

ABSTRACT

TITLE : ANALYSIS AND IMPLEMENTATION OF BANDWIDTH MANAGEMENT AND INTERNET NETWORK SECURITY IN PUSKESMAS SINGKARAK USES THE QUEUE TREE METHOD AND SECURITY USING THE METHOD ACCESS CONTROL LIST (ACL)

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The Singkarak Community Health Center is a health service unit that aims to provide basic health services to the community in the Singkarak area and its surroundings. In an effort to improve the quality of network services, effective and efficient bandwidth management is needed to regulate bandwidth usage. This research aims to analyze and implement Quality of Service (QoS) bandwidth management using the Mikrotik Routerboard device with the Queue Tree and Access Control List (ACL) methods. The research methods used involve literature studies and case studies. Literature studies are used to understand basic theories and concepts related to bandwidth management, Quality of Service (QoS), Mikrotik Routerboard, Queue Tree, and Access Control List (ACL). The case study was carried out by implementing QoS bandwidth management using the Mikrotik Routerboard and the Queue Tree method and ACL in the Singkarak Community Health Center network. The research results show that the implementation of QoS bandwidth management using the Mikrotik Routerboard with the Queue Tree and ACL methods succeeded in improving the quality of network services at the X Koto Singkarak District Head Office. With this approach, bandwidth usage can be managed more effectively and efficiently, so that network services run optimally. Apart from that, QoS bandwidth management also has a positive impact on customer satisfaction and reduces complaints regarding the quality of network services.

Keyword : *Bandwidth Management, Quality of Service (QoS), Mikrotik Routerboard, Queue Tree, Access Control List (ACL), Singkarak Health Center*

ABSTRAK

JUDUL : **ANALISIS DAN IMPLEMENTASI *MANAGEMENT BANDWIDTH* DAN KEAMANAN JARINGAN INTERNET PADA PUSKESMAS SINGKARAK MENGGUNAKAN METODE *QUEUE TREE* DAN PENGAMANAN MENGGUNAKAN METODE *ACCESS CONTROL LIST (ACL)***

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Puskesmas Singkarak merupakan unit pelayanan kesehatan yang bertujuan untuk memberikan pelayanan kesehatan dasar kepada masyarakat di wilayah Singkarak dan sekitarnya. Dalam upaya meningkatkan kualitas layanan jaringan, diperlukan manajemen *bandwidth* yang efektif dan efisien untuk mengatur penggunaan *bandwidth*. Penelitian ini bertujuan untuk menganalisis dan menerapkan manajemen *bandwidth Quality of Service (QoS)* menggunakan perangkat *Mikrotik Routerboard* dengan metode *Queue Tree* dan *Access Control List (ACL)*. Metode penelitian yang digunakan melibatkan studi literatur dan studi kasus. Studi literatur digunakan untuk memahami teori dan konsep dasar terkait manajemen *bandwidth, Quality of Service (QoS), Mikrotik Routerboard, Queue Tree*, dan *Access Control List (ACL)*. Studi kasus dilakukan dengan menerapkan manajemen *bandwidth Quality of Service* menggunakan *Mikrotik Routerboard* dan metode *Queue Tree* serta *ACL* dalam jaringan Puskesmas Singkarak. Hasil penelitian menunjukkan bahwa penerapan manajemen *bandwidth Quality of Service* menggunakan *Mikrotik Routerboard* dengan metode *Queue Tree* dan *ACL* berhasil meningkatkan kualitas layanan jaringan di Puskesmas Singkarak. Dengan pendekatan ini, penggunaan *bandwidth* dapat diatur dengan lebih efektif dan efisien, sehingga layanan jaringan berjalan secara optimal. Selain itu, manajemen *bandwidth QoS* juga berdampak positif terhadap kepuasan pelanggan dan mengurangi keluhan terkait kualitas layanan jaringan.

Kata Kunci : ***Management Bandwidth, Quality of Service (QoS), Mikrotik Routerboard, Queue Tree, Access Control List (ACL), Puskesmas Singkarak.***