Medical Centre Computer Network

Introduction: It is our assignment to make a computer network in a health care centre. I need to create a network, which can be contacted by themselves and the world.

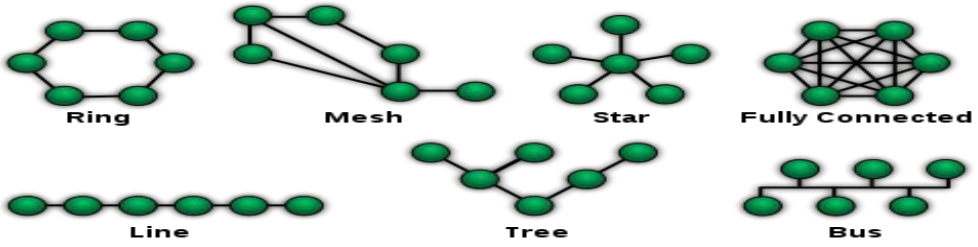
Main body

Task 1: I need to make a network in a single building. In this task, should describe some topic. There are using the media, connector, the cost of cabling and installation and the data transfer rate that will be required. The topics are given below.

a) **Media used:** We use cat6 cable in this project. Category 6 cable, commonly referred to as Cat 6, backward compatible with the Category 5/5e and Category 3 cable standard for Gigabit Ethernet and other network physical layer is a standard cable. Cat 6 features more stringent specifications for crosstalk and system noise compared with Cat 5 Cat 5e and others media. Performance 250MHz, up to 500MHz, maximum length 200 meter or 656feet, speed up to 1000mbps, Caveats thickness 1.7 cm, maximum current per conductor 6 A, temperature +60), maximum operating voltage 125-200 volt. It has more details I explain only important information.

b) **Component used:**
   - **RJ45:** RJ45 is in use for one data line in computer network with programming resistor. It has also 8P8C connector. I think it is perfect register jack, so we used this in the project.
   - **Backbone switch:** We used 8port/10/100/1000 gigabyte Ethernet backbone switch.
   - **Switch:** we used 16 port switches in health care centre. Three switch use in the health care centre.

c) **Framework:**
   - **Topology:** there are various kinds of topology use in computer network.
   - Point-to-point topology
   - Bus topology
   - Star topology
   - Ring or circular topology
   - Mesh topology
   - Tree topology
   - Hybrid topology
   - Daisy chain topology



We use Star topology in the health care center.

d) The cost of cabling and installation:

Device Name	Device Cost	Installation Cost	Maintenance Cost	Total
PC	$1029.71X24	$130.80 x 24	$110.02 x 24	$30493.20
Backbone Switch	$959.99 x 1	$211.23 x 1	$327.10 x 1	$1498.32
Server	$453.40 x 1	103.33 x 1	$100.01 x 1	$656.74
Switch	$362.80 x 3	$183.43 x 3	$131.64 x 3	$1733.61
Cat 6	$450.66 x 3 box's	$422.26	$524.15	$2298.30
RJ45	$0.825x58	$0.50x58	$0.50X58	$105.85
Total cost				**$36786.02**

e) The data transfer rate that will be required:

Name	Bandwidth	total
Administer Room	05 x 10Mbps	50Mbps
Staff Room	10 x 10Mbps	100Mbps
Treatment Room	08 x 10 Mbps	80Mbps
Total bandwidth		**230Mbps**

Task 2: I need to researching hardware. The hardware configuration and these usage advantage, disadvantage and protocol used should discuss in the task. These details is given below:

Device name	Configuration	Advantage	Disadvantage	Protocol
PC	Core i5 2.50GHz 6GB Memory HDD-740GB	It will be working better	It is not a powerful.	HTTP, TCP SMPT, SNAP
Server	XEON E5540 2.53GHz, 8GB RAM, HDD 10000GB Ref [4]	The server is able to store a lot of data and also faster.	It is not a Powerful server.	DHCP, ASP FTP
Backbone Switch	8 port	We can add to more devices	If the additional port's is not used, it is just a waste of money	STP
RJ 45	8P8C Ref [5]	It is better for cat6 cable		
UTP Cat6 cable		It is so faster and better performance	It is very expensive	
Switch	16 ports 10/ 100/1000mbps	In the future you can add more PC	If the additional port's is not used, it is just a waste of money	STP
Firewall	4 port wireless	It can be safe form hacker and virus.	If a little problem, it is not giving a better performance.	ICMP, TCP UDP, GRE(PPTP), ESP(PSEC)
Printer	Colour printer A4	The data can be printed	Cannot print larger then A4 paper	IPP, HTPP, IETF

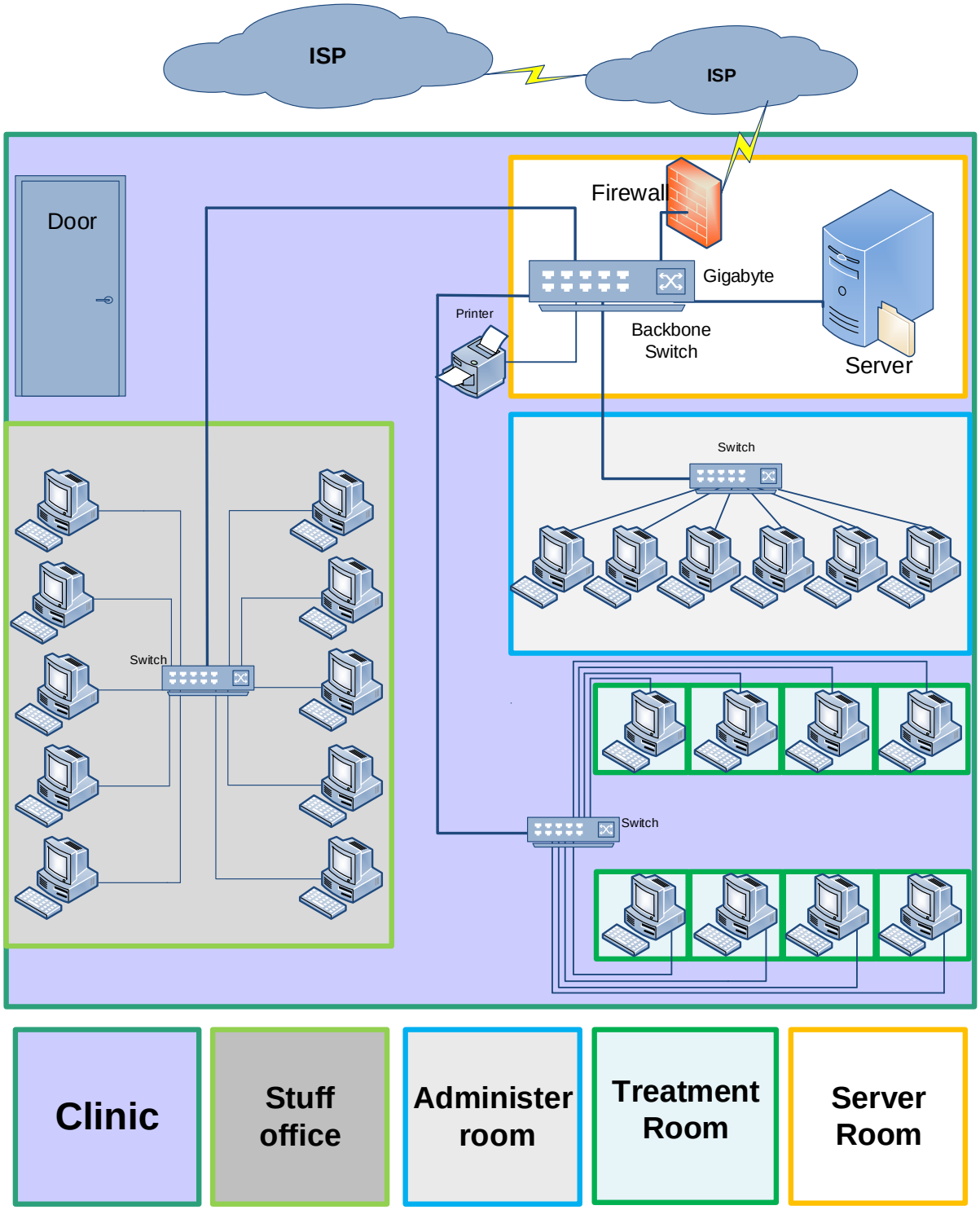

ISP
ISP
Door
Firewall
Gigabyte
Backbone
Switch
Printer
Server
Switch
Switch
Switch
Clinic
Stuff office
Administer room
Treatment Room
Server Room

Figure no: 1

Task 3: This task has been dominated by the security related issues. The only thing that needs to be given security are given below:

A) **The security issues that are specific to a healthcare environment with confidential patient data -**

- The data may be lost entering by other people
- Data can be hacked by hacker
- Data may be lost for a little careless.
- Data can be destroyed by server's psychical problem
- Data may be lost, if unable to protect password.
- Data might be lost because of virus.
- Data might be lost because of crash the server.

B) others issues-

- Trojan horse.
- Crashes by full system.
- If attack full system of network with virus.
- Staling information and many thinks.

Recommendation:

- To save the information to be kept secret the password.
- CC cameras always have to keep working.
- Strong antivirus will be use, so that data is not destroy by virus.
- Antivirus and software should keep update.
- Security measures should be kept separate.
- Should change the password after a certain period.
- The firewall should be set in a manner so that the data would not hack.
- All data should be backed up. Because the server is damage then all data will be lost.
- Most important data can keep in clouds.

Task 4: Testing is an important part for completing a project. I thing, my project has completed. So, I need testing my plan to run my project. My test plan is given below:

- **Peripheral device testing:** the peripheral devices (cable, connector) is testing by cable tester.
- **Networking devices or hardware devices:** if we want to a better performance of network devices, we need to check every network device is one by one. if a problem is detected, the system will need repairs soon.
- **Power supply:** power supply is a major part of the project .in this case, if it is the wrong kind of damage can be very large, even the whole plan might be destroyed.
- **Software check-up**: after all these checks, the system will be introduced to check the software .to work correctly, the software should be check-up. the software, security software will check for updates
- **Security check-up:** A networking security system is an important issue. punched card system, cc cameras, login system is very important to check all aspects.

Conclusion: I think, I can complete the health care centre networking project. This networking will be able to communicate all over the world. It will be the best quality service to the people.