

DOS01 Literature Review on Distributed Hash Tables (DHTs)

Background

Distributed Hash Tables are essential for the decentralization of data objects. In the scope of the IPFS network DHTs are an indexing overlay that store which host holds what data. There are several different approaches to the overlay architecture and in this seminar topic we want to compare and contrast them.



Goal

- Carry out a systematic literature review on Distributed Hash Tables

Tasks

- Compile a list of existing approaches (e.g., Kademia, Chord, Pastery, ...)
- Come up with a list of core properties that make DHTs unique
- Compare and contrast each system according to those properties

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DOS02 Lit. Rev. on Network Size Measurements in P2P Networks

Background

Several algorithms in peer-to-peer networks could benefit from a notion of a global network size estimation. In this seminar topic we want to compile a comprehensive list and find out their drawbacks and benefits.



Goal

- Carry out a systematic literature review on global network size measurements of peer-to-peer networks.

Tasks

- Compile a list of existing approaches
- Come up with a list of core properties that distinguish those
- Compare and contrast each system according to those properties

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DOS03 Tracking of Large Content Providers

Background

Peer-to-peer network measurements often reveal unexpected behaviour of certain network participants. Being able to link them to larger entities like gateway operators, pinning-services or large content providers could give context that behaviour or explain it altogether.



Goal

- Extend Antares with the option to track large content providers

Tasks

- Get familiar with IPFS and DHTs
- Extend Antares <https://github.com/dennis-tra/antares> to be able to track large content providers (Go familiarity required or willing to learn)
- Flow: Upload content to them, request the provider record from DHT, track content of the record

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