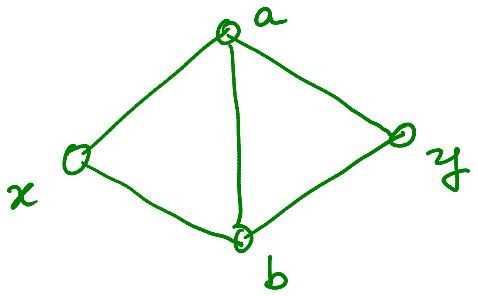
OSPF Problem

Monday, October 05, 2009
10:18 AM

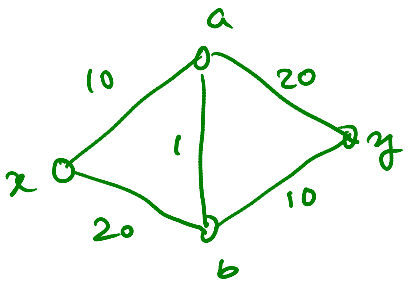
OSPF is supposed to be a loop-less algorithm for computing routes in a network.
For this to be true, certain conditions should hold.

Consider a simple network



The links have "costs" which are link delays, available bandwidth, cost per byte, or a combination. Usually the network operator determines how the cost should be associated with the link.

If the whole network is under the same operators, there is no confusion on the link costs.

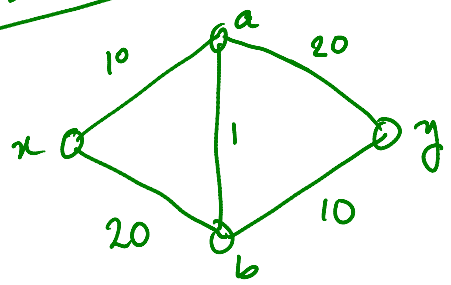


OSPF would correctly find $x-a-b-y$ as the shortest path from x to y.

Suppose the network state is managed by two

Suppose the network state is managed by two independent operators

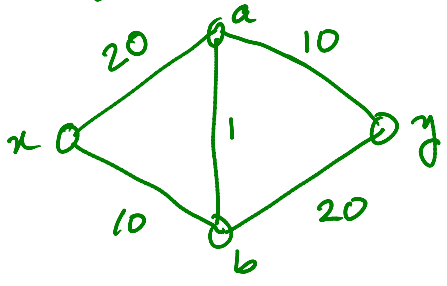
OSPF Server 1



$x \rightarrow y$

$x \rightarrow a \rightarrow b \rightarrow y$

OSPF Server 2



$x \rightarrow y$

$x \rightarrow b \rightarrow a \rightarrow y$

Packet $[x, y]$

source ↑ destination ↑

Suppose node x, a receive updates from server 1, and b, y receive from server 2.

Packet goes $x \rightarrow a \rightarrow b$ using Server 1 directive

$b \rightarrow a \rightarrow y$ using server 2 directive

There is a **loop** $a \rightarrow b \rightarrow a \rightarrow \ldots$