

Hypermedia Hacking Workshop

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The JSON Link Client

Links in the Message

- Move info from the code into the message
- Links can be sent in the message
- Now changes in the links don't require new code

Describing Links

- More than URLs
- The meta-link information
 - "rel"
 - name/id
 - prompt/title

Describing Links

```
{  
  "link" : {  
    "rel" : "self",  
    "id" : "todo-list",  
    "href" : "http://api.example.org/todo/"  
  }  
}
```

Describing Links (HAL)

```
"_links" : [  
  "self" : {  
    "name" : "todo-list",  
    "href" : "http://api.example.org/todo/{id}/",  
    "templated" : "true"  
  },  
  ...  
]  
}
```

The HAL Media Type

Hypertext Application Language (HAL)

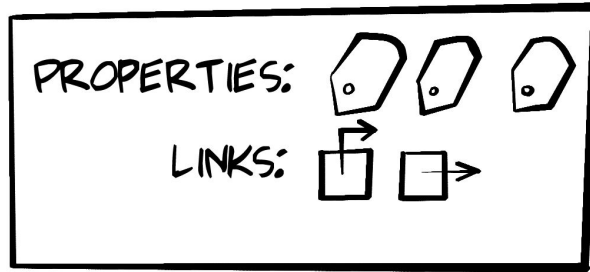
Mike Kelly, 2010

"The roadmap for the product [I was working on] included significant backend changes which were going to affect URL structures in the API. I wanted to design the API so that we could roll out those changes with as little friction as possible, and hypermedia seemed like the ideal style for that."

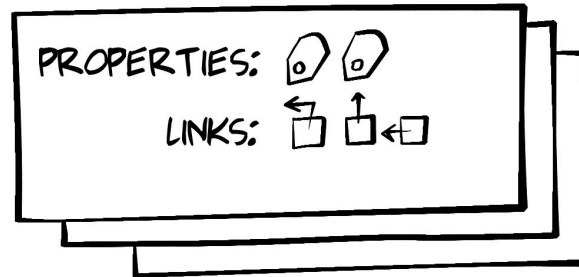
http://stateless.co/hal_specification.html

The HAL Media Type

RESOURCE



EMBEDDED RESOURCES




```
{
  "_links": {
    "self": {"href": "/orders"},
    "next": {"href": "/orders?page=2"},
    "find": {"href": "/orders/{id}", "templated": true},
    "admin": [
      {"href": "/admins/2", "title": "Fred"},
      {"href": "/admins/5", "title": "Kate"}
    ]
  },
  "currentlyProcessing": 14,
  "shippedToday": 20,
  "_embedded": {
    "order": [
      {
        "_links": {
          "self": {"href": "/orders/123"},
          "basket": {"href": "/baskets/98712"},
          "customer": {"href": "/customers/7809"}
        },
        "total": 30.00,
        "currency": "USD",
        "status": "shipped"
      },
      {
        "_links": {
          "self": {"href": "/orders/124"},
          "basket": {"href": "/baskets/97213"},
          "customer": {"href": "/customers/12369"}
        },
        "total": 20.00,
        "currency": "USD",
        "status": "processing"
      }
    ]
  }
}
```

API Emitting Links

22 lines (20 sloc)

303 Bytes

```
1  {
2    todo: [
3      {
4        id: "1a14qx7qc81",
5        title: "Danny Boys",
6        completed: "false",
7        email: "mca@amundsen.com",
8        href: "//localhost:8181/1a14qx7qc81"
9      },
10
11     {
12       id: "youlsfa65y",
13       title: "NDC",
14       completed: "false",
15       href: "//localhost:8181/youlsfa65y"
16     }
17   ],
18   actions: {
19     collection: "//localhost:8181/"
20   }
21 }
```

Exercise:

Consuming Links

Clients that consume Links

- `application/json;profile=urls`
- `item.href`
- `actions.collection`

Group Discussion:
When is HAL a good fit?