

## NSMV CA 1 Feedback and questions

**Re-do the exercise yourself. Try to get 100%. Please watch demo during class and ask questions if you do not understand something.**

### CA Notes

#### Question 1

##### Default Routes

As part of the routing (forwarding) process, a router compares each packet's destination IP address to the router's routing table. If the router does not match any routes, the router discards the packet, and makes no attempt to recover from the loss.

A default route is a route that is considered to match all destination IP addresses.

**With a default route, when a packet's destination IP address does not match any other routes, the router uses the default route for forwarding the packet.**

Dublin Router

```
ip route 0.0.0.0 0.0.0.0 200.1.1.2
```

Default routes work best when only one path exists to a part of the network (in this case send any packets that you don't know the destination to the ISP.)

#### Question 2

##### Routes back from the ISP to DublinRouter

Some specific routes that could be added to route back to NETWORK1 and GUEST networks.

```
ISP(config)#ip route 192.168.1.0 255.255.255.0 200.1.1.1  
ISP(config)#ip route 192.168.2.128 255.255.255.128 200.1.1.1
```

However, in question 2, it asked for a summary route:

##### Summary route:

```
ip route 192.168.0.0 255.255.252.0 200.1.1.1
```

Observation: this would include routes back to the 192.168.0.0/24 and the 192.168.3.0/24 – so it would include all addresses from 192.168.0.1-192.168.3.255. This includes our networks of 192.168.1.0 255.255.255.0 and 192.168.2.128 255.255.255.128.

Add a new router and test this out yourself!

## A further note on manual route summarization

### Manual Route Summarization

Small networks might have only a few dozen routes in their routers' routing tables. The larger the network, the larger the number of routes. In fact, Internet routers have more than 100,000 routes in some cases.

The routing table might become too large in large IP networks. As routing tables grow, they consume more memory in a router. Also, each router can take more time to route a packet, because the router has to match a route in the routing table, and searching a larger table generally takes more time. And with a large routing table, it takes more time to troubleshoot problems, because the engineers working on the network need to sift through more information.

*Route summarization* reduces the size of routing tables while maintaining routes to all the destinations in the network. As a result, routing performance can be improved and memory can be saved inside each router. Summarization also improves convergence time, because the router that summarizes the route no longer has to announce any changes to the status of the individual subnets. By advertising only that the entire summary route is either up or down, the routers that have the summary route do not have to reconverge every time one of the component subnets goes up or down.