Implementation and performance analysis of mobile handoff process on openflow-based wi-fi network

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Abstrak

Research in communication network has the limit due to its problem of the supply frequency and equipment. To overcome this problem, open source can be the solution to build a helpful test bed for the research or academic purpose. Open source network can be developed using Software Defined Network (SDN) which has been continuosly developed due enormous number of installed base equipment and protocols that are inflexible, predefined, and fixed since SDN offers a flexible, dynamic, and programmable functionality of network systems. By using OpenFlow as its protocol, we can program the network flow in a flow table on different switches and routers. This research approches an OpenFlow-based Wi-Fi environment using OpenFlow-based Access Point (OFAP) and OpenFlow controller. Each OFAP is deployed at two different rooms and performed several experiments to evaluate handoff delay. The result of this experiment show that OpenFlow-based network show more stable process than traditional network because of installed flows given to each packets however the discovered value needs to be examined further due to better mechanism towards installed flows. The handoff delay between OFAPs is 24% faster than handoff delay between traditional AP with average of 79.9 miliseconds. By use of this system, we believe it could deliver high performance network and increase reliability for the real-time traffic over WLAN, by reducing handoff delay compared to classical Wi-Fi environment.