400GE Requirement in MBB and FBB

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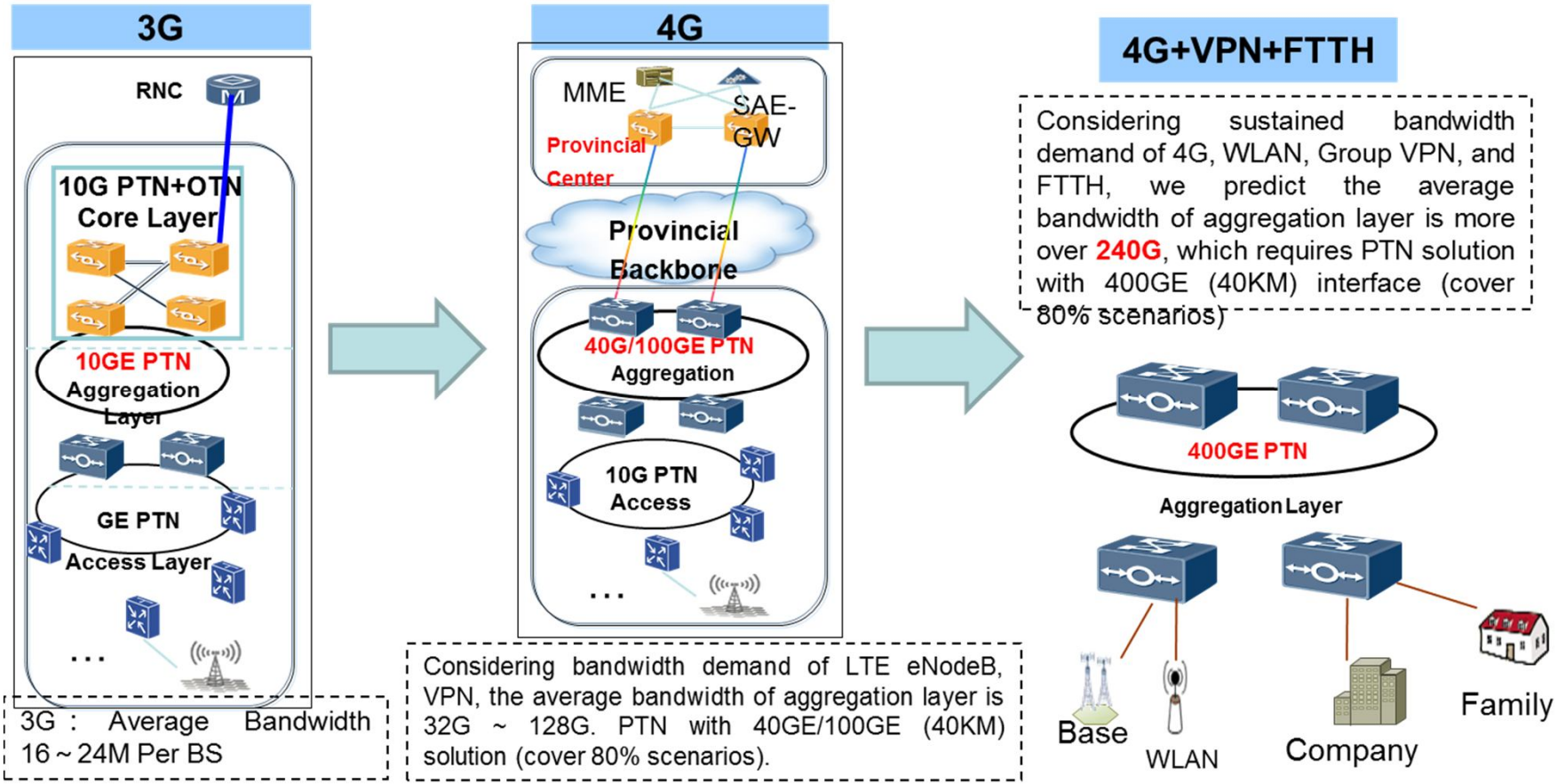
Link Scenario in Mobile Broadband Backhaul Network

- Based on Ethernet technology, we choose PTN to build the mobile backhaul networks of China Mobile
- Because backhaul network is in metro area, where is usually lack of OTN, most of link between PTN nodes are direct fiber connection
- With the large scale deployment of TD-LTE, PTN is evloving from 10GE to 40GE/100GE, and we believe 400GE will be necessary in the near future



Link Scenario in Fixed Broadband Backhaul Network

- China Mobile will begin to scaly deploy Fixed broadband access. As predicted, in 2018 the access rate will be more than 50Mbps

Access rate (bps)	50M	100M	1G
ratio	50%	45%	5%
Average rate (bps)	120M		

- Based on stability consideration, we usually bear 30,000 subscribers on one BRAS device. So the uplink speed will be about 400GE

Subscribers	Average rate (Mbps)	concurrent	带宽占用率	Link peak thread	Uplink speed (Gbps)
30,000	120	50%	15%	70%	400

- In our network, when we use fiber to connect BRAS and metro core routers directly, the distance is usually more than 40km.

Proposal

•In the future, maybe in 2017 or 2018, we will use 400GE interface in metro core and aggregation layer to replace 10GE/40GE/100GE.

•400GE long distance(40km and 80km) modules will take the same percentage with 10GE and 100GE, because the application scenarios are totally same.

•We hope 400GE has the 40km and above modules in near future.

10GE	**Transmission Distance**	**<2km**	**10km**	**40km**	**80km**
	Ratio	0.28%	44.46%	44.05%	11.20%
100GE	**Beijing (>100 modules, only core layer)**	0	0	40%	60%
	Shanghai (>3000 modules, core and aggregation layers)	0	0	100%	

According to our survey, long distance module is a mandatory requirement for us.

Thank you
Q&A