

In this lecture, we will discuss...

- ✧ What MongoDB is
- ✧ Reasons to use MongoDB

What is MongoDB

- ✧ Created by 10gen (term coined from humongous)
- ✧ Definition:
 - MongoDB is an open source, document-oriented database designed with both scalability and developer agility in mind
- ✧ Storage: JSON-like documents and “schemaless”
- ✧ Well suited for Object Oriented programming



What is MongoDB?

- ✧ Stores data in **BSON** format (Binary JSON)
- ✧ Binary form for representing **simple data structures** and **associative arrays**

```
1 {  
2   "_id": 101,  
3   "title": "The Departed",  
4   "type": "Movie",  
5   "director": "Martin Scorsese",  
6   "actors": [  
7     {  
8       "actorName": "Leonardo DiCaprio",  
9       "character": "Billy",  
10      "main": true,  
11      "urlCharacter": "http://www.imdb.com/character/ch0251381",  
12      "urlProfile": "http://www.imdb.com/name/nm0000138"  
13    },  
14    {  
15      "actorName": "Matt Damon",  
16      "character": "Colin Sullivan",  
17      "main": true,  
18      "urlCharacter": "http://www.imdb.com/character/ch0002488",  
19      "urlProfile": "http://www.imdb.com/name/nm0000354"  
20    }  
21  ]  
2 }
```

Document Store (Mapping)

RDBMS	MongoDB
Database	Database
Table, View	Collection
Row	JSON Document
Column	Field
Index	Index
Join	Embedded Document / Linking across Document
Foreign Key	Reference
Partition Key	Shard



Sample Query – SQL vs. Mongo

SQL	Mongo
CREATE TABLE movies(movieid int NOT NULL AUTO_INCREMENT, name VARCHAR(30), rating VARCHAR(6), PRIMARY KEY (movieid))	db.movies.insert({ "id": 10, "name": "Titanic", "rating": "R" })
SELECT * FROM movies	db.movies.find()
UPDATE movies SET rating = "NR" WHERE movieid = 101	db.movies.update({"id": 101 }, { \$set: { rating: "NR" } })
DELETE FROM movies WHERE rating = "R"	db.movies.remove({ "rating": "R" })



Why MongoDB?

- ✧ “Queryable” documents
- ✧ No impedance mismatch between object and DB form
 - Ideal for web applications (fast retrieval)
- ✧ Quick and easy integration of new data variations
- ✧ Rich API support (multiple languages)

Ruby On Rails & Mongo

✧ Ruby Driver

- <http://docs.mongodb.org/ecosystem/tutorial/ruby-driver-tutorial/>

✧ Mongoid

- <http://docs.mongodb.org/ecosystem/tutorial/ruby-mongoid-tutorial/>



MongoDB Users

MetLife



Forbes



MongoDB Core Topics With Ruby/Rails

- ✧ MongoDB Ruby Driver
- ✧ Aggregation Framework
- ✧ GridFS – breaking large files in to smaller chunks
- ✧ Geo Spatial - index and query geospatial data
- ✧ Mongoid



Summary

- ✧ Open Source DB
- ✧ Automatic Scaling
- ✧ High Performance
- ✧ “Schema-less” and Document Oriented

What's Next?

- ✧ MongoDB Installation

