



Topic: Data Packets and Packet Switching

(a) Data Packets

To be transmitted, data is broken down into smaller units called packets. A packet of data typically contains the following components:

- i. **Packet header:** This contains information about the packet, such as the destination address, packet number, and originator's address.
- ii. **Payload:** This is the actual data being transmitted.
- iii. **Trailer:** This part contains error-checking information and marks the end of the packet.

(b) Packet Switching

Packet switching is a technique used in data transmission where data is broken down into packets, which are sent independently to their destination. The key features of packet switching include:

- i. **Data is broken down into packets:** This allows for efficient transmission and reduces the impact of errors on the overall data transfer.
- ii. **Each packet could take a different route:** This flexibility helps optimize the network's usage and increases its reliability.
- iii. **A router controls the route a packet takes:** Routers analyze the network and determine the most efficient path for each packet.
- iv. **Packets may arrive out of order:** Due to their independent routing, packets can arrive in a different order than they were sent. However, the packets are reordered at the destination based on their packet numbers.

