

Ferdiansyah. 2025. *Perancangan dan Analisis Perbandingan OSPF pada Jaringan IPv4 dan IPv6: Studi Kasus di SMKN 3 Bangkalan*. Skripsi, Program Studi Pendidikan Informatika, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Trunojoyo Madura. Pembimbing Muhlis Tahir, S.Pd., M.Tr.Kom.

ABSTRAK

Tujuan penelitian ini adalah untuk mengetahui proses perancangan serta menganalisis performa protokol OSPF (Open Shortest Path First) pada jaringan IPv4 dan IPv6 di SMKN 3 Bangkalan. Penelitian ini menggunakan metode uji skenario, yang mencakup tahapan identifikasi masalah, perancangan, implementasi, dan evaluasi. Subjek uji coba mencakup ahli jaringan dan guru mata pelajaran Teknik Komputer dan Jaringan. Teknik pengumpulan data dilakukan melalui wawancara, observasi, dokumentasi, serta pengujian performa jaringan. Hasil penelitian menunjukkan bahwa: 1) Perancangan protokol OSPF berhasil diimplementasikan baik pada jaringan IPv4 maupun IPv6 sesuai topologi yang dirancang. 2) Hasil perbandingan menunjukkan bahwa OSPF pada jaringan IPv6 memiliki performa lebih baik dibandingkan IPv4, ditinjau dari sisi throughput yang lebih tinggi dan latency yang lebih rendah. Selain itu, tidak terdapat packet loss pada kedua protokol. Dengan demikian, implementasi OSPF pada jaringan IPv6 dinilai lebih efisien dan responsif, serta layak dikembangkan untuk mendukung kebutuhan infrastruktur jaringan modern di lingkungan pendidikan.

Kata Kunci : Performa Jaringan, OSPF, IPv4, IPv6.

Ferdiansyah. 2025. *Perancangan and Comparative Analysis of OSPF on IPv4 and IPv6 Networks: A Case Study at SMKN 3 Bangkalan*. Undergraduate Thesis, Informatics Education Study Program, Faculty of Teacher Training and Education, University of Trunojoyo Madura. Advisor: Muhlis Tahir, S.Pd., M.Tr.Kom.

ABSTRACT

The purpose of this study is to determine the design process and analyze the performance of the OSPF (Open Shortest Path First) protocol on IPv4 and IPv6 networks at SMKN 3 Bangkalan. This study uses a scenario test method, which includes the stages of problem identification, design, implementation, and evaluation. The test subjects included network experts and teachers of Computer and Network Engineering subjects. Data collection techniques were carried out through interviews, observation, documentation, and network performance testing. The results of the study show that: 1) The OSPF protocol design was successfully implemented on both IPv4 and IPv6 networks according to the designed topology. 2) The comparison results show that OSPF on IPv6 networks has better performance than IPv4, in terms of higher throughput and lower latency. In addition, there was no packet loss in both protocols. Thus, the implementation of OSPF on IPv6 networks is considered more efficient and responsive, and is worthy of being developed to support the needs of modern network infrastructure in educational environments.

Keywords: Network performance, OSPF, IPv4, IPv6.