Report on Lan Topology for Fayetteville NC Project

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The Fayetteville area has several internet providers that offer reliable business internet connections. The two that I have looked at as being good for the company are Metronet and Spectrum. Metronet is a nationwide internet provider offering services in 19 states. The coverage in the Fayetteville area is limited, however, with only 69% of the area available in the city and surrounding areas (*Metronet Internet: Coverage & Availability Map*, n.d.). This will limit our usage depending on the final decision of what part of the area the office is located in. They do offer fiber internet and have reliable speeds up to 5 Gbps. Another provider that offers a lot more coverage is Spectrum. Their coverage is almost anywhere in the city and surrounding areas (*Spectrum Internet: Coverage & Availability Map*, n.d.). They also offer fiber internet with reliable speeds up to 100Gbps. Both providers offer security built in and would work for our business needs.

The provider that I think would be best for our situation would be Spectrum. They offer faster speeds to allow teleconferencing, and office needs as well as allow expansion in the future. They also have the biggest coverage area so any physical office considerations would be met.
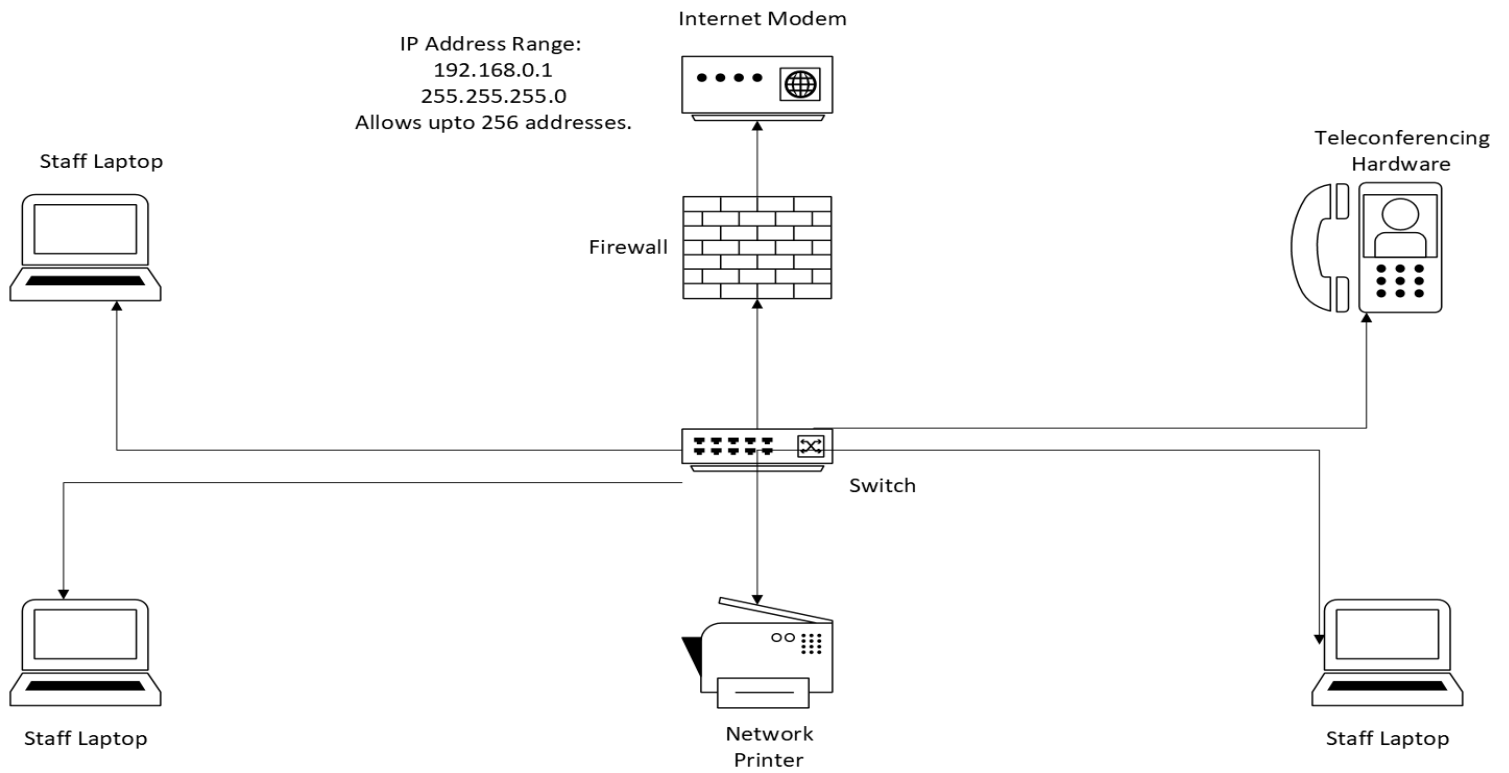
The next consideration for the office setup is hardware and software. For hardware on top of the switches, routers and cables, we will need to use laptops for all office staff. This will allow hybrid work environment of both at home and office work. To make internet connections easier we will use docking stations for the staff for when they come into the office to work. This way they can plug in and get to work and do not have to worry about connecting cables or finding outlets for charging. Each laptop will have BitLocker disk encryption, anti-virus software and data loss prevention (DLP) to ensure that our network and data are kept safe and secure. We will

use firewall protection at the office to deter data breaches. For teleconferencing we will use conference room web cameras and teleconferencing table phones. This will allow everyone involved in the meeting to be heard and make any presentation seem professional.

The printer we will use will be a networked copier, printer and fax machine. We will use badge login to track and control access to documents being printed. By using a networked printer, we can save on buying multiple printers and ink and make tracking what is printed and by whom easier. This adds another layer of data security. The site-to-site VPN will also allow for jobs to be printed back in the NY home office if special documents and signage are needed over there.

Bandwidth will also be an important consideration. For teleconferencing we will need a range of 3-5Mbps for group calls with high quality video to 500Mbps for the entire office network. With our prospective internet provider able to offer up to 100 Gbps internet speed we should be able to easily meet these needs while being able to maintain other office functions on a stable connection.

Network Diagram

Internet Modem

IP Address Range:
192.168.0.1
255.255.255.0
Allows upto 256 addresses.

Teleconferencing
Hardware

Staff Laptop

Firewall

Switch

Staff Laptop

Network
Printer

Staff Laptop

References:

Metronet Internet: Coverage & Availability Map. (n.d.). BroadbandNow.

https://broadbandnow.com/Metronet

Spectrum Internet: Coverage & Availability Map. (n.d.). BroadbandNow.

https://broadbandnow.com/Spectrum-Internet