



RAMA UNIVERSITY

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FACULTY OF ENGINEERING & TECHNOLOGY

BCA-302 Computer Networks

Lecture-29

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OUTLINE

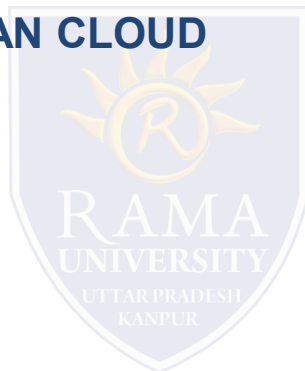
➤ **CIRCUIT SWITCHED**

➤ **PACKET SWITCHING**

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

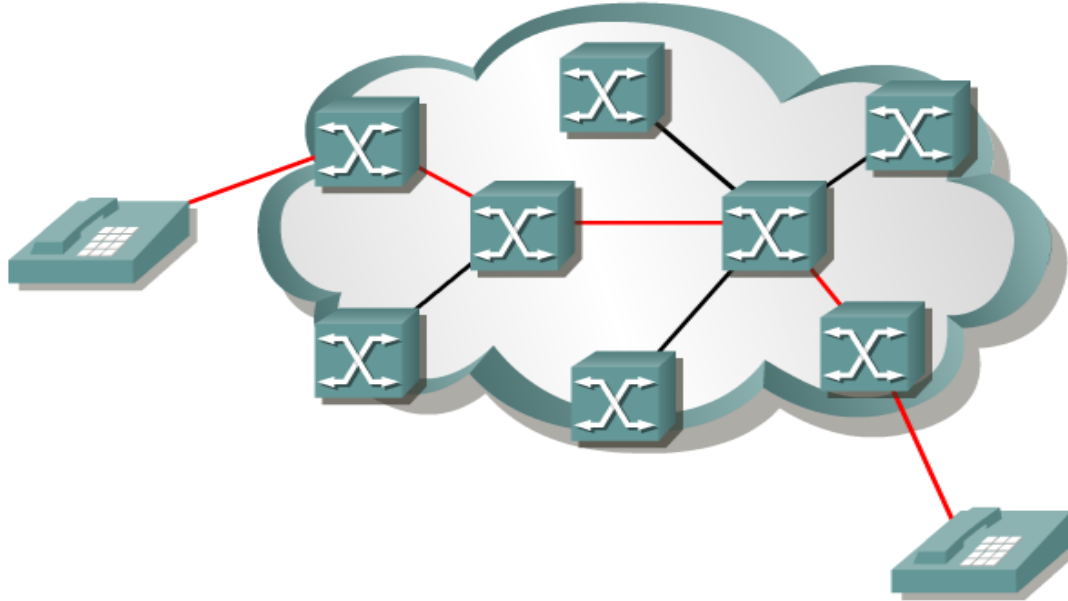
➤ **ANALOG DIALUP**

➤ **ISDN**



CIRCUIT SWITCHED

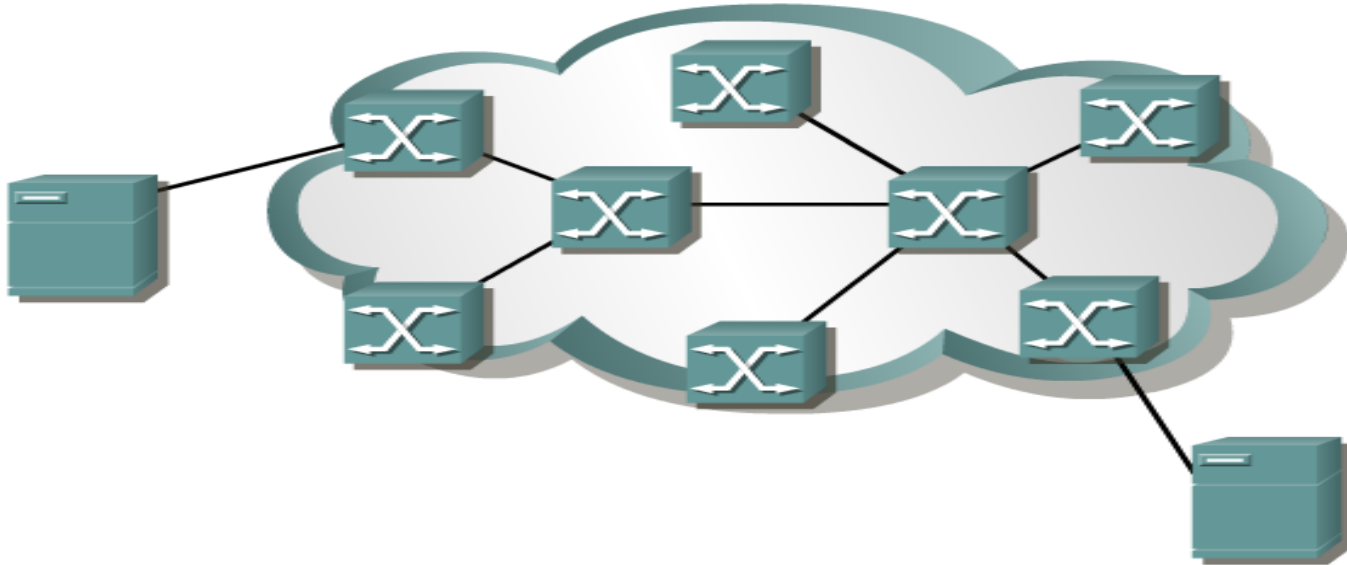
POTS, ISDN



- 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.

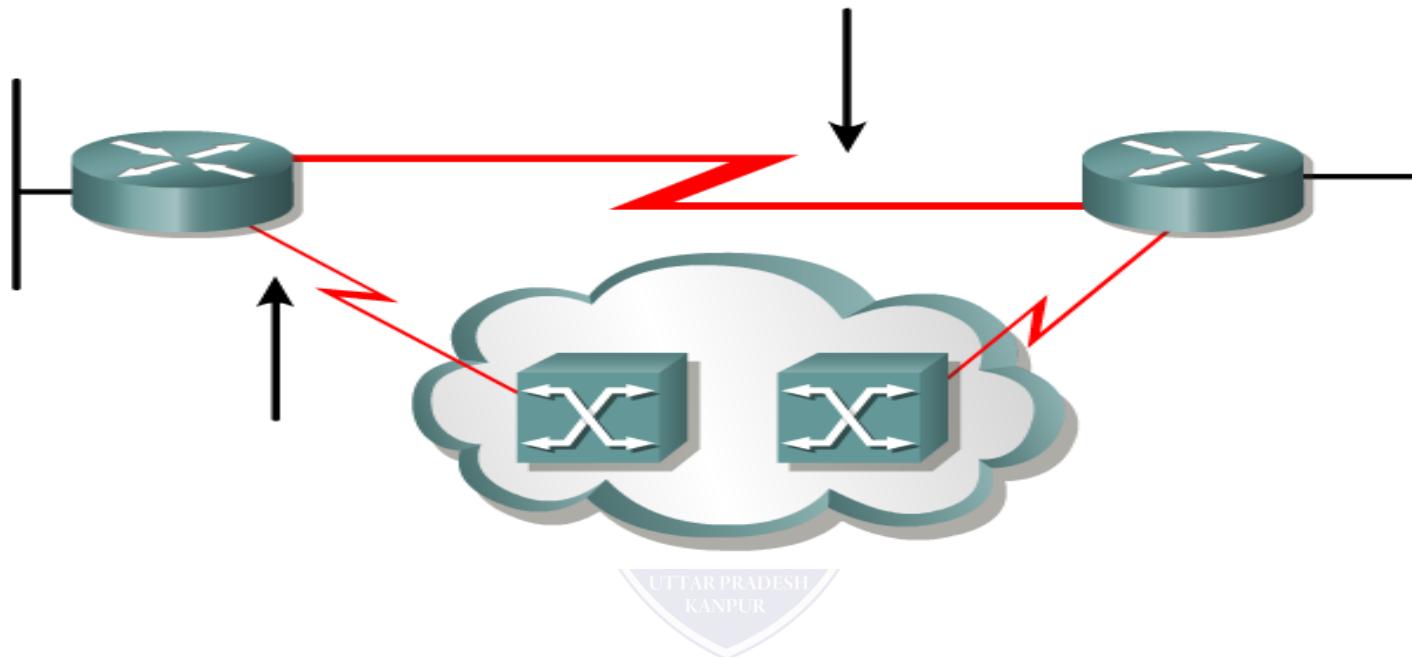
PACKET SWITCHING

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

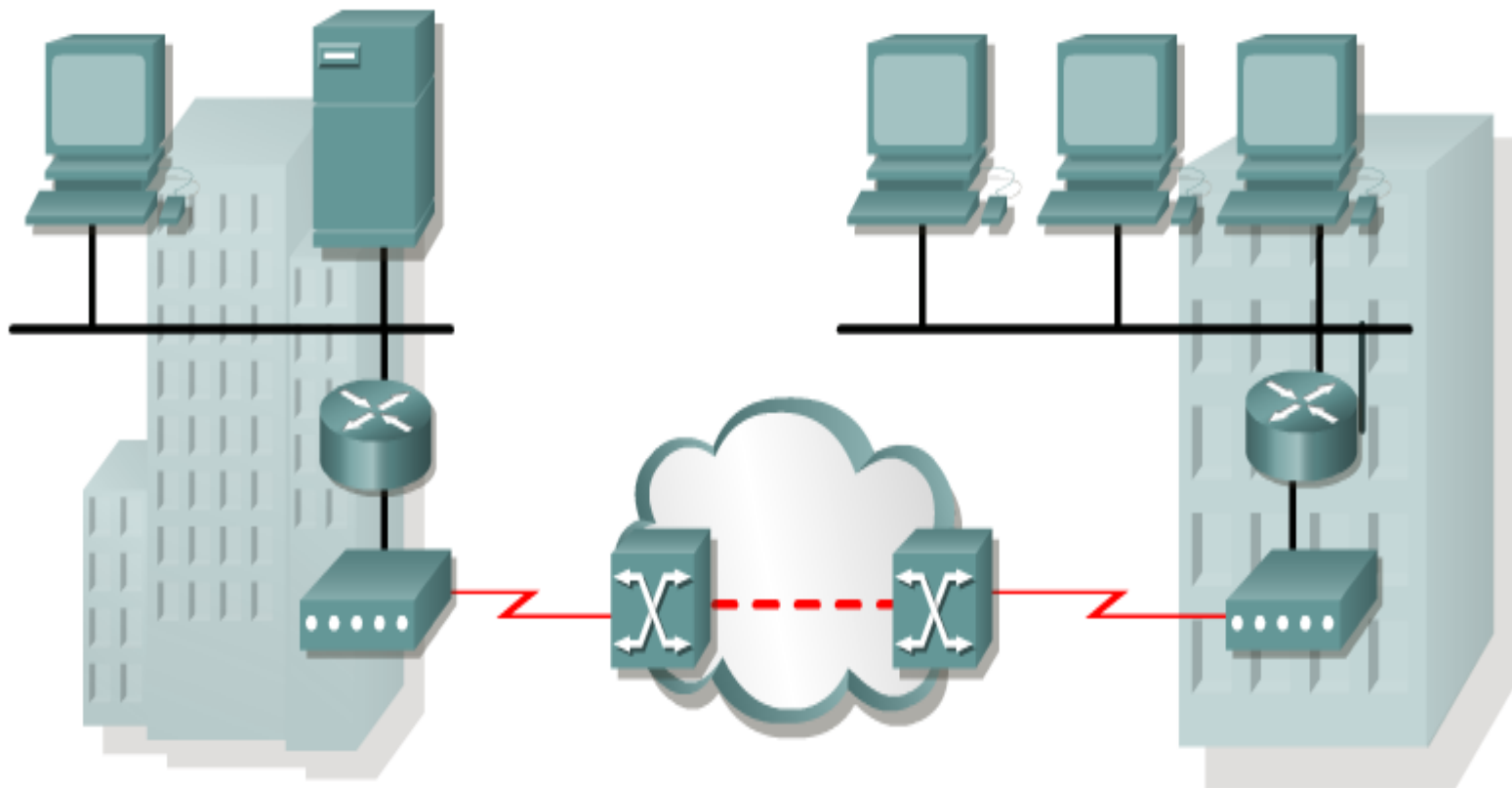
USING LEASED LINES TO THE WAN CLOUD



- 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

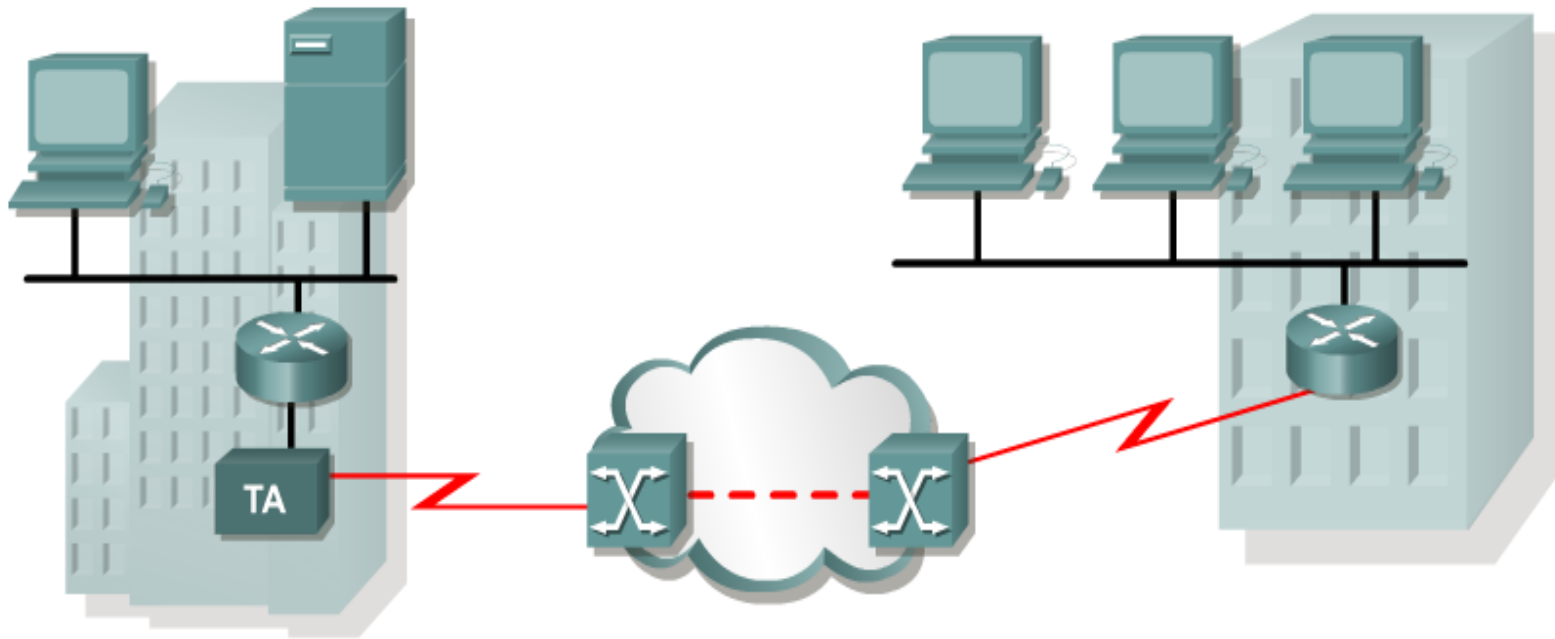
ANALOG DIALUP

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



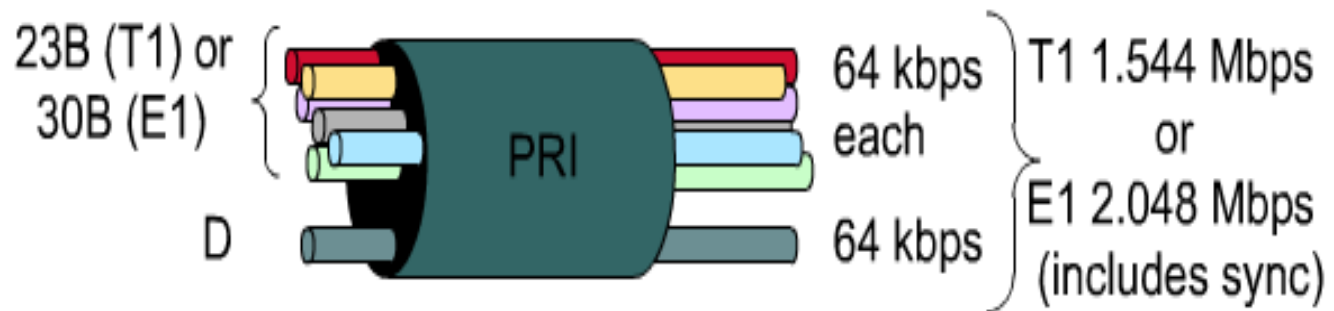
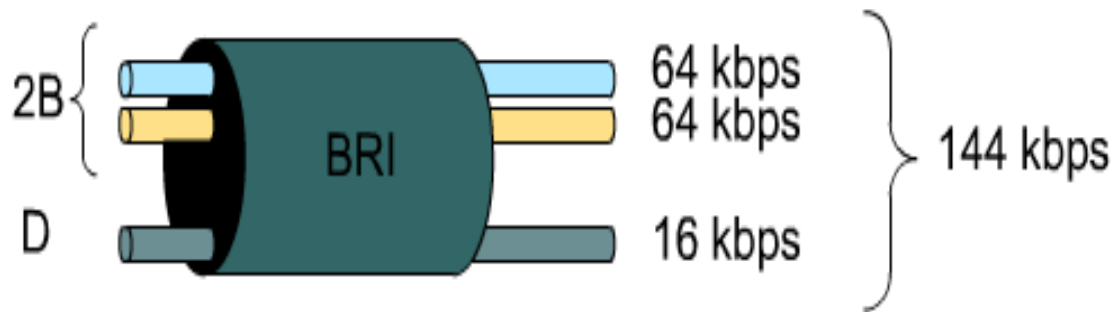
ISDN

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



Multiple Choice Question

MUTIPLE CHOICE QUESTIONS:

Sr no	Question	Option A	Option B	OptionC	OptionD
1	The network layer is concerned with _____ of data.	bits	frames	packets	bytes
2	Which one of the following is not a function of network layer?	routing	inter-networking	congestion control	error control
3	A 4 byte IP address consists of _____	only network address	only host address	network address & host address	network address & MAC address
4	In virtual circuit network each packet contains _____	full source and destination address	a short VC number	only source address	only destination address
5	Which of the following routing algorithms can be used for network layer design?	shortest path algorithm	distance vector routing	link state routing	all of the mentioned

REFERENCES

- <http://www.engppt.com/2009/12/networking-fourzan-ppt-slides.html>

