



QUIC Congestion Control Identification and Analysis

Abstract:

QUIC is a secure general-purpose, encrypted, multiplexed, and low-latency transport protocol designed from the ground up to improve transport performance for HTTPS traffic. QUIC has recently (May 2021) become RFC standard (RFC 9000) and is expected to become the dominant transport protocol in the Internet over TCP. QUIC has many features that were designed to overcome TCP's drawbacks.

Further information can be found in the IETF workgroup page: <https://quicwg.org/>

Purpose of the Project:

The students will install a QUIC module for the industry standard NS3 simulator and demonstrate key features of the QUIC protocol.

What will be done in this project?

1. Install NS3 on a virtual machine.
2. Demonstrate basic key features of the protocol:
 - a. Connection establishment
 - b. Connection termination
 - c. RTT estimation
 - d. Spin bit operation – may require implementation
3. Bonus 1: Retransmission process
4. Bonus 2: Demonstrate the operation of one of the simulated congestion control mechanism.

General requirements for all LCCN Projects are specified at the lab website:

<https://lccn.cs.technion.ac.il/lab-courses/>

Prerequisites:

1. Introduction to computer networks (236334)
2. Internet Networking (236341)

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