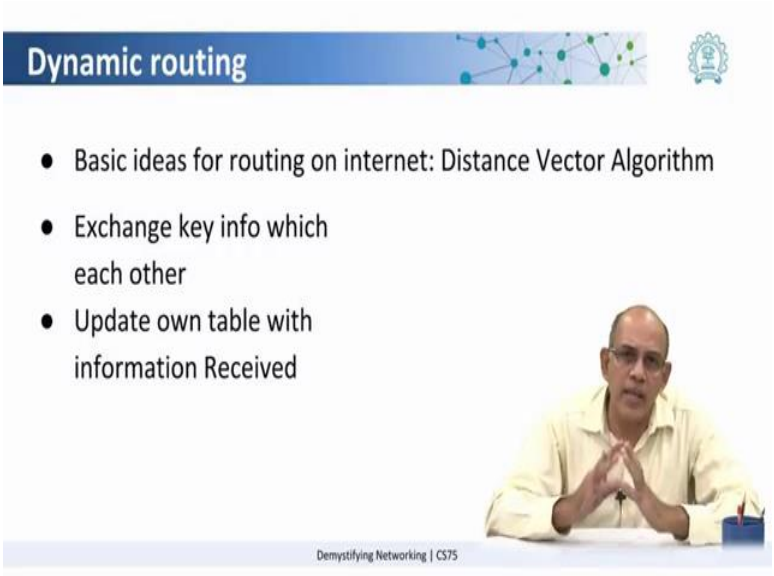
Demystifying Networking
Prof. Sridhar Iyer
Department of Computer Science and Engineering
Indian Institute of Technology, Bombay

Lecture – 46
From Traveler's dilemma to Dynamic Routing

So, we saw that in the traveler's dilemma, the packets had to be routed from one island to another. How does this relate to routing in the internet?

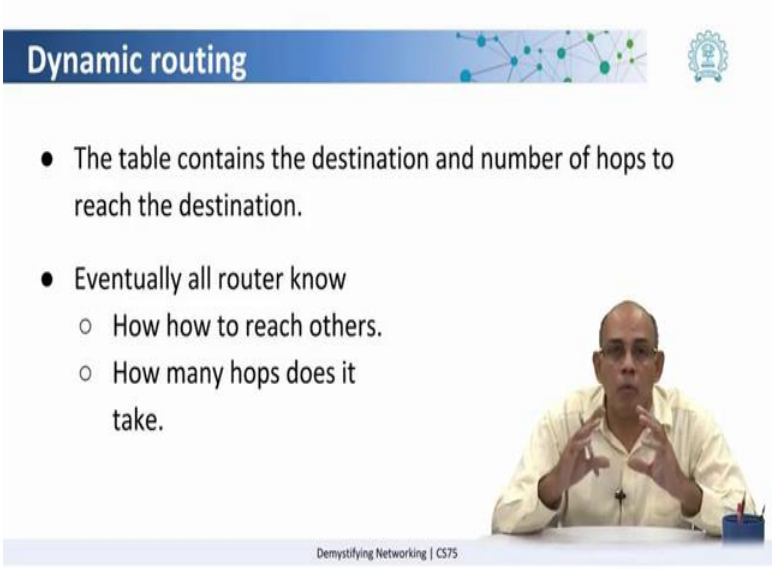
(Refer Slide Time: 00:12)



One of the most basic ideas for routing in the internet is, what is called a distance vector algorithm, which is very similar to what we already saw.

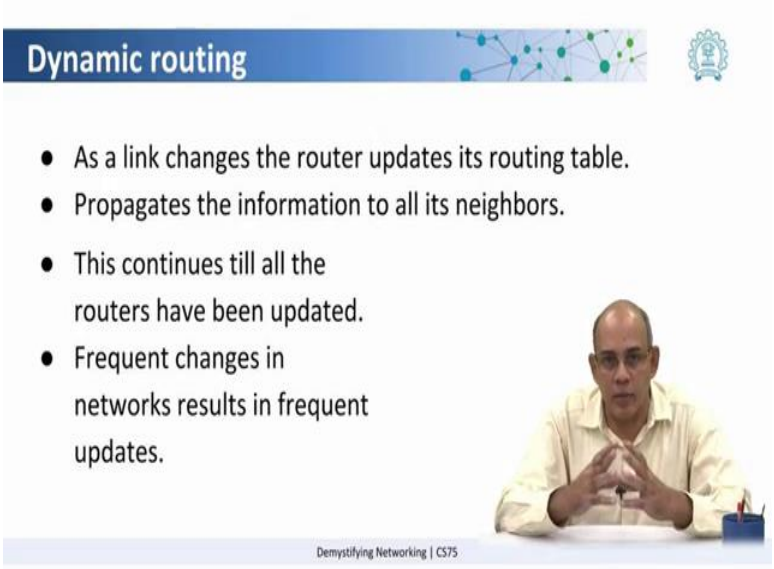
The key idea here is that, routers exchange their routing tables with each other and as a result of the exchange they update the information in their own table.

(Refer Slide Time: 00:35)



What is the information contained in the table? The information is basically the destination and the number of hops to reach the destination. So, using this information eventually, what happens is that, as these routing tables are exchanged among routers in the internet and it progresses through the network, eventually, all the routers have a mechanism of determining how to reach any other point in the network as well as how many hops does that take.

(Refer Slide Time: 01:12)



Now, while a distance vector algorithm works well when routes are stable, what happens when a link goes down? So, as soon as the link goes down, the router which is attached to the link

determines that the link has gone down, it changes its routing table. And as soon as the routing table is changed, it has to propagate that information to all the routers that it is connected with and then so on and so forth, so that information has to spread through the network. After a while the link may come back up, in which case again, the router has to change its routing table and propagate this information throughout the network.

So, in the case of a distance vector algorithm, when links go up and down frequently, a lot of change has to happen in the network. However, the distance vector algorithm is still a very good first step towards understanding how routing tables are created and propagated in the network and distance vector algorithms also work well for small networks. Hence, we will see the distance vector algorithm in a little more detail.