Wabash Grill IT Infrastructure Report

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Abstract

A start-up restaurant is looking to build an IT infrastructure that can support their operations. In working with K-State a prototype has been developed. The setup consists of two cloud computers and three on-site computers. This layout provides the maximum amount of control over their infrastructure while still allowing for future improvements and customization. The analysis of the prototype has revealed that the system is good because the computers can operate independently, plenty of room for customization, and there will be a faster response time to technical issues. The downsides are the multiple entry points of attack, maintenance can be laborious, and its prone to social engineering attacks. If changes are made based off the analysis and feedback, it's a good system to try and implement.

Introduction

There is a start-up restaurant called Wabash Grill that needs help building up their IT Infrastructure. They will be working with the K-State IT team and need to see what can be accomplished. The restaurant would like all of it to be manageable in-house. I believe we are capable of setting up such a system and more.

The setup that I create will serve all the needs of the restaurant. Our solution is good because it enables them to have a soft opening once the three on-site computers are set up. The only thing they'd be missing at that point is their own restaurant website and a website that keeps a record of the employees' work schedule.

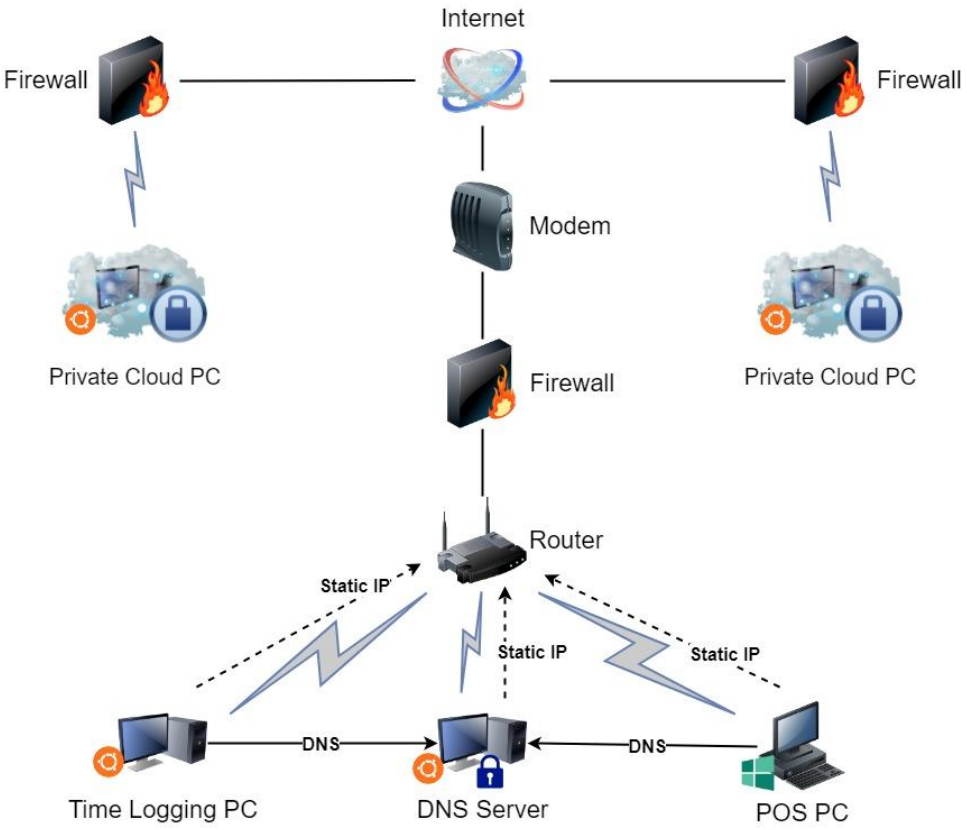
Related Work

Cloud – One of the other configurations could be having a cloud computer as the Point of Sales (POS) system and they just remote into it with a local computer. This is a good setup because if anything happens to the local computer the POS system is still operable. The only downside is that since it is a cloud computer any errors or crashes on it won't be immediately troubleshot since it's in some remote location.

Virtualization - A single computer could be used to host multiple virtual machines so if the owner wanted literally everything to be maintained on-site it could be done. This is good since it could be potentially easier to manage and fix if anything happens. However, this setup would put a lot of strain on the computer since its resources are being used by multiple people. And it could be more expensive to maintain one expensive computer with a few cheap computers compared to multiple cheaper ones.

Implementation

Based on some of the requirements that Wabash Grill needs, there will be three on-site computers and two cloud computers. A layout of how they're connected is shown below.



All of the local computers will exist privately on the network and all guests that are connecting to the Wi-Fi will have their own separate network (Guest Wi-Fi) that is created by the router. One computer will act as the Point of Sales (POS) system, one will be a DNS server, and the last one will be used for submitting employee hours. The websites for scheduling and interacting with customers can be hosted in two separate cloud resources.

Evaluation

The analysis of the system that was created will be done under the format of SWOT.

Strengths

- The core of the system is manageable on-site which gives the owners a greater amount of control.
- If anything goes awry with the system, there can be a fast response time.
- Very little dependence on other systems.

Weaknesses

- The Time Logging PC could be replaced by some other method for logging hours to help reduce risk. As of right now it is just another entry point that can be exploited which is not worth the risk for the simple purpose that it serves.
- The DNS server is an entry point that may not be worth the risk since the company isn't that large.

Opportunities

- Each node within the network can be customized to their liking.
- Monitoring software can be installed on each device and setup specifically for each device
- Adding more features or apps is easy

Threats

- The system is exposed to physical damage since it exists on site.
- Social engineering can be more effective since there will be employees who could provide access to the computers.

Conclusions and Future Work

Based off the analysis of the prototype, the proposed infrastructure is a good candidate. It strikes a nice balance between its pros and cons, which can also change based on future improvements. Things that will need to be considered in the future are system backups and user access. The biggest takeaway is that it is possible for the client to manage all their IT from the restaurant. This is a good start for what can end up being a great system for Wabash Grill.

References

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