

Computer Networks (CSE 319)

Department of CSE

**Assignment No:  01**

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| **Title/Question:** | **Comparison Between Packet switching and Circuit Switching.** |

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| Submitted by | Submitted to |
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Packet Switching and Circuit Switching are two modes of data transmission in computer networks. The differences between these two modes are given below:

* In Packet Switching mode, the total data is divided into small packets and sent independently over a shared network. On the other hand, Circuit Switching is a data transmission mode where two network nodes establish a dedicated communications channel through the network before the nodes may transfer data and here the entire message is sent through the established path from sender to receiver.
* Circuit Switching may cause bandwidth wastage where no wastage of bandwidth in Packet Switching.
* Packet Switching may cause packet loss. On the other hand, in Circuit Switching the entire data travels through the established path from sender to receiver so there will be no packet loss.
* Packet Switching was originally designed for data communication whereas, Circuit Switching was originally designed for voice communication.
* Packet Switching is flexible as each packet may travel through a different route to reach its destination. On the other hand, Circuit Switching is inflexible as once a path is established for transmission, it doesn’t change during the duration of the session.
* In packet switching, as each packet travels a different path hence, the packets are received out of order at the receiver side and later arranged in order. On the other hand, in circuit switching the entire message is received as it is as sent from a sender to receiver.
* Space Division Switching or Time-Division Switching can be used to implement Circuit Switching whereas Packet Switching can be implemented using two approaches Datagram Approach and Virtual Circuit Approach.
* Circuit Switching is always implemented at physical layer whereas, Packet Switching is implemented on the network layer.

Opinion:

When it comes to voice transmission Circuit Switching is more efficient than Packet Switching whereas, For Data transmission, Packet Switching is the more efficient than Circuit Switching.

Reference:

1. <https://www.comparitech.com/net-admin/circuit-switching-vs-packet-switching/>
2. <https://techdifferences.com/difference-between-circuit-switching-and-packet-switching.html#:~:text=Circuit%20Switching%20is%20connection%20oriented%20that%20means%20a%20path%20is,for%20each%20packet%20while%20transmission.>
3. <https://www.computerworld.com/article/2593382/networking-packet-switched-vs-circuit-switched-networks.html>