

E3-E4 CFA

Operation and Maintenance of Switching System

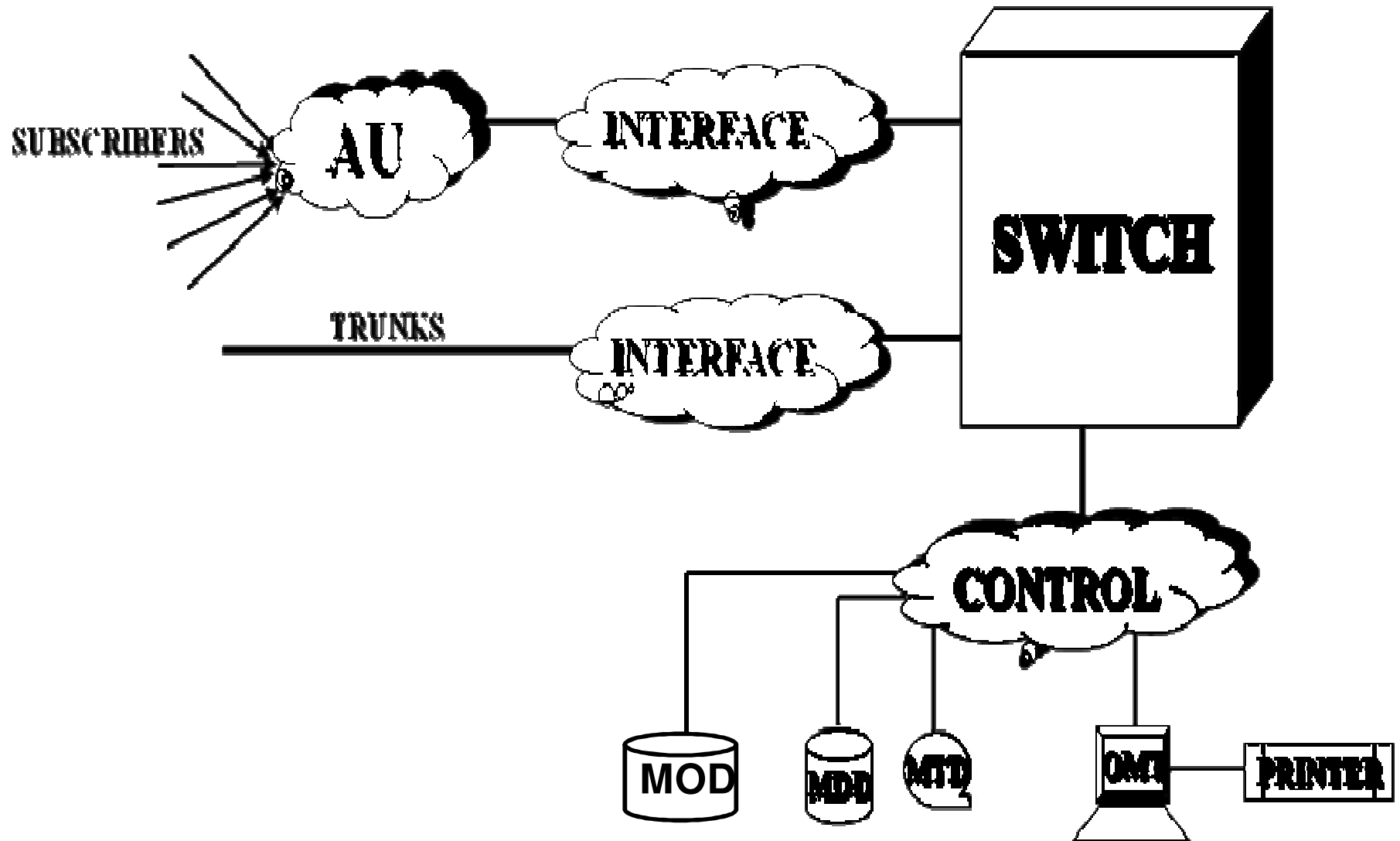
WELCOME

- This is a presentation for the E3-E4 CFA Technical Module for the Topic: **Operation and Maintenance of Switching System.**
- Eligibility: Those who have got the upgradation from E3 to E4.
- This presentation is last updated on 19-3-2011.
- You can also visit the digital library of BSNL to see this topic.

AGENDA

- The General Architecture of Any Digital Switch
- Environmental Conditions
- Operation of Switching System
- Maintenance of Switching System

General diagram of any digital switch



Environmental Conditions:

- Exchange Earth
- Antistatic Flooring/False Flooring
- Automatic Fire Detection System
- Air-conditioning System

Operation Of Switching System

- Subscriber Administration
- ISDN Subs Administration
- Tariff Administration
- Routing Administration
- CCS#7 Routing Administration
- Networking Administration
- Traffic Administration
- System Administration

Operation Of Switching System

■ Analogue Subscriber Administration

- Create, modify & delete subscribers:
- Assign subscriber facilities:
- Perform feature activation with subscriber controlled input:
- Create & delete an analogue EPABX:

Operation Of Switching System

■ ISDN Subscriber Administration

- Creating a basic rate access BRA ISDN subscriber i.e. $2B+D$
- Administration of important supplementary services for a BRA Subscriber
- ISDN EPABX Administration: Business houses can be provided with PRA which is connected to ISDN PABX. PRA is $30B+D$:

Operation Of Switching System

■ Administration of Tariff and Charges

- Tariff Administration Tasks:
- Billing Administration for Subscriber Facilities:
- Meter Administration:

Metering is taken at regular intervals. It can be fortnightly or monthly. MOD/Tapes are prepared for billing.

- Statistical Meter Administration
- CDR Administration

Call detail report is generated which is having the details of the subscriber calls , charging information and other details.

Operation Of Switching System

■ Routing Administration

- ❖ Create routing tables for **outgoing/ incoming connection**:
For all the calls destined to other stations as well as to be terminated within the exchange itself routing tables are created.
- ❖ Create, display and cancel an **announcement connection**:
For all types of announcements provision is made in the exchange. Greeting announcements are also created and fed to subscribers on different occasions like Holi, Deepawali, New year and Pongal etc.

Operation Of Switching System

■ CCS#7 Routing Administration

- For efficient and fast signalling all the NT switches use CCS#7 signalling. For all types of connectionless and connection oriented it is very effective signalling.

■ Network Administration

- The network administration functions are :
 - Code block administration and blocking of call categories
 - Network management control
 - Traffic restriction administration for traffic types
 - Route switchover administration

Operation Of Switching System



- **Traffic Administration**
- Traffic measurement on various trunk group for augmentation : Continuous observation on different circuit groups is taken to ensure smooth traffic in all directions. Traffic monitoring on announcement circuit for addition / deletion of circuits is done.
- The traffic administration may be conducted at **Centralised Network Management Centres.**

Operation Of Switching System

- **System Administration**
 - System administration describes the operational tasks that may have to be performed when the system is running normally, and which must be set only once before system start-up. These tasks normally relate to the following functions:
 - System time administration
 - Authorization and Passwords
 - Output messages administration
 - Administration of variable exchange data
 - File administration
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Maintenance of Switching System

- Alarms
- Recovery and Emergency Concepts
- Line and Trunk Testing
 - ❑ Routine Testing
 - ❑ Demand Testing

Maintenance of Switching System

- **Alarms**
 - **Equipment Alarms:** Maintenance staff should check the alarms daily. Equipment at which alarms are displayed should be diagnosed and remedial action should be taken to remove the fault.
 - **Infrastructure Alarms** should also be checked like fire, battery, power plant, air-conditioning etc. If there is any alarm it should be removed.
 - **Stock of Spare Cards** should be checked at regular interval and faulty cards should be dispatched for repair at the earliest.

Maintenance of Switching System

- **Recovery Concepts**

- If due to any reason exchange is down, immediate action should be taken to revive the exchange with the help of backup magnetic disk/tapes and all the charging information and other semi-permanent database should be updated with the help of backup magnetic disk/tapes so that exchange is running at current level.

Maintenance Of Switching System



- **Emergency Concepts**
- Help of level-I/II maintenance staff/ technical assistance centre should be taken at the time of recovery. Maintenance staff should be trained to recover the exchange in case of emergency. List of the manufacturer guidelines/ handouts, to be followed in case of emergency, should be clearly displayed on the walls of the exchange.

Line and Trunk Testing

- If any fault is reported that is to be rectified before subscriber complains.
- **Routine Testing** : For preventive maintenance subscriber/Trunk, lines are tested on regular basis during slack/off peak hours as per schedule.
- **Demand Testing** : If any complaint is received by the maintenance staff they will issue the command over the terminal and test the faulty equipment.

Operation And Maintenance Of Switching System

