

Local Storage Network Storage Backup

Tim Hassett

Co Founder - Appogee

MacTech Washington DC 2013

Needy Humans

Our Data - Our Wants

- Ubiquitous Access
- Speedy Access
- Security Blanket
 - On site hardware failure.
 - On site catastrophe.
 - Accidental deletion.
 - Data center catastrophe.
 - Keep it secure.



Terms

Hard Drive

SSD

Hybrid Drive.....

Fusion Drive....

RAID.....

Drive --> Partition --> Volume

Fusion vs. Hybrid

Fusion = Tiering
Hybrid = Caching

Fusion



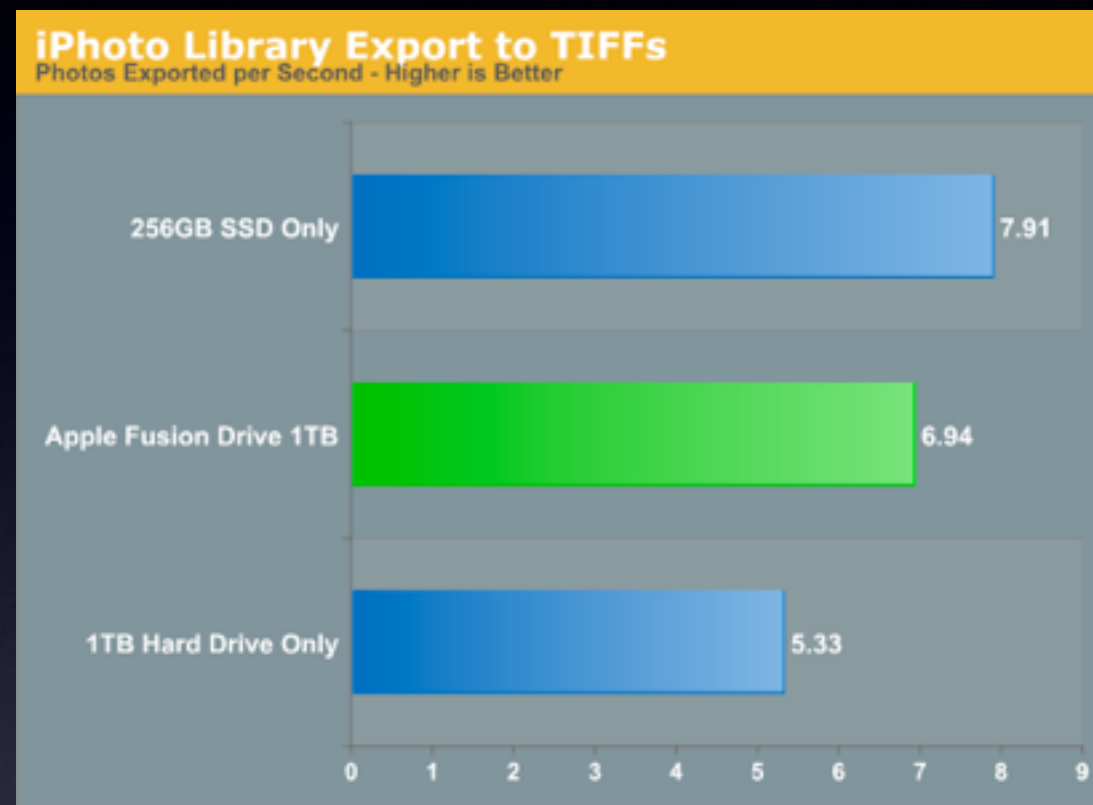
- Combines SSD and HDD
- One Logical Volume
- Not Caching
- Not a RAID
- Disk Utility
- Writes to SSD
- Partitioning - HDD
- Back Up!

Hybrid



- Smaller SSD - 32GB or 64GB
- Intel Smart Response, Seagate Momentus
- SSHD

Fusion Continued



Source: AndandTech, January 2013

Final Note: The bigger the files, the lower the Fusion benefit.

RAID

Levels

- 0 Striped
- 1 Mirrored
- 5 Striped with Parity
- 6 Striped with Double Parity
- 10 Mirrored and Striping

RAID is NOT backup! RAID is not backup!

RAID

Hardware or Software

- Cost
- Basic Fault Tolerance
- More Advanced Needs
- Performance

RAID and Mac OS X

- Software RAID in Disk Utility
- 10.8 Boot Volume Possible, But No Recovery Partition
- External RAIDs a Great Option
- RAID Card for Mac Pro



RAID

3rd Party

- Promise, Infortrend, NetApp, Space
- Connectivity - Fibre, Enet, Thunderbolt..
- SAN, NAS



RAID is NOT backup! RAID is not backup!

Bus Speeds



....and Performance

A Fluid Situation

Factors

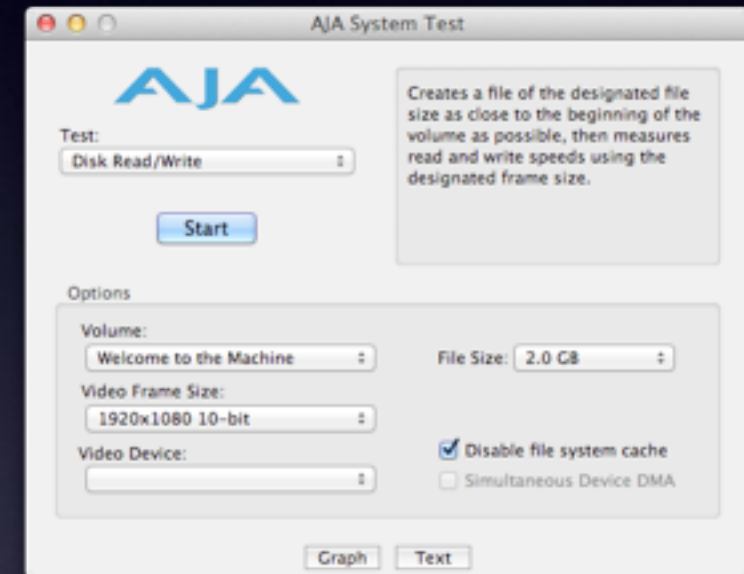
- Speed of the Protocol
- Type of Drive
- Hub
- Power
- Chain
- Find The Sweet Spot
- NAS or SAN
- Stay Current

Bus Speeds Continued

Research & Test

MacWorld - May 24, 2013

“How Fast is USB 3.0 Really?”



*While you won't see a tenfold increase in the transfer speed from USB 2.0 to USB 3.0 in real-world use, USB 3.0 is fast—**about three times faster than USB 2.0 with a spinning hard drive**, and three to five times faster with SSD. And using a hub doesn't impact speeds, even with other (and slower) peripherals attached. USB 3.0 is also faster than FireWire 800, and it stacks up favorably against Thunderbolt. Also, depending on the task and the drives used, it can be just as fast Intel's speedy connection. When you remove the drive-speed bottleneck (by **using an SSD**), however, Thunderbolt can trump USB 3.0 easily.*

Backup

Mitigating Threats to Data

Accidental Deletion
Intentional Malicious Deletion
Hardware Failure
Software Failure
Disaster, Fire, Flood
Hardware Theft



Backup Hardware

Where is the Data Going to Live?

Apple Time Capsule
Wired HDD, SSD, SSHD
RAID
Hosted Storage
Tape



Backup Software

Who is Driving the Truck?

Mac OS X Time Machine

Druva!

Dolly Drive

Carbonite

Mozy

PresSTORE

CrashPlan

Cloning Utilities - CCC, Super Duper

Dropbox, Box, Etc.

Backup Approach

Recommending the Right Tool

- Type of business?
- How much data?
- How much new data is being generated?
- How quickly does recovery need to happen?
- Legal compliance issues?
- Encryption.
- Online, Nearline, Offline.
- Archival.

Other Backup Considerations

- iCloud
 - Does not backup non-iTunes music, movies, TV, podcasts, audiobooks, photos from PC.
- Test! Run a fire drill. Protect your client and yourself.
- Budgeting and planning for growth.
- RAID is not backup. NAS is not backup. SAN is not backup.

RAID IS NOT BACKUP



RAID is NOT backup! RAID is not backup!

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Thank You

Tim Hassett

tim@appogee.com

<http://www.appogee.com>

@appogeeT

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