
In-Building Wireless Market Perspectives



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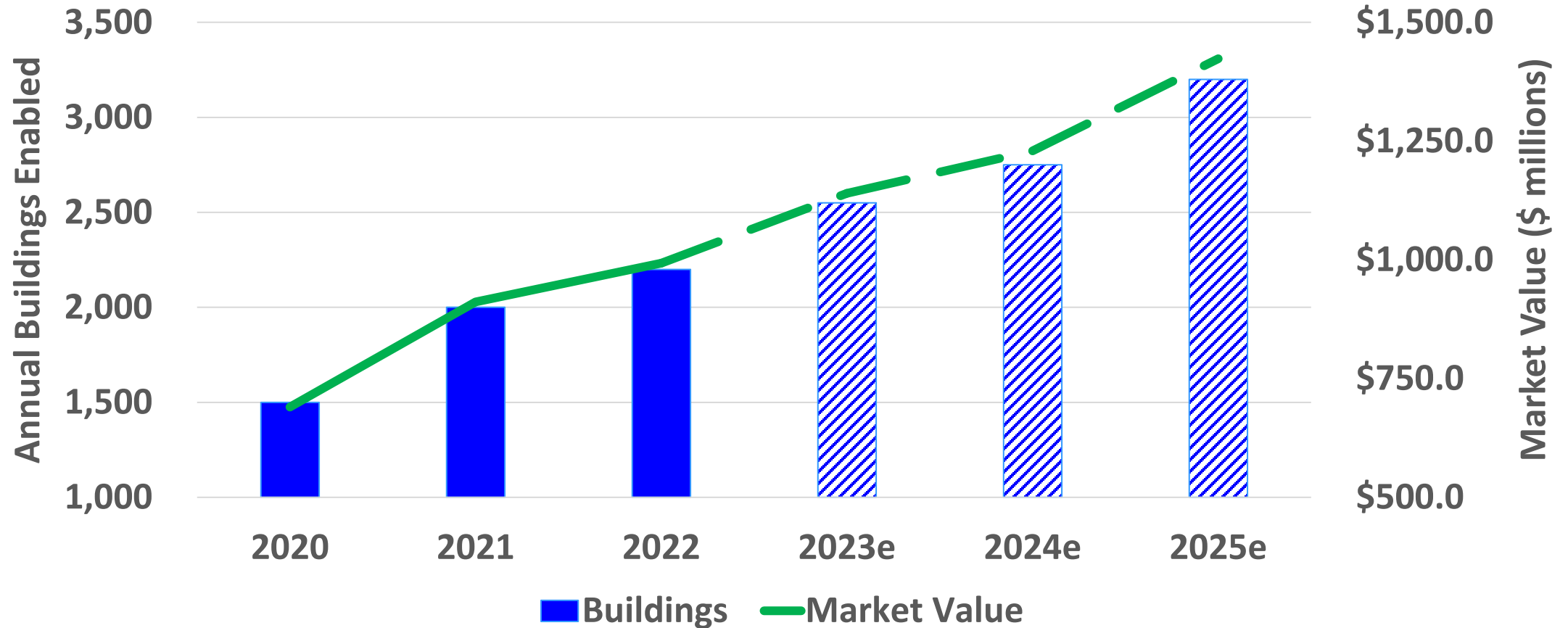


John Celentano, Inside Towers Business Editor

- Author, market analyst, consultant, engineer, telecom M&A advisor
- Years of telecom engineering and business experience
- Work with service providers, telecom equipment manufacturers, wireless equipment distributors (TESSCO)
- Covers issues and trends in wireless and wireline infrastructure markets



U.S. IBW Middleprise Market, 2020-2025e



U.S. In-Building Wireless Target Market

Total Square Footage
< Average >

No. of Commercial Buildings
[Typical IBW Solution]

Over 500,000 sf
< 762,000 >

Large Venues

9,000
[Active DAS, Small Cells, CBRs]

50,001-500,000 sf
< 217,000 >

Middleprise

351,000
[Active DAS, Small Cells, CBRs, BDAs]

Less than 50,000 sf
< 16,000 >

Small Buildings

5,559,000
[Passive DAS/BDAs]



Source: EIA CBECS 2018 (revised 12/2022) Survey; Inside Towers Intelligence™ estimates



In-Building Wireless – The Good, the Bad & The Ugly

Positives

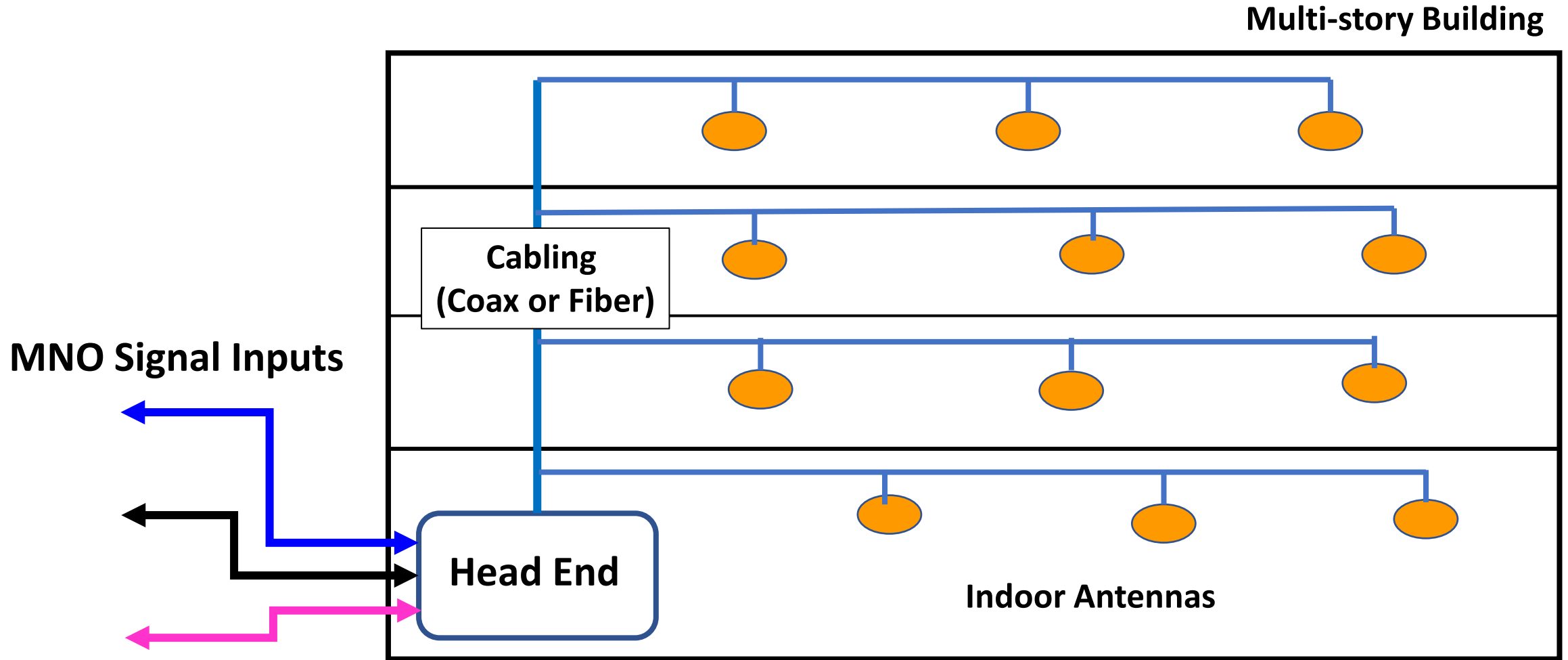
- 80% of all wireless calls originate or terminate in buildings
- Lots of buildings = opportunity
- Lots of wireless infrastructure

Challenges

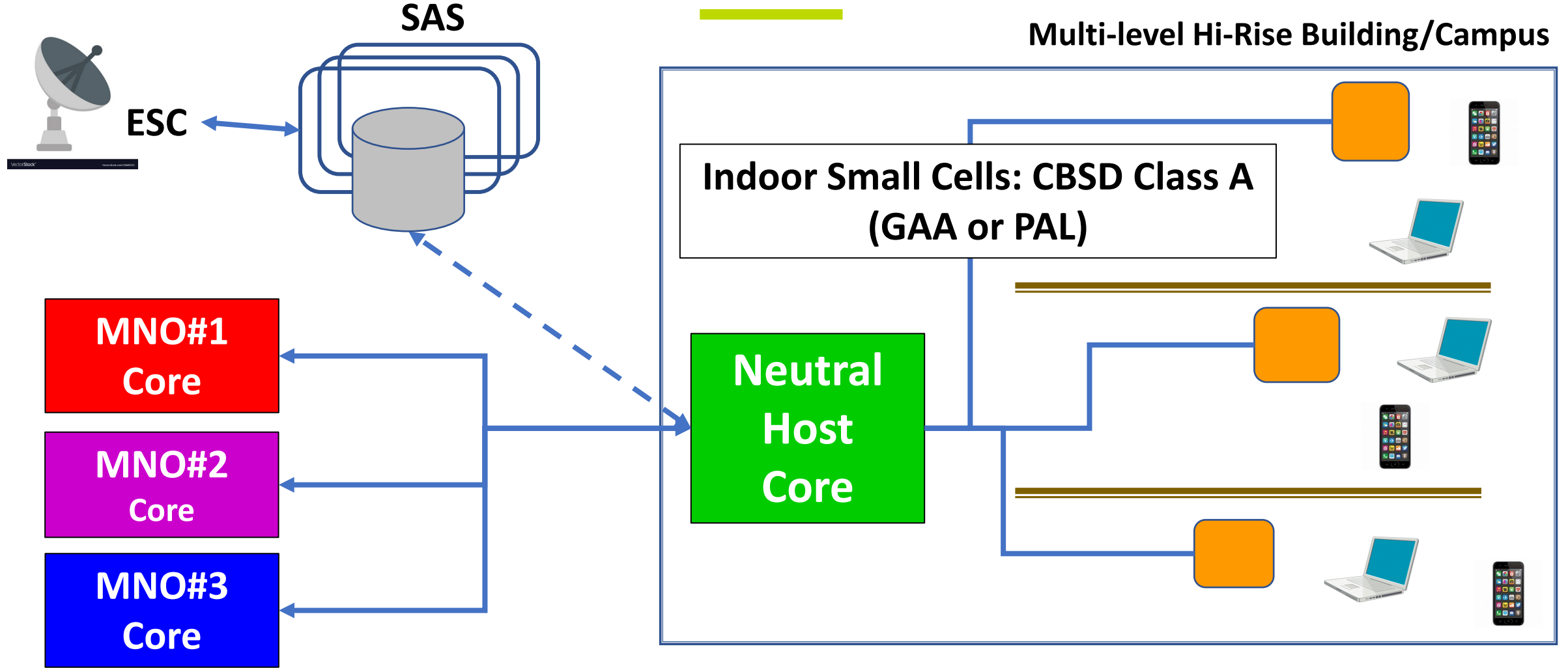
- Building construction – steel, concrete, Low-E glass – block wireless signals
- Every building is different
- Who owns & operates?
- Public safety comm specs differ from commercial wireless
- Every AHJ has its own rules
- Lots of supply chain competition



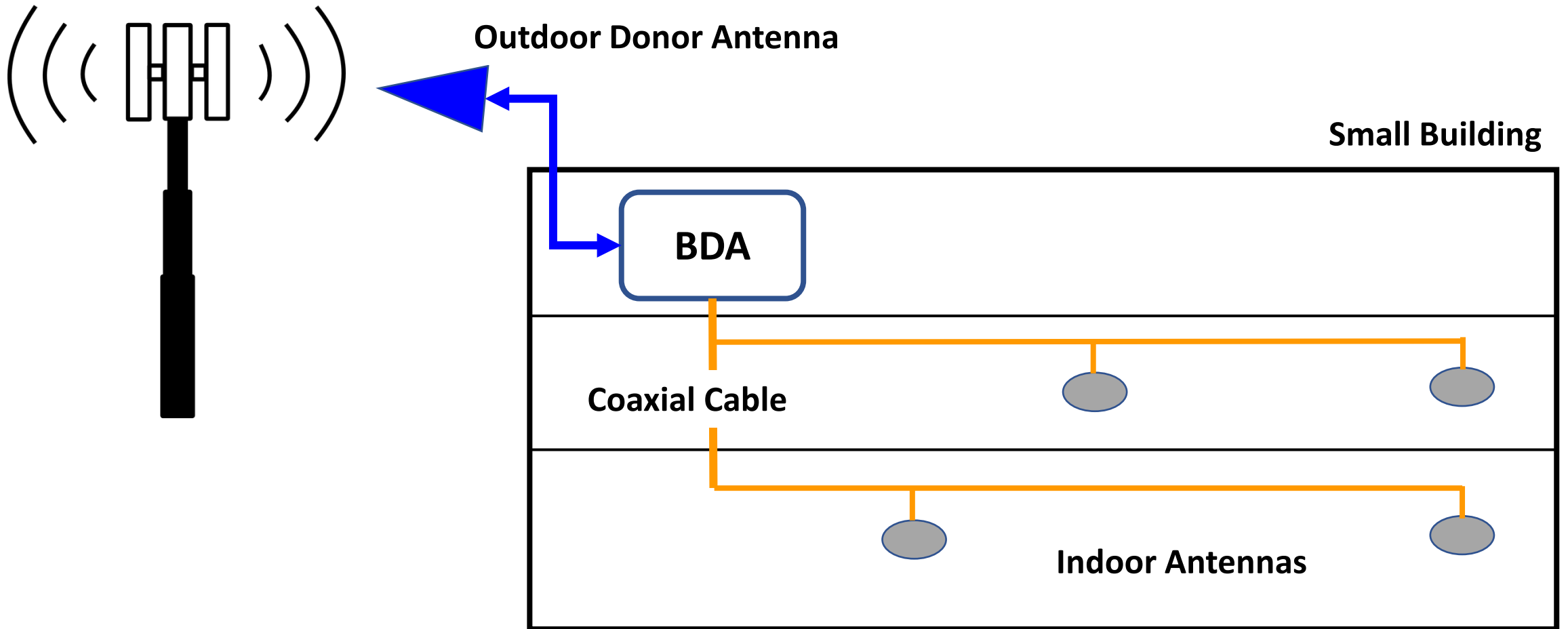
Classic Distributed Antenna System



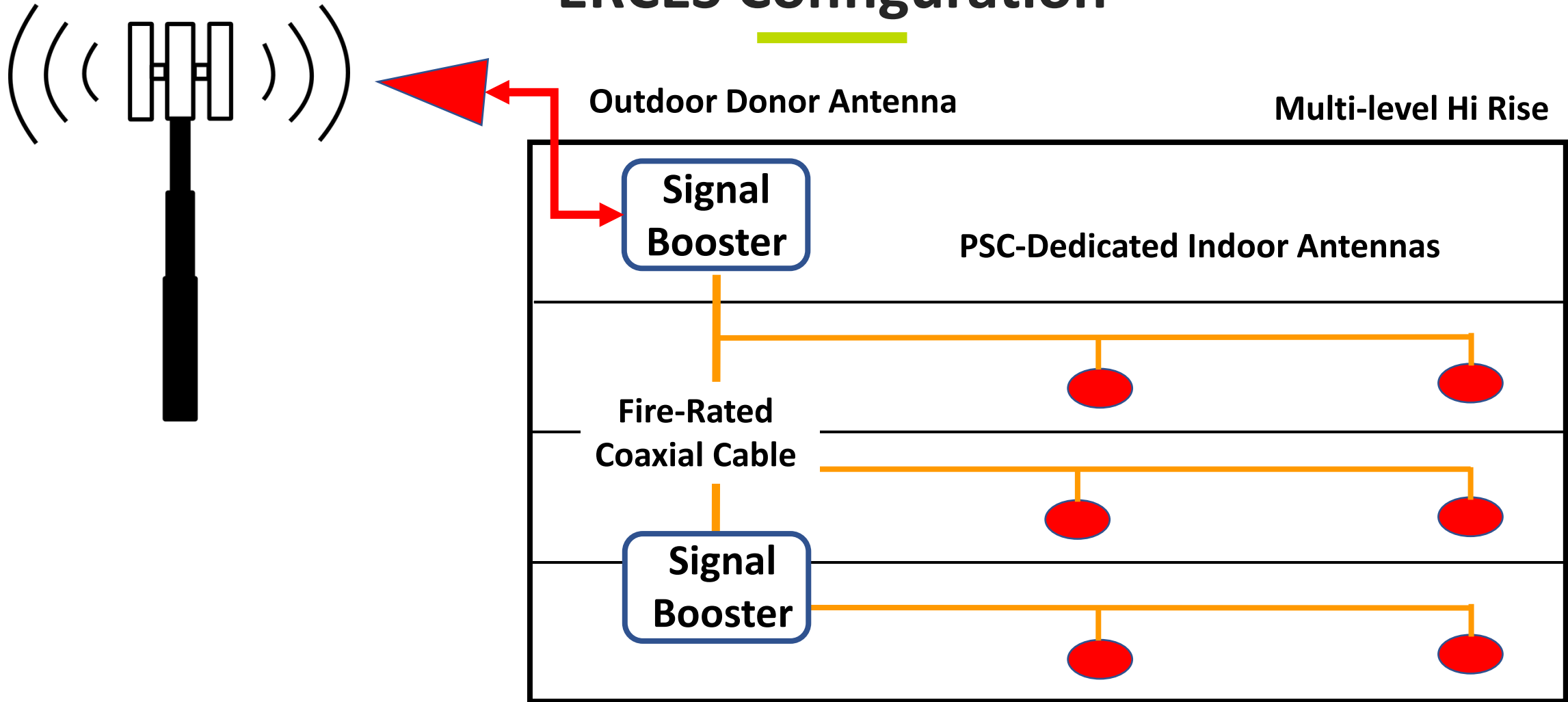
CBRS Neutral Host IBW Application



Bi-Directional Amplifier/Passive DAS Configuration

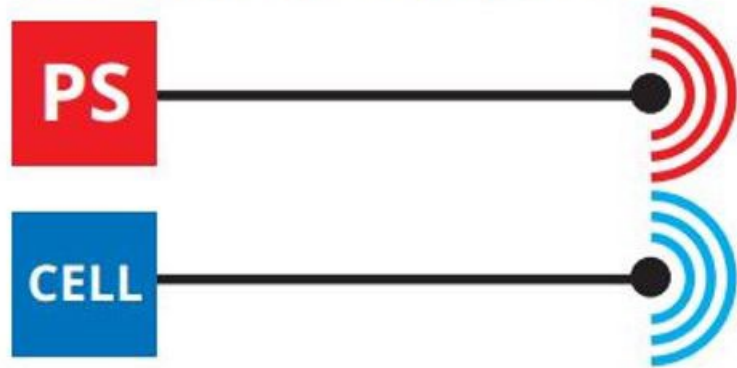


ERCES Configuration

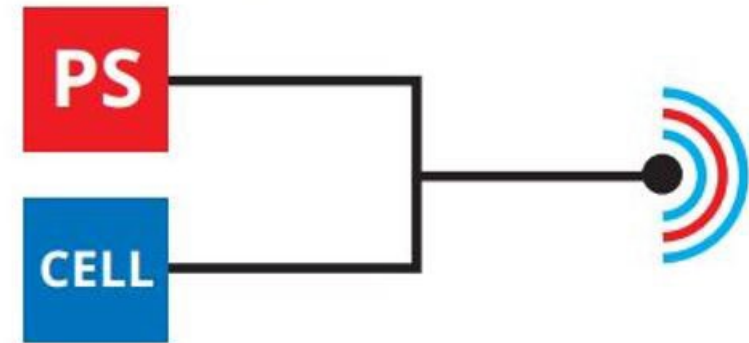


Cellular-Public Safety Hybrid IBW Configurations

SEPARATE OR PARALLEL DAS

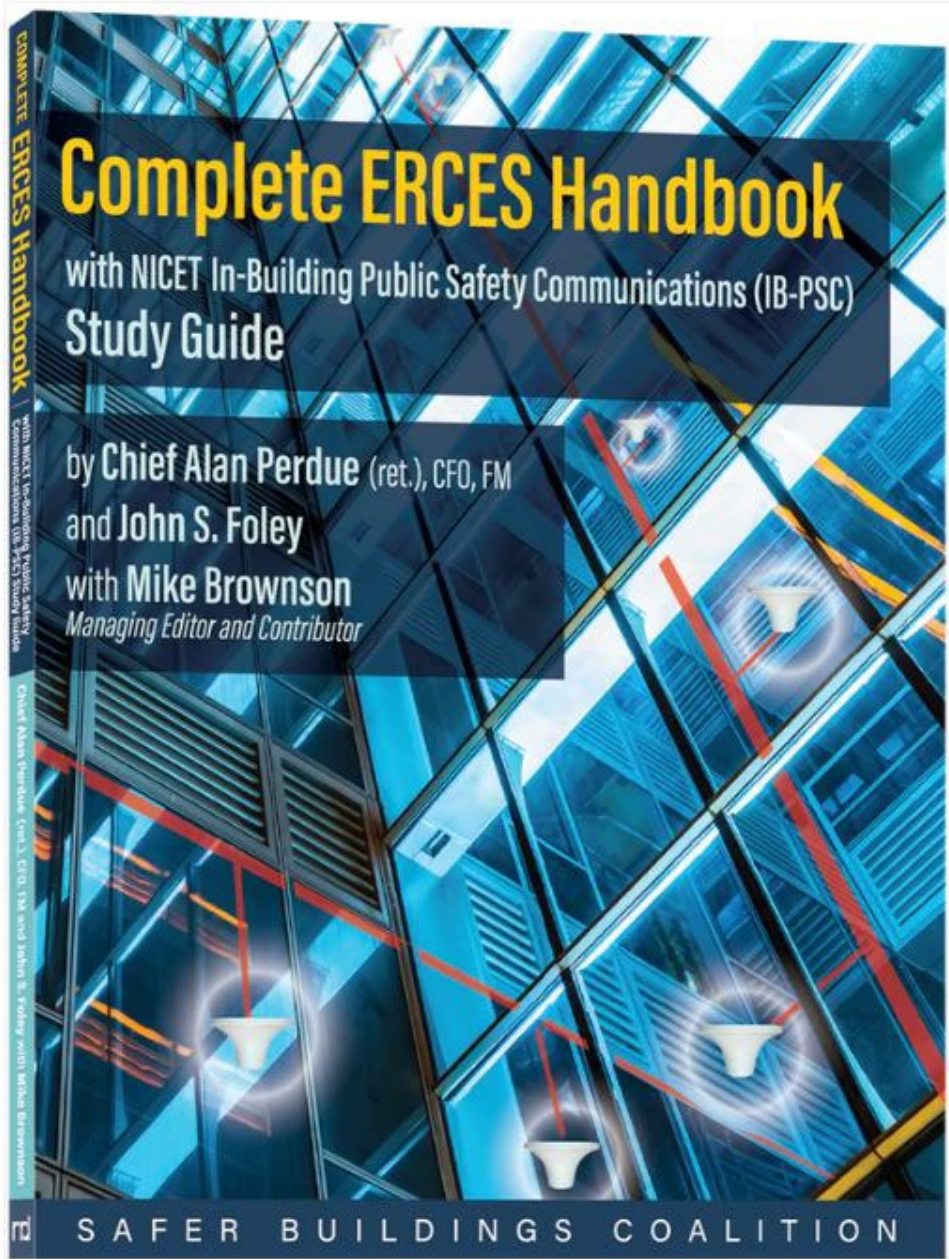


"HYBRID" SEPARATED DAS



CONVERGED DAS

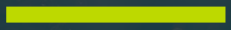




Strategic Considerations

- High-value System Sales – BOM Creation & Management, Technical/Logistics Service & Support
- Bread & Butter Component Sales – Availability and Price
- Vendor Partnerships – need to create “suction on the channel” via product use case/application promotion; Sales fulfilled through a distributor
- Systems Integrator, Neutral Host collaboration – product and technical training/support
- Educate the marketplace – venue/building owners, municipalities/AHJs, systems integrators/neutral hosts





THANK YOU

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