Flash Storage - a New Architecture or a New Media Type?

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What is hot in Storage and impacting on storage architectures?

Action  
Suspense  
Mystery  

Flash  
Software Defined  
Object
Whats Hot in Storage?

Major technology trends impacting on storage architectures

**Solid State / Flash**
- The hottest enabling technology approaching mainstream status
- Transformational capabilities for speed sensitive apps
- Probably receiving the most investment $$ within the industry
- Few optimised architectures

**Software Defined ‘X’**
- Extending software defined datacenter into storage
- Hardware agnostic and hypervisor independent
- Hardware becomes totally customer choice
- All value, and data services are software based
- Extends hardware life

**Object based**
- Commonly used in ‘cloud storage’ use cases
- Storage systems designed with database ‘like’ access methods built-in
- Designed for apps requiring lite-weight methods for storing and retrieving data
- Taking over from ‘file’
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<th>Benefit</th>
<th>Years to Mainstream Adoption</th>
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<td>Enterprise-Grade Solid-State Drives</td>
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Just a new media type?
No, ...a transformational enabler
And all fuelled by FLASH
NOW: FLASH - Key enabler of the Digital Lifestyle

...however, there are pitfalls

Source: Microsoft, Digital Lifestyle
NEXT: FLASH - Key enabler of the Modern Datacenter

...and pitfall free in the right architecture...
Flash enable new possibilities – but breaks old architectures

What could a business do if it could process 500% more transactions per second on 90% fewer disks?

“Solid-state drive devices can deliver data at phenomenal speeds...But can dual-controller based storage handle the data equivalent of switching from a water bubbler to a fire hose?”

Dennis Martin, Founder and President of Demartek
Why use flash in Storage Infrastructure?

- Increased revenue
- Quicker Decisions
- Lower Licensing Cost
- Lower Footprint Cost
- Lower Power and Cooling Cost
Flash accelerates applications
So you and your customers are not left waiting, or queueing, or giving up
All Flash Arrays to help reduce Oracle licensing costs

- **Oracle licenses and maintenance comprise 53% of cost**
- **To reduce Oracle license and maintenance costs:**
  - Optimize Servers: add more memory, increase speed, reduce # cores
  - Leverage flash storage to improve response times and reduce latency
  - Optimize storage infrastructure.
- **This approach will increase infrastructure costs per core by around 9%**
- **However this will reduce database license and maintenance costs by about 42%**.

How do you get from where you are to flash everywhere?
Choose Hot Apps for Flash Storage

The “green zone” continues to enlarge

- HPC
- Web Applications
- Data Analytics
- User Files
- Business OLTP
- Virt. Apps & VDI

More Performance

More Capacity

Less Capacity
HP 3PAR Flash Strategy Enables Seamless Transition

Polymorphic Simplicity
ONE Architecture
- ONE Operating System
- ONE Interface
- ONE Feature Set

All FLASH STORAGE
Consistent low latency
- Single Flash Tier
  - 3PAR StoreServ 7450, 7400, 7200

HYBRID STORAGE
Balance cost & performance
- 3PAR 7000, 10000
  - SSDs + Adaptive Optimization

HDD Storage
Cost-optimized
- 3PAR StoreServ 7000, 10000
It’s what is in the Architecture that matters

What matters to our engineers will matter to you

Cost, reduction
- Highest quality flash at the lowest possible cost
- Power and Cooling
- Rack Density
- Compaction Technologies
  - Thin Technologies
  - Adaptive Sparing

Performance, acceleration
- Incremental code changes deliver higher IOPS at lower latency
- Optimal performance per SSD with guaranteed minimum performance levels agreed with vendor
- Express Indexing

Availability
- Persistence Technologies
- NSPOF Architecture
- Six Nines, guaranteed

Service Level
- Mesh-Active
- ASIC acceleration
- Fine grained OS with system wide striping
- Mixed workload
- Storage QoS

HP 3PAR delivers the best service level at the lowest transactional cost
FLASH: It can be *just new media* – but ONLY in the *right architecture*

You want Flash benefits: New specific architecture  **OR**  incorporate Flash as a new media?

- **New flash-specific architecture** - proliferates silo'ed fragmented complexity, additional risk and requires compromises.

- **New media** - adopt flash (or other solid state technology) in an existing flash optimised architecture and deliver acceleration and cost savings – without compromise.

This way, You can adopt flash when ready without a rip and replace of your architecture.

**HP 3PAR is in a unique position to offer YOU a seamless transition to Flash**
Storage for the datacenter of the future

**HP 3PAR StoreServ delivers TODAY**

**Affordable and Autonomic all flash platform**
- Easy to put FLASH FIRST

**Modern Tier 1 Storage Architecture**
- Allows you to deploy flash on your terms and your timeline
- Easily move data to or from flash

**Availability guaranteed**
- New Get 6-Nines Guarantee
HP 3PAR StoreServ FLASH

**FAST**
- 900,000 IOPS at 700 microseconds
- 510,000 IOPS at 378 microseconds

**Low Cost**
- $2/GB Usable with Compaction Technologies

**Autonomic**
- System-wide Striping, Rapid Provisioning

**Scalable**
- >450TB all-flash raw, >1.3PB Usable capacity

**Highly Available**
- Quad-controller resilience with most complete data services (RC, QoS, Federation)
It’s no illusion…

FLASH is ready for your datacenter

…and pitfall free!

Thankyou.