

C-DOT MBM-XL OVERVIEW

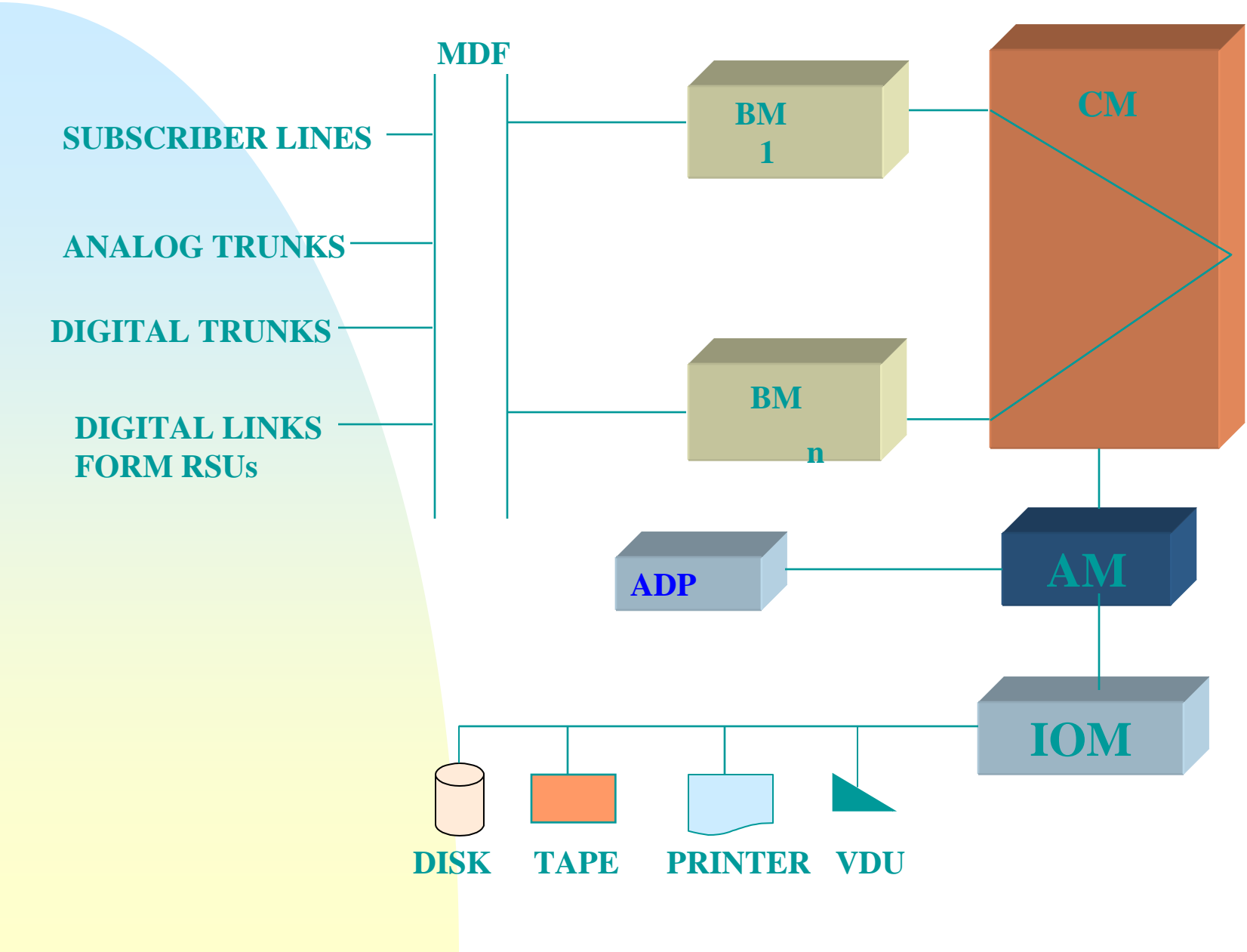
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ALTTC, Ghaziabad

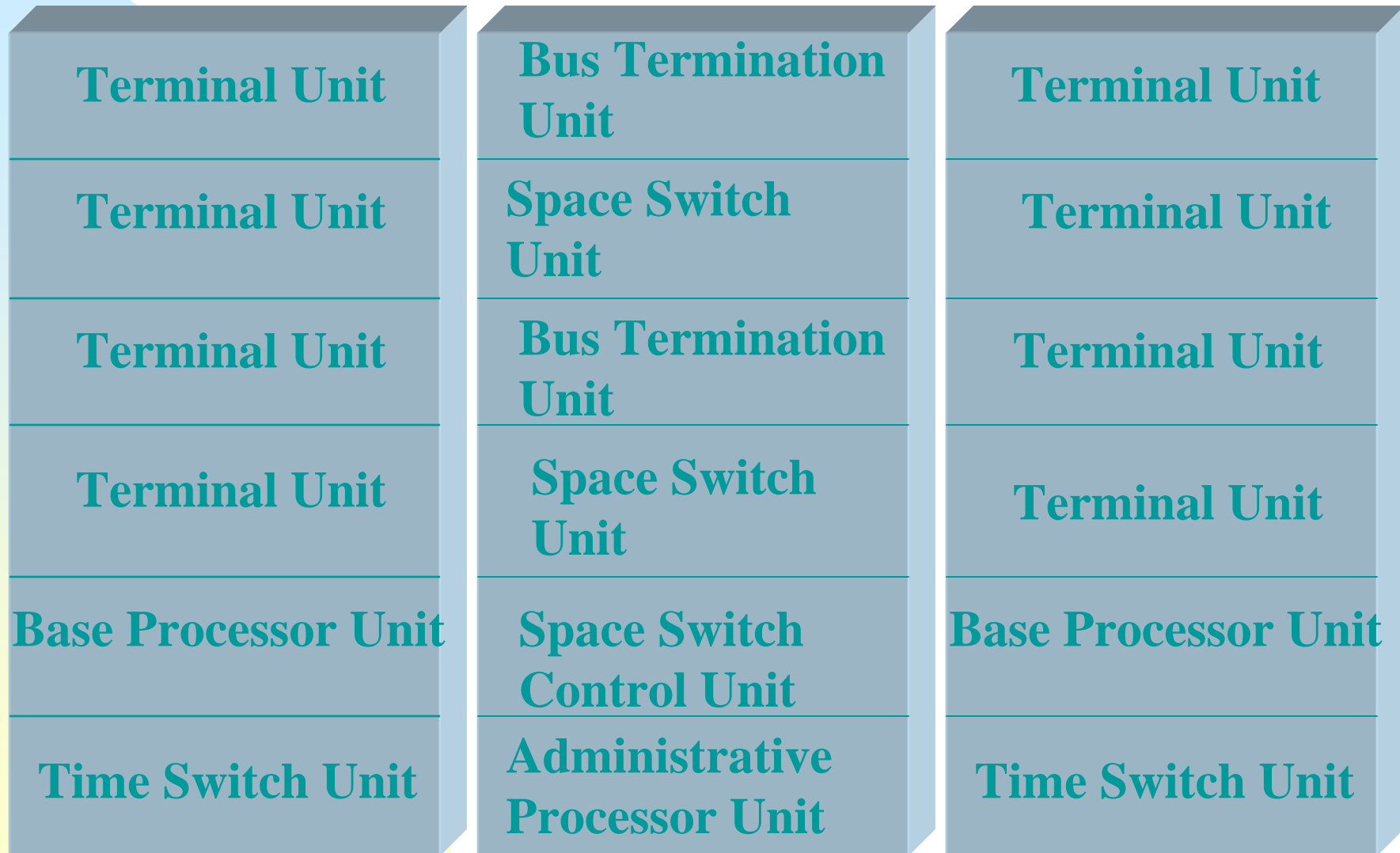
Introduction

- C-DOT MBM-XL OVERVIEW COVERS THE HARDWARE ARCHITECTURE AND FEATURES OF THE C-DOT MBM-XL SWITCHING SYSTEM
- IT COVERS THE DIFFERENT USES OF THIS SYSTEM IN THE NETWORK
- CCS#7 & ISDN IMPLEMENTATION IN C-DOT WILL ALSO BE DISCUSSED

C-DOT MBM-XL ARCHITECTURE



C-DOT MBM-XL



BASE MODULE

CENTRAL MODULE

BASE MODULE

SUBSCRIBER FEATURES

- Number Identification Service
 - ◆ Calling Line Identification Presentation(CLIP)
 - ◆ Calling Line Identification Restriction(CLIR)
 - ◆ Calling Line Identification Restriction Override (CLIRO)
 - ◆ Malicious Call Identification(MCID)

SUBSCRIBER FEATURES

- Call Offering Supplementary Services
- Call Forwarding Unconditional(CFU)
- Call Forwarding Busy (CBF)
- Call Forwarding No Reply (CNFR)
- Call Completion Services
- Call Waiting
- Call Hold

SUBSCRIBER FEATURES

- Multi - Party Services
- Three Party Conference
- Multi Party Conference(Add-on Card)
- Miscellaneous Services
- Hot Line(Timed)
- Hot Line (Without Time Out)
- Reminder Call/Alarm Services

SUBSCRIBER FEATURES

- Subscriber Controlled Call Restriction Services
- Intrusion Barring Service
- Dialling By Terminal Equipment Number
- Trunk Offering
- Queuing Service
- Priority Subscriber
- Distinctive Ringing For Long Distance Calls

SYSTEM FEATURES

- Signalling, Routing And Charging Features
- Exchange Operation Features
- Exchange Maintenance Features
- Software Upgradation & Patch Administration
- Reconfiguration for Different Applications

ANALOG TERMINAL UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
P		L	L	L	L	L	L	L	L	T	S	T	T	S	T	L	L	L	L	L	L	L	L	L	P	
S		C	C	C	C	C	C	C	C		P			P		C	C	C	C	C	C	C	C	C	S	
U		C	C	C	C	C	C	C	C	I	C	U	U	C	I	C	C	C	C	C	C	C	C	C	U	
I		/	/	/	/	/	/	/	/	/	/	U	U	/	/	/	/	/	/	/	/	/	/	/	I	
I		C	C	C	C	C	C	C	C		I			I		C	C	C	C	C	C	C	C	C	I	
		C	C	C	C	C	C	C	C	C	S	I	I	S	C	C	C	C	C	C	C	C	C	C		
		M	M	M	M	M	M	M	M		P			P		M	M	M	M	M	M	M	M	M		

*VACANT SLOT OF PSM/ESM FILLED BY CML CARD

INTEGRATED SERVICES DIGITAL TERMINAL UNIT

1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	
									0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
P		P		B	B	B	B	B	B	B	B	I	I	I	I	I	I	B	B	B	B	B	B	B	
S		S		R	R	R	R	R	R	R	R	T	C	I	I	C	T	R	R	R	R	R	R	R	
U		U		L	L	L	L	L	L	L	L	C	C	C	C	C	C	L	L	L	L	L	L	L	
I		I		/		/		/		/		0	0	0	1	1	1	/		/		/		/	
I		I		P		P		P		P								P		P		P		P	
				R		R		R		R								R		R		R		R	
				L		L		L		L								L		L		L		L	

*VACANT SLOT OF PSM/ESM FILLED BY CML CARD

BUS TERMINATION UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
									0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
P		P		P	P	P	P	P	P	P	P	C	C	P	P	P	P	P	P	P	P			P	
S		S		S	S	S	S	S	S	S	S	M	M	S	S	S	S	S	S	S	S	S		S	
U		U		M	M	M	M	M	M	M	M	L	L	M	M	M	M	M	M	M	M	U		U	
I		I		/	/	/	/	/	/	/	/	A	A	/	/	/	/	/	/	/	/	/	I		
I		I		E	E	E	E	E	E	E	E	O	O	E	E	E	E	E	E	E	E	E	I		
				S	S	S	S	S	S	S	S	O	O	S	S	S	S	S	S	S	S				
				M	M	M	M	M	M	M	M			M	M	M	M	M	M	M					

*VACANT SLOT OF PSM/ESM FILLED BY CML CARD

BUS TERMINATION UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
									0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
P		P		P	P	P	P	P	P	P	P	C	C	P	P	P	P	P	P	P	P			P	
S		S		S	S	S	S	S	S	S	S	M	M	S	S	S	S	S	S	S	S	S		S	
U		U		M	M	M	M	M	M	M	M	L	L	M	M	M	M	M	M	M	M	U		U	
I		I		/	/	/	/	/	/	/	/	A	A	/	/	/	/	/	/	/	/	/	I		
I		I		E	E	E	E	E	E	E	E	O	O	E	E	E	E	E	E	E	E	E	I		
				S	S	S	S	S	S	S	S	O	O	S	S	S	S	S	S	S	S				
				M	M	M	M	M	M	M	M			M	M	M	M	M	M	M					

*VACANT SLOT OF PSM/ESM FILLED BY CML CARD

BUS TERMINATION UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
									0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
P		P		P	P	P	P	P	P	P	P	C	C	P	P	P	P	P	P	P	P		P		
S		S		S	S	S	S	S	S	S	S	M	M	S	S	S	S	S	S	S	S	S		S	
U		U		M	M	M	M	M	M	M	M	L	L	M	M	M	M	M	M	M	M	U		U	
I		I		/	/	/	/	/	/	/	/	A	A	/	/	/	/	/	/	/	/	I		I	
I		I		E	E	E	E	E	E	E	E	O	O	E	E	E	E	E	E	E	E		I		
				S	S	S	S	S	S	S	S	O	O	S	S	S	S	S	S	S	S				
				M	M	M	M	M	M	M	M			M	M	M	M	M	M	M	M				

*VACANT SLOT OF PSM/ESM FILLED BY CML CARD

BUS TERMINATION UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
									0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
P		P		P	P	P	P	P	P	P	P	C	C	P	P	P	P	P	P	P	P			P	
S		S		S	S	S	S	S	S	S	S	M	M	S	S	S	S	S	S	S	S	S		S	
U		U		M	M	M	M	M	M	M	M	L	L	M	M	M	M	M	M	M	M	U		U	
I		I		/	/	/	/	/	/	/	/	A	A	/	/	/	/	/	/	/	/	/	I		
I		I		E	E	E	E	E	E	E	E	O	O	E	E	E	E	E	E	E	E	E	I		
				S	S	S	S	S	S	S	S	O	O	S	S	S	S	S	S	S	S				
				M	M	M	M	M	M	M	M			M	M	M	M	M	M	M					

*VACANT SLOT OF PSM/ESM FILLED BY CML CARD

SPACE SWIYCH UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
P		P		P	P	P	P	P	P	P	P	C	C	P	P	P	P	P	P	P	P			P	
S		S		S	S	S	S	S	S	S	S	M	M	S	S	S	S	S	S	S	S			S	
U		U										L	L												U
I		I										A	A												I
I				S	S	S	S	S	S	S	S	O	O	S	S	S	S	S	S	S					I
				S	S	S	S	S	S	S	S	O	O	S	S	S	S	S	S	S					I

*VACANT SLOT OF PSS FILLED BY CSL CARD

SPACE SWITCH CONTROLE UNIT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
P		P		C	B	C	C	N			H	C	C	H	N			C	C	B	C	P		P		
S		S				M					P	M	M	P				M				S		S		
U		U		C	M	L	B	S			C	L	L	C	S		B	L	M	C	U		U			
I		I				A					/	A	A	/				A			I		I			
				K	E	O	X	C			B	O	O	B	C		X	O	E	K						
						O					P	O	O	P	C			O								

REMOTE SWITCH UNIT

- REMOTE PRODUCTS
- Remote Switch Unit(RSU)
- Remote Line Unit(RLU)
- Remote Line Concentrator(RLC)
- NEED FOR REMOTE SWITCH UNIT
- Solution for Space for large exchanges
- Reducing the cost on cables

REMOTE SWITCH UNIT

- REMOTE SWITCH UNIT FEATURES
- Power On Initialization
- Digital Trunk Link Status
- Call Shifting During DTK Fault
- Initialization In Stand Alone Mode
- Initialization From RBMSA To Normal (RBM) Mode

REMOTE SWITCH UNIT

- REMOTE SWITCH UNIT FEATURES
- Support For Trunks In RBM
- Numbering Scheme In RSU
- Support For Different Area Code In RSU and Main Exchange
- Provision To Block Local Calls Between Main Exchange and RSU If RSU have Different Area Code

REMOTE SWITCH UNIT

- REMOTE SWITCH UNIT FEATURES
- Emergency Services In RBMSA Mode
- Charging For RBM
 - ◆ Line To Line Call
 - ◆ Line To Trunk Calls
 - ◆ Trunk To Line Calls(I/C Terminating)
 - ◆ Trunk To Trunk Calls

REMOTE SWITCH UNIT

- RSU RELATED COMMANDS
 - ◆ CRE-RBMSA-CONFIG
 - ◆ DISPL-RBMSA-CONFIG
 - ◆ MOD-RBM-XCOD
 - ◆ DISPL-RBM-XCOD
 - ◆ ADD-DTK-RBM
 - ◆ DISPL-RBM-DTKS
 - ◆ MOD-SUB-CRG
 - ◆ DISPL-SUB-CRG



C-DOT 256P AN- RAX and RLC FEATURES

FEATURES

- Provides front end termination for PSTN subscribers
- Supports maximum of 248 PSTN subscribers
- Connected to Local Exchange (LE) over one or two E1 links using standard V5.2 Protocol as per ITU-T specifications G.964 & G.965 and ETSI specifications 300-324 & 300-347.
- Provides First/Second Level of remoting
- Provides a transparent link between subscriber and Local Exchange
- Provides Calling Line Identification Presentation (CLIP) on 2 ports of LCC card
- Provides 16KHz Metering Pulse and Calling Line Identification Presentation (CLIP) on 2 ports of each CCM card
- Provides Reversal on all 8 ports of CCM card
- Provides Man Machine Interface (MMI) using V/T 100 dumb



FEATURES

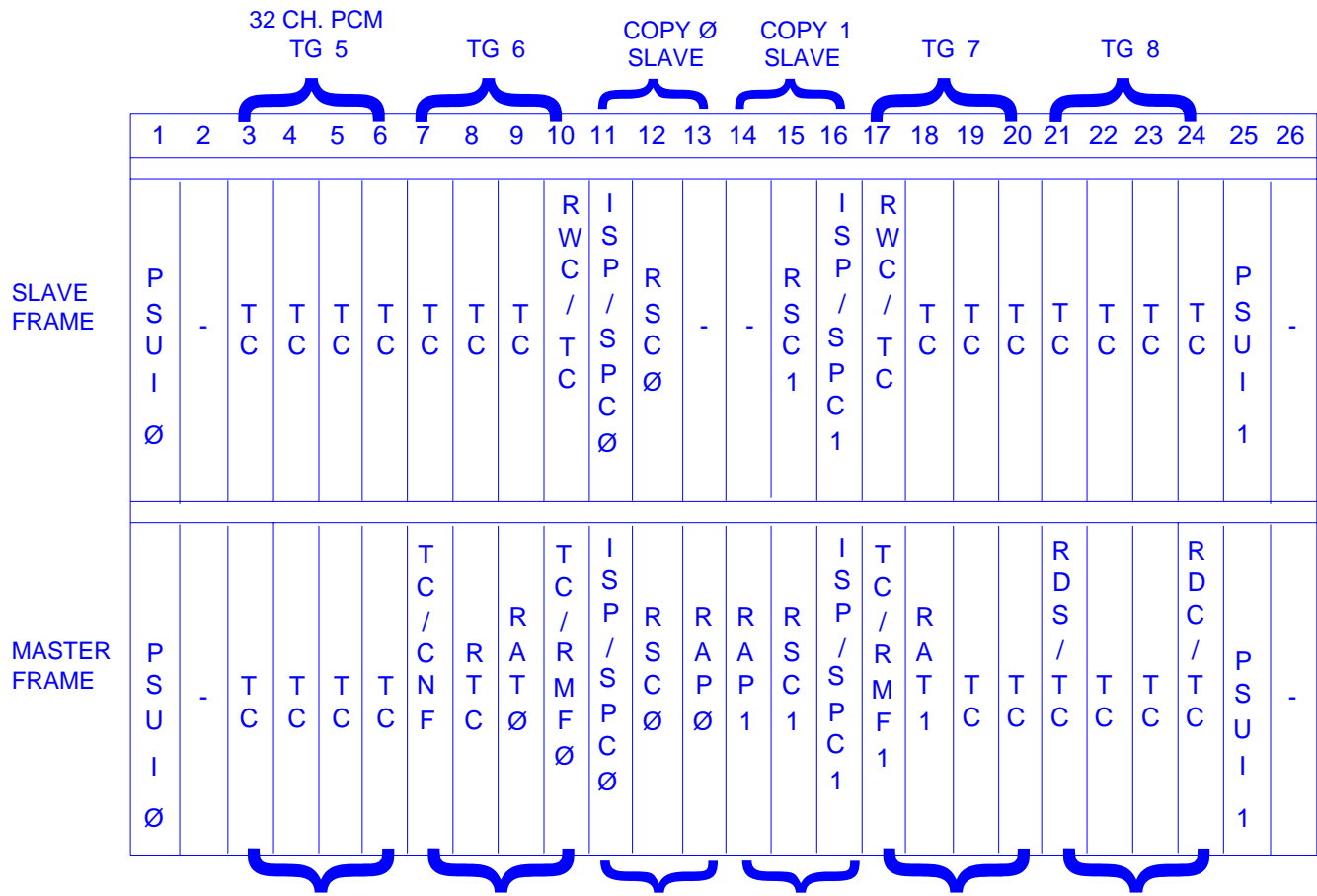
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- Password Protection
- Requires no air-conditioning
- Low Power Consumption
- Line Testing can be performed locally
- Transparently supports all subscribers feature as supported by Local Exchange (LE)
- For any feature related enhancements, the S/W changes are to be done on Local Exchange (LE) only



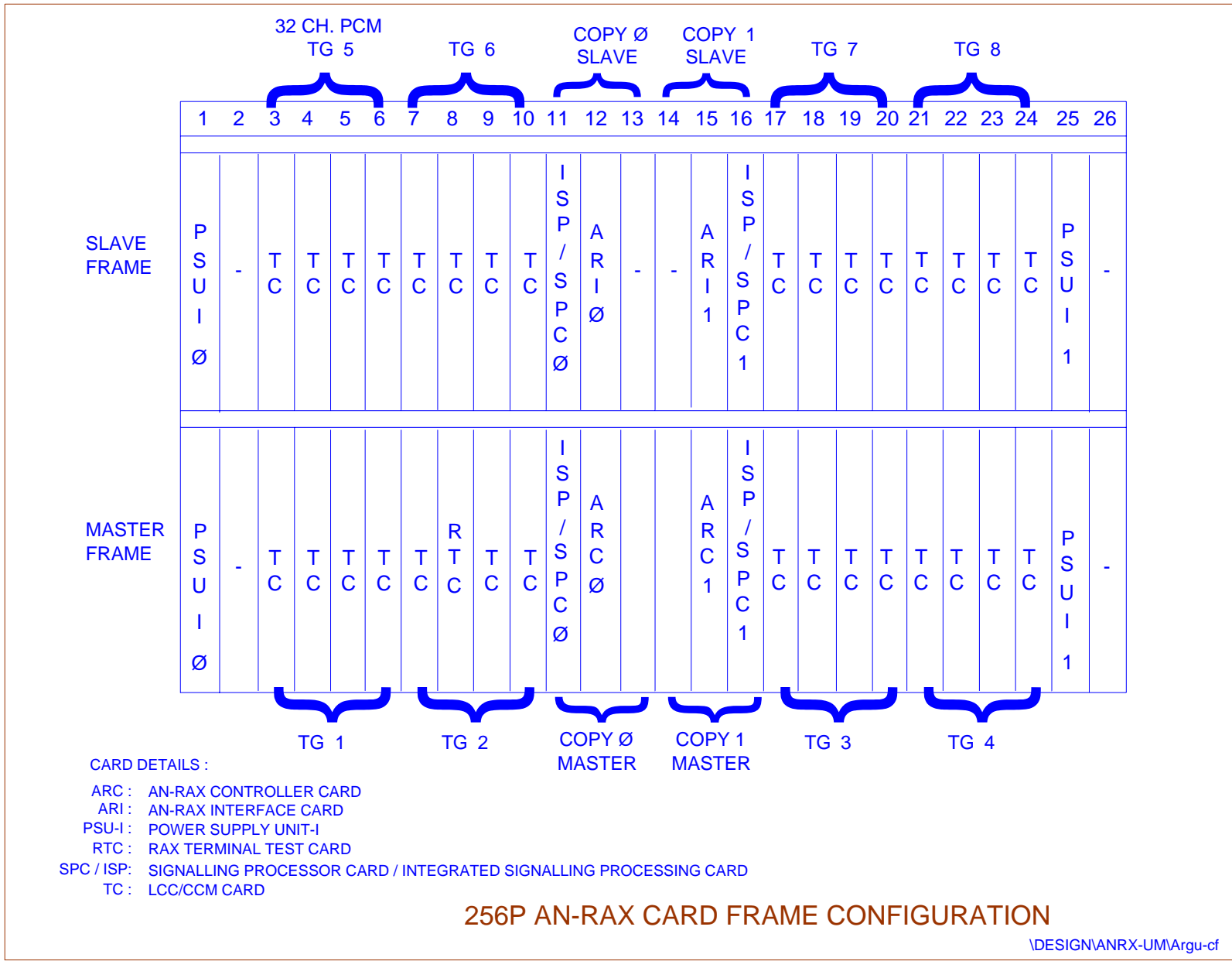
HARDWARE

- Consists of two controller cards
 - ◆ AN RAX Controller Card (ARC Card)
 - ◆ AN RAX Interface Card (ARI Card)
- ARC card supports 2 E1 links toward Local Exchange
- Both the cards form a security block alongwith respective SPC cards
- Redundancy in Controller Cards
- 8 port LCC/CCM cards for Subscriber Interface
- RTC card for testing of subscriber ports

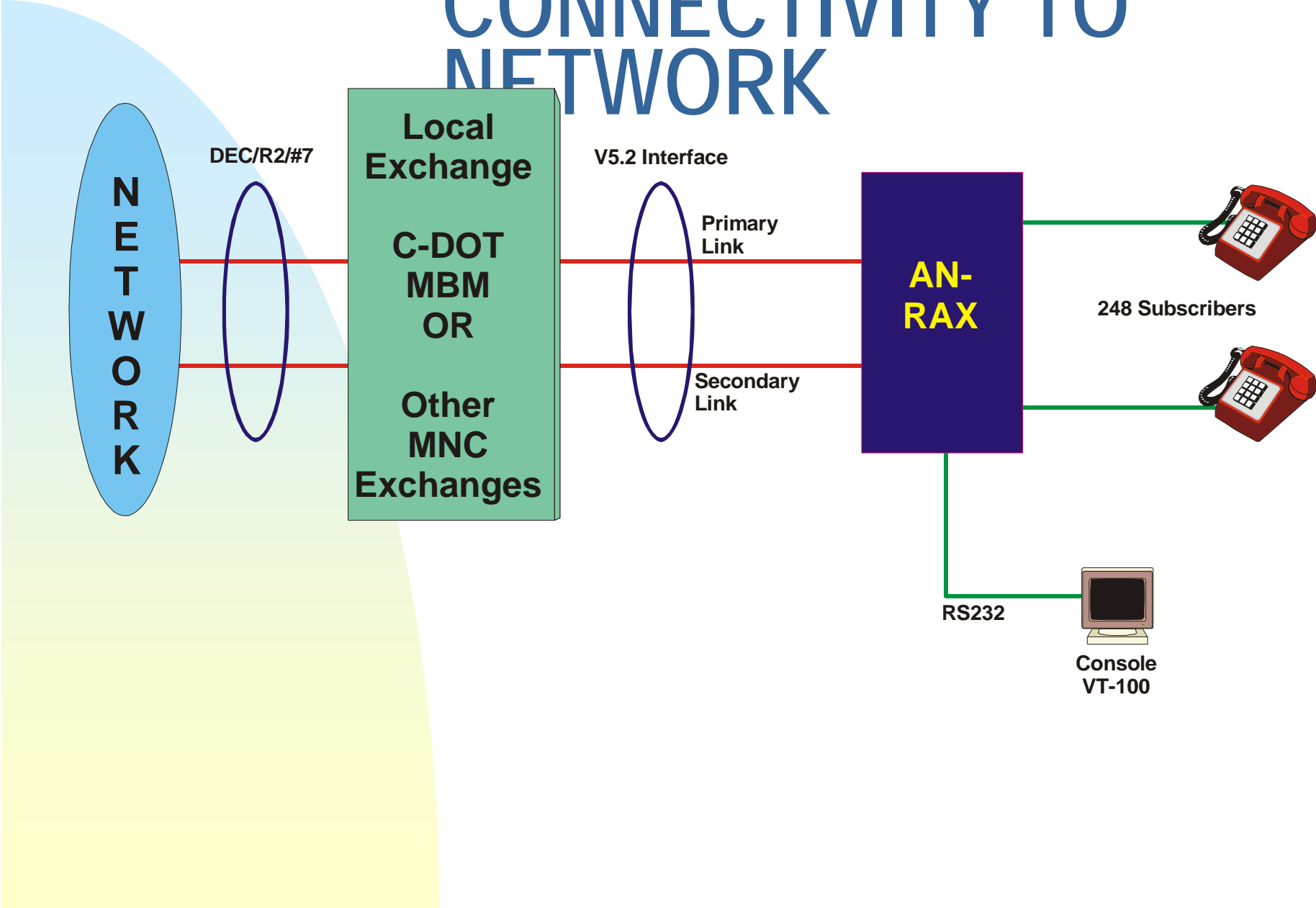


- CARD DETAILS :
- TG 1: TC
 - TG 2: RTC, RATØ, TC / RMFØ
 - COPY Ø MASTER: RWC / TPC, ISPCØ, RSCØ, RAPØ
 - COPY 1 MASTER: RAP1, RSC1, ISPC1
 - TG 3: TC / RMF1, RAT1, TC, TC
 - TG 4: RDS / TC, TC, TC
- CNF : CONFERENCE CARD
 - PSU-I : POWER SUPPLY UNIT-I
 - RAP : RAX ADMINISTRATIVE PROCESSOR
 - RAT : RAX ANNOUNCEMENT AND TONE CARD
 - RMF : RAX MULTI FREQ. CARD
 - RSC : RAX SWITCH CONTROLLER CARD
 - RTC : RAX TERMINAL TEST CARD
 - RWC : RAX WLL CONTROLLER CARD
 - SPC / ISP : SIGNALLING PROCESSOR CARD / INTEGRATED SIGNALLING PROCESSING CARD
 - TC : LCC/TWT/EMF/RDT/CCM CARD

256P RAX CARD FRAME CONFIGURATION



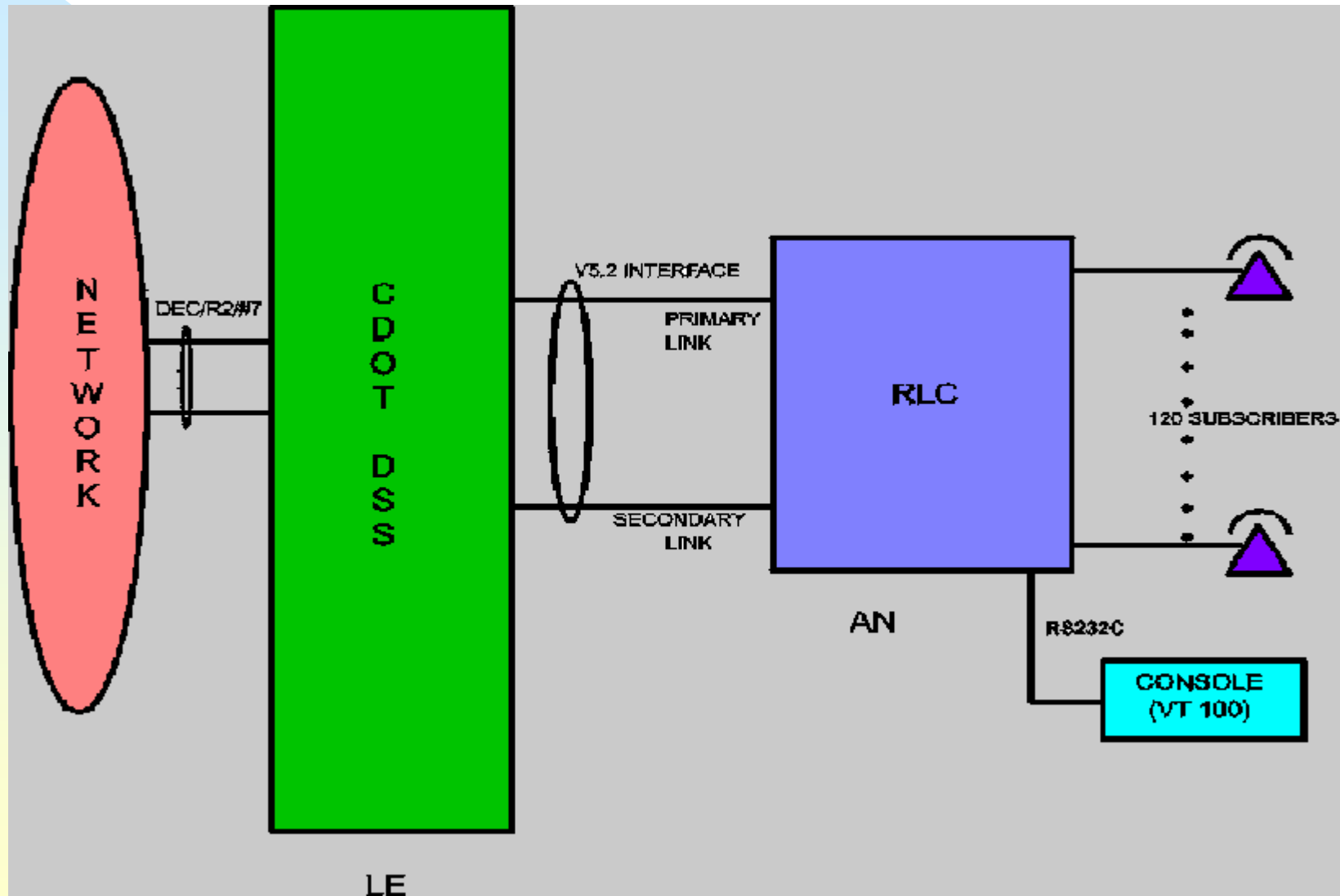
CONNECTIVITY TO NETWORK



DIFFERENCE BETWEEN C-DOT RSU AND C-DOT AN-RAX

C-DOT RSU	C-DOT AN-RAX
<ul style="list-style-type: none">● First Level of Remoting	<ul style="list-style-type: none">● First/Second Level of Remoting
<ul style="list-style-type: none">● Connected to LE through Proprietary Protocol	<ul style="list-style-type: none">● Connected to LE through Standard V5 protocol
<ul style="list-style-type: none">● In standalone mode it performs the various call processing & Billing functions	<ul style="list-style-type: none">● In standalone mode it only feeds the tone/ announcement to the subscriber

REMOTE LINE CONCENTRATOR(RLC) AS ACCESS NETWORK



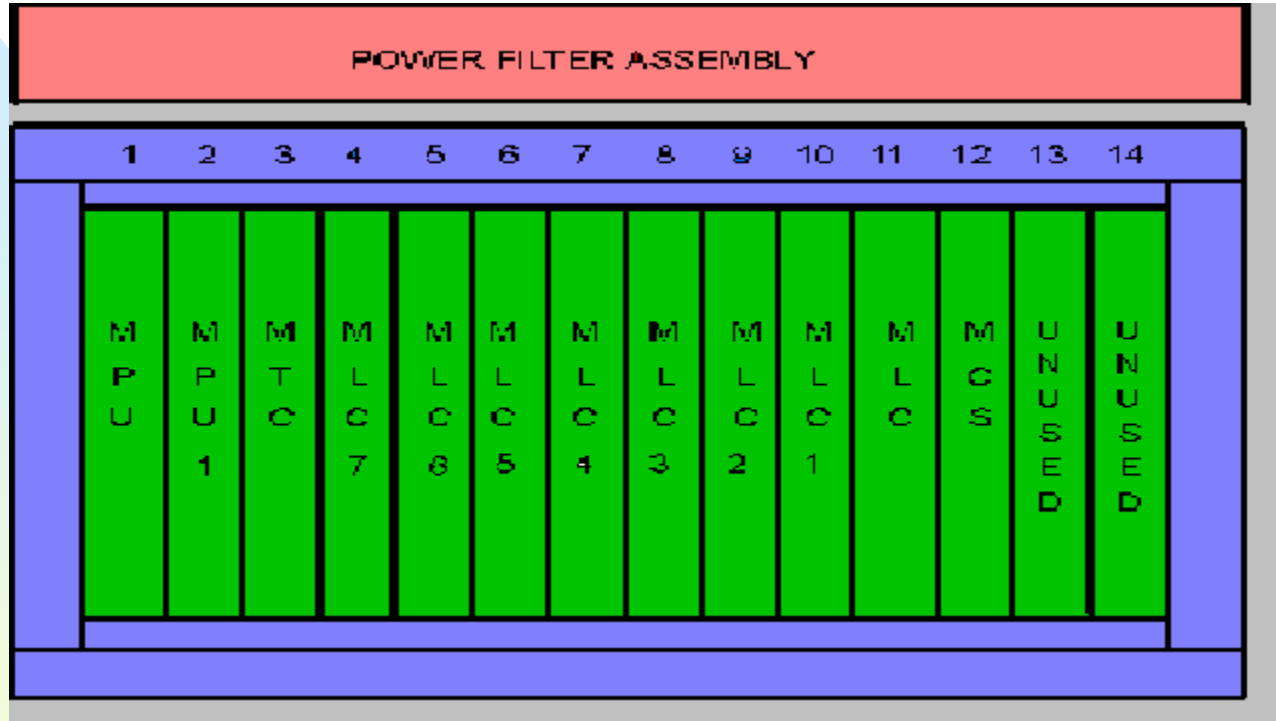
FEATURES

- **Provides front end termination**
- **Supports maximum of 120 PSTN subscribers**
- **Supports maximum of 56 ISDN BRA subscribers**
- **Combination of PSTN & ISDN BRA subscribers. (Compatible motherboard)**
- **Connected to Local Exchange (LE) over two E1 links**
- **Provides second level of remoting**
- **Provides a transparent link between subscribers and local exchange**

FEATURES

- Provides 16KHz metering pulse, Reversal and Calling Line Identification (CLI) on all ports.
- Provides Man Machine Interface (MMI)
- Password protection
- Wall mountable (light weight)
- Require no air conditioning
- Low power consumption
- Will provide HDSL connectivity in future
- Compact in Size (19" packaging)
- Line testing can be performed locally

C-DOT RLC CARD CAGE



- MPU : MUX Power Unit to Provide Ring and Voltages
- MTC : MUX Tester Card for Line Card Testing and to Provide announcement
- MLC : MUX Line Card
- MCS : MUX Control and Signaling Card ; E1 Link Termination and V5 Protocol Software

DIFFERENCE BETWEEN RSU AND RLC

RSU	RLC
<ul style="list-style-type: none">• First level of Remoting	<ul style="list-style-type: none">• Second level Remoting
<ul style="list-style-type: none">• Connected to LE through proprietary protocol	<ul style="list-style-type: none">• Connected to LE through Standard V5 protocol
<ul style="list-style-type: none">• In 'Stand Alone' mode it performs the various Call Processing & Billing Functions	<ul style="list-style-type: none">• In 'Stand Alone' mode, it only feeds the tone to subscribers