1. Network Coding
   - Idea: Allow intermediate nodes to combine incoming packets before forwarding them.
   - Our focus: wireless mesh networks with intersession network coding (COPE)

2. Problem Statement
   - Video Streaming
     - Network Coding
       - Mix packets from different flows
       - Maximize throughput

3. Video-Aware NC Schemes
   - NCV: Network Coding for Video
     - Candidate codes for \( p \triangleleft A \)
     - In general, code \( c_\alpha \) that brings maximum quality improvement:
       \[
       \frac{\sum_{h \in S} \frac{1}{w_h}}{\sum_{h \in S} \frac{1}{w_h}} = 1 - \frac{1}{\sum_{h \in S} \frac{1}{w_h}}
       \]

4. Performance Evaluation
   - Simulation Setup: Extended GloMoSim
   - Network Codes
     - Primary packet: \( A_1 \) is primary packet
     - NCVD: NCV + primary packet
     - NC-Radio: Rate-Diostization Optimized NC
   - Taxonomy of Algorithms under Comparison

Implementation
- Maintain state per hyperarc queue
- Store coded packets
- Store all packets in output queue \( Q \)
- If there exists network coding opportunity, packets are coded and stored in the queue.
- Hyperarc queue size is determined heuristically.
- Extended traffic splitting parameters

Implementation Summary
- Only traffic splitting part changes
- Our protocol directly applies to multi-hop network coding

Simulation Results:
- Throughput improvement compared to no-NC
- Optimal TCP-NCAQM TCP-CPE
- A & B Topology X Topology Grid Topology
- Our scheme (NCAQM) doubles TCP throughput