

Week 4

Task 1. View Routing Table

ifIndex	DestinationPrefix	NextHop	RouteMetric	ifMetric	PolicyStore
1	255.255.255.255/32	0.0.0.0	256	75	ActiveStore
1	224.0.0.0/4	0.0.0.0	256	75	ActiveStore
1	127.255.255.255/32	0.0.0.0	256	75	ActiveStore
1	127.0.0.1/32	0.0.0.0	256	75	ActiveStore
1	127.0.0.0/8	0.0.0.0	256	75	ActiveStore
1	ff00::/8	::	256	75	ActiveStore
1	::1/128	::	256	75	ActiveStore

- The DestinationPrefix column shows the network address or prefix of the destination network that the route applies to. For example, "0.0.0.0/0" means the default route, which is used for all destinations that don't match any more specific route.
- The NextHop column shows the IP address of the next hop or gateway that the computer should use to reach the destination network. For example, if the destination network is on a different subnet, the next hop might be the router that connects the two subnets.
- The RouteMetric column shows the cost or priority of the route. Lower values indicate a more preferred route.
- The InterfaceAlias column shows the name of the network interface that the route applies to. This can be useful for troubleshooting connectivity issues on specific interfaces.
- The AddressFamily column shows whether the route is for IPv4 or IPv6.
- The Protocol column shows the routing protocol that created the route. Different protocols have different behaviors and priorities, and may be used in different network topologies.
- The PolicyStore column shows where the route is stored. Routes can be stored in the active routing table, the persistent routing table, or other policy stores, depending on how they were created or modified.

Task 2. IP Network Design

a) IP Address Assignment:

For the first LAN : Configuring based on last 4 digits of my Student ID :
12227071

| Device/Interface | IP Address | Subnet Mask | Default Gateway |

| PC1 | **70.71.56.1** | 255.255.255.0 | **70.71.56.254** |

| PC2 | **70.71.56.2** | 255.255.255.0 | **70.71.56.254** |

| PC3 | **70.71.56.3** | 255.255.255.0 | **70.71.56.254** |

| Switch1 Port1 | **70.71.56.254** | 255.255.255.0 | N/A |

For the second LAN (based on your partner's last four digits of their
student ID): **12222522**

| Device/Interface | IP Address | Subnet Mask | Default Gateway |

| PC4 | **25.22.5.4** | 255.255.255.0 | **25.22.5.254** |

| PC5 | **25.22.5.5** | 255.255.255.0 | **25.22.5.254** |

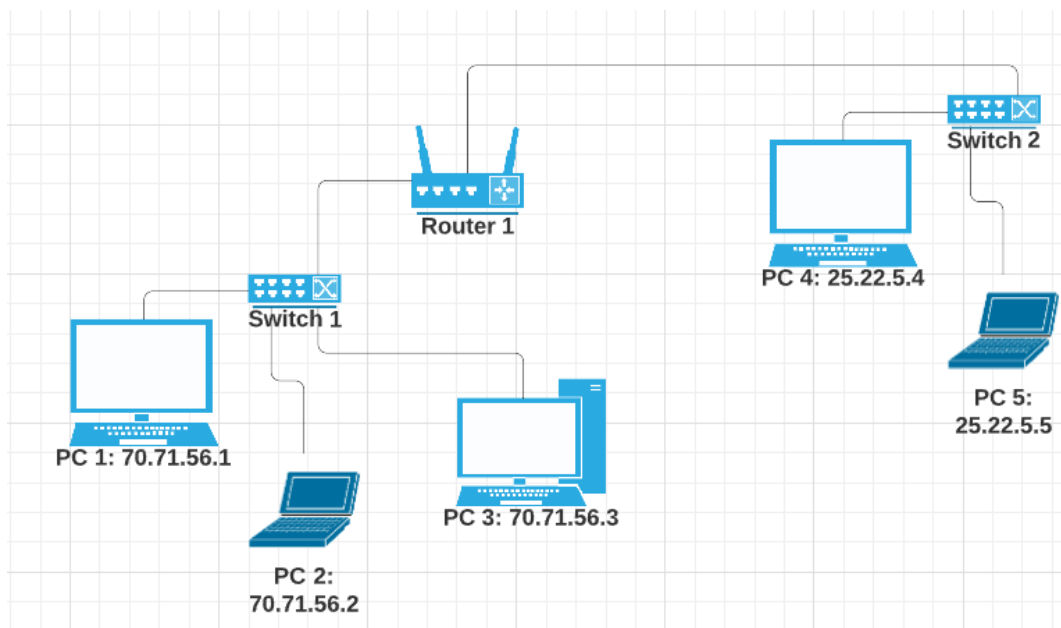
| Switch2 Port1 | **25.22.5.254** | 255.255.255.0 | N/A |

For the WAN link:

| Device/Interface | IP Address | Subnet Mask | Default Gateway |

| Router1 Interface1 | **70.71.57.1** | 255.255.255.252 | N/A |

b) Network Diagram:



c) Routing Tables:

Router1:

Destination | Next

Switch 1(NetworkA) | Direct

Switch 2 (NetworkB) | Direct

*** | Router**

d) Packet ICMP/IP Diagram:

[PC1] (70.71.56.1) > (70.71.56.254) [Switch1 Port1] < WAN Link > [Switch2 Port1] (25.22.5.254) < (25.22.5.5) [PC5]

In the Ethernet frame of the packet, the source MAC address would be the MAC address of the network interface of the sender PC, and the destination MAC address would be the MAC address of the network interface of the next hop router. For example, if PC1 sends an ICMP packet to PC5

Task 3. IP Address Lookup

When you ask "what is my IP address?", the website or service providing the answer will usually display the public IP address assigned to your network by your Internet Service Provider (ISP). This IP address is unique to your network and is used to identify your location on the internet.

The accuracy of the identified location will vary depending on the method used to determine the location. Some services may use your IP address to estimate your general geographic location, while others may use more sophisticated methods such as GPS, Wi-Fi triangulation, or cell tower location data.

When you try this from different networks, such as on-campus and home, or via home internet and mobile phone, the identified IP address and location will likely be different. This is because each network has a different public IP address assigned to it by the ISP. The location accuracy may also vary based on the methods used to determine the location and the availability of location data.

In general, the IP address itself does not reveal personal information about you, such as your name or physical address. However, it can be used to identify your ISP and general location. It is important to be cautious when sharing your IP address online, especially if you are accessing sensitive information or using public Wi-Fi networks.

Task 4. IP Addresses, VPNs and Contract Cheating

a) Reasons for bypassing geolocation services with a VPN include accessing geo-restricted content, maintaining online privacy and security, and bypassing censorship. However, there are also reasons against using a VPN to bypass geolocation, such as potentially breaking the terms of service for certain websites or services, and potentially committing illegal acts if the VPN is used for illegal activities.

b) Reasons for a university using IP addresses to identify possible contract cheating include detecting potential academic misconduct and maintaining academic integrity. However, there are also potential downsides, such as false positives (where a student may have legitimately submitted an assessment from a different location) and the possibility of discriminating against international students.

c) My advice to future students would be to use a VPN with caution and to make sure to read the terms of service for any websites or services they are accessing. If a VPN is used to bypass geolocation, it is important to understand the potential risks and to use it responsibly. Additionally, students should make sure to follow their university's policies and guidelines regarding academic integrity and assessment submission.

Overall, the use of VPNs and IP addresses in relation to geolocation and academic integrity raise important social and ethical issues related to privacy, security, and fairness. It is important to

weigh the potential benefits and risks of using these technologies and to use them responsibly and in accordance with relevant laws and regulations.