MongoDB

Introduction

Current World

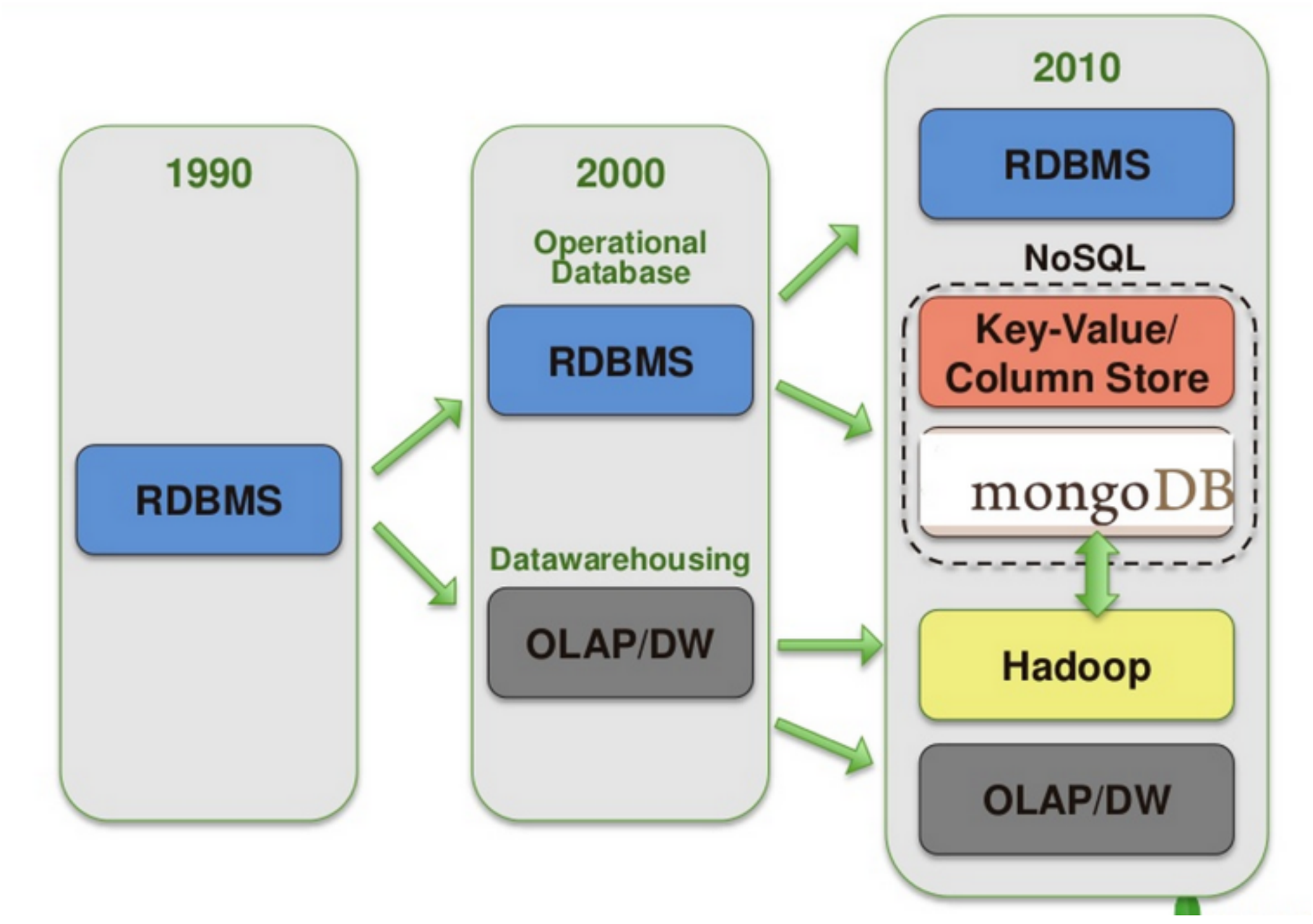
RDBMS

NOSQL

NEXT GEN

OLAP

Evolution of database



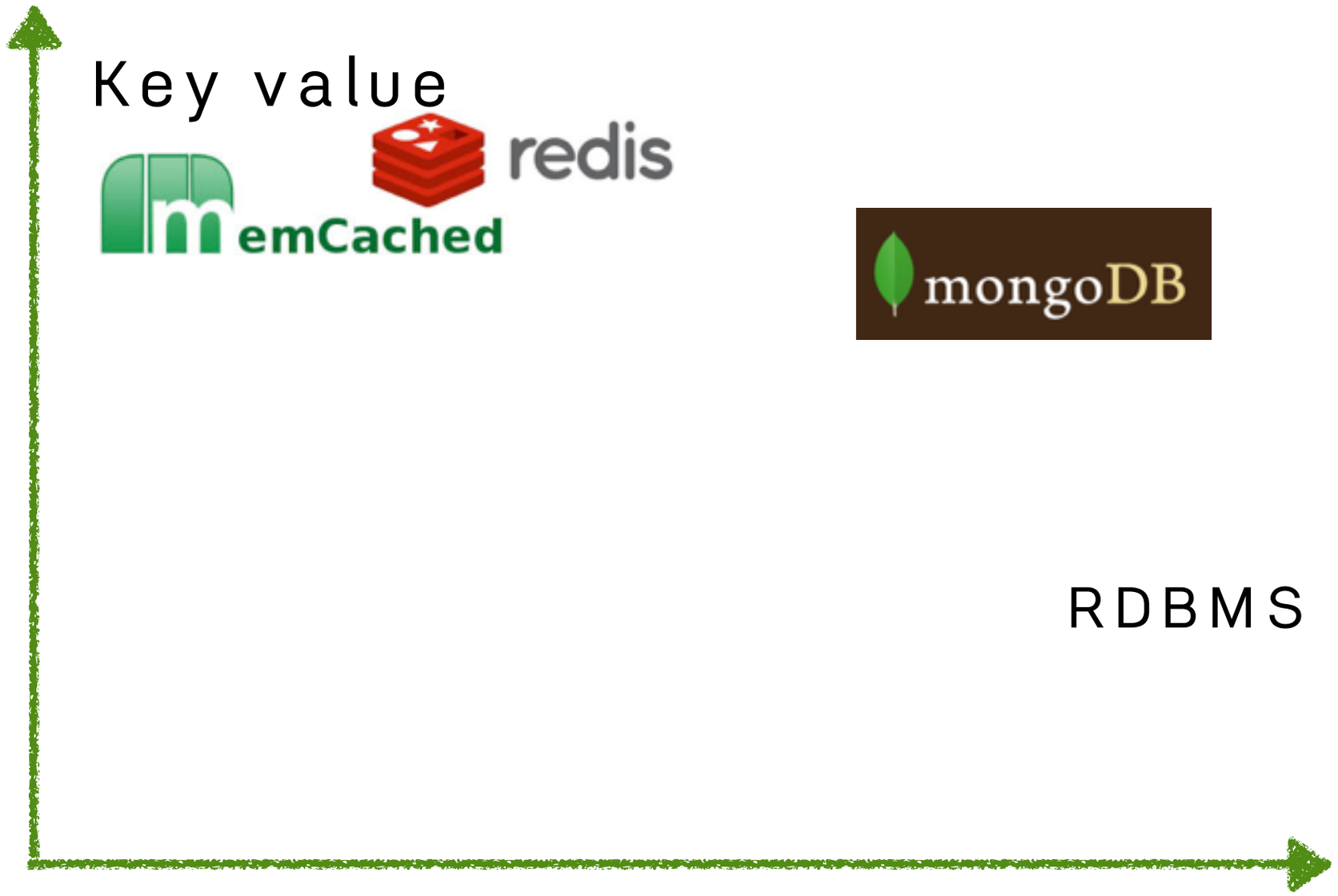
NoSQL ?

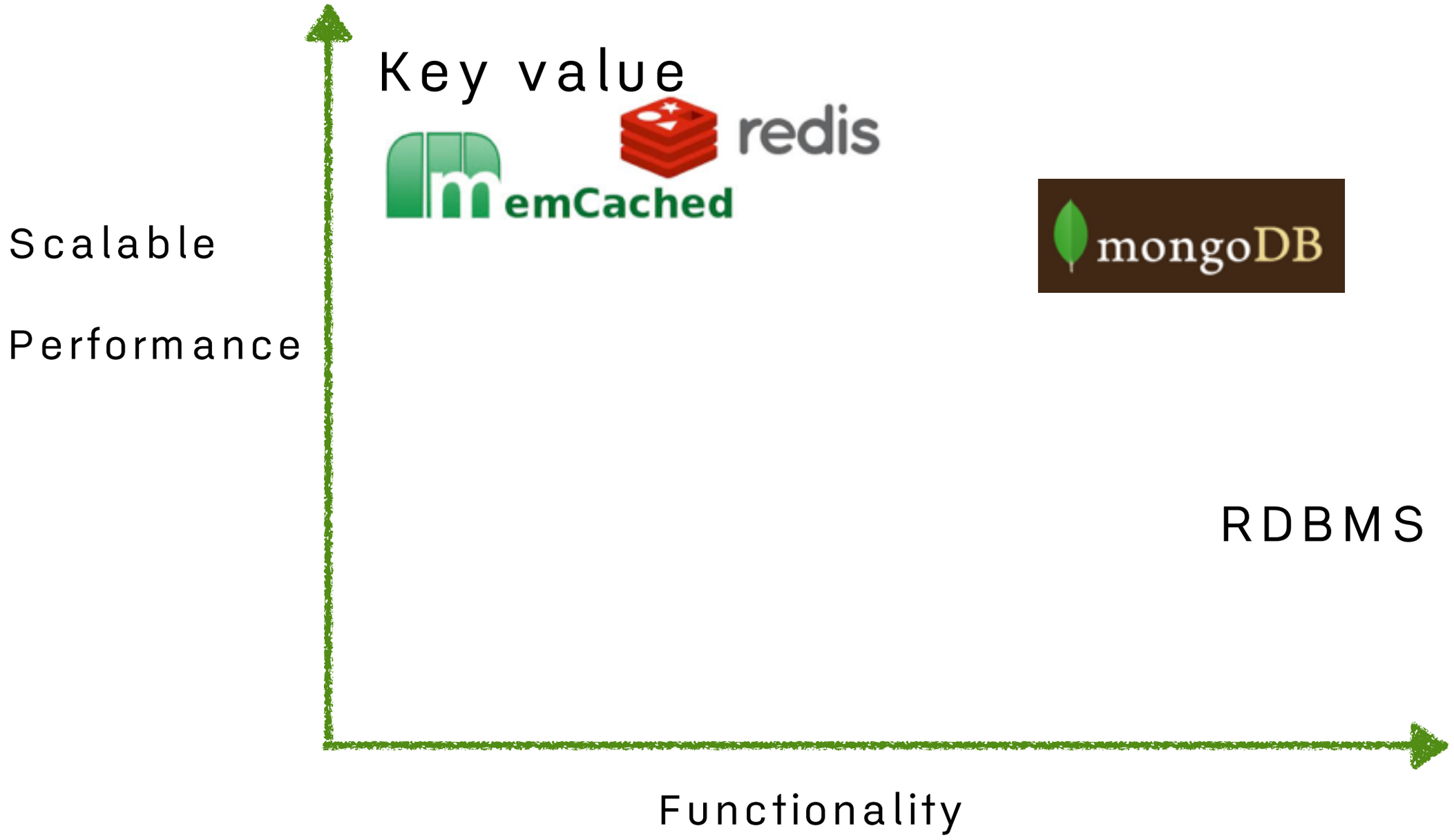
- Not Only SQL
- Non-relational database
- No joins
- No complex transaction
- Focus on Horizontal scalable
- Need new data model

NoSQL World

Document Database	Graph Databases
   	 
Key-Value Databases	**Wide Column Stores**
   	     

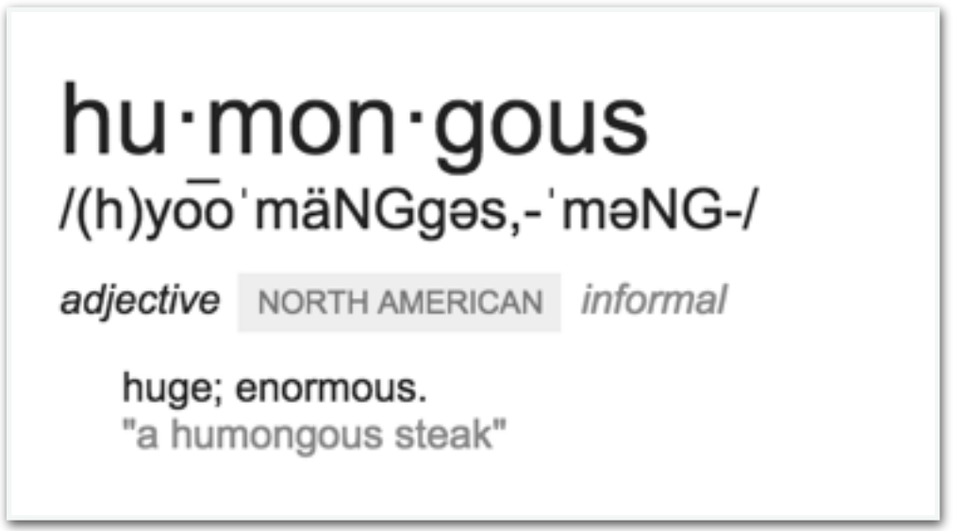
@cloudtxt http://www.aryannava.com


Key value
redis
memCached
mongoDB
RDBMS


Key value
redis
memCached
mongoDB
RDBMS
Scalable
Performance
Functionality

What is MongoDB ?

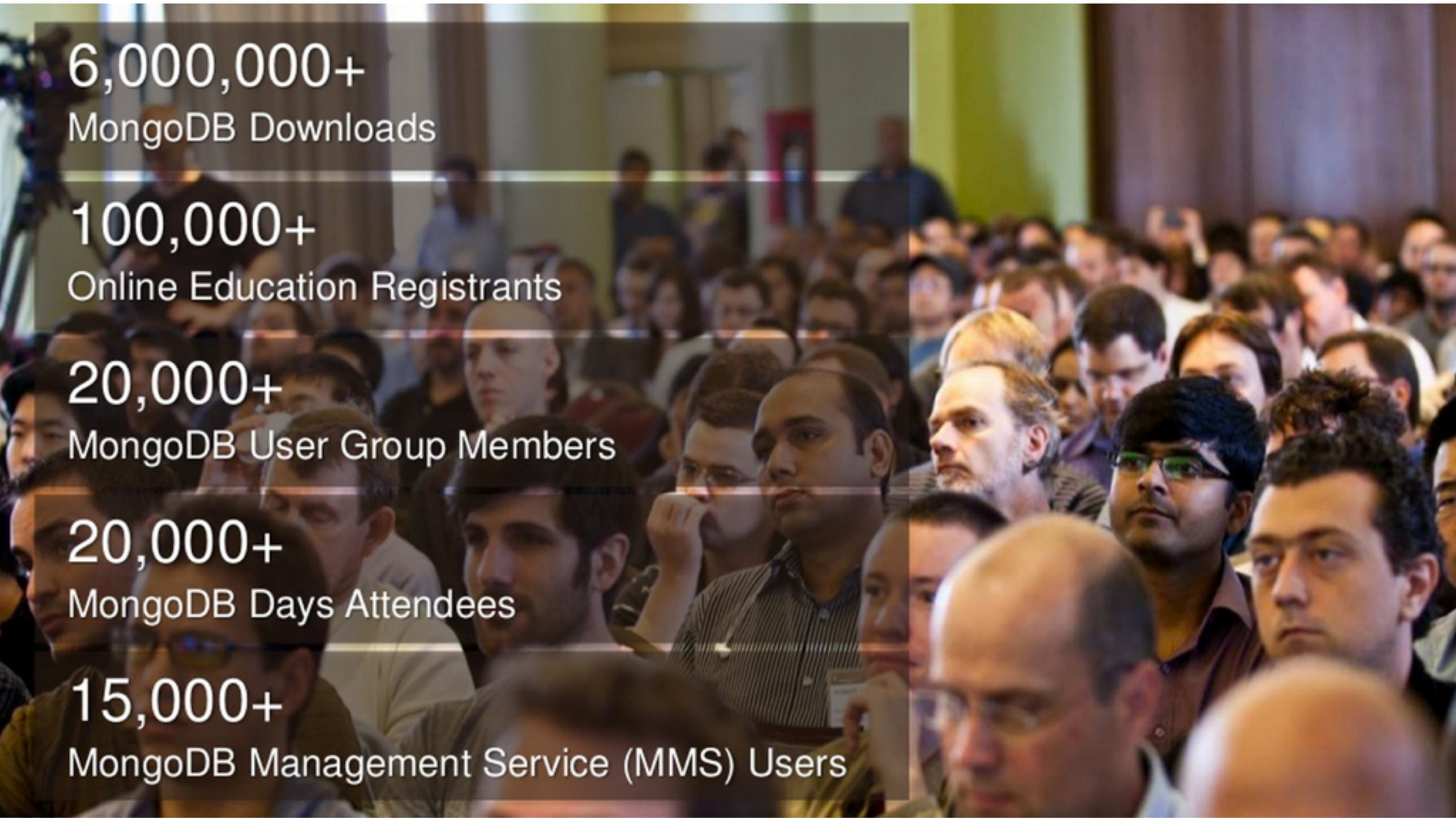
- Hu**mongo**us
- Scalable
- High-performance
- Open source
- Schema free, flexible
- Document-oriented database



What is MongoDB ?

- No-joins
- No distributed transaction
- Atomic transaction per document

Community



SPRINT3R

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One size fit all

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One size fit all ไม่มีอยู่จริง !!

SPRINT3R

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มาดู feature กันดีกว่า

JSON document as BSON

{ “hello” : “world” }

\x16\x00\x00\x00\x02hello

\x00\x06\x00\x00\x00world

\x00\x00

http://bsonspec.org/

Flexible schema

Book schema

```
{
   “name” : “MongoDB”,
   “detail” : “……”
}
```

```
{
   “name” : “MongoDB”,
   “detail” : “……”,
   “tags” : [“computer”]
}
```

Dynamic query

Javascript-based query language

```
db.books.find( {tags : “computer”} )
```

อื่นๆ อีกมากมาย

Atomic Update

Auto sharding

Replication

Many supported platform & language

Programming language

http://docs.mongodb.org/ecosystem/drivers/

Best use case

Scale out

Web

Caching

High volume

Less good use case

Highly transactional

Business intelligence

Require SQL

Use case

Big Data	Product & Asset Catalogs	Security & Fraud	Internet of Things	Database-as-a-Service
BROAD INSTITUTE github SOCIAL CODING salesforce ENERNOC	CARFAX UNDER ARMOUR orange edmunds.com	stripe McAfee Top Investment and Retail Banks Intelligence Agencies	Top Global Shipping Company Top US Retailer Telefónica Top Industrial Equipment Manufacturer	OPENSHIFT CLOUD FOUNDRY Top Media Company Top Investment and Retail Banks

Mobile Apps	Customer Data Management	Data Hub	Social & Collaboration	Content Management
twitter O2 ADP foursquare	theguardian GILT intuit eHarmony	MetLife CERN stripe Telefónica	CISCO Eventbrite foursquare eHarmony	The New York Times MTV Forbes shutterfly ebay mongoDB

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http://docs.mongodb.org/ecosystem/use-cases/

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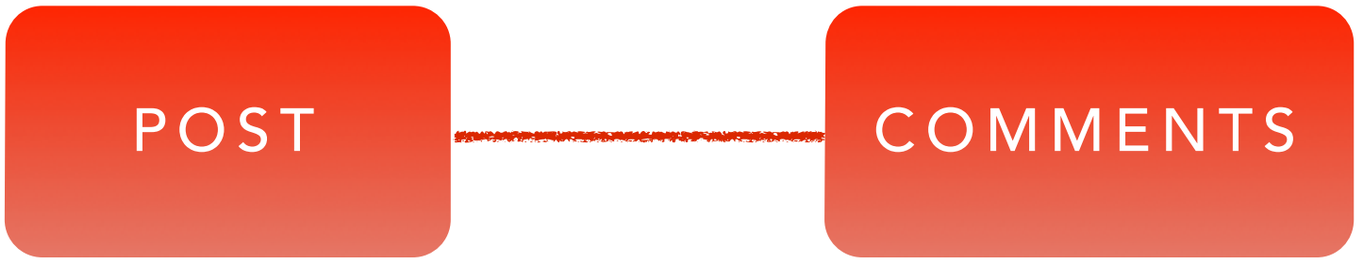
Hello MongoDB



01_blog.txt

Post

```
{    _id: "1",
     topic: "Hello my blog",
     text: "this is my first blog",
     tag: [ "intro", "mongodb" ],
     author: "somkiat",
     date: new Date()
}
```

Comment

```
{   text: "Cool post!",
    author: "somkiat",
    date: new Date()
}
```

New post

post =

```
{    _id: "1",
     topic: "Hello my blog",
     text: "this is my first blog",
     tag: [ "intro", "mongodb" ],
     author: "somkiat",
     date: new Date()
}
```

db.posts.insert(post)

Add comment with embedding

```
db.posts.update(
  {
     _id: post._id
  },
  {
     $push: { comments : comment }
  }
)
```

Let’s go with query

Post by author

```
db.posts.find(
   { author: "somkiat" }
)
```

Last 10 posts

```
db.posts.find()
        .sort( {date:-1} )
        .limit(10)
```

1 = Ascending

-1 = Decending

http://docs.mongodb.org/manual/reference/operator/aggregation/sort/

Post from 15 Jan 2015

```
jan_1_2015 = new Date(2015, 1, 15)

db.posts.find(
   {
      date: { $gte: jan_1_2015}
   }
)
```

http://docs.mongodb.org/manual/reference/operator/query-comparison/

Post with a tag

```
db.posts.find(
   { tag: "mongodb" }
)
```

Improve performance

```
db.posts.ensureIndex(
    { tag: 1 }
)
```

For mongodb 3.0

```
db.posts.createIndex(
    { tag: 1 }
)
```

http://docs.mongodb.org/manual/reference/method/db.collection.ensureIndex/

Count posts

```
db.posts.count()

db.posts.find(
  { tag: "mongodb" }
).count()
```

Basic paging

page = 0

page_size = 10

db.posts.find().**limit**(page_size)

.**skip**(page * page_size)

http://docs.mongodb.org/manual/reference/method/cursor.skip/

Query on embedded document

```
db.posts.find( {"comments.author": "somkiat"} )
```

```
db.posts.ensureIndex( {"comments.author": 1} )
db.posts.createIndex( {"comments.author": 1} )
```

Migrate :: add category

```
post ={
    tag: [ "intro", "mongodb" ],
    author: "somkiat",
    date: new Date(),
    category: ["book"]
}
```

post_id = db.posts.save(post)

http://docs.mongodb.org/manual/reference/method/js-collection/

Advance query

$gt, $lt, $gte, $lte, $ne, $all, $in, $nin

```
db.posts.find({
    $where:"this.author == 'somkiat' ||
            this.topic == ‘foo'"
})
```

http://docs.mongodb.org/manual/reference/operator/query/

คุณเห็นปัญหาไหม ?

db.posts.find({"**comments.author**": "somkiat"})

```
> db.posts.find( {"comments.author": "somkiat"} ).pretty()
{
        "_id" : "1",
        "topic" : "Hello my blog",
        "text" : "this is my first blog",
        "tag" : [
                "intro",
                "mongodb"
        ],
        "author" : "somkiat",
        "date" : ISODate("2015-03-09T17:59:46.089Z"),
        "category" : [
                "book"
        ],
        "comments" : [
                {
                        "text" : "Cool post!",
                        "author" : "somkiat",
                        "date" : ISODate("2015-03-09T18:19:54.180Z")
                },
                {
                        "text" : "Cool post!",
                        "author" : "joe",
                        "date" : ISODate("2015-03-09T18:22:49.245Z")
                }
        ]
}
```