

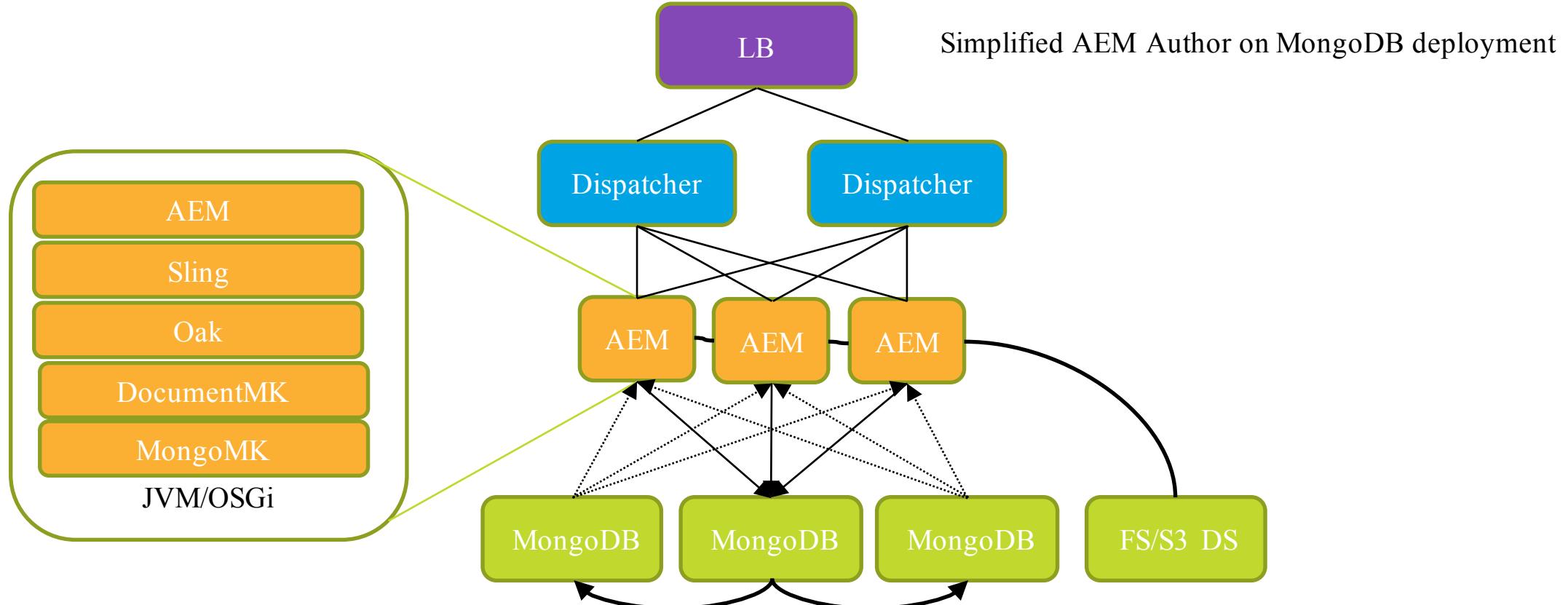


# AEM Gem. AEM on MongoDB

Dr Ian Boston – Senior Engineer



# AEM on MongoDB



# Before considering AEM on MongoDB

Only supported for Author deployments that are expecting:

- 
- > 1000 unique users/authors per day.
  - > 100 concurrent authors.
  - High volumes of page edits.
  - Large volumes of rollouts.

Normally Adobe Engineering will confirm support once the deployment Architecture is available.

<https://docs.adobe.com/content/docs/en/aem/6-1/deploy/platform/aem-with-mongodb.html>

# Exposure to MongoDB

Before Adobe

20 years of RDBMS work

Sling

Jackrabbit

etc.

@Adobe

Escalation involvement  
Oak PoC's and  
experiments

<https://www.flickr.com/photos/edwinmabrey/> 

## Version Compatibility

- AEM 6.0 - MongoDB 2.6
- AEM 6.1 – MongoDB 2.6, 3.0
- AEM 6.2 – MongoDB 2.6, 3.0, 3.2 (TBC)

# What is MongoDB ?

- Commercial Open Source
- NoSQL Column Database
- Key Value Store
- Secondary indexes
- Query language

MongoDB	Relational
Key-value Queries	Yes
Secondary Indexes	Yes
Index Intersection	Yes
Range Queries	Yes
Geospatial	Yes
Text Search	Yes
Aggregation	Yes
MapReduce	Yes
Idiomatic Drivers	Yes
Left Outer JOINs (\$Lookup)	Yes

To learn more about the differences in data models, download our Relational Data Model Guide.



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A GIANT LEAP  
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A Gartner Magic Quadrant Leader  
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Images from MongoDB

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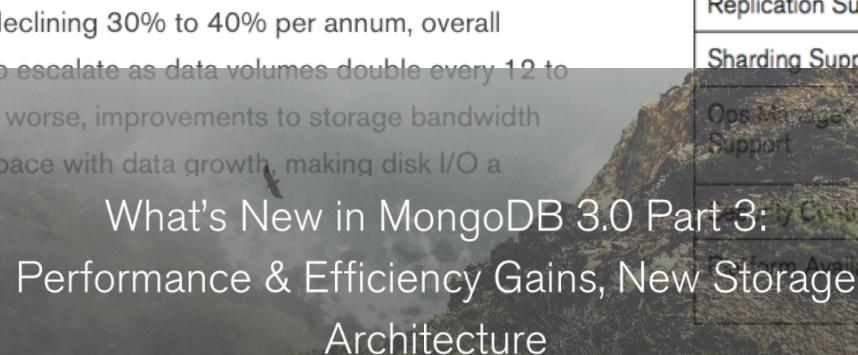
Adobe

# Storage Engine Versions

- MongoDB 2.6 with MMAPv1 Storage Engine
- MongoDB 3.x or later with WiredTiger

## Compression: Up to 80% Reduction in Storage Costs

Despite data storage costs declining 30% to 40% per annum, overall storage expenses continue to escalate as data volumes double every 12 to 18 months. To make matters worse, improvements to storage bandwidth and latency are not keeping pace with data growth, making disk I/O a



What's New in MongoDB 3.0 Part 3:  
Performance & Efficiency Gains, New Storage  
Architecture

[Watch a Technical Intro to WiredTiger](#)

## Higher Performance & Efficiency

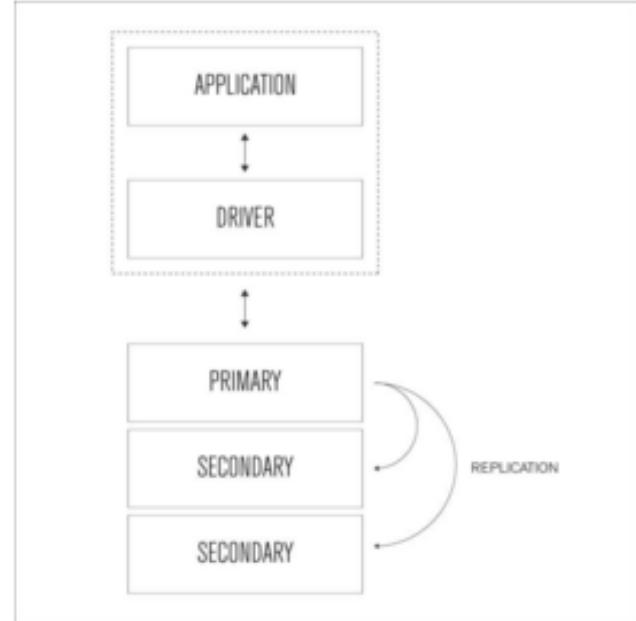
## Between 7x and 10x Greater Write Performance

	MongoDB WiredTiger	MongoDB MMAPv1
Write Performance	Excellent Document-Level Concurrency Control	Good Collection-Level Concurrency Control
Read Performance	Excellent	Excellent
Compression Support	Yes	No
MongoDB Query Language Support	Yes	Yes
Secondary Index Support	Yes	Yes
Replication Support	Yes	Yes
Sharding Support	Yes	Yes
Ops Manager & MMS Support	Yes All features including deployment, upgrade, backup, restore, and monitoring	Yes All features including deployment, upgrade, backup, restore, and monitoring
Scalability Controls	Yes	Yes
Platform Availability	Linux, Windows, Mac OS X	Linux, Windows, Mac OS X, Solaris (x86)

**Table 1:** Comparing the MongoDB WiredTiger and MMAPv1 storage engines

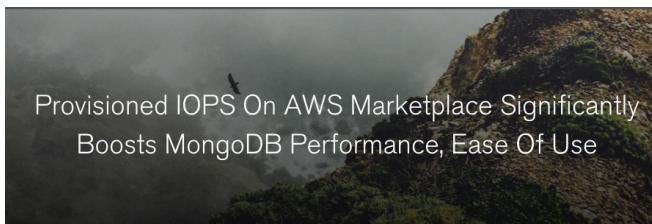
# Scaling

- Read:
  - Replica Sets, 1 Primary, many secondaries, scaling read.
  - Some reads in Oak always go to primary.
- Write:
  - Shards of ID index scaling replica sets.
  - Not elastic, must be managed, not truly horizontal.
  - Post deployment sharding



# Operational

- In memory database.
- Working Set always in RAM
- IOPS

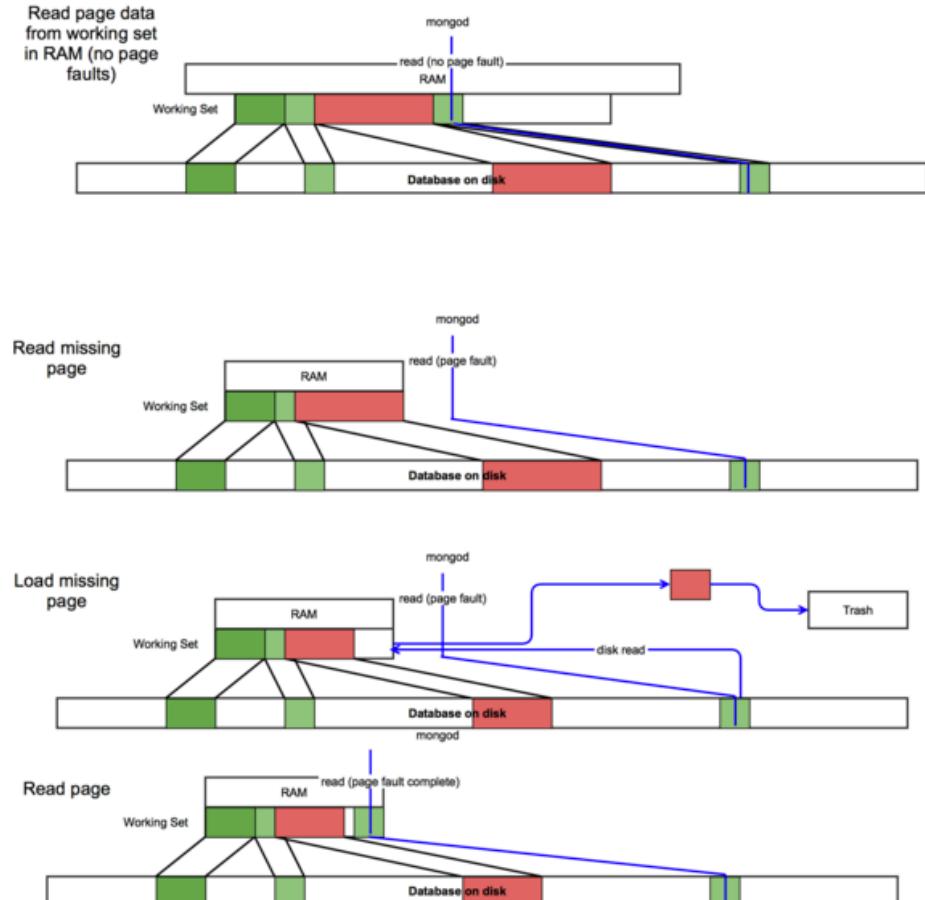


Provisioned IOPS On AWS Marketplace Significantly Boosts MongoDB Performance, Ease Of Use

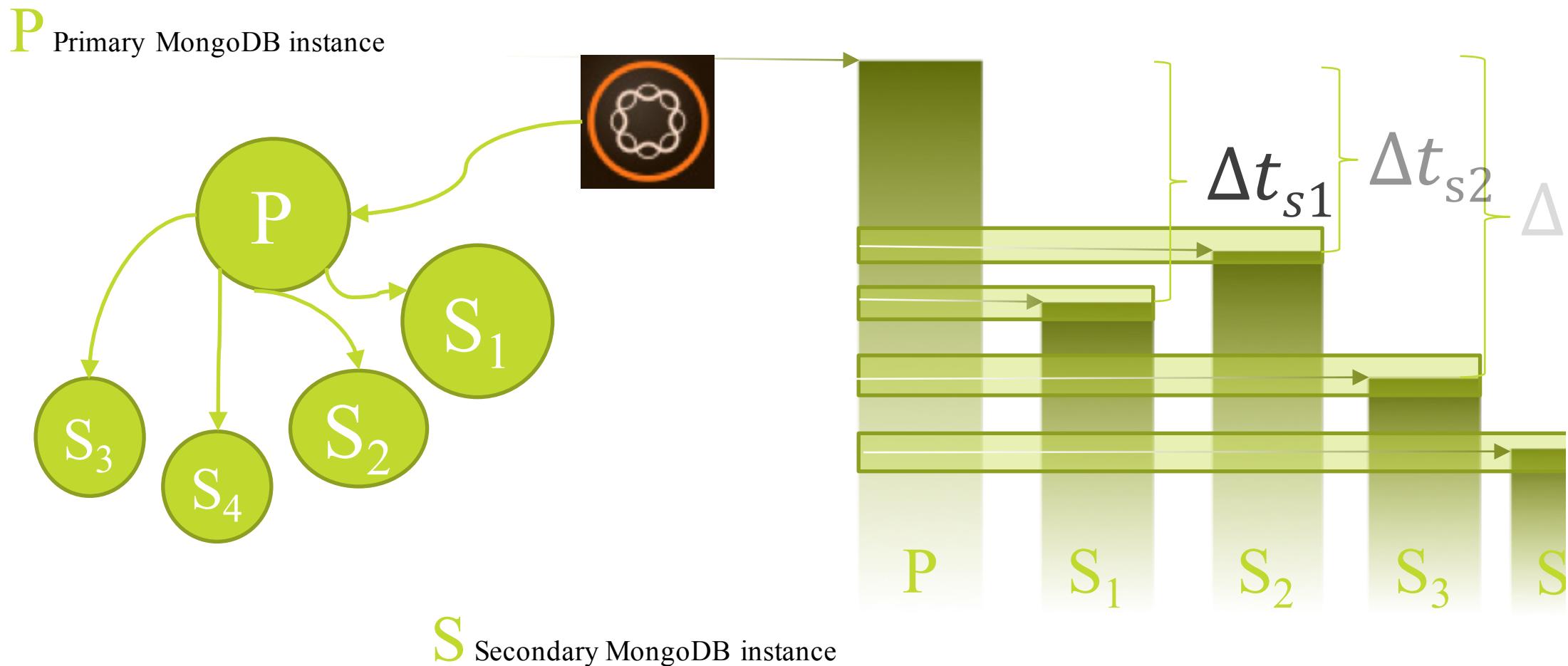
Jared Rosell  
May 7, 2013

One of the largest factors affecting the performance of MongoDB is the choice of storage configuration. As data sets exceed the size of memory, the random IOPS rate of your storage will begin to dominate database performance. How you split your logs, journal and data files across drives will impact performance and the maintainability of your database. Even choice of filesystem and read-ahead settings can have a major impact. A large number of performance issues we encounter in the field are related to misconfigured or under-provisioned storage. Storage configuration is often more important than instance size in determining the expected performance of a MongoDB server.

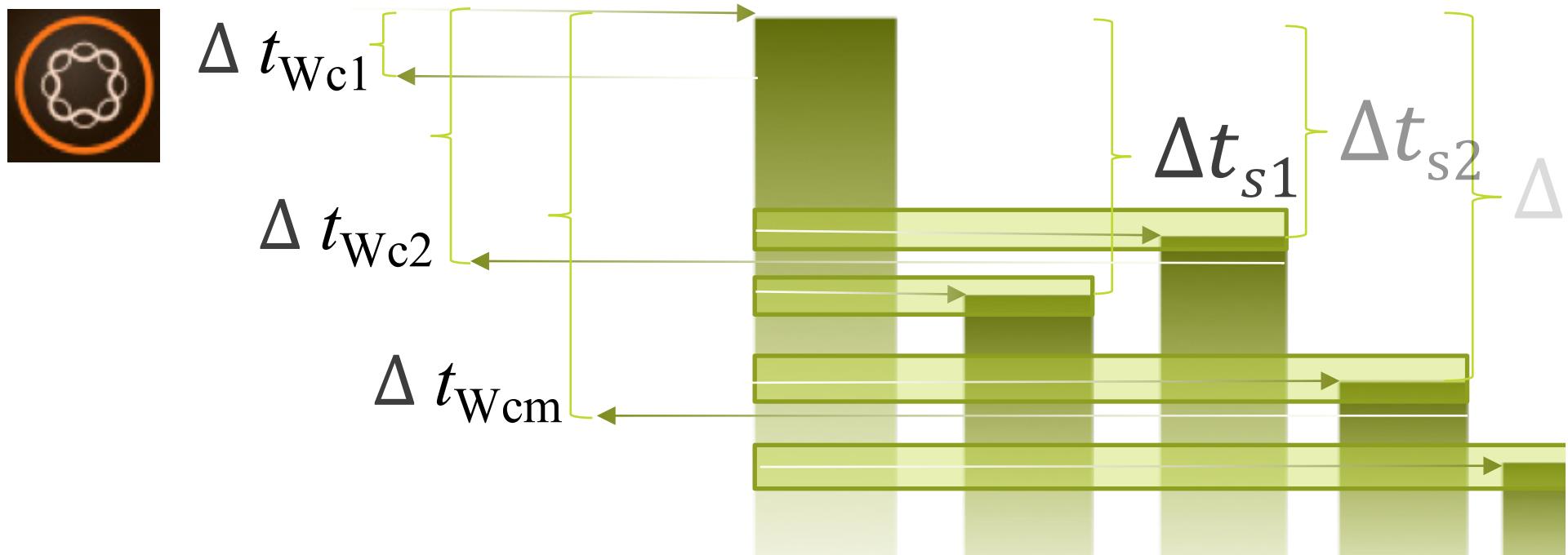
MongoDB With Provisioned IOPS: Better Performance, Less Guesswork



## Replication - OPLog

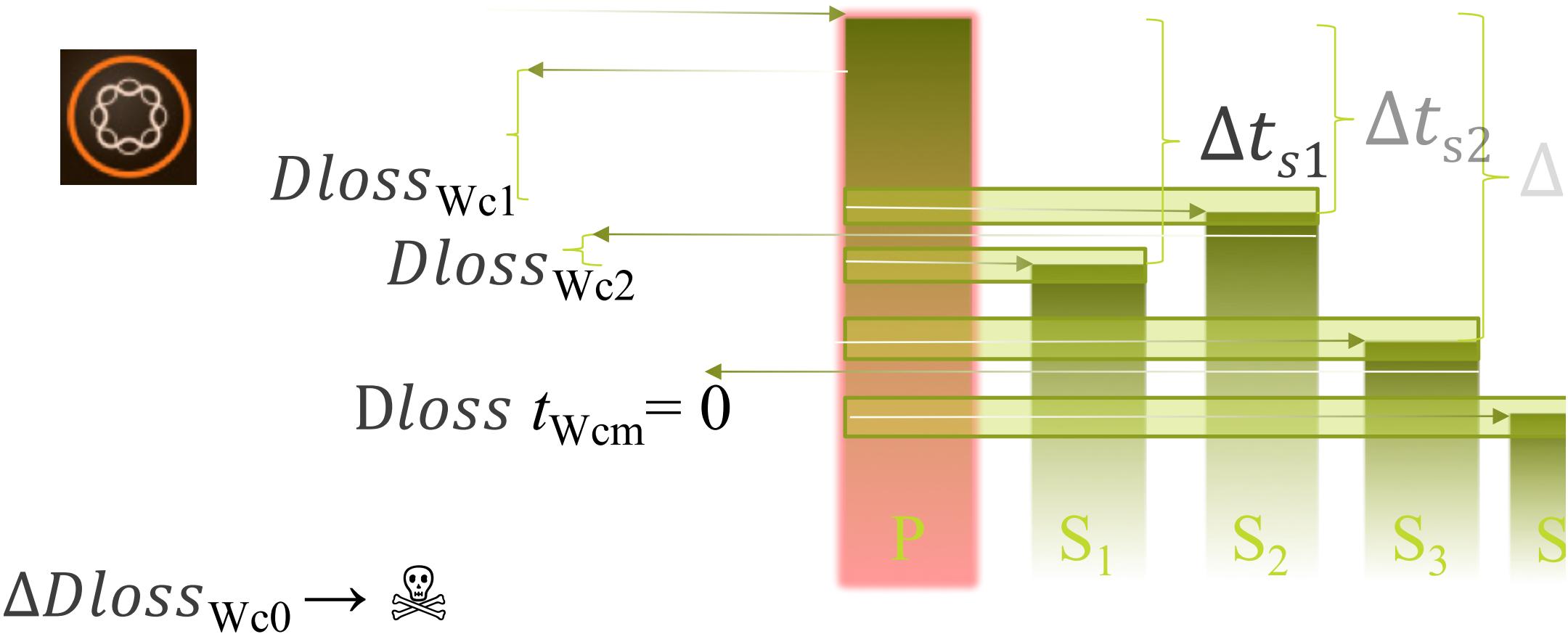


## Write Concern Impact



$$\Delta t_{Wc0} \rightarrow 0$$

## Resilience and data loss



# Summary



- Pre-requisites.
- Latest Supported version
- Sufficient RAM
- 3 Way Replica Set
- Write Concern of Majority
- FS or S3 DataStore
- Monitor OPLog and Page Faults
- Optimize Oak for 99% read first.

<https://docs.adobe.com/content/docs/en/aem/6-1/deploy/platform/aem-with-mongodb.html>

Questions ?



Adobe Experience Manager

