

I.t infrastructure



Running Head: Networking Project University of Phoenix CMGT554 IT INFRASTRUCTURE

Dominic Roberts Patton-Fuller Community Hospital has been in business in the City of Kelsey since 1975. Patton-Fuller Community hospital structure from an IT network perspective includes logical network, administration network details, radiology, RIS data center, OR/ICU/Ward floor systems, and IT data center. Identify how data is transmitted within the hospital and externally. Patton-Fuller network structure for the entire hospital is 1000Base T using CAT 6 cable.

Some departments are using a network structure of 1000BaseF using single mode fiber. The administrative side of the hospital is mostly using the 1000BaseT (Hospital Executive Management, Human Resources, Operations, Facilities, Finance, and IT Data Center). The clinical areas are those that are using 1000BaseF (Radiology, Operating Rooms, Wards, ICU??™s, Emergency Room, Labs, and Pharmacy). Patton-Fuller has a complete power backup system that is a large diesel motor generator that automatically takes over in a power failure. Patton-Fuller uses a network bridge to connect logical networks. Patton-Fuller Community hospital structure from an IT network perspective includes logical network, administration network details, radiology, RIS data center, OR/ICU/Ward floor systems, and IT data center. The Data is being transmitted throughout Patton-Fuller Community Hospital by using a network bridge.

Each workstation in the administrative function segment uses an DHCP Server to obtain IP address. The clinical function segment IP addresses are static IP??™s. All workstations are connected to an internal domain. The outbound data is going through a proxy server.

Identify and describe the OSI layers directly involved. The layers seven through four are the communications that goes from the data source to its destination point. The layers three through one are the communication between the different devices that connected to the network. Layers seven through five deals with applications and implementing using software. Outlook/Exchange, Mac Mail, Surge Mail, is examples of software that these layers use.

The previous software??™s are able to perform on different platforms from UNIX to Windows. Even if the mail is being send and received on different platforms the layers help make it through without being dependent on which operating system or a particular brand of hardware being used. Layers four through one allow the data to be moved be able to go the Network Cable Plant and the Wi-Fi Networks. Both the physical layer and the data link layer are implemented through both software and hardware. Each layer of the OSI Model receives a header that is than past down to all the layers until it reaches the physical layer. In order to understand the OSI Model let it be explained as follow with the reason how Patton-Fuller is using it. Upper layers

- 7. Application- The seventh Layer is responsible for standardizing services like file transfer and/or virtual terminal.

- 6. Presentation- The sixth layer is responsible for making data universally understood. This makes it that no matter what platform is used that the sender and receiver of data can understand each other.

It is also responsible for encrypting and decrypting data and can compress data if it is needed. 5. Session- The fifth layer is responsible for establishing,

and terminating communication, between the hosts, and send information to layers above it when it is needed. Lower layers – 4. Transport- The fourth layer is responsible for delivering the messages throughout the network.

Reliable delivery of data packets, Transmission Control Protocol or TCP) and connectionless delivery of packets (Internet Protocol or IP). 3. Network- The third layer is responsible for determining how the data is to be sent from one device to another device. It also looks to find the best way to route data to be sent through, it helps the prevention of Network Congestion, or it can prevent bottle necking which in a Taken ring Network could bring the entire ring down. 2. Data link- The second layer is responsible for framing the packets for delivering over the wire. It also looks for data that may collide and will re-transmit the data if it is needed.

1. Physical- The first layer is responsible for the connection of hardware on the network to the physical media. Identify the various protocols that are available for use, and provide a recommended standard that should be used for the hospital. Some protocols that are available are as follows: SMTP (Simple Mail Transfer Protocol), FTP (File Transfer Protocol), IP (Internet Protocol), DHCP (Dynamic Host Configuration Protocol), Trivial File Transfer Protocol (TFTP), PPTP (Point to Point Tunneling Protocol). SMTP- This protocol is used to send e-mail messages between the servers on the network. This protocol is a simple, text- based protocol that can have one or more recipients of a particular message that is specified and then transferred to recipients.

FTP- This protocol is used to either upload or download files from one computer to another using the internet, or using a computer network. This usually has a server and client. FTP can also be used for Virtual networking.

IP- This is a unique address that is given to each computer that is part of the computer network. This does not only include computers, but it also is used by any devices that are linked to the network, for example routers, printers, fax machines, and switches. The only problem with IP is that all personal information can be gotten through this unique address. DHCP- This is a protocol that is used by devices like routers, computers or network adapter so it is able to request and obtain IP address from a specific server which has a list of addresses. Network computers use DHCP to obtain IP address and settings like gateway, DNS, subnet mask from DHCP server.

DHCP makes sure that the addresses it gives are unique, and is not managed by people but by the server. The DCHP does have expiration on it. TFTP- This protocol has very basic features. This protocol can be implemented in a very small amount of memory. This protocol is usually used to boot computers like routers.

This protocol can also be used to transfer files over a computer network. The problem with this is that it is not very secure. PPTP- This protocol is used for virtual private networks. Patton-Fuller Community Hospital would greatly benefit from using FTP. Patton-Fuller could use this because in the hospital each department counts on the other, and by having FTP they are able to send patient information to each other and only to those that need that information. Keeping patient information private is a requirement of the hospital and by using FTP Patton-Fuller Community Hospital will be able to do

so. Patton-Fuller can even use FTP for personal that is transcribing something for the hospital.

Use outside research to show how these standards have been used in similar companies to explain your choice. Hospitals use FTP to transfer files that are transcribed. ??? A second method is FTP, or File Transfer Protocol. An internet address is assigned to a server and files are either “pushed” or “pulled” from one PC to the other using the internet. Ideally, the transcription company will have installed a transcription database into which files are delivered.

An advantage to doing this is that a local internet connection is utilized, so phone costs are avoided. Disadvantages to using this method include the training involved to orchestrate FTP, especially in a small medical office, as well as the required hardware and software firewalls needed to protect the FTP server in addition to encryption programs that should be utilized. Other factors to be considered when serving a larger medical facility are its own resident networks, firewalls and other protective measures, which present additional challenges to setting up FTP functions.

??? (“Transcription Delivery”) According to this paragraph it is an easy way for hospitals to transfer files to have transcribed and sent back to them. Hospitals have their billing and their patient files transcribed. Hospitals use an outside company to do this for them. By creating a way of using FTP the files are safely send back and forth.

It is a great way to be able to handle such a vast amount of work and get things transcribed on time. Hospitals are a place where time is very

important and using outside help needs to be fast but also secure since vital information is being transmitted. Ftp can help any hospital accomplish time sensitive materials, using a quick and easy way. Reference1.

Transcription Delivery. (). Retrieved from <http://www.medicaltranscription.com/deliverymethods.htm>