



DD2393 and EP2120

Home assignment 3

Solutions due 17:00 Wednesday 28 September, 2011

Review due 17:00 Friday, 30 Friday, 2011.

1 DNS. (50/100)

The following questions require a DNS tool such as 'host', 'dig' or 'nslookup'.

List the (names of the) name-servers of the computer science department (csc.kth.se)! (names, not addresses)(5p)

List all IP addresses of the nameservers in the list above! (dont forget IPv6)(5p)

One of the (secondary) nameservers of kth.se is located in Gothenburg (Chalmers). Does its IP address have any other name?(5p)

To which mail agents may your email be delivered to if you send an email to olofh@csc.kth.se? List the names of all servers. (5p)

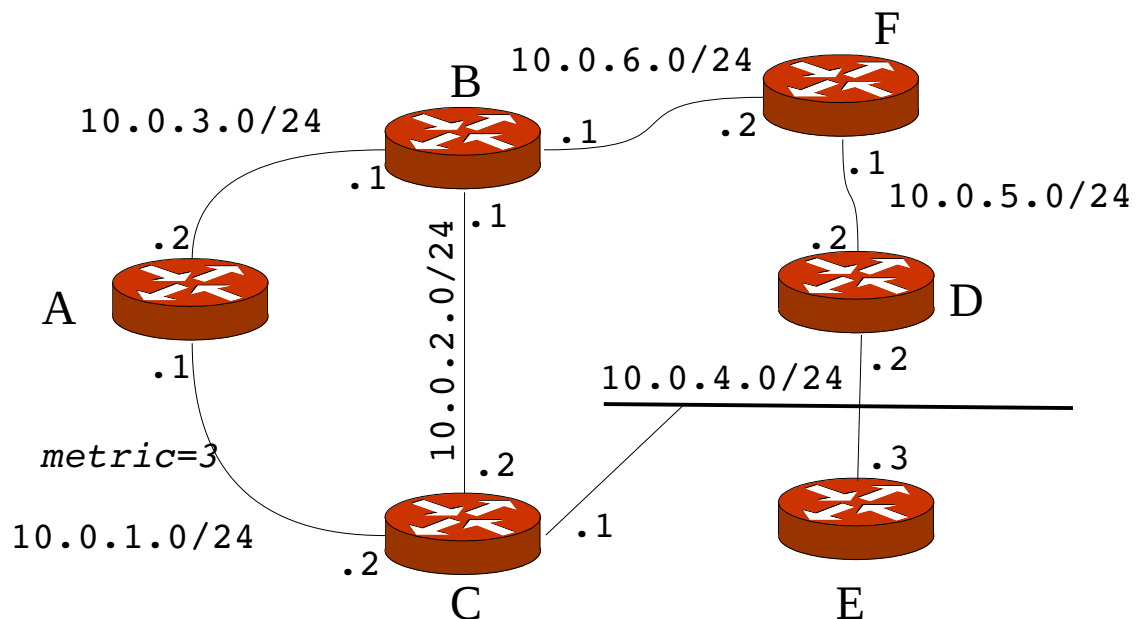
What if you use the alternative addresses olofh@kth.se and olofh@nada.kth.se? (5p)

Which name does the IPv4 address 193.11.23.1 correspond to? (5p)

Which name does 2001:700:0:503::aa:5302 correspond to? (5p)

Assume you are an administrator at NADA and you wish to change the address of one of its nameservers. You want to shut-down the old server and replace it with a new, and for that you want to use a new IP address. Describe a method to accomplish this where the overlap between the old and new address is not more than a minute (When both addresses are simultaneously accessible). Which entries would you change, and at what period in time would you change them? When can you shut down the old server? You may want to express the method using a time-line. The TTL of the entry is 86400. (20p)

2 Distance-vector routing (50/100)



In the network above, all routers run RIPv2 and all link metrics are one, *except* between A and C where the link metric is three. Assume an initial state for all routers, where only the directed connected networks are present in the router's routing tables. The destinations in the network are the /24 prefixes (not A,B,..). There is no equal-cost-multi-path in the network (only one best path). Please note that no destinations in this example should have metric zero!

2.1 Initial state (10p)

What is the initial RIP routing state of A? Express the routes in a routing table as follows:

<i>Destination</i>	<i>Metric</i>	<i>Next-hop / -</i>

2.2 First step (10p)

Assume C is the *first* router that sends a RIP update to all its neighbours. What is A's routing table after the RIP update from C is received?

2.3 Second step(10p)

Assume B is the *second* router that sends a RIP update to all its neighbours. What is A's routing table after the RIP update from B is received? (B has also received an update from C).

2.4 Final step (10p)

After convergence (stable state has been reached), what is the state of A's routing table?

2.5 Split-horizon (10p)

Assume A uses split-horizon. Define A's distance vector sent on the 10.0.3.0/24 sub-network. That is, which <destination, metric> tuples are sent from A in a RIP response message to B? The state is after convergence.