

ABSTRACT

Named Data Network (NDN) is a concept of a future network that can help network several issues present in the current internet architecture, namely IP Addresses, where data transmission relies on host addresses on each device. Named Data Networking (NDN) and Software Defined Networking (SDN) architectures serve as a new paradigm in data delivery, shifting from host-centric to data centric, thereby enhancing data distribution efficiency. SDN also has advantages over IP networks due to its separation of data plane and control plane. The integration of SDN and NDN brings benefits such as reducing consumer time in receiving data. However, NDN itself has various forwarding strategies according to specific specifications and characteristics that can be used in each network.

Therefore, this final project involves exploring several forwarding strategies using two different environments, namely the NDN environment and the SDN-NDN environment with Best-Route, Multicast, and Adaptive Smoothed Forwarding Strategies. 2 scenarios are applied to both environments to observe the performance of each implemented forwarding strategy with the aim of assessing the differences and suitability of each forwarding strategy in the NDN and SDN-NDN environments when used in wireless networks. The implementation and performance analysis of this research will use Quality of Service (QoS) parameters such as Average Round Trip Time (RTT), Throughput, Packet Loss to assess the quality of each forwarding strategy and environment used.

The results of this research can help to determine suitable forwarding strategies and environments for implementation in wireless networks. Based on the findings of this study, the SDN environment has reduction in terms of average RTT around 55% until 80%, and Throughput around 60% until 70% compared to the NDN environment. In packet loss and satisfied interest ratio measurement, SDN environment has amount of packet loss around 0.33% and 0.083% in several scenarios and make a reduction of satisfied interest ratio around 0.04% and 0.09% in several scenarios.

Keywords: Named Data Network, Forwarding strategy, Wireless Network, Content.