

Message Switching

What does Message Switching mean?

Message switching is a network switching technique in which data is routed in its entirety from the source node to the destination node, one hop at a time.

During message routing, every intermediate switch in the network stores the whole message.

If the entire network's resources are engaged or the network becomes blocked, the message-switched network stores and delays the message until ample resources become available for effective transmission of the message.

Before the advancements in packet switching, message switching acted as an efficient substitute for circuit switching.

It was initially employed in data communications such as telex networks and paper tape relay systems.

Message switching has largely been replaced by packet switching, but the technique is still employed in ad hoc sensor networks, military networks and satellite communications networks.

In message switching, the source and destination nodes are not directly connected.

Instead, the intermediary nodes (mainly switches) are responsible for transferring the message from one node to the next.

Thus, every intermediary node inside the network needs to store every message prior to retransferring the messages one-by-one as adequate resources become available.

If the resources are not available, the messages are stored indefinitely. This characteristic is known as store and forward.

Every message should include a header, which typically consists of routing information, such as the source and destination, expiry time, priority level, etc.

Because message switching implements the store-and-forward technique, it efficiently uses the network.

Also, there is no size limit for the messages. However, this technique also has several **disadvantages**:

- Because the messages are fully packaged and saved indefinitely at every intermediate node, the nodes demand substantial storage capacity.
- Message-switched networks are very slow as the processing takes place in each and every node, which may result in poor performance.
- This technique is not adequate for interactive and real-time processes, such as multimedia games and voice communication.

