

## **DAS & Small Cell Networks**

**Challenge:** There is not enough wireless capacity for densely populated areas. Each device is competing for bandwidth, leading to poor quality service.

### **Q: What is DAS?**

A: DAS is a network of spatially separated antenna nodes connected to a common source via transport medium that provides wireless service within a geographic area or structure.

### **Q: What is Cellular DAS?**

A: Provides wireless service within a geographic area using spatially separated antenna nodes.

### **Q: What is Public Safety DAS?**

A: Ensures first responders, in a crisis, are able to maintain communication with each other in order to unify their efforts, therefore providing a more efficient response to an emergency situation using spatially separated antenna nodes.

### **Q: What does DAS do?**

A: DAS increases the capacity of the cellular network in highly concentrated indoor and outdoor areas, resulting in a consistently strong cellular signal.

### **Q: How does DAS increase the capacity of the cellular network?**

A: It does so by placing a large number of small radio stations with small coverage areas, providing a strong signal even during power outages.

### **Q: What is a Distributed Antenna System (DAS) & Small Cell Network?**

A: DAS & Small Cell Networks provide similar wireless capacity over much smaller areas, dramatically increasing the capacity of the overall system, Especially in areas of highly concentrated users.

### **Q: Is there available grant money for K-12 to install DAS?**

A: While there is no national grant money available today, each state may have grant money set aside for school security and safety. Currently, E-Rate does not qualify for safety DAS.

### **Q: What does DAS provide for indoor and outdoor solutions?**

A:

- Reliable coverage in targeted locations
- Much needed increase in voice and data capacity
- Is similar to mini-cell towers-covering more people over a smaller area

**Example:** 1 tower has the capacity for 72 cell phones covering 1 square mile  
3 strategically placed DAS sites have the capacity for 216 cell phones covering 1 square mile

### **Q: How does DAS work?**

A: each individual node sends signals out to an area of high-density users. The node connects back to the hub via fiber optic cable.

**Q: Who benefits?**

A:

- High density buildings
- Hospitals and healthcare facilities
- Stadiums & Parks
- Campuses & Higher Education
- Malls & Retail Spaces
- Transportation hubs & Airports
- Convention Facilities
- Resorts & Casinos
- Transit
- End users

**Q: What does a turnkey DAS solution look like?**

A: Nouveau offers a full and complete turnkey DAS offering, which includes, design, implementation, testing, maintenance, and financing.

**Q: What is the sweet spot for DAS?**

A: There are several factors that make up a good building for DAS. They include size (typically anything over 100,000 square feet), number of devices that are used in a building, poor signal, anything over 20 stories, and high volume/traffic areas.

**Q: What are the primary cost drivers of an active DAS deployment, including planning/design and optimization?**

A: Labor remains the primary driver for both active and passive systems. DAS components can equate to 25% of the total cost if design is [weak] or driven by people interested in selling equipment in quantity.

**Q: What is the average price to install DAS?**

A:

- Public Safety DAS: \$0.60 to \$1.20 per square foot
- Cellular DAS: \$0.90 to \$1.80 per square foot

\*\*average cost based upon a building size of 100,000+ square feet\*\*

**Q: Have you encountered any First Responder or First Net public safety code requirements?**

A: No

Response: Both National Fire Protection Association, NFPA 72 1221 & International Fire Code, IFC 510 are codes address in adequate communication coverage in buildings. Authority Having Jurisdiction (AHJ's) across the country are adopting newer codes which allows them to start enforcing this requirement. Should you encounter this we what you to know we can assist you with that through E&I JOC. Nouveau can provide data collection to evaluate if a system is required, design services, installation services, commissioning and monitoring and maintenance services.

**Q: Is there a sense of urgency to install DAS?**

A: For Safety DAS, most state, counties and local governments have ordinances on the books for building structures to have Safety DAS. Entities are starting to enforce these laws. Non compliance penalties can be expensive. Most people either are not aware of the ordinances or have chose to ignore them since enforcement has been sporadic at best. Once enforcement picks up, there will be a surge of people pushing to get safety DAS installed. Much like the Y2K issue, the longer you wait, the more expensive it can be to fix the issue.

**Q: Do you have any areas lacking cellular coverage or your receiving complaints from staff?**

A: Yes, we get complaints of dropped calls all the time.

Response: Nouveau can assist with that as well through E&I JOC although cellular coverage isn't a code requirement it now considered a 4<sup>th</sup> utility that is being demanded.

**Q: What states is Nouveau certified in WBENC?**

A: We are certified in Texas and Illinois.

**Q: Who are Nouveau's competitors?**

A: American Tower, Crown Castle, Airwavz, Extenet, etc

**Q: Where is the best place to start looking to sell DAS to?**

A: Wherever there is a lack of signal, high traffic venues and poor service.

**Q: Who is the best person to target to pitch DAS to in an organization?**

A: Typically, IT and facilities is the best place to start with a discussion about DAS. The IT group will typically manage the DAS system.

**Q: What advantages do E&I and Nouveau have in providing DAS?**

A:

- Discounted pricing on equipment
- Able to utilize JOC contract
- Provide turn-key solution including
  - Pre-planning
  - Design
  - Installation
  - Maintenance and Monitoring
  - Financing
  - One Contract instead of multiple entities

**Value Add: Nouveau is offering exclusive discounts to E&I members, being Nouveau is certified installers with most of the major OEM's providing equipment and material for these service, this allows them to purchase as discounting pricing below M.S.R.P in return passing that saving off to E&I members.**

**If you feel you have a need for these services, we can set up a face to face or a WebEx with Nouveau to discuss more in depth if needed.**