

# **Mobile Telecommunication in Mainland China**

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**MII**

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# CATR

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  - ❖ **support work for government**
    - ◆ **development planning, policies and regulations, network standards**
  - ❖ **services for the industry**
    - ◆ **quality system certification ,product certification, network planning/design and consultancy**

# Contents

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- ❑ **Introduction of operators in China**
- ❑ **The current mobile market**
- ❑ **Mobile service**
- ❑ **The mobile network system**

# Introduction of operators in China

- A series of reforms during last 10 years
  - ❖ Before 1990, China Telecomm owned by the government.
  - ❖ In 1994, a new company—China Unicom.
  - ❖ Around 2000Y, China Telecomm was divided : China Telecomm, China mobile, China Satellite Comm. All together 4 operator.
  - ❖ 2002Y, China Telecomm divided again: China Netcom, China Telecomm, Another new company China Railway Communication, all together 6 operators.

# Introduction of operators in China

□ Now, there are 5 national operators and 1 satellite company

❖ 1 full service

❖ 2 mobile service only

❖ 4 fixed network

❖ All data service, all IP phone service

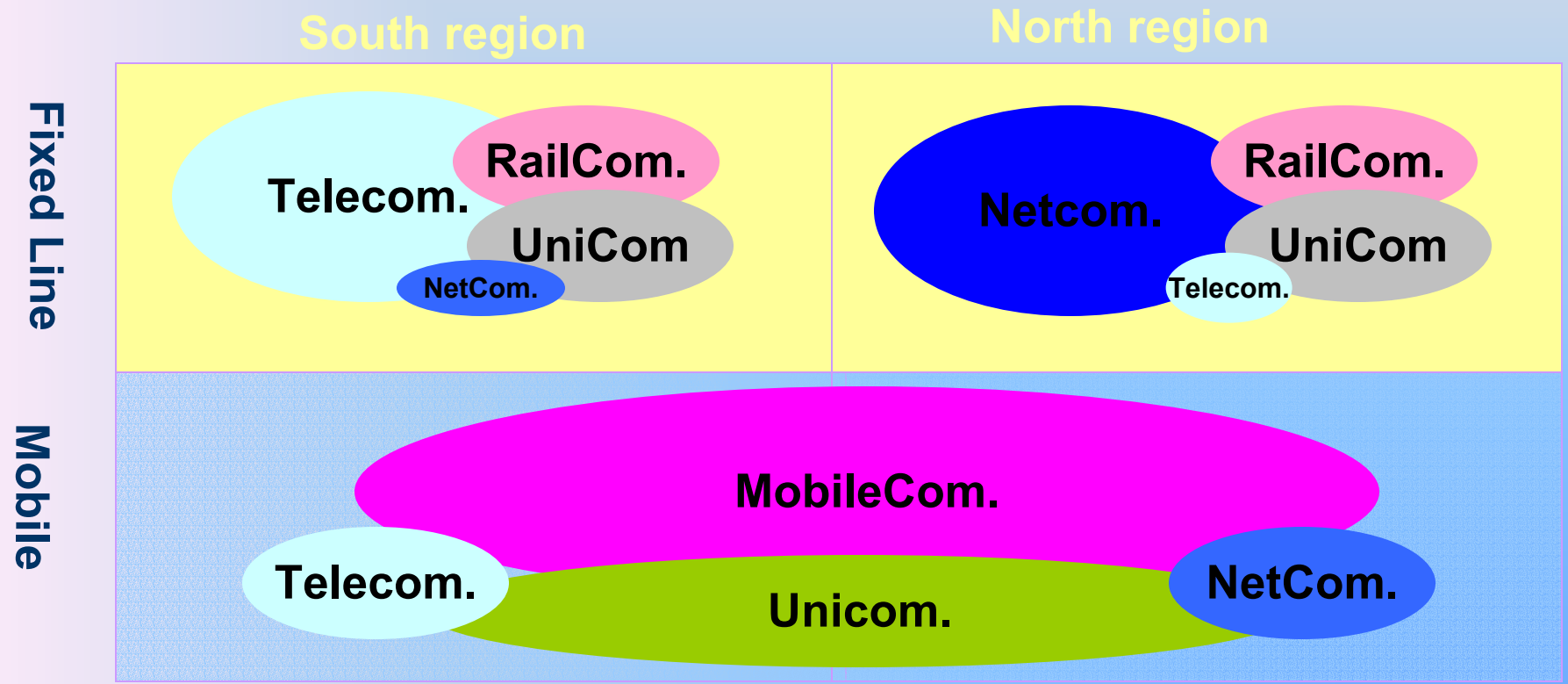


	Fixed line	Data	Mobile	IP phone	Service Area
China Telecom.	□ □ □	□ □ □		□ □ □	South region mainly
China Netcom.	□ □ □	□ □ □		□ □ □	North region mainly
China Mobile		□	□ □ □	□	National
China Unicom	□ □	□ □	□ □	□ □	National
China Railcom	□	□		□	National
China Satecom		□		□	National

The more □, the more market share

# Introduction of operators in China

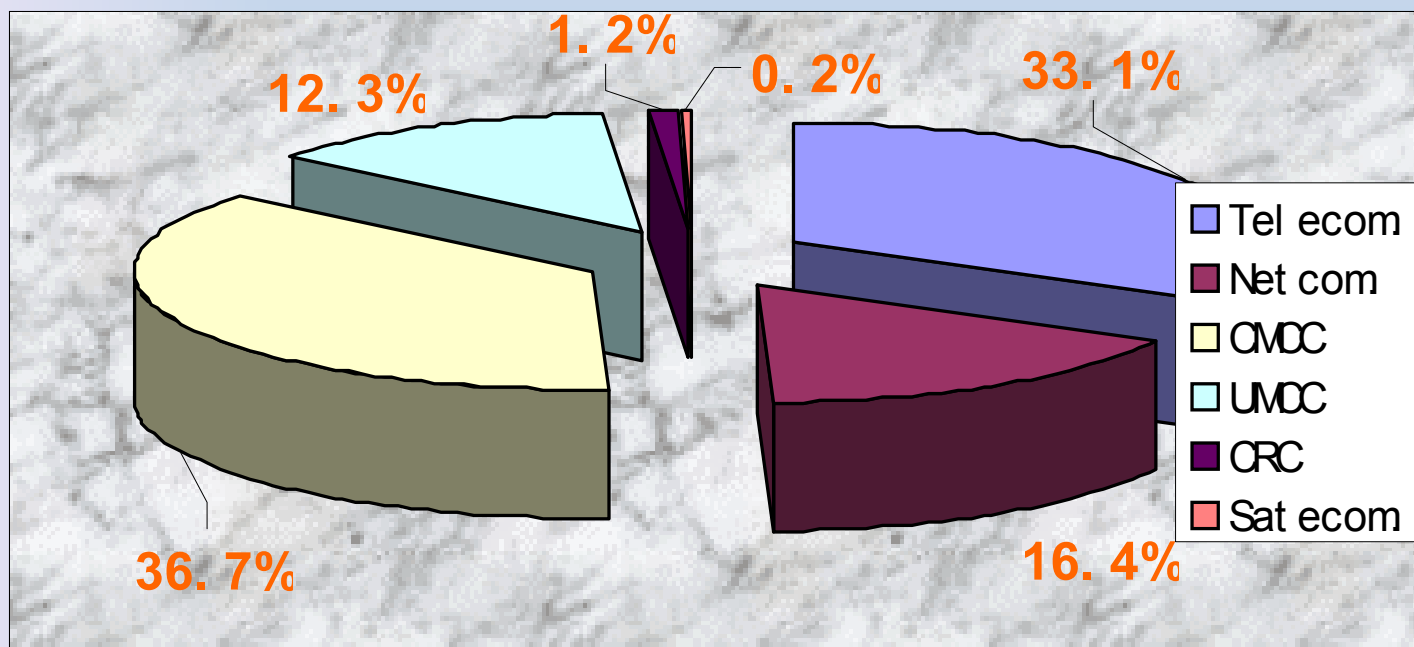
## □ Competition



Oct. 2003, Mobile subscriber > fixed subscriber  
Dec. 2003, Mobile penetration: 21%, fixed penetration: 20.5%

# Introduction of operators in China

## □ Revenue market share



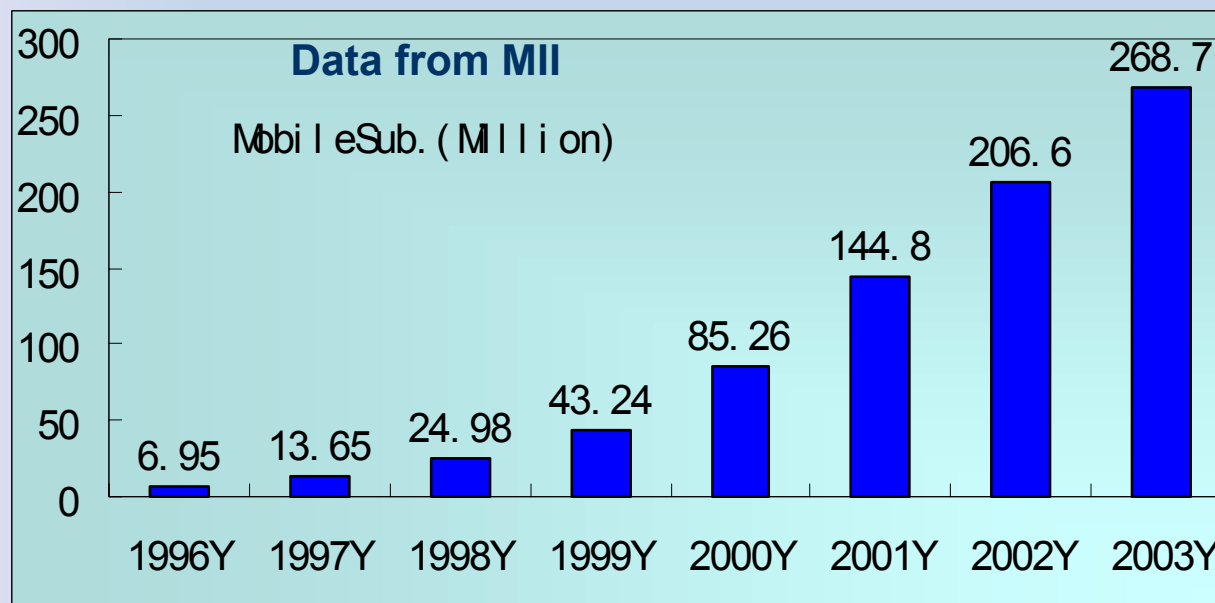
Data resource: MII 2002Y

CMCC No.1 for revenue market share.

CRC and Satecom. , the smallest operators.

# The current mobile market

## □ The rapid subscriber growth history



**By June. 2004 Mobile sub is over 300 million.  
Over 20% of mobile subscriber world .  
The world largest GSM operator  
The world 2<sup>nd</sup> largest CDMA operator**

# The current mobile market

## □ The key factors to accelerate the growth

### ❖ Competition environment: More operators enlarged the market

- ◆ before 1996 CMCC only; GSM only
- ◆ 1996-2000 CMCC vs UMCC; GSM & CDMA,
- ◆ After 2000 CMCC vs UMCC, China Telecom. China Netcom, GSM, CDMA, PHS

### ❖ Fee: The cheaper, the more uses

- ◆ before 1999, only one fee type: 50RMB month fee + 0.4 RMB/Min, average 0.6RMB/Min, ARPU > 160 RMB
- ◆ After 2000Y, Prepaid service widely accepted, average 0.35 RMB/Min, ARPU < 100 RMB.

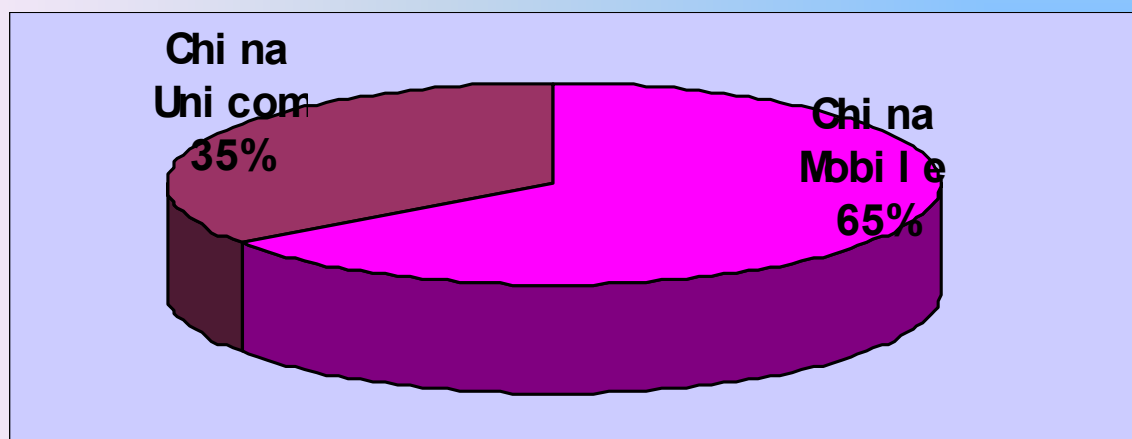
### ❖ Terminal: multi brand, powerful function, low price.

- ◆ 2000Y, the average price above 2500 RMB, only voice/SMS, gray screen only
- ◆ the average price about 1500 RMB, support WAP/MMS, colorful screen etc.

# The current mobile market

## □ Market share

- ❖ China Mobile: run GSM/GPRS system, the largest network of the world (network capacity about 250mill)
- ❖ China Unicom: run GSM and CDMA system,
- ❖ By 2003Y, total subscriber over 268million.



Note: PHS subscriber not include, 2003Y, the number was about 35 million.

# The current mobile market

## □ The trend of mobile market

- ❖ The solid economic development ensure the stable incoming growth for people.(GDP>8%)
- ❖ Low penetration: by 2003Y, only 21%, for 1.3 billion people, the market is tremendous.
- ❖ 3G will be deployed in the near future, more operators, new technology : lower the fee.
- ❖ New service are becoming the new incoming source.

It's estimated by 2005Y,the subscriber will be 360 mill, by 2008Y, will over 480mill.

# The current mobile market

## □ Various brands to meet market need.

### China Mobile 3 Brands



high-value  
customers  
Contract  
Service care



Low-value  
Customers  
Prepaid  
Fee care



Fun-Love-Youth  
group  
Function care

### China Unicom 4 Brands



GSM based  
Contract and  
Prepaid



CDMA based  
Contract and  
Prepaid



GSM&CDMA  
Contract



Mobile Data  
CDMA based

# Mobile Service

## □ Mobile service

- ❖ Voice: the main revenue resource

- ❖ Mobile Data & other new service: the new revenue resource.

SMS,MMS,GPRS browsing,CDMA 1X browsing.

New service revenue: China Mobile 10%,China Unicom7%。

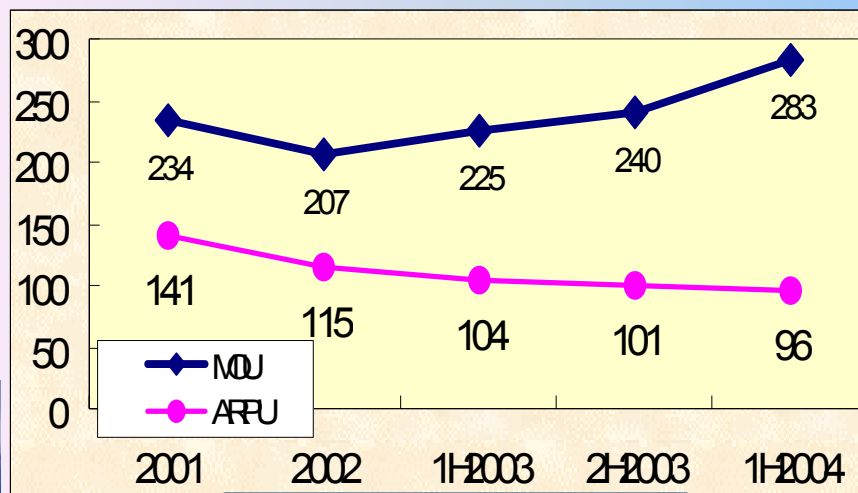
It's estimated new service revenue will be 20% in the next 2 years.

# Mobile Service

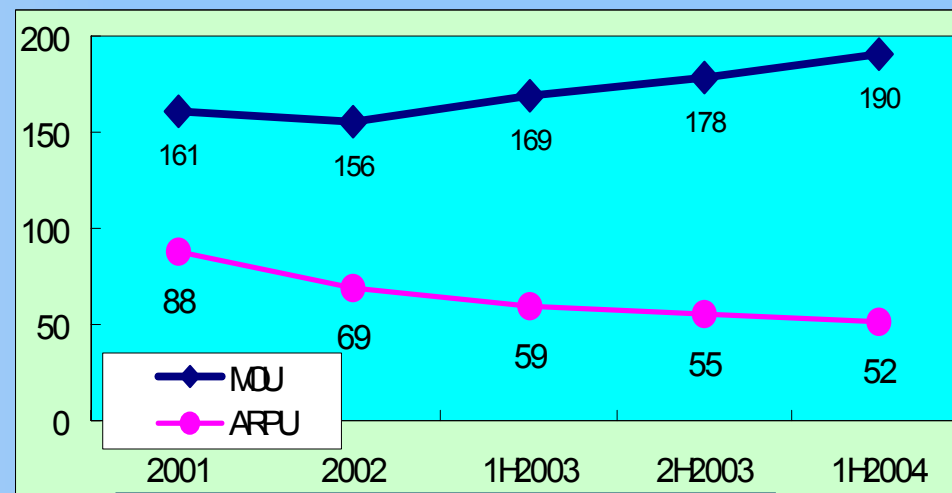
## □ Mobile service

### ❖ Voice: MOU vs ARPU

With more and more low-end user, ARPU would decrease sharply, but increase the MOU, ARPU decreased slowly.



Data from CMCC



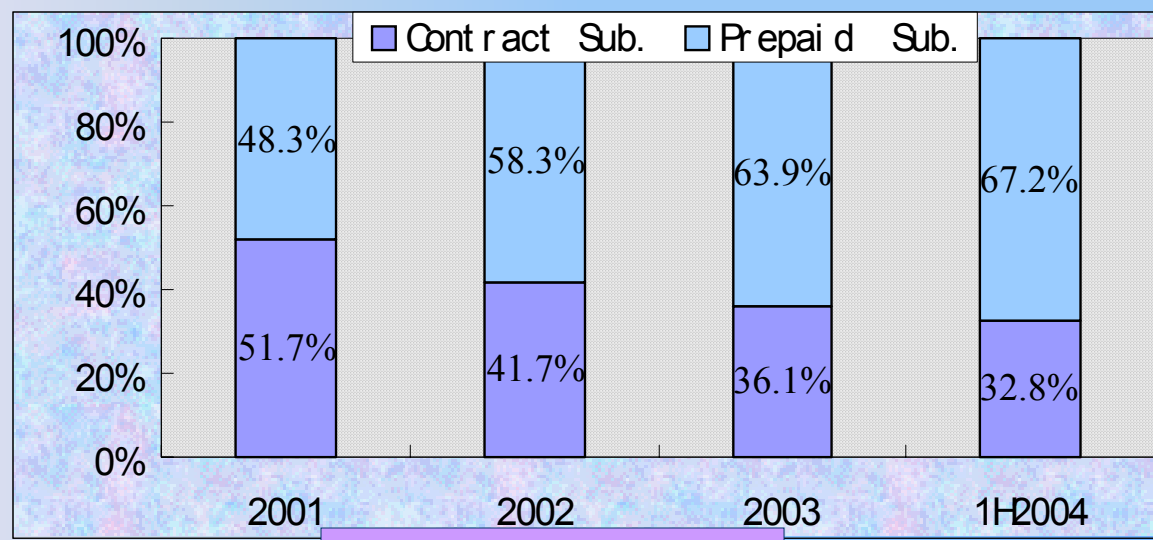
Data from UMCC(GSM only)

# Mobile Service Now

## □ Mobile service

### ❖ Voice: Contract vs Prepaid

more and more low-end user are preferred prepaid service.



Data from CMCC

# Mobile Service Now

## □ Mobile service

### ❖ SMS: The earliest and successful data service .

- ◆ Feature: Open to all subscribers; no registration; all terminal supported, simple fee method ( 0.1 RMB/piece)
- ◆ Penetration: >60% among subscribers. >95% among youth subscribers
- ◆ SMS inter-connect with other system (Different standards, Different operators)
- ◆ New corporate mode: more and more ISP/ICP joined this vast chain to give all kinds of information.

**Most SMS users prefer to pay 10 RMB/Month for SMS**

# Mobile Service Now

## □ Mobile service

### ❖ MMS: growing rapidly,

- ◆ Feature: to all contract subscribers; need registration; change terminal to support, simple fee method ( 0.5-0.6 RMB/piece)
- ◆ It's an extension of SMS mode, but due to the terminal limitation, the penetration is low .

Electrical Card    Phone camera    Entertainment

### ❖ WAP browsing and Web browsing

- ◆ On the beginning stage, The speed is the bottleneck for fast growing. CDMA 1X have better performance than GSM/GPRS.

# The mobile network system

## □ Standard deployed:

- ❖ GSM: China Mobile and China Unicom
- ❖ CDMA: China Unicom
- ❖ PHS: China Telecom. China Netcom.

## □ Frequency allocation

### ❖ GSM:

- ◆ China Mobile: Dual band: 890-909/935-954MHz, 1710-1725/1805-1820MHz.
- ◆ China Unicom: Dual band: 909-915/954-960MHz, 1745-1755/1840-1850MHz.
- ◆ 885-890/930-935 ready for GSM-R

### ❖ CDMA: 825-835/870-880MHz

### ❖ PHS: 1900-1915MHz(TDD)

# The mobile network system

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## □ Number allocation

- ❖ China Mobile: 135-139 (11 digital)
- ❖ China Unicom: 130/131 for GSM, 133 for CDMA
- ❖ PHS: no specific number.

# The mobile network system

## □ Network structure: 3 level

- ❖ Inter province

- ❖ Intra province (capacity:4-30 million)

- ❖ Local level (capacity:100-6000 thousand)

Within level, nodes connect with full mesh topology

Different level, nodes connected with star topology

## □ Inter-connect through Gateway

# The mobile network system

## □ The 3G in the near future

### ❖ Frequency ready:

#### ◆ Core band:

- FDD: 1920-1980/2110-2170 MHz
- TDD: 1880 ~ 1920MHz、 2010 ~ 2025MHz

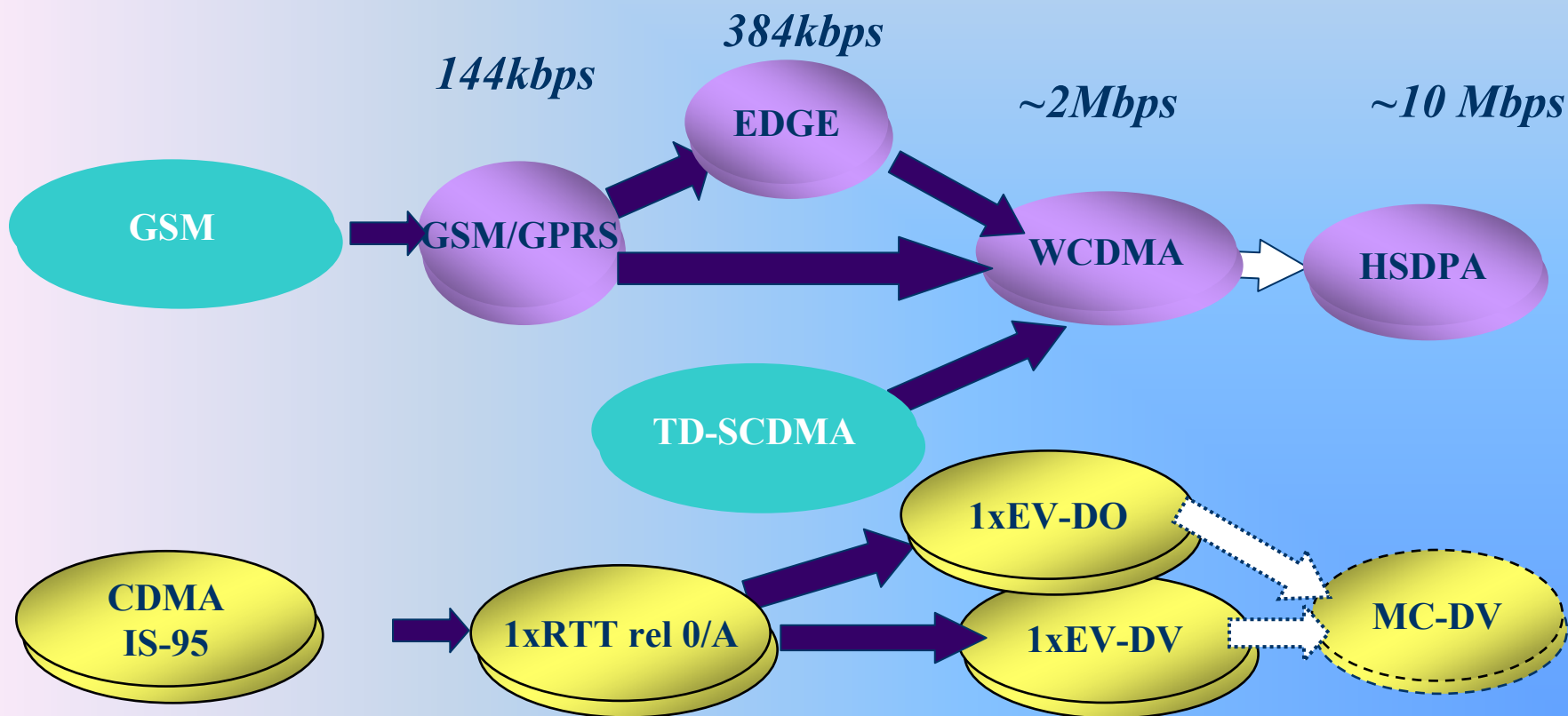
#### ◆ Extension band:

- FDD: 1755-1785MHz/1850-1880MHz
- TDD: 2300 ~ 2400MHz

# The mobile network system

## □ The 3G in the near future

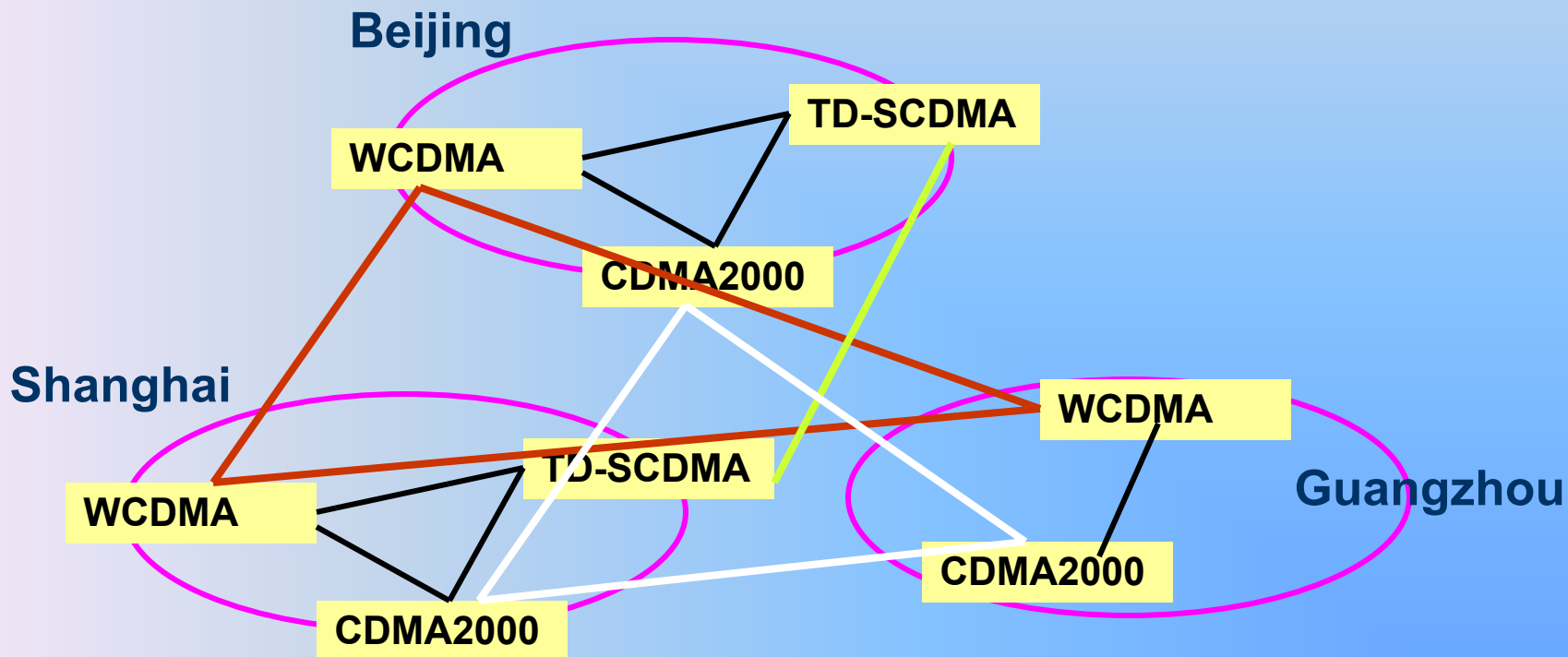
### ❖ 3 evolution ways to 3G



# The mobile network system

## □ 3G field trial in China

❖ 3 standards, 3 cities, all operators, many vendors



# The mobile network system

## □ 3G field trial in China

- ❖ Trial frequency: core band for FDD and TDD
- ❖ Network capacity:

	Beijing	Shanghai	Guangzhou
<b>WCDMA</b>	3 operators 5 vendors 70 NodeB	4 operators 6 vendors 60 NodeB	3 operators 5 vendors 70 NodeB
<b>CDMA 2000</b>	1 operators 2 vendors 20 BTS	2 operators 3 vendors 30 NodeB	3 operators 4 vendors 35 NodeB
<b>TD-SCDMA</b>	2 operators 1 vendors 10 NodeB	3 operators 1 vendors 16 NodeB	

# The mobile network system

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## □ 3G field trial in China

- ❖ 1<sup>st</sup> stage: the function and performance test for each vendor.
- ❖ 2<sup>nd</sup> stage: Inter Operator test for whole system.

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# Thank you