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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Trent

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2	13 Sept 2024	1. Introduction [Link] 2. Intrusion Detection Systems [Link]	Network Security Lab 1
3	26 Sept 2024	3. Network Security [Link]	Network Security Lab 2
4	3 Oct 2024	4. Ciphers and Fundamentals [Link]	AWS Security and Server Infrastructure Lab 3
5	10 Oct 2024	5. Secret Key 6. Hashing [Link]	Symmetric Key and Hashing Lab 4
6	17 Oct 2024	7. Public Key [Link] 8. Key Exchange [Link]	Public Key and Key Exchange Lab 5
7	24 Oct 2024	Reading week	Reading week
8	31 Oct 2024	9. Digital Certificates	Certificates Lab 6
9	7 Nov 2024	Test 1 here	
10	14 Nov 2024	10 Network Forensics here	Network Forensics Lab 7
11	21 Nov 2024	11. Splunk here	Splunk Lab Lab 8
12	28 Nov 2024	13. Tunnelling Here	Tunnelling Lab 9
13	5 Dec 2024	14. Blockchain and Cryptocurrencies here	Blockchain Lab.
14	12 Dec 2024		
15	19 Dec 2024	Hand-in: TBC [Here]	

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

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Gateway

Firewall

Public Internet

Public

eth9
(DHCP)

eth10

Private (10.10.x.0/24)

10.221.3.254/22

10.10.x.254

10.10.x.7/24

Kali (DHCP)

10.10.y.254

eth11

DMZ
(10.10.y.0/24)

U001 - Ubuntu Server

Kali
10.10.y.8/24

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
```
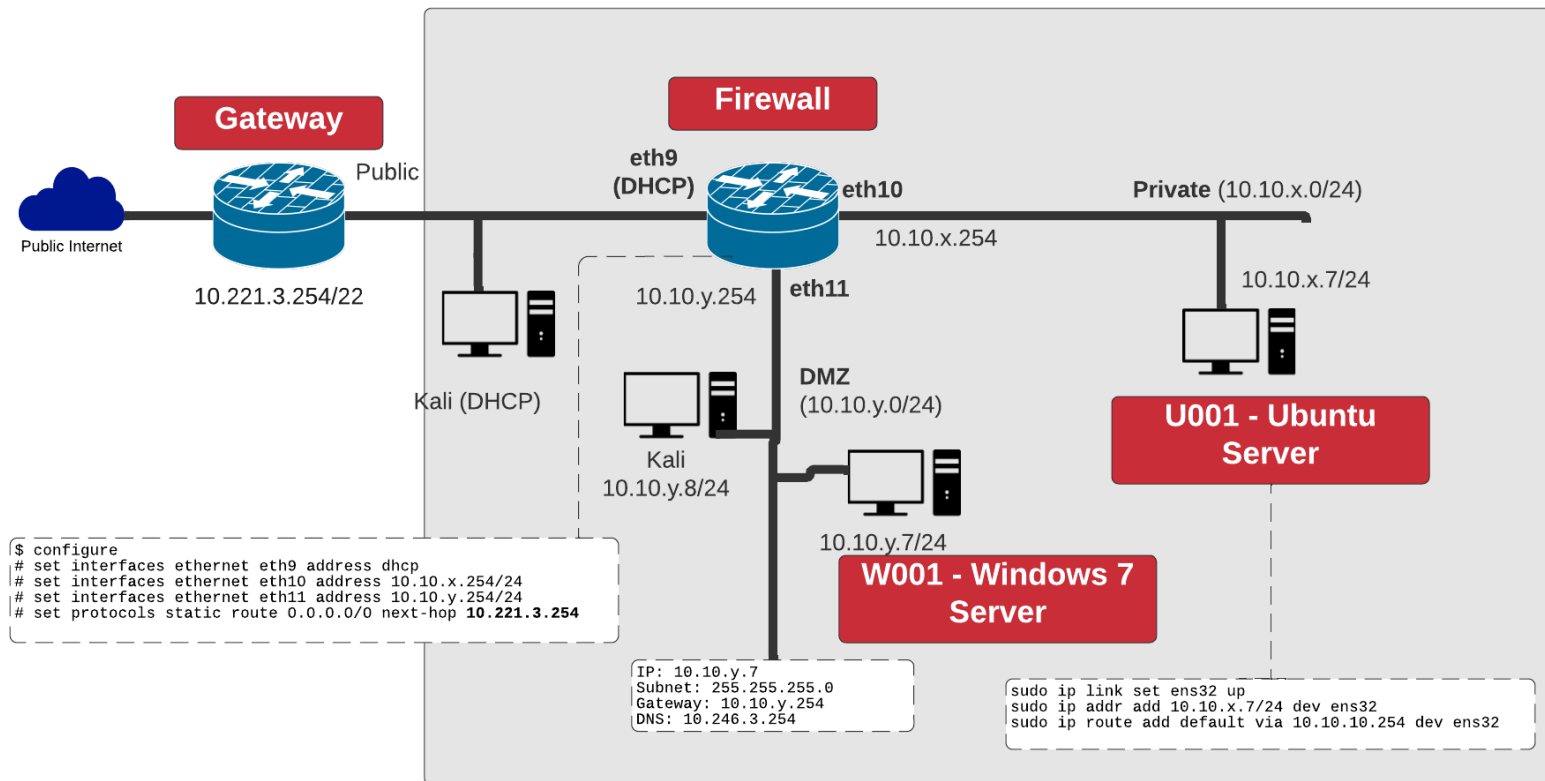
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Gateway

Kali (DHCP)
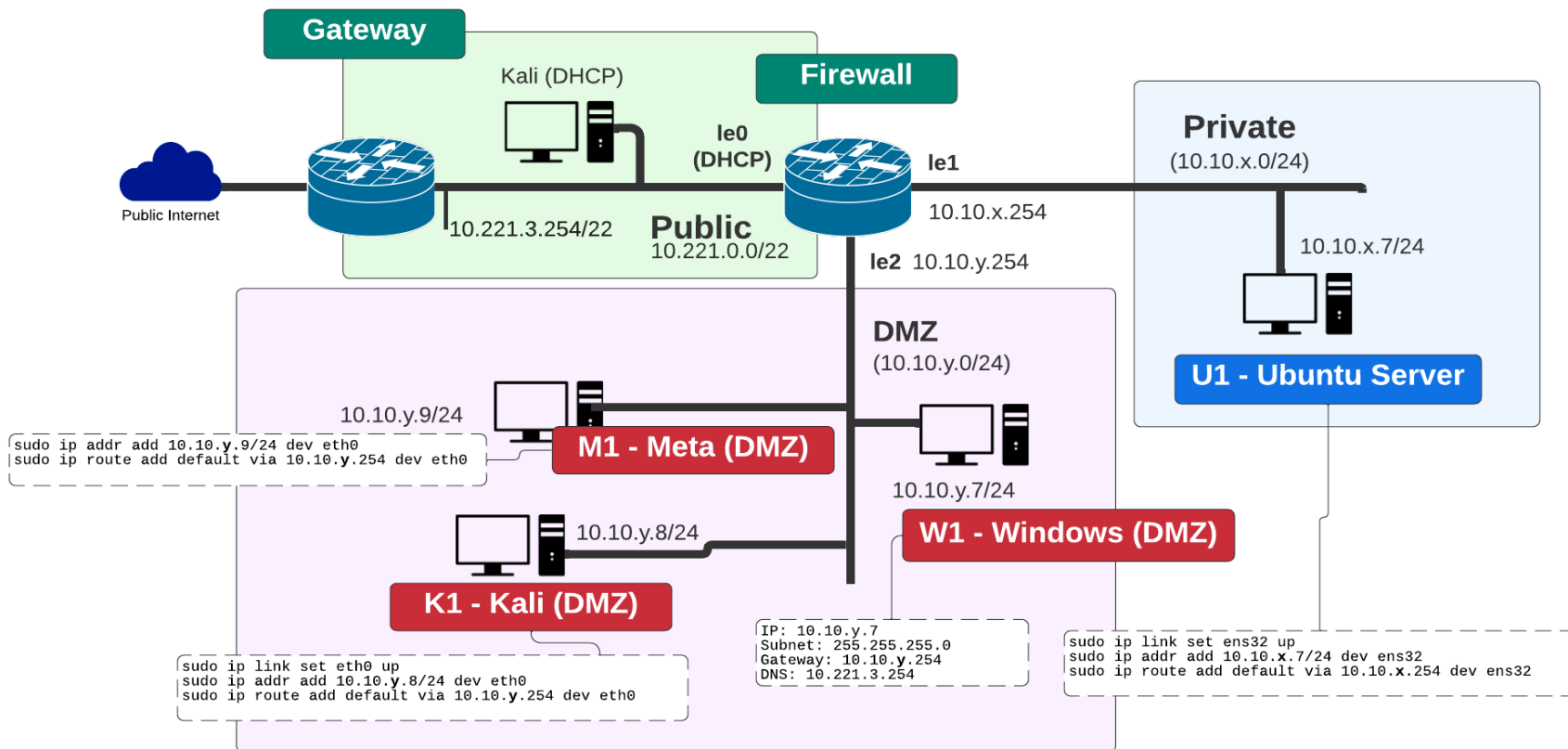
Firewall

le0 (DHCP)

le1

Private (10.10.x.0/24)

Public Internet

10.221.3.254/22

Public 10.221.0.0/22

10.10.x.254

le2   10.10.y.254

10.10.x.7/24

U1 - Ubuntu Server

DMZ (10.10.y.0/24)

10.10.y.9/24

```
sudo ip addr add 10.10.y.9/24 dev eth0
sudo ip route add default via 10.10.y.254 dev eth0
```

M1 - Meta (DMZ)

10.10.y.7/24

10.10.y.8/24

W1 - Windows (DMZ)

K1 - Kali (DMZ)

```
sudo ip link set eth0 up
sudo ip addr add 10.10.y.8/24 dev eth0
sudo ip route add default via 10.10.y.254 dev eth0
```

```
IP: 10.10.y.7
Subnet: 255.255.255.0
Gateway: 10.10.y.254
DNS: 10.221.3.254
```

```
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.x.254 dev ens32
```
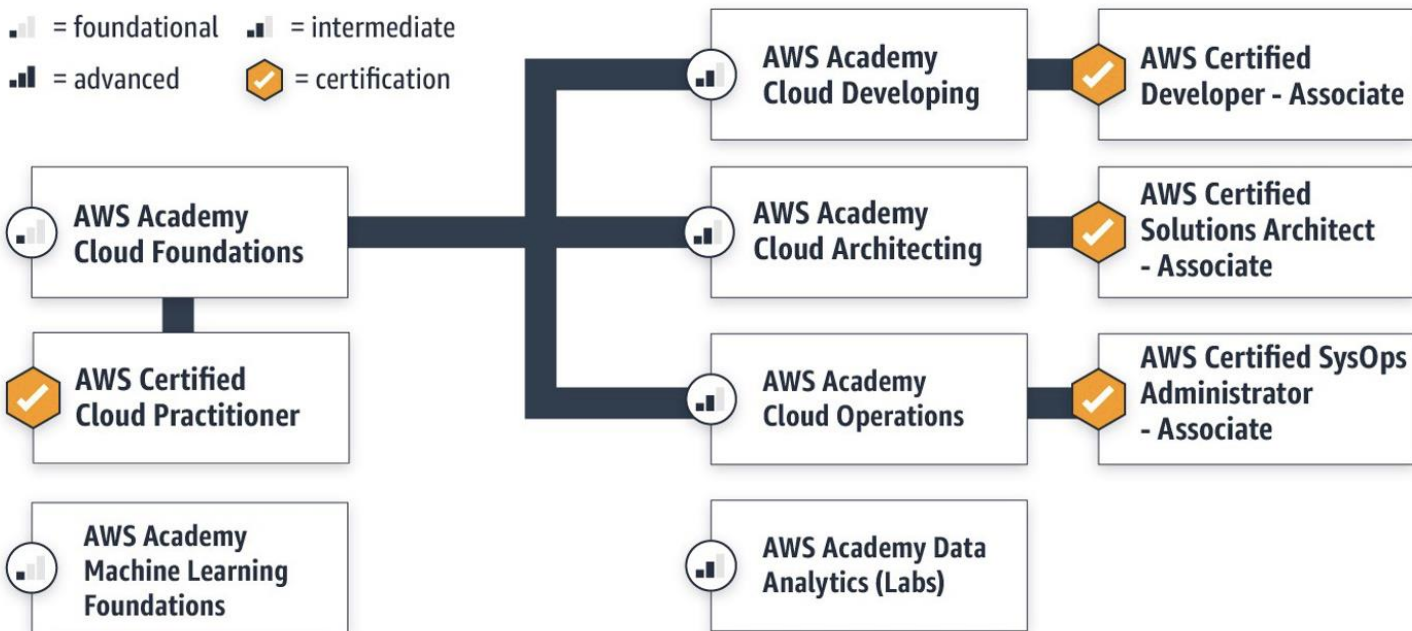
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= foundational   = intermediate

= 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)

aws academy

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