Raising the Bar in Construction with Mobile Enterprise Applications

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Construction firms are in a race to increase business velocity and improve productivity while competing in an increasingly rough economic climate. One promising growth area in the industry is the use of mobile applications. Wireless has always been an important communication technology, but now we are seeing mass adoption of new applications and technologies as significant tools in the design, construction and management of the built environment. There are many examples of successful application deployments across the construction ecosystem. One common scenario is uploading time sensitive RFIs or Change Order Requests during the construction phase directly from the field in real time rather than from the jobsite office at the end of a day. This can be a game-changer in the never ending struggle to keep projects on schedule and under budget.

All elements of a mobile application solution are in place today to support a successful deployment: networks, devices, applications and business-grade support from AT&T's Mobility Applications Consulting practice.

3G network advancements provide enterprises with a powerful platform to deploy mobile business applications globally, utilizing broadband-like speeds, and simultaneous voice, video and data services. This results in significant productivity enhancements and new ways for enterprise IT to develop and deploy business applications. AT&T has the fastest 3G network available (in 350 leading U.S. markets by the end of 2008), called High Speed Uplink Packet Access (HSUPA) and built on GSM, the global standard for mobile communications. With HSUPA, wireless laptop card users enjoy download speeds up to 1.7 Mbps (megabits per second) and upload speeds of up to 1.2 Mbps to access large files and multimedia applications faster than ever before.

Hardware manufacturers have become more attune to the construction customers' needs on a global basis. This allowed carriers like AT&T that run on GSM, the global standard for wireless communications, to develop a hardware portfolio rich in devices geared to the construction requirements, including MIL-SPEC rugged handsets with video share and push-to-talk, rugged laptops, tablets and ultra-mobile PCs with embedded wireless, barcode scanners, RFID readers, WWAN routers and GPS-enabled asset trackers.

Construction line-of-business managers and IT professionals alike are realizing that real-time information and location-based services, when applied to the right business process can result in sustained competitive advantage.

Mobile projects, however, require coordination of multiple components. Successful mobile deployments depend on a mature ecosystem of partners where a wireless carrier coordinates application and middleware developers, system integrators, and hardware providers to deliver a complete solution. AT&T tests and certifies partner solutions on their wireless network to ensure components works together seamlessly, and can offer select bundles directly to customers from a single source on their monthly bill. AT&T's Industry Solutions Mobility Practice is the axle that brings these partners together through application consulting and integration services.

The Solutions

While most people identify wireless in construction with Push to Talk communications, the opportunity for process improvements through mobile technology goes much further than voice communications. No matter what role your company plays in a construction project: design firm, construction management, supplier or subcontractor, developing and implementing a mobile strategy can improve performance and show rapid ROI.

Real Time Video between the Job Site and Back Office

As a result of 3G speeds, field workers may now bring visual and verbal communications together in one session by utilizing VideoShare™ from AT&T. VideoShare enhances communications by enabling a field worker to communicate questions or issues to back office individuals through simultaneous voice and streaming video in real time while carrying on a discussion. The sessions can even be saved to backend project management systems just like any other file type.

Imagine the ability to make one call from the field to the design team, clearly articulate an issue by visually showing the project architect the area in question, completing the RFI from the field on a handheld device and sending it, along with the video session, to both the design team and project management portal from that very spot. It is a marked improvement to a process that previously required taking a picture, walking it to the jobsite office, downloading it, completing the RFI form, emailing or even faxing the image and form, entering the RFI in the PM database and waiting on the response.

Wireless Wide Area Networks for the Project Office

3G has also paved the way for immediate productivity gains on the jobsite even prior to ground breaking. Traditionally, project teams have been on site without access to backend systems for as much as 60-90 days while awaiting T1 or DSL network communications to be installed. Wide area wireless networks (WWAN) provide a fast and simple method of network connectivity that can also be used throughout the project as a backup system to wired networks which, inevitably, can experience intermittent outages in a rough and volatile environment.

Imagine the ability to collaborate on project documentation from day one on the site; the ability to receive modified plans and shop drawings and have secured access to back office systems.

Equipment Management

Inspections of both jobsites and equipment for safety, maintenance, and OSHA compliance are all functions that, when documented via wireless devices eliminate redundant back office data entry and provide real time access to an asset's history. Allowing operators access to historical information can improve preventative maintenance, performance benchmarking, efficiency monitoring—all of which impact usage costs. Data gathered from the field via a handheld device, ultra-mobile PC or Tablet PC can be automatically delivered to backend systems for compliance logging and real time analytics. Telemetric devices can also wirelessly deliver data about fuel consumption, idle times and other benchmarking data to report on compliance issues and accurate job costing information.

Imagine being able to pull reports that detail equipment use for a specific project, used for a specific function, that details operators, start and end times, locations, maintenance performed, fuel used and any other data your particular practice requires.

Mobilized Field Activities

The processes involved in Quality Assurance can be time consuming and the resulting impact on ordering rework can wreak havoc on a rolling schedule. Mobilizing these activities by eliminating notebooks and clipboards in the field and inputting the findings via a handheld device or wirelessly-enabled tablet can potentially save days on your schedule. Using data collection applications like that of AT&T's partner Vela Systems, data is collected once and through integration tools populates backend systems. Rework reports can be generated by subcontractor, type of work to be performed, or other criteria and notification of pending rework can be delivered straight from the field to the sub.

Imagine trimming potentially hours a day off your schedule on basic punch listing data collection activities and then eliminating the need for additional manpower to enter notes into PM systems. Consider the resulting reduction of errors in transcribing field notes and the productivity gained from improved scheduling of required rework.

Material, Asset and Time Card Management

The extension of work order management applications to include GPS technologies has lead to measurable productivity gains, cost reductions, revenue growth and overall customer satisfaction for the materials supply industry. Location-based services like Xora Time Track and Telenav Track have allowed for improved materials scheduling and delivery as well as management of those materials once on site. These applications that run on commonly used handsets may also allow individuals or crew managers to accurately clock employees in and out with ease. Where the application is run on a GPS-enabled device, the location of the worker can be recorded whenever a status change occurs or when a worker enters or leaves a specific geography.

Imagine, as a distributor, the ability of back office dispatchers to capture and send location and time-stamped documentation to the client that alerts the customer of the delivery to a specific jobsite. Imagine the reduction of product theft through the use of cost effective asset tracking devices that send alerts to project managers when assets or materials have left a specific location. Imagine collecting truly accurate time card information that can be integrated with payroll applications like ADP's Time and Labor Management to eliminate redundant data entry and pay workers only for the time which they actually worked.

Mobility is just beginning to scratch the surface of improving in-field activities on the jobsite. Yet it's clear that early adopters will see a competitive advantage by offering improved and timely communications and increased customer satisfaction. Our industry experts at AT&T are available to develop a workshop designed to uncover the areas where wireless technologies might positively impact your practice. Please contact us to learn more about how AT&T can change your game.

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