

Support GraphQL Federation for GraphQL APIs in WSO2 API-M

What is the Problem we are trying to solve?

- API developers encounter scenarios where businesses deal with multiple GraphQL backend services
- Based on the modern GraphQL API best practices , API consumers need a more flexible and efficient way to query data from multiple backend graphQL services through a unified service
- GraphQL Federation concept solves this by enabling consumers to interact with multiple APIs through a single request made to a federated graph that combines the multiple backend services.

* [More information about Federation](#)

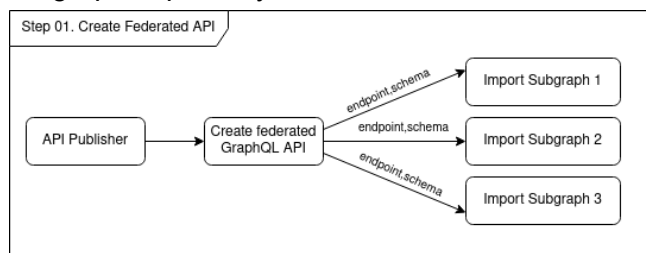
Why should it be solved?

- This will enhance developer experience by abstracting away the complexities associated with setting up and managing federated GraphQL services
- Developers gain centralized control over their entire API ecosystem.
- Providing support for federation in the API management layer ensures consistent QoS.
- Distinguishing WSO2 API-M from competitors that lack GraphQL federation capabilities, strengthening the position of the platform

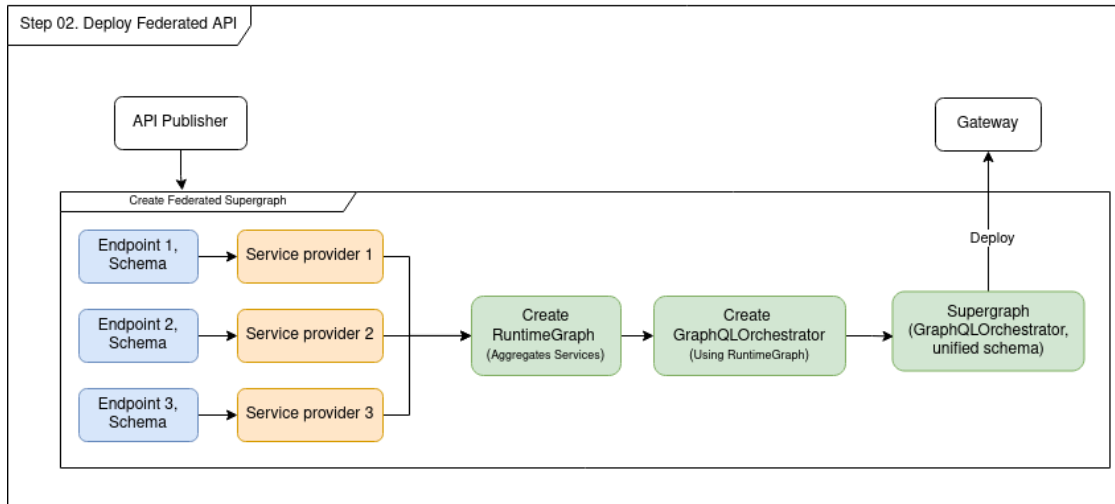
* [Competitor analysis Document](#)

Proposed Solution

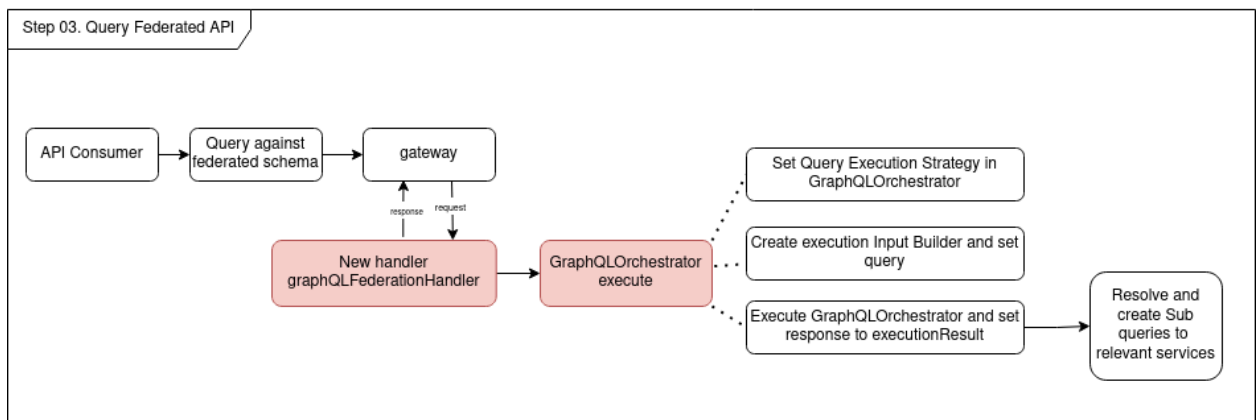
- [POC Link](#)
- To support GraphQL Federation at WSO2 API Manager publisher portal, let API developers import multiple subgraphs for by providing SDL and endpoint for each subgraph separately



- During deploying a new Revision, service providers will be created for each subgraph utilizing the endpoints and SDL of the relevant subgraphs, Then they will be combined to create a runtime graph which will later be used to create the graphqlOrchestrator object that will be stored along with the unified SDL .



- To support graphql Federation at WSO2 API-M gateway, a new handler called graphqlFederationHandler will be implemented to handle the query execution with multiple backends.



Challenges and solutions

- Providing backend security after blocking the mediation flow through the custom handler.