ABSTRACT

Internet Exchange Point (IXP) is a network infrastructure with the aim of facilitating the exchange of Internet traffic between Autonomous System (AS). Inter-AS on IXP is connected to the Exterior Gateway Protocol (EGP) routing mechanism that is the Border Gateway Protocol (BGP). BGP has the characteristics of routing only on destination IP prefix, where these characteristics impact on the difficulty of inbound traffic engineering management caused by the destination AS having limited control over incoming traffic on its network.

The difficulty of managing inbound traffic engineering can be overcome by manipulating forwarding rules through the addition of Open Flow rules to the control plane. Manipulation of rules on control plane can be done by using Software Defined Network architecture (SDN). By applying the SDN architecture on IXP (SDX), the AS can manipulate forwarding rules on the control plane, so the difficulty in managing inbound traffic engineering can be overcome.

One of the indicators to determine which architecture is better to apply to IXP is network performance analysis. Based on the results of network performance testing on the SDX architecture has a value in the convergence time between 7.30 seconds to 11.2 seconds and Network Performance Metrics (NPM) that is loss between 0% to 2.1%, delay between 0.001 ms to 0.077ms, and utilization between 0.0801% and 0.137 % better than conventional architecture.

Keyword: **SDN, IXP, BGP**