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GPSolo Magazine - December 2004

Road Warrior

Whither Thou Goest: High-Speed Internet Access Availability Increases

By Jeffrey Allen

The practice of law changed substantially for me the day I got my first portable computer. Prior to that time, I did the best I could to get work done with some semblance of efficiency when I was out of the office, but in truth that was an elusive objective at best—the Holy Grail of Road Warring. Working efficiently outside of the office generally requires some means of connection or contact with the office to allow the transfer of information, of files or documents.

In the last several years we have witnessed a dramatic evolution in the manner through which we obtain and transmit information as well as the nature and scope of available information. We have seen the start of a communications revolution that has forever changed the way we will live, recreate, and practice law.

The Rise of the Internet

The Internet has evolved from an esoteric depository of information used primarily in academia to one of the principal means of the storage and communication of information by and to individuals and all manner of businesses. E-mail services and use continue to expand and have now reached the point where e-mail has become the communications method of choice for information and documents that historically would have gone through a facsimile machine, the normal (“snail”) mail service, an overnight delivery service, or a courier. As we learned that we could transmit vast quantities of information over great distances in short time periods through the Internet, we grew more and more dependent on the Internet as a primary means of communications and of connection to our colleagues and our offices.

Increased use of and dependence on the Internet created a strong impetus for the development of ever faster transmission and retrieval speeds. Just as significantly, the increasing level of reliance on the Internet as a source of and transmission vehicle for information demanded ever more ready availability of access.

Soon 400-baud modems became 1200 baud. A few generations of modems later, we had 56k baud modems. In comparison to the days of the 400-baud modems, the 56k baud modems offered incredible increases in speed. Life was good. Out of the office, we depended on hard-wired modems connecting to telephones to get us to the Internet for our information, and we could find a phone almost anywhere: in hotel rooms, in other people’s offices, in airline club rooms, etc.

On the road, we now had a means of access to e-mail, to legal research sites, and to all of

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the Internet's information and features. Unfortunately, the deficiencies and age of the telephone systems often meant that we received very slow service on the road. It was not unusual for a 56k baud modem to connect at less than half that speed in hotels or other places owing to the age, condition, and utilization rates of the phone systems in those locations.

Today most of us have high-speed Internet connectivity such as Cable, DSL, or T-1 lines available in our offices. Many of us also have high-speed access in our homes. Recently we have even seen hotels installing hard-wired fast Ethernet connections for use in guest rooms. Generally, the hotel or its concessionaire charges a fee for the connection (usually a daily fee of between \$12 and \$19). Such enhancements gave rise to greater use of the Internet, and greater dependence.

The Wireless Revolution

The recent evolution of wireless connectivity has only increased the appeal and the use of the Internet. We can move computers around our homes and our offices to suit our convenience without losing Internet access and connectivity by installing a wireless router or access point ("hotspot"). Software and hardware evolved to the point that now we don't have to do much more than turn the computer on and let its operating system negotiate the connection issues for us.

Wireless connections once lacked sufficient reliability for satisfactory use in a law office environment, but things have improved dramatically in the last few years, particularly with the adoption of the 802.11g standard. Today we use wireless connections in our offices regularly and successfully. Additionally, we can often connect wirelessly in a variety of other locations including airports, coffee shops, other offices, and courthouses. Sometimes those connections have a daily or hourly usage fee attached; sometimes a sponsor provides them as a service at no cost to the user. Some hotels have also brought in wireless connectivity, generally for a daily usage charge, making the Internet available to us in guest rooms, in lobbies, and even in meeting rooms.

Unfortunately, although the number of public facilities with wireless access continues to increase, such public facilities lack consistency. Some of the wireless hotspots have service that works only for subscribers of a particular provider, others have service available for a usage charge, and some have access available at no cost. Such inconsistency makes it difficult for a Road Warrior to plan for usage outside of a known environment.

Wireless Telephone Connections

Many (if not most) wireless telephone service providers have Internet connectivity available as an extra feature that can be purchased by subscribers to their voice transmission service. Such service and an Internet-capable wireless telephone allow limited (and generally relatively slow) Internet access. These services, however, have allowed the use of instant messaging programs (such as Yahoo Messenger and AOL Instant Messenger) on the telephone, the ability to receive text messages and send text messages to other capable phones, and the ability to send and receive e-mail. Most of the phones also allow limited web browsing, enabling you to use the Internet from the phone or a device connected to the phone to access legal research sites, obtain direction, or take care of other business on the Internet.

The ability to access the Internet through a wireless mobile phone designed for voice transmission has the advantage of not requiring a WiFi "hotspot." On the other hand, trying to use your computer through a mobile phone acting as a modem generally does not result in very good service, as it is much slower than a high-speed Internet connection, or even connection through a 56k baud modem. Using the telephone itself—rather than a computer—as the connection device also trades convenience of access for utility and functionality; a telephone is a much less useful and versatile tool for surfing the Internet than is a laptop computer.

Laptop Wireless Connection and 3G

Some time ago PCMCIA cards with wireless telephone connectivity came onto the market.

Those cards, with a service provider subscription, enabled laptop computer access to the Internet from anywhere you could get a signal. The cards provided coverage generally comparable to the telephone provider's service coverage area. While it was nice to have laptop connectivity, the connection rates proved relatively slow; the cards effectively operated as a cellular telephone and used the same technology.

But the world and the World Wide Web do not remain stagnant for long. Change is in the air again. Two relatively new developments will make high-speed Internet connectivity through our laptop (or smaller) computers available to most of us on the road at virtually any location.

We have been hearing about 3G (third generation) wireless cards for some time. They are now coming onto the market. While the providers do not have high-speed access available throughout the country just yet, they are offering it in test markets at the present time. If you live (or travel) in one of the test areas for a provider, you can get the card and the service and have wireless high-speed connectivity (comparable to DSL) wherever you can get a signal. Outside of the test areas, the cards still offer connectivity and often at a faster rate than the older cards allowed. Most of the major providers have the wireless cards available. Check for availability of 3G speeds. Verizon's website reports average speeds of 60 to 80 kbps with bursts of up to 144 kbps on its wireless National Access Plan, and 300 to 500 kbps and up to 2 Mbps on its wireless Broadband Access plan. The data plans require a separate account for the access cards. Most providers offer substantial discounts on the card purchase in connection with opening the new account.

Note that if you use a Macintosh laptop, the only wireless card for which a Macintosh driver exists is the Express Network PC Card (PC5220) on the Verizon Wireless Network. You can get the card from Verizon Wireless, but the software does not come with the card. To get the software, download it from the Apple OS X support site: www.apple.com/downloads/macosx/apple. I have the software and the card—both work very well together and with the PowerBooks and iBooks running the G4 processor and Mac OS X (I have not tried the software with the older, G3 processor, on laptops, or on any Mac OS other than X.3x).

WiMax

The other new development is WiMax. WiMax refers to the IEEE wireless 802.16a Air Interface standard approved in January 2003. The standard continues to evolve through a series of modifications and amendments.

We will likely start to see WiMax in use within the next year, and projections anticipate broad acceptance for it within the next three or four years. What does WiMax mean in terms of availability of high-speed Internet access? Basically, it means availability of high-speed Internet access for homes and offices that currently do not have such capabilities because they are on the outer edges of carrier networks. It also means potentially much greater availability (broader coverage) for mobile high-speed Internet access, giving Road Warriors high-speed Internet access for their laptops when they go to other offices, meetings, other cities, hotels, and even when they pull over to the side of the road.

A Technical Note on WiMax

The core 802.16 specification was an air interface standard for broadband wireless access systems using point-to-multipoint infrastructure designs and operating at radio frequencies between 10 GHz and 66 GHz. The standard targeted average bandwidth performance of 70 Mb/s and peak rates up to 268 Mb/s.

The 802.16a collection of amendments took into account the broadband wireless networks operating between 2 GHz and 11 GHz. It also added support for architectures that were not line-of-sight and could not be supported in higher frequency ranges.

IEEE is now re-drafting the 802.16 specification to incorporate the amendments

and modifications that have been approved. The new standard is supposed to be completed by year's end. The new core spec will include all modifications to the standard to date. It will be known as 802.16 Rev. D.

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