Social Networks
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Lecture – 09
Introduction to Social Networks
Searching in a Network

So, second in the list is the problem of searching in a network, in a network with roughly let say one billion nodes.

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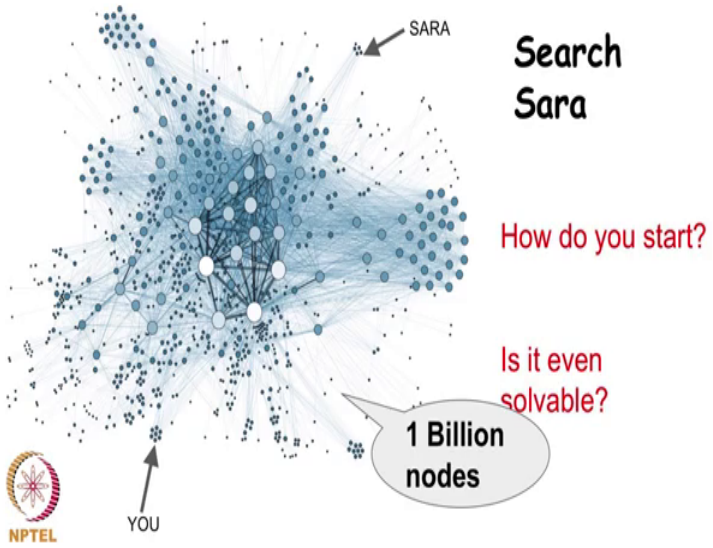

If I were to tell you go and search for a particular node starting from some random node, how will you even start? Can this even be solved? I told you there are so many possible networks that one can think of on even 15 node graph, and I am giving you a 1 billion node network; a network is 1 billion nodes, how can you search for an node here?

Well such complicated questions very interestingly they have very simple and straightforward answers. In fact, we are going to show that searching on a network especially on a real world network is very easy.

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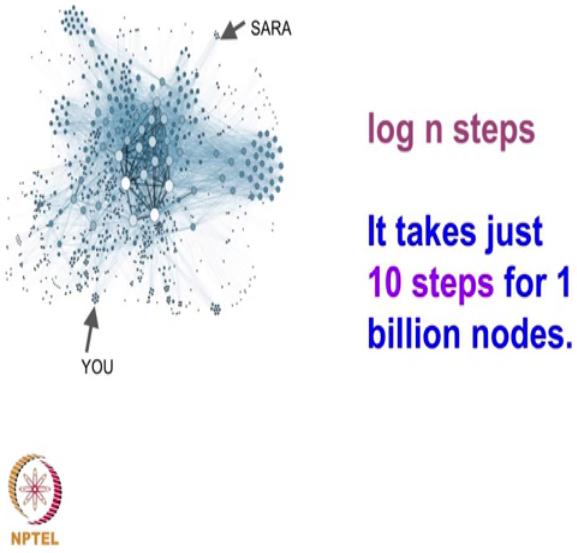

In fact, if you have n number of nodes you can search with only roughly log n number of steps to be precise actually its log square n, but the point is in log number of transactions you can achieve searching, I am sure you know what one means by logarithm, if n is the number log of n is the number of digits in n.

So, if the number of nodes in a network is n let us say 1 billion, the effort involved in searching in this big network is the number of digits in one billion single digit number or let say maximum 10, 15 or even 20, in 20 transactions you can find any node in the network, why? How?

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We exploit a nice property in such networks called the small world phenomena; gorgon for the time being, but do not worry when we come there you will see it is a very straightforward concept, but very elegant very beautiful and sparkling part is that it gives you an answer like a charm.