PERANCANGAN APLIKASI WEB *NETWORK AUTOMATION* MANAJEMEN PELANGGAN PPPOE MENGGUNAKAN MIKROTIK PADA JARINGAN RT/RW NET (STUDI KASUS : MCONNEK)

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ABSTRAK

Pengelolaan pelanggan pada jaringan RT/RW Net yang masih dilakukan secara manual menggunakan WinBox membutuhkan waktu lebih lama dan berisiko menimbulkan human error. Penelitian ini bertujuan mengembangkan Website *Network Automation* untuk manajemen pelanggan PPPoE menggunakan MikroTik pada jaringan RT/RW Net Mconnek guna meningkatkan efisiensi pengelolaan pelanggan dan konfigurasi jaringan. Penelitian menggunakan metode *Research and Development* (R&D) dengan model *Waterfall* yang meliputi *requirement, design, implementation, verification, dan maintenance.* Sistem dikembangkan menggunakan Next.js, Laravel, MySQL, RouterOS API, MessagePack, Midtrans, Wablas, dan Docker. Pengujian dilakukan melalui *Black Box Testing, White Box Testing* dengan teknik *Basis Path Testing*, serta pengujian efisiensi melalui perbandingan waktu dengan metode manual menggunakan WinBox. Hasil pengujian menunjukkan seluruh fungsi sistem berjalan sesuai kebutuhan dengan peningkatan efisiensi sebesar 49,37%–96,80%. MessagePack juga mengurangi ukuran *payload* pada sebagian besar fitur, sementara otomatisasi isolir pelanggan menggunakan sumber daya MikroTik yang relatif rendah. Dengan demikian, sistem mampu meningkatkan efisiensi dan otomatisasi manajemen pelanggan PPPoE melalui integrasi administrasi layanan dan konfigurasi jaringan dalam satu platform berbasis web.

Kata Kunci*: Network automation*, MikroTik, PPPoE, RT/RW Net, *Waterfall*.

DESIGN OF A WEB-BASED NETWORK AUTOMATION APPLICATION FOR PPPOE CUSTOMER MANAGEMENT USING MIKROTIK ON AN RT/RW NET NETWORK (CASE STUDY: MCONNEK)

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ABSTRACT

Customer management on RT/RW Net networks that is still performed manually using WinBox requires more time and increases the risk of human error. This study aims to develop a Network Automation Website for PPPoE customer management using MikroTik on the Mconnek RT/RW Net network to improve the efficiency of customer management and network configuration. The study employs a Research and Development (R&D) Method using the Waterfall model, consisting of requirement, design, implementation, verification, and maintenance stages. The system was developed using Next.js, Laravel, MySQL, RouterOS API, MessagePack, Midtrans, Wablas, and Docker. Testing was conducted through Black Box Testing, White Box Testing using the Basis Path Testing technique, and efficiency testing by comparing processing times with the manual Method using WinBox. The results showed that all system functions operated according to the requirements, with efficiency improvements ranging from 49.37% to 96,80%. MessagePack also reduced payload size in most features, while automated customer isolation utilized relatively low MikroTik resources. Therefore, the system successfully improved the efficiency and automation of PPPoE customer management by integrating service administration and network configuration into a single web-based platform.

Keywords: *Network Automation, MikroTik, PPPoE, RT/RW Net, Waterfall.*