Fundamental Network Topics

Understanding Basic Network Terms like IP, TCP/IP, DNS, DHCP and more.

These exercises are meant to be answered with text, based on internet searches so write down your reply so you will remember for later.

* What is your public IP address right now, and how did you find it?

Type “whats my ip” in google.

* What is your private IP address right now (do this both at home and in school), and who/what gave you that address?

The same “ipconfig”. Now I just look under the section WSL?

172.18.192.1

DHCP

* What’s special about these address ranges?

Its 3 ranges of non-overlapping IPv4 adress ranges that cover private networks.

* + 10.0.0.0 – 10.255.255.255 -
  + 172.16.0.0 – 172.31.255.255  -
  + 192.168.0.0 – 192.168.255.255
* What’s special about this ip-address: 127.0.0.1?

Its localhost. So we establish a connection “through” our own computer. This way other people cant access what youre working on.   
It can be good for testing or adding features, where you don’t want anyone else being able to see it.

* What kind of service would you expect to find on a server using these ports: 22, 23, 25, 53, 80, 443?

Internet protocols.

22 SSH

23 Telnet

25 SMTP

53 DNS

80 HTTP

443 HTTPS

* What is the IP address of studypoints.info and how did you find it?

157.230.21.145 – In cmd I typed “ping www.studypoints.info

* If you write https://studypoints.info in your browser, how did “it” figure out that it should go to the IP address you discovered above?

It goes to a DNS and checks to see if it can find the Domain-name. When it finds it, it automatically like a phonebook finds the IP-adress from where it is hosted.

* Explain shortly the purpose of an ip-address and a port-number and why we need both

An IP-adress is a computer on the internets signature. It is what tells the internet who and what we are. It is needed so that we can distribute, send and receive things.

A port-number is important so that we know where to send our data through, when we know the final destination?

* What is your (nearest) DNS server,?

<https://www.powerdns.com/>

Har bare googlet? De har en DNS I Kbh?

8.8.8.8

8.8.4.4 er googles DNS.

What is (conceptually) the DNS system and the purpose with a DNS Server?

It is a phonebook. When we type in a website´s name, it is just a reference to a IP address which is where we want to go. DNS takes our request, checks to see if it knows any IP´s with that Domain name, if so, it redirects us. If not, it gives us a 404, or sends us to another DNS where it again checks??.

* What is your current Gateway, and how did you find it?

Cmd “ipconfig” 192.168.1.1

It is my router.

It is my default gateway.

Get out of here.

* What is the address of your current DHCP-Server, and how did you find it?

192.168.1.1

Cmd “ipconfig /all”

The DHCP is the one distributing IP addresses and makes sure youre not granted an IP that someone else is using.

* Explain (conceptually) about the TCP/IP-protocol stack

Transmission Control Protocol

Internet Protocol

TCP finds out if all packages has a “sender” and “receiver”, if so, the Internet Protocol sends all the packages to the network layer, which makes sure that the right addresses receives it.

* Explain about the HTTP Protocol (the following exercises will go much deeper into this protocol)

HyperTextTransferProtocol is the most commonly used protocol on the www.

It usually uses port-80

GET/POST/PUT/DELETE/HEAD

* Explain (conceptually) how HTTP and TCP/IP are connected (what can HTTP do, and where does it fit into TCP/IP)

Http are build ontop of TCP, and TCP are built ontop of IP.

It gives us another layer to work on, that is not as abstract as the TCP layer. It makes it easier for the computer scientist to debug, understand or work with the information received.