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A Comparison Between MPLS & IP Sec VPN Networks & Optimisation Of

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1. Introduction

Transferring data securely and quickly can be a costly business. When comparing two popular methods used by business (Multi Layer Packet Switching MPLS and Internet Protocol Virtual Private Networks IP VPNs). This report is focused on if this can be achieved at a reduced cost. It is hoped to be achieved by trailing different traffic shaping methods to optimise the throughput this will shine a torch on the optimum settings.

2. Aims and Objectives

The aim of my report is to determine the differences in speed between MPLS and IP Sec based VPN's and the reasons behind it and optimisation of.

- Lit review of tech Networks
- Detailed Project Plan
- Simulation of Networks
- Optimise the Network
- Make Recommendations

3. Research

The methodology chosen will be an experimental one. The environment will be created in GNS3 and on Virtual Box. There will be two independent networks. One which is MPLS and the other IP VPN. The control elements due to their size will only be changed on the IP VPN and have their variables added to the network. The two control PC servers for the FTP will exist in the cloud and will move data between the two. The files created are dummy files which will be moved manually via FTP.

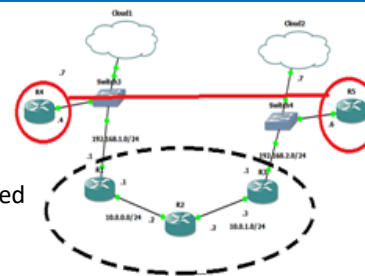


Figure 1. IP VPN Tunnelled Network Between Two Cloud Sites

4. Design

Both MPLS and IP VPN systems will mirror each other with IP VPN having additional configuration at appropriate points to optimise its speed whilst maintaining security tunnel between the two sites.

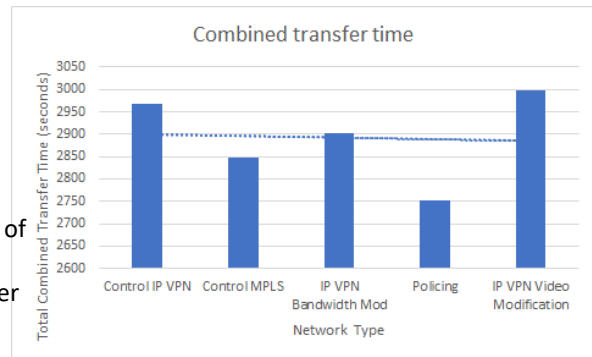


Figure 2. Graph of Combined Time Taken to Transfer Data

5. Testing & Evaluation

An FTP file transfer was made from Cloud 1 VM Server to Cloud 2 VM Server with 3 different types of files (text, video and audio). Encryption was present on the IP VPN side and each transfer time was recorded and repeated 4 times. An analysis of the data transfer was also recorded via Wireshark.

4. Conclusion

The policing method of IP VPN transfer demonstrated surprise quicker method of transferring data making this a secure and effective transfer. MPLS appeared to be hampered by repeat transmissions and errors on inspection of Wireshark