

Brief Overview of Cell Phone Standards

Posted by Wade Burchette on January 20, 2010

You can't help but notice the commercials. "We have more 3G!" "Our 3G is better!" "We have 4G!" What does it all mean? Why should you care? What benefit is there to you?

We'll start by asking why you should care. Unless you need the internet on your phone or on the road, you shouldn't care at all. For the majority of cell phone users out there, 3G is useless. 3G means, more or less, a faster internet speed through the cell phone towers. This will be discussed in more detail below. If you use the phone only to send and receive calls, text messaging, or email, then 3G has no benefit.

Sometimes what is called a benefit of 3G is really just a business decision. For example, most AT&T cell phone can operate at 850 MHz or 1900 MHz. The 850 MHz band can penetrate buildings better than 1900 MHz. In fact, lower frequencies work better indoors. This is why some cell phones work inside buildings well while others do not. In any event, AT&T is not switching all their towers over to the 850 MHz until they install 3G at the tower because it makes little sense to update a tower twice when you can do it once. You can decide whether it is a good idea or not. Be that as it may, AT&T does not have a license for 850 MHz in every market, so in many cases AT&T can't go 850 MHz even if they wanted to. That is why AT&T (and Verizon) paid millions for the old analog TV airwaves. Now AT&T and Verizon can switch all their towers to one lower frequency which penetrates buildings better.

So now, what does 3G stand for? 3rd generation, as in the 3rd generation of a particular cellular standard. It is not a regulated name, just a marketing gimmick. What it means to you is that a 3G device has a faster internet connection than a 2G, 1.5G, or 1G device, which stands for 2nd generation, 1st and half generation, and 1st generation respectively. The speed of the 3G connection depends on the cell phone company. For example, Sprint now has what they call 4G. 4G is about as fast as what AT&T calls 3G. Confused yet? AT&T has two levels of 3G. The new 3G is what AT&T calls in the ads the fastest 3G network. Right now, AT&T is

converting existing 3G towers to their new faster 3G. However, the point that you should get is that 3G and 4G is a marketing. Unless you don't listen or watch any commercials, you know Verizon also has 3G, which is the same as Sprint's 3G. T-Mobile is slower than AT&T with the 3G game.

To switch a tower to 3G or 4G or whatever, it isn't as simple as it might seem. First, the cell phone company has to increase internet and telephone capacity, which requires running new wires to the tower and connecting them. That is hard enough, but then someone has to climb the tower to install new equipment on it. This process is not simple. Verizon and Sprint have more 3G coverage because they spend more on the towers and because they don't have the iPhone. AT&T actually foolishly did not predict the strain the iPhone would put on their network and so AT&T had to spend money increasing the capacity of existing towers. But AT&T still spends less money on their network than Verizon or Sprint.

So you might ask, why don't these cell phone companies use the same towers to make life easier for all of us? The answer to that is, they can't. There are three standards used for cell phones in the US: GSM, CDMA, and iDen. All you need to know is AT&T and T-Mobile use GSM, Verizon and Sprint use CDMA, and Nextel uses iDen. Nextel is owned by Sprint, by the two-way radio feature of famous Nextel phones are different. With those acronyms, the only thing you need to know is the G is GSM stands for Global. Most of the world uses GSM technology, so they can share cell phone towers.

Of course, it really is not this simple. This is just a brief overview of some of the confusing ads.

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