Building API integrations you can live with.

John Sheehan
CEO, Runscope
There's just no getting around it: you're building a distributed system.

-- Mark Cavage, ACM Queue
What are the challenges for running an API-driven application?
CHALLENGE #1

Getting a complete picture of your app.
Keep an eye on everything.
CHALLENGE #2

Managing change.
Prefer lighter abstractions.
Think twice about taking a dependency on an SDK.
Your Code

API SDK v2

The API v1
SDKs OK:

Prototyping
No good HTTP Client
Building Clients
Complex APIs
Uses Native APIs
SDK DANGER:
Using more than one Community-built
Many dependencies Inactive
HOW WE DO

Smarter HTTP client

Thin wrappers
def main():
    user = get_user(id);
    print user['name']

def get_user(id):
    resp = requests.get(url)
    if resp.ok:
        return resp.json()
    else:
        # retry?
        return None
from Identity import get_user

def main():
    user = get_user(id);
    print user.name

class Identity
    def get_user(id):
        url = "service://identity/users/" + id
        resp = smart_client.get(url)
        if resp.ok:
            return User(resp.json())
        return AnonymousUser()
CHALLENGE #3

High-fidelity testing.
Let’s look at some API testing frameworks.
require 'rubygems'
require 'test/unit'
require 'vcr'

VCR.configure do |c|
  c.cassette_library_dir = 'fixtures/vcr_cassettes'
  c.hook_into :webmock # or :fakeweb
end

class VCRTest < Test::Unit::TestCase
  def test_example_dot_com
    VCR.use_cassette('synopsis') do
      url = 'http://yourapihere.com'
      response = Net::HTTP.get_response(URI(url))
      assert_match /Example domains/, response.body
    end
  end
end

VCR github.com/vcr/vcr
frisby.create('Get Brightbit Twitter feed')
  .get('https://api.twitter.com/1/statuses/user_timeline.json?screen_name=brightbit')
  .expectStatus(200)
  .expectHeaderContains('content-type', 'application/json')
  .expectJSON('0', {
    place: function(val) { expect(val).toMatchOrBeNull("Oklahoma City, OK"); }, //

    user: {
      verified: false,
      location: "Oklahoma City, OK",
      url: "http://brightb.it"
    }
  })
  .expectJSONTypes('0', {
    id_str: String,
    retweeted: Boolean,
    in_reply_to_screen_name: function(val) { expect(val).toBeTypeOrBeNull(String); }, //

    user: {
      verified: Boolean,
      location: String
    }
  })

// Custom matcher callback
user: {
  verified: Boolean,
  location: String
}
# no users have pending notifications

GET /users/with-pending-notifications 200 application/json []

# users with events on their calendar have pending notifications

POST /users/764/metro-areas/999 204
POST /users/764/artists/123 204
POST /events/5?artist_ids=123&metro_area_id=999 204
POST /events/5/enqueue-notifications 204
GET /users/with-pending-notifications 200 application/json [[764, "ep"]]

# users are unique in the response

POST /users/764/artists/123 204
POST /users/764/artists/456 204
POST /users/764/metro-areas/999 204
POST /events/5?artist_ids=123,456&metro_area_id=999 204
POST /events/5/enqueue-notifications 204
GET /users/with-pending-notifications 200 application/json [[764, "ep"]]

Friday, November 22, 13
service "http://localhost:4567" do
  def responds_with_json_where
    JSON.parse(response.body)
  end

resource "/]lolz" do
  get do

    it { responds_with.status :ok }

    it { responds_with_json_where['lolz'].must_be_instance_of }

    with_query("q=monorail") do
      it "only lists lolz that match the query" do
        responds_with_json_where['lolz'].wont_be_empty
        responds_with_json_where['lolz'].each do |lol|
          lol['title'].must_match /monorail/
EVERYTHING IS GOING TO BE 200 OK
All Traffic

- yourapihere.com
  GET /relative-redirect/40
- yourapihere.com
  GET /api/1.0/workspaces/12345/tasks
  ✔ Retry completed — View Comparison
- yourapihere.com
  GET /status/500
- yourapihere.com
  GET /get
- yourapihere.com
  PUT /put
- yourapihere.com
  PUT /post

Shared Request

Grace Hopper
2m ago

Anyone know why this is showing 404? It should be a 201...

Add a comment

Hm, it looks like you’ve got the wrong workspace id in there.

View Request  View Response
HEADERS
Access-Control-Allow-Credentials: true
Access-Control-Allow-Methods: GET, PUT
Access-Control-Allow-Origin: *

GET http://yourapihere.com/api/1.0/workspace

404 NOT FOUND
238 bytes
Radar

Create test templates and verify your APIs before your apps go to production. Learn more.

Failures First | Most Recent

**Android App**

- Status: Passed
- Last Run: 5s ago

**iOS Onboarding**

- Status: Failed — 1 assertion failed
- Last Run: 15s ago

**iOS App**

- Status: Passed
- Last Run: 19s ago

**Stripe Customer Workflow**

- Status: Failed — 2 assertions failed
- Last Run: 23s ago
- Next at: Nov 12, 2013 - 08:48 PM UTC (52 minutes from now)
### Edit Assertions & Variables

**Assertions**

<table>
<thead>
<tr>
<th>Source</th>
<th>Property</th>
<th>Comparison</th>
<th>Target Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Code</td>
<td>value</td>
<td>equals</td>
<td>200</td>
</tr>
<tr>
<td>JSON Body</td>
<td>id</td>
<td>is a number</td>
<td></td>
</tr>
<tr>
<td>Response Headers</td>
<td>Content-Type</td>
<td>equals</td>
<td>application/json</td>
</tr>
<tr>
<td>JSON Body</td>
<td>friends[1].name</td>
<td>equals</td>
<td>Mary Appleseed</td>
</tr>
</tbody>
</table>

**Response Headers**

- JSON Body
- XML Body
- Response Headers
- Text Body
- Status Code

**Add Variable**

- **LAST RESPONSE DATA**
  - Status: 200

**Headers**

- **Access-Control-Allow-Credentials**: true
- **Access-Control-Allow-Methods**: GET, PUT, POST, PATCH, DELETE, OPTIONS, HEAD
- **Access-Control-Allow-Origin**: *
- **Connection**: keep-alive
- **Content-Length**: 149
- **Content-Type**: application/json
- **Date**: Tue, 13 Nov 2012 19:55:30 GMT
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runscope.com/ts