

## A technical introduction to GraphQL

GraphQL is a query language for APIs (Application programming interface) that has become increasingly popular in recent years. It was developed and released by Facebook(now Meta) in 2015 and is designed to be a more efficient and flexible alternative to traditional REST APIs. In this article, we'll explore the basics of GraphQL and how it works.

At its core, GraphQL is a specification for how to request data from an API. It defines a schema that describes the data that can be queried, and a set of operations that can be used to fetch that data. The schema is essentially a contract between the client and the server, defining what data is available and how it can be queried.

One of the key features of GraphQL is its ability to retrieve only the data that is needed, rather than returning a fixed set of data as is typical in REST APIs. This is achieved through the use of queries, which allow clients to specify exactly what data they need. For example, a query might request only the name and email of a user, rather than retrieving their entire profile.

Another important feature of GraphQL is its ability to handle multiple queries in a single request. This is achieved through the use of a single endpoint that accepts a batch of queries. This can be much more efficient than making multiple requests to a REST API, as it reduces the overhead of establishing multiple connections.

To use GraphQL, clients send a query to the server, which then responds with the requested data. Queries can include arguments and variables, which allow clients to specify parameters such as filtering or sorting. For example, a query might request all users whose name starts with "J", or sort users by their age.

GraphQL also includes a feature called mutations, which allow clients to modify data on the server. Mutations can be used to create, update, or delete data. Like queries, mutations are defined in the schema and can be executed through the API.

In conclusion, GraphQL is a powerful and flexible alternative to traditional REST APIs. Its ability to retrieve only the data that is needed, handle multiple queries in a single request, and support mutations makes it an attractive option for building modern web applications. By understanding the basics of GraphQL, developers can take advantage of its capabilities and improve the efficiency and flexibility of their APIs.