APIFORTRESS

Reimagining API Testing: Improving the Quality and Reliability of APIs

With Patrick Poulin
CEO & Co-founder API Fortress

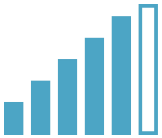
Who Are You?

What is Continuous Quality

Quality

"Through 2022, at least 95% of cloud security failures will be the customer's fault."

Jay Heiser, VP at Gartner



Reliability

SLA's Uptime vs Functional Uptime

Security

Akamai's State of the Internet report (pdf) found "83% of all web traffic in 2018 was in API traffic."

Security

Twitter

17 million accounts

India

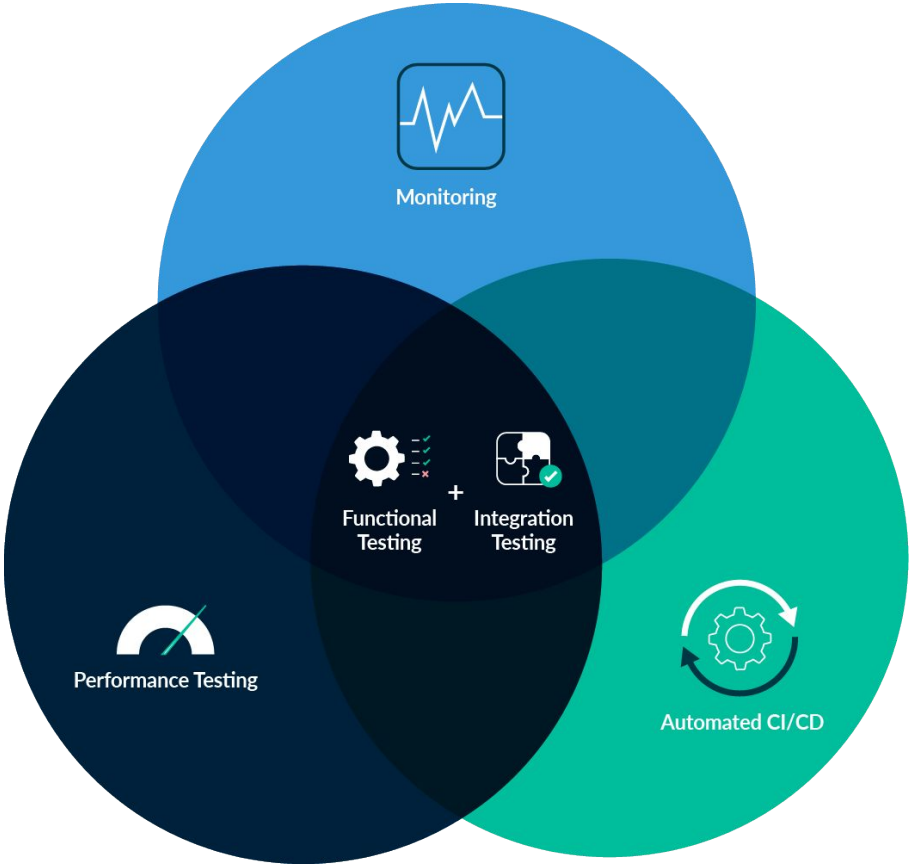
1.1 billion identities

USPS

60 million personal account details

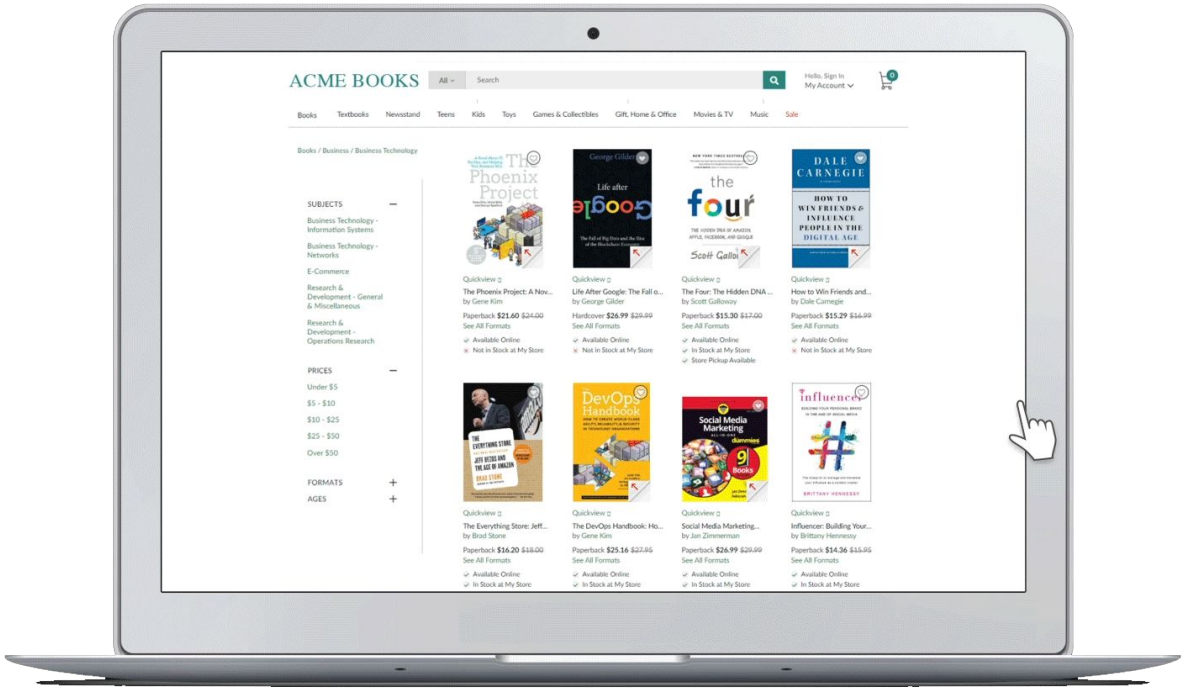
Continuous Quality Testing

Functional Testing
+
Integration Testing


Monitoring
Functional Testing
+
Integration Testing
Performance Testing
Automated CI/CD

What's a Good Functional API Test?

{
"status": 200,
"success": true,
"content": {
"flights": [
{
"_id": "53077f2ee4b0efa630df2ec4",
"id": "77439d",
"company": {
"id": 912,
"name": "Alitalia",
"one_vector": false
},
"from": {
"label": "Venice",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Over $50
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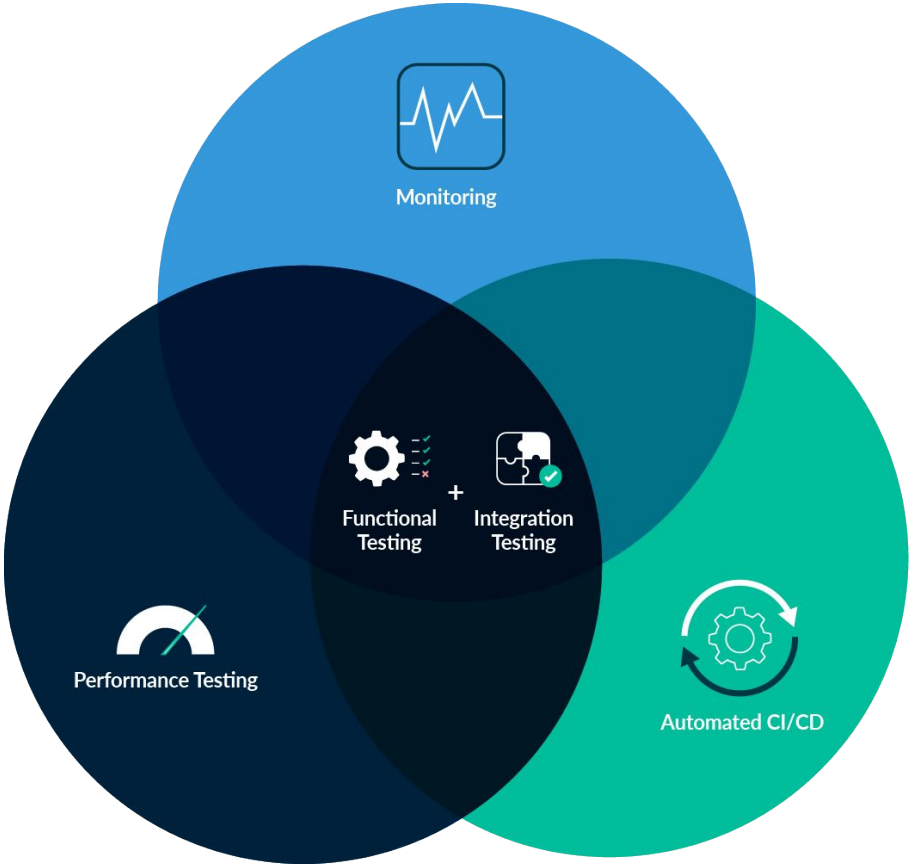
Functional Testing
+
Integration Testing


Monitoring
Functional Testing
+
Integration Testing
Performance Testing
Automated CI/CD

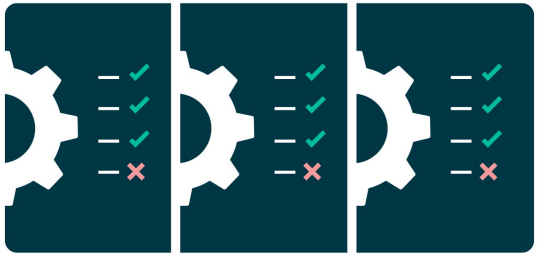
Show Me How

APIFORTRESS

Functional Testing

http://demoapi.apifortress.com/api/retail/product?q=red


```
[
        {
                quantity: 5,
                color: ["white","red"],
                price: 29.99,
                imageURL: http://apif.com/baseball_cap.jpg,
                name: "Baseball Cap",
                description: "Boston Red Sox Baseball Cap",
                id: 1,
                category: "head",
        },
        {
                quantity: 7,
                color: ["blue","yellow","red"],
                price: 39.99,
                imageURL: http://apif.com/long_sleev_shirt.jpg,
                name: "Long Sleeve Shirt",
                description: "A wonderful long sleeve shirt",
                id: 2,
                category: "body",
        },
        {
                quantity: 50,
                color: ["red","gray"],
                price: 49.99,
                imageURL: http://apif.com/earmuffs.jpg,
                name: "Earmuffs",
                description: "Keep those ears warm in the winter!",
                id: 3,
                category: "ears",
        },
]
```



End to End Testing

http://demoapi.apifortress.com/api/retail/product?q=red

http://demoapi.apifortress.com/api/retail/product/3

```
[
        {
                quantity: 50,
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                imageURL: http://apif.com/earmuffs.jpg,
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                id: 3,
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        },
]
```
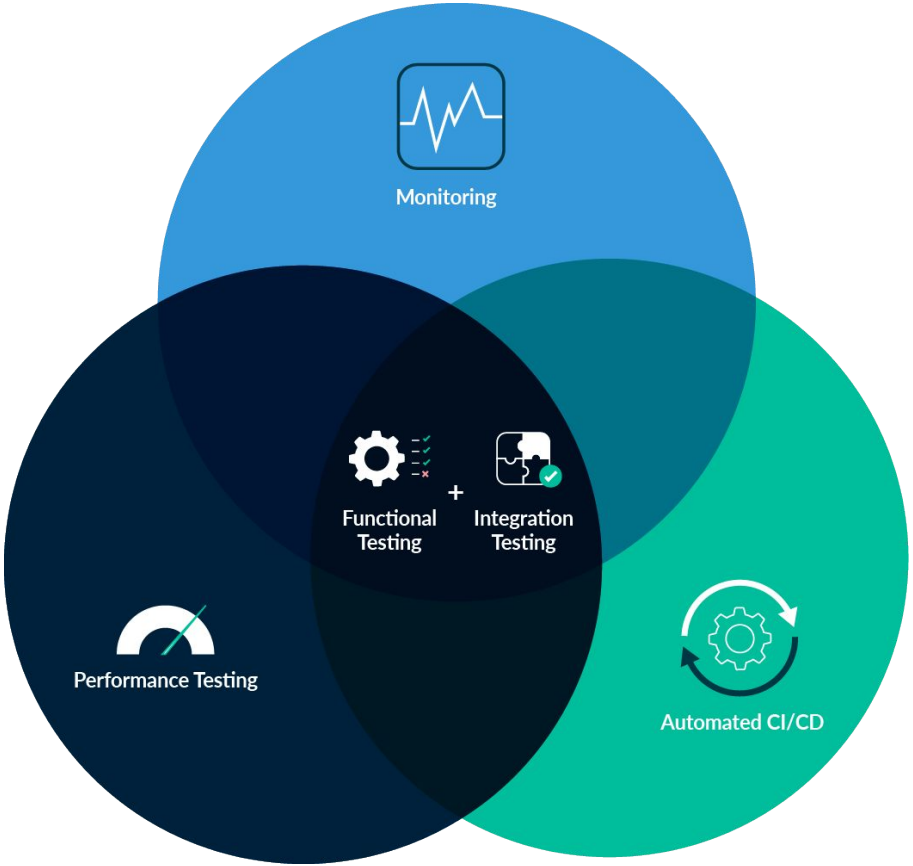

Search
1

In Summary

Functional Testing
+
Integration Testing


Monitoring
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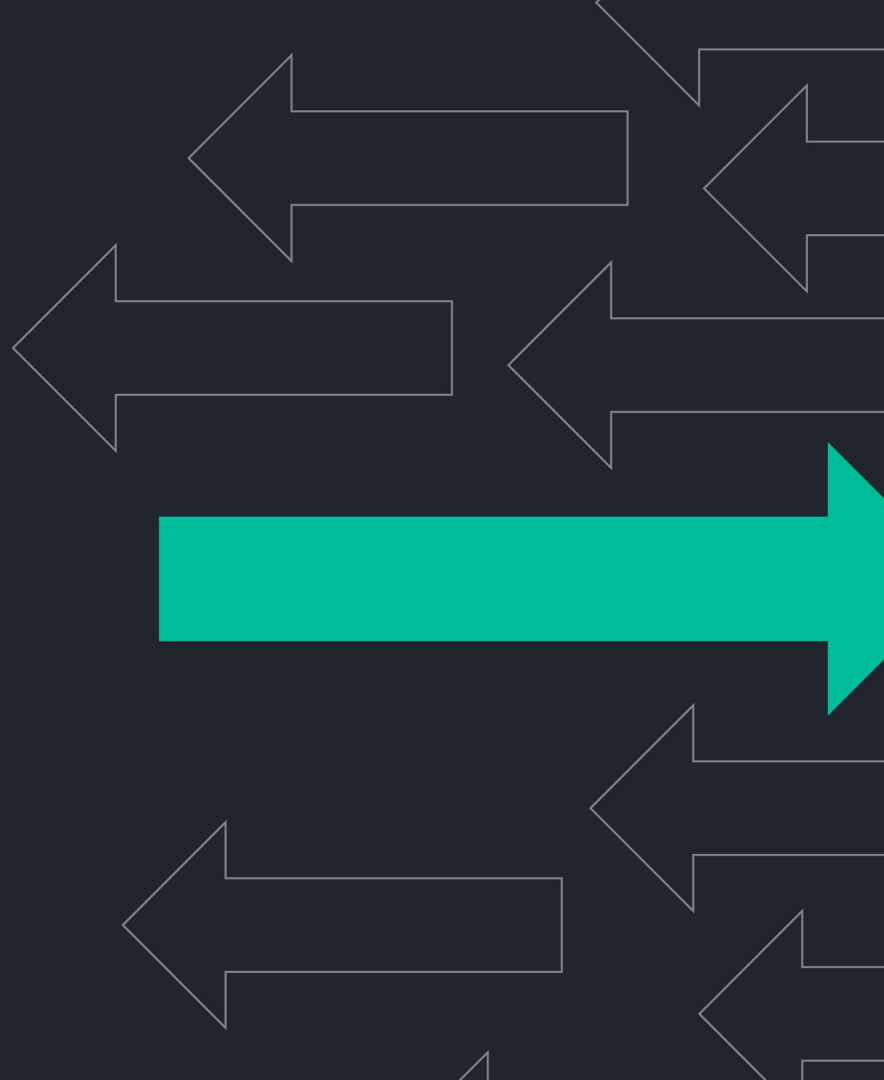
One Test Suite to Rule Them All

BUILD
REPORT
MONITOR
TEST

Shift API Testing Right with Monitoring



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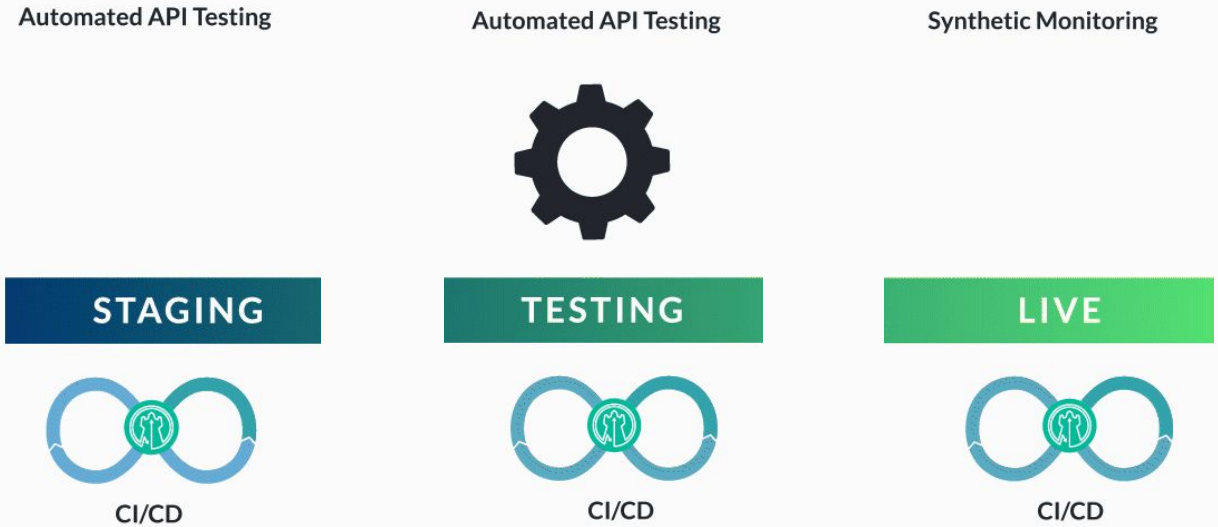
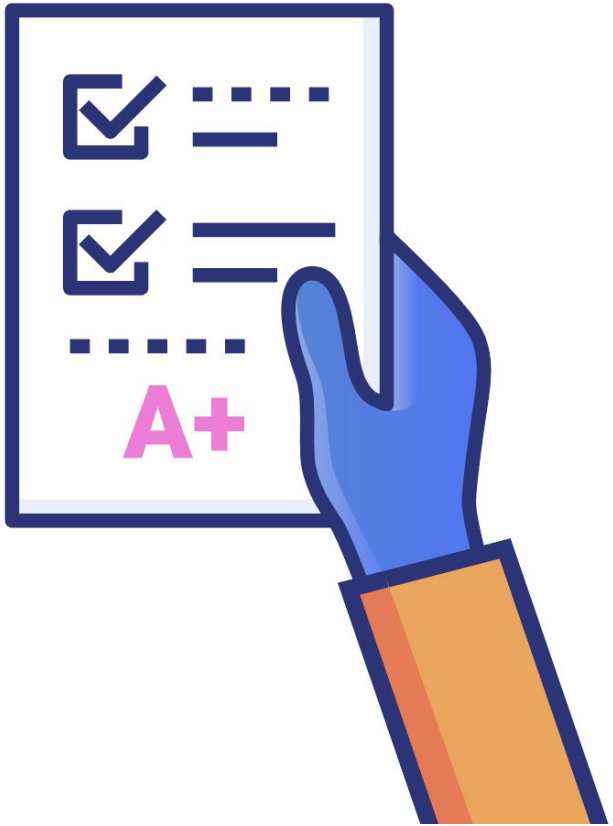
What Happened?


Automated API Testing
STAGING
CI/CD
Automated API Testing
TESTING
CI/CD
Synthetic Monitoring
LIVE
CI/CD

The Problem


A+

Test in Production!

Production Testing = Monitoring

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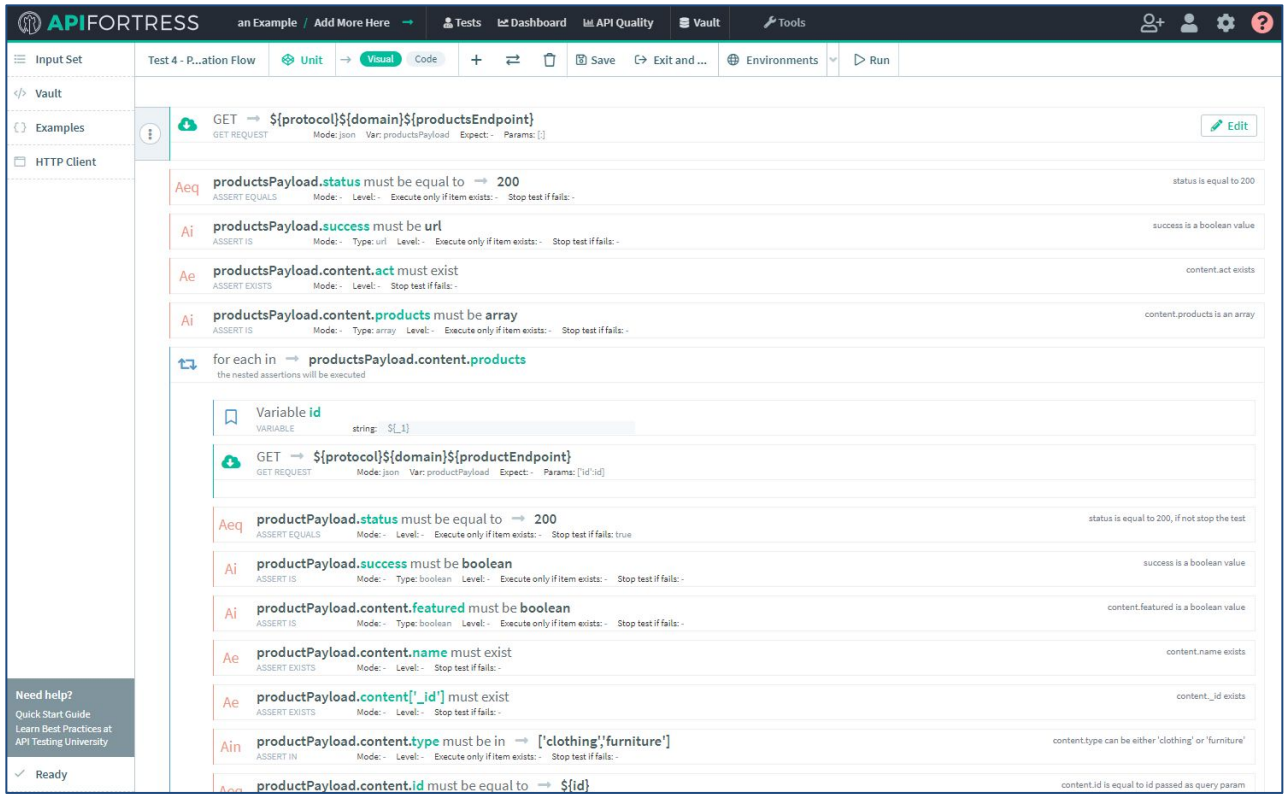
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Tests
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Vault
Tools
Input Set
Vault
Examples
HTTP Client
Test 4 - P...ation Flow
Unit
Visual
Code
Save
Exit and ...
Environments
Run
GET → ${protocol}${domain}${productsEndpoint}
GET REQUEST
Edit
productsPayload.status must be equal to → 200
productsPayload.success must be url
productsPayload.content.act must exist
productsPayload.content.products must be array
for each in → productsPayload.content.products
the nested assertions will be executed
Variable id
GET → ${protocol}${domain}${productEndpoint}
productPayload.status must be equal to → 200
productPayload.success must be boolean
productPayload.content.featured must be boolean
productPayload.content.name must exist
productPayload.content['_id'] must exist
productPayload.content.type must be in → ['clothing','furniture']
productPayload.content.id must be equal to → ${id}
Need help?
Quick Start Guide
Learn Best Practices at API Testing University
Ready

What's a Good API?

Passes Automated Tests

99.8% Functional Uptime

Functional Errors & Uncaught Downtime

How is This Happening?

Who Owns API Functional Uptime?

APPDYNAMICS
part of Cisco

BlazeMeter

DATADOG

dynatrace

New Relic.

pingdom

Monitoring Platform Shortcomings:

1. "Synthetic Testing"

A euphemism for minimal API testing capabilities

2 User Profile

People in charge of the monitors aren't testing professionals.

3. Using a Different Platform

Tests are written outside of QA by stakeholders with little/no domain knowledge

4. Test Intelligence

Tests must capture real consumer flows or user behavior

Problem in a Nutshell

Functional API Monitoring

Automated Testing Team

Monitoring Team

Let Testing Experts Monitor APIs

REDUCE RISK

- They are specialists with domain knowledge
- Catch a wider range of API bugs and vulnerabilities
- 95% of API breaches caused by human error
- Catch and fix functional errors before going live no rollbacks

INCREASE OPS EFFICIENCY

- Increase regression testing without increasing IT resources
- Accelerate time to market
- Improve cross-team collaboration

Evaluation Checklist

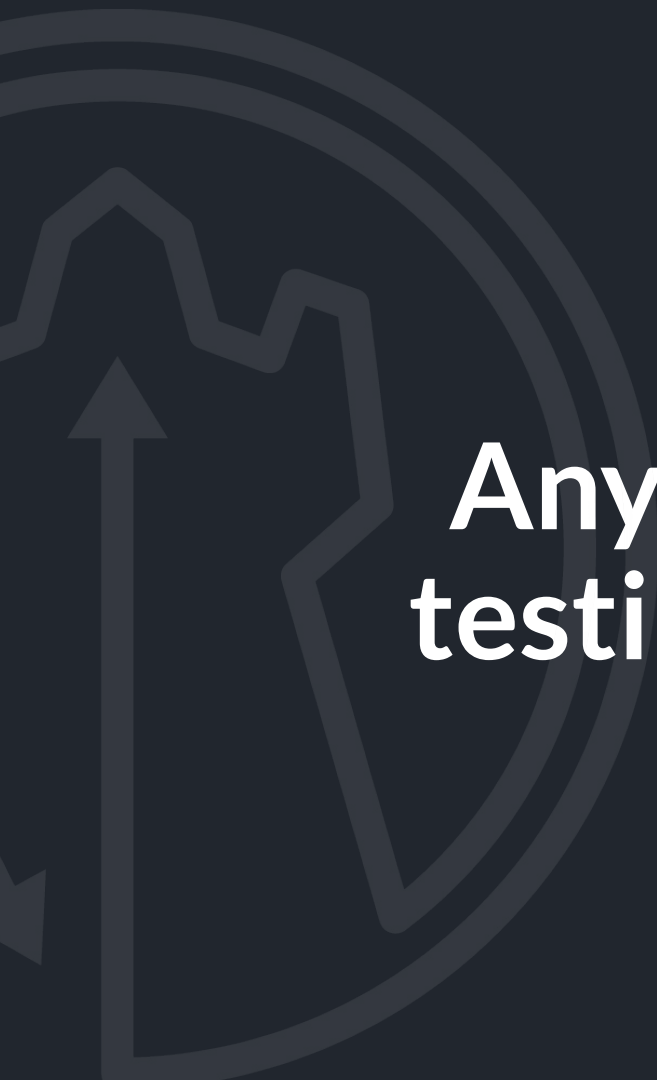
http://bit.ly/apievalchecklist

FAQ

What if the data API is behind a firewall?

How do I convince management to run tests on production?

What if we don't have a spec?



Any suggestions on testing status codes?

Do you have some tricks for testing the security of an API?

Can 3-leg oAuth be tested automatically?

Thank You!

Questions: Will@APIFortress.com

Chat / Free Trials: API Fortress.com