



## Ruggedize Your Field Force

By replacing laptops with ruggedized notebook computers, Coinstar was able to save more than \$2,500 per month in maintenance fees.

Integrated Solutions, May 2003

Written by Jay McCall

Many companies are enabling employees to operate from their homes via wireless devices such as tablets, notebooks, and PDAs (personal digital assistants). According to a 2002 IDC report, these field workers now comprise nearly 2/3 of the American workforce. A competitive advantage is gained if businesses arm mobile workers with mission-critical data. Coinstar Inc. (Bellevue, WA), a provider of self-service coin-counting machines, is an example of a company doing just that. Coinstar's machines enable users to dump buckets of mixed denomination coins into a machine and within a few seconds receive a voucher for the value of the coins (minus an 8.9% service fee), which can be redeemed for cash. Currently, there are more than 10,700 Coinstar units in operation throughout the United States, Canada, and the United Kingdom. The coin-counting units reside primarily in supermarkets, but there are also installations in some banks and credit unions.

Coinstar machines are serviced by 250 field engineers and a call center staffed by just four on-duty CSRs (customer service representatives). The secret behind Coinstar's ability to service such a high number of machines with so few employees (each field service engineer is responsible for an average of 43 coin machines) is the level of automated communication the company has among its machines, engineers, and CSRs. Each machine has a built-in modem, which enables it to communicate several important statistics to headquarters and/or to the field engineers on a daily basis. For instance, each night the Coinstar machines upload data such as the value of their transactions, how close they are to capacity, and other diagnostic information.

"If the reject rate for a particular machine gets outside a specified range, for example, it alerts us that the machine needs to be serviced - before the machine becomes incapacitated," says Stuart MacDonald, director of network engineering and operations. "This information, along with preventive maintenance schedules and special service requests from store partners, comprises our field service engineers' daily route planning tasks."

At 5 a.m., field workers connect their notebooks to corporate headquarters via phone modems and VPN (virtual private network) connections to a corporate server. After downloading their daily statistics, these technicians can begin much of the troubleshooting process from their homes. By using their notebook computers, engineers can contact the coin-counting machines and begin the diagnostic process via an RSI (remote service interface), which enables them to perform diagnostic tests as if they were on-site and connected to the machines via a serial cable. In many cases, the interface gives them access to specific details about the problems, letting them know which tools and parts to load into their vehicles. Due in part to Coinstar's remote connection capabilities and the built-in intelligence of its coin-counting machines, the company was able to

## Installation Profile

**Technology User:** Coinstar Inc. (Bellevue, WA), a provider of self-service coin-counting machines, currently has more than 10,700 units placed throughout the United States, Canada, and the United Kingdom. The company makes money by charging customers a fee (8.9%) to count their coins and exchange the coins for cash.

**Problem:** Coinstar has 250 field service workers who rely on laptops to interface with and troubleshoot its coin-counting machines. Previously, Coinstar was averaging more than \$2,500 per month in laptop repair and service fees. Additionally, many of its laptop manufacturers were constantly changing their platforms and configurations, making application and network integration an ongoing challenge.

**Solution:** Coinstar replaced its laptops with Panasonic's (Secaucus, NJ) ruggedized ToughBook notebooks and created a remote service interface (RSI). The ruggedized notebooks save the company \$2,500 per month in maintenance fees, and the RSI enables field service technicians to troubleshoot many of the coin-counting machines remotely.

## Grocery Stores - An Unexpected Harsh Environment

Things weren't always this efficient, however, according to MacDonald. "Just five years ago, when the company had 150 employees [less than 1/3 of its current employment level], we had ongoing problems with our various laptop computers and with maintaining disparate platforms and multiple laptop configurations." Additionally, Coinstar found itself struggling to keep up with repair costs and support issues. "Not many people think of grocery stores as harsh environments, but our monthly repair bills indicated otherwise," recalls MacDonald. "Whether it was a laptop falling off an opened coin machine door or a runaway grocery cart smashing into it, we consistently had at least two laptops going down each month."

According to MacDonald, the damages the laptops sustained were not covered under any warranty, and damaged cases, screens, and hard drives weren't cheap. He estimates repair costs averaged more than \$2,500 per month. "The repair costs don't account for the lost productivity," says MacDonald. "It took as many as five days to return and fix each laptop and get it back into the technician's hands. During this time the technician was basically reduced to cleaning machines and only handling major emergencies, which were sent via pagers." Besides the expensive repair costs and lost productivity, Coinstar faced another problem with some of the laptops it used - inconsistent configurations. "It seemed like every few months laptops were changing key features such as processors and operating systems," says MacDonald. "Support required finding or creating software patches, which had to be updated every time we upgraded our applications to the latest releases."

## Ruggedized Computers Worth The Extra Change

In spring 1998, MacDonald realized the current laptop situation wasn't going to be able to support the company as it continued to grow. So, he began shopping for a single vendor product that could scale with Coinstar's growing field force's needs. There were three primary criteria MacDonald used for his search. First, he wanted computers that could handle drops and jolts. Second, he wanted laptops with consistent hardware configurations. Third, he wanted laptops that were available through a reseller channel and could be acquired within a few days after his request.

MacDonald found what he was looking for in Panasonic's (Secaucus, NJ) CF-28 and CF-72 ToughBook notebooks. Over the course of 24 months, Coinstar phased out its existing laptops and upgraded to ToughBooks. Each ToughBook is configured identically to the next with such features as a Pentium 1.6 MHz processor, 256 MB of RAM (random access memory), and a Windows 2000 platform. "We use Microsoft Office products such as Word, Excel, and Access," says MacDonald. "But, our primary application is Lotus Notes 5.0, which includes our service applications and workflow applications." Using the time card application, for instance, field technicians record their mileage for the week and their overtime worked. This form is sent to their managers for approval via the VPN. After approval, the form is sent to payroll for payment. The company uses other customized workflow programs to support such activities as service requests and purchasing requests. "Most people think of Lotus Notes as just an e-mail application, but it has much more functionality than that," says MacDonald. "It is the primary software application that coordinates the communication among our machines, CSRs, and technicians."

One of the primary benefits of the software is the way it interfaces with Coinstar's two-way pagers. If a customer calls the call center with an urgent request - such as a machine breaking down in the middle of counting a customer's coins - the CSR can dispatch a message to the closest technician's pager. Using its Lotus Notes customer service application, the system allows the technician to acknowledge receipt of the page without having to call back to the service center.

## Don't Forget To Protect Your Software Too

Following Coinstar's upgrade to ruggedized notebooks, monthly laptop maintenance expenses

date, MacDonald expects the upgrade to pay for itself well within a three-year time frame. "Even though the ruggedized computers cost approximately 33% more than their non-ruggedized counterparts, they hardly ever break down," says MacDonald. "In fact, it's rare nowadays to have to service one of our laptops. If we do, it's usually a software issue - not a hardware catastrophe." The biggest worries the company has now aren't laptops getting broken, but rather the latest viruses that threaten to bring the network down. MacDonald uses Norton's AntiVirus products to protect Coinstar's mission-critical applications. "It doesn't seem that long ago that it was our laptop problem that kept me up at night," quips MacDonald. "Now, I can sleep much better knowing that I just have to make sure to keep our network updated with the latest security patches."

### **Rugged Notebooks Need Reliable Storage**

Coinstar Inc. (Bellevue, WA), a provider of self-service coin-counting machines, has more than tripled its machine installations over the past five years. One of the truths it has discovered is the importance of building its enterprise applications using single-vendor laptops with consistent configurations. Additionally, it has applied that same logic to its storage. "We use HP products to run our applications and to back up our data," says Stuart MacDonald, director of network engineering and operations for Coinstar. "We have 50-plus HP-Compaq Proliant servers that run our various business applications, which include 18 Lotus Notes servers." Coinstar backs up its data using HP Surestore DLT (digital linear tape) libraries, which are attached to each server. "Eventually, when our data doubles from the current two terabyte size, we may consider going to a SAN [storage area network]," says MacDonald. "But, for now, our corporate LAN works fine."