# CHAPTER 5 CONCLUSION

This project has demonstrated the effectiveness of different cache request techniques under on-path caching to improve the delay performance in a wireless mesh network. A cache request on a next hop to the gateway specified in the routing table would underutilize the network resources in a wireless mesh network that is normally designed with several paths between mesh clients and the gateway. We proposed the random-path cache request technique that can distribute the network load across several network paths by randomly sending a cache request to many upstream nodes toward the gateway. Our simulation study shows that the proposed random-path cache request techniques yield between 1.2 to 1.8 times lower average transfer delay than single-path cache request in the simulated grid topology. We observe that random-path cache request and session-count cache request show the same capability to distribute cache requests among several upstream next hops, and hence do not exhibit any performance difference.

In a realistic environment, wireless links between proxies may have different loss ratios and bandwidths. It is therefore better to avoid proxies already having high loads (already connected to many active transfer sessions), and those with lower link loss ratios are preferred. Our work can be extended to deal with these situations in more realistic environments. Further, extensive simulation on different network topologies, cache sizes, load conditions, and traffic patterns should be carried out for more comprehensive performance evaluation.