

THE MAKING OF A GREAT API

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SLIDES: [HTTPS://AKRABAT.COM/6424](https://akrobat.com/6424)

FIT FOR PURPOSE



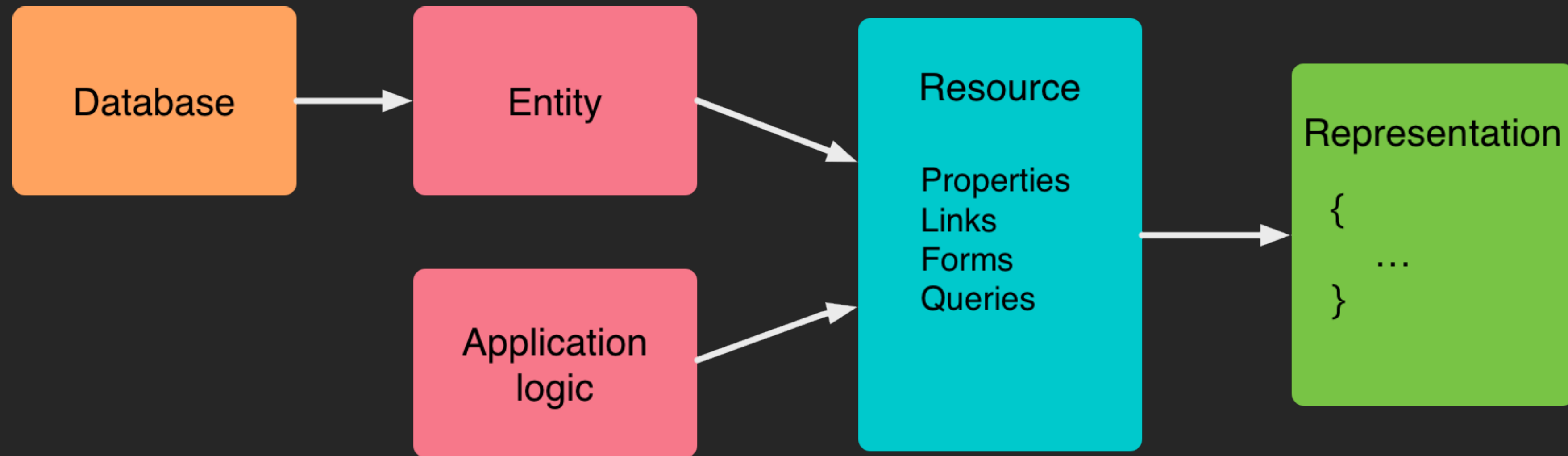
FEATURES OF A GOOD API

- Malleability
- Correctness
- Error handling
- Documentation
- Security

A GOOD API IS
MALLEABLE



DECOUPLE YOUR REPRESENTATION



HYPERMEDIA

- An explorable API
- Rename end points at will
- Re-home end points on different servers

HYPERMEDIA

```
{
  "_links": {
    "self": { "href": "https://api.example.com/orders/523" },
    "customer": { "href": "https://api.example.com/customers/32" },
    "invoice": { "href": "https://api.example.com/invoices/873" },
    "shippingNote": {
      "href": "https://cdn.example.com/ad8wd4.pdf",
      "type": "application/pdf"
    }
  },
  "currency": "GBP",
  "status": "shipped",
  "total": 123.45
}
```


A GOOD API IS
CORRECT



EMBRACE HTTP VERBS

METHOD	USED FOR	IDEMPOTENT?
GET	Retrieve data	Yes
PUT	Change data	Yes
DELETE	Delete data	Yes
PATCH	Update data	No
POST	Change data	No

STATUS CODES MATTER

1xx Informational

2xx Success

3xx Redirection

4xx Client error

5xx Server error

MEDIA TYPES

- Read **Content-Type** header to decode incoming data
- Honour the **Accept** header when sending data

HANDLING CHANGES

- Avoid major new versions
- Make changes backwards-compatible
- Think about forwards-compatibility

A NEW VERSION IS A NEW API

- Separate code
- Domain or URL path is fine
 - api.example.com/v2/user
 - api2.example.com/user
- Use **Server** header for minor and patch info

A GOOD API HAS
GREAT ERRORS



GREAT ERROR HANDLING

- Error representations are first class citizens
- Code for computers; messages for humans
- Pretty print for the humans!

HTTP PROBLEM (RFC 7807)

HTTP/1.1 503 Service Unavailable
Content-Type: application/problem+json
Content-Language: en

```
{  
  "status": 503,  
  "type": "https://example.com/service-unavailable",  
  "title": "Could not authorise user due to an internal problem.",  
  "detail": "The authentication service is down for maintenance.",  
  "instance": "https://example.com/maintenance-schedule/2017-06",  
  "error_code": "AUTHSERVICE_UNAVAILABLE"  
}
```


A GOOD API IS
DOCUMENTED



PROFILE LINKS (RFC 6906)

Header:

Link: <<https://www.example.com/docs>>;rel="profile"

Body:

```
{
  "_links": {
    "profile": { "href": "https://www.example.com/docs/" }
  }
}
```

HUMAN DOCUMENTATION

- Tutorials
- Reference

OPENAPI SPECIFICATION

- Spec-First API Design
- Tooling: <https://openapi.tools>

A GOOD API IS
SECURE



OAUTH 2

- Application identification
- User identification
- User's trust relationship is with the API

RATE LIMIT

HTTP/1.1 429 Too Many Requests

Content-Type: application/problem+json

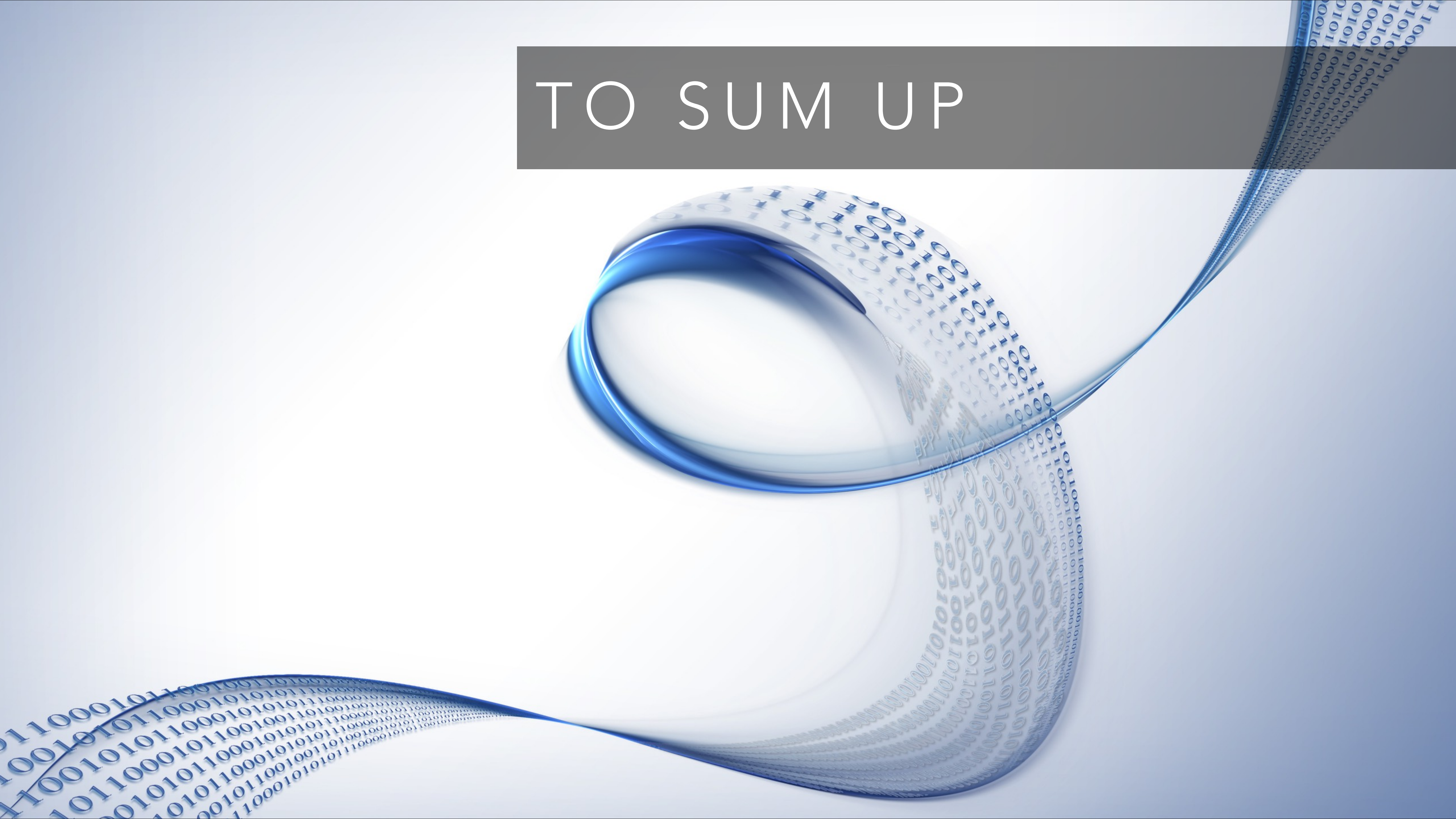
X-RateLimit-Limit: 5000

X-RateLimit-Remaining: 0

X-RateLimit-Reset: 1471549573

```
{  
  "status": 429,  
  "type": "https://dev.example.com/rate_limits",  
  "title": "API rate limited exceeded.",  
  "error_code": "RATE_LIMIT_EXCEEDED"  
}
```


TO SUM UP



THANK YOU

[HTTPS://JOIND.IN/TALK/4CFB9](https://joind.in/talk/4CFB9)