ABSTRACT

In this time, a new paradigm has been developed in computer networks, it is called Software Defined Networking (SDN). SDN is a network architecture which separates the network controller from the forwarding plane and can be programmed directly, so it provides flexible, programmable, vendor-agnostic, cost efficient networks. However, the SDN that is currently available at this time is mostly still used in wired networks and not wireless.

In this project, I simulated the SDN that integrates within the *wireless network*. The integration is done by creating a Wireless Mesh Router (WMR) in which it is using the OpenFlow switch to connect the WMR with SDN controller. Gateway balancing function in SDN controller is excecuted for handling the traffic flows so we get better bandwidth values than without the gateway balancing activated.

This project applicates the wireless SDN (WSDN) as routing engine that do the gateway balancing in the traffic that is going through gateways on clients. This project has tested three scenarios: i) controller gateway balancing and ii) controller gateway fault handling. The softwares are used in this simulation are Openvswitch, POX controller, OLSR daemon, and Python and Bash scripts provided. The tools are used for the simulation are Linux containers (LXC), CORE, and NS-3.

Keywords: *SDN, WSDN, OpenFlow, Gateway balancing*