Issues for Information Access on the Mobile Web

Abstract

Although offering mobile services is a tremendous opportunity to expand a library's ability to provide service to its community, the mobile Web is still a new technology and a seamless transition into mobile services is practically impossible. This chapter of Libraries and Mobile Services *examines the most common issues and problems that librarians will face.*

The mobile Web is a heady place. Users are presented every day with new, more efficient, and better ways to access information anywhere at any time. Library professionals should be excited about the opportunities presented by the rapidly increasing pace of mobile technology evolution. There are also some issues that deserve our ongoing scrutiny as stewards of information and access.

Security

To a certain extent we've all become accustomed to the security issues that face us when using a Net-connected desktop or laptop computer. We know not to click links in suspicious e-mails. We've learned that no matter what an e-mail says, Nigeria has been a republic since 1999 and has not in modern history had a royal family any member of which needs your assistance to liberate their fortune. Unfortunately, we need to anticipate these same security concerns on the mobile Web, though perhaps with more disturbing consequences.

Recently, audits of the Android Marketplace have found dozens of applications that seem to do little but harvest information from users' phones. Masquerading as wallpapers or themes, these apps ask users for broad permissions to access the phone's file system. Unfortunately, even well-behaved Android apps also require this kind of permission, so it can be hard to distinguish the bad actors in the marketplace.

The growth in mobile payment applications like PayPal and Square, combined with social networks like Facebook and location-based services like foursquare, mean that the information available to hackers on mobile devices is potentially very damaging.

First Sale

The bread and butter of libraries for many years has been the first sale doctrine. This is what allows us to purchase books, CDs, and DVDs and then lend them over and over again. The first sale doctrine dictates that creators and publishers have a right to make a profit on the first sale only of their works, and that they have no claim over the proceeds of subsequent sales. We've seen for years now in libraries as we transition from physical to digital materials that first sale no longer applies.

In the mobile realm, first sale barely applies to the devices themselves, which often come with a two-year contract obligation. All the applications, e-books, music, and video users are purchasing and using on their mobile devices are licensed, not owned. For their purchase price, users are granted the right to use the digital file on a limited number of devices and under a specific set of circumstances, as defined by a fine-print End User License Agreement. Libraries may not, under the terms of these licenses, redistribute Kindle e-books or a copy of the Angry Birds game, or a video from the iTunes Store.

Cost

While the number and demographics of people who have Internet access via a mobile device are inspiring for anyone who has been keeping track of digital divide issues, the economics of mobile Internet access are frustrating. One reason mobile carriers have so eagerly championed smartphones is that they are able to charge an additional monthly fee on top of the voice plans they offer users. Typically these fees add $20–30 per month to the phone bill per user.

Bandwidth on mobile devices tends to be a fraction of that available to users on standard home cable or DSL service. This has improved in recent years and will likely continue to improve as carriers upgrade to 4G LTE or WiMAX service, but those upgrades will require handset upgrades as well, and may come at an additional monthly cost.

In addition, while most home Internet plans are limited only by bandwidth, meaning the amount of data you can pull through your connection at any given time, most mobile data plans are limited to a set amount of data traffic per month. This means that once you've streamed a couple of gigabytes worth of movies (not a difficult task, especially if your mobile device is your primary entertainment device), you're either (a) cut off for the rest of the month, (b) downgraded to a very slow connection for the rest of the month, or (c) charged a per-kilobyte overage fee for the additional data you use in that month.

Coverage

While most of us who live in metropolitan areas can choose from a number of mobile providers, and as a result from a number of handsets, mobile operating systems, and data plans, there are still many areas in the country where there is little mobile coverage or where choice between providers may be limited or nonexistent. Figure 33 shows areas of the United States identified by the FCC according to the number of mobile providers available to consumers. Libraries have been vocal advocates for rural broadband penetration and ought to be similarly strong advocates for the availability of competitive mobile data.

Net Neutrality

Net neutrality is shorthand for the principle that the Internet is a level playing field for any and all data traffic. That is to say that my Internet service provider should treat bits flowing into my browser from one source exactly the same way as those from another. Many would argue that this idea is part of the foundation of the Internet. It was taken for granted for many
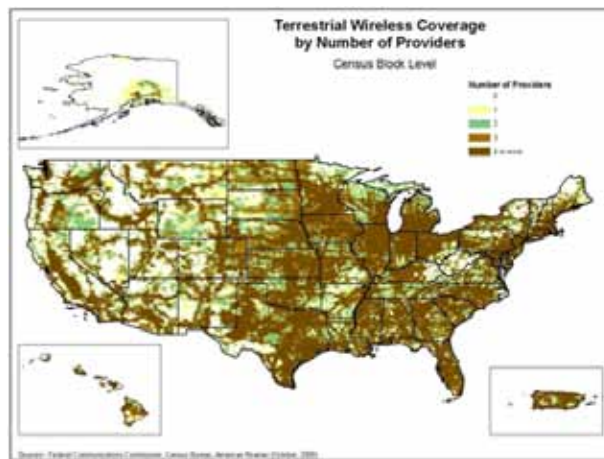
Figure 33
FCC data showing number of mobile providers by area.

years until recently, when online delivery of content, especially multimedia content, became big business. It's in the age of streaming web video that entrenched interests have found themselves at odds.

If you are like me, you get your home Internet from a cable company. I happen to enjoy several streaming video services, like Netflix and Hulu, which provide television shows via the Internet, which I get through a cable company. What I don't get from the cable company is cable TV. If you view this transaction from the perspective of the cable company boardroom, what you see is Netflix and Hulu using the cable company's own pipes to steal its business. Net neutrality dictates that the cable company has to deal with the situation. They must deliver Netflix's bits to my computer just as fast as anything else, and without additional fees, because they're just bits.

While net neutrality has largely held when it comes to standard wired Internet service, it is under direct attack in the mobile world. Google and Verizon, sick of waiting for an FCC ruling on wireless net neutrality, made their own pact. This proposal lays out in no uncertain terms what exactly net neutrality means for wired Internet service, and then goes on to state that wireless networks should be exempt from almost all of it.

The New Digital Divide

The unfortunate truth is that while more people than ever before will have Internet access because of its availability through mobile devices, there's a very real possibility that said Internet access will be the most expensive, slow, and restricted access since WebTV. For the same cost as a single mobile data plan, a family could have DSL access that would serve all the family members with greater bandwidth and greater assurance of ongoing net neutrality.

Conclusion: The Future of Mobile Computing and Libraries

As I write this, my wife is pregnant with our first child. Over the past few months, it's the only thing that I've spent more time thinking about than mobile technology. I suppose some overlap in my ruminations was inevitable.

A few weeks ago I began to think about what the mobile future held for my son or daughter. I recalled when I first began to use communication technology independently, using my family's wired home telephone to contact a friend on his family's wired home telephone. This scenario had remained unchanged since my parents were children. I realized that I have absolutely no idea how my child will communicate with his or her peers.

I haven't had a proper home telephone for ten years. The phone that I use most frequently I use far more often as a web browser, e-mail terminal, instant messenger, game console, social networking hub, or media player than I do as a phone. For all the time I've spent obsessing about communication technology, I can't for the life of me envision how my child will invite another child over to play. This is to say nothing of how he or she will access news, entertainment, or other media.

There are aspects of the evolution of mobile computing that are very easy to predict:

- Screen resolution and fidelity will continue to increase, providing a more pleasant reading and media viewing experience.
- Battery technology will improve, giving us longer life in our devices, even as we demand more features from them.
- Processor speed and efficiency will grow, allowing mobile devices to approach, and eventually surpass, a level of computing power that we currently associate with desktop computers and servers.
- Mobile bandwidth will increase in both availability and speed.

All of these technologies are effectively commoditized, and their continued evolution is all but assured as described by concepts like Moore's Law. Guessing at what exactly these technological advancements will mean when taken together and paired with the software and services they enable is far more challenging.

If I have one prediction about the future of mobile computing it's this: the future of mobile is the future of computing.

In the coming years the differences between the computers sitting on our desks and the computers we carry in our pockets will disappear rapidly. People have long anticipated the day when we have mobile devices that are the equivalent of laptops in our pockets. I think this is backward. I think laptops and desktops have much more to learn from mobile than mobile does from traditional computers.

The constraints inherent in mobile devices have provided an opportunity to do away with decades of presuppositions about how we interact with computers and with information, unleashing creative and compelling new user experiences that have quickly surpassed the desktop.

Unfortunately, those same presuppositions underlie many of the decisions libraries have made about how we provide services to users. The cloud-based streaming and licensed content models that are revolutionizing mobile content delivery, such as Pandora, Kindle, the iOS App Store, and Netflix, are fundamentally incompatible with the model of library lending. This is unlikely to change.

If mobile is the future of computing, libraries must think of mobile first in all digital services, whether homegrown or licensed. We must use platform-agnostic web standards, and demand the same from our vendors. We must advocate as tirelessly for mobile broadband access and net neutrality as we have for wired broadband.

I'm not sure how my child will communicate with his or her friends. I have no idea whether my child will learn to read off of a printed page or off of a screen. I don't know whether visiting the library will mean hopping on our bikes or using a mobile device. But with your help, visit we shall.