X.25

→ X.25 is an ITU-T standard protocol suite.
→ Used in Packet-Switched Data Communication.
→ Originally introduced by CCITT [Consultative Committee for International Telegraph & Telephone] in 1976.
→ Used for ATM networks and credit card verification.
→ It also permits that the exchange between terminals with different communication speed.
→ X.25 has 3 protocol layers

(a) Physical Layer — interface b/w computer terminal and the link to the packet switched node. X.21 implementer is commonly used for the linking.

(b) Data Link Layer — It comprises the link access procedures for exchanging data over the link.

(c) Packet Layer — This layer defines the format of data packets and the procedures for control and transmission of the data packets. It provides external virtual circuit service.

[DSL Digital Subscriber line]

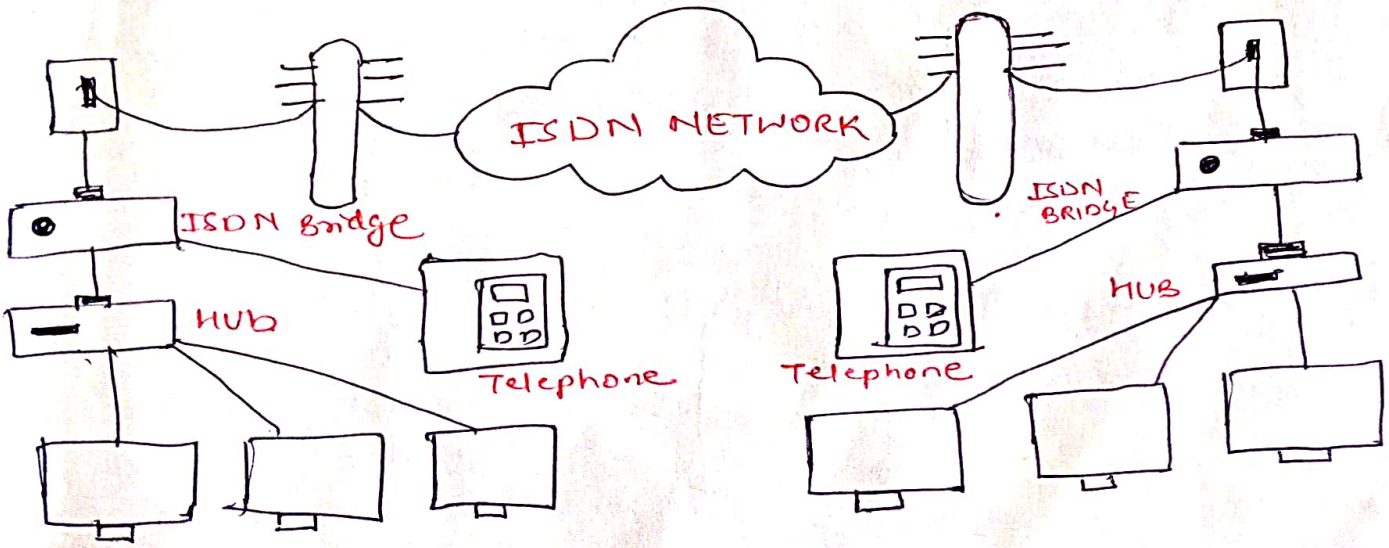
ISDN –

ISDN – Stands for Integrated Services Digital Network.

It is a set of communication standards that uses digital transmission to make phone calls, video calls, transmit data and other network services. ISDN is a development of the plain old telephone service (POTS).

ISDN uses digital switching connections to transmit digital signals. It can deliver two simultaneous connections, in any merging of data, voice, video, and fax, over an individual line. ISDN provides high-speed, high-bandwidth channels to every subscriber on the PSTN [Public switched telephone Network].

ISDN is a circuit-switched telephone n/w system. These digital lines could be copper lines. ISDN also provides access to packet-switched networks.



Softswitch Architecture -

Softswitch architecture is the physical software and digital programming that allows softswitches to function. Softswitches are software-based switching platforms that enable data switching for phone calls, data exchange and more. Softswitches can be used to establish, maintain, route and terminate sessions in Voice over IP (VoIP) networks. They can also provide advanced features such as call forwarding, call waiting, caller ID, voicemail and interactive voice response (IVR) systems.

Softswitch architecture includes :

1) softswitches
2) VoIP Gateways
3) Application Servers

VoIP - is a technology that allows users to make phone calls over the Internet instead of traditional phone lines. Converts voice signal into digital signal

→ General Purpose computer running specialized software to make it a smart phone switch.

→ Lower costs

→ Greater functionality
  - ↳ packetizing of digitized voice data
  - ↳ Allowing voice over IP

→ Most complex part of telephone network switch is software controlling call process
  - ↳ Call routing
  - ↳ Call processing logic
  - ↳ Typically running on proprietary processor in traditional switch.

Media Gateway – is a device used in the core network of a telecom network operator to provide transformation and interworking between media streams that use different network standards, communication protocols, codecs and physical connections.

[coder-decoder] both for compression of file]

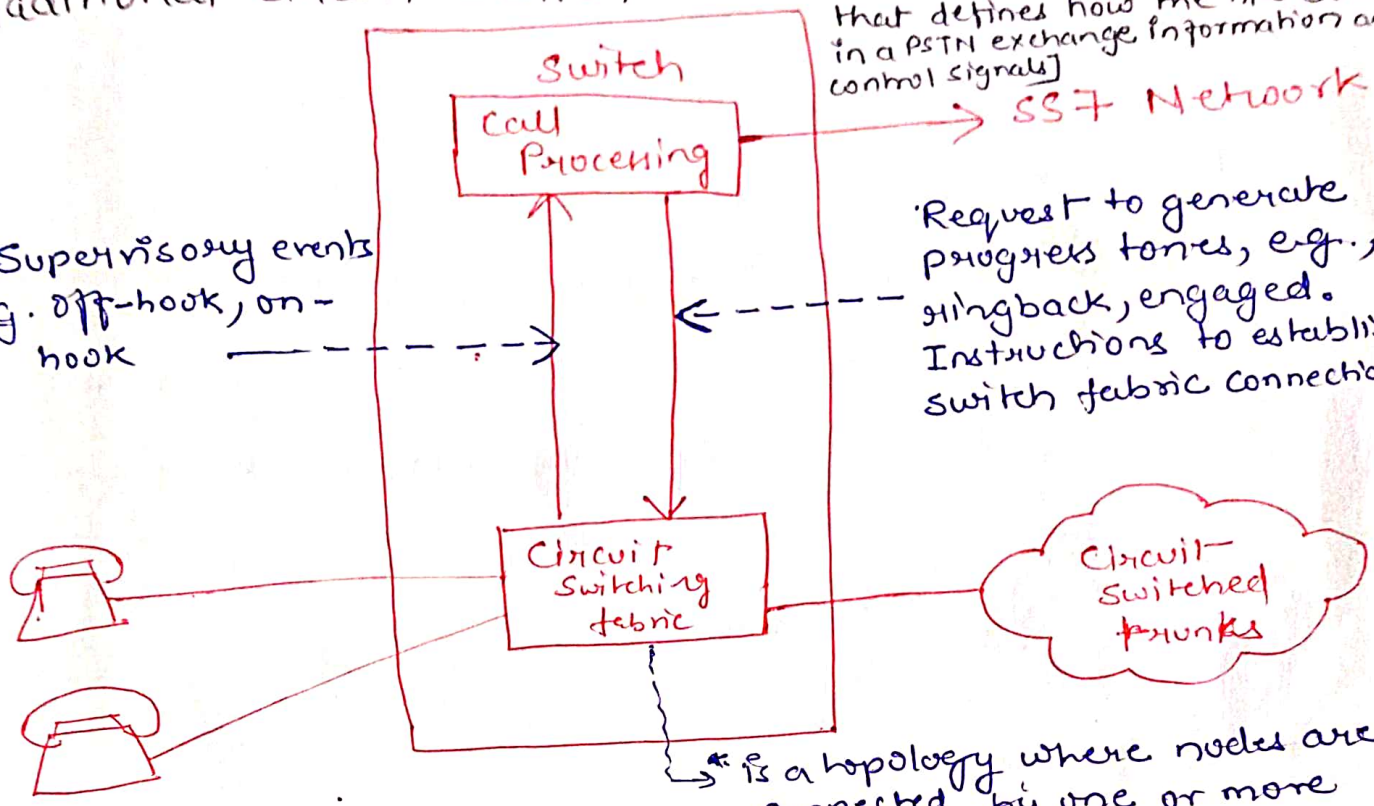
→ Separate call processing from hardware function of switch

→ Physical switching done by media gateway.

→ Call processing done by media gateway controller

Traditional Circuit Switch

[SS7 is an international telecommunication protocol standard that defines how the nlw elements in a PSTN exchange information and control signals]

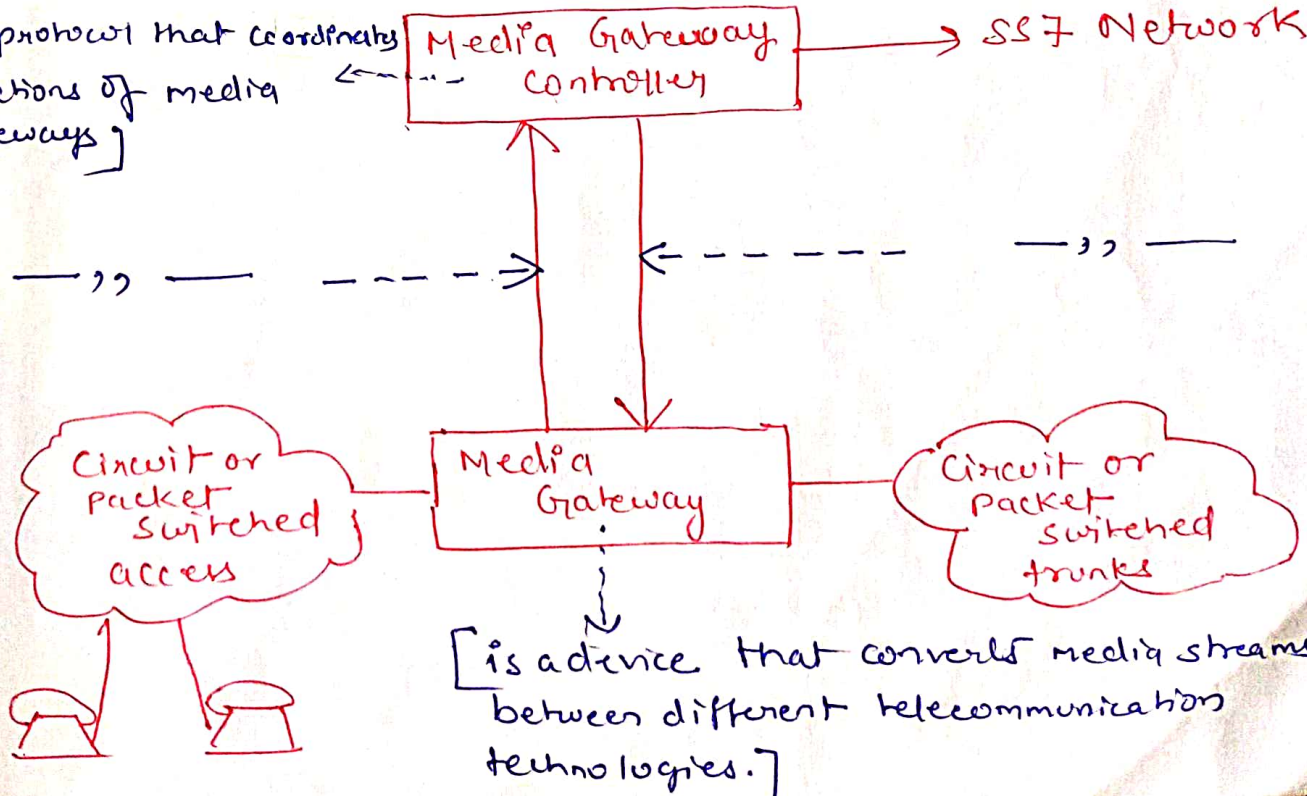


* is a topology where nodes are connected by one or more switches.

* Trunks are used to connect telephone switches.

Soft-switch

[is a protocol that coordinates the actions of media gateways]



[is a device that converts media streams between different telecommunication technologies.]