6 Types of APIs: Open, Public, Partner, Private, Composite, Unified

J Simpson(https://nordicapis.com/author/jsimpson/)   March 15, 2022

Like any technical field, the API space is full of jargon and its own technical lingo (https://nordicapis.com/10-api-economy-terms-you-should-know/). It can be a bit like cracking open a dense instruction manual when you first get started. This can make it hard to know what you're looking at, let alone what you're looking *for*.

If you've done any reading or research around APIs (https://nordicapis.com/20-impressive-api-economy-statistics/), you'll likely know that there are more than one type of API. Some APIs are completely free and open (https://nordicapis.com/8-fun-random-and-useless-apis-to-tinker-with-today/) to the public. Others are more like "pay as you go (https://nordicapis.com/everything-you-need-to-know-about-api-monetization/)", where the developer user is charged per call. Some are a mixture of both.

To help set the record straight and let you decide which type of API is best for your personal projects, we've put together a guide to help differentiate six kinds of APIs. Keep reading to learn the differences between open APIs, internal microservices (https://nordicapis.com/graphql-microservices-gqlms-as-a-backend-a-netflix-case-study/), and all in between!

6 Types Of APIs

For this article, we've categorized different types of APIs not by design styles, like REST, SOAP, or GraphQL (https://nordicapis.com/when-to-use-what-rest-graphql-webhooks-grpc/), but by accessibility and cost. Many offer varying degrees of services and functionality, though, which further complicates matters a bit.

Open APIs may be the Holy Grail for those looking for free data, but public APIs are probably the most common. Let's delve a bit into each to give you an idea of the similarities and differences.

Open APIs

One of the reasons why API terminology (https://nordicapis.com/7-api-business-model-terminologies/) can be so confusing is some of the terms get used interchangeably. For example, not all public APIs are open, though they are often used together. OpenAPI can also refer to the OpenAPI specification (https://nordicapis.com/whats-new-in-openapi-3-1-0/) created by Swagger, which further muddies the water.

Open APIs are entirely free and entirely open to the public. They require no authorization to access or retrieve data. 7Times (https://www.7timer.info/), an API for historical weather data, is one. So is the WikiMedia API (https://www.mediawiki.org/wiki/API:Main_page).

Open APIs are great for experimentation, research, and learning. There's an incredible amount of high-quality data that can be accessed for absolutely nothing as well, though. Many open APIs are as good if not better as paid alternatives.

We also published a list of even more open APIs (https://nordicapis.com/9-free-public-apis-that-offer-up-some-cool-open-data/) if you're looking for more sources for high-quality data that are absolutely free and immediately accessible!

Public APIs

Public APIs are similar to open APIs, but they tend to have a price tag. That also means they usually involve some form of authentication or authorization key to track use. Public APIs often employ a freemium structure (https://nordicapis.com/how-to-grow-and-profit-using-a-freemium-api-monetization-model/).

Public APIs tend to be some of the most robust and well-developed as they're intended for public consumption. They're also crucial to unlocking some of the benefits of APIs, from raising brand awareness to monetization (https://nordicapis.com/everything-you-need-to-know-about-api-monetization/). These are just a few of the reasons that 31% of API developers (https://pages.apigee.com/rs/351-WXY-

166/images/Apigee_StateOfAPIS_eBook_2020.pdf) report making APIs publicly available as their #1 priority, according to the last State of the API report from Google.

The Hunter API (https://hunter.io/api), which retrieves and verifies professional email addresses, is one example of a Public API. Pipedrive (https://developers.pipedrive.com/docs/api/v1) is another that integrates with a CRM for sales teams.

Not all public APIs are necessarily products (https://nordicapis.com/how-do-you-treat-an-api-as-a-product/) intended for sale, though. Some public APIs can be part of a larger ecosystem, fulfilling a similar role as an internal API. Salesforce's APIs (https://developer.salesforce.com/docs/apis) are an example of this setup, allowing data to be imported and exported into the Salesforce platform.

Partner APIs

Partner APIs are more limited in who can access the service. They can be either free or paid. Since partner APIs are only made available to certain parties, they tend to have tighter and stricter rules around authorization, authentication, and security.

Some of the most prominent and most widely-used APIs are partner APIs. eBays APIs (https://developer.ebay.com/promote/epn) is an example of a partner API. So are some aspects of the Twitter API (https://developer.twitter.com/en/docs/twitter-api). Twitter Essential API (https://developer.twitter.com/en/docs/twitter-api/getting-started/about-twitter-api) is a public API that lets you access a number of Twitter's legacy endpoints once you have an API key. The more advanced level is called Elevated or Elevated+ (https://developer.twitter.com/en/portal/petition/essential/basic-info), which is only available for approved partners.

The Airbnb API (https://www.airbnb.com/partner) is another example of a popular partner API. At the time of this writing, Airbnb isn't accepting new partners for their API platform except by invitation. Perhaps that could change as travel picks back up as the COVID-19 pandemic winds down, so it's still worth keeping an eye on.

Making an API only available to select partners lets you keep your API as secure as possible. It's a good step between being entirely private and being completely public.

Private APIs

Private APIs, also called internal APIs, are intended solely for internal use within a company or organization. They're the most common type of API as they're quick to develop and don't need to be as robust as products intended for public consumption.

At this point, internal APIs have been integrated into nearly every aspect of work. Sales teams, marketing, or HR departments are all examples of typical internal API consumers. Messenger platforms and even collaborative coding tools can all be examples of internal APIs. They play an essential role in microservices architecture design (https://nordicapis.com/tips-for-right-sizing-microservices/), for instance, serving as the infrastructure for collaborative platforms and environments.

Internal APIs enable a reusable infrastructure (https://nordicapis.com/the-bezos-api-mandate-amazons-manifesto-for-externalization/) that prevents inefficiency and data silos. Even something as simple as sharing sales and marketing data can profoundly affect an organization!

Composite APIs

Composite APIs combine several API requests (https://nordicapis.com/apis-101-what-is-an-api-call/) into one API call (https://nordicapis.com/why-time-to-first-call-is-a-vital-api-metric/). Not only does this save on data usage, but it also makes your app more efficient as it keeps the number of API calls to a bare minimum.

Composite APIs are useful for applications that are frequently bundled together. One example might be if a user creates a new account in an eCommerce application (https://nordicapis.com/ecommerce-integration-exploring-the-types-of-ecommerce-apis/).

The composite API might:

- Create a new User ID
- Create a new Order Number
- Add an item to the order
- Remove that item from inventory
- Change order status

To illustrate the point, think of a [GraphQL Query]https://nordicapis.com/rest-vs-graphql-a-side-by-side-comparison/ (https://nordicapis.com/rest-vs-graphql-a-side-by-side-comparison/)). GraphQL consolidates all queries to one endpoint and returns precisely what the client requests to avoid over and under fetching. Postman Collections (https://www.postman.com/search?q=composite&scope=public&type=collection) are another example of composite APIs, as you can bundle numerous calls into one query. There's a wealth of public composite APIs you can browse, as well, which can give you further ideas of how to use composite APIs effectively.

APIs usually favor a more tailored approach, offering as many endpoints as realistically possible. While it's nice to be able to have granular control over our APIs, certain applications benefit from consolidation. Composite APIs can make life easier for everybody, from developers to customers.

Unified APIs

Unified APIs are similar to composite APIs, except they bundle together multiple APIs and backend resources into one. They're *aggregators*, frequently bundling together common functionality or APIs from a specific sector like banking or CRM solutions.

Obviously, unified APIs raise some logistical concerns and security risks. Unified API providers need to keep these considerations in mind, offering additional abstraction layers and field-level encryption, for instance. Many financial SaaS platforms are actually unified APIs. Think of Stripe, which can accept payment from virtually any payment provider.

6 Types Of APIs: Final Thoughts

Hopefully, this list of the different types of APIs, and their similarities and differences, will help you think about how to design and use your API. These are important questions for API developers and consumers alike.
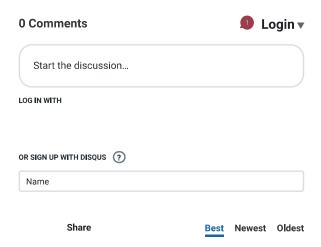
It can even offer a roadmap for how you could roll out your API. You might begin with an internal API, for instance. Then once it's reliable enough, you might make it available to select partners. Then when you've worked out all of the bugs, you can finally unveil it as a public API.

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