FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

SEMESTER 1-2021-2022

PREPARED BY: KeepAlive

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Project Report

LECTURER'S NAME: DR. ZAHEERA BINTI ZAINAL ABIDIN

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1. COMPANY PROFILE

Background and culture/nature of the business

Advanced Cybersecurity and Programming (ACaP) Solution Sdn. Bhd. is a company specializing in providing advance security to an organization network environment and developing reliable systems. Our CEO, Tan Sri Affendy Imran Rifqi bin Datuk Wira Izham Ahmad Firdaus is very committed in ensuring every organization has a good security measures to protect their data properly. We are non governmental organizations and currently receiving funds from third party companies such as Proton, Intel and Konica Minolta. We specialize in developing secure network infrastructure and provide advance security in protecting data from both outside and inside attack. Our mission is to deliver top security management to our clients. We aim to keep our clients worry free about the safety of their company data.

We are now working on installing a new email server for Proton Holdings Berhad. As new cyber security threats always surface around email phishing, we have to provide better security to protect the employees of the company from this attack. Therefore, we are developing secure network environment for this purposes.

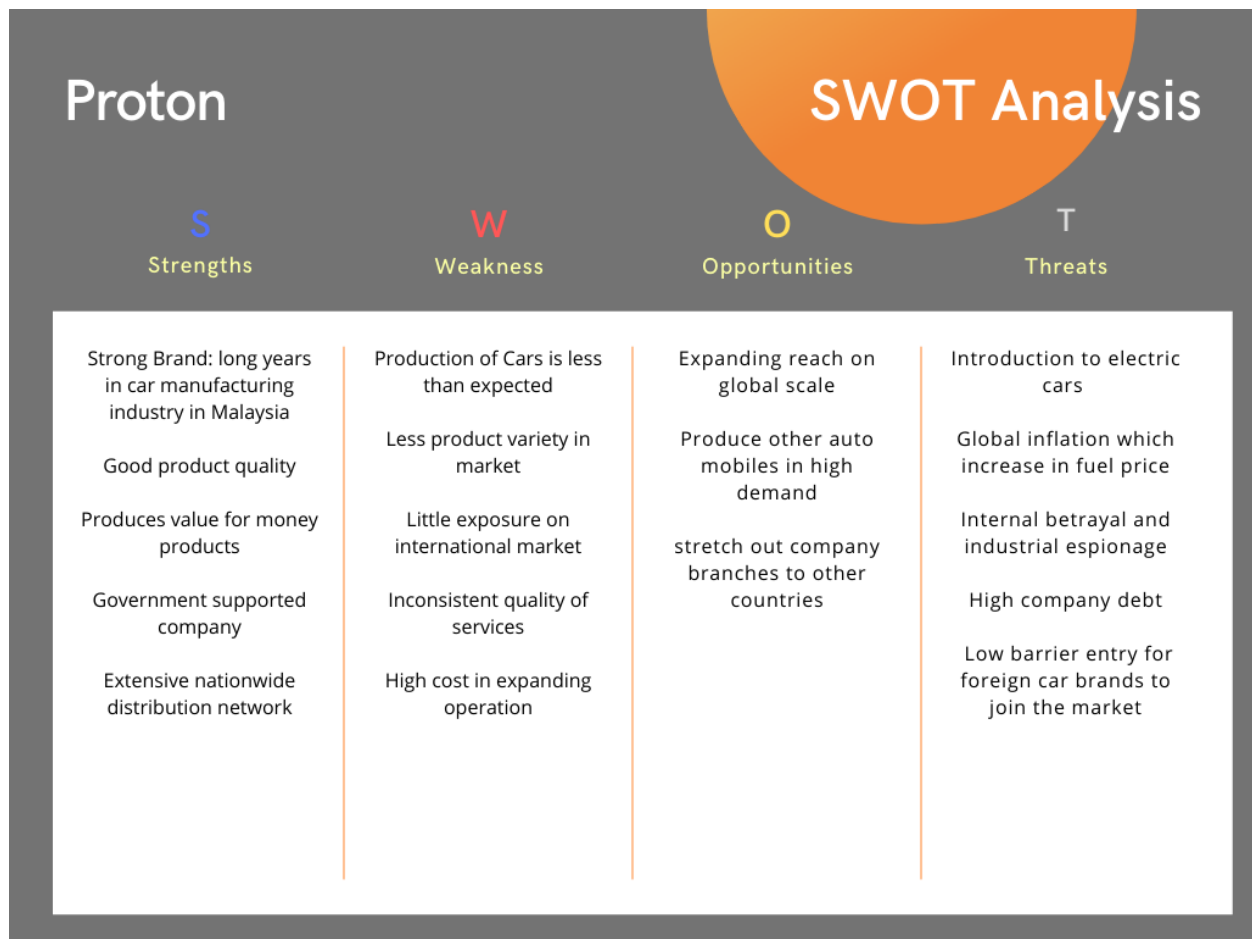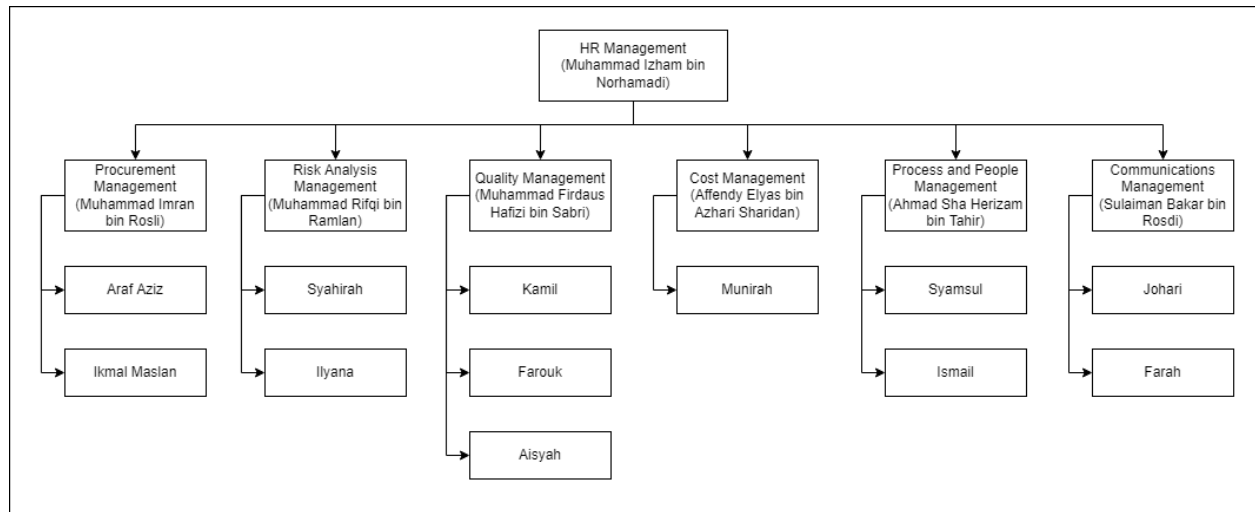Figure 1.1 Proton SWOT Analysis

Figure 1.2 Organizational Chart for Network Attack and Penetration Project

The upper management of the company requested a secured email system to coordinate with employees within, as the company continues to expand its operations. This means more confidential data may be required to be transported using a secure channel to prevent data leaks that may compromise operations.

Meeting 1– written progress report

Date: 6/11/2021

The project revolves around setting up the E-mail server as well as the appropriate services to go along with it. This project purpose is to provide secured way of exchanging email whether from inside or outside the network of our client company. The time allocated for the completion of this project is estimated around 95 of working days. There are around 19 employees varies from different specialty from our company has been appointed to complete this project. The estimated cost to finish this project is around RM43,000 funded by our company.

Our project also setup a SpamTitan as security services with the various features in SpamTitan for the client company. SpamTitan is for email protection by blocking spam, viruses, malware, ransomware, and links to malicious websites from your emails. The time allocated to install this service only take approximately one hour. The cost of this service is RM 4 per user for each month.

Action Item	Assigned To	Due Date
Work Breakdown Structure	HR and Scope Management	6/11/2021
Organizational Chart	HR and Scope Management	7/11/2021
Gantt Chart	Project, Process and People Management	7/11/2021
Risk Analysis Layout	Risk Analysis Management	8/11/2021
Defining stakeholders	Project, People and Process Management	13/11/2021
Commence quality planning, assurance and control	Quality Management	17/11/2021

Budget Estimation	Cost and Time Management	20/11/2021
Provide Make-or-Buy Analysis and Appropriate Sellers	Procurement Management	22/11/2021
Provide training and bonding with other organizations.	Communication Management	27/11/2021

Date and time of next meeting: 16/12/2021

Roles and Responsibilities

Role	Name	Organization/ Position	Contact Information
HR Manager	Muhammad Izham Bin Norhamadi	HR Leader	Izham@gmail.com
Procurement Manager	Muhammad Imran Bin Rosli	Procurement Leader	Imran@gmail.com
Quality Manager	Muhammad Firdaus Hafizi Bin Sabri	Quality Leader	Aus@gmail.com
Risk Analysis Manager	Muhammad Rifqi Bin Ramlan	Risk Analysis Leader	Rifqi@gmail.com
Cost Manager	Affendy Elyas bin Azhari Sharidan	Cost Leader	affendy0212@gmail.com
Process and People Manager	Ahmad Sha Herizam Bin Tahir	Process and People Leader	Ahmad@gmail.com
Communications Manager	Sulaiman Bakar Bin Rosdi	Communication Leader	Imran@gmail.com

Sign-off: (Signatures of all above stakeholders. Can sign by their names in table above.)

Comments: (Handwritten or typed comments from above stakeholders, if applicable)

Team Contract

Project Team Members Names and Sign-off:

Name	Sign-off on Team Contract
Muhammad Imran Bin Rosli	*Imran*
Muhammad Izham Bin Norhamadi	*Izham*
Ahmad Sha Herizam Bin Tahir	*Ahmad*
Affendy Elyas bin Azhari Sharidan	*Affendy*
Muhammad Rifqi Bin Ramlan	*Rifqi*
Muhammad Firdaus Hafizi Bin Sabri	*Firdaus*

Code of Conduct: As one of the project members, I will:

- Work as a team and finish up the project until the end of the project.

- Research and help each other in developing this project.

- Commit to our work and abide by all the rules being set by this organization.

Participation:

- Give full effort and energy so that the project runs smoothly.

- Ask for help if does not know how to complete a task.

- Report any circumstances to the leader.

Communication:

- Communicate effectively with each other to meet the project's needs.

- Brainstorm and set up meetings to update each work that has been done.

- Meet up not only at workplace but also during free time.

Problem Solving:

- Analyze and provide a solution if necessary.

- Link and bonding with other organizations to tackle problems.

2.0 SCOPE

Project Charter
Date: 12/1/2021

Project Title: Setting up Email Server for Proton Holdings Berhad	
Project Start Date: 11/1/2021	**Projected Finish Date:** 3/11/2022

Budget Information: RM49,500.00
Project Manager: Muhammad Izham Bin Norhamadi
Project Objectives: Our project objective is to set up an email server that is secured from cyber threat. This is to provide Proton Holdings Berhad employees with a secure way to exchange email inside or outside of Proton's network. This way, the email will only be sent to the desired recipient and reduces risk of email phishing, spamming and man in the middle attack and some others famous cyber-attack known nowadays.
Success Criteria: - Project completed on time with all known errors has already been fixed. - Project completed around the margin of the allocated budget. - Project provides efficiency and boosts productivity also increases the company general income. - Project objectives such as a secure way for employees to exchange email inside and outside of proton network are achieved completely.

Approach:

- Hired specialized employees regarding networks such as network administrator, cyber security engineer and network engineer.
- Assign each employee to the appropriate group based on their specialty.
- Consult with project manager and project leaders in order to understand the details and requirements of the project.
- Brainstorm with every group member to further analyze project requirements.
- Developed the project based on the project guidelines.
- Meeting and brainstorming with stakeholders, project leader and manager, also group members if necessary.
- Keep the client up to date with the project progress in order to ensure the project is developed based on the client requirements.

Roles and Responsibilities

Name and Signature	Role	Position	Contact Information
Muhammad Imran Bin Rosli *Imran*	HR Manager	HR Leader	Imran@gmail.com
Muhammad Izham Bin Norhamadi *Izham*	Procurement Manager	Procurement Leader	Izham@gmail.com
Muhammad Firdaus Hafizi Bin Sabri *Firdaus*	Quality Manager	Quality Leader	Aus@gmail.com

Comments: (Handwritten or typed comments from above stakeholders, if applicable)

Scope Planning

Scope Statement

Project Title: Setting up Email Server for Proton Holdings Berhad
Date: 11/1/2021   **Prepared by:** Muhammad Izham Bin Norhamadi

Project Justification: Email server is essential for a business company or any organization as it is one of the formal and crucial platforms for exchanging information. Nowadays, there are various type of cyber-attacks known targeting the email, such as man in the middle attack, email spamming and phishing. Thus, it is crucial to have a secure email server for the employees to exchange email with each other or with any outside users. This is to ensure that business can run as usual and reduce the risk of threat that can halt the business flow.

Product Characteristics and Requirements: - The services provided must protect the email that is exchanged inside or outside Proton's network.   - The email services must be up to date and meet today's standard.   - Reduce administrative costs, overheads, and human error.   - The product must meet all stakeholders' interests and requirements.   - The email server configuration is based on network administrator guidelines.

Product User Acceptance Criteria:

- Reduces risk of man in the middle attacks.
- It has an anti-spam feature to eliminate email spamming.
- The email server performance is not bottleneck by any network configurations.
- The email services must have automatic update features.

Summary of Project Deliverables

The email server has an email services and other security services such as IDS in order to safeguard the confidentiality and integrity of the email. This includes reducing cyber-attack targeting email such as man in the middle attack, eliminate email spamming and filter suspicious email to reduces risk of email phishing. It can ensure the email that is being exchanged inside or outside of Proton's network is safe.

Project management-related deliverables:

- The actual cost of the project after it is finished.
- Document of each process involved in completing the project.
- Project objectives that have been successfully achieved.
- The requirements of the stakeholders that have been successfully satisfied.

Product-related deliverables:

- The email server.
- The email services as well as other services that provide security for email and the network in general.
- Updated and free of known misconfiguration of email services.
- The product is functioning properly as intended.

Scope Definition

Proton Holdings Berhad known as Proton is a car manufacturer which was established in 1983, where former prime minister of Malaysia, Tun Dr. Mahathir Mohamad conceived a vision to produce a national car.

Proton in its early existence was a joint venture company where they used to manufacture rebadged versions of Mitsubishi Motors (MMS) products in the 1980s and 1990s. In the year 2000, Proton managed to produce its first non-badge engineered car although still using Mitsubishi-engined. The first national car ever produced by Proton is Proton Saga.

Proton was owned in majority by HICOM with minority stakes is hold by Mitsubishi Group. In 2012, Proton was fully acquired by DRB-HICOM after Mitsubishi divested their stake to Khazanah Nasional in 2005. Proton has expanded their businesses to over 70 countries to date. The latest car manufactured by Proton is Proton X70, Proton X50 and the new model of Proton Persona.

<u>Choose your clients from various domains:</u>

- Domain: **Car Manufacturer** – Client: **Proton Holdings Berhad**

Weighted Scoring Method

Projects are listed based on the requirements and weighted for decision making. The criteria of the product or services that will be implemented is listed in Table 1.

Criteria	Weight	Requirement Score				
		A	B	C	D	E
Value	15%	75	50	30	20	40
Risk	20%	50	60	40	15	70
Difficulty	10%	50	65	55	10	30
Success	15%	35	50	45	70	35
Compliance	10%	30	60	55	40	45
Relationship	5%	60	45	45	75	70
Stakeholder	20%	30	40	50	50	60
Urgency	5%	55	50	50	60	75
Weighted Scores	100%	46.25	52.25	45.00	38.25	77.00

Weighted Scoring Method (WBS)

Project Setting up Email Server

Initiation
- 1.1 Hardware Requirement
  - 1.1.1 Choosing Server Routers
- 1.2 Network Design
  - 1.2.1 Network Topology
  - 1.2.2 VLAN/inter VLAN requirement
  - 1.2.3 Propose Server IP Address
- 1.3 Software Requirement
  - 1.3.1 Choosing server OS

Planning
- 2.1 Electing Database Admins
- 2.2 Choosing best database system
- 2.3 Setting Email Protocol
- 2.4 Selecting Infrastructure and Hardwares
  - 2.4.1 Choose place to store servers
  - 2.4.2 Choosing best server rack

Execution
- 3.1 Installing Hardware
- 3.2 Installing Software
- 3.3 Server Hardening
- 3.4 Improving Site Performance

Control
- 4.1 Maintenance
  - 4.1.1 Monthly Maintenance
  - 4.1.2 Check Server Integrity
  - 4.1.3 Security Checkup
- 4.2 Regular Backup

Closing
- 5.1 Presentation
- 5.2 Report and Calculate cost
- 5.3 Document Closeout

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STAKEHOLDER ANALYSIS

- **Stakeholder Analysis for Network Security Infrastructure**
- **Prepared by:**   Muhammad Firdaus Hafizi bin Sabri   **Date:** 11/1/2021

Name	Organization	Role on project	Unique facts about stakeholder	Level of interest	Level of influence	Suggestions on managing relationships
Raziman Abd Rahman	Proton Holdings Bhd.	Client	Generous	High	High	Always present ideas confidently to convince the project sponsor from supporting the project.
Amirah Farhana	Konica Minolta, Inc.	Project Sponsor	Generous	High	High	Report the status of progress project on time to project sponsor and conduct small meeting when necessary.
Aznil Karen Ng	Seiko Epson Corporation	Project Sponsor	Resourceful Kind	High	High	Always help each other in the process of completing the project.
Syakirin	ANTIQ Solution	Software resource	Patience	High	High	Explain the project nicely and clear customers' doubts with clear explanation.

3.0 TIME

The initiation phase takes only 10 days because the phase consists of general task like choosing server and routers, making network design and choosing which OS need to be installed in the server. The process includes developing IP addressing table, creating suitable VLAN for the new server and analyzing the old network topology to look for improvement. In the planning phase, it takes 7 days to perform where it consists of the task of electing database administrator and going to the project site where the new server is going to be placed to determine where the server is going to be placed.
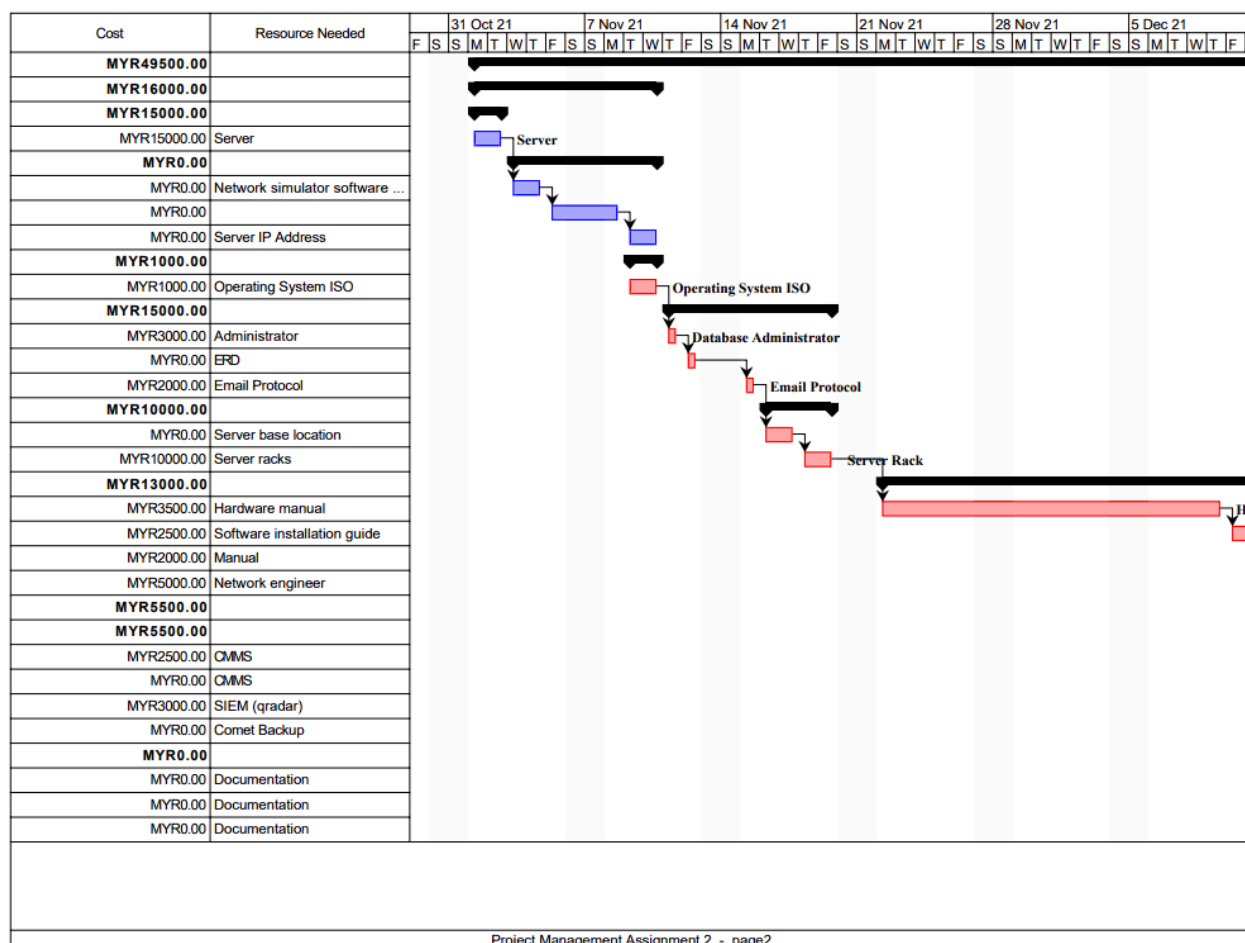
The execution phase takes the longest time to complete which is 56 days, and the 2 task that hogging the time taken is installing hardware and improve site performance that taking a total of 42 days. During this process, the new server is going to be placed into the site. The server will be configured by the installation team. This includes the work of constructing the server rack and other cabling work. After that, the server will be configured by the configuration team. When the server has been fired up, the control team will take the responsibilities to keep the server in good condition and secured by applying thorough security measures.
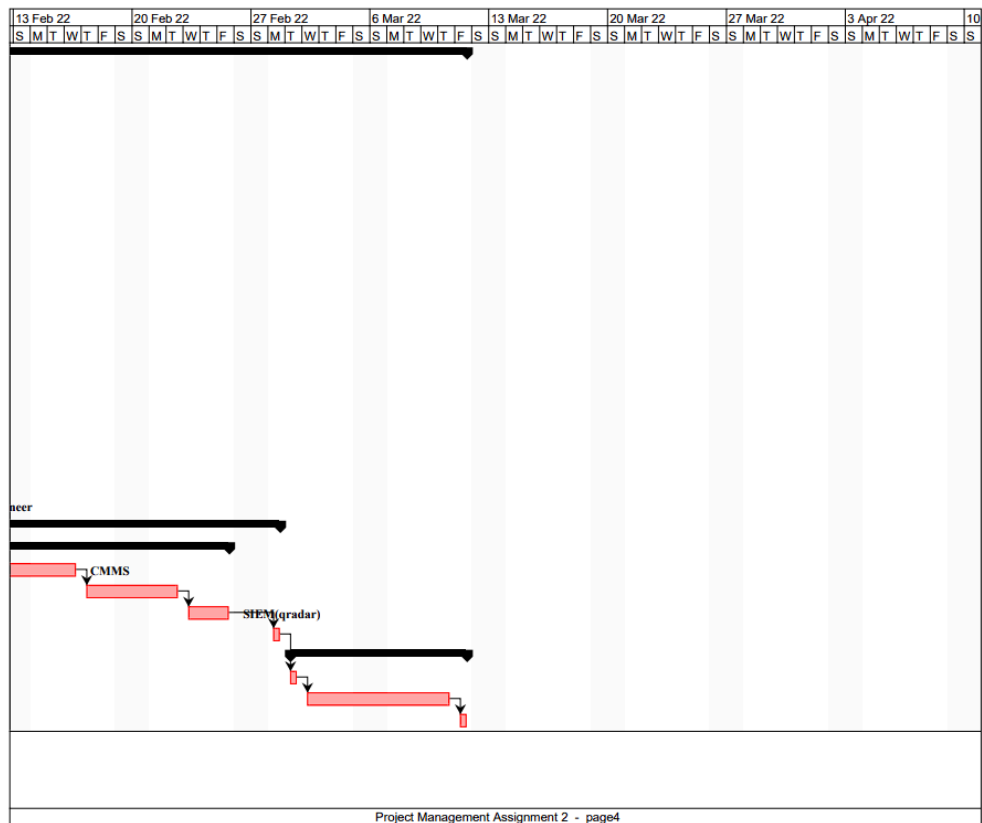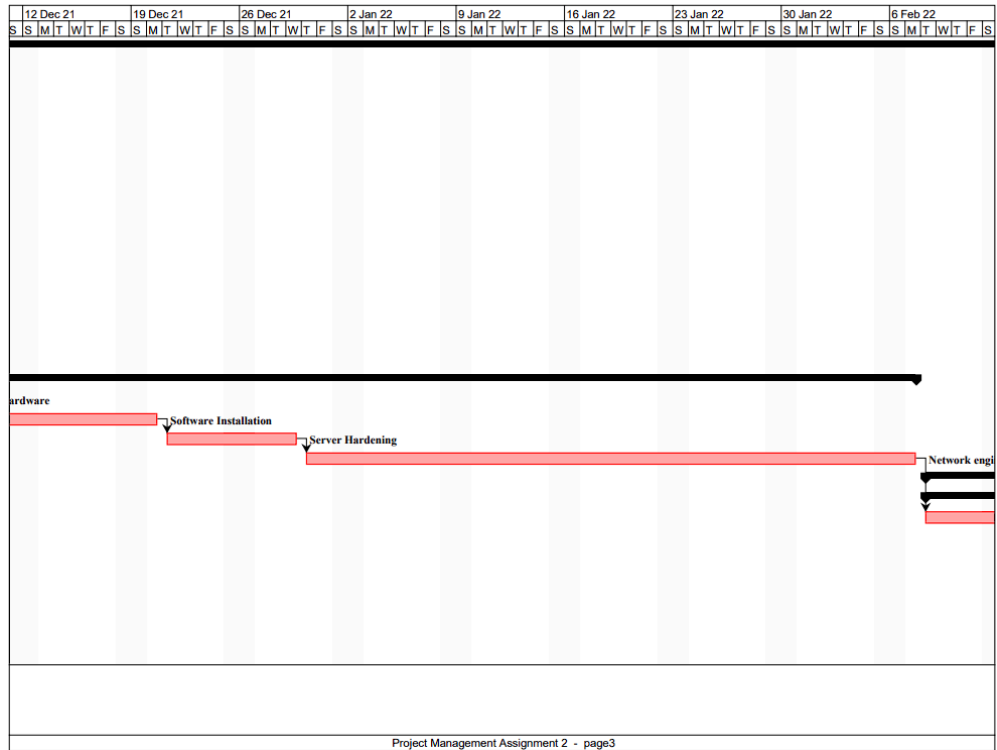
Control phases consist of many maintenance tasks such as monthly maintenance, check server integrity and security check up that need 15 days to complete. During this phase, the control team needs to do make sure the server is always working and in good condition. The last phase is closing that only take 9 days to complete. During this phase, the report is being documented for presentation.

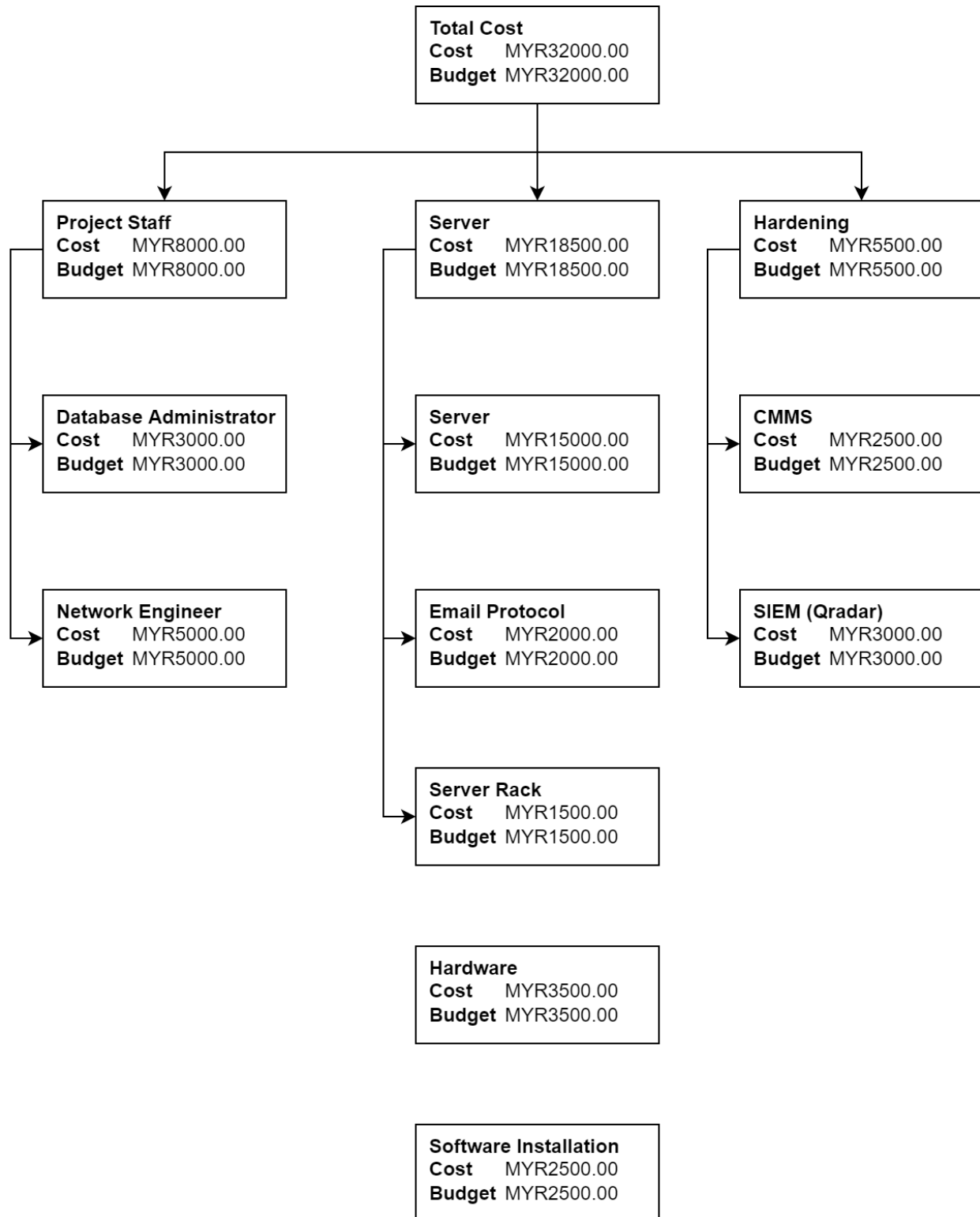|	ⓘ	Name	Duration	Start	Finish	Predecessors	Cost	Resource Needed
1		**Project Setting Up Email Server**	**95 days**	**11/1/21 8:00 AM**	**3/11/22 5:00 PM**		**MYR49500.00**	
2		**Initiation**	**8 days**	**11/1/21 8:00 AM**	**11/10/21 5:00 PM**		**MYR16000.00**	
3		**1.1 Hardware requirement**	**2 days**	**11/1/21 8:00 AM**	**11/2/21 5:00 PM**		**MYR15000.00**	
4		1.1.1 Choosing server and routers	2 days	11/1/21 8:00 AM	11/2/21 5:00 PM		MYR15000.00	Server
5		**1.2 Network design**	**6 days**	**11/3/21 8:00 AM**	**11/10/21 5:00 PM**		**MYR0.00**	
6		1.2.1 Network topology	2 days	11/3/21 8:00 AM	11/4/21 5:00 PM	4	MYR0.00	Network simulator software ...
7		1.2.2 VLAN/interVLAN requirement	2 days	11/5/21 8:00 AM	11/8/21 5:00 PM	6	MYR0.00	
8		1.2.3 Propose server IP address	2 days	11/9/21 8:00 AM	11/10/21 5:00 PM	7	MYR0.00	Server IP Address
9		**1.3 Software Requirement**	**2 days**	**11/9/21 8:00 AM**	**11/10/21 5:00 PM**		**MYR1000.00**	
10	🗓	1.3.1 Choosing server OS	2 days	11/9/21 8:00 AM	11/10/21 5:00 PM		MYR1000.00	Operating System ISO
11		**Planning**	**7 days**	**11/11/21 8:00 AM**	**11/19/21 5:00 PM**		**MYR15000.00**	
12		2.1 Electing database administrators	1 day	11/11/21 8:00 AM	11/11/21 5:00 PM	10	MYR3000.00	Administrator
13		2.2 Choosing best database relational system	1 day	11/12/21 8:00 AM	11/12/21 5:00 PM	12	MYR0.00	ERD
14		2.3 Setting emailing protocols	1 day	11/15/21 8:00 AM	11/15/21 5:00 PM	13	MYR2000.00	Email Protocol
15		**2.4 Selecting infrastructure and hard...**	**4 days**	**11/16/21 8:00 AM**	**11/19/21 5:00 PM**		**MYR10000.00**	
16		2.4.1 Choose place to store servers	2 days	11/16/21 8:00 AM	11/17/21 5:00 PM	14	MYR0.00	Server base location
17		2.4.2 Choose best servers rack	2 days	11/18/21 8:00 AM	11/19/21 5:00 PM	16	MYR10000.00	Server racks
18		**Execution**	**56 days**	**11/22/21 8:00 AM**	**2/7/22 5:00 PM**		**MYR13000.00**	
19		3.1 Installing Hardware	14 days	11/22/21 8:00 AM	12/9/21 5:00 PM	17	MYR3500.00	Hardware manual
20		3.2 Installing Software	7 days	12/10/21 8:00 AM	12/20/21 5:00 PM	19	MYR2500.00	Software installation guide
21		3.3 Server Hardening	7 days	12/21/21 8:00 AM	12/29/21 5:00 PM	20	MYR2000.00	Manual
22		3.4 Improve site performance	28 days	12/30/21 8:00 AM	2/7/22 5:00 PM	21	MYR5000.00	Network engineer
23		**Control**	**15 days**	**2/8/22 8:00 AM**	**2/28/22 5:00 PM**		**MYR5500.00**	
24		**4.1 Maintenance**	**14 days**	**2/8/22 8:00 AM**	**2/25/22 5:00 PM**		**MYR5500.00**	
25		4.1.1 Monthly maintainance	7 days	2/8/22 8:00 AM	2/16/22 5:00 PM	22	MYR2500.00	CMMS
26		4.1.2 Check server integrity	4 days	2/17/22 8:00 AM	2/22/22 5:00 PM	25	MYR0.00	CMMS
27		4.1.3 Security check up	3 days	2/23/22 8:00 AM	2/25/22 5:00 PM	26	MYR3000.00	SIEM (qradar)
28		4.2 Regular backup	1 day	2/28/22 8:00 AM	2/28/22 5:00 PM	27	MYR0.00	Comet Backup
29		**Closing**	**9 days**	**3/1/22 8:00 AM**	**3/11/22 5:00 PM**		**MYR0.00**	
30		5.1 Presentation	1 day	3/1/22 8:00 AM	3/1/22 5:00 PM	28	MYR0.00	Documentation
31		5.2 Report & Calculate all costs	7 days	3/2/22 8:00 AM	3/10/22 5:00 PM	30	MYR0.00	Documentation
32		5.3 Document closeout	1 day	3/11/22 8:00 AM	3/11/22 5:00 PM	31	MYR0.00	Documentation

4.0 COST

The plan for spending on resources, as stated in the Workbench, is around RM15,000.00, which includes the cost of server, server rack, and email protocols to safeguard the network. Tangible costs include resources and hardware such as computers, but intangible costs include money spent on software such as management software, the price of which may change. Direct labor or employee pay rates, as well as direct materials for the project, are examples of materials for direct cost. Indirect costs, on the other hand, are used to pay for things like office rent, utilities, and ordinary office expenditures like power, paper, Wi-Fi, and printer inks.

Cost	Resource Needed
MYR49500.00	
MYR16000.00	
MYR15000.00	
MYR15000.00	Server
MYR0.00	
MYR0.00	Network simulator software ...
MYR0.00	
MYR0.00	Server IP Address
MYR1000.00	
MYR1000.00	Operating System ISO
MYR15000.00	
MYR3000.00	Administrator
MYR0.00	ERD
MYR2000.00	Email Protocol
MYR10000.00	
MYR0.00	Server base location
MYR10000.00	Server racks
MYR13000.00	
MYR3500.00	Hardware manual
MYR2500.00	Software installation guide
MYR2000.00	Manual
MYR5000.00	Network engineer
MYR5500.00	
MYR5500.00	
MYR2500.00	CMMS
MYR0.00	CMMS
MYR3000.00	SIEM (qradar)
MYR0.00	Comet Backup
MYR0.00	
MYR0.00	Documentation
MYR0.00	Documentation
MYR0.00	Documentation

Project Management Assignment 2 - page2

ardware

Software Installation

Server Hardening

Network engi

neer

CMMS

SIEM (qradar)

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4.1 Resources

Total Cost
Cost   MYR32000.00
Budget MYR32000.00

Project Staff
Cost   MYR8000.00
Budget MYR8000.00

Server
Cost   MYR18500.00
Budget MYR18500.00

Hardening
Cost   MYR5500.00
Budget MYR5500.00

Database Administrator
Cost   MYR3000.00
Budget MYR3000.00

Server
Cost   MYR15000.00
Budget MYR15000.00

CMMS
Cost   MYR2500.00
Budget MYR2500.00

Network Engineer
Cost   MYR5000.00
Budget MYR5000.00

Email Protocol
Cost   MYR2000.00
Budget MYR2000.00

SIEM (Qradar)
Cost   MYR3000.00
Budget MYR3000.00

Server Rack
Cost   MYR1500.00
Budget MYR1500.00

Hardware
Cost   MYR3500.00
Budget MYR3500.00

Software Installation
Cost   MYR2500.00
Budget MYR2500.00

4.2 RBS Figure

5.0 QUALITY

Improving quality of service is most important in an organization to attract and gain the trust of client and user. Because there are fewer defects and greater accuracy throughout the implementation phase, improving the Quality of Service will immediately affect the project's development to become faster and more accurate. The fishbone figure below depicts the disadvantages that may arise during the project's implementation.

Fishbone Diagram
Setting up email server
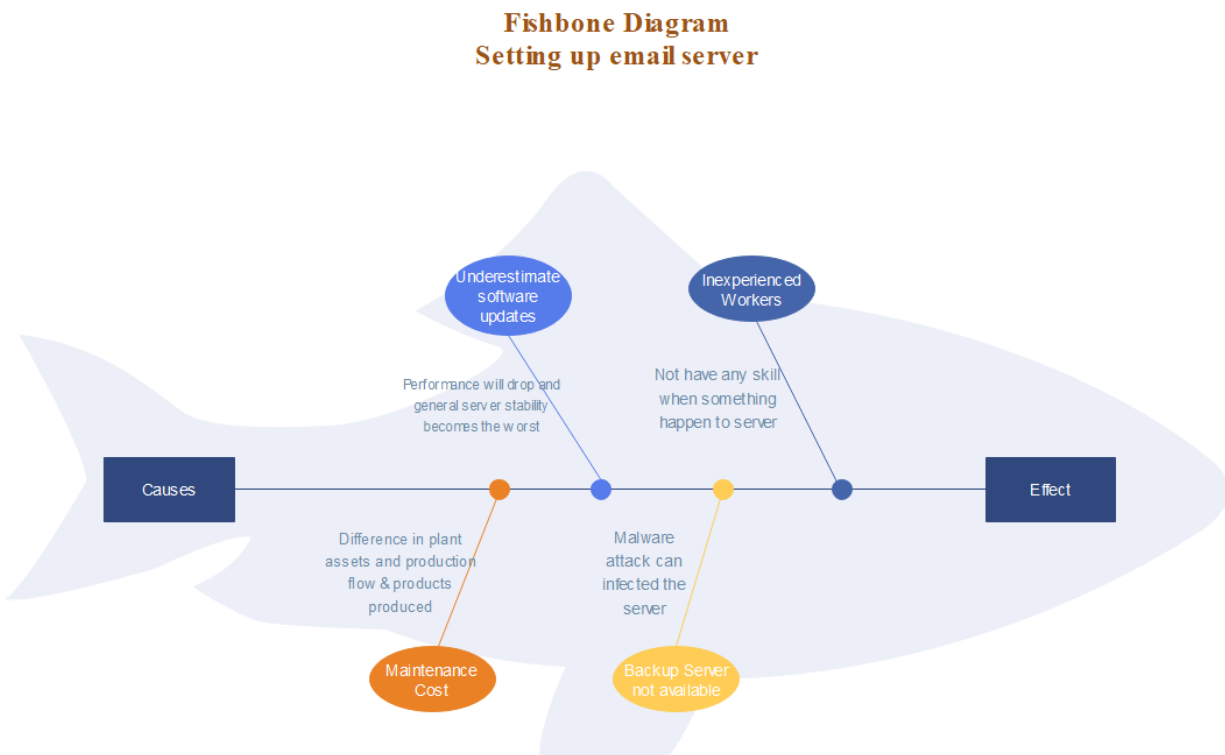
We also use ISO/IEC 27001:2013 to standardize our operation as it helps us in email policies: -

1. Proton employees are eligible to apply for the Proton official account for official purposes only.

2. The documentation shall consist of guidelines, and policies & procedures for acceptable use of each service

3. The policy document shall be considered as "confidential" and shall be made available to the concerned persons with proper access control. Subsequent changes and versions of this document shall be controlled

Flowchart on testing email server is shown below.
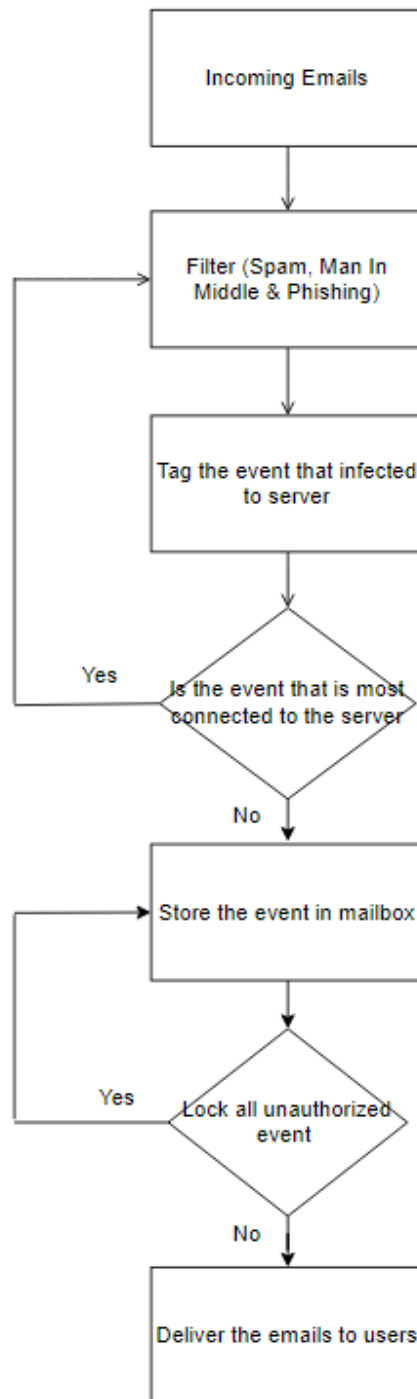
6.0 NETWORK SECURITY AUDIT AND ASSESSMENT

3 pillars of cyber security	Assets	Assets Description	Vulnerability	Threats	Risks	Risk Mitigation
People	• Talent • Strength • Discipline • Loyalty • Smart	• Employee	• Inconsistent • Learning curve • Health condition • Family status	• Careless • Irresponsible • Corruption	• Low in productivity • Low in work quality	• Job posting • Training
Process	• Policy • Rules and regulations • Term and conditions	• Car manufacturing process • Quality control • Account authentication	• RFID skimming • Piggybacking • Tailgating	• Confusion of process • Forgetful • Ignorance • ill intent	• Bottleneck production • Dictionary attack • Brute force • Phishing • Social engineering	• Fully train employee • Awareness campaign
Technology	• Hardware	• Car Manufacturing Machine • Router • Computer • Switch • Server	• Faulty machine • Software patches • Backdoor • Bug	• Failure in car manufacturing machine • Mishandling machine • No electricity • Natural disaster	• Loss of assets • Re-direction of path	• Machine Maintenance • Hardware redundance • Firewall
	• Software	• Proton manufacture management system	• Data reliability	• Data breach • Malware attack	• Leak of confidential data	• Proxy • Backup and recovery • Antivirus

Table 1: Identification (Assets, Threats, Risks and Mitigation Planning)
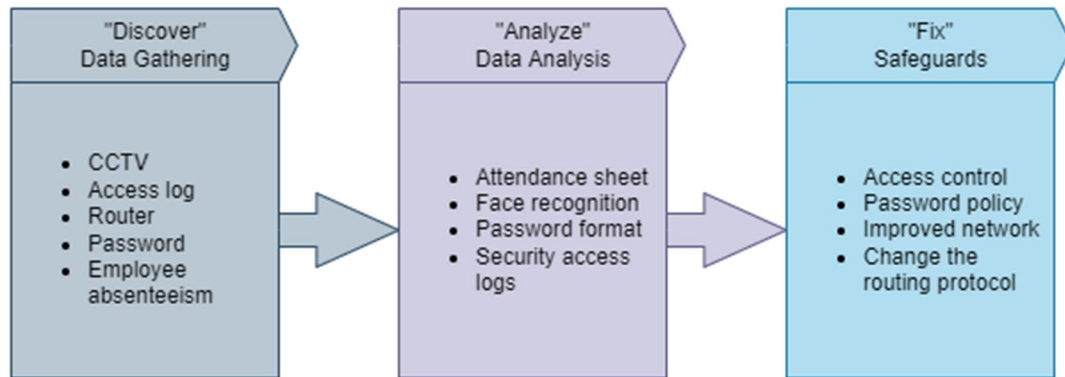**Client: Proton Holdings Berhad**

Figure 1: Iterative Assessment Map – Proton Holdings Berhad as a Client

7.0 PROPOSED SOLUTION

Planning and Designing Logical and Physical Topologies

In the planning and designing process, the project team produces the logical topology and physical topology of the network security architecture. The project manager needs to manage the server and avoid what any can infected in server as shown in Figure 7.1 & 7.2, design the security services and security in servers. Figure 7.3 shows example of logical and physical topology or also called as network architecture.
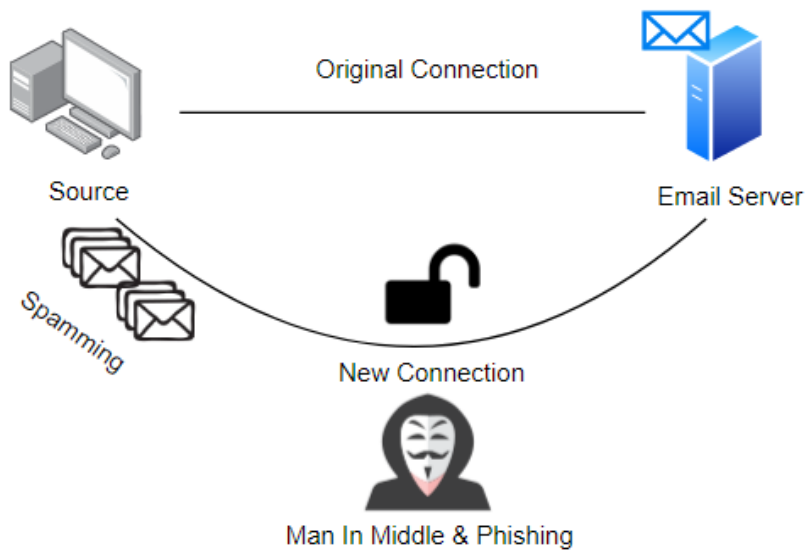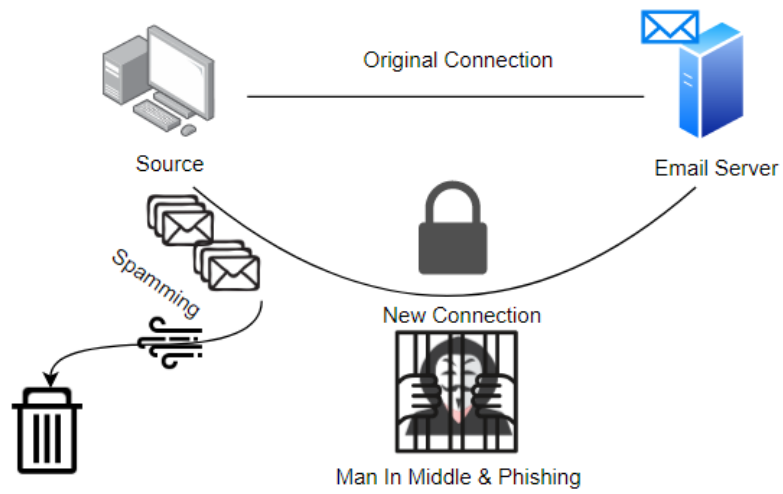

Figure 7.1: Before email server is established

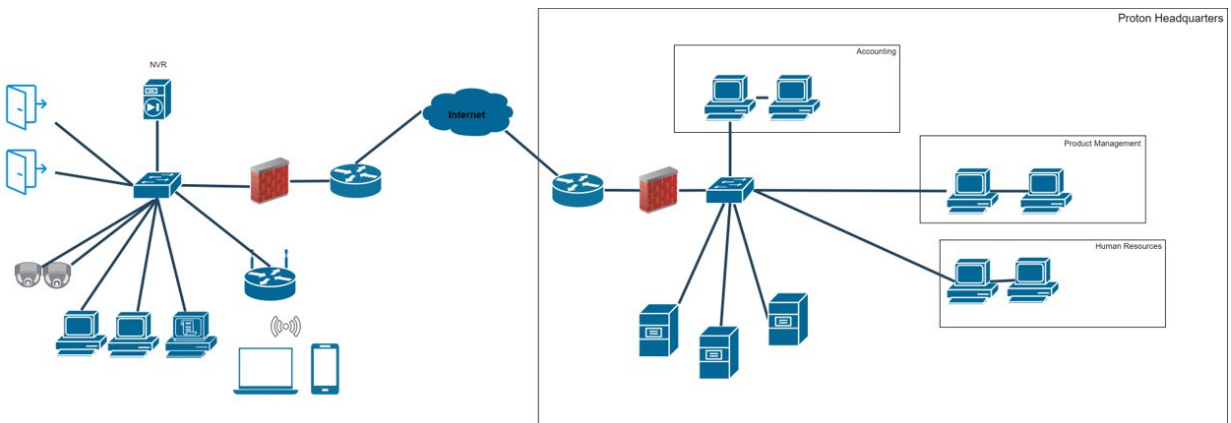Figure 7.2: After email server is established

Figure 7.3: Network Architecture

Lessons Learned Report

Prepared by: HR Management   **Date:** 4/11/2022

Project Name: Setting up Email Server for Proton Holdings Berhad

Project Sponsor: Proton Holdings Berhad

Project Manager: Muhammad Izham Bin Norhamadi

Project Dates: 11/1/2021 – 3/11/2022

Final Budget: RM49,500.00

1. Did the project meet scope, time, and cost goals?

    - Yes, the project meets the scope, time and cost goals.

2. What was the success criteria listed in the project scope statement?

    - Project finished on time or quicker.
    - Project came in the range of budget
    - Project created financial benefit for your organization.
    - Project will make protection of the client organization better
    -
3. Reflect on whether or not you met the project success criteria.
    - Our project met the success criteria that is needed in the project requirement.

4. In terms of managing the project, what were the main lessons your team learned?

    - Our team learns how to handle a network security project and create an proper document.

5. Describe one example of what went right on this project.

The email services function properly as intended according to the stakeholder's requirements.

6. Describe one example of what went wrong on this project.

Automatic update of email services encounters some errors.

7. What will you do differently on the next project based on your experience

 working on this project?

    - Increase the meeting count with stakeholders, project leader and other group members to increase their productivity.