Advanced Computer Networking (ACN)

IN2097

Prof. Dr.-Ing. Georg Carle, Sebastian Gallenmüller

Chair of Network Architectures and Services
School of Computation, Information and Technology
Technical University of Munich

Router Project—Problem 3

Routing table

- Look up next hop of incoming packet
- Perform longest prefix matching (LPM)
- Optimization goals:
  - Memory accesses are slow/expensive $\rightarrow$ As few memory accesses as possible
  - Cache accesses are faster/cheaper $\rightarrow$ As small memory footprint as possible

Router Project—Problem 3

Routing table

- Look up next hop of incoming packet
- Perform longest prefix matching (LPM)
- Optimization goals:
  - Memory accesses are slow/expensive → As few memory accesses as possible
  - Cache accesses are faster/cheaper → As small memory footprint as possible

DIR-24-8

- IPv4 only!
- Look up data structure optimized for hardware:
  - Implementing complex control logic in hardware is expensive
  - Memory is cheap
  - → DIR-24-8 rather optimized for fewer memory accesses than for memory size
- Presentation of the underlying algorithm in a previous lecture

Router Project—Problem 3

Your task for Problem 3

- Implement the routing table
- Implement the `routing_table.h` as given
- Test your routing table (basic example included in framework)
- **Hint:** You **may** extend the tests yourself