

# ANDROID: THE ENTERPRISE-READY PLATFORM FOR RUGGED MOBILITY





# WHAT YOU NEED TO KNOW TO DEPLOY ANDROID-BASED RUGGED HANDHELD AND TABLET COMPUTERS IN THE ENTERPRISE

The Android enterprise revolution has begun. Three converging developments are driving the growing adoption of Android rugged mobile devices across diverse industries, from utilities and energy to supply chain and public safety sectors. As these paradigm shifts become more widespread, companies are embracing Android as a true enterprise-ready platform.

One development is the prospect of device end of life for many fleets of rugged dedicated handhelds now that Windows CE has reached the end of support. Enterprises still operating these aging fleets are looking at Android enterprise mobility solutions as they consider what's next in supporting mobile workers in harsh environments.

The adoption of Android in the enterprise is strong and growing. According to an IDC survey, Android rugged devices are forecasted to grow 23% through 2021 — which is five times the rate of the rugged market overall. That means Android will be the dominant rugged device OS in the enterprise through 2022.1 Additionally, a survey focused on rugged devices in the warehouse, from industry multimedia publication DC Velocity, found that 56 percent of respondents said they planned to increase their use of Android devices.<sup>2</sup>

Concurrent with the phaseout of Windows CE, Google has extended its Android Enterprise Recommended program to include rugged devices, addressing the increased security and manageability that enterprises require. And device manufacturers are leveraging new technology to equip Android rugged devices with additional capabilities, including more computing power, redundant connectivity, sensors, cameras, advanced scanners, and long battery life.

**ANDROID RUGGED HANDHELDS AND TABLETS CREATE NEW POSSIBILITIES FOR DIGITAL TRANSFORMATION AND INCREASING MOBILE WORKFORCE PRODUCTIVITY.**

The result, whether you're shopping for a new enterprise rugged mobility solution or replacing existing, outdated hardware, is the opportunity to rethink how you are equipping your mobile workforce to be more productive. Moreover, more powerful devices and apps, a flexible operating system, and always-on communications make it possible to integrate mobility platforms with data-driven digital transformation initiatives.

## The Benefits of Automation

For example, the barcode data captured when a package is put on the truck can trigger an email in near real time, telling the customer that her order is in transit and providing a tracking URL. The result is a fully automated solution that results in better customer experience. For another example, we can look at transportation and logistics. There, combining GPS data with real-time updates to pick up schedules and sophisticated routing apps enables dispatchers to send map-based instructions directly to in-vehicle mobile devices. The result is optimized routing, agility to respond to last-minute requests, improved fuel consumption, and a better experience for both driver



# ESTABLISHING AN APPLICATION STRATEGY

and customer. Field service can be transformed with apps that push out data relevant to the next call, connect reps with bots or human experts who can answer questions, or provide step-by-step instructions.

The transformational possibilities are truly endless. Whatever the business objective, enterprise IT organizations need to consider all the tools and resources required to effectively and safely launch an Android-based rugged mobility solution. In this ebook, we'll go over what you need to know to select applications and devices, secure your data, deploy your fleet, and manage your Android enterprise devices.

## Establishing an Application Strategy

It's easy to think of digital transformation as the domain of the internet and the desk-bound employee. But in fact, the work done by field workers generates a significant portion of the use cases that contribute to digital transformation.

Here are some questions to ask as you determine your use cases, now that the devices can do so much more than the green-screen terminals of the Windows CE days:

- **Where am I capturing data or filling out forms manually?**
- **Are our workflows efficient? Where can we make improvements?**
- **What manual tasks or processes could be automated?**
- **Where are my processes people heavy?**
- **How can putting apps in the field (at the edge) help us do things differently?**
- **Can I make it easier to use a device or app?**
- **What data generated in the field can help improve management decision making?**



**72% OF TABLETS AND HANDHELD DEVICES IN BUSINESS (EXCLUDING MOBILE PHONES) USE AN ANDROID OS.<sup>3</sup>**

### • **What useful data can we push out to the field or the factory floor?**

From improving the customer and the employee experience to boosting employee efficiency, automating processes, and capturing data for real-time analysis and business process integration, Android rugged handheld devices are computers in the fullest sense. With Android OS support for apps with robust capabilities, the platform opens a wealth of possibilities. What's more, you can deliver the familiar experience and ease of use that people want, with the processing power and flexibility required for business-critical operations. These are all things for IT to consider when evaluating application strategy options.

### Option 1: Transition Legacy Apps

Windows CE applications are not forward migratable, which is an issue for IT organizations that are replacing aging fleets. However, companies can recover their investment in custom legacy applications, existing processes, and employee training by modernizing software to run natively on modern devices. That means a familiar interface for users, compatibility with existing back-end systems, and continued software support.

At Panasonic, our in-house team of engineers offers complete support for this entire process. Using our Rapid Application Development platform, we take your custom-built software for legacy systems, like Windows CE or Windows Mobile, and rapidly develop a platform-agnostic version that can run across multiple releases of operating systems like Android or Windows 10. This approach essentially future-proofs your apps for when new OS versions are released and allows you to deploy apps across multiple device types and platforms. Our engineers can update your UI to be more modern, or keep the look and feel of your original app so users are familiar with it right off the bat. Because our RAD platform is so flexible, we can accommodate either option to ensure you control what your migration path and new app look like.

### Option 2: Build Custom Android Line of Business Apps

While transitioning legacy apps is an important option, it does not let you take full advantage of today's rugged device capabilities and updated, more intuitive user interfaces. Another alternative is to build new applications from scratch, either in house or with an independent software vendor (ISV). ISVs can work with your team to develop custom mission-critical apps or to customize their industry-specific apps for your organization.

Either way, this is your opportunity to go "mobile first" and create apps that are intuitive and predictive, address line of business initiatives including digital transformation, and take advantage of hardware

capabilities such as touchscreens, voice input, real-time data capture and continuous data transmission, and onboard data processing for edge solutions. Custom applications also are best suited to integrating mobile workflows and data with back-end business systems such as enterprise resource planning (ERP) or warehouse management systems (WMS). That integration must be taken into consideration from the outset of app development projects.

Equipment manufacturers like Panasonic work with a wide network of ISVs to help ensure proper selection of and smooth deployment of mobile enterprise apps. Panasonic offers API, software development kits, Android software tools and professional services to help companies work through the development process for apps that they will roll out on Android Enterprise Recommended rugged mobile devices.

### Option 3: Buy Apps Off the Shelf

Off-the-shelf apps were virtually non-existent for legacy rugged mobility platforms. Today, with the broad enterprise adoption of Android and its open source nature, there is a large developer community addressing the need for mobile business apps that are reliable, highly secure, and frequently updated. You will even find industry-specific productivity apps available in Managed Google Play. While off-the-shelf line-of-business apps may not be robust enough or have every feature on your wish list, a combination of general productivity and utility apps like maps, scan-to-PDF apps, and video conferencing can round out your application package easily and cost effectively.



**ACCORDING TO RECENT PANASONIC RESEARCH, BUSINESSES SAY THE TOP THREE BENEFITS OF ANDROID OVER OTHER OPERATING SYSTEMS ARE FLEXIBILITY, SECURITY, AND AFFORDABILITY.<sup>3</sup>**





# SELECTING YOUR DEVICE

Instead of having just a handful of rugged devices to choose from like the Windows CE days, zeroing in on Android gives enterprise organizations literally hundreds of options, from specialized form factors with integrated keypads to rugged, consumer-like handheld devices and tablets. While more choice is good, it does make the device selection process more complex.

A good way of getting to a shortlist is to start with devices that have been certified by the Android Enterprise Recommended program (see sidebar), which includes Panasonic TOUGHBOOK handhelds and Panasonic TOUGHBOOK tablets. From there, your use case and applications will dictate several core selection criteria, including data capture (barcode scanner needed?), CPU (quad-core or octa-core?), storage (how many GB on board? is an SD card supported?), form factor (handheld? tablet? integrated keypad?) and user interface (touchscreen? stylus? user-definable buttons?).

Other factors to consider in making device selection include:

- **How harsh is your work environment?**  
Android Enterprise Recommended-certified devices must meet minimum ruggedness standards for ingress (dust and water) protection and drop test integrity. But harsh conditions may call for protection that exceeds those standards. Other features to look for include daylight readable screens, screens that work in the rain, and the ability to use gloves when operating a touchscreen.
- **What wireless connectivity do you need?**  
In many environments — the plant floor, warehouse, retail store or hospital, for example — connectivity is typically via WiFi. Options for connectivity across mobile broadband providers is crucial for first responder, field service workers and any field use case where continuous data flow is critical,



which can call for LTE. Specialized connectivity support requirements may include FirstNet for first responders, enhanced push-to-talk, and voice capabilities as well as GPS, Bluetooth and near field communications (NFC).

- **What are your battery life requirements?**

Rugged devices are often used on long shifts and across shifts by multiple workers. Consider devices that offer warm-swappable, long-life batteries if you anticipate using devices for more than eight hours.

- **What integrated capabilities does your use case require?**

Barcode readers are standard equipment on many rugged handhelds, including Panasonic's Android models. But your use case may call for customization to incorporate add-ons like smart card readers, NFC or magstripe readers. Don't forget software-enabled productivity-boosting capabilities like voice-to-text for dictation or voice picking in the warehouse.

Any device is only as good as its longevity and the support available from the manufacturer. Questions to ask include how many upgrades to the originally installed Android OS are included during the life of the device and how long will the manufacturer provide security updates and patches after device end of life (EOL). Recent research by Panasonic found that 41 percent of buyers expect their vendors to support the Android OS for up to three years after the EOL. Availability and cost of all post-sales support options, including professional services, should be included in your device evaluation.





## THE ANDROID ENTERPRISE RECOMMENDED PROGRAM

Google's Android Enterprise Recommended program validates rugged devices against a set of standards and best practices relevant for enterprise customers. In addition to meeting hardware and ruggedness specifications, to qualify for the program manufacturers must:

- **deliver Android security updates within 90 days of release for a minimum of five years**
- **support bulk deployment of devices including Android zero-touch enrollment**
- **support at least one additional major OS release**





# SECURING YOUR DATA AND YOUR DEVICES

Rugged mobile devices help make people more productive in a wide range of environments. But this benefit comes with a big potential “gotcha.” When it comes to securing these devices, you might say they have all the security challenges of desktop computers plus the risks that come with mobility. What are the risks of connecting directly to outside networks? What is the response plan in case of device theft or loss?

## Cover the Basics

Start by ensuring that the device you select comes with appropriate pre-installed security applications that can help you create secure configurations and environments. Devices should also be equipped with a software- or hardware-based encryption solution that keeps data at rest encrypted until a user logs in. In general, standard defenses against unauthorized data access also apply, including strong PINs, password complexity, and auto-lock timeouts.

## Stay Up to Date

A significant protection afforded by selecting an Android Enterprise Recommended-certified product is the Google requirement that manufacturers make all security updates available within 45 days of issue. At Panasonic, we recommend not waiting until something happens to update your OS. Whether the new version includes a bug fix, a security patch, or a new capability, it’s more than likely going to improve the user experience and stability of Android itself.

## Protect Against Theft

A mobile device management (MDM) solution, which we highly recommend and talk more about further on in this ebook, puts critical security capabilities into the hands of IT. For example, an MDM gives you the ability to remotely lock down device functionality, track assets, monitor and limit access, and protect data via remote data wipe in the event a device is lost or stolen. In addition to a basic MDM that is available with use of our Rapid Application Development platform, Panasonic partners with a wide range of leading third-party MDM software providers to ensure rugged handhelds and tablets are secure.

## Add a Mobile VPN

While data may be encrypted on the device, it is not protected as it travels over public WiFi or broadband cellular networks. To protect data in transit from the device to your corporate network or a cloud, 67 percent of organizations surveyed by IDC and Panasonic use mobile-specific VPN (virtual private network) software and network gateways.

## Address Compliance Requirements

Industries such as healthcare, financial services, law enforcement, and the military have their own data security and privacy requirements (e.g., CJIS, HIPAA) that must be met for any device that handles affected data. Make sure your application developers and devices can support regulatory mandates around data security.

**27%** OF BUSINESSES SURVEYED BY PANASONIC SAY THEY SHOULD BE SECURITY PATCHING DEVICES 4 – 7 TIMES A YEAR MORE THAN CURRENT PRACTICE.





# DEPLOYING YOUR DEVICES

Deploying a fleet of rugged handhelds or tablets requires careful consideration about how users will interact with the devices and what they will be able to do when using them. IT shops will also want to be assured that tools and resources are available for the end-to-end process of preparing and deploying devices to the field. If you anticipate needing additional assistance to support your project, consult a trusted technology partner to augment your team's resources during deployment.

## Managing Device Functions

At the device interface level, IT's challenge is to ensure a good user experience and high productivity while minimizing risk to data and preventing unauthorized use. With purpose-specific devices, which applies to the majority of rugged handheld and tablet deployments, kiosk mode is the preferred approach. Kiosk mode ensures only approved applications can be accessed by the user and can block unwanted ones such as social media apps.

In planning this aspect of device deployment, one starting point is to determine what the end user screen will look like.

- **Will you use a lock screen requiring a user ID and PIN or password?**
- **Do you want to show your company logo on the screen?**
- **What device settings will the user need to interact with? What apps will users need to access to do their jobs?**
- **How customizable should this interface be?**

These are all important questions to ask for setting up the device as they all directly impact the user experience and productivity.





Most MDMs include a kiosk mode. Panasonic Android rugged handhelds and tablets come with Panasonic Enterprise Launcher, a built-in kiosk utility that makes this step simple and straightforward. IT can disable shortcuts and selected system applications, show only approved applications on the user screen, and password-protect admin functions so only approved users can make changes to the setup. You configure the Launcher either through the device itself or through your MDM software of choice.

### Configuring and Enrolling Your Devices

Android Enterprise Recommended program specs call for manufacturers to support QR code enrollment, and zero-touch enrollment (for Android 8+), and NFC enrollment. But how do you get to that point? Panasonic provides customers with a free configuration tool, Panasonic Rapid Configuration (PaRC), that enables easy setup and configuration for Android-based devices. This program runs on a Windows PC and generates a configuration file or QR code that enables you to deliver a clean out-of-the-box experience for end users. Specifically, PaRC supports Panasonic TOUGHBOOK T1, L1, and N1 (Android 5.1.1, 6.0.1 and 8.1) models.

You can also enroll hundreds or thousands of devices at once with zero-touch enrollment, using a Google-qualified Android enterprise mobile management (EMM) solution, so that all customizations, applications, and security parameters are loaded onto the device before they land in the hands of your users. When configured for Android Enterprise, Panasonic rugged devices support Android certified EMMs.

### Staging, Kitting, and Distribution

Staging devices — getting them ready for shipment to the field — can involve a range of tasks, from simple testing to thorough functional testing and burn-in.

Configuration can be a part of this process or a separate step. Either way, the goal is to make sure that users will find a fully functional and charged device when they open the box. Adding an asset tag that can be tracked can also be done at this step.

Typically, an enterprise mobile rollout of any size will include accessories, ranging from hand straps, holsters, and pistol grips to charging stands and warm-swappable extra batteries. And don't forget about the time it takes to insert SIMs into each device. Devices that are going to be used in vehicles will need cradles for mounting as well as extra accessories. All of these need to be chosen with ergonomics, safety and productivity in mind. Some accessories may come from a third party rather than your device manufacturer, **which means finding, ordering, receiving and storing them prior to deploying devices to the field.**

The next step is called kitting, the process of bringing all these pieces together so that each shipment will provide a complete package to distribute to each user and location. Doing all this requires skills, facilities and resources that are beyond business as usual for most IT departments — particularly when the deployment involves high volumes of devices, different sets of devices and accessories, and multiple locations around the country.

There's no getting around the fact that it's a laborious process — one that benefits from outside help. For example, Panasonic kitting services offer an end-to-end solution that includes provisioning accessories from third parties, pre-assembling as many components as possible, repackaging and kitting them into one box per user or vehicle, and assigning each box a unique SKU. Boxes are stored at the Panasonic facility until it's time to distribute them to each location as the project rolls out.



# PLANNING YOUR ANDROID ENTERPRISE MANAGEMENT STRATEGY

A critical tool for a successful enterprise mobility solution is MDM software along with a post-deployment management plan for your fleet of devices (For example, do you have a plan to manage your batteries? Are warranties available?). Selecting your MDM solution should be an early step in your overall planning so that it is up and running in your IT department prior to the arrival of your devices.

This application enables you to monitor, manage, and update mobile devices through the full lifecycle of provisioning, production, and decommissioning. This is in addition to the security functions we covered earlier, particularly remote lockdown, asset tracking, and remote data wipe.

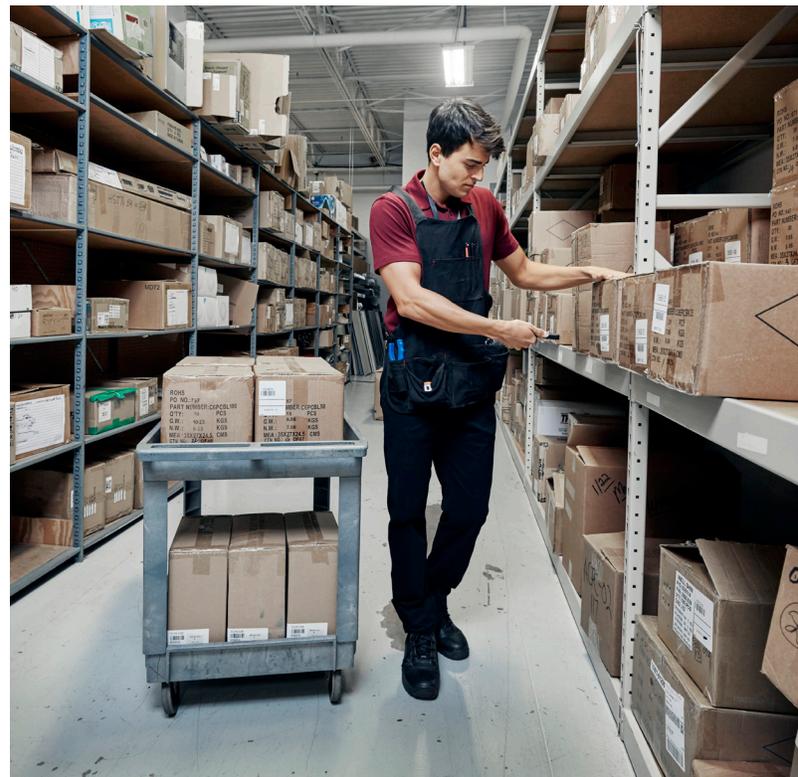
These functions are enabled through endpoint software, called an MDM agent, that resides on the mobile device itself. For example, you can configure policies and kiosk mode settings through the MDM management console and then push the configuration over the air to the MDM agent on the device. The agent, in turn, applies the configuration via APIs provided by Android/Google or the device manufacturer. Through this same process, IT can deploy applications directly to the devices as needed.

Post-deployment, a key management function is planning for and executing software and firmware updates. Make sure your manufacturer has a clear policy about providing scheduled as well as ad hoc updates on a timely basis. Plus, you will need a way to manage and store your approved device configuration so you can restore a device after repair or deploy additional devices to the field.

## A Final Consideration: Resources and Expertise

IT organizations, even those with specialized mobility teams, are typically stretched thin, always being asked to do more with less. The good news is that with the right technology partner, you don't have to go it alone. In planning your rugged mobility solution, consider from the outset what you want to keep in house and where you could use outside help.

Panasonic engineers and service experts can work closely with your IT organization to help you plan, test, deploy, and operate the right Android rugged mobile technology for your business case. For many IT organizations, Android is a new frontier. Panasonic has helped a wide variety of customers navigate Android adoption, and we're ready to do the same for you.



# CONCLUSION

Change is never easy, but it can be managed. Savvy IT organizations are going a step further to embrace the change to rugged mobile devices that run on Android. This flexible, open-source platform, along with powerful purpose-built hardware with consumer-like features, makes it possible to deploy new solutions that help transform businesses and evolve the ways that people work. Choosing the right trusted partner can help you manage the change and optimize the opportunity to do business better.

## TALK WITH OUR EXPERTS

If you would like more information or guidance in selecting the right Android enterprise mobile solution for your harsh or demanding work environment, talk to our experts. Panasonic has decades of technology experience with all major industries and applications. Our ProServices experts can help with device selection as well as planning, developing applications, deploying, and managing your solution.

### CONTACT A PANASONIC CUSTOMER REPRESENTATIVE:

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#### Sources

<sup>1</sup> IDC infographic (sponsored by Google), "Android Taking Off in the Enterprise," 2019.

<sup>2</sup> DC Velocity with ARC Advisory Group, "Mobile Computing in the Modern Warehouse," 2018.

<sup>3</sup> Panasonic, "Android on the March," 2019.

# Panasonic