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Threat-Asset Matrix Evaluation

CS-573-A Fundamentals of Cybersecurity Stevens Institute of Technology

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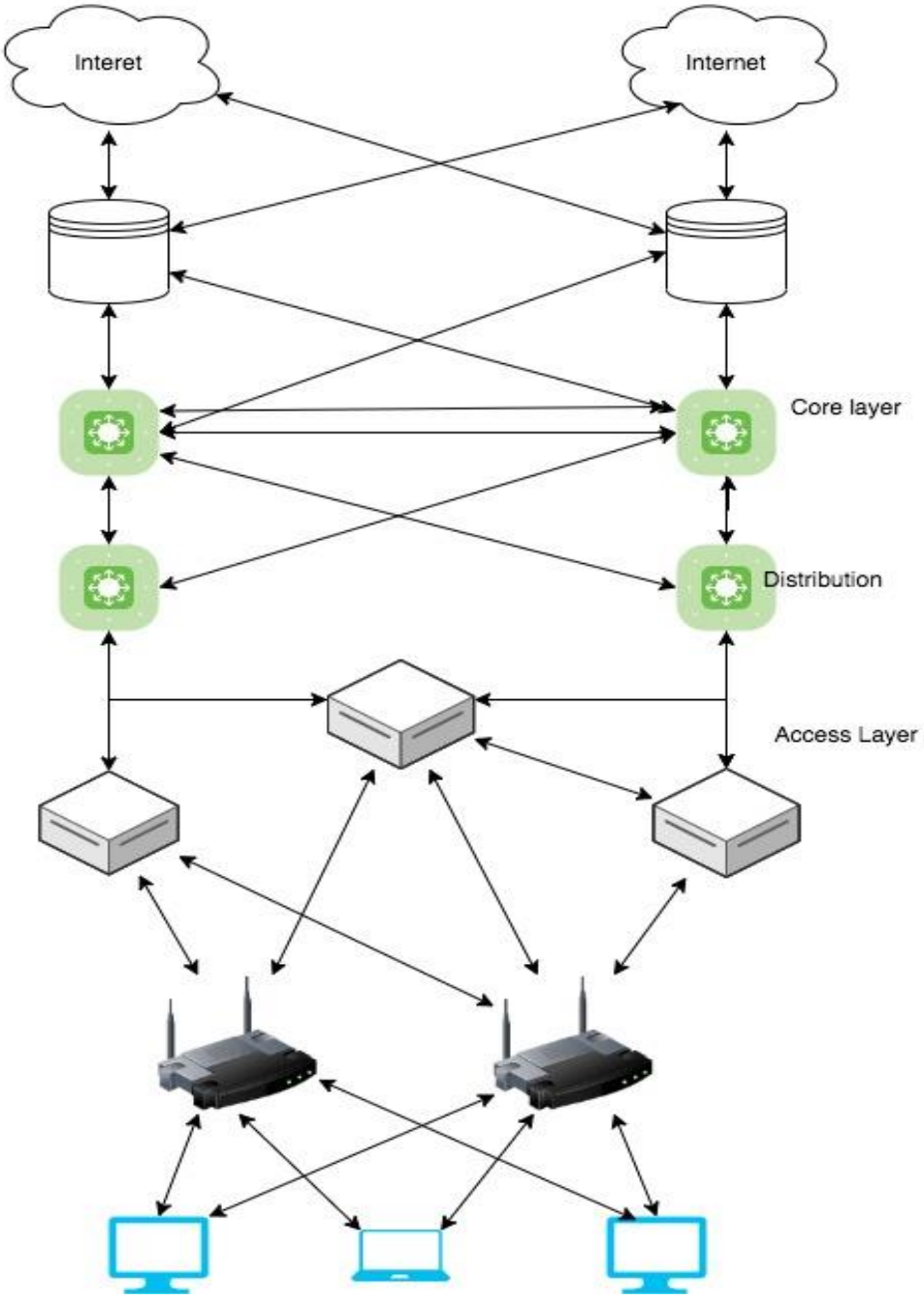
Introduction

The Hotel Management industry is progressing rapidly. An altogether unique course of action of the client's demands has as of late expanded due to changes in interests and inventive innovative advances. Examples like prosperity and wellbeing, moving lifestyles, developing tendencies, sterilization, safety, security, reasonability, and advancement have all gotten raised. Despite these examples, we have mounting stresses of ever-changing, and new administrative acts like disinfection, room administration, and other available luxuries in the hotels premises. We will consider an online Hotel room booking framework as our imaginary venture organization. This framework oversees inns, outsider lodging booking frameworks, and clients as these 3 significant substances related to this organization.

This framework goes about as a venture plan of action set up to ease information trade among these substances. This framework will list all the accessible lodgings and their separate room choices, costs, and extra amenities assuming any. Clients will get to this framework and will do their preferred appointments of inns and lodgings. The lodging booking framework is set up which is capable of gathering the booking affirmation from separate inns or an outsider merchant and convey it by means of mail or some other medium to the individual client inside the given time period.



Architecture

- **Access layer**: Network access is provided to the customer
    1. Servers: Hold. The cached data and provide access to the main hotel booking system.
    2. Routers: Customers connect to their nearest accessible router to procure an internet connection by providing credentials.
    3. Personal Computing Device: The Computer/Laptop/phone/Tablet on which the customer accesses the network.
- **Distribution layer**: provides connectivity between the core and access layers based on pre decoded policy.
- **Core layer**.: it is the layer that provides data connectivity between switches within the enterprise and the servers.

Assets of the Network

1) Payment Gateway This resource is liable for installments made by clients.

2) Customer Care: This resource is capable to give all the help, debates goals and other assistance identified with the business endeavor.

3) Vendor Console: This resource will permit sellers to access and refresh their information, food amounts, food thing, their evaluating, café timings.

4) Order and Transaction ledgers and logs: All the data identified with client orders, dropped, or handled requests and exchanges history, returns will be accessible.

6) Customer, Vendors and hotels Information portal: This resource will hold all the individual and contact data identified with particular substances.

7) Website and Application: This resource will permit clients to get to the framework.

8) Human Resource :This resource will hold all the data identified with representatives, their financial data, and organizations' monetary data.

9) Sales and showcasing: This resource will hold all the data identified with client acquisitions, advertising systems, advancements, client base, business systematic information and procedures and so on.

10) Employees Phone: Communications will be set up, and data will we traded among one another.

11) Employees Computer: Every utilize will hold significant data identified with business or improvement on their allocated workstations.

12) Data Centers and Cloud Storage: This resource will hold whole information of the framework and will be very much ensured and protected with multilayer firewalls and other security boundaries.

13) System Server: This resource is extremely essential to guarantee working of the whole framework and all the continuous and live activities.

14) Email Server: Will hold all the email interchanges and information related with it. Also, is liable for legitimate working.

Parameters and Calculations

C: Consequence

Estimates**:** 1 = Low, 2 = Medium, 3 = High

P: Probability

Estimates**:** 1 = Low, 2 = Medium, 3 = High

R: Risk

R = P x C

Risk = Probability x Conequence

Threat-Asset Matrix

A	B	C	D	E	F
	Threats				
Sr. No	Assets	Confidentiality	Integrity	Availability	Theft/Fraud
1	Payment Gateway and Digital Wallet	7	5	2	8
2	Customer Care Services	1	2	1	1
3	Vendor Dashboard	2	2	2	3
5	Customer, Vendors and Delivery Associates Information	1	3	4	2
6	Website /Application	1	5	6	1
7	Human Resource and Payroll	4	2	2	1
8	Sales and showcasing	2	3	4	3
9	Employees Phone	3	2	8	10
10	Employees Computer	2	1	1	3
11	Data Centers and Cloud Storage	5	4	3	8
12	System Servers	1	3	3	7
13	Email Servers	1	4	7	9
14	Order and Transaction logs	1	2	1	4

Threat-Asset Matrix Estimates Evaluation

Sr. No	Threats / Assets	Confidentiality	Integrity	Availability	Theft/Fraud
1	**Payment Gateway and Digital Wallet**	payment is the most important factor in booking a room with online payment and card. Information needs to be really safe **Estimates:** P=1, C=3, R=3	Honesty is the main term on which this specific resource depends on and third party vendors who offer this assistance are recruited on notoriety. **Estimates:** P=2, C=3, R=6	Getting to such data is troublesome dependent on the sort of security is given and yet not feasible. Thus, hazard consistently exists. **Estimates:** P=2, C=3, R=6	Most burglary or cheats are focused around there by controlling or assaulting during money related exchanges to increase monetary advantages. **Estimates:** P=3, C=3, R=9
2	**Customer Care Services**	This resource is worked to determine debates and guarantee smooth working of big business. In this way, information privacy is highest need. **Estimates:** P=1, C=1, R=1	Consumer loyalty is imperative to keep up uprightness and notoriety of the venture and it is dealt with explicitly. **Estimates:** P=1, C=2, R=2	This information is just accessible to concerned clients and specialists engaged with this region. **Estimates:** P=2, C=1, R=2	Could interfere with the administrations and harm the standing of the endeavor however results are not high and not normally focused on resource. **Estimates:** P=1, C=1, R=1
3	**Vendor Dashboard**	This dashboard is worked with same security boundaries those are set up for whole framework. **Estimates:** P=2, C=2, R=4	Every company is self responsible to maintain their data **Estimates:** P=1, C=2, R=2	Could be gotten to just whenever associated with less secure organization to do these exercises. **Estimates:** P=1, C=2, R=2	Could upset sellers activity and by implication or legitimately will influence notoriety of merchant and undertaking and consumer loyalty **Estimates**: P=1, C=3, R=3

4	**Customer, Vendors information**	personal information of top level persons is always kept private with other information. Becoming scarce as you climb the enterprises internal ladder **Estimates:** P=1, C=2, R=2	info is provided on the basis of trust and security factors such as cryptography provided by enterprise. **Estimates: P=2, C=2,R=4**	The data is stored at very secure data centers which is not accessible without proper authorization **Estimates:** P=2, C=3, R=6	This data if accessed can cause the individual a lot of harm but the overall enterprise will be hardly affected **Estimates:** P=3, C=1, R=3
5	**Website**	developers keep this data under strict lock and key **Estimates:** P=1, C=1, R=1	Many security features such as SSL are applied but with the lack of proper execution important information. Can be accessed . **Estimates**: P=1, C=2, R=2	The most available feature as it is the face of the enterprise Estimates: P=3, C=3, R=9 **Estimates:** P=3, C=3, R=9	Framework bugs or provisos are the focused on region to take data, however it's generally appropriately evolved and tried to stay away from such bugs. **Estimates:** P=1, C=3, R=3
6	**Human Resource and Payroll**	Important information protected with layers of security. **Estimates:** P=1, C=2, R=2	Honesty is kept up by the outsiders related with this particular office and they are employed as a result of such standing. Estimates: P=1, C=1, R=1 **Estimates:** P=1, C=1, R=1	Just accessible to explicit gathering of workers. What's more, even some higher specialists don't approach such data. Estimates: P=1, C=1, R=1 **Estimates:** P=1, C=1, R=1	if fraud is committed the employees barring thee organization will be affected Estimates: P=1, C=1, R=1 **Estimates:** P=1, C=1, R=1
7	**Sales and marketing**	Marketing strategies are kept private	Information is acquired on trust could be hazardous if exposed to wrong kind of people	Only analytical data. Is available to everyone. **Estimates:** P=2, C=2, R= 4	Espionage has a high possibility even though the data is highly secure

		Estimates: P=1, C=2, R=2	**Estimates:** P=2, C=3, R=6		**Estimates:** P=1, C=3 R=3
8	**Employees Phone**	Individual responsibility to maintain confidentiality **Estimates:** P=2, C=1, R=2	usually phones are protected by passwords but they are vulnerable to malicious attacks **Estimates:** P=1, C=3, R=3	connecting to vulnerable networks is the most common way in which they are attacked **Estimates:** P=2, C=3, R=6	hacking of phones is very common these days. **Estimates:** P=3, C=3, R=9
9	**Employees Computer**	Internal system connected computers are maintained and secured by the I-T department thus the threat level is low **Estimates:** P=1, C=1, R=1	Individuals are responsible for maintaining the integrity . Estimates: P=1, C=1, R=1	external accessibility is not available therefore not easily available **Estimates:** P=1, C=2, R=2	System attacks and malfunctions can have adverse affects. **Estimates:** P=1, C=2, R=2
10	**Data Centers and Cloud Storage**	Secure data storing facilities are readily available but if access is somehow obtained could have dire consequences. **Estimates:** P=2, C=3, R=6	Loss of integrity will directly result inn loss of customers thus loss in business **Estimates:** P=1, C=3, R=3	Cant be accessed without pre authorization **Estimates:** P=1, C=3, R=3	most attacks are focused on getting data from these centers **Estimates:** P=1, C=3, R3
11	**System Servers**	System servers are responsible for confidentiality of the system and are designed accordingly. **Estimates:** P=1, C=1, R=1	Most Important role is played by servers to maintain and ensure the integrity of all the operations. **Estimates:** P=1, C=2, R=2	Servers establish the communication and smooth working of the system. So, availability of servers is important or could slowdown/shutdown n entire system. **Estimates:** P=2, C=2, R=4	It's hard to hack or manipulate servers as they are well protected with many firewall layers. But could disrupt the entire operations. **Estimates:** P=2, C=3, R=6

12	**Email Servers**	Email servers are protected and kept to be confidential by ensuring mails don't divert or leak and information outside companies network **Estimates:** P=1, C=1, R=1 .	Integrity could be major issue in terms of emails. As emails are the only major source which traverse outside companies' network. **Estimates:** P=2, C=2, R=4	Accessing emails is one of the most possessed threats and can be accessed through many sources. **Estimates:** P=3, C=2, R=6	Email phishing, diverting or hacking employees' emails are known thefts and are carried out on large scale. **Estimates:** P=3, C=3, R=9
13	**Order and Transaction Logs**	This data is secured with proper security parameters. **Estimates:** P=1, C=1, R=1	Integrity of such data is maintained by ensuring factors like 2 factor authentication and other cryptographic protections like SHA. **Estimates:** P=1, C=1, R =1	Cannot be accessed easily and only available to vendors, customers and other authorized personal. **Estimates:** P=1, C=1, R=1	This will not help anyone but could affect the enterprise or it's entities by manipulating financial aspects. **Estimates:** P=1, C=3, R=3

Asset Risk Evaluation

Sr. No	Business Assets	Estimated Total Risk	Risk Probability
1	**Payment Gateway and Digital Wallet**	24	High
2	**Customer Care Services**	6	Low
3	**Vendor Dashboard**	11	Moderate
4	**Customer, Vendors information**	15	High
5	**Website**	15	High
6	**Sales and marketing**	15	High
7	**Employees Phone**	24	High
8	**Employees Computer**	6	Low
9	**Data Centers and Cloud Storage**	15	High
10	**System Servers**	13	Moderate
11	**Email Servers**	20	High
12	**Order and Transaction Logs**	6	Low
13	**System Servers**	13	Moderate