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|  | Wi-Fi | Cel-Fi (DAS) | Small Cell |
| Definition: | Wi-Fi, short for Wireless Fidelity, is a wireless networking technology that allows devices to connect to the internet using radio waves. Wi-Fi operates on unlicensed frequencies. Wi-Fi networks are typically set up using access points that transmit and receive data between devices and the internet router. | DAS, or Distributed Antenna System, is a network of antennas strategically placed throughout a building or an area to enhance cellular coverage and capacity. With DAS, the signals received by the antennas are distributed through a series of cables, amplifiers, and connectors to provide robust cellular coverage. | Small Cells are low-powered cellular base stations that are typically installed indoors to improve mobile coverage and capacity in specific areas. These devices are more compact and cost-effective than traditional cell towers. |
| Coverage Area: | Wi-Fi is designed to provide coverage in relatively small areas, such as individual rooms, floors, or buildings.  In general, a single Wi-Fi AP will cover 2,100 sq ft (office) - 4,000 sq ft (warehouse) depending on the environment. However, external antennas on APs can increase this coverage slightly. | Commonly used in locations with a high density of users or areas where the existing cellular signal is weak. DAS can provide coverage across large buildings, campuses, or even entire neighborhoods. | Small Cells are designed to cover specific areas or zones within larger buildings or public spaces, such as hotels, shopping malls, stadiums, and offices, where they can provide targeted coverage to a smaller group of users, thereby reducing network congestion and improving overall service quality. |
| Capacity: | Wi-Fi networks can handle a limited number of simultaneous connections, typically suitable for personal or small-scale usage. | DAS solutions have the ability to handle a significant number of simultaneous connections, making them ideal for densely populated areas. | These devices can handle a moderate number of concurrent connections and are suited for high-density locations. |
| Over-the-top Requirements: | Wi-Fi typically requires a separate internet connection (BB, DIA, etc.) to gain access to the internet | Wireless requires an active SIM & data plan. Data plan will provide metered or unlimited access to the internet | Wireless requires an active SIM & data plan. Data plan will provide metered or unlimited access to the internet |
| Deployment Flexibility: | Wi-Fi infrastructure can be easily set up and modified based on specific user requirements. | DAS requires a significant upfront investment and careful planning due to the need for extensive cabling and signal distribution systems. | Small Cells offer more flexibility than DAS systems due to their smaller size and easier installation process. |
| Additional Notes: | Aruba/Juniper, Meraki, Cisco, Fortinet, etc. are Granite’s most common product Wi-Fi offerings. | Granite’s Cel-Fi offering fits in the middle of the various DAS solutions:    A blue cross with white text  Description automatically generated  *See DAS solutions/technology FAQ for additional information* | Can also connect a Small Cell for Signal Source to a Cel-Fi Solution - When off-air antennas are not the right solution due to size/complexity or distance (like a high-rise building), we can connect the Small Cell to a Cel-Fi Quatra Solution.    See below for image of both types of installations (Antenna and Small Cell). |

A building with a diagram of a building

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