

Lecture 17

Exercise 1: What is likely to be the default gateway address for the network 192.168.1.0/24? Could the default gateway be at address 192.168.1.32? Could it be at 192.169.0.1?

- 192.168.1.1 (or possibly 192.168.1.254)
- yes, it's only a convention.
- no, 192.169.0.1 is not in the 192.168.1.0/24 network

Exercise 2: Should a router choose the lowest-cost or the highest-cost path when deciding to route a packet? What might be a suitable choice for a cost metric based on the interface data rate?

- higher cost \equiv worse
 \therefore choose lowest-cost path
- $\frac{1}{\text{data rate}}$ would be reasonable: cost is proportional to time required to transmit a certain amount of data

Exercise 3: What is BCIT's ASN? What is the largest network associated with this ASN?

from whois.arin.net:

Autonomous System Number	
Number	4476
Name	BCIT
Handle	AS4476
Organization	British Columbia Institute of Technology (BCIT-1)
Registration Date	2009-09-15
Last Updated	2012-02-24

Network Resources	
BCITNET-192-2 (NET-192-68-68-0-1)	192.68.68.0 - 192.68.68.255
BCITNET-192-3 (NET-192-68-69-0-1)	192.68.69.0 - 192.68.69.255
BCITNET-192-4 (NET-192-68-70-0-1)	192.68.70.0 - 192.68.70.255
BCITNET-192-5 (NET-192-68-71-0-1)	192.68.71.0 - 192.68.71.255
BCITNET-192-6 (NET-192-68-72-0-1)	192.68.72.0 - 192.68.72.255
BCITNET-192-7 (NET-192-68-73-0-1)	192.68.73.0 - 192.68.73.255
BCITNET-192-8 (NET-192-68-74-0-1)	192.68.74.0 - 192.68.74.255
NETBLK-BCITNET192 (NET-192-68-67-0-1)	192.68.67.0 - 192.68.74.255
BCITNET2 (NET-142-232-0-0-1)	142.232.0.0 - 142.232.255.255

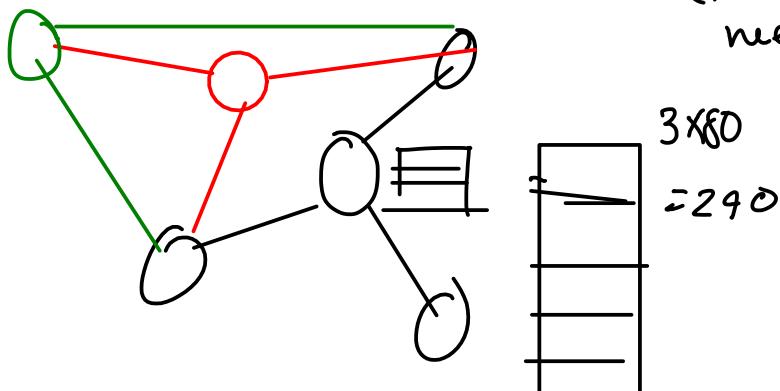
$$\text{ASN} = 4476$$

largest network =
142.232.0.0 / 16

Exercise 4: If there are 80 routers in a network and each one has three neighbours, how many link costs need to be transferred and stored by each router?

$$3 \text{ neighbours} \times 80 \text{ routers} = 240 \text{ links total}$$

(not all routing algorithms need all this information)



$$\begin{aligned}
 & 3 \times 80 \\
 & = 240
 \end{aligned}$$