



WIRELESS OPERATIONS: THE NEXT GENERATION OF REAL ESTATE MANAGEMENT

by **Felix 'Quot**

President"('EGQ

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The way people use the wireless web to access data and communicate continues to change as we see advancements in mobile device technology. On-the-go property management teams now have the ability to coordinate all of their building operations and access property data and resources in real-time. The result is improved customer service, more productive building and facility teams and efficient management of building assets.

The revolution in access to the wireless (mobile) web that we have experienced in the last decade is truly remarkable when you consider the proliferation of devices and networks (4.1 Billion subscribers worldwide, and growing¹) and the development of Smartphones (mobile devices boasting advanced capabilities such as PC-like functionality, powerful processors, abundant memory, large screens and open operating systems- e.g. BlackBerry, iPhone, Palm Pre, Android, etc.).

The BlackBerry has made mobile email ubiquitous and while its web browser has its challenges, it offers access to over 2,000 applications². The introduction of the iPhone 2.5 years ago permanently changed the mobile landscape; with over 100,000 applications in its AppStore³ and one billion of these downloaded to date⁴. Phones operating on the Google Android system launched only a year ago and Google already offers over 10,000 Applications⁵. These Smartphone devices have expanded our idea of how the wireless web can be accessed.

Similar to the effect of email, it is difficult to imagine life without a mobile device and access to the mobile web. At Building Engines, we believe that mobility will be increasingly leveraged by the most successful real estate owners and managers to improve customer service, increase profitability and grow their margins.

Why Mobility Matters

Productivity. Mobile access to applications and wireless data is essential to both field personnel and property managers because it offers an opportunity to fundamentally improve productivity through real-time communication, easy access to data and management applications, and the elimination of duplicate data entry.

Customer Service. Mobile access improves communication between real estate operators and their tenants and gives building management the opportunity to improve tenant satisfaction and retention by reducing the service cycle time and frustration caused by unexplained delays or changes in service delivery.

Supervision. Mobility improves management's oversight of workflow and asset management activities; managers with instant, mobile access to information about how their teams and assets are performing, can respond more nimbly to changes in their customer needs, operating environment, and business climate.

(1) Report: 4.1 BN Mobile Subscribers Worldwide Helps Reduce Digital Divide (Slightly)

(2) Blackberry App World Doubles to 2,000 Apps

(3) iPhone App Count Passes 100,000 – But Keep an Eye on Android's App Count Too

(4) iPhone App Downloads to Hit 1 Billion Mark Faster Than Songs Did

(5) 10,000 Apps for Google Android Market by Oct. 2009

Security. Mobile Access to safety and emergency shut-down information has become an important safety measure for field personnel. Through advances in GPS technology, workers are able to receive automatic alerts and precautions related to their specific geographic location or environment.

Most real estate operators provide their teams with some form of wireless access. A senior manager may carry a BlackBerry in order to make voice calls, send text messages and manage email while mobile. Field teams might get similar access to a Smartphone or, more commonly, a simpler feature phone that is largely used for voice calls and text messages. Some operators still provide their field teams with pagers, although these instances are declining rapidly.

Today, it is not uncommon to see real estate teams leverage some of the more powerful capabilities that mobile devices offer: GPS tracking, equipment bar code scanning, wireless document review, or capturing images to track property damage and repairs.

Some management teams are granted access to software tools and operations data (e.g. work order management, lease administration, financial systems) via the wireless web, although mobile interaction with these systems is somewhat limited by the device form factor (size, shape, accessibility) and the current performance of wireless networks.

Current Challenges with the Wireless Web

Mobile access to systems and data is limited by two things: the robustness and reliability of the wireless network and by the devices themselves. Ready access to the wireless web requires both bandwidth, that is the ability to move large amounts of data back and forth across the network quickly, and reliable coverage.

As much as we depend on cell phones, coverage can still be maddeningly intermittent, and bandwidth variable- especially inside large buildings or in dense central business districts (e.g. Manhattan, The Loop in Chicago). This makes relying on the wireless web for access to mission critical data, fraught with problems.

(6) This challenge is known by software developers as “versioning”. Problems occur after an application is downloaded to the device and has been the bane of mobile system design. Every new release with functional improvements and bug fixes requires that the user and the device to go through regular updates with perfect connectivity and a thoroughly tested version of the device software and service provider system to ensure reliable usage.

(7) Verizon’s Breakneck 4G Wireless Network Nears Debut

Wireless providers have recently rolled out faster “3G” (Third Generation) and networks in most parts of the country, providing faster network speeds that are configured to handle large amounts of data traffic - the kind generated by using advanced applications on your device such as multi-media text messaging or mobile web applications like the Building Engines’ web-based operations management system. While these next generation networks have markedly improved data access speeds, they are still slow by desk top standards and can sporadically drop connections.

As part of an attempt to address these network issues, mobile software providers have developed “on board” applications that are downloaded over the air to a device and can then capture and store data during times that the device’s network is unavailable, as well as synchronize that data when connectivity returns.

These “on board” applications present their own set of challenges: software developers must ensure that the applications are configured to work on the dozens of versions of mobile operating systems⁶, and users have to work around cases when data does not synchronize properly. Keeping these “on board” applications current and compatible with device operation systems can become a significant management burden for both the software developer and the user.

Finally, the device itself limits the user’s ability to easily access the wireless web: there is, after all, only so much data that can be displayed on a BlackBerry or iPhone’s screen.

We expect these limitations to diminish significantly over the next few years through the convergence of a number of factors that are detailed below.

How is the Wireless Environment Changing?

To mitigate the challenge of slow and intermittent network access, wireless carriers are expanding and deepening their 3G networks, as well as beginning to transition to the 4G (Fourth Generation) network, the next generation of technology. The 4G network will

effectively facilitate broadband access to the Internet from a mobile device and provide network speeds that are up to ten times faster than the previous generation⁷. This will enable real estate managers to view and access “data rich” content, such as an instructional video about overhauling a piece of HVAC equipment. Beginning in 2010 – 2011, we expect to see 4G networks promoted by the wireless carriers.

The advance of mobile networks is occurring in conjunction with a profusion of Wi-Fi (wireless local area network) networks in and around buildings. While Wi-Fi networks present issues around secure access and bandwidth “poaching”, analysts estimate the about ¼ of mobile data users currently access the Internet from their mobile devices using local Wi-Fi networks⁸.

Some property owners have adopted in-house Wi-Fi networks, as both an amenity for their tenants and as a way of supporting communication among their on-site teams⁹. Providing a local area network enables the property owner to connect security, fire and life safety and building automation systems. Additionally, some municipalities and local business organizations have installed mesh networks, networks of Wi-Fi antennae that provide uniform coverage over a given area¹⁰.

Mobile devices are changing too. In addition to the explosive growth in the use of Smartphones offered at lower price points, development continues on rugged, tablet-sized Personal Computers that will be ideal for technicians and field staff to access web-enabled applications like the Building Engines’ platform¹¹. These downsized computers typically provide a number of ways of accessing the web.

To be fair, tablet PCs have been slow to gain widespread recognition, but with lower prices, better Internet access, advanced touch screen technology and reduced size and weight, they will begin to make a lot of sense in the near future for field staff who are mobile and need to access and store significant amounts of data.

(8) What Shape Will the Wireless Web Take?

(9) In-Building Wireless Alliance

(10) QuickStudy: Mesh networks

(11) Building Engines provides property owners and managers a suite of web-based software and services to help them operate their assets more efficiently, serve their customers better and make their teams more productive. This offering includes wireless access to the system.

(12) The Man Behind the Netbook Craze

(13) Releasing the Chromium OS open source project

(14) Offline Web Applications

In addition, new versions of the wildly popular Netbooks (small, inexpensive computers that are Wi-Fi enabled but have no hard drive), 26 million of which will ship this year, will provide on-the-go users with another alternative way to access the web while mobile¹².

Some of the biggest changes in mobility are occurring in the software that is used to run the mobile web, as well as the software that runs on the devices themselves. New operating systems, like Google’s Chrome OS, treat the device they run on like a thin client, synchronizing data to web-based applications instantly¹³.

The next generation of web browsers, like HTML 5, will enable embedding of applications for storing data while off line. The Application Cache API, as the offline tool is known, allows web applications to store their current state on the client side through the web browser on the wireless device. In short, it allows users to continue to interact with web applications while offline; the next time that the user enters wireless coverage, all of the changes made locally and captured in the web browser — e-mail replies, contacts added, etc. — are synced with the web-based application.

HTML 5 support is already being incorporated into WebKit, the underlying code in browsers like the iPhone’s Mobile Safari and Android’s Chrome Lite. Offline access works seamlessly within WebKit-powered browsers, with no extra plug-ins required.

Over the next few years, web-based application providers like Building Engines who see mobility as a key part of their vision, will likely offer users a variety of means to access their applications using the wireless web:

1. Simple text and email for the occasional mobile user who carries a simple device (e.g. pager or feature phone).
2. “Lite” web access via a Smartphone for the mobile user who needs limited access to the software.

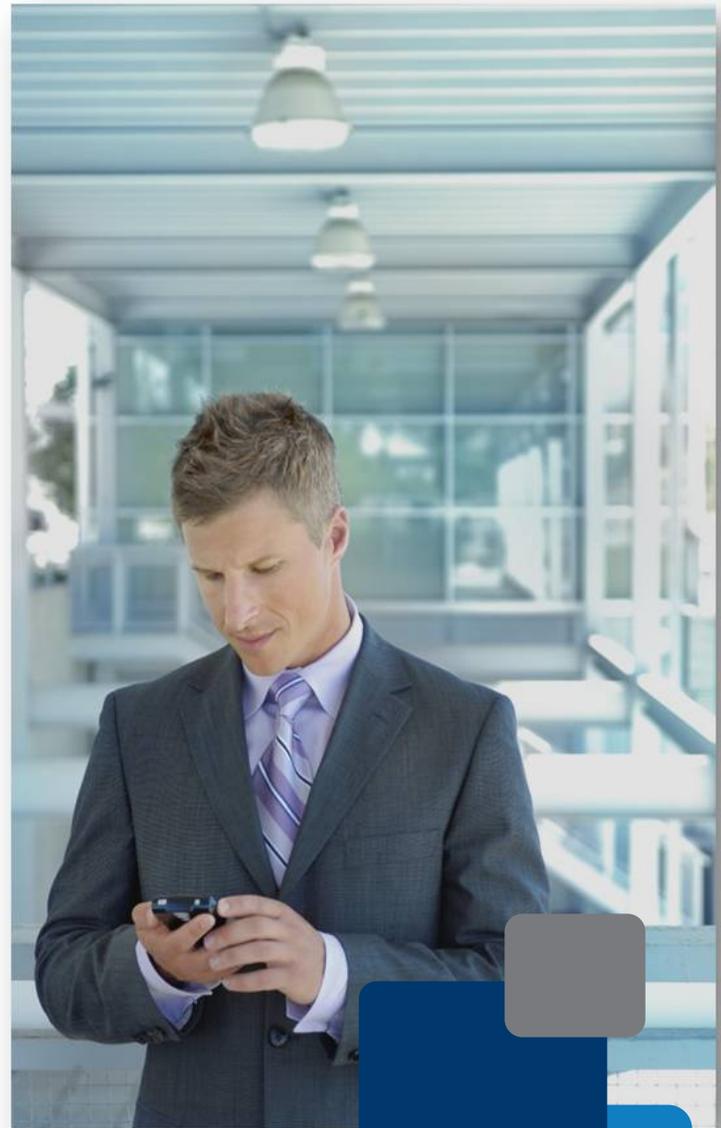
3. Robust web access via HTML 5 on a smart phone or tablet PC for the heavy mobile user.
4. Offline access via an “on-board” application for the heavier mobile user who requires complete access to the application.

What the Changing Mobile Landscape Means For Real Estate Operators

Over the next three to five years, real estate owners and operators will be able to provide executives and field teams customized, high speed, data rich and consistent access to the internet through a variety of mobile devices, each fitting the users specific need for varying degrees of content access. This access, if used with a web-based building operations management software like Building Engines platform, has the potential to radically improve the operator’s customer service, make its team much more productive and help it manage its assets more effectively.

Real estate operators should have already begun creating their Mobile Blueprint- i.e. determining the kinds of devices and access that are most appropriate for various roles in their organization- as they will need to shift the culture of their organizations to one where participants can and expect pervasive access to data.

Don’t let your company fall behind. Your investors and tenants are already beginning to access next-generation devices and networks and will expect their buildings to run at a speed and facility equal to or better than their own.



About Building Engines

Building Engines provides property owners and managers a suite of web-based software and services to help them operate their assets more efficiently, serve their customers better and make their teams more productive. This offering includes wireless access to the system through a number of mobile devices.



BuildingEngines
Optimizing Property Performance

275 Wyman Street, Ste. 111
Waltham, MA 02451
www.buildingengines.com
(866) 301-5300