IPv6 Operations and Transitional Issues- Personal views

Huiling Zhao (zhaohl@ctbri.com.cn)

Yunqing Chen (chenyq@ctbri.com,cn)

Chinatelcom Beijing Research Institute

Nov. 8, 2010

The pressure is coming…

App.	2011-2012 year address requirements 10000
FBB	21 million
MBB	2.9 million
IPTV	5 million
IDC	2 million
Others	1.8 million

Key Time Point: 2012

- We still need about 30 million address and will face a gap of 20million.
- For the M2M applications, will need several billion new addresses in the future 5 years.

Four major tools for solving IP address exhaustion

✓ IPv4 address deeply reused.

1

Increase the efficiency of IPv4 address usage. Reuse and dig deeply some idle address slice space.

3

✓ Using Private IPv4 address

Through the NAT, not very large scale°£

2

✓ IPv4 address purchase

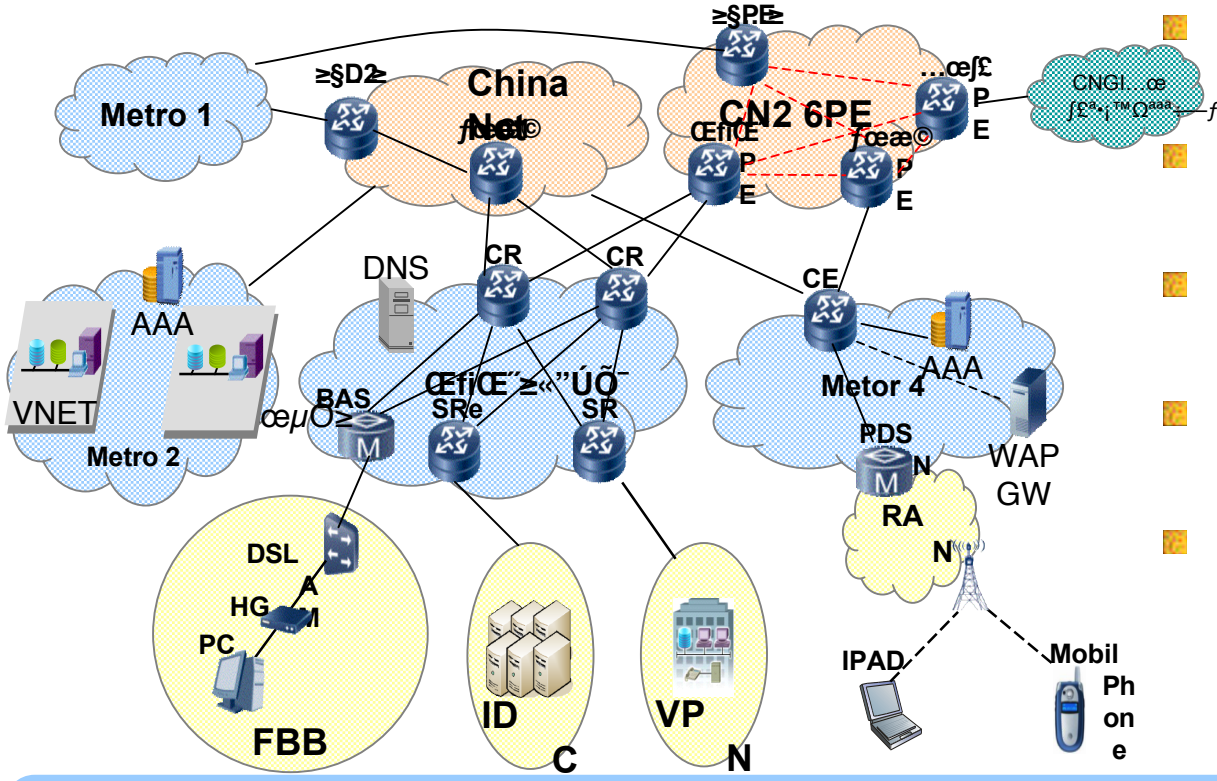
Buying some address to other owners to solve the urgent requirement-need money

4

✓ Introducing IPv6

Fundamental solution.

We have begun the field trial…



- IP Backbonge£ºChinaNet C/D°¢CN2 P/PE/CE°¢CNGI
- Metro Network£ºCR°¢BRAS°¢SR°¢WAG
- Packet Domain£ºPDSN°¢“Δð AAA°¢WAP GW
- IT systems£ºNMS°¢DNS,AAA
- CPE and terminal£ºHome gateway°¢Enterprise Gateway°¢Mobile Phone°¢CDMA+WiFi soft client.

✓Kickoff: Began from Oct.,2009.

✓Testing: seven services-FBB,IDC,VPN°¢Web,C+W°¢WAP and 189 mail applications;

✓Objectives: exploring practical transition strategy to accumulate the experience of service operation, network rebuilding, maintenance, customer service etc..

Tunneling+V4/V6 translation policy

Characteristics & Question

Dual Stack

1£©lassical method, but not saving IPv4 address.
2£Equipment performance challenge

NAT444

1£Fundamentally a V4 Solution
2£©lack of carrier NAT.
3) Challenge for large scale deployment

DS-Lite

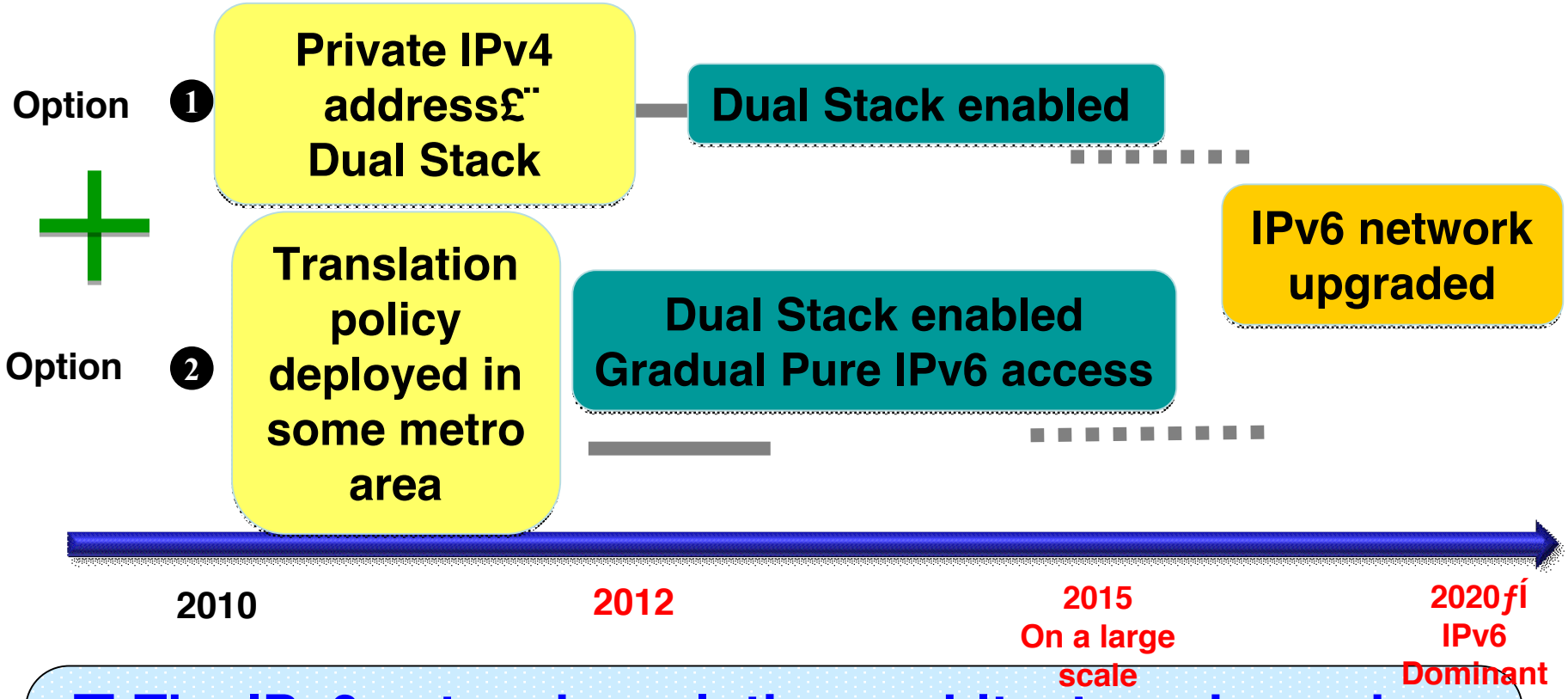
1£©ingle IPv6 routing domain.
2£©till need private IPv4 address
3)Home gateway need to be upgraded
4)more active promotion policy, but more complex

Others

1£©AT64
2)IVI/DIVI
3)6RD
4)New comers

- Perhaps we finally need a cocktail method combining several tunneling and protocol translation methods in order to be suitable for different application scenarios.

Simple roadmap



□ The IPv6 network evolution architecture depends on the application requirements of different customer group, smooth upgrade capability and mobile internet.

Thanks