3.1 Unstructured Peer-to-Peer Networks

3.1.1 Which mechanisms/approaches should be used?

3.1.2 Could SDN be used to optimize?

3.2 Advantages and Disadvantages of Mapping in P2P networks over conventional DNS mapping

Because the conventional DNS mapping is centralized it is highly dependent on the centralized server and if this specific server fails the whole mapping system will break down. In P2P networks the mapping is distributed and therefore not so prone to such failures. Furthermore P2P networks have better reliability with higher latency and robustness.
The disadvantage of mapping in P2P networks is that more network ressources are required and that in pure P2P networks the scalability is lessened.

3.3 Advantages of the tracker in BitTorrent P2P networks over Distributed Hash Tables

Because Distributed Hash Tables is decentralized there is no central authority as the tracker is in the BitTorrent implementation. Furthermore BitTorrent is much more efficient and therefore quicker (lower latency) because the Tracker gives a list of peers which have the file whereas DHT first needs to search for the file. Also DHT has a huge network traffic overhead it is less able to scale up. Last when a node fails or new nodes join the BitTorrent implementation is much more robust in handling those cases than Distributed Hash Tables.

3.4 Structured Peer-to-Peer Networks

3.4.1 Finger Table for Nodes 0 & 19

Node 0	
N0 + 1	N1
N0 + 2	N5
N0 + 4	N5
N0 + 8	N11
N0 + 16	N17
N0 + 32	N37

Node 19	
N19 + 1	N23
N19 + 2	N23
N19 + 4	N23
N19 + 8	N29
N19 + 16	N37
N19 + 32	N53

3.4.2 Route from node 1 to 54

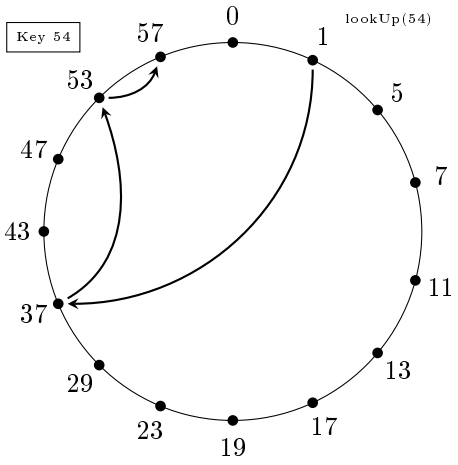
Finger Tables of the required Nodes

Node 1	
N1 + 1	N5
N1 + 2	N5
N1 + 4	N5
N1 + 8	N11
N1 + 16	N17
N1 + 32	N37

Node 37	
N37 + 1	N43
N37 + 2	N43
N37 + 4	N43
N37 + 8	N47
N37 + 16	N53

Node 53	
N53 + 1	N57
⋮	⋮

Diagram with Routes



3.5 How does a specific P2P network deal with high churn rates?