# Chapter 5: Conclusion

The results showed that there are possible tools to make the utilization of OpenStack as secure as possible. Even though there are multiple clients and companies who have their security and risks concerns when their data takes place, OpenStack and this research showed that the utilization of OpenStack really provides the desired security and a safe working environment to their respective clients which choose their cloud services. Although the results were not the expected ones and there were some challenges which created limitations to this research, the results show exactly why clients and companies that are considering to migrate to a cloud environment and to choose OpenStack as their respective cloud service provider, are doing so. Since OpenStack provides a trial version of the cloud computing environment, the trial gives both the client and the companies an exact hands-on experience of OpenStack and the features the cloud service provider provides to the clients. Since this research was based on a trial version, there were no expenses.

The laptop that was used to complete this methodology stage was not suitable for this type of work because, the laptop did not have strong specifications such as RAM and space on the Hard Disk required as per the specifications of OpenStack and the other Virtual Machines when active.

On the note of specifications of virtual machines, the Linux virtual machine needed heavy specifications such as 16GB RAM, 5GB of hard disk space and multi-core processors. Since the version of OpenStack was a trial version and the laptop was not powerful, the Linux virtual machines gave some problems to turn back on. Therefore if any company or client plans to utilize devices which have weaker specifications, such clients should take this into consideration or purchase a suitable device which is more compatible and powerful, enough to be able to handle the cloud infrastructure and most importantly to have full control of the cloud environment.

For those customers that are seriously considering making use of the cloud environment that OpenStack provides, it is recommended to view the pricing thoroughly. Interested patrons are also advised to make sure that what the they intend to buy for their infrastructure, is compatible and will provide what the customer desires to completely satisfy themselves with the best experience. Another important thing is that before the customer commits to a purchase, one needs to view what every cloud service provider, such as Azure, Aws, GCP, OpenStack has on offers, by viewing their products and their documentation thoroughly and carefully. From this research, potential customers can refer to Figure 5 to have a clearer idea of the required amount of specifications need for the client to be able to launch, utilize and operate within the OpenStack cloud infrastructure.

The strengths of this research included the implementation, the operation, and the utilization of OpenStack, as researchers confirmed. However, there are multiple risks when using cloud infrastructure. There are also tools like Keystone, Nova, or Bandit that protects the user when making the cloud environment that OpenStack provides. In this research, the readers can have a better idea of how OpenStack functions and what opportunities the cloud service provider provides to the clients.

Since there are strengths, there are also weaknesses. The tone of the authors was granular, but the OpenStack documentation provided did not have precise tools because only Keystone, Nova, or Bandit was mentioned. Furthermore, most of the documentation was not updated up to this day of this research. Some of the findings were therefore not solely and exclusively for just companies or for individuals that are interesting in working with a cloud environment.