Object Stores (Ceph)

To deliver a more cost-effective, consistent user experience, designers are moving tiered object stores from legacy HDDs to SATA QLC SSDs. The Micron® 5210 delivers.

<table>
<thead>
<tr>
<th>Everyday Ceph Metric</th>
<th>HDD</th>
<th>5210</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read performance</td>
<td>3 GB/s</td>
<td>23 GB/s</td>
<td>7X higher</td>
</tr>
<tr>
<td>Write performance</td>
<td>1.5 GB/s</td>
<td>9 GB/s</td>
<td>6X higher</td>
</tr>
<tr>
<td>Read latency</td>
<td>290 ms</td>
<td>56 ms</td>
<td>5X higher</td>
</tr>
<tr>
<td>Write latency</td>
<td>1,760 ms</td>
<td>185 ms</td>
<td>7X lower</td>
</tr>
</tbody>
</table>

Four storage node cluster, 15TB data set size, 4MB objects, RADOS benchmark results (5210 x12 test details here; 7200 RPM 3.5-inch HDD x60 data from third party brief)

### Micron 5210 QLC SSD vs. Legacy HDDs

**5210 Advantage 5X Better Performance**

How much is your time worth?

**Typical Object Store Workload**

- Storage access pattern: random reads & writes
- Storage IO size: ≥1 MB
- Read/write ratio: 90% read / 10% write

**How the workload works:**
- Data accessed/saved as objects in large stores (PBs of objects)
- Frequently accessed objects stored in cache tier (most objects in slow tier)
- User experience depends heavily on fast object access
- HDDs are slow tier bottleneck & SATA QLC SSDs are affordable solution

Ready to learn more? Read Micron’s in-depth research on object stores