Fundamental Network Topics

*You can do most of the exercises in this document by yourself, but they are meant as exercises with a supplementary discussion in the class, so you will gain a lot more from participating in the class.*

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

Most of these exercises are meant to be answered with text, so write down your reply so you will remember.

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

82.211.215.9 – myip.com

* What is your private IP address right now (do this both at home and in school), and who/what gave you that address?  
  Home : 192.168.1.151  
  My Router
* What’s special about these address ranges?

De er allesammen allokeret til private netværk.

* 10.0.0.0 – 10.255.255.255   
  Class A – 24 bit blok
* 172.16.0.0 – 172.31.255.255   
  Class B – 20 bit blok.
* 192.168.0.0 – 192.16 8.255.255

Class C – 16 bit blok.

* What’s special about this ip-address: 127.0.0.1?

Loopback address – returnerer alt til samme adresse, til test af tcp/ip netværk. (localhost)

* What kind of service would you expect to find on a server using these ports: 22, 23, 25, 53, 80, 443?  
  22: SSH Remote Login Protocol.  
  23: Telnet  
  25: SMTP (Mail)  
  53: DNS  
  80: HTTP  
  443: HTTPS
* What is the IP address of studypoints.dk and how did you find it?  
  165.227.137.75 – cmd -> ping studypoints.dk

157.230.21.145 – cmd -> ping studypoints.info

* If you write https://studypoints.dk in your browser, how did “it” figure out that it should go to the IP address you discovered above?  
  DNS
* Explain shortly the purpose of an ip-address and a port-number and why we need both

Din ip er dit unikke identifikationsnummer / adresse.

* What is your (nearest) DNS server,?  
  Min router.
* What is (conceptually) the DNS system and the purpose with a DNS Server?

En slags telefonbog, med navne og deres tilhørene addresser.

* What is your current Gateway, and how did you find it?  
  Default gateway: 192.168.1.1 – aka min routers addresse.

Cmd -> ipconfig /all

* What is the address of your current DHCP-Server, and how did you find it?  
  Samme som forrige spørgsmål.
* Explain (conceptually) about the TCP/IP-protocol stack  
  Kommer fra OSI Modellen some er en 7 lags standardiseret made at forbinde ting over netværket.

TCP/IP er en mere udbredt samling prtokoller som i dag kun har 4.

Kabler  
Ethernet  
IP

TCP/UDP, multiplexing, par.

Designet af det amerikanske militær og blev taget op af microsoft, hvilket er derfor den er blevet så populær.

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

HyperText Transfer Protocol – bindeled mellem klient og serveren.

Fungerer på request-response.

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