Link: <http://www.studytonight.com/computer-networks/osi-model-network-layer>

#### Replace the content before: FUNCTIONS OF NETWORK LAYER:

The network Layer controls the operation of the subnet. The main aim of this layer is to deliver packets from source to destination across multiple links (networks). If two computers (system) are connected on the same link, then there is no need for a network layer. It routes the signal through different channels to the other end and acts as a network controller.

It also divides the outgoing messages into packets and to assemble incoming packets into messages for higher levels.

In broadcast networks, the routing problem is simple, so the network layer is often thin or even non-existent.

**Design Issues with Network Layer:**

* A key design issue is **determining how packets are routed from source to destination**. Routes can be based on static tables that are “wired into” the network and rarely changed. They can also be highly dynamic, being determined anew for each packet, to reflect the current network load.
* If **too many packets** are present in the subnet at the same time, they will get into one another’s way, forming **bottlenecks**. The **control of such congestion** also belongs to the network layer.
* Moreover, the **quality of service** provided (delay, transmit time, jitter, etc) is also a network layer issue.
* When a packet has to **travel from one network to another to get to its destination**, many problems can arise such as:
  1. The addressing used by the second network may be different from the first one.
  2. The second one may not accept the packet at all because it is too large.
  3. The protocols may differ, and so on.
* It is up to the network layer to overcome all these problems to allow **heterogeneous networks** to be interconnected.

**Replace the given image with: (put the image at the end as in the previous two layers)**

