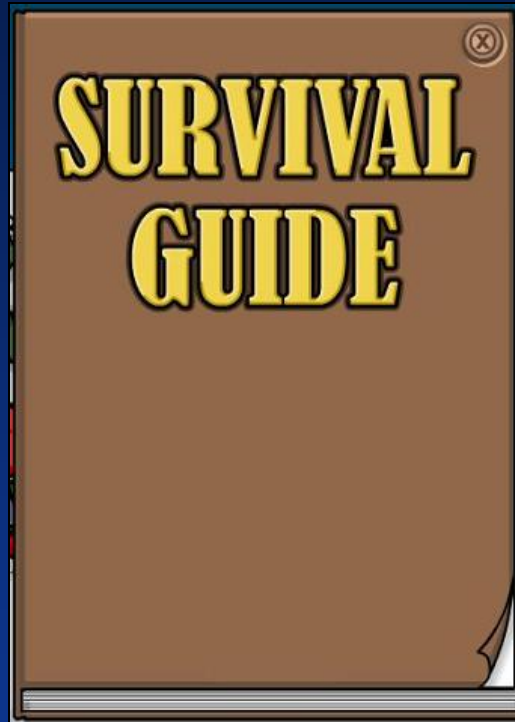


SSD Data Loss



Abhik Mitra

Product Manager – Data Recovery

Agenda

- » SSD Perceptions
- » SSD Recovery Challenges
- » Market Trends
- » What is Data Loss Anyway?
- » True Stories
- » So Now What?

SSD Perceptions

Perceptions	Reality Check
Lack of moving parts translate to higher reliability	Yes, but the complexity associated with recovery scenarios increases
Cost per gigabyte continues to be the barrier	Price points continue to align with HDDs leading to higher adoption rates
Failure rates are much lower than HDDs	Kroll Ontrack stats suggest another story. It's about volume!
It's either HDD or SSD	Hybrid Solutions increasingly common
SSDs never or hardly fail	Seriously?!
Slow adoption	It's already everywhere! Think iPads

**SSD and Flash storage devices can suffer some of the same causes of data loss as traditional storage devices such as hardware failure, human error, computer viruses, power surges, natural disasters, or software/program corruption.*

SSD Recovery Challenges

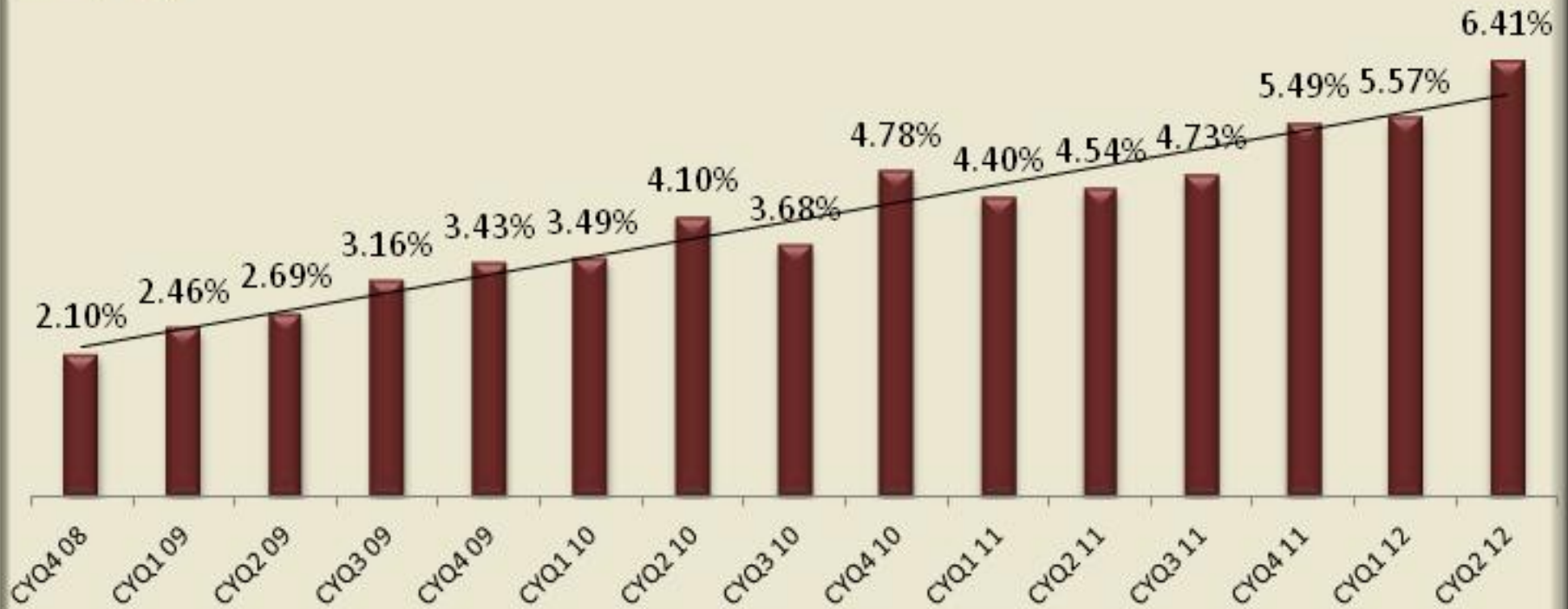
What?	Why?
Software/Hardware Proprietary Tools	Most people don't happen to have these tools lying around!
Time Consuming	Need to research the algorithms used to originally store the data
Wear leveling (balances usage evenly across all disk sectors)	Creates a complication to piece the data back together
RAID-like configuration	Individual memory chips on devices make data less contiguous and difficult to piece back
Lack of standardized configurations	Ability to handle many forms of Error Control Coding (ECC) and Correct Address Translation via Logical Block

Market Trends

All Flash Media - LAB & CR

Table (LF1)

Trend - % of Flash/Total Jobs Completed





What is Data Loss Anyway?

A problem has been detected and windows has been shut down to prevent damage to your computer.

The problem seems to be caused by the following file: SPCMDCON.SYS

PAGE_FAULT_IN_NONPAGED_AREA

If this is the first time you've seen this stop error screen, restart your computer. If this screen appears again, follow these steps:

check to make sure any new hardware or software is properly installed. If this is a new installation, ask your hardware or software manufacturer for any windows updates you might need.

If problems continue, disable or remove any newly installed hardware or software. Disable BIOS memory options such as caching or shadowing. If you need to use Safe Mode to remove or disable components, restart your computer, press F8 to select Advanced Startup Options, and then select Safe Mode.

Technical information:

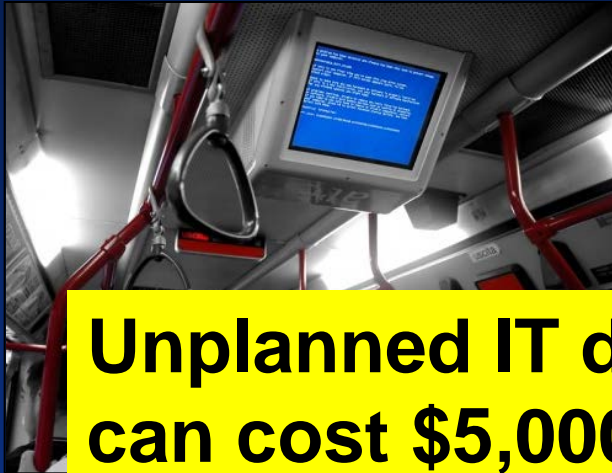
*** STOP: 0x00000050 (0xFD3094C2,0x00000001,0xFBFE7617,0x00000000)

*** SPCMDCON.SYS - Address FBFE7617 base at FBFE5000, DateStamp 3d6dd67c



Windows is shutting down...

Unplanned Downtime is All Around Us



Unplanned IT downtime for US businesses can cost \$5,000 per minute, or \$300,000 per hour.

Chris Preimesberger, Unplanned IT Downtime Can Cost \$5k Per Minute: Report. Eweek.com (2011)



True Stories

London's Burning

- » Freelance photographer had a digital camera in the midst of the recent London riots
- » Rioters saw they were being filmed and opted to smash the camera to destroy evidence
- » Kroll Ontrack **recovered 100%** of the data and video was supplied to the police



True Stories

Laptops ARE NOT waterproof!

- » A gentleman brought his laptop on his vacation to stay caught up on e-mails.
- » Decides to go for a swim with his laptop and put it in a plastic bag.
- » The bag did not prove as durable as he hoped
- » Kroll Ontrack **recovered 100%** of the lost data!



True Stories

Look Mom, I'm flying...

- » User was videotaping a freefall from an airplane & accidentally drops the camera thousands of feet from the ground!
- » Kroll Ontrack was sent the broken camera, along with damaged flash media.
- » The footage was completely restored to the moment of impact
- » Kroll Ontrack **recovered 100%** of the data via proprietary hardware & software tools



So Now What?

- » SSD technology is here to stay – and grow!
- » All technology is prone to data loss or failure
- » Engage in a formal evaluation of your options
 - Proactively choose a data recovery provider
 - Customers tend to turn to OEMs, who in turn to data recovery providers

Thank You

Visit us at Booth 721!



 **Kroll Ontrack®**

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