

API Simplified

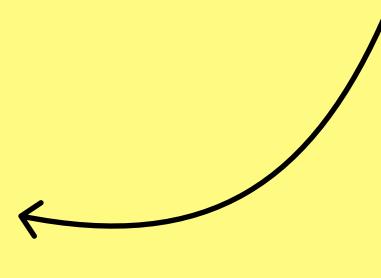
The Ultimate 101 Guide

Your Go-To **Quick**
Reference Guide
for **Effortless API**
Mastery



HTTP Verbs

13 Verbs



2 POST

Send data to the server to create a resource

4 PATCH

Send data to the server to update a resource partially.

6 PURGE

Invalidates a cached resource.

1 GET

Retrieve data from the server.

3 PUT

Send data to the server to update a resource.

5 DELETE

Delete a resource from the server.

7 TRACE

Returns the full HTTP request received by the server for debugging and diagnostic purposes.

8 OPTIONS

Returns the HTTP methods supported by the server for the requested URL

9 CONNECT

Converts the request connection to a transparent TCP/IP tunnel for secure communication.

10 LOCK

Locks the resource for exclusive use by the client.

11 UNLOCK

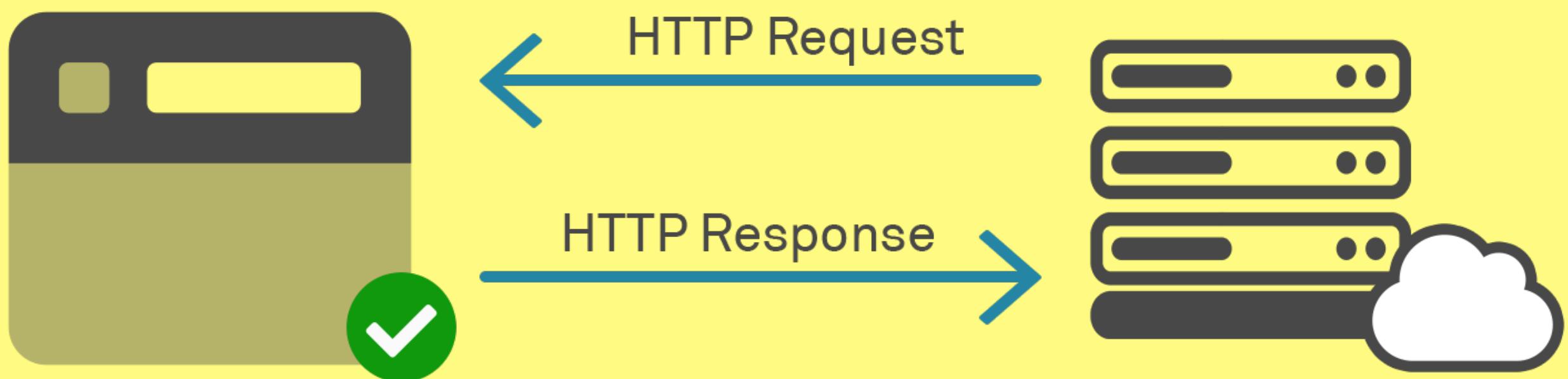
Unlocks the resource previously locked by the client.

12 MKCOL

Creates a new collection resource.

13 COPY

Copies the resource identified by the Request-URI to the destination URI.



HTTP Status Codes

5 Status Codes

1 1xx

Informational.

2 2xx

Success.

3 3xx

Redirection.

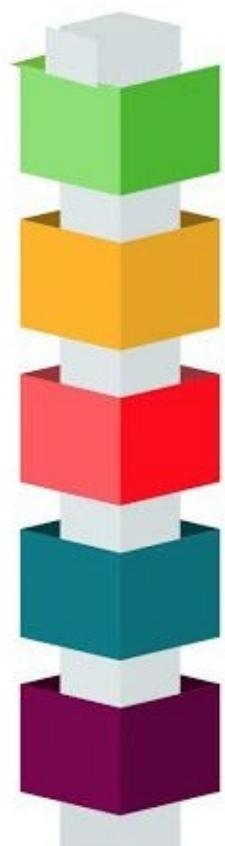
4 4xx

Client Errors.

5 5xx

Server Errors.

HTTP Status Codes



1XX
INFORMATIONAL

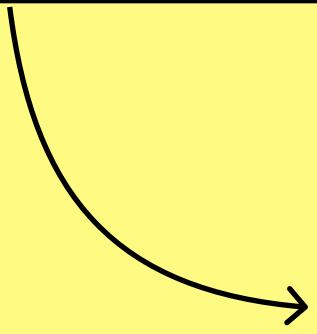
2XX
SUCCESS

3XX
REDIRECTION

4XX
CLIENT ERROR

5XX
SERVER ERROR

Response Headers



1 Content-Type

Specifies the MIME type of the data in the response body.

2 Content-Length

Specifies the length of the response body in bytes.

3 Cache-Control

Specifies the caching behavior of the response.

4 Location

Specifies the URI of a resource that can be used to retrieve the requested resource.

5 Server

Specifies the name and version of the server software that generated the response.

6 Access-Control-Allow-Origin

Specifies which origins are allowed to access the resource.

7 Set-Cookie

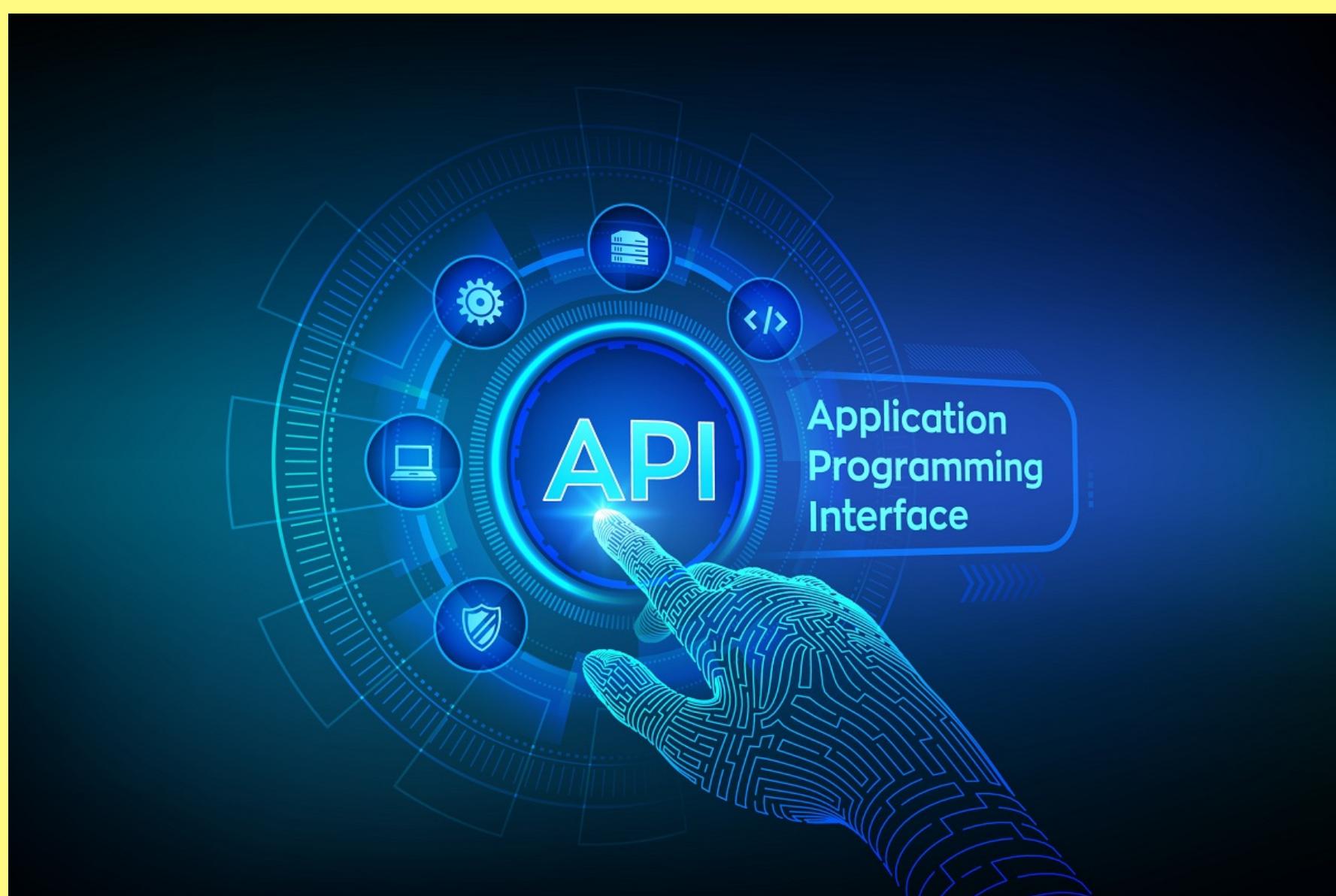
Specifies a cookie that should be stored by the client and sent back to the server with future requests.

8 Expires

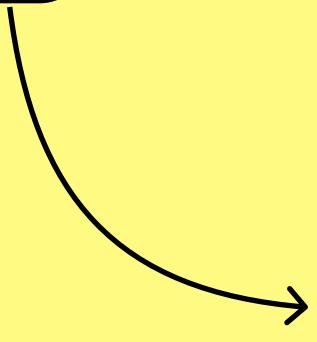
Specifies the date and time after which the response is considered stale.

9 Last-Modified

Specifies the date and time the resource was last modified.



API Design



1 REST

Representational State Transfer, a design pattern for building web services.

2 SOAP

Simple Object Access Protocol, a messaging protocol for exchanging structured data.

3 GraphQL

A query language and runtime for building APIs.

4 API Gateway

A service that manages, protects, and scales APIs.

API Architectures

1 Microservices

An architectural style for building complex applications as a suite of small, independent services.

2 Serverless

A cloud computing execution model where the cloud provider manages the infrastructure and automatically allocates resources as needed.

3 SOA

Service-Oriented Architecture, an architectural style for building distributed systems.

4 Event-Driven

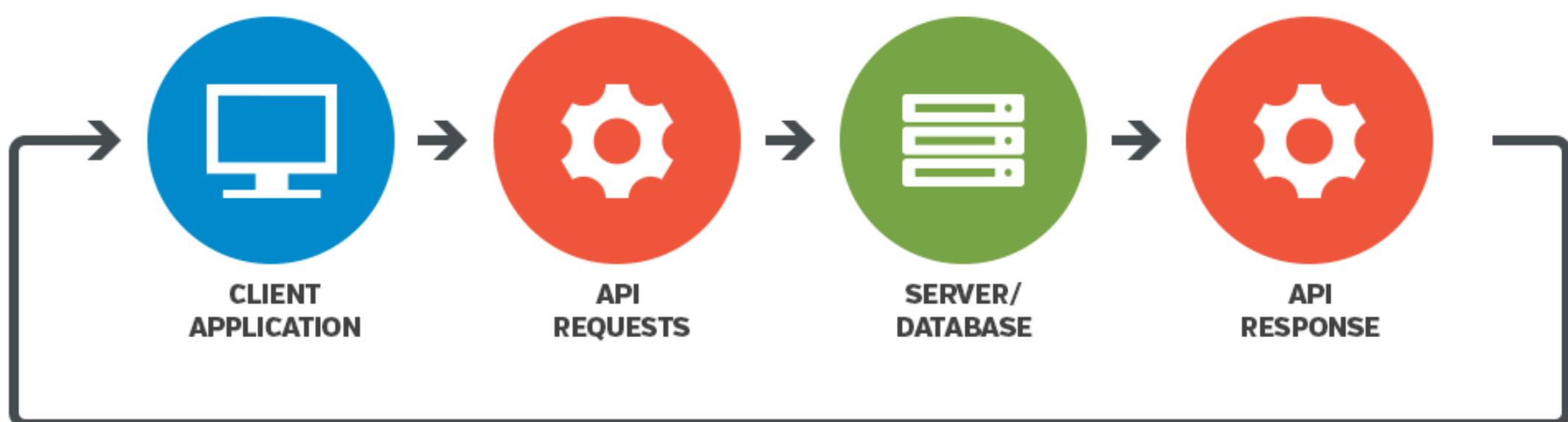
An architectural style where the flow of data between components is triggered by events.

5

RESTful API

An architectural style that uses HTTP requests to GET, POST, PUT, and DELETE data.

HOW AN API WORKS



API Design Patterns

1 Adapter Pattern

A pattern that converts the interface of a class into another interface that clients expect.

2 Decorator Pattern

A pattern that adds behaviour to an individual object dynamically.

3 Proxy Pattern

A pattern that provides a surrogate or placeholder for another object to control access to it.

4

Chain of Responsibility Pattern

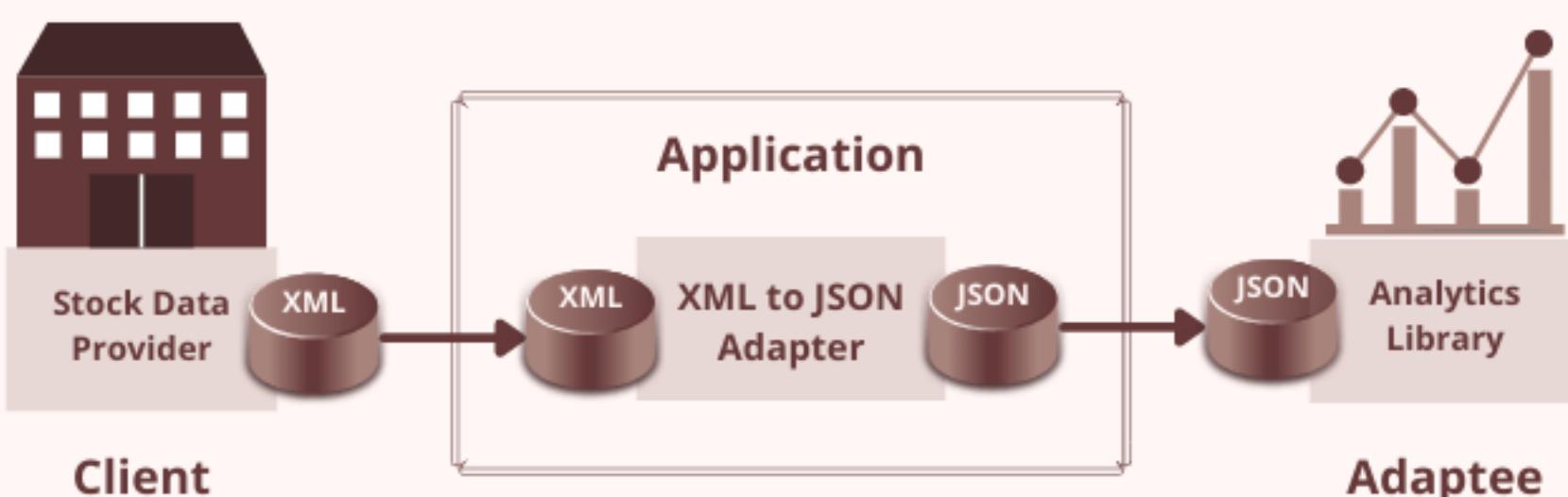
A pattern that delegates commands to a chain of processing objects.

5

Observer Pattern

A pattern that defines a one-to-many dependency between objects so that when one object changes state, all its dependents are notified and updated automatically.

Adapter Design Pattern



API Security

1 OAuth

An open standard for authorization used for protecting APIs.

2 JWT

JSON Web Tokens, a standard for securely transmitting information between parties as a JSON object.

3 SSL/TLS

Secure Sockets Layer/
Transport Layer Security, a
protocol for establishing a
secure connection between a
client and a server.

4 API Key

A secret token used to authenticate API requests.

5 Rate Limiting

A technique used to limit the number of requests that can be made to an API over a specific period of time.

6 OpenID Connect

An authentication layer built on top of OAuth that allows users to be authenticated across multiple domains.

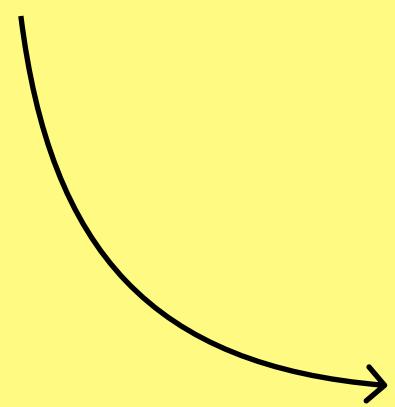
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Cross-Origin Resource Sharing (CORS)

A mechanism that allows many resources (e.g., fonts, JavaScript, etc.) on a web page to be requested from another domain outside the domain from which the resource originated.



API Testing



1 Postman

A popular tool for testing and debugging APIs.

2 SoapUI

A tool for testing SOAP and REST web services.

3 Swagger

A tool for designing, building, and testing APIs.

4 JMeter

A tool for testing the performance of APIs.

5 TestRail

A test management tool for planning, executing, and tracking API tests.

6 Dredd

A command-line tool for testing API documentation against its backend implementation

7 REST Assured

A Java-based library for testing RESTful APIs.

8 Karate DSL

A testing framework for API testing using Gherkin syntax.

9 HttpMaster

A tool for testing and debugging APIs

10 Assertible

A tool for testing and monitoring APIs with automated tests.



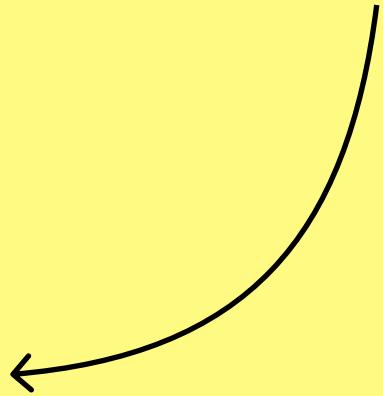
API Development

1 Node.js

A JavaScript runtime for building server-side applications.

3 Django

A Python web framework for building web applications and APIs.



2 Express

A popular framework for building web applications and APIs with Node.js.

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4 Flask

A lightweight Python web framework for building web applications and APIs.

5 Spring

A Java framework for building enterprise-level web applications and APIs.

6 Swagger Editor

A tool for designing and documenting APIs using the OpenAPI specification.

7 Postman

A tool for testing and debugging APIs.

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8 Insomnia

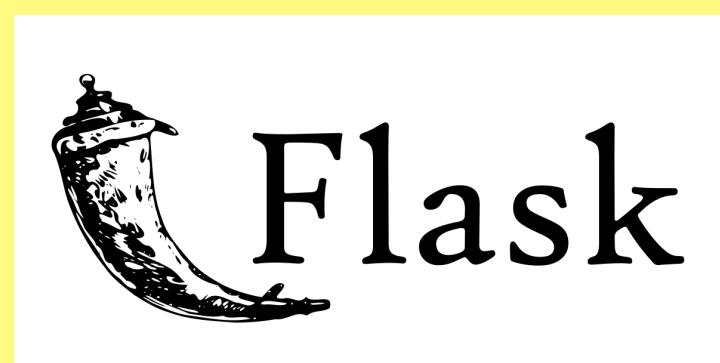
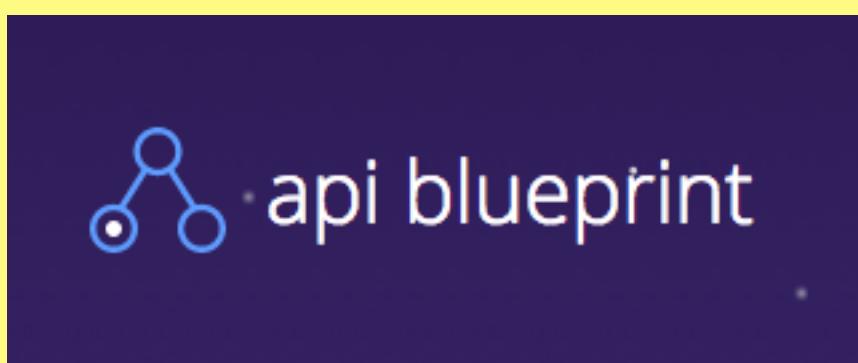
A tool for designing, testing, and debugging APIs.

9 Paw

A tool for designing and testing APIs on Mac OS.

10 API Blueprint

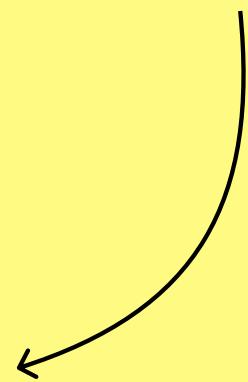
A high-level API description language for building RESTful APIs.



API Implementation Platforms

1 Firebase

A mobile and web application development platform developed by Google



2 Backendless

A mobile and web application development platform that allows developers to build and deploy applications without backend coding.

3 Parse Server

An open-source version of the Parse backend that can be deployed to any infrastructure.

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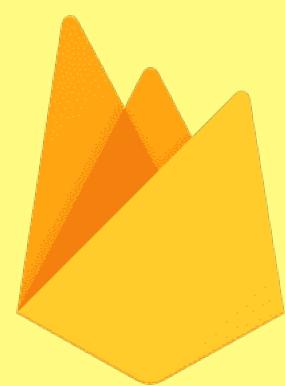


4 Amazon API Gateway

A fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs.

5 Microsoft Azure API Management

A fully managed service that enables users to publish, secure, transform, maintain, and monitor APIs.



Firebase



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API Performance

1 Caching

A technique for improving API performance by storing responses in a cache.

2 Throttling

A technique for limiting the rate of requests to an API to prevent overload.

3 Load Balancing

A technique for distributing traffic evenly across multiple servers to improve API performance.

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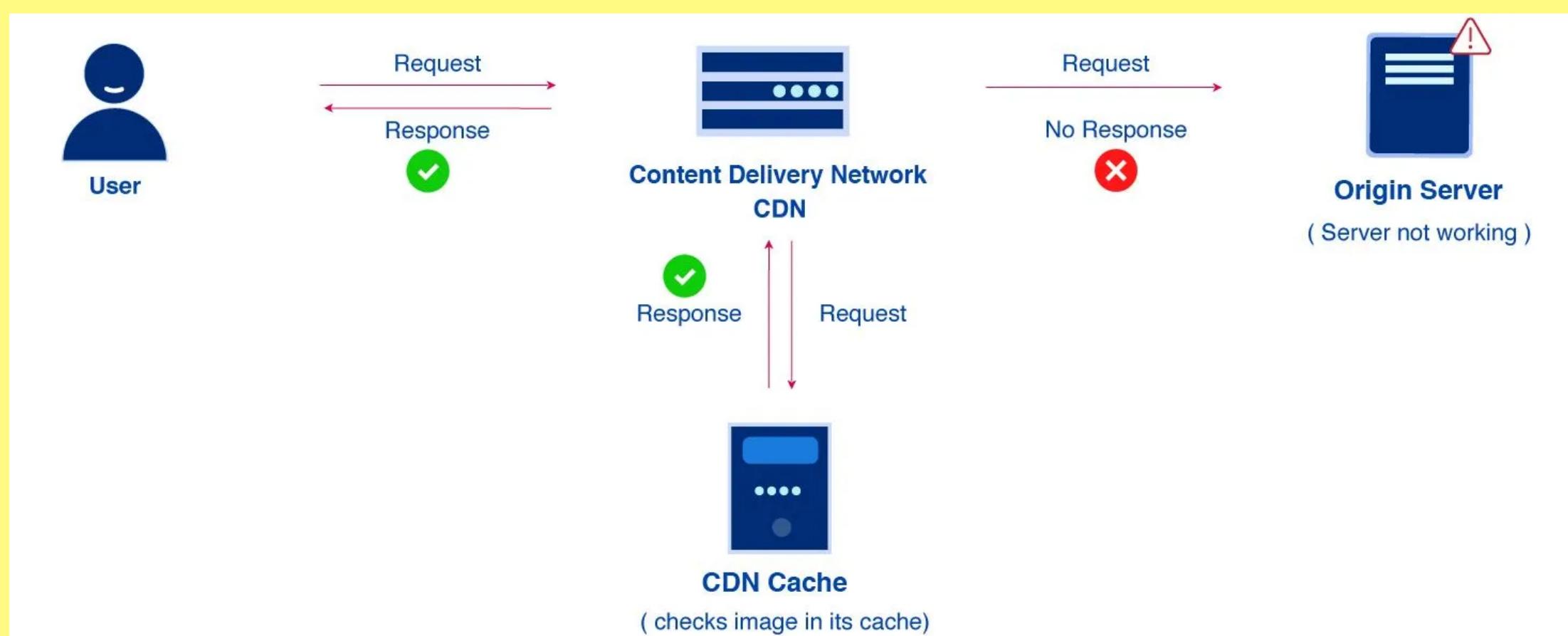
Content Delivery Network (CDN)

A distributed system of servers that delivers content to users based on their geographic location to improve API performance.

5

Edge Computing

A computing paradigm that brings computation and data storage closer to the location where it is needed to reduce latency and improve API performance.

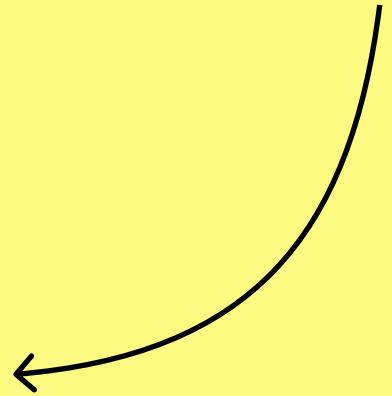


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API Monitoring

1 Pingdom

A tool for monitoring the uptime and performance of APIs.



2 New Relic

A tool for monitoring the performance of APIs and other web applications.

3 Datadog

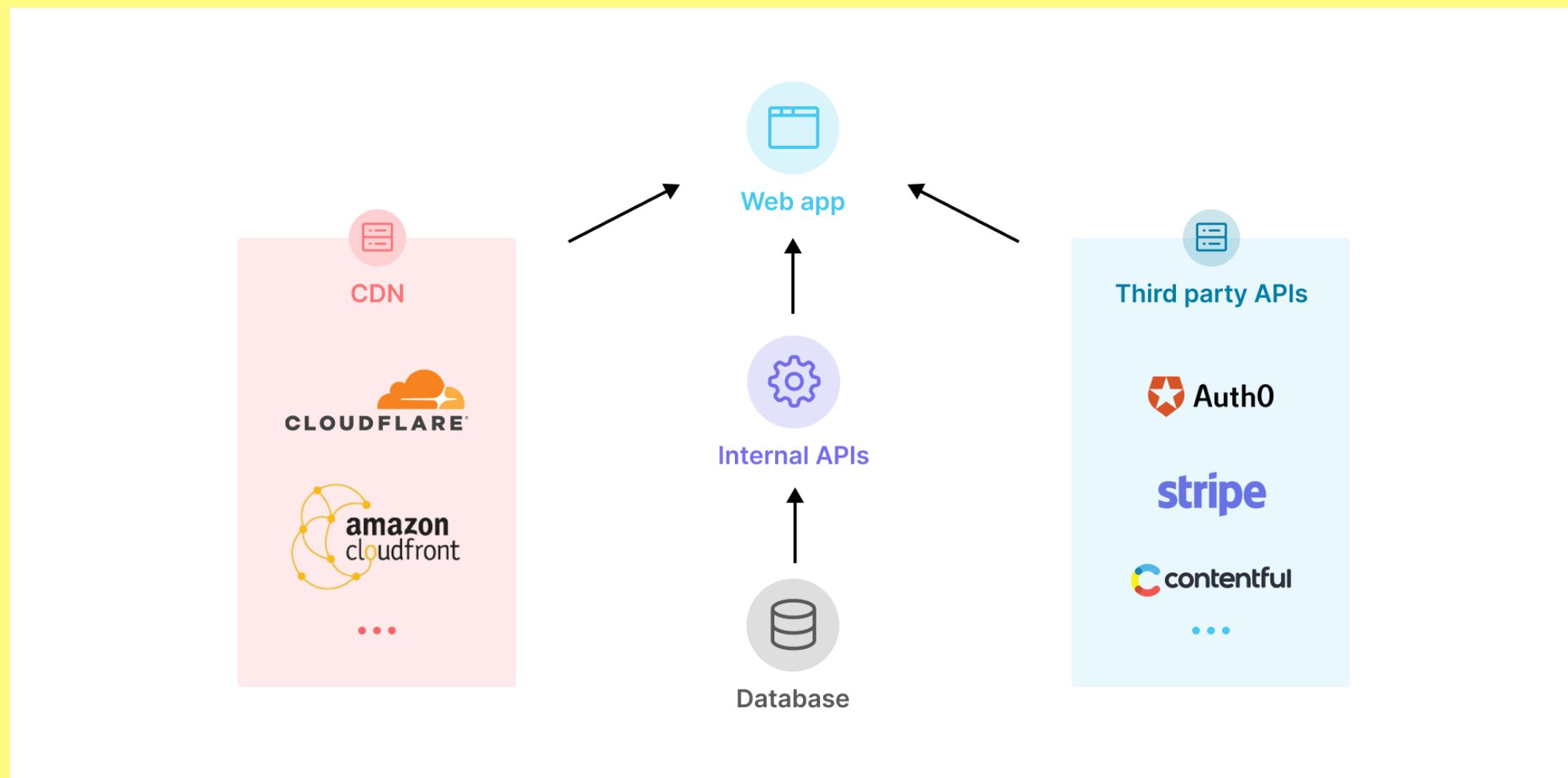
A monitoring and analytics platform for cloud-scale applications and APIs.

4 Sumo Logic

A cloud-based log management and analytics platform for APIs and other applications.

5 Loggly

A cloud-based log management platform for monitoring APIs and other applications.



API Standards

1 JSON API

A specification for building APIs that use JSON as the data format.

2 HAL

Hypertext Application Language, a standard for building hypermedia-driven APIs.

3 JSON-LD

A format for representing linked data on the web.

4 OData

Open Data Protocol, a standard for building and consuming RESTful APIs.

5 AsyncAPI

A specification for building event-driven APIs.

API Standards Organizations

1 W3C

The World Wide Web Consortium, an international community that develops web standards.

2 IETF

The Internet Engineering Task Force, an open standards organization that develops and promotes Internet standards.

3 OASIS

Organization for the Advancement of Structured Information Standards, a nonprofit consortium that drives the development, convergence, and adoption of open standards for the global information society.

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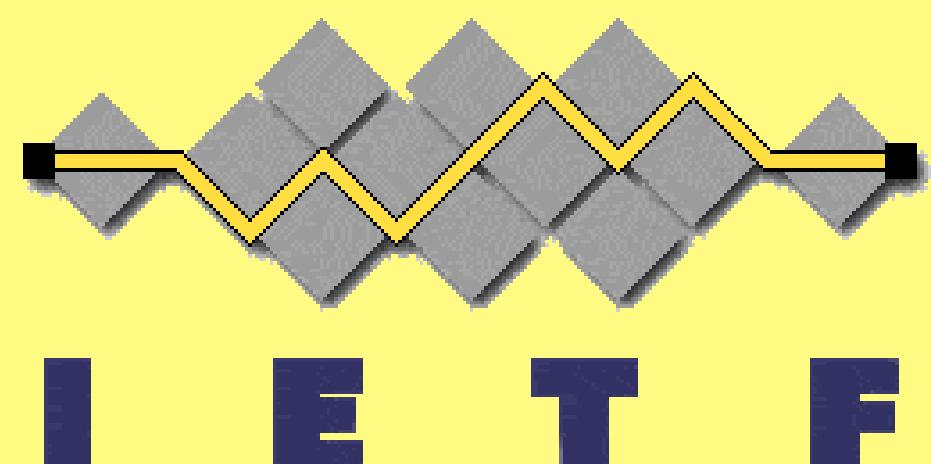
RESTful API Modeling Language (RAML)

A YAML-based language for describing RESTful APIs developed by MuleSoft.

5

JSON API

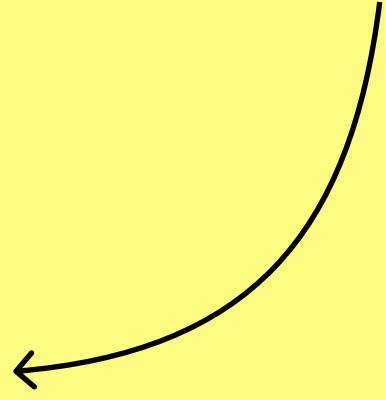
A specification for building APIs that use JSON as the data format.



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API Infrastructure

1 Kubernetes



An open-source platform for managing containerized workloads and services.

2 OpenShift

A container application platform that builds on top of Kubernetes

3 Docker Swarm

A native clustering and orchestration solution for Docker

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4 Consul

A service mesh solution that provides service discovery, configuration, and segmentation capabilities

5 Istio

A service mesh solution that provides traffic management, security, and observability capabilities.



kubernetes



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API Governance

1 API Management

The process of creating, publishing, and monitoring APIs in a secure and scalable way

2 API Monetization

The process of generating revenue from APIs by charging developers for usage

3 API Versioning

The process of managing changes to APIs over time

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in

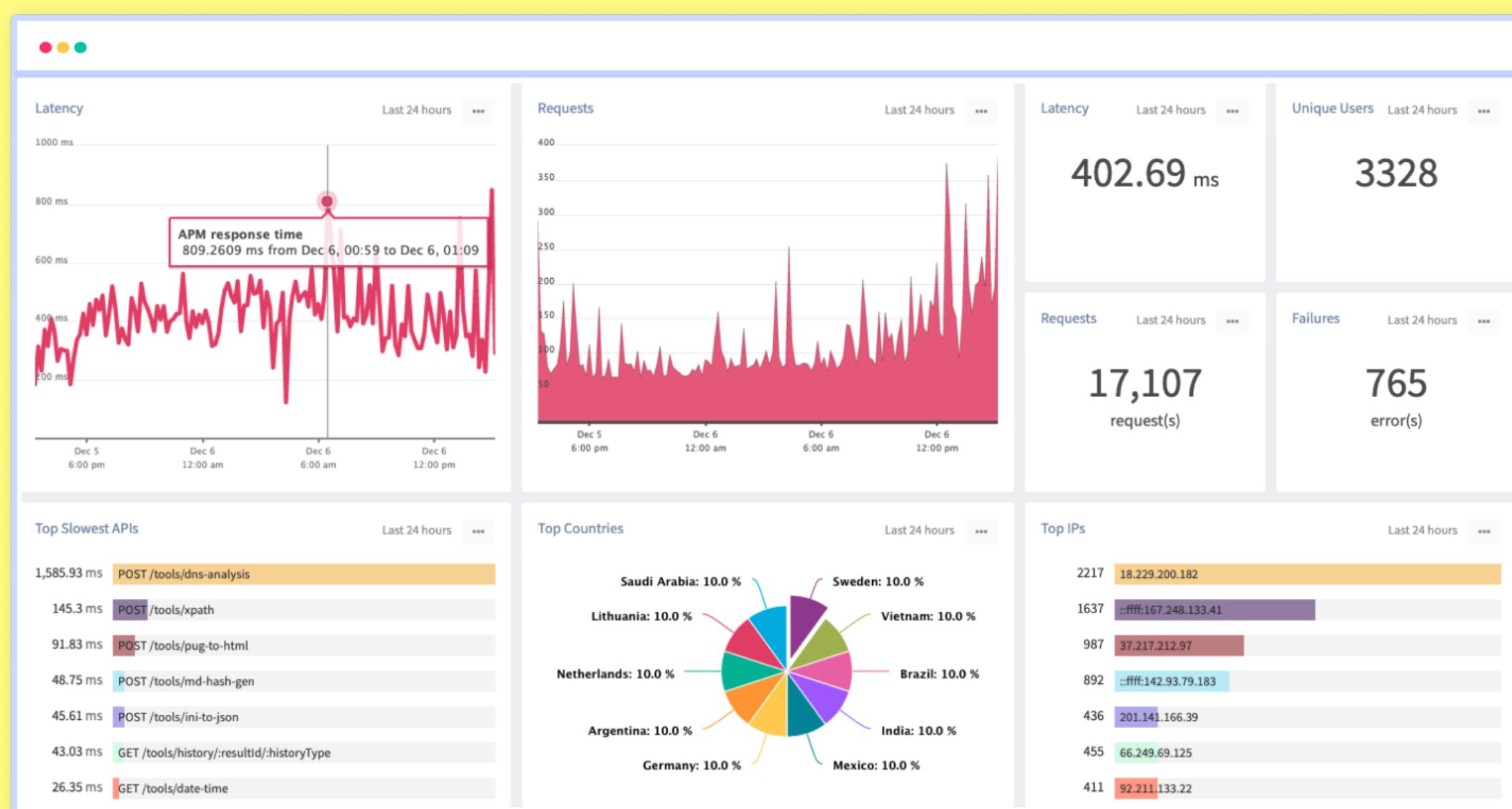


4 API Analytics

The process of collecting and analyzing data on API usage and performance

5 API Gateway

A service that manages, protects, and scales APIs

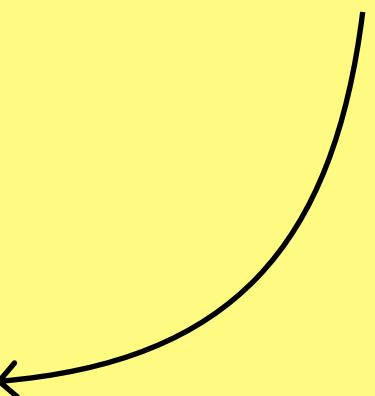


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API Documentation

1 OpenAPI

A specification for building APIs in YAML or JSON format



2 API Blueprint

A high-level API description language for building RESTful APIs.

3 RAML

A YAML-based language for describing RESTful APIs.

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4 Swagger UI

A tool for visualizing and interacting with APIs that have been described using the OpenAPI specification

5 Slate

A tool for generating beautiful, responsive API documentation.



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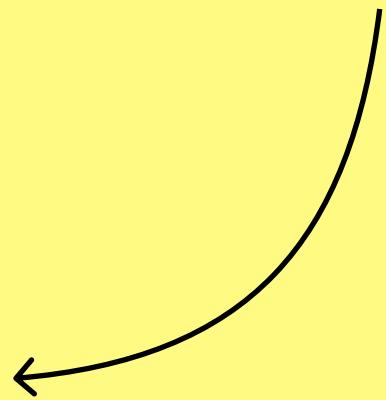
API Deployment

1 Heroku

A cloud platform for deploying, managing, and scaling web applications and APIs.

3 Azure App Service

A service for deploying and scaling web applications and APIs on Azure.



2 AWS Elastic Beanstalk

A service for deploying and scaling web applications and APIs on AWS.

4 Google App Engine

A service for deploying and scaling web applications and APIs on GCP.

5 Docker

A containerization platform used for packaging and deploying applications.

6 AWS Lambda

A serverless compute service for running code in response to events.

7 Azure Functions

A serverless compute service for running code in response to events.

8 Google Cloud Functions

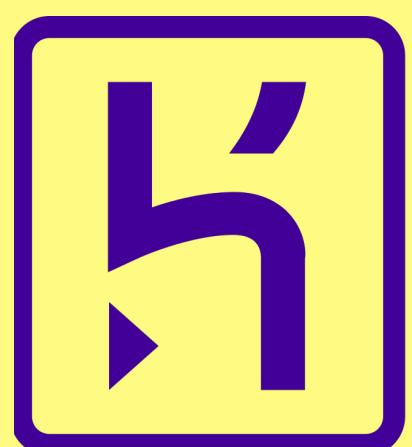
A serverless compute service for running code in response to events.

9 Netlify

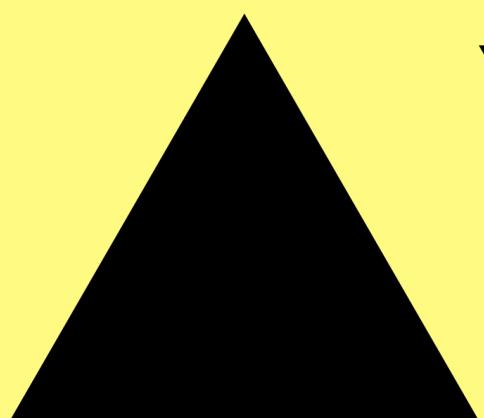
A cloud platform for deploying and managing static websites and APIs

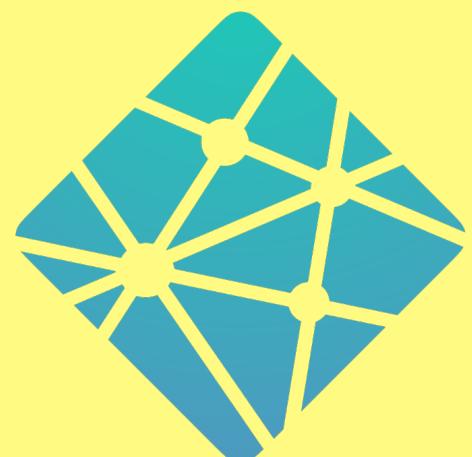
10 Vercel

A cloud platform for deploying and managing static websites and APIs.



HEROKU

 **Vercel**

The Vercel logo icon is a large black triangle pointing upwards and to the left, positioned to the left of the word "Vercel".

netlify

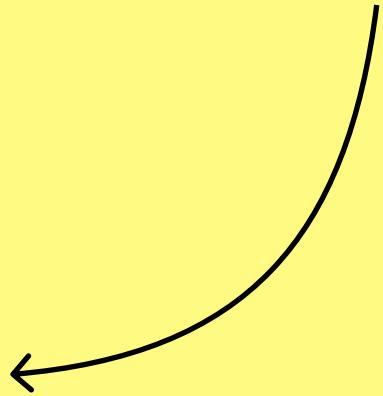
API Best Practices

1 Versioning

A technique for managing changes to APIs over time.

3 Caching

A technique for improving API performance by storing responses in a cache.



2 Pagination

A technique for breaking up large API responses into smaller, more manageable chunks.

4 Error Handling

A technique for returning meaningful error messages to API clients.

5 HATEOAS

Hypermedia as the Engine of Application State, a constraint of RESTful APIs that requires the API to provide links to related resources.



API Tutorials

- 1 Getting Started with RESTful APIs by
Tania Rascia
- 2 API Design Best Practices by Martin
Fowler
- 3 Testing RESTful Web Services Made Easy
Using the REST Assured Framework by
Dinesh Rajput
- 4 API Gateway Concepts and Options by
AWS
- 5 Building Secure APIs by Auth0
- 6 RESTful API Designing guidelines - The
best practices by Mahesh Haldar

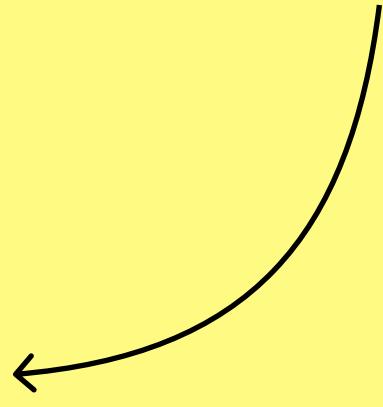
API Guides

- 1 REST API Tutorial by Guru99
- 2 A Beginner's Guide to HTTP and REST by Linode
- 3 REST API Design: Resource Modeling by Oracle
- 4 API Security Best Practices by Google Cloud
- 5 API Governance Handbook by WSO2

API Tools

1 API Studio

A web-based IDE for designing and testing APIs.



2 Stoplight

A collaborative platform for designing, documenting, and testing APIs.

3 Apigee

A full lifecycle API management platform that allows developers to design, secure, deploy, and analyze APIs.

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4 Azure API Management

A fully managed service that enables users to publish, secure, transform, maintain, and monitor APIs.

5 Postman Learning Center

A hub for learning how to use Postman to design, develop, and test APIs.



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