**Network Design and Design Proposal for Anthony’s Potato Chip Company**

Eric Vara

The University of Arizona Global Campus

INT 301: Computer Networking

Professor Dr. Nelson

August 29, 2022

**Network Design and Design Proposal for Anthony’s Potato Chip Company**

**Data Types and Source**

The data transmitted throughout the network will include audio, video, text, and any other virtual information transferred through associates’ computers. The diverse types of data will be used for properly recording, analyzing, and manipulating data across departments The origin of your data will be kept at your three primary operating locations in San Diego, Escondido, and Alpine, where a centralized network will facilitate communication between your businesses and the internet.

**Network Capacity and Speeds**

All users should be able to operate at a speed of 1Gbps, so all network drops should be capable of 1000Base-T speed. With 10Gbps, there should be extraordinarily little fatigue at the local backbone level even during peak usage. A 100Gbps VPN connection to ISP resources should be even faster across their prebuilt connections. The main office and sales office are open during normal business hours, with peak productivity occurring in the middle of the day.

A second shift from 4pm to midnight could be added to the manufacturing industry's single 8am to 4pm shift that it currently runs Monday through Friday. On each laptop and desktop PC, depending on the model, local storage will be kept. In the beginning, there will be about 500TB of network storage managed by a NAS device in the San Diego data center's second floor. In order to support business scaling, NAS must be upgradeable, along with prepped for fast future upscaling.

**Existing Network and Future Expectations**

On the current network, previous network contractors have started planning and building. However, the majority of the parts are outdated and incapable of supporting the proposed expansion. The system-wide network is not connected to all of the current LANs and has proven to remain unsuccessful across important transactions made within the organization. Within the companied new network, the standard operation time should typically be a 95% standard operation uptime. The other 5% should be reserved for system performance, scans, updates, upgrades, and any other maintenance needs on the network with an Error rate of 0.001%

**Conclusion**

Since there is a whole data room set aside for the central mainframe, I made the decision to go with an open server rack for proper ventilation and access to the various switches and networks and any other added devices. For the other buildings, which will not be supporting the main data hub, I chose wall mounted racks. I chose the 24-port switch with cloud support because it is more dependable and requires less maintenance. Additionally, I selected cat6 cable and fiber optics for quick internet connections and fast connection speeds within the company, respectively. Additionally, there will be wireless access points for wired connections. There is also added extra space for any added devices such as card readers, cameras, or other data recording devices.

When providing communication for your employees and their teams to complete their tasks in line with the company's goals, there are many applications and software's to select from. Many excellent features, including group policy enforcement, remote desktop, and long-term OEM support, are offered by Microsoft Windows 10 Pro for businesses. The same is true for MS Office 365, which provides both conventional locally hosted apps and cloud/web-based apps. In comparison to WebEx or other similar conferencing apps, Microsoft recently added Teams, which is extremely competitive. A group license for Adobe to use Photoshop, Premier Pro, and Acrobat may be advantageous for marketing and sales.

Diagram

Description automatically generated**High-Level Diagram**

**Headquarters Building 1st Floor**

**Diagram

Description automatically generated**

**Diagram

Description automatically generatedHeadquarters Building 2nd Floor**

**Alpine Manufacturing and Production**

**Diagram

Description automatically generated**

**Diagram

Description automatically generated Escondido New Sales Office**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Equipment Cost - LAN** | | | | | | |
| **Tangible Costs** | | | | | | |
| **Product** | Model | Price | Quantity | Warranty | Maintenance | Total $$ |  |
| Open Server Rack | RM7001A-R3 | $396.99 | 4 | Lifetime |  | $1,587.96 |  |
| Fiber Optic Cable | PRO-1KFOS2-NT | $361.99 | 5 | N/A |  | $1,809.95 |  |
| 48 Port Switch | MS225-48FP-HW | $7,323.99 | 16 | Lifetime |  | $117,183.84 |  |
| 48 Port Patch Panel | DPA48688TGY | $698.64 | 16 |  |  | $11,178.24 |  |
| Wireless Access Point | R4W01A | $169.99 | 15 | Lifetime |  | $2,549.85 |  |
| Category 6 Cable | C6ABC50-STR-BL-1000 | $150 | 327 | N/A |  | $49,050 |  |
|  |  |  |  |  | Total | $183,359.84 |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**References**

PCNation | trusted for quality computer components and systems. (n.d.). Retrieved August 30, 2022, from https://www.pcnation.com/