

Cross Campus Network Infrastructure Upgrade

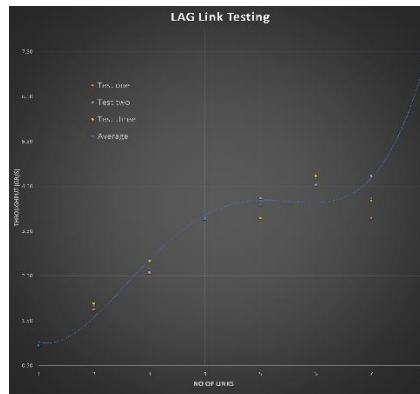
By: Stefan Lategan, Luke Amos, Daniel Pillar, Grant Wilson

Advisor: Steve Cosgrove

Client: Geoff Gordan



Final switch setups with LAGS



Graph showing IPERF3 results

INTRODUCTION

The purpose of our project was to improve upon the current networking infrastructure between WelTec's School of Information Technology and Whitireia's School of Information Technology.

The project's aim was to provide the highest possible network speed with equipment provided. When designing the upgrade, a requirement was to provide a solution in case the client was unable to use a fibre connection.

The project members all provided a different skill set from knowledge of networking to knowledge of operating systems.

DEVELOPMENT

The first stage of development was to provide a proposal to the client of how we were going to achieve the outcome of the project. This proposal included an outline of the issue we were trying to resolve to how we aimed to fix the issues.

The second stage was to complete what we called Switch Familiarisation. As part of the project, we were provided with six switches in total, in which we had three different brands. This meant that we were required to research and learn how each brand operated and if they could operate together.

As part of the second stage, we were also required to find a way to test the network speed. As a result, we found a program called IPERF3, which is a program that sends data streams from a client computer to a

server computer then displays the resulting network speeds between the computers.

The third stage of the project was to prove the concept. This included running over a hundred network speed tests. We tested everything from straight fibre connect to using just copper cables.

The fourth and final stage was to design an implementation package. This can be seen as a 'getting started guide'. It outlined everything from how the team suggest the equipment be setup, to what commands need to be inputted into the switches to gain the desired results.

CONCLUSION

The project was completed on time with the desired result. We managed to get an eight-gigabit network speed using link aggregation. This was the alternative to not using a fibre connection, which was a result of issues pertaining to the existing hardware not having any spare fibre ports.

The project had obstacles along the way, with the biggest being the COVID 19 Pandemic. However, we worked through all the issues and provided the client with options on implementing the project.