

Verizon Small Cell Program



The Voice of Colorado's Cities and Towns

Connecting our homes, businesses and communities.

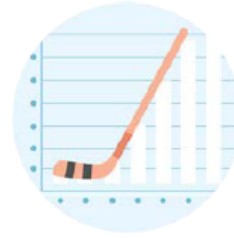
Verizon desires to partner with the cities, counties and utility companies within Colorado to deploy small cell technology in the right-of-way to serve the residents of member cities and provide the fastest and most reliable network to our shared customers.

Why are we expanding the wireless network?

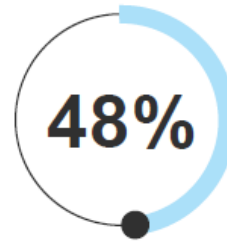
More people than ever before rely on wireless connections to manage their lives and businesses.

Verizon is expanding its wireless network to meet the growing demands of today and tomorrow.

But it takes time.



U.S. mobile data usage is projected to grow nearly seven-fold through 2019.¹



More than 48 percent of American households are wireless-only.²

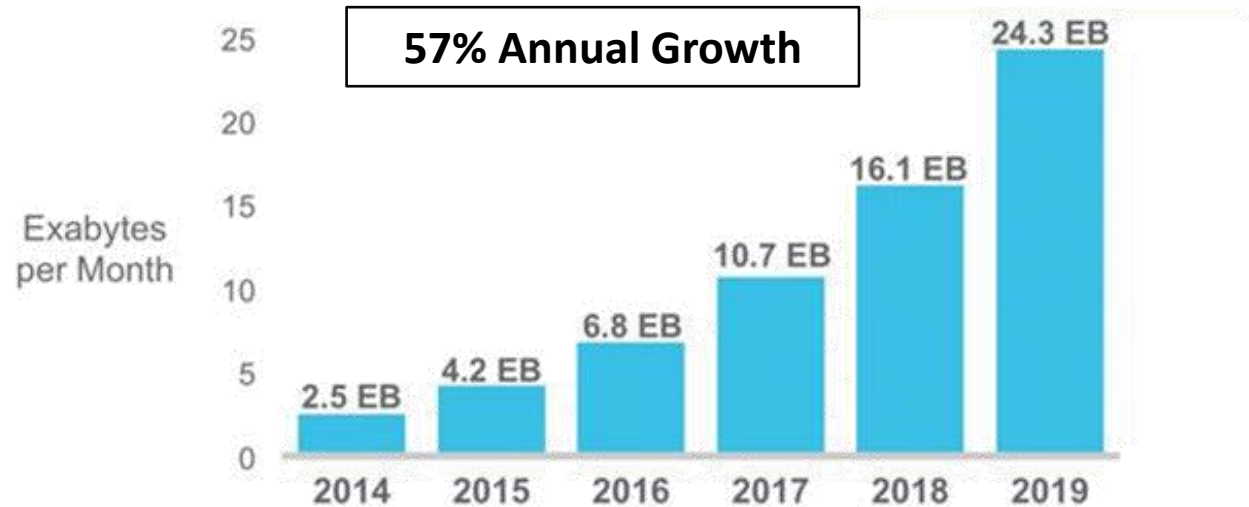


In North America, the average household has 13 connected devices with smartphones outnumbering tablets 6 to 1.³

1. Cisco VNI Mobile Forecast Highlights, 2014 – 2019, October 2015
2. CDCs 2015 Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July-December
3. IHS Markit Connected Device Market Monitor: Q1 2016, June 7, 2016

Growth in Data: What Are Carriers Doing?

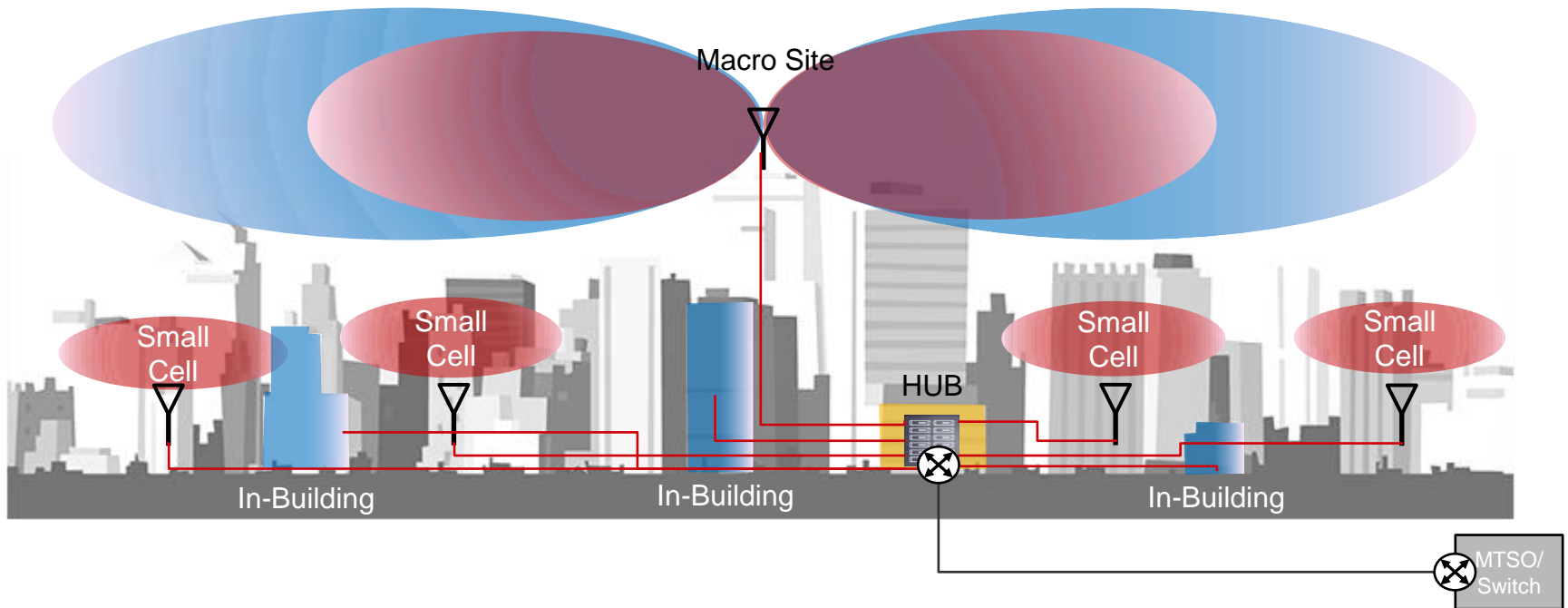
- Deploy Macro Cells
- Add Capacity to Existing Sites
- Deploy Small Cells



Global Mobile Data Traffic Projected Growth

Source: Cisco VNI Mobile, 2015

Heterogeneous Network



- Coordinate signals between Macros, small cells, and in-building systems
- Reduces interference and improves performance / capacity

Small Cells

Small Objective:

- Capacity offload
- Fill gaps in coverage

Small cell characteristics:

- Lower Antenna Heights 20' to 40'
- Lower Power
- Smaller Coverage Area

Benefits:

- Enhanced emergency services
- Improved user experience; faster throughputs
- Platform for evolving technology
- Aesthetically smaller designs
- Aide in economic growth



Components

- Antenna
- Radios
- Power
- Backhaul



Design Options



Street Light

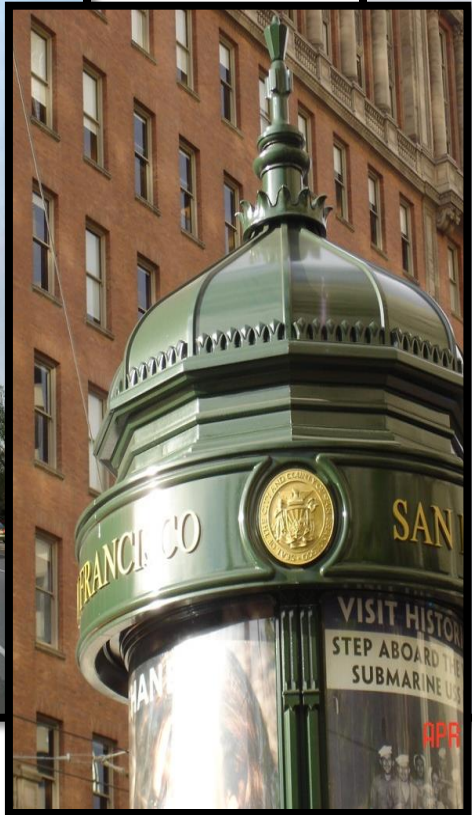


VZW-Owned Pole



Traffic Control Pole with Cabinet

Examples



Small Cell Deployment VZW Owned Pole in ROW -- Denver



Small Cell Deployment Existing Light Standard -- San Francisco



Small Cell Deployment Existing Light Standard -- City of Los Angeles BSL



The Partnership

Verizon



Colorado



Master Lease Agreements

- ✓ Negotiate terms once
- ✓ Document locations
- ✓ Reimburse Cost



Streamline Permitting

- ✓ Modernize discretionary processes
- ✓ Optimize City staff time & efforts

Community Benefits

Enhanced Wireless Services:

Voice, Video & Data

Public Safety:

Law Enforcement & First Responders

Economic Benefit:

New Commerce, Conventions & Tourism

Resiliency:

Redundancy, Smart Community & Next Generation Wireless Services Foundation

Significant Verizon Capital Investment

in your Community

Thank you.