Introduction to RESTful API

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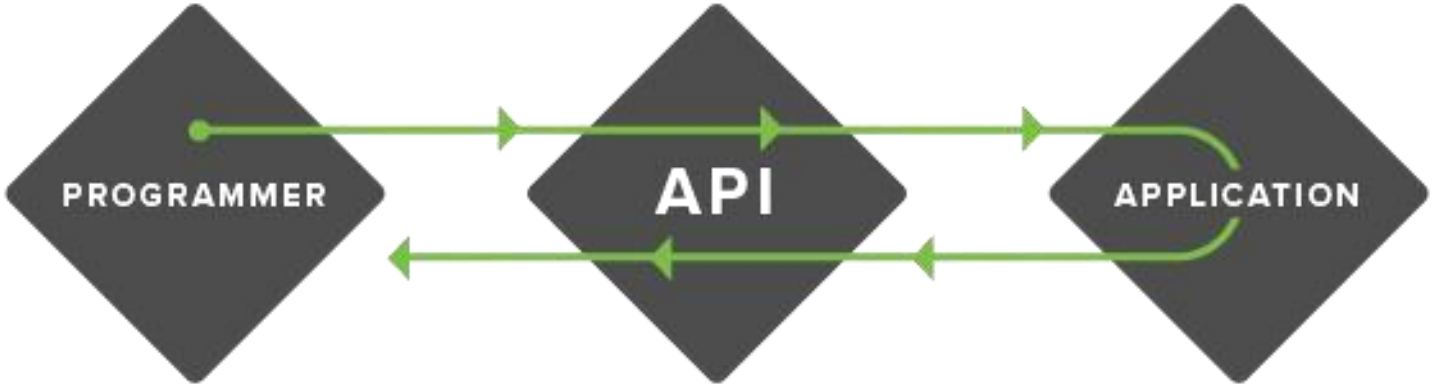
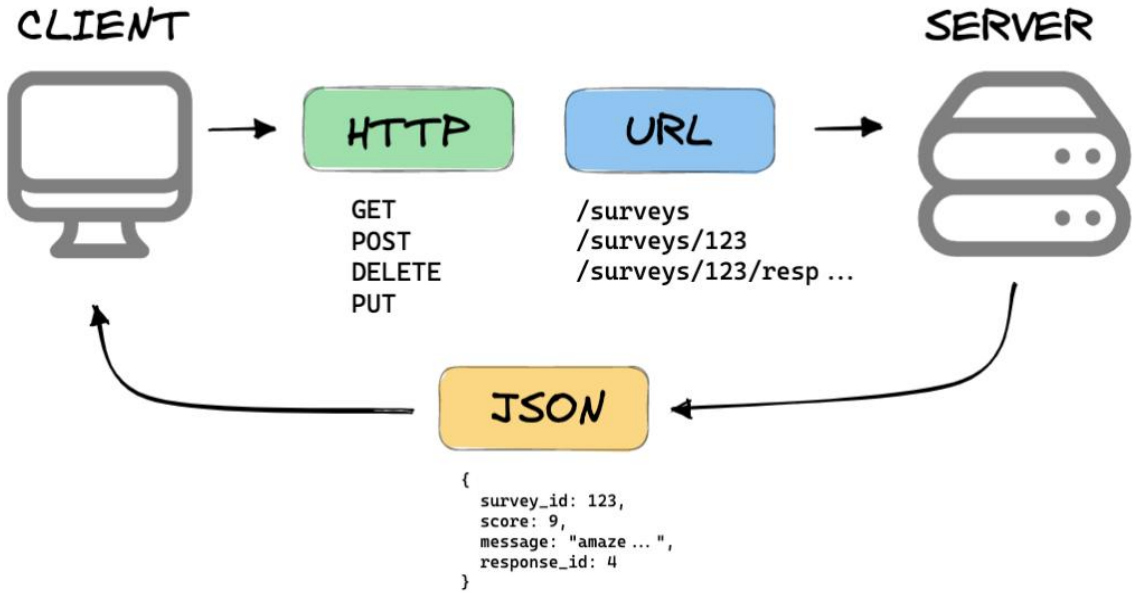
What is an API?

- **A**pplication **P**rogramming **I**nterface
- Allows two software systems to **communicate with each other**



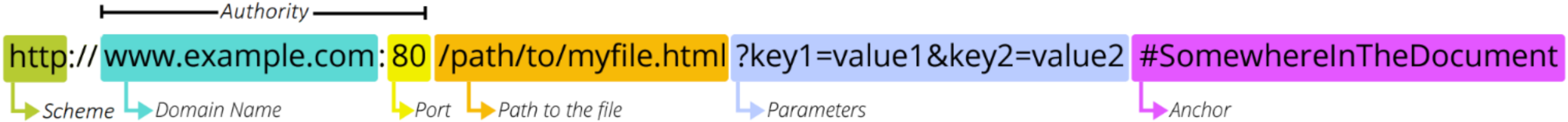
What is REST API

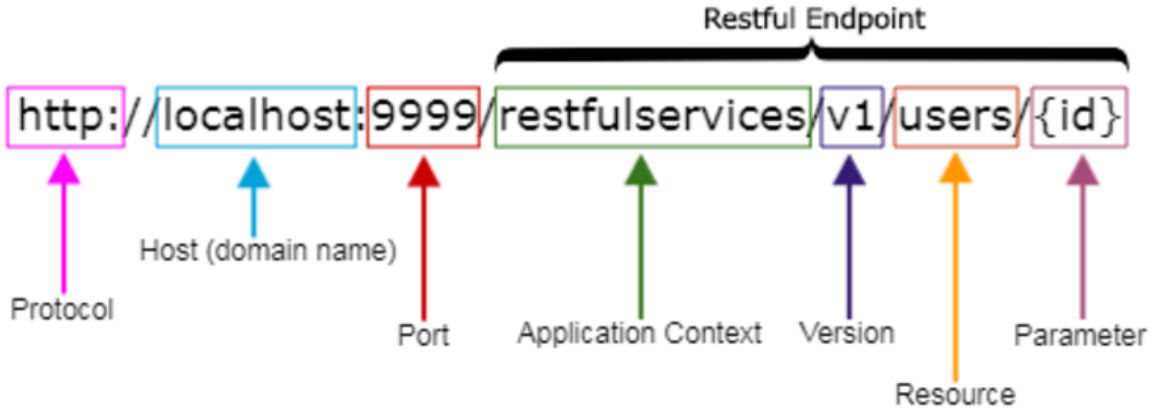
- REST stands for Representational State Transfer
- It is an **architectural style for building web services**
- REST uses standard HTTP methods like GET, POST, PUT, DELETE




http://www.mysite.com/index.html
Protocol
Domain name
resource

URL Example


Authority
http://
www.example.com
:80
/path/to/myfile.html
?key1=value1&key2=value2
#SomewhereInTheDocument
Scheme
Domain Name
Port
Path to the file
Parameters
Anchor

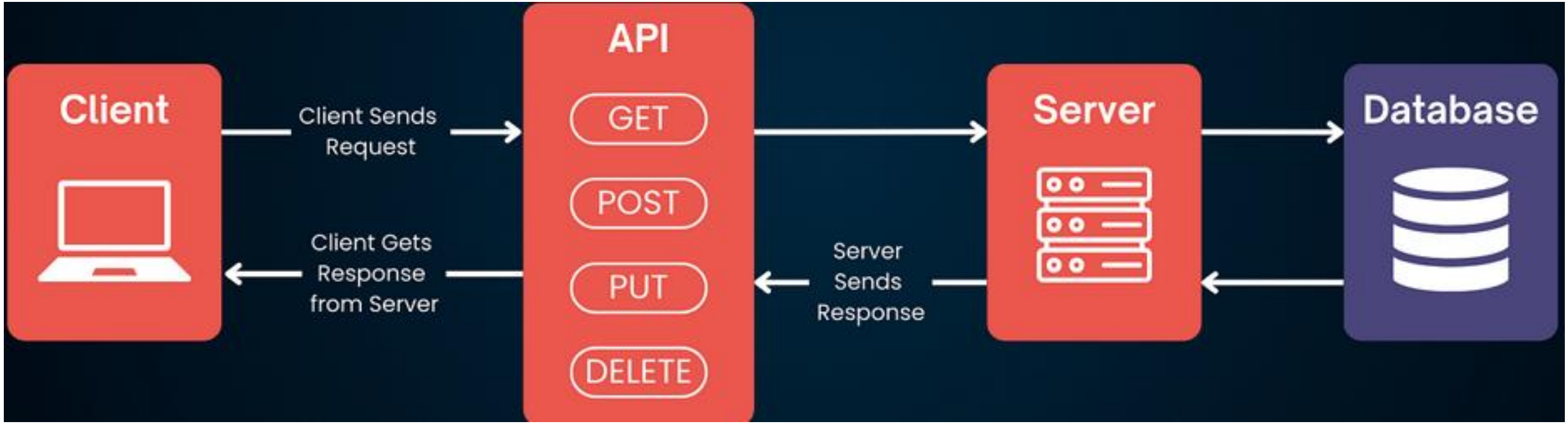

Restful Endpoint
http://localhost:9999/restfulservices/v1/users/{id}
Protocol
Host (domain name)
Port
Application Context
Version
Resource
Parameter

Rest API vs RESTful API

Term	Meaning
REST API	Refers to an API that follows some or most principles of REST.
RESTful API	Refers to an API that strictly follows the REST architectural style.

“**Every RESTful API is a REST API**, but **not every REST API is truly RESTful**.”

Big Picture


Client
Client Sends Request
Client Gets Response from Server
API
GET
POST
PUT
DELETE
Server Sends Response
Server
Database

How REST API Works

HTTP Method	Action	Examples
GET	Obtain information about a resource	http://example.com/api/orders (retrieve order list)
GET	Obtain information about a resource	http://example.com/api/orders/123 (retrieve order #123)
POST	Create a new resource	http://example.com/api/orders (create a new order, from data provided with the request)
PUT	Update a resource	http://example.com/api/orders/123 (update order #123, from data provided with the request)
DELETE	Delete a resource	http://example.com/api/orders/123 (delete order #123)

CURD vs HTTP

CURD	HTTP Method	URL	Note
CREATE	POST	/api/v1/users	Create User
READ	GET	/api/v1/users	List Users
READ	GET	/api/v1/users/:id	Get User By Id
Update	PUT	/api/v1/users/:id	Update By Id
Delete	Delete	/api/v1/users/:id	Delete By Id
Update	Patch	/api/v1/users/:id	Partially Update By Id

HTTP Status Codes

HTTP Status Codes

Why use REST APIs

- Simplicity and scalability
- Platform and language independence
- Lightweight and fast

- Characteristics
  - Stateless communication
  - Resource-Based URLs
  - Use stranded HTTP protocols
  - Support multiple data formats (JSON, XML)

Let’s get some hands-on Experience