

RESTful API

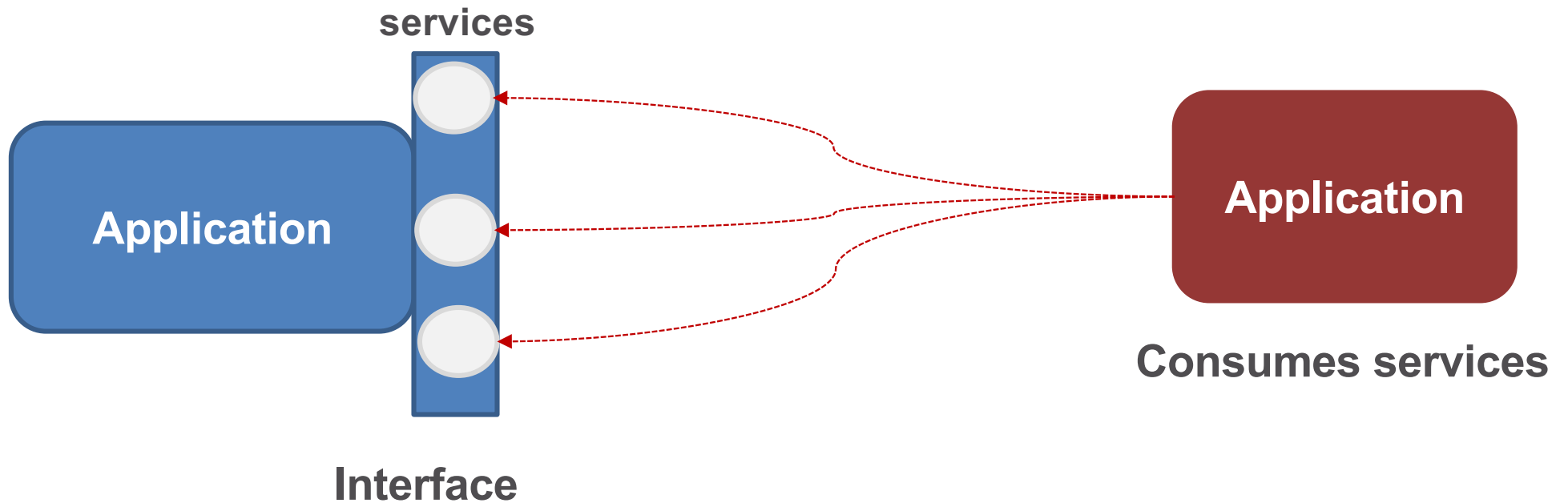
GET PUT POST DELETE

Richardson's maturity model

Is an API fully RESTful?

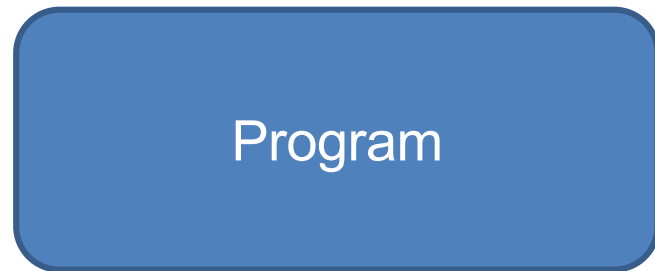
API

- Application programming interface



API

INSA



API

Credit card verification service



Connectors interface

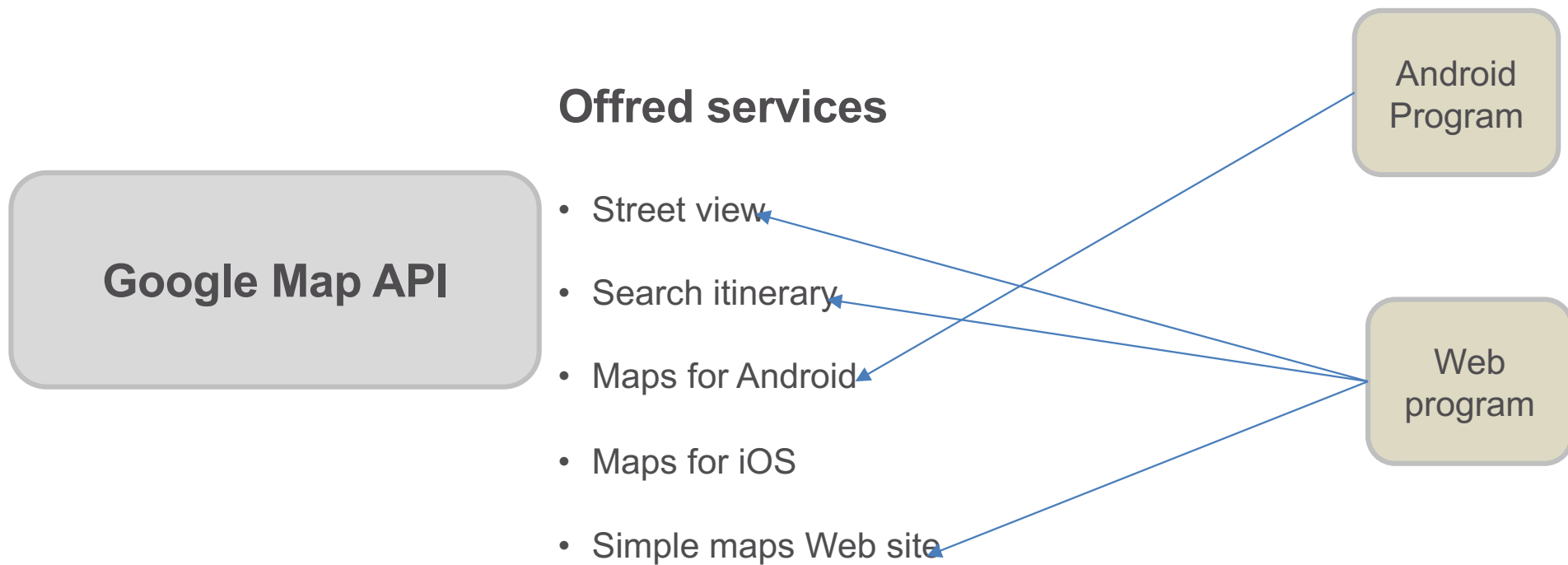


Electricity service



Internet service

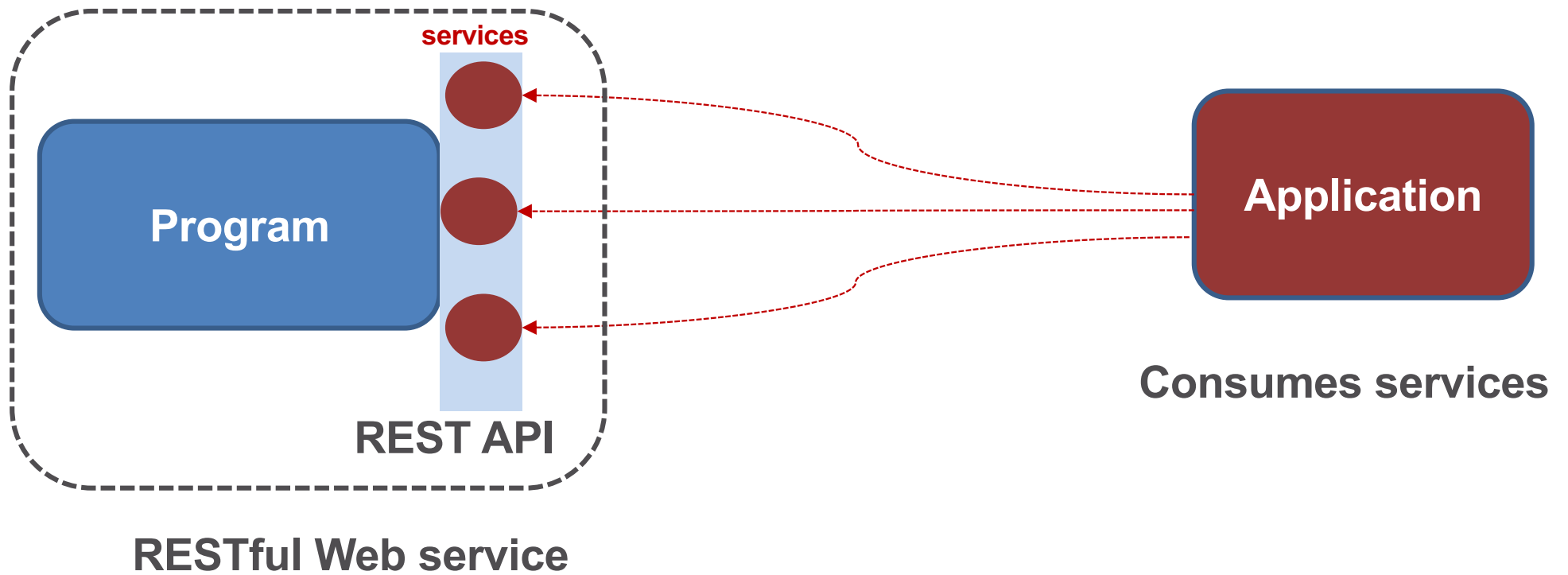
API example



APIs

- Two type of APIs
 - SOAP API
 - **REST API**

REST API





programmableweb.com/apis/catalogue



LEARN ABOUT APIS

WHAT IS AN API ?

API DIRECTORY

CORONAVIRUS

Search

TOP 10 NEW APIS

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6. Zipcodebase

[Track this API](#)

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7. Unofficial I...

[Track this API](#)

3. AboutNumber

[Track this API](#)

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[Track this API](#)

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[Track this API](#)

9. 7pace Timetr...

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5. Food

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10. OpenStreetM...

[Track this API](#)

Richardson's maturity model (RMM)

- Is an API fully RESTful?
- Richardson's maturity model (**RMM**)
 - Four level based model

Level 3 : controls via hyperlinks

Level 2 : http verbs

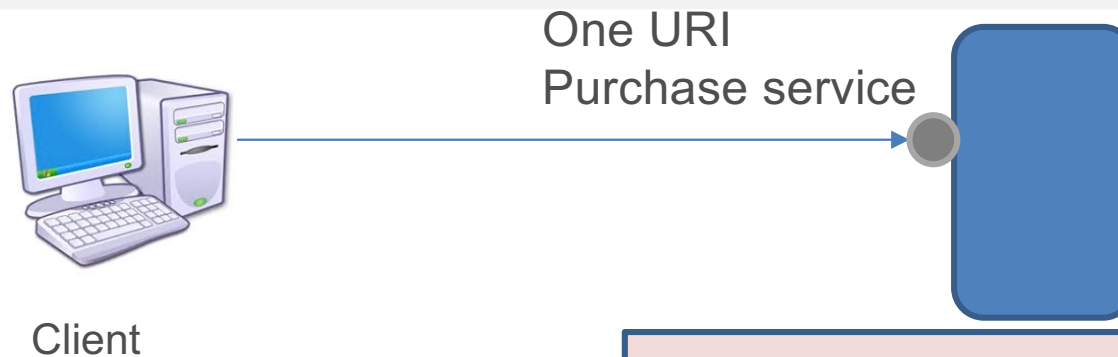
Level 1 : resources

Level 0 : RPC on HTTP

Level 0

- Swamp of POX "Plain Old XML"
- One URI for all requests
- Example : SOAP services

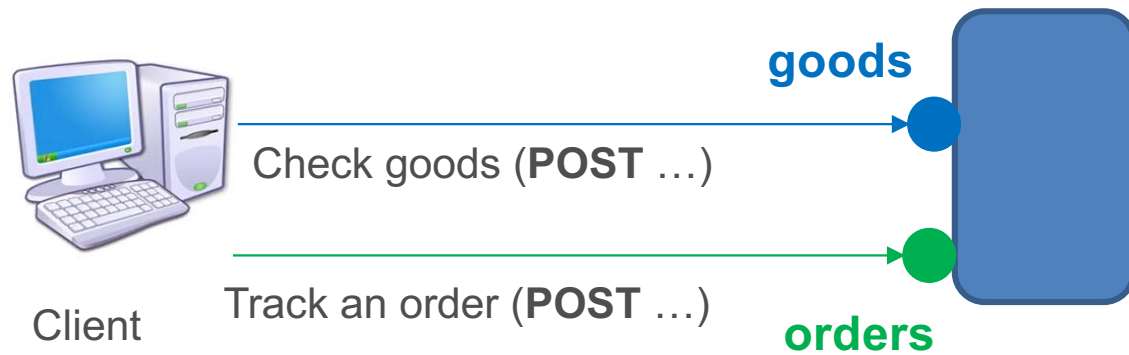
Level 0 does not belong to REST



Level 0 : Swamp of POX

Level 1

- Use of resources
- Different URIs for different resources

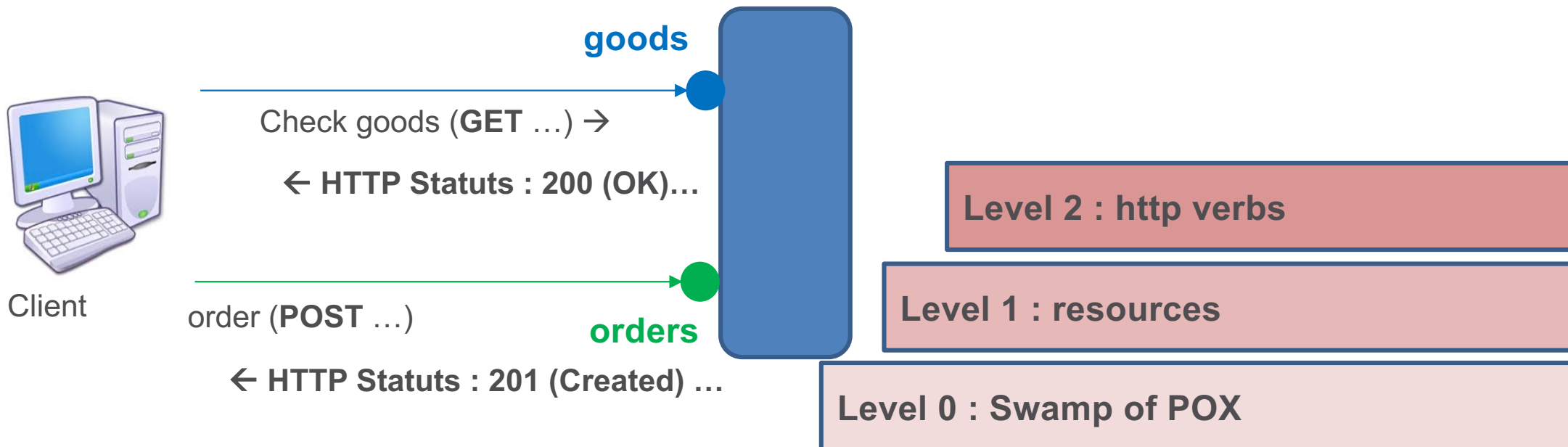


Level 1 : resources

Level 0 : Swamp of POX

Level 2

- Use of HTTP verbs
- Several resources
- HTTP status codes in responses



Level 3

- Answers contain hyperlinks
- Use of hyperlinks for navigation between resources
- **HATEOAS**

Level 3 : controls via hyperlinks

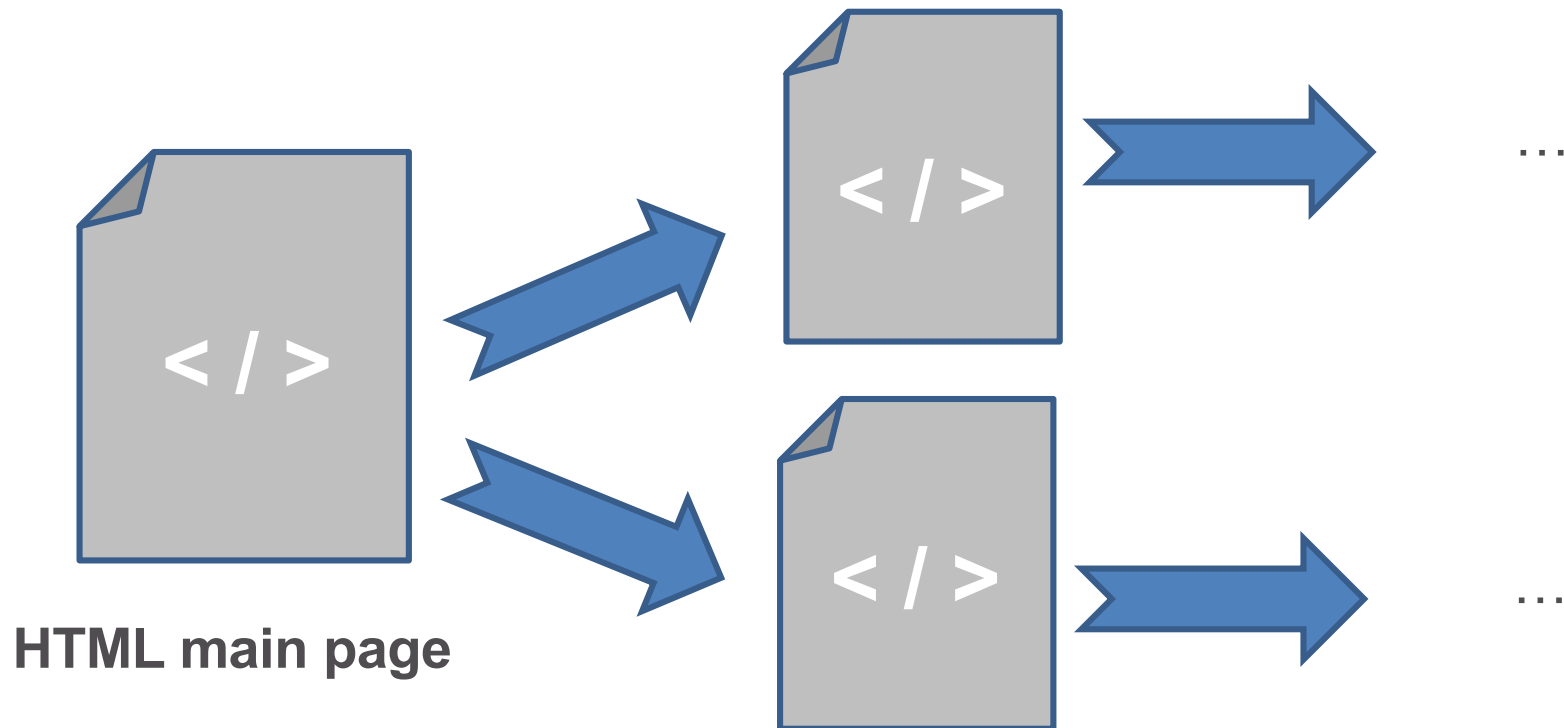
Level 2 : http verbs

Level 1 : resources

Level 0 : Swamp of POX

HATEOAS

- Hypermedia as the Engine of Application State



HATEOAS

- Use this principle in RESTful services



RESTful service
Of online store

Get catalogue

<https://online.store.fr/catalogue>

Get item1

<https://online.store.fr/item/1>

Get item2

<https://online.store.fr/item/2>

Get item3

<https://online.store.fr/item/3>

Get basket

<https://online.store.fr/basket>

...

HATEOAS



RESTful service
Online store

Get catalogue <https://online.store.fr/catalogue>

Get item1

Get item2

Get item3

Get basket

...

HATEOAS



RESTful service
Online store

Get catalogue

Get item1

Get item2

Get item3

Get basket

...

GET <https://online.store.fr/catalogue>



client

HATEOAS



RESTful service
Online store

Get catalogue

Get item1

Get item2

Get item3

Get basket

...

Reply

```
{  
  "item1": "washing machines",  
  "item2": "Diswashers",  
  "item3": "Oven"  
}  
GET https://online.store.fr/item/1  
GET https://online.store.fr/item/2  
GET https://online.store.fr/item/3  
GET https://online.store.fr/item/basket
```



client

HATEOAS



RESTful service
Online store

Get catalogue

Get item1

Get item2

Get item3

Get basket

...

GET <https://online.store.fr/item/1>



client

HATEOAS



RESTful service
Online store

Get catalogue

Get item1

Get item2

Get item3

Get basket

...

Reply

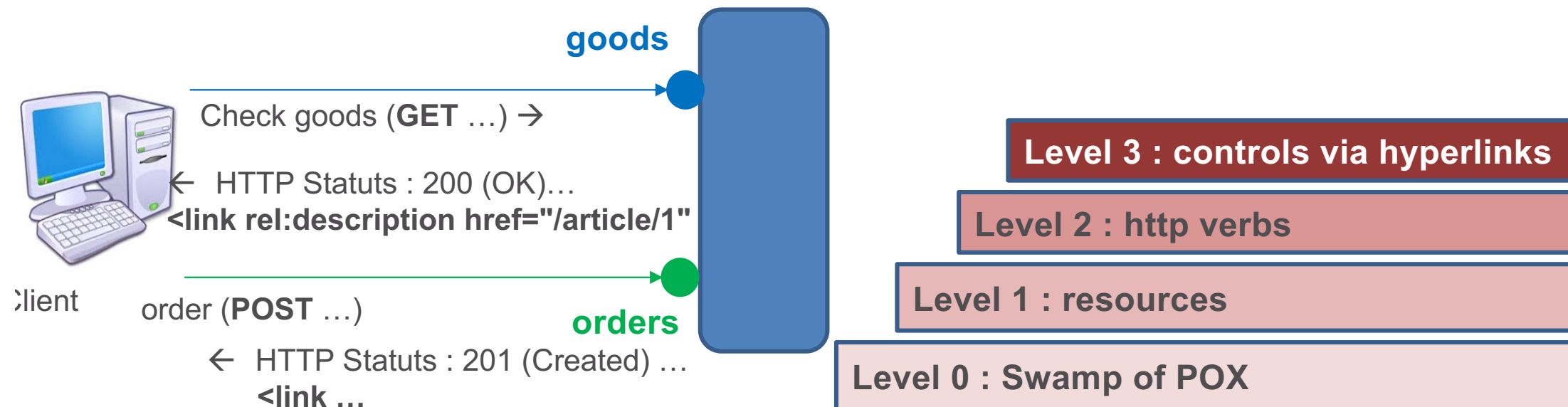
```
{  
  "machine1": "LG",  
  "machine2": "Samsung"  
}  
GET https://online.store.fr/item/LG  
GET https://online.store.fr/item/samsung  
PUT https://online.store.fr/item/basket
```



client

Level 3

- Answers contain hyperlinks
- Use of hyperlinks for navigation between resources: **HATEOAS**
- Self-descriptive and discoverable resources

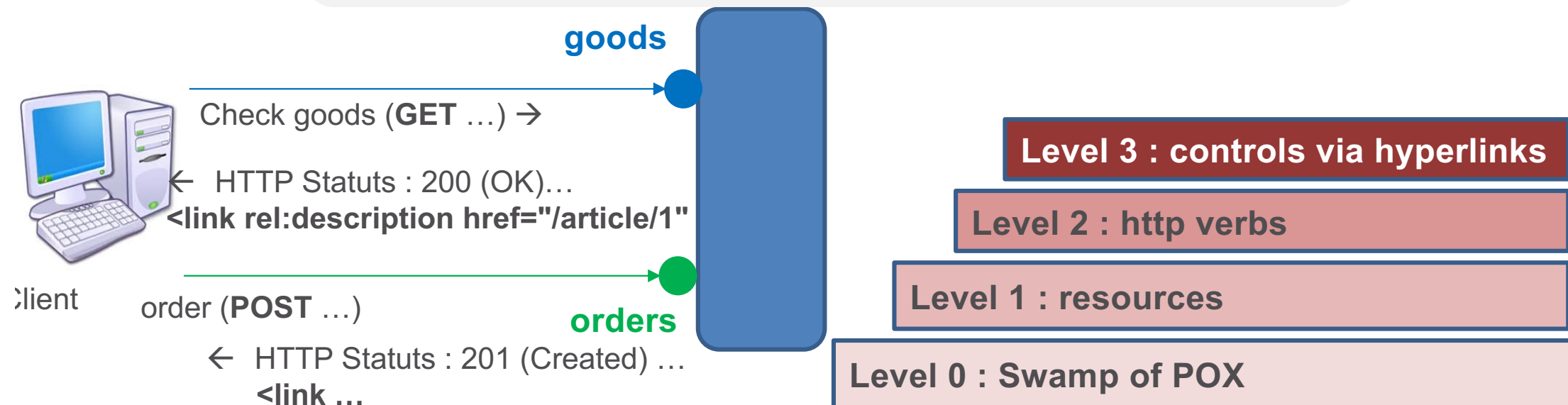


Level 3

- Answers contain hyperlinks
- Use of ...
- Self-de

TEOAS

Fourth level is totally RESTful API



RESTfull API

- Resource oriented architecture
- RESTful Web services
- RESTful API
- Fully RESTful API with RMM model

Exercise – RESTful

- Go to “Exercises” under the section “REST” on moodle.

