

Review of patton- fuller community hospital management

[Technology](#), [Internet](#)



Patton-Fuller Community Hospital is a prominent hospital that is known for specializing in radiology, physical therapy, pharmacy, and surgery. Patton-Fuller Community Hospital was founded in 1975. Patton-Fuller Community Hospital has been providing quality care to all its patients both children and adults alike. Patton-Fuller Community Hospital patients are accustomed to the quality service that the hospital provides with a focus on the different programs and services to help maintain a high degree of care for its patients.

Patton-Fuller Community Hospital has an abundance of technology and can be segmented into many different areas providing an in-depth review of the advancements and shortfalls of organization. The networking department has the challenge of dissecting and breaking down the current infrastructure to ensure a comprehensive analysis is done to provide a solution that will last for the three to five years. Identifying the right solutions and architecture is key to ensuring the growth of the network infrastructure to support the demands of the current healthcare industry.

The methods of how Information transmits within the hospital and externally are: Based on the Network Diagrams the Network has two segments; Administrative and Clinical. The backbone network structure for the entire hospital is 1000 Base T. The nodes of the administrative function network utilize CAT 6 cabling. The nodes of the administrative functions network are connected to an Ethernet backbone. A single mode fiber cable, transmitting 1000 Base F, physically connects nodes attached to the clinical segment. All nodes attached to the clinical function segment is physically connected by single mode fiber cable and transmitting 1000 Base F.

Both segments connect via a network bridge. A DHCP server provides all workstations on the administrative function segment with IP addresses. A good security practice for the network black/white and color laser printers are to utilize a static IP, so the MAC address is registered with the DHCP server to prevent malicious activity. To prevent any unwanted malicious activity the Nodes on the clinical function segment IP addresses are static IP's. The DHCP service is run on the Exchange Server housed in the IT data center. The domain naming solution is also hosted on this server.

Active Directory centrally manages user account management in the domain. All web traffic is relay through a proxy that masked the identity of the IP address. To ensure the hospital has adequate Disaster Recovery (DR) capability the entire hospital has a complete power backup system that automatically cuts over to a large diesel motor generator set. The Patton-Fuller Community hospital network bridge connects to the logical network. The bridge connects multiple internal segments at the data link layer, which is Layer 2 of the OSI model.

The Data Link Layer enables data to be transferred between network entities and might provide the means to detect and possibly correct errors that may occur in the Physical Layer. The hospital's network is an Ethernet network. Within the Patton-Fuller Community Hospital architecture the physical layer can be found within the appliance in the operating room and intensive care unit along with the patients rooms. The data link layer is where the physical transmission of data is managed. This creates and distributes messages

boundaries. At the network layer the management of the data is routed where the routing takes place.

This is the Internet level of the protocol stack. Routers are designed to forward packets of data to other routers and active switches. Patton-Fuller Community Hospital data center uses a Cisco router model 7609 to perform these tasks. At the transport layer it is responsible for breaking large strings of data into manageable smaller packets. Error checking and elimination of duplicate packets is done at this layer as well. Patton-Fuller Community Hospital utilizes a network gateway device to interface both their clinical and administrative networks with the Internet. At the session layer it manages the session for all users on the network.

The session layer also manages the amount of time spent to transferring the data. A network gateway is considered a session layer device. At the presentation layer this layer is concerned with formatting, and resolving differences of data format between two different machines. It also takes the data from applications format to the network format. One example of this method is the Advanced Encryption Standard utilized by the Patton-Fuller Community Hospital. At the application layer it defines the interfaces for communication and data transfer. This is also the end user's access to the Internet.

One good example of the application layer would be web pages. Patton-Fuller Community Hospital has the backbone infrastructure that provides adequate bandwidth to support video and other high quality of service services. However it does not have the necessary requirements for future needs. With

the sale and deployment of networked equipment within the medical industry it is becoming more apparent that Patton-Fuller Community Hospital invest their future. References Patton-Fuller Community Hospital Virtual Organization, (Apollo group, 2011) <https://ecampus.phoenix.edu/secure/aapd/cist/vop/Healthcare/PFCH/index.asp>