

Next Generation Wireless Networks

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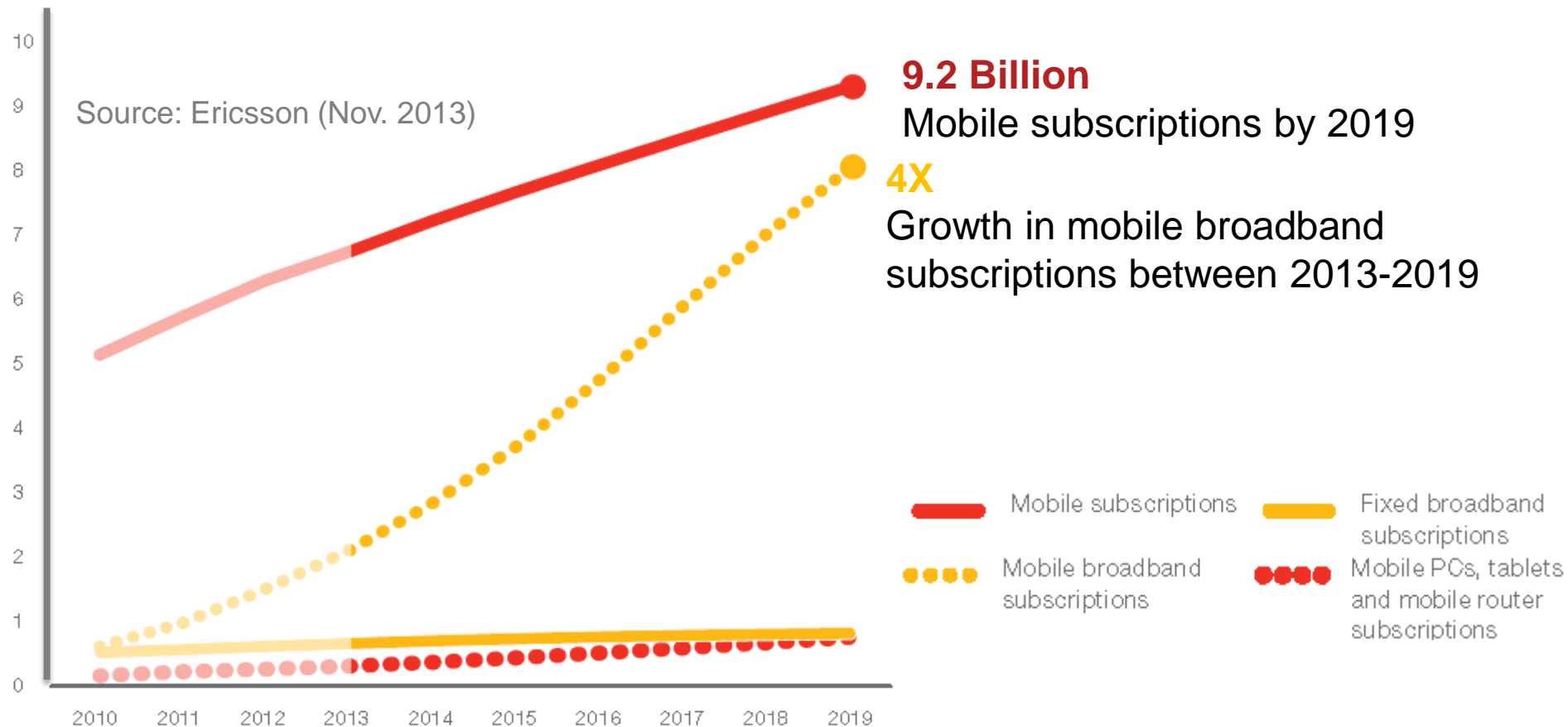
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Wireless Networked Society

The world is becoming increasingly mobile...
(wireless connectivity anywhere, anytime, anything)

Subscriptions/lines (billion)

Source: Ericsson (Nov. 2013)

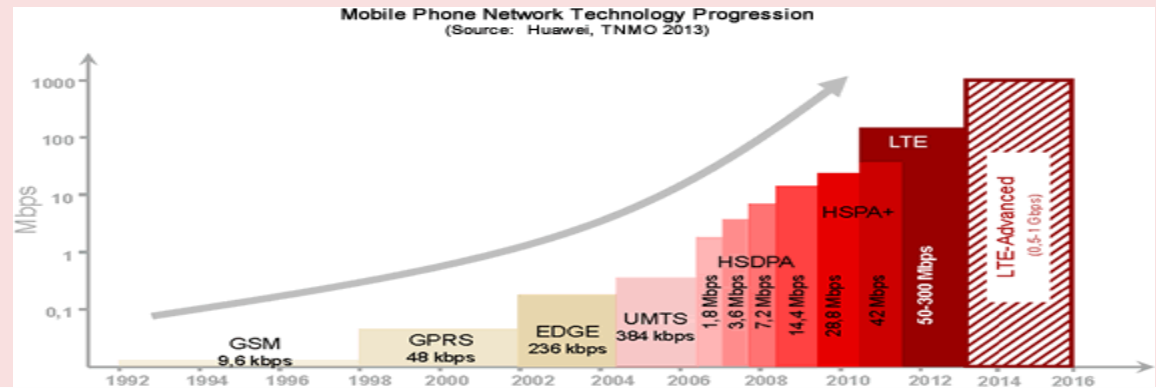


... and mobile data traffic growth

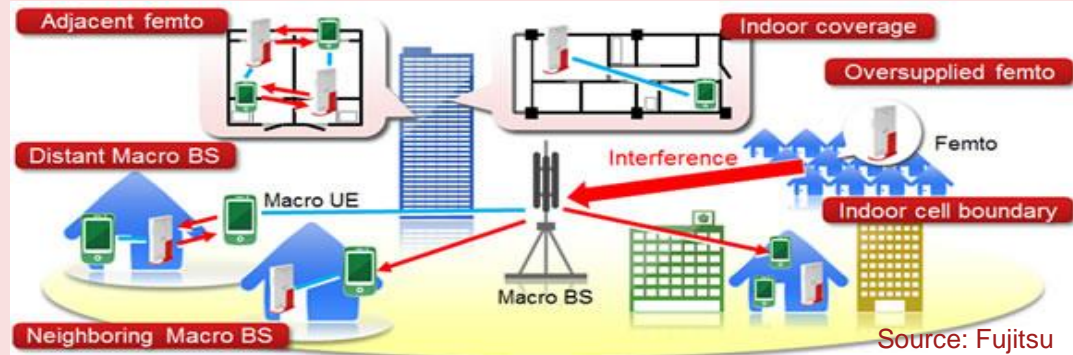


How to meet the demand?

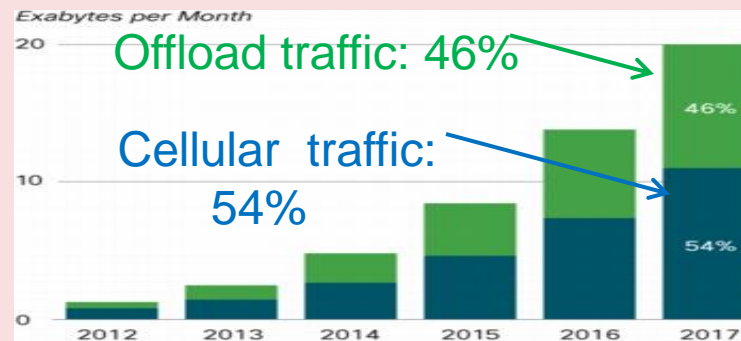
Continued link enhancements



Small cell deployment



Offload over WiFi networks



More spectrum!!

Technology innovations are necessary but not sufficient

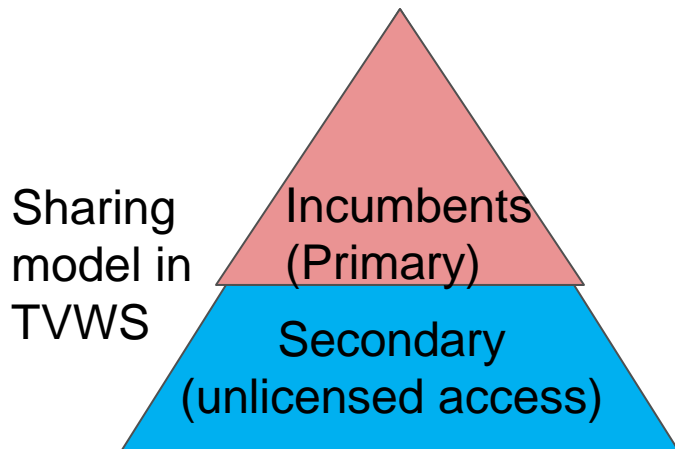


More spectrum is vital for growing broadband demand

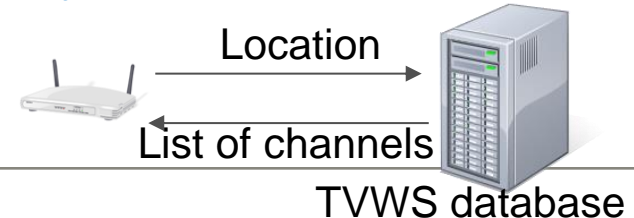
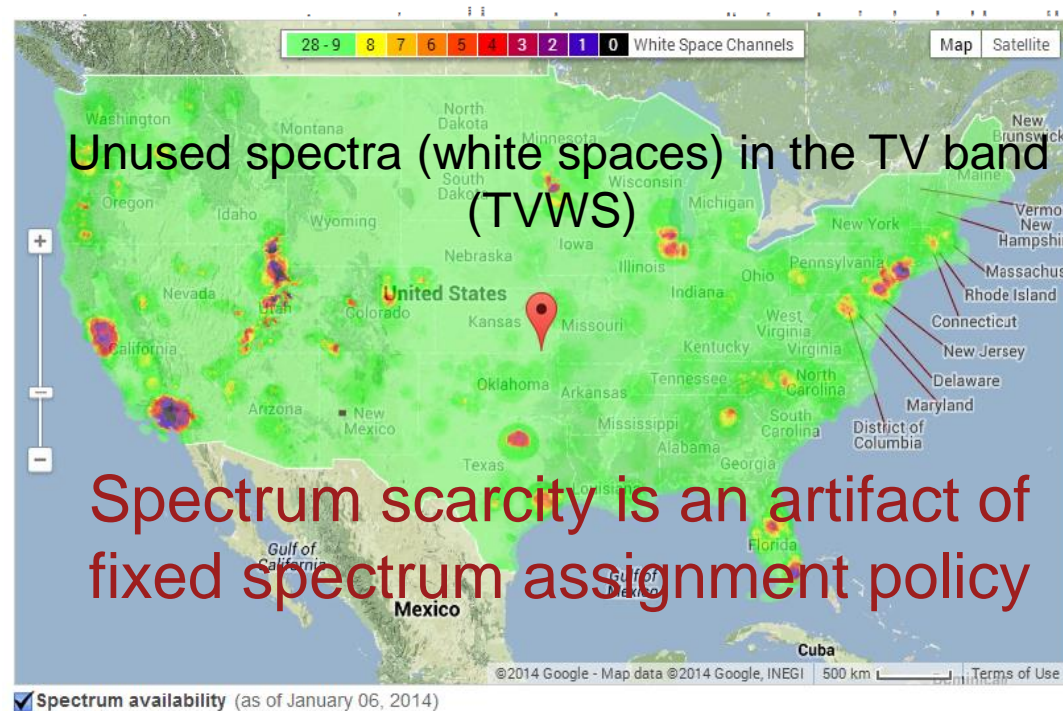
- Much of spectrum is allocated
- But underutilized!

- Spectrum refarming is costly

↳ Spectrum sharing paradigm



- ✓ No interference with incumbents, via
- ✓ Channel query from a **certified database**



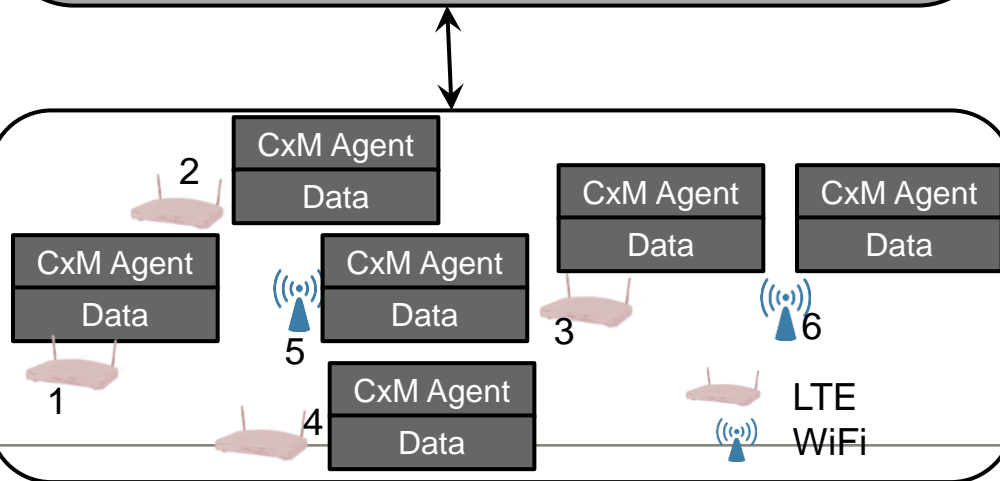
... is it the whole solution?

Dense small cells/WiFi deployment → Heterogeneous coexistence in shared spectra

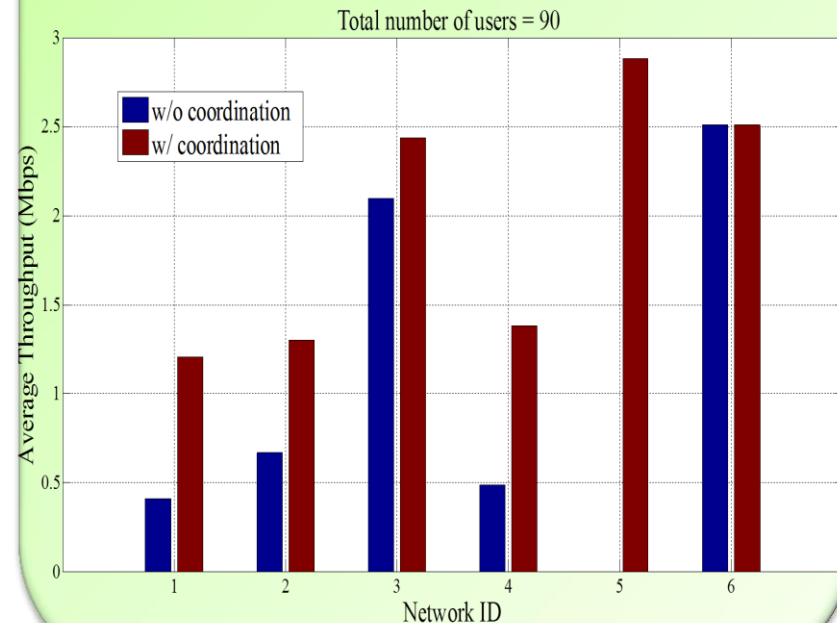
Database as the coexistence management (CxM) service provider

Fujitsu CxM Controller (in the database)

- Collect Information from all networks
- Determine network parameters (bandwidth, spectrum, ...)



- ❑ Increases spectrum utilization
- ❑ Improves user experience



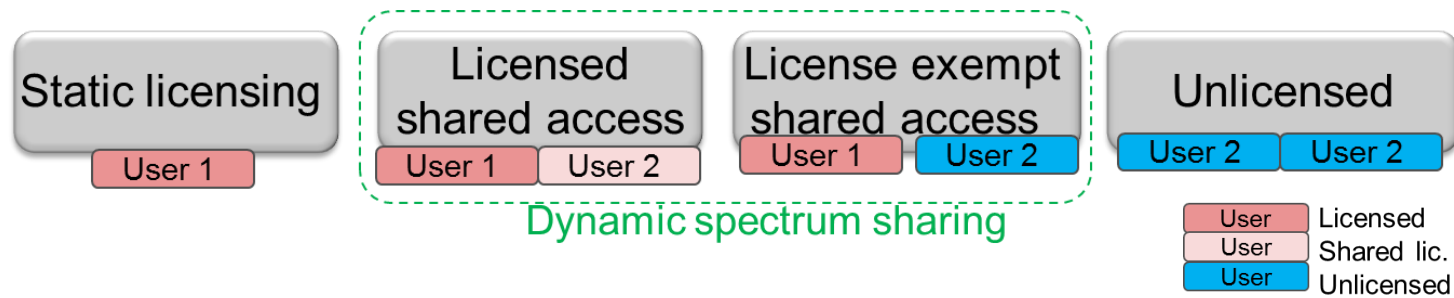
Next Generation Wireless Access

Hierarchical and heterogeneous (3G/4G/5G+WiFi)

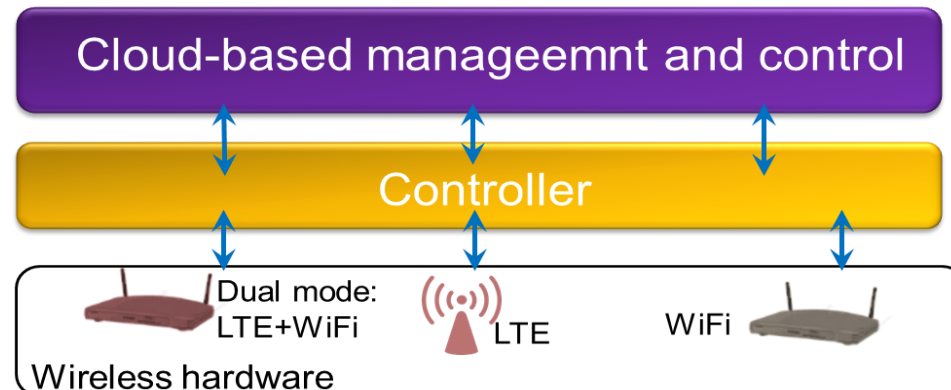


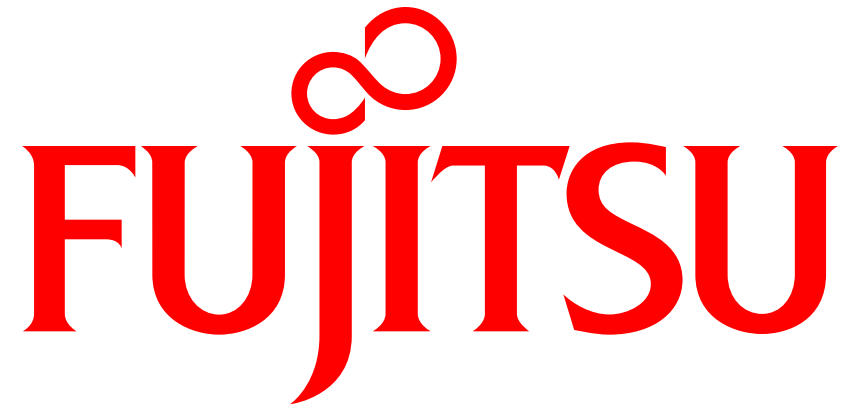
Source: Qualcomm

Support wide range of frequencies



Software-defined Wireless





shaping tomorrow with you