Network Security and Cryptography (CSN09112)

Towards the complete understanding of every element of secure systems

Introduction

Module Overview
Timetable
vSoC 2

Prof Bill Buchanan OBE, FRSE
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&cyber&data &crypto&data

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No	Date	Subject	Lab
2	18 Sept 2025	1. Introduction [Link] 2. Intrusion Detection Systems [Link]	Network Security Lab 1
3	25 Sept 2025	3. Network Security (Risks and Models) [Link]	Network Security Lab 2
4	2 Oct 2025	4. Ciphers and Fundamentals [Link]	AWS Security and Server Infrastructure Lab 3
5	9 Oct 2025	5. Secret Key 6. Hashing [Link]	Symmetric Key and Hashing Lab 4
6	16 Oct 2025	7. Public Key [Link] 8. Key Exchange [Link]	Public Key and Key Exchange Lab 5
7	23 Oct 2025	Reading week/Revision session	Reading week/Cipher Challenge
8	30 Oct 2025	9. Digital Certificates	Certificates Lab 6
9	7 Nov 2025	Test 1 here	
10	13 Nov 2025	10 Network Forensics here	Network Forensics Lab 7
11	20 Nov 2025	11. Splunk here	Splunk Lab Lab 8
12	27 Nov 2025	13. Tunnelling Here	Tunnelling Lab 9
13	4 Dec 2025	14. Blockchain and Cryptocurrencies here	Blockchain Lab. here
14	11 Dec 2025		
15	18 Dec 2025	Hand-in: TBC [Here]	

git clone https://github.com/billbuchanan/csn09112

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Gateway

Public

Public Internet

10.221.3.254/22

Kali (DHCP)

Firewall

eth9
(DHCP)

eth10

10.10.x.254

Private (10.10.x.0/24)

10.10.x.7/24

10.10.y.254

eth11

U001 - Ubuntu Server

Kali
10.10.y.8/24

DMZ
(10.10.y.0/24)

10.10.y.7/24

W001 - Windows 7 Server

```
$ configure
# set interfaces ethernet eth9 address dhcp
# set interfaces ethernet eth10 address 10.10.x.254/24
# set interfaces ethernet eth11 address 10.10.y.254/24
# set protocols static route 0.0.0.0/0 next-hop 10.221.3.254
```

```
IP: 10.10.y.7
Subnet: 255.255.255.0
Gateway: 10.10.y.254
DNS: 10.246.3.254
```

```
sudo ip link set ens32 up
sudo ip addr add 10.10.x.7/24 dev ens32
sudo ip route add default via 10.10.10.254 dev ens32
```
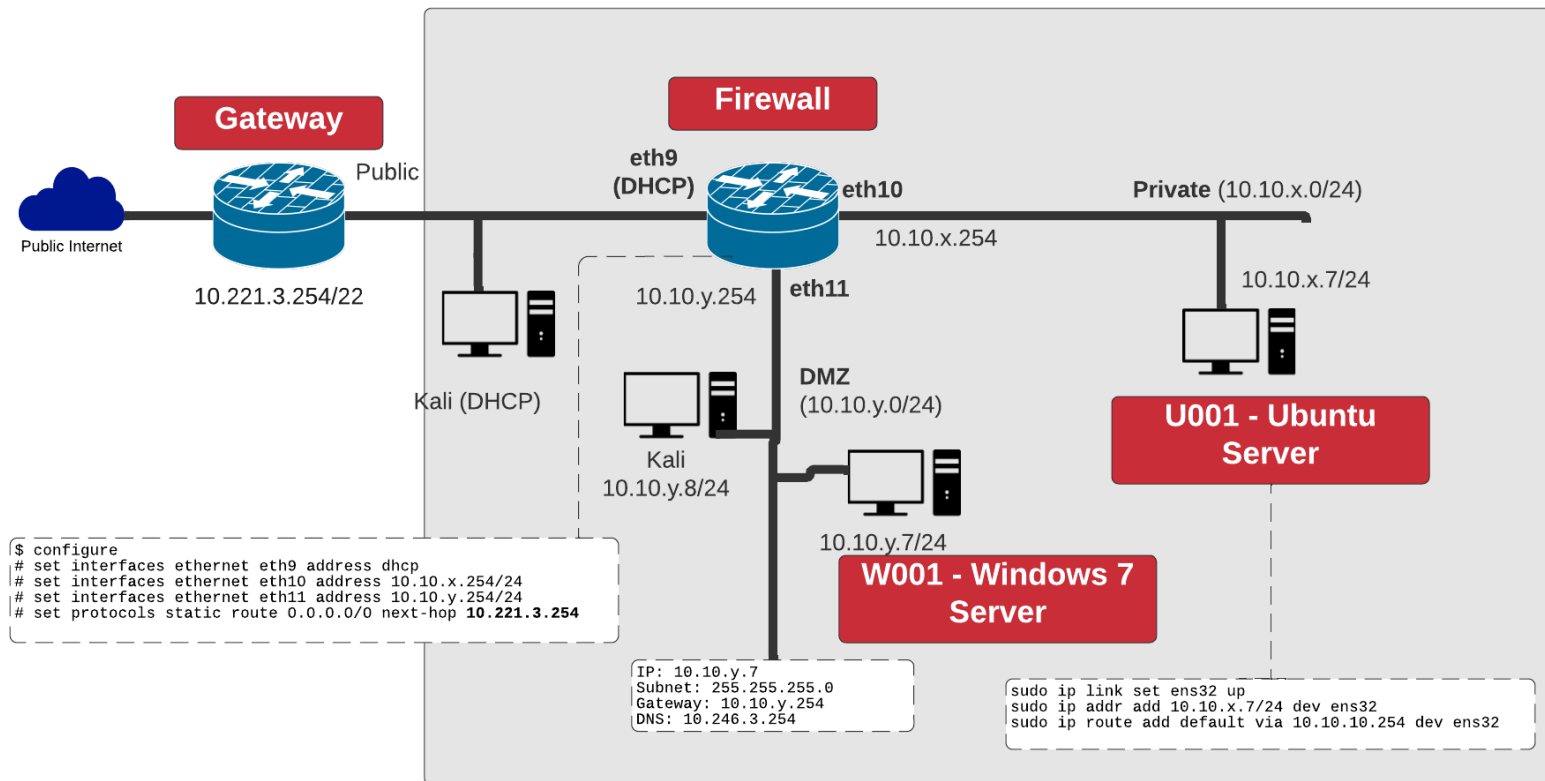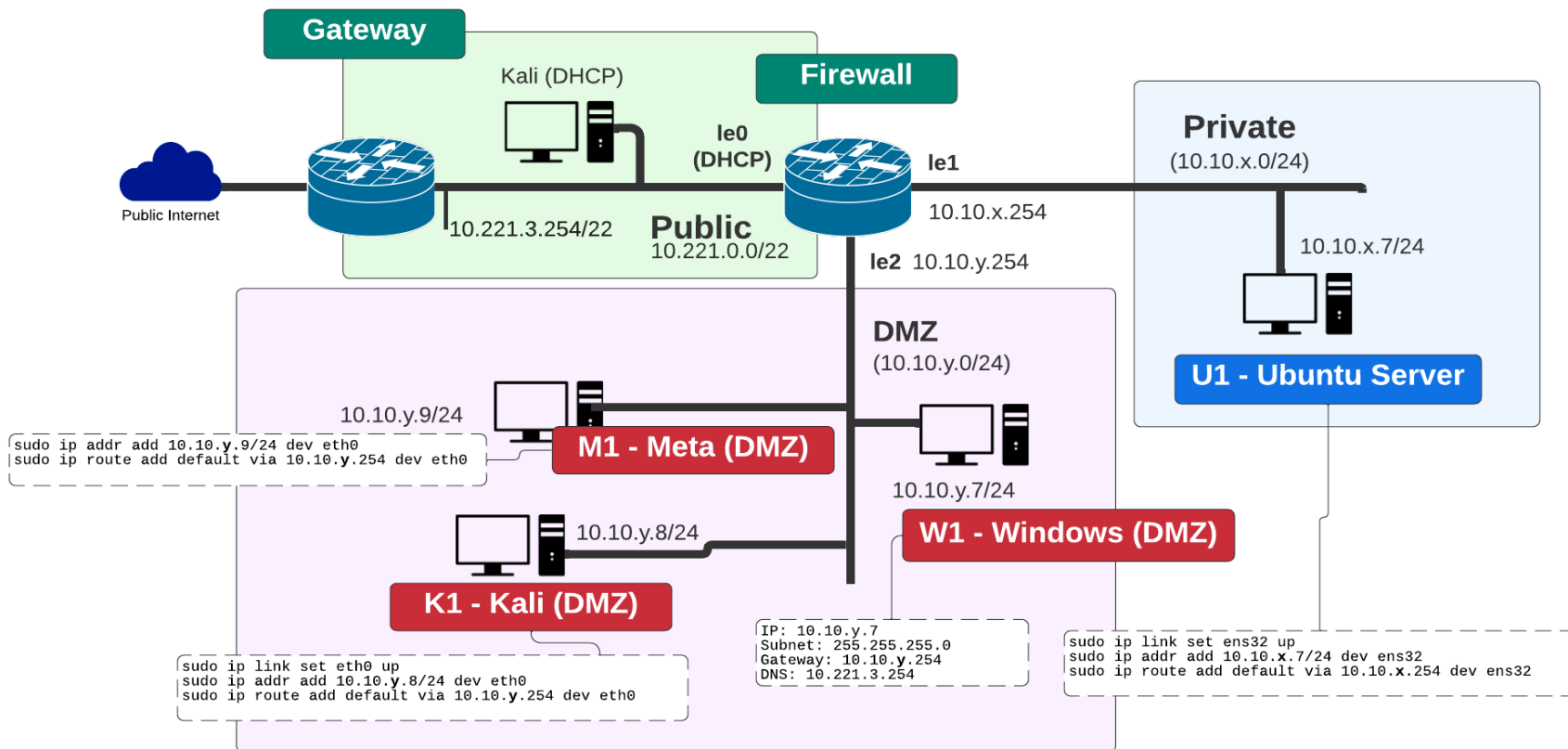
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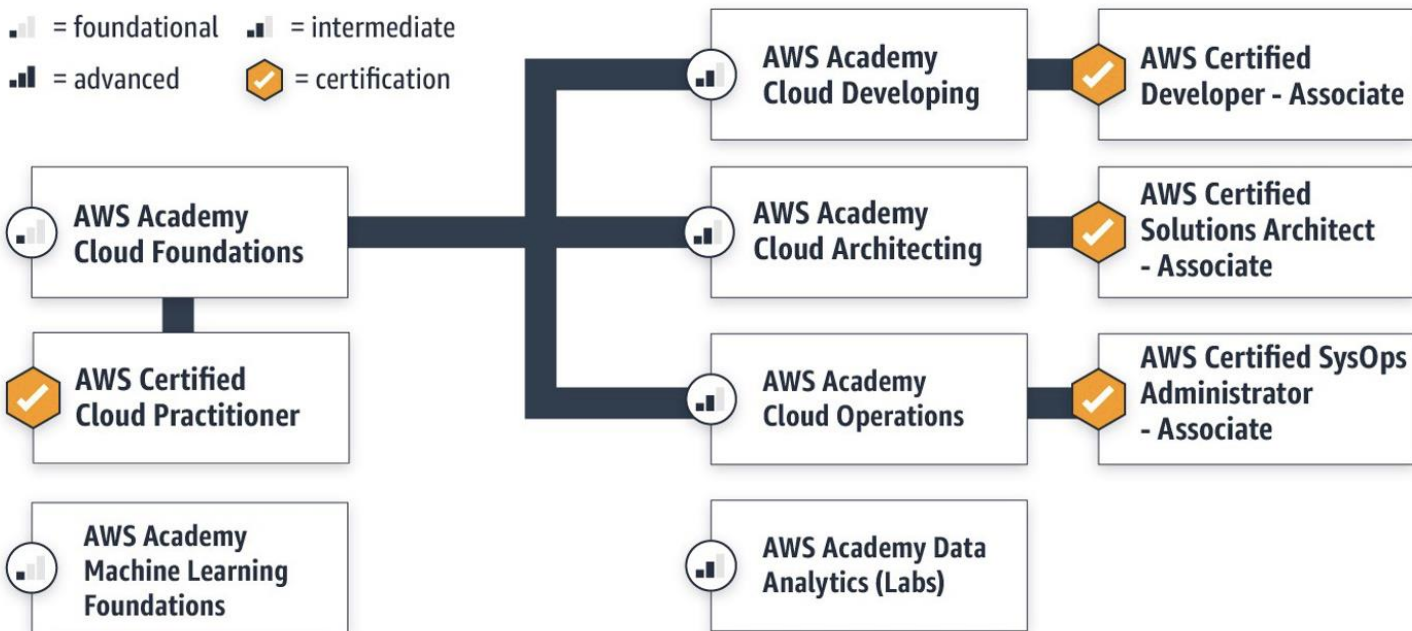**Towards the complete understanding of every element of secure systems**

.∎ = foundational   .∎∎ = intermediate
.∎∎∎ = advanced   🛑 = certification

AWS Academy Cloud Foundations

AWS Certified Cloud Practitioner

AWS Academy Machine Learning Foundations

AWS Academy Cloud Developing

AWS Certified Developer - Associate

AWS Academy Cloud Architecting

AWS Certified Solutions Architect - Associate

AWS Academy Cloud Operations

AWS Certified SysOps Administrator - Associate

AWS Academy Data Analytics (Labs)

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