SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

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Grade
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Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECE402- WIRELESS ADHOC AND SENSOR NETWORKS

IV ECE / VII SEMESTER

UNIT 4 WIRELESS SENSOR NETWORKS

Topic 8- Network Issues

Transport Layer Issues

- Reliable data delivery

- – Pump slowly fetch quickly (PSFQ)

- – Event-to-sink reliable transport (ESRT)

Pump slowly fetch quickly (PSFQ)

- PSFQ assumes that data loss is due to poor link rather than traffic congestion
- The key concept :
  - Source node distributes data at a slow rate (pump slowly)
  - Receiver node which experiences data loss retrieve the missing data from immediate neighbors quickly
- PSFQ consist of three functions :
  - Message relaying (pump)
  - Error recovery (fetch)
  - Selective status reporting (report)

- Pump
  - Disseminates data to all target nodes, perform flow control, and localizes loss by ensuring caching at intermediate nodes
  - Hence, the errors on one link are corrected locally without propagating them down the entire path
- Fetch
  - If receiver detect the loss of sequence numbers, it goes into fetch mode
  - It requests a retransmission from neighbor nodes
  - Many message losses are batched into a single fetch, which is especially suit for bursty losses.
- Report
  - The farthest target node initiates its report on reverse path of data, and all intermediate nodes add their report
  - Hence, PSFQ ensure that data segment are delivery to all intended receiver in a scalable and reliable manner

Event-to-sink reliable transport (ESRT)

- Event-to-sink reliability in place of end-to-end reliability by the transport layer
- The sink is required to track reliably only the collective report about the event and not individual reports from each sensor
- Observed reliability :
  - the number of packets that are routed from event to sink
- Required reliability :
  - The desired number of packets for the event to be successfully track
- If observed reliability < required reliability ,ESRT increase report freq
- Otherwise, decrease the reporting freq for saving energy