

Internet Technologies II

LAB Assignment 1 (1st & 2nd task)

Goal: Implementation of a peer-to-peer ring routing protocol.

Prerequisites: From the first semester, you inherited a Client/Server pair for resource sharing, where servers announce their presence (provider profile) via multicast and clients can access the server state via a Web browser.

1st Step (Ring):

- > Your server knows about other servers from multicast announcements. Use this announcements for bootstrapping a ring of servers in ascending order (based on IP addresses), where each server holds a 'pointer' to its predecessor and its successor.

2nd Step (Routing on the ring):

- > Implement a routing of data on the ring in clockwise direction in the following way:
 1. Each data unit that is known on one server is transmitted to the successor using a `forward` call that is to be implemented according to the Dabek model.
 2. Each data unit that is received from the predecessor is taken to `deliver` according to the Dabek model, its content is processed (\rightarrow 3rd Step), and transmitted according to 1., if not at its final destination.
 3. Design and implement a method to terminate the routing, if the ring has been fully traversed.

3rd Step (Simple Overlay Network):

- > Use and test your method by sending your resource table through the ring.
- > Each receiver can now read all resources - and should build a separate, full resource table of the Peer-to-Peer system.