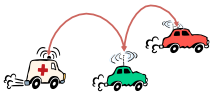
Multi-Hop Ad-Hoc Networks

- Network without infrastructure
  - Use components of participants for networking
- Examples
  - Single-hop: All partners max. one hop apart
    - Bluetooth piconet, PDAs in a room, gaming devices…

  - Multi-hop: Cover larger distances, circumvent obstacles
    - Bluetooth scatternet, TETRA police network, car-to-car networks, mesh networks,…

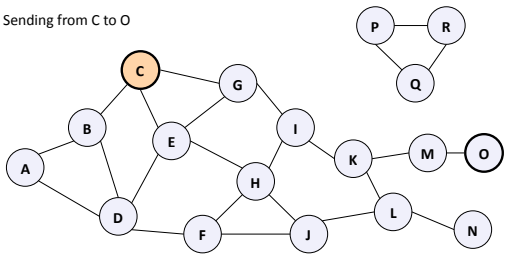


Ad-Hoc Networks: Routing

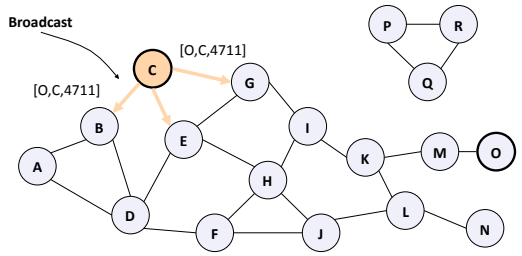
- Distance Vector
  - periodic exchange of messages with all physical neighbors that contain information about who can be reached at what distance
  - selection of the shortest path if several paths available
- Link State
  - periodic notification of all routers about the current state of all physical links
  - routers get a complete picture of the network
- Problems with these approaches:
  - Very slow convergence, large overhead
  - Highly dynamic, low bandwidth, low computing power

Example: Dynamic Source Routing

Sending from C to O



DSR: Route Discovery



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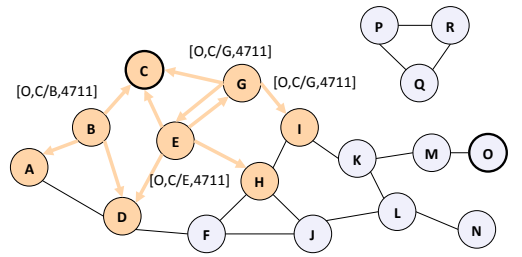

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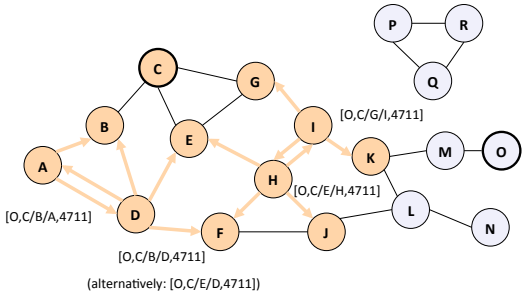

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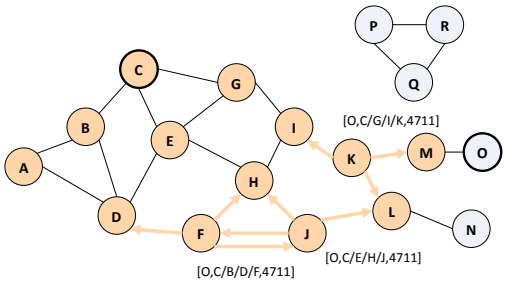

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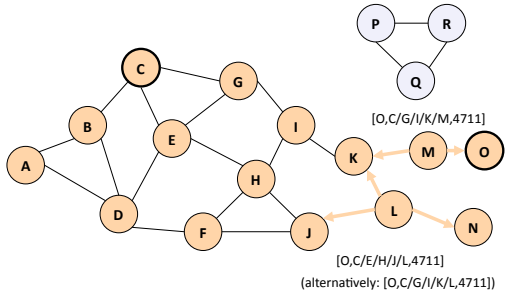

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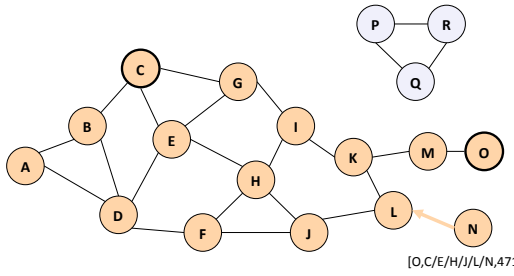
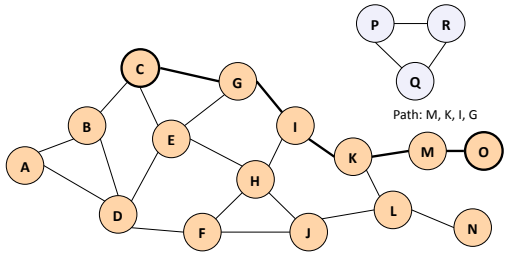
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