Distributed Antenna Systems Overview

Challenges to realizing the Broadband vision

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CORPORATION

Agenda

- Introduction
- DAS overview
- Pole rights
- Municipal approvals
- NEPA and Section 106
- Next steps

American Tower Snapshot

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Global leader in wireless and broadcast infrastructure solutions

- 27,000 sites in the US, Mexico, Brazil, and India
- ~200 DAS networks
- S&P 500
- NYSE: AMT
- Headquartered in Boston, MA

ATC DAS Solutions is a public telecom utility in 30 states in support of Outdoor Distributed Antenna Systems (DAS)

American Tower Outdoor DAS program is gaining traction in the marketplace

- Two "On-Air" with 25+ networks across the US and growing
- New entrants launching entire markets with DAS
- Incumbents strengthening existing networks with DAS

Today's DAS IS Broadband

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Distributed Antennas Systems (DAS) are designed to support broadband

- Network architecture which is complimentary to traditional wireless communications systems
- Enables broadband speeds and fiber backed capacity

DAS/ROW installation challenges are not unique, but are multiplied

- Other utilities use public Right of Way (ROW) for deployment of facilities, including fiber, control boxes, and antennas

Neutral Host DAS

A distributed antenna system (DAS) is a network architecture providing low power, point-to-point coverage closer to the mobile user

- Pole attachments x10, x20, x30…x100
- Smaller coverage zones, or microcells
- Promotes seamless coverage and capacity
- A targeted solution that is becoming a carrier necessity

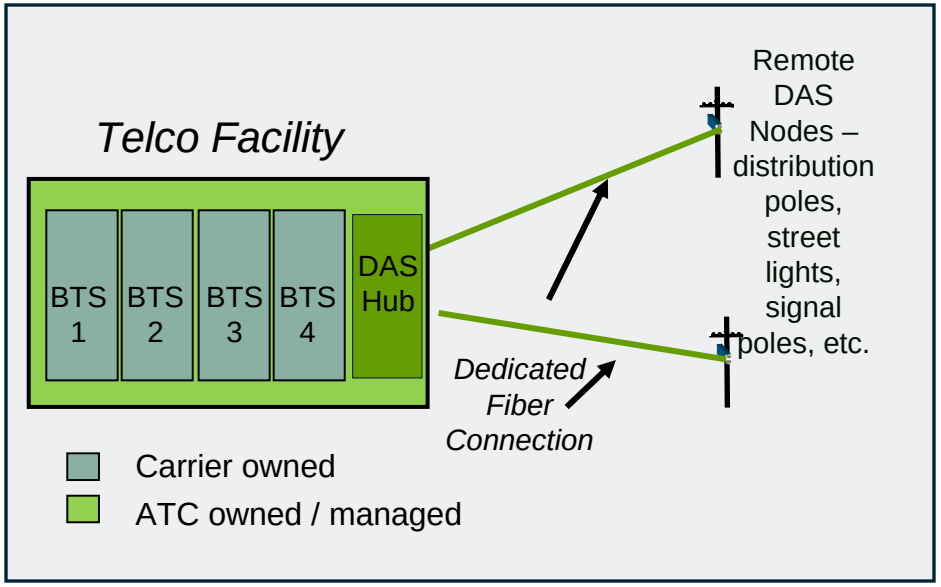
Neutral host DAS is designed for multiple service providers

- Efficient and environmentally-friendly system design
- Neutral host owns all fiber, nodes, and related equipment
- Carrier provides head-end equipment in a dedicated base station

Tower & DAS Comparison and Contrast

Typical Tower and Compound

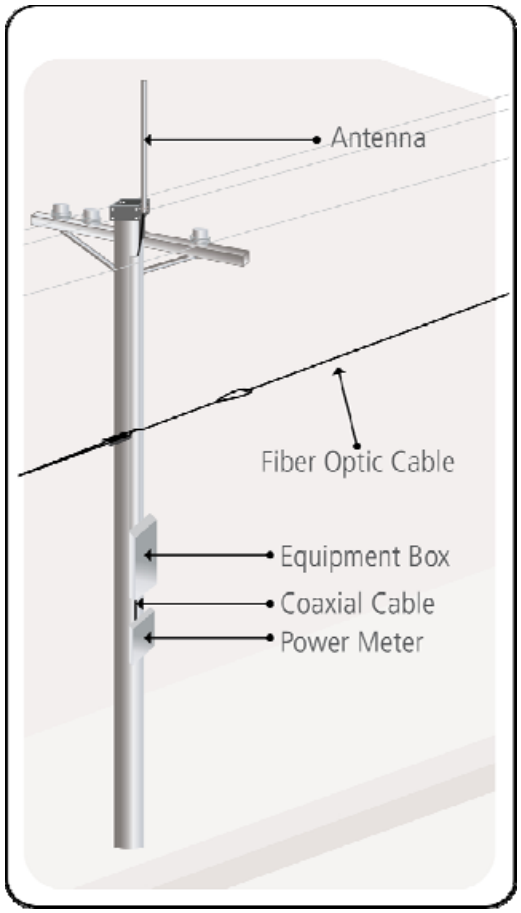
Typical DAS Network



- Wireless carriers transmit/receive their signal
- 100+ stand-alone steel structures with a fenced-in compound underneath
- Each carrier has its own antenna arrays of differing shapes and sizes
- Multiple shelters with BTS's and diesel generators

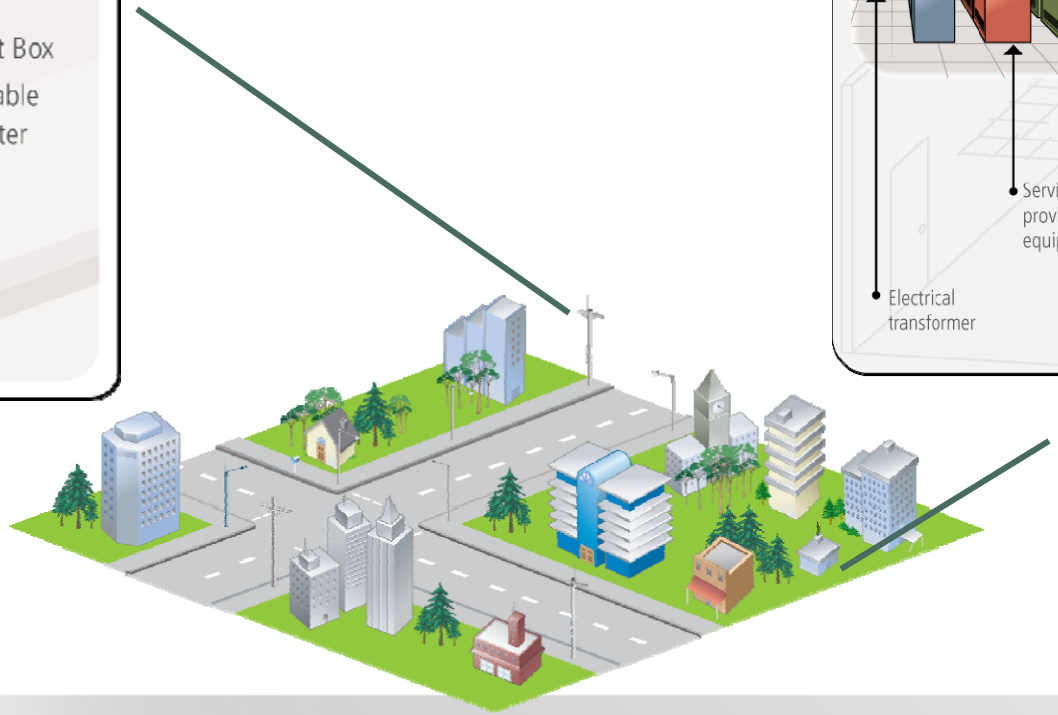
- DAS distributes a wireless carrier's BTS signal to nodes located where coverage or capacity needed
- Infrastructure is similar to that which exists today in the public right of ways – fiber, small control boxes, and small "whip" antennas
- No/low visual impact complement to traditional towers

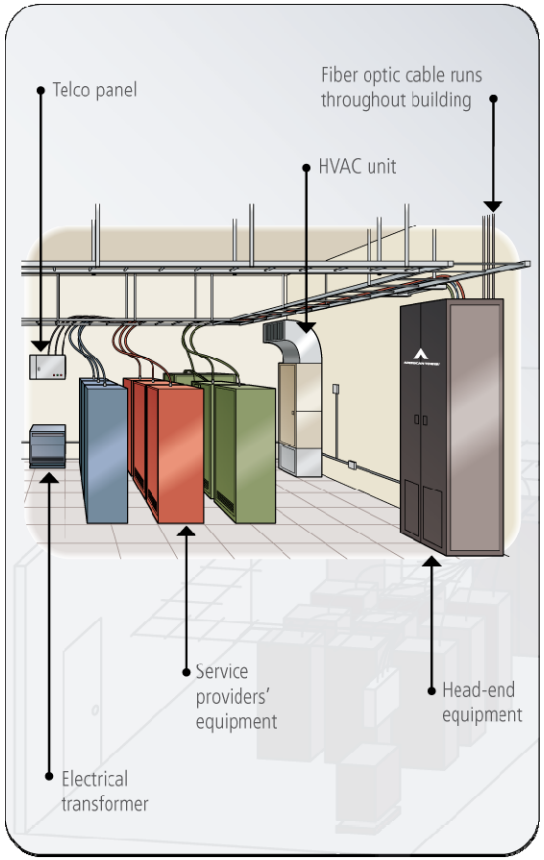
Outdoor DAS/Right-of-Way Installation Overview



1) Nodes

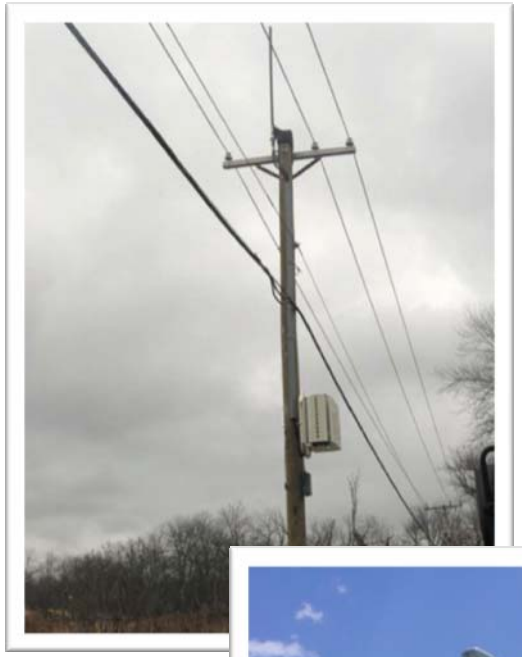
DAS Consists of:
1)Nodes
2)Fiber
3)Hub

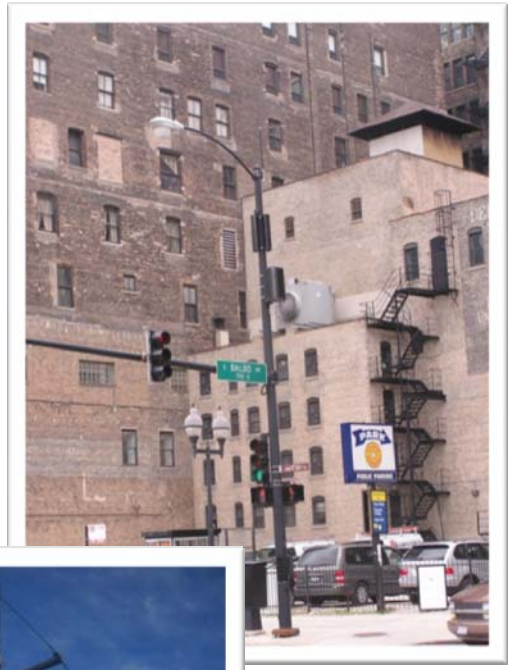


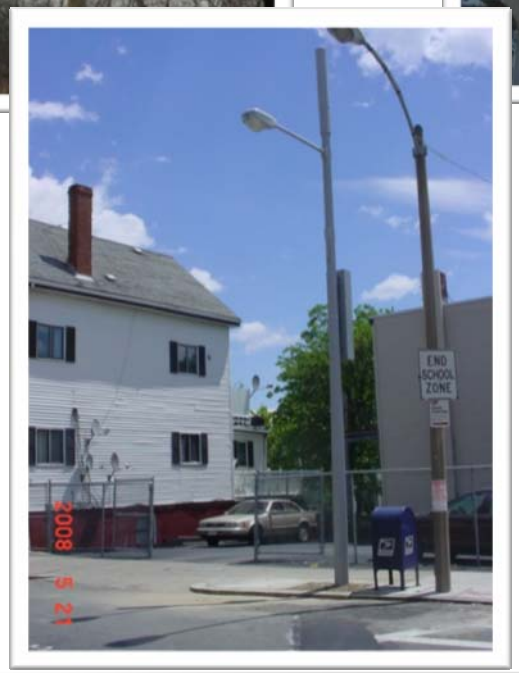


3) Hub

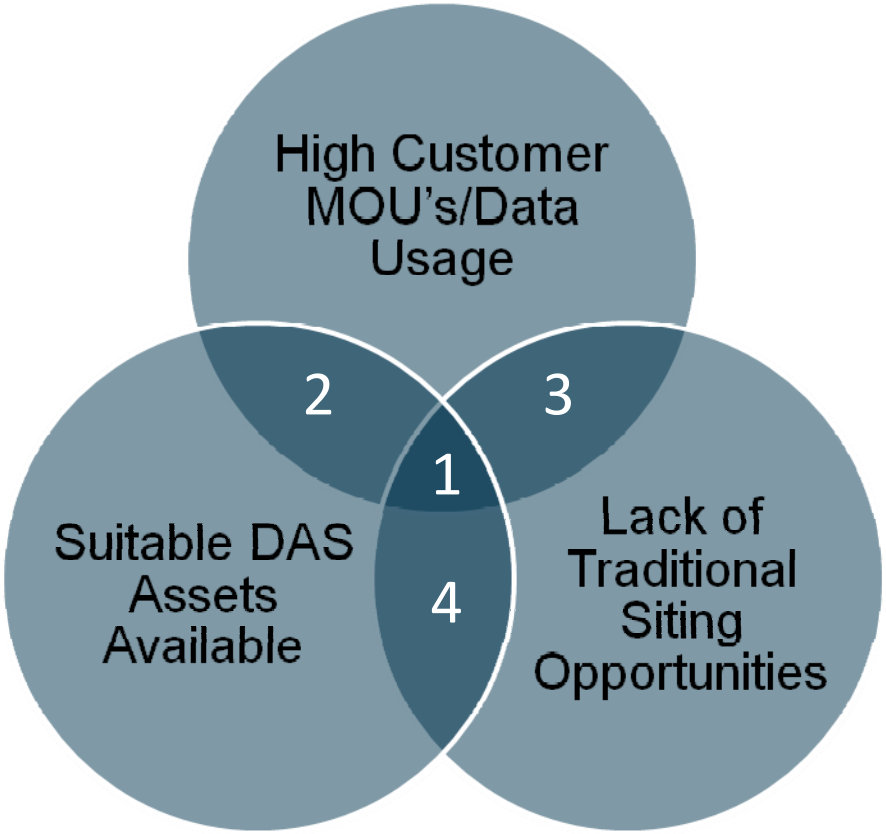
DAS in Action







Where are the DAS "Sweet Spots?"



… as guided by overall DAS and traditional siting economics and deployment timeframes

Key DAS Success Drivers

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General

- Coverage and/or capacity where you need it quickly
- Attractive economics with accelerated network deployment timeframes
- Full range of solutions (including DAS with towers, rooftops as appropriate)
- RF quality and best-in-class service

Economics

- Minimize the "gotcha's"
- Resist non-regulated fee approaches
- Pole-top access to existing utility poles or streetlights

Network Deployment Timeframes

- Partners who provide aggressive but realistic timeframes
- Utility pole owner, municipality and neighborhood relationship management

Pole Rights

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Overview of Pole Rights

- Access to utility poles established by Pole Attachment Act
- 20 states currently certify that pole access is regulated by the state
- Vast inconsistency between pole owners in allowing fair access at reasonable rates and timelines

The Good, the Not So Good, and…

- Inconsistencies in:
  - Uniform rates for all communications attachments
  - Fair terms for pole attachment agreements
  - Pole-top access
  - Timelines

How the FCC Can Help

- Establish uniform cost-based rates for ALL distribution pole owners that apply to all communications attachments
- Reject arguments that NESC-compliant wireless attachments threaten pole integrity and public safety
- Establish firm timelines with real consequences for failure to comply

Local Approvals

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Uncertainty at the local level how to handle

- Utility in the ROW, traditional cell tower siting or both?
- Non-discriminatory access, competitive franchises, or both?
- Municipal fees, taxes, etc.

DAS is not the "silver bullet"

- Most communities embrace smaller shared facilities
- Aesthetic concerns & RF health effects confusion

How the FCC can help

- Clear guidance that ROW facilities should be treated equally
- Disseminate new RF safety materials targeted to the general public (i.e., non-scientists)

FCC NEPA Compliance

FCC NEPA compliance evaluation as a CLEC serving WTB licensees

- Where does DAS/ROW installations fit into the NEPA regulatory model?
- Need uniform treatment of Right of Way attachments

What the FCC Can Do…

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Pole Rights

- Establish cost-based rates that apply to ALL distribution pole owners for communication attachments
- Establish firm timelines with consequences for failure to comply.
- Establish NESC as attachment standard

Local Approvals

- Utilities in the ROW, including DAS providers, should be treated alike for process and fees
- Reminder regarding RF health & safety

NEPA and Section 106

- Utilities in the ROW, including DAS providers, should be treated consistently
- Establish clear S106 and EA documentation standard for these systems

THANK YOU!