# MANAGING MULTIPLE DATA CAPTURE TECHNOLOGIES IN THE LOGISTICS ENVIRONMENT

## EXECUTIVE SUMMARY

Until recently, bar code scanning has been the primary form of advanced data capture throughout the logistics environment — from the warehouse aisles to the dock door to the yard. But today, new forms of advanced data capture offer enterprises the ability to further automate processes inside the four walls, reap the benefits of supply chain automation as well as cost-effectively achieve regulatory compliance and more. While today, bar code scanning may represent the majority of your data capture applications, in the very near future, you may wish to implement RFID, voice directed or direct part marking (DPM).

This paper will examine the challenges associated with mobilizing and supporting mixed data capture technologies, and how you can position your enterprise to easily and cost-effectively deploy the mixed data capture technologies to meet your business needs.

## The issue: mixing and matching advanced data capture technologies

Throughout the logistics environment, there are a wide variety of opportunities to deploy various advanced data capture technologies to automate and help error-proof data collection. For example:

In the warehouse:

• Bar code scanning, voice directed and RFID can be used alone or in combination to automate standard warehouse functions, streamlining everything from processes on the receiving dock to put-away, replenishment, let-down, picking, packing and shipping.

• RFID can provide a new level of granular real-time inventory visibility with far-reaching benefits that can extend from your warehouse to your entire supply chain.

In the yard:

• RFID can enable the instant identification of containers, vehicles or other assets entering and leaving the gates.

• Bar code scanning can streamline vehicle maintenance operations by providing the complete maintenance record for a specific vehicle along with maintenance due.

Regardless of the type of technology you choose to implement — the result is improved productivity, real-time inventory visibility to support better strategic business decisions, real-time order status for better customer service, and better utilization of your assets.

Today, you may only have bar code scanning deployed throughout your logistics environment. But tomorrow, enterprise strategy, supplier mandates or government regulations may require you to add RFID capabilities in certain areas of your business. You may need to add direct part marking down the road to enable end-to-end tracking of critical parts in automobiles, airplanes, and more.

This expansion of data capture technologies poses several major challenges. You need to be able to add emerging data capture technologies without eroding the benefits of mobile data capture through high capital and operational expenditures for deployment and ongoing management of disparate systems. You need to be able to implement these seemingly disparate technologies without adding tremendous complexity to your IT infrastructure. You need the flexibility to mix and match advanced data capture technologies to best serve the needs of your enterprise.

## THE SOLUTION: A HOMOGENOUS APPROACH TO DATA CAPTURE

The business reality today — and for quite a few tomorrows — is that companies will need to deploy various data capture technologies in various areas of the business at different times. In order to cost-effectively meet this critical business need, you need a single, highly flexible framework that allows the advanced data capture technologies of today and tomorrow to peacefully co-exist. This homogeneous approach will enable the addition of data capture capabilities in the warehouse, yard and beyond, when and wherever

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they are needed — cost-efficiently. A solution that is agnostic to type of data capture — from 1D and 2D bar codes to RFID tags and direct part marks — enables a single IT infrastructure that provides maximum flexibility — without technology complexity.

The result is the ability to expand functionality while controlling the capital and operational expenses associated with the purchase and management of technology — yet reap all the benefits associated with mobile data capture solutions, from automating and error-proofing business processes to improved customer service and profitability.

### Criteria for the selection of a wireless LAN

Look for a wireless network platform capable of supporting all of today's RF technologies — from Wi-Fi to RFID, Mesh networking, WiMax and fixed mobile convergence (FMC) — to provide flexibility that not only provides the freedom of network design to best meet your needs today, but also the ability to fully leverage existing technology investments and the technology of tomorrow.

### Criteria for the selection of mobile devices

Devices also need to offer multiple data capture technologies right out of the box — or the ability to add technology to the device at a later time. For example, if you need bar code scanning and RFID technology today, it is much more cost-effective to purchase a single multipurpose device to reduce device and management costs. But if you only need bar code scanning today, and are just beginning to explore the possibility of adding RFID in your warehouse or yard, you should be able to purchase a device that offers the flexibility to add RFID functionality at a later date to protect your investment.

Since you have workers walking the warehouse floor, workers on forklifts, and workers using material handling equipment such as flexible conveyors and pallet jacks, you need a family of devices that offers a broad array of form factors to meet the needs of the many different types of workers and functions — such as handheld and wearable devices as well as devices designed to be mounted on vehicles and equipment.

Devices should also support a high level of application portability. You should be able to develop once and deploy many, so, for example, the same picking application that works on the mobile handheld computer for workers walking through the warehouse aisles with a pallet jack can be leveraged on the vehicle mount mobile computer you use on your forklift.

The logistics environment is particularly demanding. So the devices you choose also need to offer a rugged design to endure the all day every day use in the warehouse and the yard. Devices also need to be able to withstand everyday drops and bumps, and offer the

features and functionality required for combination indoor and outdoor use. For example, devices should be able to endure the elements and a wide range of temperatures, as well as easy viewing in a wide variety of lighting conditions.

And finally, if management of mobile devices — from deployment through support — requires hands-on physical access to devices, the effect on your IT staff can be dramatic. The time and cost associated with management can easily erode the benefits of mobility, and your IT staff can get lost in a sea of support tasks, instead of focusing on higher level strategic corporate objectives. To avoid this costly situation, be sure the mobile devices you choose can be fully managed remotely.

## SYMBOL: ONE PLATFORM, MANY DEVICES, ALL ADVANCED DATA CAPTURE TECHNOLOGIES

Symbol has been and continues to be instrumental in the development, commercialization and deployment of advanced data capture technologies. And it is this effort that provided Symbol with the foresight to provide an environment agnostic to data capture and RF technologies — and environment capable of enabling companies to easily navigate the waters of rapidly evolving technology and changing enterprise requirements.

### A powerful open platform designed to enable the technologies of today and tomorrow

**The wireless LAN platform:**

**Support for all RF technologies.** Symbol's wireless switch equipped with Symbol's Wireless Next Generation (Wi-NG) architecture provides the foundation needed to support the RF technologies of today and tomorrow — from Wi-Fi and RFID to Mesh networking, WiMax and fixed mobile convergence (FMC). Support for 802.11a/b/g provides complete flexibility in wireless network design — and patented mobility features provide a highly reliable wireless connection, deliver an outstanding wireless experience for your workers. Mesh networking enables enterprises to easily extend wireless LAN connectivity to the yard and other areas of your campus, without the need for cable and fiber. The result is a highly scalable wireless LAN, capable of extending wireless communications to new areas of the enterprise — further increasing productivity, as well as improving the total cost of ownership (TCO) and return on investment (ROI) for your wireless mobility solution. WiMax compatibility can also enable a robust and cost-effective wireless connection in expansive outdoor yard environments. And FMC enables companies to more fully leverage their existing investment in telephony equipment by enabling desk phone functionality to be distributed to mobile voice-capable devices. The result is a wireless

LAN capable of supporting the world of mobile technologies and protocols, providing the freedom to design the wireless network that will best meet your needs today, with the ability to incorporate the technology of tomorrow for outstanding investment protection.

**Remote management.** Since the intelligence in a wireless switch is centralized (instead of distributed as in first generation access-point based wireless LANs), the platform also supports centralized and remote management of the wireless LAN infrastructure as well as your mobile devices. IT can easily provision new devices anywhere in the world, schedule software and firmware updates for all devices at the press of button, and monitor a wide range of statistics that enable the remote troubleshooting and correction of most technical support issues. Armed with the ability to remotely manage the entire mobility solution, your IT department can better provide a high level of support to your remote users while remaining focused on other key IT initiatives.

### The mobile device platform:

**Support for all data capture technologies.** Symbol's mobile devices are built on a common technology platform capable of supporting one or many advanced data capture capabilities. The same device can capture bar codes, read direct part marks, and enable voice directed picking as well as read RFID tags. This agnostic approach provides enterprises with the freedom to select a single device to meet multiple data capture requirements, dramatically reducing costs associated with purchase and management of mobile devices and infrastructure, and effectively reducing the complexity of mobility solutions.

**Cross-platform application deployment.** In the logistics environment, the same application may be utilized on a variety of mobile devices. For example, you may have pickers on foot with pallet jacks using handheld mobile computers, or on forklifts with vehicle mount mobile computers. The common device platform — including operating system and processor — enables easy cross-porting of applications between different devices. As a result, your application development dollars are fully leveraged, delivering an outstanding return on investment and total cost of ownership for your applications as well as your mobile devices.

### A comprehensive family of mobile devices — for every corner of the logistics environment

Symbol's family of rugged mobile devices designed for the logistics environment offers a wide variety of form factors and support for multiple data capture technologies:

- Handheld, wearable and hands-free mobile devices offer the ability to capture a wide variety of data, including 1D and 2D bar codes, RFID tags, direct part marks and images.

- Vehicle mount computers are designed to handle the all day every day pounding and vibration of the forklift, and offer compatibility with bar code scanners as well as cable-free mobile RFID readers to enable on-the-move capture of bar codes or RFID tag data.

- Fixed and wireless mobile RFID readers in combination with rugged RFID tags can be used in the yard to track trailers and vehicles, and well as to identify cargo containers in the yard to support prompt scheduling for conveyance.

### Partner offerings to complete the solution

Whether you utilize bar code scanning, RFID technology or both in your warehouse, you need a labeling solution designed for the warehouse environment. Together with Zebra, Symbol is able to offer mobile solutions that include reliable on the spot printing to keep workflows moving at peak efficiency — product is easily labeled at the point of activity as needed, from receiving and put-away to picking and shipping. Designed for warehouse environments, Zebra solutions offer:

- Specialty labels and adhesives to ensure labels adhere to your surfaces and remain easy to read

- Industrial printers that can easily handle extreme temperatures, moisture, chemicals, shock and vibration

- The flexibility to integrate with the tracking technology you have in place today, including the ability to automatically encode 1D and 2D bar code labels as well as RFID labels

- The capability to print whatever size label is needed, from high-resolution printers that can create tiny bar code labels suitable for circuit boards, to high-volume high-speed printers capable of printing standard or large format labels at production speeds

By partnering with Zebra, Symbol enterprise mobility solutions offer the ability to integrate the label printing functionality needed to support instant identification and end-to-end tracking of product as it moves throughout your warehouse — and your supply chain.

### SUMMARY

In logistics environments, enterprises are turning to mobility to drive productivity and efficiency into the business to fight shrinking margins and competitive pressures. Yet the technology landscape of mobile computing is rapidly changing with the advent of Mesh networking, WiMax, fixed mobile convergence and more. And advanced data capture is rapidly evolving as RFID technology matures and becomes more pervasive.

To best navigate through these changing times, companies need mobility solutions that deliver maximum technology agility — enabling the cost-efficient implementation of those capabilities that will best serve business needs now, as well as in the future. The deployment of flexible mobility solutions that can accommodate existing and emerging data capture and wireless technologies can position companies to best leverage technology to achieve maximum productivity...and maximum competitive advantage.

## WHY SYMBOL

In addition to offering complete portfolio of products designed for mobility, Symbol also offers the right experience, the right partners and the right services. As a manufacturer of wireless infrastructure and mobile devices, we offer a depth of product knowledge. Through countless enterprise mobility deployments in some of the world's largest enterprises, including our own warehouse and manufacturing operations, we offer a wealth of understanding of the needs in the warehouse, the yard — and beyond. Our robust global partner channel brings the development and integration services you need right to your door. And proven rugged high-performance products combine with industry leading support services and superior manageability to deliver a low total cost of ownership for your mobility solution.

## FOR MORE INFORMATION

For more information on how Symbol can help you reap the benefits of mobility in your logistics environment, contact us at +1.800.722.6234 or +1.631.738.2400 or visit **www.symbol.com**

## About Symbol Technologies

Symbol Technologies, Inc., The Enterprise Mobility Company™, is a recognized worldwide leader in enterprise mobility, delivering products and solutions that capture, move and manage information in real time to and from the point of business activity. Symbol enterprise mobility solutions integrate advanced data capture technology, mobile computing platforms, wireless infrastructure, mobility software and world-class services programs. Symbol enterprise mobility products and solutions are proven to increase workforce productivity, reduce operating costs, drive operational efficiencies and realize competitive advantages for the world's leading retailers, transportation and logistics companies, manufacturers, wholesale and distribution centers, government agencies and healthcare facilities. More information is available at **www.symbol.com**

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