MAP-T and MAP-E deployment in CERNET and China Telecom

Xing Li, Congxiao Bao, Guoliang Han,
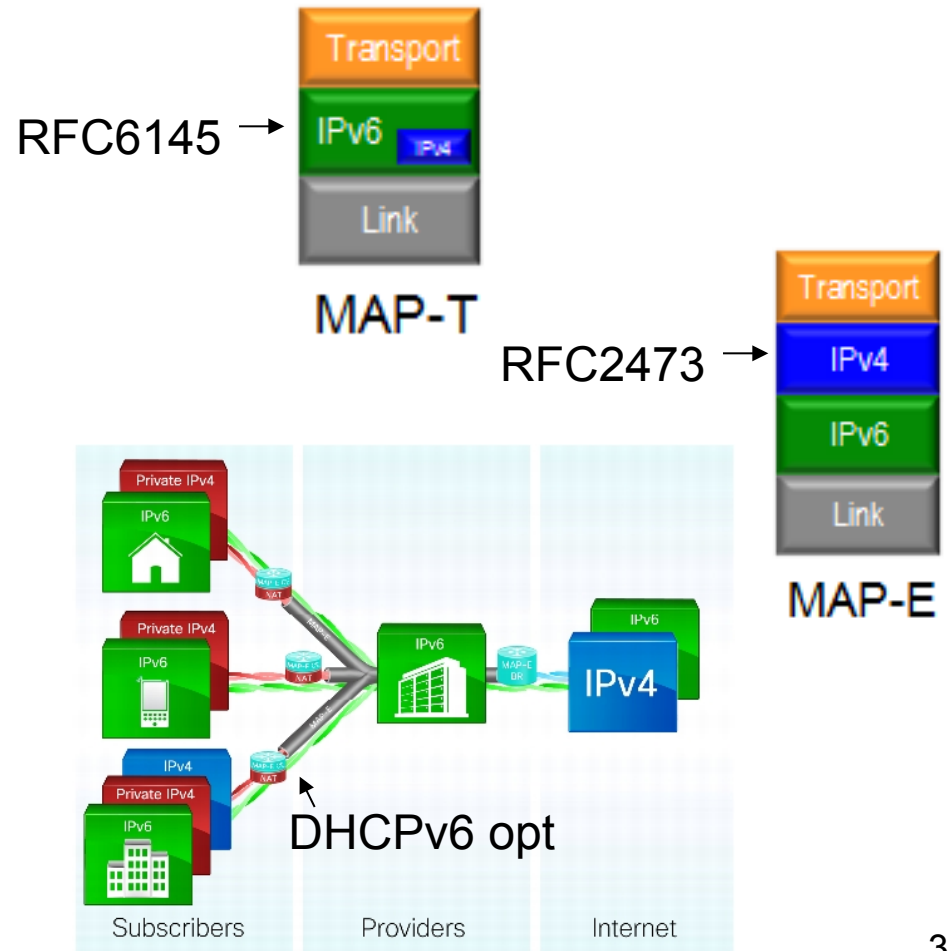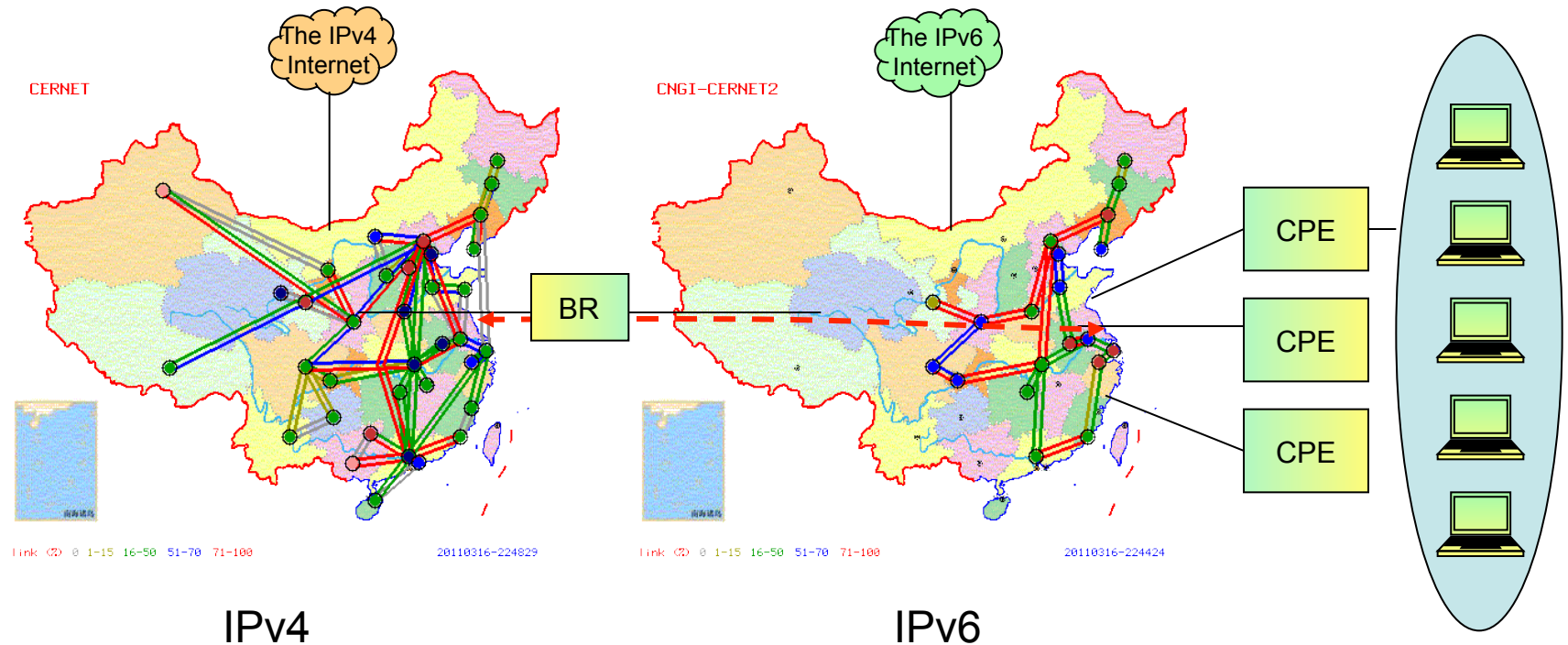Chongfeng Xie, Chen Li
2015-03-25

Outline

- MAP-T/MAP-E
- CERNET deployment
- China Telecom trials
- Remarks

MAP

1. draft-ietf-softwire-map-t
   - Mapping of Address and Port using Translation (MAP-T)

2. draft-ietf-softwire-map
   - Mapping of Address and Port with Encapsulation (MAP)

- draft-ietf-softwire-map-dhcp
   - DHCPv6 Options for configuration of Softwire Address and Port Mapped Clients

RFC6145 →

MAP-T

RFC2473 →

MAP-E

DHCPv6 opt

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CERNET deployment

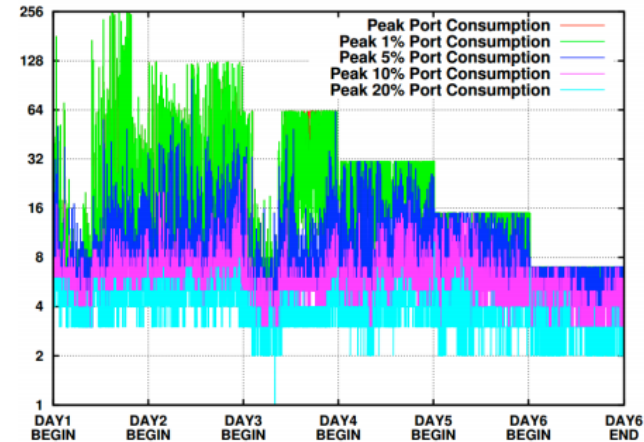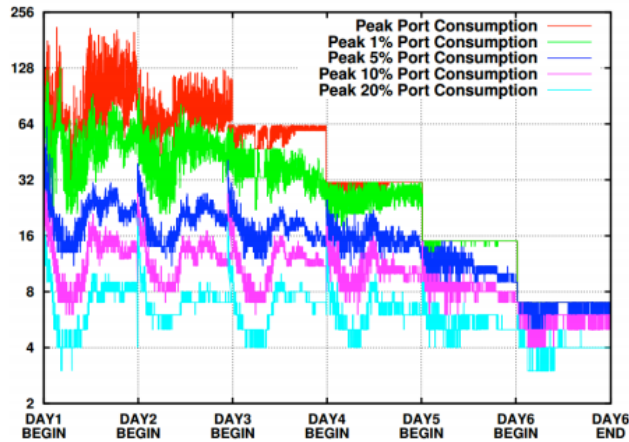IPv4   IPv6

- BMR uses IPv4 prefix (not single IPv4 or fractional IPv4)
- DHCPv6 opt is not required (manual configuration)
- Translation and encapsulation can switch automatically

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MAP-T/MAP-E auto switch

- Default is the translation mode
- In the corner case, BR and CPE can switch to the encapsulation mode
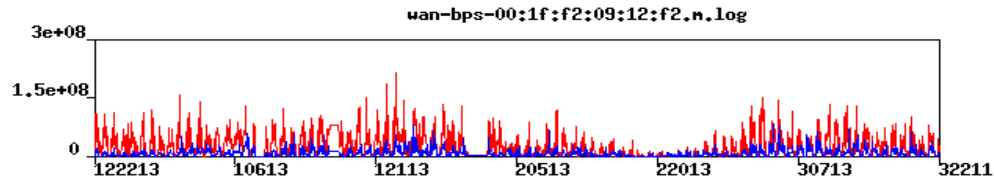 - IPv4 options
  - DF=1 and MF=1
  - etc.
  - See https://datatracker.ietf.org/doc/draft-xli-softwire-map-testing/

Multiplexing ratio considerations

DAY	1	2	3	4	5	6
Ratio	256	512	1024	2048	4096	8192
# of ports	255	127	63	31	15	7

- R <=512   safe
- R > 512   may impact user experience

Traffic

wan-bps-00:1f:f2:09:12:f2.m.log

bps

SSID-1

user-00:1f:f2:09:12:f2.m.log

Online users

wan-bps-00:15:17:f9:be:d9.m.log

bps

SSID-2

user-00:15:17:f9:be:d9.m.log
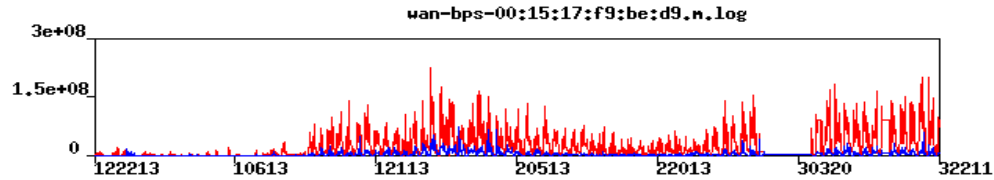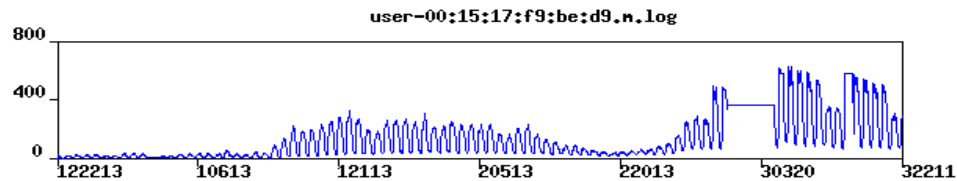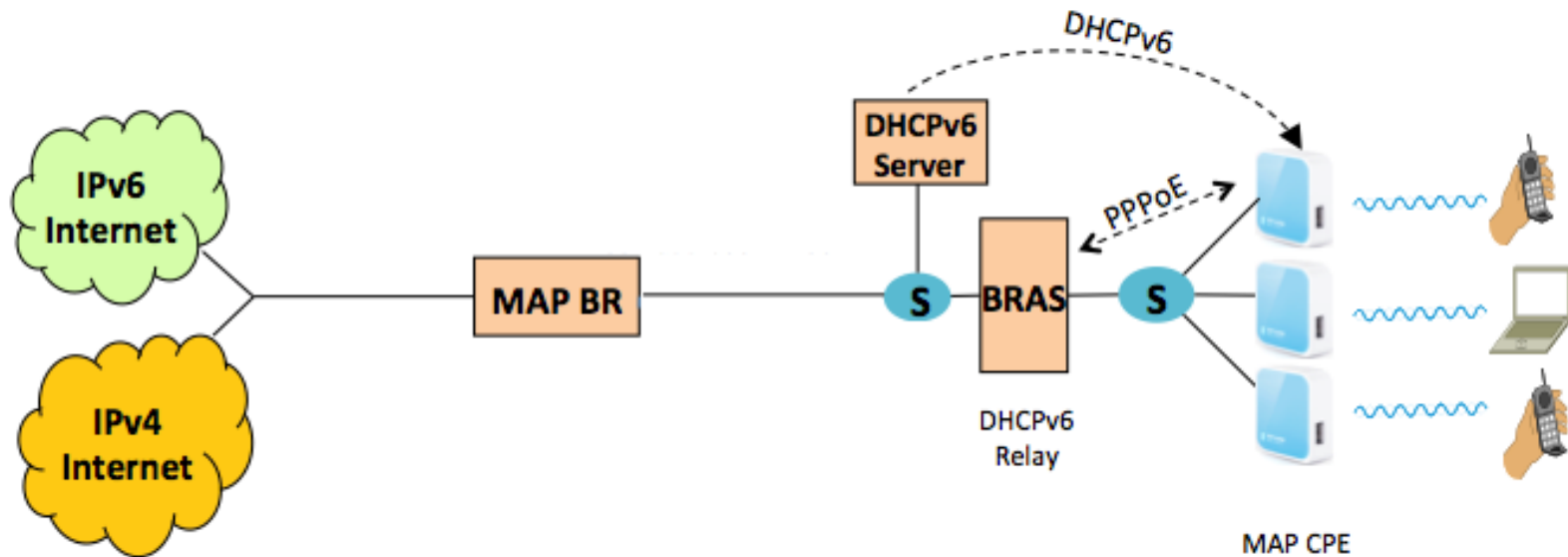
Online users

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China Telecom trials

- BMR uses fractional IPv4
- DHCPv6 opt is required (ISC server + DHCPv6 proxy)
- Translation and encapsulation modes can be switched automatically

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Remarks

- MAP helps to solve the public IPv4 address depletion problem
- Translation, if you can, encapsulation if you should.