



# Time & Money: The ROI of Rugged Printing

The first industries to call for ruggedized computing devices were those that operated in the harshest kinds of outdoor conditions: Marine, aviation, forestry, construction and the military. Their hardened devices and materials made up the first mobility market, arriving long before the boom of consumer handhelds.

Next, rugged tablets and handhelds arrived on the scene, giving unprecedented access and mobility to shipping, warehouse and field service industries. So many industry verticals have since added themselves to the mobility vanguard — healthcare, insurance, pest control, all types of field sales and almost every route-based or direct store delivery (DSD) environment — that handheld computers are now assumed to be in employees' toolkits wherever data is handled and competition is keen. All these businesses have discovered the speed and revenue advantages to be gained in computer mobility — moving information out to where workers can act upon it.

CIOs, operations and purchasing executives find themselves challenged with selecting the right mobility solutions in a market that's constantly evolving. They weigh total cost of ownership (TCO), ROI, ease of use, security, connectivity and durability. A good decision will improve efficiency and even morale; a bad one will cost time and invite user revolt.

This is particularly true when considering printers, which have followed mobile applications out of the office and into the field, the warehouse and vehicle. Mobile printing has added dramatic new efficiencies and revenue opportunities, but with that, a demand for new degrees of ruggedness.

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Much more than solid-state handheld computers, printers can be particularly finicky devices. Breakdowns that threaten stationary office machines — clogged ink nozzles, paper jams, misfeeds, faulty cables — happen much more frequently under stresses of temperature, humidity or vibration, as field workers who’ve tried belting office inkjets into their back seats can attest. The task, then, is finding the best form factor with the best ROI for the degree of ruggedness required by a particular work environment.

### BUILT TO LAST

The first requirement for mobile printers is simple, consistent reliability over time. Materials and design must stand up to the inevitable drops, spills, dust and other challenges of use in the field, where there’s no backup, as there might be down the hall.

Rugged devices aren’t built with planned obsolescence in mind. Lifecycles must be long, to minimize the disruption of new deployments and learning curves. Neither should they incorporate every feature of their stationary counterparts. Bells and whistles matter less than durability in the field — the simpler the interface, the better — since users are not primarily focused on document handling but on wrapping up a service call or a customer or patient interaction.

In milder but still mobile work environments, the “semi-rugged” printer may be the right choice. This category may print to full-size paper sheets, commonly needed to produce the more detailed documents required by “soft” verticals such as field sales and home healthcare.

### CASE STUDY

## RuggedJet In Action, In the Field with Auto-Chlor

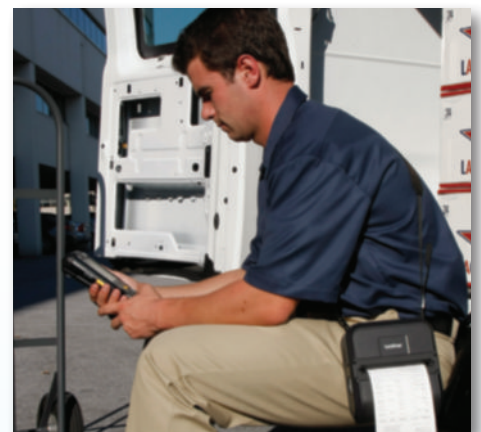
Nigel Lin, director of information services for Auto-Chlor, a commercial dishwasher and cleaning product firm based in Mountain View, CA, recently deployed 345 Brother Mobile RuggedJets to his route drivers, who now use them to print invoices, receipts and end-of-day service reports. The new printers replaced heavy, truck-mounted, printers that had been in use 10 years, connecting to Intermec handhelds via customized RS232 cables.

The new printers connect via Bluetooth with the same Intermec handhelds, eliminating the frequent hassle and expense of replacing faulty cables, says Lin. They also do away with ink cartridges, as paper media is the only consumable for thermal print technology. At five inches per second, they also print

much faster; between better print speed and a simpler, three-button interface. “Some drivers told me they could run the same route in 30 minutes less,” says Lin.

While his drivers run their RuggedJets off their trucks’ DC power, Lin notes that the printers’ battery power and light weight do come into play with some special accounts. “We have a technician who has to take a ferry to get to his account, and another who has to walk through a mall, far from the parking lot, to reach a restaurant customer. Now, these men can take their printers with them,” he notes.

Lin also points out that ease of deployment and use were high on his list of requirements. Embedding Brother Mobile’s printer commands into Auto-Chlor’s internal app, Lin was able to remotely deploy the



new printer drivers to all users on their regular application sync up and simply ship the devices; employees needed no demos or learning curve. And with a simple, four-button interface, the RuggedJets gave Lin all the functionality he needed without “sidetracking” his users.

### WHERE RUGGED AND SEMIRUGGED WORK

To appreciate the full range of ruggedness requirements, consider some of the ways in which mobile printing contributes to the following vertical markets:

In **public safety applications**, ruggedized printers help police officers issue more traffic and parking citations in less time. With handhelds and mobile printers, police can carry this advantage outside their cars, citing offenders at concerts or sporting events, discouraging more drug or drinking behavior and generating more revenue for communities in the process. The revenue generating benefits of these applications used to be less of a discussion point, but now, in this era of extremely tight municipal budgets, it is many times central to justifying the investment.

Ruggedized printing has by now made deep inroads **into route accounting and DSD**, where the vibration, dust and temperature extremes of moving trucks and outdoor use have quickly disqualified office inkjets and dot matrix printers from consideration. On-site produced receipts, invoices, and returned goods receipts have helped accomplish more per visit, as these documents can be reviewed with the customer, signed and (with the aid of magnetic card reader add-ons) even paid before the route representative or delivery person gets back behind the wheel. On the sales side, sales orders and confirmations, order history or product promotions can be similarly produced and shared immediately.



### CASE STUDY

## A Rugged Device for Rugged Work – Kingsville, Texas Specialized Crimes and Narcotics Task Force

The Kingsville Specialized Crimes and Narcotics Task Force recently outfitted its agents with Brother Mobile RuggedJet 4030 printers to print citations and warning tickets in the field. These documents and their pre-populated fields are printed out of CopSync, a law enforcement database and software application running on vehicle-mounted Windows laptops.

The first printer the force tried had been portable, but it didn't have the ruggedness needed for the hot, humid weather of south Texas and the dusty, shaky working day spent inside patrol vehicles. "It takes a lot of punishment," says Agent Gus Ruiz of the RuggedJet. "These are for agents who are out there doing drug interdiction on the highway. They're constantly moving from one point to the next. And in south Texas, we've been averaging 102 to 105 degrees this summer."

Stopping drivers for traffic violations is just one tool in Texas law enforcement's fight against money laundering and drug trafficking. Ruiz says, "We have to give the violator documentation of the reason for the stop, in

order to adhere to state and racial profiling laws. It's very important to have written document to give and to file for each and every traffic stop. That's why we depend so strongly on a good quality printer."

According to Agent Richard Kirkpatrick, the non-rugged printers wasted half the pages with paper jams. The RuggedJet, with continuous feeding rolls of thermal paper, eliminated the jamming problem while producing longer-form, more legible printouts of up to 13 inches. It also printed about twice as many citations or warnings between reloads.

With Bluetooth connectivity, RuggedJet has let the Kingsville task force cut the cable. And with at least eight-hour battery life between charges, the agents can operate both mobile laptop and printer at work assignments, such as concerts, without the patrol car. Agent Ruben Villa Lobos noted that CopSync has developed templates for other kinds of documents — such as a criminal trespass warnings or "be-on-the-lookout" descriptions — that make the most sense in a mobile scenario.

In **healthcare** settings, a full-page, semi-rugged printer in an ambulance can transfer vital sign data and instructions along with the patient being rushed to an emergency room. Carried by a **home health** aide, it can help agencies comply with requirements to leave detailed care instructions and drug interaction warnings with patients in the home.

When working in **insurance**, claims adjusters using car-mounted or transportable, semi-rugged printers can quickly hand customers instructions on processing claims, remediating damages, inspection reports, and contracts.

Or take **pest control**, a field in which over a dozen regulatory bodies can require that varying pieces of documentation be left at the customer site. Semi-rugged, full page mobile printers allow pest control pros to submit estimates and close business faster; to print reports, invoices and chemicals used, and in a full page format that is more suitable for detailed review and storage.

Bar coding and wireless connectivity have also paved the way for ruggedized printers to be deployed into **manufacturing and warehouse environments**. With printers clipped to a belt or mounted on a forklift, warehouse workers can print high quality labels for finished goods, bins and shelves, shipping, work-in-progress, and inventory pick-and-return tickets. Continuous rolls or fan-fold formats give workers the flexibility and capacity they need to cover large swaths between reloads.

## FEATURE CHECKLIST

The right mobile printer for your work environment is the one that can reliably outlast consumer-grade devices in less hazardous surroundings, has just the right degree of hardening and the just right features for your workforce's current and long-term needs. It should also meet the following guidelines:

- **Must play well with others.** Precisely because they are mobile, printers in the field must easily integrate with a range of handheld and fixed-device operating systems (OSes). Ideally, they've already been loaded with connectors to the major mobile applications of your industry. They should come with SDKs to be able to pair them with off-the-shelf and custom applications to come.  
However, enterprises that support a BYOD policy or that issue iPad, iPhone and Android devices are learning that it may take more collaboration with their systems integrator or reseller to achieve the right print output in the right format, and do it securely. As corporate adoption of iOS devices continues to grow, the CIO or purchasing executive who understands this is ahead of the game.
- **Must work with current physical and wireless connections** — this now includes USB 2.0, serial and Wi-Fi (802.11b/g/n) or Bluetooth interfaces.
- **Must print to range of paper and label formats for different applications** — 2" and 4" widths are in high demand, and the full-page format is required for many application environments. Fanfold paper is a plus for large-volume applications.
- **Must have high memory capacity.** More memory translates into faster throughput, more fonts, and logos.
- **Must be up to date on barcode technology** — linear and 2D formats should be supported.
- **Must sip battery power** and go for long periods before rechargeable batteries need replacement.
- **Must be suitable for the specific field environment.** Know your printer's working conditions. Is it likely to be dropped, and on what kind of surface? Rained on? Exposed to dust or extremes of temperature, humidity or vibration? Does it require IP54 or IP45? IP ratings are standard gauges of survivability against specific conditions, assigned by third-party testing.
- **Must be simple to use.** Your field staff really doesn't want to deal with ink cartridges. Mobility demands thermal printing for its temperature and orientation tolerance, constant cost per page, light weight and fewer points of failure. Nor do they want to deal with complicated controls, as printing is just the last of many tasks they complete on a call or a job site. They don't have the comfort of a full screen, keyboard and mouse with which to investigate and choose printing options.
- **Must be easy to carry, pack or even wear.** Rugged printers should ride on field employees' belts or shoulder straps, as well as in carrying cases.

- **Must be fast.** Printing is the wrap-up part of a service or sales call; not a time to delay with a balky printer.
- **Must be guaranteed.** Your printer's warranties should include replacement provisions.
- Brother Mobile Solutions produces mobile thermal printers that not only meet all these requirements, but cover a range of paper sizes (2-inch, 4-inch, 8.5 inch), OS compatibility (Windows Mobile, Android, iOS and Blackberry) and ruggedness to satisfy any mobile application.
- RuggedJet mobile printers are also designed to be fast (5 inches per second), tough, and exceptionally versatile.
- Brother Mobile Solutions' semi-rugged PocketJet printers are more roadworthy than consumer-grade portables and also print full-size sheets of paper.
- Through its network of authorized partners and ISVs, Brother Mobile delivers customized solutions designed specifically to meet the mobile printing needs of all the vertical industries described here, and more.

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#### ABOUT BROTHER MOBILE SOLUTIONS

Through its network of authorized partners and ISVs, Brother Mobile Solutions offers a wide range of mobile printing and mobile and desktop labeling solutions designed to help improve performance and efficiency on the road, on the shop floor and in the warehouse.

Principal markets for its solutions are public safety, route accounting, field service, public utility field operations, insurance, manufacturing, warehousing, and datacom and telecom services.

Its solutions are built on its own product line which currently includes reliable, compact, mobile thermal full-page printers; rugged small-format thermal receipt and label printers; handheld and desktop laminated label printers; and wide-format, desktop thermal paper label printers. A variety of media and accessories for these products are available through authorized Brother Mobile Solutions partners.

Headquartered in Broomfield, CO., Brother Mobile Solutions, Inc. is a wholly owned subsidiary of Brother International Corporation, and part of the Global Brother Group.

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