Domain Graph Service framework

GraphQL for Spring Boot

What this talk is about

Why GraphQL

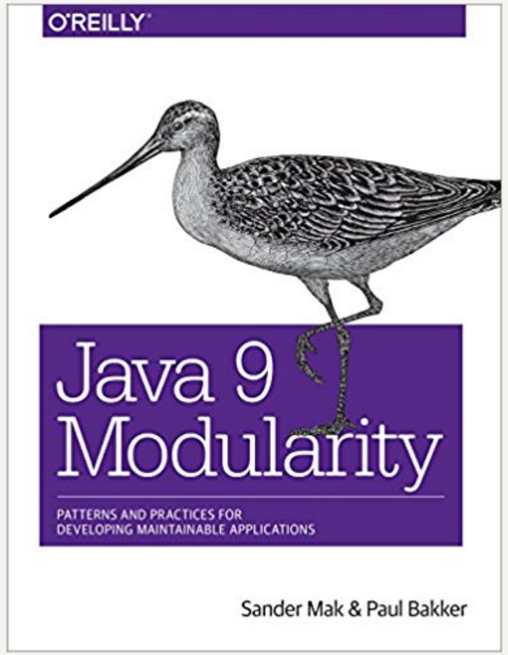
The DGS framework history

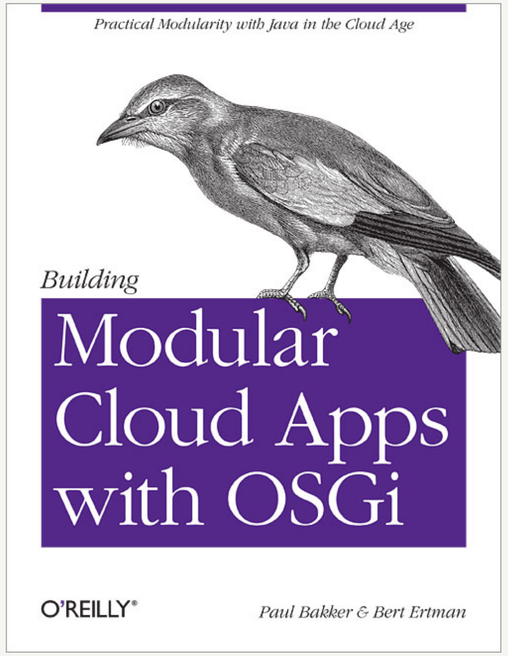
Building a GraphQL service

Federation

Paul Bakker

Productivity Engineering @ Netflix





Paul Bakker
@pbakker

1 The GraphQL basics

```
type Query {
}

type Mutation {
}

type Subscription {
}
```

Example Query

```
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"
      }
    ]
  }
}
```

Example Query

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

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

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.
          },
```

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

DGS History

2

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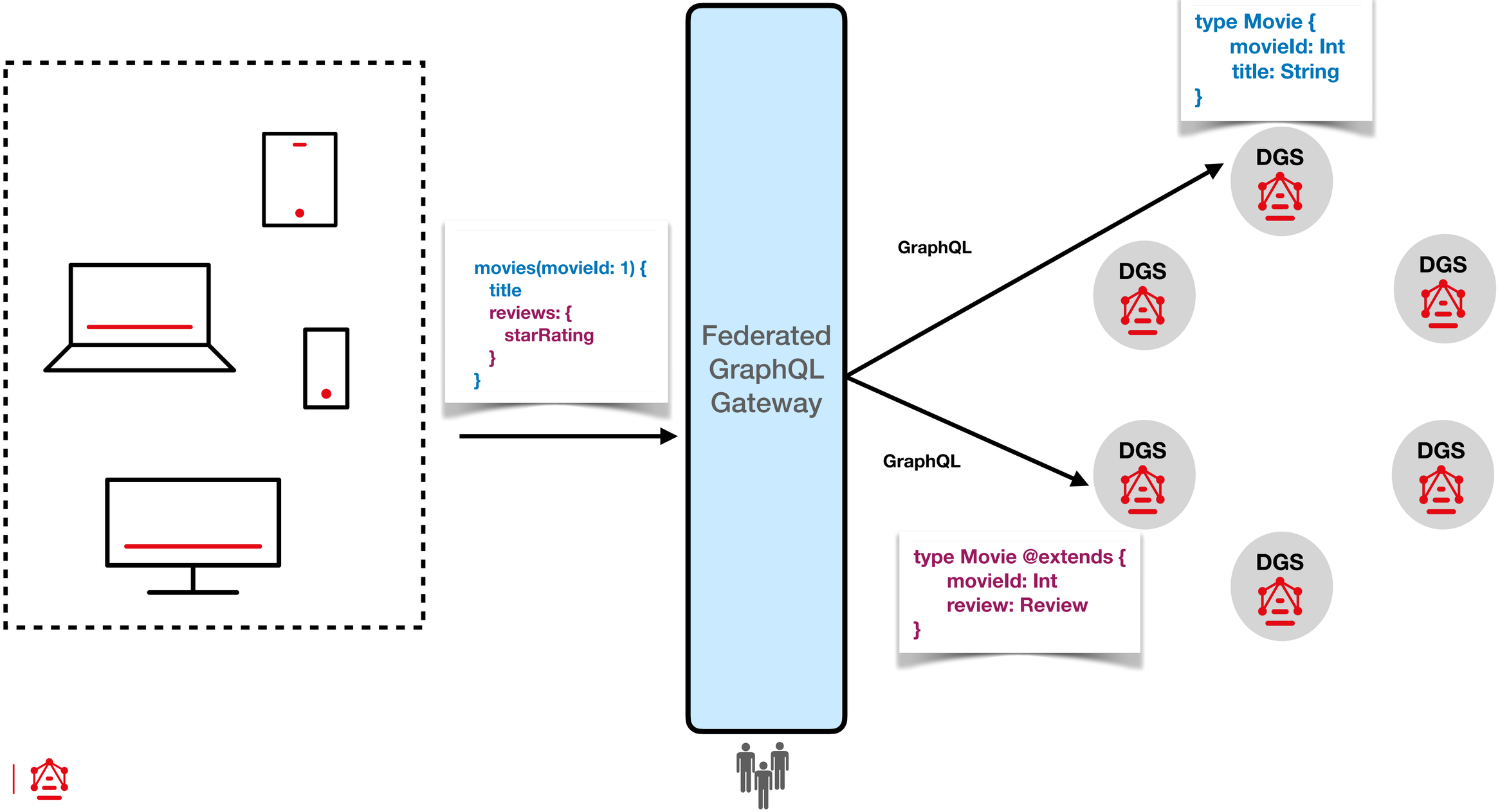
movies(movieId: 1) {
title
reviews: {
starRating
}
}
Federated GraphQL Gateway
GraphQL
GraphQL
type Movie {
movieId: Int
title: String
}
type Movie @extends {
movieId: Int
review: Review
}
DGS
DGS
DGS
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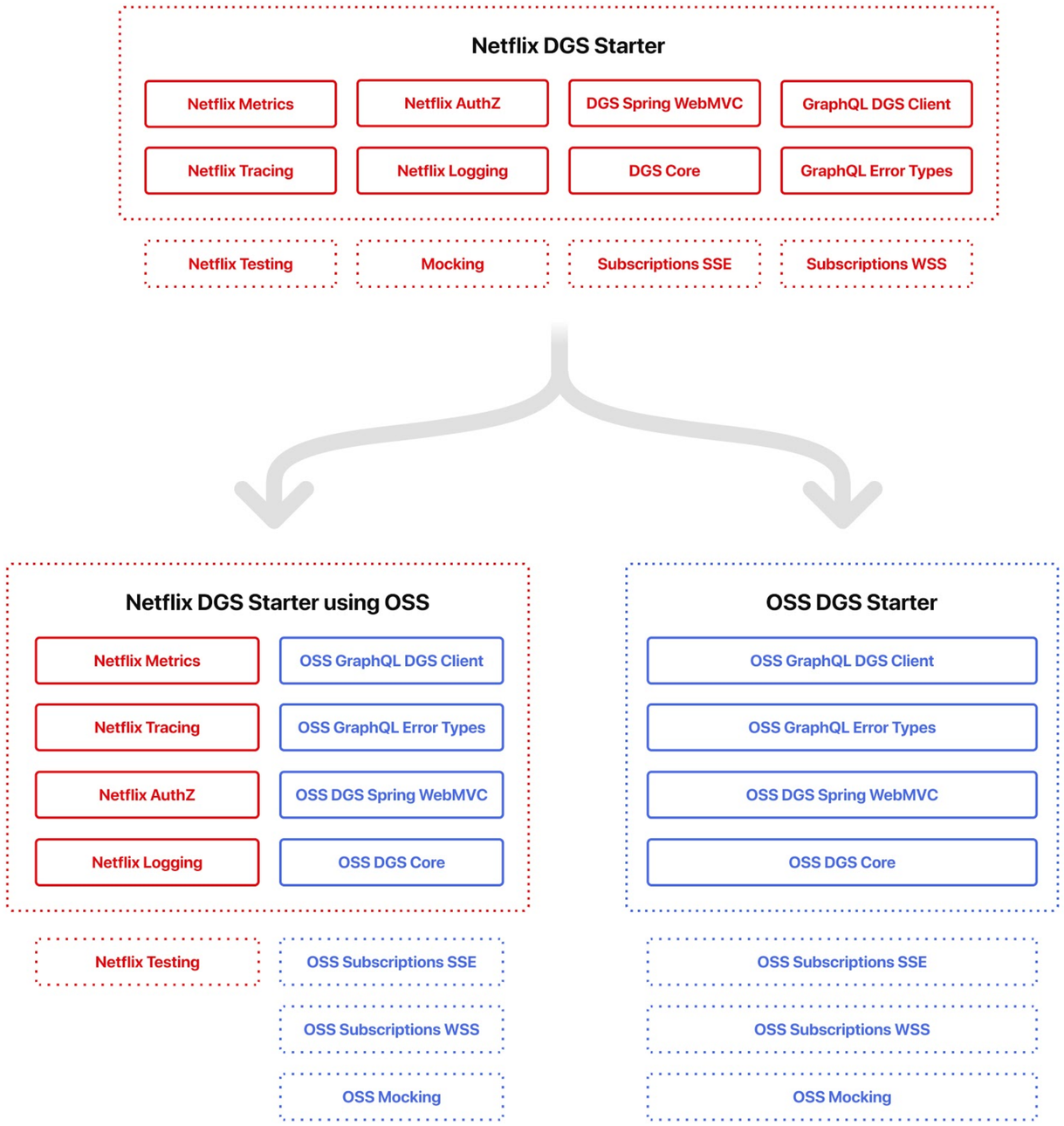
DGS
DGS

The DGS Framework

GraphQL for Spring Boot

Great developer experience, and battle hardened

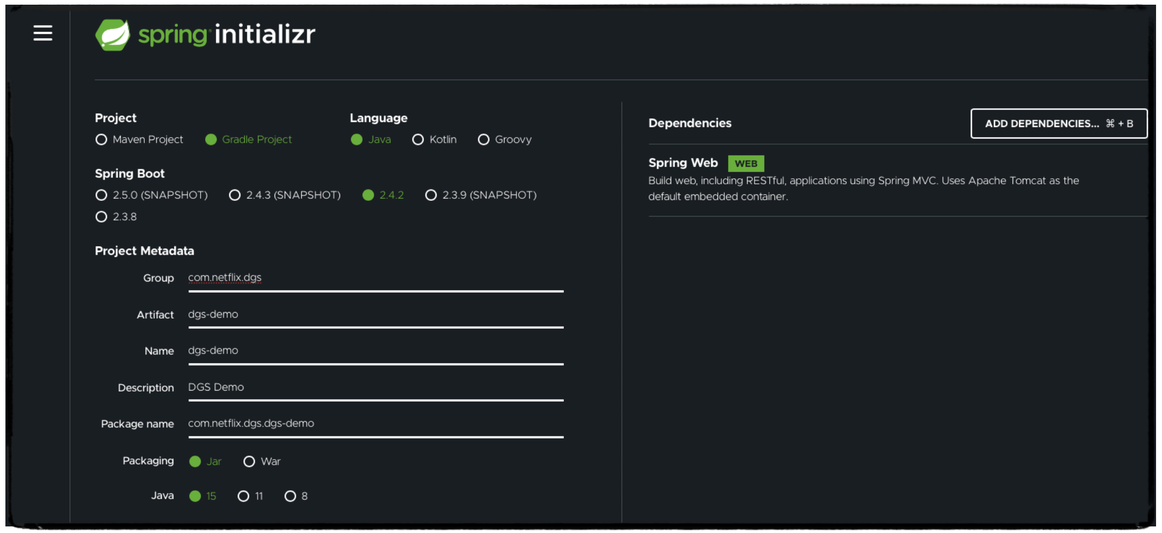


DGS in Action

5

Getting started

Just a Spring Boot app



Add DGS dependency and Codegen plugin

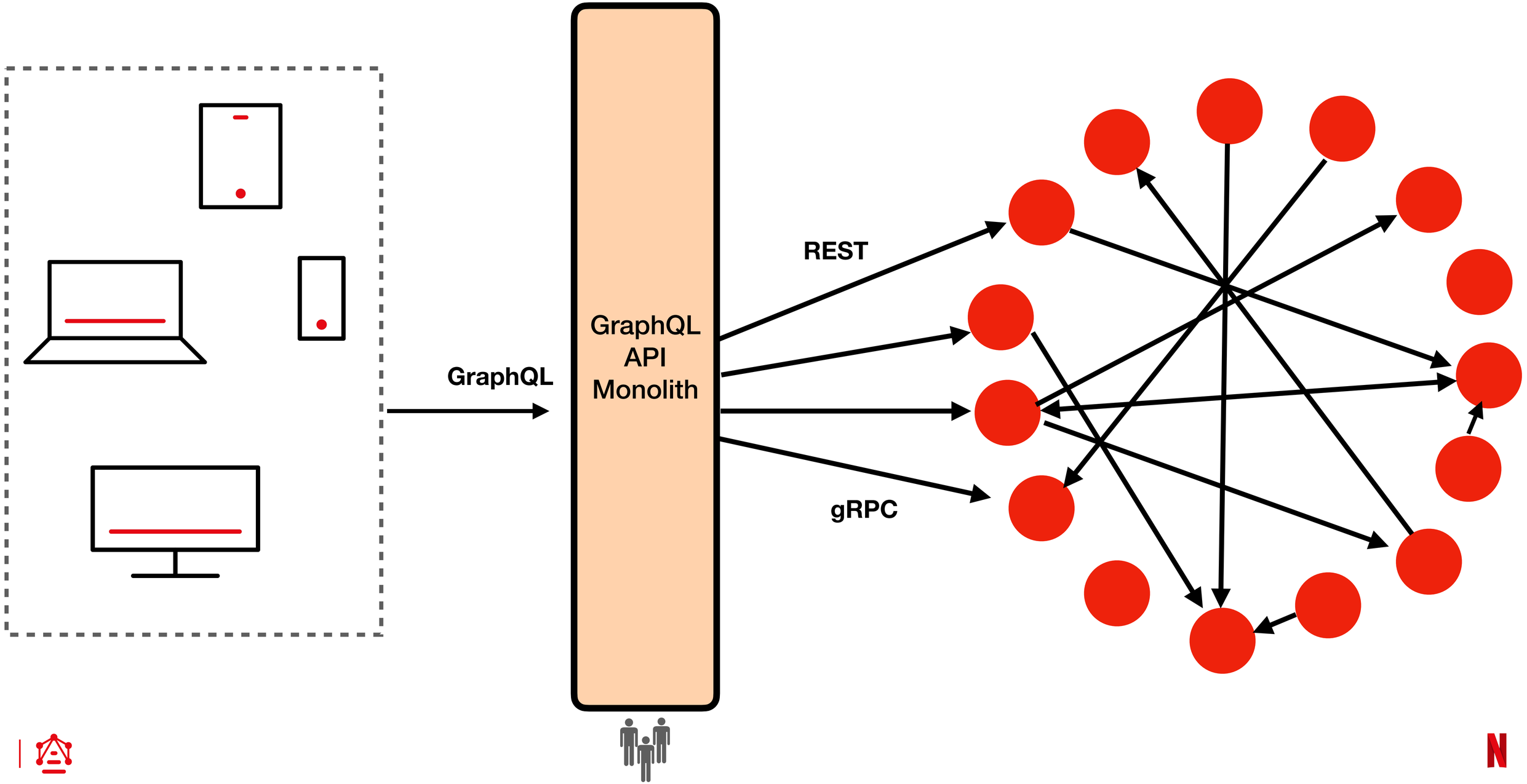
```
plugins {
    …
    id("com.netflix.dgs.codegen") version "4.0.12"
}
```

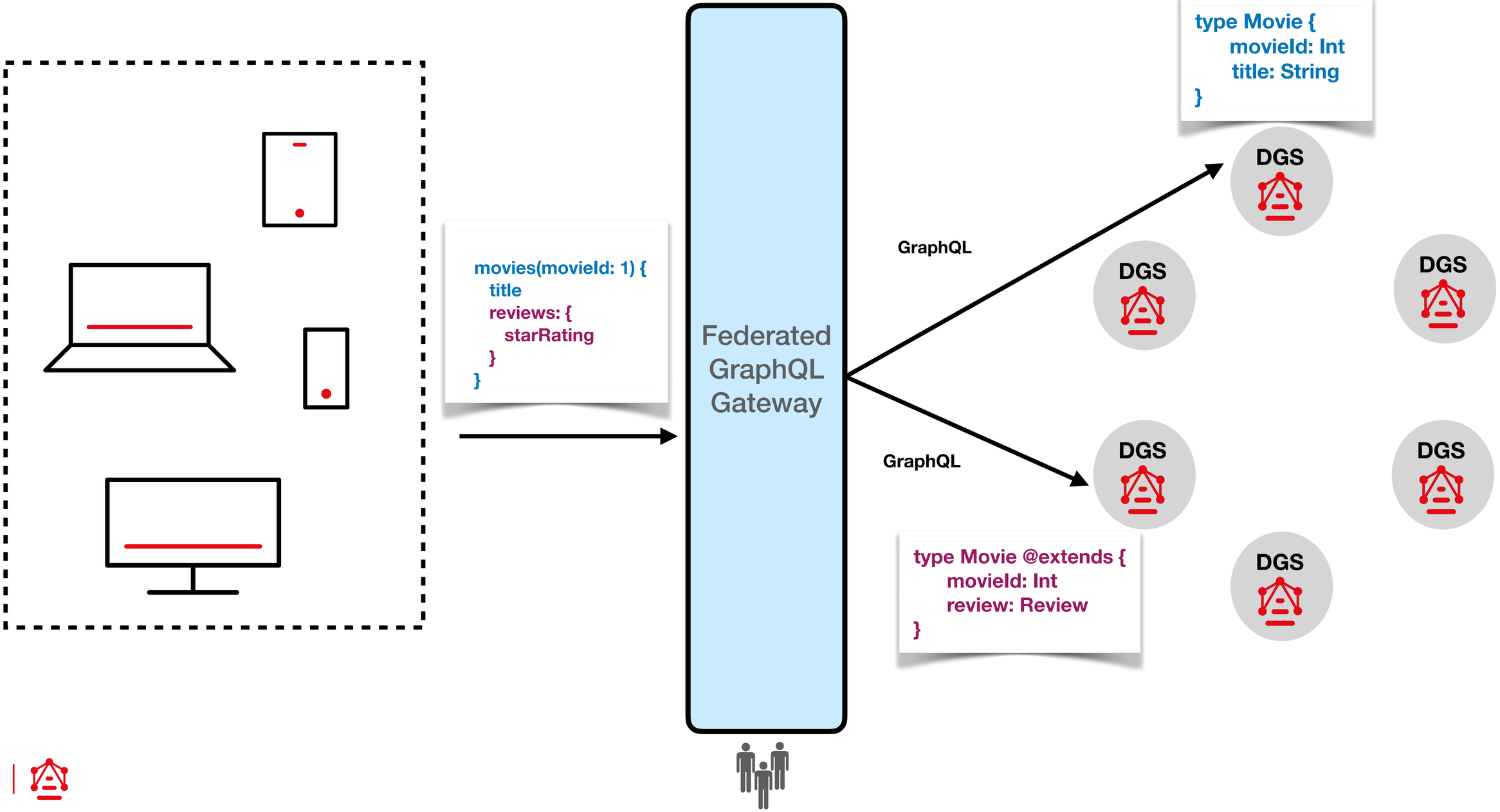
```
dependencies {
    implementation("com.netflix.graphql.dgs:graphql-dgs-spring-boot-starter:3.1.1")
}
```

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

4 Federation


GraphQL
GraphQL
API
Monolith
REST
gRPC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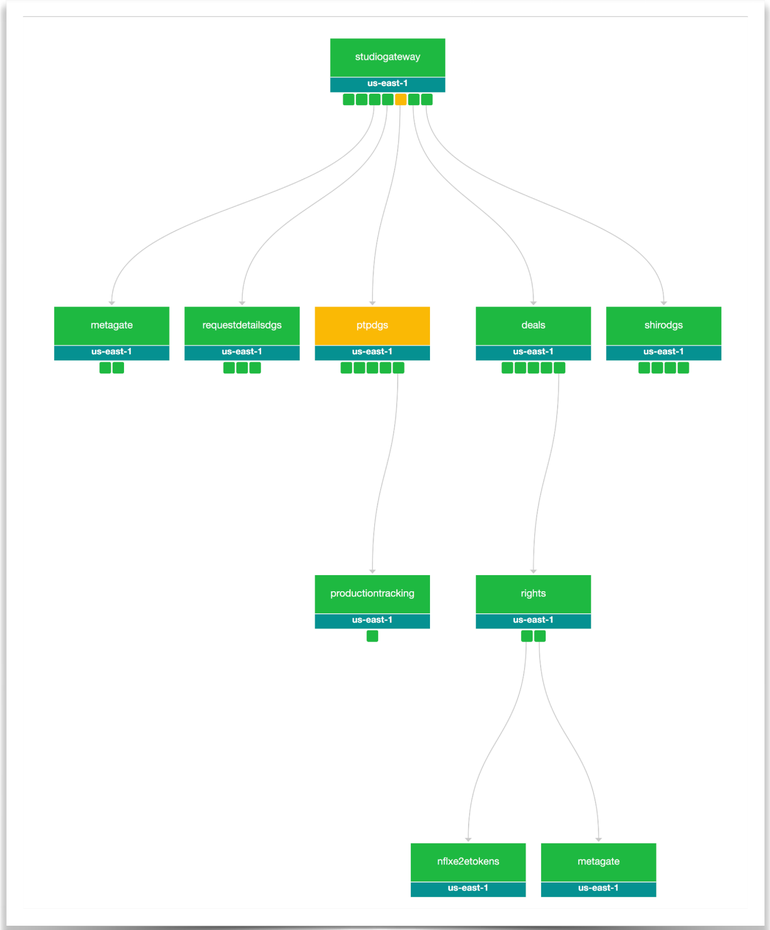
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us-east-1
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us-east-1
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ptpdgs
us-east-1
deals
us-east-1
shirodgs
us-east-1
productiontracking
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rights
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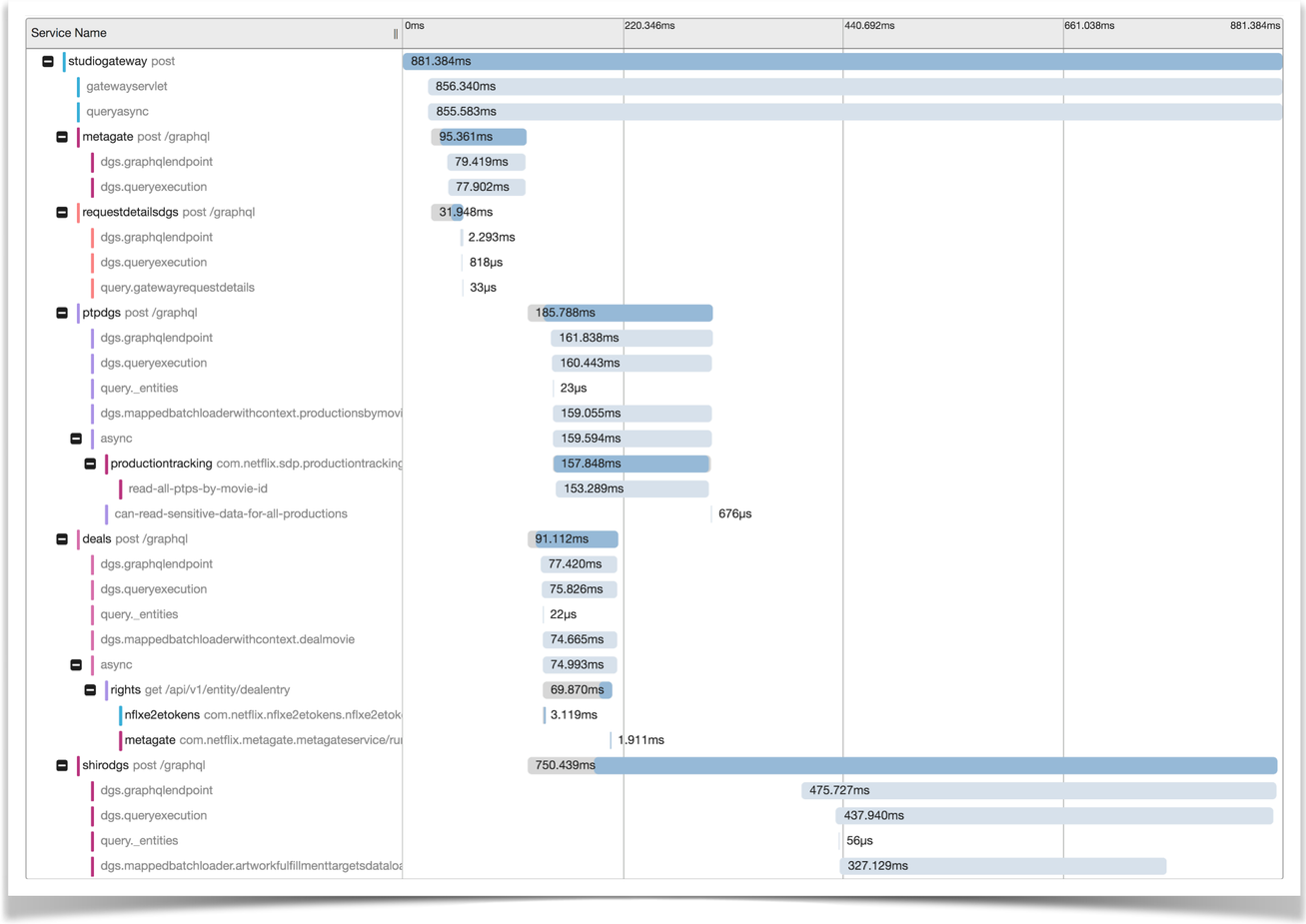
nflxe2etokens
us-east-1
metagate
us-east-1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440.692ms
661.038ms
881.384ms
studiogateway post
881.384ms
gatewayservlet
856.340ms
queryasync
855.583ms
metagate post /graphql
95.361ms
dgs.graphqlendpoint
79.419ms
dgs.queryexecution
77.902ms
requestdetailsdgs post /graphql
31.948ms
dgs.graphqlendpoint
2.293ms
dgs.queryexecution
818µs
query.gatewayrequestdetails
33µs
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185.788ms
dgs.graphqlendpoint
161.838ms
dgs.queryexecution
160.443ms
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23µs
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async
159.594ms
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157.848ms
read-all-ptps-by-movie-id
153.289ms
can-read-sensitive-data-for-all-productions
676µs
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91.112ms
dgs.graphqlendpoint
77.420ms
dgs.queryexecution
75.826ms
query._entities
22µs
dgs.mappedbatchloaderwithcontext.dealmovie
74.665ms
async
74.993ms
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69.870ms
nflxe2etokens com.netflix.nflxe2etokens.nflxe2etok
3.119ms
metagate com.netflix.metagate.metagateservice/ru
1.911ms
shirodgs post /graphql
750.439ms
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475.727ms
dgs.queryexecution
437.940ms
query._entities
56µs
dgs.mappedbatchloader.artworkfulfillmenttargetsdataloa
327.129ms

Thank You.

https://netflix.github.io/dgs

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