

## MongoDB Training Syllabus

### Intro to MongoDB

- Concepts
- Scaling
- SQL and Complex Transactions
- Documents Overview
- Installing MongoDB (windows)
- Installing MongoDB (linux)
- JSON
- Dynamic Schema
- Mongoimport
- Cursors Introduction
- Query Language: Basic Concepts
- Query Language: Projection
- Query Language: Advantages of a Dynamic Schema
- Shell: Queries
- Sorting
- Query Language: Cursors

### CRUD, ADMIN COMMANDS

- Insertion
- Update
- save() Command
- Partial Updates & Document Limits
- Removing Documents
- Multi Update
- Upsert
- Wire Protocol
- Bulk() Operations and Methods
- Common Commands
- db.runCommand()
- db.isMaster()
- db.serverStatus()
- db.currentOp() & db.killOp()

- collection.stats() & collection.drop()
- Review of Commands

### **Storage Engine**

- Introduction
- Storage Engine: WiredTiger
- createIndex(), getIndexes() & dropIndex()
- Collection Scans
- Index Notes
- Unique Indexes
- Sparse Indexes
- TTL Indexes
- Geospatial Indexes
- Text Indexes
- Background Index Creation
- Explain Plans
- Covered Queries
- Read & Write Recap
- currentOp() & killOp()
- The Profiler
- mongostat and mongotop

### **Replication Overview**

- Asynchronous Replication
- Statement-based vs. Binary Replication
- Replication Concepts
- Automatic Failover
- Recovery
- Starting Replica Sets
- Initiating a Replica
- Replica Set Status
- Replica Set Commands
- Reading & Writing
- Failover
- Read Preference
- Read Preference Options

## **Reconfiguring a Replica Set**

- Arbiters
- Priority Options
- Hidden Option & Slave Delay
- Voting Options
- Applied Reconfiguration
- Write Concern Principles
- Examining the 'w' Parameter
- Write Concern Use Cases & Patterns
- Reexamining the Page View Counter Pattern
- wtimeout & Capacity Planning
- Replica Sets in a Single Datacenter
- Replica Sets in Multiple Datacenters
- Replica Sets and Storage Engine Considerations

## **Scalability**

- Sharding & Data Distribution
- Replication with Sharding
- Chunks & Operations
- Sharding Processes
- Cluster Topology
- Running on localhost
- The Config Database
- Adding the Initial Shards
- Enable Sharding for a Collection
- Working with a Sharded Cluster
- Cardinality & Monotonic Shard Keys
- Shard Key Selection Example
- Process and Machine Layout
- Bulk Inserts and Pre-splitting

## **Backup and Restore**

- Overview of Security
- Security continued: Authentication and Authorization
- SSL and Keyfiles
- Security and Clients



- Intra-cluster Security
- Overview of Backing Up
- Mongodump
- Filesystem Snapshotting
- Backing Up a Sharded Cluster
- Backup Strategies
- Additional Features of MongoDB
- GridFS

### **Overview (Tools, Cloud Manager, Bash Scripting)**

- Tools -RoboMongo
- Cloud Manager (Configuring and Working with MMS, Automation)
- Bash Scripting (Basics)

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