Building Blocks of REST

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    - HATEOAS - Hypermedia as the Engine of Application State
- Pragmatic REST
    - uses standard HTTP concepts to access machine readable resources.
    - is easily understandable, readily consumable and self-documenting.
    - allows access to APIs with very little overhead.

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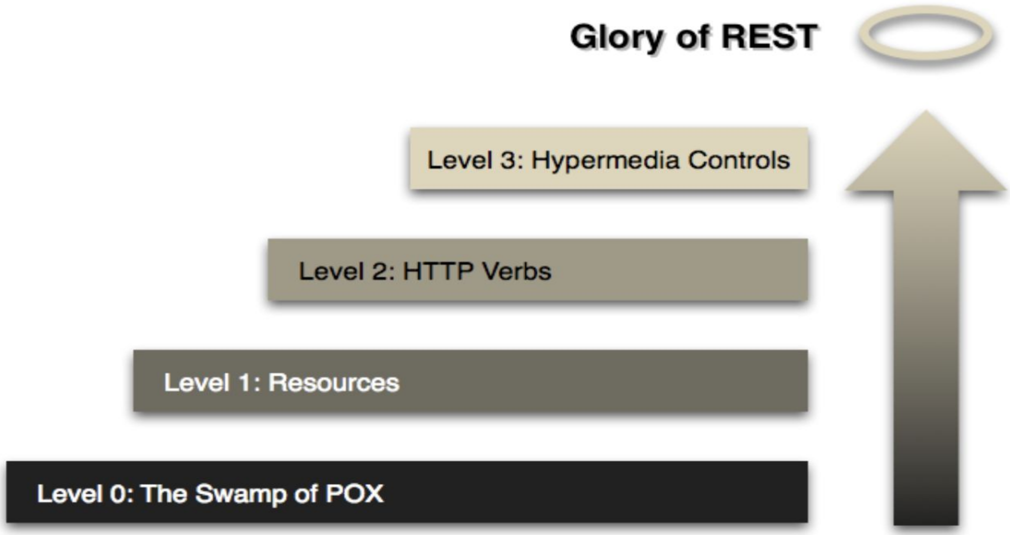
Richardson Maturity Model



Glory of REST

Level 3: Hypermedia Controls

Level 2: HTTP Verbs

Level 1: Resources

Level 0: The Swamp of POX

What does Pragmatic REST look like?

- HTTP Verb Driven
  - GET - fetch / search
  - POST - create
  - PUT - update
  - DELETE - remove
- Resource-Oriented
  - /v1/customers - a collection of or search for customers
  - /v1/customers/{id} - a specific customer

Why Pragmatic REST?

- Easy to implement
- Easy to consume
- Clear intent and common understanding
- Simplifies system interactions

Sample Interaction

```
GET /v1/customers HTTP/1.1
Host: api.yourdomain.com


200 OK
Cache-Control: max-age=35000
[
     {
       "id":"ABC123",
       "firstName":"Fred",
       ...
     },
     {
       "id":"DEF456",
       "firstName":"Tom"
       ...
     },
     ...
]
```

Sample Interaction

```
GET /v1/customers/ABC123 HTTP/1.1
Host: api.yourdomain.com

200 OK
Cache-Control: max-age=35000
{
  "id":"ABC123",
  "firstName":"Fred",
  "lastName":"Jones",
  "address": {
    "line1":"455 Weaver Park Rd #500",
    "city":"Longmont",
    "state":"CO",
    "zip":"80501"
  },
  "orders": {
   "href":"https://.../v1/orders?cust=ABC123"
  }
}
```

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Sample Interaction

```
GET /v1/customers HTTP/1.1
Host: api.yourdomain.com


301 Moved Permanently
Location:
https://api.yourdomain.com/v2/customers

{
  "deprecated": true,
  "message": "use /v2/customers"
}
```

Sample Interaction

```
GET /v1/customers/ABC123 HTTP/1.1
Host: api.yourdomain.com
If-Modified-Since: Wed, 21 Dec 2016
08:12:31 MDT
```

```
304 Not Modified
Last-Modified: Wed, 21 Dec 2016 08:12:31
MDT
```

Thank You

Why Pragmatic REST?

- Industry standard
- Easily implementable
- Easily consumable
- Many tools available

Data Types

SOAP + XML

- The “Traditional” enterprise data structure type
- Strong validation = brittle apps
- Difficult implementation on mobile / web platforms

JSON

- Web-native data structures
- Weak validation = robust apps
- Seamless implementation on mobile / web platforms