

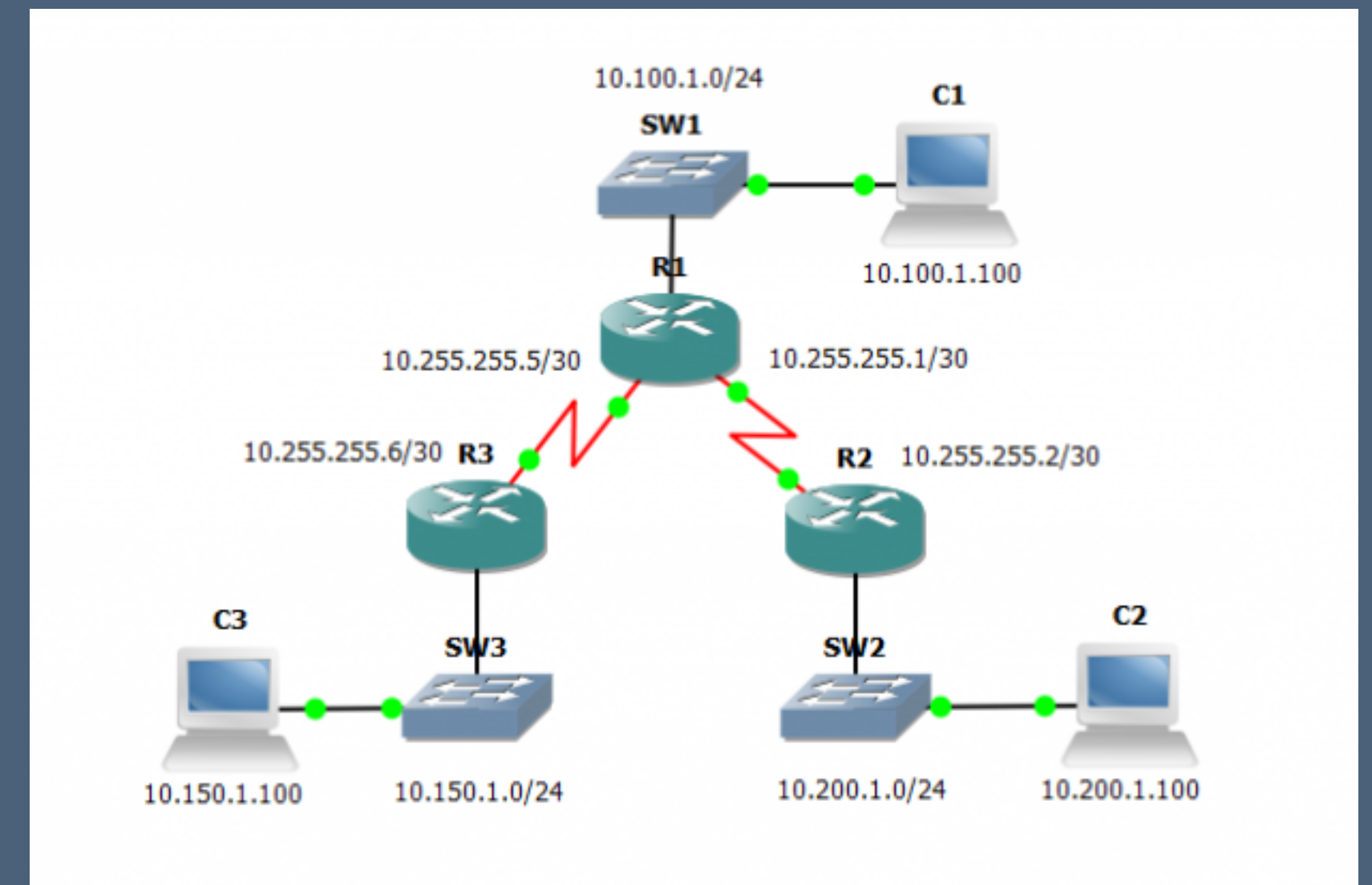
Network Path Optimization: A Dynamic Routing Protocol Simulation

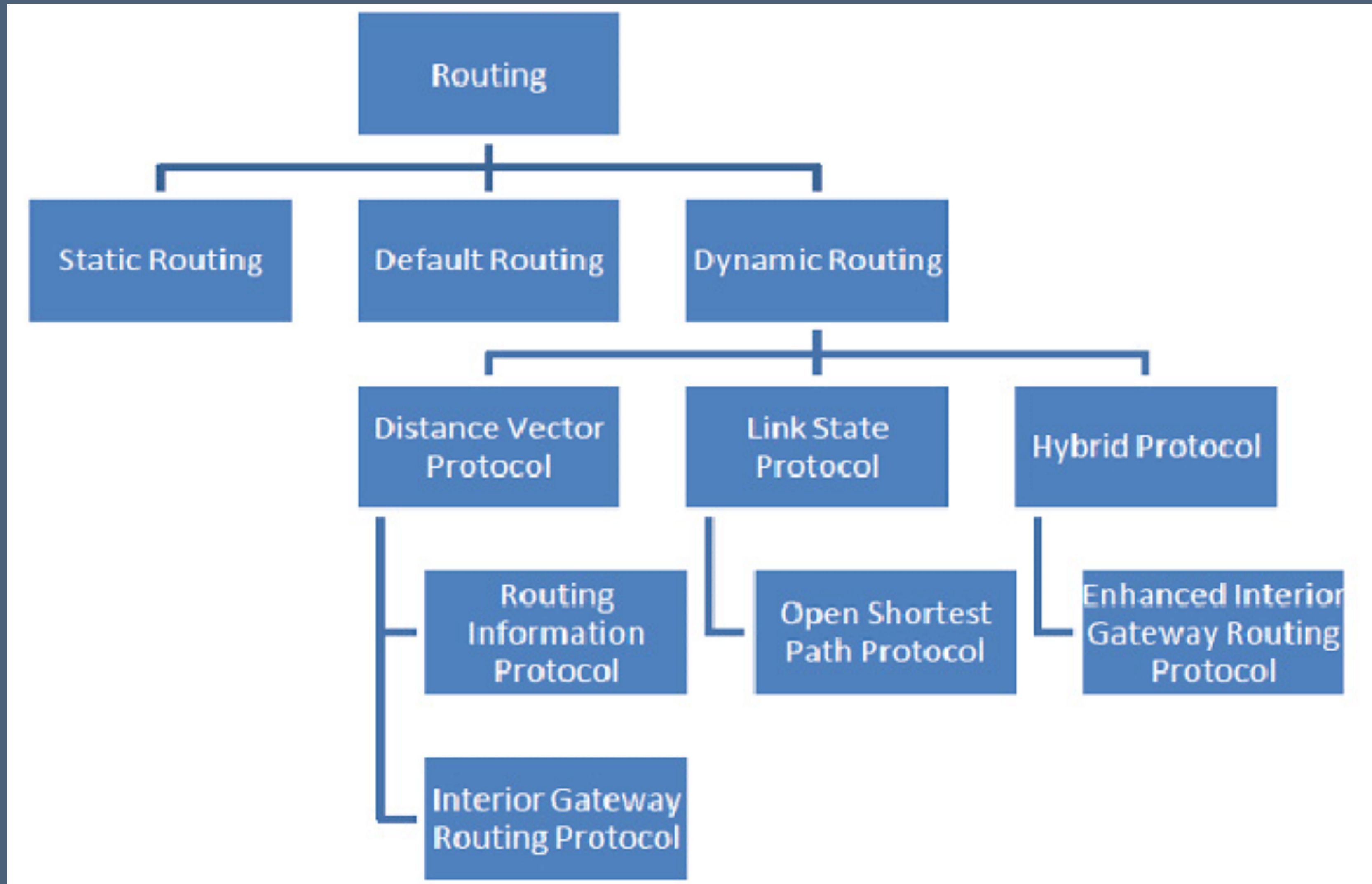
Computer Networks Course Project

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Dynamic Routing

- Dynamic routing is a network configuration technique where routers automatically calculate and update the best paths for data transmission based on current network conditions.
- It uses algorithms and protocols to adapt to changes such as congestion, link failures, or network expansion.
- Some common protocols are Open Shortest Path First (OSPF), Routing Information Protocol (RIP) and Enhanced Interior Gateway Routing Protocol (EIGRP)





Comparative Study

RIP

- Uses hop count
- Router range of 15
- Best path for small area network

EIGRP

- Only implemented on CISCO routers
- Best path for data sharing
- Classless routing

OSPF

- One router shares information to the next
- Used in wide area network
- Load is divided into network areas with a
- Unlimited router range
- Less time to send data

Functionalities

- Displays the shortest path given a starting node with QoS constraints
- Shows real time dynamic events and simulates adding a node/link and the failure of nodes/links.
- Generates link state advertisements (LSA)
- Simulates congestion to reflect varying traffic condition
- Displays the network at each step

Thank you!