

Welcome!

MongoDB

Tech Meetups World Expo - London, UK

Apr 26th, 2012

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10gen, the company behind MongoDB

- 10gen began the MongoDB project
- Development, support, and services for MongoDB
- 100 employees
- Offices/employees in New York, Palo Alto, London and Dublin
- \$31M+ funding (last round, Sept 2011)
- Investors: Sequoia, Flybridge, Union Square

- Open source, high performance database
- Key Innovations
- Horizontally scalable
- Agile
- Easy to Deploy in the Cloud / Virtual Servers
- Version 2.0 released September '11
- 100,000+ downloads per month

Agility

- Applications store complex data that is easier to model as documents
- Schemaless DB enables faster development cycle

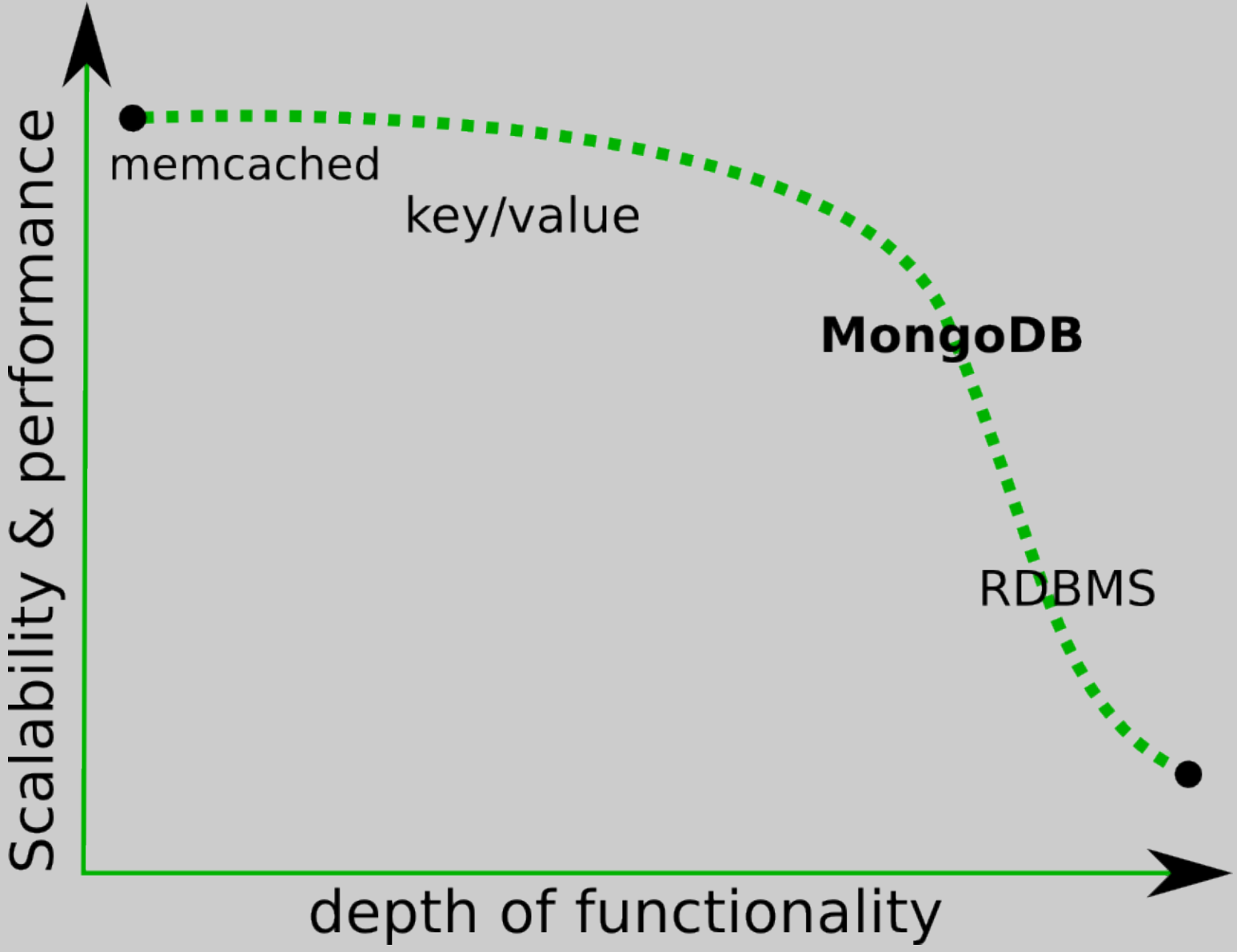
Scale

- Relaxed transactional semantics enable easy scale out

Cost

- Cost effectively operationalize abundant data (clickstreams, tweets, logs, ...)

Database landscape



Terminology

- Document: the data (row)
- Collection: contains documents (table, view)
- Index
- Embedded Document (~join)

- Are schemaless
- Can have embedded documents

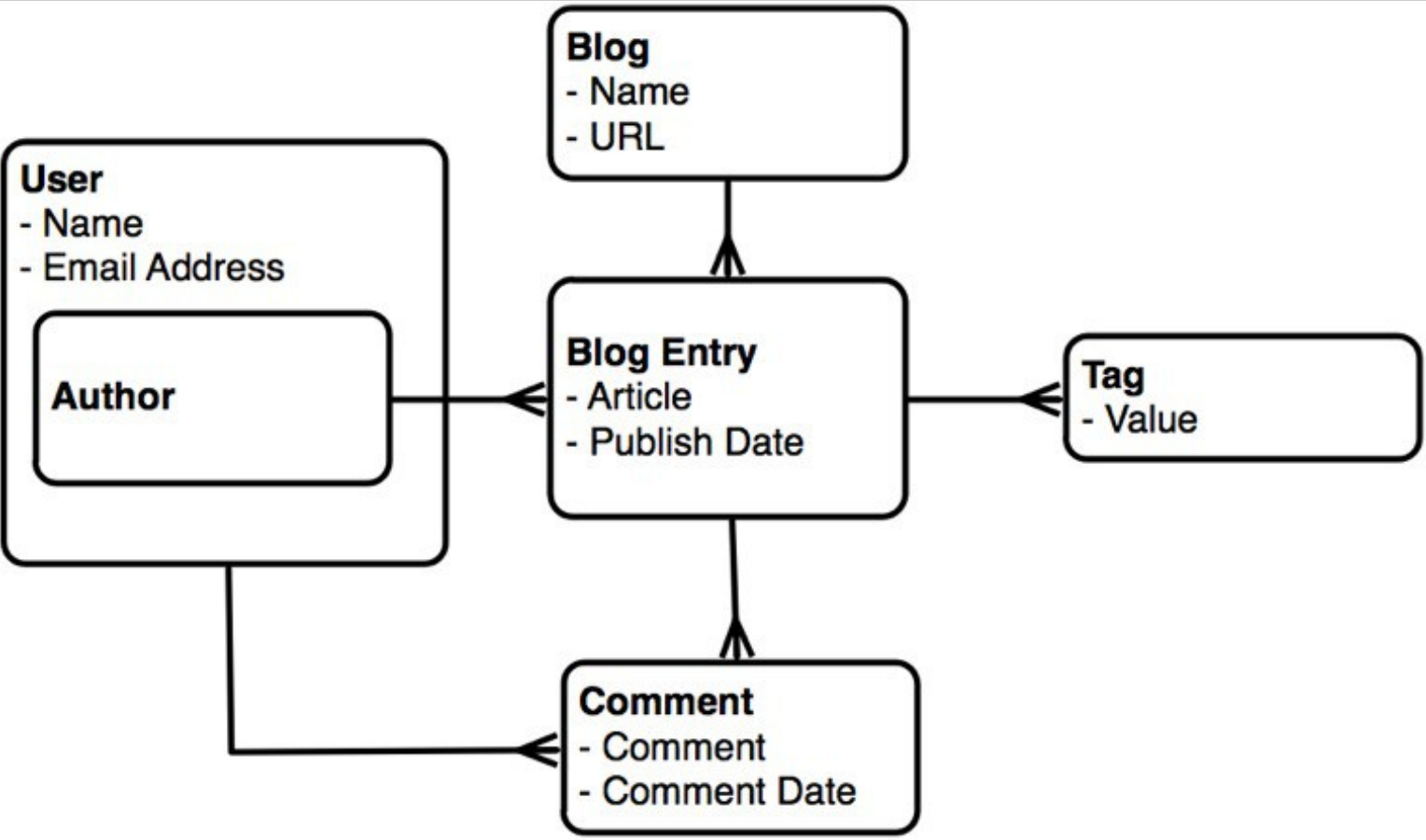
Simple document:

```
{
  "_id" : ObjectId("4cb4ab6d7addf98506010001"),
  "twitter" : "derickr",
  "name" : "Derick Rethans"
}
```

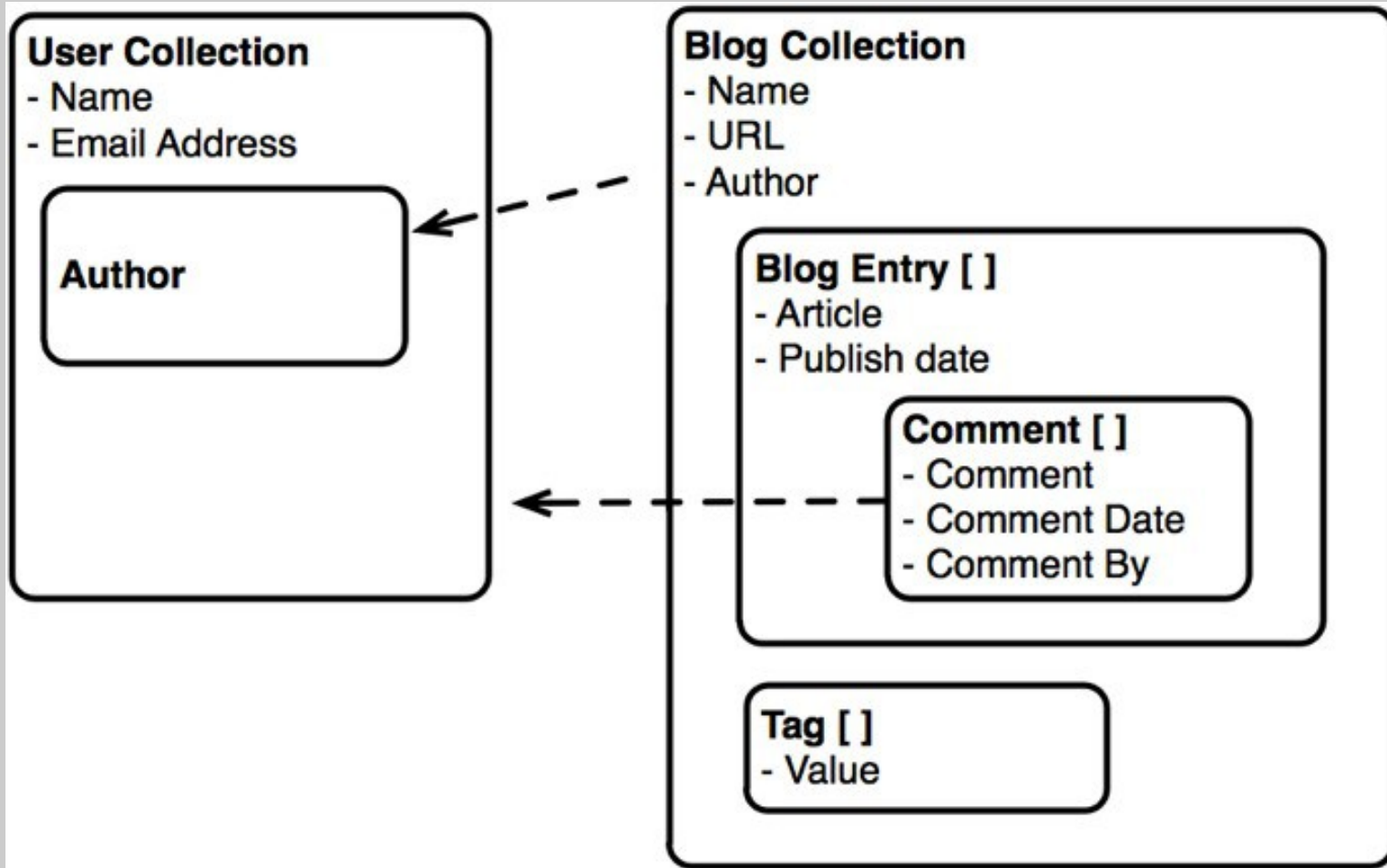
Document with embedded documents:

```
{
  "_id" : "derickr",
  "name" : "Derick Rethans",
  "bookmarks" : [
    { "title" : "MongoDB",
      "url" : "http://mongodb.org",
    },
    { "title" : "10gen",
      "url" : "http://10gen.com",
    }
  ]
}
```

Blog in a RDBMS



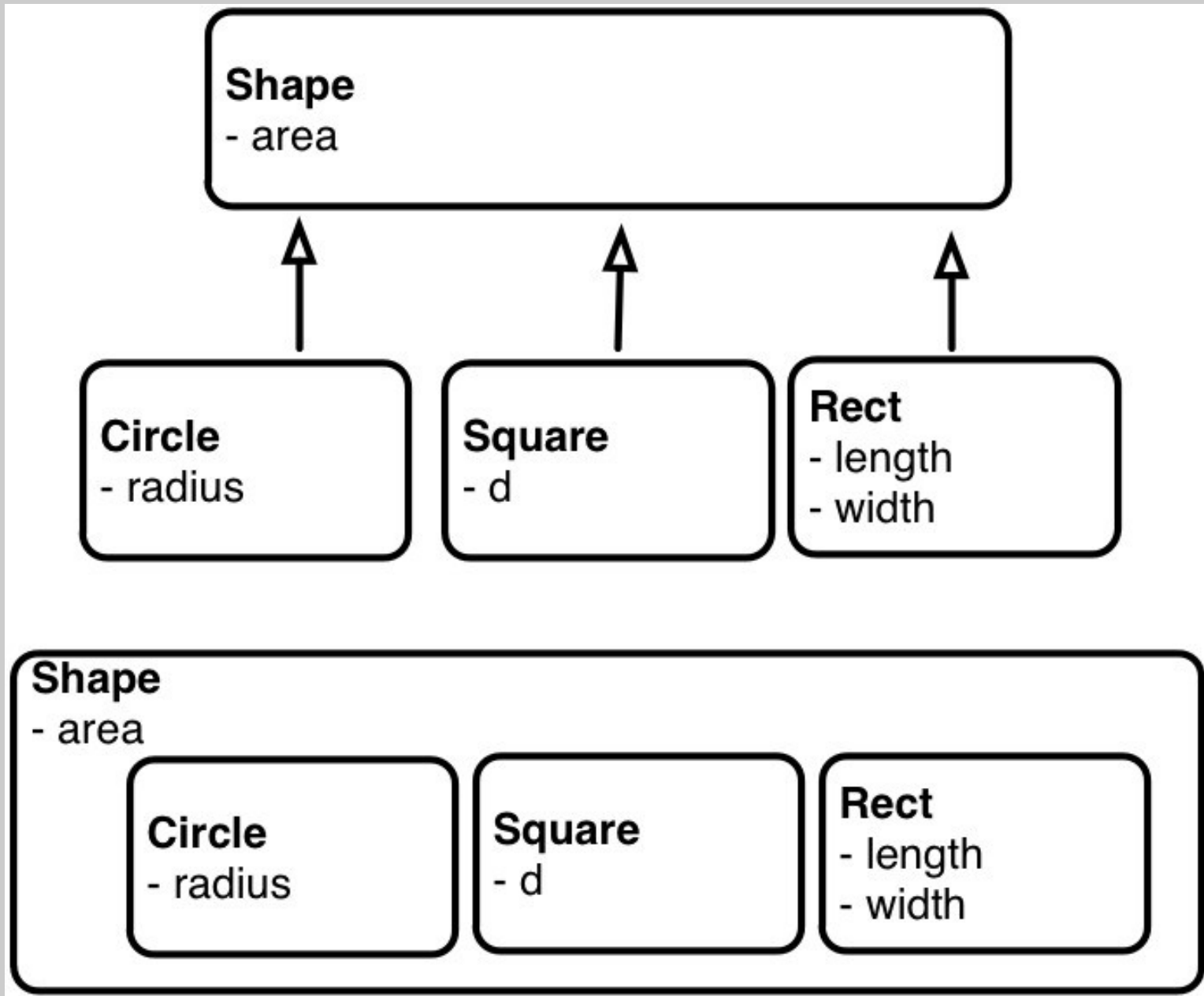
Blog in MongoDB



Other Features

- Secondary and compound indexes
- 2D/Geospatial indexes
- GridFS
- Map/reduce
- Aggregation framework

Inheritance



Single table inheritance - MongoDB

```
{ _id: "1", type: "circle", area: 3.14, radius: 1}
```

```
{ _id: "2", type: "square", area: 4, d: 2}
```

```
{ _id: "3", type: "rectangle", area: 10, length: 5, width: 2}
```

Embedding

- Simple data structure
- Limited to 16MB
- Larger documents
- How often do you update?
- Will the document grow and grow?

Linking

- More complex data structure
- Unlimited data size
- More, smaller documents
- What are the maintenance needs?

Helps you with finding POIs in a 2D space

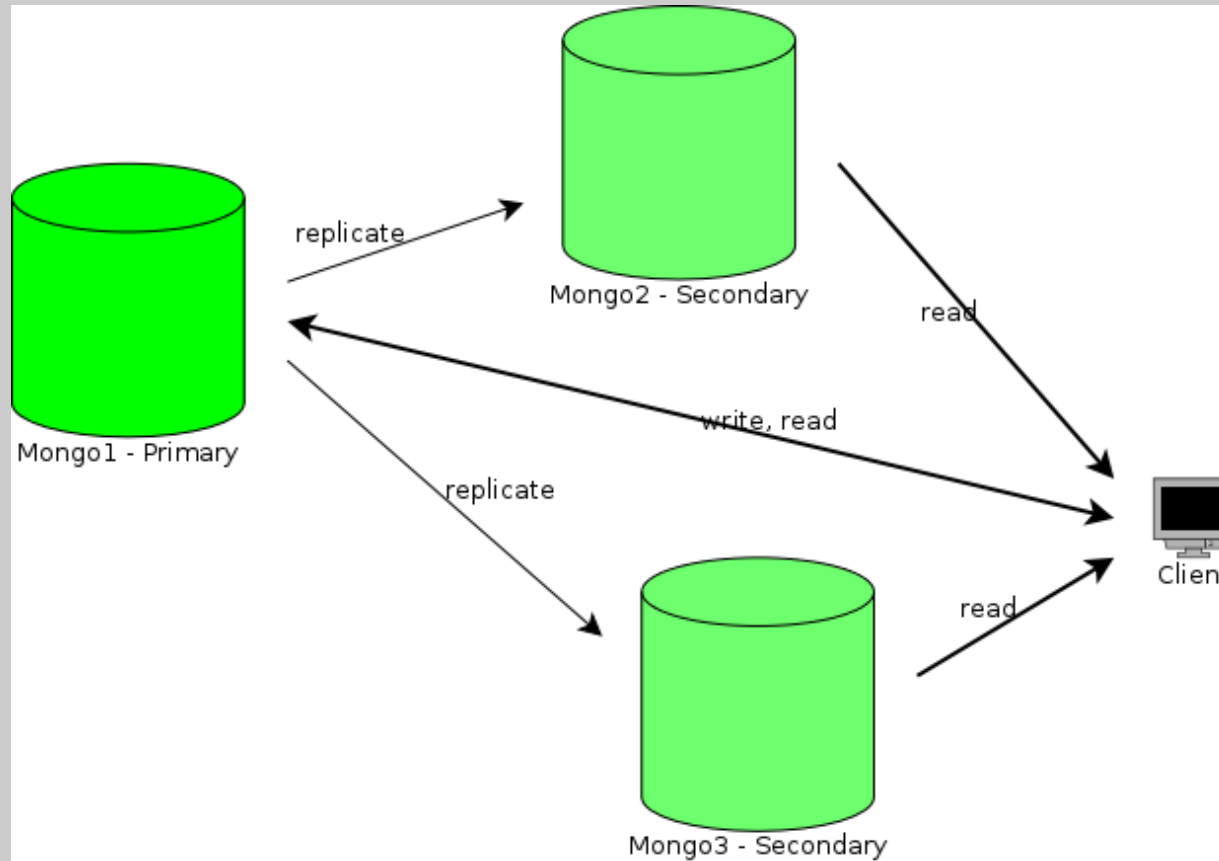
```
<?php
$m = new Mongo; $c = $m->demo->pubs; $c->drop();

$c->ensureIndex( array( 'l' => '2d' ) );
$c->insert([ 'name' => 'Betsy Smith', 'l' => [ -0.193, 51.537 ] ]);
$c->insert([ 'name' => 'London Tavern', 'l' => [ -0.202, 51.545 ] ]);

$closest = $m->demo->command( [
    'geoNear' => 'pubs',
    'near' => [ -0.198, 51.538 ],
    'spherical' => true,
] );

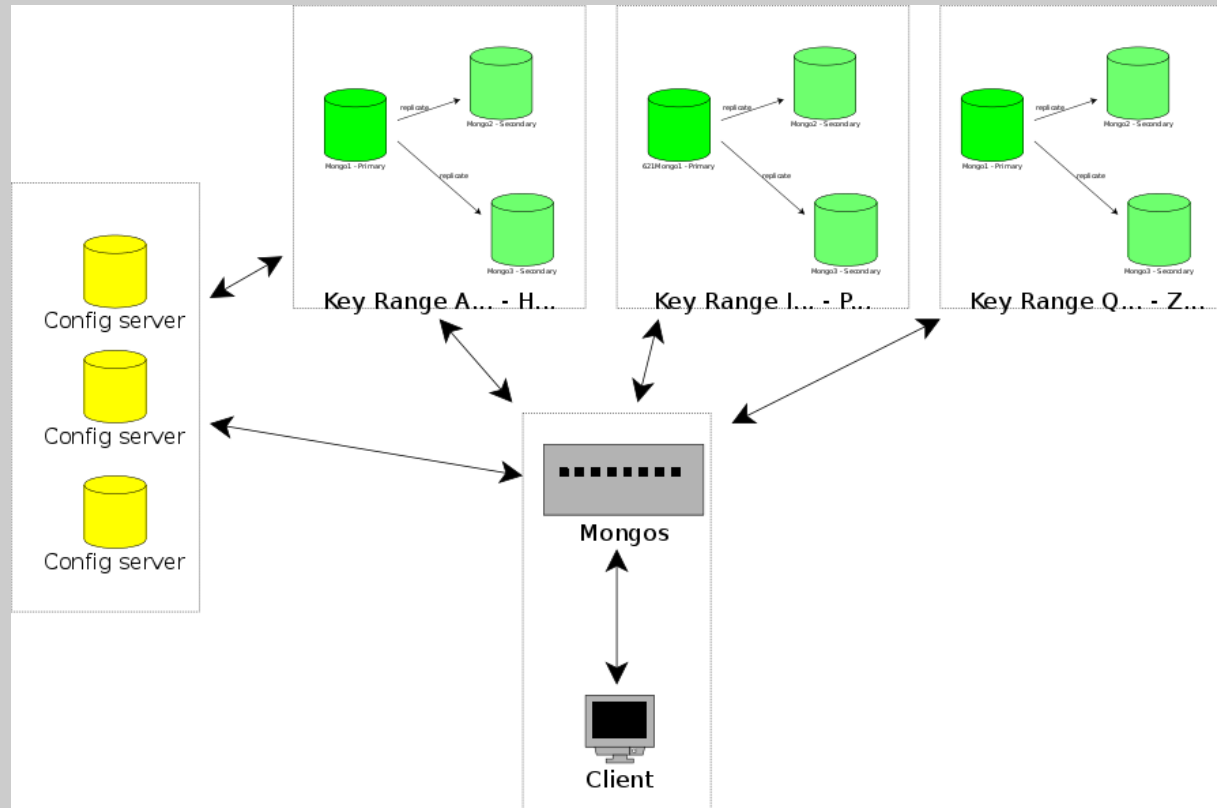
foreach ( $closest['results'] as $res ) {
    printf( "%s: %.2f km\n", $res['obj']['name'], $res['dis'] * 6378 );
}
?>
```

Replication



- Failover/Availability
- Scaling reads
- Primaries, secondaries and arbiters
- Odd number to prevent split brain

Sharding



- Scaling writes and reads
- Config servers, router (mongos) and replica sets

- MongoDB Days: 1.100 at MongoSV in December 23 MongoDB Days in 2011 reaching over 9.000 people
- MongoDB User Groups: 238 cities with Mongo User Groups (MUGs) 200+ events in 2011
- European events in London, Munich and Paris
- Asian events in Tokyo and Beijing

MongoDB UK

- Annual one day conference dedicated to the open source database MongoDB.
- June 20th, 2012 at the Mermaid Conference & Events Centre
- Early Bird (\$50) ends May 23rd
- Expecting 600+ people

Mongo UGs

- MongoDB London (May 29th): monthly
- MongoDB Thames Valley: monthly
- Office Hours (May 2nd): bi-weekly near Old Street

Thanks!

Questions?

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