



Småceller

Utfordringer og Utvikling

Eivind Mikkelsen

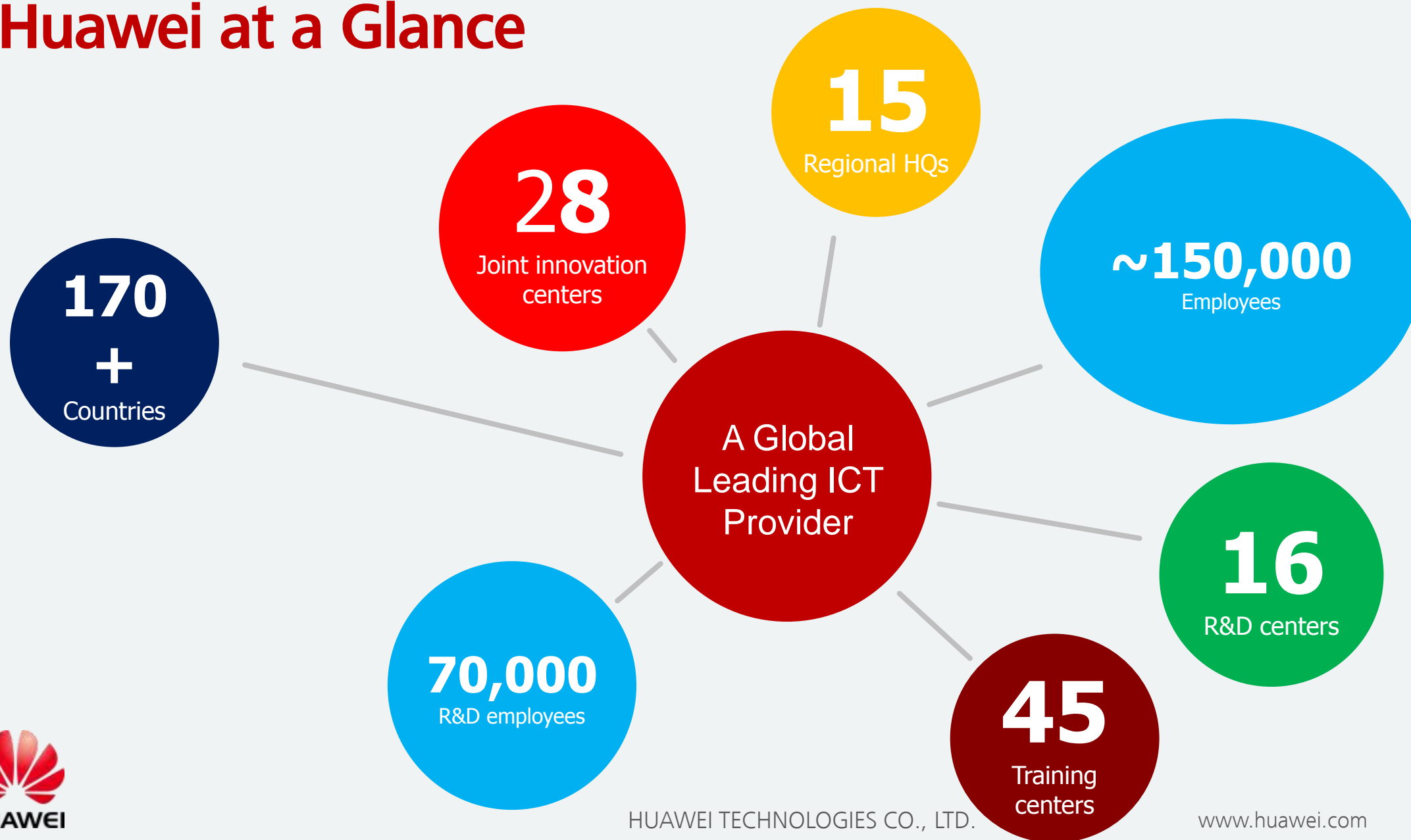
2014-06



HUAWEI TECHNOLOGIES CO., LTD.

www.huawei.com

Huawei at a Glance



HUAWEI TECHNOLOGIES CO., LTD.

www.huawei.com

Core Businesses

Carrier Business



- Fixed Network
- Wireless Network
- Telecom Software
- Core Network
- Service



Serving global leading operators

Enterprise Business



- Enterprise Networking
- UC&C
- IT
- Services



Focusing on value industries

Consumer Business



- Devices Business
 - Smart phone
 - Home devices
 - MBB devices
- Devices Chipset
- Devices Cloud



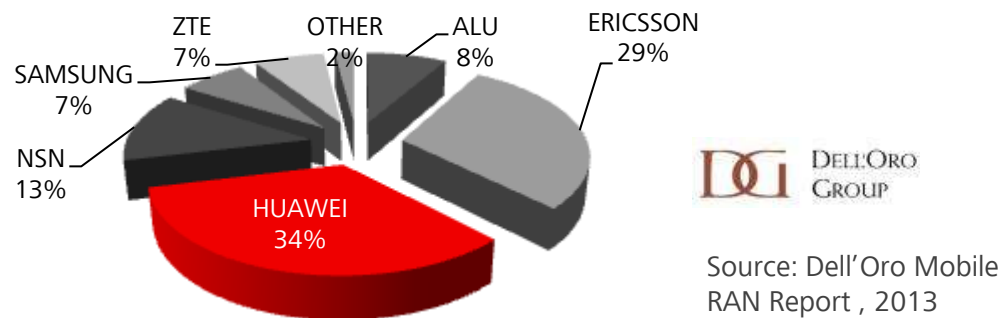
Serving hundreds of millions of consumers



Huawei Small Cell Commercial Advances



Market Share of Vendors in Small Cell 2013 (by Shipment)



Best Innovation Award from Small Cell Forum 2013



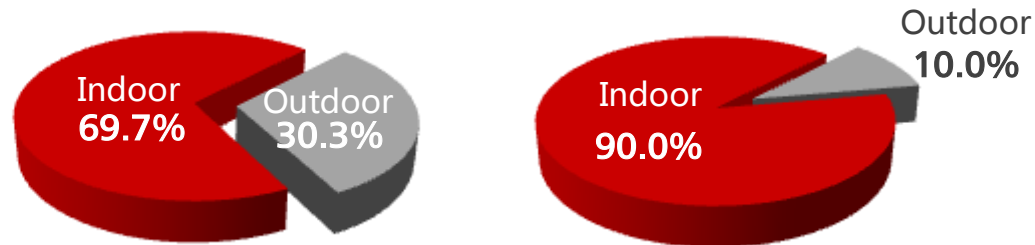
Huawei Leading in Small Cell Market



109 Small Cell Commercial Deployments, **21** LampSite Commercial Deployments, by 2014Q1.

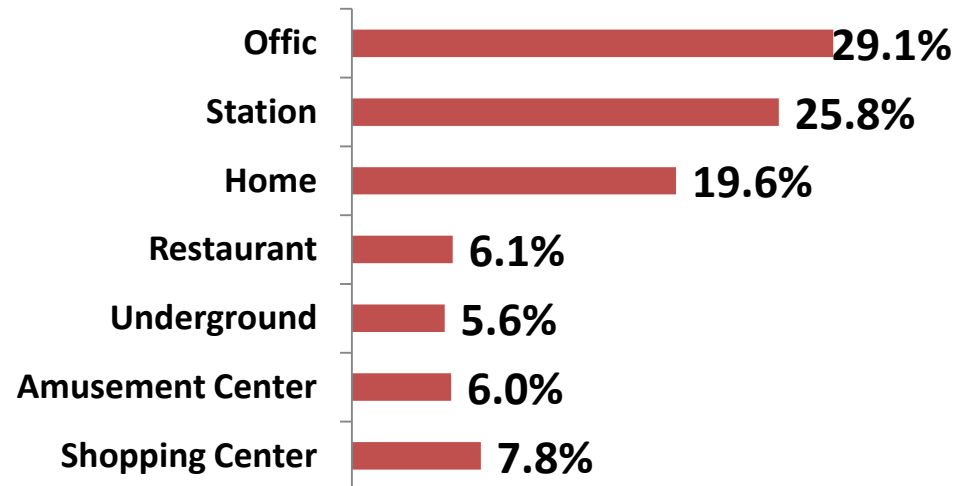
Indoor Needs Higher Capacity & Better Experience

More than 70% mobile traffic generated in indoor



Voice Service

Data Service



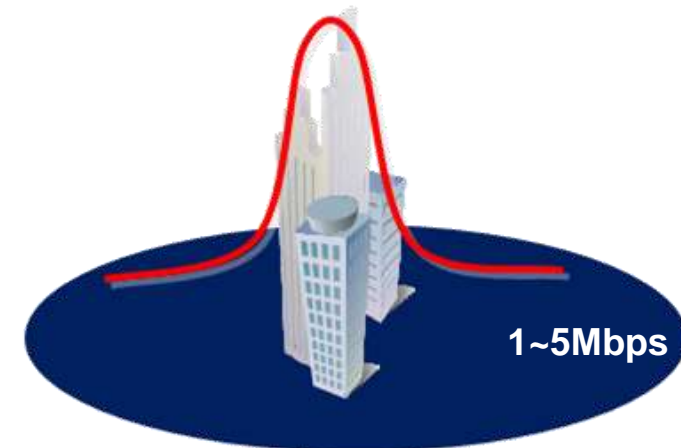
Source: NTT DoCoMo

New business mode brings new revenue

Current 3G Indoors: <1 Mbps/User

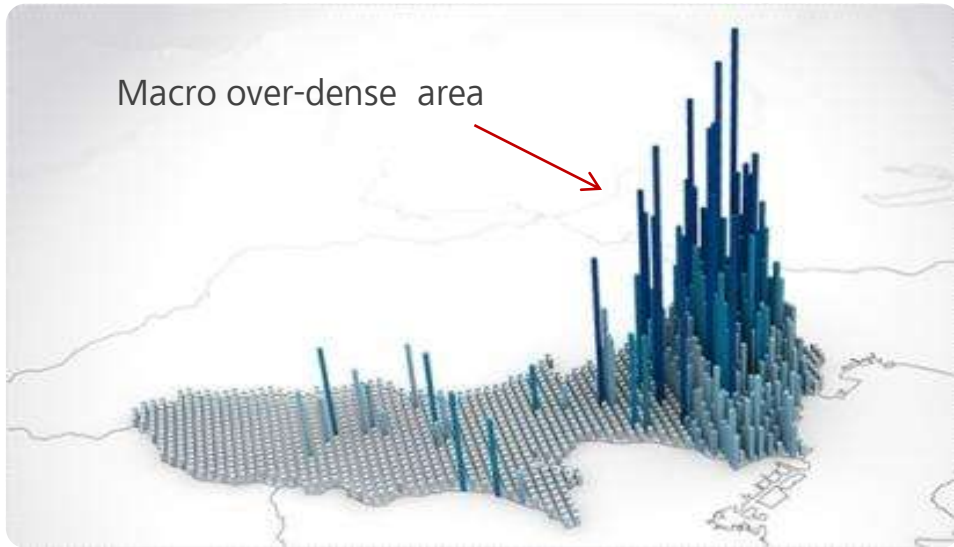


Future Indoors: >10 Mbps/User



Massive Small Cell Deployment is Needed

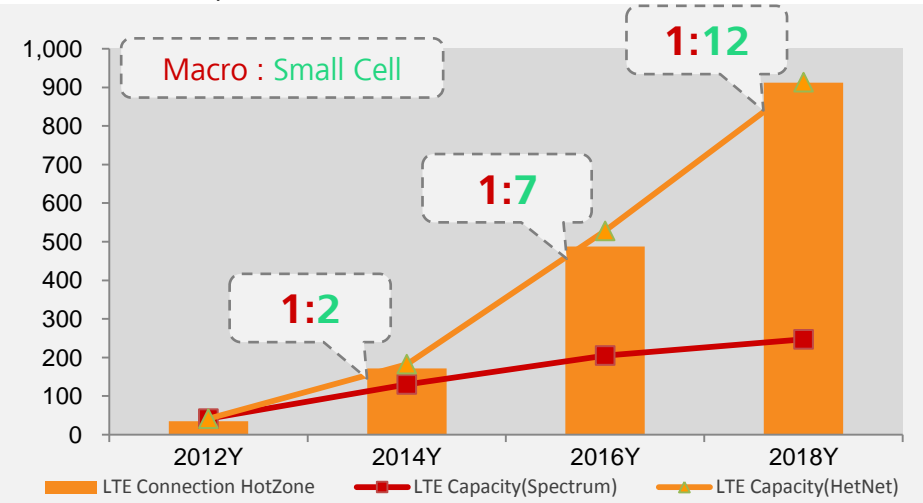
Unbalanced load needs accurate deployment



Tokyo Area

Dense urban areas need massive small cell deployment

Connected User per Macro Sector



Dense urban area traffic forecast

Source: Huawei simulation



Stadium



Downtown Street



Shopping Mall



Office

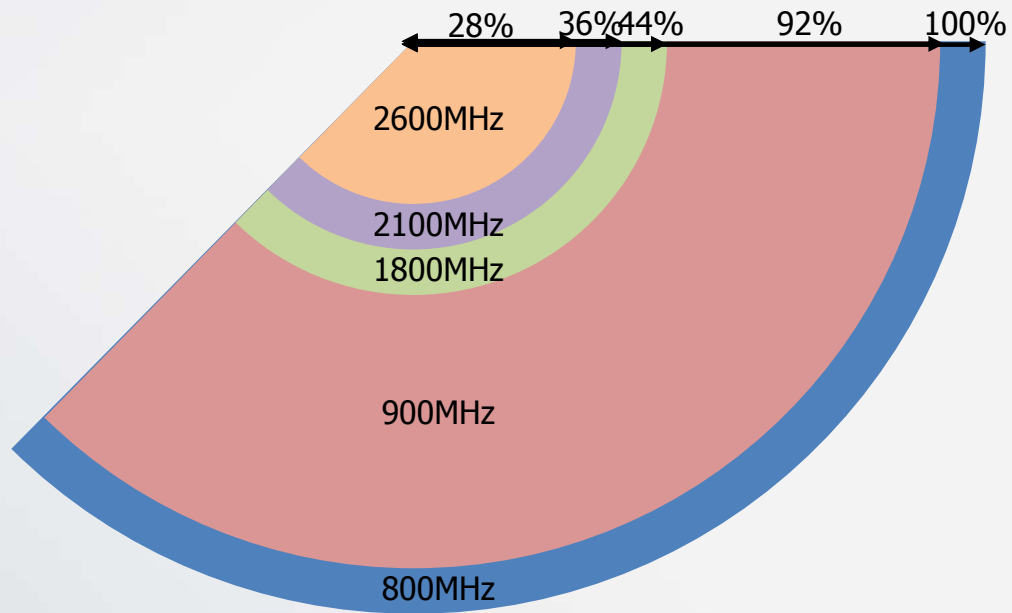


Cafeteria

High Frequency Bands are Suitable for SmallCell

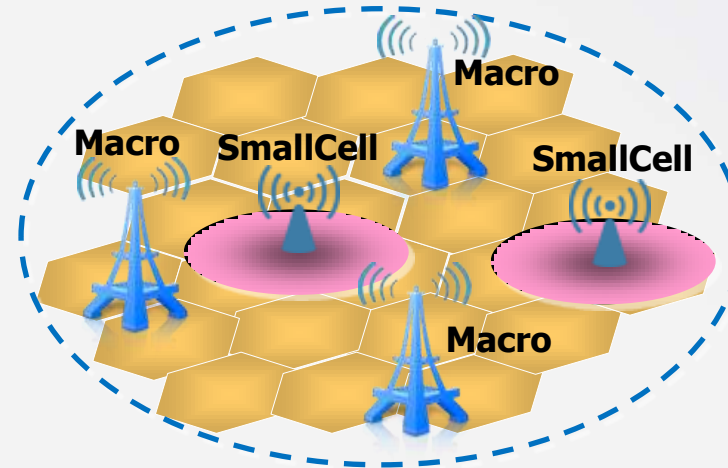


- High frequency band, like 2.6G, 3.5G are being released for LTE technology. Due to the characteristic, especially poor penetration, high frequency band is really suitable for smallcell as outdoor capacity booster and deep indoor coverage.



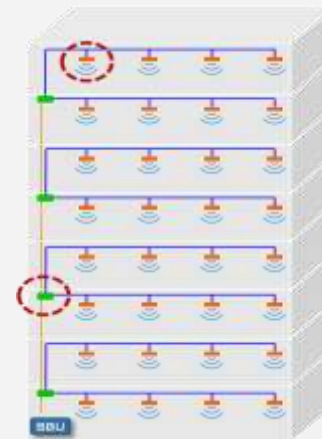
Comparison of Cell Radius : the DL edge rate 1000kbps

SmallCell: Outdoor Traffic Booster



SmallCell is deployed as capacity layer to enhance the cellular network for long term evolution.

SmallCell: Deep Indoor Coverage

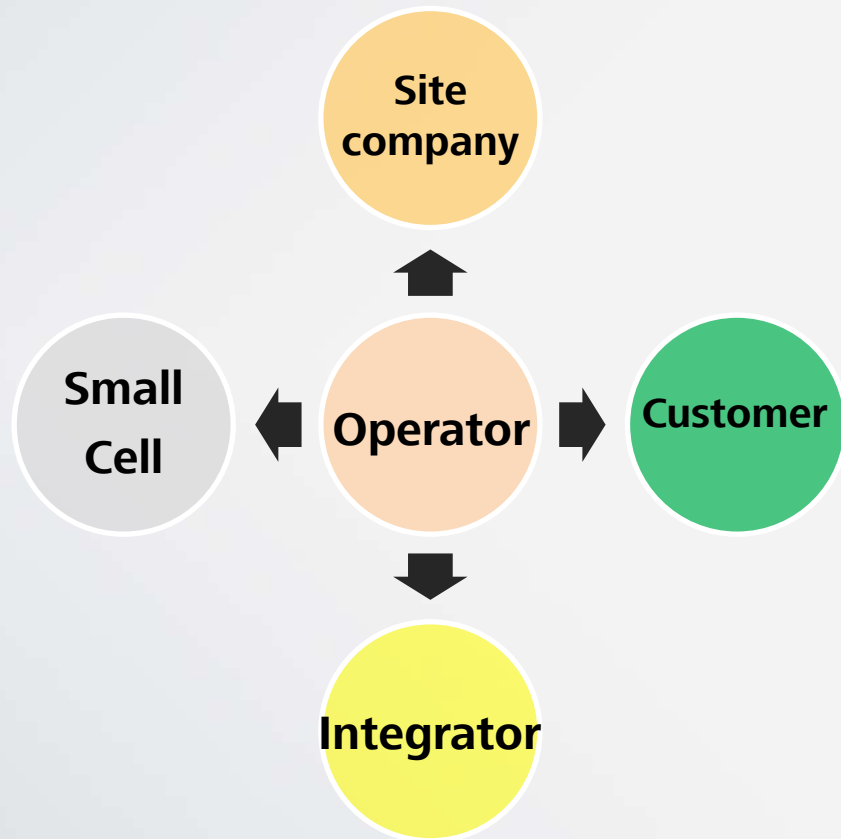


In general, indoor coverage system works on high frequency band, like

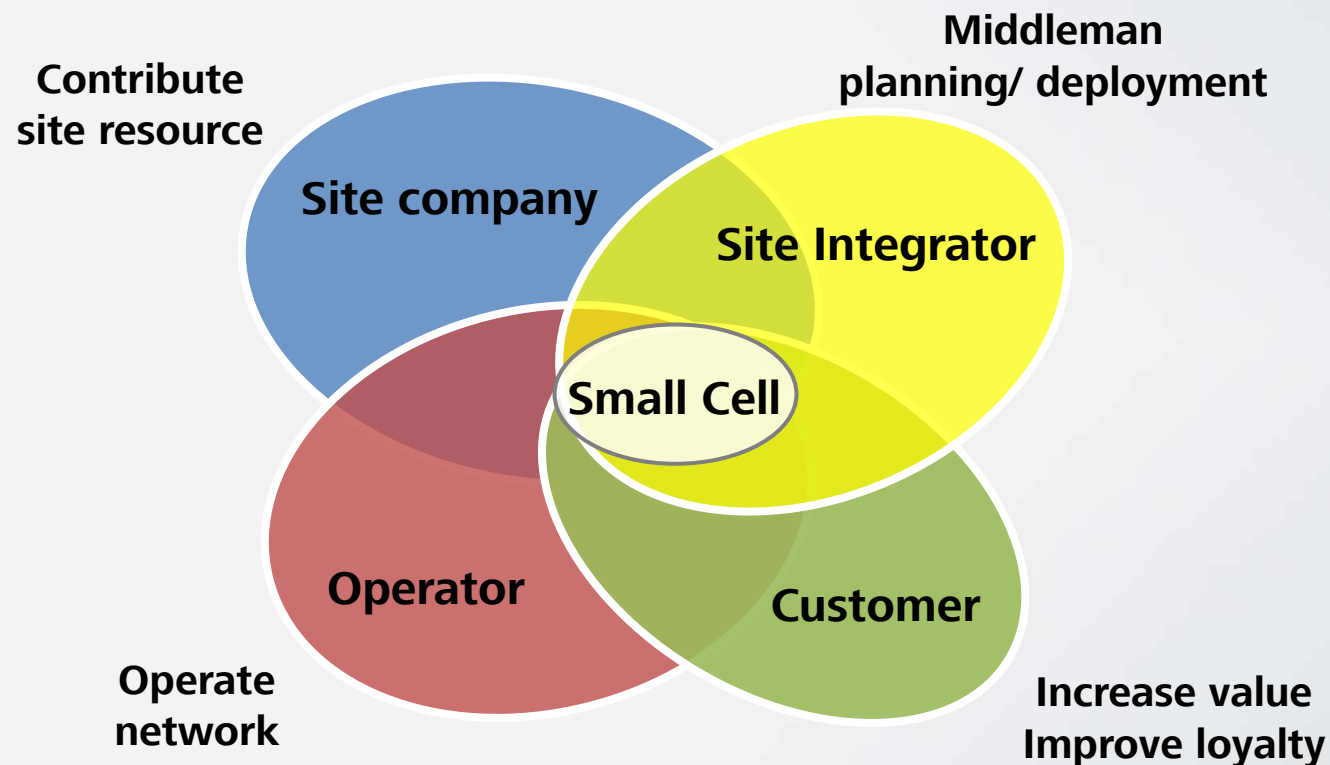
GSM 1.8G,
UMTS 2.1G
or LTE 2.6G

New Crowd-Sourcing Model: Win-Win

Yesterday: All done by operator



Today: share resource advantage; win-win



Main Challenges: Site Acquisition and Transmission

Transmission



Site Acquisition

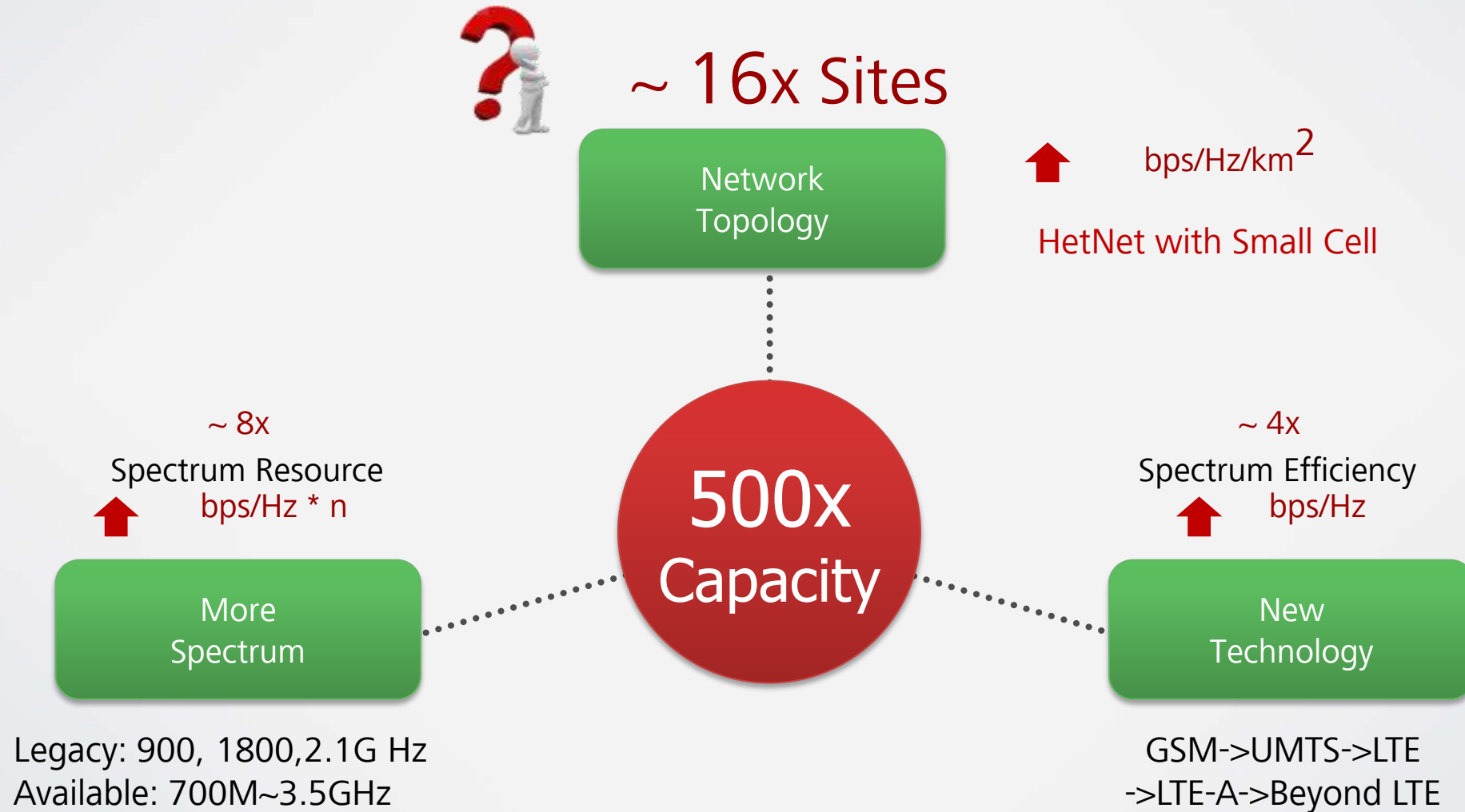


vodafone

- Multi-win cooperation
- Flexible backhaul Solution
- 1000+ bus station available



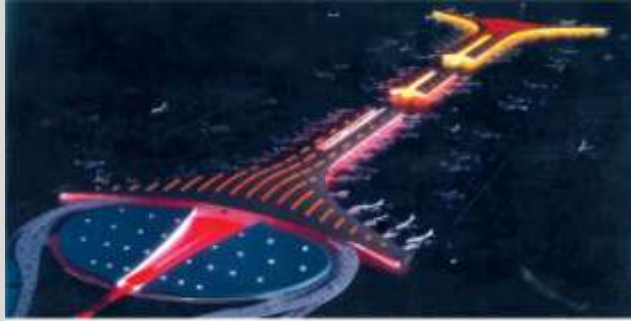
HetNet is Essential for Capacity Enhancement



World's Largest LTE Indoor Project: LampSite in Beijing International Airport

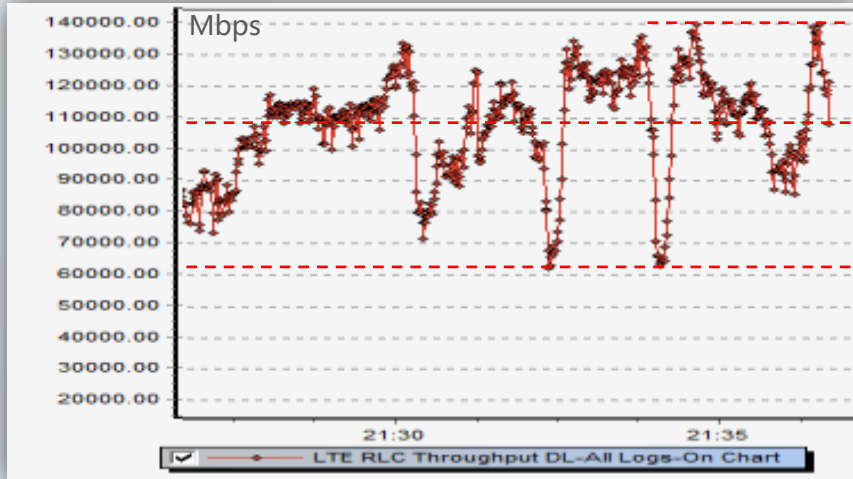


Deployment Statistics



- **3** Terminals, **1.4million m²**, **80million** passengers yearly
- **2200+** pRRU, **440+**rHub, **48** BBU
- Reduce **40%** network element than DAS

User DL Throughput Verification in Field



Peak
Throughput
140Mbps

Average
Throughput
110Mbps

Bottom
Throughput
60Mbps

No RF Cable: Easy Deployment

Waiting Lounge



Cabling



Add Box



Phone Booth



Store



MWC: Lampsite deployment @ Fornebu

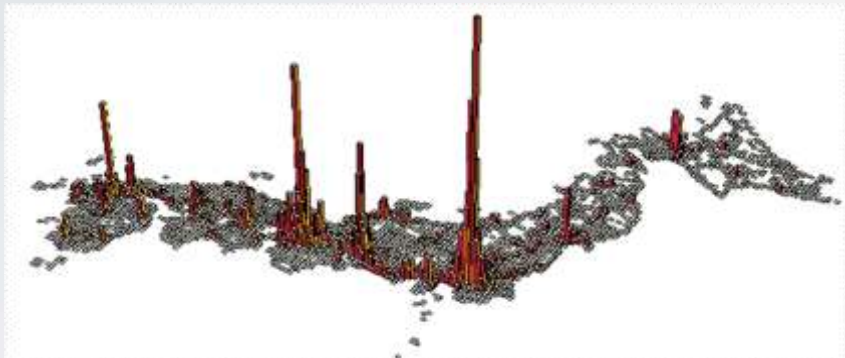
LampSite pilot at Fornebu

- Capacity and coverage for LTE1800 and UMTS2100
- 1000 users in six six-floor buildings
- 50 LampSites are part of the pilot
- With new technology, new processes and business models are needed

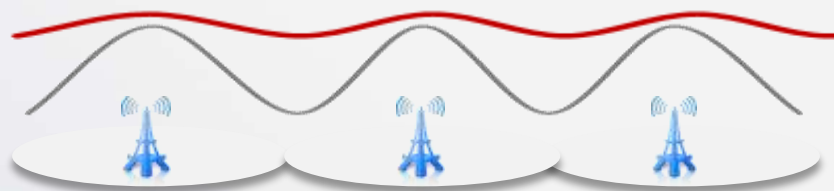


Small Cell and Wi-Fi Build MBB Everywhere

Challenges Concentrated Traffic



Demands No-Edge Experience



Source: SoftBank Public Presentations

Small Cell/Wi-Fi is the best choice for the most valuable Hot spot

SPØRSMÅL ?