1.1

Evaluate the following name resolution services in the form of written report
a) DNS
b) E Directory
c) Active directory
(Your report should include addressing, resource management, user management, service management, security of resources, access control)

DNS-:

It is a technology which manages names of public websites like Facebook. Which allow to enter the name into your browser like facebook.com. It finds the address automatically on the net. An element of DNS is a worldwide collection of DNS server.

Figure 1 DNS

(rankin 2013)

Addressing-:

Which help to change the IP address into the name like changing the server IP address to name like facebook.com or etc. like for the clients who are want to assign our website they should need name for visiting our page instead of that if we want browse with IP address of yahoo.com in order to connect host server. The IP address of yahoo.com would be requested through DNS and if this process is successful then your name is resolve into IP address
For example-:

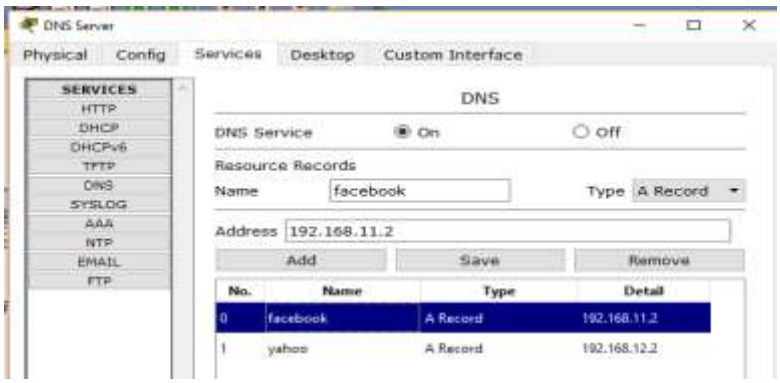

Figure 2 DNS service

Resource management-:

In this part they will manage resource like in the server they will check about if DNS setting is on or not like in the above figure you can able to see the it is on and by entering the name it goes the another server and shows the details in the pc.

User management-:

In this part they are giving access to the workers like domain name and the files related to the department he is working and the with that he can check storage the important files in it or retrieve the data from the storage and can get access to the internet.

Service management-:

In this part they will manage the server like checking the connection of the DNS server with the other server and seeing it is reaching the every computer in the company and seeing that everyone can access the websites and details related to the group like storage files.

Security of resource-:

In this part they will assign for limited setting to the people so that they can enter only some sites which related to the work and changing the password continuously so that no one can access it and setting MAC address of the laptop so that no hacker can enter into the server

Access control -:

In this I have created control to the domain like read and write or etc. so that domain able to do that things which are mentioned for the domain to do and it is mainly used for workers like some of the workers only need to read in the company storage files and prepare a project to the company.

Figure 3 access control

E Directory-:

This service is partitioned and replicates directory service. It is used to manage multiple operating systems. The main components of E-directory are

1. Database partitions
2. Database replicas.

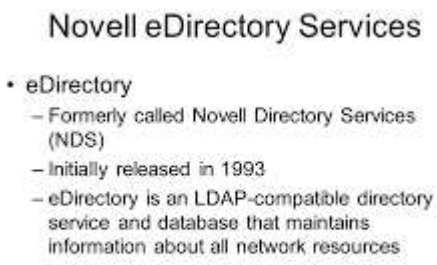

Figure 4 E-directory

(directory 2017)

Addressing-:

For resolving the IP we check the IP address in static or not after everything is done if we want to change the server IP address to name like yahoo.com or etc. like for the clients who are want to assign our website they should need name for visiting our page instead of that if we want browse with IP address of yahoo.com in order to connect host server

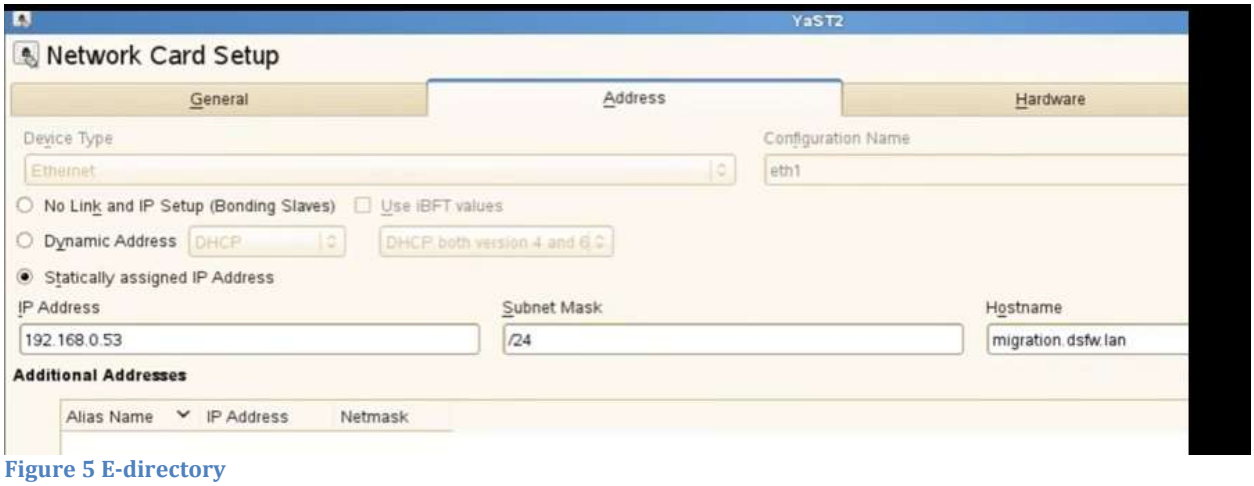

Figure 5 E-directory

Resource management-:

In this part they will manage resource like in the server they will check about if E-directory setting is on or not like in the above figure you can able to see the it is on and by entering the name it goes the another server and shows the details in the pc and they will see about the server which is connected to the computer and it is ping or not and see that all the roles are available for the server like DNS, DHCP etc. and see that it is connected to clients.

User management-:

In this part they are giving access to the workers like domain name and the files related to the department he is working and the with that he can check storage the important files in it or retrieve the data from the storage and can get access to the internet and they will assign some network to the clients and time for that network and sharing the files for through network to the workers and making all server need for the satisfy to the workers

Figure 6 user management

Service management-:

In this part they will manage the server like checking the connection of the E-directory server with the other server and seeing it is reaching the every computer in the company and seeing that everyone can access the websites and details related to the group like storage files and they will manage the services to the workers and see all services workers need are provided to them are not and they will manage network connections, storage capacity and see the may not be replicate.

Security of resource-:

In this part they will assign for limited setting to the people so that they can enter only some sites which related to the work and changing the password continuously so that no one can access it and setting MAC address of the laptop so that no hacker can enter into the server and they will assign firewall to the server and proxy to some server so that the data storage will not effected by the hackers and many security to workers like domain name and etc.

Access control -:

In this I have created control to the domain like read and write or etc. so that domain able to do that things which are mentioned for the domain to do and it is mainly used for workers like some of the workers only need to read in the company storage files and prepare a project to the company.

Active directory (A.D) -:

It includes A.D certificate services like to create, manage public key certificate. A.D domain services it includes storage of data and manages the user

authentication and directory searches. It protects our information and it will be safe to us for storing the data in it.

Figure 7 active directory

(microsystem 2015)

Addressing-:

After installing the active directory you should go to networks and see that if network is in static or not we should make that in static and assign IP address to the server so IP address will be resolved in it.

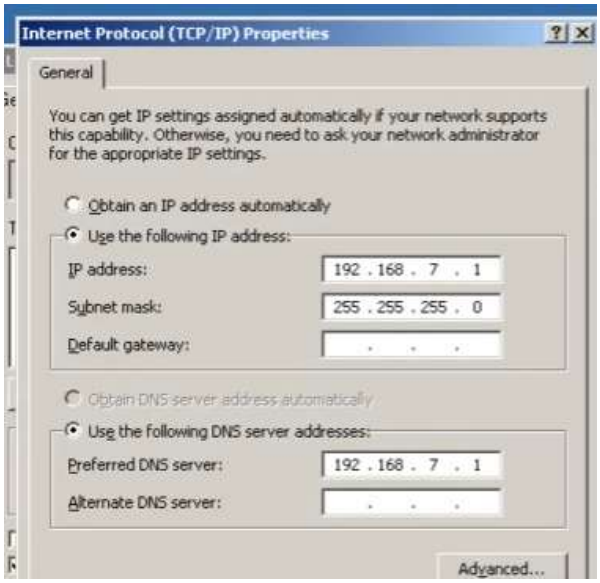

Figure 8 IP address

Resource management-:

In this part they will see about the server which is connected to the computer and it is ping or not and see that all the roles are available for the server like DNS, DHCP etc. and see that it is connected to clients

User management-:

In this part they will assign some network to the clients and time for that network and they can share the files through network to the workers and making all services need for the satisfy to the workers.

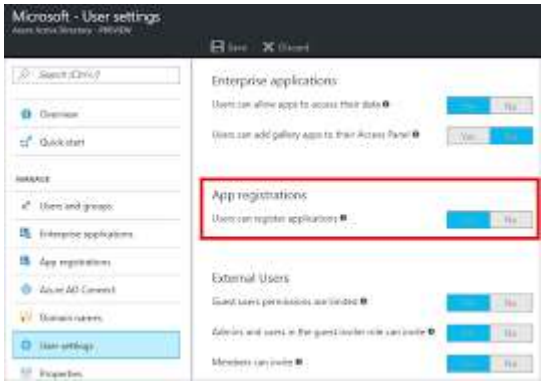

Figure 9 user management

Service management-:

In this part they will manage the services to the workers and see all services workers need are provided to them are not and they will manage network connections, storage capacity and see the may not be replicate.

Security of resource-:

In this part they will assign firewall to the server and proxy to some server so that the data storage will not effected by the hackers and many security to workers like domain name and etc.

Access control -:

In this I have created control to the domain like read and write or etc. so that domain able to do that things which are mentioned for the domain to do and it is mainly used for workers like some of the workers only need to read in the company storage files and prepare a project to the company.

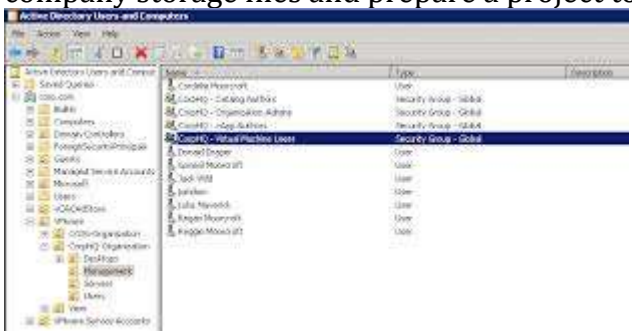

Figure 10 access control

Plagiarism report-:

1.2

Discuss the following technologies that support network infrastructure management in the form of written report.
a) Server supporting networking infrastructure management
b) Routers and switches
c) Firewalls and printers
d) Clients
e) Wired access and cabled access
f) Remote workstations
g) 3G based remote access

Server supporting networking infrastructure management-:

Server-:

It is a computer which provides services to other computer and in the client server program model a server program awaits and fulfills requests programs which runs in same or the different computer.

There are different servers-:

1. Web -: this serer as the program of HTML page and PHP page which able to brose the network.
2. Application-: it is a server with the distributed network and provides application program.
3. Proxy-: it acts as an intermediary between endpoint devices like another server to computer and asking for service.
4. Mail-: it is server which is used to transmit the data from one pc to another. Etc.

Server supporter are the people who check the problem in the server if any problem arise by the server it has many teams in the company for checking the server and they will resolve the problem of the server.

Figure 11 server supporters

(SUPPORT)

Routers and switches-:

Routers-:

It is hardware and it is some case of device and software on a computer and it determines the best way of transmitting the signals to its destination. It connects network and it is based on current understanding state of network it is connected, it act as a dispatcher it decides from where it should sent each information packet. And it is included as part of switch.

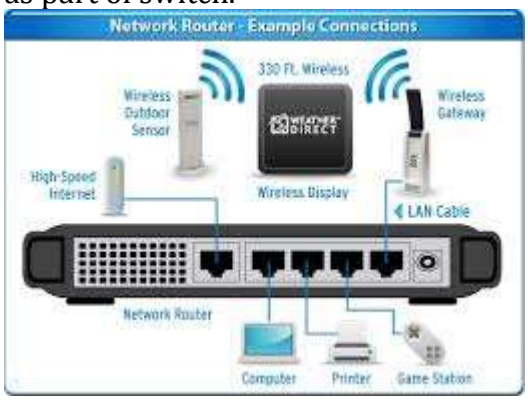

Figure 12 router

(arena)

Function of router-:

1. Acts as default gateway.
2. Route data between networks.
3. Should perform protocol translation.

Switches-:

It is a device that channels that are incoming the data from multiple ports to a specific output port that transmit the data to the particular destination. In a wide area packet-switched network such as the Internet, a switch determines from the IP address in each packet which output port to use for the next part of its trip to the intended destination.

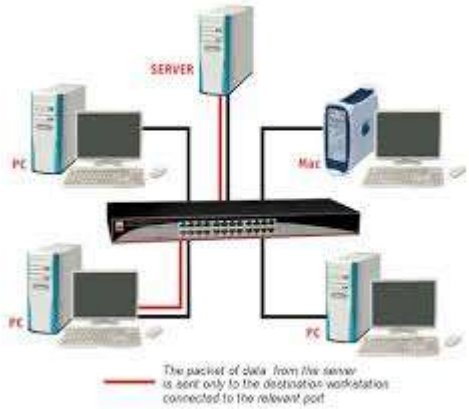

Figure 13 switch

(lingy 2005)

Firewalls and printers-:

Firewalls-:

It is a security system either hard ware or software based. The user use tocontrol the traffic of the incoming and outgoing network, it acts as barrier between trusted and untrusted network. This is used in some of the college for stopping some of the website and in some of the companies they doesn't give any access to the some of the websites.

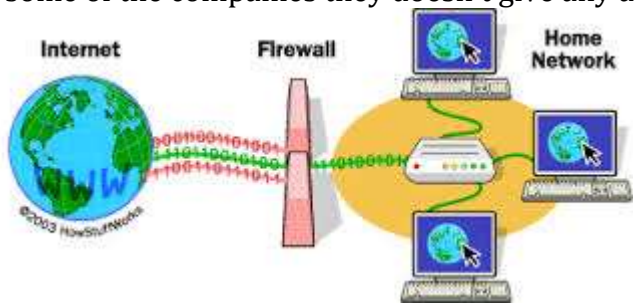

Figure 14 firewall

(TYSON)

Printers-:

It is a device which to print the documents from the computer. If it is connected by WIFI or Ethernet then that printer said to be connected in internet format because in companies they may not have space to the people then they connect their pc to the printer through internet.

Clients-:

He is the person who is requesting the program to the computers from the server, which should make the client to satisfy their needs and making the client related to the server like in browsing ways and in the server the pages will retrieve from the HTML and PHP. He can send back the data which he wants to storage in the server.

Wired access and cabled access-:

It is the connection done for the network like connecting server to the router and router to the computer this simple connecting done for learning and is mainly used for connecting internet in a street or company and with the help of the wires the packets will pass through it and packets will reach the destination.

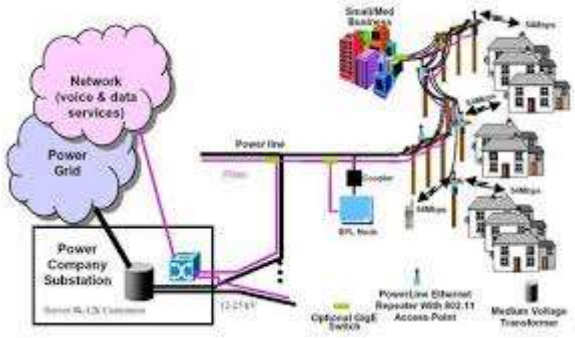

Figure 15 wired and cabled

(pennstate 2015)

Remote workstations-:

It is a place where people can get help to solve the from their company for example if we got some error problem in the computer we need not go to the service center like we should call the online problem clearer and they will assign your laptop or pc remotely and solve the problem it is mainly used by the large companies.

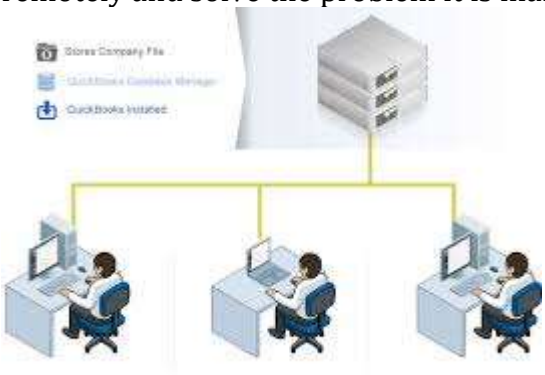

Figure 16 remote workstations.

(quickbooks 2017)

3G based remote access-:

It is also solving the problem through net only in this part like they can solve the problem of our computer or laptop by connecting it with 3G or GPS of the network. Then they will connect to the computer and solve the problem of our computer.

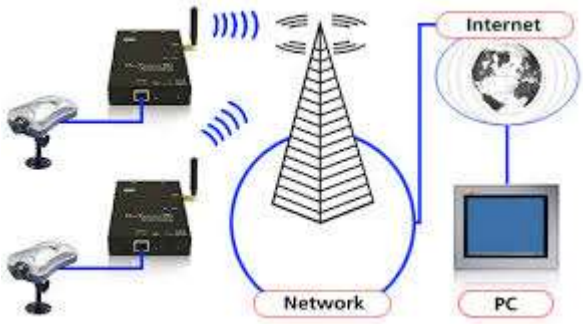

Figure 17 3G remote access

(amplicon)

Plagiarism report-:

1.3

Discuss security resources available in network infrastructure management in the form of written statement.
(Your report must contains pros and cons of the following: rights management, resource availability, user management, access times, group allocation, timed access, encryption, authentication, VPN, tunneling, remote access, RADIUS, TACACS, IPsec, certificate authorities, PKI.)

1. **Right management-:** which means knowing the details of the server and computer etc. which provides the digital information to the organization and provide the clients to know the domain details and certificate sites and many more
2. **Resource availability-:** it means seeing the resource is available for all and like domain name and services etc. given to the clients for particular time and block of the unwanted sites.
3. **User management-:** it is the management of the user details of different department's workers in the database and providing the login details for the users and giving the particular authentications to the users.

4. **Access time-:** access time is the time from start of one storage device access to the time when the next access can be started.

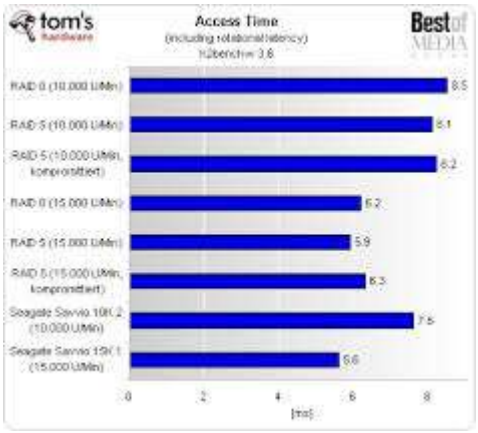

Figure 18 access time of company

5. **Group allocation-:** group of people who are joined to do some work like creating firewalls, proxy and etc. here they share their ideas and they try to build the perfect model for the company.
6. **Timed access-:** setting of time for the endures like giving permit for some to access the network or computer for particular time and year so that they may know the people of the company who entered in the network
7. **Encryption-:** converting of data in to code and this prevents the unauthorized access of the people and also help in storing the data in the device.

Figure 19 encryption

(tectrade 2017)

8. **Authentication-:** it is the action of proving something true like login the details if the worker who login in device the database check the details and if it is correct then it will connect to the network.

Figure 20 authentication

9. **VPN-:** A virtual private network (VPN) is a technology that creates an encrypted connection over a less secure network. VPN it ensures the appropriate level of security to the connected systems when the underlying network infrastructure alone cannot provide it.
10. **Tunneling-:** it is a protocol which allow for securing the movement of data form one network to another and it allows to sent communication of private network to the public network.
11. **Remote access-:** accessing another network or computer from our computer to solve the problem of the client from the office or for transferring the data

Figure 21remote access

(focus 2017)

12. **RADIUS-:** which means remote authentication dial-in user service and software that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. RADIUS allows a company to maintain user profiles in a central database that all remote servers can share.

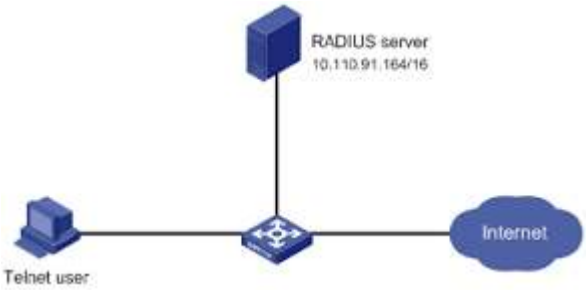

Figure 22 RADIUS

(H3C 2003)

13. **TACACS-:** which means terminal access controller access control system which is an authentication protocol which allows remote access server to forward login password authentication and allows access to the system

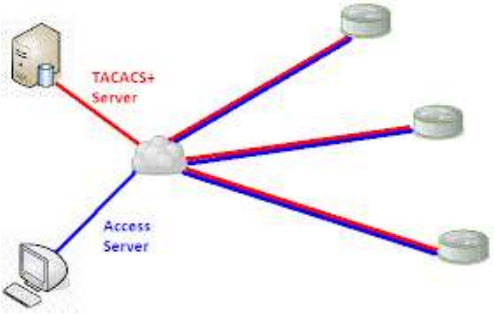

Figure 23TACACS

(JUNIPER)

14. **IPsec-:** it is a framework for set of protocols for security at network and it is a processing layer of network. IPsec means internet protocol security

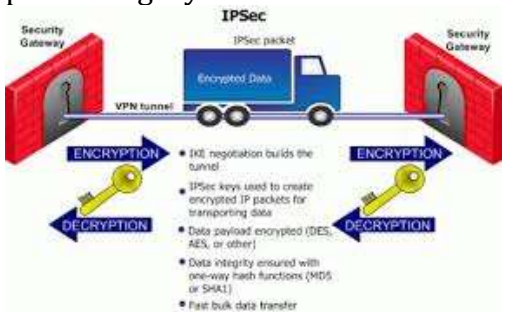

Figure 24IPsec

(IKE)

15. **Certificate authorities-:** which means it is the trusted entity which issues document that verifies by a digital entity on the net and it plays an important role in the public key infrastructure. Which includes the owner of public key and expiry date and owners name and many more

Figure 25 C.A.

(2017)

16. **PKI-:** public key infrastructure mean login key and it helps to identify the user of public key and it refers to digital certificate.
    The components in it are-:
    a. Certification authority
    b. Registration authority
    c. Private keys tokens etc.

Figure 26 PKI

(http://slideplayer.com/slide/3927080/ 2017)

Names	Pros	Cons
Right management	• In this people know about the private details like domain and other things related to it.	• If the private details may leak to some other it may cause problem. • The people who don't know about the details if he said about it may cause problem to workers.
Resource availability	• This advantage of it is the workers may work in proper way and do things which are related to work only.	• Sometime they may get access more than they want so that work may be delayed.
User management	• Making administration to provide user when to login and log out and etc. things.	• Some time while setting they cause some problem so that they may not forget some things to assign them and some more problem they face like enroll of details etc.
Access times	• We can retrieve data from the storage when we login through domain only like in a particular time.	• If anyone who known the domain details then he can visit and see all the data in it storage and chance of changing it.
Group allocation	• They can create a better things like firewalls and more secure things and they can share their ideas with the others	• Sometimes conflicts may arise because of the proposals of idea and etc.
Timed access	• We can set the time for connecting WIFI or domain for time which they may not use extra	• If there is any important file to be sent on that time. If time expires on that time then they

	time for their own purpose.	have no choice to any thing.
Encryption	• It allows the data to remain separate from the device security where it is stored and encrypts the permit of administrator to store and transmit data. • Data encryption circumvents the potential complications that accompany data breaches which provide ensured protection of intellectual property and other similar types of data.	• It becomes more problem for the IT members. If are more keys it is difficult to remember the key and if they forgot the key then they may lose the data related to it. • It is too costly because the system with the encryption should need more updates and storage capacity to run.
Authentication	• Through this we can stop hacking from other and use this data of endures. • We can set on time password for the endure which help the people in many transactions.	• It is a complex process it need some tutorial for learning the design. • The cost of the hard ware and software may slightly high.
VPN	• By this user can access network from anywhere as long as internet is connected. • It can work in public network such as WIFI or personal network • It has high security using this network connections we can safely access the	• The design and security making become big complex which means we need high level of understanding and some of the issues may occur using this • It needs a clear attention in setting a security system

	network.	to prevent cyber-crimes.
Tunneling	• It prevents data from altering when it is moving from senders to receivers • It makes the authentication more difficult for someone to listen in transmission.	• Encapsulation of the data twice can affect the speed. • For using this we should make lot of configurations like in Microsoft 2008 key change become one of the problems. • Encryption involves higher use of CPU storage.
Remote access	• Respond in emergency situations that requires access to health information. • Documentation is done on the spot without need of more work. • It reduces the consumer time.	• It is costly to implement for ex-: IT support, staff • Information can be viewed by public and hackers. • Protocols and security features required.
RADIUS	• It is modern cisco device support TACACS • If we are working on mixed vendor network it is the best option.	• Not using right server. • Not considering purchasing a security certificate.
TACACS	• It implements more features of RADIUS • It changes the implementation of RADIUS as it extends the protocols to meet the needs of modern network.	The cost of this will be very high to effort.
IPsec	• It is easier to maintain this protocol.	• It becomes more problem for clearing the errors

	• It is more secure protocols. • It monitors and allows as traffic for the entire network pass through it.	in the protocol. • The packets flow will be high so it needs somewhat high processing power.
Certificate authorities	• Provides verifications through secret private keys. • There is no need for distributing public keys • It is used for many purpose like login banking etc.	Requires public-key infrastructure this cause increase in the cost compared to public-key authentication.
PKI	• It allows authentication to other computer. • Allow the generation of the needed certificates keys can be part of the certificates	• We need to understand much for design it and it is not simple thing for sys admin.

Plagiarism report-:

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