e1

a)

UDP:

UDP does not establish connections and does not use a three-way handshake.

The person here might be talking about TCP.

PAN:

Refers to personal area network, e.g. hotspot between phone and laptop.

The company is using a LAN (local area network).

bait-and-switch:

Bait-and-switch refers to when a safe and legitimate content is switch to something malicious.

The attack here is DDOS (distributed denial-of-service).

ARP:

ARP refers to the Address Resolution Protocol, and is used to discover network addresses.

The correct term here is RTT (Round Trip Time).

b)

i) hostname -I / ifconfig / ip a

ii) dig MX example.com OR nslookup –type=mx example.com

iii) traceroute shell.example.com

iv) ssh shell.example.com

c)

WPA2: security protocol for wifi connection

DHCP: To allocate IP to you on local network

ARP: Router asks each host on LAN if they have the request IP.

POP3/IMAP/HTTP: retrieve reply email from mail server

TCP: used by SMTP to secure connection to mail server

IP: ... All sorts of shit

SMTP: to send the email across

DNS: find email server

UDP: used by DNS

d)

Doesn't matter what you choose, just justify your answer (basically speed vs reliability)

TCP.

TCP is more reliable than UDP, therefore can ensure the videos are delivered to the user correctly.

Pre-buffering can be used to send a few seconds of the video in advance, storing them locally.

UDP.

I am speed

e)

a) Social Engineering

b)

1) Don’t expose phone line outside of tv network station, so the server cannot be remotely accessed

2) Educate security staff on the dangers of social Engineering, so that they always ask for ID cards. 2 factor verification

3) Do not give out modem phone numbers to security guards(Principle of least privilege).

2

a)

i)

x = (g^b mod p) = 27

key = x^a mod p = 40

ii) "pass" + 40 = "dogg"

b)

i)

192.168.0.0/14:

Mask Bits 14

CIDR IP Range: 192.168.0.0 - 192.171.255.255

192.173.0.0/16:

CIDR IP Range 192.173.0.0 - 192.173.255.255

So 192.172.\*.\* are missing.

0.0.0/0 ii) 0.

c)

a)

i) FDDI: 1 class A, 49 class Bs (1\*4 + 2 \* 49) = 102 (How do we have 1 class A?, like it connects back to itself? Is that still considered FDDI?)y

ii) ring: (2 per host) 100

iii) line: (ring - 2) 98

iv) bus: 50

b)

<https://www.amazon.co.uk/TL-SG108-Ethernet-Wall-Mount-Lifetime-Warranty/dp/B00A121WN6>

As the switches are connected acyclically, we can view the structure as a tree.

Each switch adds 8 ports to the network and uses up 2 port (1 on itself and 1 on the parent).

Apart from the "root" switch which is not connected to a parent, therefore does not use the 2 ports.

2 + (8 – 2) \* n >= 50, n >= 8

Therefore 8 switches needed.

d)

i) 300 / 0.2244 = 1336.898395722 MHz

ii)

61738.3714 - 61738 = 0.3714 seconds

56000 \* 0.3714 / 8 = 2599.8 = 2599 characters (have to round down)

e)

They can use authentication via encryption to ensure that the news received is from the correct source. For example, the news article could be encrypted using the newspapers private key, and then normal readers can decrypt the article using the public key distributed by the newspaper service.

A hash of the real article can be generated and passed with the article itself. The hash could potentially be encrypted and then be used to verify the articles/posts have not modified during transmission or by a third-party source.