Assignment 1: Overlay Networks

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1 PART A

1.1 DESIGN OVERVIEW

The overlay network contains two kind of nodes, a coordinator node that organizes the network and member nodes. Each node can play both roles, however there can only be one coordinator node at any given time.

MAINTENANCE CHANNEL A node is characterized by its network address (ip and port) as well as it's id that was assigned by the coordinator. To maintain the network, the coordinator sends and receives TCP messages like join request or members list updates. Therefore, each node has a TCP socket where it listens for incoming TCP request. The TCP socket is configured with the network address of the corresponding node. This will be called the *maintenance channel*.

PING CHANNEL Additionally, there is the *ping channel* to check the status of the connection to another node. This channel is based on the UDP protocol, every node listens for incoming ping request and responds to them. These channel cannot run on the same network address, so the port number is increase by one in the *ping channel*.

1.2 COORDINATOR

Coordinator text.

HEADING ON LEVEL 4 (PARAGRAPH)

1.3 Member

Member text.

2 Part B

2.1 Coordinator reelection

- First item in a list
  - First item in a list
    - First item in a list
    - Second item in a list
  - Second item in a list
- Second item in a list

2.2 Latency measurement

1. First item in a list
2. Second item in a list
3. Third item in a list