GRAPHQL

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STOP *RESTING* ON YOUR LAURELS

GRAPHQL IS A SPEC

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- API QUERY LANGUAGE DESIGNED FOR DATA INTENSIVE APPS
- CLIENTS DEFINE THEIR OWN DATA NEEDS
- NOT RESTRICTED TO SPECIFIC LANGUAGES OR SPECIFIC DATABASE ARCHITECTURES

DESIGN PRINCIPLES

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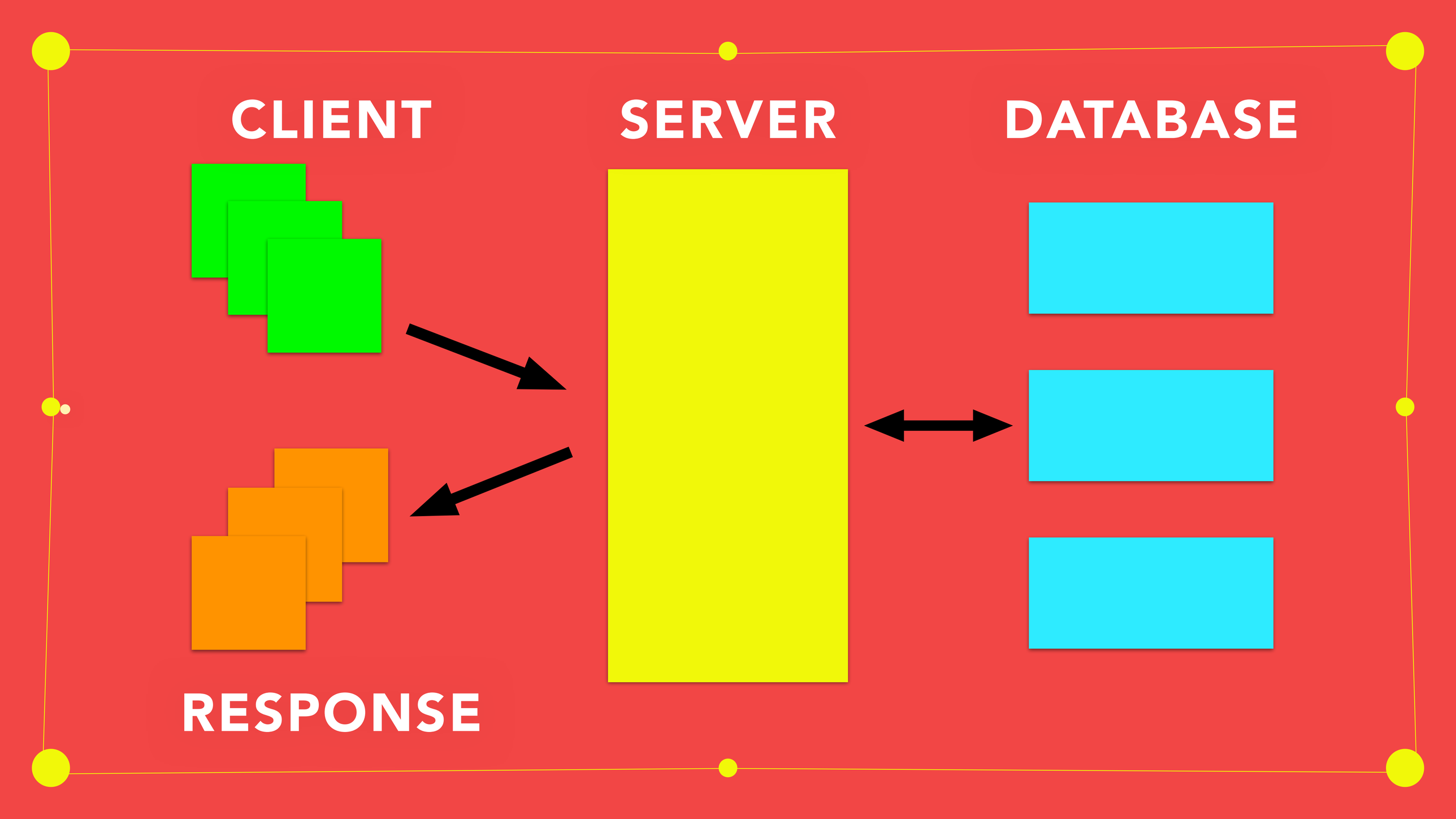
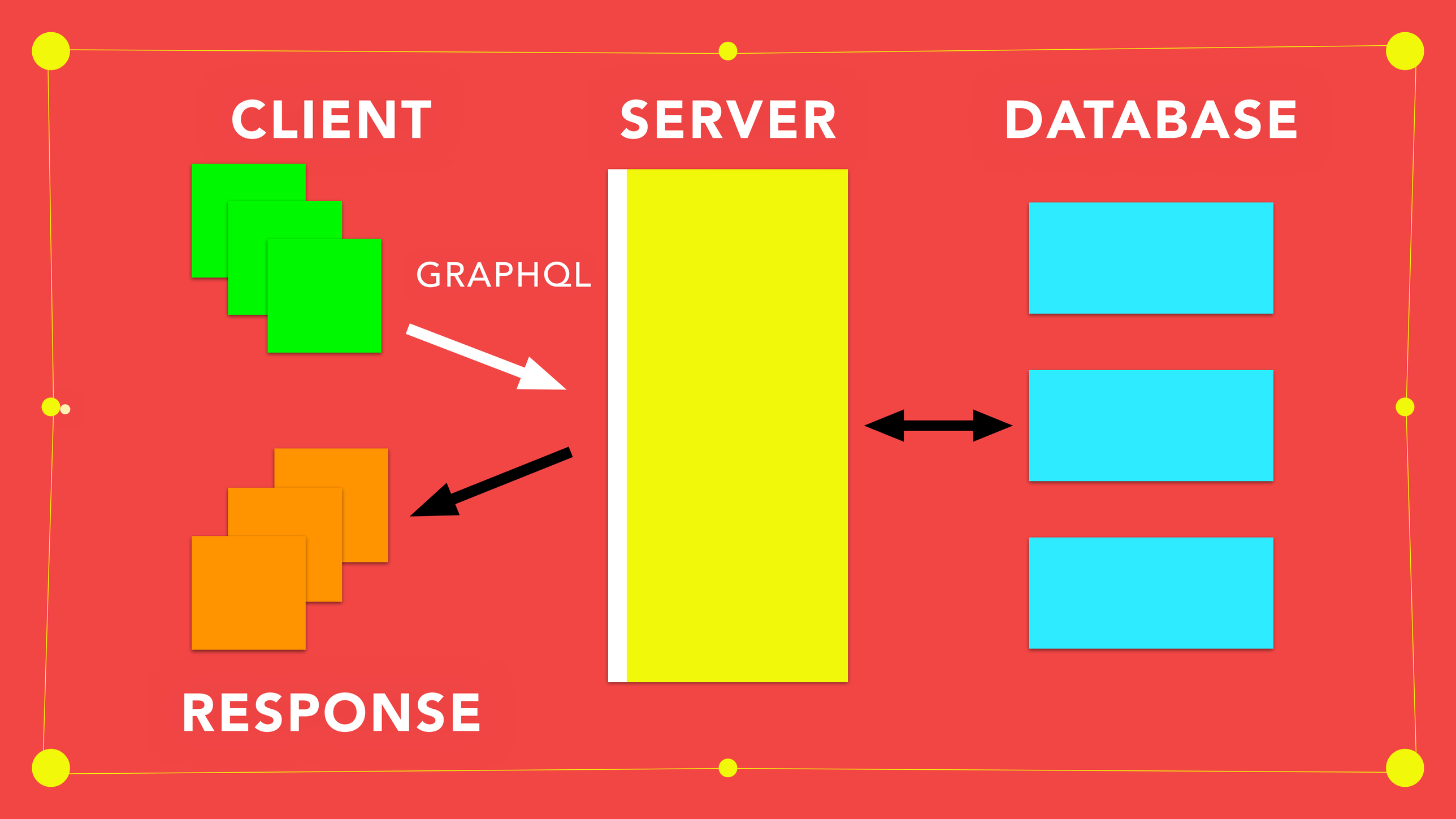
- **HIERARCHICAL** → QUERIES ARE SHAPED LIKE THE DATA THEY RETURN
- **PRODUCT-CENTRIC** → DRIVEN BY THE FRONT-END REQUIREMENTS
- **STRONG-TYPING** → QUERIES ARE VALIDATED BEFORE EXECUTION
- **CLIENT-SPECIFIED QUERIES** → RETURNS ONLY WHAT A CLIENT ASKS FOR
- **INTROSPECTIVE** → PUBLISHES AND SELF-DOCUMENTS IT'S CAPABILITIES

GOAL OF GRAPHQL

- CLIENT IS KING
- HOW DO WE MANAGE THE INCREASINGLY COMPLEX DATA REQUIREMENTS OF MODERN WEB & MOBILE APPS


CLIENT
SERVER
DATABASE
RESPONSE


CLIENT
SERVER
DATABASE
GRAPHQL
RESPONSE

GRAPHQL LIBRARIES

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- JAVASCRIPT
- PHP
- PYTHON
- RUBY
- JAVA
- GO

WHY GRAPHQL?

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- NATURAL REPRESENTATION OF REAL DATA
- SELF-DOCUMENTING API + PLAYGROUND
- REDUCE NETWORK CALLS FOR CLIENT APPS
- DATA QUERIES ARE CATERED FOR THE CLIENT APPS
- EASIER INTEGRATION FOR CLIENT APPS

WHY NOT GRAPHQL?

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- AWKWARD *JSON-LIKE* SYNTAX
- LOSE HTTP RESPONSE CACHING
- UNNECESSARY FOR FLAT DATA SCHEMAS
- HTTP2 & PARALLEL REQUESTS MAY DEFEAT THE PERFORMANCE GAINS
- RELAY HAS ONLY BEEN IMPLEMENTED IN REACT

HOW TO USE IT

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- QUERYING
- CREATING & UPDATING
- BUILING A GRAPHQL ENDPOINT

QUERYING

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- **EXAMPLE:** FETCH THE TITLE OF RECENT BLOG POSTS AND GET EACH AUTHOR'S NAME AND TWITTER HANDLE
- COMPARING **REST**, **MAGIC BOX**, & **GRAPHQL**

QUERYING REST


```
GET /posts?order_by=latest

GET /authors
```

QUERYING MAGICBOX

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```
GET /posts?include[]=authors&sort[datetime]=desc
```

QUERYING GRAPHQL


```
POST /graphql
  query {
    posts(order_by: “desc”) {
      title
    },
    authors {
      name
      twitterID
    }
  }
```

CREATE & UPDATE

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- **EXAMPLE:** CREATE A BLOG POST
- COMPARING **REST**, **MAGIC BOX**, & **GRAPHQL**

CREATE & UPDATE REST


```
POST /posts
  {
    ...post
  }
```

CREATE & UPDATE MAGICBOX

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```
POST /posts
  {
    ...post
  }
```

CREATE & UPDATE GRAPHQL


```
POST /graphql
  mutation createPost(
     ...postInformation
  ){
     title
     author
  }
```

DEMO

RELAY & INTEGRATION

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- SEAMLESS INTEGRATION BETWEEN **REACT** & **GRAPHQL**
- COMPONENTS DEFINE THEIR SPECIFIC DATA REQUIREMENTS AND API CALLS ARE ONLY MADE WHEN NEEDED

CONCLUSION

- GRAPHQL & REST WORK SURPRISINGLY WELL TOGETHER
  - GRAPHQL ALLOWS CLIENTS FLEXIBILITY WHEN FETCHING DATA
  - REST UPDATING AND CREATING RESOURCES

- **FACEBOOK'S GRAPHQL SPEC** → CANONICAL DOCUMENT
- **LET'S LEARN GRAPHQL** → INTRODUCTORY COURSE
- **AWESOME GRAPHQL** → LIST GRAPHQL PROJECTS
- **GRAPHQL IS EVIL** → WELL REASONED CRITICISM OF GRAPHQL
- **FALCOR** → BECAUSE NETFLIX HAS BRILLIANT ENGINEERS TOO
- **ZERO TO GRAPHQL IN 30 MINUTES** → BEST VIDEO INTRODUCTION

RESOURCES