Competition: Using Enhanced OFPCOIN to Monitor Multiple Concurrent Events under Adverse Conditions

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SCARE System Correctness under Adverse Conditions

Motivation

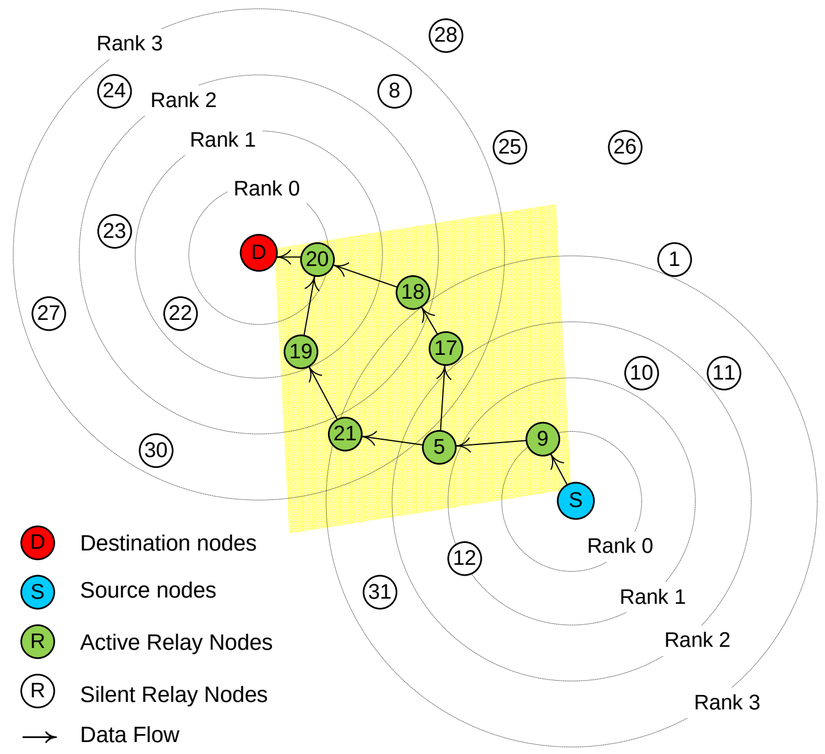
- Quality of Service (QoS) provision in Wireless Sensor Networks (WSNs) is extremely challenging because of:
  - resource constraints of sensor nodes
  - influential changes in the environment
  - dynamic network topology
  - redundant data
- Stringent QoS metrics are required for mission-critical applications, e.g., in wireless industry, smart grids, cooperative driving, etc.
  - high reliability
  - low latency
  - high energy efficiency
  - high robustness against interference

Enhanced OF∂COIN

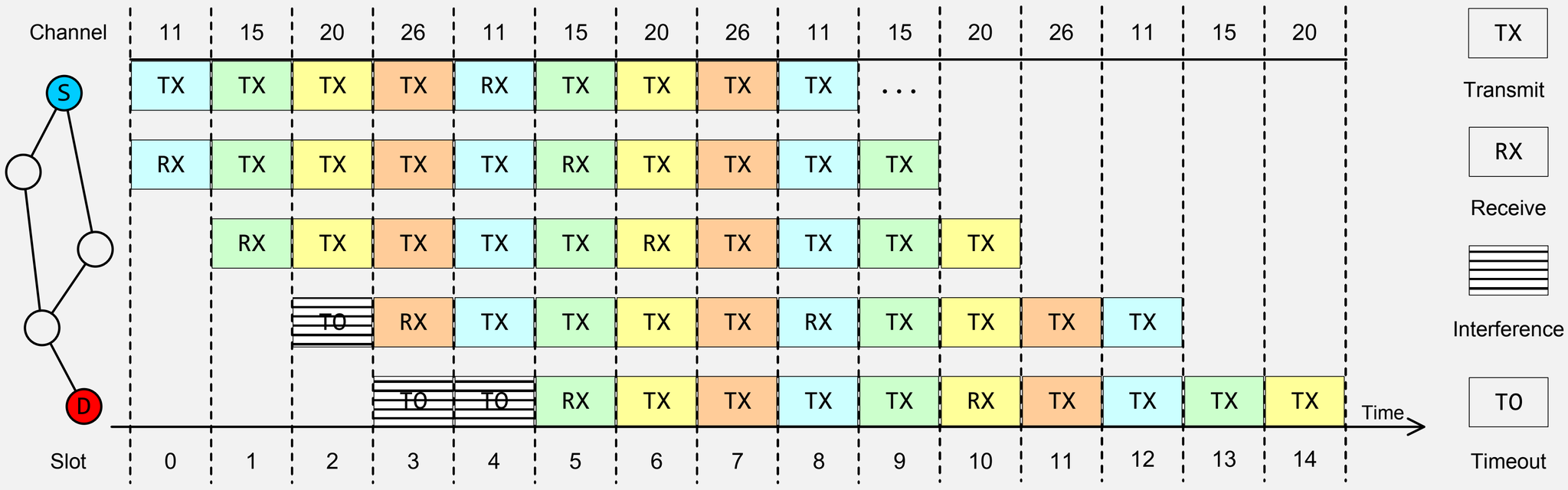
- Design
  - Concurrent transmissions [2]
  - Partial injection (capture effect) [4]
  - Opportunistic multichannel hopping [6]
- Implementation
  - Operating system: Contiki [1]
  - Simulation: Cooja simulator
  - Sensor nodes: TelosB Sky mote
  - Testbed: FlockLab [3]
  - Packet frame:
- Evaluation
  - Testbed: D-Cube [5]
  - Performance metrics
    - Reliability
    - Latency
    - Energy consumption
  - Scenarios
    - One-to-one x3
    - One-to-many x2
    - Many-to-one x2

Octets:	4	1	1	2	1	3	1	1	2
	Preamble Sequence	Start of Frame Delimiter	Frame Length	Public Information	Identical Part Checksum	Private Information	Topology Information	Different Part Checksum	Footer/ CRC
	Identical Part					Different Part			

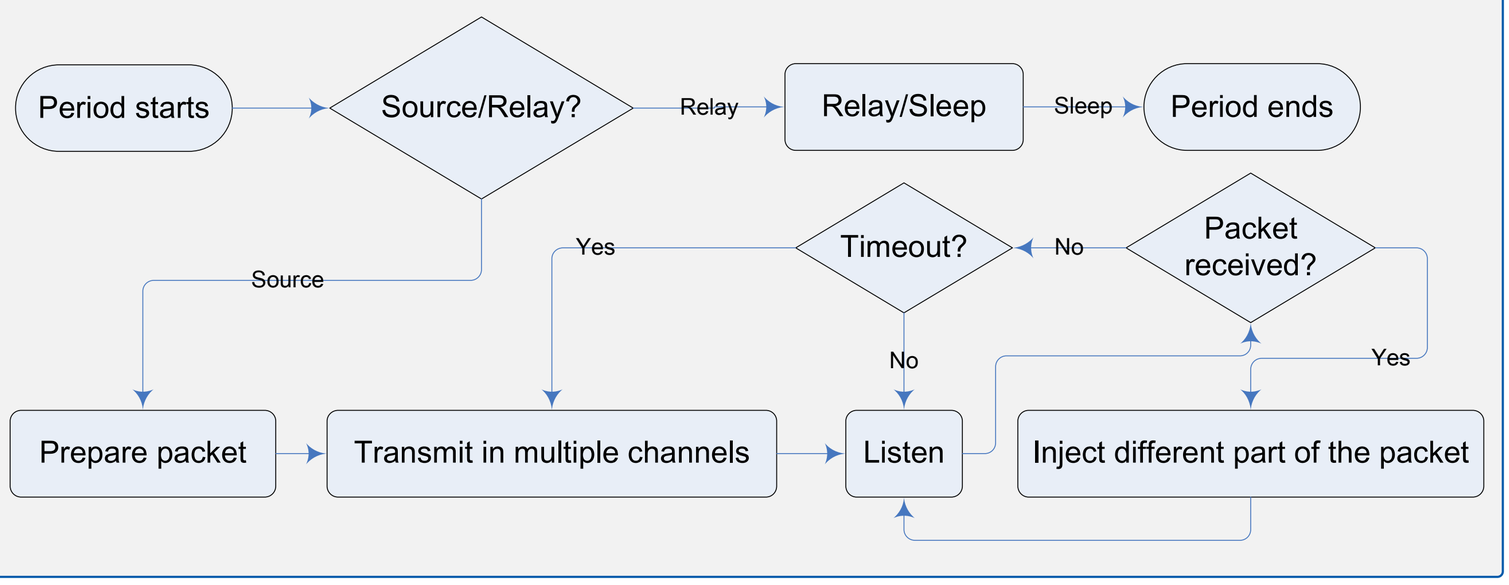
Topology



Timeline



Procedure



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