ABSTRACT

A rapid advancement of digital transformation demands network system that are not only efficient and flexible but also secure and easy to manage. Secure Access Service Edge (SASE) is an integrated architecture that combines networking and cybersecurity functionalities into a unified, cloud-based platform. This study explores the implementation of an open source-based Secure Access Service Edge (SASE) architecture utilizing VyOs as the Software-defined Wide Area Network (SD-WAN), OpenDaylight for SD-WAN monitoring and management, OPNsense as a Firewall as a Service (FWaaS).

The research method includes system design, component integration, and performance testing. The result show that the architecture improves network efficiency, simplifies infrastructure management, and enhances remote access security. This open-source Secure Access Service Edge (SASE) solution is proven to be a practical and cost-effective approach for organizations undergoing digital transformation.

This final project delivers an open-source-based *Secure Access Service Edge* (SASE) architecture by integrating VyOS, OPNsense, and OpenDaylight. Testing conducted in PNETLab demonstrated that the system can establish stable site-to-site connections, support dynamic routing, and provide centralized firewall functionality. The results confirm that this system is a viable, cost-effective alternative SASE solution for organizations seeking vendor independence.

Keywords: FWaaS, OpenDaylight, SD-WAN, Secure Access Service Edge, VyOs.