Ensuring Data Accessibility

Managing Flash/SSD for Data Recovery

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Topics

- Flash/SSD Storage Are Not Exempt from Data Loss
- How Users Lose Data
- Challenges of Data Recovery from Flash Storage
- Improving Consumer Confidence in Flash Storage

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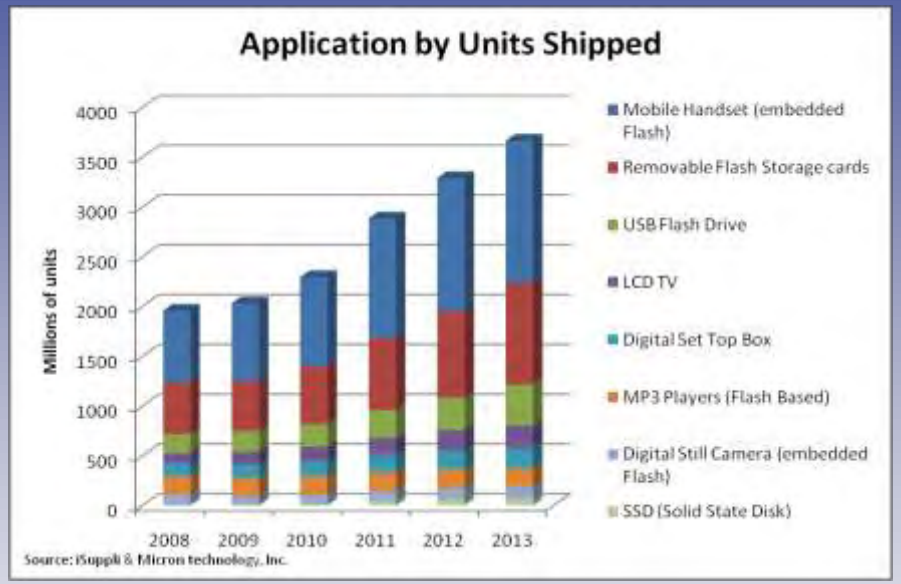
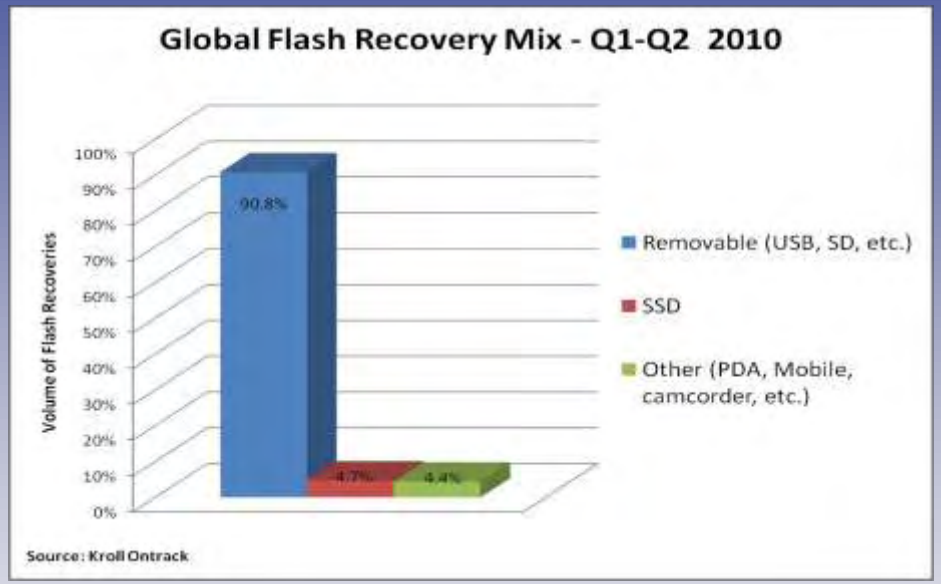
Flash/SSD Market and Data Loss





- **Recoveries Follows Consumer Trends**
- **Consistent Uptick in SSD Recoveries**
- **Risk: As SSD Adoption Grows, so does User Data Loss**

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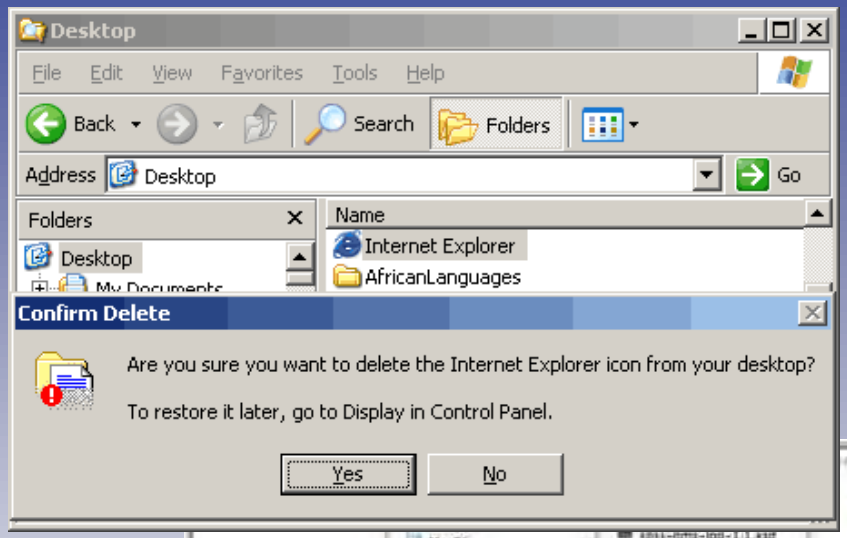
How Users Lose Data

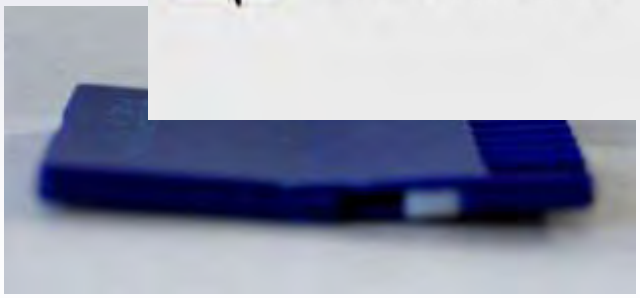
- Data loss: the event or circumstance where electronic data is no longer available or accessible.

Human Error	Device Damage	Device Failure
- Users will delete, overwrite, or lose their own data files	- Users will accidently damage Flash storage devices	- Users will experience a Flash storage device failure
34%	22%	44%

Source: Kroll Ontrack

How Users Lose Data





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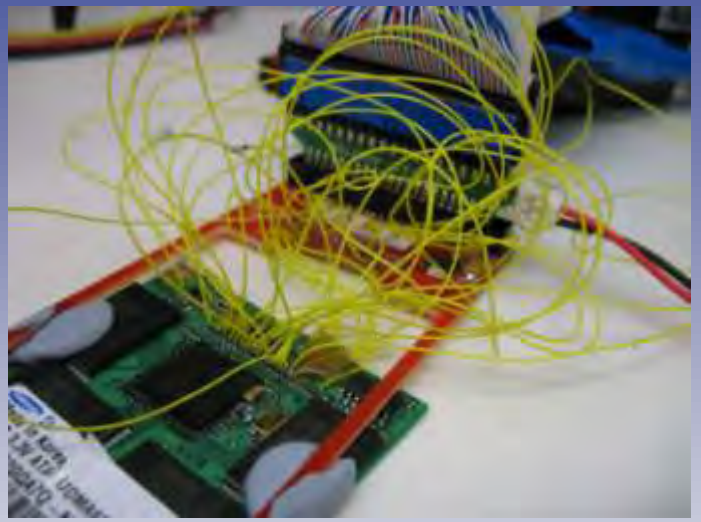
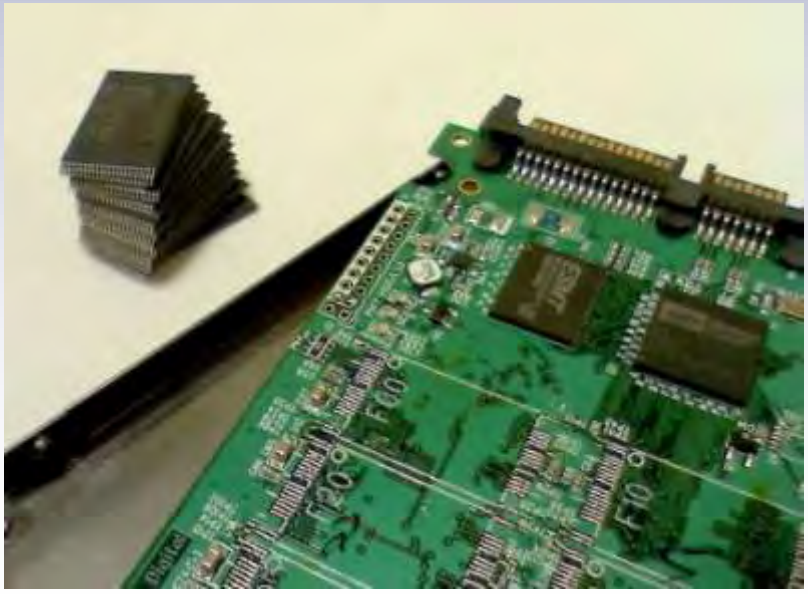
Challenges of Data Recovery From Flash Storage

- Broken connectors
- Electronics malfunction
- Controller malfunction/failure
- NAND chip extraction
- BGA/FBGA configuration
- Custom Application of Flash Storage





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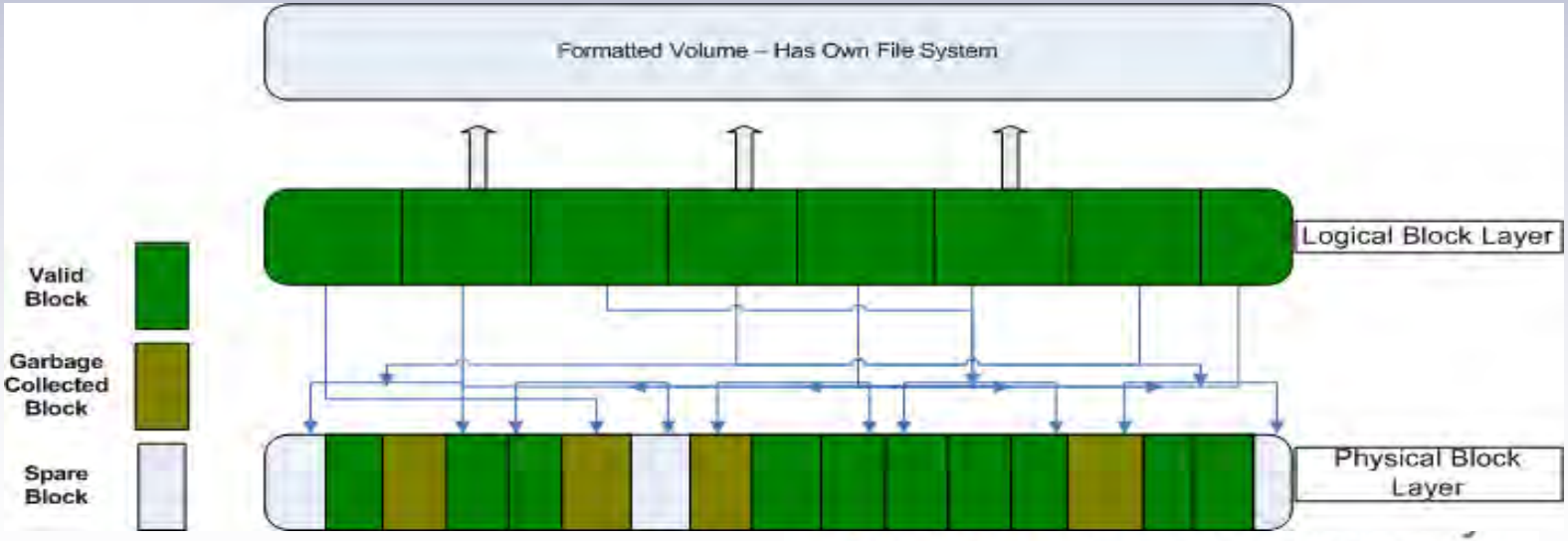
Challenges of Data Recovery From Flash Storage

- Proprietary Wear-Leveling and ECC
  - Reduces Data Recovery Quality
  - Delays Consumer Access to Data during a Data Loss and Recovery Event

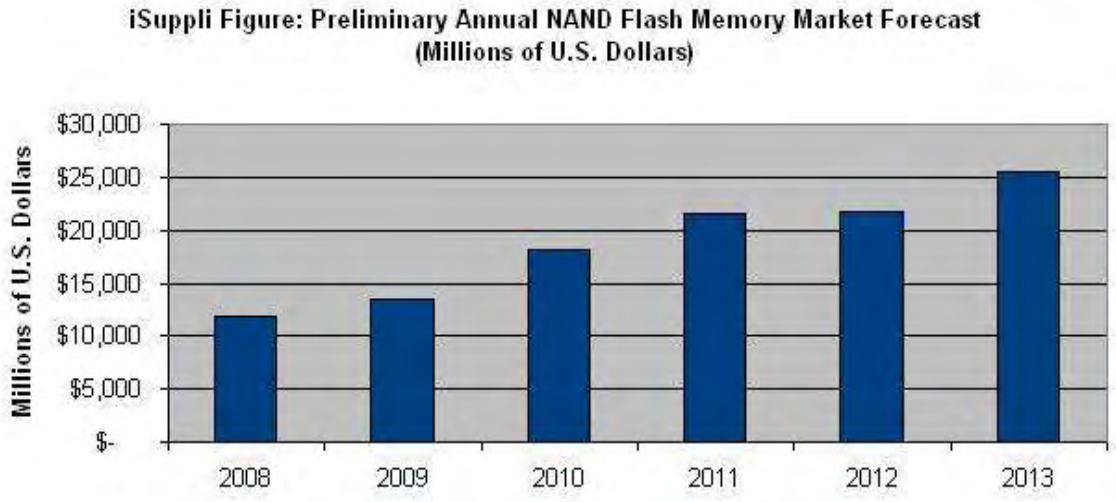


Improving Consumer Confidence in Flash Storage

iSuppli Figure: Preliminary Annual NAND Flash Memory Market Forecast (Millions of U.S. Dollars)

	2008	2009	2010	2011	2012	2013
Millions of U.S. Dollars	$ 11,785	$ 13,526	$ 18,127	$ 21,575	$ 21,709	$ 25,485

Source: iSuppli Corp. February 2010



- Recoverability – Why Important?
- SSD Storage is Gaining Traction
- Data Recovery Solution Saves Consumer Confidence

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Summary

- Top Design Goals for Flash Storage:
  - Performance
  - Data Density
  - Security
  - Low Cost
- Another Important Design Goal:
  - Recoverability

Data Loss Happens Everyday

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Flash Memory SUMMIT

Thank you

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