REST : Representation State Transfer

RESTful

API

Examples - REST

RESTful API

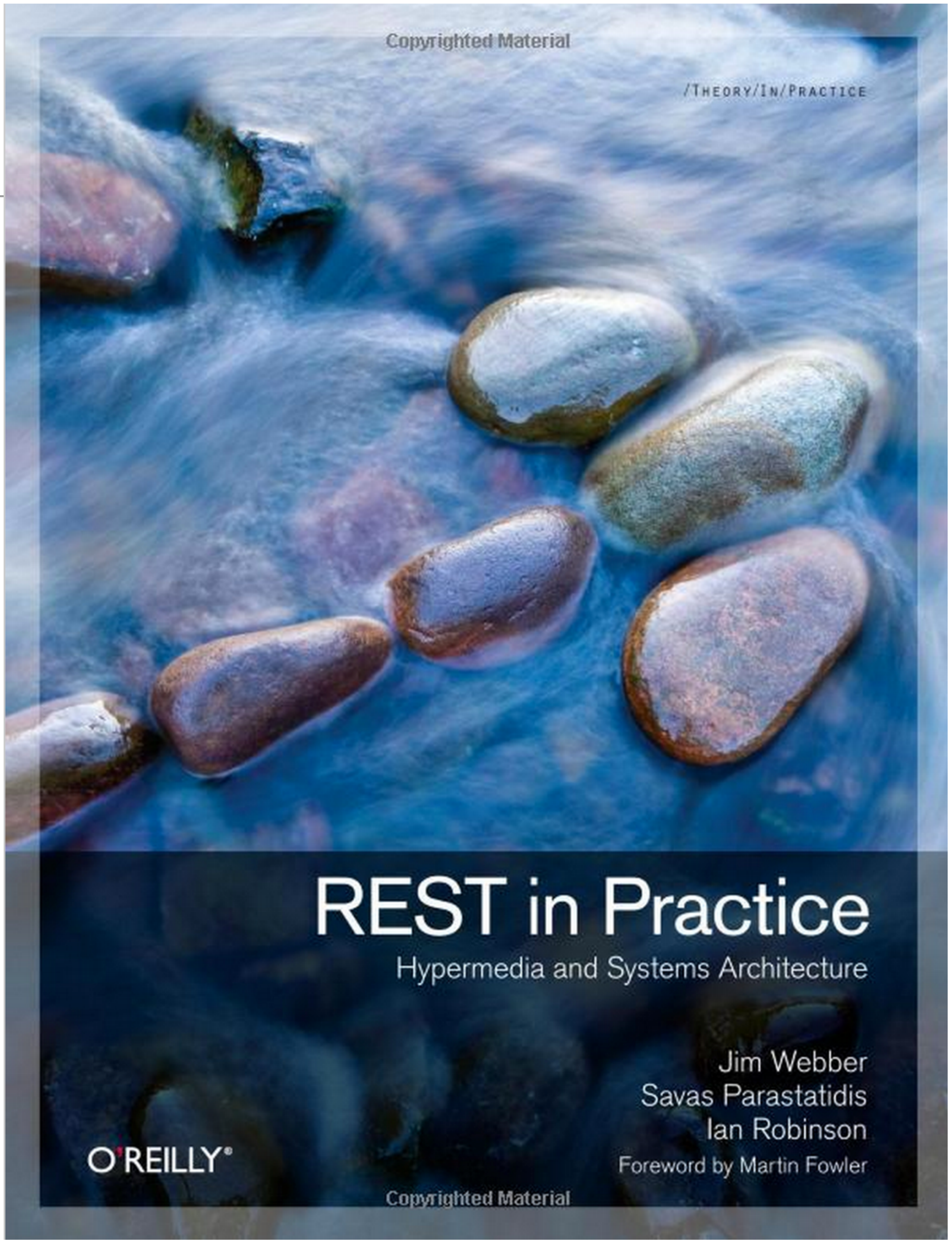
GET PUT POST DELETE

- Twitter API
- Google Maps
- Twillio
- Github
- Foursquare
- blogger.com

- REST is an “Architectural Style” - enumerating an approach to building distributed systems.
- It embodies an approach that aims to maximize the infrastructure of http infrastructure deployed in the public internet, enabling secure, scalable distributed systems that do not require expensive, complex alternative infrastructure.

REST

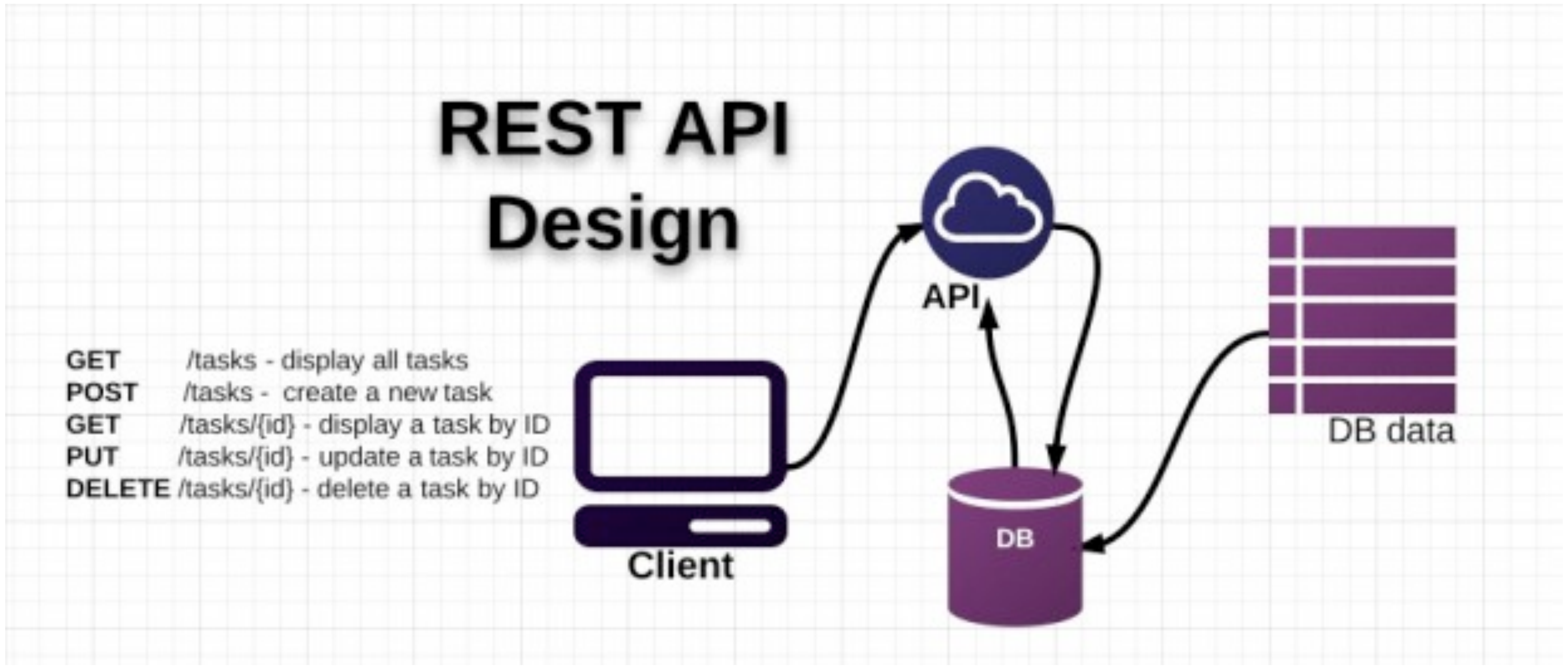
Representational State Transfer (**REST**) is an architectural style that abstracts the architectural elements within a distributed hypermedia system.[1] REST ignores the details of component implementation and protocol syntax in order to focus on the roles of components, the constraints upon their interaction with other components, and their interpretation of significant data elements.[2]REST has emerged as a predominant web API design model



REST: The Web Used Correctly

- A system or application architecture
- ... that uses HTTP, URI and other Web standards “correctly”
- ... is “on” the Web, not tunnelled through it ... also called ““RESTful HTTP”

(see http://www.slideshare.net/deimos/stefan-tilkov-pragmatic-intro-to-rest?qid=bf0300ad-6e68-4faa-bac7-0f77424ec093&v=qf1&b=&from_search=1)



REST API Design
GET /tasks - display all tasks
POST /tasks - create a new task
GET /tasks/{id} - display a task by ID
PUT /tasks/{id} - update a task by ID
DELETE /tasks/{id} - delete a task by ID
Client
API
DB
DB data

Rest Principles

- 1: Give Everything and ID
- 2: Link Things Together
- 3: Use Standard HTTP Methods
- 4: Allow for Multiple Representations
- 5: Communicate Statelessly

1: Give Every Thing and ID

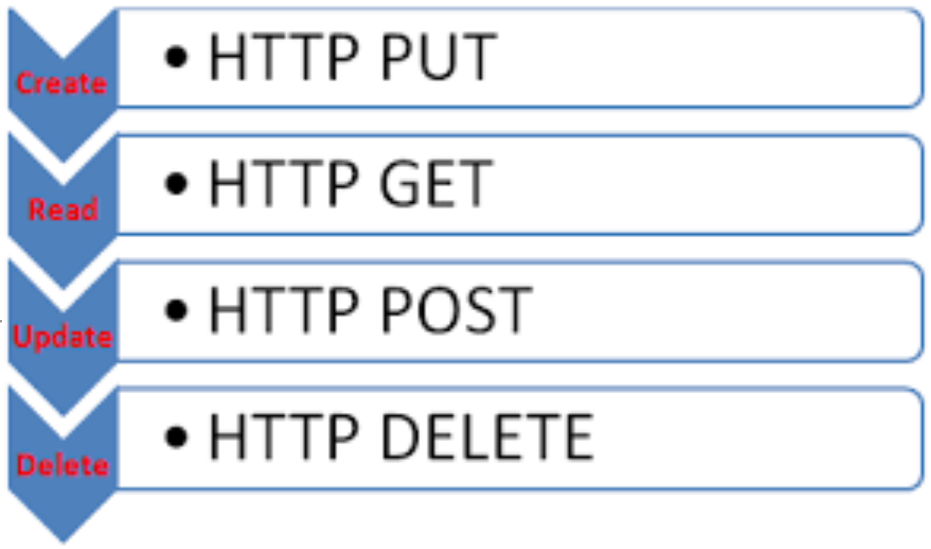
- http://example.com/customers/1234
- http://example.com/orders/2007/10/776654
- http://example.com/products/4554
- http://example.com/processes/sal-increase-234

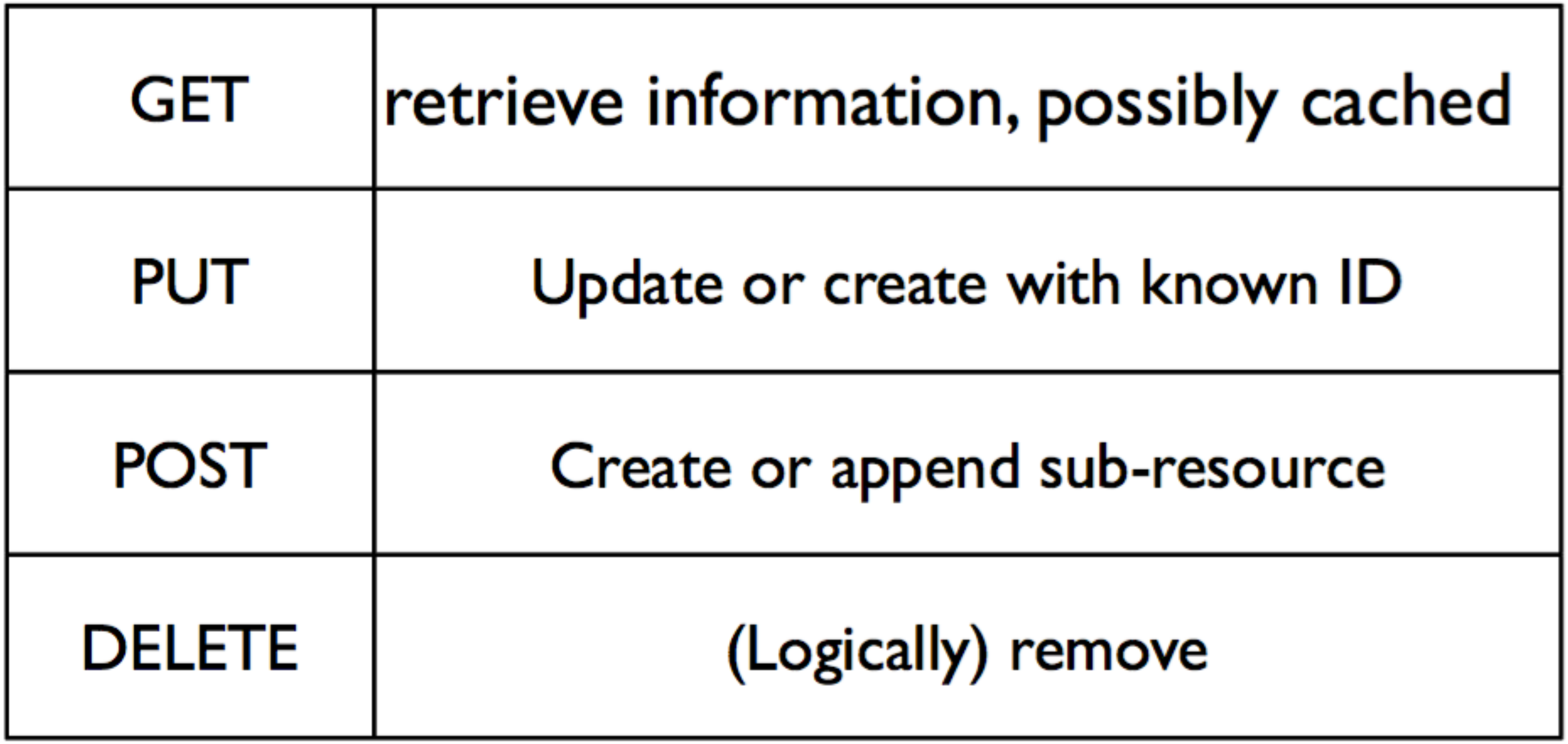
```
64a4e0-8497-4f83-8eaa-
id:">c225ae5c-540f-4a48-8867-809b39
n:uuid:">1e1bdf59-3dd6-4f96-9166-e6095e7231
urn:uuid:">74efb6ba-a52a-46c0-a16b-03860d356882
"urn:uuid:">4d0ecbdb-4cba-4047-8351-29283adf67c7<
"urn:uuid:">20f19a35-401b-45a6-a54e-084122a4cf80<
urn:uuid:">3a17efd0-adfe-4899-9d4c-5b8ac591645b<
n:uuid:">02e42ef0-7be7-4c60-b8d9-790b79fa38
id:">6c8b3cb4-c0fe-4afd-ac63-cb2a9060
6f046a-e7aa-44e8-9712-
```

2: Link Things Together

```
<order self='http://example.com/orders/1234'>
  <amount>23</amount>
  <product ref='http://example.com/products/4554' />
  <customer ref='http://example.com/customers/1234' />
</order>
```

3: Use Standard HTTP Methods





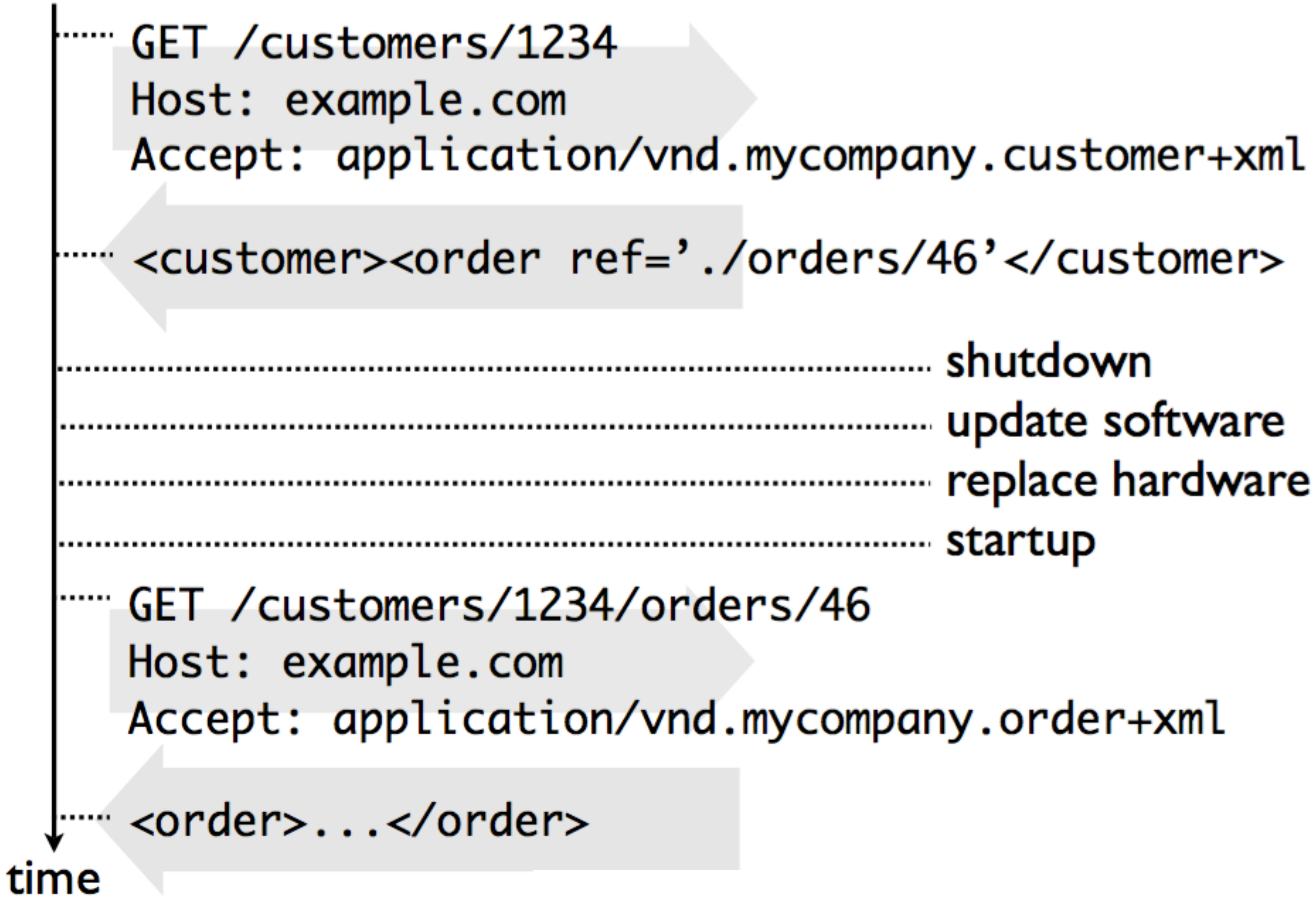
GET	retrieve information, possibly cached
PUT	Update or create with known ID
POST	Create or append sub-resource
DELETE	(Logically) remove

4: Allow for Multiple Representations

```
GET /donors/1234

Host: example.com

Accept: application/json

{

  "firstName" : "fred",

  "lastName"  : "simpson",

  "email"     : "fred@simpson.com",

  "password"  : "secret"

}
```

```
GET /donors/1234

Host: example.com

Accept: application/xml

<donor>

  <firstName> “fred” </firstName>

  <lastName> “simpson” </lastName>

  <email> “fred@simpson.com” </email>

  <password> “secret” </password>

</donor>
```

5: Communicate Statelessly

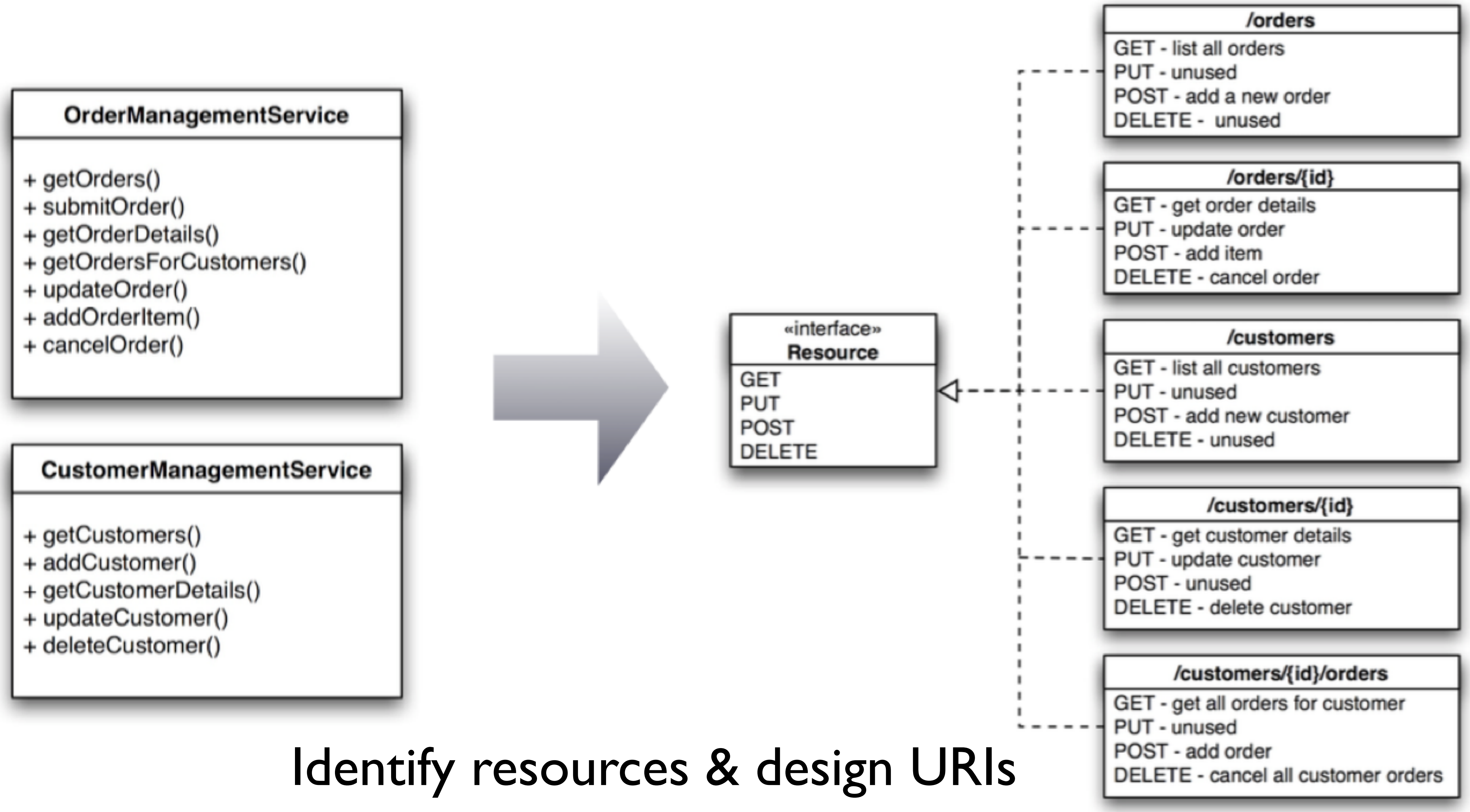


```
GET /customers/1234
Host: example.com
Accept: application/vnd.mycompany.customer+xml
```

```
<customer><order ref='./orders/46'</customer>
```

```
GET /customers/1234/orders/46
Host: example.com
Accept: application/vnd.mycompany.order+xml
```

```
<order>...</order>
```



Identify resources & design URIs

Select format (Json)

Identify method semantics

Select response codes