Lecture 16 - OSPF

Exercise 1: Which IGP would you use if your network included routers that only supported RIP? If you had a mixture of (modern) Cisco and Juniper Networks routers? If your company had a "Cisco only" router policy?

RIP only - RIP

mixed - OSPF

Cisco - EIRP

Exercise 2: Does OSPF use UDP or TCP?

neither. it is IP protocol 89

some
IP
protocols
$\begin{cases} \text{ICMP} = 1 \\ \text{TCP} = 6 \\ \text{UDP} = 17 \\ \text{OSPF} = 89 \\ \text{etc.} \end{cases}$

Exercise 3: A router with IP address 1.1.1.1 receives a Hello packet from 3.3.3.3 with the IP addresses 1.1.1.1 and 2.2.2.2 in the Neighbors field. What routers can you be certain are adjacent? What is the general rule for determining adjacency?
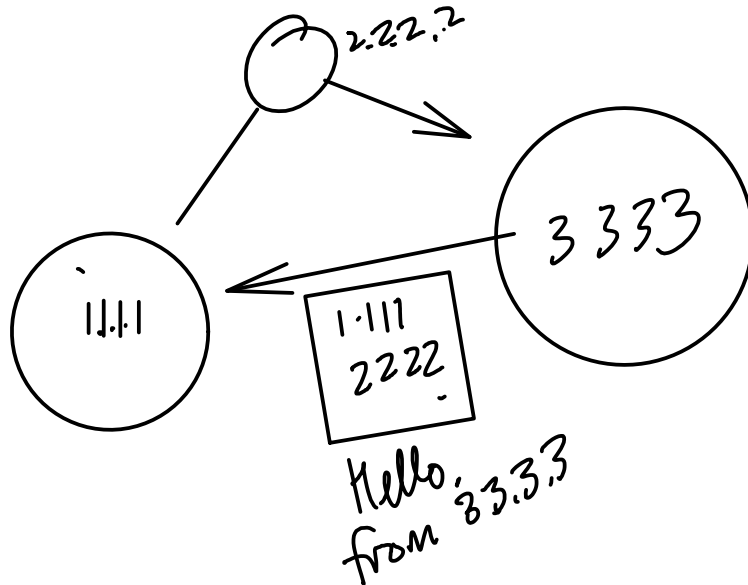
you are connected to X
if you receive a Hello from X
with your own IP address.

Exercise 4: Why would you not flood an LSA whose sequence number was the same as one already stored?

— to avoid loops (infinitely propagating LSAs).

Exercise 5: The standard maximum LSA age is one hour. What range of values would you expect to find in the LS Age field of an LSA packet?
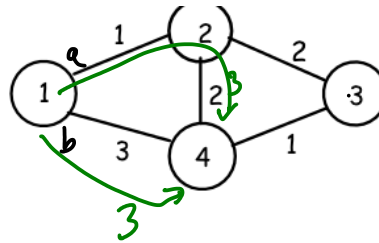
age is in seconds
so $0 < $ LS Age < 3600

Exercise 6: Would you configure the fastest or the slowest routers with the highest priority?

— fastest

Exercise 7: Find the routing table for host 1 for the network with the link costs shown in the diagram below.

dest. network	metric	i/f
2	1	a
3	3	a
4	3	b

Exercise 8: Why must a router have multiple IP addresses?

— routers have multiple i/fs

— each i/f has unique IP address

**Exercise 9**: Which of these would go into the numerator and which into the denominator of a cost function?

Metrics can also include factors such as link delay, packet loss rate and a links maximum packet length.

$$cost = f\left(\frac{(0.1 \times delay) \times p.l.r.}{MTU}\right)$$

Exercise 10: How does the receiver authenticate the message? Why should the hash function be one-way?

— receiver appends passwd & re-calculates digest → to OSPF msg.
& checks for match w/ received digest

—
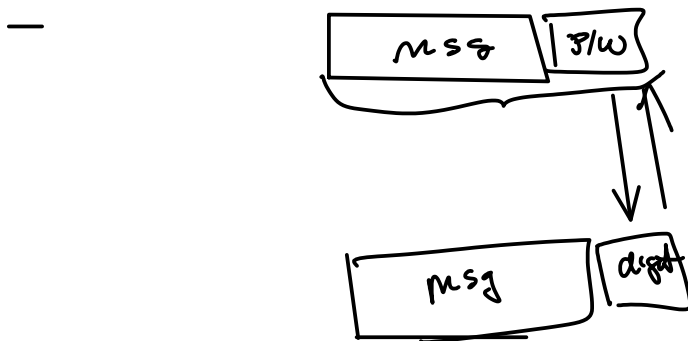
— to prevent the password being computed.