



Future Network Federation 4G -> 5G

Art King, Director of Enterprise Services

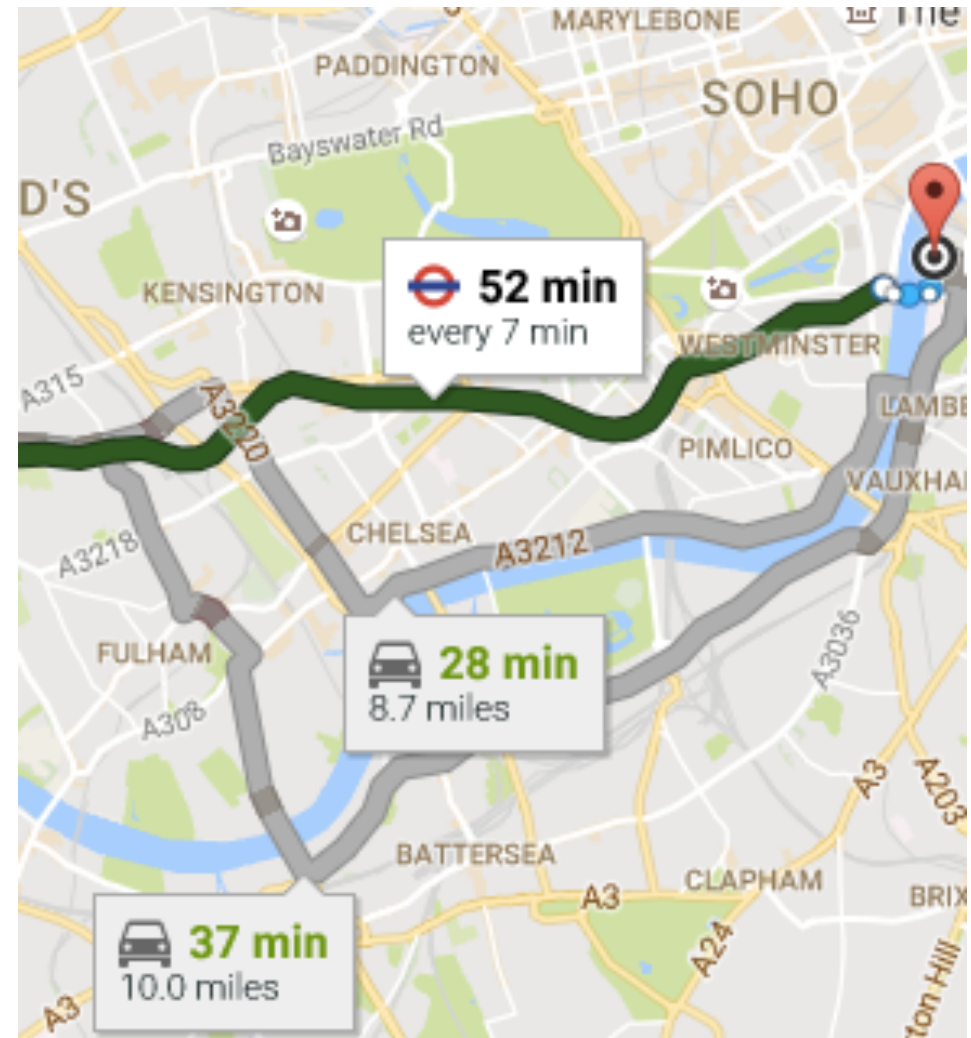
SpiderCloud Wireless

Small Cells Americas, Dallas 2016

SpiderCloud
Wireless

Where are we now?

- Cellular RAN Technology
 - Limited to mobile operators
- Enterprise
 - If investing, it's traditionally beyond the 50Ω RF Connector
- Enterprise Self-Funding RAN
 - Still emerging, operator blocks
 - Unlicensed, Lightly licensed promise



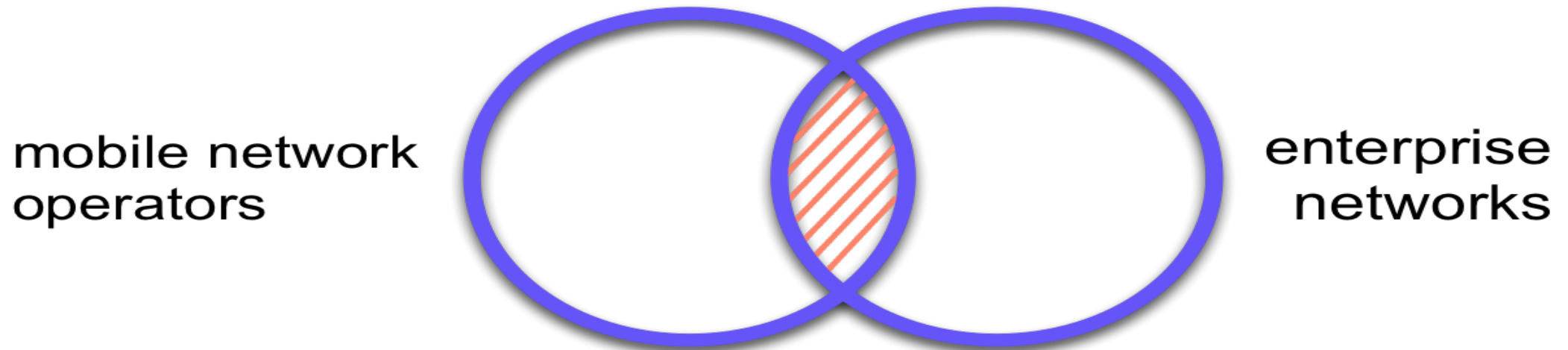
Will Enterprises and Venues Build your Indoor Mobile Network?

- Leverage IT competences and budgets to expand cellular coverage
- Move indoor RAN from operator ledger to customer
- Need business and operations enablement models

“Building owners in hotels and hospitals are getting desperate for mobile coverage, and are willing to pay for their own infrastructure,” said analyst Joe Madden of Mobile Experts in April 2015.

“In what office buildings, does the local electric utility provide wiring and outlets, or the local water utility provide the plumbing and faucets?”, CTO from Mobile operator

Evolution - “Blurring the Lines” Between Enterprise and Service Provider Networks



- Business Agility – move from Capex to Opex financial model
- Monetize “Hidden” Integration Point – connect mobile to enterprise
- **2016 – or is it Enterprise LTE?**

LTE in Unlicensed/Lightly Licensed Bands

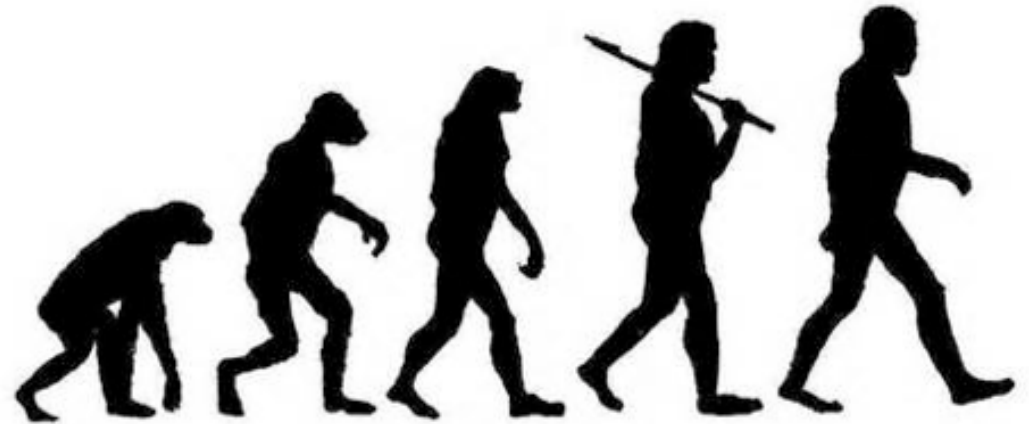
- Demand for mobile data keeps growing
- Solutions pipeline:
 - CBRS 3.5Ghz (USA, for now)
 - LTE-LAA (faster downlink)
 - MulteFire (no licensed anchor)
- Unlicensed/Lightly Licensed
 - Easier for non-operator to deploy (no co-channel)
 - Enterprise acquired RAN moves the operations “line”



Mobile Edge Computing, where IT and Telecoms Converge

- MEC is evolving into an enterprise focus
 - MEC Suppliers? Can't wait for operator decisions
 - How? Innovation moves line from RAN to MEC
 - Why? Brings mobile device innovation to business

- Freeing up enterprises to innovate
 - And, operators sell core API, not boxes



So, what about 5G?

- There are predictions of and desires for Enterprise participation
- Unblocking the Channel
 - Procurement and integration
 - Operations lifecycle
- The Roadmap is undefined
 - Both enterprises and operators



Future State: Operator as Conductor

- Mobile Operators as orchestrator of huge federation of connected autonomous networks.
- Operators know how to do this for global
 - Roaming
 - Service interoperability
 - Operations
- Business drivers:
 - Enterprises want services - operators need to find model
 - Innovation and speed are advantages in enterprise where you have room to “fail forward”



Propose: Business and Operations Innovation

- Federating infrastructure NOW under 4G, in preparation for 5G
- Common Thread:
 - Federated operations inside single operator
 - Drawing line of ownership/operations
 - Open vast enterprise market for 3GPP suppliers in concert with operator community



Small Cell Forum – Business Principles WG

- Targeting to define this for now and 5G future