Mobility vs. Ubiquity: What Does the Customer Really Want?

Steven Shepard

As a telecom industry analyst and author of numerous books about the business and technology sides of the telecomm marketplace, I tend to focus on the words used by the people and companies that comprise the industry, because the careless use of those words often leads to misinterpretation, which in turn leads to inappropriate investment and infrastructure decisions. My most recent "book" is an electronic report called "Telecom Jeopardy." I gave it that name because during the heady times of unbridled growth in the industry, everyone engaged in financial decision-making and technology planning seemed to have all the answers, but like the Jeopardy game show, no one seemed to know what the questions were. High-impact decisions were made during that period based on apocryphal and hearsay information, and the repercussions of some of those decisions are still echoing through the often-empty halls of the telecom industry.

I realized recently that two important words in our technology lexicon are used synonymously. The words, mobility and ubiquity, are not synonyms. However, applications, network designs, investment decisions, strategic planning efforts, and end user device engineering are being done as if they were one and the same. At worst, this will lead to another spate of ill-placed investments and the requisite marketplace blowback; at best it will lead to confusion and the resulting slowdown of effective deployment. Hopefully the former won't occur; the latter already has. So before this gets too far down a dead-end road, let me clarify the difference between the two, beginning with definitions.

According to the American Heritage Dictionary, mobility means "the quality or state of being mobile," while ubiquity is defined as "existence or apparent existence everywhere at the same time." From a communications perspective, mobility means being able to move freely while staying connected, as when engaging in the increasingly socially unacceptable practice of using a cell phone while driving. Ubiquity, on the other hand, means universal connectivity, i.e. the ability to count on the presence of a connection of one kind or another from the bottom of the Grand Canyon to the top of Mount McKinley and everywhere in between.

From a development point-of-view, these two concepts are being used interchangeably, creating confusion and developmental paralysis. Consider, for example, Wi-Fi. Wi-Fi is a high-speed wireless technology that provides 11 Mbps (or more – or less) of access bandwidth to roaming laptops and PDAs. Its installation in restaurants and coffee shops by the likes of McDonald's and Starbucks is being advertised as a great step forward in mobility. But this isn't mobility: People aren't walking around Starbucks with a Venti Latte in one hand and a laptop in the other, surfing for MP3s. They are in fact sitting in a booth or at a table, enjoying the merits of ubiquitous access. Yes, the connection happened to be wireless, and these people are not in their homes or offices, but the presence of Wi-Fi in this case is not an addition to the pantheon of mobility applications. It is, however, an application of ubiquitous connectivity. So in this particular situation, what value does the wireless loop add? It seems to me that Starbucks, McDonald's and others could provide equal or better service to their customers who have a need to be connected by providing an RJ-45 cable or two at each table. It would be cheaper,

more secure, and better in terms of service quality. Yet there is a perceived sexiness associated with wireless that somehow precludes wired connectivity as an access option in ad hoc situations.

Wi-Fi, of course, provides a convenience factor that clearly has value to the user, however intangible that value may be. Being able to connect anywhere in the coffee shop without being physically tethered is an advantage, but how much of an advantage is it? Bluetooth, an alternative wireless technology, promised to eliminate dependence on wires between computer peripherals, yet it remains a largely stillborn solution. Does it work? Yes. Does it provide a level of value that overcomes the price? Apparently not, because its usage levels are near zero.

Consider the following scenario: McDonald's, Starbucks, Barnes & Noble, Borders, major airports and large department stores all purchase DSL lines. They terminate the lines on a low-cost router, which in turn connects to a multi-port hub. They then install convenient RJ-45 connections at each table or at some easily recognized spot in the store. Laptop users can either provide their own cable or borrow/purchase one from the host store. The service is offered at no cost and provides differentiation for the business, or is available via subscription in much the same way that T-Mobile and Wayport offer connectivity in hotels and airports. Note that the connectivity technology is wired, and while the businesses listed could also add a wireless access point to their network, providing connectivity for Wi-Fi users, they still offer near-ubiquitous connectivity using a wired option.

There is another issue that seems to have been lost in this discussion, and that's the issue of power. Wireless connectivity sucks the life out of laptop batteries at a dizzying rate, which means that even with a wireless network loop a user will need a wired power loop in short order. In other words, they will have to be tethered anyway if they use the connection more than ten or fifteen minutes, and this negates the sexiness of the wireless connection to a large extent.

So what is the point of this discussion? Both mobility and ubiquity are important in the emerging world of network usage, but they are not necessarily the same. Mobility implies the ability to connect to the network via a wireless local loop. Ideally it offers predictable high bandwidth, easy, dependable connections, and secure transmission. Ubiquity, on the other hand, implies the ability to connect to the network anywhere, anytime, regardless of the characteristics of the loop. Ubiquitous access may include wireless as an option, but may also include wired solutions such as Ethernet, T-1, and DSL.

Another issue is the usage of the two words in terms of parts of speech. Mobility, used as it is in our lexicon, is a noun, because in the minds of many it defines (incorrectly) an application. Mobility is no more an application than DSL is an application. It is a technology option, no more and no less.

Ubiquity, on the other hand, is used as an adjectival modifier to qualify the nature of an individual's access to the network. Ubiquitous access implies the delivery of something that is superior because it is – everywhere. But isn't wireline access universally available, and therefore

ubiquitous as well? And isn't it significantly more secure than a wireless connection, particularly in an enterprise application? After all, if a business decides to implement wireless (802.11) as its connectivity option of choice within a workplace, how can it possibly guarantee that (1) all users implement a secure wireless protocol over the local loop, and (2) signals do not leak out of the building? Wireless is a great technology, offering freedom and mobility to users, but there is a price. And that price can be steep if it is implemented without forethought.

I have observed in the past that customers are not really looking for the "next great killer application," but rather for a "killer" way to access existing applications because those applications offer solutions to most of the challenges that users encounter. Consider the typical business user. As long as they are in their home office environment, wired connectivity is perfectly acceptable for both voice and data. When they leave the office and get in the car, mobile telephony becomes important. Mobile data has no application (thankfully!) in the car other than for those applications optimized for that environment – OnStar service, for example, or GPS-based guidance systems, or specific applications related to public safety. If, however, the user stops at Starbucks for coffee before going home and decides to check e-mail one last time, ubiquitous connectivity, whether wired or wireless, provides the value to the user from a data perspective, while mobile telephony remains valuable for voice. An RJ-45 connection on the tabletop is just as serviceable as a Wi-Fi connection, not to mention far more secure and predictable.

The bottom line is this. Mobility defines the characteristics of a lifestyle choice that involves networking, whether personal or work-related, while ubiquity defines the characteristics of the technology infrastructure required to support the mobile lifestyle. "Anywhere, anytime connectivity" has become the chanted mantra of the mobile user, and while wireless (Wi-Fi) is the most loudly proclaimed option, it is not the only option. This, I believe, is part of the reason that revenues associated with Wi-Fi remain elusive. It is sexy, cool, and functional. But of those three characteristics the only one that has revenue potentially associated with it is functional, and there are too many alternatives to wireless that offer lower cost, greater security, and more predictable connections. Until a service provider comes up with a compelling argument for Wi-Fi's performance superiority, the only companies that will make money on it will be those building wireless access points and routers.

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Steven Shepard is the president and founder of the Shepard Communications Group, a Vermont-based firm that provides industry analysis, technical education, management consulting, and media development to companies throughout the world. He can be reached at Steve@ShepardComm.com.