



MongoDB Authentication

Vadym Makhonin

March 2018

AGENDA OF THE LECTURE

- SQL vs NoSQL
- MongoDB
- Mongoose
- Authentication
- Passport.js

SQL VS NOSQL

RELATIONAL DATABASE PROBLEMS

- Scalability
- Flexibility

NoSQL databases solve these problems

NOSQL DATABASE PROBLEMS

- No join
- No data integrity
- No transaction

WHERE SQL IS IDEAL

- logical related discrete data requirements which can be identified up-front
- data integrity is essential
- standards-based proven technology with good developer experience and support

WHERE NOSQL IS IDEAL

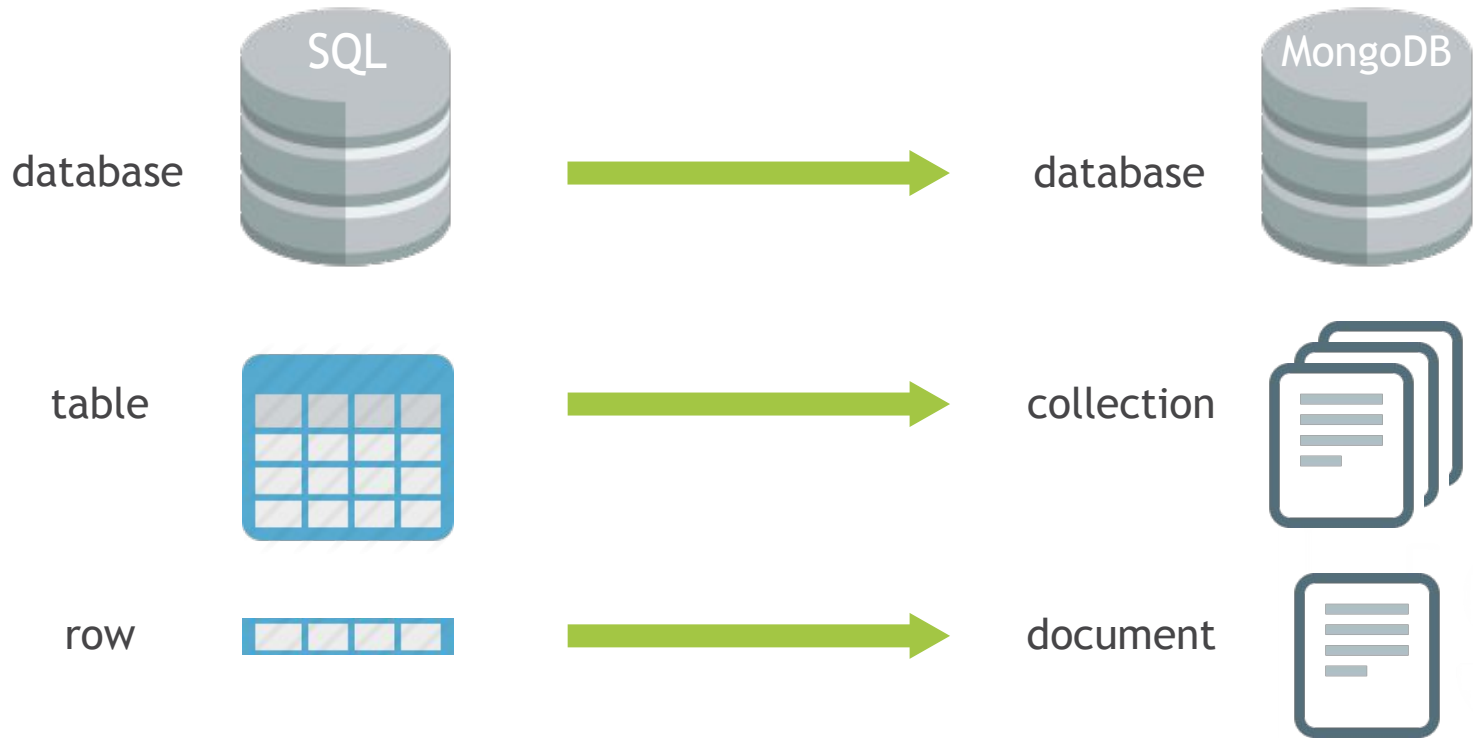
- unrelated, indeterminate or evolving data requirements
- simpler or looser project objectives, able to start coding immediately
- speed and scalability is imperative

MONGODB



MongoDB is an open source, document-oriented database designed with both scalability and developer agility in mind.

MONGODB COMPASION TO SQL



DEMO

- `show dbs`
- `use <DB_NAME>`
- `show collections`
- `help / db.help() / db.collection.help()`

MONGODB CLI CRUD

- `db.collection.insert(document)`
- `db.collection.find(query, projection)`
- `db.collection.update(query, update, options)`
- `db.collection.remove(query, options)`

MONGODB DRIVERS

An application communicates with MongoDB by way of a client library, called a **driver**, that handles all interaction with the database in a language appropriate to the application.

```
npm install mongodb
```

DEMO

ORM, ODM

ORM (Object-Relational Mapping), **ODM** (Object Document Mapper) - programming technique for converting data between incompatible type systems in databases and object-oriented programming languages. This creates, in effect, a "virtual object database" that can be used from within the programming language.

ORM - for relational databases, **ODM** - for NoSQL databases.

Most popular ORM in Node.js - **Sequelize**.

MONGOOSE



elegant `mongodb` object modeling for `node.js`

Mongoose provides a straight-forward, schema-based solution to model your application data. It includes built-in type casting, validation, query building, business logic hooks and more, out of the box.

DEMO

MONGOOSE API

- `mongoose.connect(url, options)`
- `mongoose.Promise`
- `mongoose.Schema`
- `mongoose.model(name, schema)`
- `mongoose.plugin(func, options)`

SCHEMA API

```
const schema = new Schema(definition, options)
```

- `schema.methods`
- `schema.statics`
- `schema.virtual(name, options)`
- `schema.pre/post(method, callback)`
- `schema.plugin(func, options)`

SCHEMA DEFINITION

- type

- required

- default

- unique

- validate

String

- lowercase

- uppercase

- trim

- match

- enum

Number/Date

- min

- max



AUTHENTICATIO

N

AUTHENTICATION

- **Authentication** - is the process of actually confirming truth identity.
- **Authorization** - is the function of specifying access rights to resources related to information security and computer security in general and to access control in particular.

AUTHENTICATION METHODS

- HTTP
- Forms
- One-Time Password(two-factor authentication)
- API key
- Token-based

HOW TOKEN BASED WORKS

- User Requests Access with Username / Password
- Application validates credentials
- Application provides a signed token to the client
- Client stores that token and sends it along with every request
- Server verifies token and responds with data

TOKEN-BASED AUTHENTICATION

Token
formats:

- SWT
- JWT
- SAML

Standards:

- OAuth
- OpenID Connect
- SAML
- WS-Federation

PASSPORT.JS

PASSPORT

Passport is Express-compatible authentication middleware for Node.js.

Passport's sole purpose is to authenticate requests, which it does through an extensible set of plugins known as **strategies**. The API is simple: you provide **Passport** a request to authenticate, and **Passport** provides hooks for controlling what occurs when authentication succeeds or fails.

PASSPORT MAIN CONCEPTS

- Strategies
- Sessions
- Middleware

PASSPORT API

- passport.initialize / session()
- passport.use()
- passport.serializeUser / deserializeUser()
- passport.authenticate()
- req.login / logout()

DEMO



THANK YOU!