A QoS Routing Protocol based on Opportunistic Routing and Network Coding

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What am I proposing?

- A routing protocol to support QoS based on Opportunistic Routing and Network Coding
- Supports both QoS-enabled and best effort flows
- Use of RLNC and Intra-flow Network Coding
- Support to admission control process
How the main components work?

Admission control mechanism:
- Performs admission control and resource reservation in multiple neighbours according to their importance for the relaying process
- Use of thresholds for QoS parameters to improve the service provided to adaptive applications

Transmission mechanism:
- Use of Cumulative Coded ACKnowledgment
  - Relays add a hash (vector) in the packet header to disseminate its space information to others
- Generation-based
  - Pipelined approach to allow the transmission of multiple generations at the same time
  - Use of a TCP Vegas-like approach to control the generation window size
What are the current results?

**Admission control mechanism:**

- Compared to unipath and multipath mechanisms in order to analyze the success rate of the reservation process
- Achieves satisfactory success rate on different network topologies (number of nodes and density)
- We have analyzed the effects of using thresholds on the admission control process

**Transmission mechanism:** *(on going)*

- Compared to traditional routing protocols (AODV, DSR, DSDV, ...) with satisfactory results in terms of throughput
- Next step: compare to NC and/or OR-based approaches (MORE, CODEOR, SOAR, ROMER, ExOR, ...)