



RESTFUL API

BEST PRACTICES

By Malwina Nowakowska

STX NEXT



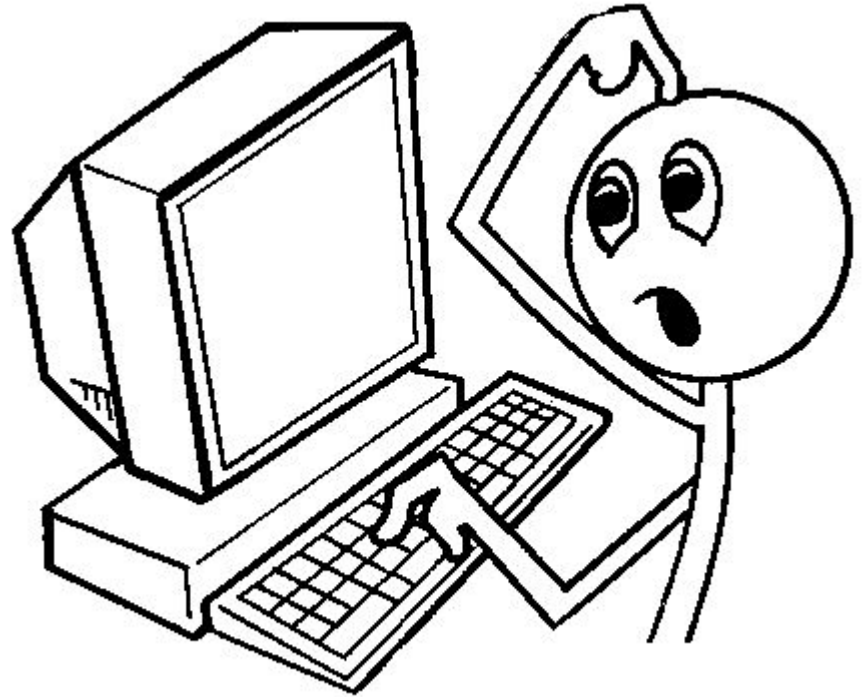
talented developers | flexible teams | agile experts

Malwina Nowakowska

Developer

STX Next

Love Python







API

API

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API

API

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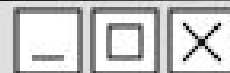








Window Title

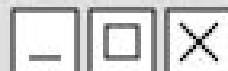


✕

20 11 2016

- Madonna
- Justin Bieber
- Guns N' Roses

Window Title



20 11 2016

Sort by ▼

Category ▼

Location ▼

Madonna	\$50
Justin Bieber	\$10
Guns N' Roses	\$102.3



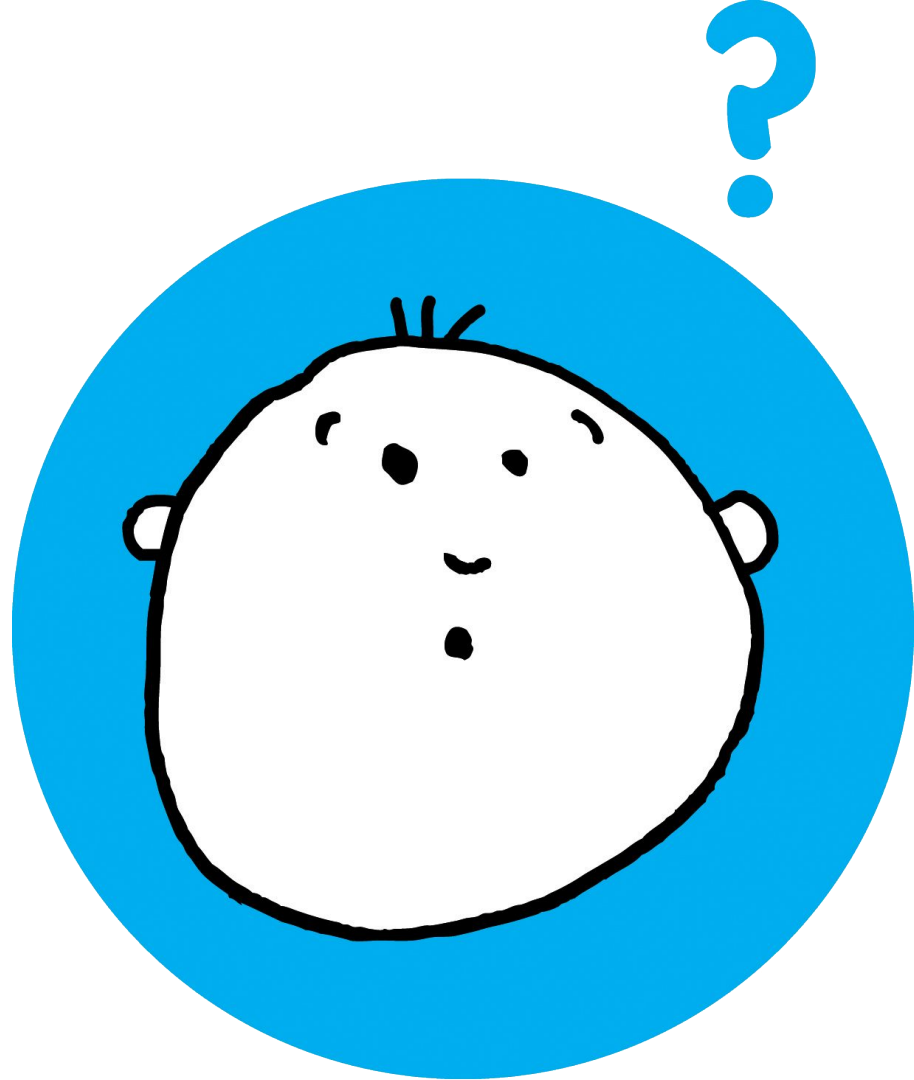


Special demo event











RESTful
API

„Representational State Transfer (REST) is a style of software architecture for distributed hypermedia systems such as the World Wide Web“

Architectural constraints

Client-Server

Stateless

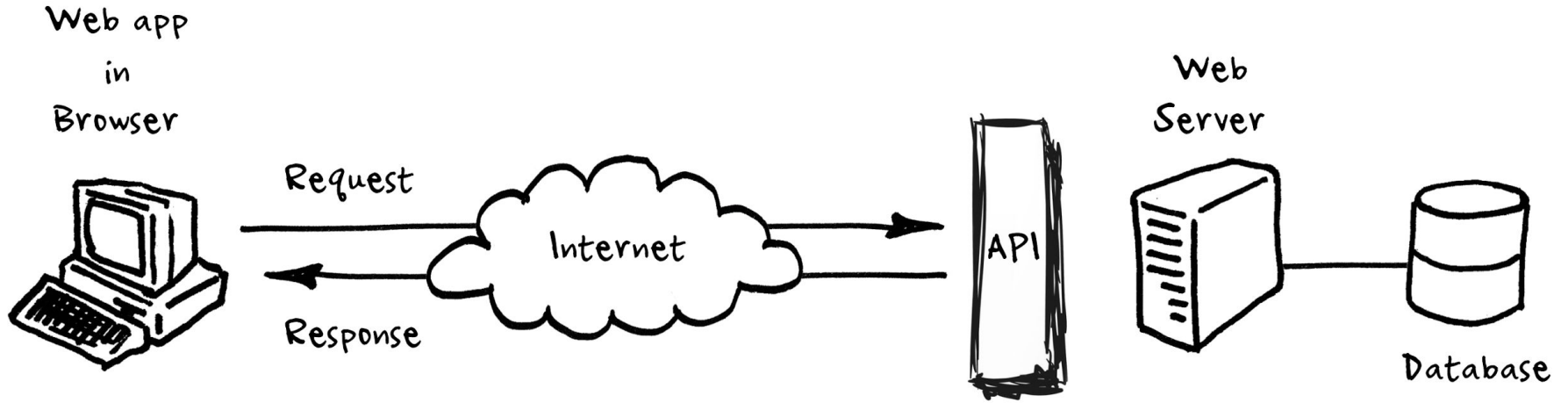
Cacheable

Uniform Interface

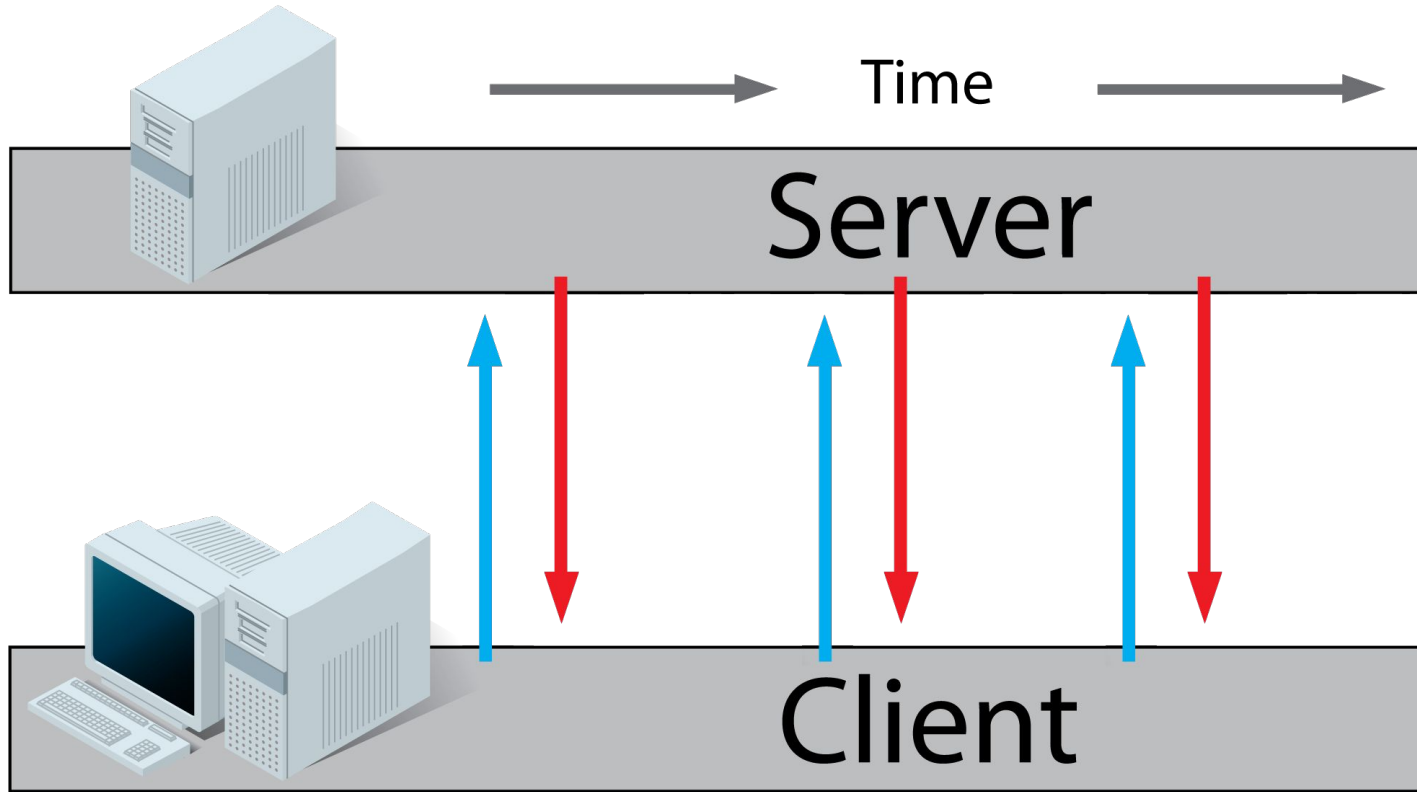
Layered System

Code on Demand (optional)

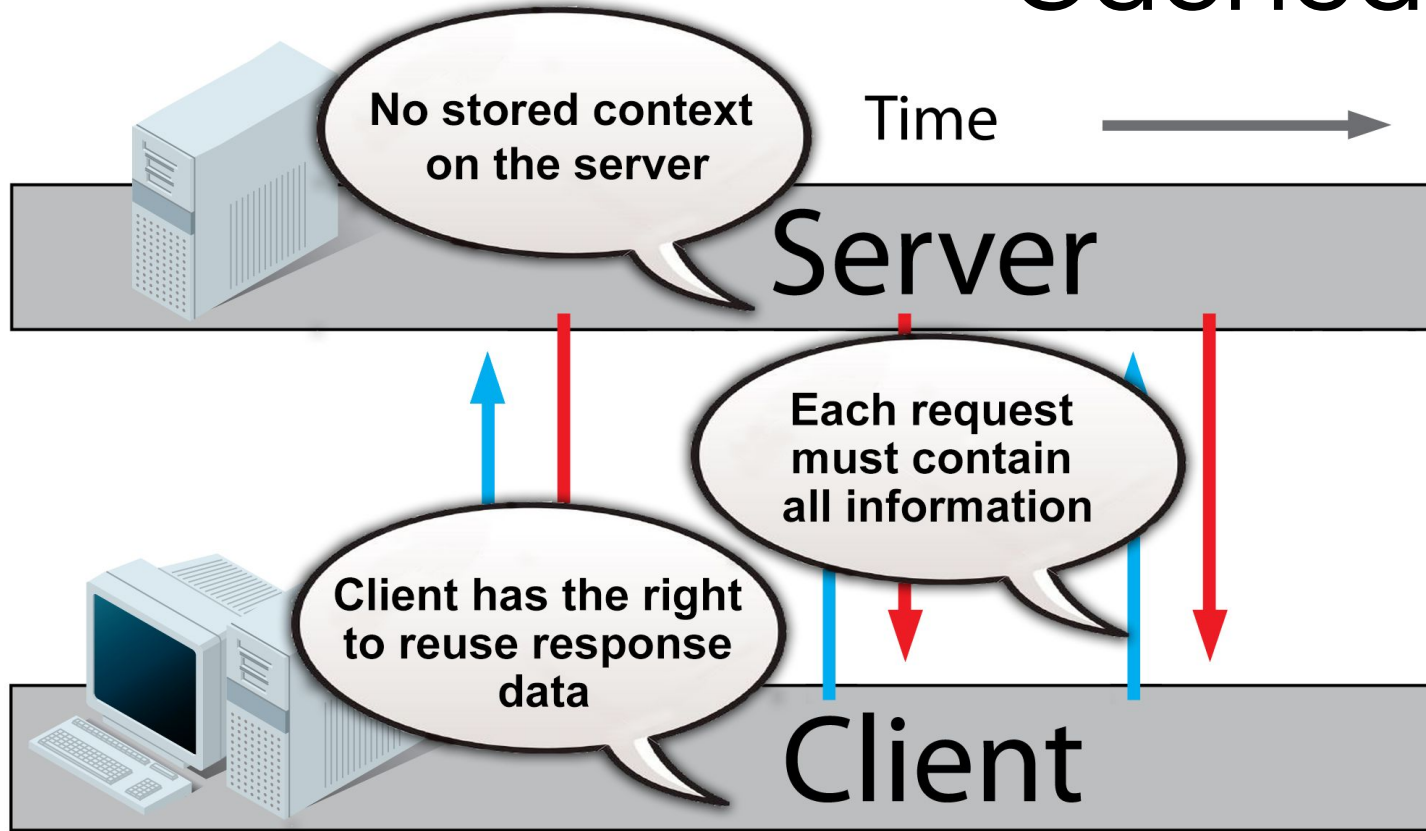
Client-Server



Stateless



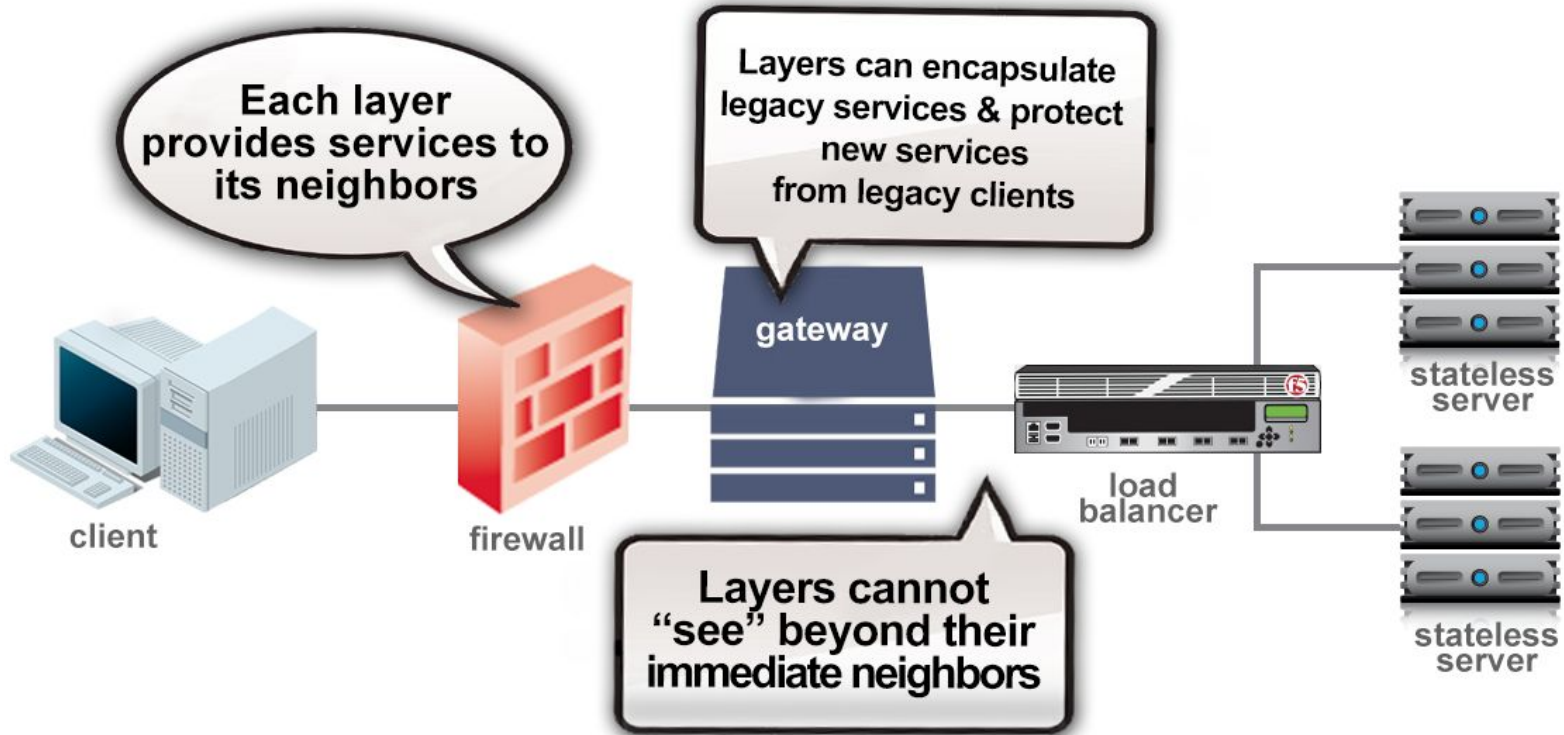
Cacheable



Uniform Interface

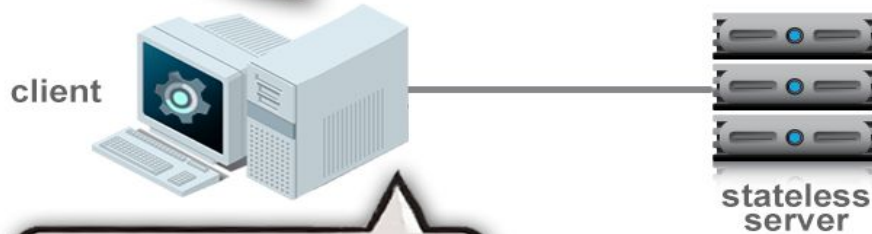
- 1) Identifying the resource
- 2) Resource representation
- 3) Self-descriptive messages
- 4) Hypermedia as the engine of application state

Layered System



Code on Demand (optional)

Add features to a deployed client, which provides for improved extensibility and configurability



Better user-perceived performance and efficiency

Architectural properties

Performance

Scalability

Simplicity of interfaces

Modifiability of components to meet changing needs (even while the application is running)

Visibility of communication between components by service agents

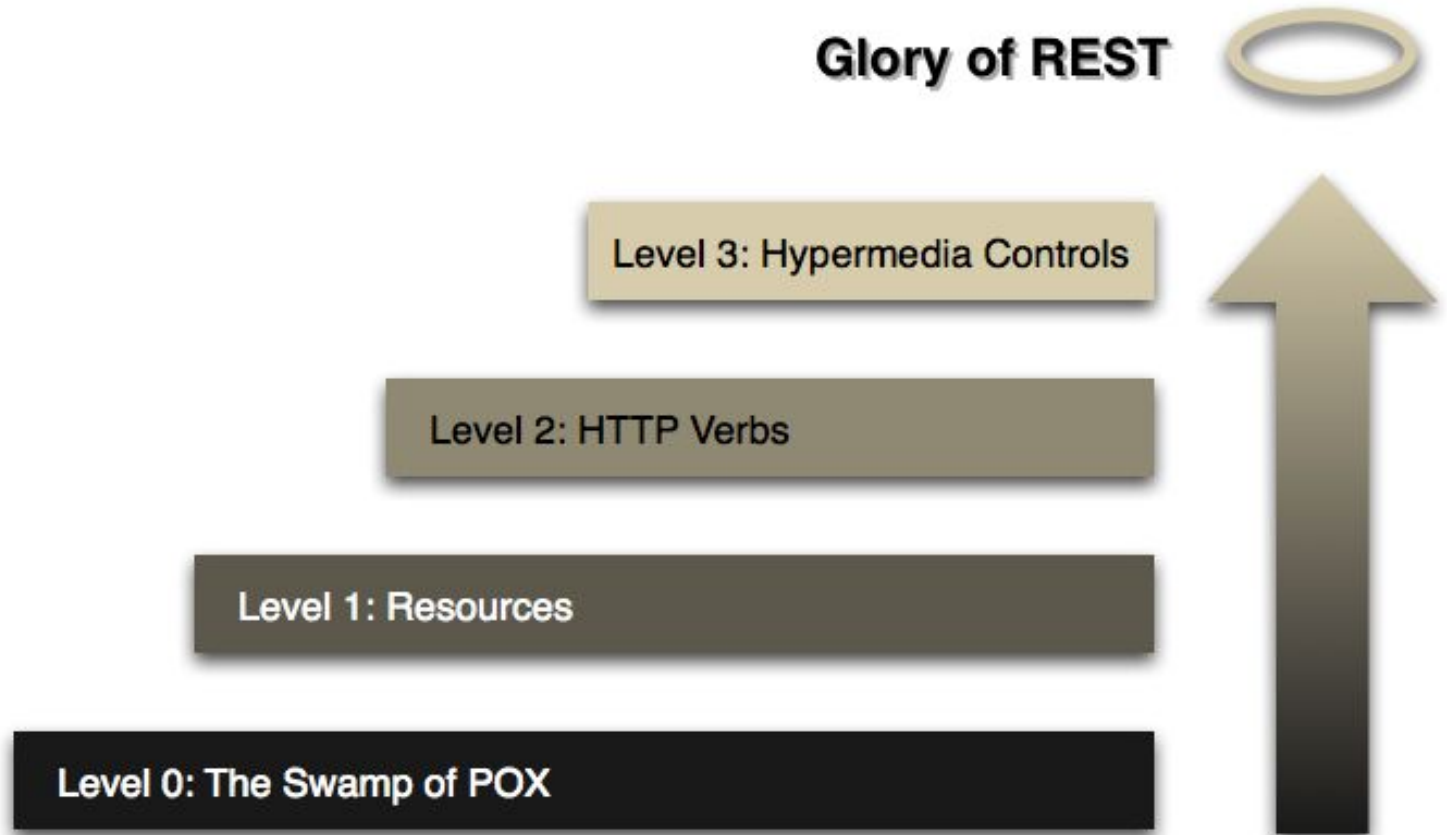
Portability of components by moving program code with the data

Reliability is the resistance to failure at the system level in the presence of failures within components, connectors, or data

RESTful APIs

Web service APIs that adhere to the REST architectural constraints are called RESTful APIs

Richardson REST Maturity Model



A night sky with a full moon and stars over a mountain range. The sky is dark blue with a bright full moon in the center. Numerous stars are scattered across the sky. The mountains below are dark, with some greenish-yellow highlights on the slopes. The overall scene is a serene night landscape.

Resources

/tickets

/events

/users

/baskets

/event_venues

/tickets

/events

/users

/baskets

/event_venues



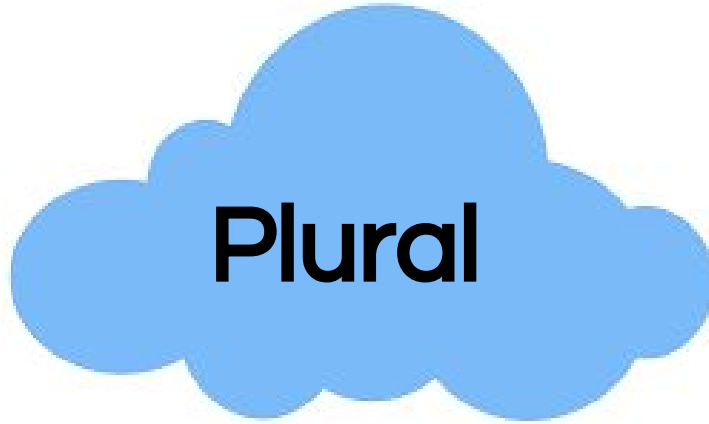
/tickets

/events

/users

/baskets

/event_venues



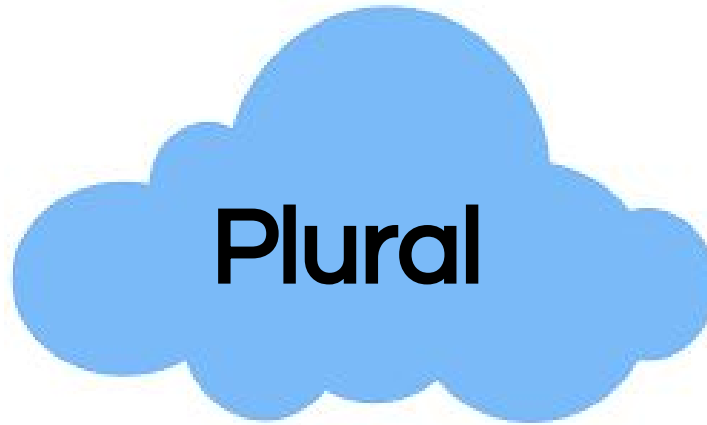
/tickets

/events

/users

/baskets

/event_venues



Create POST

Read GET

Update PUT/PATCH

Delete DELETE

Create POST

Read GET

Update PUT/PATCH

Delete DELETE



GET /events - Read a list of events

GET /events/12 - Read a specific event

POST /events - Create a new event

PUT/PATCH /events/12 - Update event #12

DELETE /events/12 - Delete event #12

GET /events/12/prices - Read a list of event's prices

GET /events/12/prices/5 - Read a specific event's price

POST /events/12/prices - Create a new event's price

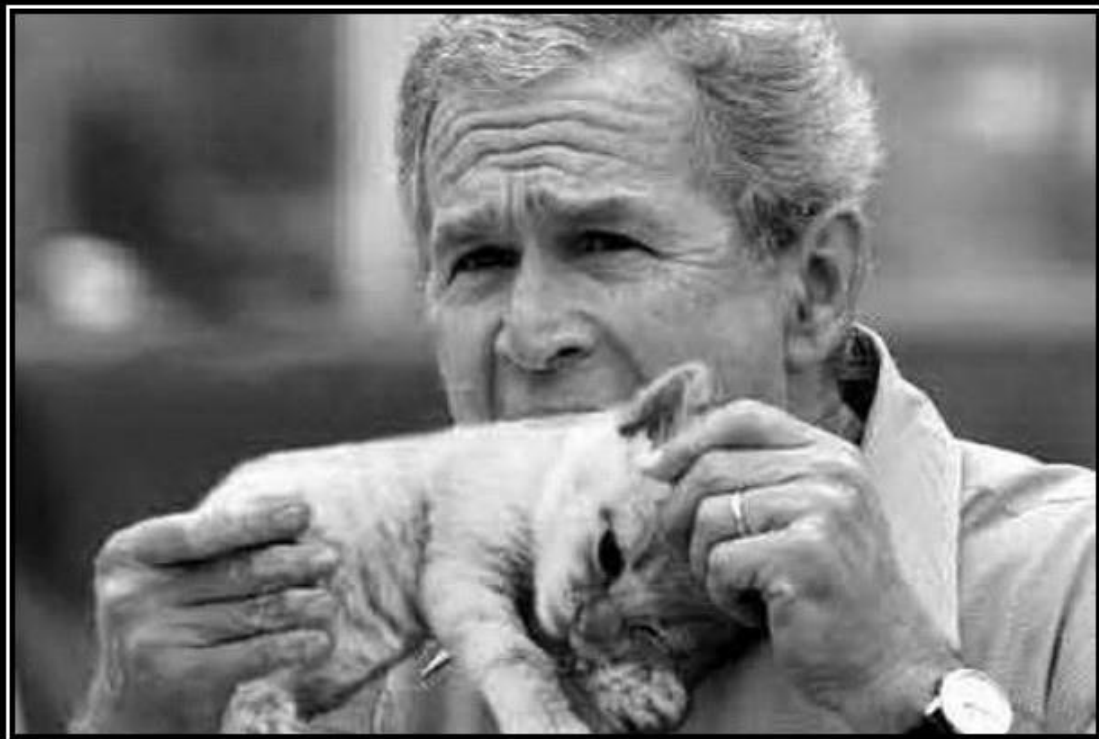
PUT/PATCH /events/12/prices/5 - Update event's price

DELETE /events/12/prices/5 - Delete event's price

Related resource representations

```
{
  "id": "123",
  "name": "Madonna",
  "prices": [
    {
      "name": "Circle",
      "value": "$5"
    },
    ...
  ]
}
```





405

Method Not Allowed

Filtering

GET /events?state=active&category=music,comedy

Sorting

`GET /events?sort=-date,name`

Searching

GET /events?q=Madonna

Limiting response

```
GET /events?fields=(id,title,date,artist.name)
```

Actions

GET /search

POST /order/1234/sum

Versioning

`https://my-site.com/api/v1`

`Accept: application/vnd.my-site.v3+json`

Pagination

Range: events=0-30

`/events?page=1`

`/events?page=1&per_page=50` `limit=10&offset=30`


```
{  
  "offset": 0,  
  "limit": 10,  
  "total": 1234,  
  "events": [  
    ...  
  ]  
}
```

resource max

Accept-Range: events 50

offset – limit / count

Content-Range: 0-10/1234

Link:

https://api.github.com/user/repos?page=3&per_page=100; rel="next",
https://api.github.com/user/repos?page=50&per_page=100; rel="last"

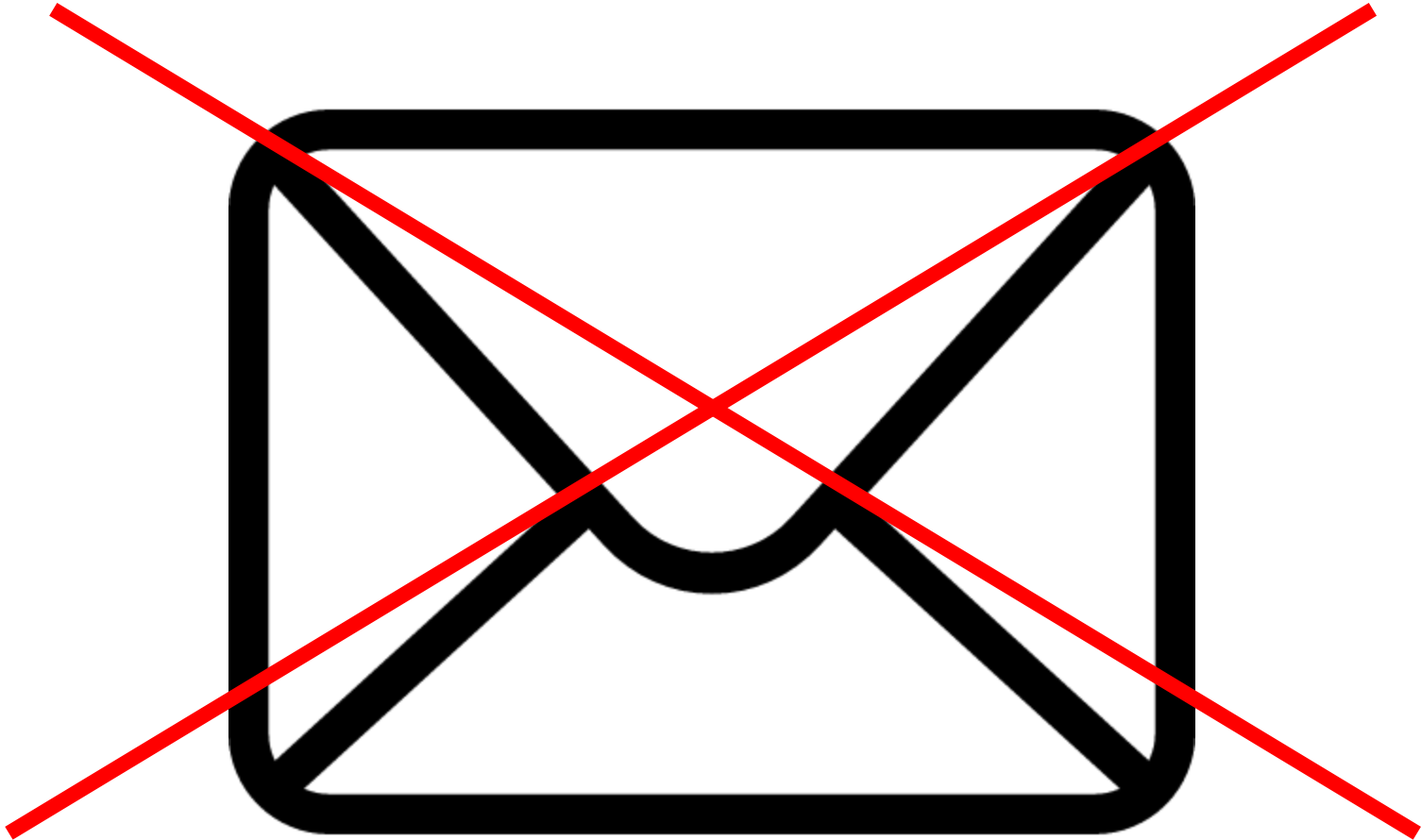


Content-Type: application/json

Accept: application/xml; application/json



Pretty print



HATEOAS

```
{
  "id": "123",
  "name": "Madonna",
  ...,
  "links": [
    {
      "rel": "self",
      "href": "https://api.events.com/v1/events/123",
      "method": "GET"
    },
    {
      "rel": "artists",
      "href": "https://api.events.com/v1/artists/123",
      "method": "GET"
    },
    ...
  ]
}
```

Documentation





Best practices







Thank you!

