Hypermedia Hacking Workshop

Mike Amundsen
API Academy at CA Technologies
@mamund

The JSON Template Client

What is a Template?

- A template describes requests
- It's a FORM!
- HTML has them, but almost no-one else does.

What's a Template?

- What is needed for an HTTP template?
  - URL (http://api.examples.com/addUser)
  - Method (POST, PUT, PATCH, etc.)
  - Format (application/x-www-form-urlencoded)
- Also input descriptions
  - Name (gname)
  - Prompt ("Given Name")
  - Value (default value?)
  - Constraints (required, pattern, etc.)

Siren Media Type

Structured Interface for Representing Entities (Siren)

Kevin Swiber, 2012

"The biggest differentiator of Siren is Actions. … Siren also has a concept of 'class.' The class attribute may contain multiple descriptors of the current representation. I've avoided calling these 'type descriptors.' They act more like 'mixin descriptors.'"

https://github.com/kevinswiber/siren

The Siren Media Type
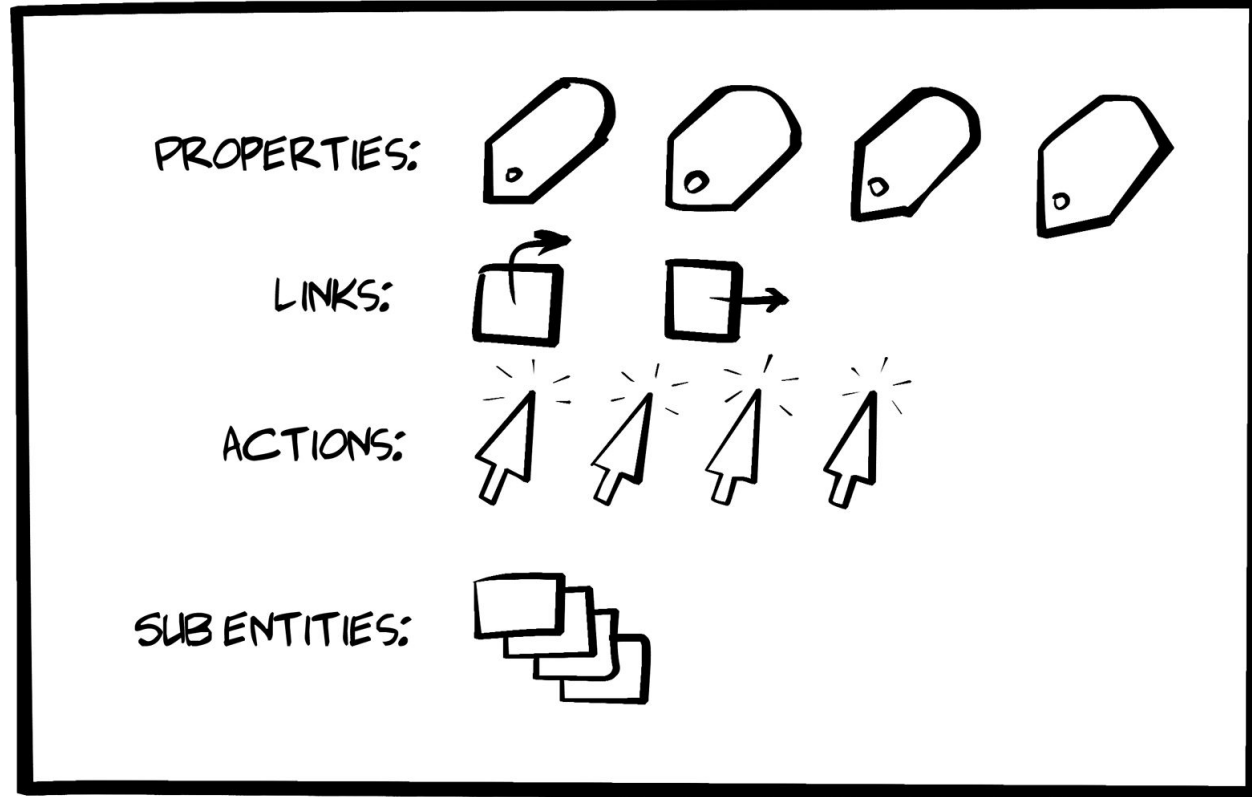
```json
{
  "class": ["order"],
  "properties": {
      "orderNumber": 42,
      "itemCount": 3,
      "status": "pending"
  },
  "entities": [
    {
      "class": ["items", "collection"],
      "rel": ["http://x.io/rels/order-items"],
      "href": "http://api.x.io/orders/42/items"
    },
    {
      "class": ["info", "customer"],
      "rel": ["http://x.io/rels/customer"],
      "properties": {
        "customerId": "pj123",
        "name": "Peter Joseph"
      },
      "links": [
        { "rel": ["self"], "href": "http://api.x.io/customers/pj123"}
      ]
    }
  ],
  "actions": [
    {
      "name": "add-item",
      "title": "Add Item",
      "method": "POST",
      "href": "http://api.x.io/orders/42/items",
      "type": "application/x-www-form-urlencoded",
      "fields": [
        {"name": "orderNumber", "type": "hidden", "value": "42"},
        {"name": "productCode", "type": "text"},
        {"name": "quantity", "type": "number"}
      ]
    }
  ],
  "links": [
    {"rel": ["self" ], "href": "http://api.x.io/orders/42"},
    {"rel": ["previous" ], "href": "http://api.x.io/orders/41"},
    {"rel": ["next" ], "href": "http://api.x.io/orders/43"}
  ]
}
```

Exercise:
Add Support for Templates

Emitting Templates

- Update representors

```json
 1        "add": {
 2          "href": "http://api.example.org/todo-list/",
 3          "prompt": "Add ToDo",
 4          "rel": [
 5            "create-form"
 6          ],
 7          "method": "POST",
 8          "args": {
 9            "title": {
10              "value": "",
11              "prompt": "Title",
12              "required": true
13            },
14            "email": {
15              "value": "",
16              "prompt": "Email",
17              "required": false
18            },
19            "completed": {
20              "value": "false",
21              "prompt": "Completed",
22              "pattern": "^(true|false)$"
23            }
24          }
```

Consuming Templates

- `application/json;profile=forms`
- Replace actions in client code w/ message info

Consuming Templates

```
137        // pull actions from message
138        for(var idx in g.msg.actions) {
139          link = g.msg.actions[idx];
140          li = d.node("li");
141          a = d.anchor({
142            href:link.href,
143            rel:link.rel.join(" ")||"action",
144            className:"action",
145            text:link.prompt
146          });
147          if(link.method) {
148            a.onclick = jsonForm;
149            a.setAttribute("args",JSON.stringify(link.args));
150            a.setAttribute("method",link.method);
151          }
152          else {
153            a.onclick = httpGet;
154          }
155          d.push(a,li);
156          d.push(li, ul);
157        }
```

Quick Quiz:
Is this a template?

Is this a template?

- `http://api.example.org/filter`

- `http://api.example.org/filter?search={text}`

- ```
  {
    href:"...", method="patch", format="application/json-patch",
    args: [
                {"name":"email","prompt":"Email","value":""},
                {"name":"phone-sms","prompt":"SMS","value",""}
             ]
  }
  ```