Changes in Consumer Flash and Mobile Device Recovery

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Agenda

- DR Statistics and Trends
- Common data loss causes
- Recovery process
- Case Study
- DR Challenges & industry changes
- Tips & Tricks

Worldwide mobile phone usage

- By early 2014, mobile phone subscriptions predicted to exceed the global population!!

- The common denominator: Majority use Flash Memory!

Source: International Telecommunication Union

Data Recovery Statistics and Trends

Mobile Device* (Phone/PDA/Tablet) recovery requests

2011 vs. 2012: **161%**

SSD recovery requests (Enterprise & Consumer)

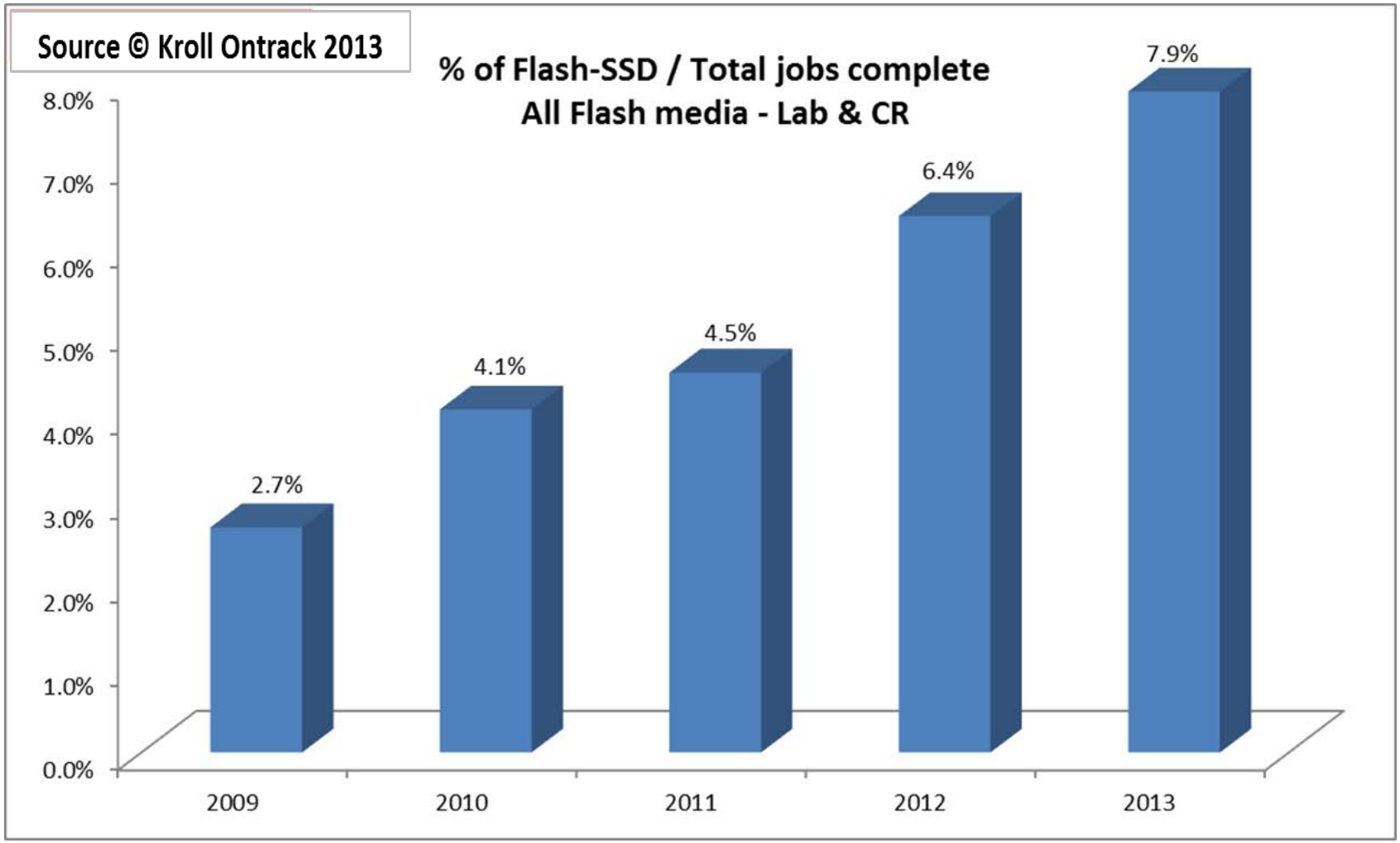
2011 vs. 2012: **62%**

Encrypted device recovery requests

2011 vs. 2012: **16%**

* Across all types of mobile device recovery scenarios, Kroll Ontrack has found that data loss incidents are platform independent and occur within iOS, Android, and Windows devices

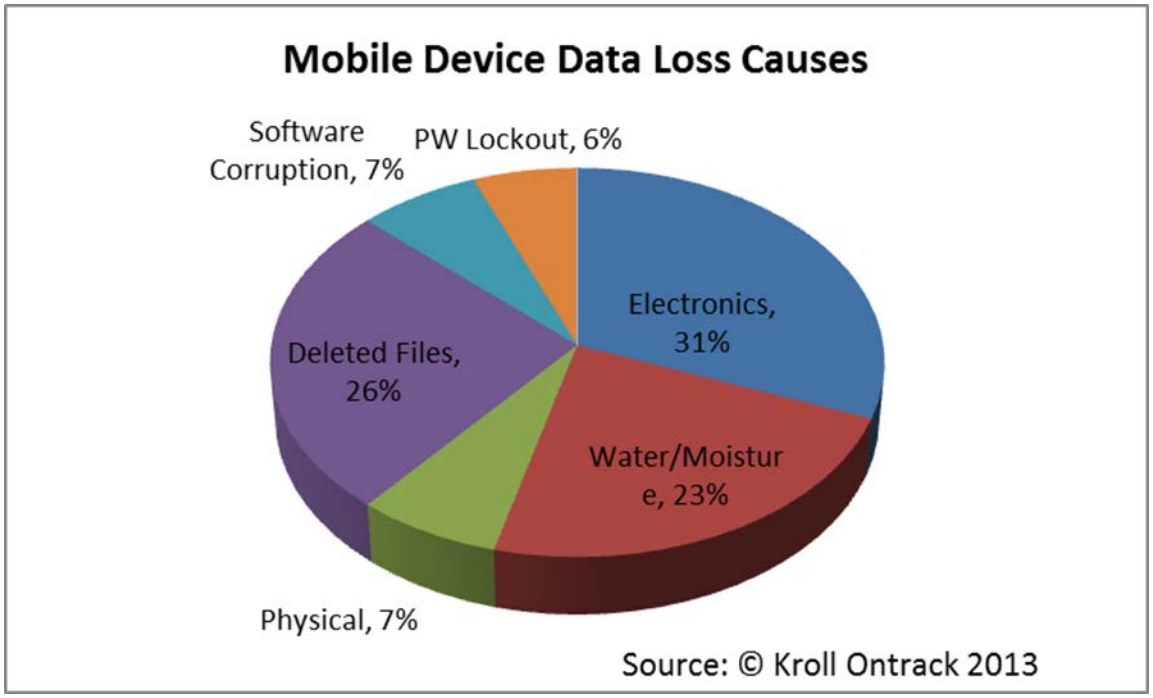
Flash Memory Device Percent of Workload



Mobile Device Common Data Loss Causes

Physical (~2/3)

- 31% Electronics
- 23% Water/Moisture
- 7% Physical



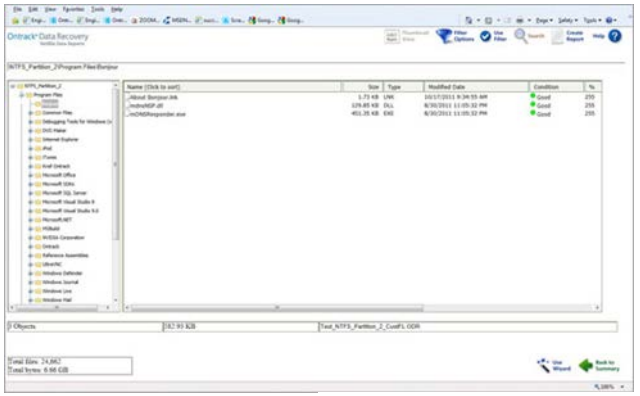
Software (~1/3)

- 26% Deleted Files
- 7% Software Corruption
- 6% Password Lockout/Issues

Mobile Device Recovery Process

- **Physical Damage** (Clear damage or component failure)
  1. Assess & diagnose physical condition
  2. Diagnose and repair/replace PCB or components
  3. Target and extract critical files

- **Logical Damage** (Corrupt/Failed OS or Firmware & System Area)
  1. Assess & diagnose logical condition
  2. Run specialized SW/HW tools to bypass issue
  3. Target and extract critical files



- **Comprehensive Evaluation Report**
  - Detailed listing of all recoverable files

Case Study

- Mother dropped iPhone 5 in bathtub while taking video of 7 month-old
- Water damage to the PCB; Customer tried rice, etc

- Kroll Ontrack's expert engineers were able to perform repairs to the PCB utilizing the company's proprietary data recovery methods.

Result

- Over 2500 memories (photos/videos) were recovered from the phone

Challenges in Flash Recoveries

- Support for all storage products & revisions
- Excessive Bit errors
- NAND variations
- Diagnostic and Technical Spec limitations
- Encryption
- ECC variations
- Obtaining Compatible Parts
- Proprietary data organization

Changes impacting data recovery

- Larger share of devices support encryption
- Scrambling on nearly all devices to reduce bit errors
- Increase in frequency of TLC chips used in removable flash devices requiring more parity bytes to correct bit errors

1024 byte data block

Tips for handling data loss

- Time is of the essence
- Know what you want
- Choose an experienced provider

And of course…

- Backup, backup, backup…

Thank you!