The packet-switching approach has a number of advantages over circuit switching:

1) Has greater line efficiency, since a single node-to-node link can be dynamically shared by many packets over time. The packets are queued up and transmitted as rapidly as possible over the link. By contrast, with circuit switching, time on a node-to-node link is preallocated using synchronous time division multiplexing. Much of the time, such a link may be idle because a portion of its time is dedicated to a connection that is idle.

2) A packet-switching network can carry out data-rate conversion. Two stations of different data rates can exchange packets, since each connects to its node at its proper data rate.

3) When traffic becomes heavy on a circuit-switching network, some calls are blocked; that is, the network refuses to accept additional connection requests until the load on the network decreases. On a packet-switching network, packets are still accepted, but delivery delay increases.

4) Priorities can be used. Thus, if a node has a number of packets queued for transmission, it can transmit the higher-priority packets first. These packets will therefore experience less delay than lower-priority packets.

Packet switching also has disadvantages relative to circuit switching:

1) Each time a packet passes through a packet-switching node it incurs a delay not present in circuit switching. At a minimum, it incurs a transmission delay equal to the length of the packet in bits divided by the incoming channel rate in bits per second; this is the time it takes to absorb the packet into an internal buffer. In addition, there may be a variable delay due to processing and queuing in the node.

2) Because the packets between a given source and destination may vary in length, may take different routes, and may be subject to varying delay in the switches they encounter, the overall packet delay can vary substantially. This phenomenon, called jitter, may not be desirable for some applications (for example, in real-time applications, including telephone voice and real-time video).

3) To route packets through the network, overhead information, including the address of the destination, and often sequencing information must be added to each packet, which reduces the communication capacity available for carrying user data. This is not needed in circuit switching once the circuit is set up.

4) More processing is involved in the transfer of information using packet switching than in circuit switching at each node. In the case of circuit switching, there is virtually no processing at each switch once the circuit is set up