

Push-to-talk over Warehouse Scanners: Streamlining the Heart of Your Business



WHITE PAPER

EXECUTIVE SUMMARY

The warehouse is the heart of your day-to-day business. Products constantly move in, through, and out of this critical area. Improving the efficiency of warehouse processes is therefore key to numerous business metrics, such as the number of orders shipped, order accuracy, inventory availability, and customer service.

This white paper explores the impact of voice-enabling your warehouse employees' scanning devices. We'll look at how this convergence of voice and data on a single device can simplify and streamline warehouse communication while also leveraging your existing hardware investment – and why Radicomm is the right choice as your warehouse's push-to-talk provider.

THE CHALLENGE: *Efficient Warehouse Communication*

Warehouse managers face a number of challenges today with conventional communication methods. Walkie-talkies, two-way radios, and push-to-talk over cellular networks are too costly to justify their purchase for every employee. Even if these methods could be cost-justified, most workers already require ADC (Automatic Data Capture) devices to perform their primary duties. Requiring them to carry additional devices for communication purposes is seldom an acceptable solution.

Consequently, only a select group of supervisors are typically allowed to converse remotely with each other or with stockroom management throughout the day. Conversations with any other employee must take place face-to-face. This requires additional time and effort for a supervisor to physically locate individual employees in order to manage indirect labor, request status updates, or provide

additional instructions for a particular task. Likewise, a worker often has the need to contact his supervisor or a product expert as quickly as possible, for example in the case of a hazardous spill or other emergency situation.

THE GOAL: *Communication for Everyone*

In order to maximize warehouse efficiency, all workers need to be able to contact their supervisors immediately, remotely, from anywhere in the warehouse. But the traditional approaches are simply not cost-effective, nor are they practical in terms of voice-enabling everyone. So a new model must be introduced – one that converges voice and data onto their existing devices. Then workers really *can* talk to their supervisors (and optionally their peers) without all the drawbacks of conventional communication systems.

THE SOLUTION: *Push-to-talk over Warehouse Scanners*

Radicomm, Inc., a Motorola and Intermec partner with over a decade of experience developing mission critical applications for industrial environments, has created an innovative new solution for warehouse communication. Organizations can voice-enable select warehouse scanners with QuickTalk, Radicomm's push-to-talk over Wi-Fi program designed specifically for rugged Windows Mobile devices. QuickTalk integrates seamlessly with numerous Motorola and Intermec scanners, providing real-time voice capability for every worker.

THE ARCHITECTURE: *Cost-effective, Seamless, and Efficient*

QuickTalk utilizes VoWLAN (Voice-over-Wireless LAN) technology, which is extraordinarily cost effective. No updates to existing network equipment are required as Radicomm leverages each site's current infrastructure to facilitate the sending of voice over the existing wireless LAN. All the drawbacks of cellular push-to-talk services are eliminated – no monthly service fees and no cellular coverage issues inside the four walls. With a seamless convergence of voice and data on the same network, walkie-talkies and intercom systems can also be eliminated. Workers have fewer devices to carry, the company has fewer devices to purchase, and the IT staff has fewer devices to deploy and manage.

SEAMLESS INTEGRATION

QuickTalk starts in the background automatically and runs silently on each worker's mobile device. Until needing to contact someone, he won't even notice that

QuickTalk is there. But when a supervisor or any other authorized individual calls out to him, a push-to-talk connection "chirp" is heard, followed immediately by the caller's voice. The recipient's screen does not change at all. If he was scanning merchandise via the company's WMS system, for example, he would still see that screen and could even continue performing the same function while listening to the caller.

The way the recipient talks back to the caller depends on whether his device contains a QuickTalk-supported push-to-talk hardware button (as most devices do). If so, then he simply holds down that button to talk – just like a walkie-talkie. This solution feels to the user as if the voice capability is built right into the unit itself, when in reality everything is being handled "behind the scenes" by the QuickTalk client software.

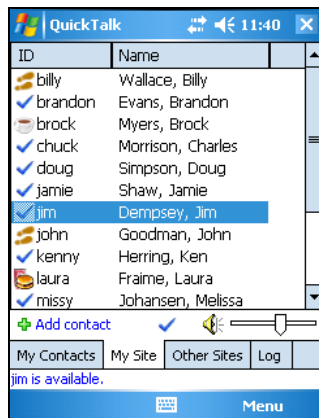
If the device does not have a supported hardware push-to-talk button, then the user presses a hot-key to quickly pop up the QuickTalk window, which contains a touch-screen *Talk* button. This button can be positioned in the lower-left or lower-right corner of the display for easy left-handed or right-handed use. Although not quite as seamless as using a hardware button, this solution still offers a highly efficient means of communication.

Either person can end the conversation ("hang up") at any time by double-clicking the push-to-talk hardware button or by pressing an on-screen *Bye* button. But just in case both users forget to hang up, QuickTalk will automatically disconnect the voice session after three minutes of inactivity by default.

INTUITIVE & EFFICIENT USER INTERFACE

QuickTalk's user interface consists of up to four tabs:

- **My Contacts** – People with whom the user talks regularly.
- **My Site** – Everyone the user is allowed to see within his own site.
- **Other Sites** – External sites the user is allowed to see within the company.
- **Log** – A log of significant events (incoming/outgoing calls, missed calls, network status changes, etc.)



While QuickTalk's user interface is simple and intuitive, care has also been taken to allow for rapid, stylus-free navigation. For example, on the Motorola MC70 and MC75 the *tab* key is used to scroll between pages (*My Contacts*, *My Site*, etc.), but on the MC9090 performing a *tab* actually requires two keystrokes, so on that particular device the left/right arrow keys can be used. The MC9090's green-dot and red-dot keys have also been put to use, activating QuickTalk's left menu and right menu respectively. In short, the entire program can be navigated without a stylus on most devices, which is a tremendous benefit in many industrial environments.

ROBUST PERMISSION SETUP

Voice-enabling every user's device, though efficient and cost-effective, may present one new challenge – the possibility of a few isolated individuals abusing their new privilege by “chatting” as a substitute to work, rather than as an aide to help them perform at peak efficiency. Consequently, Radicomm has created the QuickTalk Administrator to, among other things, empower company management to lock down who is allowed to contact whom, within each site or across the enterprise.



Every QuickTalk-enabled mobile device is configured to automatically log into a Windows server or desktop PC running Radicomm's QuickTalk Server software. The QuickTalk Administrator is a Windows program that facilitates the remote administration of QuickTalk Server. An unlimited number of roles can be created, and selected “characteristics” can then be associated with each role. Users may then be assigned to one or more of the roles. The QuickTalk Administrator also allows the creation of *Role Visibility Relationships* (who may contact whom within each site), and optionally *Site Trust Relationships* to define which sites are allowed to communicate with each other across the company WAN.

RETURN ON INVESTMENT

Empowering workers to collaborate in real time improves information exchange, thus increasing worker productivity. Determining the value of this voice and data convergence on a mobile device includes both tangible and intangible factors. The following sections are provided as a starting point from which to calculate the ROI.

HARD ROI

Hard ROI values are derived through the mitigation of current expenses, whether the result of lowered equipment costs, or the elimination of ongoing operational expenses. While each company's situation is different, below are some ROI calculations that may be applicable.

Elimination of duplicate devices: Deploying push-to-talk software on existing mobile devices for in-building communication eliminates the need for additional devices such as walkie-talkies or cellular phones.

Calculation: [Number of devices eliminated] x [Overall cost of eliminated devices]

Elimination of duplicate network infrastructures: Other Voice-over-IP solutions require the deployment of a separate wireless network specifically for voice. A converged solution utilizing the existing wireless network, such as QuickTalk, provides a built-in reuse of the existing infrastructure, mitigating the total cost of ownership (TCO) of the system.

Calculation: [Duplicate infrastructure purchase price] + [Duplicate infrastructure maint. costs]

Elimination of ongoing service charges: Some companies deploy cell phones to provide push-to-talk communication, which includes annual service contracts with the service providers and/or monthly service fees. Some walkie-talkie products also require a license to use the wireless spectrum, which is eliminated when utilizing the company's existing wireless LAN.

Calculation: [Number of devices eliminated] x [Cost of service charges per eliminated device]

QuickTalk Server charges: Depending on the performance and reliability of the company's WAN, only one central QuickTalk Server may be required. No voice communication takes place over the WAN as it is always point-to-point, user-to-user. QuickTalk Server's purpose is user authentication, authorization, and presence determination. Care has been taken to ensure that any QuickTalk user already logged into the server can still communicate with other users even if the server becomes inaccessible for up to three days. However, if certain factors still prohibit the central installation of QuickTalk Server then licenses will be required for each site's instance of the server software. Radicomm is willing to work with a customer to resolve logistical situations such as these in order to provide a financially agreeable solution for both parties.

Calculation: -[QuickTalk Server license cost] x [Number of QuickTalk Server instances]

QuickTalk Client charges: A client license is required for each QuickTalk-enabled user.

Calculation: -[QuickTalk Client license cost] x [Number of QuickTalk Client users]

QuickTalk Annual Maintenance and Support: Maintenance and support requires an annual cost equal to a certain percentage of the purchase price.

Calculation: -[QuickTalk Total Cost] x [Annual Maintenance & Support Percentage]

SOFT ROI

Soft ROI contributions often fall into the categories of productivity gains, improvements in shipping accuracy, and increased customer service levels. While at times challenging to measure, these significant factors can substantially contribute to an overall ROI.

Productivity increases: This is where much of the ROI is realized. Time is saved each day by just pressing a button to instruct/direct an employee rather than walking to another area of the warehouse or calling out to him using an overhead speaker system and waiting for his arrival and subsequent return to work. Considerable savings are also seen by employees who are no longer required to put their tasks on hold in order to find a supervisor or colleague to answer questions. They too can simply press a button and talk directly to the appropriate person.

Calculation: [Number of employees] x ["Unproductive minutes" eliminated per employee] x [Average hourly wage / 60 minutes]

Reduction in shipping errors: Without efficient communication a certain percentage of questions go unanswered because (a) the employee cannot find the appropriate person to answer it, or (b) he *thinks* he may know the answer and decides it might take too long to find someone to confirm his assumption. These "guesses" lead to shipping errors.

Calculation: [Cost per error] x [Number of errors eliminated]

Cost per error includes administrative costs of handling a return request, costs of receiving a return back into the warehouse, put-away costs, and the cost of re-picking the correct product.

Improved customer satisfaction: While this ROI category is difficult to quantify, it is safe to say that sustained increases in productivity combined with accuracy improvements (i.e. both of the calculations above) will yield long term improvements in customer satisfaction levels, which can in turn drive sales increases for years to come.

Safety improvements: Having the capability for a worker to immediately notify his supervisor or stockroom manager of an emergency situation can help prevent a serious injury or possibly even save a life. There is not now, nor will there ever be, a mathematical formula to adequately express the value of a human life.

CONCLUSION

Voice communication over modern warehouse scanning devices offers outstanding value. In addition to the business benefits, the solution can be implemented cost-effectively by utilizing the company's existing wireless LAN. Radicomm's solution in particular integrates seamlessly and efficiently with some of the most widely used rugged scanning devices in the world today. Its exclusive central administrator program gives organizations complete control over their voice communication process, providing a rapid return on this strategic investment.

Gain a competitive edge in your warehouse... with Radicomm's Push-to-talk software. For more information please visit us on the web at www.radicomm.com.