RAVEN DB

Intro to RavenDB

Oren Eini aka Ayende Rahien

ayende@ayende.com

http://ayende.com/blog

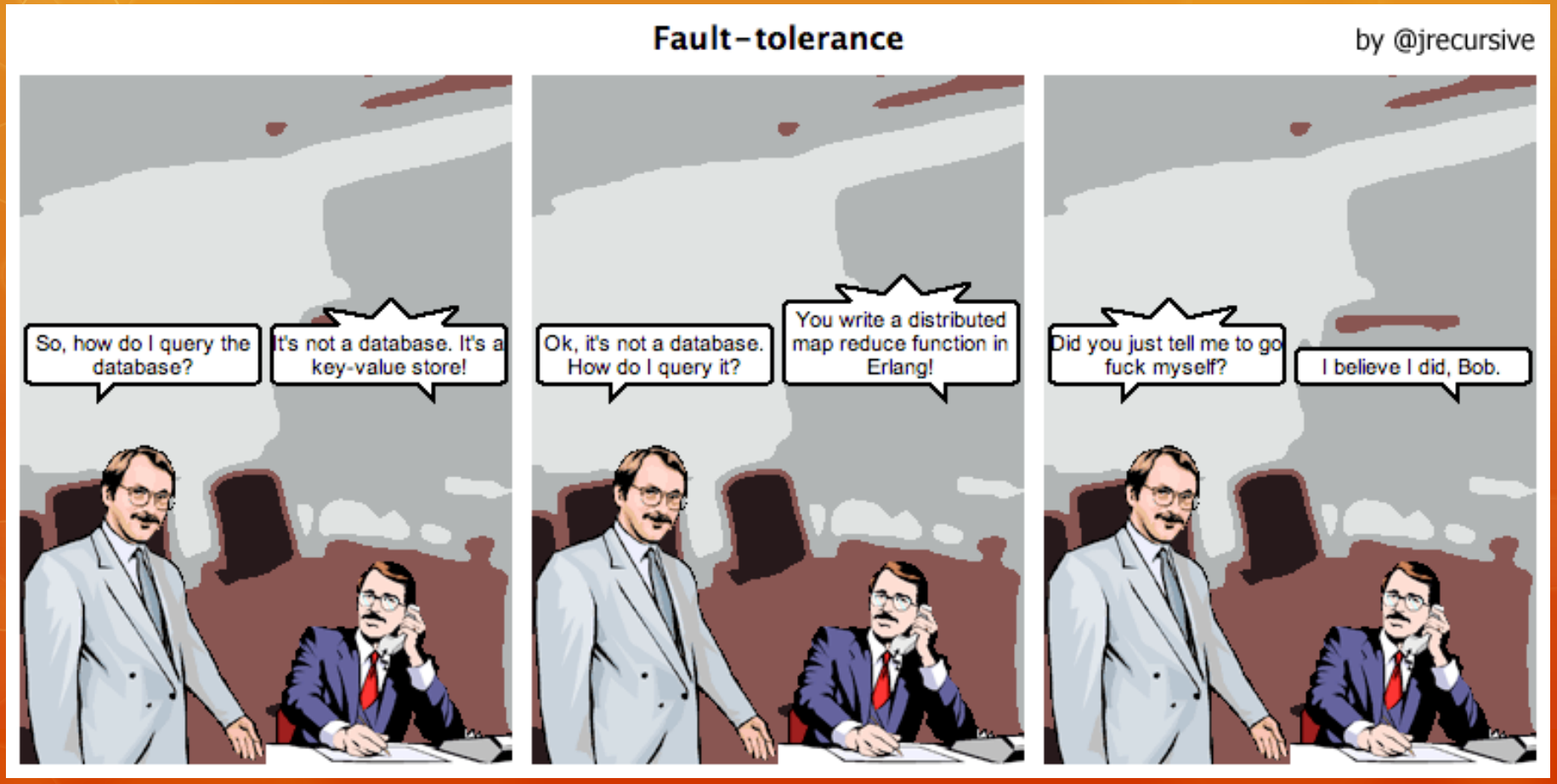
What?

- Document Database
- .NET
- Client API:
  - REST
  - JavaScript
  - .NET
- License
  - OSS – AGPL
  - Commercial

Why?

- Windows/.NET deserves some NoSQL goodness too ☺.
- Disagreement with some technical choices.
- Different requirement set from .NET community.

NoSQL from outside…



Linq

- JavaScript isn't a good language for queries
  - MongoDB
    - db.users.find({joinedAt : {$lt: lastMonth}});
  - CouchDB
    - function(doc) {
      if (doc.Type == "User") {
      emit(null, {joinedAt: doc.joinedAt});
      }
      }
- .NET has builtin query language
  - from user in docs.Users
    where user.JoinedAt > lastMonth
    select user;

Document & Metadata

- Document contains data
- Metadata describe document externally
- *Very useful* for extensions

Collections

- Document can belong to a collection (Posts, Orders, Users, etc).
- Mostly used for indexing.

Transactions

- Single document
- Multi document
- Multi node

Indexes

```
from post in docs.Posts
select category in post.Categories
select new { category }
```

- Linq syntax
- Map / Reduce

- Stale reads
- Indexing happens on the background
- Indexing on top of Lucene
  - Full text search!

Querying

- By index
- Dynamic queries
- Linear query

Client API (.NET)

- Unit of Work
- Based on the Hibernate API
- Linq support

Sharding

- Client driven
- Out of the box with the .NET client API
- Based on the Hibernate Shards design

Replication

- Master -> Slave
- Master <-> Master

- Async background replication
- Automatic failover

Replicate to SQL

- Reporting
- Data replication

Spatial queries

```
from r in docs.Restaurants
select new
{
    r.Rating,
    _ = SpatialIndex.Generate(r.Lat, r.Lng)
}
```

```
session.LuceneQuery<Resturant>("Restaurants “)
    .WhereGreaterThanOrEquals("Rating", 4)
    .WithinRadiusOf(radius: 5, latitude: 38.91, longtitude: -77.39)
```

Compiled indexes

- Complex logic
- Event sourcing

Set based operations

```
DELETE FROM Users WHERE IsActive = 0
```

- DELETE http://localhost:8080/bulk_docs/UsersByActivityStatus?query=IsActive:False

- PATCH http://localhost:8080/bulk_docs/UsersByLastLoginDate?query=LastLoginDate:[NULL TO 20100527]

```
[ { "Type": "Set", "Name": "IsActive", "Value": false ]
```

```
UPDATE Users SET IsActive = 0 WHERE LastLoginDate < '2010-05-27'
```

Extensibility

- Core design principle
- RavenDB built on top of decoupled components

Customization

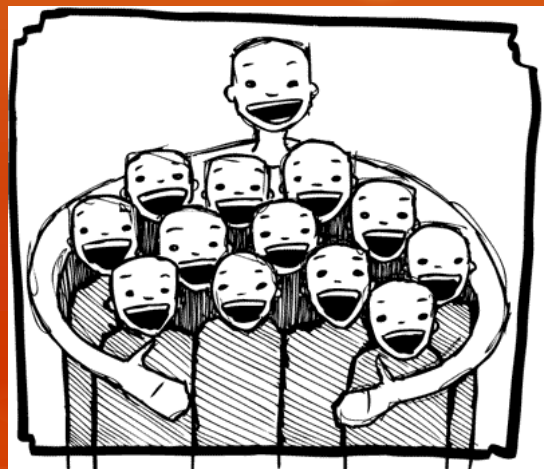
- One size does ***NOT*** fits all!
- Intended to be customized per application needs.

More…

- Document authorization:
  - Role based
  - Document based
  - Tag based
- Versioning
  - Snapshot on every change
- Expiration
  - Delete document after time T

One last cool feature…

- Includes



Deployment options

- Embedded (desktop/mobile apps)
- Executable
- Service
- IIS

Questions?

- Where to find RavenDB?
  - **http://ravendb.net**
  - **http://tinyurl.com/raven-book**
  - **http://groups.google.com/group/ravendb/**