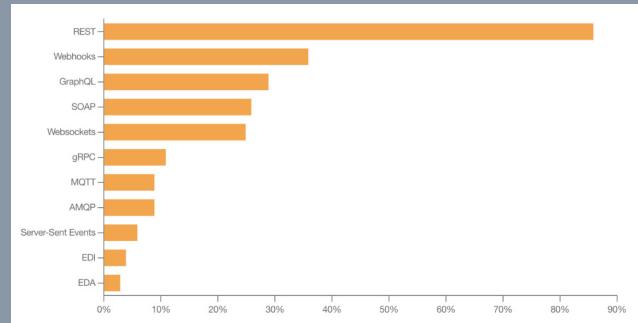


Modern API Structures

As the internet continues to grow, developers have made clear their favorite API structures to use in production. A study by Bello (2023) for Postman reports that the top three structures are REST, Webhooks, and GraphQL, but when should they be implemented?



REST API

Pros

- Clients control the data they receive, no over-fetching or under-fetching.
- Single endpoint simplifies API management.
- Strong typing and introspection improve documentation and error handling.

Cons

- Complex to implement and optimize for caching.
- Steeper learning curve compared to REST.
- Performance overhead for simple use cases.

REST is a widely adopted architectural style for building networked applications. It uses HTTP methods (GET, POST, PUT, DELETE) to perform operations on resources identified by URLs. Data is typically exchanged in JSON format, making it simple and readable.

Webhooks are automated messages sent from one system to another when a specific event occurs. Instead of the client requesting data, the server pushes it to a predefined URL in real time. They are event-driven and ideal for asynchronous updates.

Webhooks

Pros

- Real-time data delivery, no need for polling.
- Lightweight and efficient for event-driven applications.
- Reduces server load since updates are pushed only when events happen.

Cons

- Requires public endpoints, which can raise security concerns.
- Harder to debug and test compared to REST APIs.
- If the receiver is down, data can be lost unless retries are implemented.

GraphQL

Pros

- Clients control the data they receive, no over-fetching or under-fetching.
- Single endpoint simplifies API management.
- Strong typing and introspection improve documentation and error handling.

Cons

- Complex to implement and optimize for caching.
- Steeper learning curve compared to REST.
- Performance overhead for simple use cases.

GraphQL is a query language for APIs that allows clients to request exactly the data they need and nothing more. It uses a single endpoint for all operations and enables powerful querying and mutation capabilities, making it highly flexible for front-end developers.