Packet Radio Networks

- Users often not in direct radio contact
- Users are often mobile
- Nodes and repeaters are *unreliable*
- Design Issues
  - How to access the channel
  - How to use intermediate nodes as repeaters
- Channel access --> CSMA

Packet Radio Networks

- Use of intermediate nodes as repeaters is a routing issue, e.g., forward a received packet or not.
- Some forwarding rules for packet radio networks
  - Flooding, just rebroadcast every packet received that is not terminated at that node
  - Limited hop-count
    - Added a field in the PDU indicating how many times the packet had be forwarded --> Hop_count.
    - Initialize Hop_count =N

Packet Radio Networks

- Each repeater decrements Hop_count
- If Hop_count =0, discard PDU
- Each node keeps list of the M most recently forwarded packets and does not reforward packets

– Advantages
  - No fixed assignments
  - No knowledge of the topology required

– Disadvantage
  - Inefficient

Packet Radio Networks

- Centralized source routing
  - Centralized controller sends a fixed route to each repeater
  - Advantages
    - Optimum routes can be determined
    - More efficient
  - Disadvantages
    - Single point of failure
    - Management, learning the topology

Packet Radio Networks

- Distributed source routing
  - Each repeater *learns* the topology
  - Advantage
    - Improved reliability
  - Disadvantage
    - Must communicate to determine the topology