



Transitioning From Windows CE to Android Terminal-Emulated Devices

Benefits and Best Practices

As the digital landscape evolves, warehouse and manufacturing managers are faced with the challenge of keeping their operations at the forefront of technology. One significant change in recent years has been the shift from Windows Mobile CE systems to Android Terminal-Emulated devices.

At the same time, many enterprises are facing a common challenge: today's workers expect a more modern mobility experience than the legacy "green screen" terminal emulation (TE) app.

Organizations need to balance both of those concerns with the reality that modifying their backend systems and Telnet Server can seriously disrupt present operations and cost a fortune in new technology and labor. This is where migrating to Android devices with terminal emulation comes in.

This white paper will explore some of the benefits of a TE-based Android device and go over some best practice tips you can use to maximize the ROI on your migration.

Ready to learn how to maximize your investment? **Let's get started.**

Reason Why Migrating to Android Terminal-Emulated Devices Might Make Sense

Longevity and Flexibility

Android devices offer a longer life cycle, up to 10 years or more, compared to Windows Mobile CE systems. This longevity, coupled with the continued enhancements to Android Terminal Emulation, allows businesses to transition on their own terms. You also get the advantage of working with hardware that will be easier to support.



As mobile CE devices age and become harder to support, business owners will find it more difficult to find compatible devices, replacement accessories, and technicians with the knowledge needed to manage existing devices.

Improved User Experience Improves Productivity

Android Terminal Emulation offers a modern, user-friendly interface for legacy workflow applications without requiring modifications to your existing enterprise applications. As a generation of associates enter the workforce who have grown up using smartphone user interfaces, bringing a familiar user experience to their enterprise mobile apps makes it easy for them to navigate task screens and enter data more quickly and accurately.

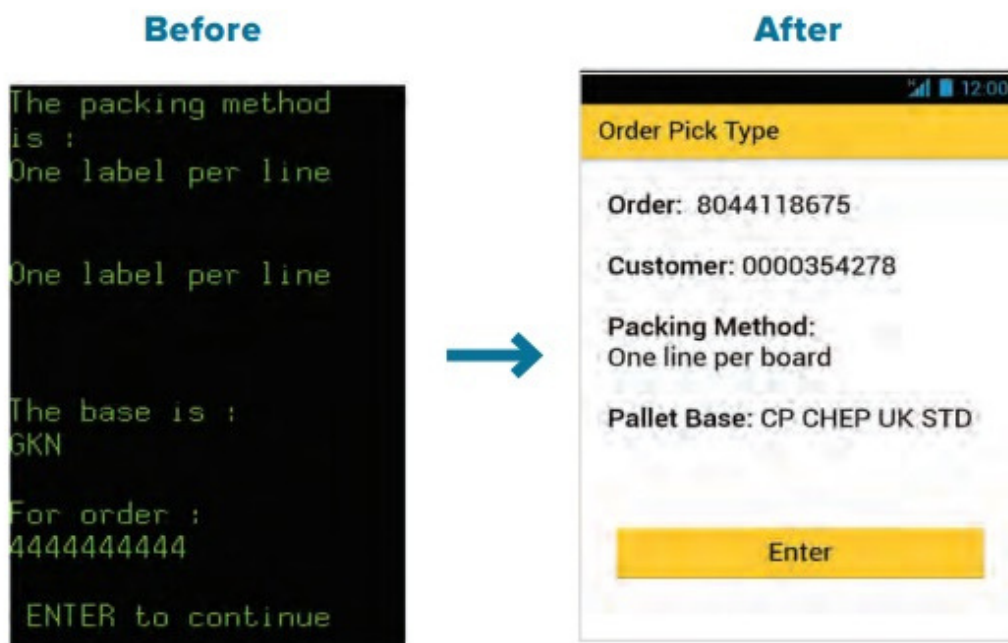
According to *Zebra Technologies' 2023 Warehousing Vision Study* on warehouse technology use, 83% of warehouse decision-makers say they are currently using or planning to use the Android operating system in the warehouse by 2024. With Android implementation, leaders expect to improve worker efficiency (43%), increase their ability to adapt to new workflow complexities (39%), and stabilize performance amid workforce variability (39%).”

Security and Vulnerability Management

Android devices are typically sold with updated operating systems running recent versions of Android OS that have been hardened against attack and tested thoroughly by industry security experts. While these devices ship with modern operating systems, it's important to partner with a company that understands how to update and secure these computers. The engineering team at POSGuys has years of experience upgrading and updating mobile devices in our highly secure environment. The jump from Windows CE to Android provides massive security benefits as software vendors are continually improving their products for the more modern platform.

Advanced Technology Integration

Android Terminal Emulation supports virtually all data input types, from keyboards and barcode scanners to RFID and voice. This integration enables businesses to fully leverage mobile device technology, enhancing workflow and productivity. This will make your business more adaptable to market and labor force changes.



Best Practices for a Smooth Terminal Emulation Transition

Planning Your Transition

Before migrating, conduct a thorough internal audit to identify your specific needs and requirements. This will help you select the right Android Terminal Emulated device that aligns with your operational needs.

Here are some areas you should consider when planning your transition:

Hardware Assessment

Evaluate the existing hardware infrastructure, including mobile devices, scanners, and printers. Determine if any of these devices are compatible with Android or if replacements are needed. Consider the durability and ruggedness required for your warehouse environment.

Software Compatibility

Review your current software applications and their compatibility with Android. Identify any potential software updates or modifications required to ensure a smooth transition. Check if your Warehouse Management System (WMS) and other enterprise applications are Android-compatible.



Security and Compliance

Consider the security measures necessary to protect sensitive data on the Android devices. Ensure compliance with industry-specific regulations, especially in sectors like healthcare or finance. Implement policies and procedures to address security concerns unique to Android.

POSGuys PRO TIP

Find a group of trusted employees to consult with and brainstorm as you assess your needs and opportunities. Your associates might be running into issues with existing devices or processes where they've needed to find workarounds. Your front-line workers often know best, so take advantage of their insight to help you determine what you need to address and where.

Set Yourself Up For Compatibility Success

You have two things to consider here. First is compatibility between your host application and the middleware you're using for the emulation. The second is compatibility between the emulation application and the mobile device you're running the application on.

For the best experience, look for an application that can do emulation without needing to change your existing host application. Ivanti Terminal Emulation, for example, connects to most leading management systems, with almost no direct changes to your warehouse management system (WMS) or Enterprise Resource Planning (ERP) app. They have also done work to get certified on a wide range of commercial and consumer devices.

For the best compatibility between your emulation middle-ware and mobile device, aim to work with a terminal emulation developer with strong manufacture-integrations.

Ivanti, for example, has partnered with a company called Zebra Technologies to ship devices pre-provisioned with their Ivanti platform. This setup, called All-touch terminal emulation, lets you turn on a Zebra mobile computer, open up an enterprise browser and log on to your



text-based host application to automatically convert every screen into an HTML5 graphics-based touch screen. It's easy to modify the layout and add elements as needed with robust drag-and-drop editing tools — no coding required. As a result, organizations can update any of their old TE apps with minimal effort.

Prioritize Automation & Time-Saving Implementations

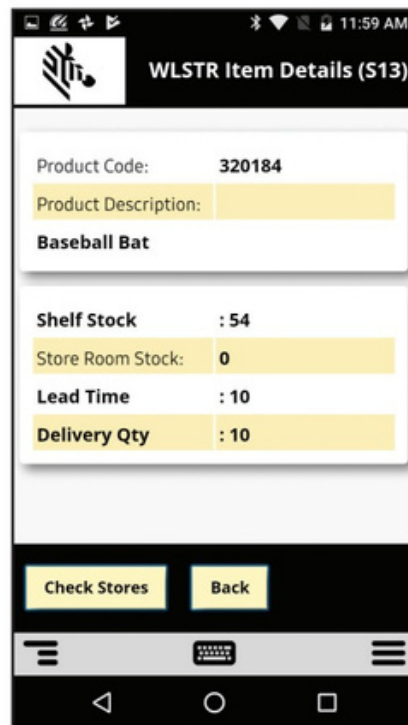
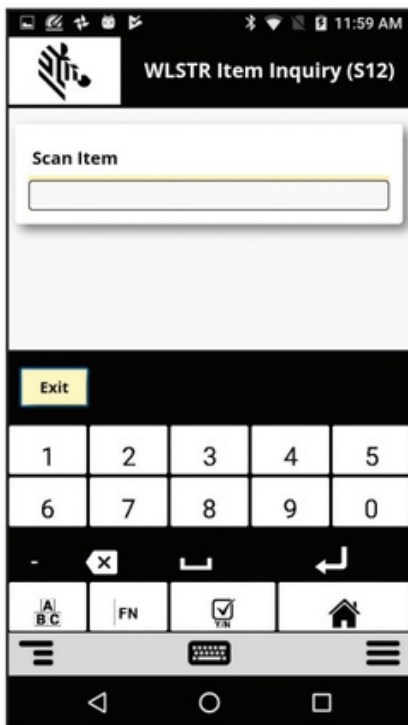
Finding ways to save yourself and your employees time throughout the development process is a sure-fire way to maximize the ROI on your transition.

Many TE applications give you the ability to create custom style sheets that can be used to align the look of your TE applications with your company style guide over all your application screens, speeding up your setup and ensuring a unified set of fonts, colors, and icons. Furthermore, this custom HTML and CSS allows your web-based, desktop-first, enterprise system to display better on an Android's screen.

Speaking of creating good-looking applications - consider adding images to your workflow. Today, your green screens provide textual information only. With terminal emulation, instead of presenting workers with a part number, you can easily add a photo of the product as well, dramatically improving speed and accuracy in picking, putaway, and other crucial tasks.

For your end users, look for ways to automate and simplify workflows. Applications like Ivanti allow you to automate multiple key sequences with key macros. You can also run scripts to eliminate redundant steps in a workflow. For example, if a specific type of product will always require the same key entries, save your associates the 10 seconds it takes to enter those keys by automating the process. It might only save 10 seconds but over the course of a year that can lead to hundreds of hours of lost labor.

Want to get real fancy with keyboards and key entries? Load up a custom keyboard! You can allow workers to select a keyboard with a single press of an onscreen icon or you can create and automatically present a customized keyboard for a specific field. And on smaller devices, you can provide users with larger easy-to-use keys by placing a translucent keyboard over the application screen. The result? No matter what type of data is in a field, or how small a device may be, you can make data entry as easy as possible.



Another major source of time-waste is having to continually open and login to applications and turning on and off devices that need battery changes. You can reduce some of this by using a device with hot swappable batteries, but for real results, getting middleware that supports “session-persistence” is the way to go. Under normal operating circumstances, a device might go idle, enter power-saving mode, or move out of RF range and prematurely terminate the session between the Client and the host. Session Persistence Server software maintains the session with the host, even if the device goes to sleep or the connection is momentarily lost. This enables the Client to seamlessly resume the session without loss of productivity.

You can further cut down on login/logout time by investing in an application with dual SSH Certificate key support. This allows you to securely connect to two hosts at the same time, allowing your workers to easily navigate between different systems for different tasks — without constantly logging on and off.

Want to be on the real cutting edge? Integrate voice recognition! Applications like Ivanti have voice-enabled options that let you add voice-input to your web apps, allowing for hands-free task entry. This will speed up tasks like picking and receiving.



Prioritize Security

Ensure your new terminal emulation solution supports authentication and encryption standards such as SSL, Secure Shell, or Kerberos to maintain the security of your operations.

Choose a Mobile Device Management (MDM) platform like Ivanti, SOTI, or 42 Gears that will make keeping your device updated simple. Using an MSP or a solutions partner like POSGuys to manage your IT assets is a good idea if you're not familiar with MDM deployments.



Maintaining up to date operating systems and software is the number one method of preventing security breach, data loss, and reputational consequences.

Invest in Training

Embracing new technology requires a well-trained workforce. Develop a training program for warehouse staff to familiarize them with the new Android interface and applications. Training should cover not only basic device operation but also any software-specific features or changes

Change can be daunting for some workers, so there may be some resistance and uncertainty when it comes to adopting new technology and a new way of doing things. Some workers may need a bit more time to learn and adapt. But many associates already use these types of devices at home, so they may be well ahead of the curve, and they can be key influencers and help others learn and make the most of your new solution once they're deployed.

Don't Forget About the Basics

An upgraded mobile device and UI can only get you so far. If other parts of your operation are lacking, your employees will continue to run into roadblocks that reduce their productivity. If your employees need to scan barcodes, are the labels able to stand up to the rigors of your warehouse or do they scuff and get damaged to the point some are unreadable?

How are you charging your mobile devices and can employees easily access spare batteries when they need them? Where are the devices being put when an employee needs to stow them away? Are they setting them on a nearby rack and getting lost? These are the types of questions you should ask yourself and your employees on the front line. Making small investments that shave seconds off employee idle time adds up quickly.



What To Do Next...

At POSGuys, we understand the challenges faced by warehouse and manufacturing managers. Our commitment to making this transition easy and efficient sets us apart. We have a proven track record of guiding businesses through technology transformations that maximize ROI and decrease onboarding time. With our guidance, you can confidently embrace the future of warehousing and manufacturing technology, knowing that you have a trusted ally by your side.

Ready to get started? Want to learn more?

Schedule a Free Consultation



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Who We Are

POSGuys is a leading hardware & software solutions provider in the point of sale, warehouse, and logistics space. Since being founded in 2001, we've helped over 200k+ businesses — big and small — manage their technology deployments.

Our team of sales engineers, developers, and U.S.-based support technicians have a combined 100+ years of industry experience and long-time relationships with major industry manufactures and software developers.