

# A File System for Use with Emerging Non-Volatile Memories

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CTO, Plexistor

- NVM – A new era in storage
- How do I use it?
- What's in it for me?
- When?

# NVM – A new era in HW



HDD

IOPS  
(even if random...)



FLASH

Latency  
(even under load...)



NVM

NVDIMM marries the best of both worlds:

Memory  
Speed

+

Storage  
Persistence



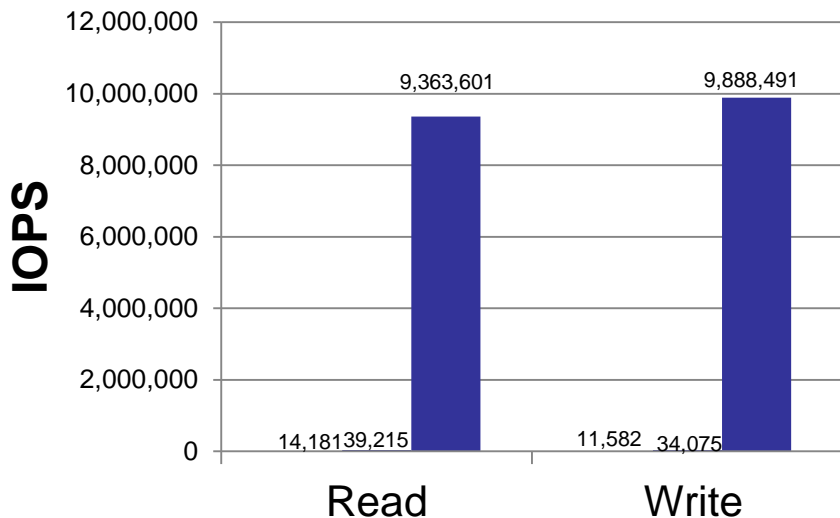
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## Infrastructure software reinvented, because:

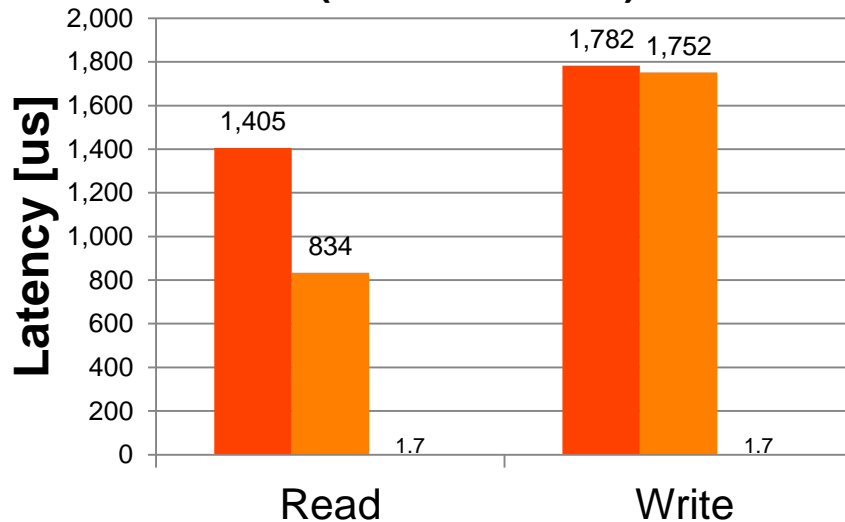
- Redundant block representation
- Media latency  $\ll$  Software latency
- Too many software layers
- Redundant SW-caching architecture



## Random 4KB IOPS



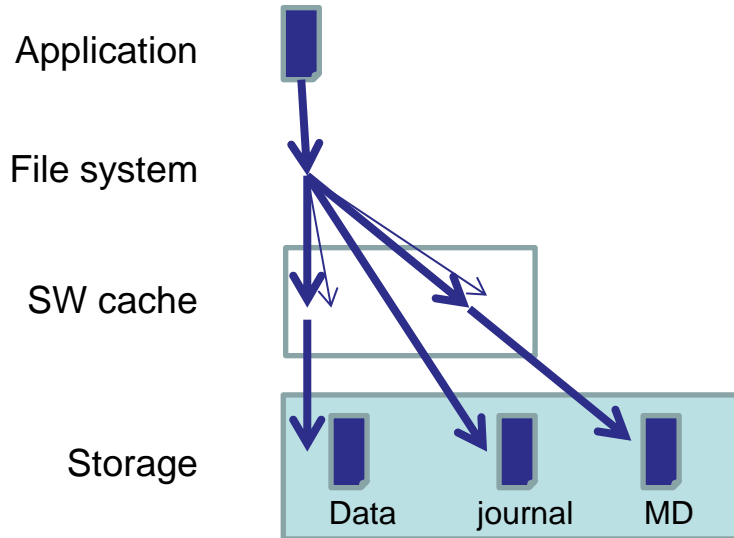
## Latency (under full load)



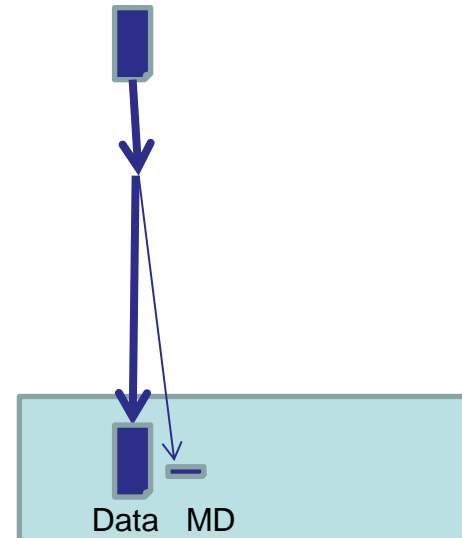
■ NFS   
 ■ DAS   
 ■ Plexistor

# Why is it more efficient?

## Block-based Model



## NVM-based Model



## Three types of “me”:

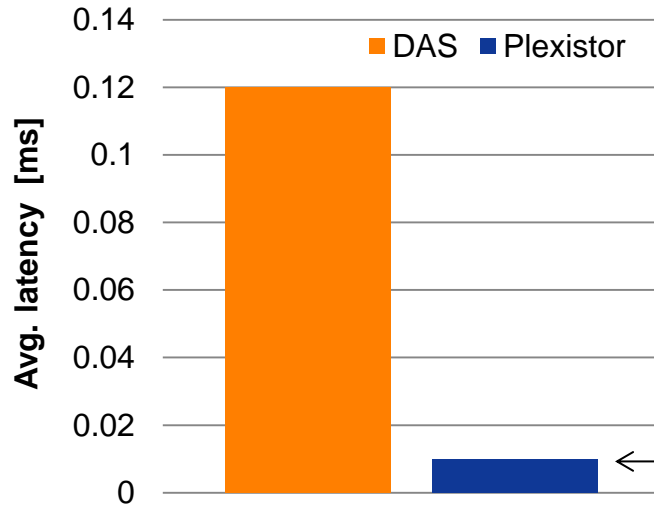
- End user
- IT administrator
- Application developer

# What's in it for me?

- End user
- IT administrator
- Application developer

*Better user experience*

**SPEC SFS 2014**



← Rounded up to the minimal value that the tool can report

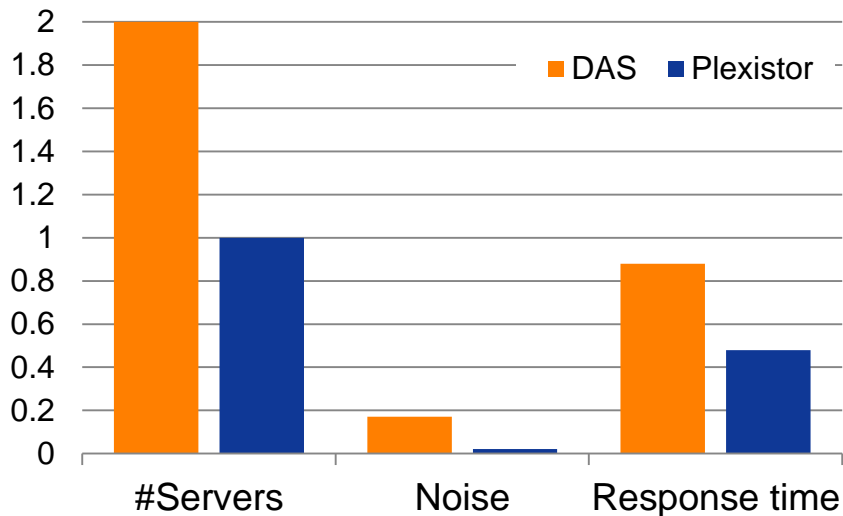


# What's in it for me?

- End user
- IT administrator
- Application developer

**Lower TCO**

**Running 10 OLTP instances  
(15K trans/sec per instance)**



# What's in it for me?

- End user
- IT administrator
- Application developer

*Simplify Development*

~~Async mmap  
Sync Direct I/O Small files  
Sub block access  
Random access Store & reuse  
SW caching~~

Application developers can  
focus on business logic, not storage

- Early access available to
  - Selected customers
  - ISVs
- Register at [www.plexistor.com](http://www.plexistor.com)

Comments are welcome:  
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