MEMORANDUM

TO: Dr. Babik, Assistant Professor, James Madison University
FROM: Trevor Hudson
DATE: March 28, 2023
SUBJECT: Computer Network Model of OCEA

PURPOSE

The purpose of this memo is to present my analysis and model of the corporate network of OCEA. As a result of this analysis, I developed a high- and low-level computer network models for both OCEA's main office and entire corporation to better understand how to reduce cost of maintaining the infrastructure and enable a more dynamic e-commerce-oriented business process.

PROBLEM

OCEA wants to model their current infrastructure of the company as well as the main office to understand how to move away from physical, in-house servers.

MODEL

High-Level Model

Two high-level models, the as-is corporate network and the to-be corporate network describe the network layer of the entire corporation. In the as-is model, OCEA consists of only client-server LANs while in the to-be it will operate as peer-to-peer exclusively.

Low-Level Model

Two low-level models, the as-is main office network and the to-be main office network details the data-link-layer of the main office of OCEA. In the as-is model, it depicts the outdated desktops connected to the in-house physical servers with an experimental virtual server. In the to-be model we see the physical servers disappear, the old desktops for upper management get an upgrade to laptops and the sole reliance on the formerly experimental virtual server.

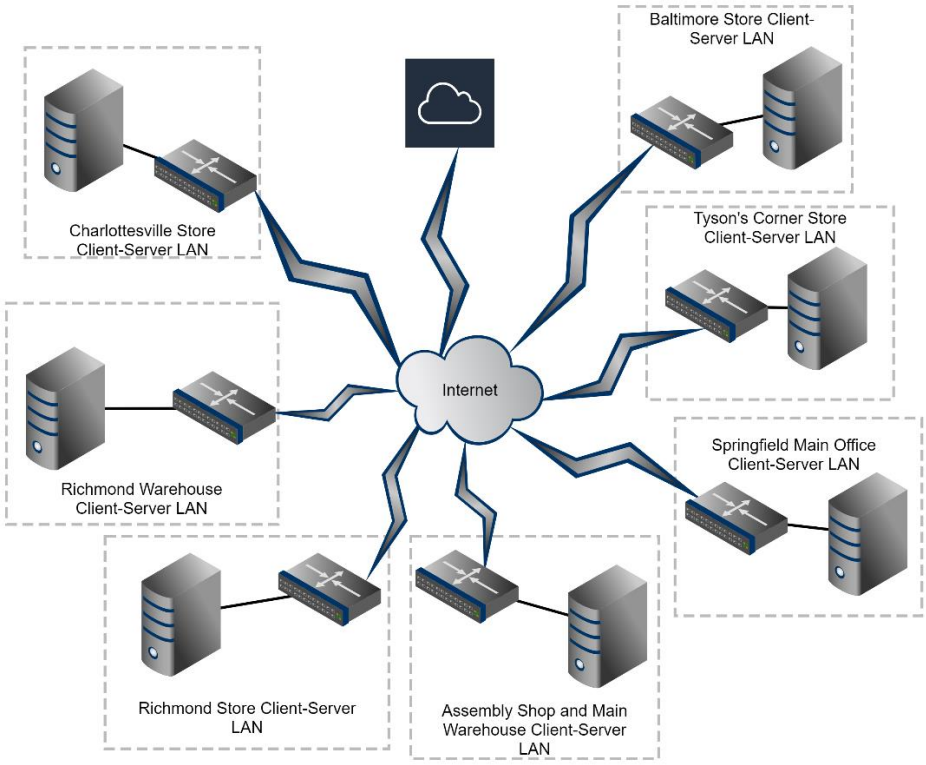
Assumptions

It is assumed that OCEA's main office allows an unspecified number of personal devices such as phones, tablets, and personal computers for employees to utilize on the corporate network. The wireless access points in OCEA are capable of distributing signals for both corporate Wi-Fi and guest Wi-Fi to handle the personal devices of customers.

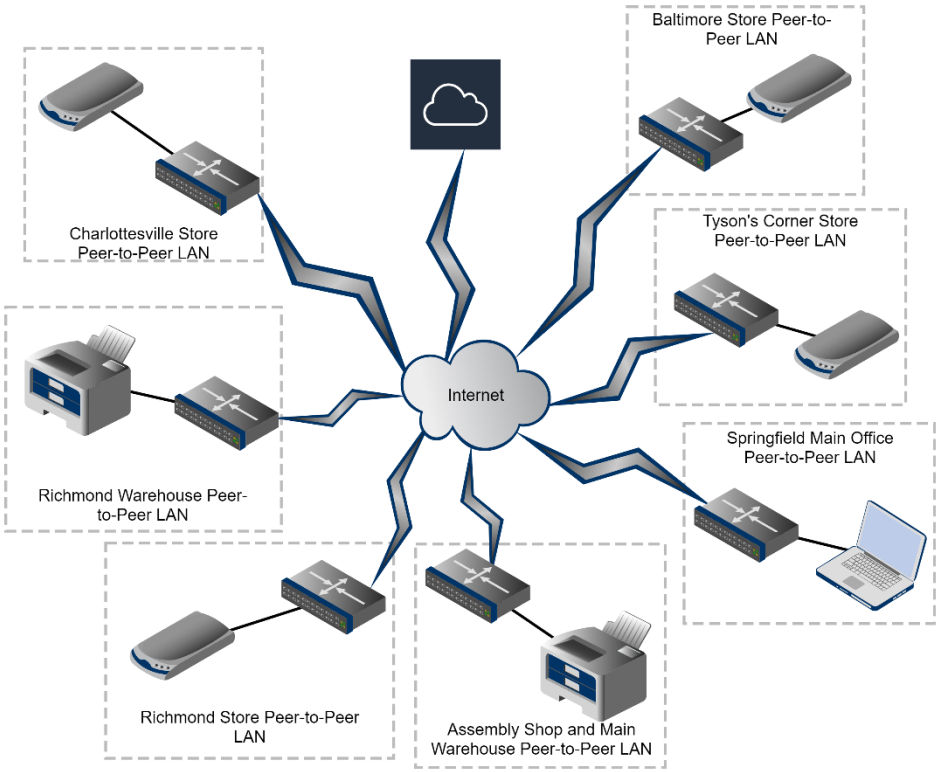
CONCLUSION / RECOMMENDATIONS

As a result of this analysis, I developed and presented a high- and low-level corporate network models for both the as-is and to-be infrastructure for OCEA. Now that I understand how to model computer network diagrams, I recommend using this technique to plan for the further implementation of a fully cloud-supported infrastructure to reduce physical server cost and maintenance and increase the reliability of OCEA's e-commerce application. If you refuse to heed this advice, OCEA will fall behind in the ever-changing network landscape, the company's network will become unreliable to customers, and they will seek out alternatives for their furniture needs. As a next step, I will work with you to prevent this from happening and successfully update all IT infrastructure to rely fully on the cloud for all needs.

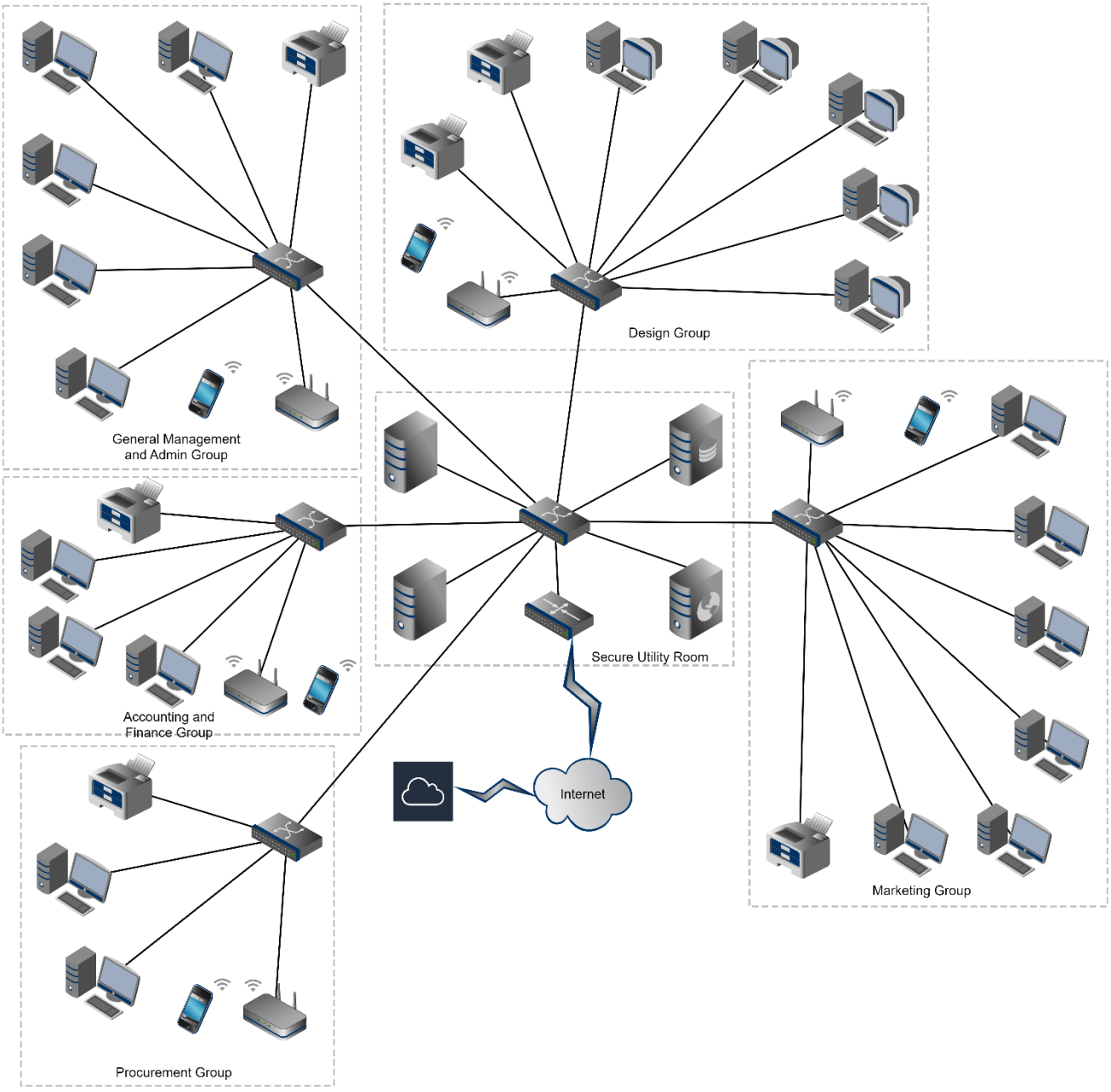
High-level As-Is Network-Layer Model for OCEA's Corporate Physical IT Infrastructure (Corporate Network Diagram Network Diagram)



High-level Model for the To-Be Network-Layer of OCEA's Corporate IT Infrastructure (Corporate Network Diagram)



Low-level As-Is Data-Link-Layer Model for OCEA's Main Office IT Infrastructure (Computer Network Diagram)



Low-level Model for the To-Be Network-Layer of OCEA's Main Office IT Infrastructure (Computer Network Diagram)