

# In-Building Industry Update

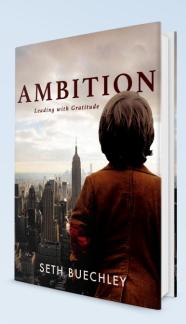
Seth Buechley CEO













- Priority RF Introduction
- Historical Overview
- Industry Trends
- Carrier Spending
- Path Forward



**In-Building Industry Update** 



- Consultancy focused on In-Building Wireless Infrastructure – Cellular and Public Safety
- Originators of the <u>Shared DAS</u> ™ <u>Model</u>
  - Guides Property Owners and Managers through In Building Wireless Planning, Funding, Development, and Operation





#### Technical

- Voice > Voice and Data
- Mostly Outdoor -> Mostly Indoor
- Coverage -> Coverage and Capacity

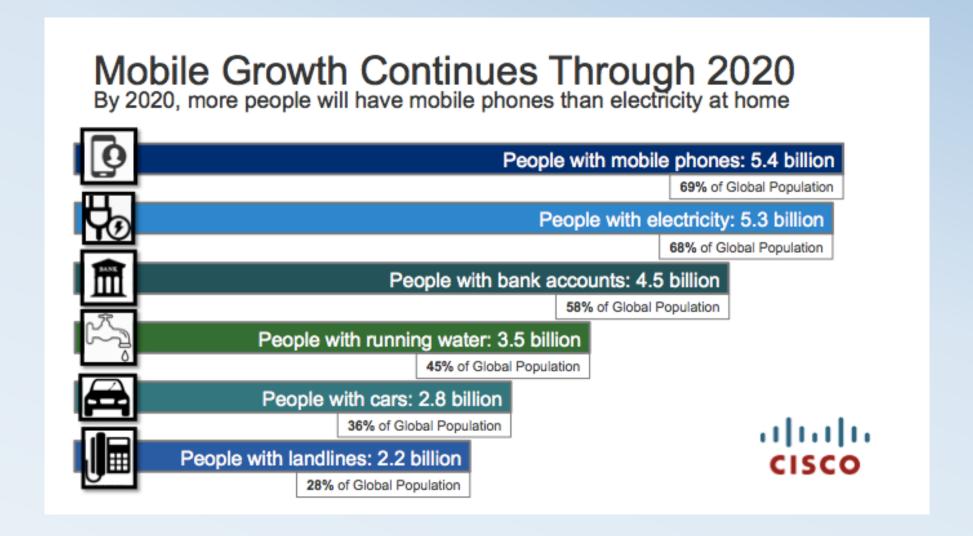
#### Business

- Continued Growth of Wireless Usage
- Carrier funded, owned, and operated
- Enter Third Party Operators
- Predominantly Cellular little Public Safety
- OEM Acquisitions by Connectivity Players



# Historical Overview – Early Trends



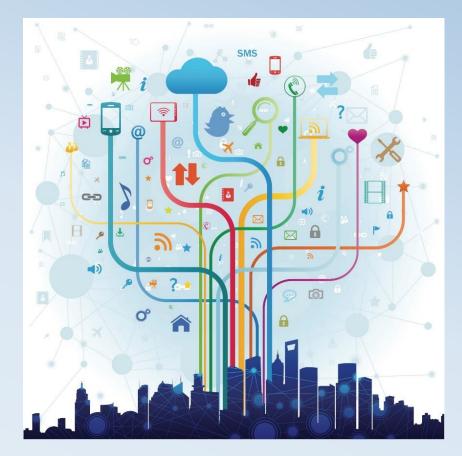


### Industry Trends – Continued Global Growth

#### Densification



- More Nodes Higher Data Rates Manage Interference
- Changes in Carrier Spending
- Owner / Enterprise-Funded Systems
- Technology Options:
  - DAS, Small Cell, E-RAN, Femto, 5G?
- Public Safety taking Center Stage
- Spectrum Band Changes
- IoT Machine to Machine
- Network Virtualization Shift from H/W to S/W



## **Industry Trends**



- Wireless Carrier Competition
  - Promotions, Pricing, Data Plans
- More Data, Streaming Video
- BYOD, Enterprise Reliance on Mobile Wireless
- Densification
  - Carriers Acquiring and Building Fiber
  - In-Building and Outdoor Small Cell
  - New Spectrum
  - 911 Location
- Embedded Devices IoT



#### **Drivers**



- Mergers and Acquisitions Consolidation and Content
  - AT&T & DirecTV Verizon & Yahoo Sprint & Tidal Streaming
  - Comcast, Google Entering Wireless Market?
  - T-Mo / Sprint in play? Merger?
- New Administration
  - Regulatory (FCC) Changes
  - Infrastructure Investment
  - M&A Approvals



**Drivers - Continued** 



- 3PO's, OEM's, Distribution, and Integrators Report Lower Carrier In-Building Spend Trailing 24 Months
- Carriers want more coverage for less money
  - "Middleprise", E-RAN technology
- Carriers frustrated with 3PO costs
  - Long Term Contracts, Escalators, Markups
- Big Venues still command best deals
- CAPEX OK, Less OPEX
- Tier 1B Venues good demand



### Changes Observed in Carrier Spending



- Develop Agile Partnerships Leverage Ecosystem
- Help Building Owners and Managers Maintain Financial and Technical Control
- Help Carriers Reduce Costs, Expand Coverage and Capacity
- Develop Solutions for In-Building Public Safety
- "Future-Proof": Create Flexible Options
  - Invest in Fiber, Pathway, Space
  - Modular / Expandable Systems
  - Broadband Passive Component
- Innovate Business and Financial Models

### **Path Forward**





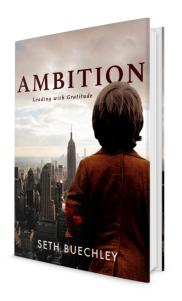


#### Thank You!

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