

Experiment # 7

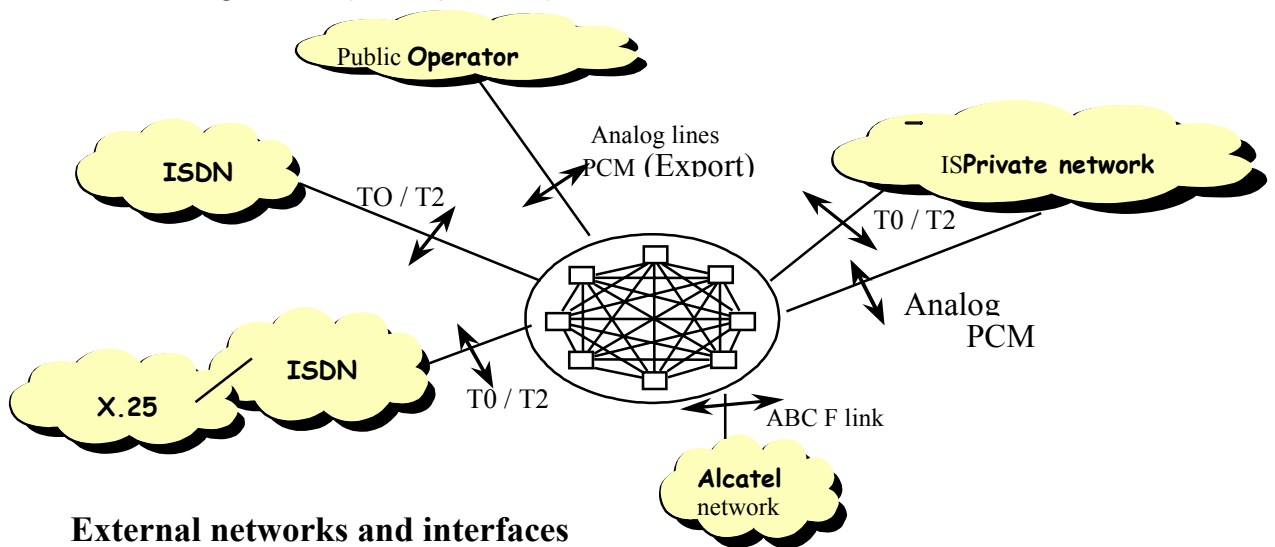
Intersystem Links - A visit to KFUPM Voice Network

Objectives:

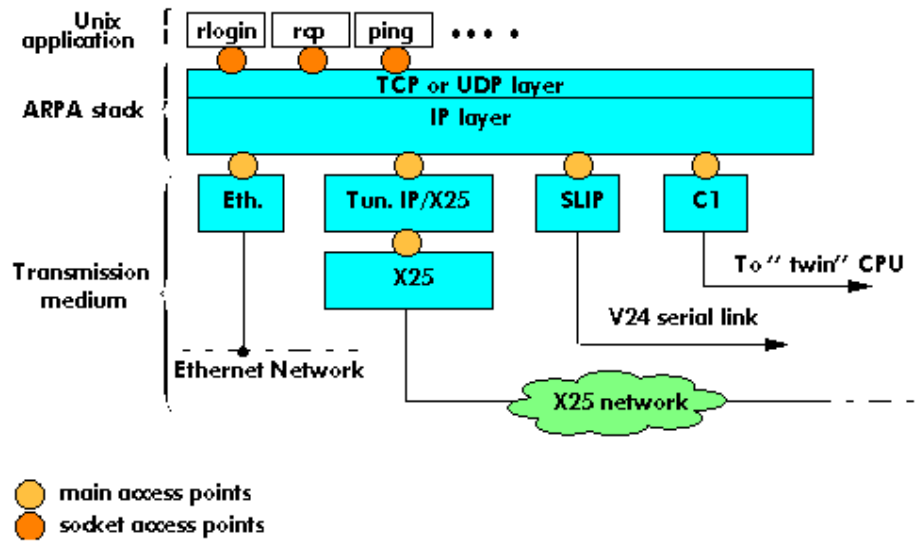
After this experiment, the students should be able identify different types of voice and data network links.

Type of private voice networks:

1. Homogenous (ABC-F2 or E1 protocol)
2. Alcatel Heterogeneous (ABC_F1 protocol)
3. Heterogeneous (QSIG protocol)

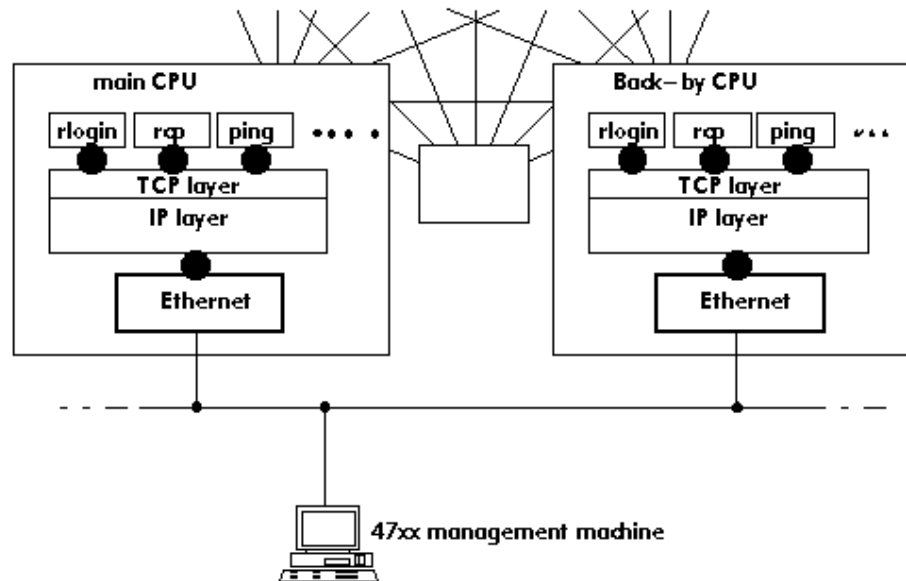


The IP facilities use the following transmission media: - Ethernet network - X25 network - V24 serial links - Inter ACT link.



1. ETHERNET INTERFACE

The Ethernet interface enables the PABX to be connected to an Ethernet network.

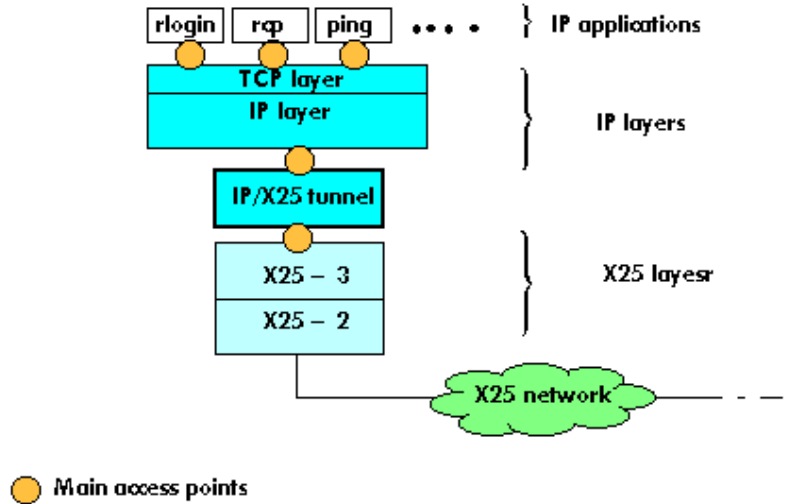


2. IP/X25 TUNNEL INTERFACE

The tunnel enables the internal X25 network between the PABXs to act as a communications medium. The function of the IP/X25 tunnel is to transform the datagrams which leave the IP layer into X25 packets. The IP/X25 tunnel also

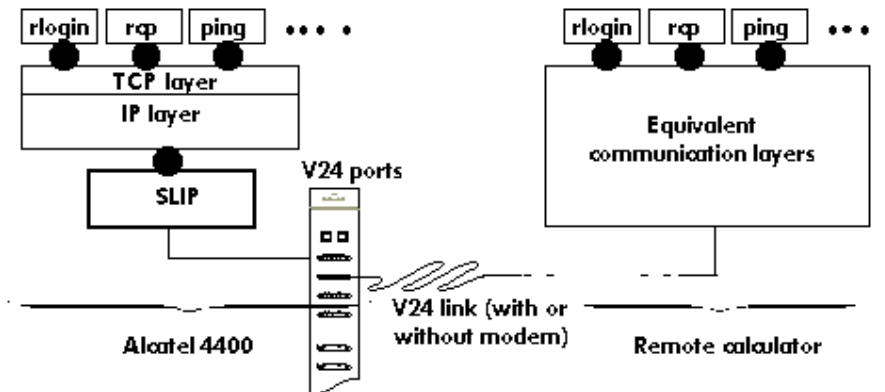
controls the transforming of the off-line IP protocol into on-line X25 protocol. For this, it establishes and releases the X25 connections.

The IP/X25 tunnel only works on ABC links.



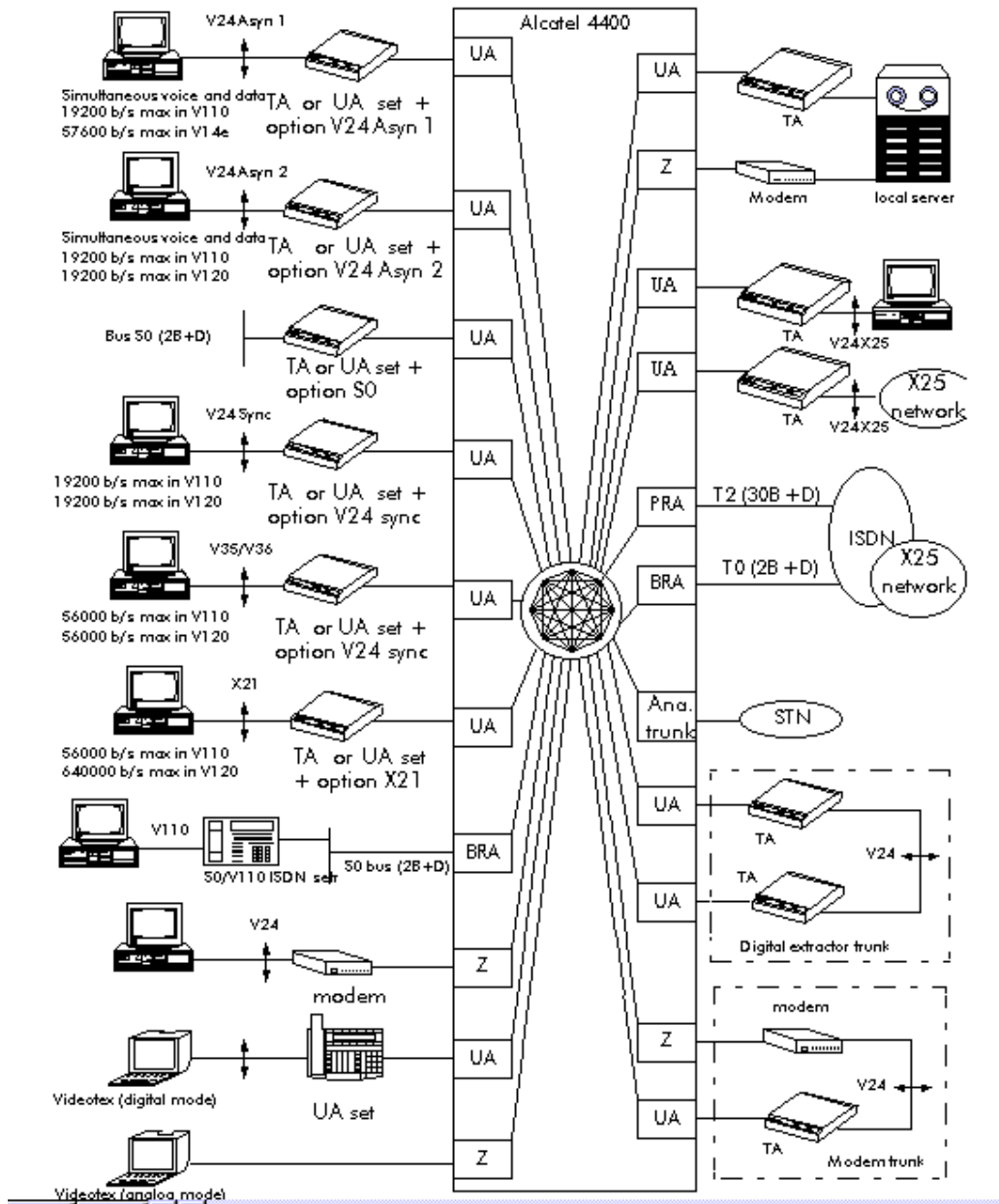
3. SERIAL LINK

The management equipment or other equipment of the PABX may be connected by a V24 type serial link. For this mode of communication, two protocols are suggested: the SLIP protocol and the PPP protocol

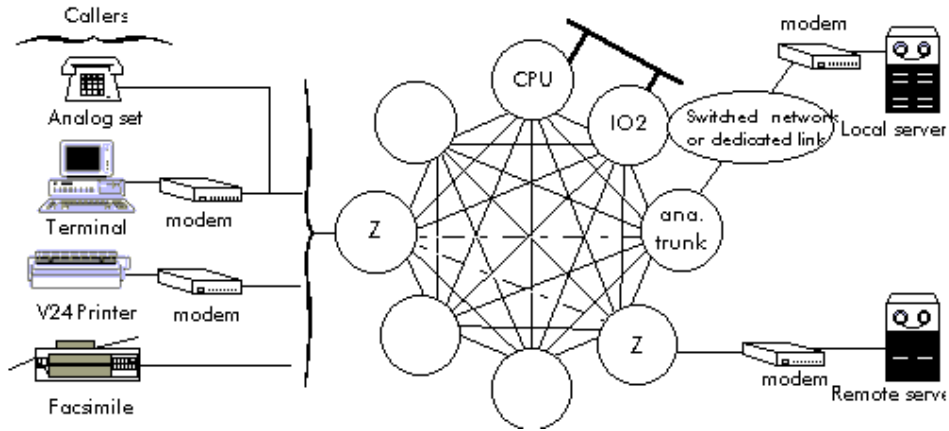


4 C1 Link

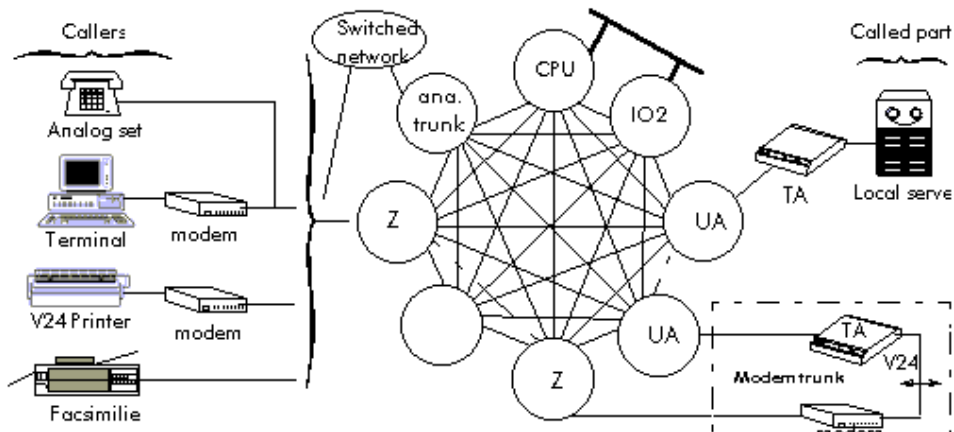
The C1 link allows the master and slave CPU to communicate with each other via the ACT.



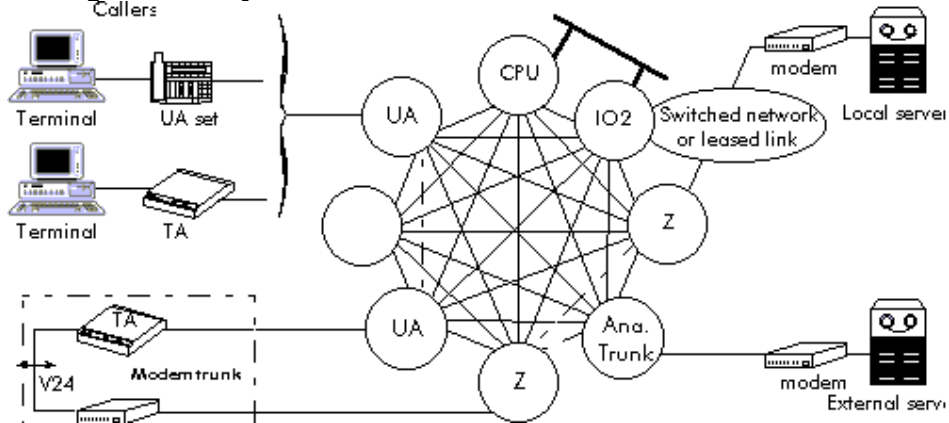
Analog - analog connectivity



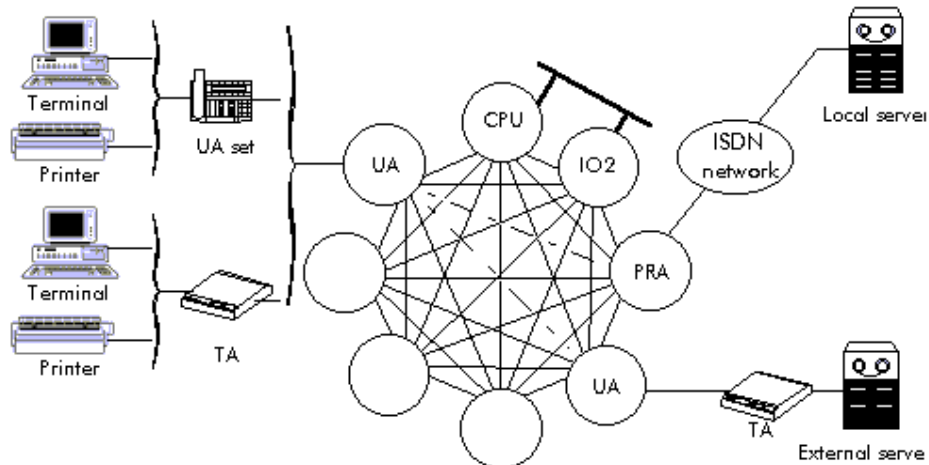
Analog - digital connectivity



Digital - analog connectivity



Digital - digital connectivity



Configuration of Inter-system links (E1/T2):

- PCM link is E1 link (uses PCM boards)
 - ABC link is special link for inter-node connection (uses PRA boards)
 - T2 is ISDN link used for public network connection (uses PRA board)
- Time slot 0 is used for alarms, Time slot 16 is used for signaling.

ABC Link management (Inter node links):

- PRA coupler management
- Link configuration
- Channel assignments
- IP/X25 Tunnel management

ABC Trunk Group management (Links b/w heterogeneous systems):

- Trunk group creation
- Coupler management

QSIG Protocol:

QSIG is a modern, powerful and intelligent inter-PINX (Private Integrated services Network Exchange) signaling system designed specifically to meet the requirements for sophisticated communications services. It provides:

- a platform for future development supported by international standards organizations;

- a harmonized method for interconnecting multi-vendor equipment;
- a mechanism for manufacturers to provide innovative features within a heterogeneous environment;
- a flexible and cost efficient method of linking PINX equipment;