RESTful API Overview

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Oracle Technical Publications
September 17, 2015

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Thank you…

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Marta Rauch, REST API Doc Best Practices – March 2013
Marta Rauch and Guru Bs, REST API Overview and Documentation Best Practices – June 2015

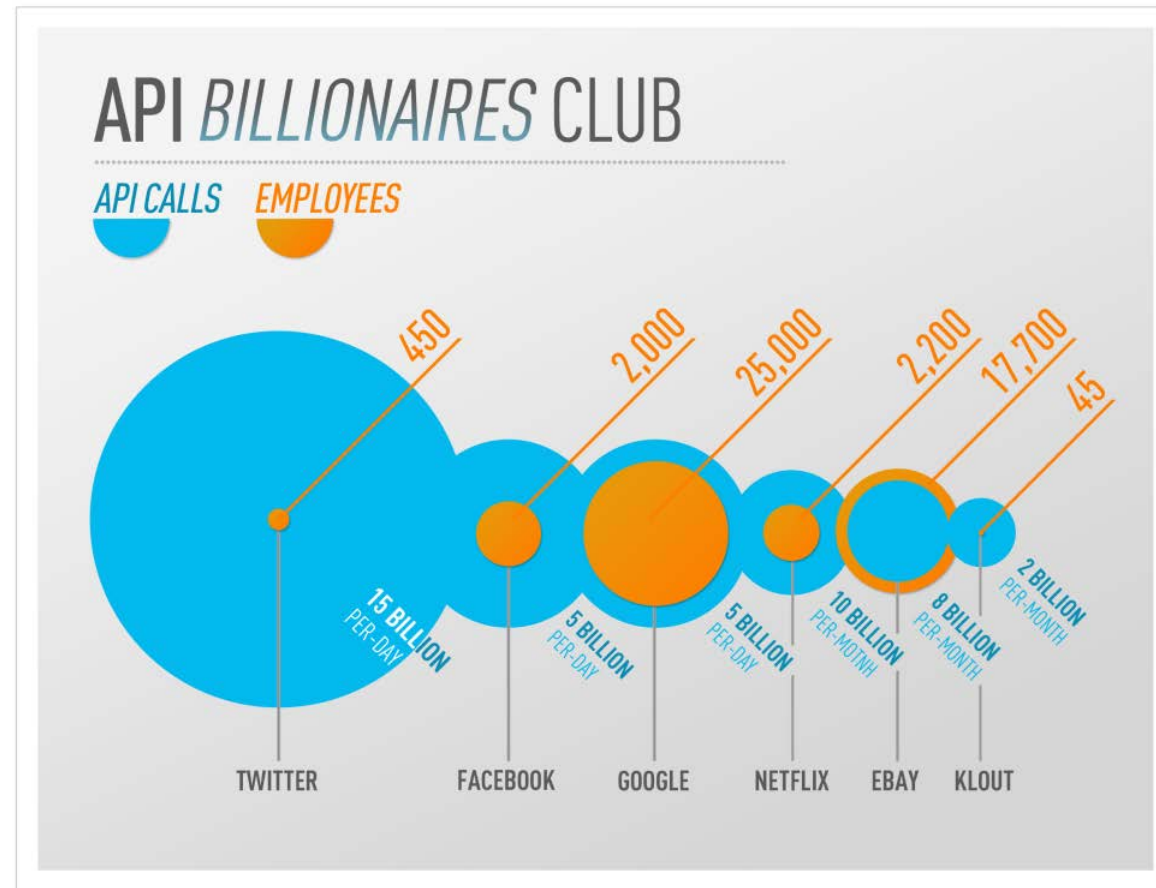ORACLE®

A survey

- Who's heard of:
  - HTTP?
  - HTTP methods?
  - HTTP response codes?
  - REST or REST clients?
- How many of you document APIs now?
  - Manually
  - Automated?
- How many of you know that you will be documenting APIs in the future?
  - Manually
  - Automated?

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API growth since 2005

http://www.programmableweb.com/api-research
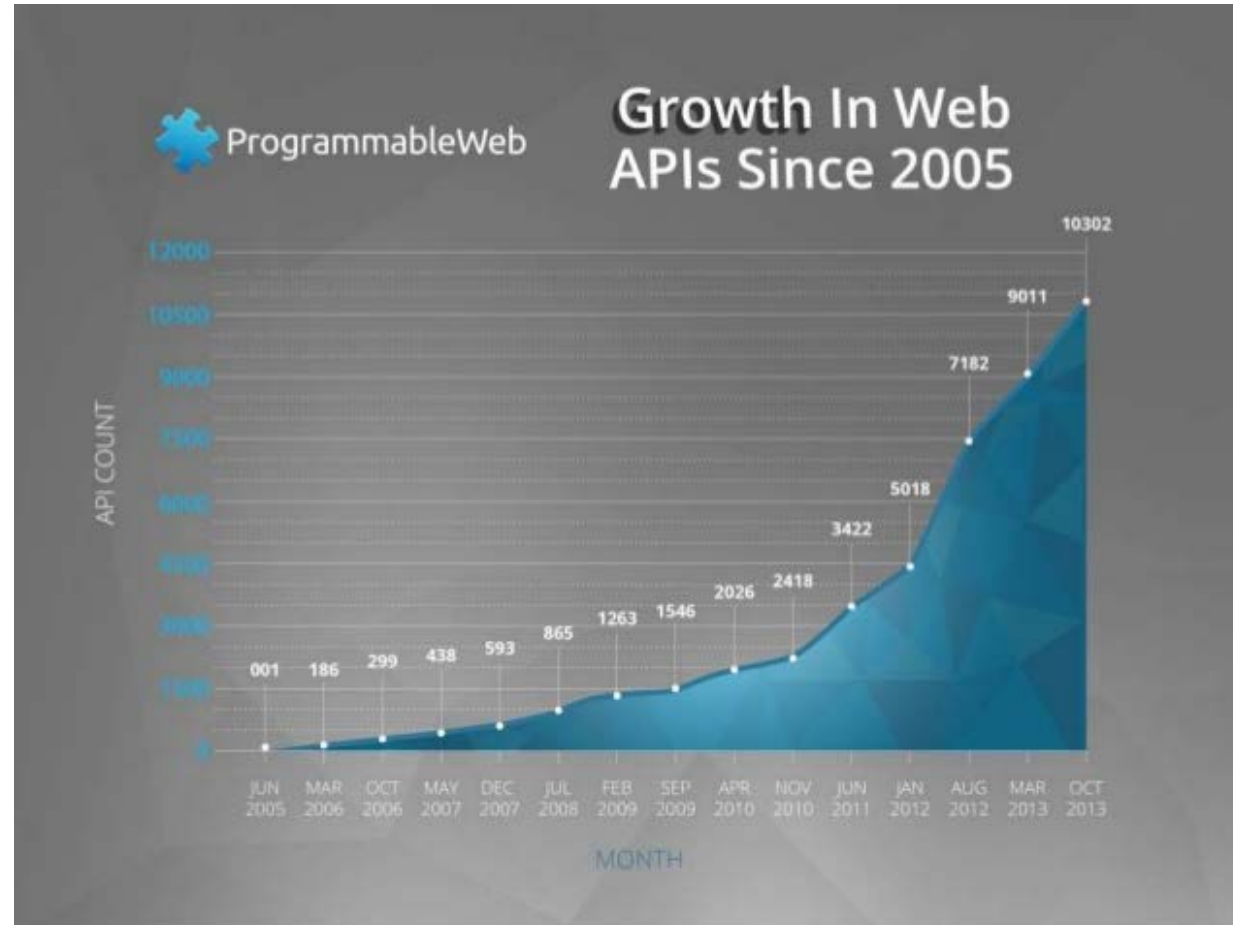
API billionaires club

Program agenda

1 ▸ What's an API and a little history

2 ▸ HTTP overview

3 ▸ REST overview and REST clients

4 ▸ HTTP methods and HTTP status codes

5 ▸ Documenting APIs

What's an API?

- An *interface* for *application programmers*
- Shares common traits with any other interface

A little history

- 2003 TruvenHealth Analytics
  - Had no idea what an API was
  - Documentation was done manually
  - Product management had to write the whole document
  - I was convinced I needed to become a software developer to document APIs
- 2011 FTEN/NASDAQ
  - I understood what an API was
  - Documentation was done manually
  - I wrote the document but still had no idea what end users of the API would need.
  - I was **still** convinced I needed to become a software developer to document APIs

*"Whirlwind" Image by Cool Pictures From 1000funnypictures.com

A little history (cont'd)

- 2013 Ping Identity
  - Understood what an API was
  - How HTTP fit into the picture
  - Automated documentation with Swagger! Finally!
  - Both Engineering and I wrote the documentation
  - Documentation was written in properties files
  - Swagger   and is build with the client.
  - Finally, I realized that I did not need to become a software developer to document APIs

A little history (cont'd)

- 2014 Oracle Corporation
  - Understood what APIs are and how they are used
  - Automated documentation!
    1. Developers first adopt one of three API description languages (API description languages include, Swagger, RAML (RESTful API Modeling Language), or JSON Schema Hypermedia)
    2. Developers upload their **machine-readable** descriptions to the REST Publishing application
    3. Writers author DITA content and store that content into a GIT repository that mirrors the structure of the API repository
    4. The REST Publishing application:
       1. converts the developer-created description files to a canonical form of Swagger 2.0,
       2. uses a DITA toolkit to reads the authoring files, and finally,
       3. converts the files to HTML files using a set of templates designed specifically for REST APIs
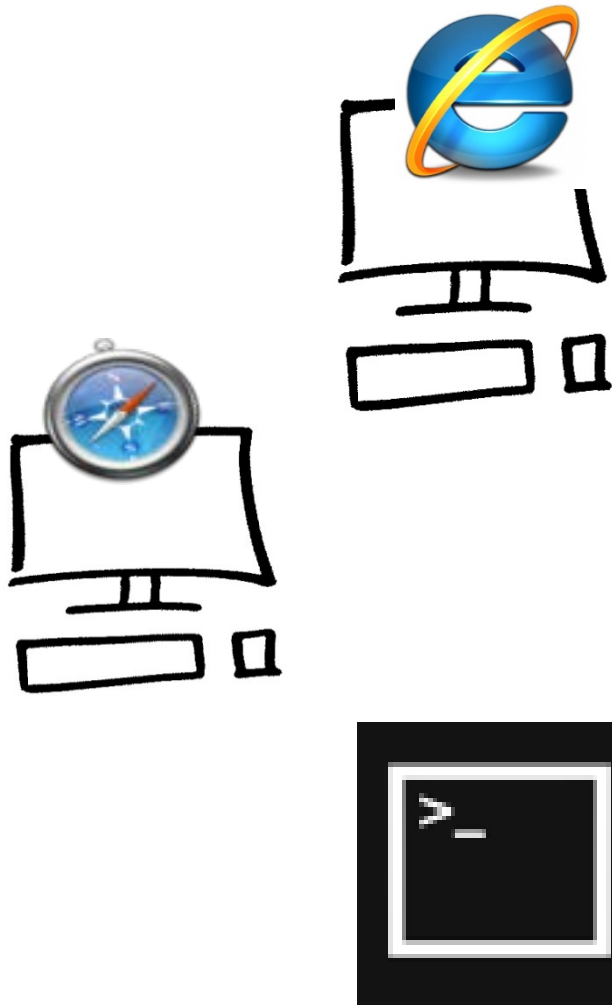
HTTP overview

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HTTP overview

- Client – server model
  - Client: requests, receives, "displays" Web objects
  - Server: sends objects in response to requests

- Request – response protocol
  - Requests
    - Sent from HTTP client to server
      - Request must include the method, URI, and protocol version
  - Responses
    - Sent from the sever to the client
      - Server "responds" from requests to server
      - Response includes the method, URI, protocol version, response code, and information requested.

HTTP overview

HTTP request →

HTTP response ←

Server

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REST overview

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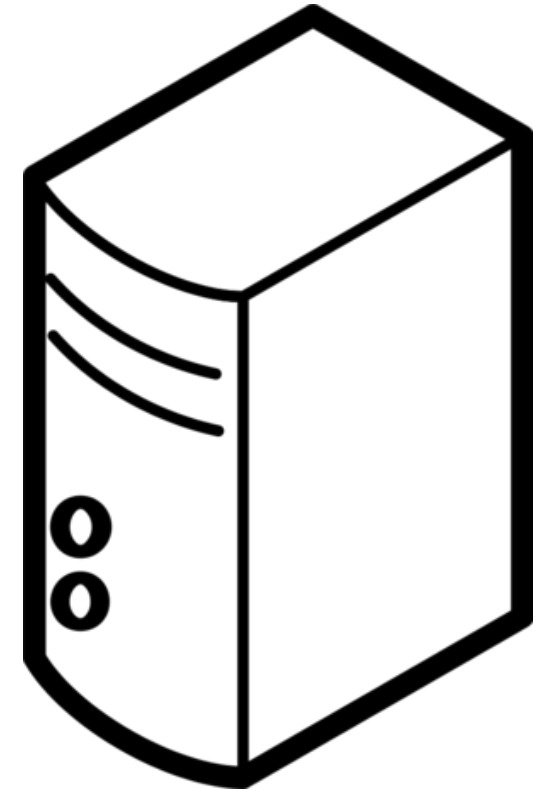
REST overview

What is REST?

- **RE**presentational **S**tate **T**ransfer
- The design rules of the Web as described in Dr. Roy Fielding's PhD dissertation.

What is a REST API?

- An API that uses the REST architectural style (which is the foundation of the Web).
- REST isn't a technology.
- RESTful APIs use technologies built using REST principles.

REST client interfaces

REST client interfaces

Interface	REST plugin examples
Command line	cURL Download link: http://curl.haxx.se/download.html
Desktop	RESTClient (from wiztools.org) Download link: http://code.fosshub.com/WizToolsorg-RESTClient/downloads
Browser	REST Easy (a FireFox plugin) Download link: https://addons.mozilla.org/en-us/firefox/addon/rest-easy/

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HTTP methods

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HTTP methods

- GET—Gets a resource or resources

- POST—Creates a new resource

- PATCH—Updates a part of a resource

- PUT—Updates a known resource

- DELETE—Deletes a resource

- HEAD—Gets the HTTP status code and headers
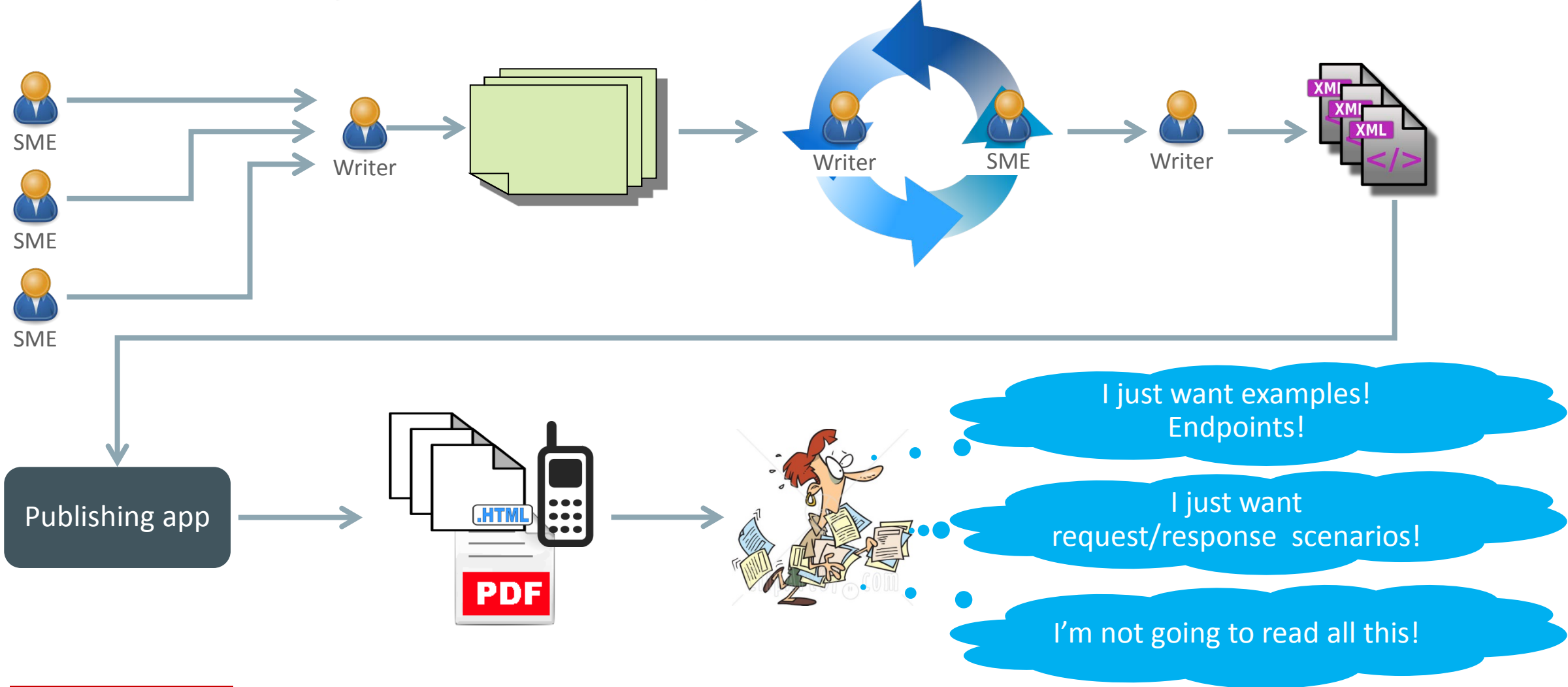
HTTP status codes

HTTP status codes

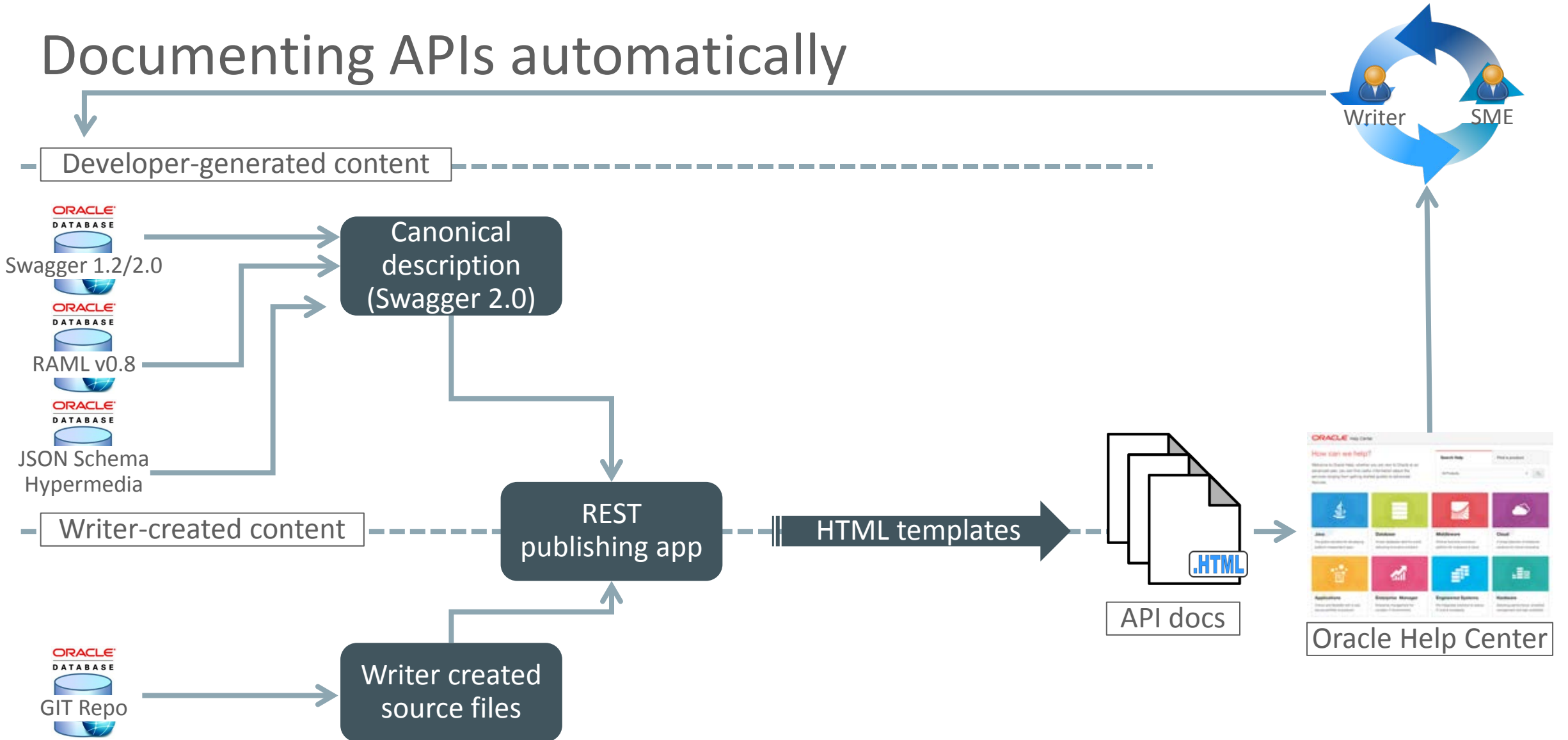| Response Code	HTTP Operation	Response Body Contents	Description
200	GET, PUT,DELETE	Resource	No error, operation successful.
201 Created	POST	Resource that was created	Successful creation of a resource.
202 Accepted	POST, PUT,DELETE	N/A	The request was received.
400 Bad Request	GET, POST,PUT,DELETE	Error Message	Malformed syntax or a bad query.
401 Unauthorized	GET, POST,PUT,DELETE	Error Message	Action requires user authentication.
403 Forbidden	GET, POST,PUT,DELETE	Error Message	Authentication failure or invalid Application ID.
404 Not Found	GET, POST,PUT,DELETE	Error Message	Resource not found.
408 Request Timeout	GET, POST	Error Message	Request has timed out.
500 Server Error	GET, POST,PUT	Error Message	Internal server error.

Documenting APIs

Documenting APIs manually

SME
SME
SME
Writer
Writer
SME
Writer

Publishing app

.HTML
PDF

I just want examples! Endpoints!

I just want request/response scenarios!

I'm not going to read all this!

Documenting APIs automatically

Writer   SME

Developer-generated content

Swagger 1.2/2.0

RAML v0.8

JSON Schema
Hypermedia

Canonical
description
(Swagger 2.0)

Writer-created content

REST
publishing app

HTML templates

API docs

Oracle Help Center

GIT Repo

Writer created
source files

References

- Marta Rauch, REST API Doc Best Practices: http://www.slideshare.net/MartaRauch/rest-api-doc-best-practices

- Marta Rauch and Guru Bs, REST API Overview and Documentation Best Practices: http://www.stc.org/education/online-education/recorded-seminars/item/rest-api-overview-and-documentation-best-practices-2?category_id=88

- Appendix A. HTTP Response Status Codes: https://developer.yahoo.com/social/rest_api_guide/http-response-codes.html

- Documenting REST APIs. Jody Bleyle and Jennifer Rondeau. November 4, 2014. https://docs.google.com/presentation/d/1jejYiTagK7CnJ-ajiRO1-kbD6kzeA0R04o3W5_yKTvk/edit