**SUMMARY**

As we transition from our old building into a new building we are given an opportunity to upgrade our systems to better meet our needs. Throughout this I will go over equipment that will provide services, protect the room, and protect our equipment.

**SERVER EQUIPMENT**

The plan is to save money on the server itself by using a machine that will be able to provide hundreds of virtualized machines. With only 3 machines we can have the ability to run all our systems; such as users, email exchange, and printers. The machine is the “Cisco UCS SmartPlay Select C220 M4S Basic 2 - rack-mountable - Xeon E5-2609”. We will have multiple of these machines so we can mirror info in case of a system failure. There will also be the memory, HPE XP7 Storage, which is able handle loads of data. It is quoted on HPE website that it “Protects data even if power fails since the write cache is backed up to a SSD. RAID 6 14D+2P adds fault tolerance. HPE C-Track proactively monitors and proactively self-manages to reduce component failures. End-to-end checksum confirms data integrity from host port to disk and back.” The memory can be duplicated and components can be swapped out so it will be easy to story patient history in a safe area. We will use Amazon AWS because they are hippa compliant.

**SECURITY/ SAFETY**

Not only are we worried about network security and safety we need to worry about physical aspect also. One of the biggest concerns we need to have is keeping unauthorized people out of the server room. There should only be one door that leads into the room. This should be a heavy door with a special locking system. The Ultraloq UL3 BT has two different ways to unlock; either by keypad or thumb print. These locks should not be connected to the building power or server. In case of an emergency there must be a way to open the door.

Not only do we need to keep our servers safe from people but we need to keep it safe from the environment. The first step is to keep the dust off the machine. By keeping the machines in a case this will minimize the dust and critters reaching them. I would suggest Hubbell Seismic Z4 84" H x 36" D, 45 Rack Unit Network Cabinet with Sides. This cabinet is big enough to handle the cables of machines in a way to improve airflow.

We also must make sure the AC that is used to keep the room cool for the machines don’t cause to much humidity. Using a Q6SE by FrigidAire. They have many selections that will fit the need of the server room. We will also need to monitor the room for fire, smoke, humidity, and smoke. We will use a Wewalab Smoke Detector for fire and smoke. For humidity we will use a GE Panametrics MTS6 OEM Moisture Analyzer.

To help prevent fires we should use FM-200 Fire Suppression system. It is a safe system to use on electric systems. It is a chemical agent that is safe for humans. FM200 contains no bromine or chlorine so it has zero Ozone Depleting Potential.

**BACKUP POWER**

As the hospital is a very important place we cannot allow the loss of power to take us out of business. We will need a UPS to help keep us in business with the server. By using a TAA SmartPro 120V we will minimize down time. Depending on setting it can provide between 5-10 minutes of power, long enough to get a generator going.

**CONCLUSION**

The system we provide us the most optimal network with backups to servers and power. Everything from equipment to the people working it will be safe. There will of course be things to change around and upgrade but this is a good foundation to build on and we will only improve.