Comparison of REST, SOAP, and GraphQL

REST (Representational State Transfer)

- Uses HTTP methods like GET, POST, PUT, DELETE to manipulate resources
- Typically uses JSON for messaging format
- Stateless and cacheable
- Good for public APIs

SOAP (Simple Object Access Protocol)

- Uses XML for messaging format
- More rigid messaging structure than REST
- Defines strict schema for requests and responses
- Good for internal services and enterprise applications

GraphQL

- Developed by Facebook for their data fetching needs
- Allows clients to define exactly what data they need
- Uses a schema to define available data and operations
- Single endpoint, clients post JSON requests
- Returns JSON responses
- Good for giving clients flexibility and minimizing over/under fetching data

Type	REST	SOAP	GraphQL
Protocol	HTTP	XML-RPC	HTTP
Messaging Format	JSON	XML	JSON
Caching	Yes	No	Yes
Statelessness	Yes	Yes	Yes
Schema	No schema	Strict schema	Strongly typed schema
Server	Multiple endpoints	Single endpoint	Single endpoint
Batching	No	Yes	Yes
Over/under fetching	Yes	No	No