

Abstract

This research focuses on the analysis of fog computing performance on mesh, star, and ring topologies using the YAFS Fog Simulator. The reason YAFS (Yet Another Fog Simulator) was chosen was based on the consideration that this fog computing simulator, among other things, was designed to analyze topology and load balancing as well as include processing time for data transfer between devices into the fog layer. In addition, YAFS has a better level of time processing accuracy than other fog simulators. There are three test scenarios with additional load which includes 4, 8, and 12 fog nodes in each topology. Each scenario also has an additional load which includes 4, 8, and 12 devices in the form of sensors and actuators, respectively. The experimental results from the three scenarios show that the greater the load from the fog node and equipment, the longer the processing time will be. In addition, the results of the three scenarios also show that the mesh topology has the best time processing accuracy among the three tested topologies.

Keywords: Fog Computing, YAFS, Star Topology, Mesh Topology, Ring Topology