ECE6115 Lab 4 Report

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Part A

Question 1

Theoretical peak throughput for a mesh with N nodes is 4/sqrt(N). In the case of an 8x8 mesh, the theoretical peak throughput is 0.5. However, the actual observed peak throughput for VC = 1 is somewhere around 0.06.

Question 2

After 2 VCs, the packets received spikes and there becomes less and less of a difference between 4, 8, and 16 VCs in terms of packets received. This is because the max channel load is 2 (1/theoretical peak throughput), so VCs do not make much of a difference past this point.

Part C

Question 3

Wormhole’s performance is much worse than VC = 16 for uniform random. For uniform random, every router is sending to each other, so wormhole can easily be a victim of head-of-line blocking. VC = 16 suffers less of this type of blocking.

Question 4

Wormhole’s performance is still worse than VC = 16 for tornado traffic, but it is not as big of a difference as it was for uniform random. For tornado, there is not as much head-of-line blocking.