FACULTY OF ENGINEERING & TECHNOLOGY

DCS-503 Computer Networks

Lecture-28

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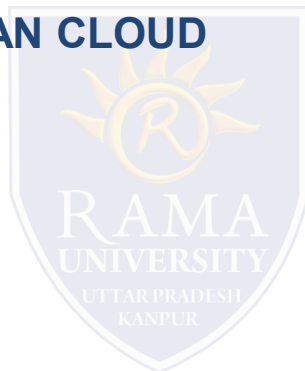
# OUTLINE

➢**CIRCUIT SWITCHED**

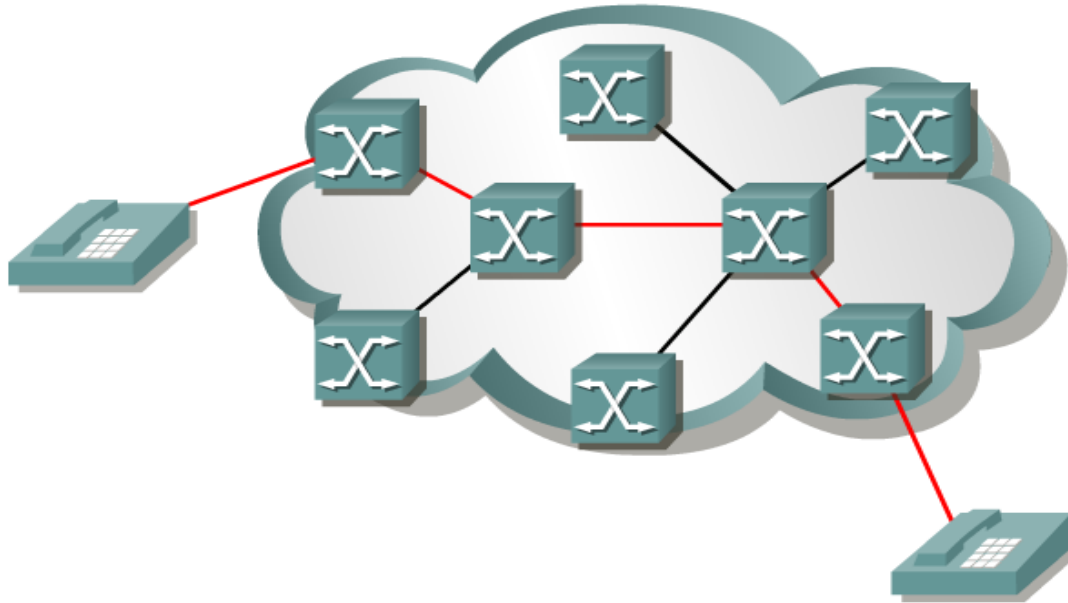➢**PACKET SWITCHING**

➢**USING LEASED LINES TO THE WAN CLOUD**

➢**ANALOG DIALUP**

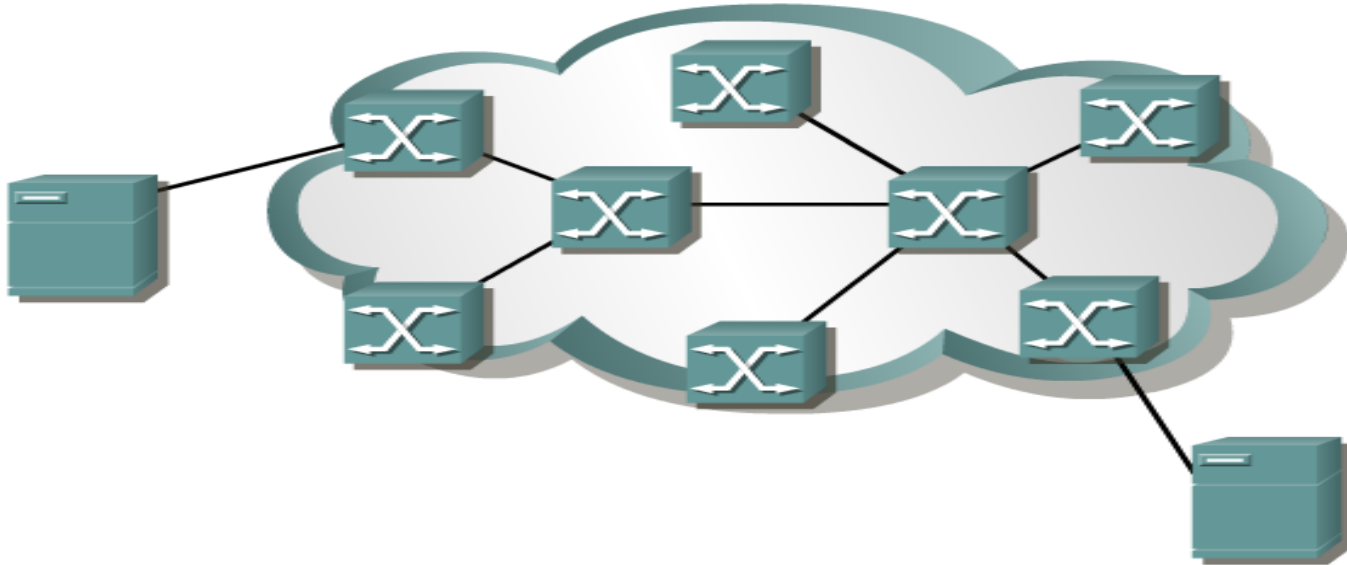➢**ISDN**

# CIRCUIT SWITCHED

**POTS, ISDN**



- When a subscriber makes a telephone call (or ISDN), the dialed number is used to set switches in the exchanges along the route of the call so that there is a continuous circuit from the originating caller to that of the called party.

- The internal path taken by the circuit between exchanges is shared by a number of conversations.

- Time division multiplexing (TDM) is used to give each conversation a share of the connection in turn.

- TDM assures that a fixed capacity connection is made available to the subscriber.
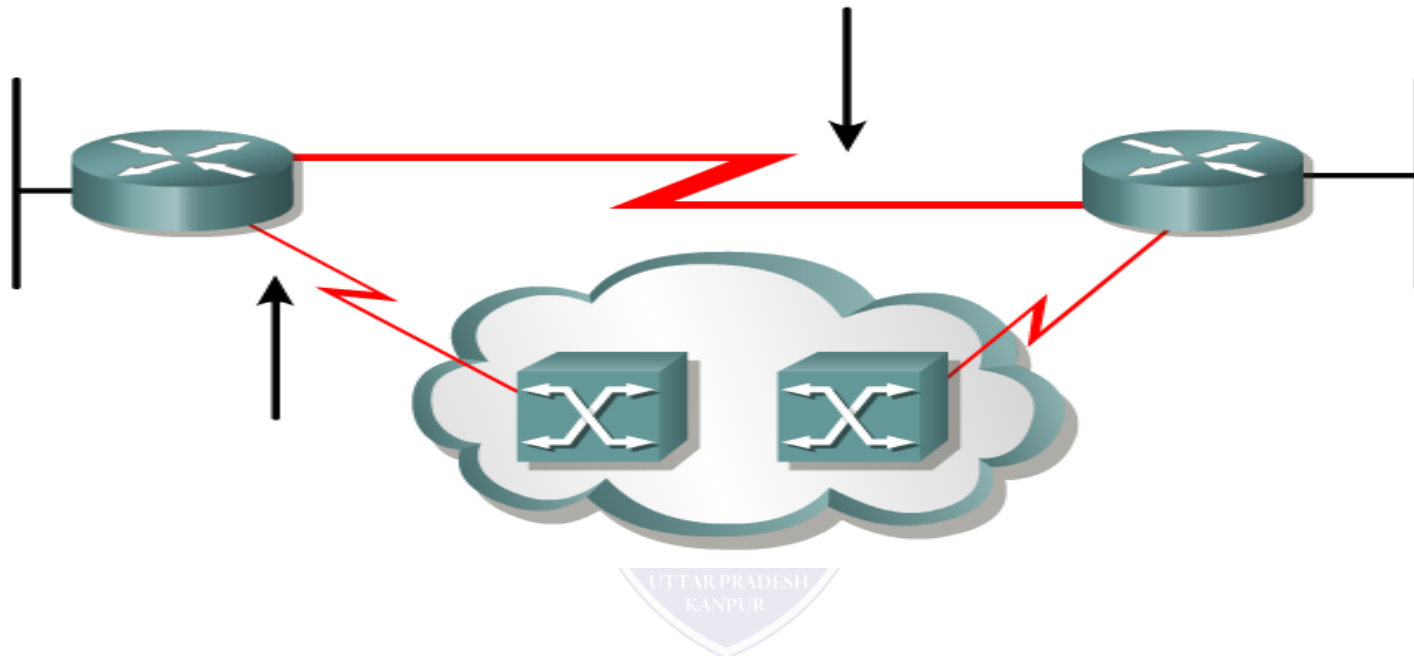
# PACKET SWITCHING

## Frame Relay, X.25, ATM

- Packet-switched describes the type of network in which relatively small units of data called packets are routed through a network based on the destination address contained within each packet.

- Packet Switching allows the same data path to be shared among many users in the network.

- This type of communication between sender and receiver is known as *connectionless* (rather than *dedicated*).

- Most traffic over the Internet uses packet switching and the Internet is basically a connectionless network
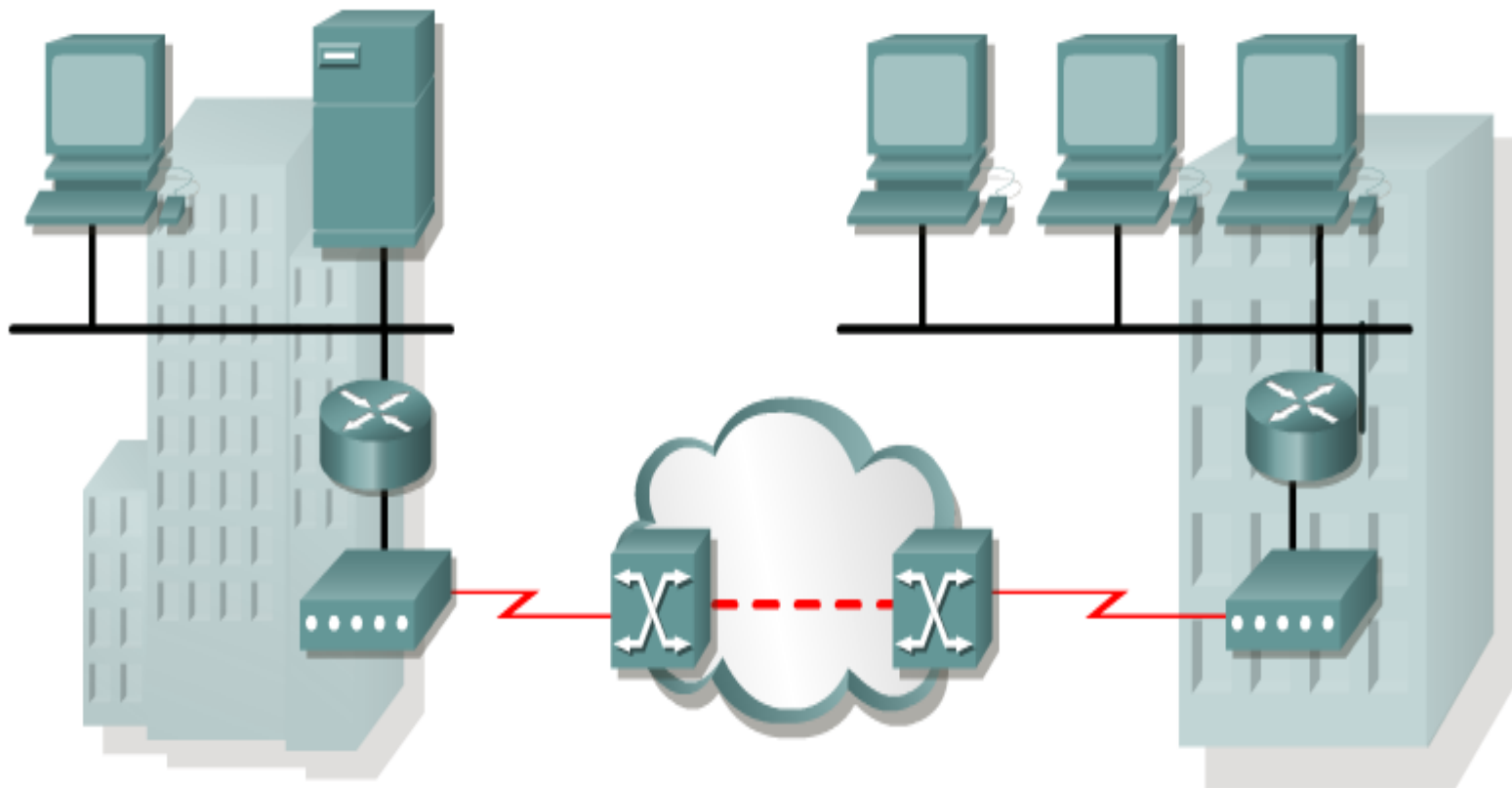
▪To connect to a packet-switched network, a subscriber needs a local loop to the nearest location where the provider makes the service available.

▪This is called the **point-of-presence (POP)** of the service.

▪Normally this will be a **dedicated leased line**.

▪This line will be much shorter than a leased line directly connected to the subscriber locations, and often carries several VCs.

▪Since it is likely that not all the VCs will require maximum demand simultaneously, the capacity of the leased line can be smaller than the sum of the individual VCs
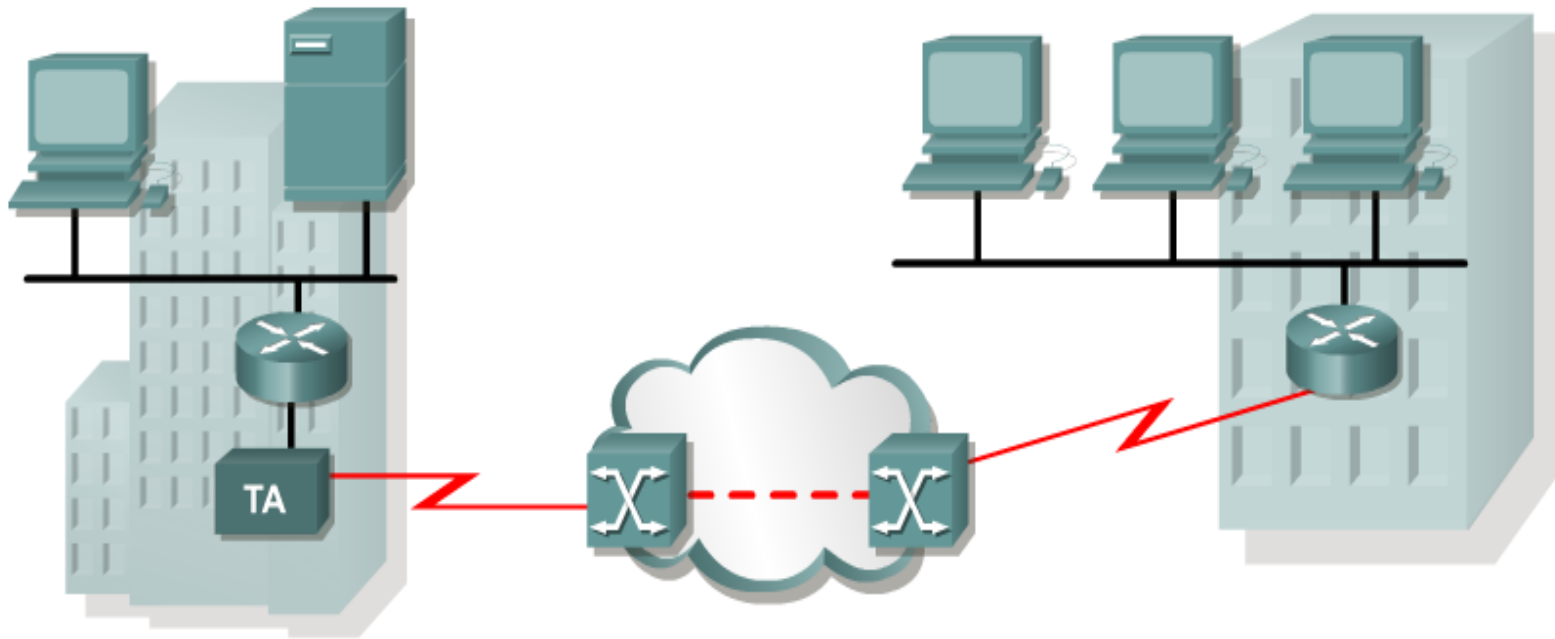
# ANALOG DIALUP

**When intermittent, low-volume data transfers are needed, modems and analog dialed telephone lines provide low capacity and dedicated switched connections**
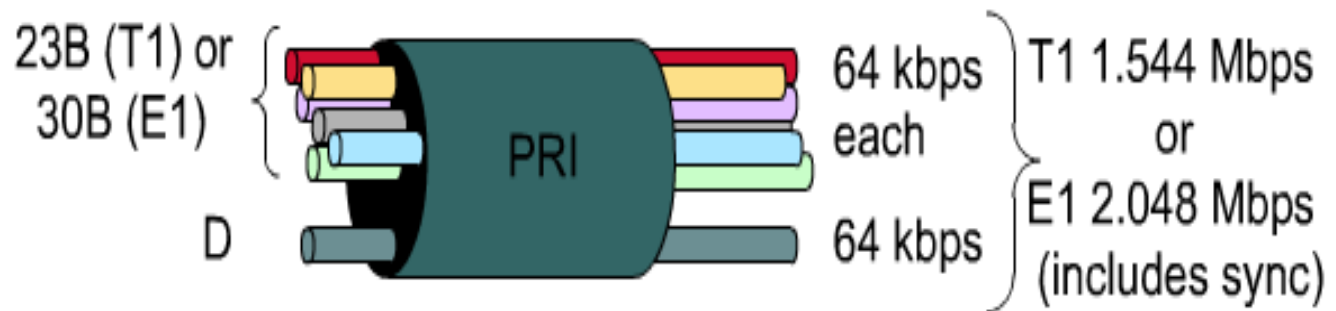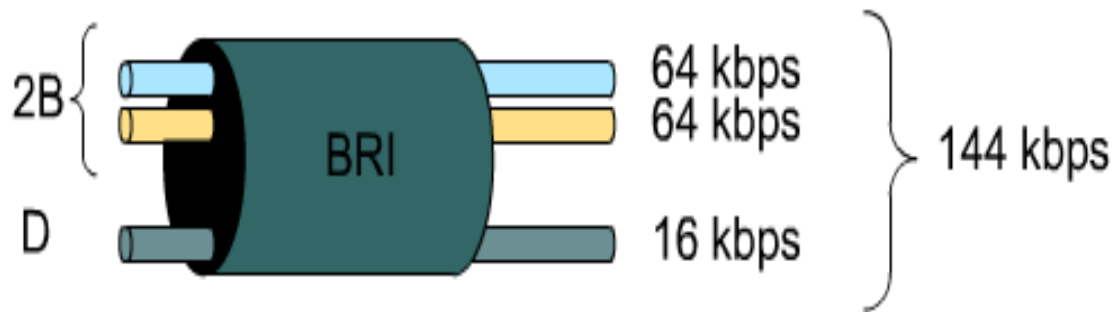
# ISDN

**Integrated Services Digital Network (ISDN) turns the local loop into a TDM digital connection.**

# ISDN

▪The connection uses 64 kbps bearer channels (B) for carrying voice or data and a signaling, delta channel (D) for call set-up and other purposes.

▪Never really became popular in the U.S., known as It-Still-Does-Nothing or I-Still-Don't Know



2B { 64 kbps
64 kbps
BRI
} 144 kbps
D  16 kbps

23B (T1) or
30B (E1) {
PRI
D
64 kbps each } T1 1.544 Mbps
or
64 kbps } E1 2.048 Mbps
(includes sync)

## MUTIPLE CHOICE QUESTIONS:

| Sr no | Question | Option A | Option B | OptionC | OptionD |
|---|---|---|---|---|---|
| 1 | Which of the following is an example of user agents for e-mail? | Microsoft Outlook | Facebook | Google | Tumblr |
| 2 | User agent does not support this _____ | Composing messages | Reading messages | Replying messages | Routing messages |
| 3 | HTTP is _____ protocol. | application layer | transport layer | network layer | data link layer |
| 4 | In the network HTTP resources are located by | uniform resource identifier | unique resource locator | unique resource identifier | union resource locator |
| 5 | You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which classful subnet mask would you use? | 255.255.255.192 | 255.255.255.224 | 255.255.255.240 | 255.255.255.248 |

- http://www.engppt.com/2009/12/networking-fourozan-ppt-slides.html