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HS2020: 11072 Advanced Networking and Future Internet

Theoretical Exercises - Week 3

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Peer-to-Peer Networks (2 points)

Q1.1 Unstructured Peer-to-Peer Networks

- Explain what mechanisms/approaches could be used to overcome the overflooding of control messages in P2P unstructured distributed networks? (2 points)
- Could SDN be used to optimize the operation and flow of messages in P2P networks? Explain. (Optional)

Mapping (2 points)

Q2 Unstructured Peer-to-Peer Networks

- What are the advantages or disadvantages of mapping in P2P networks compared to conventional DNS mapping? (2 points)

BitTorrent (2 points)

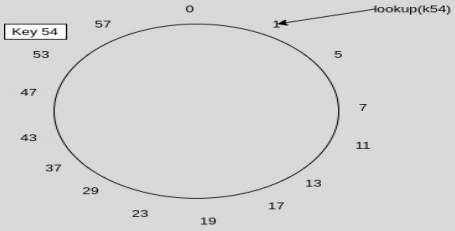
Q3. Unstructured Peer-to-Peer Networks

- Despite the tracker being a single point of failure in BitTorrent Peer-to-Peer networks, what are it's advantages over Distributed Hash Tables? (2 points)

Chord (3 points)

Q4. Structured Peer-to-Peer Networks

- Consider the following Chord network with the identifiers in a circle 2^m, where m = 6, representing a total of 64 keys.
  - Construct the finger table for nodes 0 & 19 (1 point).
  - Using finger tables, describe the route from node 1 to key 54 (include diagram with route) (2 points).



Distributed Hash Table (1 point)

Q5. Structured Peer-to-Peer Networks

- Select a P2P network/system covered in the lecture (or one of your own) and explain how it deals with high churn rates. (1 point)

Grades

- Peer-to-Peer Networks (2 Pts)
- Mapping (2 Pts)
- BitTorrent (2 Pts)
- Chord (3 Pts)
- Distributed Hash Table (1 Pt)
- **Deadline: 11.10.20 at 23:55**

Q/A

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