AEM Gem. AEM on MongoDB
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AEM on MongoDB

Simplified AEM Author on MongoDB deployment
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
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
Storage Engine Versions

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

Table 1: Comparing the MongoDB WiredTiger and MMAPv1 storage engines

<table>
<thead>
<tr>
<th>Feature</th>
<th>MongoDB WiredTiger</th>
<th>MongoDB MMAPv1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write Performance</td>
<td>Excellent</td>
<td>Good</td>
</tr>
<tr>
<td>Read Performance</td>
<td>Excellent</td>
<td>Excellent</td>
</tr>
<tr>
<td>Compression Support</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MongoDB Query Language Support</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Secondary Index Support</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Replication Support</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sharding Support</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ops Manager &amp; MMS Support</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Support</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Operations</td>
<td>Linux, Windows, Mac OS X</td>
<td>Linux, Windows, Mac OS X, Solaris (x86)</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
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<tr>
<td>Capabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup, Restore, and Monitoring</td>
<td>All features including deployment, upgrade backup, restore, and monitoring</td>
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</tr>
</tbody>
</table>

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 performance bottleneck.
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
Replication - OPLog

Primary MongoDB instance

Secondary MongoDB instance

$\Delta t_{s1}$

$\Delta t_{s2}$
Write Concern Impact

\[ \Delta t_{Wc0} \rightarrow 0 \]
Resilience and data loss

$D_{loss_{\text{Wc1}}}$

$D_{loss_{\text{Wc2}}}$

$D_{loss} t_{W_{cm}} = 0$

$\Delta D_{loss_{\text{Wc0}}} \rightarrow \bonehead$
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.

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Questions?