## Chord (Stoica, Morris, Karger, Kaashoek, Balakrishnan) [Stoica00a]

#### CSci551: Computer Networks SP2006 Thursday Section John Heidemann

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# Napster Digression

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 digresson on napster:

 innovations: directory of stuff: search on names, location of data, peer-to-peer sharing of that stuff

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#### Key ideas

- distributed algorithm to locate nodes that have a key: a  $p2p \ system$
- goal: scale to many nodes, files, searches
- simple way to locate data:
  - each key is mapped to a node
  - put all nodes in a logical circle
  - each node covers from its location to the next node's location
     each node in the circle maintains fingers into exponentially far
  - each node in the circle maintains ingers into expone places around the circle
  - do binary search to find the exact location
- vs. Freenet: no anonymity, very efficient location of data
- vs. Napster: decentralized, but no replication of data (load problems?), no search for names, but very efficient binary search for contents

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### Compare Location in Several Peer-to-Peer Systems

- (given a key, how do you find the contents)
- Napster: central server tells you where to go
- FreeNet: hill-climbing algorithm
- Chord:
  - binary search around ring

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## Other questions/observations?

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