



iPredict Smartphones Will Affect Cell Site Lease Rates



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If you search “i P h o n e changes everything” or “iPad changes everything” on Google, you can obtain well over a million hits. Dating back to 2007, conversations on this topic have been as prolific as the number of apps on an iPhone. It is safe to say that many writers and bloggers believe Apple has produced two game-changing products, not only for their performance, but also for their domino effect on innovation. My spin is a little different. I predict that over the long term, the iPad, iPhone and other smart phones will actually cause cell site lease rates to decline — one site at a time.

Logic might convince you otherwise. Consider this: If the demand for smart phones increases the demand for wireless service,

and demand for wireless service increases traffic on wireless networks, and more traffic means more cell sites are needed, then you might assume the rent for these necessary cell sites must go up. It is a classic supply-and-demand example, right? Heck, Verizon has documented multi-billion-dollar expenditures on 3G and 4G network expansion, and AT&T estimates its data traffic has increased 5,000 percent since the launch of the iPhone. But in the wireless business, supply and

demand do not necessarily result in traditional outcomes, thanks to the intricacies and characteristics of the technology that drives the market.

Six months before the release of the iPhone 4, the *Los Angeles Times* reported that 3 percent of iPhone users account for 40 percent of the traffic on AT&T’s network — certainly, this trend is growing. AT&T is having problems managing all the wireless data on its system. You would think one way to manage this problem would be for the carrier to buy more spectrum. We’ve all heard the quote by Mark Twain, “Buy land, they’re not making it anymore.” And in the wireless industry, we know the same is true of radio-frequency spectrum. Cellular operators are severely limited by the availability of spectrum. Even if the FCC’s National Broadband Plan (a giant document that proposes where more spectrum could come from



for businesses to expand their networks) becomes a reality and redeploys broadcast spectrum, it won't happen quickly enough to relieve wireless carriers' network congestion. No amount of debate about white space, unlicensed spectrum or spectrum redeployment will solve this problem for at least a decade, and people who stand in line for days to be the first of their friends to have an iPhone are not going to wait that long. Even if the Broadband plan works and broadcast spectrum is redeployed, it's an eight- to ten-year waiting period, which makes it an unviable solution

Another network congestion solution to consider is to off-load traffic to Wi-Fi networks and private in-home and in-building cell sites such as femtocells. In time, this practice will, to some extent, become a viable alternative. The more smart phones that connect with Wi-Fi or private femtocells, the less traffic on a traditional cellular network. This creates excess capacity in a given (albeit small) area and thus allows operators to use spectrum more efficiently. But this solution has several limitations. Although I spend a lot of time in my home and in Starbucks coffee shops, it is not reasonable to believe that I only want to use my smart phone in those locations. After all, the whole idea behind a mobile phone is mobility. Not to mention that when I purchased a femtocell for my home from my personal carrier it didn't work with data,

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and a customer service agent advised me to "turn off the data portion" of my BlackBerry smart phone when I enter my home to allow calls to go through. When it comes to using Wi-Fi and femtocells as network alternatives, there is room for improvement.

Yes, the fastest way to solve this problem is to build more cell sites, but here's the caveat: These will not be traditional cell sites. These will be microcell and picocell sites built lower and closer to the ground. Although one tall cell site can cover a large area and handle a lot of voice traffic coming through a flip phone, in a congested area it cannot handle the rapidly more common smart phone user who downloads video and constantly uploads photos and video to Facebook. Microcells and picocells are designed to accommodate this type of use in high-traffic areas. They cover smaller areas and few users at one time for quicker offloading of traffic to optical fiber circuits or microwave links for backhaul, thus effectively making the spectrum available again for more traffic. You need more microcell

and picocell sites to accomplish this, which is why operators must double or possibly even triple the number of cell sites currently in operation.

The fact that this cell site boom is already happening is confirmed by the large tower companies announcing 2010 increases in leasing revenue, which they attribute to the 3G and 4G build outs by Clearwire, AT&T and Verizon. So, back to our original logic: Network expansion would imply that cell site leasing can only become more lucrative. But now consider this: If the largest operators have an estimated 70,000 cell sites each at an average of \$1,700 per month in rent, then the total rent roll will be about \$1.5 billion annually. If the number of cell sites doubles or possibly triples, it is safe to assume they will investigate ways to optimize an operating expense that will be between \$3 and \$4.5 billion annually. Simply put, you can't have a \$1,500 to \$1,800 cell site on every street corner. Therefore, the average lease rates can't be sustained for two simple reasons.

Because wireless operators are building smaller cell sites, each single site will become relatively less important. The “I’ve got the best site in town” mentality no longer applies, and neither do the lease rates that those sites have commanded. RF engineers have already begun to design networks to manage increased capacity rather than for traditional coverage. If they don’t, their networks may crash. With the scores of smaller microcells and picocells that will become the backbone of the 3G and 4G networks, each macro site location is less critical. Thus, carriers will have more flexibility. If the location is less important, then they will take more care to select sites not only based on changing RF coverage needs, but also based on cost. With location a less critical factor, carriers will be even more unwilling to pay higher rents, which is a key consideration in view of the fact that the highest long-term cost for managing a cell site is the monthly rent.

Another factor that will drive down average rents is margin. The iPhone is turning wireless operators into dumb pipes, which refers to the operator’s inability to add value for its customers be-

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yond just simple bandwidth and network speed because they do not control the user experience. In the case of the iPhone, operators cannot offer users traditional services, such as downloading games and applications or wallpaper and ringtones, because Apple has designed the phone to allow users to directly surf the Internet and download products through its own iTunes store. The difference between operators — what products, services and coverage they offer — is getting smaller. Evolution is becoming the great equalizer, and once all the networks are built out, there will be no differences among them. They will become a commodity. And in a commoditized world, it’s all about price, which means the most efficient network will win. The bottom line is that wireless operators can’t be the low-price leader in this type of

market if they continue to ignore their ever-escalating rents.

So there’s the logic behind my prediction. Although networks will expand, site selection will become much more flexible. Although growth will be monumental, margins will drive down the carrier’s ability to be profitable. The C-suites at the major carriers are already beginning to zero in on operating expense, and the only cost that hasn’t already been beaten flat is cell site rent. I predict that the C-level will focus on rent soon and it won’t be long before the rest of their companies follow.

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