

OTLab 08

Subnet Masks and Segmentation



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Tasks

1. Verify the IP and MAC addresses of the pc1 workstation.
2. Identify the subnet mask associated with the pc1 workstation.
3. Repeat the previous steps for the workstations pc2, pc3, pc4, pc5, and pc6. Compare the addressing schemes and determine the underlying segmentation logic.
4. From pc1, use the `ping` command to test connectivity with pc2 and pc3. Provide an interpretation of the results.
5. From pc1, attempt to ping pc4. Evaluate the outcome.
6. From pc5, attempt to ping pc6. Analyze the results.
7. Execute the `ipcalc` command from any container to calculate the network information relevant to this study. *Identify the network address, broadcast address, and number of available hosts.*
8. On pc2, run `traceroute <IP address of pc4>` and explain the observed routing path.
9. On pc2, execute `traceroute <IP address of pc3>` and interpret the resulting path.
10. From pc3, perform a network discovery scan using `nmap -sn <network_address/24>` for each network analyzed in this study. Identify the active hosts detected. *The workstations can reach the first usable addresses in the segmented networks because the Docker host performs implicit layer-three routing between all user-defined bridge networks.*

Tools

These are the tools available on the pc1, pc2, pc3, pc4, pc5, and pc6 workstations for completing OTLab 08: `ifconfig`, `ipcalc`, `masscan`, `nmap`, `ping`, and `traceroute`.

Nomenclature

- IP: Internet protocol.
- MAC: Media access control.