Small Cell Discussion

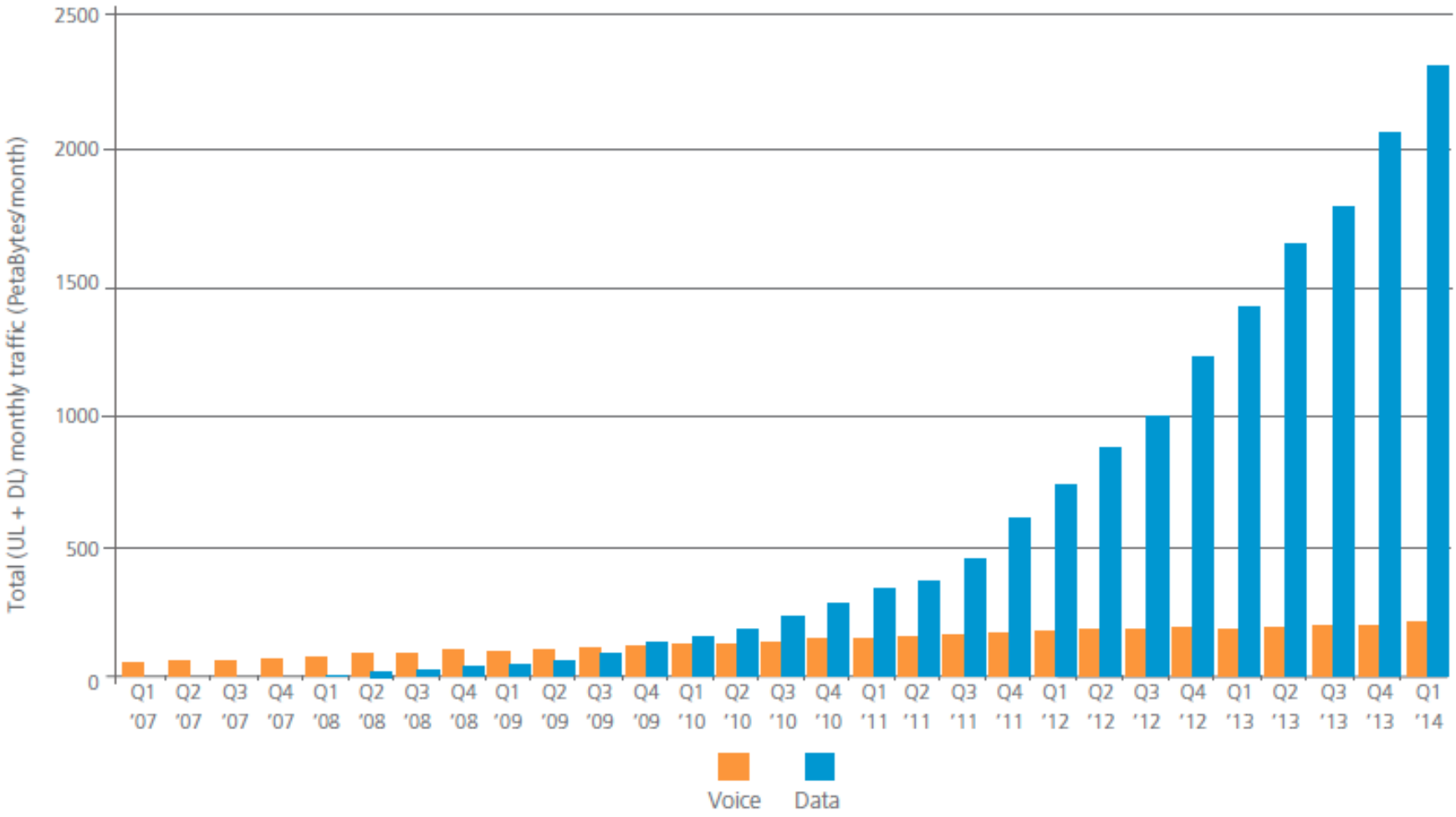
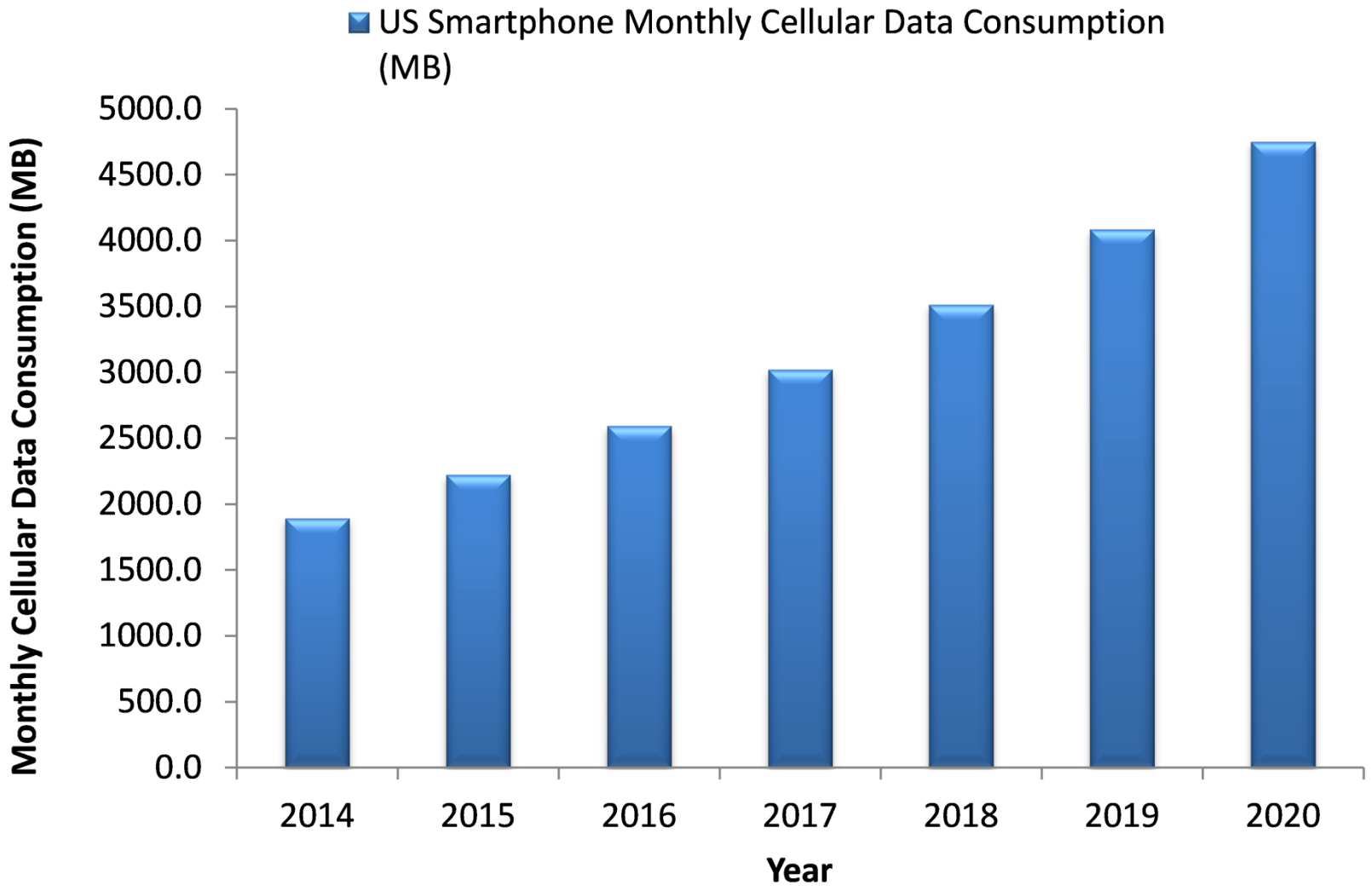
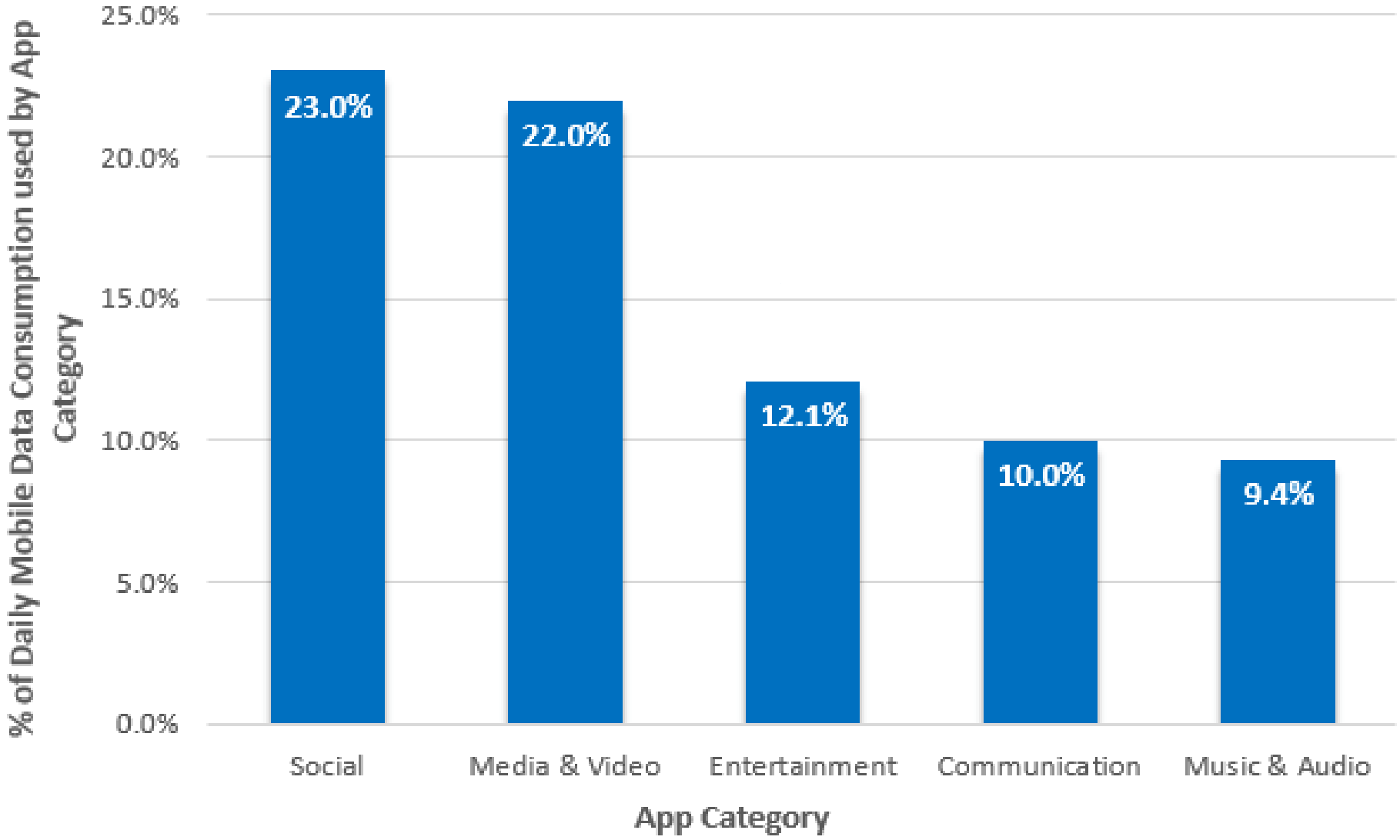


Figure 42: Total Monthly Mobile Voice and Data as Measured by Ericsson



- 2016 research by Frost & Sullivan (for the cellular industry)

United States: Top 5 Mobile Data Consuming App Categories



What are the Key Drivers of this Growth?

- **Advanced Networks** – LTE is clearly driving mobile data usage. LTE devices consume more data than 3G devices of the same type. Growth in 4G adoption continues to drive data and video consumption in the US.

- **Larger Screen Devices** - The average screen size continues to evolve with many phones now between 4.7 to 5.5 inches. This plays into the way data is consumed.

- **Increased Time Spent on Mobile Activities** – This is perhaps as a result of the superior end user experience delivered by the faster networks and advanced devices. An average consumer currently spends nearly three hours every day on non-voice activities on his or her smartphone.

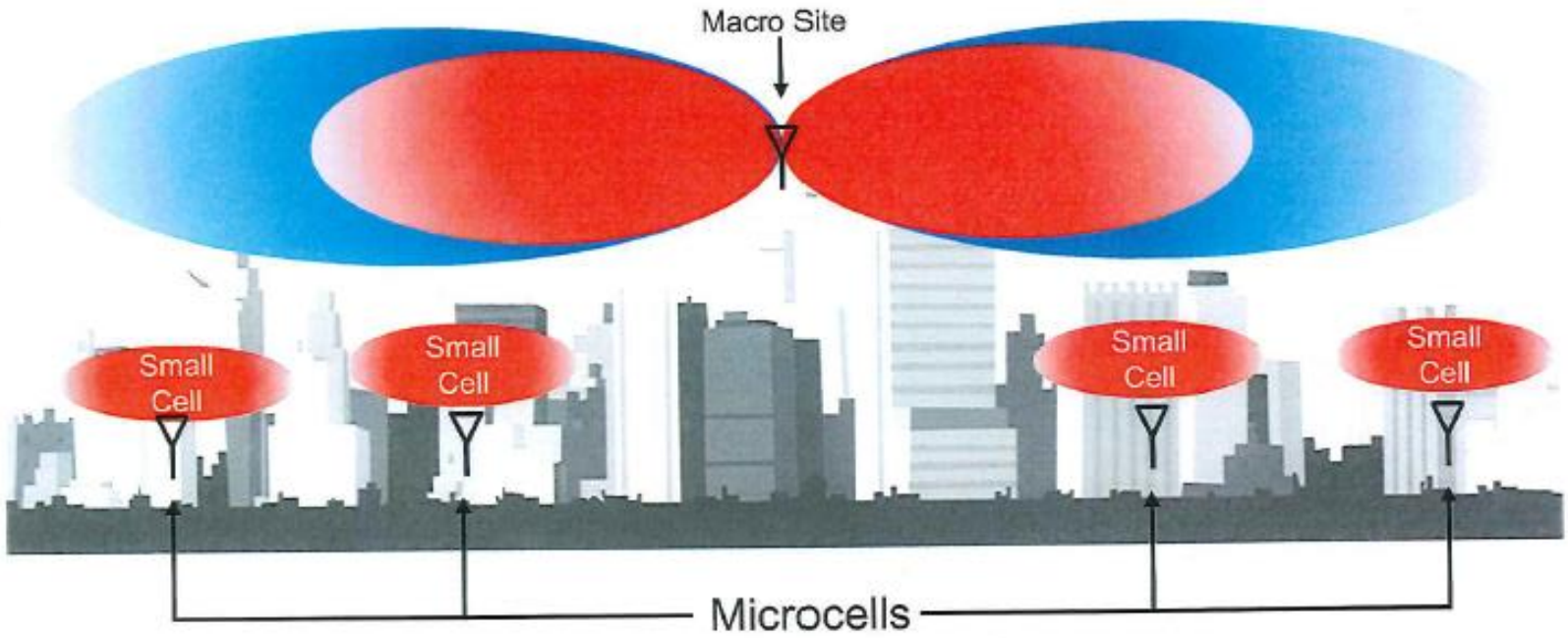
- **Video Streaming, and Peer to Peer Communication Service** – Peer to peer video calling services continue to grow and are likely to increase in share of mobile data consumption in the next couple of years. Video streaming content services have been, and likely will remain, the main driver of mobile video data traffic as well.

- **5G Services on the Horizon** – As proven with 4G LTE, faster networks lead to higher cellular mobile data consumption. Therefore, 5G devices will consume more data than 4G devices of the same type.

What is the cell industry doing about this increase in data demand?

- Building more macro cell towers
- Adding capacity to existing sites
- Installing small cells

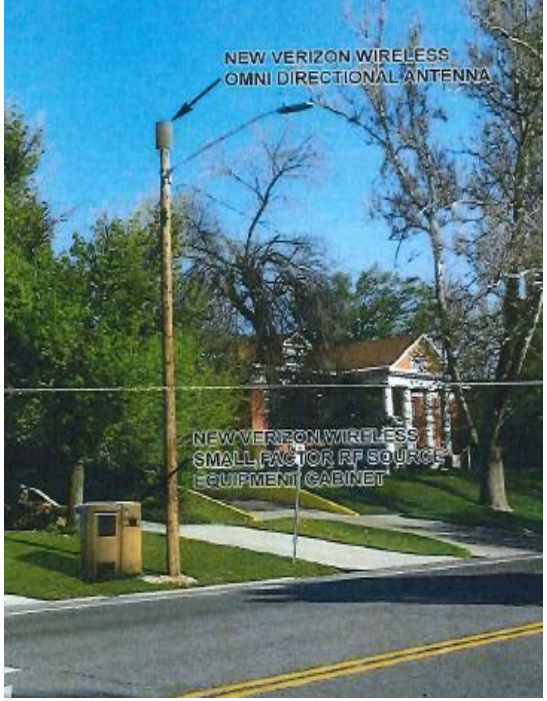
Macro site vs. Small Cell Locations



verizon

What is a Small Cell Tower?

- A smaller low profile cell tower used to relay data from a macro site, typically 35-60 feet in height
- Typically require more dense frequent placement than macro cell towers, including right-of-ways and private buildings
- Can be co-located, with a max of two antennas per site
- Typically enter lease agreements and/or franchise agreements with public entities to install on existing infrastructure


NEW VERIZON WIRELESS
OMNI DIRECTIONAL ANTENNA
NEW VERIZON WIRELESS
SMALL FACTOR RF SOURCE
EQUIPMENT CABINET

● 1,000 ft. Separation (Verizon)
● 1 mi. Separation (Mobilitae)
SR 209
9400 S
1300 E
Iron Ore Way
Cyx Rd
Quarry Sands Ln
Mockingbird Ln

Issues with the Development Code

- Section 15A-11-24 of the Sandy City Land Development Code regulates wireless telecommunication Facilities
  - This section does not regulate cellular equipment in the right-of-way
  - Separation requirements and regulations are not addressed for implementation of small cell facilities
  - This section is mute on authorizing staff to deny or approve any small cell construction

Nine Points from Initial Staff Conversation

1. Minimum distance requirements to residential and from each small cell pole
2. Underground infrastructure
3. Maximum heights
4. Co-locate where possible
5. Use existing streetlights
6. Upgrade to current standard if replacing pole
7. Company maintain and own pole, as well as install fixture; city maintains fixture
8. Establishing a franchise or lease agreement would be left to the professional
9. Mandate common aesthetic properties (i.e. same color/form) from all companies