Chinese Activities on 3G & beyond 3G

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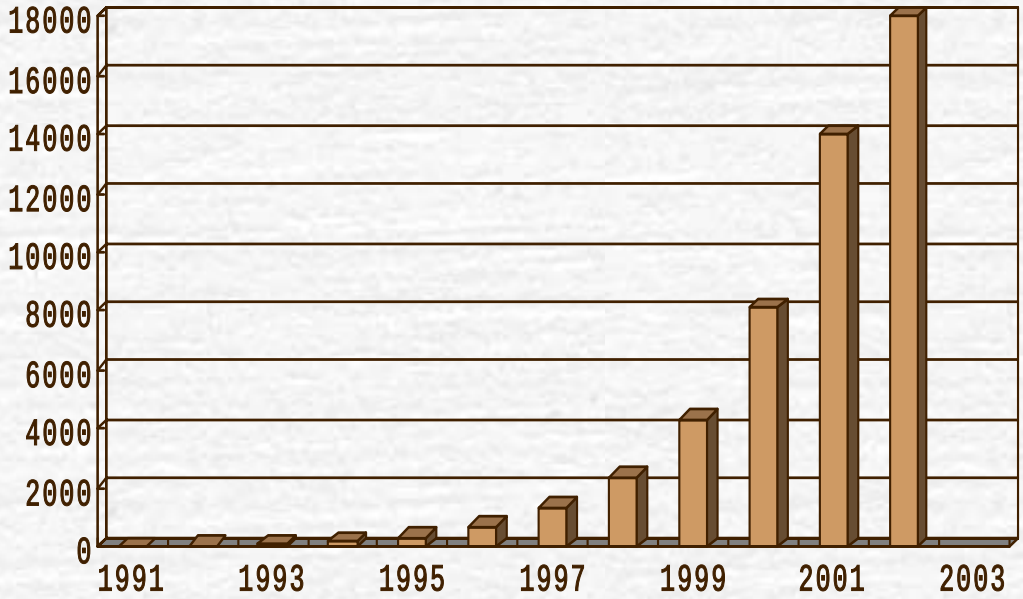
CJK meeting

7th Nov. 2002

Main contents

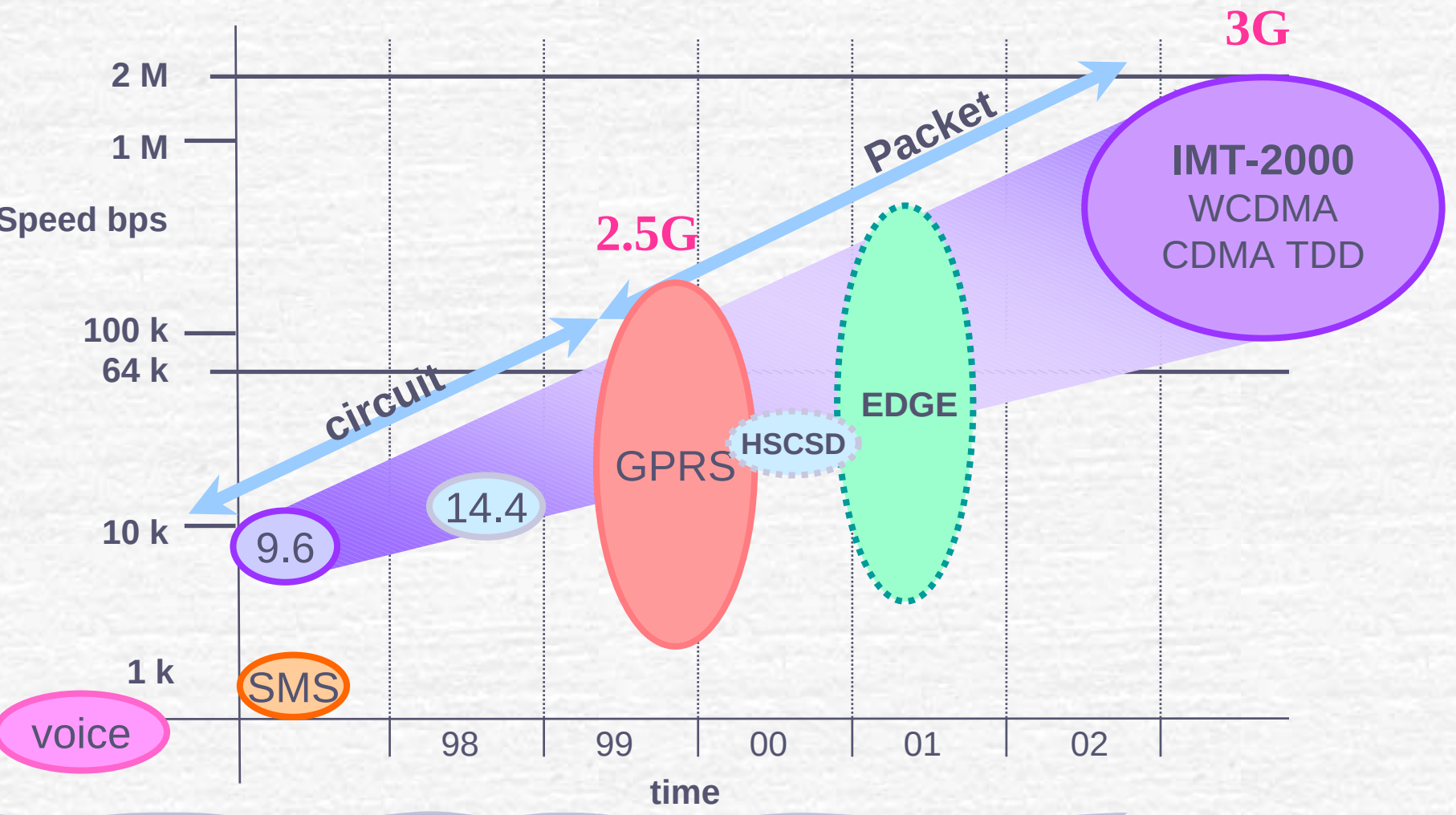
- Chinese market on mobile telecommunication
- 3G activities in china
  - Standardization work
  - 3G TEG
- System beyond 3G- ‘Future project’

Chinese market on mobile telecommunication

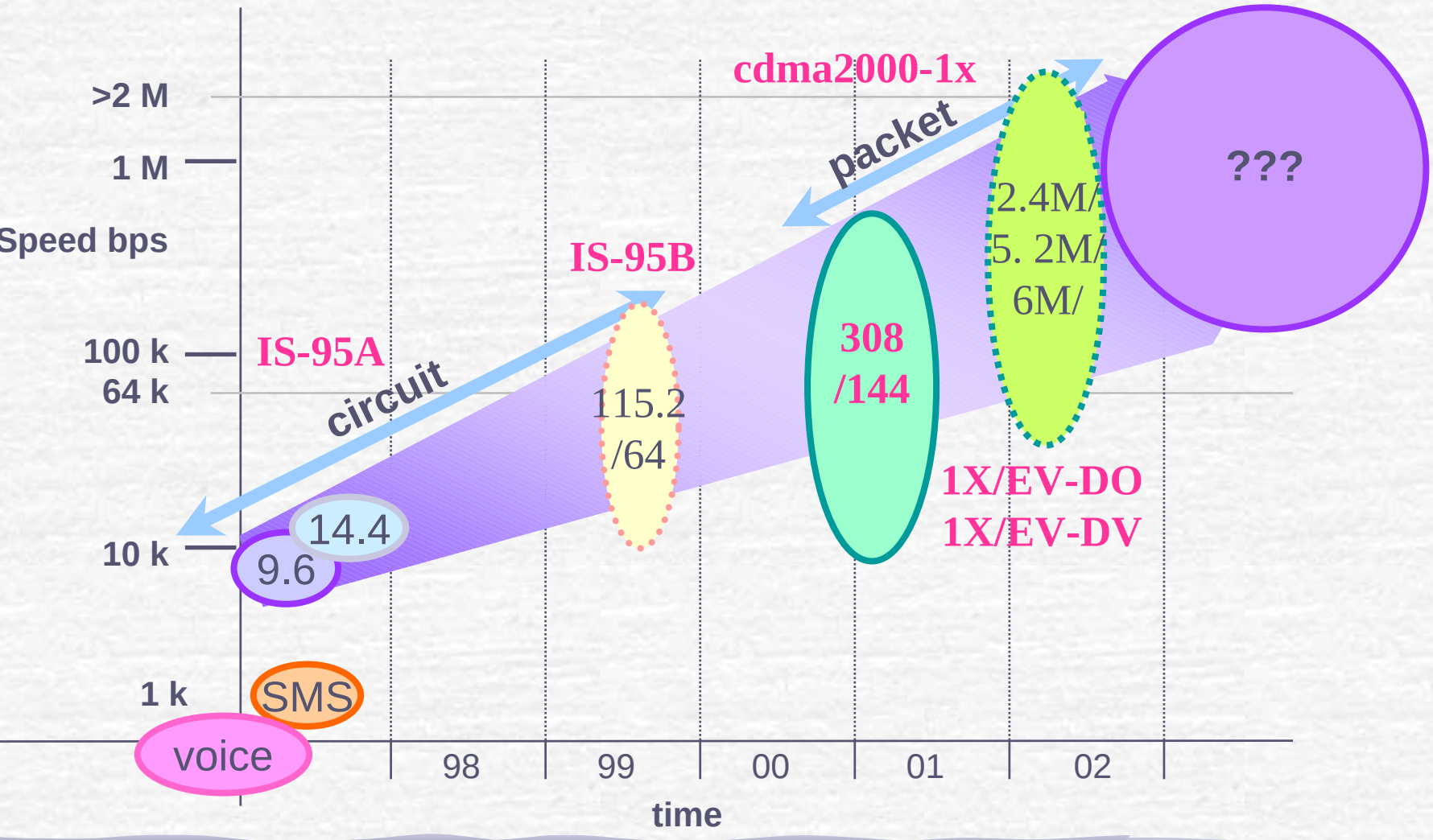


- Cellular :Reach 0.12 billion in 2001.7, being the first market in the world; Reach 0.18 billion in 2002.9 which PPS is 24% China mobile is 0.13b, China unicom is 0.05b (CDMA is 5m) Reach 0.3 billion till year 2005 by prediction
- PHS subscriber reach to 10 million

GSM evolution



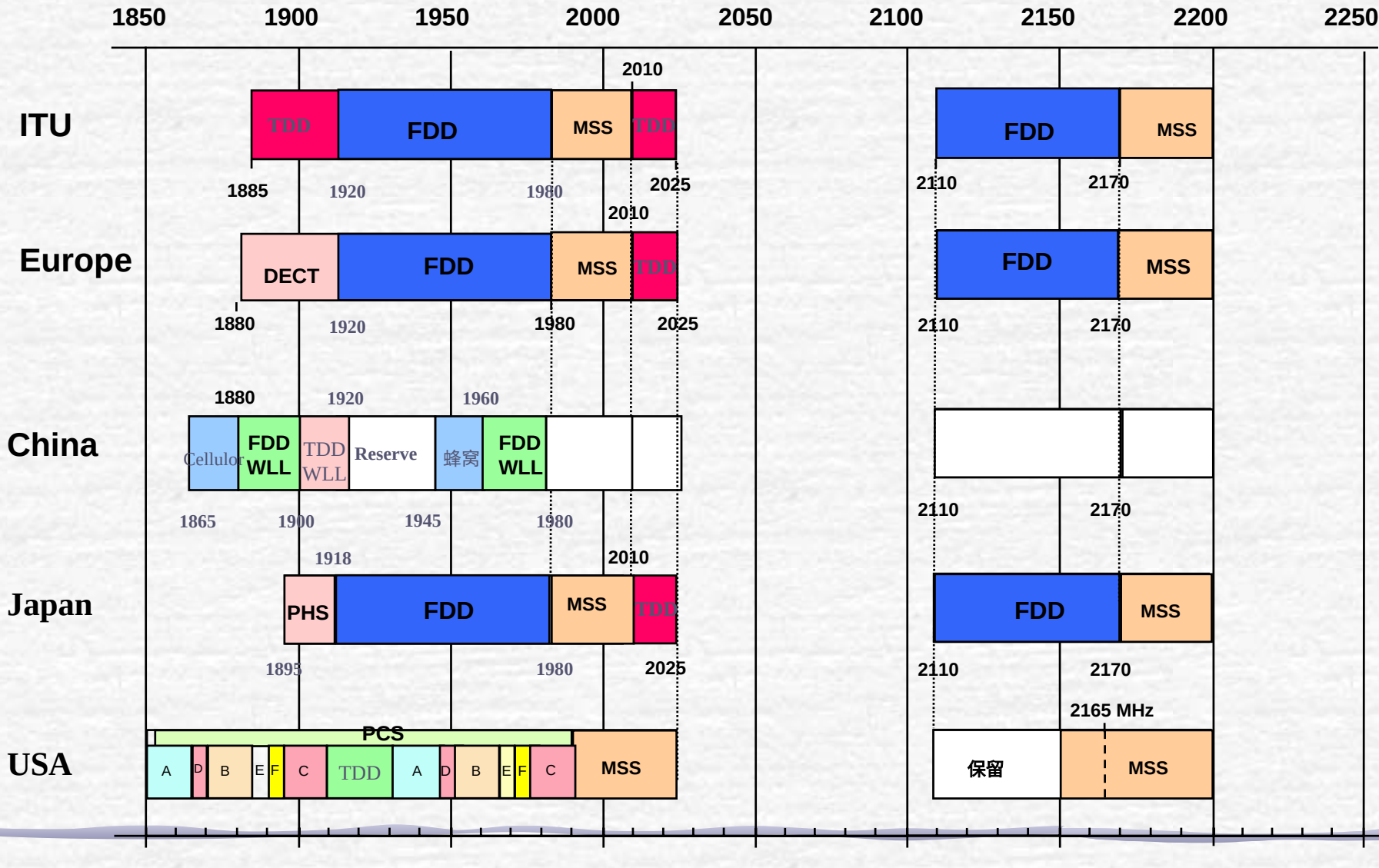
CDMA evolution



The development for china mobile telecommunication

- Voice service will still be the key service for the coming years, but the demand for new service and application is growing up.
- The operators in China are actively explore the develop model for mobile data service.
- The short message service is growing very fast, and become more and more popular. The amount of SMS reaches 28 billion for early half this year.
- GPRS service is commercial used in China mobile at May 2002. The total subscriber is about 1.5 million.
- China unicom has started the trials for Cdma2000 1X and will explored the system at the end of this year.

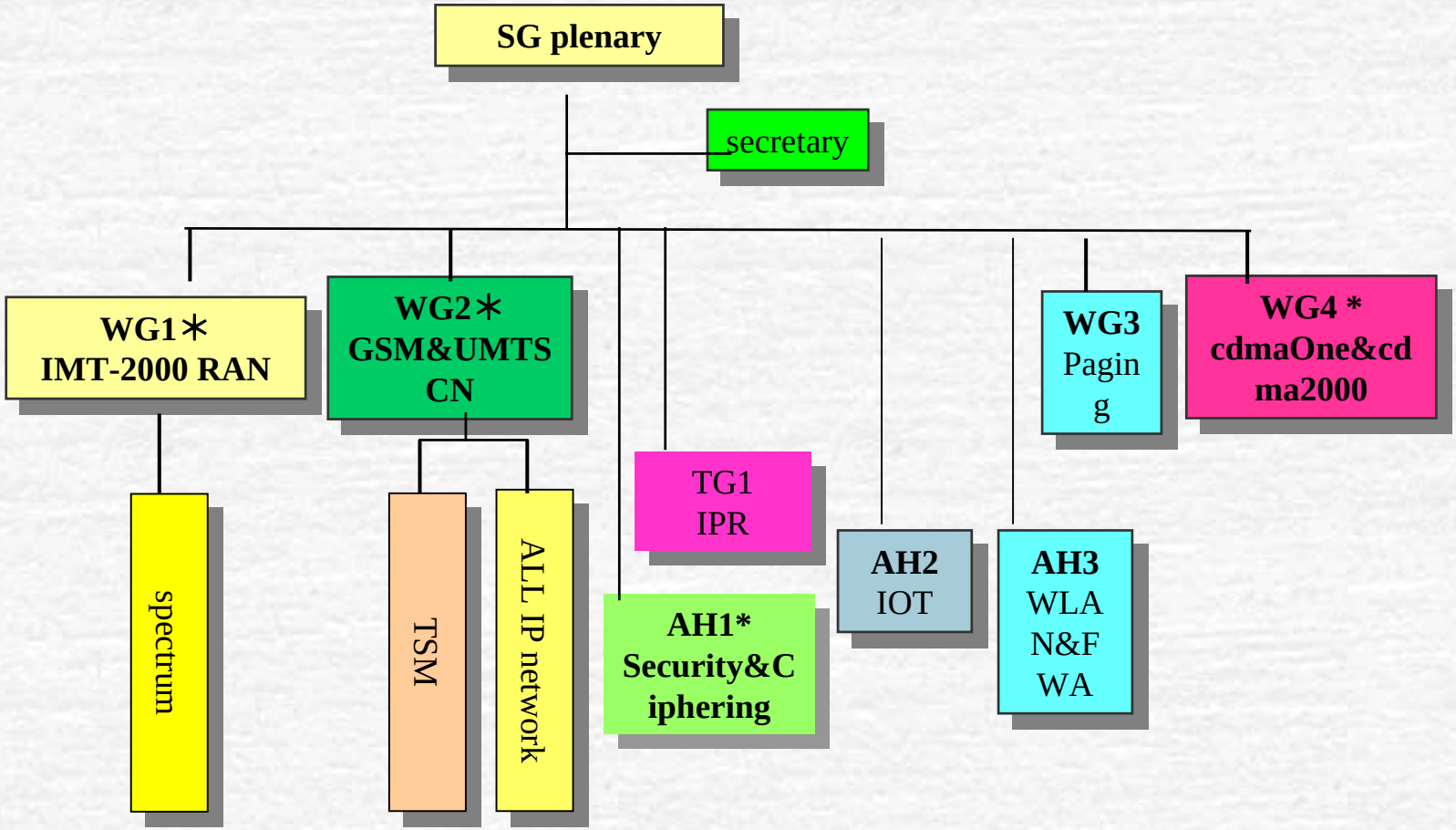
3G spectrum allocation PLAN



3G Spectrum allocation

- Working spectrum
  - FDD: 1920-1980MHz/ 2110-2170MHz
  - TDD: 1880-1920MHz, 2010-2025MHz
- Supplementary working spectrum
  - FDD: 1755-1785MHz/1850-1880MHz
  - TDD: 2300-2400MHz (coexist with radio localization service)
- MSS:1980-2010 MHz / 2170-2200 MHz
- 3G expansion spectrum
  - 825 - 835 MHz / 870 - 880 MHz、885 - 915 MHz / 930 - 960 MHz

CWTS organization structure



Responsibility for WGs related to 3G&B3G

WG	responsibility	Relations to ITU、3GPPs
WG1	3GPP RAN & T Spectrum research B3G research	ITU-R WP8F 3GPP：TSG-RAN、TSG-T
WG2	GSM/GPRS, TSM UMTS SA&CN ALL IP network	ITU-T SSG 3GPP：TSG-CN、TSG-SA
WG4	cdmaOne&cdma2000 RAN ,CN& T	TIA：TR45 3GPP2
AH 1	Security& ciphering	3GPPs

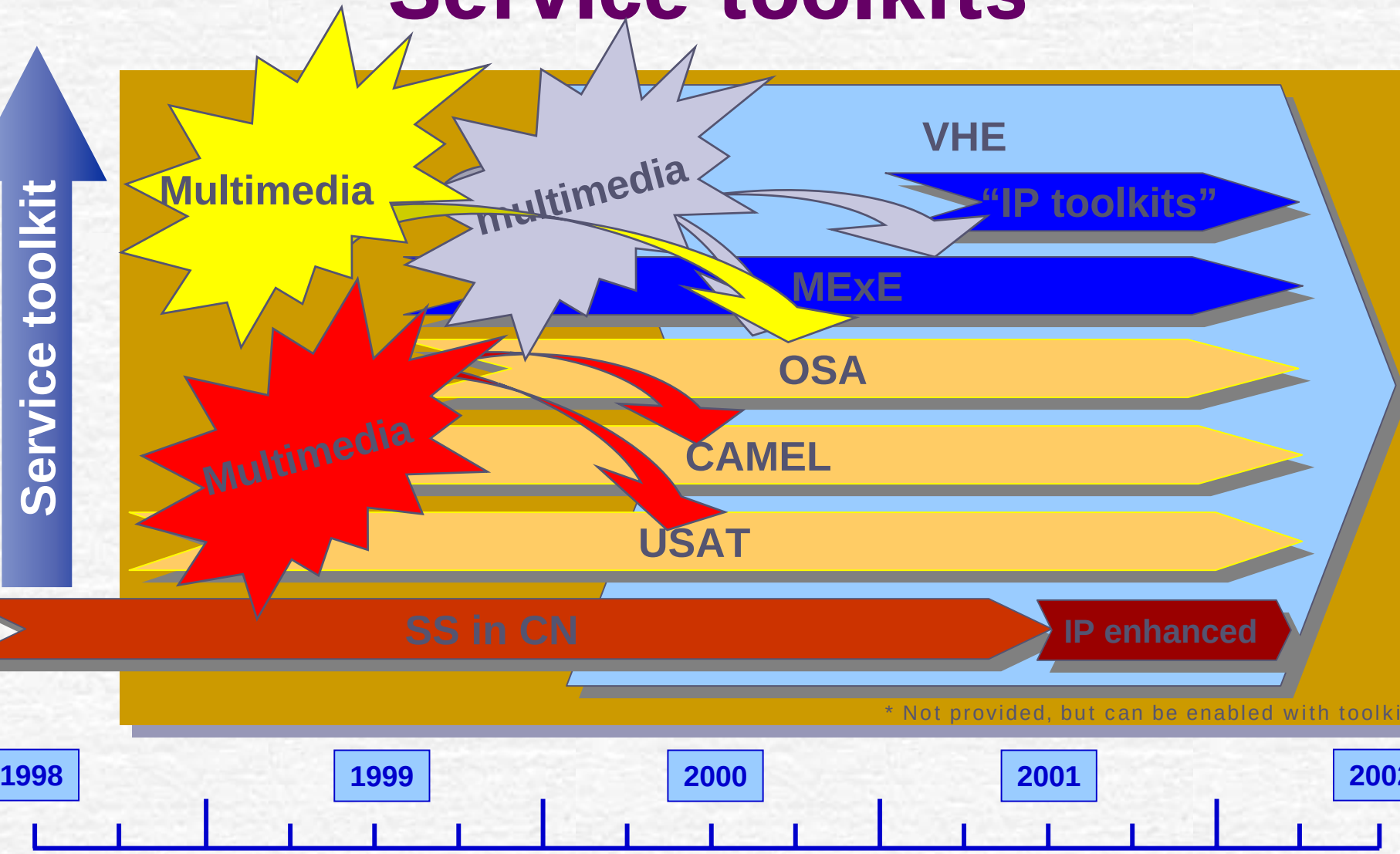
The progress on standardization work for 3G- worldwide

- To Actively involve in 3G international standardization work
  - Submit near 500 contributions to ITU and 3GPPs
  - Hold 3GPPs TSG&PCG meeting in China
- To Submit radio technology standards
  - TD-SCMA
    - One candidate 3G technology in ITU-R
    - Being one part of 3GPP R4
  - LAS-CDMA
    - Becoming one optional component for cdma2000 1XEV/DV in 3GPP2

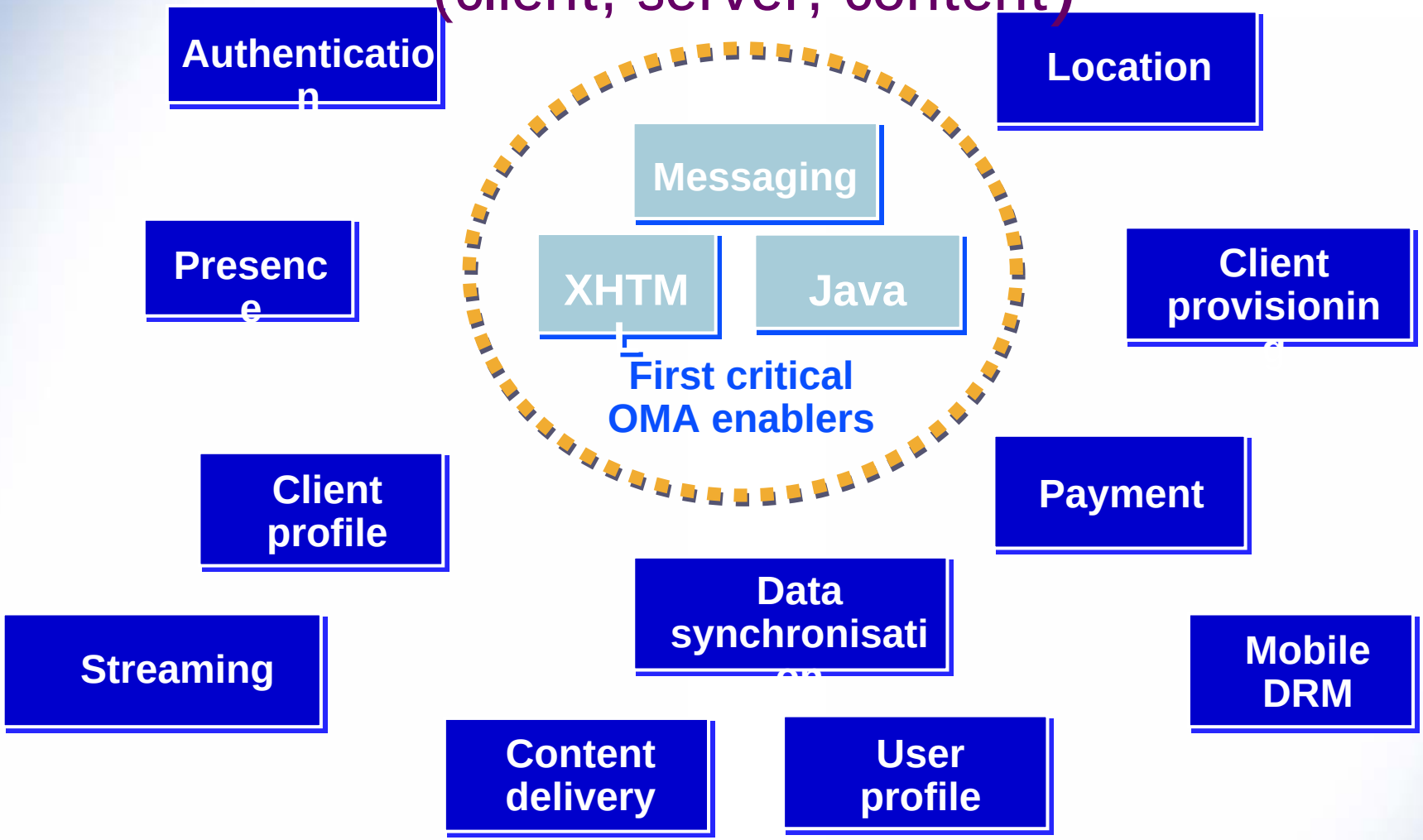
The progress on standardization work for 3G- china

- Infrastructure related specifications
  - Transpose to Chinese standards
    - 3GPP R99，R4
    - 3GPP2 Release 0 for cdma2000-1X radio interface, IOS4.0/4.1 for A interface and ANSI-41Efor core network
  - Some Research work on
    - ALL IP network
    - Enhanced radio technology
    - Security and ciphering

Service toolkits



Technology enablers in OMA (client, server, content)



The progress on standardization work for 3G- china

- Services related standards
  - GSM/UMTS
    - CAMEL2,CAMEL3, OSA
    - SMS,E-SMS,MMS
    - LCS(Location service)、WAP、Java etc.
  - CDMA
    - WIN P1，P2&P3
    - SMS、LCS etc.
    - Having research on PPS in PS domain , MNP etc and submit contributions to 3GPP2

Start technical trial for 3G (3G TEG)

- the environment
  - Many countries have already released the license, sale the spectrum and even signed the commercial contracts.
  - The technology and standard are becoming more mature, but still updating.
- Start 3G TEG on June 2001
  - Establish 3G technical trial experts group
  - The experts are from operators, local vendors and research institutes

The work schedule for 3G TEG

- 3 technologies
  - WCDMA、cdma2000 and TD-SCDMA
- 2 phases
  - P1：single system testing (One set of system including RAN and CN)
    - Test the main functions , services, performance and interfaces for a single system
  - P2：Network technology testing
    - Enhanced and complete testing for whole system,
    - IOT testing between different vendors
    - compatible testing for 2G&3G
    - Radio network performance testing for coverage and capacity etc.

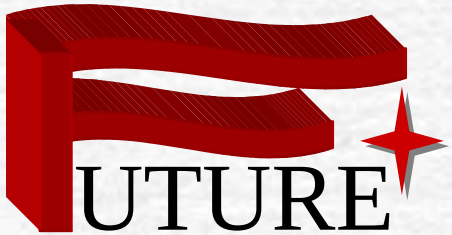
WCDMA systems in 3G TEG (P1)

- Time arrangement:Dec. 2001 to May 2002
- 10 vendors attend the 3G TEG
- Technology spec.(R99)
  - 4 Versions : from June 2000 to March 2001
  - Specify the specifications for 3G technical trial and industry in CWTS
    - Interface Spec. and test Spec. for Uu、Iu interface and CN
    - Equipment Spec and test Spec for RAN, CN and terminal
- Terminal
  - Only a tool to verify the system functions

Testing Contents for P1

- The Purpose
  - To verify the basic function and performance
  - To verify the interface is following the 3GPP spec.
  - To verify the basic 3G services
- WCDMA system
  - Equipment
    - CN including Circuit domain and Packet domain
    - RAN
  - interface
    - MAP, GTP, Iu, Uu
  - RF performance for BTS
- TD-SCDMA system
  - Functional and RF performance testing for RAN、
  - Uu interface etc.

An Introduction to China's 863 Communications PROGRAM and Beyond 3G Project "FuTURE"



A General Description of FuTURE Project

- FuTURE – Future Technologies for Universal Radio Environment
- The FuTURE is to be launched as a part of China's 863 Program in Wireless Communications Area for the 10th five-years plan (2001-2005)
- The Mission of FuTURE is to establish a universal radio experiment environment that can meet the future application demands and development trends headed for years of 2005-2010, and to make China's wireless R&D coincide with the advanced countries.
- The FuTURE will integrate layered wireless communications systems via IPv6 core networks:
  - Broadcast layer: HAPS – High Attitude (10-30km) Space Communications
  - Cellular Layer: Beyond 3G/4G mobile
  - Areas Layer: WxAN（including WLAN/WPAN/WHAN …)

Vision, Spectrum & Tech Trends

Key Tech

FuTURE

Candidate Proposals

Demo Sys & Appl

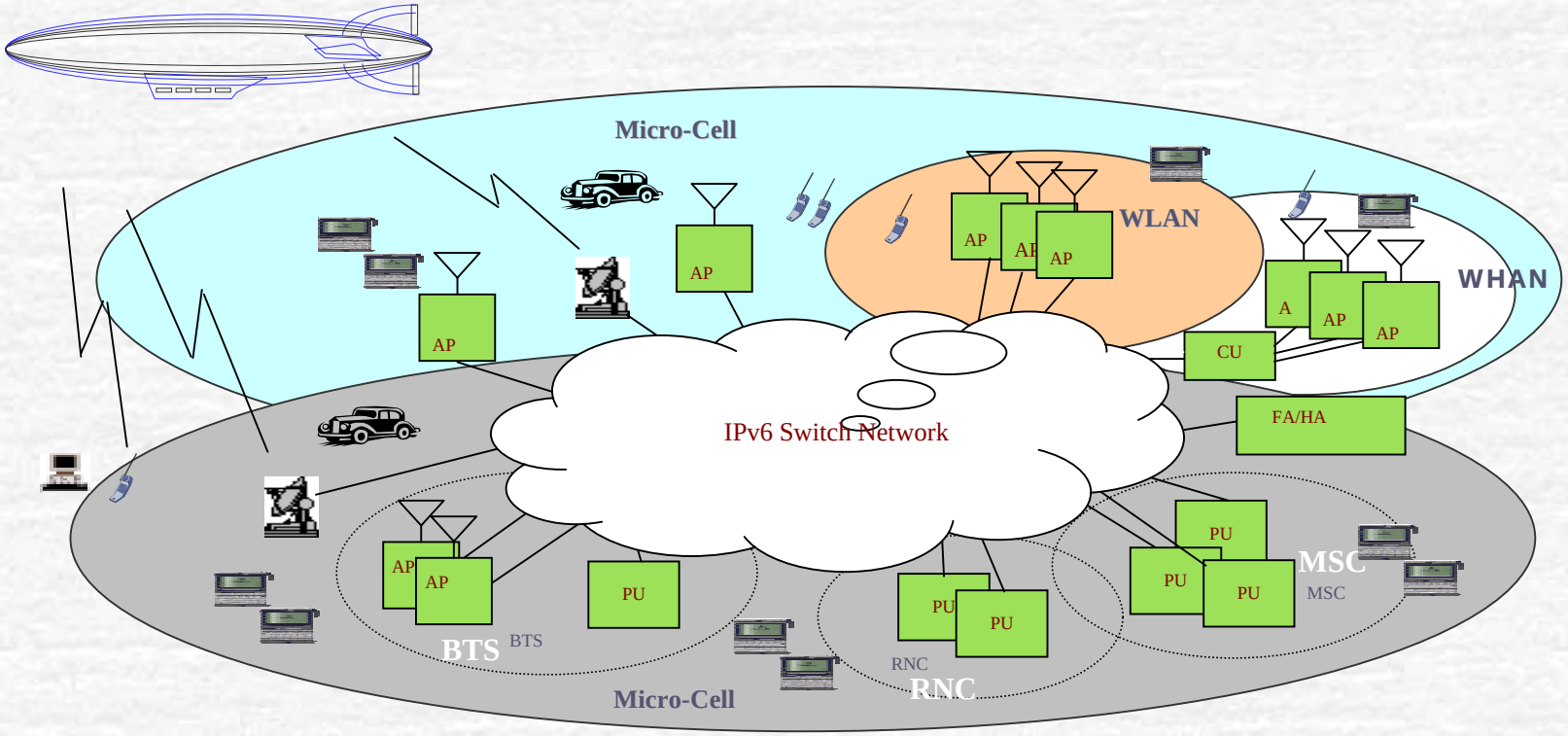
FuTURE+

Standardization

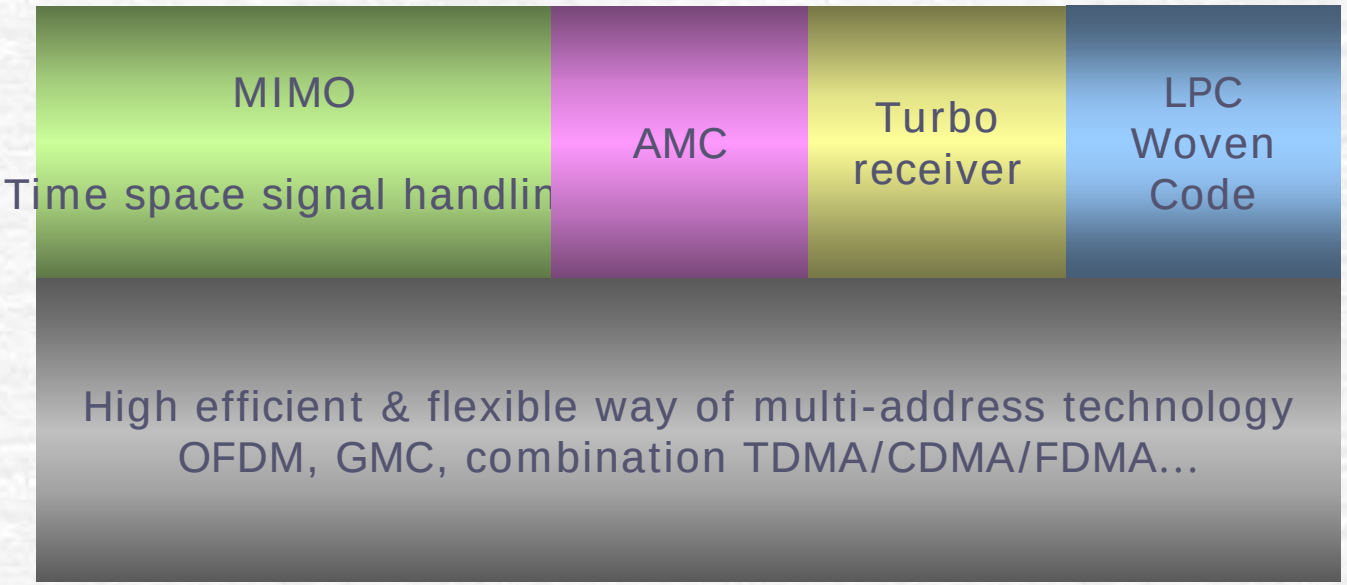
Trial & Pre-commercial System

FuTURE II

2001 2003 2005 2010


Micro-Cell
WLAN
WHAN
AP
AP
AP
AP
AP
AP
A
AP
AP
CU
FA/HA
IPv6 Switch Network
PU
PU
PU
PU
PU
PU
MSC
MSC
BTS
BTS
RNC
RNC
Micro-Cell

Technology



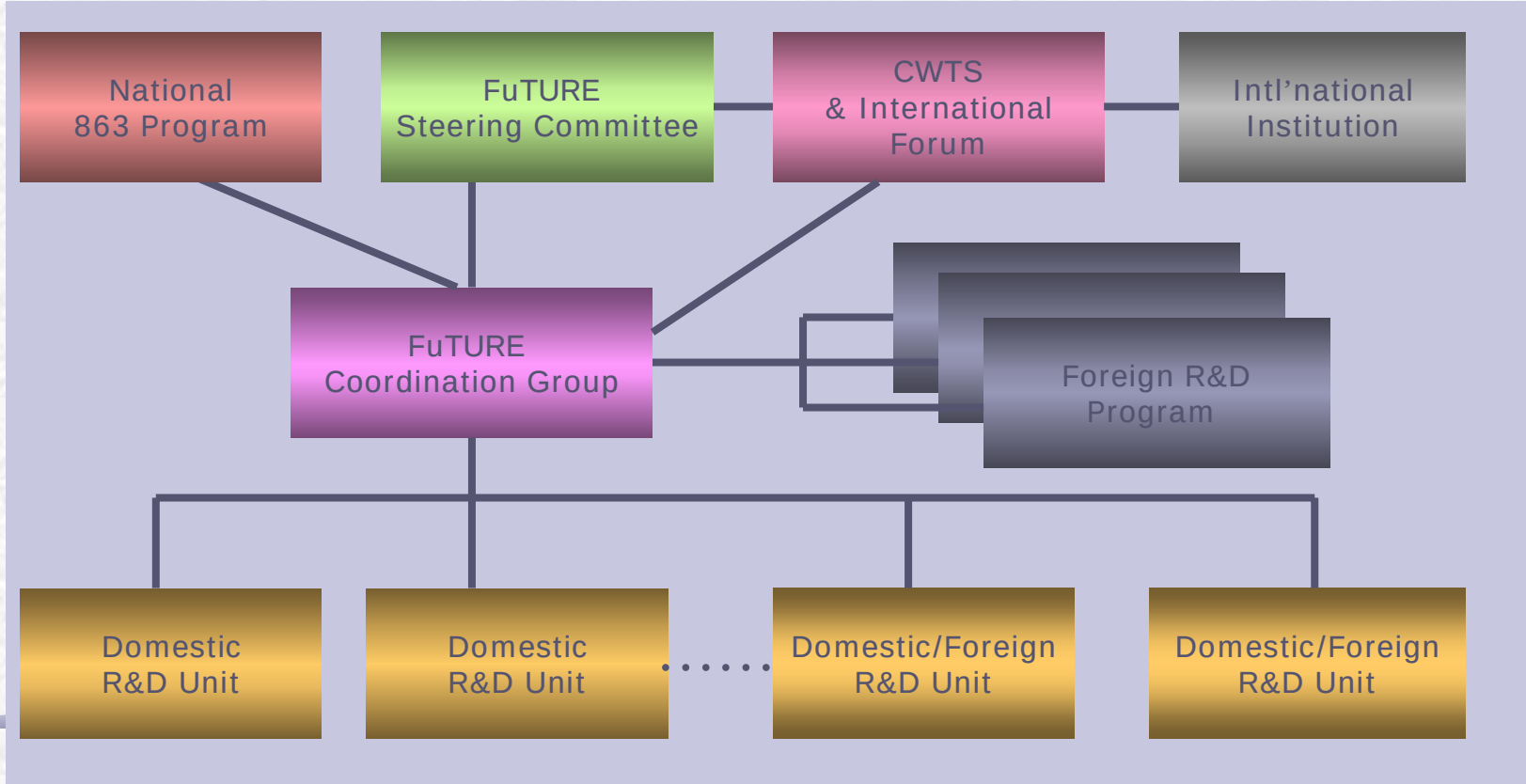
Enhanced technology

Support technology

Targets for FuTURE (2001-2005)：

- Broadcasting Layer: A demo HAPS supporting asymmetric service with a throughput data rate up to Gbps.
- Cellular Layer: A demo system with its packet data rate up to 20Mbps
- WxAN Layer: A demo system with its packet data rate up to 100Mbps
- Demo Services: Telecomm Service, IT service, Media Service, and Home/Personal Service

Organization structure



Summary

- Hope to have information sharing and discussions on 3G&B3G
  - 3G service spec. and testing
  - 3G IOT testing
  - The evolution and harmonization on all IP network
  - Key radio technologies on B3G
  - …….