

# Small Cells + DAS: The Right Answer for the Enterprise

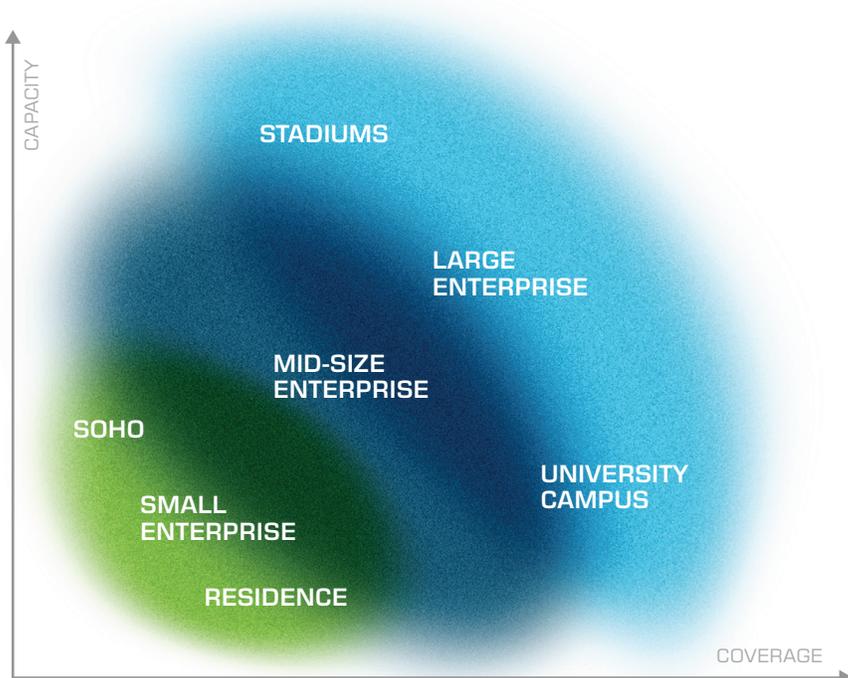
Many in the industry have looked at small cells and DAS as an either/or proposition when delivering mobile wireless coverage inside buildings, but small cells and DAS can work together to overcome drawbacks of either approach alone.

Since small cells provide only one or two frequencies, it would be necessary to deploy multiple cells in each location to achieve multi-carrier service. This approach brings complexities of interference management, backhaul, and maintenance. DAS provides interference-free multi-carrier service, but it may not be cost-effective to acquire a carrier-class base station to provide the RF input to the DAS.

One way to overcome the limitations of a DAS-only or small cell-only approach is to use small cells to provide the RF signal at the DAS head-end, and to use the DAS to distribute the small cells' signal throughout the building. There are several advantages to this approach.

## THE MARKET FOR DAS AND SMALL CELLS

● TRADITIONAL DAS   ● SMALL CELL   ● DAS + SMALL CELL



## DAS IS MULTI-FREQUENCY

A DAS can distribute multiple cellular frequencies to provide coverage for multiple mobile operators, so just one set of remote antennas is required, rather than multiple small cells in each location.

## NO INTERFERENCE

Since the DAS simulcasts radio channels throughout the building, there is just one large cell. This eliminates the multi-cell interference of distributed small cells along with the need to hand off from one cell to the next as the user moves around.

## ONE DOMINANT SIGNAL

One signal source means one dominant signal. The DAS provides a uniformly strong signal throughout the interior of a building so user devices don't hunt between signal sources.

**NO NEED TO OVER-PROVISION**

All antennas in the DAS have access to all of the feeder cell's capacity, so there is no need to over-provision small cells for higher capacity requirements in certain areas such as meeting rooms or cafeterias. If more capacity is needed throughout the building, additional small cells can be added in a central location at the DAS head-end.

**OPERATING EXPENSES ARE LOWER**

When deployed around a building, multiple small cells require continual adjustment to function in an optimal manner. In addition, using one or more small cells as the RF source for a DAS eliminates having to use a much more expensive, full-sized base station. Full-sized base stations require a lot of space, power, and cooling to operate, and their output power must be attenuated with racks of equipment in order to provide the right input for a DAS.

**DEPLOYMENT COSTS LESS**

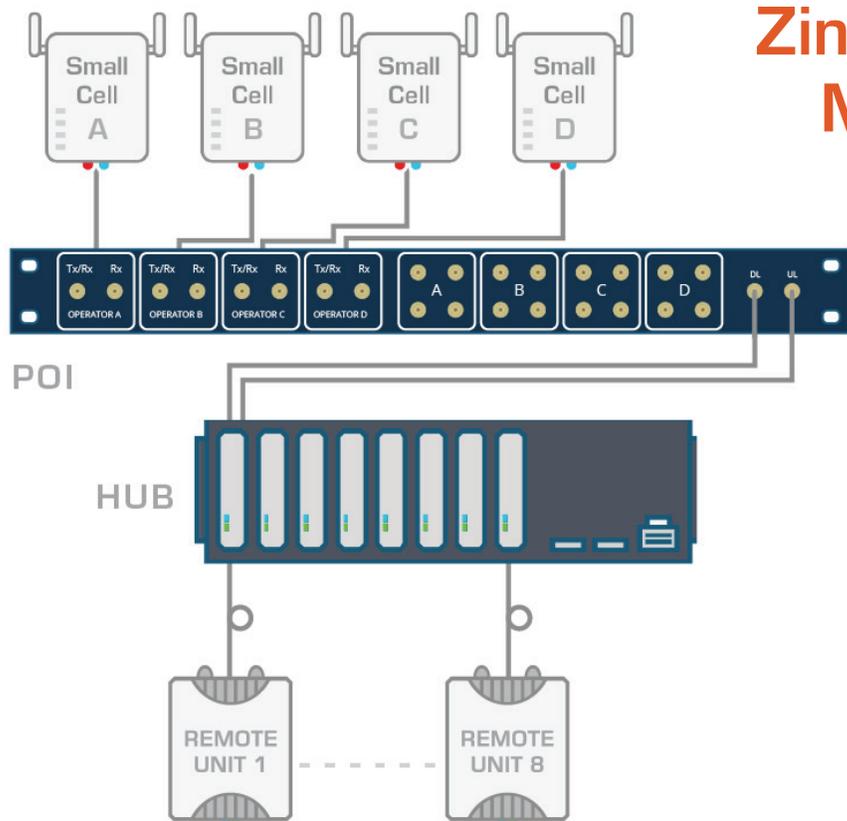
It is much less expensive to deploy a DAS for coverage and capacity in a large building than to deploy dozens or hundreds of small cells.

**BACKHAUL COSTS ARE LOWER**

A group of centrally located small cells feeding a DAS head-end can be combined to use a single backhaul connection. When small cells are deployed throughout a building, each requires a separate backhaul.

**EASY AND INEXPENSIVE TO SCALE**

Small cells cost a small fraction of what a carrier-class base station costs, so it is easy to add more small cells at the DAS head-end to deliver more capacity.



**Zinwave's Multi-service  
Multi-vendor Solution**

When combined with small cells as the RF signal source, Zinwave's UNItivity DAS provides an ideal indoor wireless coverage solution for the enterprise.

UNItivity's wideband architecture ensures that current and future mobile operator services can be supported without expensive upgrades, and its simplified design makes it easy for enterprise IT departments to deploy.