

SCII/00825/2019
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NETWORK DESIGN ASSIGNMENT

QUESTIONS

1. List the major user communities for your design.

- ✓ Engineers/ Employees
- ✓ Customers
- ✓ Cooperate management/ Employers
- ✓ IT Experts / Network administrators.

2. List the major data stores and the user communities for each data store.

- i. Data Center Servers
 - ✓ Engineers/ Employees
 - ✓ Network Admins
- ii. Public Web servers, DNS Servers, Email servers
 - ✓ Customers

3. Identify major network traffic flows in your network topology drawing.

Data flows from the employees to the the data centers and from the customers to the the public Web servers.

4. How does your design provide security for ElectroMyCycle's network?

- i. It ensures Physical Security by using physical control to protect key network resources. It can protect a network from misuse or abuse
- ii. It ensures proper authentication by identifying who is requesting network services and it can refer to human users, devices or software processes.
- iii. It ensures proper Authorization by saying what user can do after authentication. i.e. Authorization grants privileges to processes and users. Authorization lets a security administrator control parts of a network (for example, directories and files on servers).
- iv. Proper Accounting or auditing: collecting network activity data for purposes of effectively analyze the security of a network and to respond to security incidents
- v. It ensures Data Encryption It is the process for scrambling data to protect it from being read by an un-intended party

5. What questions will you ask ElectroMyCycle about this project as you do your work?

- ✓ Goals. What are the business, functional / nonfunctional goals of the network to be created.
- ✓ Consequences of the new network.
- ✓ Possible trade offs in case of limited resources.
- ✓ Contingency plan in case the network fails or the project fails.
- ✓ Selecting Routing Protocols. What and how are the routing protocols to be selected.

6. Design and document an IP addressing scheme to meet ElectroMyCycle's needs.

- ✓ 10.0.0.0 – 10.255.255.255
- ✓ 172.16.0.0 – 172.31.255.255
- ✓ 192.168.0.0 – 192.168.255.255

7. Specify which IP address blocks will be assigned to different modules of your network design.

- ✓ Internal servers – IP address class A
- ✓ External Data Centers – IP address class B

8. Document whether you will use public or private addressing for each module.

- ✓ Internal servers – private IP address
- ✓ External Data Centers – public IP address

9. Document whether you will use manual or dynamic addressing for each module.

Dynamic addressing to ensure that routing and switching is done automatically.

10. What are ElectroMyCycle's most important assets that must be protected with security mechanisms?

- ✓ Blue prints of the car designs
- ✓ Network hosts (including the hosts' operating systems, applications, and data)
- ✓ Internetworking devices (such as routers and switches), and
- ✓ Network data that traverses the network.
- ✓ Intellectual property, trade secrets, and the company's reputation.

11. What are the biggest security risks that ElectroMyCycle faces?

- ✓ Large number of employees may make it easier for hackers to infiltrate the network through social engineering

- ✓ Data center/ server failures
- ✓ Online retail
- ✓ Public servers

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12. Design a high-level security policy for ElectroMyCycle.

Access policy

- ✓ Connecting external networks is done through the public server
- ✓ Only the administrator is allowed to add new soft-wares to the system
- ✓ Data may be categorized as confidential, internal and top secret.

Accountability policy

- ✓ Users operations staff, and management are responsible to ensure proper password to their systems
- ✓ Admins are allowed to perform audit of the company
- ✓ In case of possible intrusion, the IT department has power to control the computers

Authentication policy:

- ✓ everyone should have effective password

Privacy policy

- ✓ Only the admin in the system is allowed to monitor e – mails, logging of keystrokes, and access to users' files.

Computer-technology purchasing guidelines:

- ✓ Computers are to be purchased once a financial year or when a very needy need arises

It is Written for:-

- ✓ End users, network administrators, and security administrators.

It Specifies

- ✓ How to handle incidents (that is, what to do and who to contact if an intrusion is detected).

13. Describe how you will achieve buy-in from the major stakeholders for your security policy

DEVELOPMENT OF A SECURITY PLAN

- ✓ One of the first steps in buying in major stakeholders is developing a security plan.

- ✓ A security plan is a high-level document that proposes what an organization is going to do to meet security requirements.

MINIMAL COMPLEXITY

- ✓ Complicated security strategies are hard to implement correctly without introducing unexpected security holes

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RESPONSIBILITY

- ✓ One important aspect of the security plan is a specification of the people who must be involved in implementing network security

DEFINING A SECURITY POLICY

- ✓ Security policy: a formal statement of the rules by which people who are given access to an organization's technology and information assets must abide.

PRESENTING IT TO THE MAJOR STAKEHOLDERS

- ✓ This is the last and final step to ensure you have them on board.