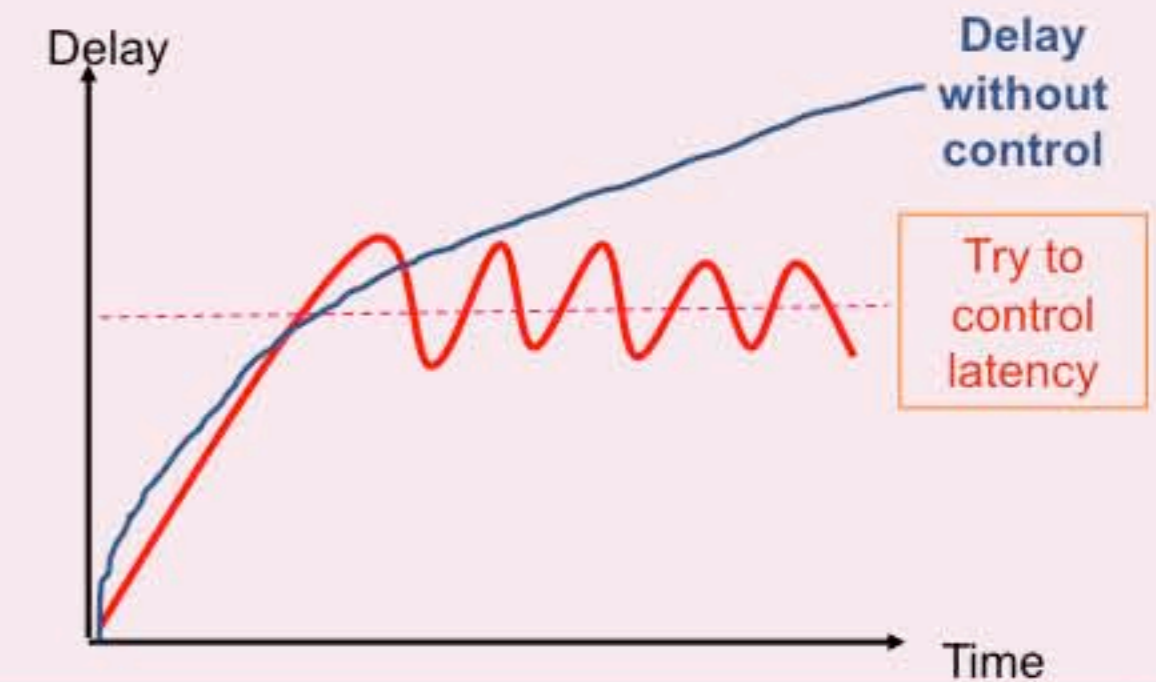




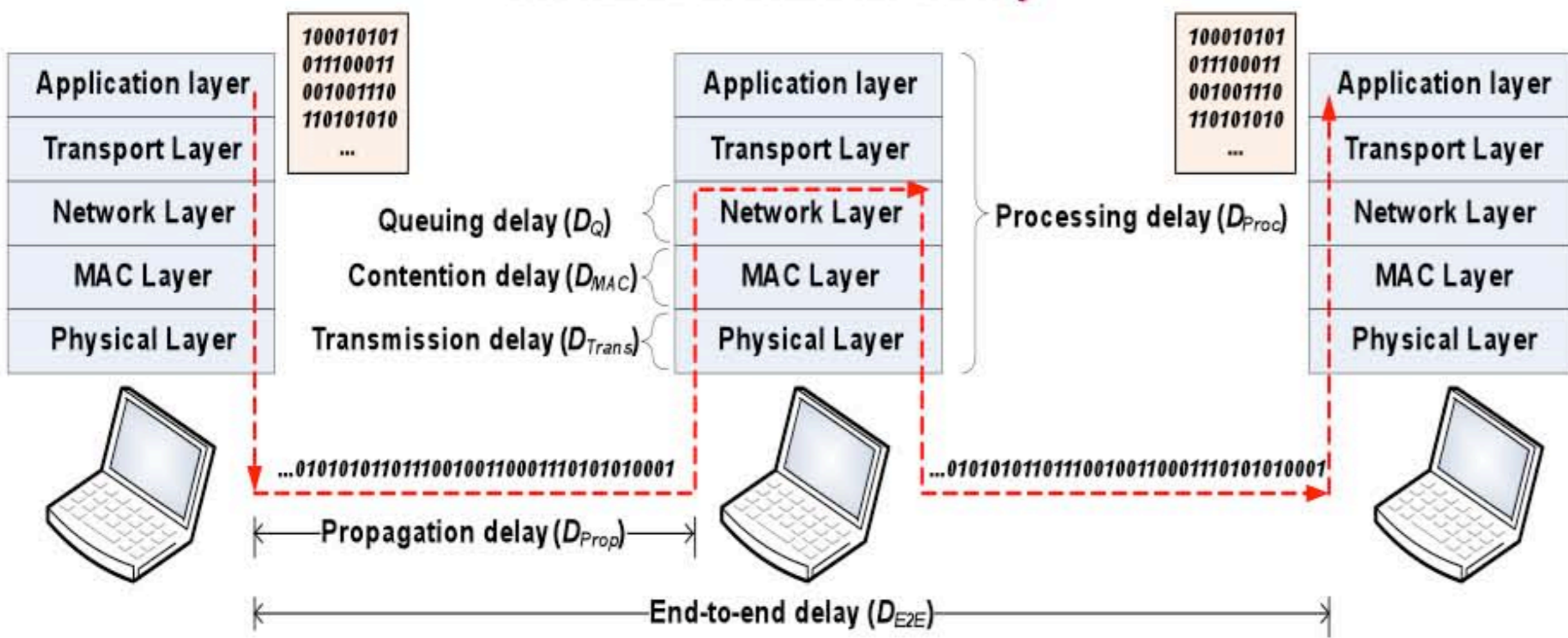
Network Delay Control

Motivation & Objectives

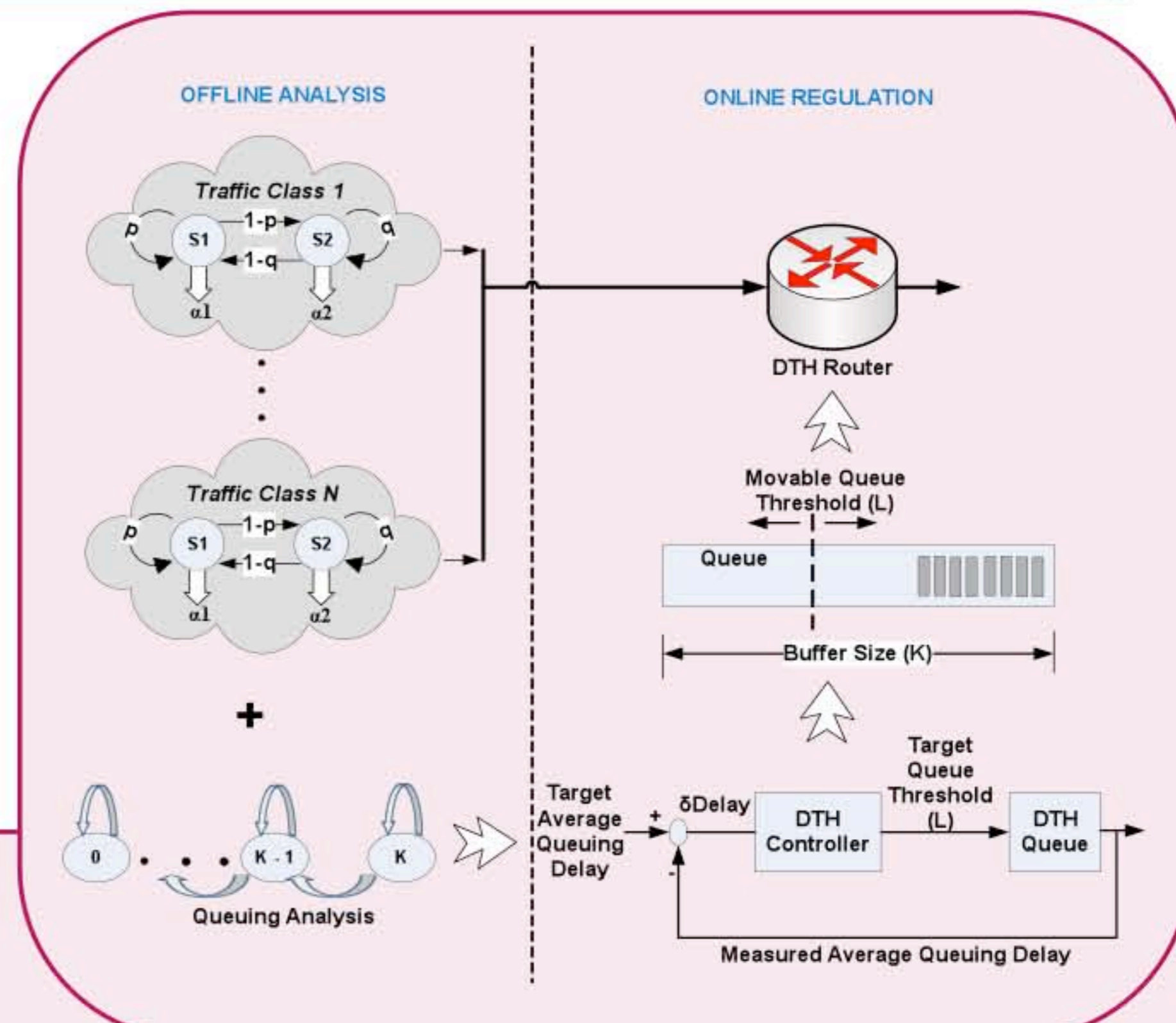
- Network delay is critical for delay sensitive applications; therefore bounding end-to-end delay is a key QoS requirement nowadays.
- Queuing delay is one of the key components that contributes to network delay; effective queue management would be able to constrain the per-hop average delay.
- How can the per-hop average delay for a Internet router or a wireless node in ad hoc networks be bounded through dynamic queuing threshold mechanism?



What is network delay?

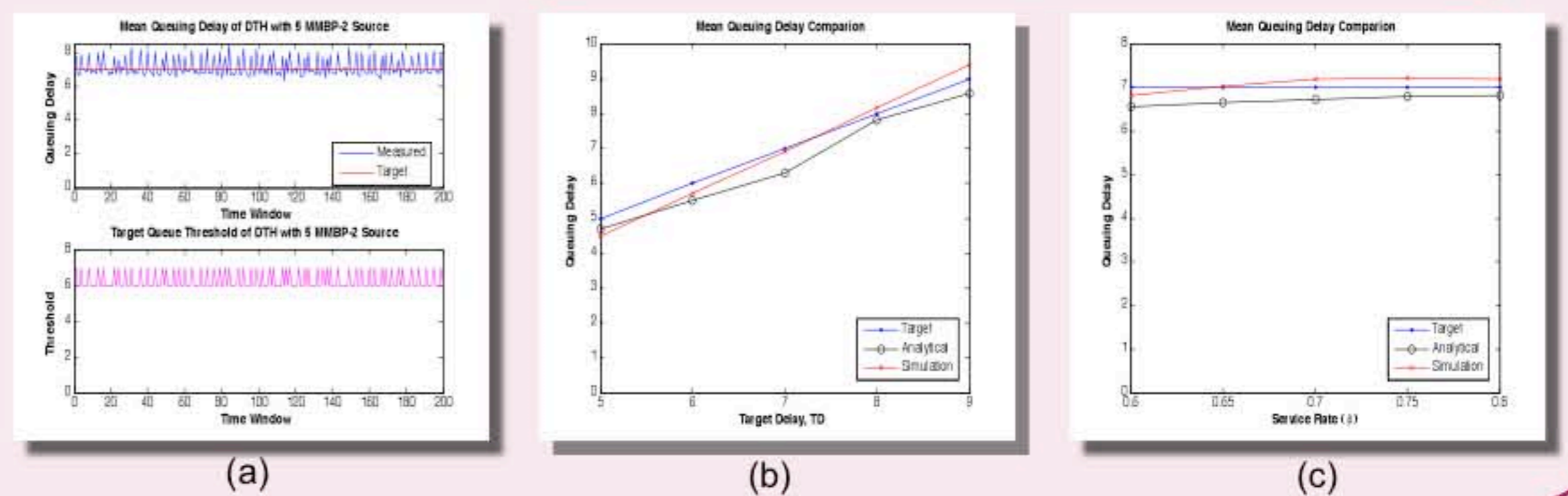


Example of network delay components for wireless networks.

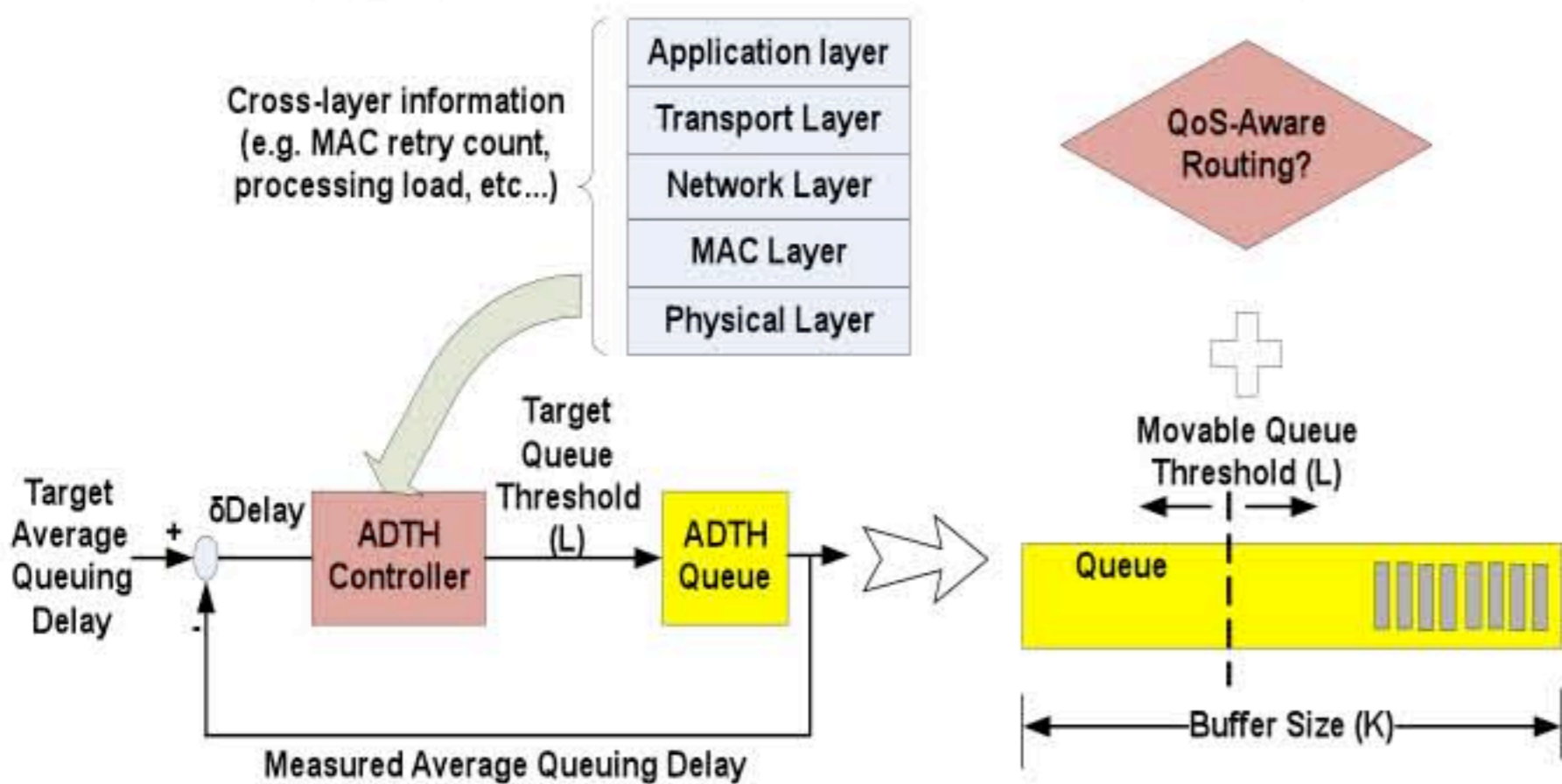


Apply Offline-Based Dynamic THreshold (DTH) Scheme to a Internet Core Router

- Regulate router output queue threshold based on average queuing delay observed and offline analytical analysis.
- Queuing model with superposition of N MMBP-2 arrival processes is adopted for offline analytical analysis.
- Feasibility of the proposed scheme is validated via various scenarios with Matlab simulation as shown in fig. (a) – (c).



Apply Online-Based Adaptive Dynamic THreshold (ADTH) Scheme to a Wireless Node



- Regulate MAC interface queue threshold based on cross-layer information and measurement to bound nodal delay.
- The proposed scheme will be simulated and implemented on a testbed for validation and performance evaluation.

