OSC001001 System Overview

ISSUE 2.0

Fixed Network Curriculum

Development Section

Course Objectives

- Upon completion of this course, you will understand:

➔ **Overall architecture of C&C08 switch**

➔ **Module functions**

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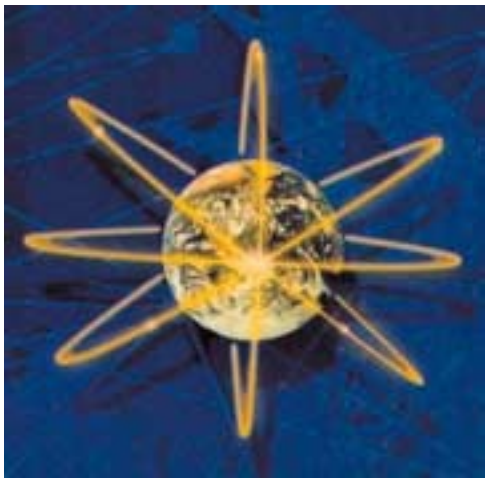
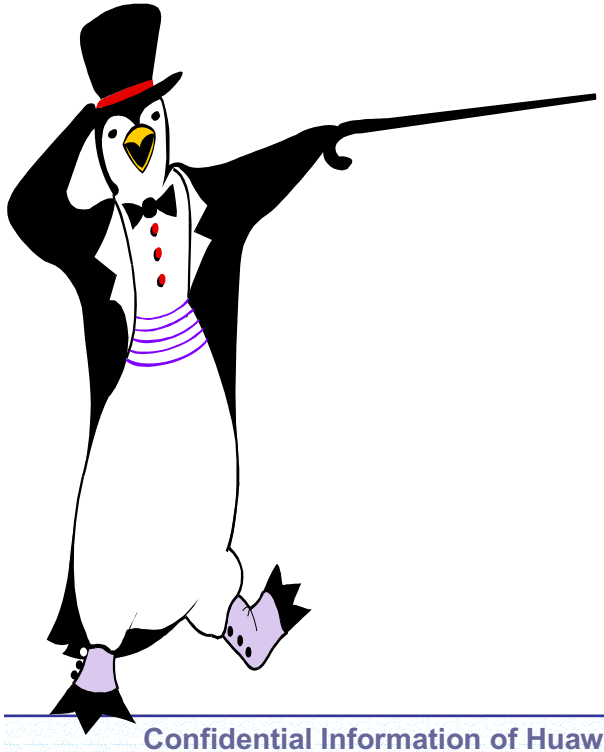


- General
- Modular & Hierarchical Structure
- Module Function
- The Open Terminal System
- System Performance

C & C---?

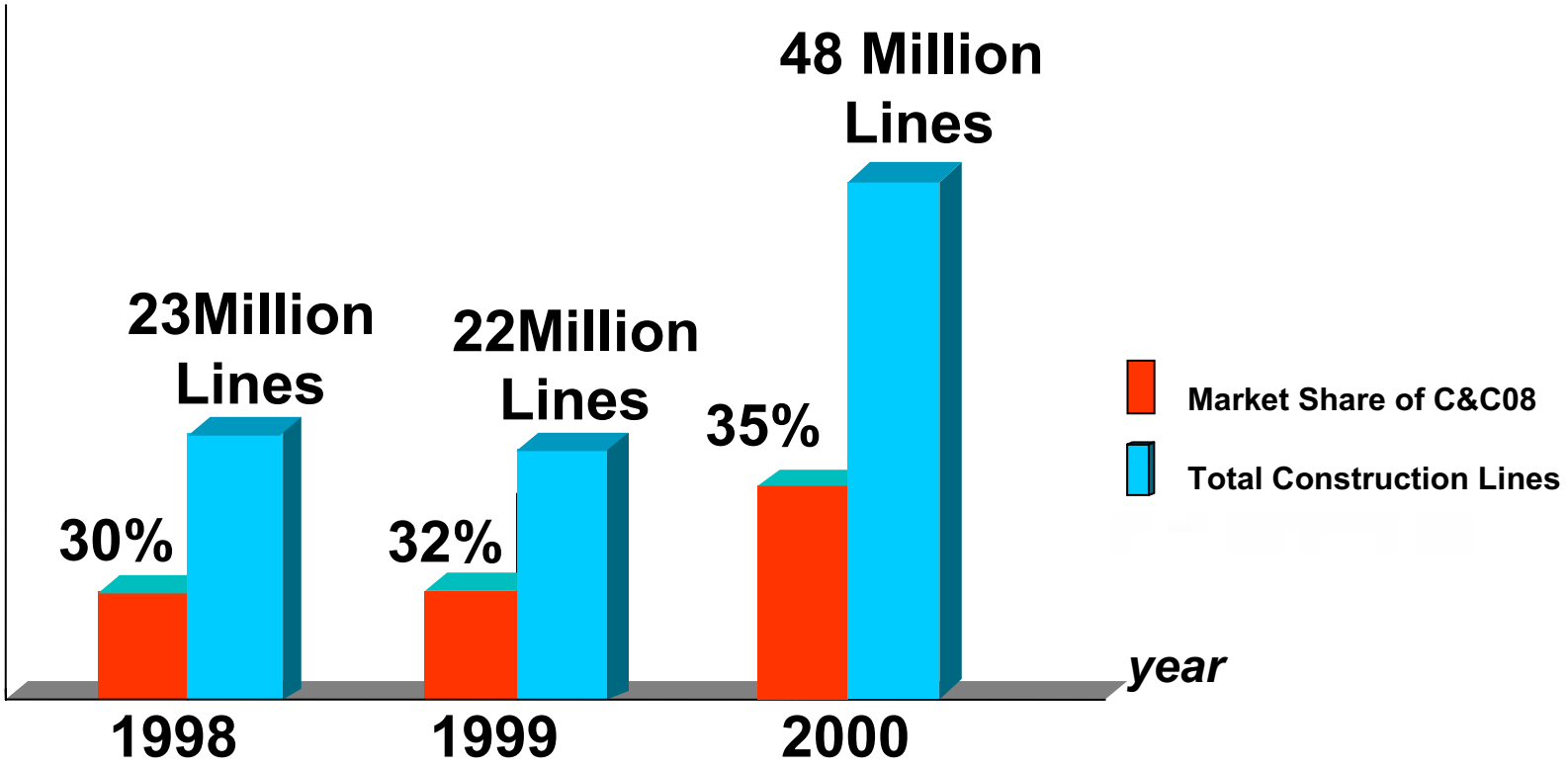
- City & Countryside
- Computer & Communication
- China & Communication



C&C08 in Chinese Telecom Market

Rank No.1 in Chinese market.

C&C08 in Chinese Market



Huawei Worldwide Presence

C&C08 is Widely used in more than 40 countries

Profile of C&C08

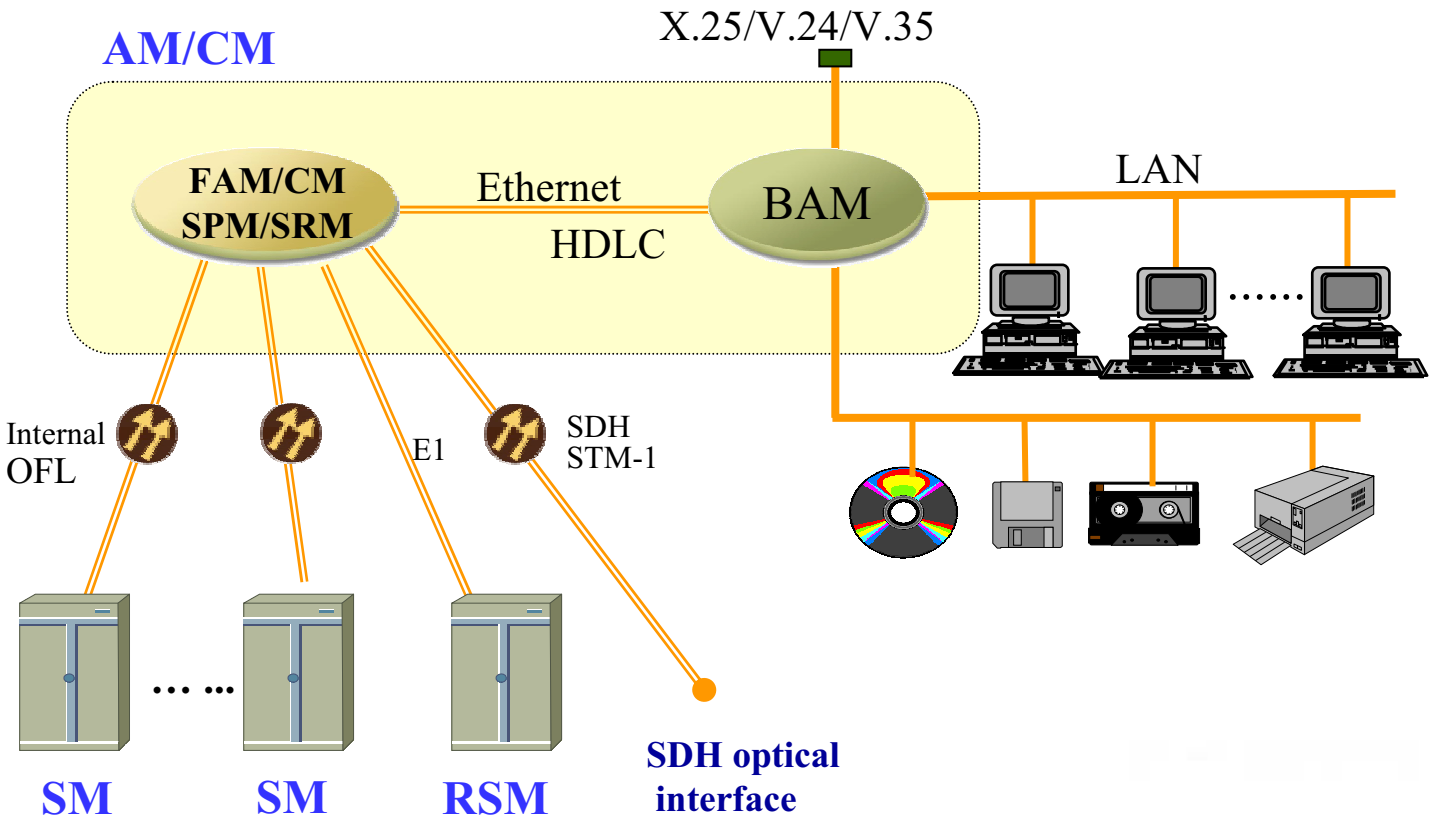
Length: 2100mm

Width: 800mm

Depth: 550mm

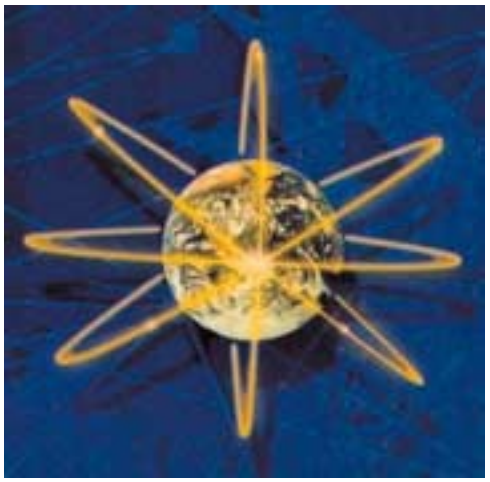
- Maximal capacity : 800,000 subscriber lines or 180,000 DT.
- Local, Tandem, Toll, International exchanges.

Overall Structure



AM/CM--Administration/communication module BAM--Back administration module
SM--Switching module OFL--Optical fiber interface

CONTENT



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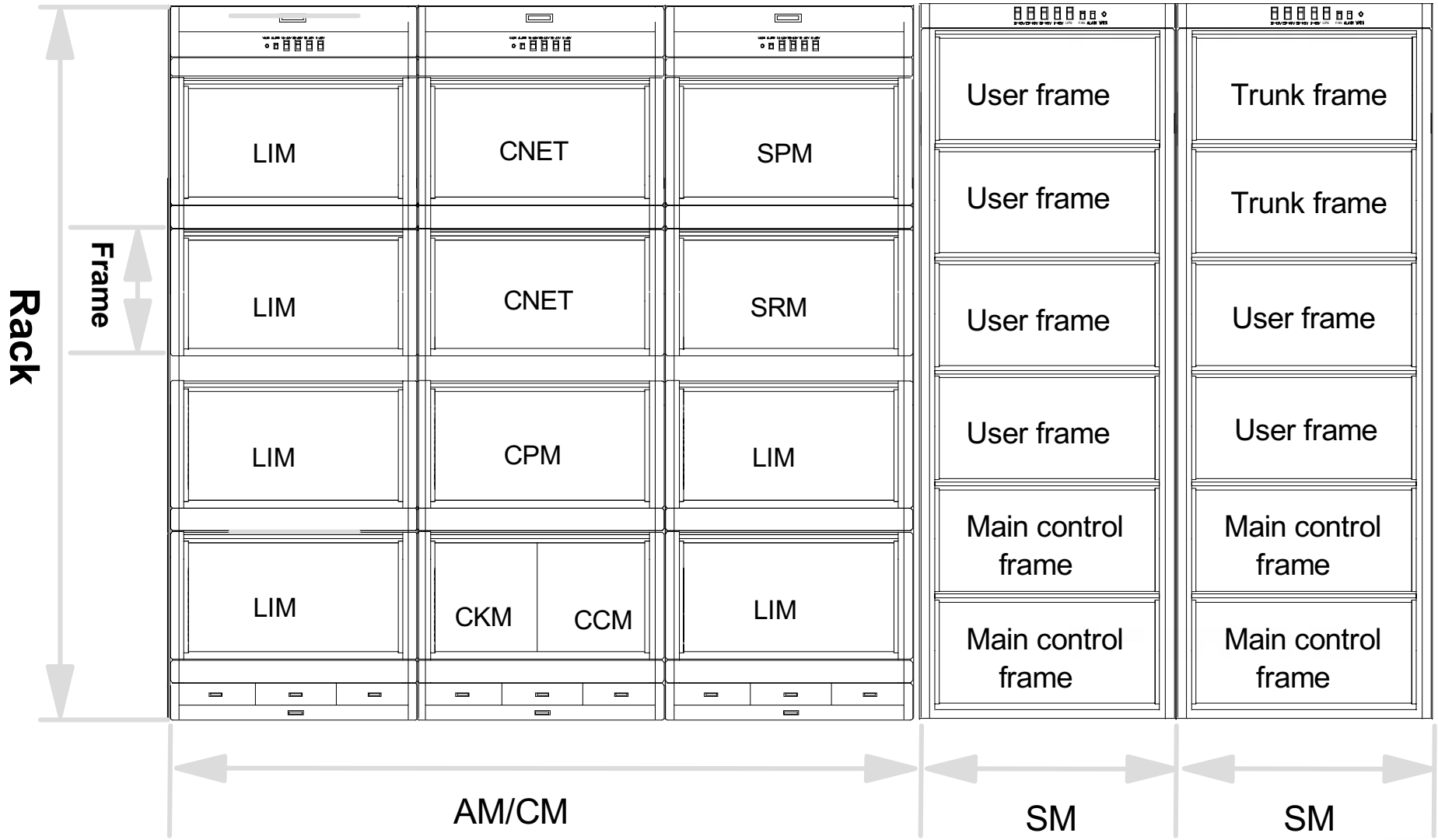
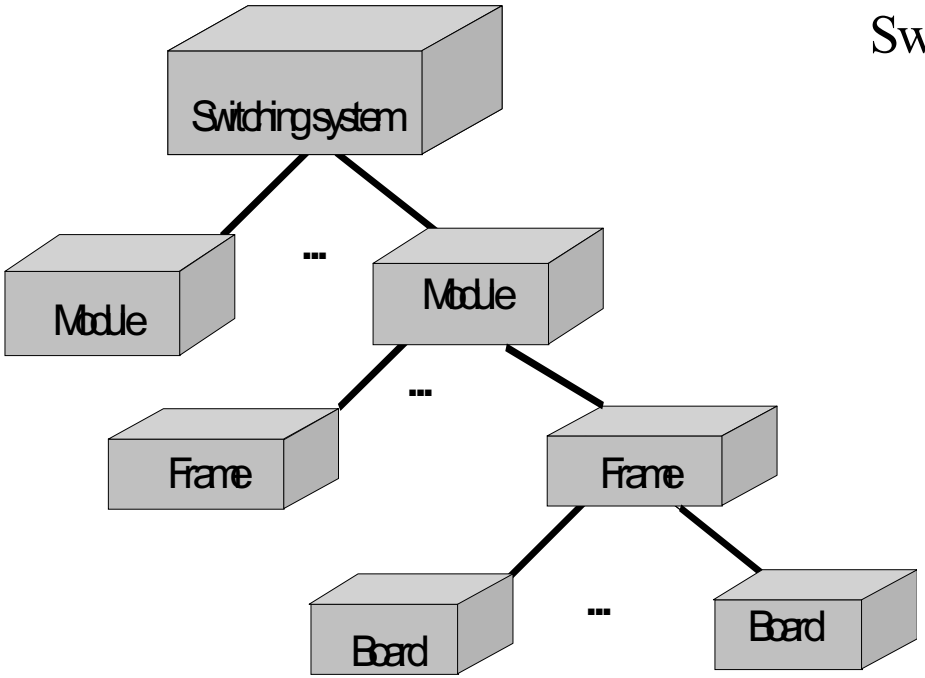
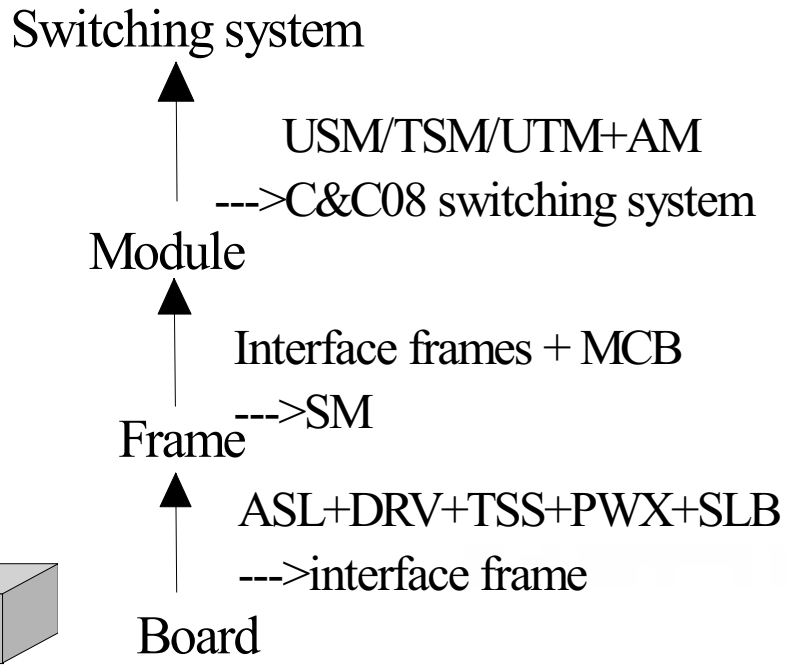
Modular & Hierarchical Structure



Modular & Hierarchical

- The typical Hierarchical Modular Structure of C&C08 Digital SPC Switching System

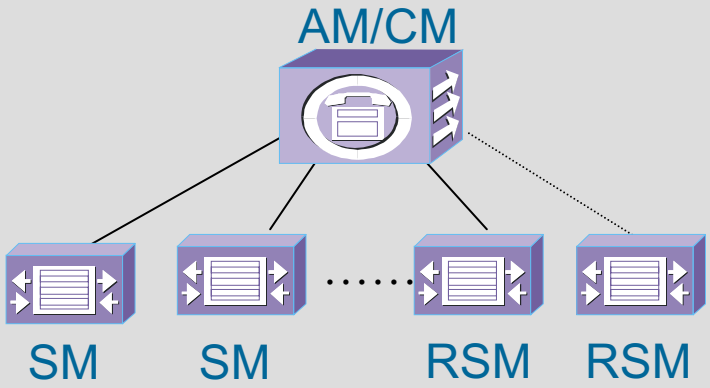




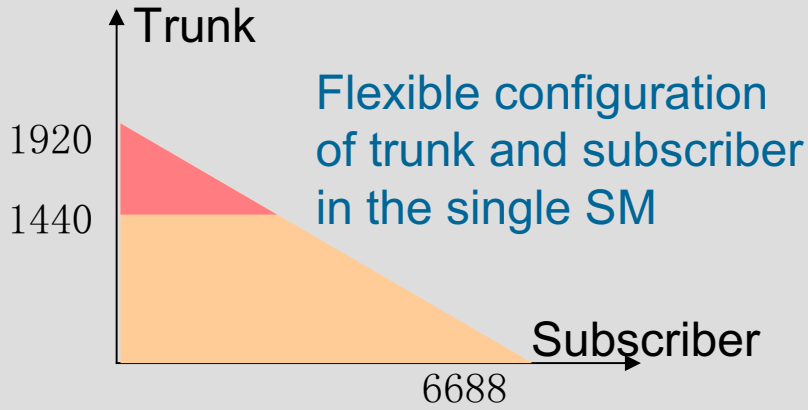
Modular design

Flexible Configuration

A、Smooth expansion of modules

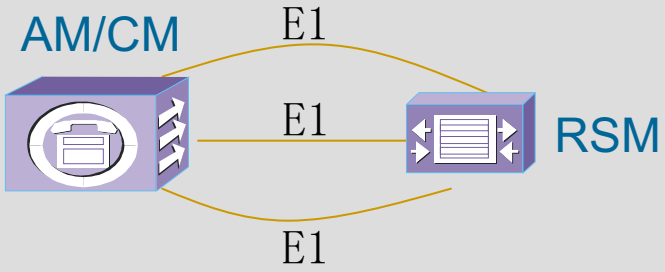


B、

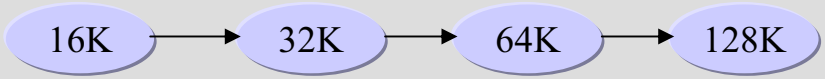


Flexible configuration of trunk and subscriber in the single SM

C、 Adjustable voice channel between modules



D、 Smooth expansion of central switching network by simply adding circuit board



Modules

- CM—Communication Module
- AM—Administration Module
  - FAM（Front Administration Module）
  - BAM（Back Administration Module）
- SPM—Service Processing Module
- SRM—Shared Resource Module
- SM—Switching Module

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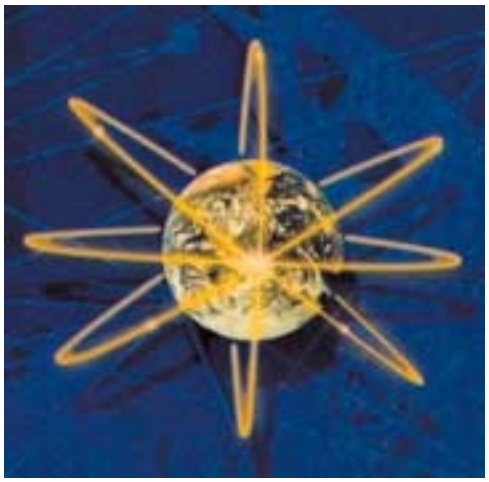

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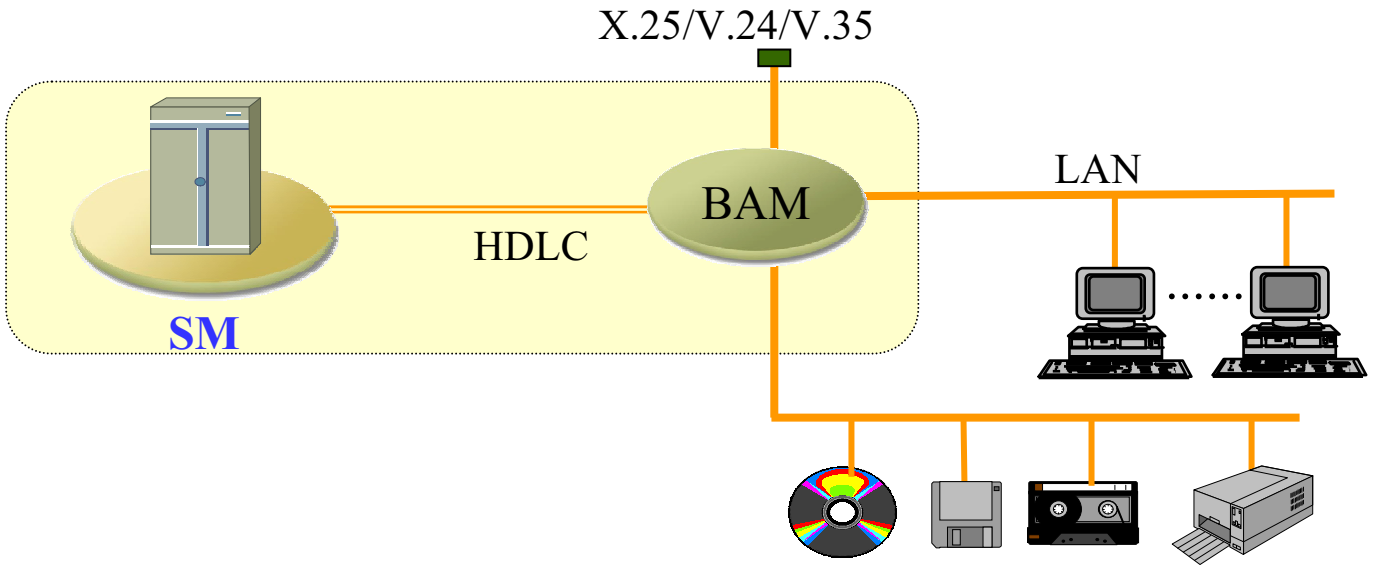
Modules

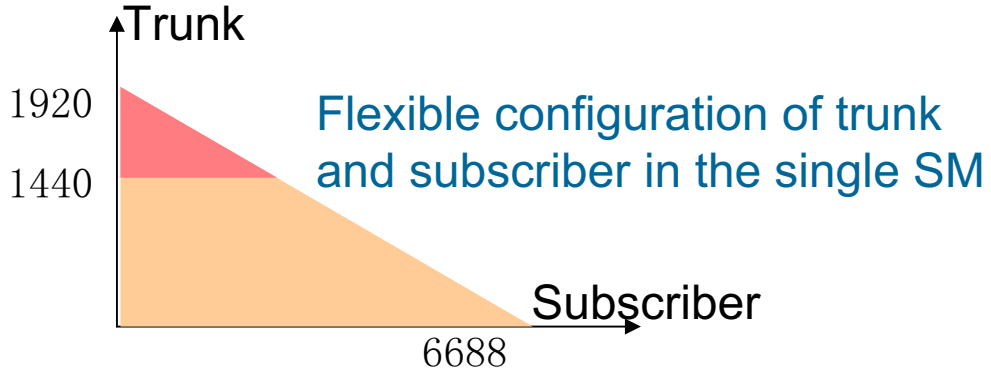
Single-module(stand-alone) office



SM--Switching module
BAM--Back administration module

Switching Module

- Independent switching function: handling intra-module traffic
- Providing various service interfaces

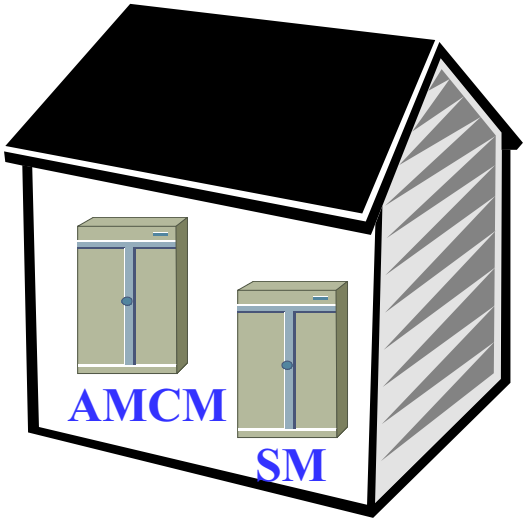


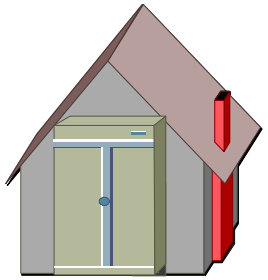
- A variety of functions including: database management, call processing, maintenance operation and etc.

As single-module office;
Or to form a multi-module office with AMCM.

SM & RSM

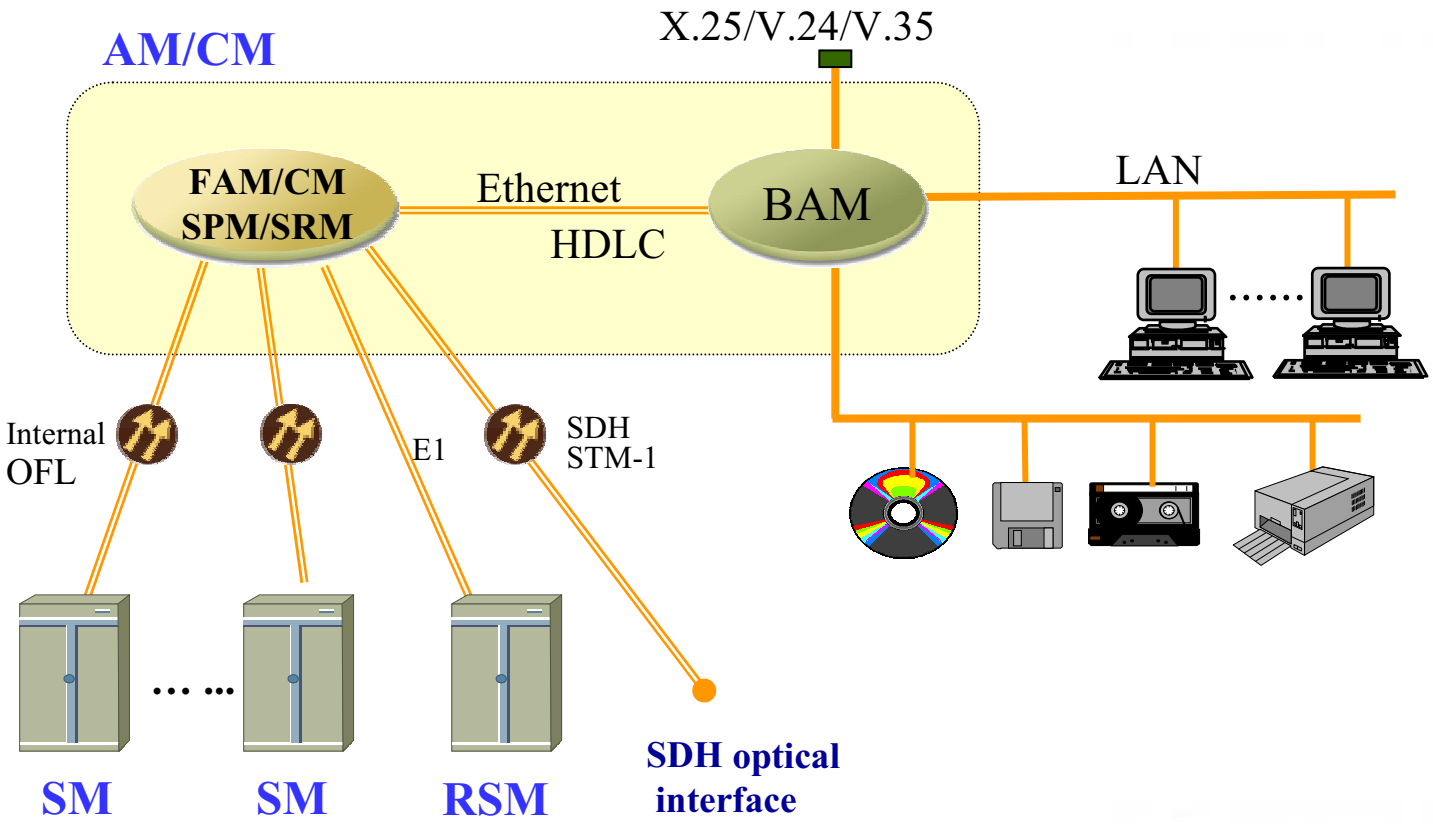
- Local SM: 40M optic interface
- RSM(remote switching module): standard E1 interface or SDH(STM-1) optic interface





RSM

Modules



AM/CM--Administration/communication module

BAM--Back administration module

SM--Switching module

OFL--Optical fiber link

FAM

- Management of inter-SM call connection
- Providing open management interface to terminal system.
- FAM functions for routine management tasks like call ticket recording, traffic statistics, etc.

CM

- CM mainly consists of the central switching network and inter-module communication interfaces.
- CM is responsible for providing inter-SM speech channels and signaling links.

BAM

- BAM belongs to the open O&M terminal network which is based on TCP/IP protocol and client/server model.
- All the databases and program required by system operation are stored on the BAM.

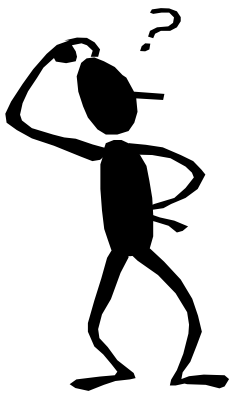
SPM

- Service Processing Module (SPM) : working with the interfaces of E1 or SDH STM-1, SPM is able to provide a variety of service interfaces, including
  - ➔ Inter-office trunk(SS7; R2; No.5) ;
  - ➔ V5 interface to AN;
  - ➔ PRA of ISDN;

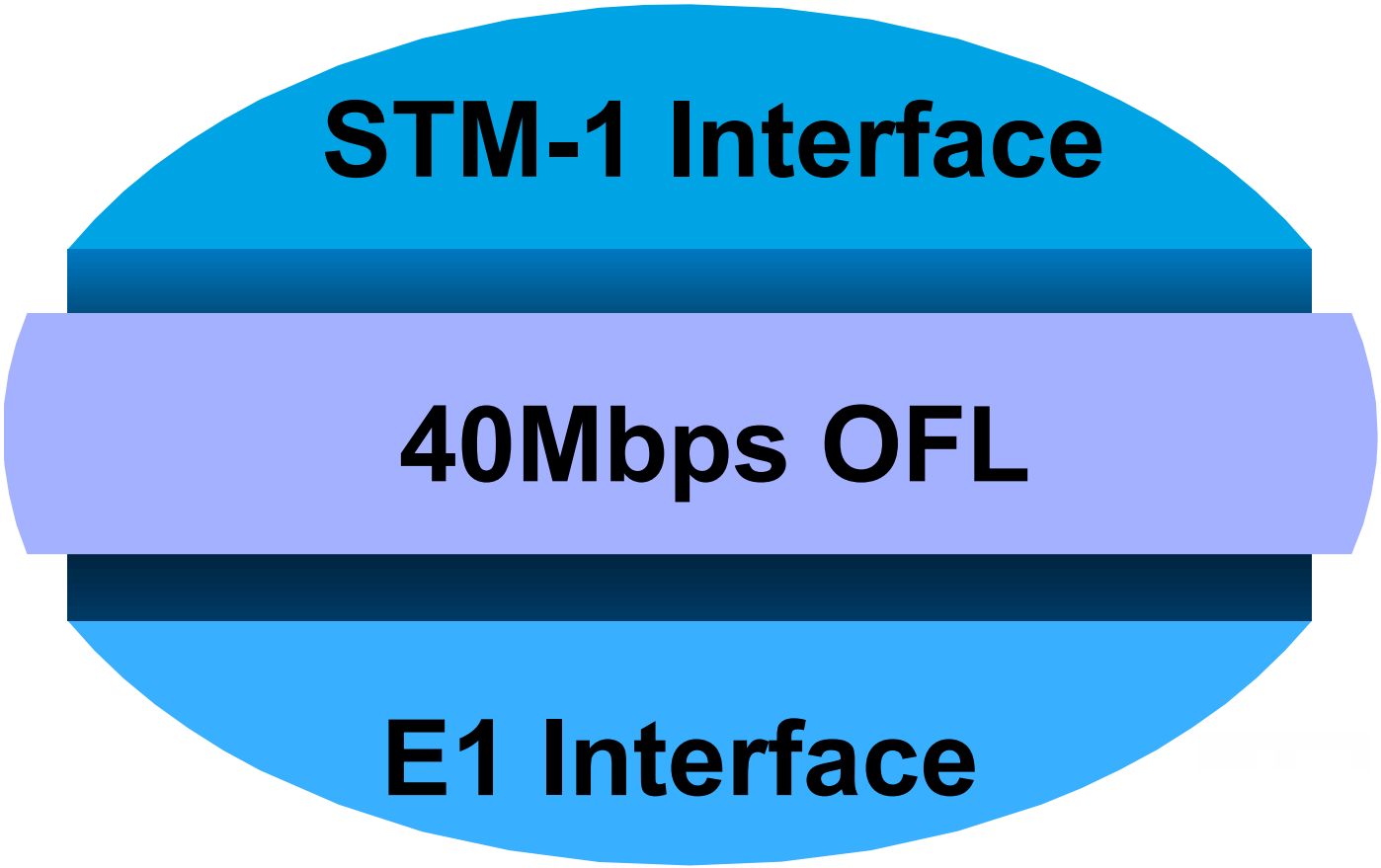
- SPM is connected with BAM directly by 10M/100M TCP/IP network interface

SRM

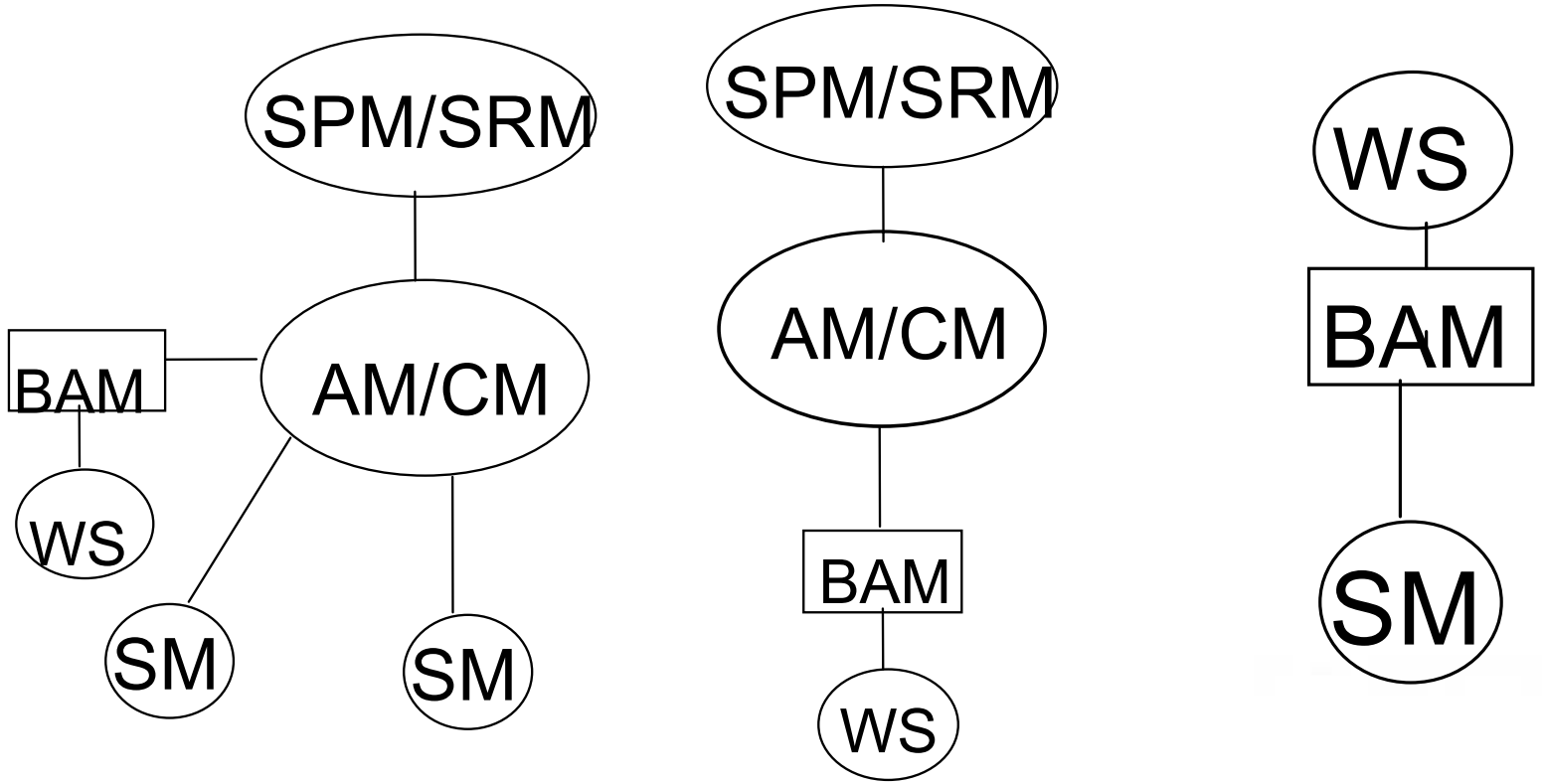
- Shared Resource Module (SRM)
- Provides the resources required by SPM, including
  - ➔ signal tones
  - ➔ DTMF device
  - ➔ MFC device
  - ➔ conference telephone device
  - ➔ CID display device
- All resources are shared by all SPM in the whole office.



Inter-connection: AM<=====>SM



Networking



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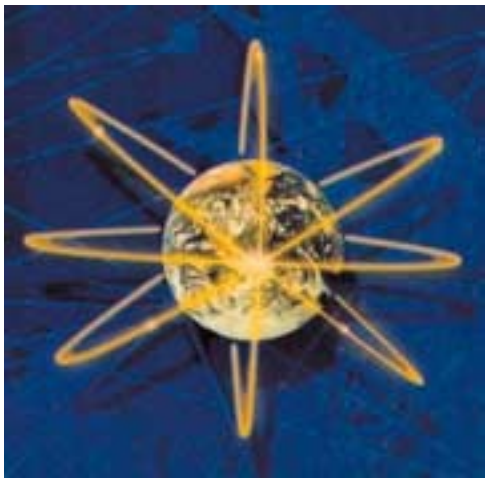

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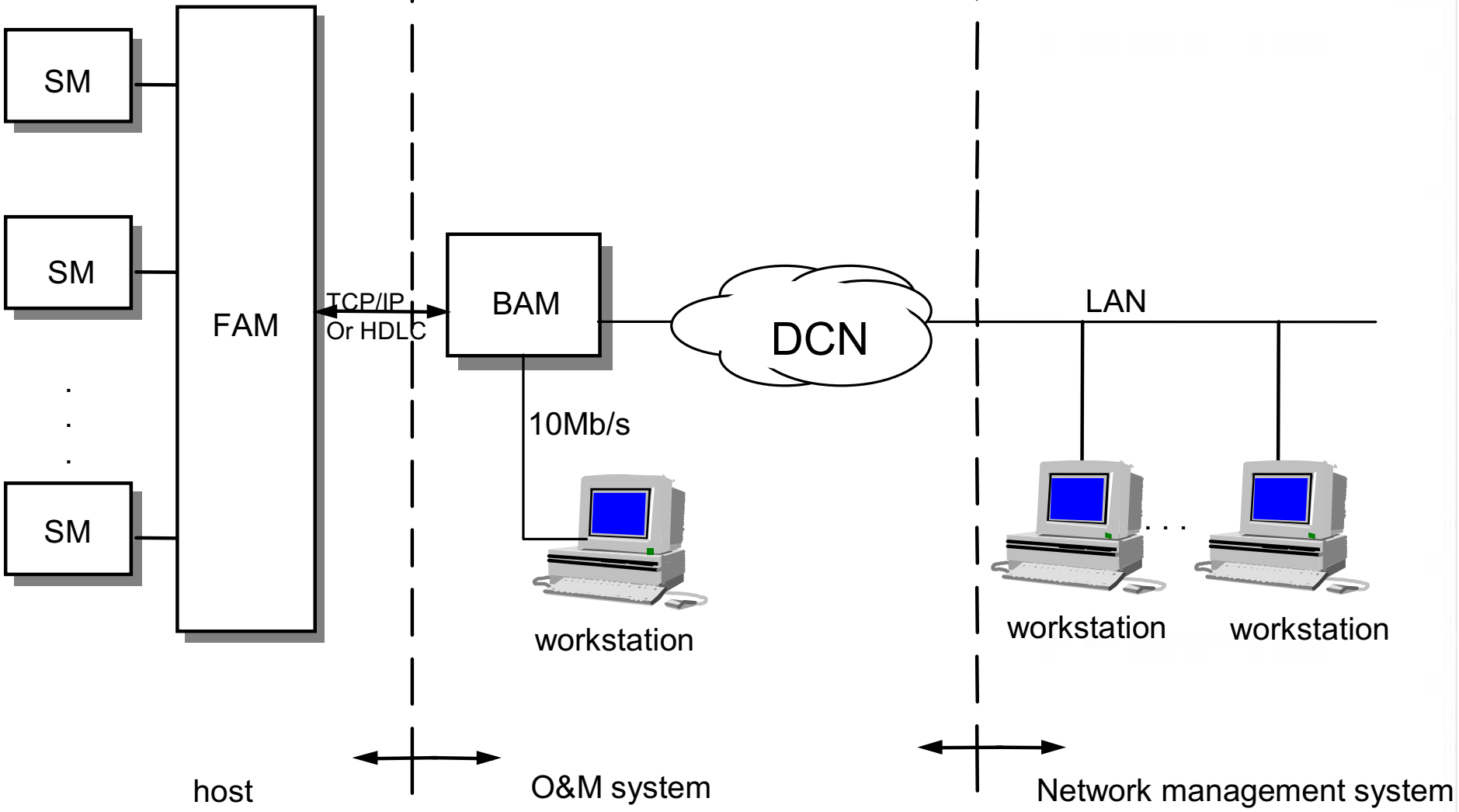
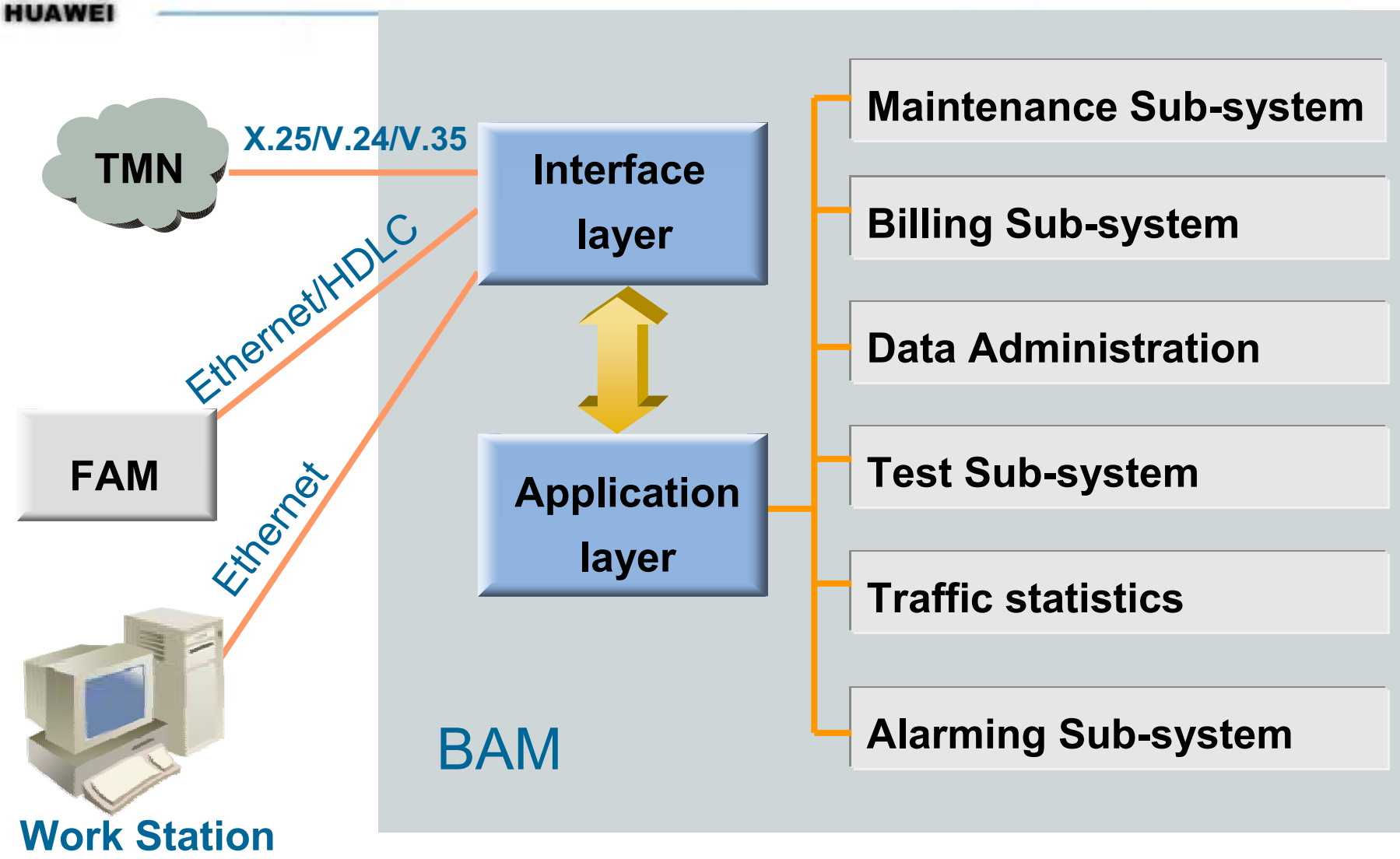
Terminal System of C&C08 switch



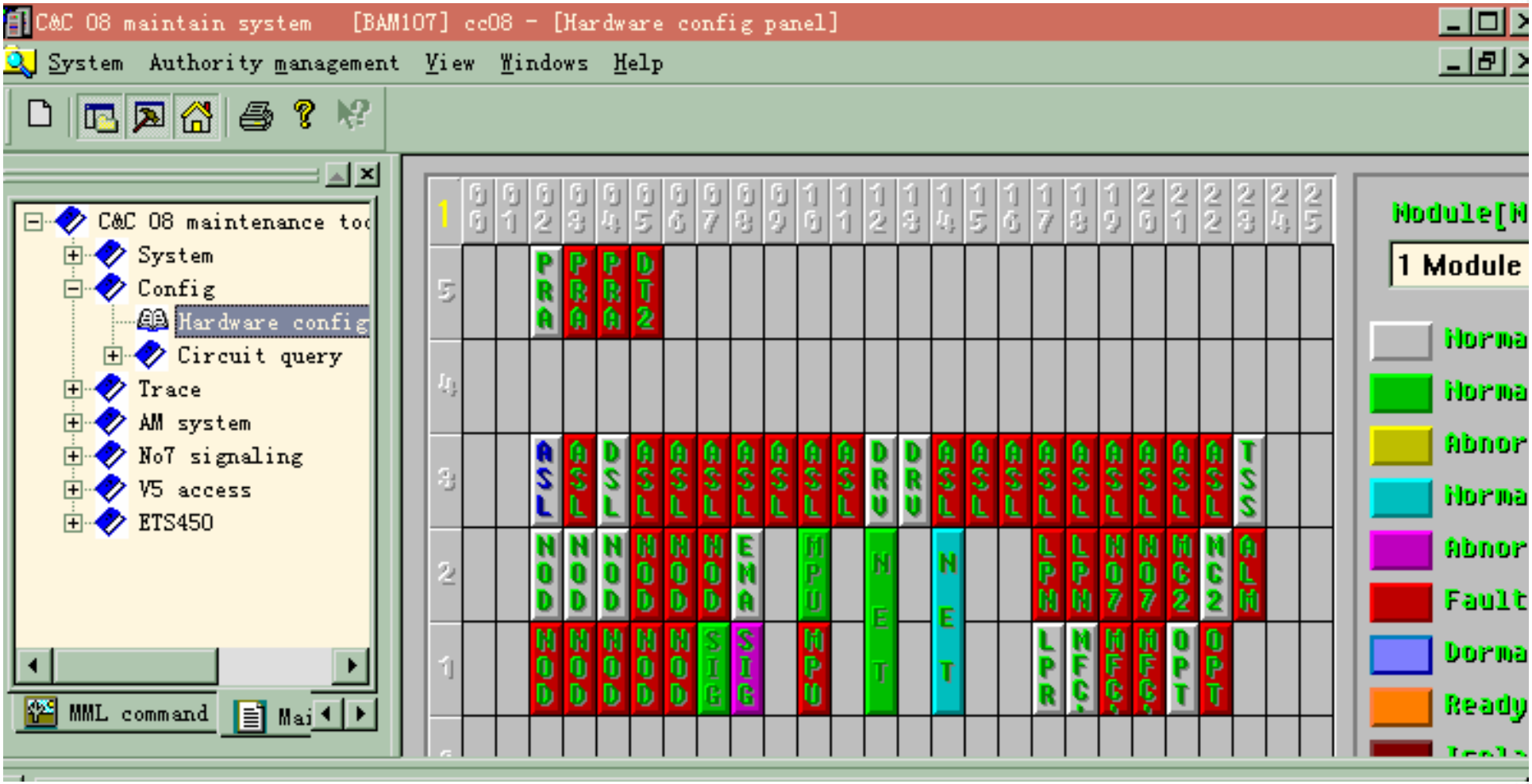
Architecture of BAM



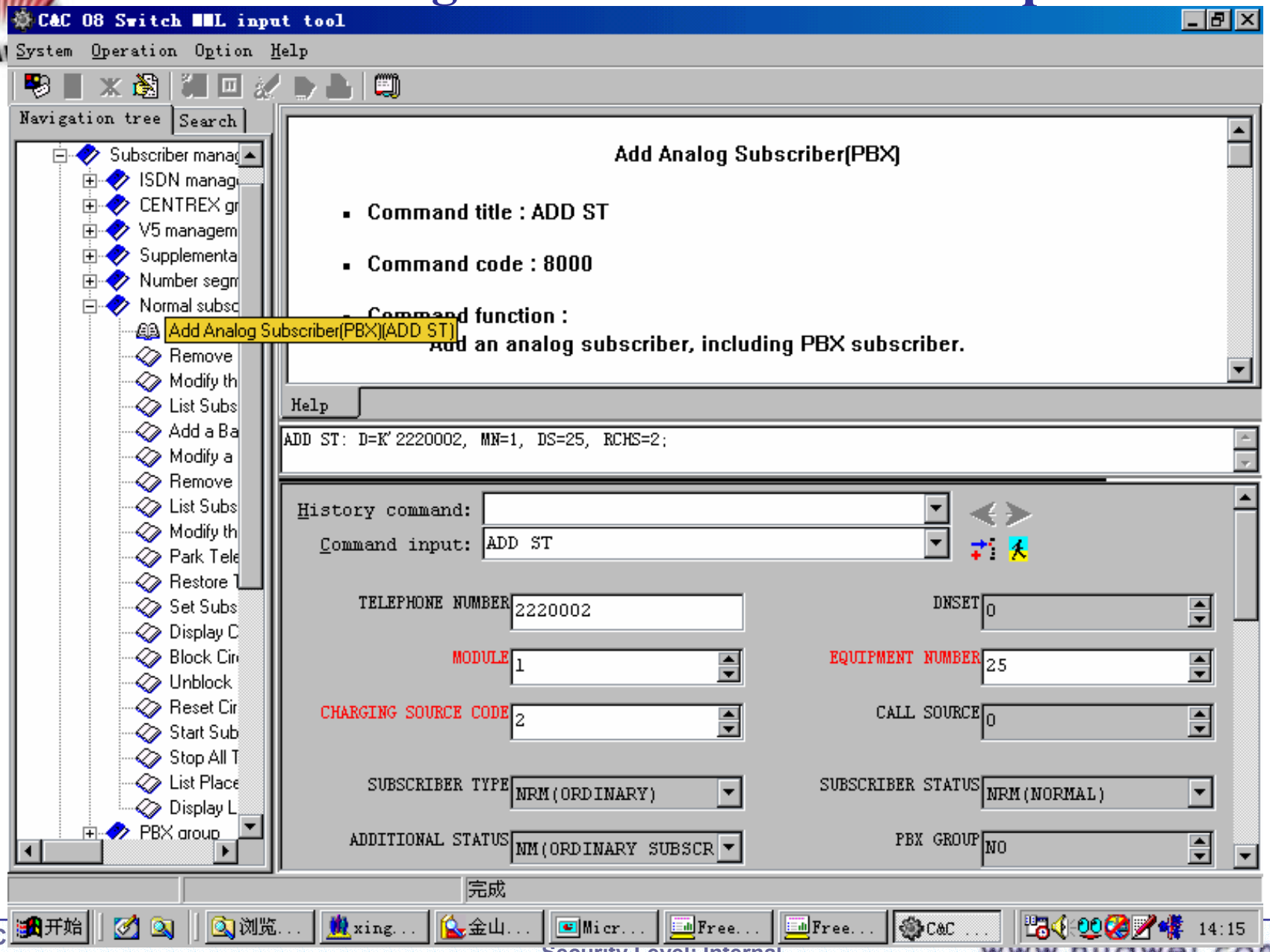
Fully Open Terminal System

- Client/server scheme
- LAN-based
- Fully open interfaces
- Multi-point maintenance
- Modular software architecture
- Windows-based operating platform
- Multi-window and friendly man-machine interfaces

GUI Operation & Maintenance Interface



Intelligent MML Command Input



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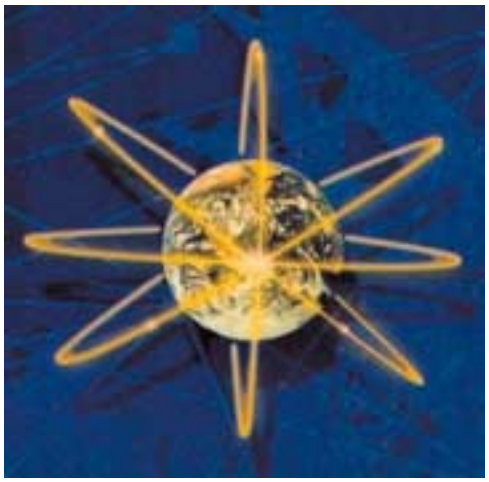

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Physical Characteristics

- 100,000-Trunk switch: 9 racks

  Power consumption:

  for a configuration of 10240L/1440DT

  Normal: 3060w Busy hours: 5240w

- Temperature: long-term operation: 0°C ~ 45°C

  short-term operation: 0°C ~ 55°C

- Humidity: long-term operation: 20% ~ 80%

  short-term operation: 10% ~ 90%

Physical Characteristics (Subscriber unit)

- Highly integrated: 0.35um VLSI
- 0.35W/L on idle
- 0.55 W/L on busy
- SM: 43.51A in busy time (DC power consumption)

Reliability

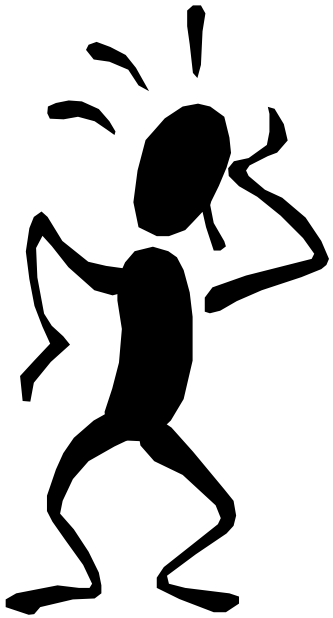
- MAIDT(mean accumulated intrinsic down time): 0.769H/20years
- MTBF(mean time between failure): 260.4 days
- MTTR(mean time to repair): 12.83 min.
- Annually fault rate of subscriber line circuit: 0.05%

Summary

- **Modular & Hierarchical Structure**
- **Module Function**
- **The Open Terminal System**
- **System Performance**
  - Maintain
  - System

Review...

- functionality of
  - ➔ FAM
  - ➔ BAM
  - ➔ CM
  - ➔ SM
  - ➔ SPM
  - ➔ SRM



Their functions...

Let's have a try...

- Try to draw a basic networking diagram, with the fundamental modules we've got to know from this overview.

Thank you