

Porto Ricco

Background

In this exercise, you will explore the world of ports and protocols, two essential concepts in computer networking. You'll learn about the differences between UDP and TCP, and how they are used by various applications to communicate over the internet.

Instructions

Task 1: Why Ports? 🤔

Answer the following questions about ports:

1. Why do we need port numbers? Why are IP addresses not enough?
2. For each of the following statements, write True/False and explain why:
 - When a client connects to a server, the source and destination port of the request are the same
 - When a client connects to a server, the destination port of the request is different every time
 - When a client connects to a server, the source port of the request is (usually) different every time
 - When multiple clients connect to a server, the destination port of the request is different for each client
 - When multiple clients connect to a server, the source port of the request is (usually) different for each client

Task 2: UDP vs. TCP Comparison

Fill in the table with the characteristics of UDP and TCP:

| Characteristic | UD P | TC P |
|--|---------|---------|
| Connection-oriented? | | |
| Reliable? | | |
| Ordered? | | |
| Speed (Fast/Slower) | | |
| Overhead (High/Low - how much additional metadata/processing there is) | | |

Task 3: Application Examples

For each application in the table below, decide whether UDP or TCP would be more suitable and explain why.

Add one real application of your choice that uses UDP and another that uses TCP to the table.

| Application | Protocol (UDP/TCP) | Explanation |
|-------------------------|--------------------|-------------|
| Video streaming | | |
| Email | | |
| Online multiplayer game | | |
| File transfer | | |
| Live audio streaming | | |
| Web browsing | | |
| (Your UDP application) | UDP | |
| (Your TCP application) | TCP | |

For your UDP and TCP applications, provide a brief description of the application usage and explain why you chose the respective protocol.

Task 4: Common Port Numbers and Their Uses 1234

Fill in the table with the port numbers, their commonly associated services or protocols, and a brief description of what the service is used for. You can use the [List of TCP and UDP port numbers - Wikipedia](#) as a resource.

| Port Number | Service/Protocol | What is this service/protocol used for? |
|-------------|------------------|---|
| 20, 21 | | |
| 22 | | |
| 23 | | |
| 25 | | |
| 53 | | |
| 80 | | |
| 443 | | |

To submit

A word document with your answers and filled in tables.

