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https://github.com/Paepke-cph/3SemWeek2

Fundamental Network Topics

1. **What is your public IP address right now, and how did you find it?**
    1. 82.211.225.69 found by using whatismyipaddress.com – also i have a static IP so i also just know it.
2. **What is your private IP address right now, and who/what gave you that address.**
    1. 192.168.0.105, the ip is given by my router.
3. **What is special about these address ranges (10.0.0.0-10.255.255.255), (172.16.0.0-172.31.255.255), and (192.168.0.0-192.68.255.255).**
    1. These are all private iP ranges. These are only used on local area networks and can't be used as public IPs.
4. **What's special about this ip-address: 127.0.0.1?**
    1. This is the IP of your networkcard, ie not the IP assignmed by a router but a way of talking to your 'internal ip' of your networkcard.
5. **What kind of service would you expect to find on a server using these ports:**
    1. 22: **The SSH port** - Any kind of secure server, which you would like to be able to remote into.
    2. 23: **The telnet port** - This is again a way to remote into fx a server, on which you wish to execute different commands.
    3. 25: **Simple Mail Transfer Protocol** – The port is used for mail servers distribute mail.
    4. 53: **Domain Name System –** This would be used by a DNS server, which is responsible for mapping an ip to a Domain name, fx: www.google.com -> 172.217.20.46
    5. 80: **Hyper Text Transfer Protocol** – The would be for a website or webapplication for sending pages to a user's browser.
    6. 443: **Secure Hyper Text Transfer Protocol** – Just like the HTTP, but this is a more secure connection.
6. **Whats the IP address of studypoints.dk(.info) and how did you find it?**
    1. 157.230.21.145, but simply ping'ing the domain reveals the IP.

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7. **If you write https://studypoints.dk(.info) in your browser, how did 'it' figure out that it should go to the IP address you discoverd above?**
    1. Through a DNS server, in which a register of the associated domains and ip are listed.
8. **Explain shortly the purpose of an ip-address and a port-number and why we need both?**
    1. The purpose of the private ip is for the router to navigate traffic from the public network (WAN) to the correct device on the local network.
    2. The purpose of the public ip is for the routers (around on the WAN) to navigate network traffic to the correct network (local).
    3. The port is for routing the network traffic to the correct processor on a given (by the private ip) device.
9. **What is your (nearest) DNS server?**
    1. The closest DNS server is: 217.97.129.34 (penguin.cohaesio.net) in Frederiksberg.
10. **What is (conceptually) the DNS and the purpose with a DNS server?**
    1. The main purpose of the DNS is to map a domain like www.google.com to a public ip like 172.217.20.46
11. **What is your current Gateway, and how did you find it?**
    1. 192.168.0.1, The gateway is specified by using the ip address command in a bash shell.
12. **What is the address of your current DHCP-server, and how did you find it?**
    1. 192.168.0.1, while at home the router will be responsible for dynmically distributing ip addresses.
13. **Explain (conceptually) about the TCP/IP-protocol stack**
    1. The idea is that with this protocal, all data transfered is log, ie in what sequence data should be transfered and whether or no the data was lost.
    2. The **link** layer provides the interface for with the connnection can be established, fx (Ethernet, X.25 etc.)
    3. The **internetwork** layer handles the assigning and routing of data, using IP.
    4. The **transport** layer handles the end-to-end data transfer (either TCP or UDP), in the case of TCP this is where data is checked for corruption, allignment and dropped packets.

5. The **application** layer, this is where the application deals with transfered data, ie this is where ports and sockets are in use.

14. Explain about the HTTP protocol

1. The protocol is for communication between a browser and a website (for example). The protocol makes use of both requests and responses. The requests is from the browser, asking for some resource (GET) or requesting to insert some data (POST). Whereas the response is a way for the website to let the user know if something went well or not, in the form of different status codes, fx 404 file not found, if the user is requesting a page which can't be found.

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

1. So where TCP/IP is responsible for making sure the data is transferred correctly between the different devices The HTTP is a way of commucating information about a given website response or request.