Impact of Transient Link Blockage in Mmwave Network Environment

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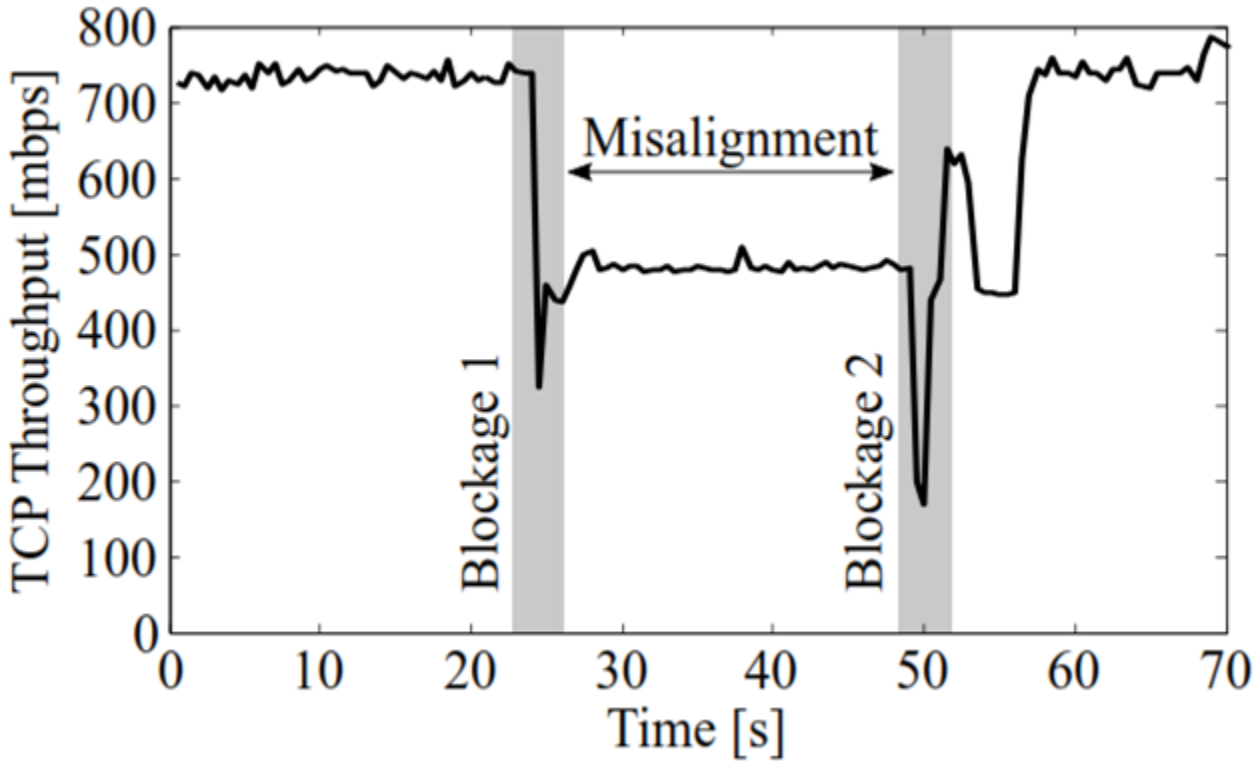
Outline

- Problem Background
- Research question
- Markov Chain Model
- Simulation Results

Problem Background

- Distinguishing link degradation due to mobility from that due to blockage in millimeter wave (mm-Wave) networks is challenging.



Problem Background

- Derive an analytical Markov chain model for transient link blockage based on our practical insights. Analysing the trade-off between throughput and the overhead caused by periodic beam sweeps.

Research Question

- How Beam sweeping frequency will affect the TCP throughput?

Markov Chain Model

blockage occurs on average every μ seconds, T = μ and thus the probability of staying at LH is p=1- 1/μ.

From this we directly obtain that the transition probability from LH to B is 1 - p_s=1/μ

If blockage lasts every tb , the probability of statying at B is p=1- 1/ tb