

EVERYTHING AT ONCE



MAP

WHAT IS AN API?

APIs are mechanisms that enable two software components to communicate with each other using a set of definitions and protocols. For example, the weather bureau's software system contains daily weather data. The weather app on your phone “talks” to this system via APIs and shows you daily weather updates on your phone.

WHAT DOES API STAND FOR?

API stands for Application Programming Interface. In the context of APIs, the word Application refers to any software with a distinct function. Interface can be thought of as a contract of service between two applications. This contract defines how the two communicate with each other using requests and responses. Their API documentation contains information on how developers are to structure those requests and responses.

HOW DO APIs WORK?

- API architecture is usually explained in terms of client and server. The application sending the request is called the client, and the application sending the response is called the server. So in the weather example, the bureau's weather database is the server, and the mobile app is the client.
- There are four different ways that APIs can work depending on when and why they were created.

HOW DO APIs WORK?

SOAP APIs

These APIs use Simple Object Access Protocol. Client and server exchange messages using XML. This is a less flexible API that was more popular in the past.

HOW DO APIs WORK?

RPC APIs

These APIs are called Remote Procedure Calls. The client completes a function (or procedure) on the server, and the server sends the output back to the client.

HOW DO APIs WORK?

WEBSOCKET APIs

Websocket API is another modern web API development that uses JSON objects to pass data. A WebSocket API supports two-way communication between client apps and the server. The server can send callback messages to connected clients, making it more efficient than REST API.

HOW DO APIs WORK?

REST APIs

These are the most popular and flexible APIs found on the web today. The client sends requests to the server as data. The server uses this client input to start internal functions and returns output data back to the client. Let's look at REST APIs in more detail below.

WHAT ARE REST APIs?

- REST stands for Representational State Transfer. REST defines a set of functions like GET, PUT, DELETE, etc. that clients can use to access server data. Clients and servers exchange data using HTTP.
- The main feature of REST API is statelessness. Statelessness means that servers do not save client data between requests. Client requests to the server are similar to URLs you type in your browser to visit a website. The response from the server is plain data, without the typical graphical rendering of a web page.

WHAT IS WEB API?

- A **Web API** or **Web Service API** is an application processing interface between a web server and web browser. All web services are APIs but not all APIs are web services. REST API is a special type of Web API that uses the standard architectural style explained above.
- The different terms around APIs, like Java API or service APIs, exist because historically, APIs were created before the world wide web. Modern web APIs are REST APIs and the terms can be used interchangeably.

HOW TO CREATE AN API?

- Due diligence and effort are required to build an API that other developers will want to work with and trust. These are the five steps required for high-quality API design:
 - 1. Plan the API
 - API specifications, like OpenAPI, provide the blueprint for your API design. It is better to think about different use cases in advance and ensure the API adheres to current API development standards.
 - 2. Build the API
 - API designers prototype APIs using boilerplate code. Once the prototype is tested, developers can customize it to internal specifications.
 - 3. Test the API
 - API testing is the same as software testing and must be done to prevent bugs and defects. API testing tools can be used to strength test the API against cyber attacks.
 - 4. Document the API
 - While APIs are self-explanatory, API documentation acts as a guide to improve usability. Well-documented APIs that offer a range of functions and use cases tend to be more popular in a service-oriented architecture.
 - 5. Market the API
 - Just as Amazon , Google , Facebook etc.. is an online marketplace for retail, API marketplaces exist for developers to buy and sell other APIs. Listing your API can allow you to monetize it.

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