Domain Graph Service framework

GraphQL for Spring Boot
What this talk is about

Why GraphQL

The DGS framework history

Building a GraphQL service

Federation
Paul Bakker
Productivity Engineering @ Netflix

Java 9 Modularity
Patterns and Practices for Developing Maintainable Applications
Sander Mak & Paul Bakker

Practical Modularity with Java in the Cloud Age
Building Modular Cloud Apps with OSGi
Paul Bakker & Bert Emmart

Paul Bakker
@pbakker
The GraphQL basics
type Query {
}

type Mutation {
}

type Subscription {
}
type Query {
  shows: [Show]
}

type Show {
  title: String
  reviews: [Reviews]
}

type Review {
  submittedBy: String
  rating: Int
}

{  
  shows {
    title
  }
}

{
  "data": {
    "shows": [
      {
        "title": "Stranger Things"
      },
      {
        "title": "Ozark"
      }
    ]
  }
}

@pbakker
Example Query

```graphql
type Query {
  shows: [Show]
}

type Show {
  title: String
  reviews: [Review]
}

type Review {
  submittedDate: String
  starScore: Int
}

{ shows {
    title
    reviews {
      starScore
      submittedDate
    }
  }
}

{ "data": {
  "shows": [
    {
      "title": "Stranger Things",
      "reviews": [
        {
          "starScore": 5,
          "submittedDate": "2020-03-26T15:13:29.296Z"
        }
      ]
    }
  ]
}
```
**GraphQL**

- Schema
- Field projection required (no over-fetching)
- Only one HTTP endpoint
- Can be used with any HTTP client
- Clients such as ApolloClient available

**REST**

- No schema
- Return all fields (possible over-fetching)
- Many HTTP endpoints
- Can be used with any HTTP client
type Movie {
  title: String
  movieId: Int
  review: Review
}

movies(movieId: 1) {
  title
  reviews: {
    starRating
  }
}
The DGS Framework

GraphQL for Spring Boot
Great developer experience, and battle hardened

@pbakker
DGS in Action
Getting started

Just a Spring Boot app

Add DGS dependency and Codegen plugin

```java
plugins {
    id("com.netflix.dgs.codegen") version "4.0.12"
}

dependencies {
    implementation("com.netflix.graphql.dgs:graphql-dgs-spring-boot-starter:3.1.1")
}
```
Features

- Test framework for writing query tests as unit tests
- Gradle Code Generation plugin
- Easy integration with GraphQL Federation
- Integration with Spring Security
- GraphQL subscriptions (WebSockets and SSE)
- File uploads
- Error handling
- Automatic support for interface/union types
- A GraphQL client for Java
- Pluggable instrumentation
- Micrometer metrics
Federation
Federated GraphQL Gateway

```graphql
type Movie {
  movieId: Int
  title: String
}

type Movie @extends {
  movieId: Int
  review: Review
}

movies(movieId: 1) {
  title
  reviews: {
    starRating
  }
}
```

GraphQL
Thank You.

https://netflix.github.io/dgs