Report on Gateway and Router

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Gateway :

Gateway is a network entity and is also called a protocol converter. It can connect one computer network to another and define network parameters. If two networks of different protocols need to connect, both networks need to have gateways that provide existing and access points to computers from the two networks to communicate. In other words, the gateway can join different systems.

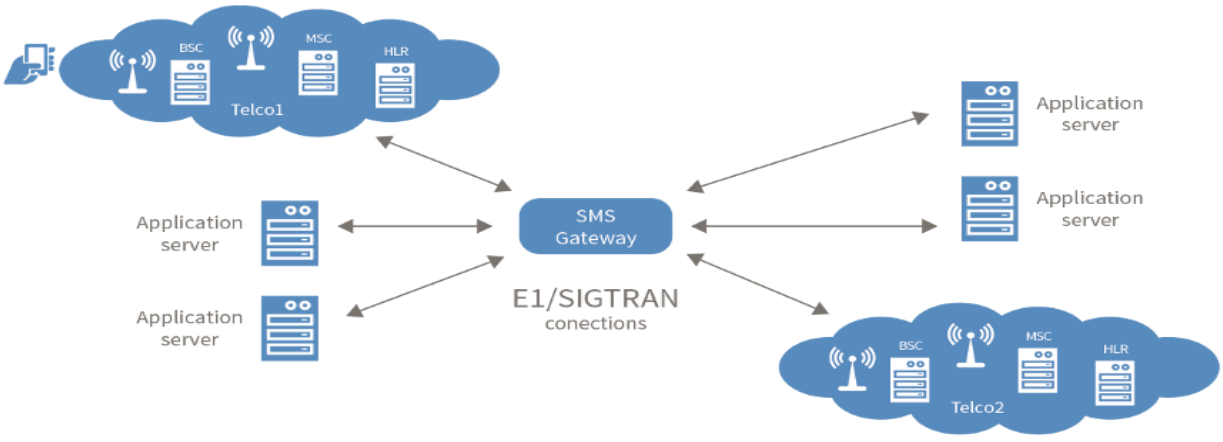

Fig : This is how a gateway works as a protocol Converter

Router :

Like a network layer device, a router connects multiple networks together and controls the data traffic between them. Newer people on the router often dump it with a switch, which is a high-speed device that detects incoming data packets and directs them where they go on the LAN. Based on the internal router tables, the network router reads each incoming IP address and its destination IP address, and determines the shortest route to it.

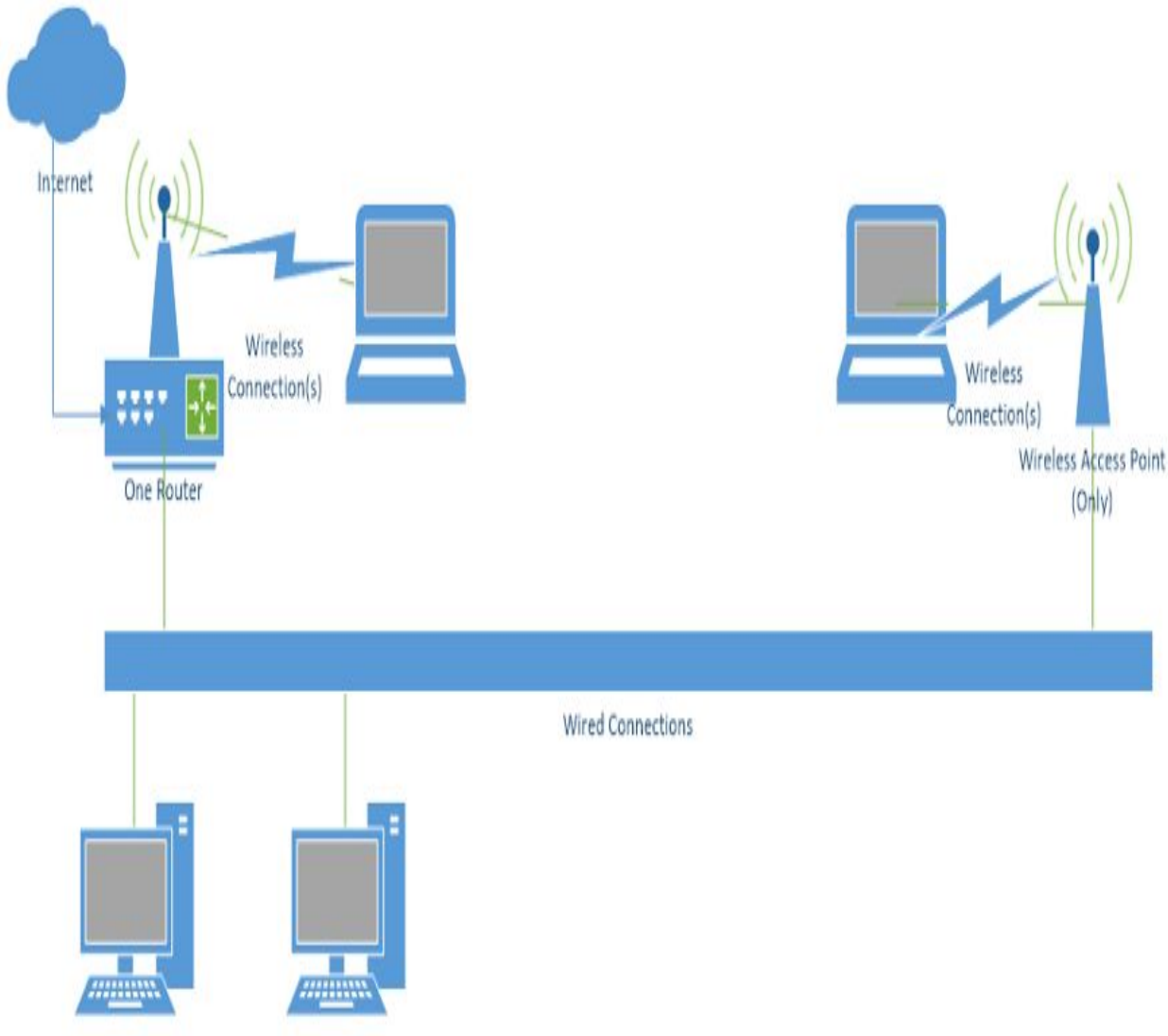

Fig: This is how a router works in wired and wireless connections

Difference between Gateway and Router :

Gateway	Router
1. Primary function of a gateway is to connect two networks of different protocols as a translator.	1. Primary function of a router is to ensure that the data packets are switched to the correct address.
2. Dynamic routing is not supported in a gateway.	2. Dynamic routing is supported in a router.
3. Gateway works upto 5th layer of the OSI layer.	3. Router works on layer 3 and layer 4 of the OSI layer.
4. It is hosted on dedicated / virtual applications or physical server.	4. It is hosted on the dedicated applications(router hardware).
5. The features which are provided by a gateway are protocol conversion and network access control etc.	5. The features which are provided by a router are DHCP server, static routing, wireless networking , NAT and IPv6 address.
6. Working principle of a router is to differentiate that what is inside the network and what is outside the network.	6. Working function of a gateway is to install routing details for multiple networks and routing traffic based upon the destination address.

Justifying the need (when to choose which) :

Connection in a single network with ***Router -***

For example, there are 30 computers connected within Network A. All of these computers are connected. In this case, a gateway is not required. Because a router with a routing table that describes the hops inside those 30 computers is enough.

Connection between different networks with ***Gateway -***
For example , we assume that there are two networks, namely Network A and Network B. Computer X from Network A wants to send data to Computer Y from Network B, where there is a need for Gateway A and Gateway B so that the two networks can communicate.

Conclusion :

Gateway vs router is described in detail in the above paragraph from key function features, supporting feature, dynamic route support, operating system, etc. In short, a gateway is a single point of access to computers outside your network as a door, while the router determines how short your data can travel from Computer A to Computer B, such as a corridor or stairway. All in all, it is important to consider your current and future needs when considering which option to use between gate vs router.

--- The End ---