

Scaling dotCMS thru Multiple Services

Chris McCracken & Daniel Silva



Why should I scale out externally?

- Smaller JVM
 - Improved GC
 - Better availability & performance
- Fault isolation
- More targeted scaling
- Less downtime
- Service persistence

External ElasticSearch



ElasticSearch roles

- Data node
 - Contains the indexes
 - Handles the heavy lifting for search & indexing
- Master node
 - Manages the cluster topology & state
- Client node
 - dotCMS

Scaling Elasticsearch

- dotCMS is atypical use case
- More shards = faster indexing
- More shards = slower querying
- A shard is the unit of scalability
- More replicas = more queries

External Elasticsearch Considerations

- The ES cluster **MUST** be dedicated to dotCMS
- The ES version **MUST** match the correct version for your dotCMS version
- External ES integration currently requires ES transport mode connectivity

Common dotCMS + ElasticSearch Topologies

1 cms server (client node)

1 ES server (master + data node)

2-n cms server cluster (client node)

3-n ES server cluster (master + data node)

2-n cms server cluster (client node)

3-n ES master node cluster

2-n ES data node cluster

External Cache Provider



External Cache

- What is in the cache?
- Cache organization (regions)
- How the cache is used:
 - Earliest cache is the best cache

Cache chaining

- New in 3.3
- Multiple cache PROVIDERS for a given region
- Balance performance vs features to best use providers
- Built-in:
 - Guava (in-heap)
 - H2 (disk)
 - TTL (time-based)
 - Redis (external in-memory key-value store)

External Cache Provider Benefits

- Memory offload (smaller heap, faster GC)
- Durability (persists across CMS restart)
- Auto-scaling optimization (cold-start database hit)
- Scaling

External Cache Considerations

- Performance (latency)
- Management
- Requires dotCMS Enterprise Edition

External Cache Best Practices

DO:

- Use external cache for EARLY caches
- Use external cache for BIG caches
- Size external cache large
- Deploy external cache as high-availability

DON'T:

- Use external cache globally
- Use external cache for high-volume small things
- Flush cache except as last resort
- Run external cache on the same server as dotCMS

External Services Demo



Q & A

