

GraphQL with ASP.NET Core (and Blazor)



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Developer Technologies MVP

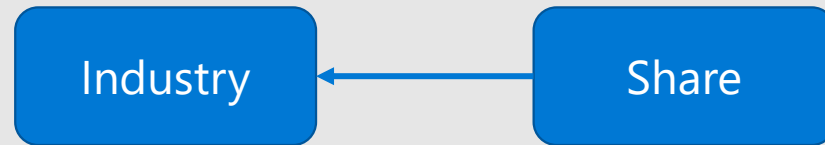
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Agenda

- Why GraphQL instead of (or together with) REST
- Running GraphQL on ASP.NET Core
- A glimpse of GraphQL on the client (with Blazor)
- Querying, manipulations, notifications, etc.

REST API vs GraphQL

A very simple share market manager



REST API

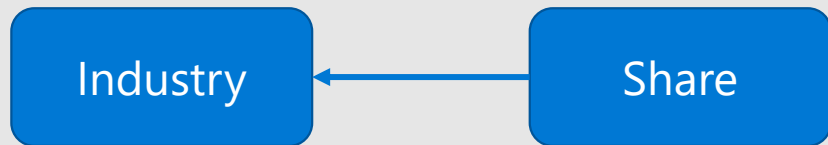
```
GET /api/industries
GET /api/shares
GET /api/shares/{shareId}
GET /api/shares?industry={industryId}&start={start}...
POST /api/shares
PUT /api/shares/{shareId}
```

GraphQL

```
POST /graphql
+
Query language
```

REST API vs GraphQL

A very simple share market manager



```
query MyQuery {  
  shares  
    (where: { value: { gt: 80 }}  
     order: { value: DESC })  
  {  
    nodes {  
      companyName  
      value  
      industry {  
        name  
      }  
    }  
    totalCount  
  }  
}
```

REST API vs GraphQL

- Query language
- Developed by Facebook and then donated to the GraphQL Foundation (2015)
- Transport level-agnostic
 - HTTP, gRPC, WebSocket
- Built-in functionalities:
 - Querying, Manipulation, Caching, Subscription..
- Microservices ready (schema stitching and federation)

GraphQL is cross-technology

Code
using GraphQL

<https://graphql.org/code/>

Language Support

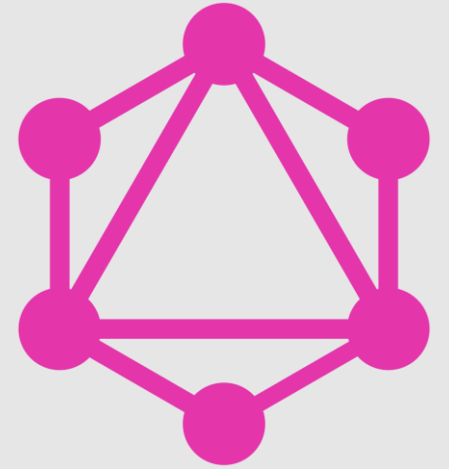
JavaScript	Go	PHP	Python	Java / Kotlin	C# / .NET	Ruby	Rust
Elixir	Swift / Objective-C	Scala	Flutter	Clojure	C / C++	Haskell	Elm
OCaml / Reason	Erlang	Groovy	R	Julia	Perl	D	

What about .NET Core?

- GraphQL for .NET
 - <https://github.com/graphql-dotnet/graphql-dotnet>
- ChilliCream GraphQL Platform
 - <https://github.com/ChilliCream/hotchocolate>
 - Hot Chocolate (GraphQL server)
 - Banana Cake Pop (web test client)
 - Strawberry Shake (GraphQL client)



GraphQL on .NET Core Demo



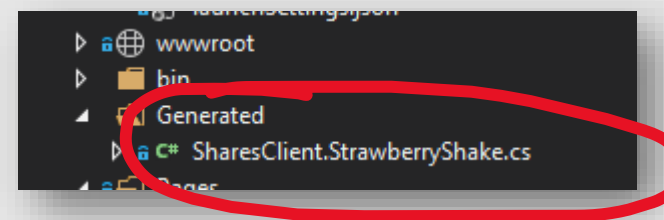
GraphQL Server on ASP.NET Core

Strawberry Shake and Blazor

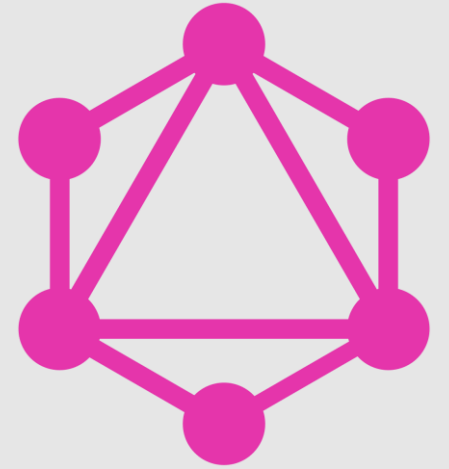
Proxy generation

```
dotnet new tool-manifest  
  
dotnet tool install StrawberryShake.Tools --local  
  
dotnet graphql init https://localhost:5001/graphql -n SharesClient
```

```
query GetShares ($industryId:Int) {  
  shares(industryId: $industryId) {  
    totalCount  
  
    nodes {  
      ... Share  
    }  
  }  
}
```

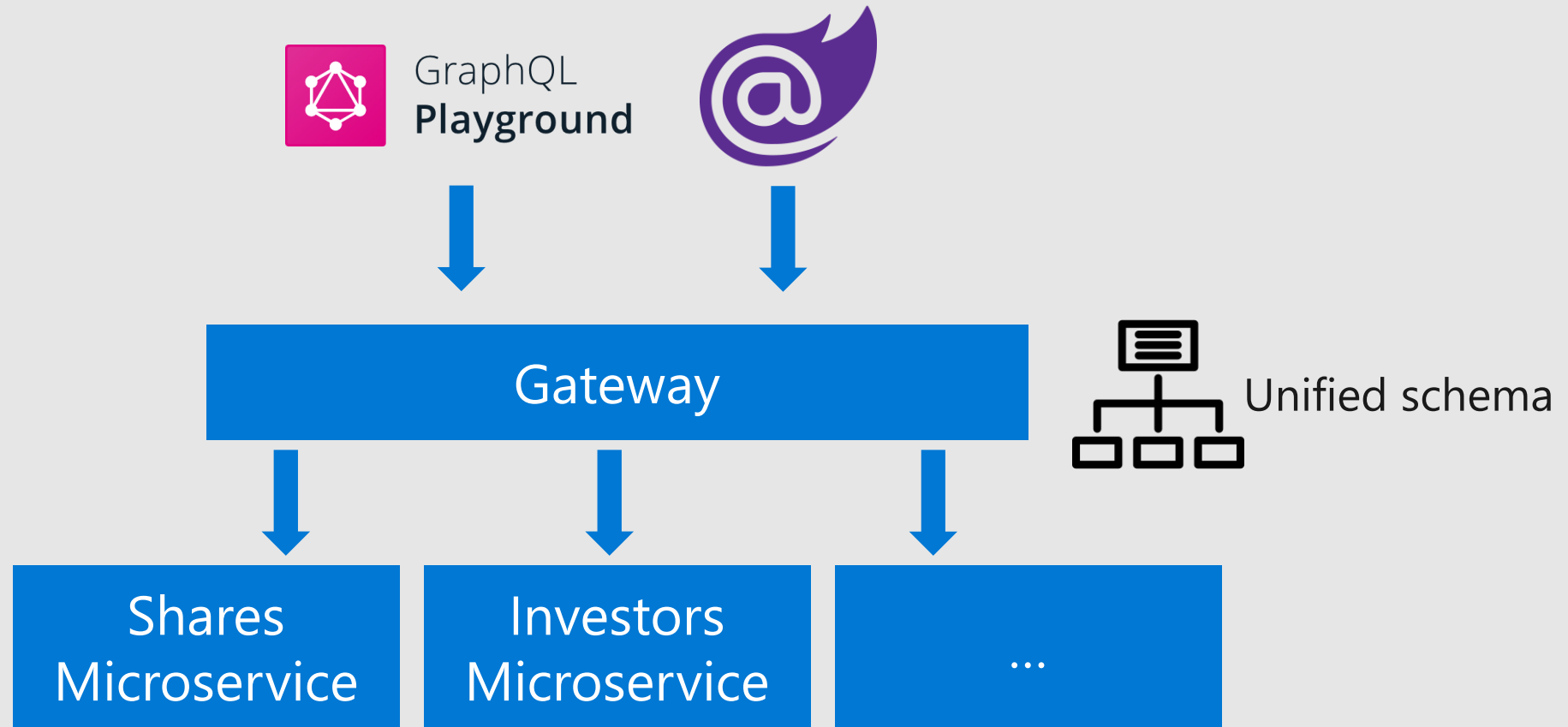


GraphQL on .NET Core Demo

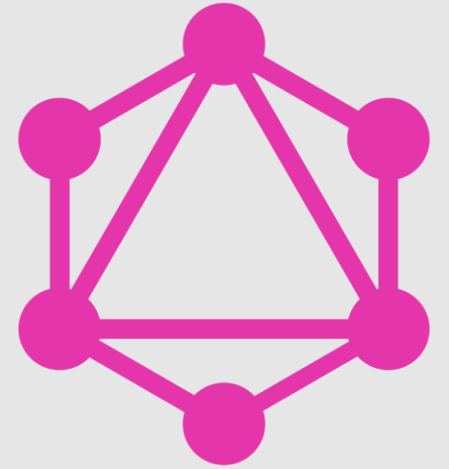


GraphQL on a Blazor client

Microservices and Schema Stitching



GraphQL on .NET Core Demo



Schema stitching

N+1 Problem with Schema Stitching

Investors service

```
[  
  { "Investor1", IndustryID1},  
  { "Investor2", IndustryID1},  
  { "Investor3", IndustryID2}  
]
```

Industries service

```
query IndustriesById(id:1) {  
  name  
}  
query IndustriesById(id:1) {  
  name  
}  
query IndustriesById(id:2) {  
  name  
}
```

where id=1

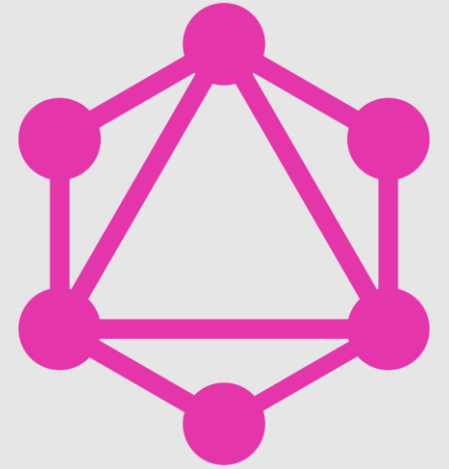
where id=1

where id=2



Batch query

GraphQL on .NET Core Demo



Batch data loader

Recap

- Introduced GraphQL basic syntax
- Implemented a GraphQL server with ASP.NET Core
- Connected a Blazor client (filtering, paging)
- Mutations
- Subscriptions
- Schema stitching
- Batch Loaders

Thank you! 😊

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Get the bits at

<https://github.com/cradle77/BlazorGraphQL>