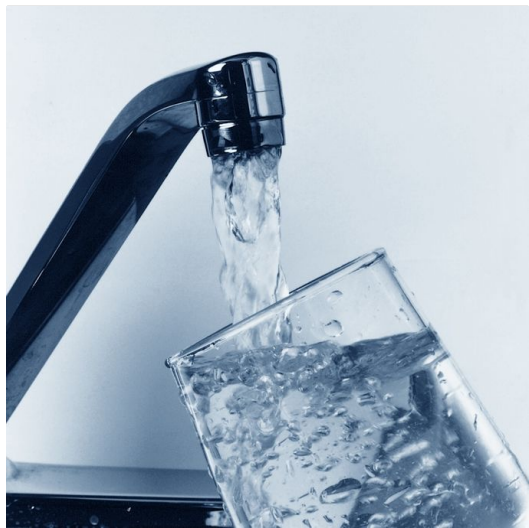


Web Services

RESTful APIs

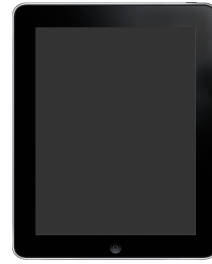
What is a service?



**What does it matter in
our context?**



Is it only about computers?



HTTP

The Protocol Every Web Developer Must Know

A diagram illustrating the components of a URL. The URL is displayed in a large, dark gray font. Below the URL, five horizontal red lines are positioned, each with a vertical line pointing to a specific part of the URL. The labels for these components are written in a dark red font below each line.

http://www.domain.com:1234/path/to/resource?a=b&x=y

protocol host port resource path query



REST APIs

Representation State Transfer

POST

- **Create**

GET

- **Retrieve**

PATCH

- **Update**

DELETE

- **Delete**

POST: /api/tasks

GET: /api/tasks

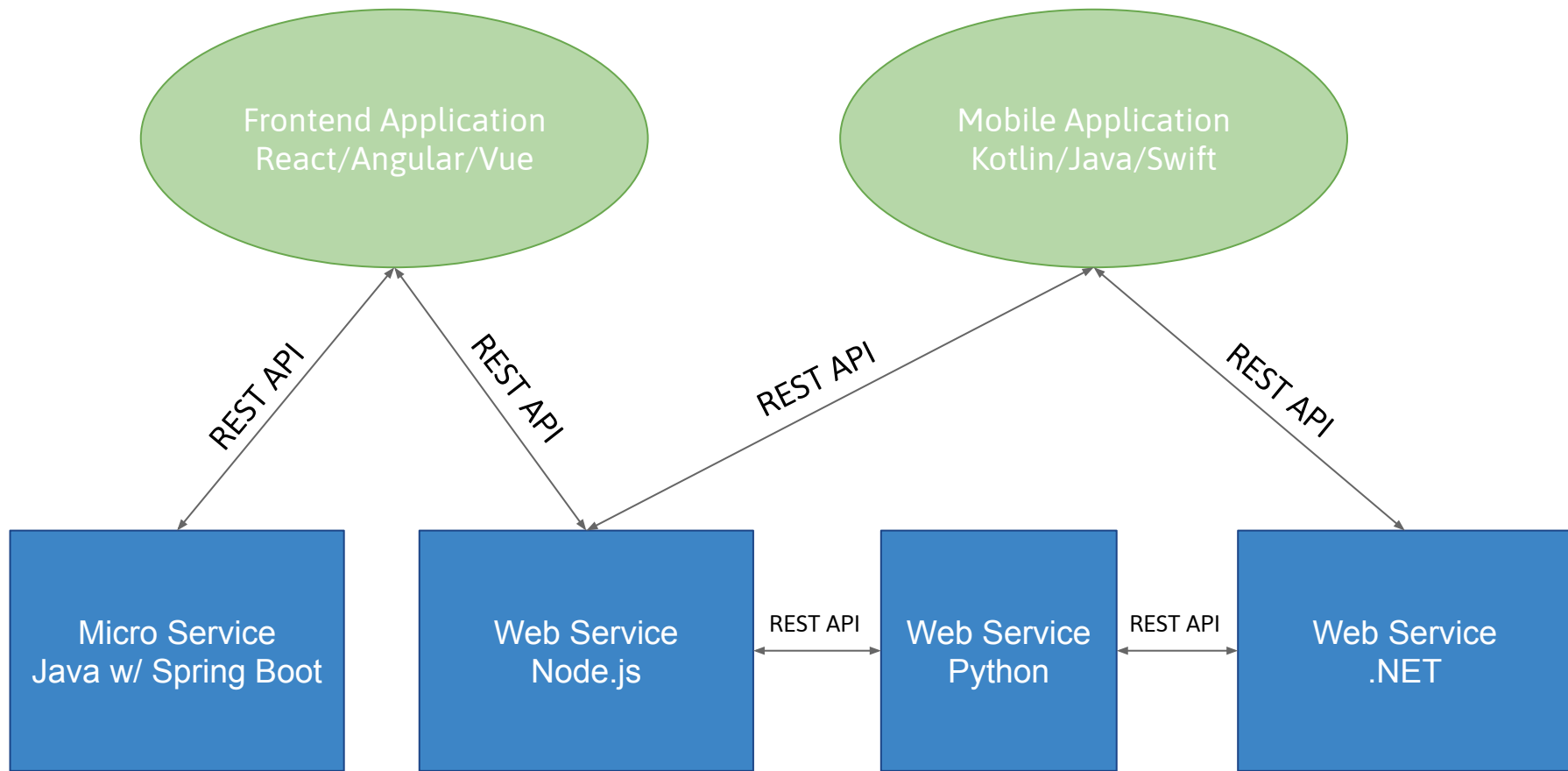
GET: /api/tasks/{id}

PATCH: /api/tasks/{id}

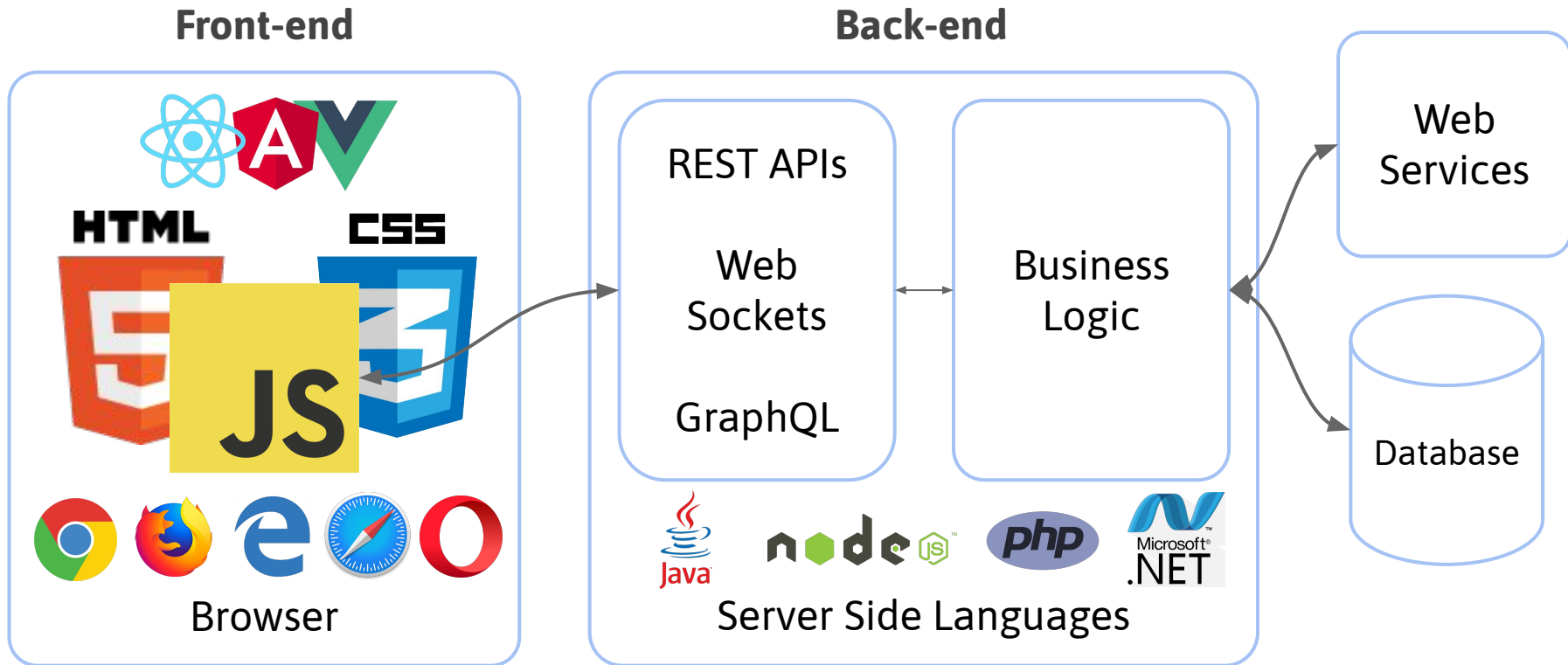
DELETE: /api/tasks/{id}

Code	Response Meaning	Example
1xx	Information	100 = server agrees to handle client's request
2xx	Success	200 = request has succeeded; 201 = created; 204 = no content
3xx	Redirection	301 = resource moved; 304 = cached resource still valid
4xx	Client error	400 = bad request; 401 = Unauthorized; 404 = not found
5xx	Server error	500 = internal server error; 503 = service unavailable

What can REST APIs help us?



Modern Web Application Architecture

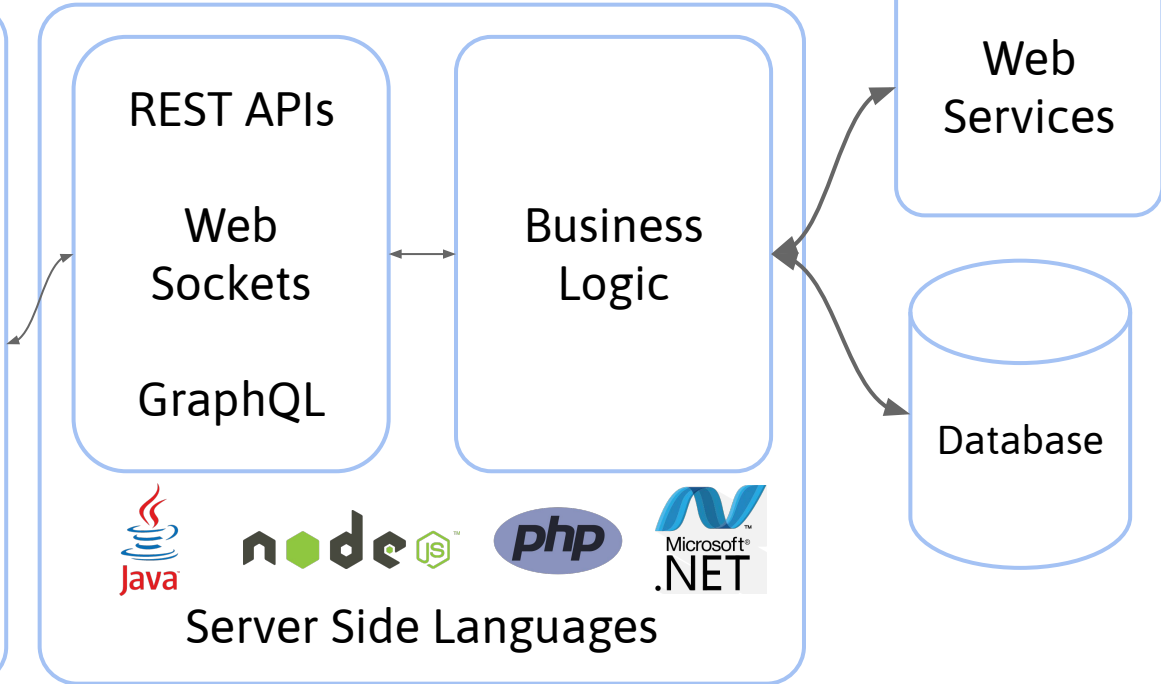


Modern Web Application Architecture

Client Devices



Back-end



**What my API needs to be
really RESTful?**

Client-Server Architecture

Separation of Concerns
API should not care about the UI

Stateless

No client-context (e.g. session)
is stored on the server

Cacheability

Responses must define
themselves as cacheable or
non-cacheable

Layered System

Intermediate servers maybe
used without the client
knowing about it

Uniform Interface

Resources are identified in
requests, transferred data is
decoupled from DB Schema

Self-descriptive messages
Links to further resources

Code on Demand (optional)

Executable code could be
transferred

Richardson Maturity Model

Steps toward the glory of REST

Glory of REST



Level 3: Hypermedia Controls

Level 2: HTTP Verbs

Level 1: Resources

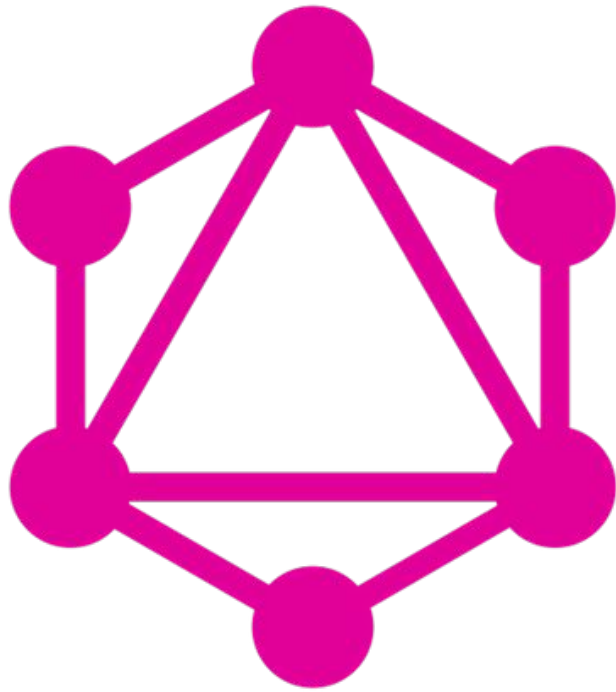
Level 0: The Swamp of POX





Hands On

What is next?



GraphQL