Running Time Changes in Preexisting Benchmarks (n=8) common/ntor common/uniformdh internal/x25519ell2 BenchmarkHandshake BenchmarkHandshake BenchmarkKeyGeneration 7160 -550 -25.31 -7140 -545 -25.29 -7120 -540 -25.27 -7100 -Running time [ms/op] branch obfs4-bench obfs4-bench main obfs4-bench main main main transports/obfs4/framing internal/x25519ell2 transports/obfs4 BenchmarkObfs4Handshake BenchmarkEncoder_Encode BenchmarkMap obfs4-bench 639 -1645.0 **-**636 -4.48 -1642.5 -633 -1640.0 **-**4.47 -630 -1637.5 **-**627 -

obfs4-bench

Branch

obfs4-bench

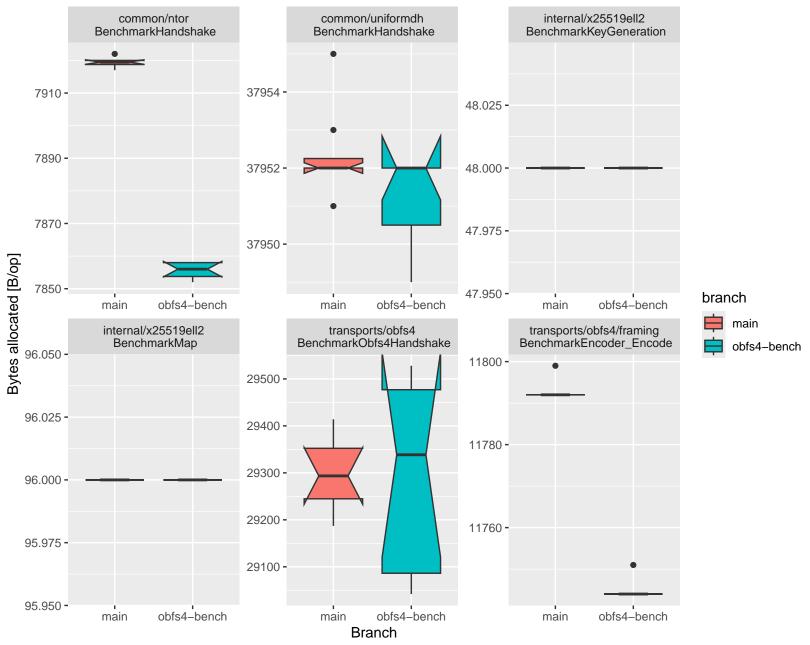
main

main

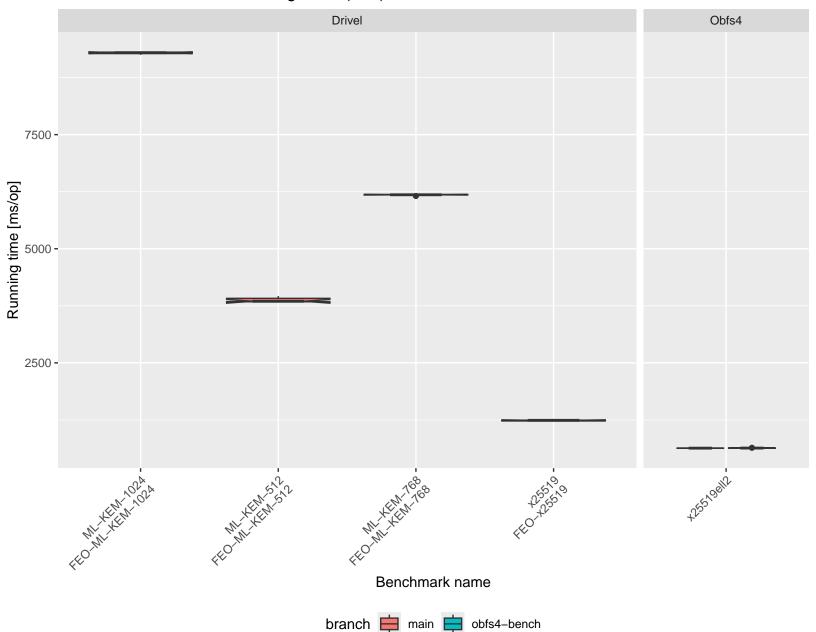
obfs4-bench

main

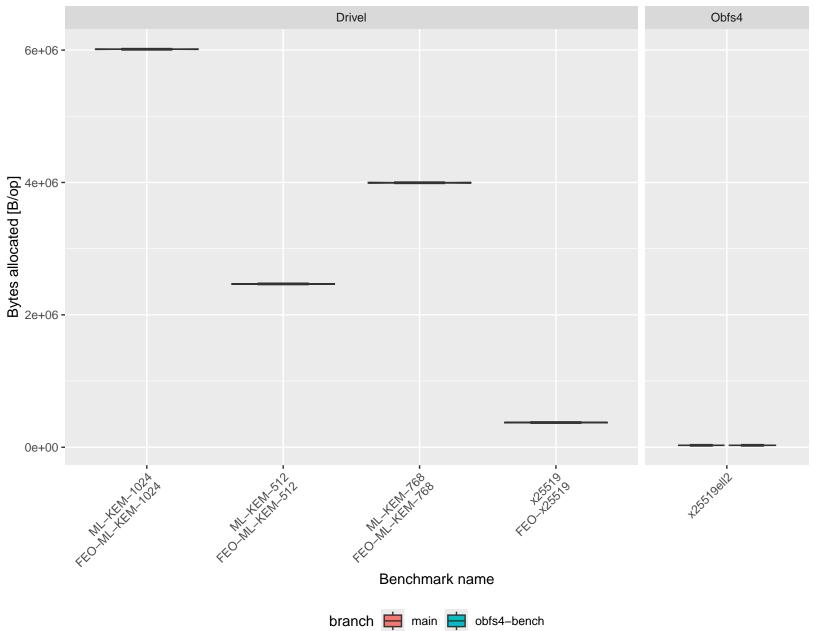
Memory Usage Changes in Preexisting Benchmarks (n=8)

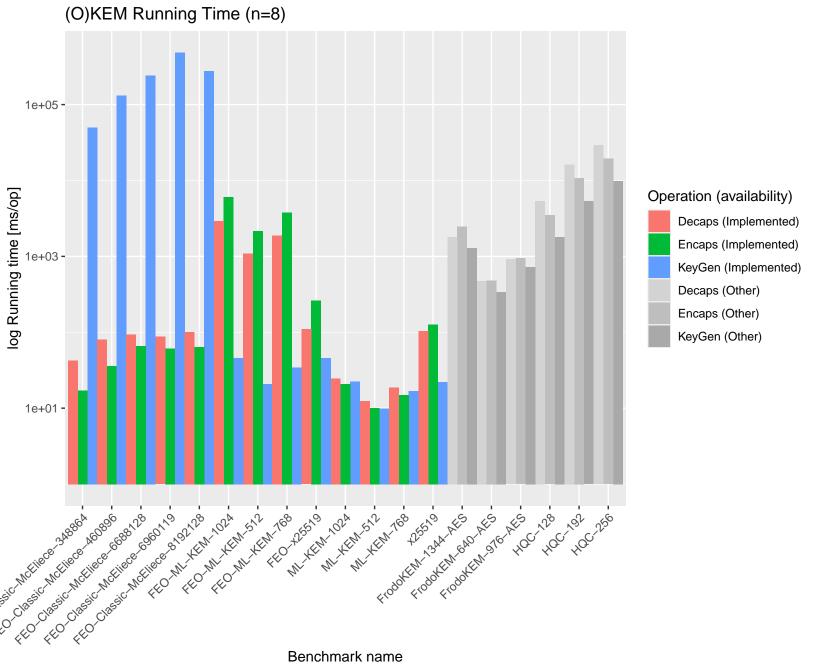


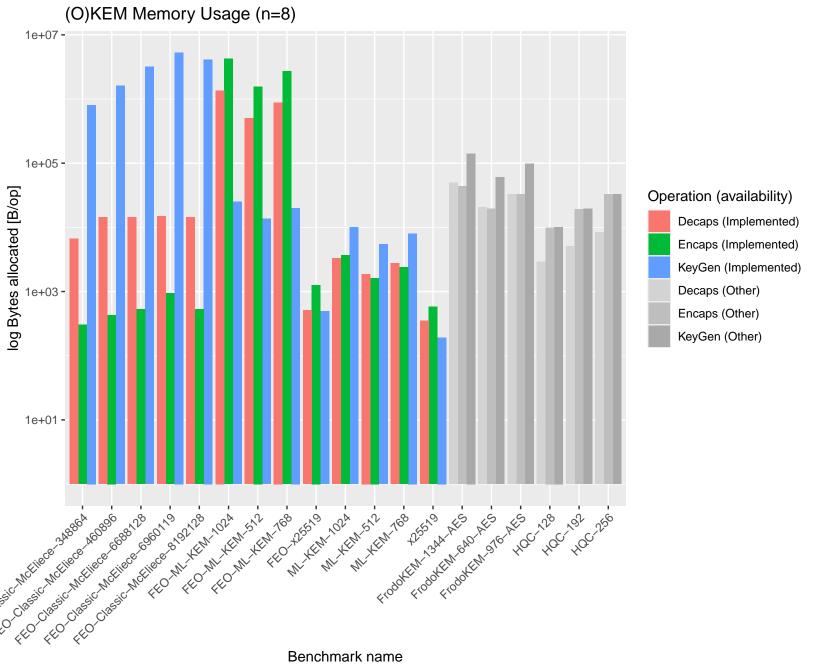
Simulated Handshake Running Time (n=8)



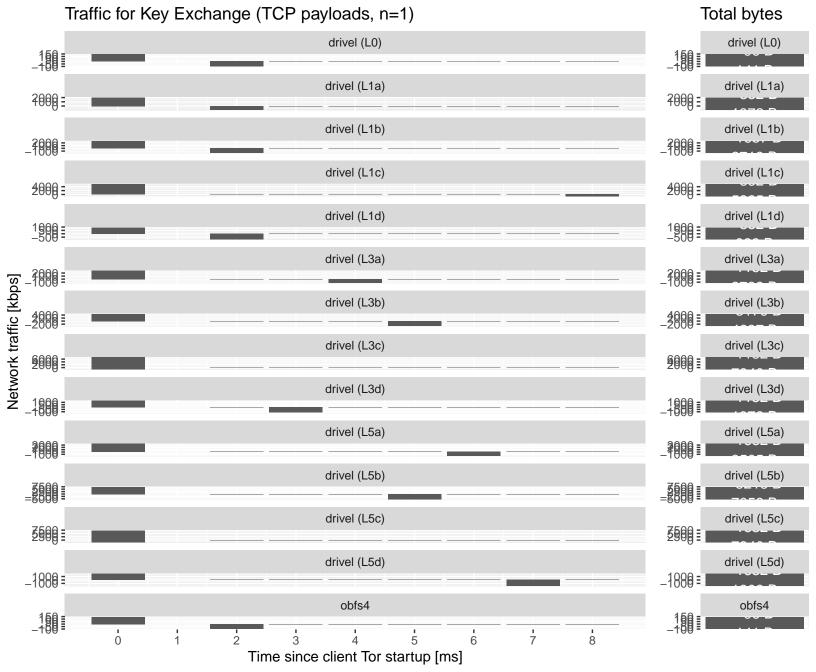
Handshake Memory Usage (n=8)

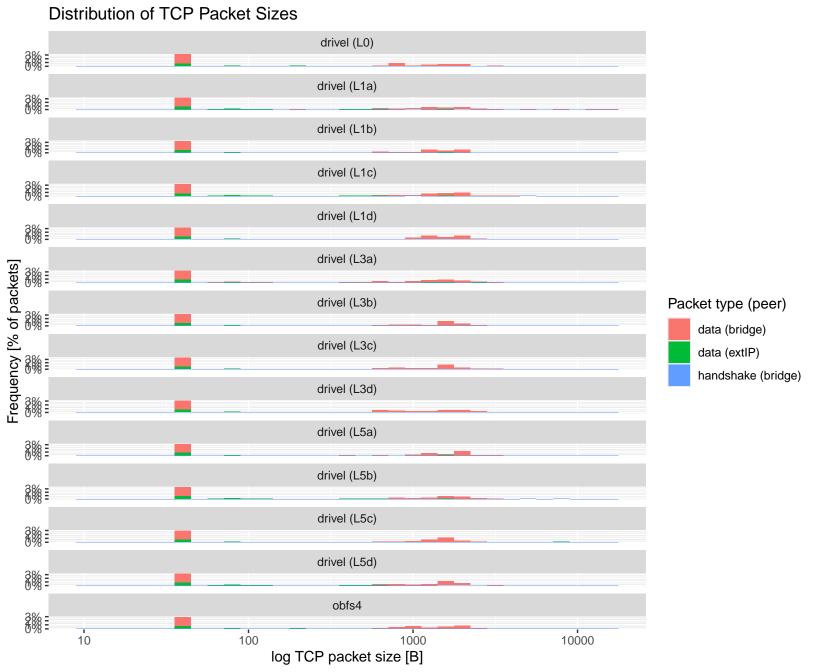




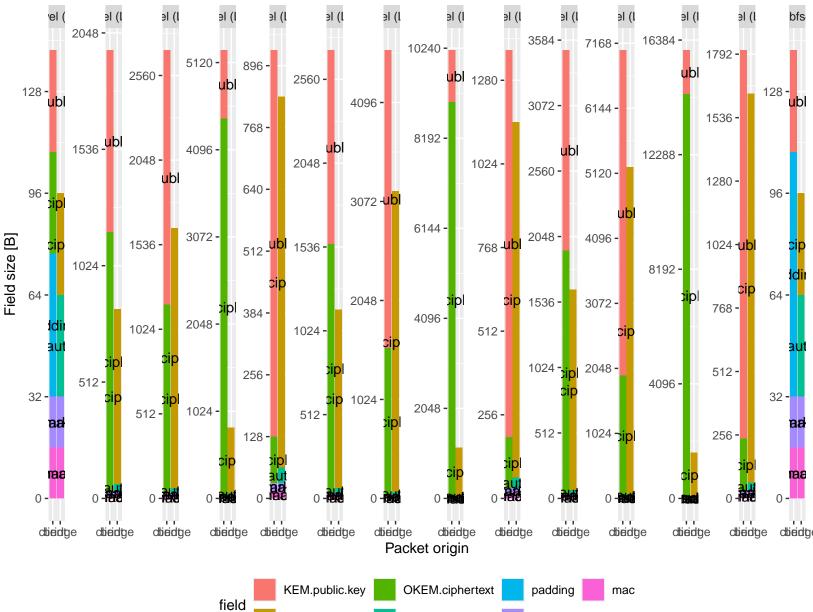


Network Traffic over Time (TCP payloads, n=1) drivel (L0) **=**200 ■ drivel (L1a) **=399 ■** drivel (L1b) _50= drivel (L1c) <u>8</u>8 ■ drivel (L1d) _50= drivel (L3a) _50= Network traffic [kbps] drivel (L3b) -188 ≣ drivel (L3c) _50= drivel (L3d) _50= drivel (L5a) <u>-</u>49 ≡ drivel (L5b) 199 ≡ drivel (L5c) _480 ■ drivel (L5d) _50 = obfs4 _88 ≡ 8 9 10 11 3 Time since client Tor startup [s] Packet type (peer) data (bridge) data (extIP) handshake (bridge)





Composition of Handshake Packets el (l el (L el (l el (al (L



auth

mark

KEM.ciphertext