CHAPTER –8

SWITCHING LAB
EWSD LAB

Description:-

A training model EWSD exchange lab is working in ALTTC which is being utilized to impart training in Installation, Operation and Maintenance of EWSD switching system. EWSD switches are working in BSNL’s network as LOCAL or TAX exchanges.

Learning Objectives:-

The trainee will be shown various building blocks of EWSD switching System during the lab visit. They will be told about working of each module in brief. Trainees will also be exposed to general operations and maintenance philosophy of a EWSD exchange.

During lab visit, the trainees will be exposed to following steps:-

1. Architecture of the EWSD System.
2. Description of EWSD System Units.
4. Terminals working in EWSD Lab.
5. Operational activities in EWSD exchange.
   - Subscriber Administration
   - Routing
   - Charging.
   - Zoning.
   - Traffic Administration.
   - Network Management.
   - APS saving
7. Registers to be maintained in EWSD Exchange.
1. Architecture of EWSD Switching system

Abbreviation used:-

- DLU: Digital Line Unit
- LTG: Line Trunk Group
- SN: Switching Network
- MB: Message Buffer
- SYPD: System Panel Display
- CCG: Central Clock Generator
- CP: Coordination Processor
- CCNC: Common Channel Network Control
2. DESCRIPTION OF EWSD SYSTEM UNITS

• **Digital Line Unit (DLU)** :-
  
  Analog or Digital subscribers, PBX lines are terminated on DLU. DLUs can be used locally within the exchange or remotely as remote switch unit. There can approximately 1000 to 2000 subscribers per DLU.

• **Line/ Trunk Group (LTG)** :-
  
  The line/trunk groups (LTG) is the sub system in EWSD exchange which forms the interface between the digital environments of a EWSD exchange i.e. DLU / other node and the switching network (SN). Here lines as ISDN PRI, V5.2 and trunks are connected.

• **Switching Network (SN)** :-
  
  Switching network performs the switching function for speech as well as for messages in EWSD exchange. It employs digital switching i.e. combination of time and space switching.

• **Co-ordination Processor (CP)** :-
  
  The coordination processor (CP) consists of a nos. of processors like BAPs, IOCs, CAPs & IOPs to do the Administration, Maintenance, Safeguarding & Call processing like routing, Zoning, etc.

• **Message Buffer (MB)** :-
  
  Message Buffer is the subsystem for coordinating internal message traffic between the CP to the SN, the LTGs and the CCNC and between LTG to LTG in an exchange.

• **Common Channel Signaling Network Control (CCNC)** :-
  
  The MTP (Message Transfer Part) function of CCS#7 are handled by the common channel signaling network control (CCNC). It can handle 254 signalling links. The UP (User Part) is incorporated in the software of relevant LTG.

• **System panel Display (SYPD)** :-
It is to display system internal alarms and the CP load. The SYPD also displays external alarms such as fire and air-conditioning system failure.

- **Central Clock Generator (CCG):**
  
  It generates a very accurate clock which is used for the synchronization of the exchange & for the network.

### 3. LAYOUT OF TRAINING MODEL EWSD LAB

<table>
<thead>
<tr>
<th>SUITE -2</th>
<th>SUITE -1</th>
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<tbody>
<tr>
<td>DLU 010</td>
<td>DLU 020</td>
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<tr>
<td>DLU 030</td>
<td>LTG</td>
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<tr>
<td>LTG</td>
<td>SE</td>
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<td>DDF</td>
<td>LTG</td>
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<tr>
<td>DEVD</td>
<td>CP113D</td>
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<tr>
<td>MB/CCG</td>
<td>CCNC</td>
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<td>DLU 040</td>
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SE: Special Equipment  
DEVD: Device Rack  
DDF: Digital Distribution Frame  
CP113D: Coordination Processor 113
4. TERMINALS IN EWSD LAB.

- Two OMTs (Operation and Maintenance Terminals) with UNIX as Operating system.
- Four X-25 Terminals with UNIX as Operating system.
- Three X-25 Terminals with Windows-N/T as Operating System.
- One PC is being used as SYSD.

5. Operational activities in EWSD exchange.

It is practical base things which can be demonstrated in lab.

6. MAINTENANCE SCHEDULE FOR EWSD EXCHANGE

- Checking system alarms (Daily)
- Checking status of Hardware units (Daily)
- Checking of lab temperature (Daily)
- Taking APS routine saving (fortnightly)
- Taking APS golden saving (Quarterly)
- Filter cleaning (Six monthly, on 30th June and 31st December)

7. REGISTERS to be maintained in the exchange

- PCM Register:- Record of connectivity
- Faults record log book: - All the faults are recorded.
- AC register (Temperature Record Register)
- Subscriber Record Register:-All the subscriber’s data are recorded
- Data Operation:- Data related to routing, configuration of systems etc. are recorded.
- Register for Spares: - Details of all spares available in the exchange.
- Faulty PCB register: - Details of the faulty card and its repairing details.
- APS saving Register: - Details of fortnightly and quarterly APS savings.
Questions:-

1. Abbreviated words stands for 
   i. DLU : Digital Line Unit 
   ii. LTG:  Line Trunk Group 
   iii. SN: Switching Network. 
   iv. MB: Message Buffer 
   v. SYPD: System Panel Display 
   vi. CCG: Central Clock Generator 
   vii. CP: Coordination Processor 
   viii. CCNC: Common Channel Network Control 

2. What is a Switching system? 
3. What is the Architecture of EWSD switching System? 
4. Describe the Various units of EWSD switching System? 
5. Draw the Layout of EWSD training Exchange? 
6. What are the Operational activities carried out in EWSD exchange? 
7. What are the Mtce. schedules for EWSD Exchange? 
8. What types of Registers are maintained in EWSD Exch.? 
9. How many CCS#7links are handle by CCNC? 
10. What are different types of APS saving?