

Smartphones for Smart Builders

by Lavrans Mathiesen

I grew up reading about the cool tools we'd have in the future — spaceships, hover cars, and, of course, the much-bemoaned personal jet pack. Well, most of that is still in the future. Dick Tracy's wrist-watch video-phone is here now, if you want it, but it's more likely that you've been thinking about its powerful big brother, the smartphone, which combines the functions of a PDA (personal digital assistant) with those of a cellphone.

I first picked up a PDA about 10 years ago — a Palm Pilot that I used as a calendar, to-do list, calculator, and time clock. Six years ago I bought a Palm Treo, which combined a PDA with a cellphone and a camera — my first smartphone. I then used a Windows-based smartphone for a couple of years, and for the past year I've been using an Apple iPhone. With each year, they've become more versatile, with better cameras and a variety of apps (applications or programs) that is truly staggering.

PDAs started as simple mini-computers with limited but fully functional operating systems. As computer hardware and software have gotten more powerful, PDAs have become considerably more functional. At this point, the iPhone, BlackBerry (RIM), and Windows Mobile are approximately as fast and as powerful as a full-size desktop computer was five or six years ago. Except that they're the size of a ... cellphone.

What's the Big Deal?

Here's a quick example showing how many ways I use my iPhone: A long-time client called me about adding

a deck to his home. He e-mailed me a sketch of what he was thinking. I made some notes and a quick sketch of an idea in Sketchbook Mobile (usa.autodesk.com), which is a drawing app, and e-mailed that back to the client. Later while driving around, I found a railing similar to what he'd sketched. I took a photo and e-mailed it to him with a map to the location.

Then, I put the date we were going to meet into Todo (appigo.com), an app named for what it is. That app syncs with the calendar on my home computer, helping to prevent double scheduling. Todo also keeps track of when I start a job, ensures that I don't forget to add that information to my

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computer at home, and stores it all on the Web so it's accessible from the road. No more lost notebooks or scraps of paper. On the negative side, there's no excuse for missing an appointment.

I also added the job in TSheets (tsheets.com), a timekeeping app that syncs with Todo, my calendar, and QuickBooks. Job codes allow me to keep track of both billable and non-billable hours; with that information, I can see how efficient I am with my time and make sure I bill it to the correct job. TSheets also shows me how long it takes to bring a job from idea to fruition — not something you can

easily see with the old paper journal.

TSheets keeps track of employees too. They can clock in and out using a computer or a Wi-Fi-enabled device (like a PDA, an iPod touch, or a smartphone) or by text message from their cellphone. When they clock in, they can add a job code that tells me which job they were on and what type of work they did. If they have access to a computer, they can add a description of what they did.

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What's an App?

The Palm Pilot is probably the most well-known example of a PDA. Palm started the avalanche of apps by "opening" its code (the inner workings of its operating system) so developers at other companies could write applications that would run on Palm's operating system. Those have come to be called "apps." Apple calls its small programs "applets." Word, Excel, and any games are all apps.

While I like the apps I use, I mentioned them because they're the ones I've found, not because I know them to be the best available. I'm not sure anyone could know for sure which are best — an astounding number of apps are available. Any company that makes a smartphone operating system has a Web site with apps, as does the phone maker and the network on which you use your phone (AT&T, Verizon, and the like), and numerous Web sites are devoted to nothing but smartphone apps.

Apple is the lone standout in that it requires apps to be validated by and

sold through the Apple Store. Even with this limitation, there are still more than 100,000 apps available for the iPhone. And if you don't have any qualms about voiding its warranty, you can obtain programs that "break" the iPhone, allowing you to run apps that haven't been approved.

Most smartphones use two types of apps. One downloads to your phone and runs independently. The other is a "web app," which to run you must be connected to the Web. For example, TSheets requires a Web interface, but Todo is a stand-alone app.

Stand-alone applications usually have a component that you load onto your main computer to automatically synchronize it with your smartphone. It kicks in when you connect your phone to your computer for charging the battery, say, or just for syncing.

Most apps I use cost less than \$10, and many are free. Some complex apps cost considerably more, but they also tend to be full-fledged business management programs that also load onto your home or office computer.

Going Online

3G (third generation) Internet access is available in most cities over the cell networks. That means the cellphone provider allows an Internet connection over the same airwaves that phone service is broadcast on. This is different from, and slower than, a regular wireless Internet connection at your home, office, or one of the many businesses that offer free Wi-Fi. Today's phones, smart or not, are generally equipped with a wireless receiver that allows them to connect to the Internet using either method.

Service providers all charge a "data fee" to use the Internet over their cell network, which costs in the range of \$20 to \$35 a month. You can opt out of the coverage if you don't need to

get e-mail or access the Internet from your service provider, and you can still get online whenever you're somewhere with a Wi-Fi connection.

Using a Smartphone

Each manufacturer has a different design that determines how you use its smartphone.

BlackBerry has a small trackball (a little ball set in the middle of the keyboard) that moves the cursor on the screen to choose programs, phone numbers, and the like. There's a keyboard for typing. This setup isn't as useful for sketching, but many people prefer having a physical keyboard.

Palm uses a combination of a touchscreen (a touchscreen allows you to type or interact with the phone by

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touching the screen) with a stylus and a physical keyboard. I prefer a touchscreen; the type that Palm uses allows data to be entered with either a finger or a stylus. The stylus is more useful for me most of the time because the screens are fairly small, and it is also nice to make sketches with. When writing, you could use the physical keyboard or write on the screen.

With the iPhone, Apple introduced a new type of touchscreen and entirely new ways to use it. The old touchscreens were able to recognize only one point of contact on the screen at a time; if you touched more than one place, the cursor would jump about or do nothing. The iPhone was the first to allow you to use multiple fingers to zoom in or out on an object or move about the screen. Other com-

panies have followed its lead, though, and the feature is becoming more common.

It adds quite a bit of function. In Sketchbook Mobile, for example, I can zoom in on an area and make very small, precise drawings, which I wouldn't be able to do working from only the original picture. It also makes it easier to move around a large picture, looking at details or zooming in and out on a map. The trade-off is that the iPhone won't recognize just any stylus. It works with your fingers or an aftermarket stylus.

A note on touchscreens: There are basically two types of touchscreens, capacitive and resistive. Capacitive touchscreens measure electrical current, and resistive screens measure pressure. The technical details are complicated — suffice it to say that some touchscreens require a special stylus to work, some work with your fingers or a special stylus, and some will work with anything that produces pressure.

The day is near when the smartphone will be able to completely replace the computer needs of most people. That reality is even closer for those of us who don't have heavy computing loads. I can already link to the office computer with my iPhone. I imagine that someone is working on how to use a smartphone for video conferencing.

New phones are coming out with small digital projectors that can project an image that is equal to a 50-inch television screen. That's big enough to project plans with. Or watch a movie. I keep thinking what a great sales tool that would be — to be able to project my portfolio on the wall when meeting with a potential client. Good wow-factor too! ♦

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