

Introduction of DMT (Digital Mobile Trunk)



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1. Market demand

Since the cell phone market has been vigorously spread in the latest few years, now almost every people will carry it as an essential personal communication equipment, therefore, the massive wireless phone calls have rapidly expanded and become a giant consuming market with boundless potential. Since there is a fierce competition to the cell-phone communication market, suppliers have been offering charming discount plans trying their best to win the market. If we could utilize the combinations of different discount plans, it's very possible that we could provide a low-cost plan than the existed ones. And the "DMT" is to meet this market demand.

2. Build the channel

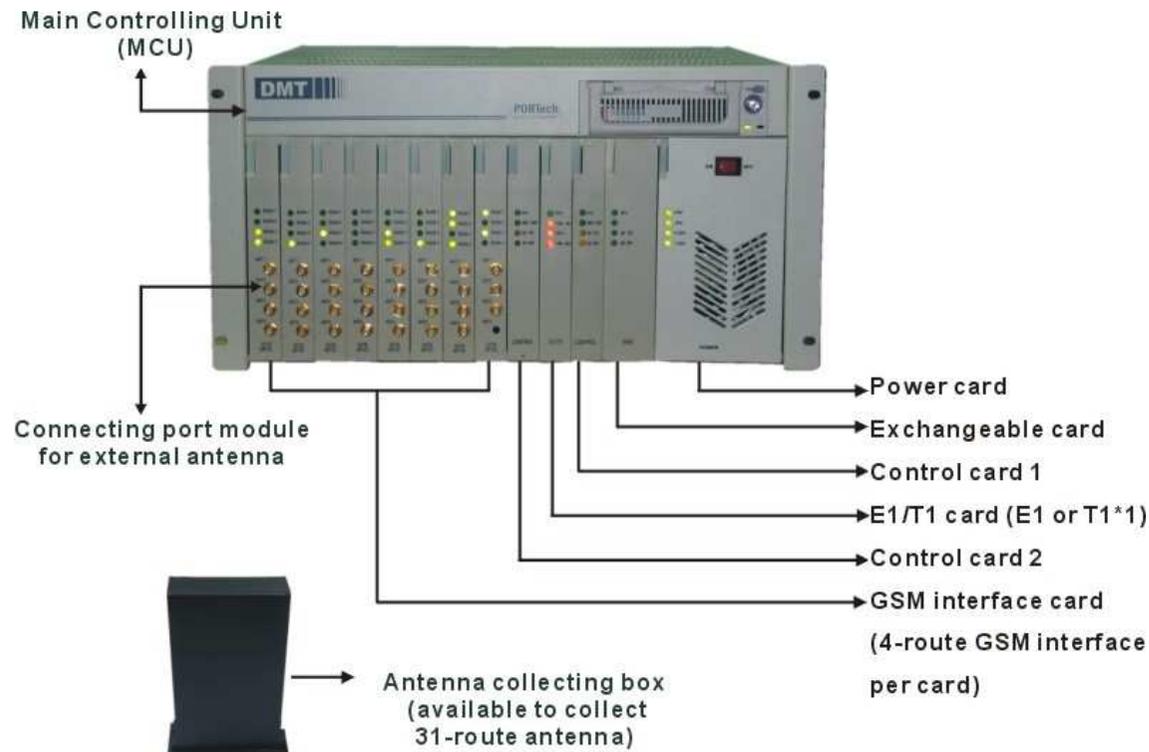
Through our system customer can build a channel to connect the fixed telecommunication network (E1*1 or T1*1) and mobile telephone network (GSM Channel *31).



Communication route (it can also provide the reverse direction or bi-direction communication route according to the customer's need)

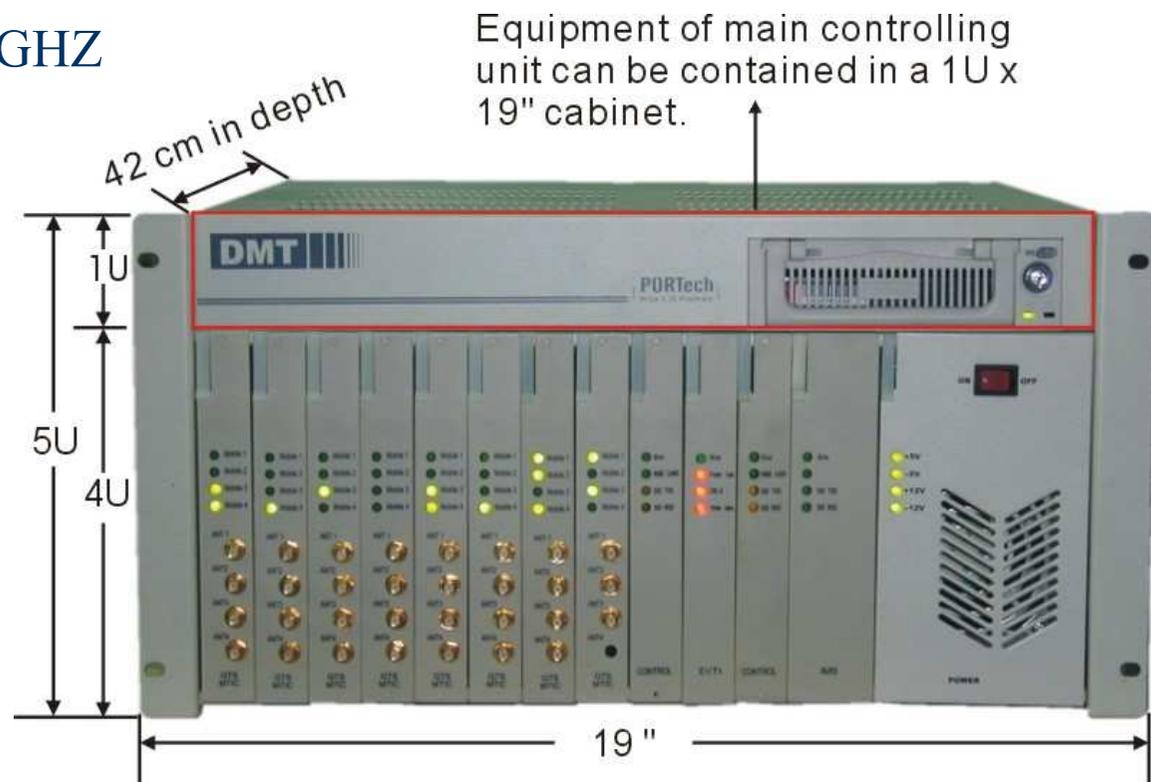
3. System configuration

It applies the front-card-inserting design that contains all the circuit line cards in one rack, provides an easy way to exchange the malfunctioned cards.



4. Main controlling unit

- CPU : Pentium III 1 GHZ
- RAM : 256 MB
- Hard disk driver
- Keyboard
- Mouse
- OS : Windows 2000 Professional



5. E1/T1 interface

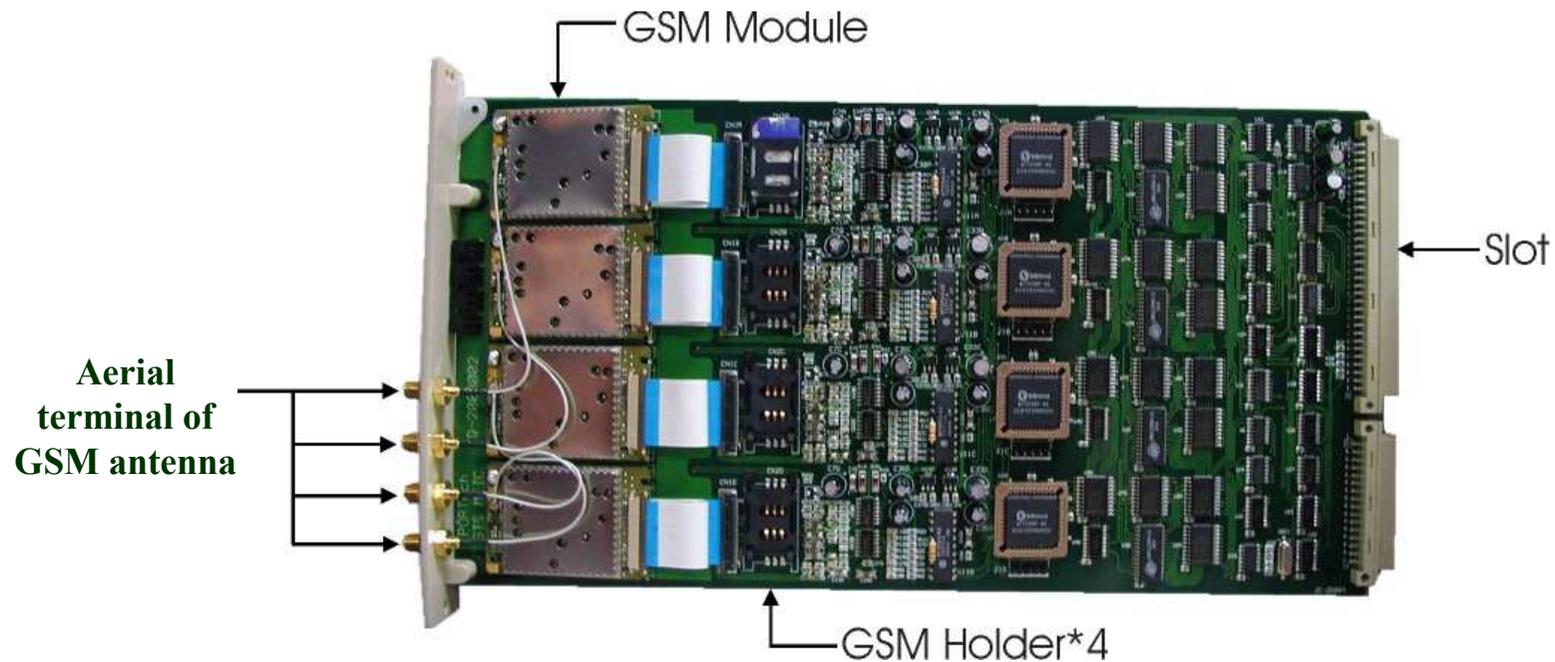
Apply fault-tolerance slot design, to provide different digital trunk card for different demands (E1 PRI, T1 PRI, T1/R1 or E1/T1 DTMF)



Digit Trunk Card

6. GSM interface (Mobile Trunk Interface Card - MTIC)

Each card contains four ports of GSM module to provide four GSM communicating channels.



7. SIM card back panel

SIM card back panel which located at the back of the DMT, allows online replacement of the SIM card.



Can hold 31 sheets of
SIM cards

8. SIM card expander (SCE)

The SIM card expander is an optional equipment which contains 31 sets of SCE circuit cards.



Control panel and display

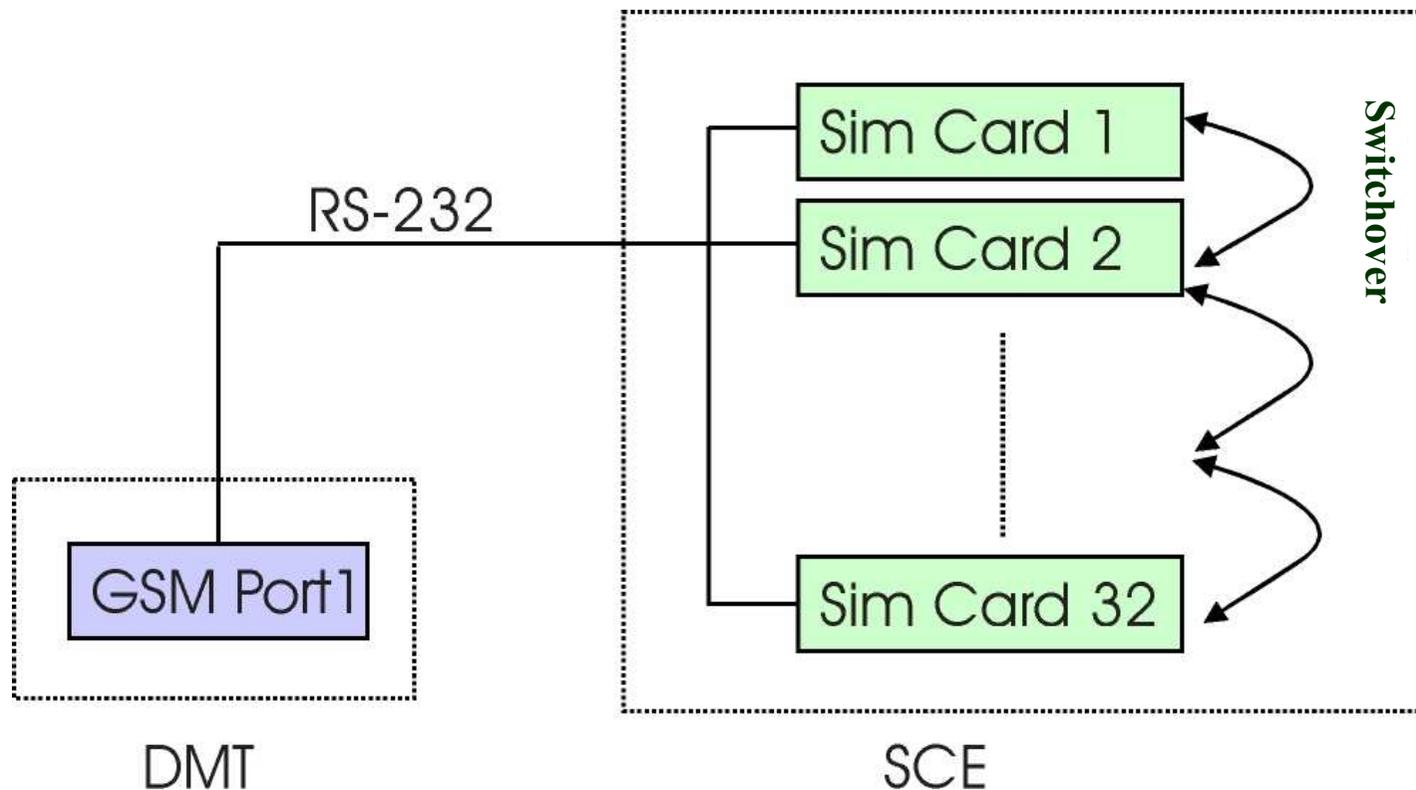
Door lock

8. SIM card expander (cont.)

Each SCE circuit card can hold up to 32 sheets of SIM cards to be switched. The SCE circuit card is hot-swappable.

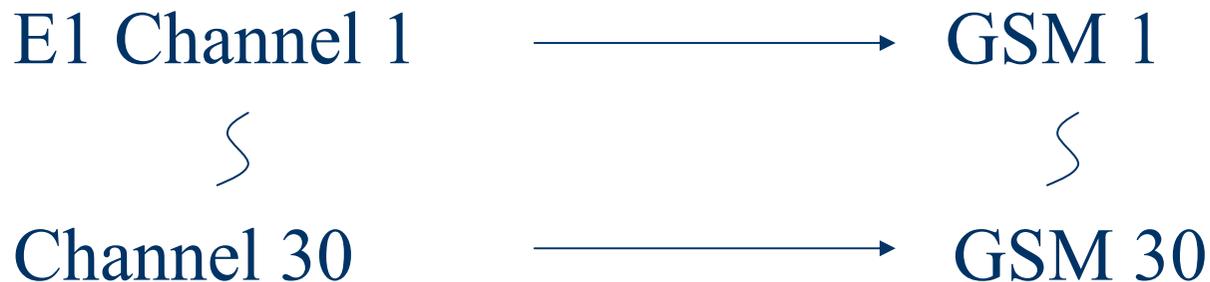


9. Schematic diagram of single-port DMT-SCE configuration.



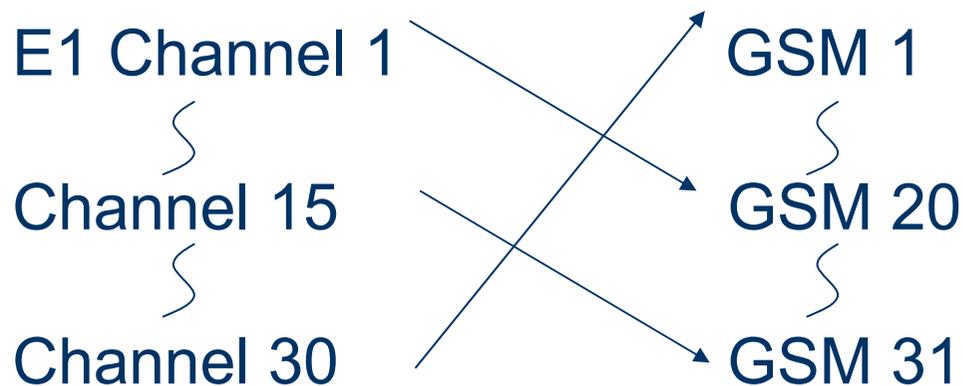
10. Function interpretation

One By One : each E1 channel will connect to the corresponding output GSM Port.



10. Function interpretation (cont.)

Auto-routing for the same network: system will search for the GSM port of the same network to dial out, according to the prefix of the out-dialing number from the incoming E1 channel.



10. Function interpretation (cont.)

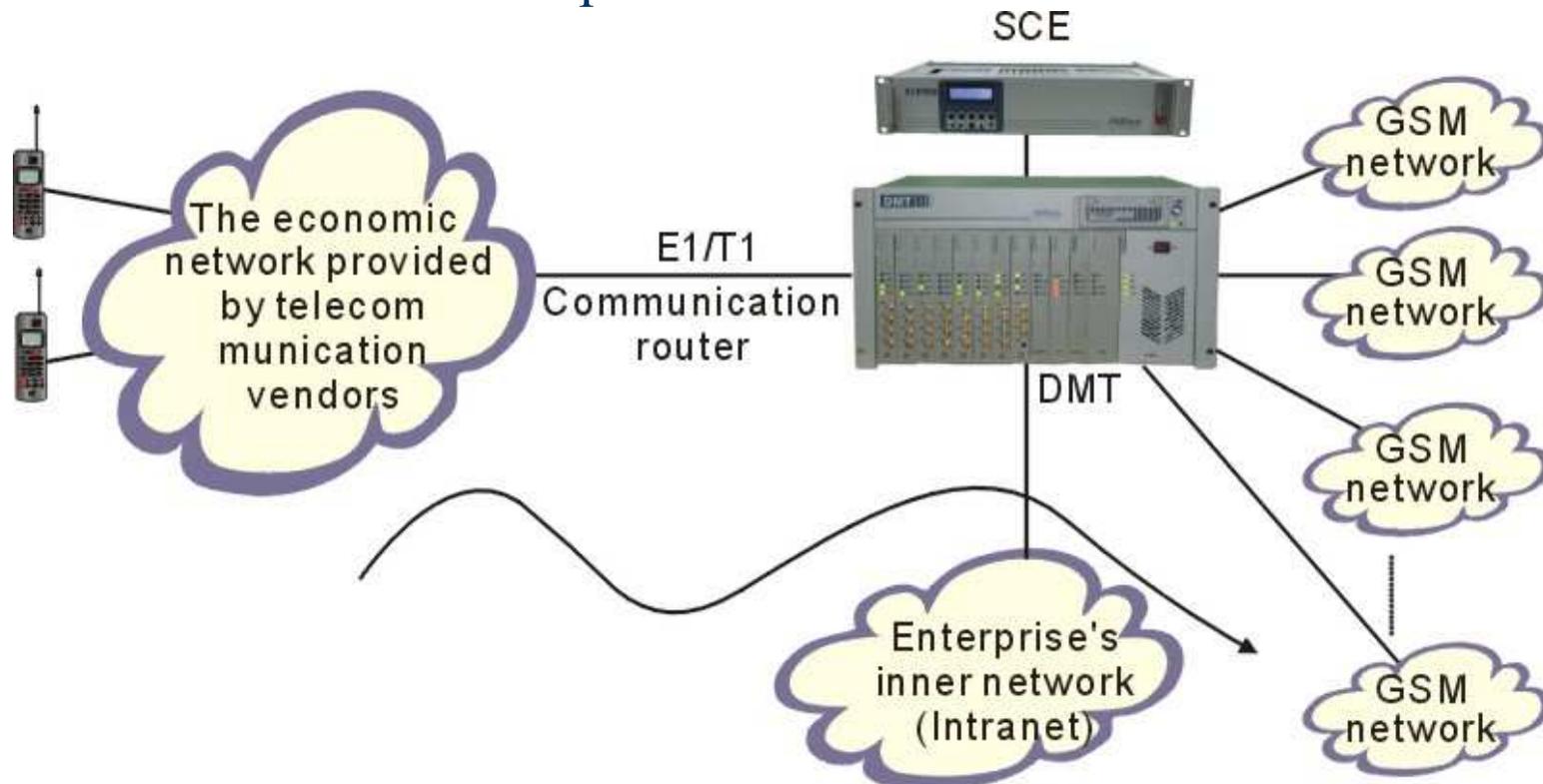
- Password validation: operator has to input the correct password for further setup of the system parameters.
- Hiding the CLID: user can choose whether to hide the CLID of the GSM port or not.
- Calling time: user can assign the calling time for each sheet of the SIM card. When the time runs out, system will block this GSM port, or switch to next unused SIM card (in the case that SCE is installed).
- Call detail record (CDR): the CDR is provided for further use of the billing system.

10. Function interpretation (cont.)

- Backup of CDR: user can set up the path of CDR backup.
- Simulate ring back tone: user can set up whether to simulate ring back tone or not.
- SCE test: system can auto-test the SIM card switching function to ensure the successful switchover without letting the SIM card be used repeatedly.
- ASR statistics: system will provide a time-varying ASR analyzing report for easy understanding the communication traffic.

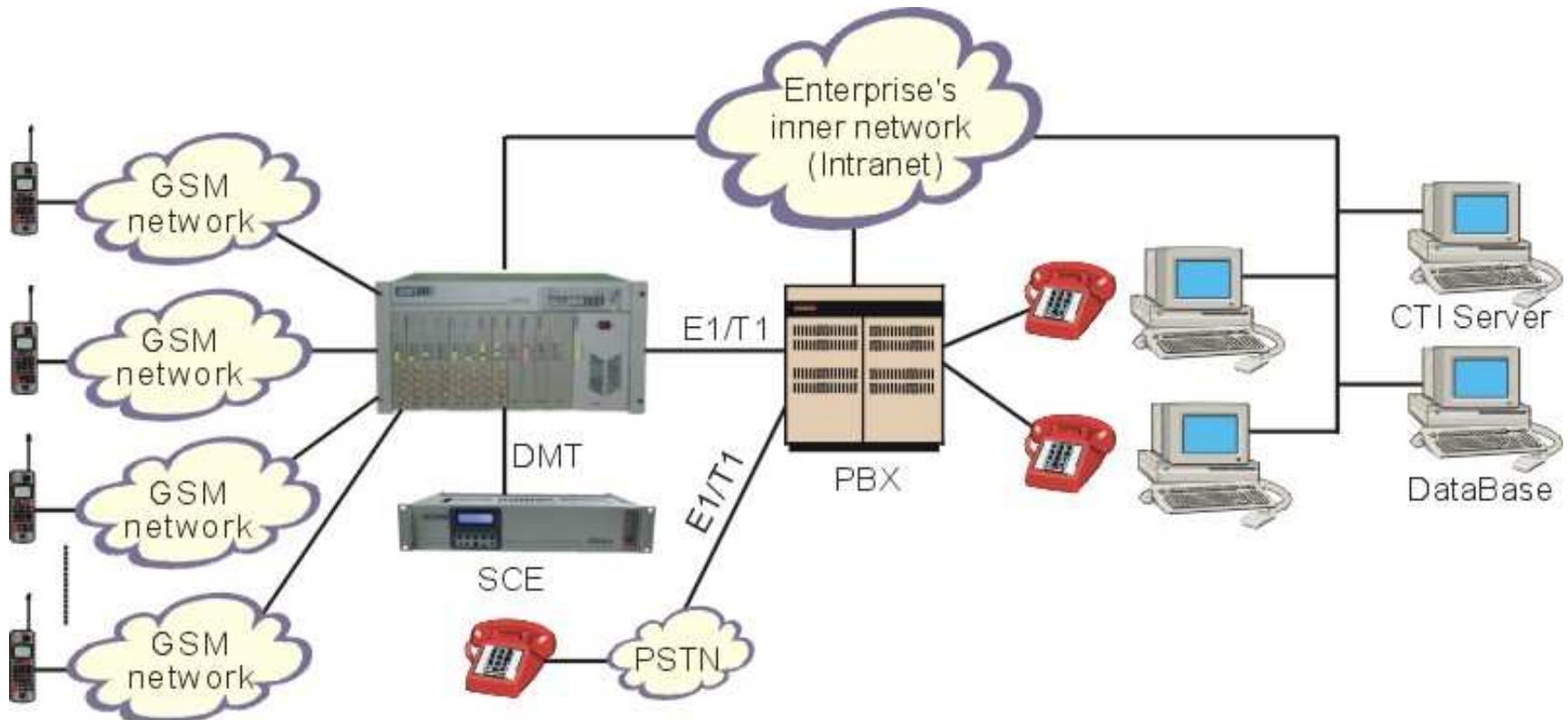
11. Practical example of system application

System configuration for the telecommunication service provider

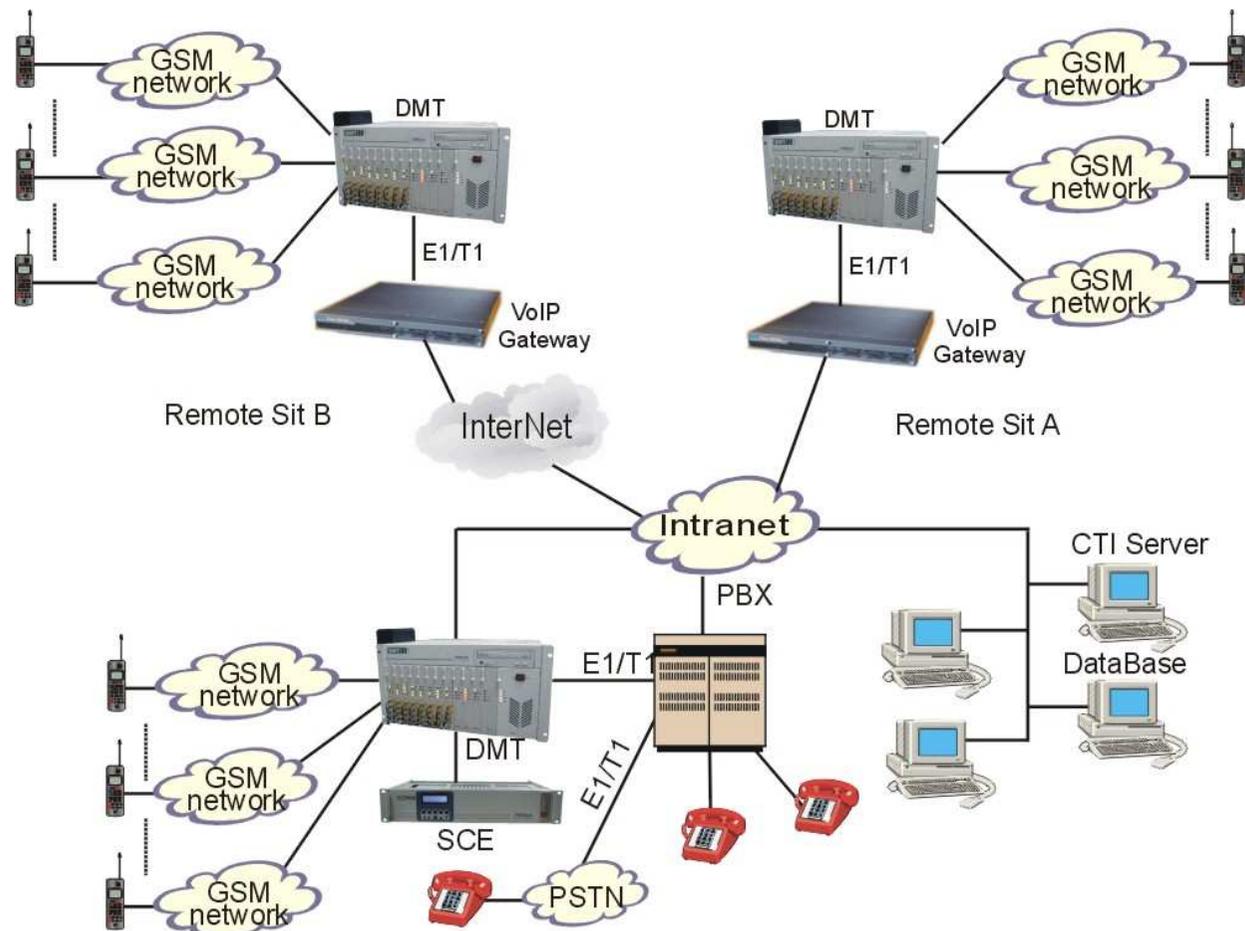


11. Practical example of system Application (cont.)

System configuration for the Customer Service Center



12. VoIP Application



13. Cost analysis of DMT economic telecommunication

Telecommunication suppliers	Plan	Monthly-paid cost	Inner network discount	Outer network discount	DMT inner network calling cost
Chunghwa Telecom. Co.	Good-talk 777	777+88(monthly rent)=865	Free for 700 minutes	Free for 77 minutes	NTD 1.24 per minute
FAREASTONE Telecom.	VIP 888	888	Free for 777 minutes	Free for 111 minutes	NTD 1.15 per minute
Taiwan Cellular Corp.	Hot-talk 800	800+66(monthly rent)=866	Free for 700 minutes	Free for 100 minutes The monthly rent can compensate the call fee	Under NTD 1.24 per minute
KG Telecom.	Long-talk 900	900	Free for the first 5 minutes	Free for 100 minutes	Free-charge for the first five minutes
Mobitai Communication ISP	Sharp-talk 200	200+99(monthly rent)=299	Free for 200 minutes	The monthly rent can compensate the call fee	Under NTD 1.45 per minute

14. Other applications

Other applications:

GSM auto-dialing system

GSM interactive voice responser (IVR)

GSM control center

PS: This system is the CTI platform for fixed network and GSM network communication, it can be developed to meet all the customers' requirements .

15. Conclusion

In the past time, the CTI application market was founded on the fixed network system, whereas the cell-phone system was an independent application field. Now we use the DMT system to integrate these two fields (PSTN & GSM) to make the market application more flexible. So far the DMT is a vigorous product in the economic telecommunication market, which can low down the operating cost and become more competitive to the market. Also, through the market's constant change the DMT system will provide various value-adding services over the high flexibility of system configuration.