A Project Report On

SpielPlatz

Submitted in partial fulfilment for the
Degree of **Bachelor of Engineering** in
Computer Science and Engineering

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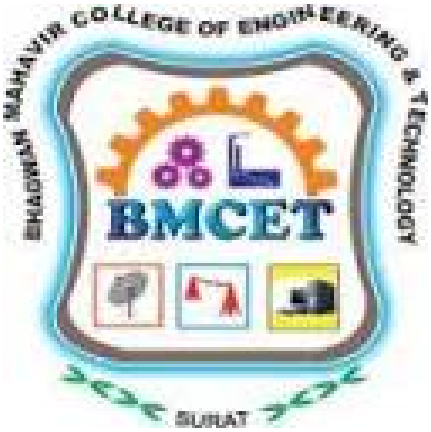

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CERTIFICATE

This is to certify that Bhavika Patel (140060107007), Rahul Rathi (140060107046), Divya Limbani(140060107005), Mayuri Bandre(140060107058) have completed the project report on the topic ”SpielPlatz” satisfactorily in partial fulfilment for the Bachelor’s Degree in Computer Science and Engineering under the guidance of Mrs.Ami Patel during the year 2016-17 as prescribed by Gujarat Technological University.

Guide

Mrs. Ami Patel

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Examiner 1

Examiner 2

Abstract

The virtual environment for practising cyber security is indeed not only to the cyber security experts it will also be use full for the students , professional & the institution which preparing the next worriers . The virtual cyber lab includes the creation of labs ,sharing of expensive hardware and tools . This lab not only focus on practical hands on practice but also on theatrical concepts and discussion This lab is based on cloud arch and available over internet using just a web browser. This lab also provide the GUI & SSH connectivity over web and the lab is compatible with any device which has a HTMLinternet connection. There are available test bed's offered by various vendors like Cloud share , Breaking Point by IXIA (Cyber Range), Cybergym by an Israeli company which offers the labs .We have vision of a virtual lab in which attacking team / individual who carries a cyber attack and the infrastructure for the attacks but the control is maintain by training expert or the individual who is practising.There is one more concert that the security of the cyber attack or practice should be walled inside the cloud practice environment.

Contents

List of Figures

Chapter 1

Introduction

1.1 Problem Summary and Introduction:

In today's world cyber security is one of the major concern . The world of cyber security attracting young talents for research , exploit & defend for benefits . The young talents require training & the formal fundamentals of the cyber security which leads to the major problem . The problems of cost , availability & respective skills are more expensive than cyber security learning. Not only the cost of Practice comes in consideration , there some information security bodies which forces the law & restriction for people good but they are interfering with the good practice of cyber security.

1.2 Aim and objectives of the project:

Our aim is to make a solution that not only provide the practice grounds but also the environment where people can collaborate on same interests . some research companies can make the profiles & can use expensive resource on usage bases. We are also considering the LAW of information security in our concern.

1.3 Problem Specifications :

The virtual environment for practising cyber security is indeed not only to the cyber security experts it will also be use full for the students , professional & the institution which preparing the next worriers . The virtual cyber lab includes the creation of labs , sharing of expensive hardware and tools . This lab not only focus on practical hands on practice but also on theatrical concepts and discussion.The problem specified comes for over head of vm environment they require powerful hardware which is costly and the running , maintaining cost id a overhead which can not be ignored.

1.4 Brief literature review and Prior Art Search(PAS) about the project :

1. Java Core — Solution building
2. Java advance — Solution Delivery
3. Linux Fundamentals — Platform Fundamentals
4. Cisco Inter-networking — Inter-networking

1.5 Plan of work :

Sr. No.	Task	Estimated Day	Comment
1	Understanding of JAVA	July	N/A
2	Understanding of Platforms	August	Linux
3	Understanding of Delivery Mechanism	September	Tomcat & Guacamole
4	Code Initialization & Code Management	October	Git lab & Code Prototype
5	Submitted PPR and PSAR report and verify the documentation.	October-November	N/A
6	Intensive logice design & arguments & Alternative	November	Database
7	Intensive Code	December	N/A
8	— Intensive test	January	Plagiarism
9	Product validation	February	Learning
10	Costumer Validation	March	N/A
11	Closing , summary & Business Profit Summary	March	N/A

Table 1: Project Plan

1.6 Materials/Tools required :

1.6.1 Software Requirements :

To run an application user need:

Table 2: Software need to run an application

Sr. No.	**Name**	**Compatibility**
1	Tomcat	Windows / mac / Linux
2	Guacamole Server	Linux
3	Fire-fox / chrome / safari	Appropriate Selection

1.6.2 Hardware Requirements :

To develop an application we need :

Table 2:Hardware ware need to run an application

Sr. No.	**Name**	**Compatibility**
1	PC	Windows / mac / Linux & Virtualization support
2	Guacamole Server Workstation	Linux
3	Any Device (User end)	Appropriate Selection& html 5 Support

Chapter 2

Design:Analysis,Design Methodology and Implementation Strategy

2.1 AEIOU Canvas

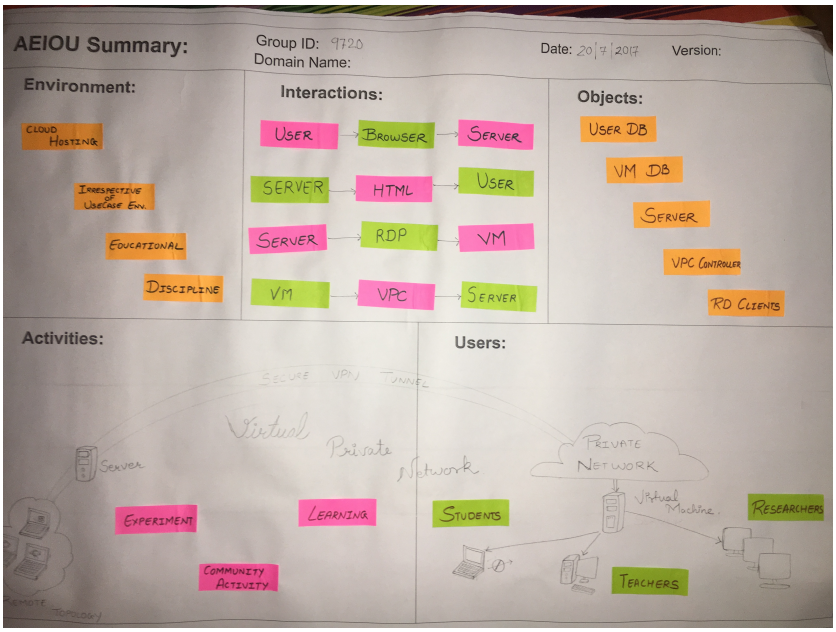

Figure 2.1: AEIOU CANVAS

2.1.1 Environment

The Environment which was observed was :

- Cloud hosting
- Discipline
- Educational

- Irrespective of Use case Environment

2.1.2 Interaction

The Interaction takes place between

1. User–Browser–Html–server
2. Server–html–user
3. Server–RDP–Vm
4. Vm–VPC–Server

2.1.3 Object

The objects are

1. User database
2. VM database
3. Server
4. VPC Control
5. RD Clients

2.1.4 Activities

1. Experiment
2. Learning
3. Communicational Activity

2.1.5 Users

1. Students
2. teachers
3. researchers
4. Collaborators

2.2 Empathy Mapping

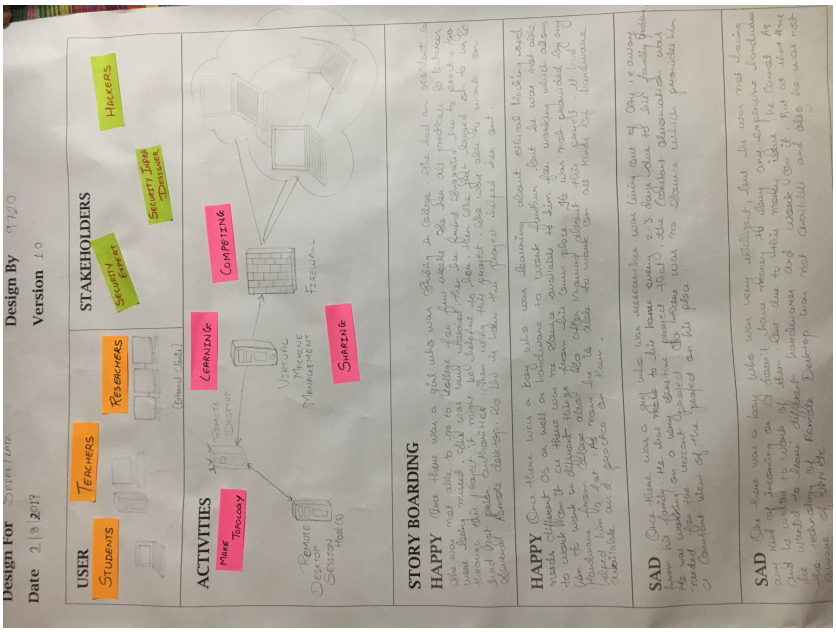

Figure 2.2: Empathy Mapping

2.2.1 Users:

The user of our product will be :

- Teachers
- Students
- Researchers

2.2.2 Stackholders:

The person or the group of the people who are involved in this product are:

- Security-Infrastructure-Designer
- Security-expert
- Hackers

2.2.3 Activity:

Activities mainly focuses on the key functions of the product.

- Topology

- Share
- learn
- Collaborate

2.3 Ideation Canvas

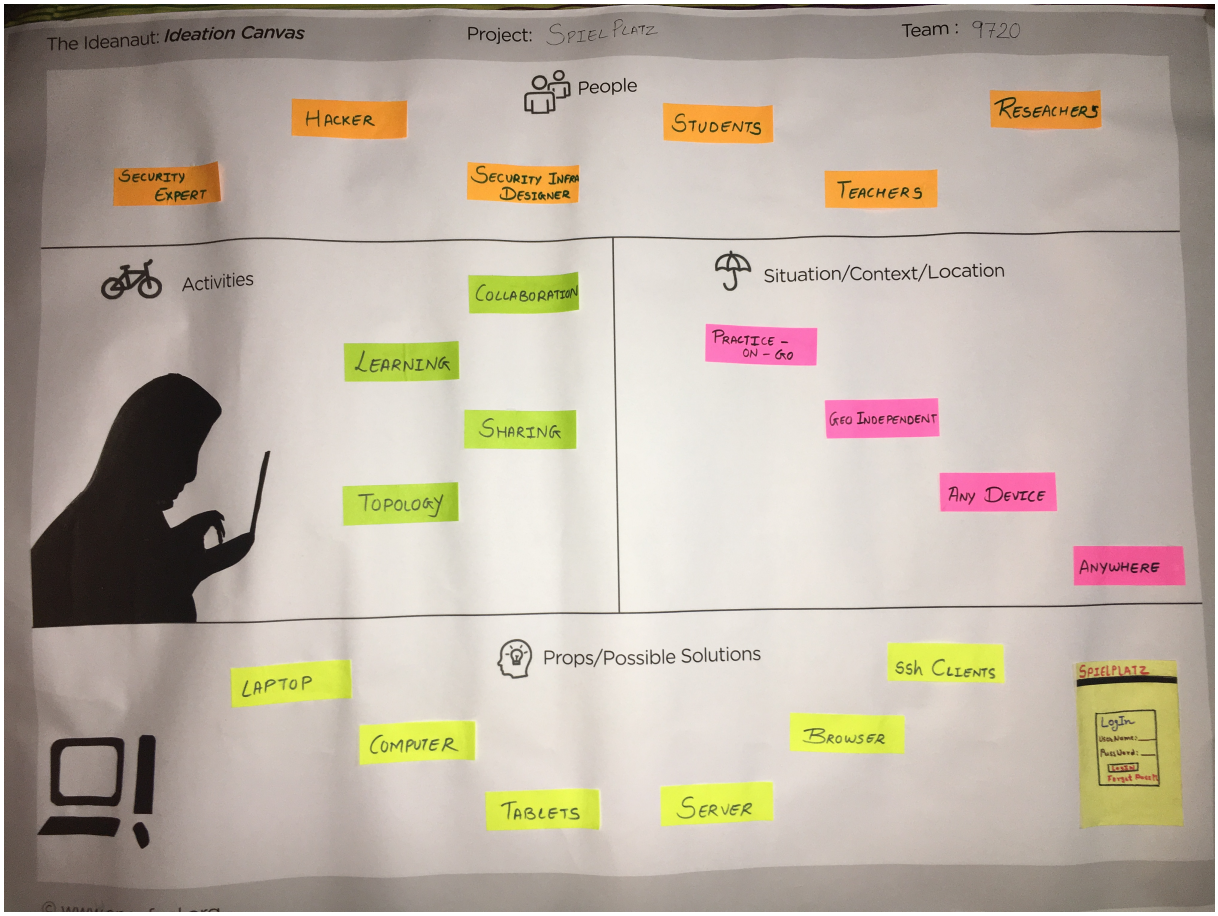

Figure 2.3: Ideation Canvas

2.3.1 People :

1. Security Expert
2. Ethical Hackers
3. Security Infra Designer
4. Students
5. Teachers
6. Reseachers

2.3.2 Activities

The activities which are going to be undertaken by our project are:

1. Learning

2. Sharing
3. Topology
4. Collaboration

2.3.3 Situation/Location/Context

The locations or the context on which our product will be useful are:

1. Practice-&-Go
2. Geo-Independent
3. Any Device
4. Anywhere

2.3.4 Props

The props that will be used in our project are:

1. Laptop
2. Computer
3. Tablet
4. Server
5. Browser
6. ssh Clients

2.4 Product Development Canvas

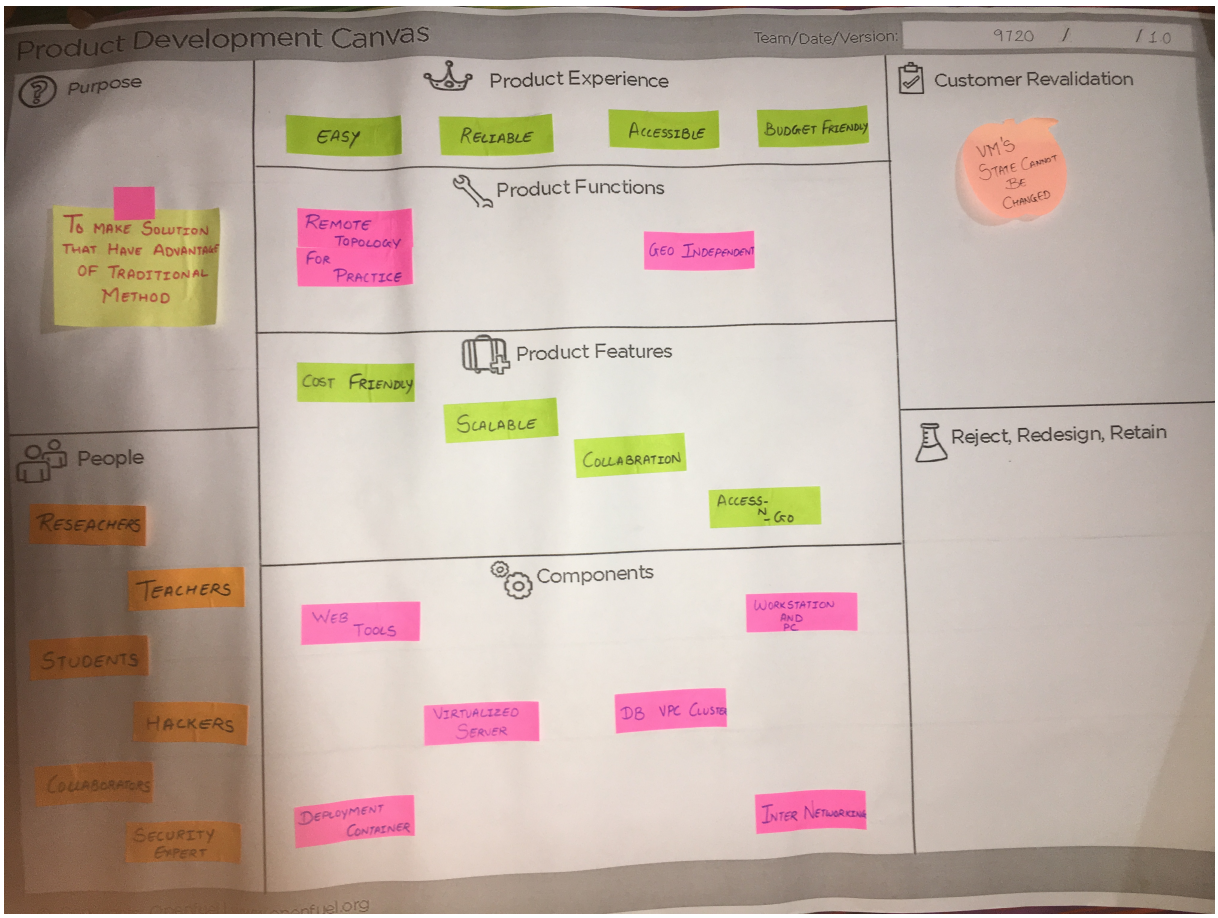

Figure 2.4: Product Development Canvas

2.4.1 Purpose:

The purpose behind doing this project and developing this product are as mentioned below:

- To make solution that have advantage of traditional method

2.4.2 Product Experience

- Easy
- Reliable
- Budget Friendly
- Accessible

Product Function

1. Remote Topology for Practice
2. Geo-Independent

Product Features

- cost-friendly
- scalable
- collaboration
- Access-on-go

Chapter 3

Implementation

3.1 Diagram

Class Diagram :

Sequence Diagram :

Entity Relation Diagram :

Activity Diagram :

Use Case Diagram :

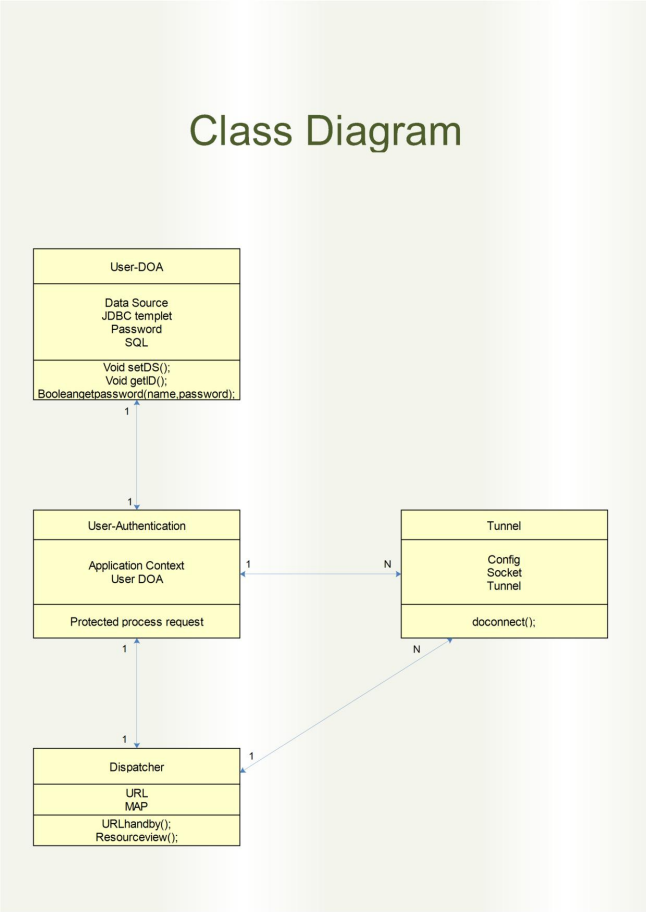

Figure 3.1: Class Diagram

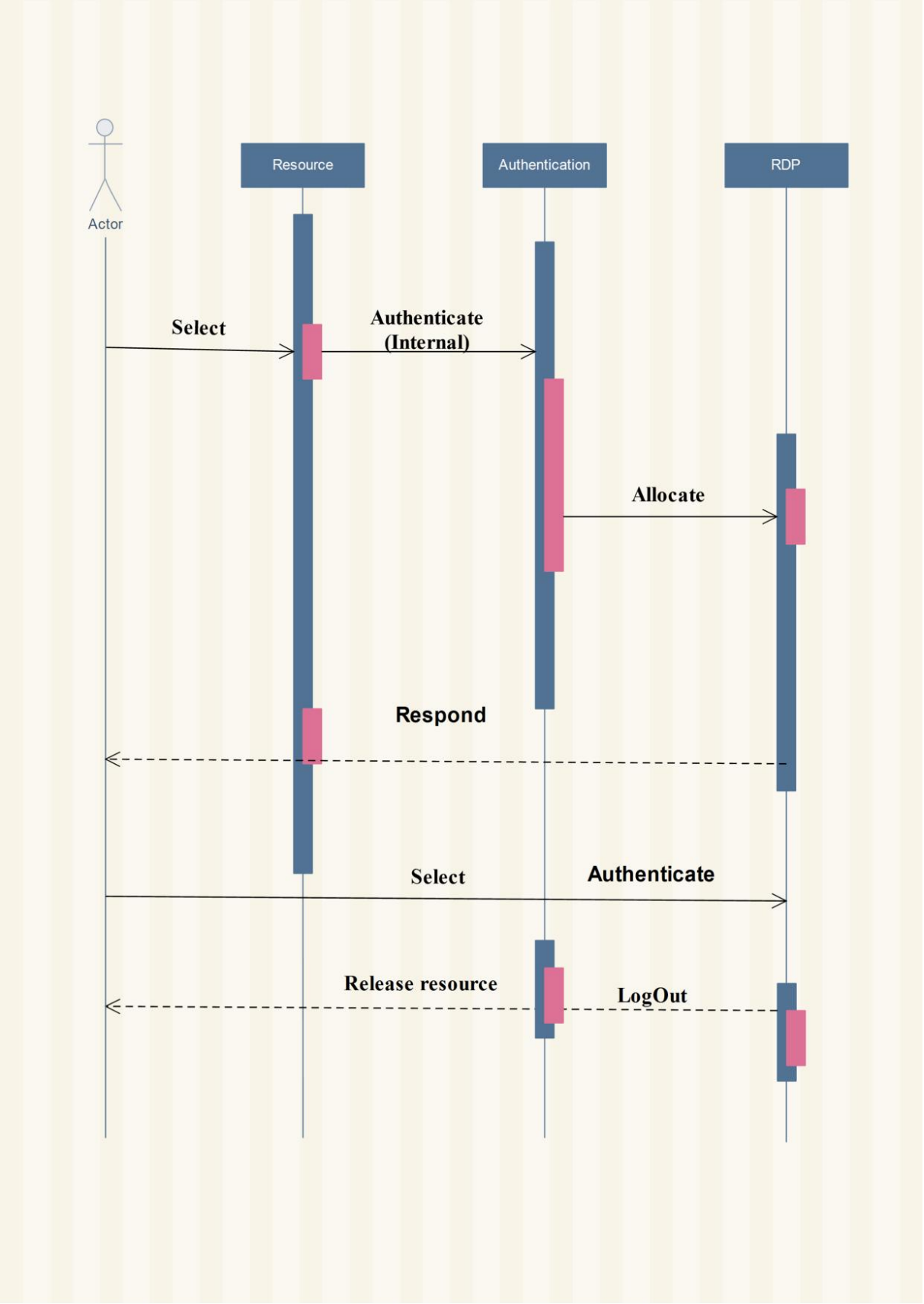

Figure 3.2: Sequence Diagram

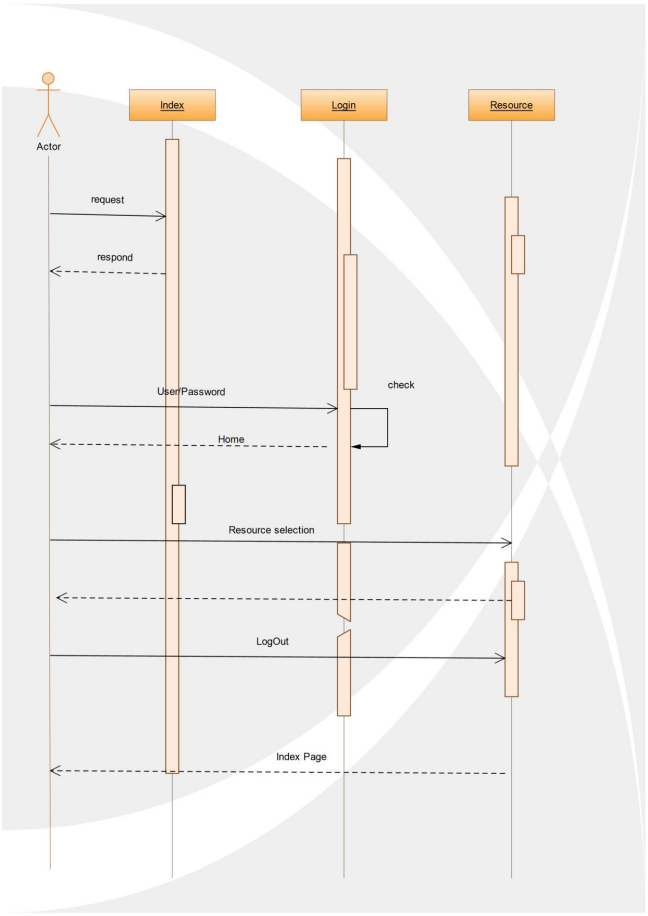

Figure 3.3: Sequence Diagram

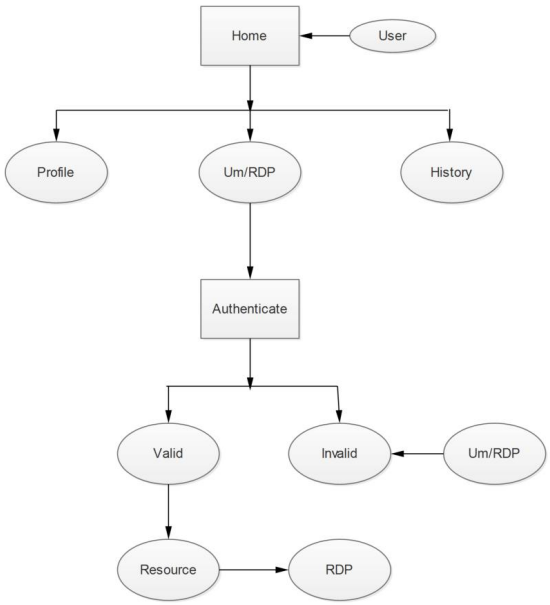

Figure 3.4: Activity Diagram

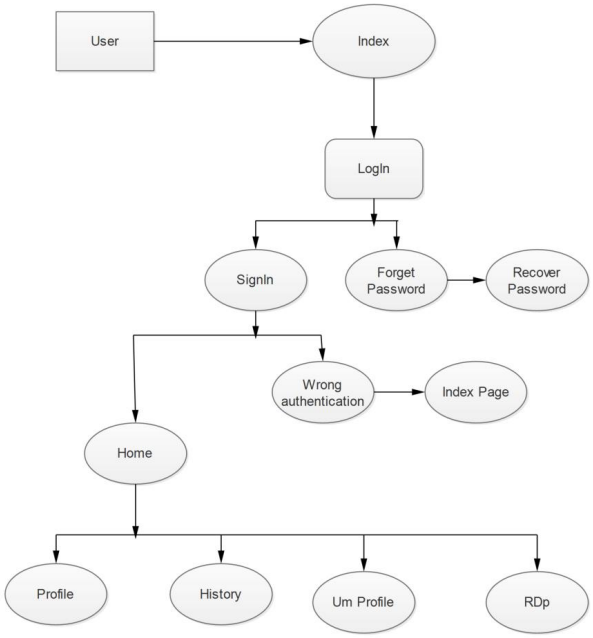

Figure 3.5: Activity Diagram

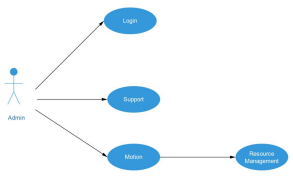

Figure 3.6: Usecase Diagram

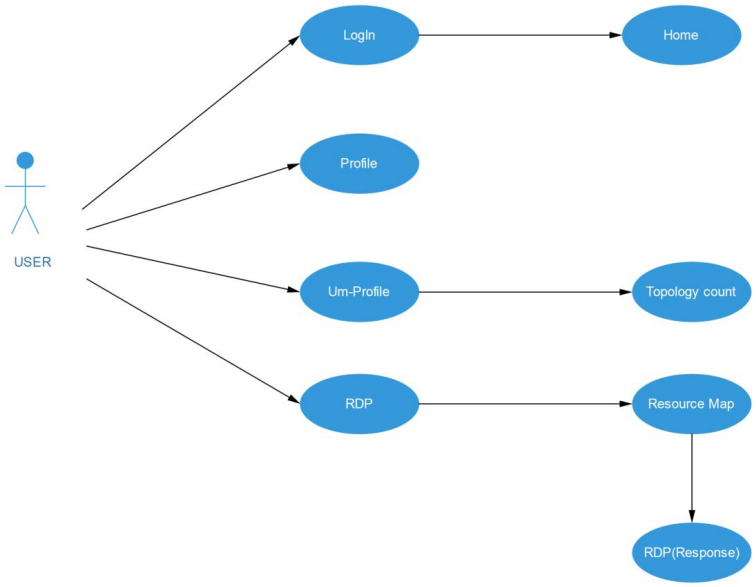

Figure 3.7: Usecase Diagram

3.2 Designing

3.3 Hardware Implementation

As soon as the Request & Authentication id done successfully the resource is available to the end user and the under explanation is more precise .

Hardware Connections

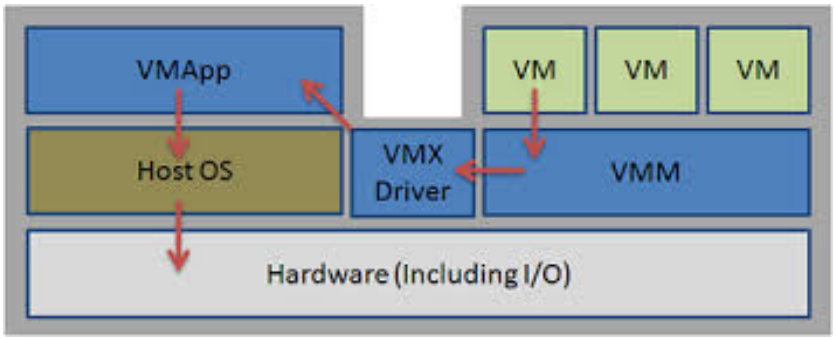

Figure 3.8: Diagram

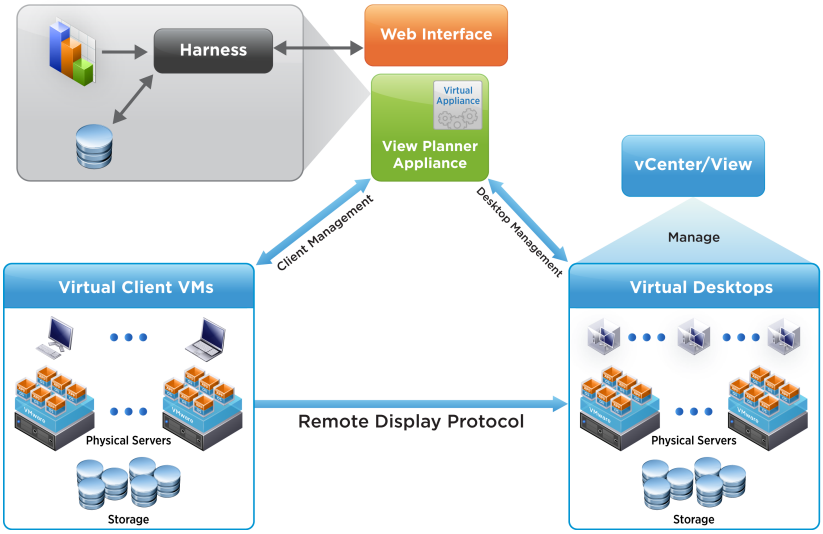

Figure 3.9: Diagram

Figure 3.10: Figure

Chapter 4

Advantages and Features

4.1 Advantages of our Work

1. A secure space to practice Cyber attacks
2. A virtual Platform to learn , share and community
3. Scalable ,
4. traceable and all tools at one place

4.2 Usefulness with respect to existing solutions

1. Affordable price and hands on equipments
2. Accessible from any where and on any platform

4.3 Unique Features

1. The impact of the Cyber attack and practice will be walled under the cloud infrastructure & simulation.
2. Law can be maintain and the practice is Ethical.

4.4 Future Scope

1. Development & User interface Alternative
2. Inter-networking Improvement & more Hardware Support
3. Business & Start up Back bone

Chapter 5

Conclusion

The virtual environment for Practising cyber security is indeed not only to the cyber security experts it will also be use full for the students , professional & the institution which are preparing the next worriers . Our Solution SpielPlatz includes the creation of labs , sharing of expensive hardware and tools . This lab not only focus on practical hands on practice but also on theoretical concepts and discussion This lab is based on cloud arch and available over internet using just a web browser.This lab also provide the GUI & SSH connectivity over web and the lab is compatible with any device which has a HTML5 supported web browser and a internet connection. There is one more concert that the security of the cyber attack or practice should be walled inside the cloud practice environment.

Chapter 6

Reference

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