

Maximizing System Uptime and Reducing Support Costs

The importance of operating system recovery tools for dedicated digital devices



Single-Purpose Computers are Everywhere

Cash registers, self-checkout lines, informational kiosks, handheld terminals, digital signage—single-purpose computers are an increasingly important part of modern life. Many of these devices use technologies similar to a typical desktop computer but in a form that is optimized for a specific use. Compared to a general-purpose computer, single-purpose devices typically use lower-powered processors, have a smaller memory footprint, and conceal a significant number of basic functions—such as application launching—from users. People using such a device are typically only presented with a specific set of options necessary to carry out a certain task.

This approach provides many advantages. For example, the simplified operating environment presents less opportunity for application conflicts. Reduced memory requirements can enable the use of lower-cost hardware. The limited user interface prevents individuals using the device (who may have different levels of technical skill) from causing system malfunctions, and reduces training costs. Because of their relative simplicity, single-purpose devices might run for long periods with little maintenance, even in places such as the self-checkout line where many people with no special expertise use the device day in and day out.

When Systems go Down, Everybody Suffers

However, these devices are still computers, and even very basic and robust computers can experience failures. One very common failure is an operating system (OS) freeze or suspension, requiring that the OS be recovered to a known good state.

This is not a trivial problem. A typical installed base of 10,000 units might experience 1,000 to 2,000 such incidents in a given year. Ironically, the simplified nature of dedicated digital devices can actually increase the cost and complexity of recovery.

Because most single-purpose computers have no simple, built-in way for a typical user to restore the OS, fixing suspended states can be very costly. It might involve a truck roll, in which a technician visits the site where the device is installed to perform the recovery. At typical service call rates of \$300 per incident or more, the 10,000-unit deployment might incur costs of \$300,000 to \$600,000 per year.

Another common solution is to send the physical hard drive to a support team. In addition to support costs, this can cause multiple days of downtime for a device.

What to Look for in an OS Recovery Solution

The best way for device OEMs, owners, and operators to mitigate these problems is to give ordinary users a foolproof way to restore the OS quickly without removing the hard disk drive, scheduling an expensive visit from a technician, or calling a support line. Given that the one of the key goals is to reduce costs, the tool should not require custom development or increase the complexity of device management. It should be simple, affordable, and robust.

Because it is impossible to predict which machines in an installed base will freeze over a given time period, to get the full benefits of such a solution it needs to be available to the end user on site at the time of failure. This means that OEMs must be able to provide the recovery solution during the manufacturing process by incorporating it into the hard disk image that is replicated across devices. Ideally, the same solution could be provided just as easily on devices that are already deployed in the field during routine system upgrades. OEMs should also have a wide range of options for how the solution is invoked by users, whether through a virtual interface (such as a touchscreen) or a physical one (such as a button on a keyboard). This design flexibility would enable them to meet the needs of specific verticals or customers.

Benefits of the Right OS Recovery Solution

For organizations that own fleets of single-purpose computing devices, an effective OS recovery solution can radically reduce support costs. Instead of paying for a truck roll, any hourly employee, store manager, or other non-technical end user can perform the recovery—no training required. If the business model relies on revenue generated directly by devices, the ability to recover the OS quickly can reduce the window of lost sales from hours or days to just a few minutes.

For OEMs, such a solution can address a very common customer issue at much lower cost than dispatching technicians or staffing call centers. This means OEMs can increase the profitability of their support contracts, or pass those savings along to customers to improve the competitiveness of their offerings.

The right OS recovery solution provides added value for customers and can be used to differentiate an OEM's products from those of other companies.

The Bsquare OS Recovery Solution

With the Bsquare OS Recovery Solution, OEMs as well as device owners and operators can increase revenue, build customer satisfaction, and reduce downtime. Compatible with a wide range of Windows Embedded OSs, the Bsquare OS Recovery Solution is completely self-contained and requires no custom development. It can be installed during the initial deployment of a device fleet or retrofitted across an already installed base. Once installed, it automatically captures and stores a compressed OS image in a known good state for easy recovery at any time. In the event of an OS freeze, the solution can be invoked by virtually any individual regardless of technical skill and without any interaction with headquarters or technical support. Depending on the specific implementation, OS recovery can be as simple as pressing a button or tapping a touchscreen.

Why Bsquare?

Bsquare is a solution provider to the global embedded device community. Our teams collaborate with OEMs at any stage in their device development to bring quality products to market faster. Bsquare is a leading enabler of smart, connected devices with a dedicated engineering consulting practice and deep technical knowledge of Microsoft Windows Embedded and other platforms, as well as diverse vertical market expertise. Bsquare offers a wide range of development services that can increase product performance and speed time to market while reducing project costs, length and risk, such as:

- Custom OS Recovery services
- Engineering support and services
- Testing automation services
- Windows Embedded licensing strategy and support

For more information, please visit www.bsquare.com or email us at sales@bsquare.com.

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