

Assignment

Unit-2

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Scenario:- Hospitals share medical records over a LAN using virtual circuit networks.

Questions:-

- 1) What are the benefits of a connection oriented virtual circuit over datagram services?

* Reliable connection:- virtual circuits establish a dedicated path, ensuring consistent delivery of packets in order, which is crucial for sensitive medical data.

* Lower overhead: Routing decisions are made only once at connection setup, excluding processing at intermediate nodes.

* Guaranteed QoS (Quality of service):- enables control over bandwidth and delay, important for real-time applications like remote consultations or diagnostics.

* Error Recovery:- virtual circuits can maintain session state, simplifying error detection and recovery.

* Congestion control:- easier to manage since the route is known and fixed.

Q) How does error control differ in a virtual circuit model?

- * In a virtual circuit model, error control (contd) is centralized and consistent along the path. Intermediate nodes can cache state information, helping in retransmission and error correction.
- * In a datagram model, error control must be handled independently for each packet since each may take a different route. This adds complexity and inconsistency.
- * Virtual circuits often support flow control and acknowledgment mechanisms more efficiently due to established session context.