

Loss Detection and Recovery for Improving Congestion Control in Mobile ICN Networks

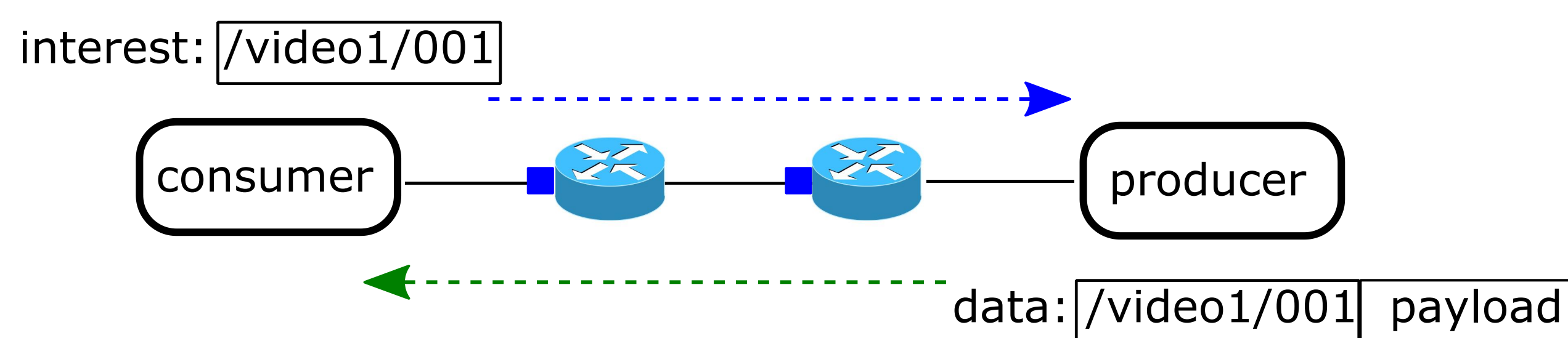
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1. BACKGROUND ON ICN

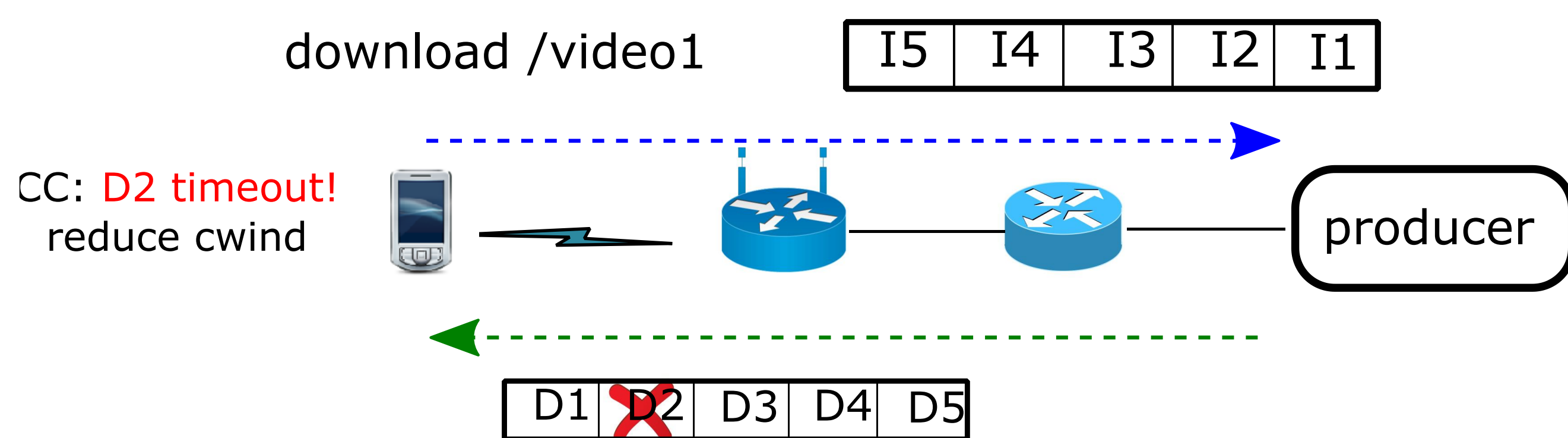
- Information-Centric networking paradigm.
- Name content (contrast to name host in IP).



- Stateful-forwarding, connection-less.
- Receiver-driven Congestion Control.

2. ISSUE OF CONGESTION CONTROL IN MOBILE ICN NETWORKS

- Existing schemes assume fixed network.
- Suffer from poor performance in mobile networks.
- Due to wireless/mobility loss:

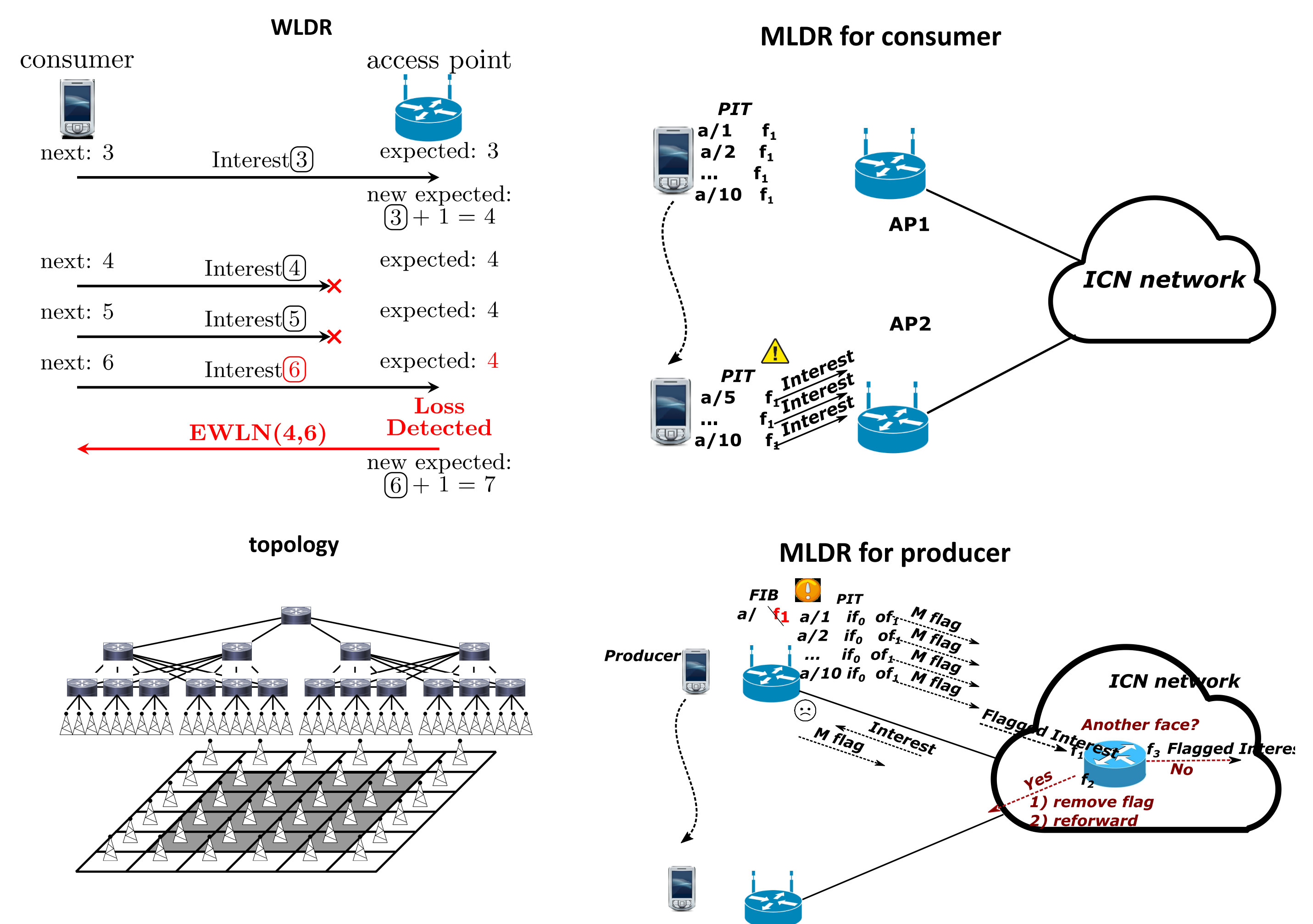


3. IN-NETWORK LOSS DETECTION AND RECOVERY TO FACILITATE CONGESTION CONTROL

Our approach:

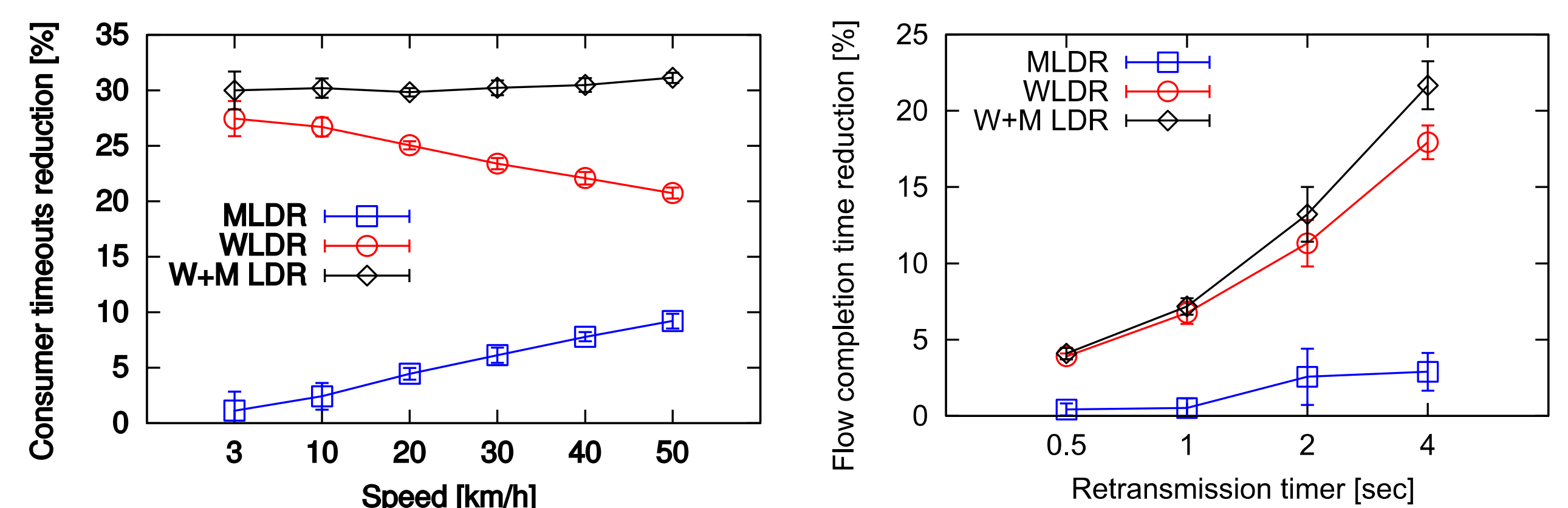
- Hide mobility/wireless loss from CC.
- Distinguish nature of losses.
- Leverage ICN's in-network processing.
- WLDR** -> wireless loss.
- MLDR** -> mobility loss.

4. WLDR AND MLDR ILLUSTRATIONS



5. SIMULATION SETUP & RESULTS

- Ns3 based simulation: 802.11n wifi & fat-tree (mobile access topology).



- Reduce 30% unnecessary timeout.
- >20% gain in flow completion time!

6. CONCLUSION & FUTURE WORK

- MLDR/WLDR effectively shield mobility/wireless loss from CC.
- ICN's in-network processing features allow **fast detection of losses and recovery at optimal place of losses.**
- Extends the analysis to other radio access (4G, wifi-max).

REFERENCES

- Leveraging ICN In-network Control for Loss Detection and Recovery in Wireless Mobile networks, X. Zeng et al., ACM ICN 2016
- Networking Named Content, Van Jacobson et al., ACM Conext 2009

