DISTRIBUTED HASH TABLE

Analysis and Implementation of Algorithm

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26-Feb-2019

OVERVIEW:

A Distributed Hash Table (DHT) algorithm used to implement structured P2P networks.
A distributed hash table (DHT) is a class of a decentralized distributed system that provides a lookup service similar to a hash table (key, value) pairs are stored in a DHT, and any participating node can efficiently retrieve the value associated with a given Key. Keys are unique identifiers which map to particular values, which in turn can be anything from addresses, to documents, to arbitrary data.

GOALS:

❖ To Analyze and Implement the Available DHT Algorithms.
❖ To study various optimizations till now and try to optimize the available algorithms.

PROPOSED ALGORITHMS:

1) CHORD
   It is an algorithm and protocol for a peer-to-peer distributed hash table.it is based on consisting hashing. It specifies how keys are assigned to node, and how a node can discover the value for a given key. Currently it can be implemented in O(logn), where n is number of nodes.

2) PASTRY
   It is similar to chord but uses a redundant P2P network of connected internet hosts. Because of its redundant and decentralize Nature there is no single point of failure and any single node can leave at any time.

3) KADEMLIA

   Kademlia uses UDP for communication between its nodes and specifies the structure of the network and the exchange of information through node lookups. Currently it can be implemented in O(logn).

4) KOORDE

   Koorde is a Distributed hash table (DHT) system based on the Chord DHT and the De Bruijn graph (De Bruijn sequence). Inheriting the simplicity of Chord, Koorde meets O(log n) hops per node (where n is the number of nodes in the DHT), and O(log n/ log log n) hops per lookup request with O(log n) neighbors per node.

References:

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