



## Case Study

# WDL Systems

## Systems Company Moves Beyond Flash Limitations With Seagate EE25 Series Drives

Offering a broad variety of embedded and industrial computer systems and related peripheral devices, WDL Systems handles products from almost 40 vendors throughout the world. With so many products to choose from, WDL Systems can easily tailor solutions to the specific needs of its customers.

Despite some significant misgivings about flash performance, durability and cost, Donnie Springfield, technical support engineer at WDL Systems, has long recommended flash solid-state disks as a storage solution for WDL customers whose applications entail extreme operating environments.

So it was with considerable interest that Springfield investigated the Seagate® EE25 Series™ ruggedized 2.5-inch hard drive, which is purpose-built to handle the punishing temperature, vibration, shock, altitude and humidity extremes found in the outdoor and mobile applications of many WDL Systems customers; such applications often rely on flash storage solutions.

### Company

WDL Systems

### Location

Pittsboro, North Carolina

### Contact

[www.wdlsystems.com](http://www.wdlsystems.com)

### Primary Focus

Cutting-edge technology to provide customers with commercial off-the-shelf products for all embedded requirements

### Flash Storage: Myth vs. Reality

"Folks think that flash memory is just going to be faster, and that's sort of what the flash market implies," notes Springfield. "And it is faster, of course, for seek times, but if you're doing large amounts of data, particularly if you're doing lots of concurrent writes and it has to do an erase cycle and erase existing data to overwrite it, then you're going to run into serious slowdowns."

Springfield also has reservations about flash memory's long-term durability in certain types of applications: "A database-heavy application can require writing lots of small chunks of data repeatedly throughout the day—say a mobile data acquisition device for a truck that's recording GPS locations. Even though it's writing only 200 bytes of data every second, your file system makes it write 32 KB of data, and if it writes that every few seconds, you're going to quickly churn through the lifetime of your flash drive."

"So although the MTBF might be five or six years in most projected flash lifetimes, it may end up lasting only six months in the field."

### Flash Cost Concerns Customers

But it was customer concerns about flash's cost-per-GB that first prompted WDL Systems to learn more about the Seagate EE25 Series drive. "The biggest most flash drives go up to still is 32 GB, and that is around US\$1,000," Springfield says. "That's more than five times the price of an EE25 Series 40-GB drive; in fact, more like six-and-a-half times the price. So price is a huge factor, and performance is somewhat secondary to that."

"It's particularly difficult to address mobile applications that must be distributed across a large group. For example, going back to the truck application recording locations from GPS, if the trucking company is going to put a system like that on a fleet of 500 trucks, it's going to be incredibly expensive using flash."

### Redefining HDD Expectations

Customer response to EE25 Series drives has been gratifying, though in some cases it has meant dealing with long-standing prejudices about hard drives. As Springfield puts it, "We have folks that have seen marketing information on the EE25 Series drive and get very excited about it. They come to us and say, 'I could really use this.' And we have other folks that can't fathom the concept of a hard drive that can survive in rugged environments."

"There's a lot of disbelief there. Because people are trained to believe that a hard drive cannot handle anything outside of the standard desktop environment. The key is the engineering. They tend to not believe me until they see a EE25 Series spec sheet. Then they get pretty excited about it."

### WDL Bowled Over by EE25 Series Drive

When asked whether the Seagate EE25 Series drive has lived up to his expectations, Springfield is unequivocal: "I'd say it's met my expectations and exceeded them. I went to Longmont, Colorado, to meet with Seagate engineers, check out the factory and learn more about the EE25.2 Series hard drive. At that time I wasn't very well-versed in the EE25 Series product."

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Donnie Springfield,  
technical support engineer,  
WDL Systems

### To Learn More:

#### Seagate EE25 Series Drives

For more information on  
utilizing EE25 Series drives,  
visit [www.seagate.com](http://www.seagate.com).

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