



Why I Hate My Cell Phone

What Operators Can Do About Bad Perceptions of Service Performance

By Tom Wiencko

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There are some things we all love to hate. New Yorkers hate the Boston Red Sox. We all hate the IRS. And seemingly everybody hates their cell phone service. Dropped calls, interference, inability to make calls in well developed cities and on highways all contribute to a perception that mobile phone service quality and reliability is not as good as we'd like. Given that mobile technology is only a little more than 20 years old, its penetration into our society, our lives, and the way the world communicates is nothing short of amazing. Hundreds of millions of people worldwide have embraced mobile technology and a significant percentage use it as their only service for voice communications. Despite the worldwide embrace, however, mobile service is widely viewed as poorly performing and unreliable.

Perception is Everything

Consumer Reports reported in its February 2004 issue that complaints about service reliability and billing problems were common for mobile carriers, and that a "significant number of respondents said they had no service or experienced a dropped call or a poor connection at least once in the week before we conducted our survey." JD Power reported in its July 2003 survey that, "Among the problems reported by wireless users, an average of 9 percent of calls experience static or interference and 8 percent experience dropped or disconnected calls." In other words, almost one in 10 calls has some sort of perceived quality problem. Newspaper articles, broadcast reports, even carrier advertising talk about service quality through now notorious questions such as "Can you hear me now?" and, "How many bars do you have?" Just about everybody can name some spot at home, at work, or on a regularly traveled route where mobile phone service is poor or non-existent.

Mobile quality problems fall into three broad categories. The first is the inability to make a phone call from a particular location – commonly known as "no coverage." The second is the inability to keep a call in progress – a "dropped call." The third problem is poor voice quality resulting from static, interference and dropouts.

As some major carriers are aggressively advertising their networks' reliability, some service providers have realized that a superior perception of reliability provides a real competitive advantage. Network reliability is well on its way to being considered as important as nationwide coverage and customer service as a differentiator among carriers, and the JD Power and Consumer Reports surveys show that some carriers are perceived to be far better than others. They also show that some parts of the country are considered better than others. As a result, several questions come to mind, including:

- Why do some users report very good service and others report terrible service?
- Can users do anything to improve their service?
- What should mobile operators and their technology vendors do to improve subscribers' experience and perception of quality?

That's No Phone, That's a Two-Way Radio

It is important to remember that a cell phone is not really a phone. It is a two-way radio connected to the phone system. From a "what can go wrong" point of view this means that in addition to whatever can affect the phone system's reliability, anything that can go wrong in a two-way radio system affects reliability too. And a lot that can go wrong in a radio system, as



every mobile customer seems to experience first hand.

Service providers want to provide the best service they can everywhere within their advertised coverage footprint. Unfortunately, a lot of problems stand between them and that goal. New cell sites are expensive, and it is sometimes difficult to get zoning approval to build them. New technologies such as email, photo and video transmission that demand lots of bandwidth compete with voice calls for available capacity.

New technologies such as EDGE and 3G provide exciting new features and capabilities, but little that will increase a subscriber's perceived network reliability. Worse, history shows that newly deployed technologies often affect the reliability of existing services adversely until providers learn how to operate them efficiently. In fact, stories about new technologies like prepaid service and GPRS performing badly and also degrading existing voice services are common.

More Towers is Not Usually the Answer

Many people, including most of the popular press and industry analysts, will say that the problem is that there are too few towers. They suggest operators need more money and easier zoning approvals. But most of the time more money for more towers will not solve the overall problem. A conversation that occurred a few years ago between a CEO of a regional wireless provider and his Vice President of Engineering illustrates this point. The CEO took his VP out to the parking lot, pointed to a working tower at the other end and asked, "I can see my tower from here, so why can't I make a phone call from here?"

The real truth of the situation is that sometimes the solution to the problem is a new tower, but many times other solutions are more appropriate. Building a new tower is a solution to use only when other possibilities have been exhausted. There are many other options, such as optimization of existing sites, upgrading antennas, and down-tilting, to name just a few. (See sidebar: Radio System Maintenance 101.)

What Subscribers Can Do

One of the least known opportunities for improving service is literally in the user's hands. It is the ability to upgrade the handset to a better performing unit that can make a big difference in network reliability. Not all handsets are created equal, especially when it comes to their ability to communicate with the network. The primary purpose of a handset is to be a portable radio, and some handsets are simply better radios than others. Other features may be useful or fun, but if they diminish the handset's ability to be a good radio then overall service reliability will suffer.

It is easy to find handset rankings and reviews from a variety of sources. These provide important criteria for anyone buying new service or considering a new handset. Service providers typically do not provide this information to their subscribers, though they conduct testing and know which handsets perform well and which do not. Asking the service provider for this information may or may not result in a positive response, but if enough subscribers ask, service providers may get the message that it is time to deliver this important information to consumers. Subscribers can also ask about technology available in newer handsets that might help. For example, in GSM networks a new communications scheme between the handset and the network called AMR ("Adaptive Multi-Rate") often provides better call quality in poor radio conditions - among other benefits - but not every GSM handset supports it.

Subscribers can further help themselves by telling their service providers where they experience poor service. Although it may be difficult to believe, the vast majority of service providers take customer calls about service quality seriously. Telling the service provider when and where problems happen helps them find and resolve those problems quickly. Providing as precise a location as possible when reporting a problem can make a big difference. With good location and time of day information, RF engineers can often work what seem to be miracles.



What Operators Can – and Should - Do

Most of the heavy lifting in solving network problems belongs to the service provider. Better network performance relates to higher customer satisfaction which results in reduced customer churn. The best way to help that cause, in addition to building new sites, is to drive as much performance out of the existing network as possible. Incentives for network performance improvement often make a big difference in engineering and operations groups' priorities. This can generate significant quality benefits for relatively modest investments. Don't be the executive who said: "I don't care that your customer satisfaction and network performance is among the highest in the company – you did not meet your site build plan so everybody's bonus is affected." Unfortunately, this negative point of view comes from a true story.

Another thing service provider executives can do is to develop relationships with their equipment vendors that foster finding and fixing network performance problems. Monthly and quarterly reviews of network performance with vendors are important to identify problem areas that require rapid resolution. Often equipment vendors have resources and technologies available to help, and are motivated to provide products and services that maximize the performance of their equipment.

Existing OSSs Can Help

Finally we get to what many would consider a most tenuous connection to network reliability – operations support systems (OSS). More than one service provider executive has asked: "What does an accurate circuit inventory system have to do with network reliability?" This is a good question, and one that is not necessarily easy to answer. Think of the network as a 747 jet liner, traveling coast to coast at night in dense fog. One cannot just look out the window and tell where the jet is, where it is going, what its altitude is, or if it is on course. The pilot can tell all of this by scanning the airplane's instruments, and can take passengers to the right destination safely and efficiently as a result.

For the wireless executive trying to navigate a network to profitability, the weather is precipitous with poor visibility and OSS systems are his or her instruments. Some OSSs, such as billing and finance systems, are old friends to most executives. Others may be less familiar and more complex, but no less important. There is great value in the customer complaint and network trouble management systems already in place – they can identify where consistent network problems occur to support executive decision making. Linking network monitoring systems to customer information can benefit customer care call handling because problems will have been identified before the calls start to arrive. Performance and inventory systems linked together can further identify problem areas - such as those flaky backhaul circuits create - before subscribers notice them.

Each service provider has a unique opportunity to use its installed OSSs to better manage and improve network performance in ways that customers will notice quickly. In many cases, it is possible to use existing systems to enhance service, decrease churn, and improve each customers' perception of the mobile service her or she perceives. Ultimately, OSSs used the right way can help change a user's love-hate relationship with a mobile phone to something that at least resembles friendship, if not true love.



Sidebar: Radio System Maintenance 101

As it turns out, there are a lot of little things a service provider can do to improve the performance of its existing network that subscribers will notice immediately. A market manager for a Tier 1 wireless operator admitted that no one in his company had performed any preventative maintenance on the network for the past two years. He believed this may have contributed to customer satisfaction and technical performance measures being consistently poor.

Some basics should be obvious to network operators. Things like preventative maintenance, checking antenna alignments to see if they have slipped, been knocked askew or even fallen into the parking lot, sweeping transmission lines, and insisting on clean circuits from the base station back to the switching center are relatively easy and inexpensive. They have a profound effect on overall system performance. For example, one misaligned antenna, one feedline with water in it, or one slipping T1 circuit can easily account for thousands of dropped calls on a single site. It is important for operators to stay sharp when it comes to such practicalities, particularly at a time when more and more services and people are depending on their networks.
