



19CAE730 - NoSQL Database System

MONGOD

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**Sathishwaran K
Raghuganapathy**

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What is MongoDB?

- MongoDB is an open source, document-oriented database designed with both scalability and developer agility in mind.
- Instead of storing your data in tables and rows as you would with a relational database, in MongoDB you store JSON-like documents with dynamic schemas(schema-free, schema less).



MongoDB does not need any pre-defined data schema
Every document could have different data!

```
{name: "will",  
  eyes: "blue",  
  birthplace: "NY",  
  aliases: ["bill", "ben"],  
  loc: [32.7, 63.4],  
  boss: "ben"}
```

```
{name: "jeff",  
  eyes: "blue",  
  loc: [40.7, 73.4],  
  boss: "ben"}
```

```
{name: "brendan",  
  boss: "will"}
```

```
{name: "ben",  
  age: 25}
```

```
{name: "matt",  
  weight: 60,  
  height: 72,  
  loc: [44.6, 71.3]}
```

RDBMS vs MongoDB

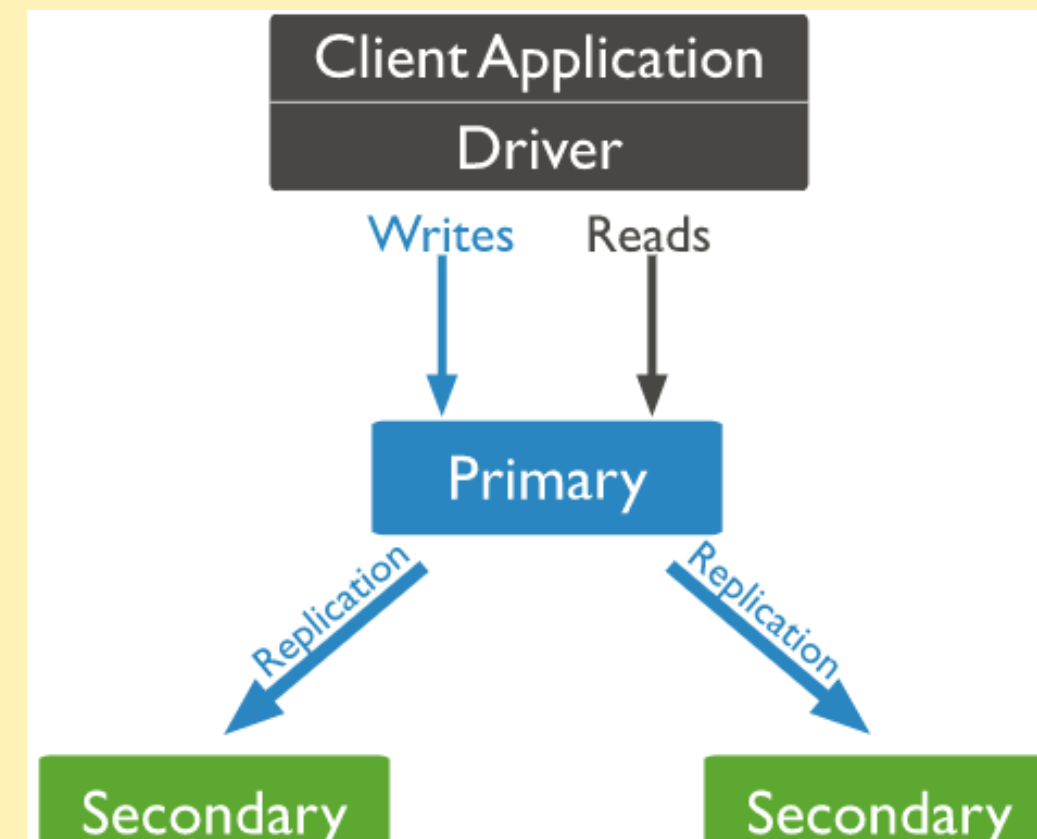
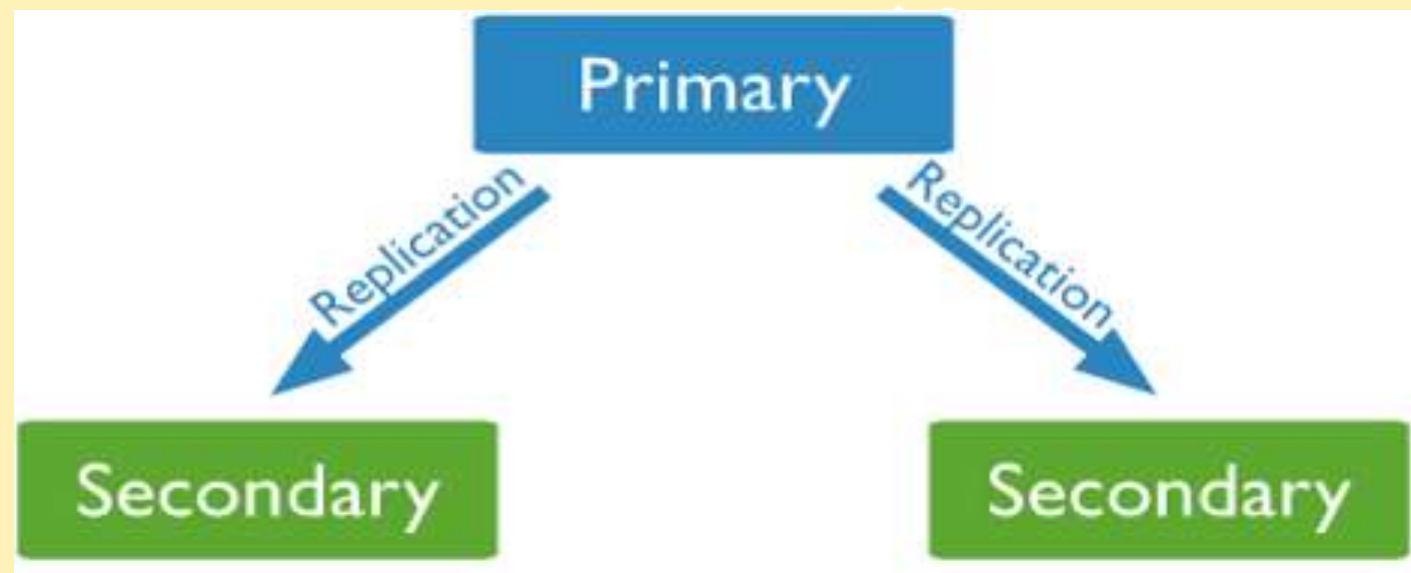
RDBMS		MongoDB
Database	➡	Database
Table	➡	Collection
Row	➡	Document (JSON, BSON)
Column	➡	Field
Index	➡	Index
Join	➡	Embedded Document
Partition	➡	Shard

Features Of MongoDB

- Document-Oriented storage
- Full Index Support
- Replication & High Availability
- Auto-Sharding
- Aggregation
- MongoDB Atlas
- Various APIs
 - JavaScript, Python, Ruby, Perl, Java, Java, Scala, C#, C++, Haskell, Erlang
- Community

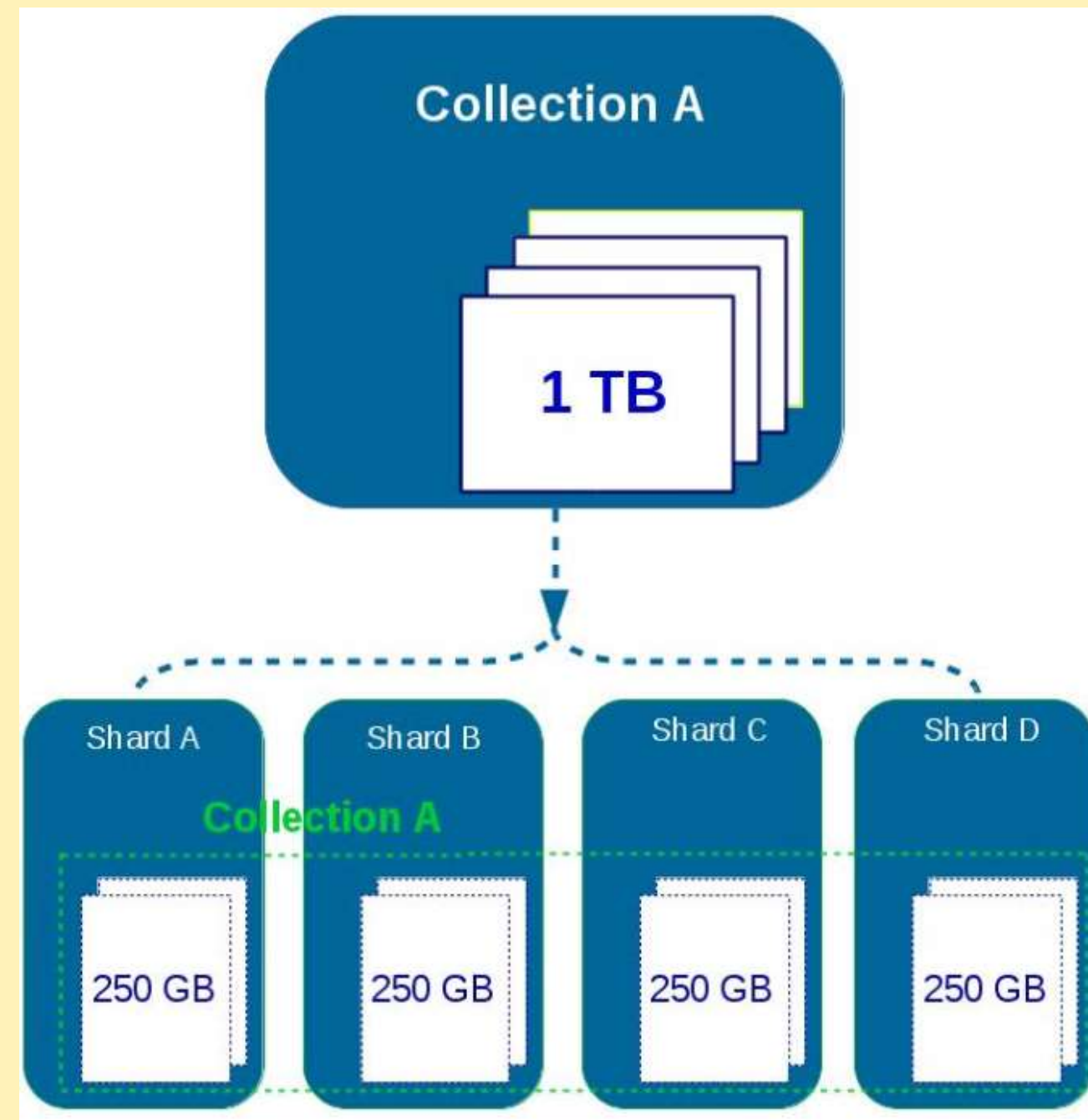
Replication

- Replication provides redundancy and increases data availability.
- With multiple copies of data on different database servers, replication provides a level of fault tolerance against the loss of a single database server.



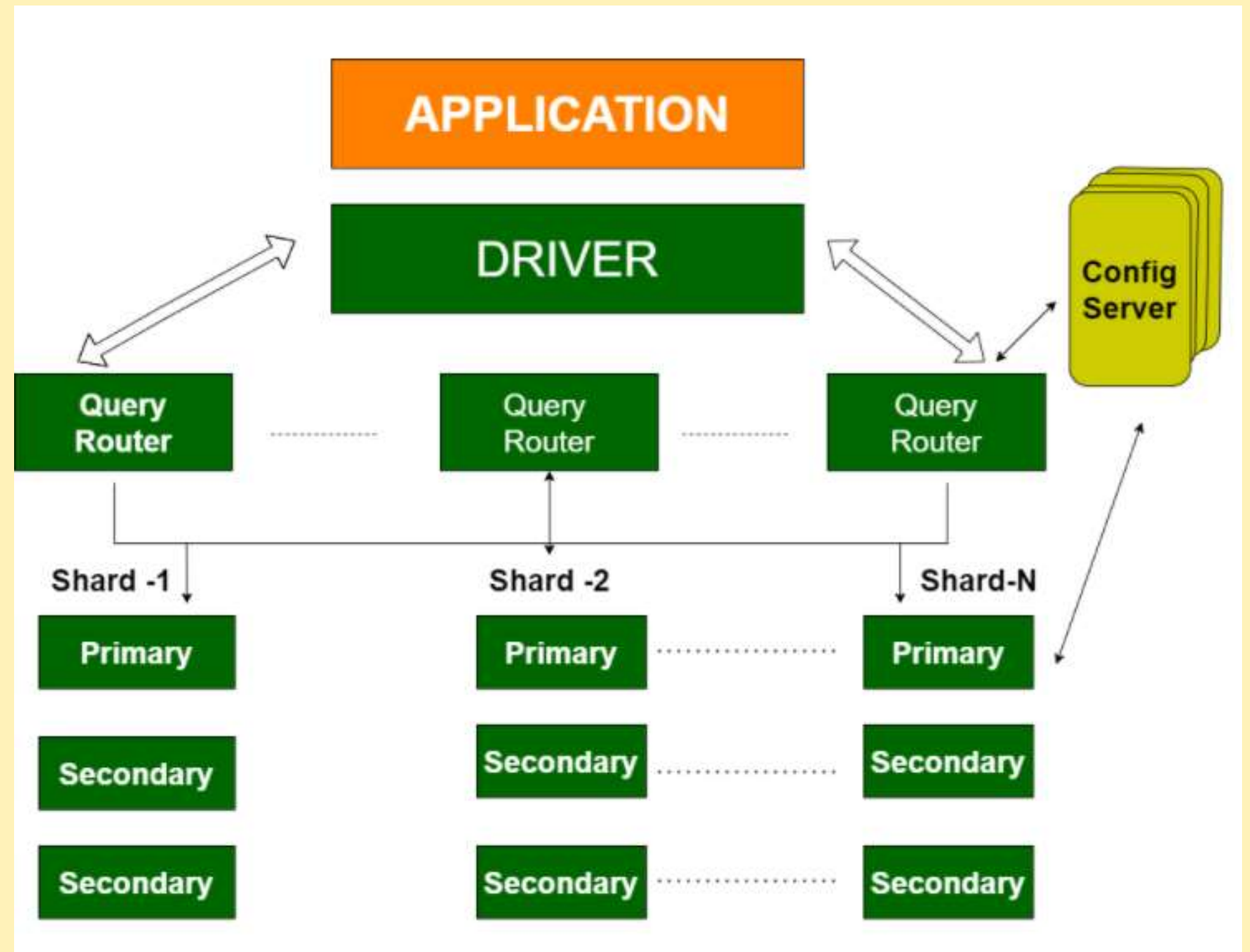
Sharding

- Sharding is a method for distributing data across multiple machines.
- MongoDB uses sharding to support deployments with very large data sets and **high throughput operations**.



Sharding/Replication

- Replication Split data sets across multiple data nodes for high availability.
- Sharding scale up/down horizontally when it is required for high throughput



THANKYOU 🍌