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THAPAR INSTITUTE
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Course: Computer and Communication Networks

Topic: FDDI

Faculty Name

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Outline of the lecture

- Fiber Distributed Data Interface
- Dual token ring topology
- Frame Format
- Drawbacks and advantages

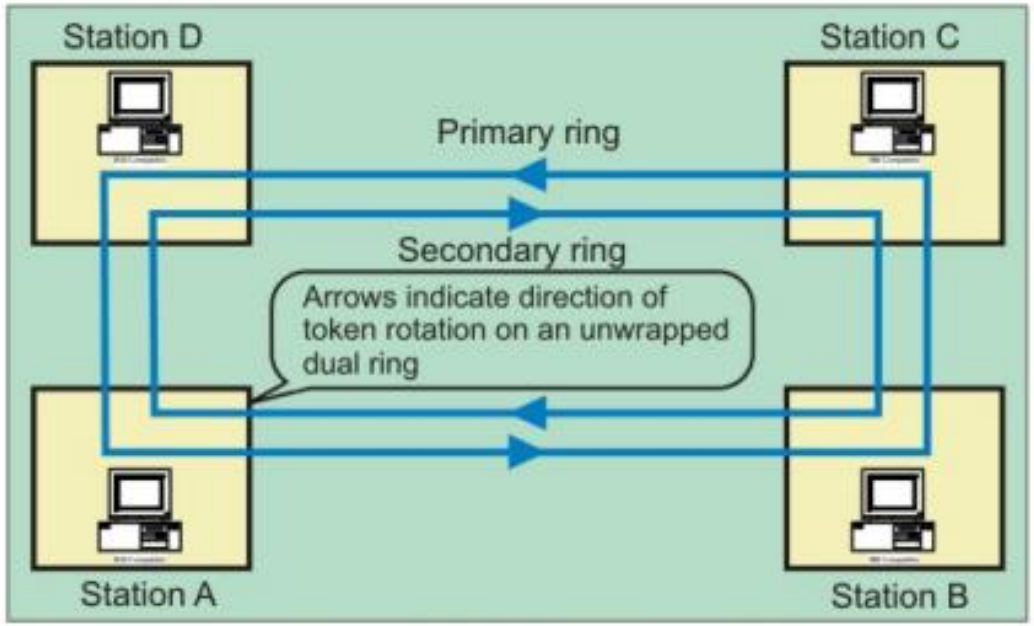
Fiber Distributed Data Interface (FDDI)

- Fiber Distributed Data Interface (FDDI) is a set of ANSI and ISO standards for transmission of data in local area network (LAN) over fiber optic cables.
- **Features :**
- It is applicable in large LANs that can extend up to 200 kilometers in diameter and running at 100 Mbps with up to 1000 stations connected.
- Employs dual counter-rotating rings.
- 16 and 48-bit addresses are allowed.
- FDDI technology can also be used as a backbone for a wide area network (WAN).
- FDDI uses a multimode fiber .

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication

Dual token ring topology

- FDDI is dual counter rotating rings: one transmitting clockwise and the other transmitting counter clockwise.
- Primary ring for data transmission and secondary ring as a backup.
- FDDI defines two classes of stations
- FDDI provides fault tolerance fetures.



Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication 3. https://*nptel*.ac.in/

IEEE 802.5 Token Ring

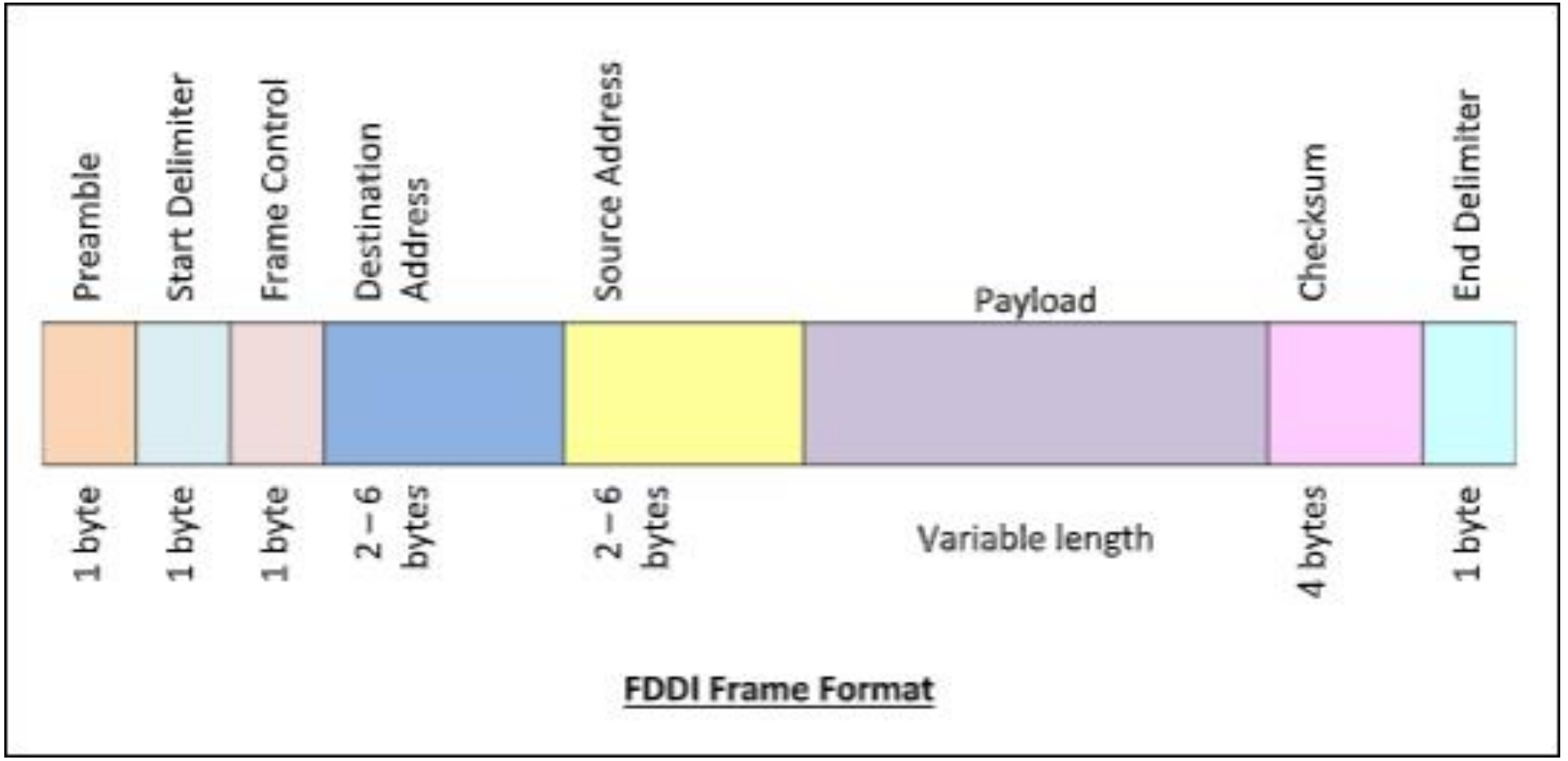
- A number of stations connected by transmission links in a ring topology.
- Information flows in one direction along the ring from source to destination and back to source.
- Medium access control is provided by a small frame, the token, that circulates around the ring when all stations are idle.
- Only the station possessing the token is allowed to transmit at any given time.
- It contains two token rings, a primary ring for data and token transmission and a secondary ring that provides backup if the primary ring fails.
- When a station wishes to transmit, it must wait for token to pass by and seize the token.
- Frame circles the ring and is removed by the transmitting station.
- Each station interrogates passing frame, if destined for station,

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication

- Token Insertion Choices
- multi-token: insert token after station has completed transmission of the last bit of the frame.
- single-token: insert token after last bit of busy token is received and the last bit of the frame is transmitted.
- single-frame: insert token after the last bit of the frame has returned to the sending station.

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication

Frame Format



Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication

Advantages and Drawbacks

- Advantages:
- High Bandwidth
- Greater Distances
- Immunity and reliability
- Security
- Design
- Drawbacks : it is complex and costly

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication

Thank You