

亞太電信集團

Aptg

Asia Pacific Telecom Group



CDMA2000 v.s. WCDMA

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東森寬頻電信
Eastern Broadband Telecom



亞太行動寬頻電信
Asia Pacific Broadband Wireless Communications



亞太線上
Asia Pacific Online

Introduction of APBW

❖ Establishment

- November, 2001
- Obtained CDMA2000 license E in February, 2002
- Commercial Launched on 07/29/2003

❖ Vision

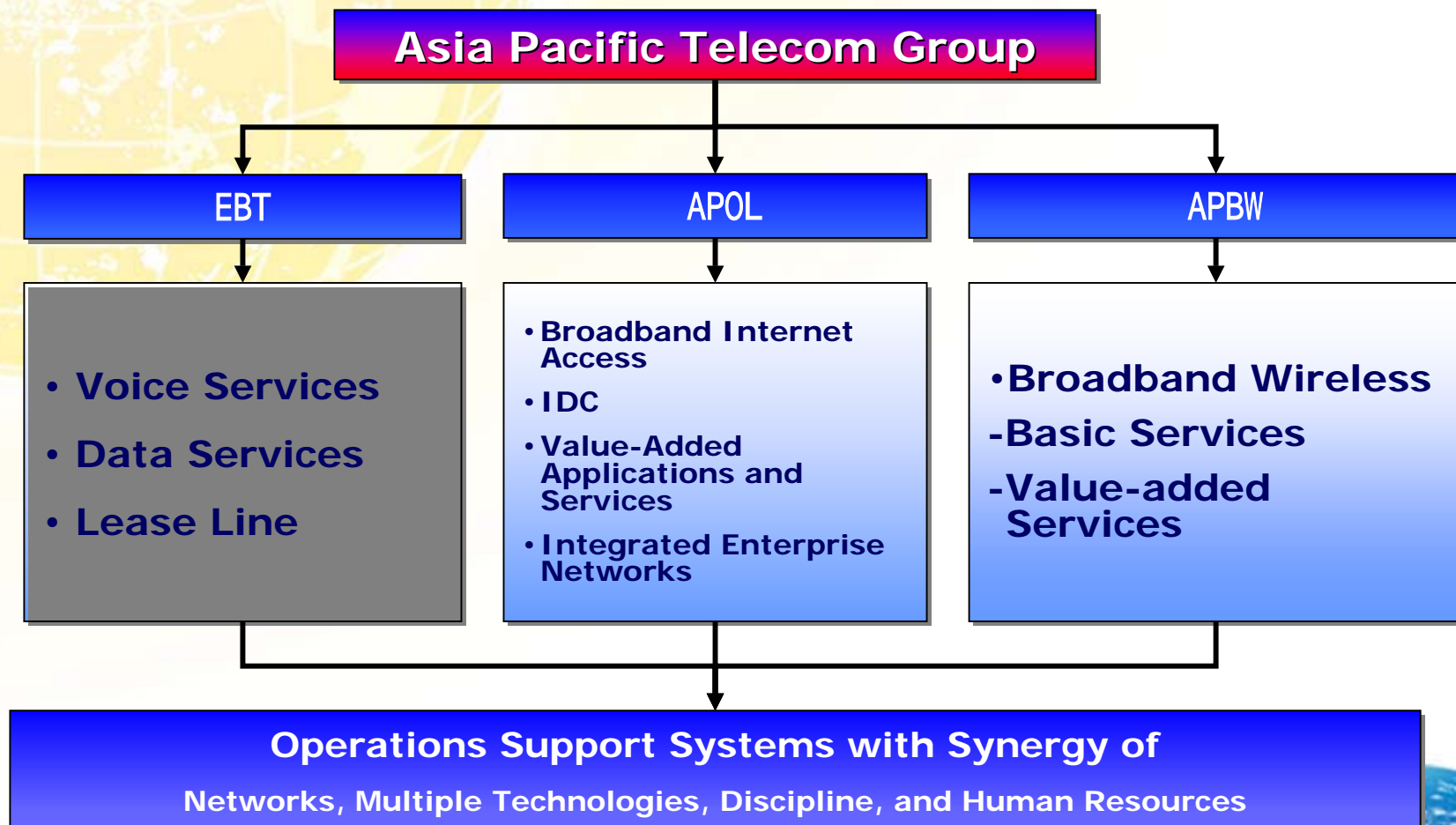
- First 3G operator in Taiwan
- Most valuable mobile service provider
- Innovation, Quality, Efficiency



❖ Objectives

- Integrate voice, data, video and media content
- Form strategic alliance with global renown telecoms to gain regional competitive advantage
- Become the most efficient broadband service provider delivering fix line, cable, internet and mobile communications

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Advanced Technology—Evolution of CDMA Network Standard



- Competition for Mobile Network Transmission Rate

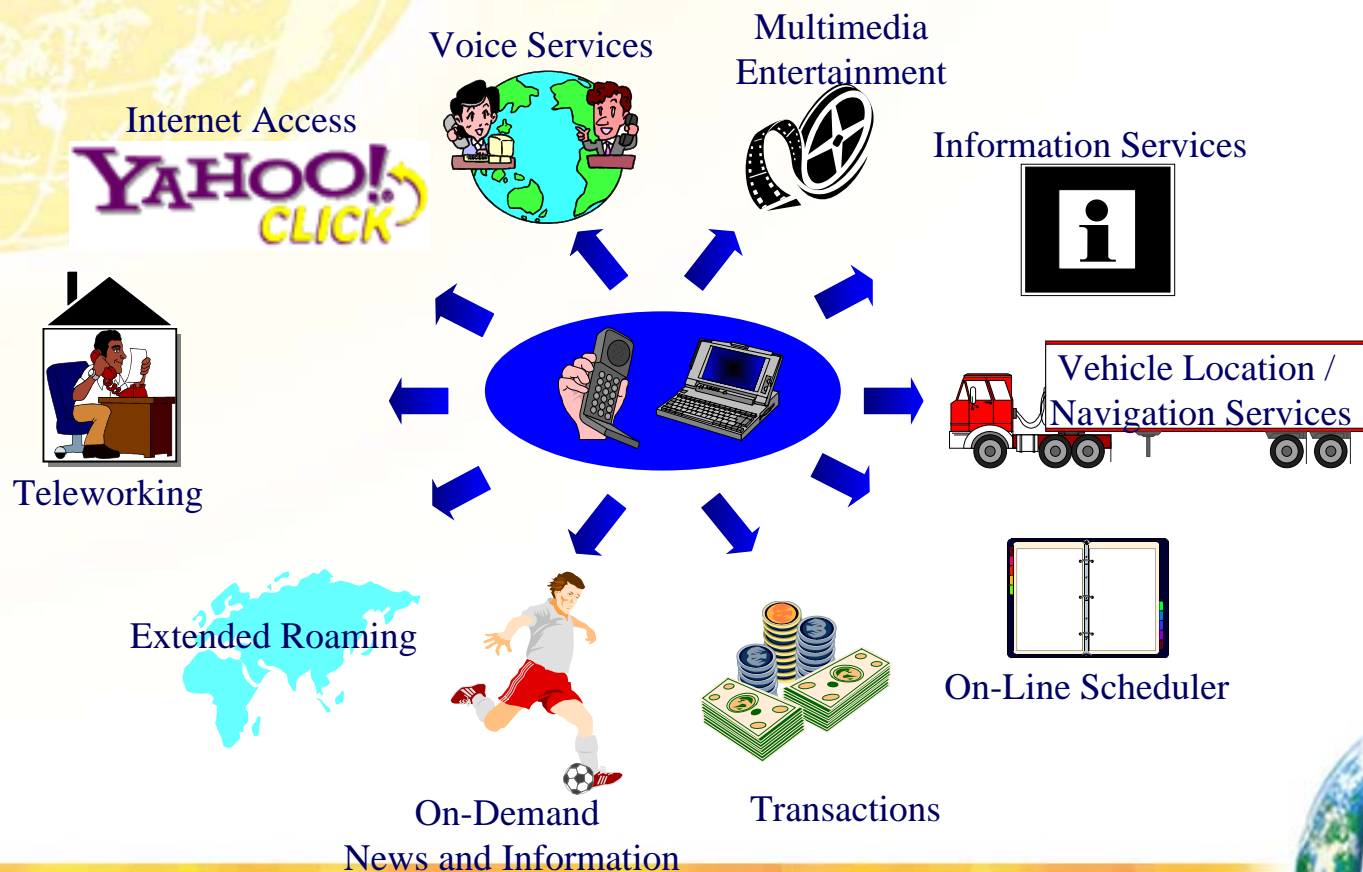
3G Impact to Live Style

Enlarge mobile broadband applications much beyond 2G's capability

•Rich Content

•High Data Rate

•User Friendly



Integrated Product—Various 3G Handsets

- ❖ The specification of CDMA handsets includes High-resolution, passive Matrix Color Display, multi Polyphonic ringing tones, external or integrated digital camera, Caller ID in one or even double screen. Besides, you can capture the moment with the integrated camera and then send your best shots via MMS.
- ❖ Handsets that support GPS can provide accurate location information.
- ❖ The manufacturers for CDMA handsets are a lot, e.g. Benq, Samsung, MOTO, LG, Sanyo, Sony, Casio...etc. Consumers can get what they need in the market.



APBW Services



Quality Multimedia Access

Are You Cute Today ?

- 
-
- **Worldwide Mobile Status**
 - **Successful Story in Asia**
 - **Technical Aspect**

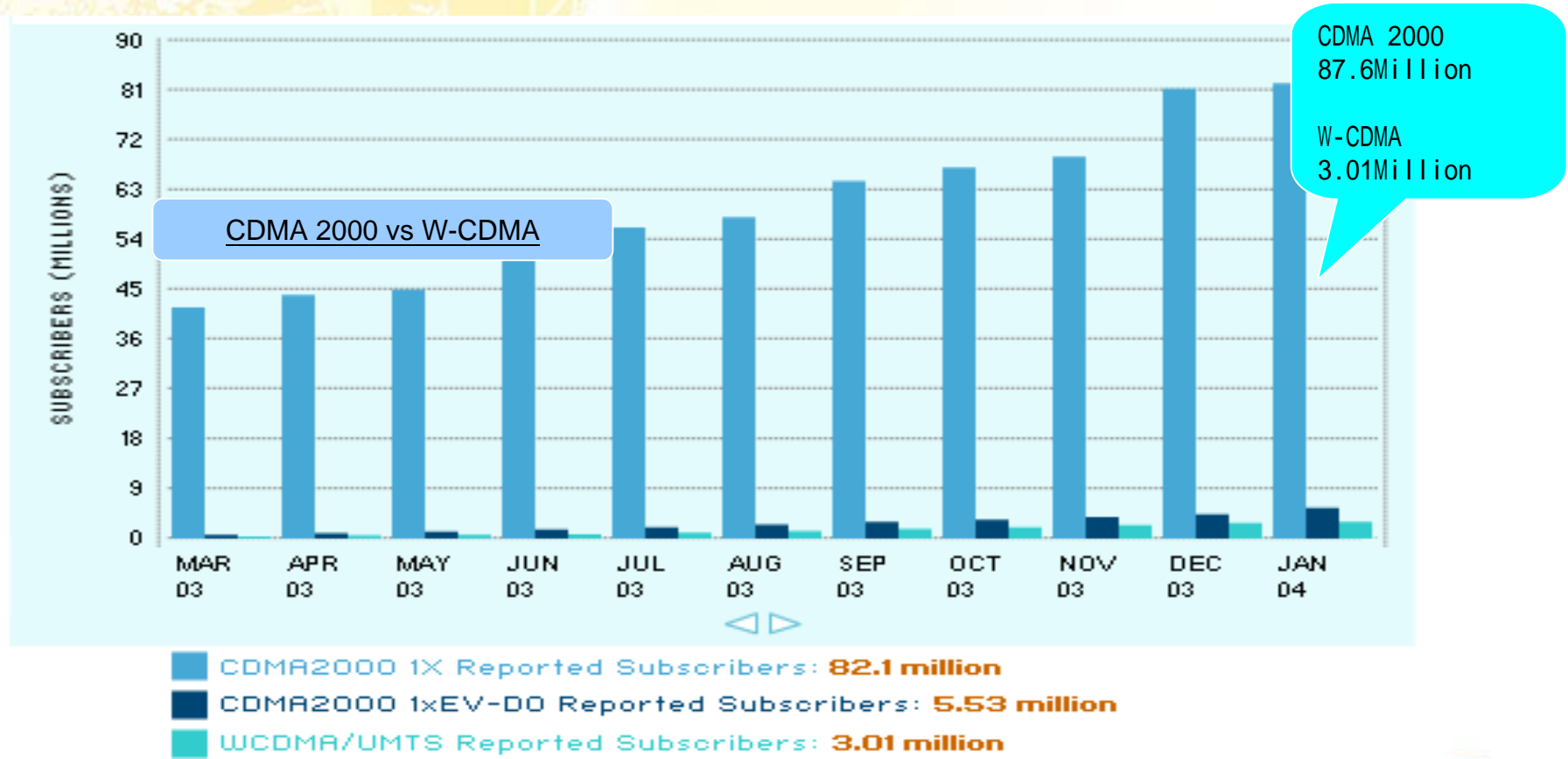
Worldwide Mobile Status as of Jan, 2004

- GSM → 987.3 million
- CDMA2000 1x → 82.1 million
- CDMA2000 EV-DO → 5.53 million
- WCDMA/UMTS → 3.01 million

■ Source:

- GSM MoU <http://www.gsmworld.com>
- 3G today <http://www.3gtoday.com>

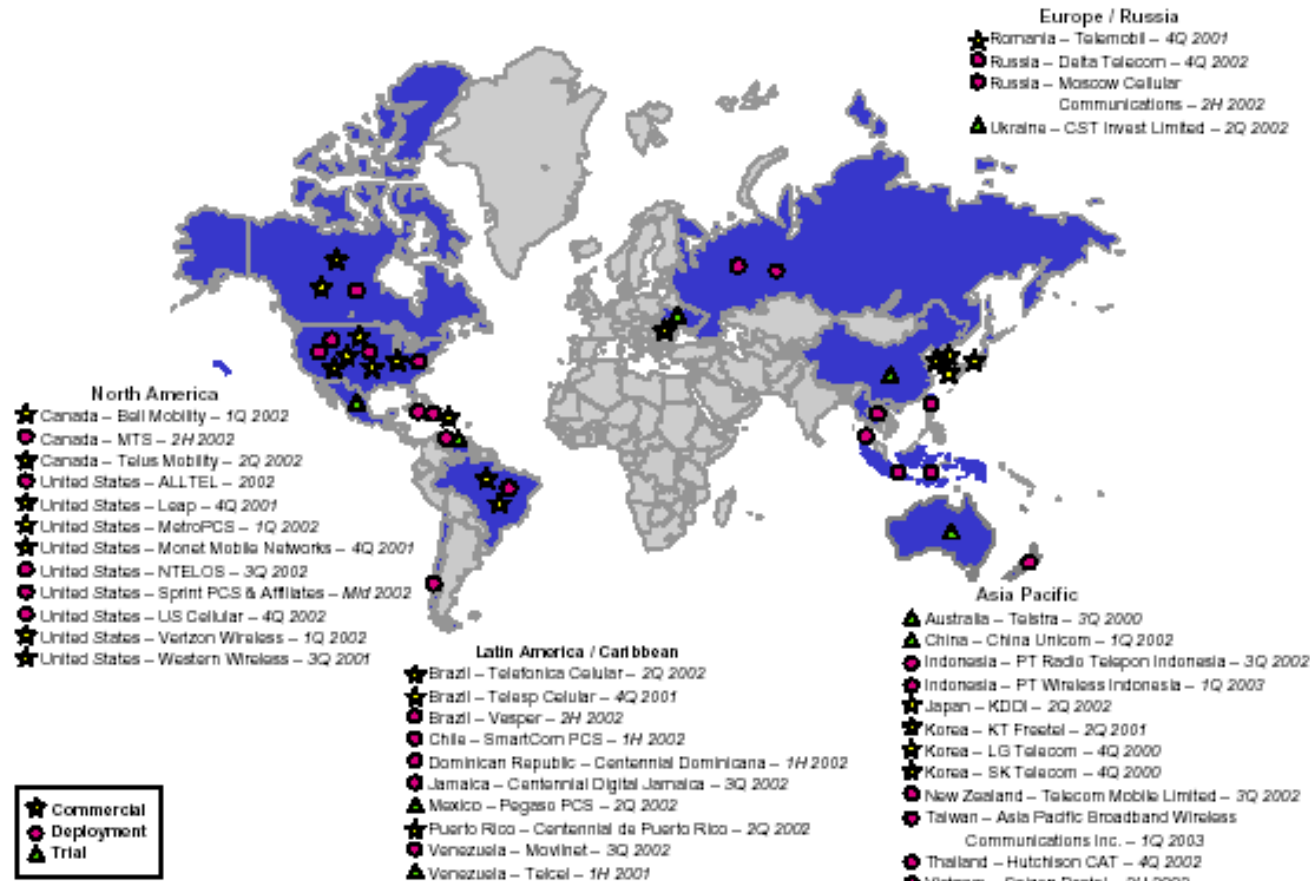
Worldwide 3G Market Status as of Jan, 2004



- **Worldwide Mobile Status**
- **Successful Story in Asia**
- **Technical Aspect**

IS95 & CDMA2000 deployments

- CDMA2000 is currently continuously spreading out
- There are about 18 commercial 3G CDMA2000 networks today

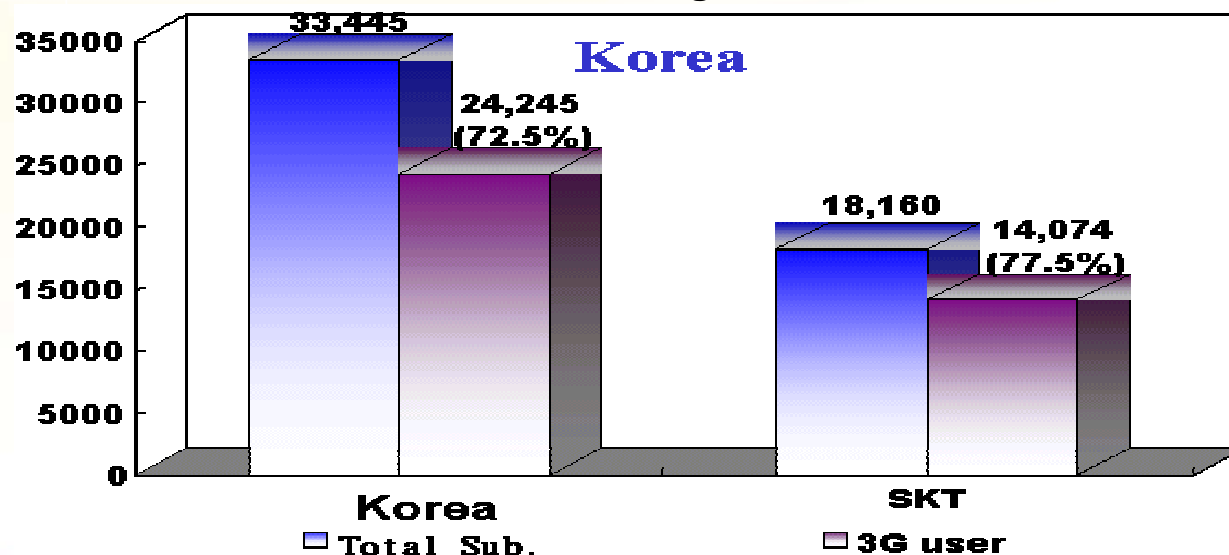


CDMA2000 Success Story in Korea as of Nov, 2003

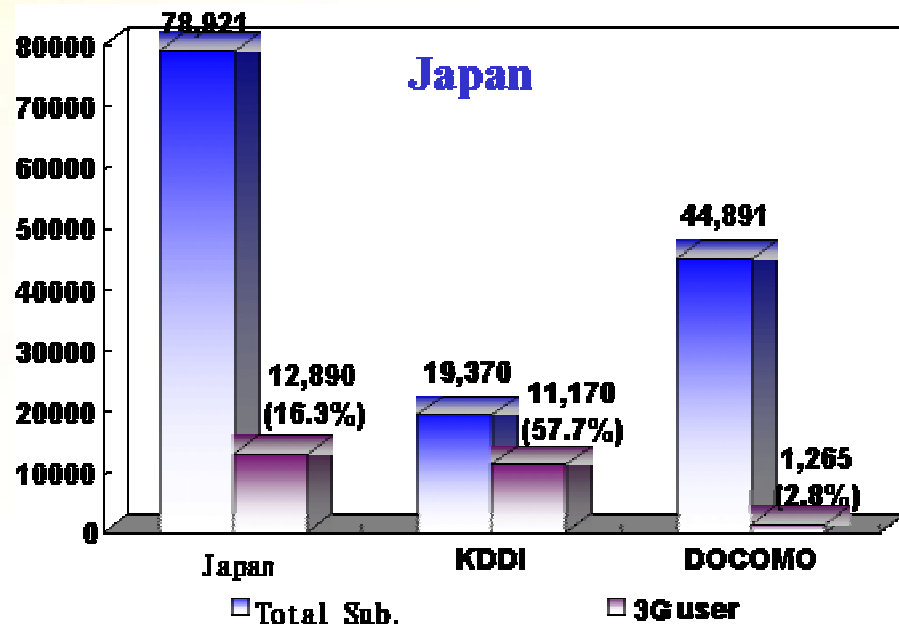
South Korea Subscribers as of Nov, 2003				
Type	Sub. (m)	SKT	KTF	LGT
Total Mobile	33.4	18.2	10.4	4.8
CDMA2000 1X	24.2	14.0	7.2	3.0
CDMA2000 1X (%)	72.5%	77.5%	68%	62%

❑ SKT: CDMA2000 1X, ARPU =US\$48 is double to 2G

❑ SKT: ARPU CAGR = 7%, Data growth rate = 50%



CDMA2000 Success Story in Japan as of Nov, 2003



❑ Total 3G sub. in Japan in Nov, 2003 = 12.9M

❑ KDDI (CDMA2000 1X) 3G user = 11.2M,
DoCoMo (WCDMA) user = 1.3M

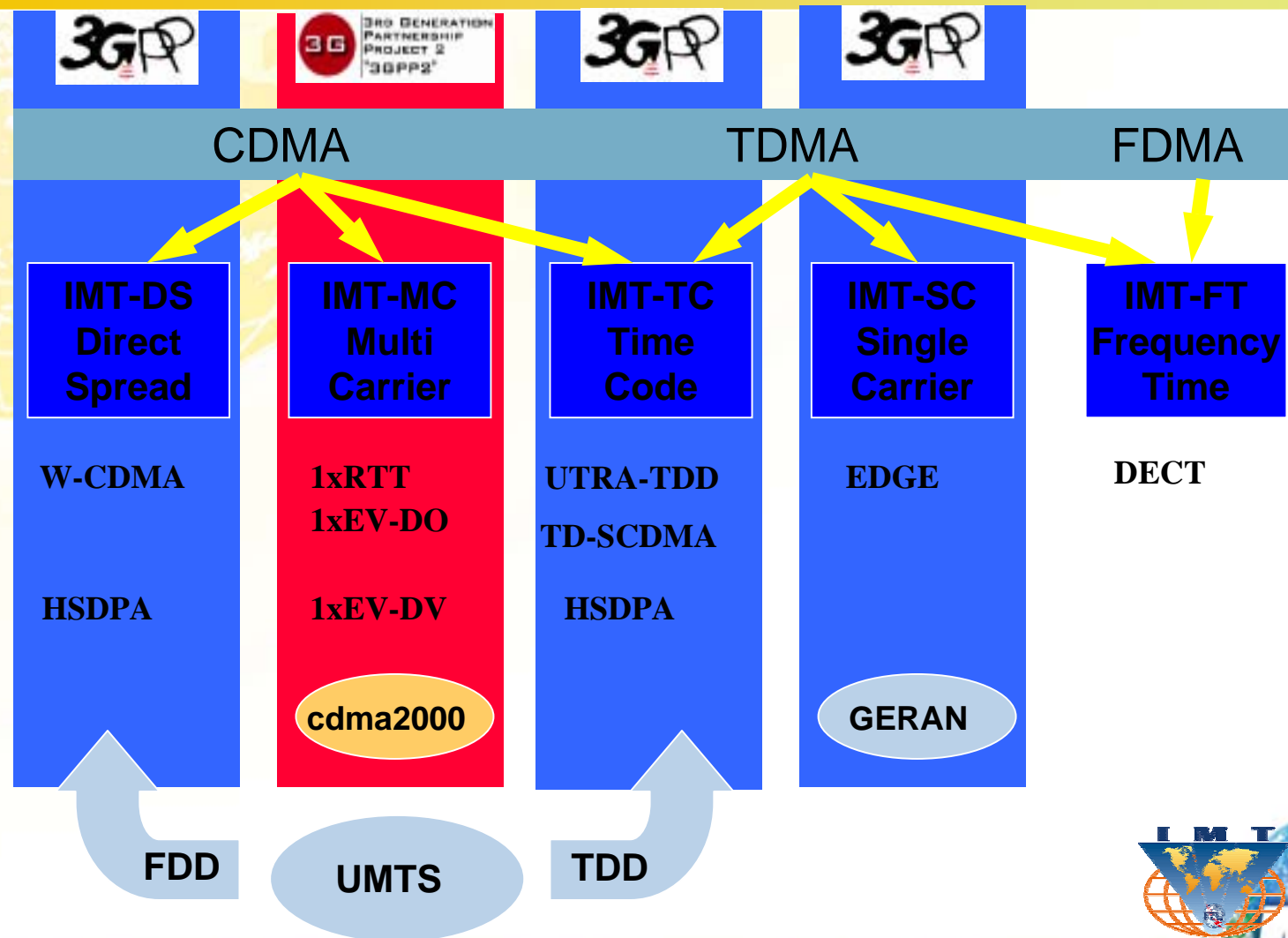
❑ KDDI 3G ARPU is more than 25% to 2G, Data ARPU is 2 to 3 times than 2G

❑ Remark: China Unicom CDMA user = 15.8M

China Unicom GSM ARPU=RMB 67
CDMA ARPU=RMB 172

- **Worldwide Mobile Status**
- **Successful Story in Asia**
- **Technical Aspect**

IMT-2000 standards

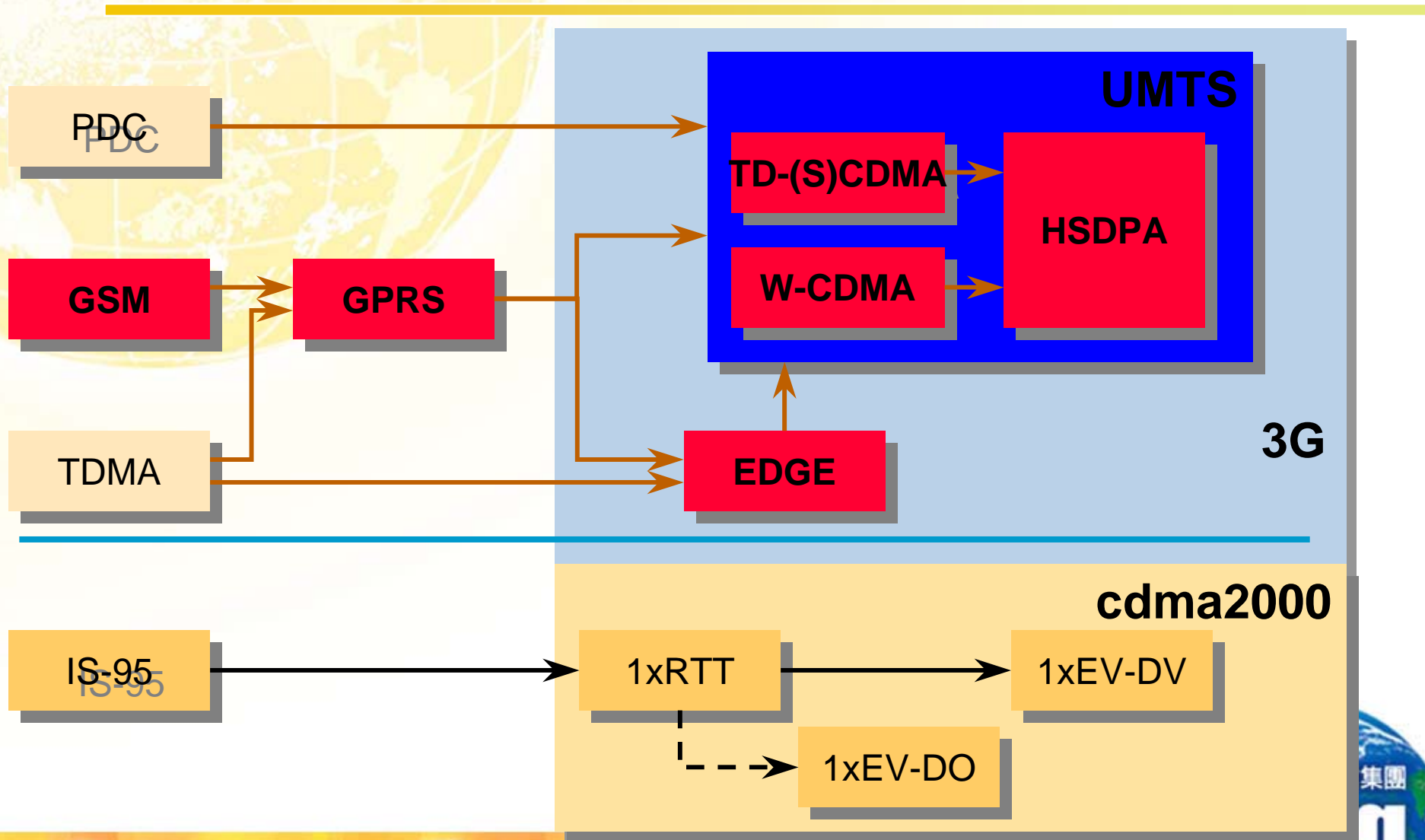


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Source: ITU

3G Evolution paths



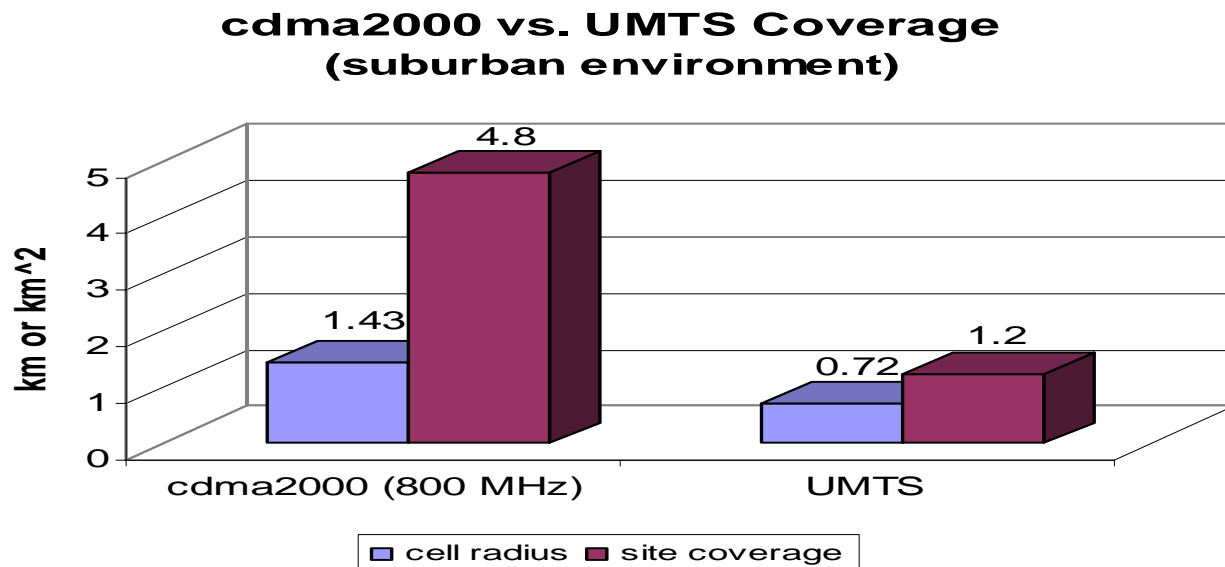
System performance comparison

Differences between W-CDMA and cdma2000

	W-CDMA	cdma2000 (1x / 1xEV-DO)
Bandwidth	5 MHz	1.25 MHz
Chip rate	3.84 Mcps	1.2288 Mcps
Power control frequency	1500 Hz up/down	1xRTT: 800 Hz up/down 1xEV-DO: no DL PC
Base station synchronization	Not needed	Yes, via GPS
Cell search	3-step approach via primary, secondary search code and CPICH	Sync through time-shifted short code correlation
Downlink Pilot	CDM common (CPICH) TDM dedicated (bits in DPCH)	1xRTT: CDM common 1xEV-DO: TDM common
User separation	CDM / TDM (shared channel)	1xRTT: CDM 1xEV-DO: TDM (scheduler)
2G interoperability	GSM-UMTS handover (Multi-mode terminals)	1xRTT backward compatible (1xEV-DO not)

3G Coverage in Taiwan

- CDMA2000 works in 800MHz and UMTS(WCDMA) works in 2.1GHz
- CDMA2000 BTS covers larger area
- CDMA2000 BTS quantity can be less than UMTS(WCDMA) with same quality
- Data Rate
 - CDMA 2000 1x EV-DO is up to 2.4Mbps by E2004
 - WCDMA is only 384Kbps by E2004



Issues

- **Standard**
- **Chipset**
- **Terminal Development**
- **Applications**
- **Inter-operability**
- **Roaming**

The logo for Qma features the letters 'Qma' in a bold, black, sans-serif font. The 'Q' is stylized with a blue gradient and a white highlight. The letters are set against a background of overlapping, semi-transparent shapes in yellow, orange, and green, which are themselves set against a light blue circular gradient. The entire composition is centered on a dark blue background.

Qma

行動影音多媒体

