GraphQL: The Big Picture

WHAT IS GRAPHQL?

ADHITHI RAVICHANDRAN
SOFTWARE CONSULTANT

@AdhithiRavi   www.adhithiravichandran.com

GraphQL: The Big Picture

Course Outline

What Is GraphQL?

Core Concepts

Why GraphQL?

Ecosystem and Tooling

Overview

What is GraphQL?

History

Who is using GraphQL?

REST vs. GraphQL

Is it a good fit for my business?

History

History

In 2012, Facebook started the GraphQL project to overcome data fetching issues in their native mobile platform

Moved the focus of development to the client apps

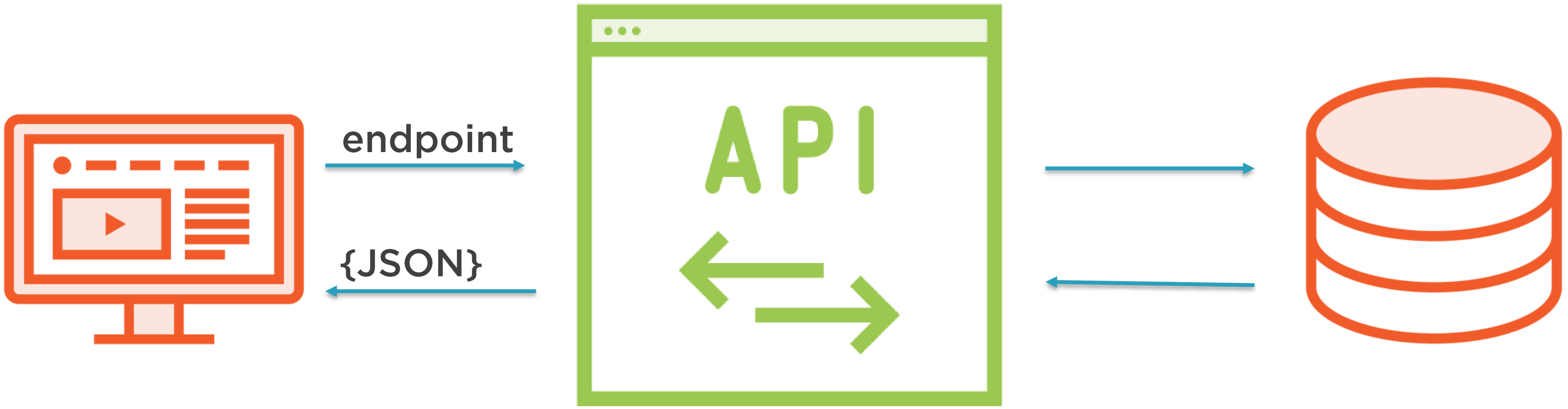
GraphQL was open-sourced in 2015
Ever since then, there has been huge community involvement

GraphQL came into existence due to the need for better flexibility and efficiency in client-server communication

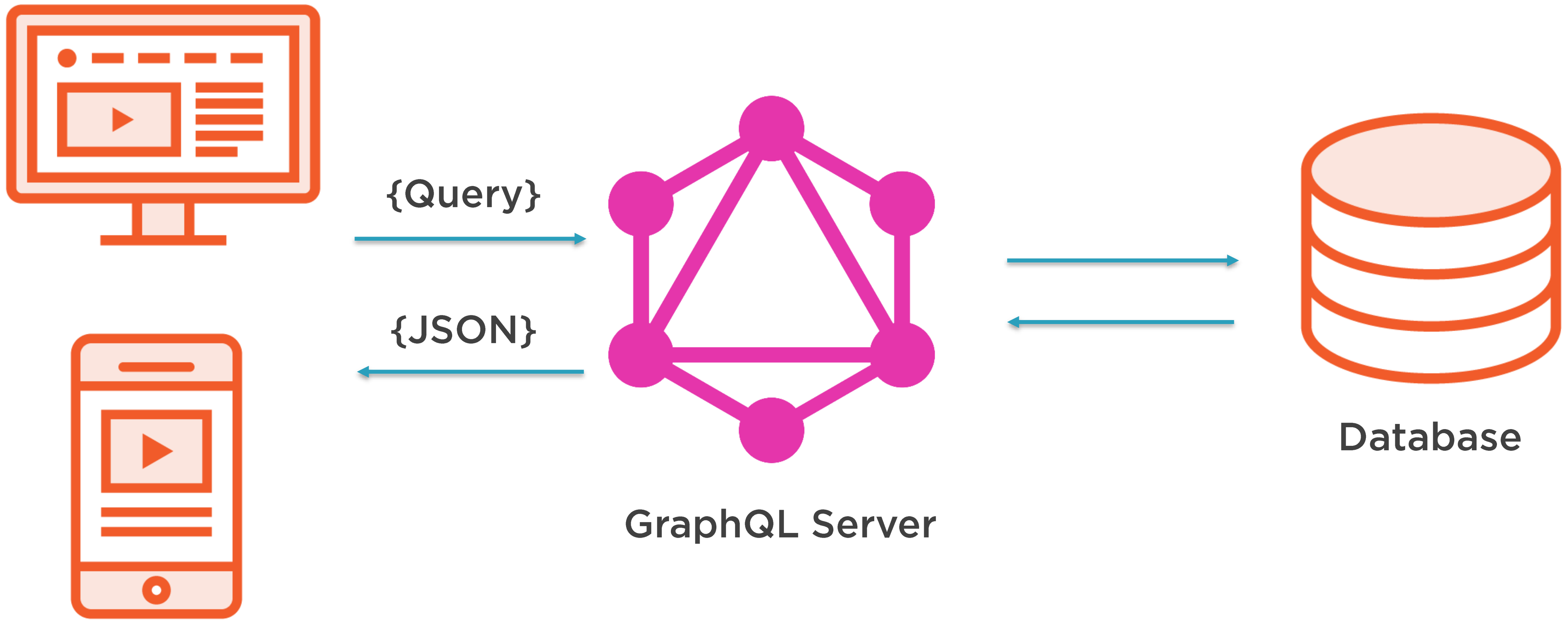
What Is GraphQL?

GraphQL is a query language for your API

Before GraphQL



What Is GraphQL?



GraphQL Query

```
{
  allPeople(last: 3) {
    people {
      name
      gender
    }
  }
}
```

JSON Response

```
{
  "data": {
    "allPeople": {
      "people": [
        {
          "name": “Adhithi R",
          "gender": “female"
        },
        {
          "name": “John Smith",
          "gender": “male"
        },
        {
          "name": “Emma Toplif",
          "gender": "female"
        }
      ]
    }
  }
}
```

GraphQL – Query Language for API

Provides clients the power to ask for exactly what they need and nothing more

GraphQL APIs get all the data your app needs in a single request

Language agnostic
Plenty of client and server libraries are available

Who Is Using GraphQL?

Facebook

PayPal

We had some big developer experience and performance problems. GraphQL solves this and more.

PayPal Engineering

Twitter

Moving clients away from this endpoint saves our user's data — as much as 25% per request — and is the beginning of a larger architectural change to enable teams to move faster, make changes to the product more easily, and involve fewer teams in the process.

Twitter Engineering

Yelp

Shopify

GitHub

Who Is Using GraphQL?

Facebook

PayPal

Twitter

yelp

shopify

GitHub

REST vs. GraphQL

Build UI with author information

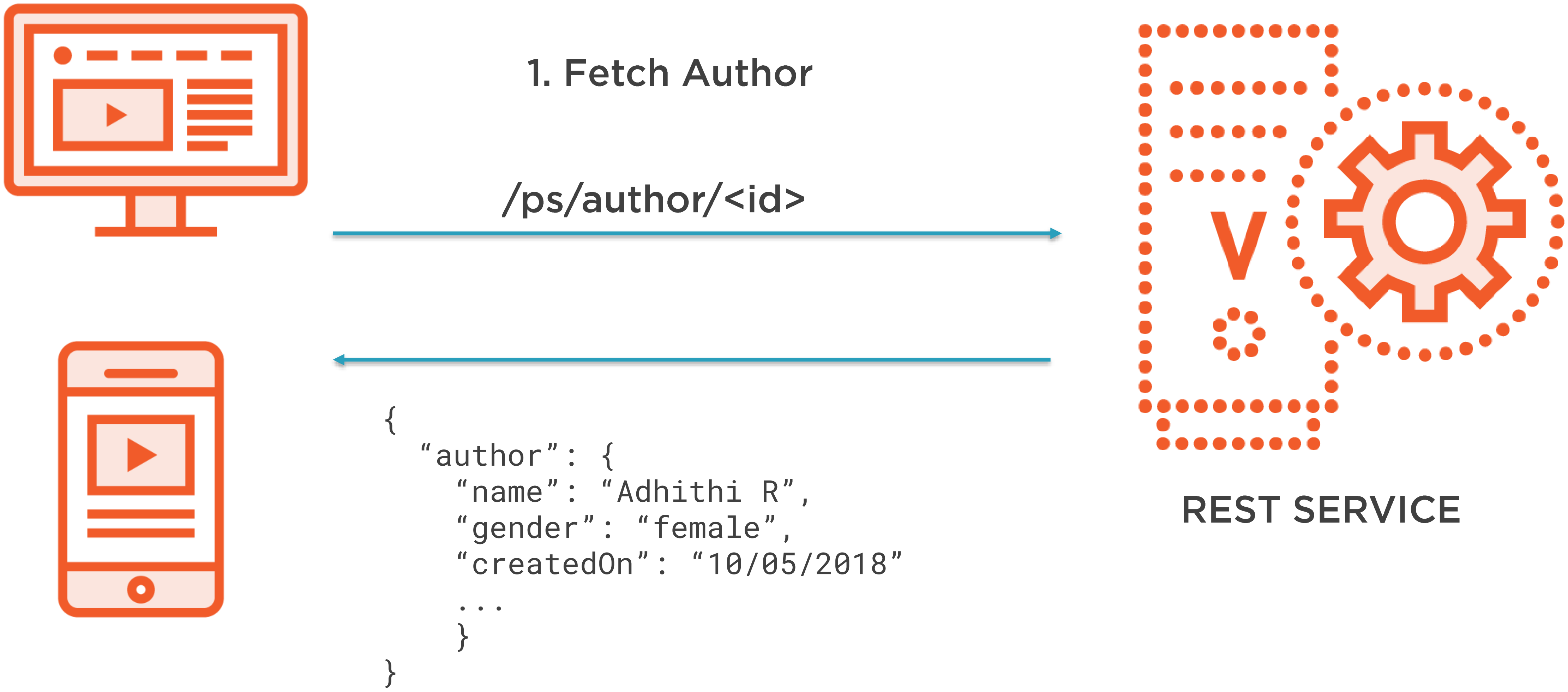
Display:

- Author name
- Courses authored
- Author’s rating
- Most recent topics covered

REST

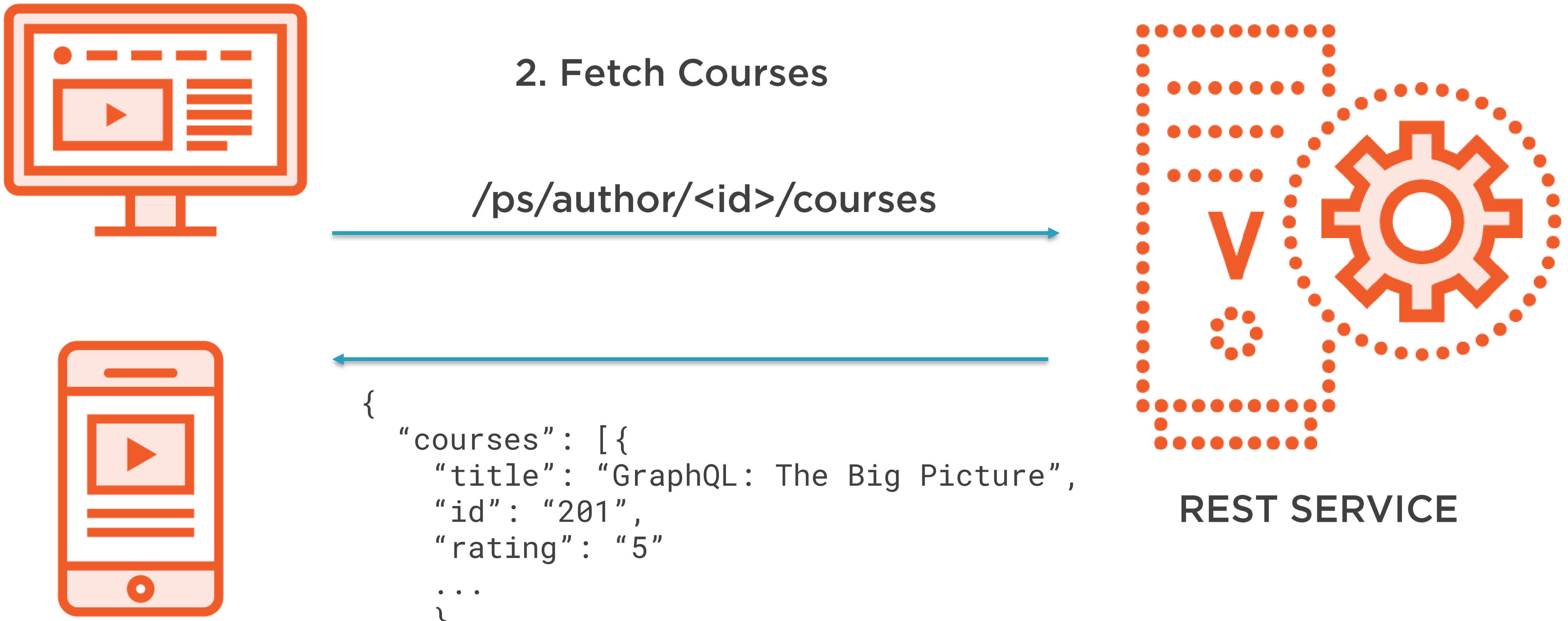
```
/ps/author/<id>
/ps/author/<id>/courses
/ps/author/<id>/rating
/ps/author/<id>/topics
```

REST



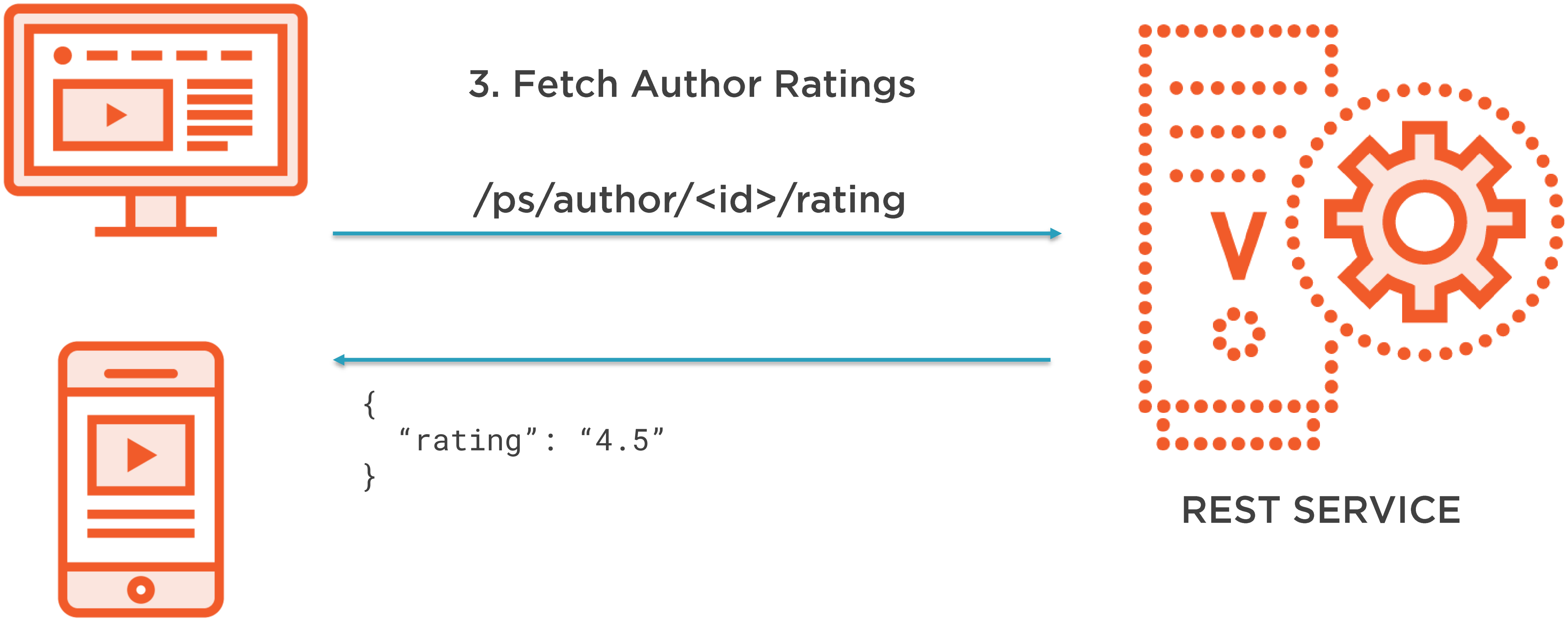
```
{
  “author”: {
    “name”: “Adhithi R”,
    “gender”: “female”,
    “createdOn”: “10/05/2018”
    ...
    }
}
```

REST



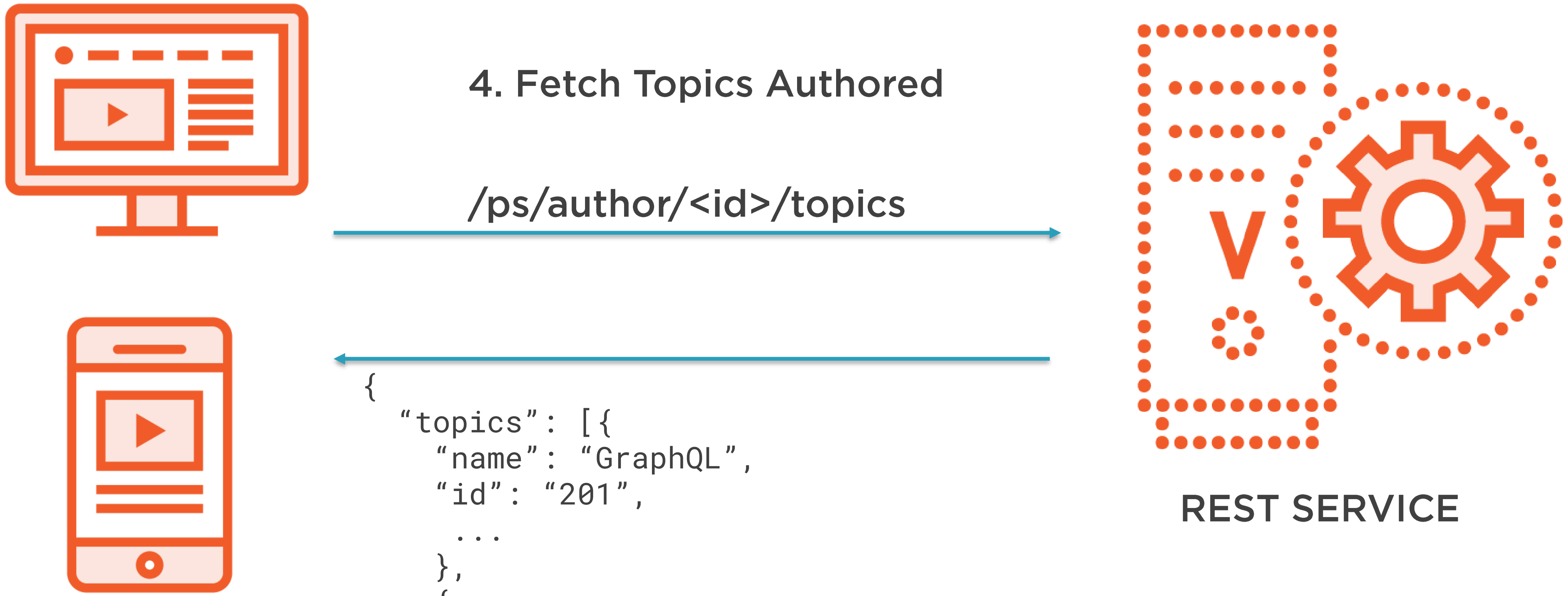
```
{
  “courses”: [{
    “title”: “GraphQL: The Big Picture”,
    “id”: “201”,
    “rating”: “5”
    ...
    },
    {
     ...
    }]
}
```

REST



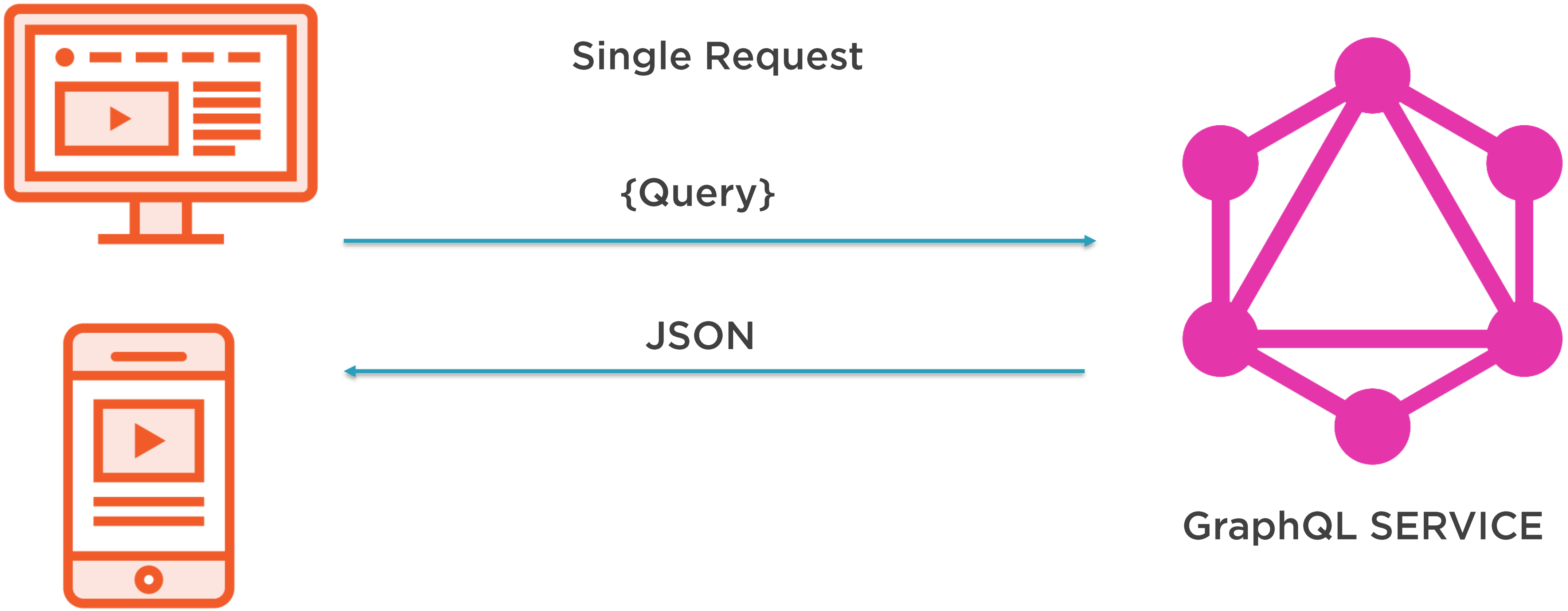
```
{
  “rating”: “4.5”
}
```

REST



```
{
  “topics”: [{
    “name”: “GraphQL”,
    “id”: “201”,
     ...
    },
    {
     “name”: “React”,
     ...
   }]
}
```

GraphQL



No multiple round-trips like REST. No over-fetching or under-fetching.

GraphQL Query and Response

```
{
  author (id : 2100) {
    name
    courses {
      title
    }
    rating
    topics (last : 3) {
      name
    }
  }
}
```

```
{
  "data" : {
    "author" : {
     "name": "Adhithi Ravichandran",
     "courses": [
       { title: "React Native: The Big Picture" },
       { title: "GraphQL : The Big Picture" }
     ],
     "rating": "4.5",
     "topics" : [
       { name : "React" },
       { name : "React Native" },
       { name : "GraphQL" }
     ]
   }
  }
```

REST vs. GraphQL

REST	GraphQL
Multiple round trips to collect the information from multiple resources	One single request to collect the information by aggregation of data
Over Fetching and Under Fetching data resources	You only get what you ask for. Tailor made queries to your exact needs.
Frontend teams rely heavily on backend teams to deliver the APIs	Frontend and backend teams can work independently
Caching is built into HTTP spec	Doesn’t use HTTP spec for caching (Libraries like Apollo, Relay come with caching options)

REST

GRAPHQL

Is GraphQL Right for My Business?

Increases multi-team productivity

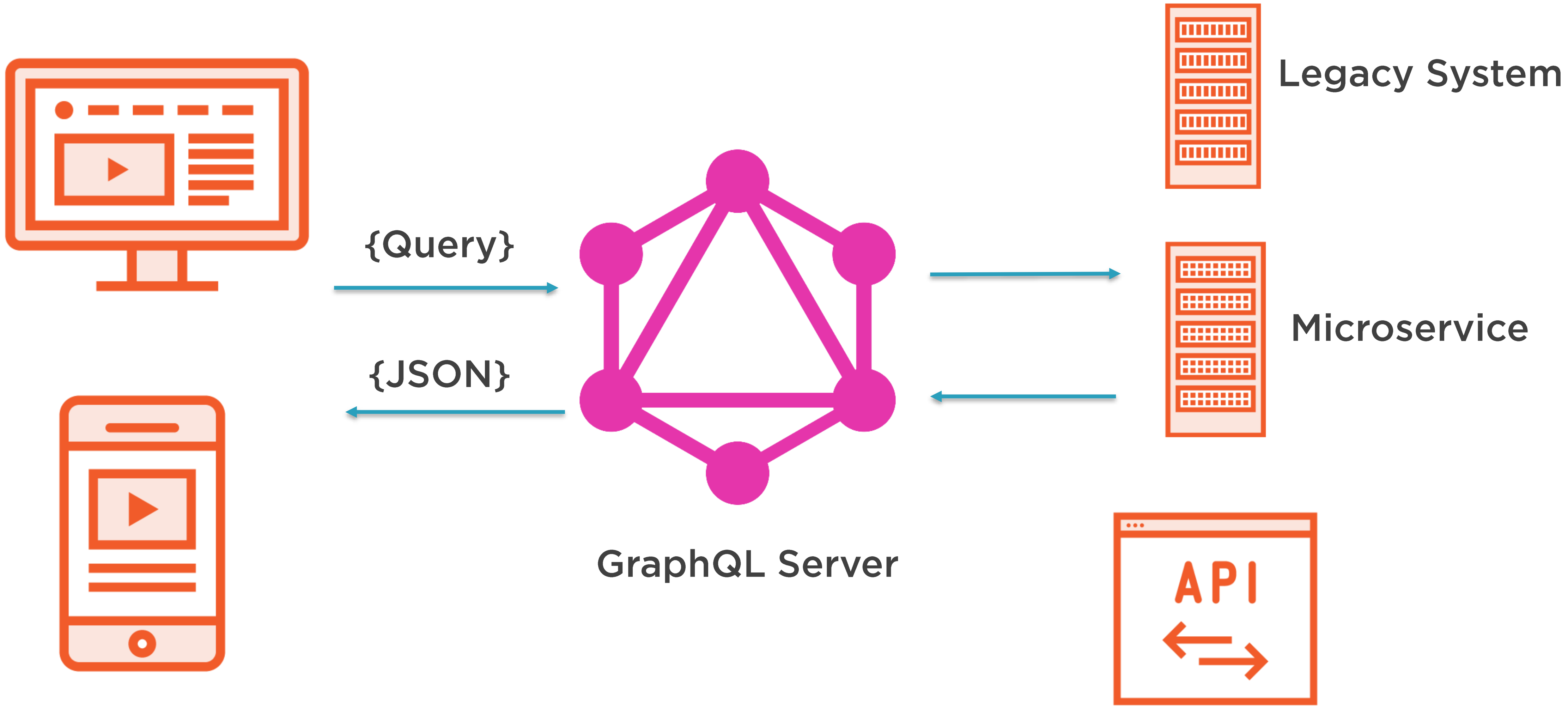
Rapid product development

Improved Performance Web and Mobile Apps

Reduced Cost in Testing and Deployment

We Have Legacy Systems

Integration With Existing APIs



Summary

What is GraphQL?

- Features of GraphQL
- Products developed with GraphQL

Comparisons with REST API

Is it right for my business?

Next Module: GraphQL Core Concepts