A Small Solution to a Big Problem

Small Cells:

Only Sci-Fi could predict smartphones 50 years ago. Only futuristic minds could think of something as wild as people carrying around handheld phones-turned computers in our pockets.


“Communications will become sight-sound that you will see, as well as hear, the person you telephone,” wrote Asimov. “The screen can be used not only to see the people you call but also for studying documents and photographs and reading passages from books.”

But he only scraped the surface. Not even Sci-Fi could predict the capabilities of smartphones today, or how our lives are centered on these devices. Americans are obsessed with smartphones. On average, Americans check their phones 150 times a day for everything ranging from updating a status on Facebook to emailing a co-worker to playing a game of solitaire. Just from 2011 to 2012, average smartphone user usage grew 81 percent to using 342 MB per month.

To keep up with America’s constant need to be connected, cell phone makers have developed data-hungry phones with faster connections and impeccable service. The smartphone boom catapulted the amount of data used on the carriers’ spectrum, and it doesn’t seem to be slowing down.
Mobile data traffic is projected to grow up-to 10 times by 2019. Considering that mobile networks in North America are already filled to 80 percent capacity, this could be a problem.

But there is a solution: **small cells**.

Small cells ignited a spark in the wireless industry. These low-powered access nodes can add capacity to high-density areas, helping off-load stressed macro sites. They best serve in places where a lot of people are on their phones at once: stadiums, universities, neighborhoods, etc.

With their small size and low power, small cells can be installed about anywhere. If the industry educates the public correctly, the zoning process could be streamlined into a smooth and efficient process. As small cells evolve, thought-leaders will innovate to solve complexities that small cells still face.
Site Selection: Small, Specific, Stealth

Small cells’ tiny nature makes them an easy fit almost anywhere: polls, indoor and outdoors walls, benches, etc. They only need a footprint of about 4 by 4 feet, no higher than 30 feet to mount the antenna. Small cells’ low signal, only about two watts, makes them completely safe to stand near.

Good thing, because accurate placement is crucial for small cells. Mounting the antenna at the wrong angle could curb any signal from reaching a cell phone. Site selection for small cells must be spot on for the antenna to be effective. A well-placed small cell can off-load about 70 cell phone users from the macro-site, adding much needed capacity to the network.

Their small size makes it easy to conceal the antenna, with passers-by not even noticing the addition. With paint and inconspicuous stealth, small cells can easily blend into its surroundings. What passers-by will notice is how quickly they can upload a picture to Flickr or how fast an email is delivered.

“Accurate placement is crucial for small cells.”

Zoning: Education is Key

There is no consistent story when it comes to zoning small cells. Some municipalities treat small cells just as they would a traditional antenna, while others treat the low-powered nodes as Distributed Antenna Systems, both with a different process depending on where you are. Some municipalities exempt small cells, and walk the permit through with no questions asked.
Streamlining the process over the next few years is key to the success of small cells. The only way to get everyone on the same page is by educating the pros—and the cons—of small cells to the municipalities and the public.

By teaching people about small cells’ low wattage having no health risks, their ability to be stealthed into their surroundings and the improved cell service, then the permitting process can go much smoother for all parties involved.

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**Complexities: Backhaul Solutions**

To ensure the long-term success of small cells, the industry needs to figure out how to efficiently get backhaul to the antennas, which can sometimes take up more room than the actual small cell. Even if a small cell can fit on a pole, where is the backhaul supposed to fit? If you need to rent two spaces from a landlord, is it still cost effective? These are issues that the industry is working to fix as we speak.

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**Conclusion: Innovation**

Phones are just the start of the wireless revolution. The demand for tablets to be connected at all times is growing steadily with smartphones. Plus the innovations to add wireless coverage to everyday, household items. Who knows what technology we will see in the year 2064.

As the need for capacity grows, so will the need for smalls cells and the technology that goes along with them. With trial and error and a little innovation from the wireless industry, small cells will truly be the biggest thing in wireless.
About NB+C

NB+C is an industry leader that has specialized in all aspects of wireless site development for 30 years. NB+C is comprised of experienced industry professionals who understand that client service is the key to its past and future success.

NB+C’s management group assembles top project teams to deliver results and provide tangible value to its clients. NB+C’s entire staff takes pride in meeting client expectations and works diligently to ensure project excellence on all assignments.

References