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.

1. What is your public IP address right now, and how did you find it?
   * Offentlig IP-adresse: 89.23.224.65
   * Hvordan jeg fandt den:
     + Google søgning: “What is my IP”
     + CMD: “nslookup myip.opendns.com resolver1.opendns.com”
2. What is your private IP address right now (do this both at home and in school), and who/what gave you that address?
   * Ikke muligt på skolen grundet COVID-19.
   * Private IP-adresse: 192.168.0.111
   * Hvordan jeg fandt den:
     + CMD: “ipconfig”
3. What is special about these address ranges?
   * 10.0.0.0 – 10.255.255.255
   * 172.16.0.0 – 172.31.255.255
   * 192.168.0.0 – 192.168.255.255
     + De er reserveret til private netværk.
4. What is special about this IP-address: 127.0.0.1?
   * Localhost – En IP-adresse der bruges til at referere til den samme maskine, som foretager eventuelle forespørgsler.
5. What kind of service would you expect to find on a server using these ports?
   * 22 – SSH
   * 23 – Telnet
   * 25 – SMTP
   * 53 – DNS
   * 80 – HTTP
   * 443 – HTTPS
6. What is the IP address of studypoints.info and how did you find it?
   * IP-adresse: 157.230.21.145
   * Hvordan jeg fandt den:
     + CMD: “ping studypoints.info”
7. 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?
   * Browseren omdanner domænenavnet til en IP-adresse ved hjælp fra en DNS server.
8. Explain shortly the purpose of an IP-address and a port-number and why we need both
   * IP-adresser bruges til at definere afsenderen, og modtageren af datapakkerne.
   * Porte kan bruges til at definere datapakkernes formål, og hvilken applikation der eventuelt skal modtage den pågældende datapakke.
9. What is your (nearest) DNS server?
   * Nærmeste DNS: 192.168.0.1
   * Hvordan jeg fandt den:
     + CMD: “ipconfig /all”
10. What is (conceptually) the DNS system and the purpose with a DNS Server?
    * En DNS hjælper brugeren med at omdanne en URL-adresse til en IP-adresse, eftersom det er nemmere for brugeren at huske en URL fremfor en ip-adresse. Minder meget om en telefonbog.
11. What is your current Gateway, and how did you find it?
    * Gateway: 192.168.0.1
    * Hvordan jeg fandt den:
      + CMD: “ipconfig”
12. What is the address of your current DHCP-Server, and how did you find it?
    * DHCP: 192.168.0.1
    * Hvordan jeg fandt den:
      + CMD: “ipconfig /all”
13. Explain (conceptually) about the TCP/IP-protocol stack
    * Applikationslaget samler data fra software og pakker det løst samlet. Transportlaget samler det data som den har modtaget fra applikationslaget og smækker det i en ”pakke”. I netværkslaget bliver tilføjet ip-adresse til ”pakken”. I linklaget får ”pakken” at vide hvilken mac-adresse den skal til. Sidst er det fysiske lag som man ikke altid tæller med, men det er i bund og grund den fysiske forbindelse mellem senderen og modtageren.
14. Explain about the HTTP Protocol (the following exercises will go much deeper into this protocol)
    * HTTP står for “Hypertext Transfer Protocol” og bruges til at sende og modtage datapakker i forbindelse med almindeligt webbrug.
15. Explain (conceptually) how HTTP and TCP/IP are connected (what can HTTP do, and where does it fit into TCP/IP)
    * HTTP er en del af applikationslaget, og TCP er en del af transportlaget hvilket vil sige, at TCP står for at pakke og sende HTTP datapakkerne.