

Perbandingan Performa Routing Protocol antara Mixed Routing Protocol dengan Single Routing Protocol pada Aplikasi VoIP Menggunakan Riverbed Modeler Academic Edition 17.5

Oleh

Dewa Nyoman Suartama Ariawan, NIM 1615051074

Program Studi Pendidikan Teknik Informatika

Jurusan Teknik Informatika

Fakultas Teknik dan Kejuruan

Email : dewanyomansuartama98@gmail.com

Abstrak

VoIP merupakan perangkat teknologi komunikasi yang digunakan oleh perusahaan maupun perumahan untuk dapat melakukan komunikasi. Sejauh ini, ada beberapa kekurangan dari VoIP yang mungkin akan berdampak kepada kondisi riil dilapangan, Sehingga diperlukan adanya kombinasi antar routing protocol yang mampu menutupi kekurangan-kekurangan baik aplikasi VoIP maupun routing protocol tersebut. Penelitian ini bertujuan untuk melakukan penelitian perbandingan performa mixed routing protocol dengan single routing serta melakukan pengujian pada IPv4 dan IPv6 dengan menggunakan topologi semi-mesh dan topologi mesh wireless network pada aplikasi VoIP. Penelitian ini menggunakan metode simulasi OPNET Riverbed Modeler Academic Edition 17.5 dengan model desain dan analisis yang meliputi tahapan create network model, modeling, application, profile and failure/recovery config, choose statistics, run simulation, view and analyze the results. Hasil penelitian menunjukkan bahwa kombinasi EIGRP-IGRP-ISIS-OSPF-RIPv2 dan RIPv2-ISIS-EIGRP memberikan hasil penelitian yang baik dan menutupi kelemahan RIPv2, IS-IS dan EIGRP dibandingkan dengan single routing protocol, baik pada topologi semi-mesh dan mesh wireless network. mixed routing protocol. Penambahan variasi perbandingan IPv4 dengan IPv6 berbasis single routing protocol juga menunjukkan hasil yang signifikan, dimana baik IPv4 dengan IPv6 pada topologi semi-mesh dan mesh wireless network berada pada range sebagian berada pada range baik dan sangat baik dengan sisanya adalah hasil cukup, buruk dan sangat buruk.

Keywords: Mixed Routing Protocol, Single Routing Protocol, VoIP, Semi-Mesh, Mesh Wireless Network, Riverbed Modeler

***Comparison of Routing Protocol Performance between
Mixed Routing Protocol and Single Routing Protocol in
VoIP Applications Using Riverbed Modeler Academic
Edition 17.5***

By

Dewa Nyoman Suartama Ariawan, NIM 1615051074

Informatics Engineering Education Study Program

Informatics Engineering

Faculty of Engineering and Vocational

Email : dewanyomansuartama98@gmail.com

Abstrac

VoIP is a communication technology device that is used by companies and homes to communicate. So far, there are several shortcomings of VoIP that may impact the real conditions in the field, so it is necessary to have a combination of routing protocols that can cover the shortcomings of both the VoIP application and the routing protocol. This study aims to conduct a comparative study of the performance of mixed routing protocols with single routing and to test IPv4 and IPv6 using semi-mesh topology and mesh wireless network topology in VoIP applications. This study uses the OPNET Riverbed Modeler Academic Edition 17.5 simulation method with a design and analysis model that includes the stages of create network model, modeling, application, profile and failure / recovery configuration, choose statistics, run simulation, view and analyze the results. The results showed that the combination of EIGRP-IGRP-ISIS-OSPF-RIPv2 and RIPv2-ISIS-EIGRP provided good research results and covered the weaknesses of RIPv2, IS-IS and EIGRP compared to single routing protocols, both in semi-mesh and wireless mesh topologies. network. mixed routing protocol. The addition of the variance of the comparison between IPv4 and IPv6 based on a single routing protocol also shows significant results, where both IPv4 and IPv6 on the semi-mesh topology and the mesh wireless network are in a range, some are in good and very good ranges with the rest being sufficient, bad and very bad results.

Keywords: *Mixed Routing Protocol, Single Routing Protocol, VoIP, Semi-Mesh, Mesh Wireless Network, Riverbed Modeler*