



UNIVERSIDAD
COMPLUTENSE
MADRID

NP2

Overview of REST

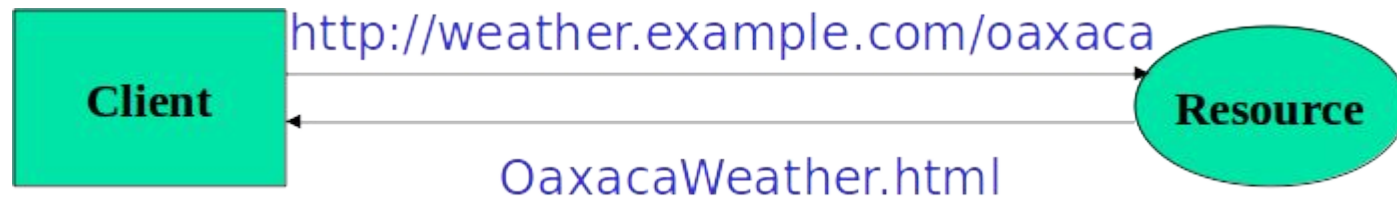
Facultad de Informática

- REST (Representational State Transfer)
 - Model/architectural style for the development of Web Services
 - Doctoral thesis by Roy Fielding (2000)

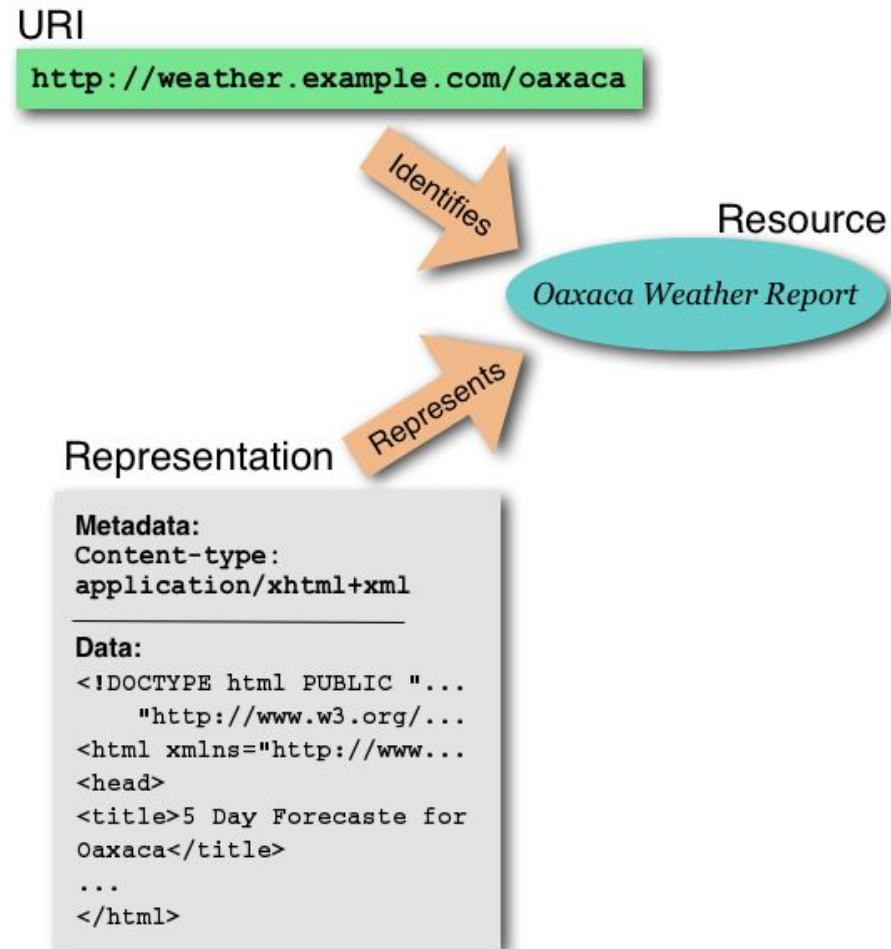
- Principles/restrictions:
 - Client/server
 - *Stateless* (the state is not stored within the server)
 - *Cacheable* (explicit storage management)
 - Unified interface:
 - Resource identification (URI)
 - Manipulation of resources via representations
 - Auto-descriptive messages
 - HATEOAS (Hypermedia As The Engine Of Application State)
 - Multilayer scheme
 - On-demand code (opcional)

<https://restfulapi.net/>

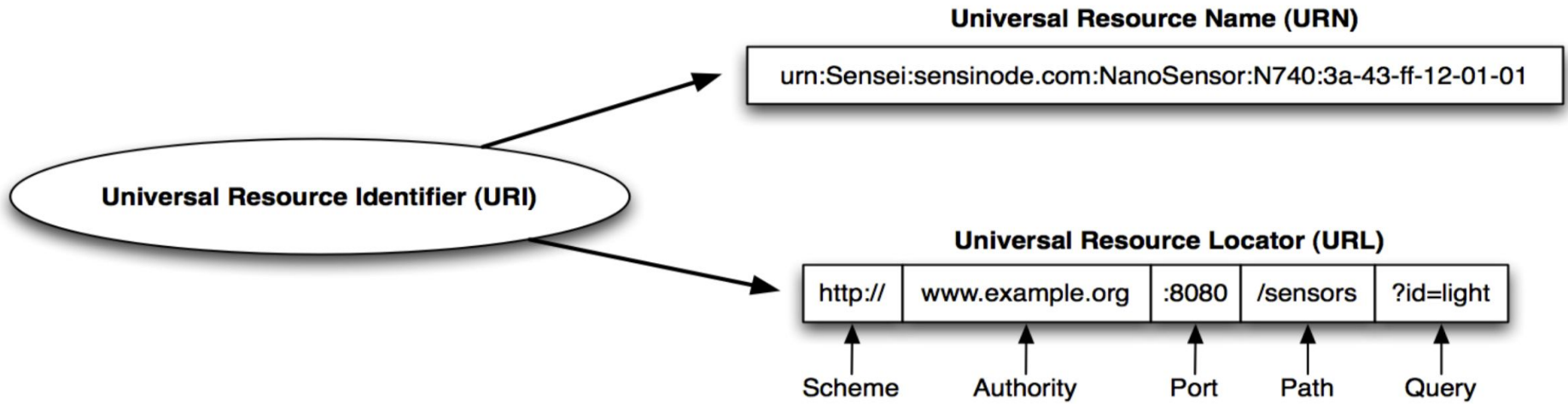
- Webservice operation
 - Typically synchronous
 - Client request (request)
 - Server response (response)



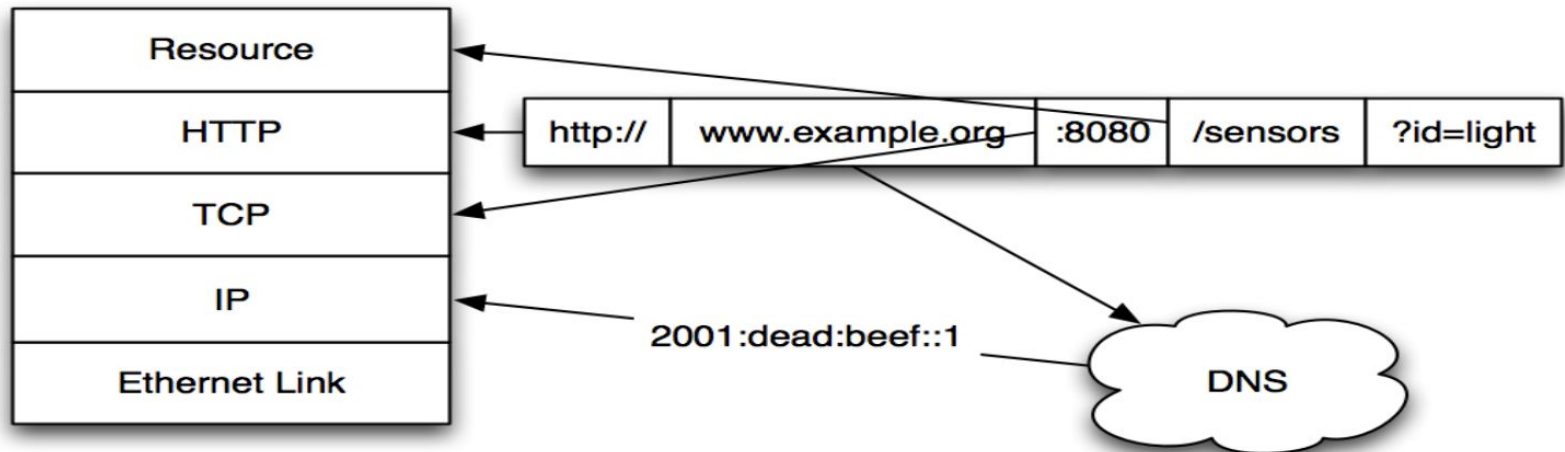
- Resources



- URI (Unified Resource Identifier)



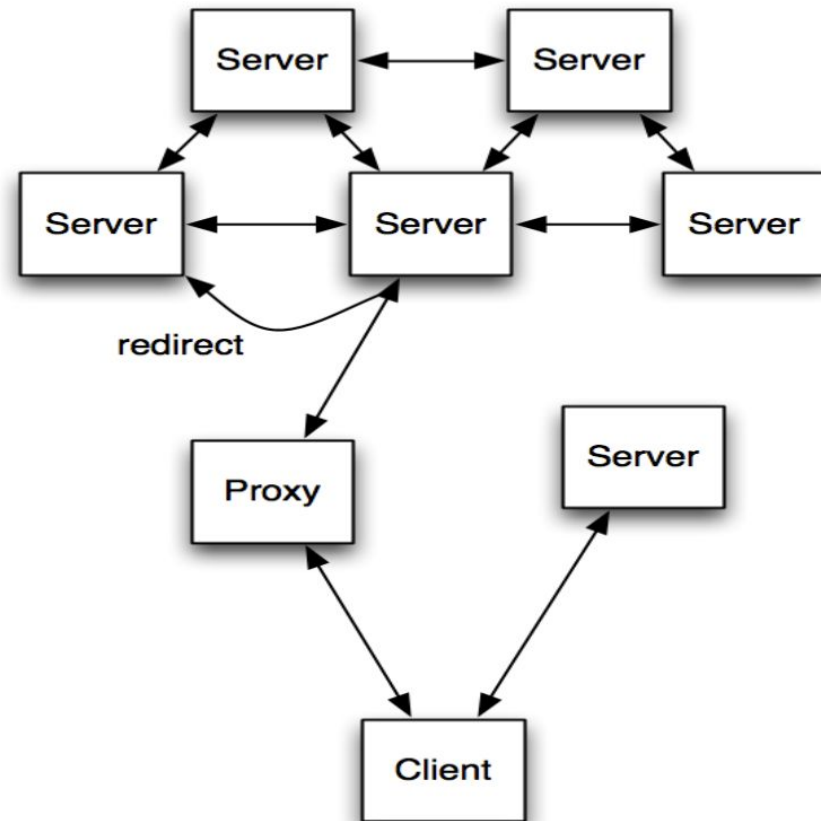
- URL resolution



- REST methods
 - DELETE: delete resource
 - GET: get resource
 - POST: create resource
 - PUT: update resource
 - Others: less used

- RESTful API
 - API used by a client that implements all REST principles
 - Not always easy
 - Login, authentication, ...
 - Need of cookies

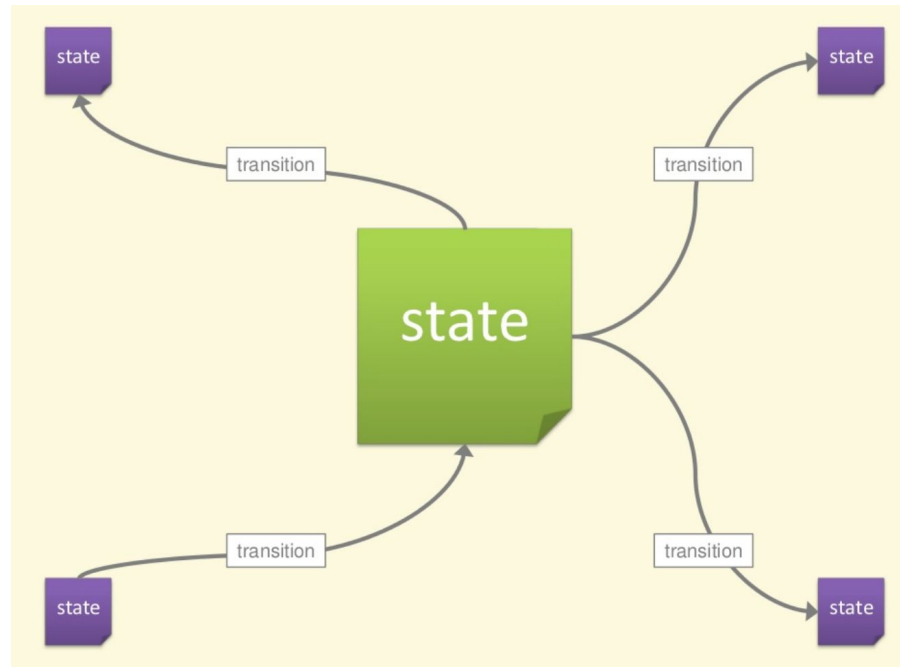
- Multilayer support
 - Frequently, intermediate nodes:
 - Firewall
 - Proxy
 - Gateway
 - Load balancer



- HATEOAS
 - Roy Fielding, Dissertation Chap. 6

“The name “Representational State Transfer” is intended to evoke an image of how a well-designed Web application behaves: a network of web pages (a virtual state-machine), where the user progresses through the application by selecting links (state transitions), resulting in the next page (representing the next state of the application) being transferred to the user and rendered for their use.”

- HATEOAS
 - Virtual state machine
 - States: web pages
 - Transitions: links



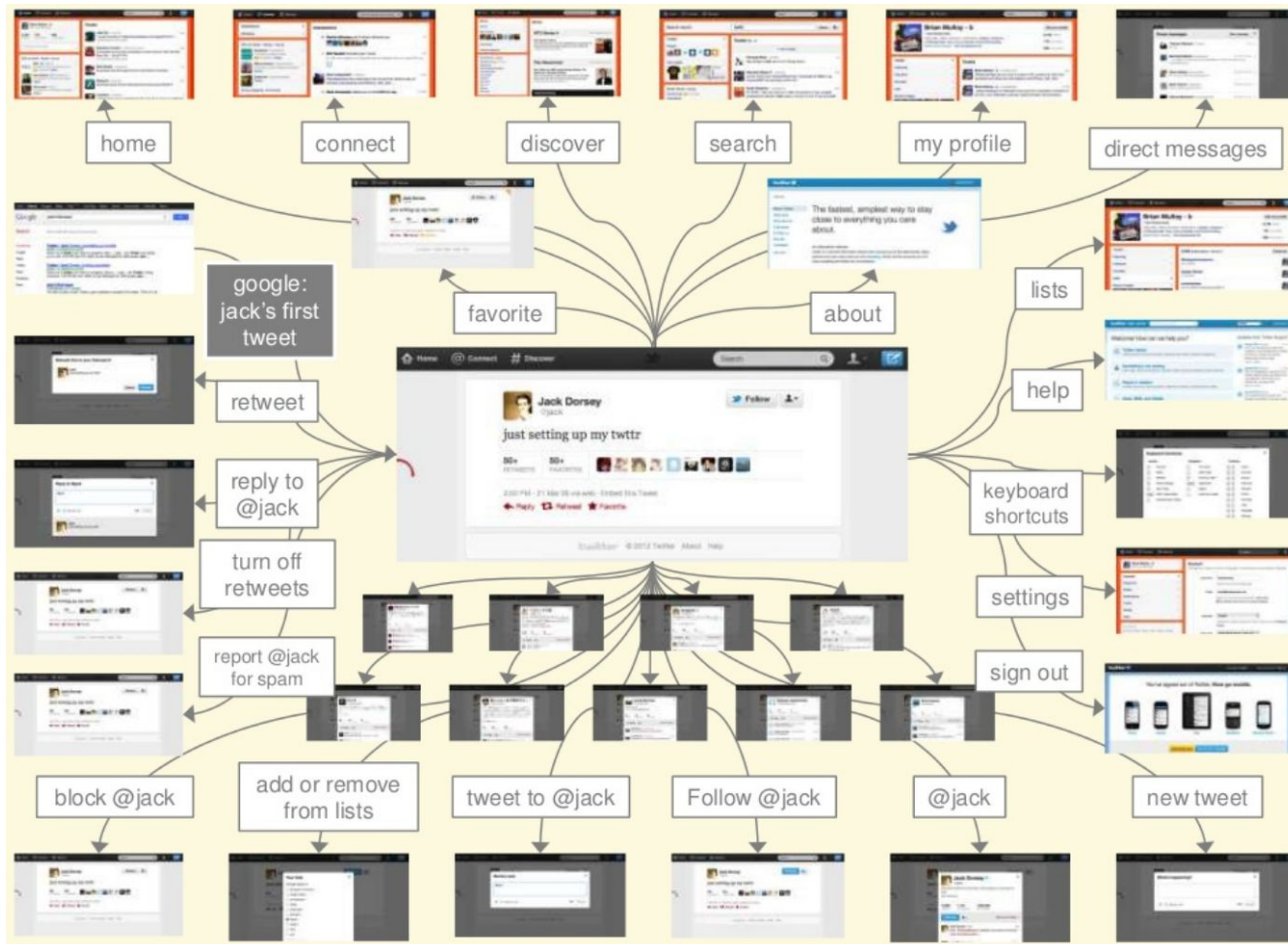
Fuente: Brian Mulloy [HATEOAS 101](#)

- HATEOAS: Twitter example

```
GET /#!/jack/status/20 HTTP/1.1
User-Agent: Chrome/18.0.1025.11
Host: twitter.com
Accept: text/html
```

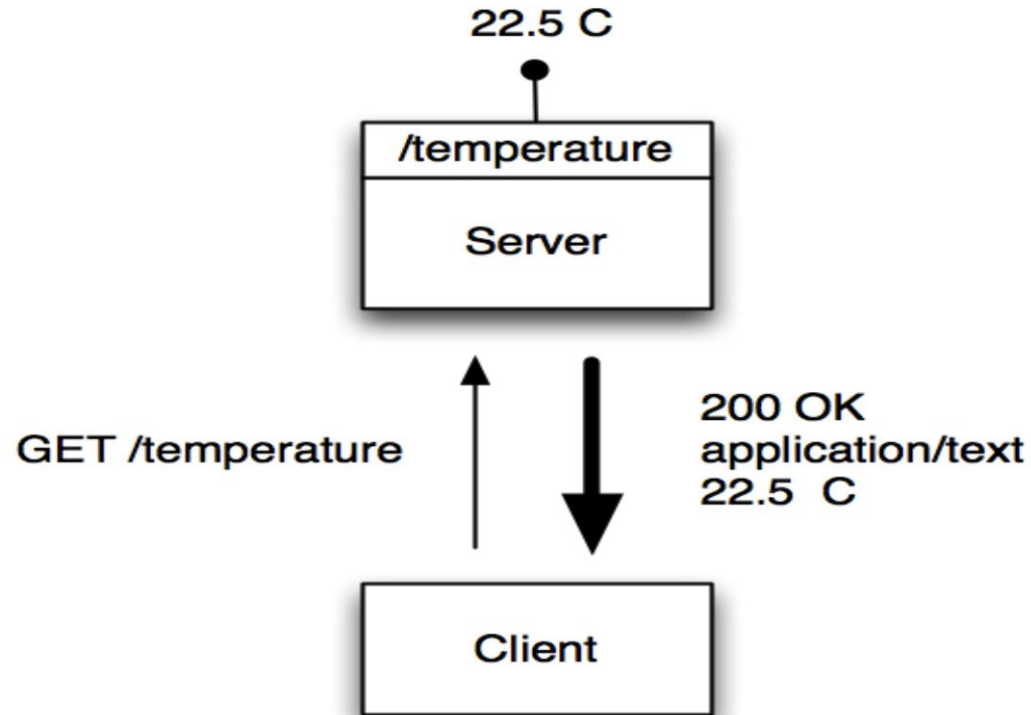


- HATEOAS: Twitter example

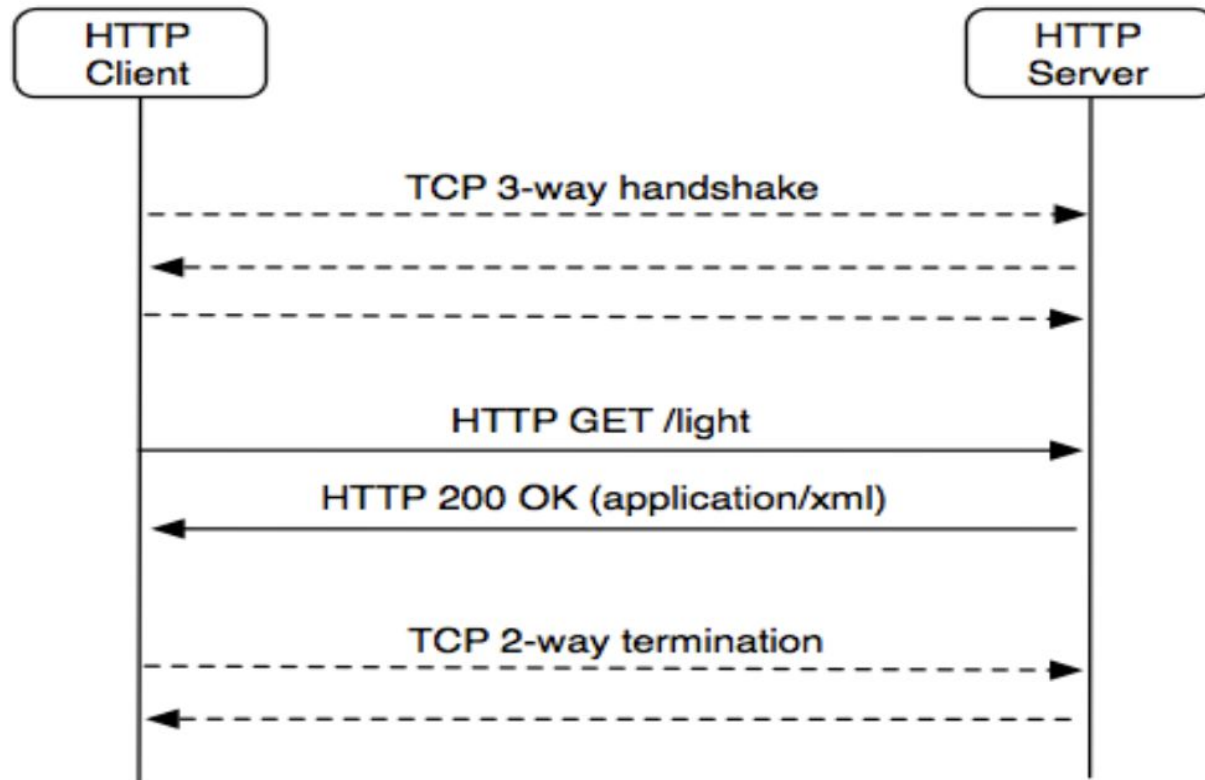


Fuente: Brian Mulloy [HATEOAS 101](#)

- REST Request (generic)



- Request REST HTTP
 - Connection-oriented 😞
 - Header overhead 😞



- <https://restfulapi.net/>