SQGNE Software Quality Group of New England

Dedicated to Software Quality Professionals

www.sqgne.org

WELCOME TO SEASON 20!

SQGNE is made possible by the support of our sponsors:

cadence®

Oracle and
Sun Integrated Systems

Vistaprint Make an impression.

ASTQB
American Software Testing Qualifications Board, Inc.

CHECKPOINT Technologies

SMARTBEAR

edge technology services

SOFTWARE QUALITY CONSULTING
consulting • training • auditing

Logo design: Sarah Cole Design

WELCOME TO SEASON 20!

- All-volunteer **non-profit org.** with no membership dues!
- Supported entirely by our sponsors…
- Over **1,200** members on LinkedIn, **800** Constant Contact
- Monthly meetings - Sept to July on 2nd Wed of month
- **SQGNE Web site: www.sqgne.org**

SMARTBEAR

Officers / Hosts / Mission

Current Officers:

- John Pustaver – Founder
- Steve Rakitin – President
- Stan Wrobel – Vice President
- Barbara Wioncek – Treasurer
- Dawn Wu – Clerk

At-large Directors:

- Robin Goldsmith
- Marge Shinkle
- Jim Turner

Our gracious Hosts:

- Paul Ratty
- Tom Arakel
- Marge Shinkle
- Jack Guilderson

Mission

- To promote use of engineering and management techniques that lead to delivery of high quality software
- To disseminate concepts and techniques related to software quality engineering and software engineering process
- To provide a forum for discussion of concepts and techniques related to software quality engineering and the software engineering process
- To provide networking opportunities for software quality professionals

WELCOME TO SEASON 20!

SQGNE 2013-14 Schedule

Speaker	Affiliation	Date	Topic
Brian LeSuer Nick Olivo	Zeenyx SmartBear	Sept 11	Test Tool Bake-off: Ascential Test from Zeenyx and Test Complete from SmartBear
Harish Narayan	Vistaprint	Oct 9	The Changing Role of a QA Engineer
Byron Mattingly		Nov 13	Testing Mobile Apps
Peter Varhol Gerie Owen	Telerik NSTAR	Dec 11	How'd I Miss That Bug?
Carlo Cadet	Perfecto Mobile	Jan 15	Testing Mobile Apps – Best Practices and Considerations
Matti Hjelm	SmartBear	Feb 12	(What's so Fun About) Testing APIs
Dave Grabel	Agile New England	Mar 12	How Agile elevates the role of the QA Engineer
David Marston	Pegasystems	Apr 9	Test Case Management Systems and Metadata
Robin Goldsmith	GoPro Management	May 14	Defining Quality in Positive Terms
Andrew Ambroise	Vistaprint	June 11	Building Quality Into Your Process Treasurer's Report and Annual Election of Officers
Everyone		July 9	Annual Hot Topics Night…

SMARTBEAR **WELCOME TO SEASON 20!**

Tonight's Topic

(What's so fun about) API Testing?

Matti Hjelm, SmartBear Software

Abstract:

Matti will talk about design, evaluation and testing of Web APIs. He will be covering why it's so important to test APIs, what you should test (and/or verify), and of course, how to test. There will be an overview, some theory, and practical walkthroughs

Bio:

Matti Hjelm is the Product owner of SoapUI at SmartBear Software. His 25 years of experience creating and testing software solutions combined with an interest for improving processes has led him from programming to evangelizing iterative software development in the Swedish Agile networks.

Matti is the founder of the Agile Sweden network and conferences.

Matti Hjelm – SmartBear Software

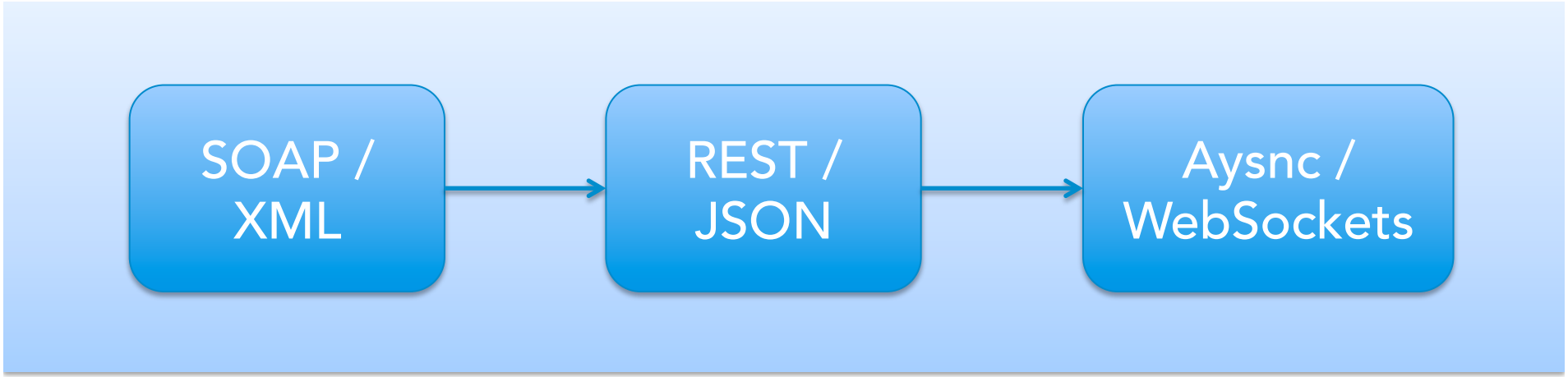
(WHAT'S SO FUN ABOUT) TESTING WEB APIS?

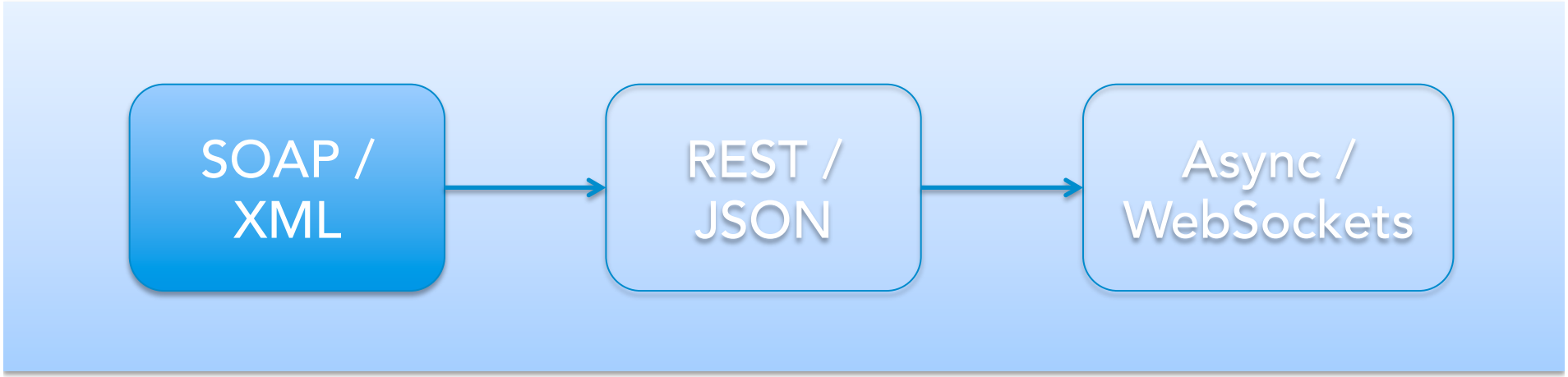
the goal of this presentation…

who are you?
who am I?
what is SoapUI?

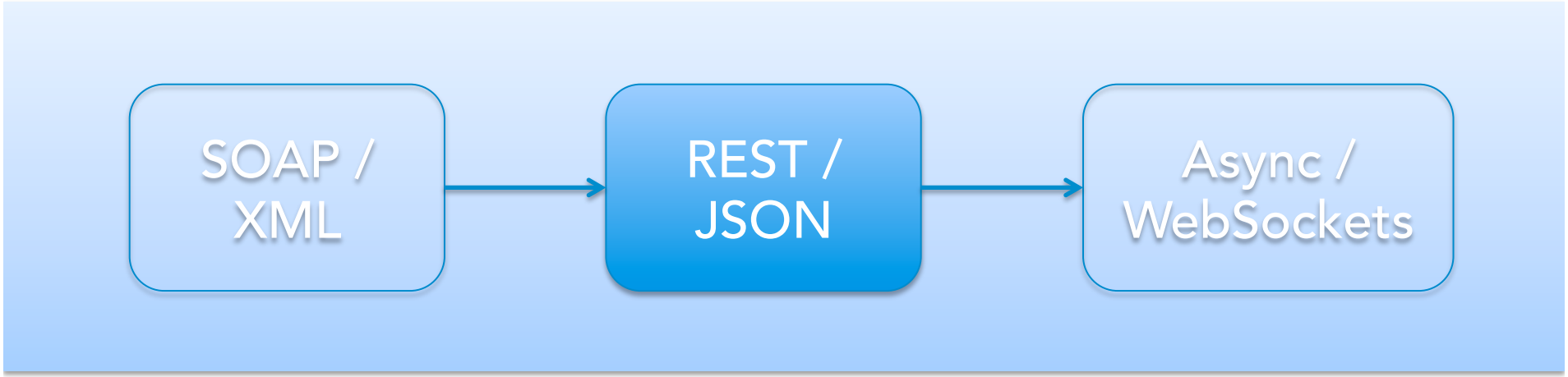
Web APIs – what's the fuss?

Technically speaking…



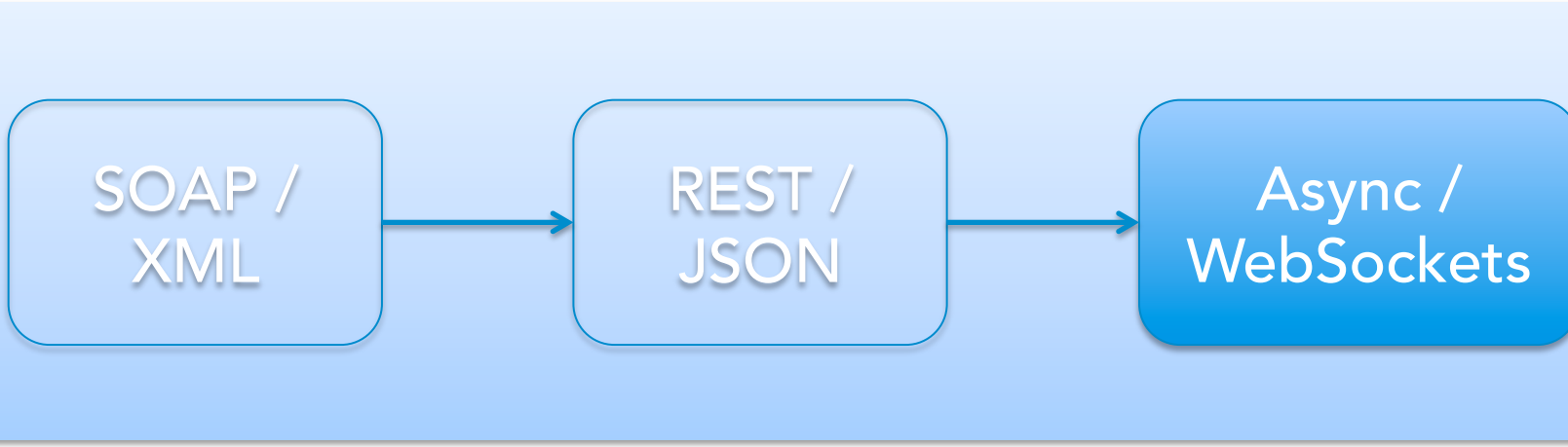



```
POST http://127.0.0.1:8088/mockSampleServiceSoapBinding HTTP/1.1
Accept-Encoding: gzip,deflate
Content-Type: text/xml;charset=UTF-8
SOAPAction: http://www.example.org/sample/login
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/
envelope/" xmlns:sam="http://www.example.org/sample/">
   <soapenv:Header/>
   <soapenv:Body>
      <sam:login>
         <username>Login</username>
         <password>Login123</password>
      </sam:login>
   </soapenv:Body>
</soapenv:Envelope>
```

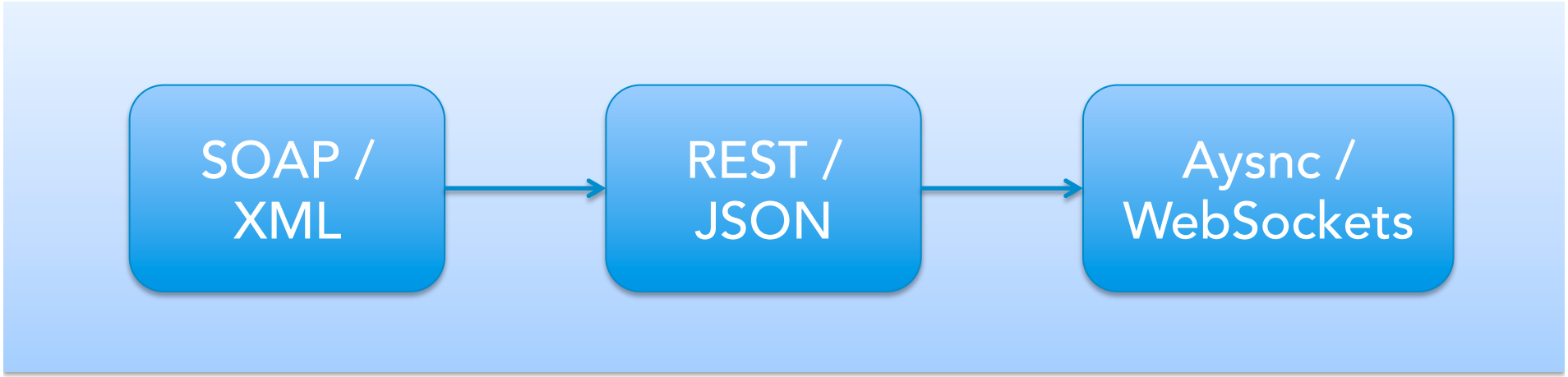



```
GET http://maps.googleapis.com/maps/api/geocode/xml?
address=Hornsbruksgatan%2028%2C%20Stockholm&sensor=false
HTTP/1.1
Accept-Encoding: gzip,deflate
Host: maps.googleapis.com
Connection: Keep-Alive
User-Agent: Apache-HttpClient/4.1.1 (java 1.5)

{
      “person”:
      { “firstname”:”matti”,
        “lastname”:”hjelm”
      }
}
```


SOAP / XML
REST / JSON
Async / WebSockets

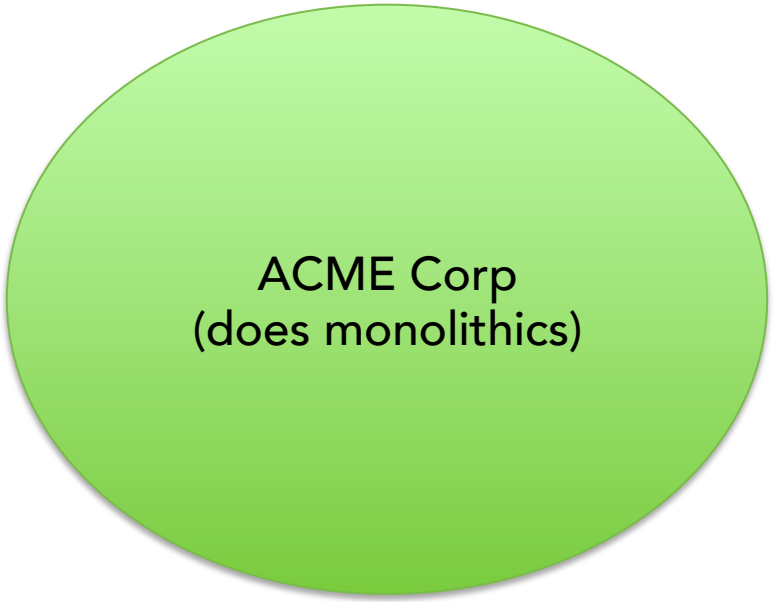
Technically speaking…



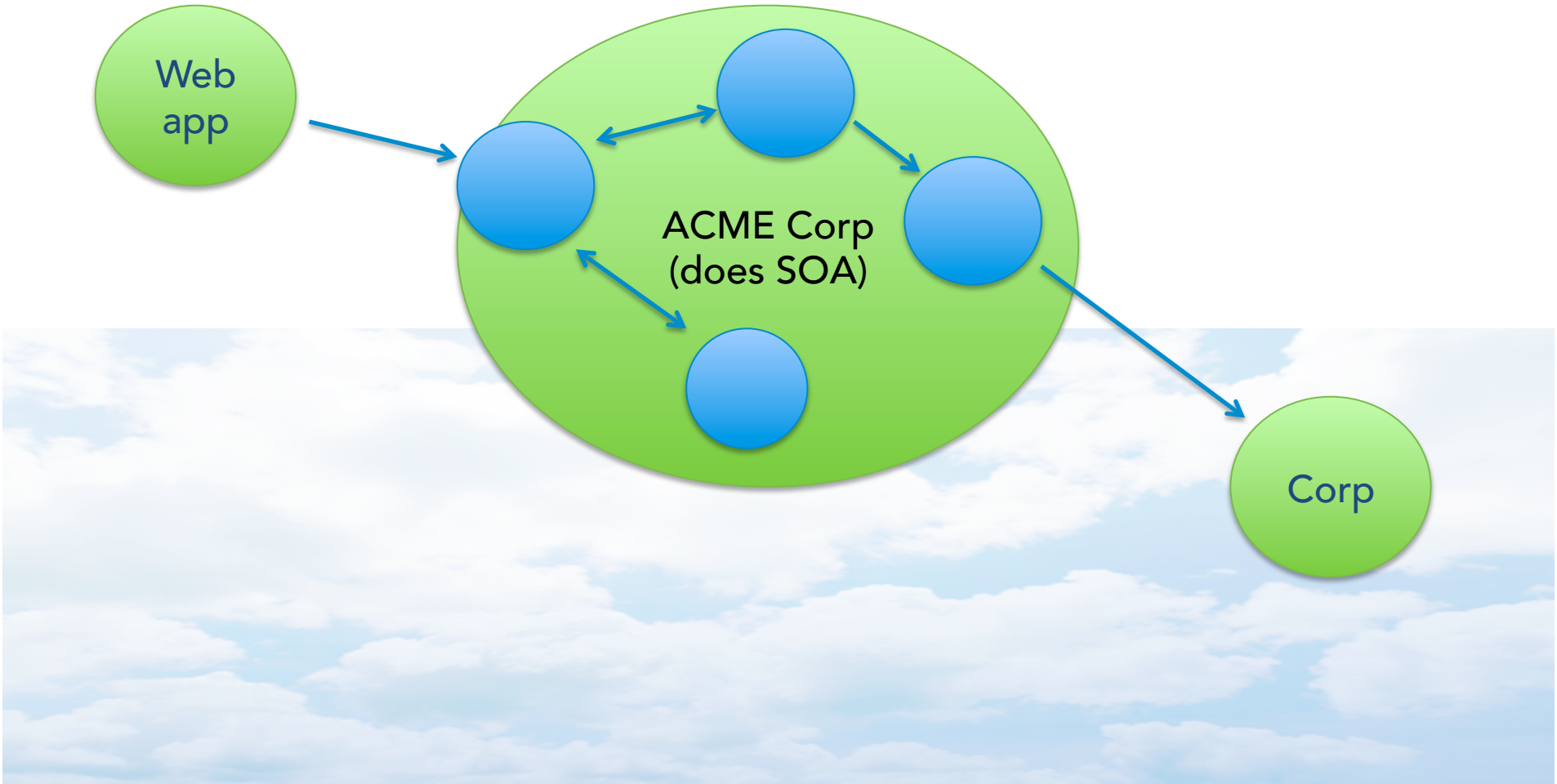
but that's missing the point…

Business aspect

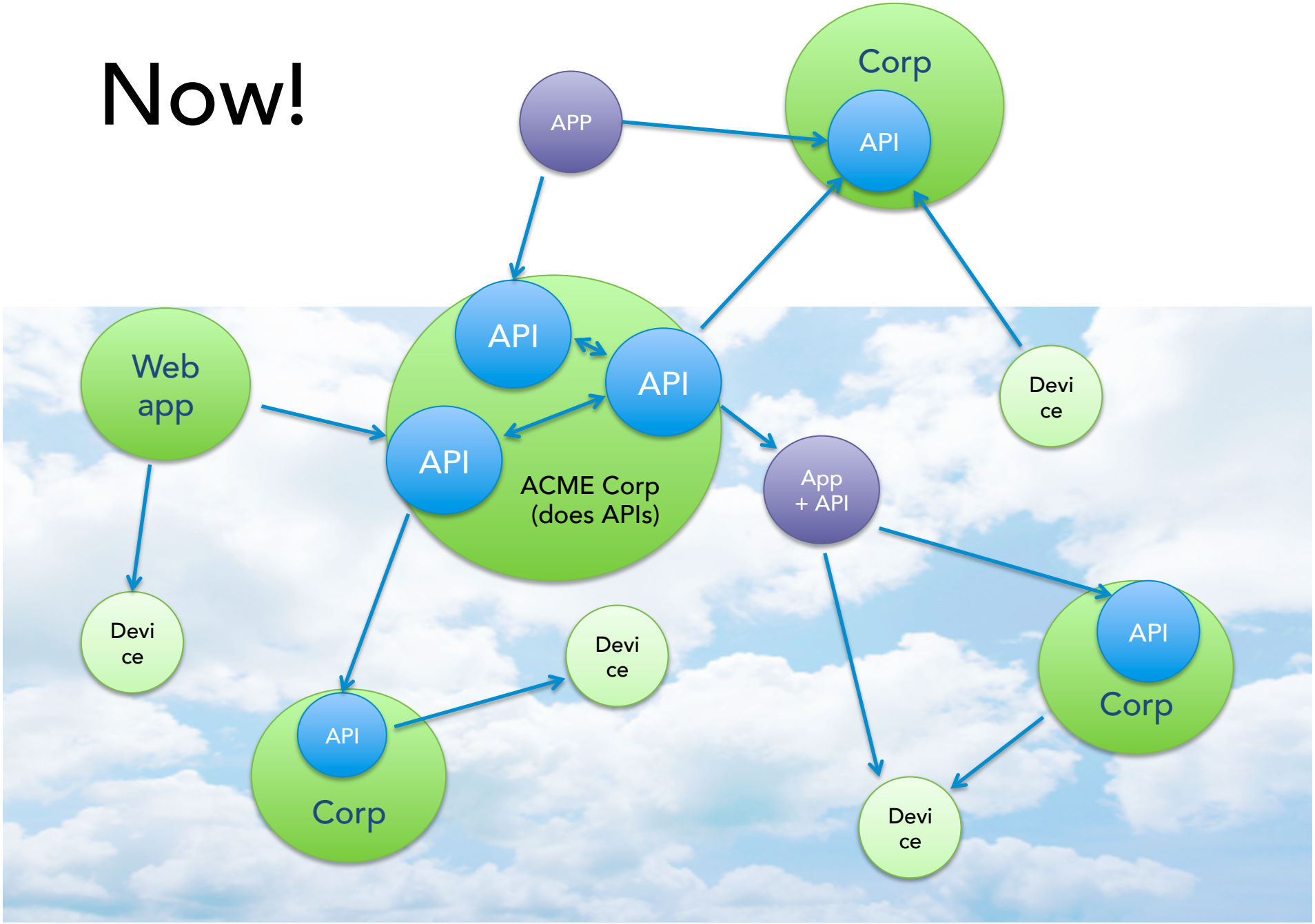
20 Years Ago



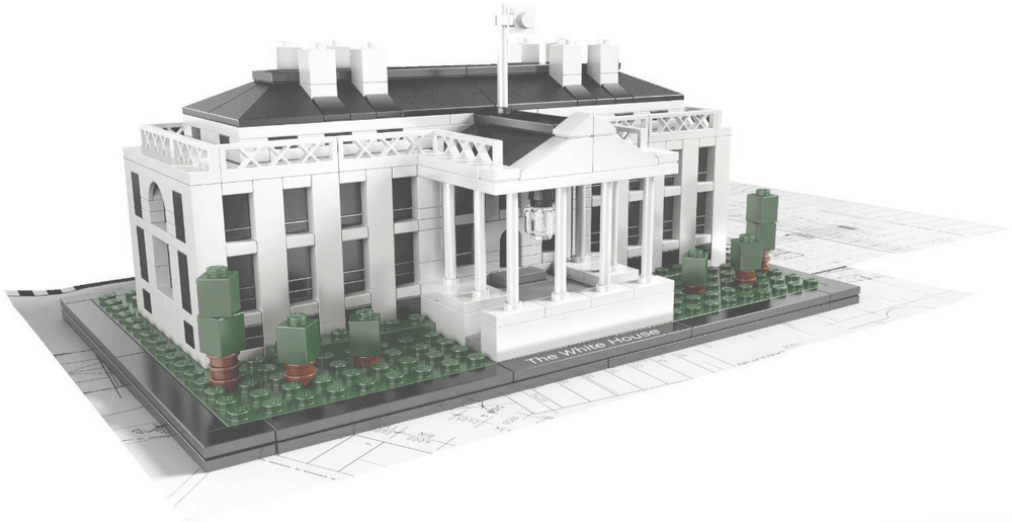
10 Years Ago



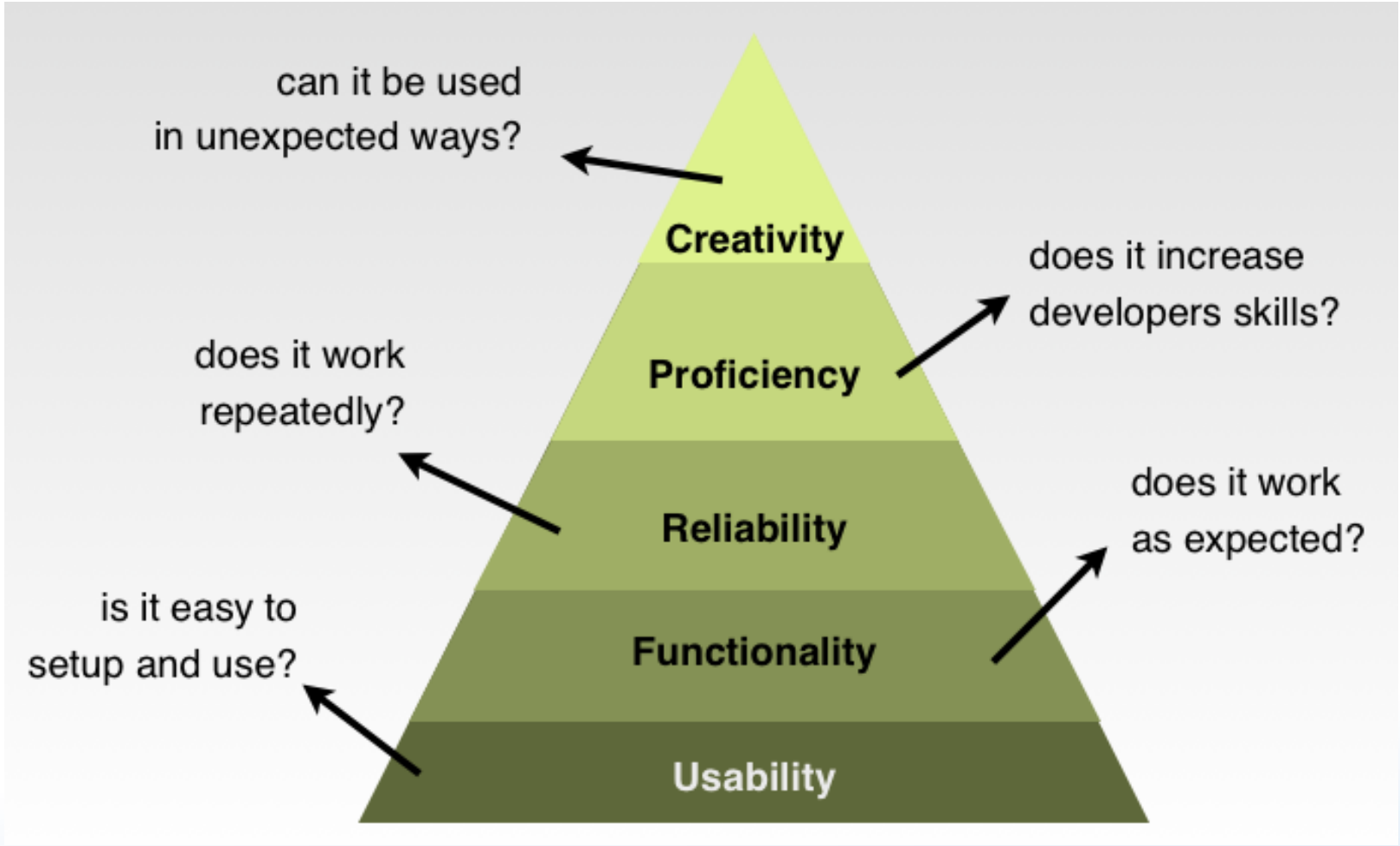
Now!


Corp
API
APP
API
API
API
ACME Corp
(does APIs)
Web
app
Devi
ce
App
+ API
Devi
ce
Devi
ce
API
Corp
API
Corp
Devi
ce

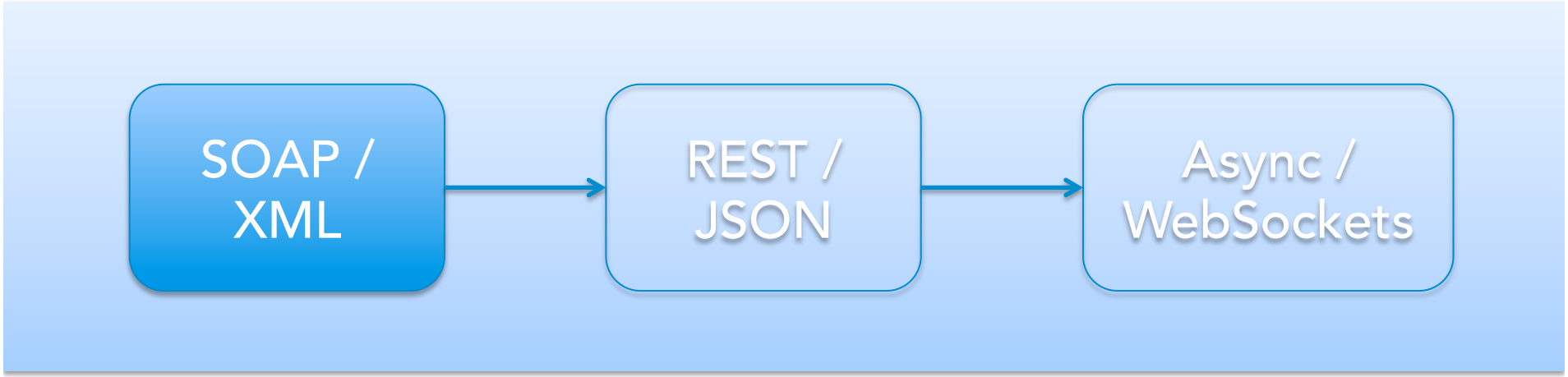
API Quality – Who needs it?



API Hierarchy of Needs

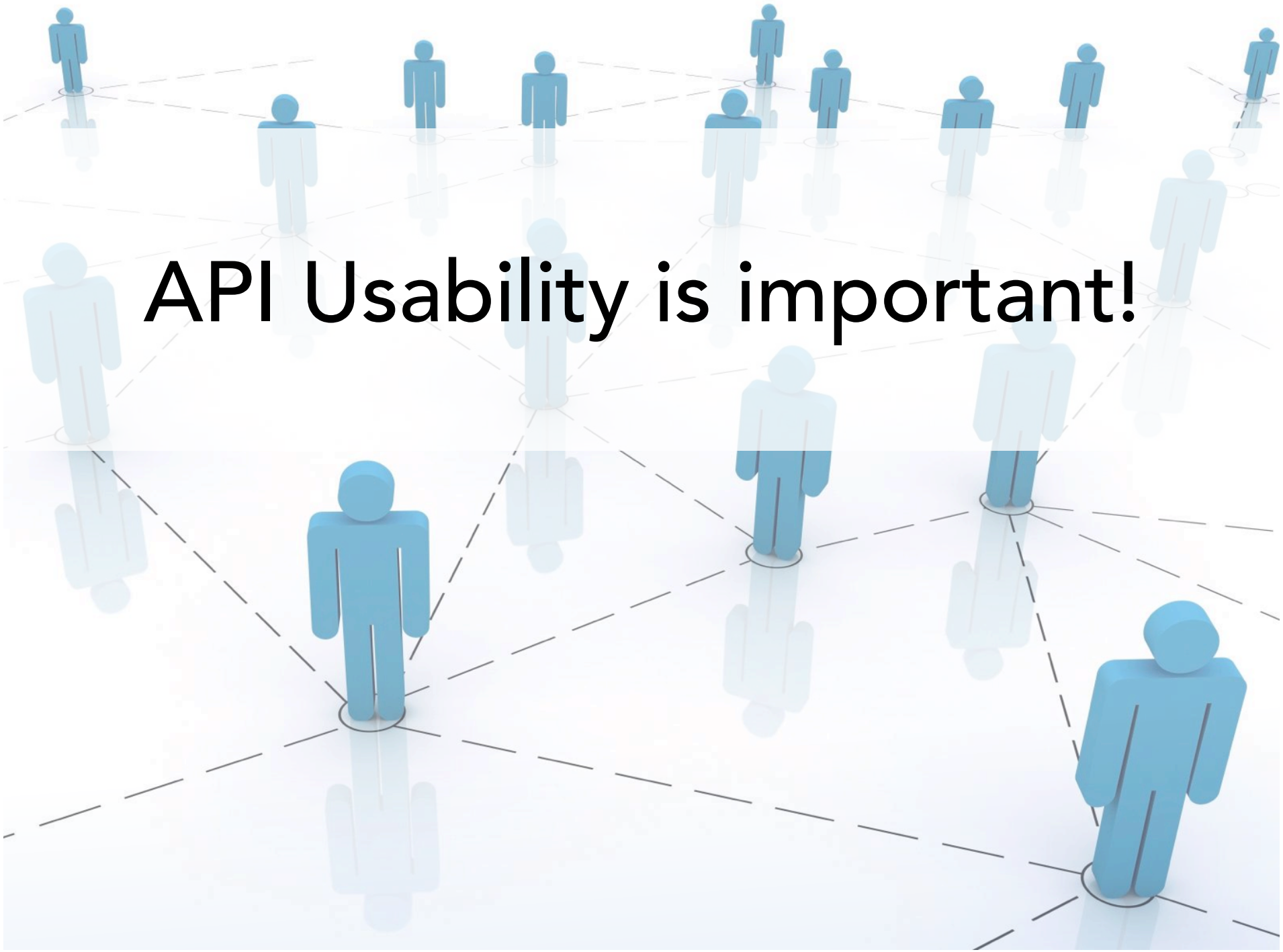


www.apiux.com




```
POST http://127.0.0.1:8088/mockSampleServiceSoapBinding HTTP/1.1
Accept-Encoding: gzip,deflate
Content-Type: text/xml;charset=UTF-8
SOAPAction: http://www.example.org/sample/login
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/
envelope/" xmlns:sam="http://www.example.org/sample/">
   <soapenv:Header/>
   <soapenv:Body>
      <sam:login>
         <username>Login</username>
         <password>Login123</password>
      </sam:login>
   </soapenv:Body>
</soapenv:Envelope>
```

API Usability is important!




User Experience
=
Developer Experience

Who is your target persona?

Use lifelike Personas

Our Tester Personas

Calvin Brown

QA Manager
45, US

Calvin is a 45-year old QA manager living in California. He is a well known testing guru, often holding speeches at test conferences. At work he is a guarantee that the software delivered is of high quality.

Characteristics
* Hard working
* Active in the community
* Intelligent
* Experienced
* Persistent

"Testing is NOT about finding bugs, it's about PREVENTING bugs"

Goals
* Bug free software
* Work efficiently
* Advance testing to a higher level
* Ensure software quality

Dinushka Charitha

QA Tester
35, India

Dinushka works as a QA tester in a team of 5 people. They are mainly responsible for maintaining part of a legacy system which is used by a government financial institute. She mostly runs regression tests. She also uses SoapUI and some of her test cases are automated using SoapUI. Usually, before releases she is stressed to meet deadlines. She has a big social life.

Characteristics
* Structured
* Loyal
* Wants to get along
* Likes to stay in her comfort zone

"A good day at work is when nothing breaks"

Goals
* Do a good job
* Frictionless environment
* Wants SoapUI to bring structure to her tests

Joanna Wright

Manual tester
30, US

Joanna used to work in real-estate, now works as a tester in the Manual Testing team at a bank. Works according to strict processes. Cares about the tool because it helps her get her job done and saves her from manual testing procedures. Since not being very technical she finds it a bit hard communicating with the developers. Joanna loves her job and regrets not getting into IT earlier.

Characteristics
* Likes feeling safe
* Not very technical
* Really enjoys testing
* A smart person

"I love IT! Why didn't i change job earlier?"

Goals
* Wants to finish on time
* Would like to get rid of tedious work

Mark Bingham

Developer doing tests
28, US

Mark is passionate about learning, and wants to make sure that what he delivers is of high quality. He motivates co-workers to write more tests. Currently uses SoapUI to achieve his goals, but wouldn't mind switching if something else would work better. Extends the functionality of Pro by using scripting.

Characteristics
* Pragmatic
* Early adopter
* Reads to learns new things
* Likes flexibility
* Enjoys communities

"I'm going to create the Next Big Thing"

Goals
* To shine
* Build the next-big-thing
* High status in his workplace

Dmitry Levin

Software Developer
29, Russia

Dmitry is a developer doing a lot of full-time testing at a mid-sized IT consultant agency. Work is not everything and he has a rich spare time and prefers to spend it with his family or restoring his old car.

Characteristics
* Takes pride in his work
* Likes a stable work environment
* Flexible attitude
* Handful of certificates
* Cares a lot about risks

"I can probably make a script for that"

Goals
* Simplify testing
* Work productively
* Be able to perform low-level testing

Uwe Krull

Developer
25, Germany

Uwe is technically advanced. His focus can be perceived as having a one track mind. Looking for confirmation that his theory is right. Very goal oriented. Likes creating his own tools for work since it's more flexible. Has a collection of old gaming consoles in a closet. Uses SoapUI to verify his work.

Characteristics
* One track or focused min
* Goal oriented
* Technically advanced

"PRO features can easily be made in Groovy script"

Goals
* Deliver the fastest possible system
* Identify the tool that helps him with this

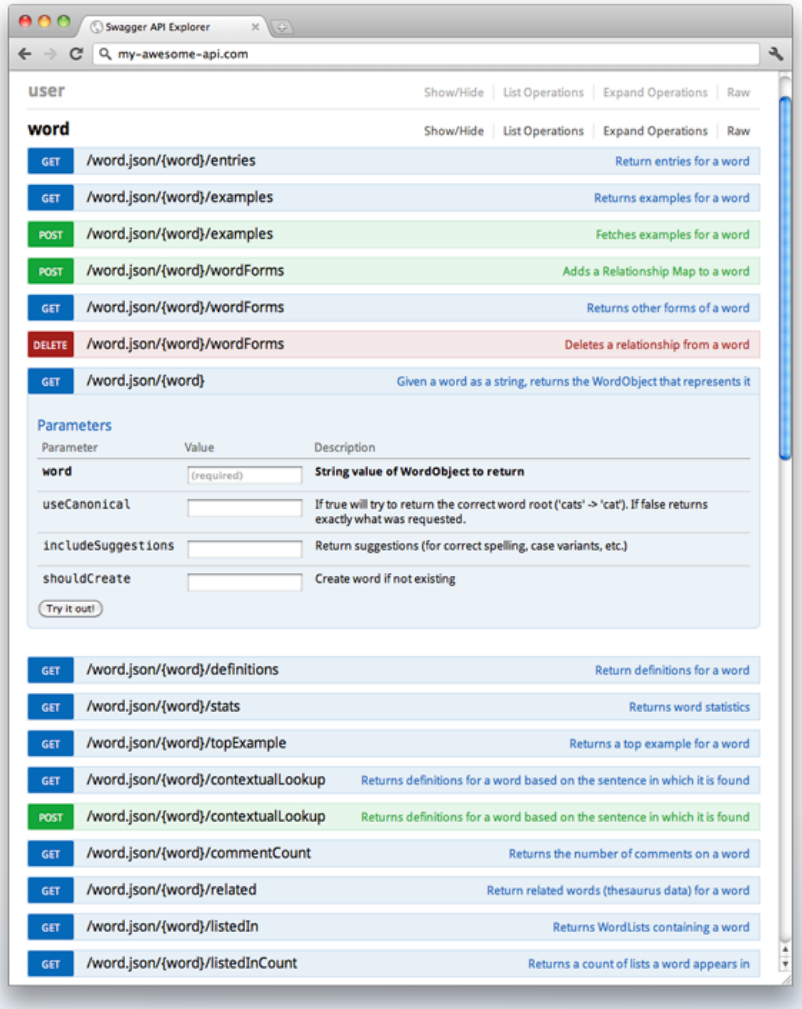
Align with their API technology

SOAP / REST / etc…

XML / JSON / etc…

QoS / Security

Help them understand your API



vs

A Google API

https://developers.google.com/maps/documentation/geocoding/

The Google Geocoding API

This document discusses the Geocoding API v3. Note that the Geocoding API v2 has been turned down and is no longer available. U should upgrade to v3.

Looking to use this service in a JavaScript application? Check out the Geocoder class of the Google Maps API v3.

What is Geocoding?

Geocoding is the process of converting addresses (like "1600 Amphitheatre Parkway, Mountain View, CA") into geographic coordinates -122.083739), which you can use to place markers or position the map.

Reverse geocoding is the process of converting geographic coordinates into a human-readable address.

Geocoding Requests

A Geocoding API request must be of the following form:

```
http://maps.googleapis.com/maps/api/geocode/output?parameters
```

where `output` may be either of the following values:

- `json` (recommended) indicates output in JavaScript Object Notation (JSON)
- `xml` indicates output as XML

To access the Geocoding API over HTTPS, use:

```
https://maps.googleapis.com/maps/api/geocode/output?parameters
```

HTTPS is recommended for applications that include sensitive user data, such as a user's location, in requests.

Provide API Metadata

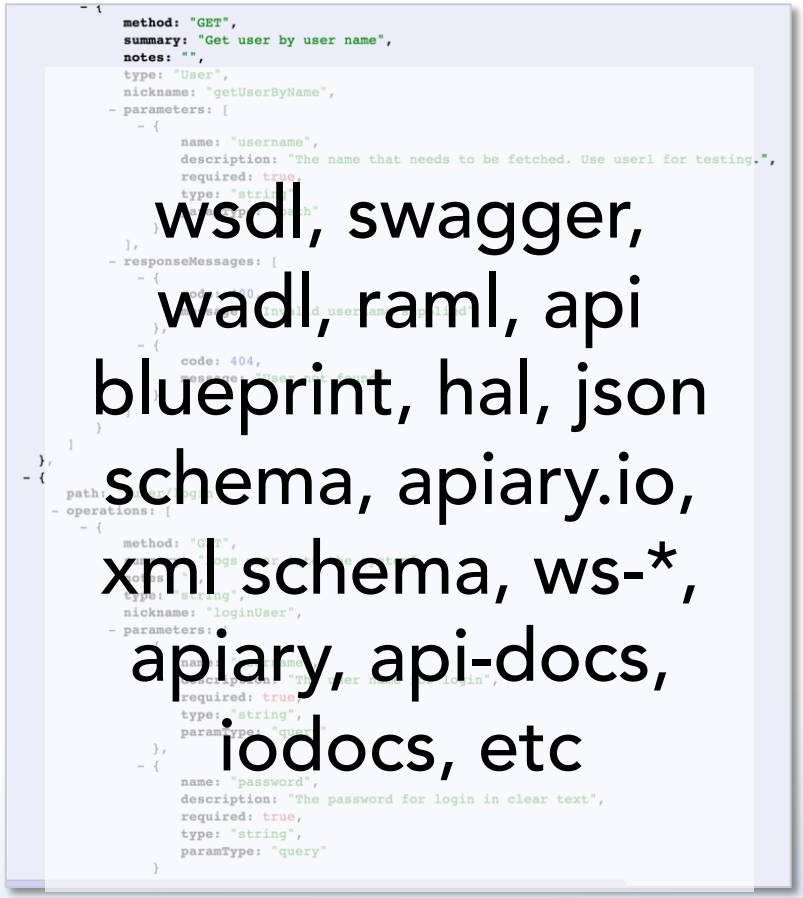
Validation

Code Generation

Coverage

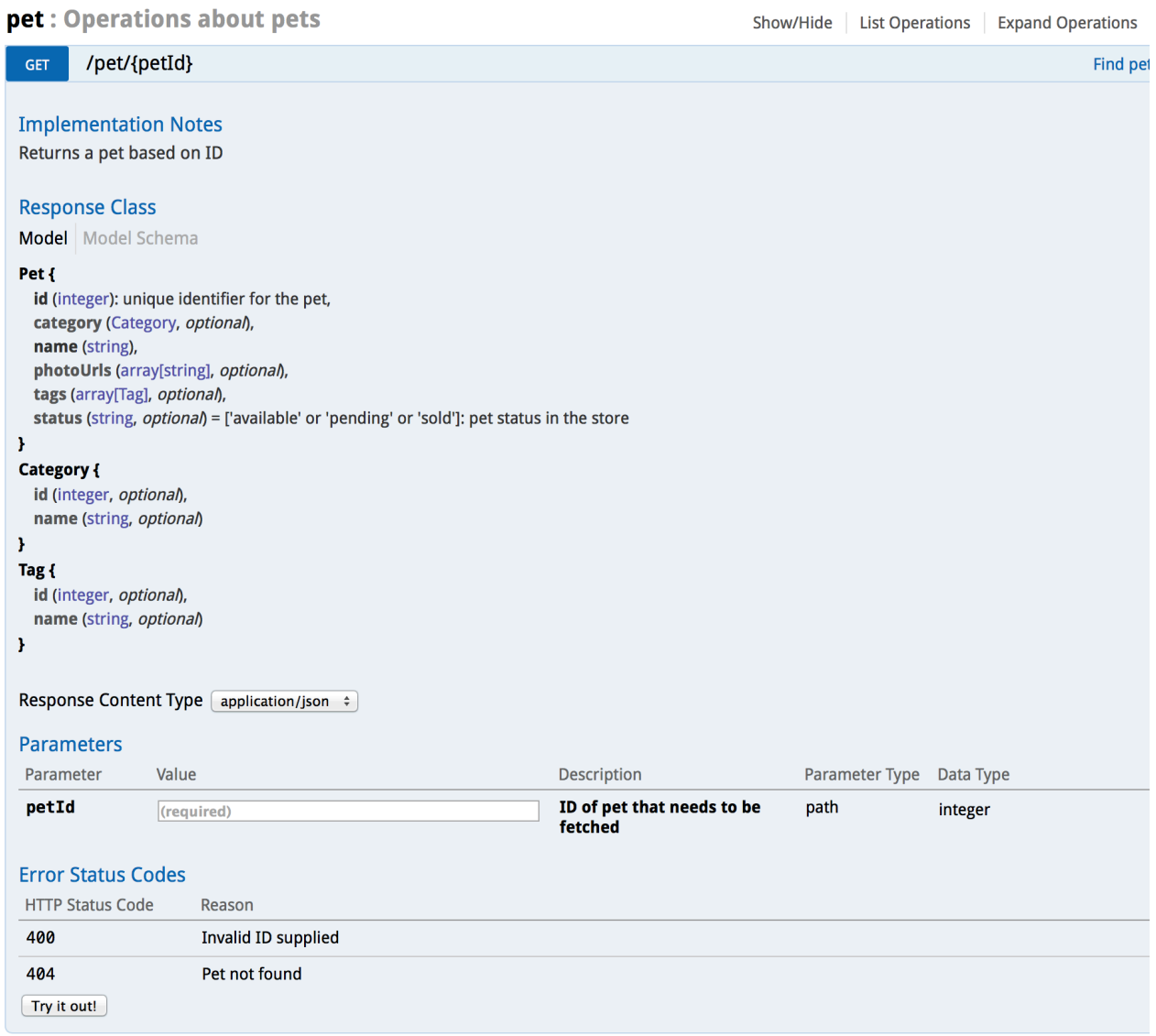
Understanding

Simulation



Provide API Metadata

Swagger



Provide API Metadata

Validation can be automated in your test tool

Provide API Metadata

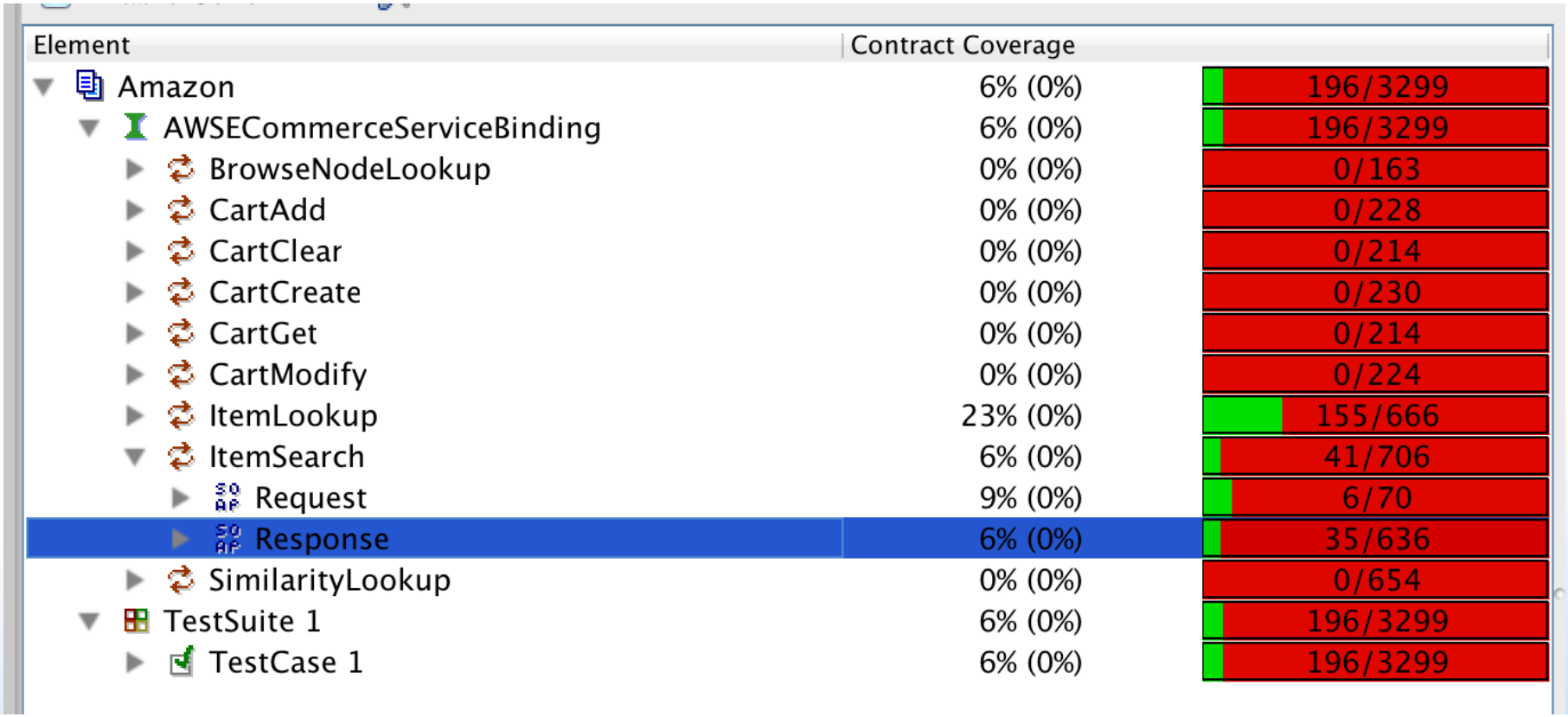
Code generation
will be easier for
client developers,
and API Developers

Provide API Metadata

Coverage will be
correct

Provide API Metadata

Coverage will be correct



Element	Contract Coverage	
Amazon	6% (0%)	196/3299
AWSECommerceServiceBinding	6% (0%)	196/3299
BrowseNodeLookup	0% (0%)	0/163
CartAdd	0% (0%)	0/228
CartClear	0% (0%)	0/214
CartCreate	0% (0%)	0/230
CartGet	0% (0%)	0/214
CartModify	0% (0%)	0/224
ItemLookup	23% (0%)	155/666
ItemSearch	6% (0%)	41/706
Request	9% (0%)	6/70
Response	6% (0%)	35/636
SimilarityLookup	0% (0%)	0/654
TestSuite 1	6% (0%)	196/3299
TestCase 1	6% (0%)	196/3299

Provide API Metadata

Understanding – more than the raw interface
Describe flows, data types, life cycles

Provide API Metadata

Simulation of your
API can be created
easier

Align your API with their domain

Process / Workflow

Nomenclature

Related APIs

A 3:30:3 Litmus test for APIs

3 Minutes to understand what an API does

30 seconds to sign up

3 minutes to the first request

(Ori Pekelman)

Summary Part I

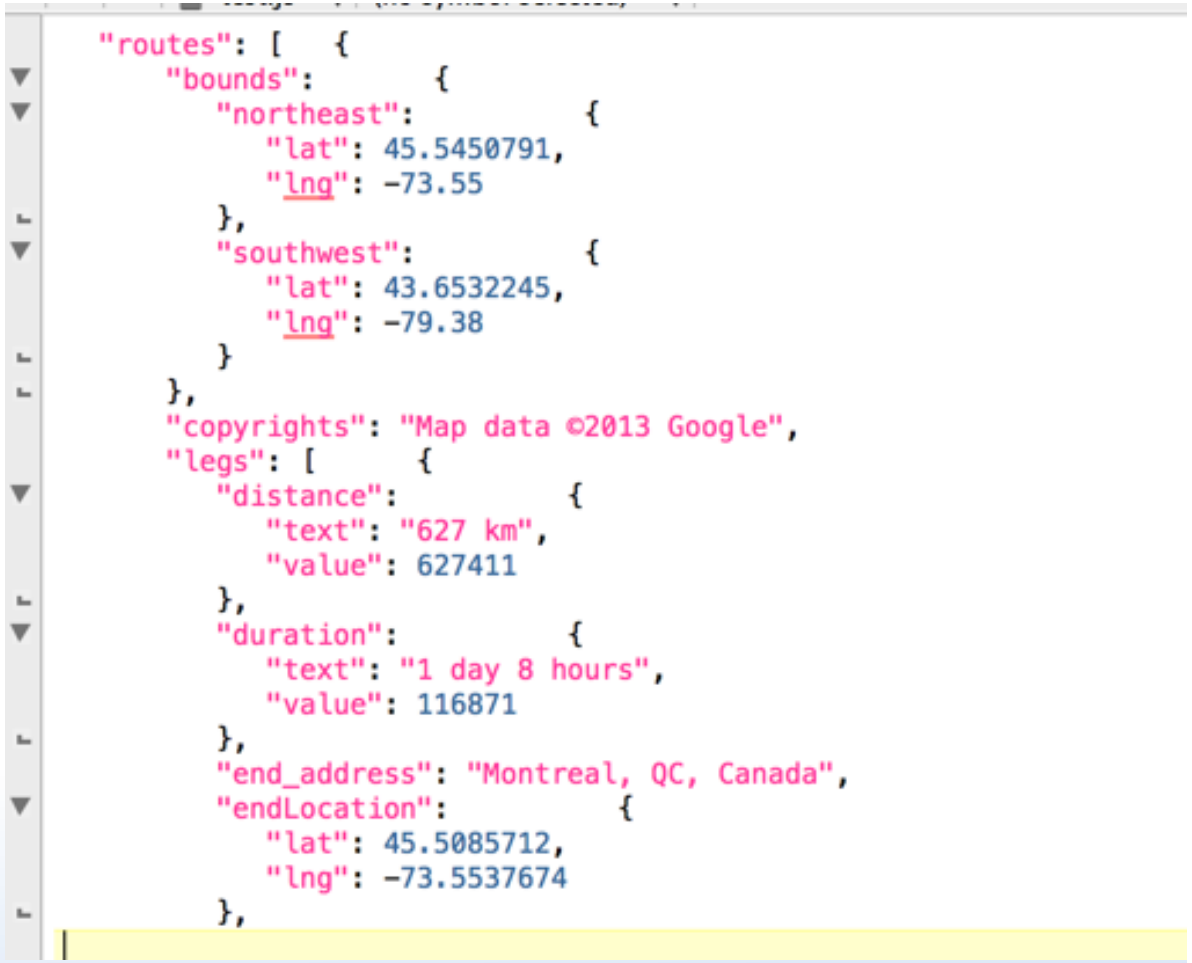
1) APIs drive the new economy

2) Testers need to step in early to ensure the usability of the API, so it becomes part of the new economy

3) The usability of the API is the key to adoption of your api

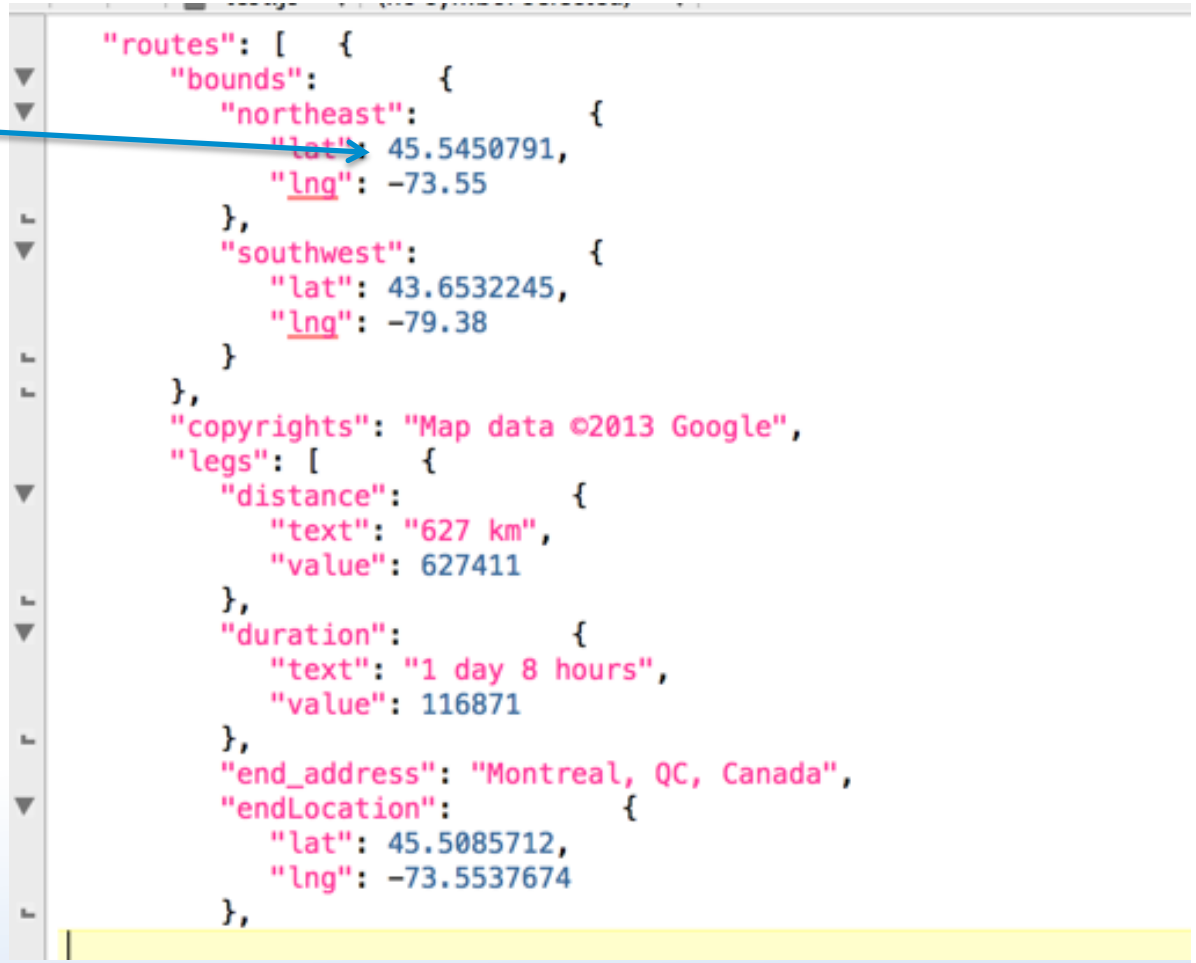

APIs need to work

Expected Results



Expected Results

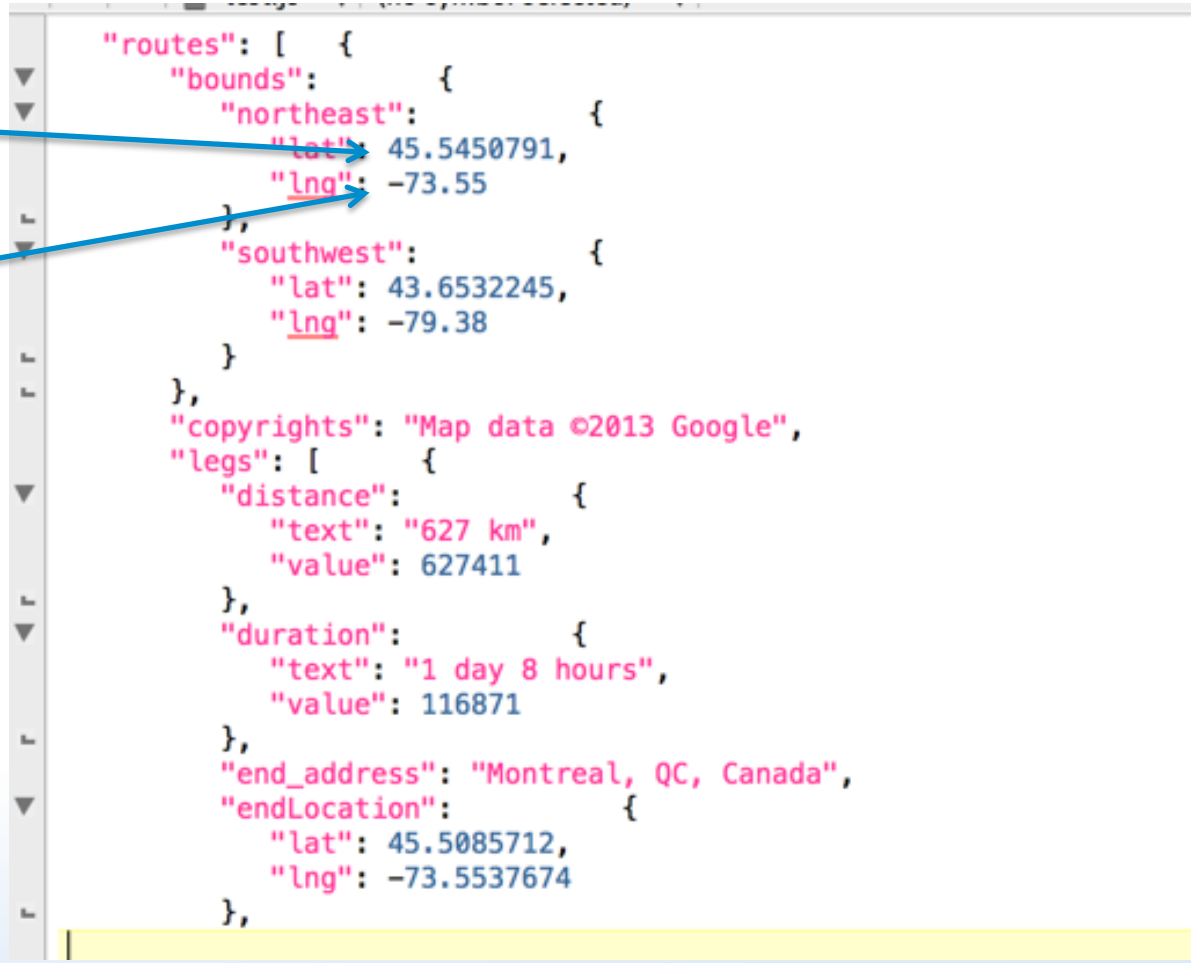
Values



Expected Results

Values

Datatypes

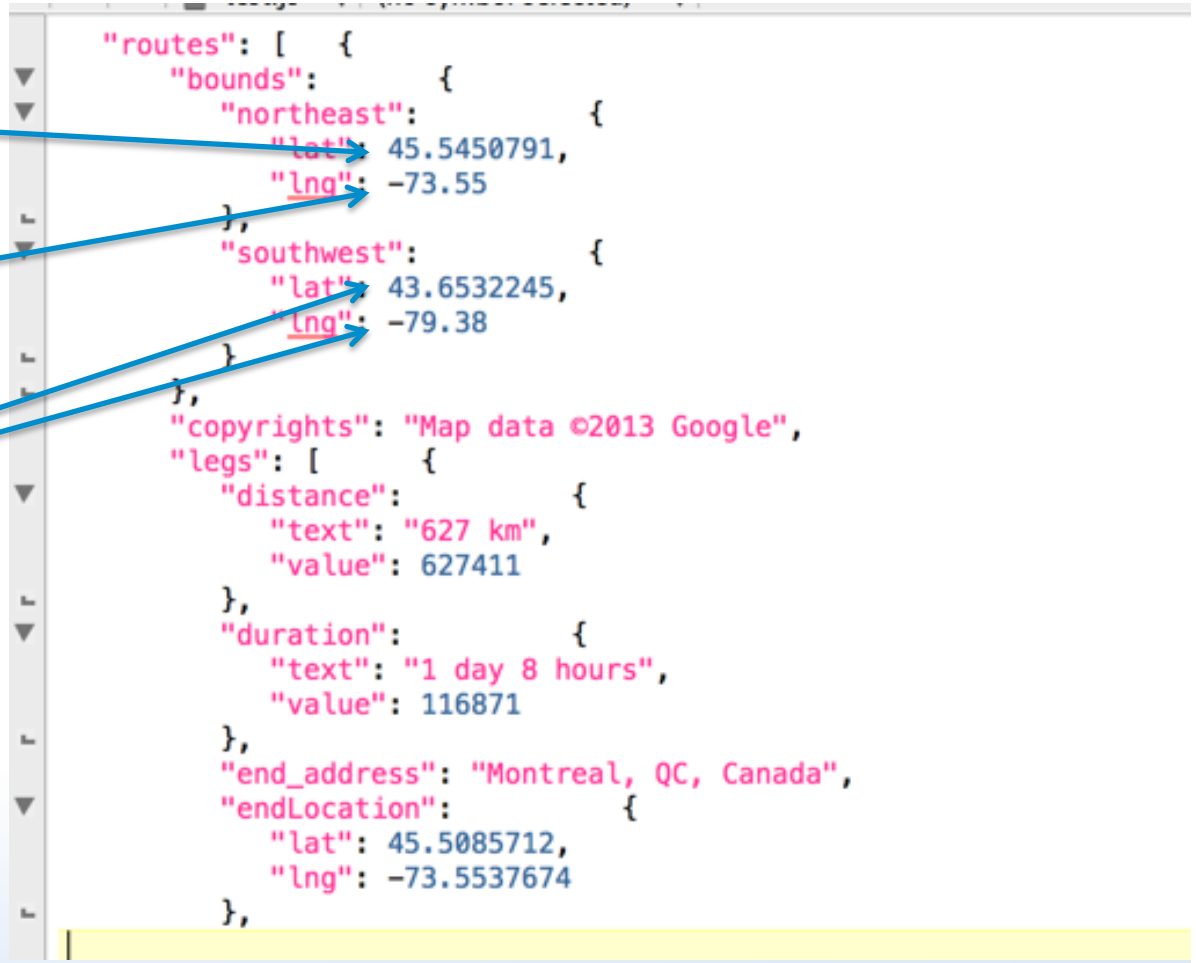


Expected Results

Values

Datatypes

Formatting



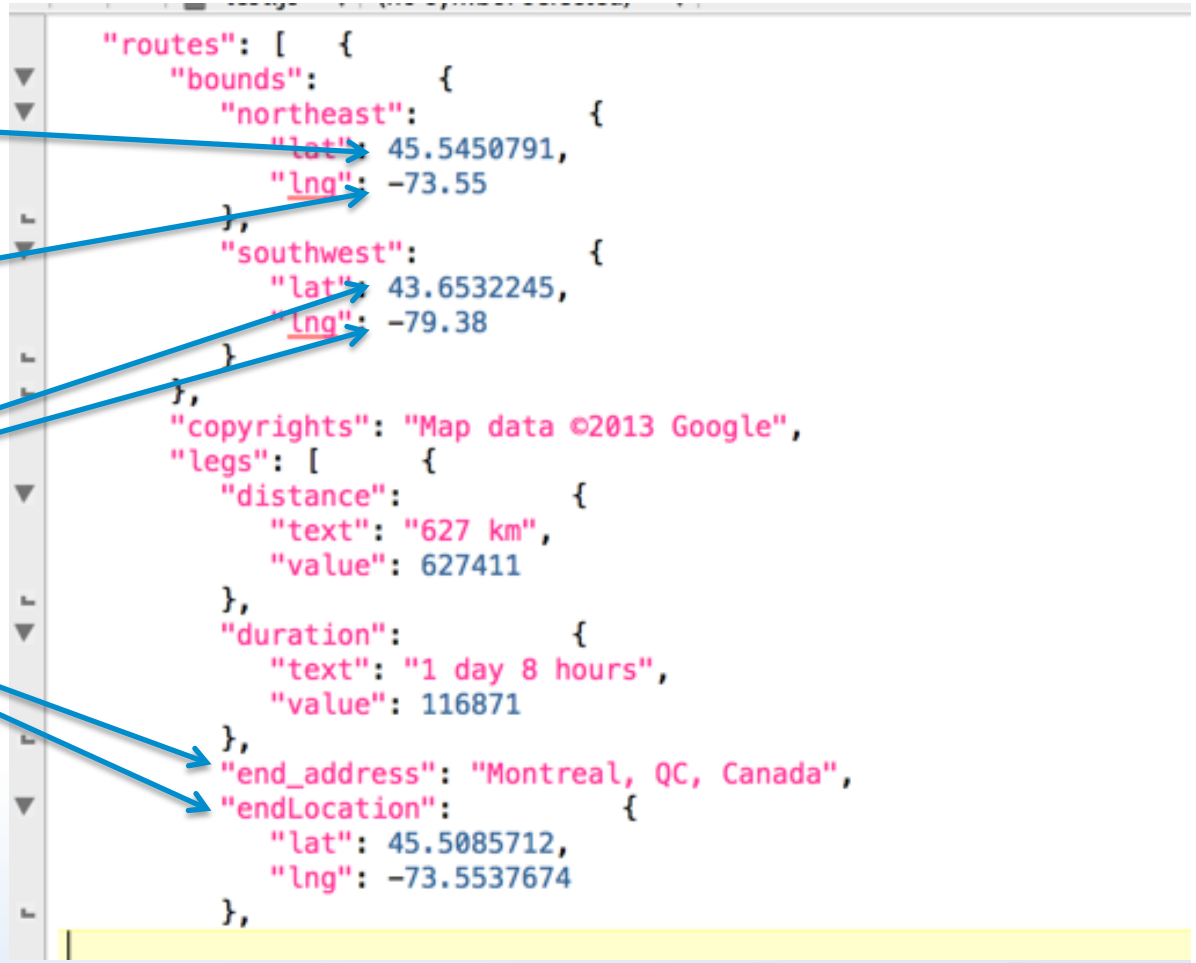
Expected Results

Values

Datatypes

Formatting

Consistency



Expected Results

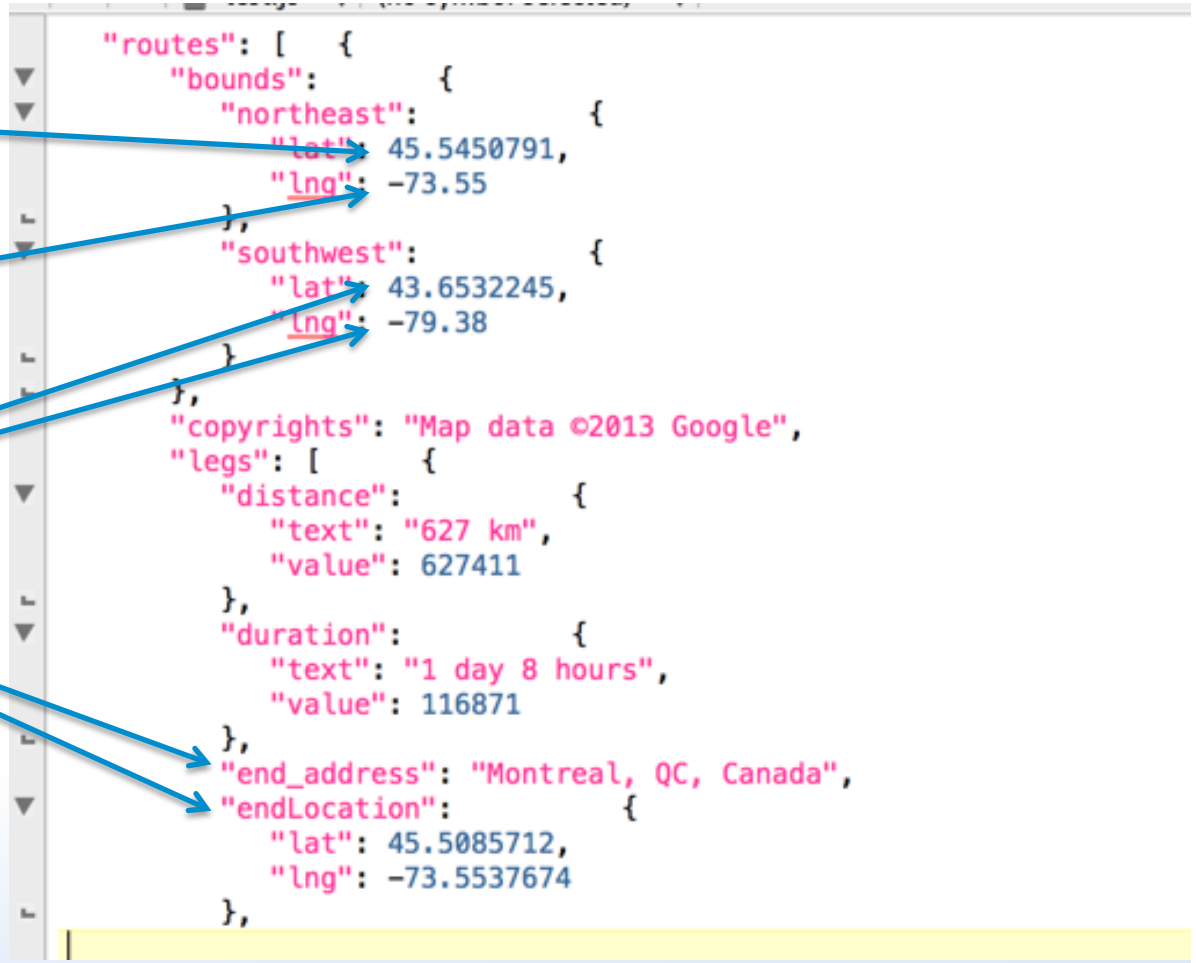
Values

Datatypes

Formatting

Consistency

Errors



Bad Error Messages…

Change unexpectedly

Don’t match their status code (HTTP)

Don’t tell users what they did wrong

Don’t tell users what they need to do right

Show clients stuff that could be misused

```
No access to table Sales.
```

APIs are global from day 1

Dates & Timezones

Regional Formatting

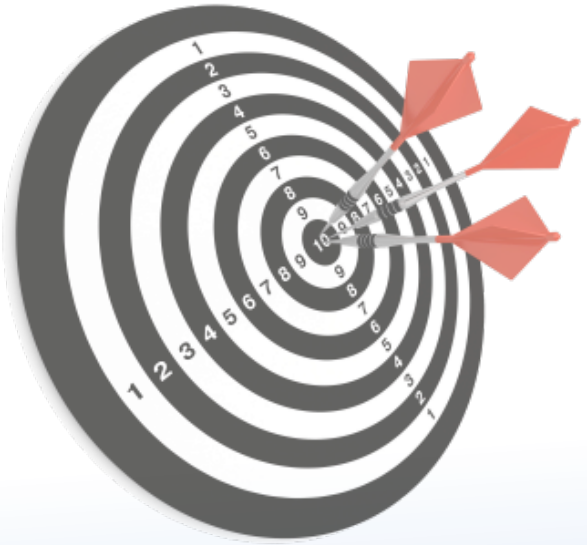
Localized Messages / Errors

ConsistencyConsistencyConsistencyCon
sistencyConsistencyConsistencyConsist
encyConsistencyConsistencyConsistenc

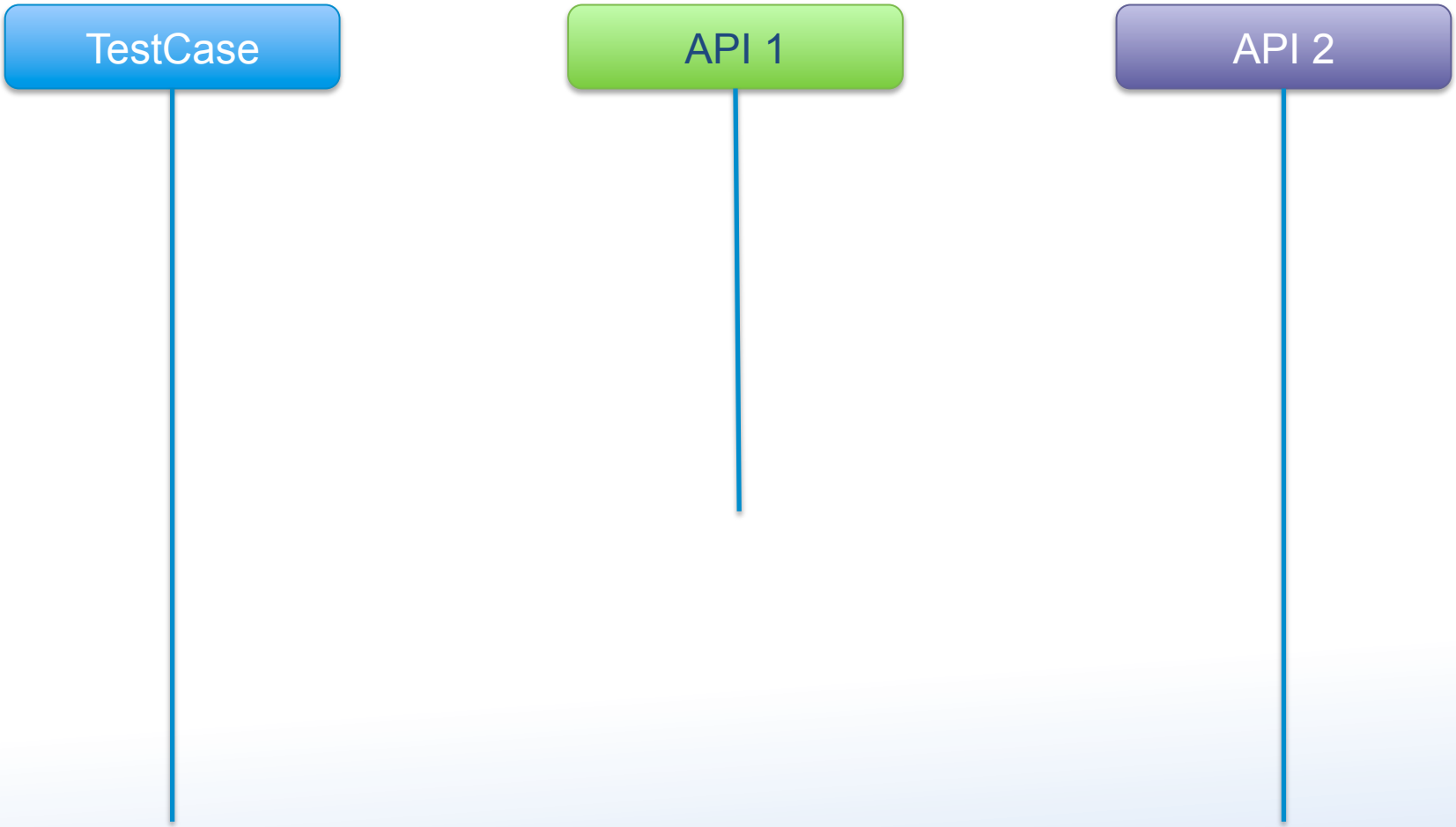
Formatting

Nomenclature

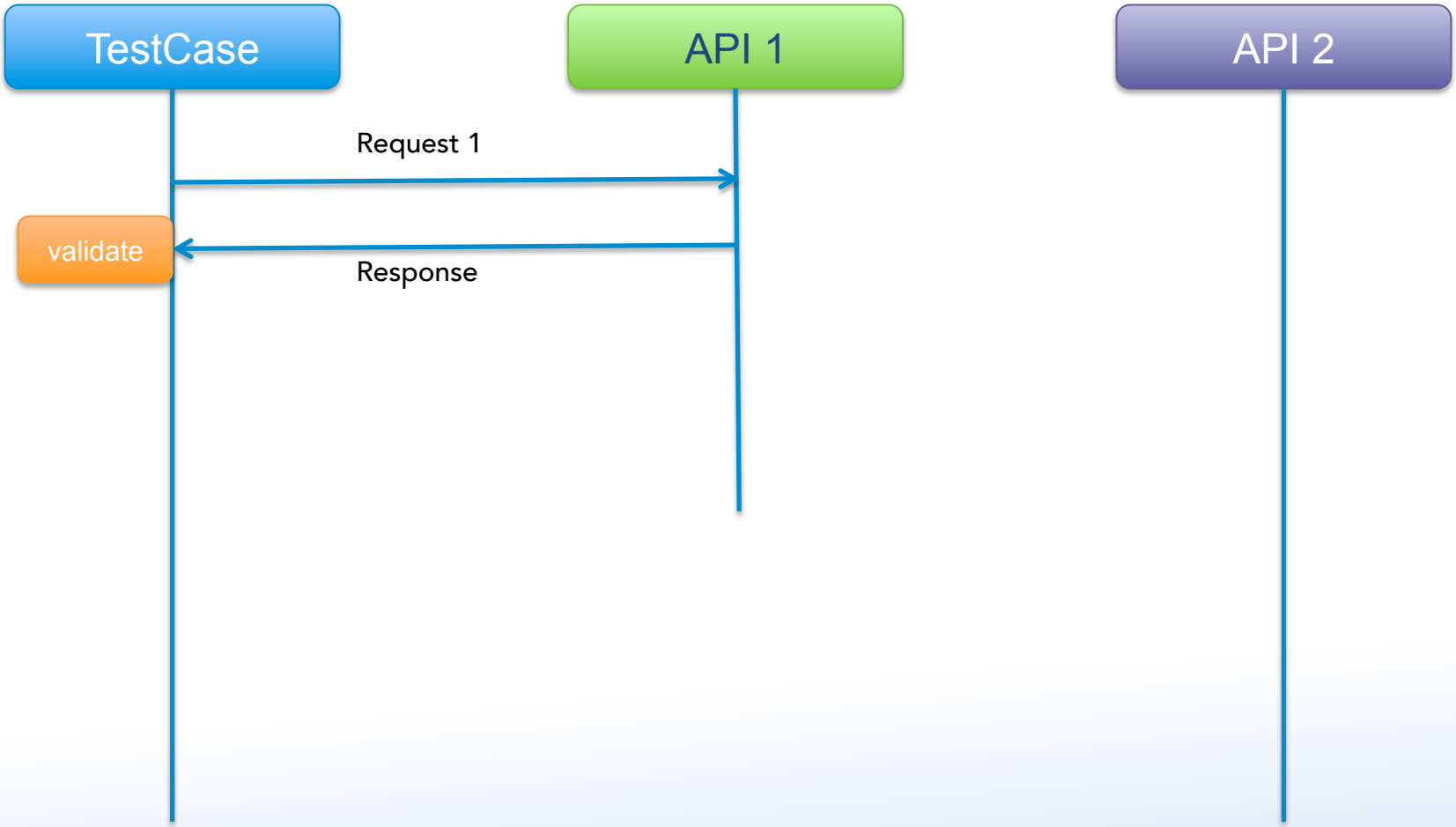
Metadata Compliance



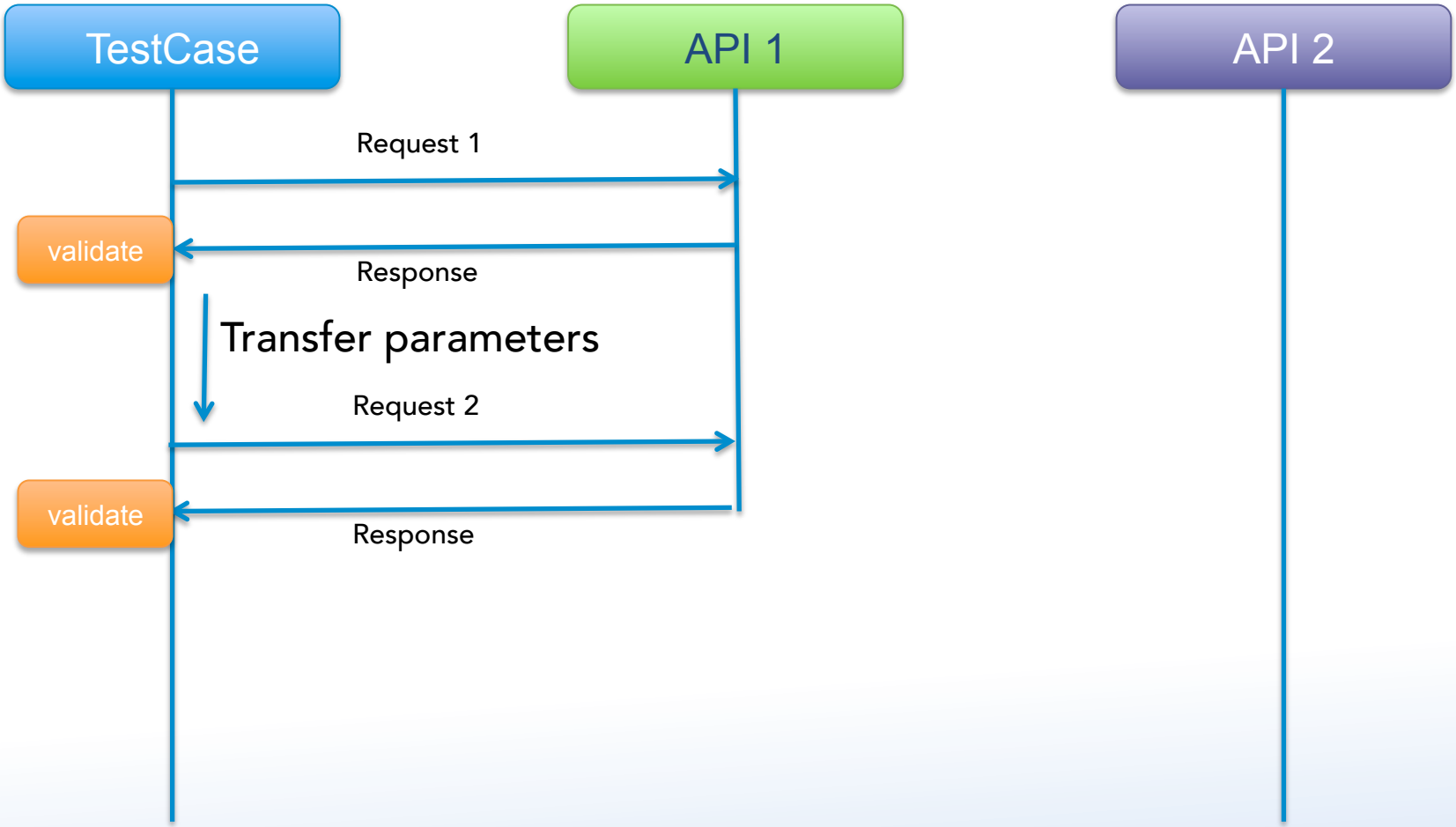
API Functional Test Automation



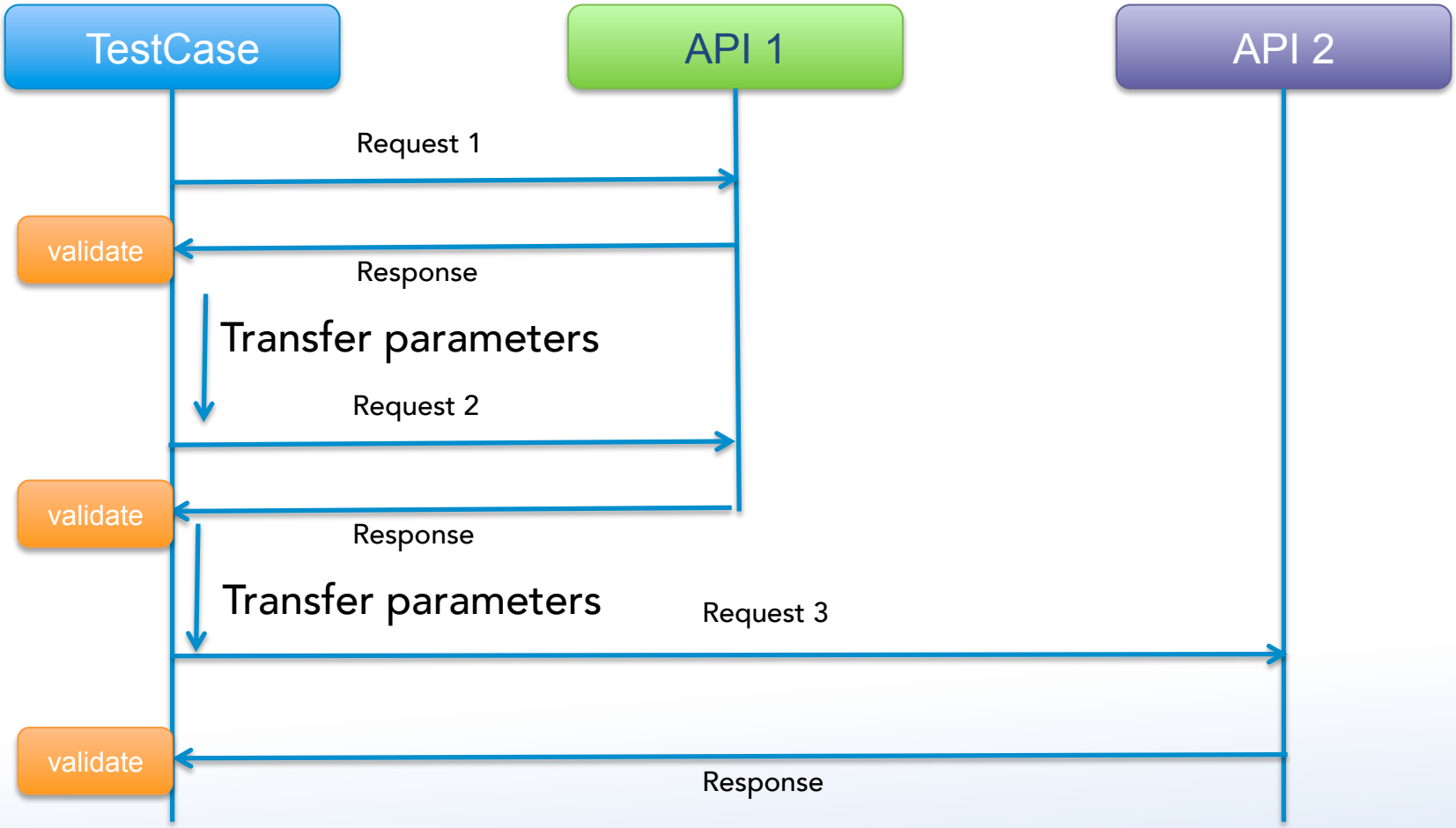
API Functional Test Automation



API Functional Test Automation



API Functional Test Automation

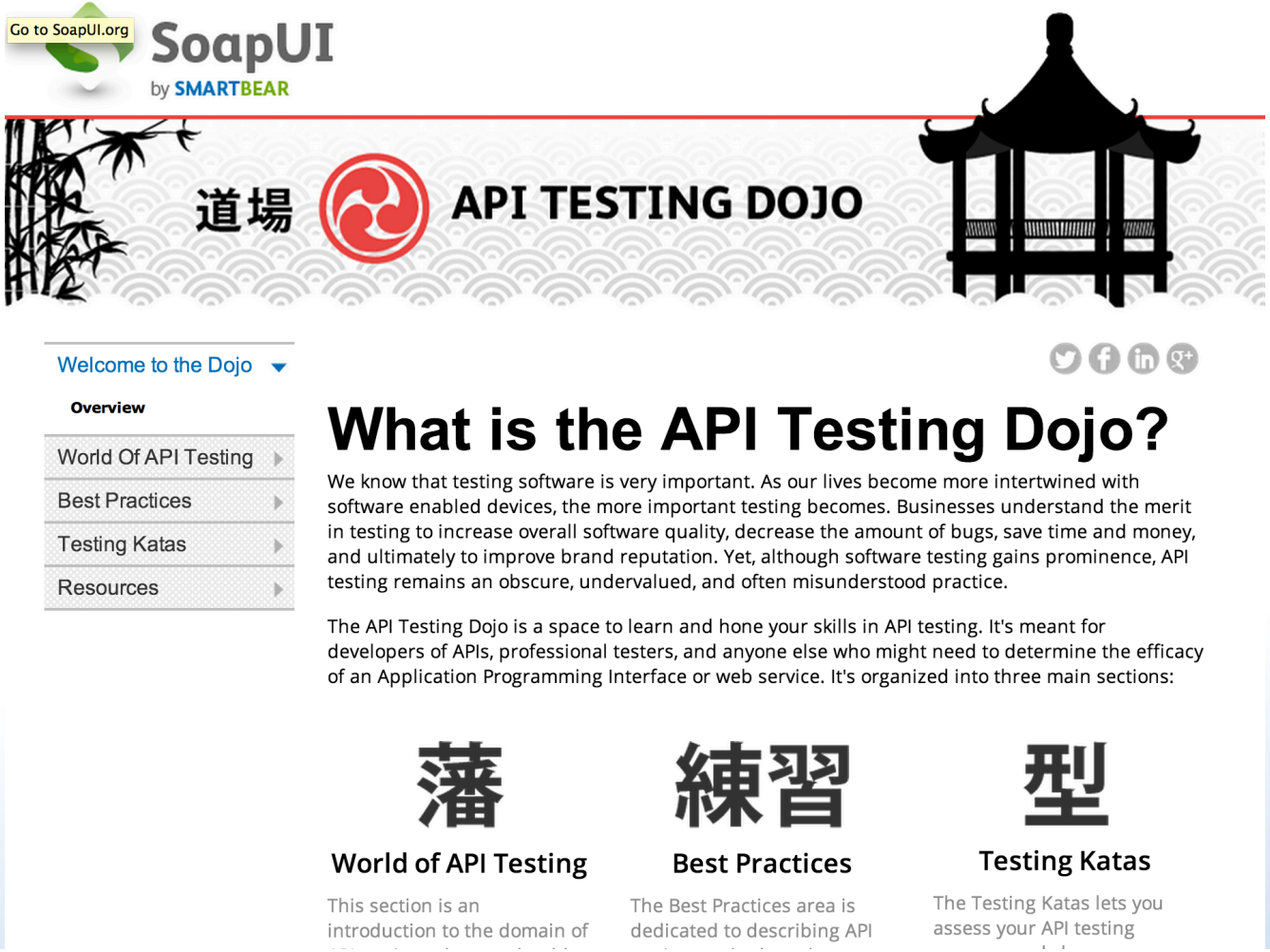


Summary Part II

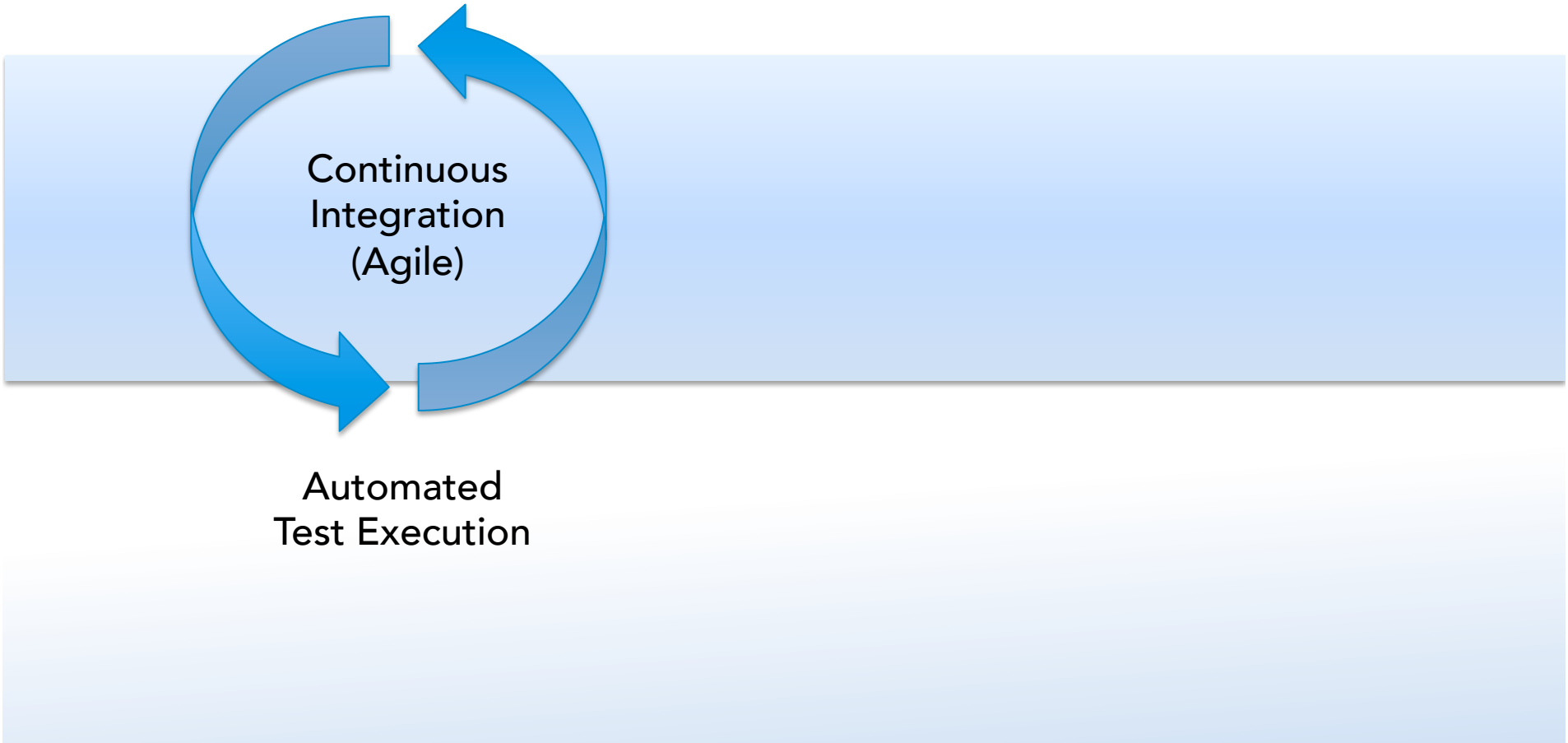
Functional testing

Automated, scenario based testing

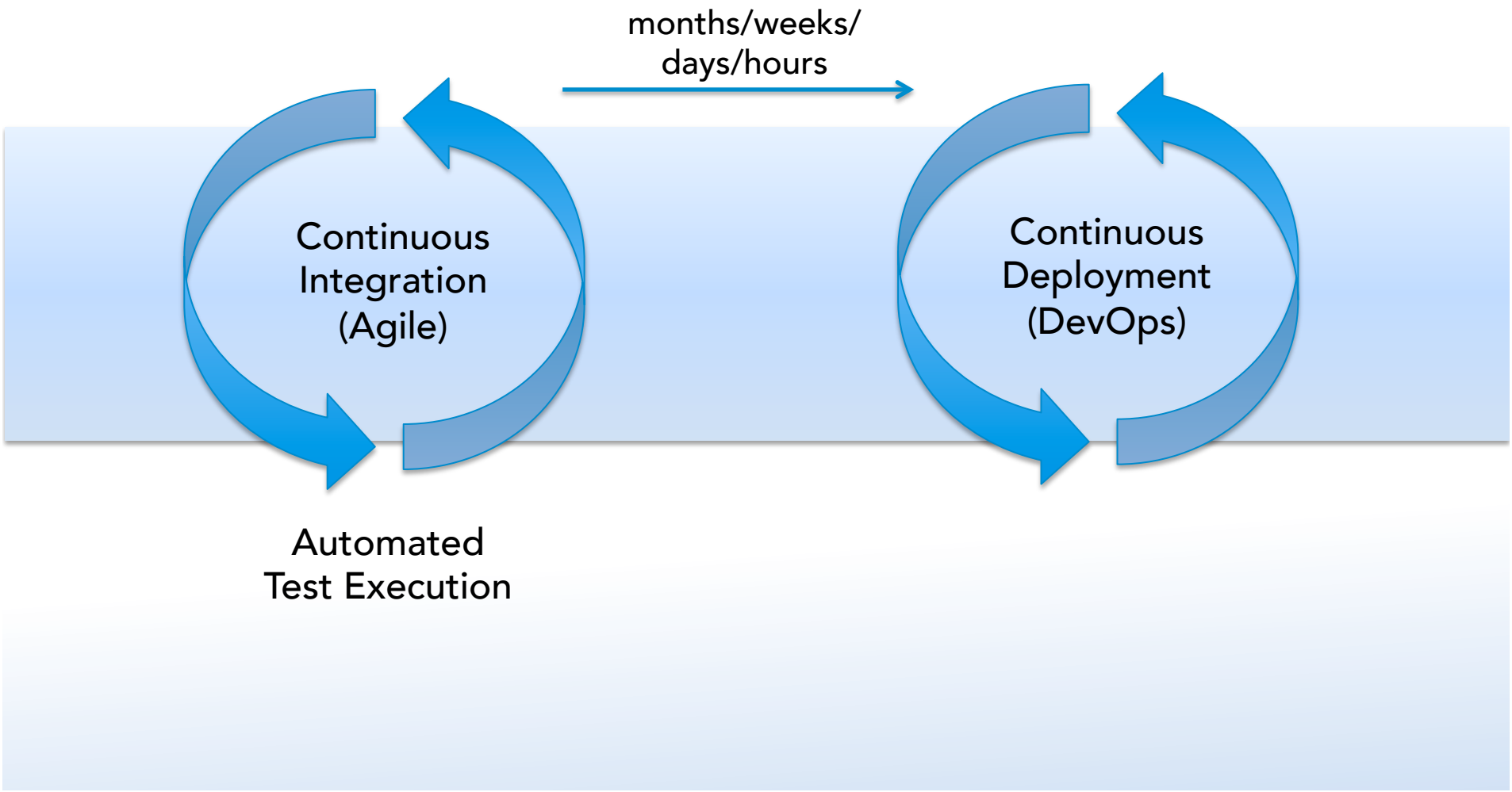
Learn more on Functional testing at http://www.soapui.org/Dojo/overview.html



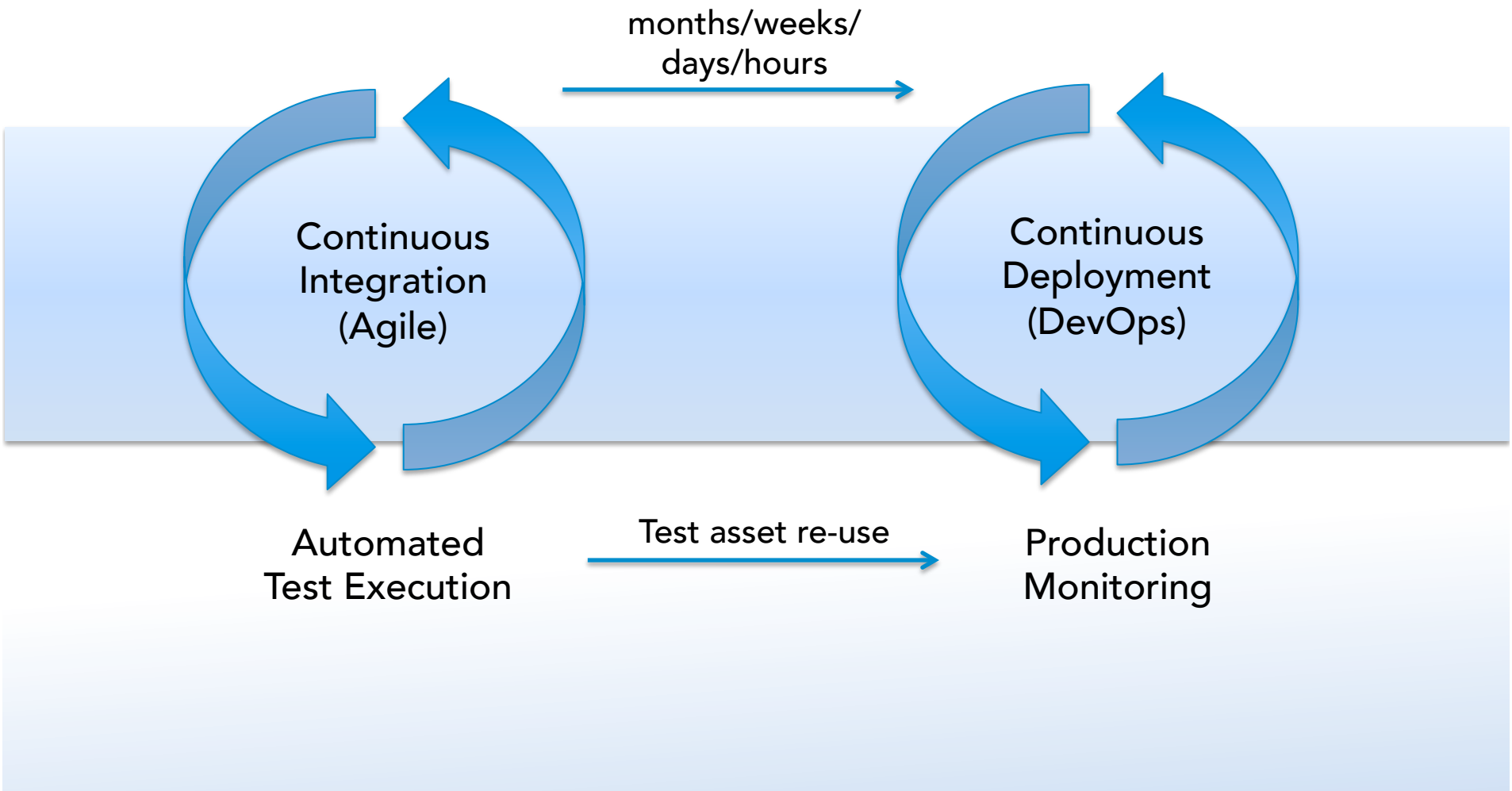
Pre vs Post-Deployment Quality



Pre vs Post-Deployment Quality



Pre vs Post-Deployment Quality



Customers rely on your API

Your API is key to *their* success

Is your API available?

Is your API consistent?

Is your API transparent?

Is your API Secure?

Do you handle identity?

Do you maintain integrity?

Do you assess vulnerabilities?

API Performance

Does the API perform consistently?

Does the API recover?

Does the API scale?

Core elements of API Quality

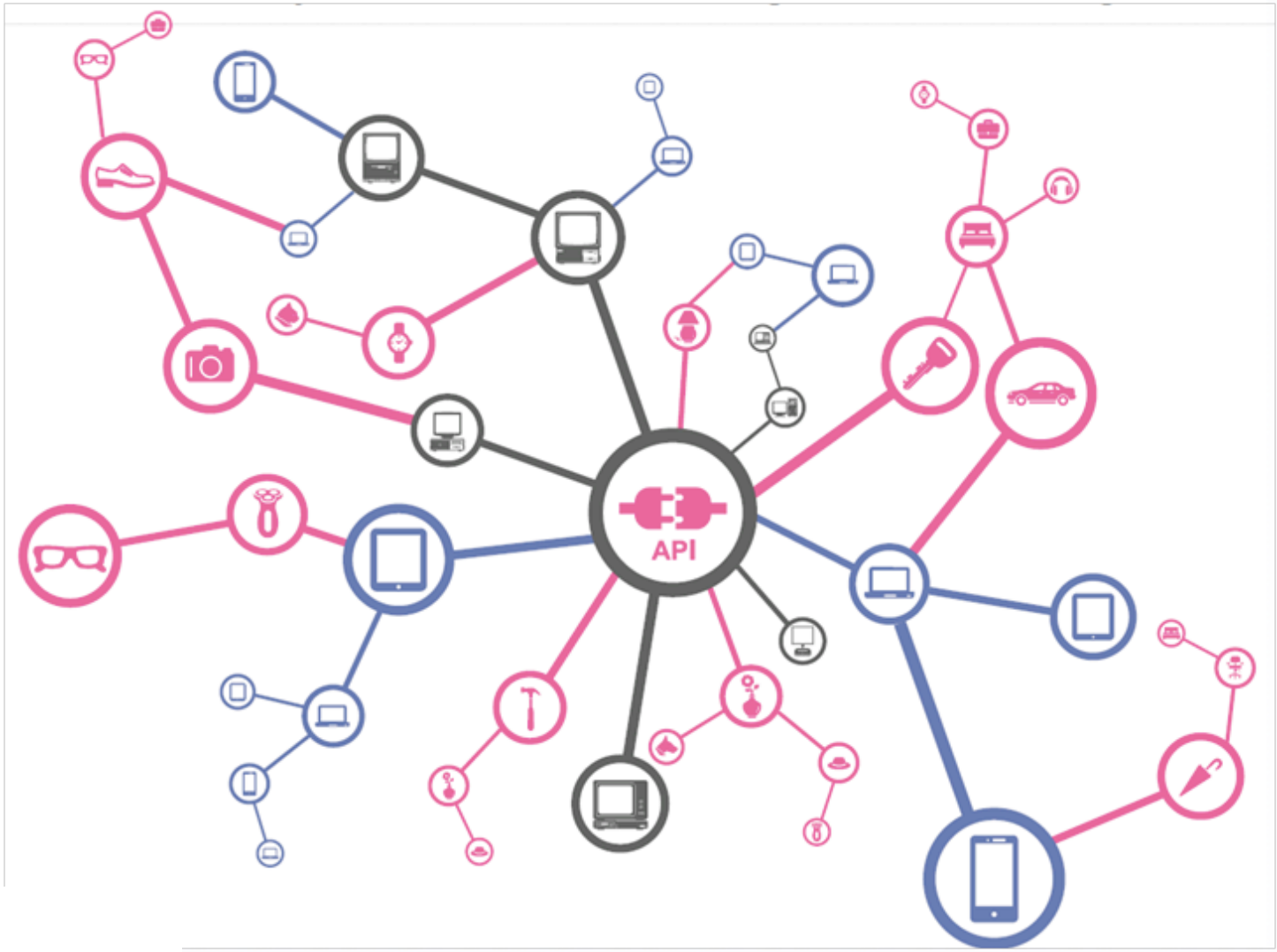
Usability

Functionality

```
public class TcpClientSample
{
    public static void Main()
    {
        byte[] data = new byte[1024]; string input, stringData;
        TcpClient server;
        try{
            server = new TcpClient(" . . . . ", port);
        }catch (SocketException){
            Console.WriteLine("Unable to connect to server");
            return;
        }
        NetworkStream ns = server.GetStream();
        int recv = ns.Read(data, 0, data.Length);
        stringData  = Encoding.
        ASCII.GetString(data, 0, recv);
        Console.WriteLine(stringData);
        while(true){
            input = Console.ReadLine();
            if (input == "exit") break;
                newchild.Properties["ou"].Add
                ("Auditing Department");
                newchild.CommitChanges();
                newchild.Close();
```

Reliability

so – let's get back to that goal…


API

Questions

Matti and Mike