6th UCAAT User Conference on Advanced Automated Testing

ETSI

Agile testing for web API with Postman

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Agenda

- API and Agile
- API testing
- Rest-assured
- Postman
- Our journey with Postman
- Key takeaway
- Q&A

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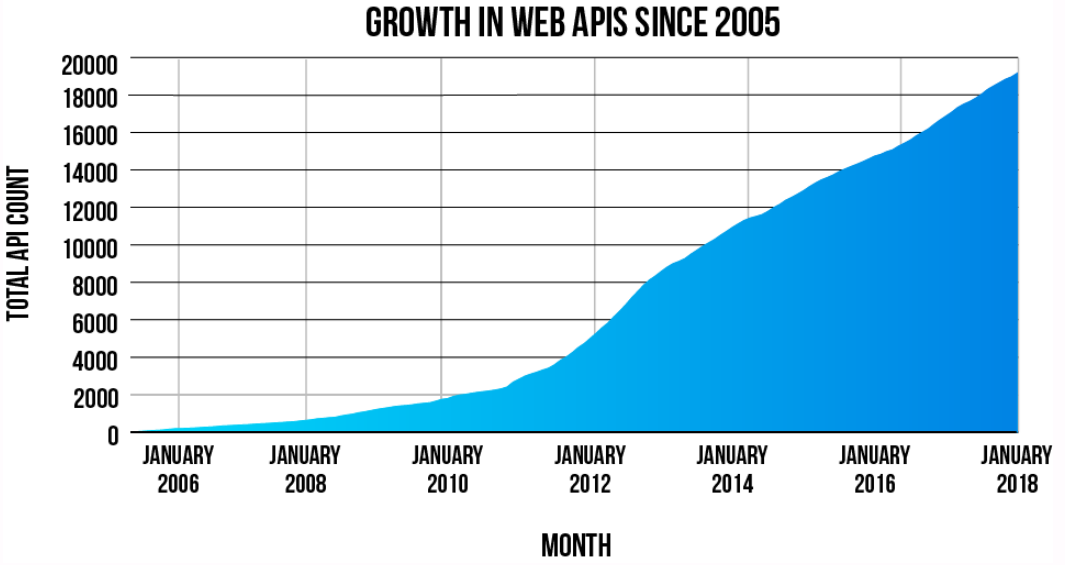
API and Agile

- Growth in the number of API
- Importance of time to market



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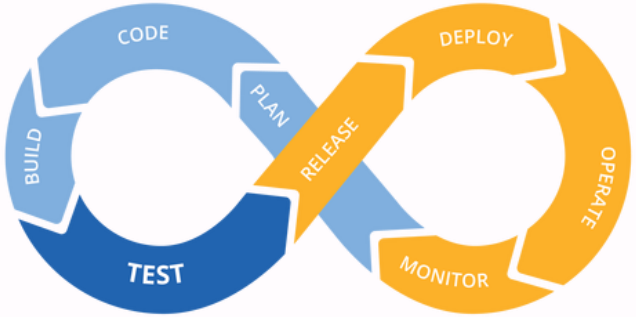
API and Agile

- Agile methodology to produce quick results
- But UI testing is currently:
  - too slow
  - Not adapted to Agile



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API and tests

- Test automation is the key
- Multiple possibilities for test automation

Which one to choose?

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Rest-assured test

- First choice for most people
- Java Domain Specific Language (DSL) for test
- Support response parsing (XML and JSON)
- BDD Syntax:
  - Easy reading
  - Maintainable

```
RestAssured.baseURI = "http://localhost/8080/myservice"

given()
        .param("x", "y")
        .header("z", "p")
when()
        .get("something")
then()
        .statusCode(200)
        .body("x.y", equalTo("z");
```

- Source code and tests in the same project

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Rest-assured test

- No report → need another unit test framework
- What if your code is not Java ?
- If your QAs are not developers ?

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Postman

- A UI tool for API testing
- Good for:
  - Exploratory tests
  - Functional and automated tests
- Easy to use
- Support response parsing (XML and JSON)
- Define the concept of collection for a group of requests

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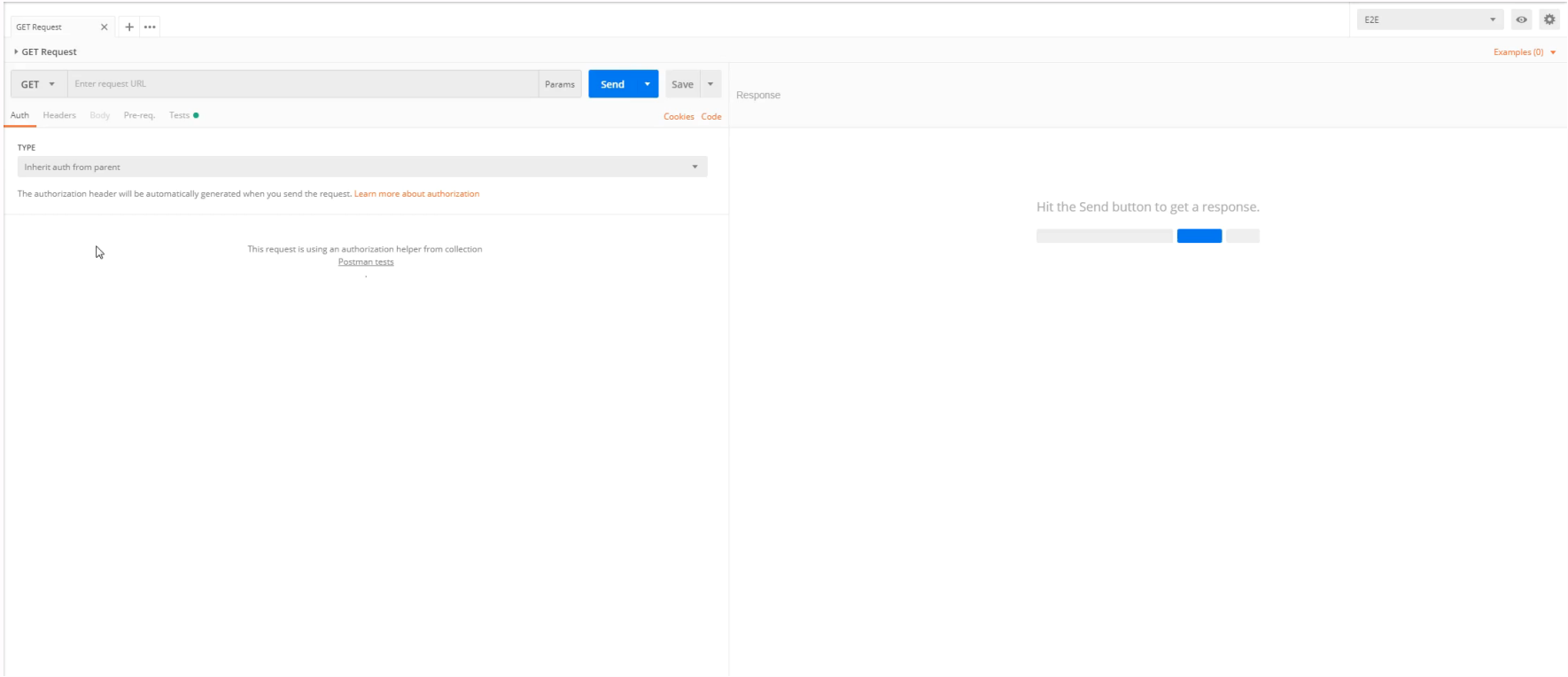

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Postman

- CLI (Newman) that integrates greatly with Jenkins
- CLI, XML and HTML reports
- Support SOAP call
- Basic Javascript testing with boolean

```
var response = pm.response.json();

tests["Body contains headers"] = response.headers !== undefined;
tests["Header contains host"] = response.headers.host !== undefined;
```

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Postman

```
❑ Headers
↳ Request Headers
  GET https://echo.getpostman.com/headers [200 OK, 851B, 182ms]
  ✓  Body contains headers
  ✓  Header contains host
  ✓  Header contains test parameter sent as part of request header

↳ Response Headers
  GET https://echo.getpostman.com/response-headers?Content-Type=text/html&test=r
esponse_headers [200 OK, 505B, 197ms]
  ✓  Body contains Content-Type
  ✓  response headers have key sent as part of request

❑ Request Methods
↳ GET Request
  GET https://echo.getpostman.com/get?test=123 [200 OK, 848B, 181ms]
  ✓  Body contains headers
  ✓  Body contains args
  ✓  Body contains url
  ✓  Args key contains argument passed as url parameter

↳ POST Request
  POST https://echo.getpostman.com/post [404 Not Found, 414B, 182ms]
```

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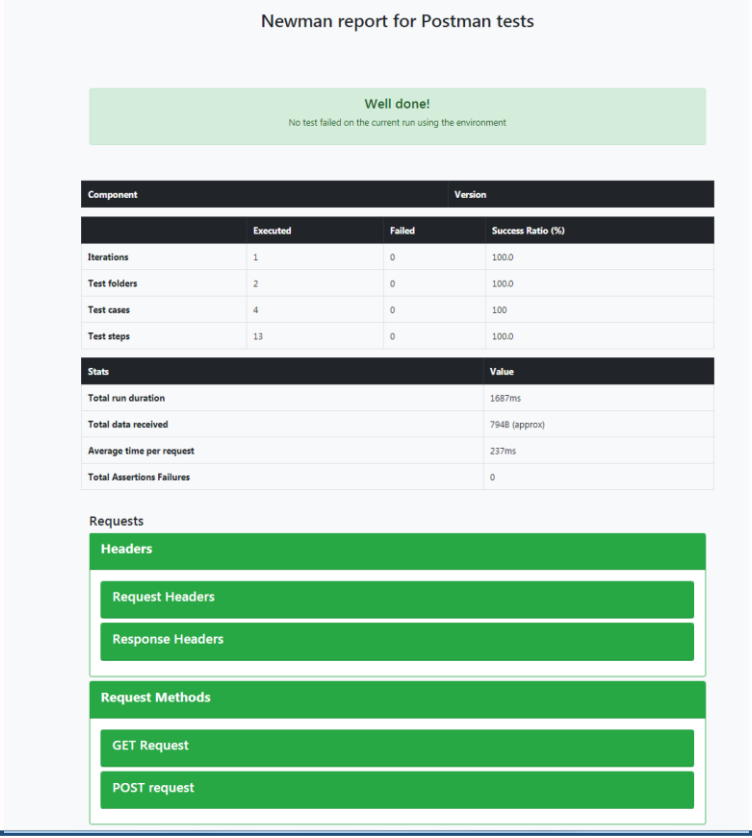
Postman



Newman report for Postman tests

Well done!

No test failed on the current run using the environment

Component	Version

	Executed	Failed	Success Ratio (%)
Iterations	1	0	100.0
Test folders	2	0	100.0
Test cases	4	0	100
Test steps	13	0	100.0

Stats	Value
Total run duration	1687ms
Total data received	794B (approx)
Average time per request	237ms
Total Assertions Failures	0

Requests

Headers

Request Headers

Response Headers

Request Methods

GET Request

POST request

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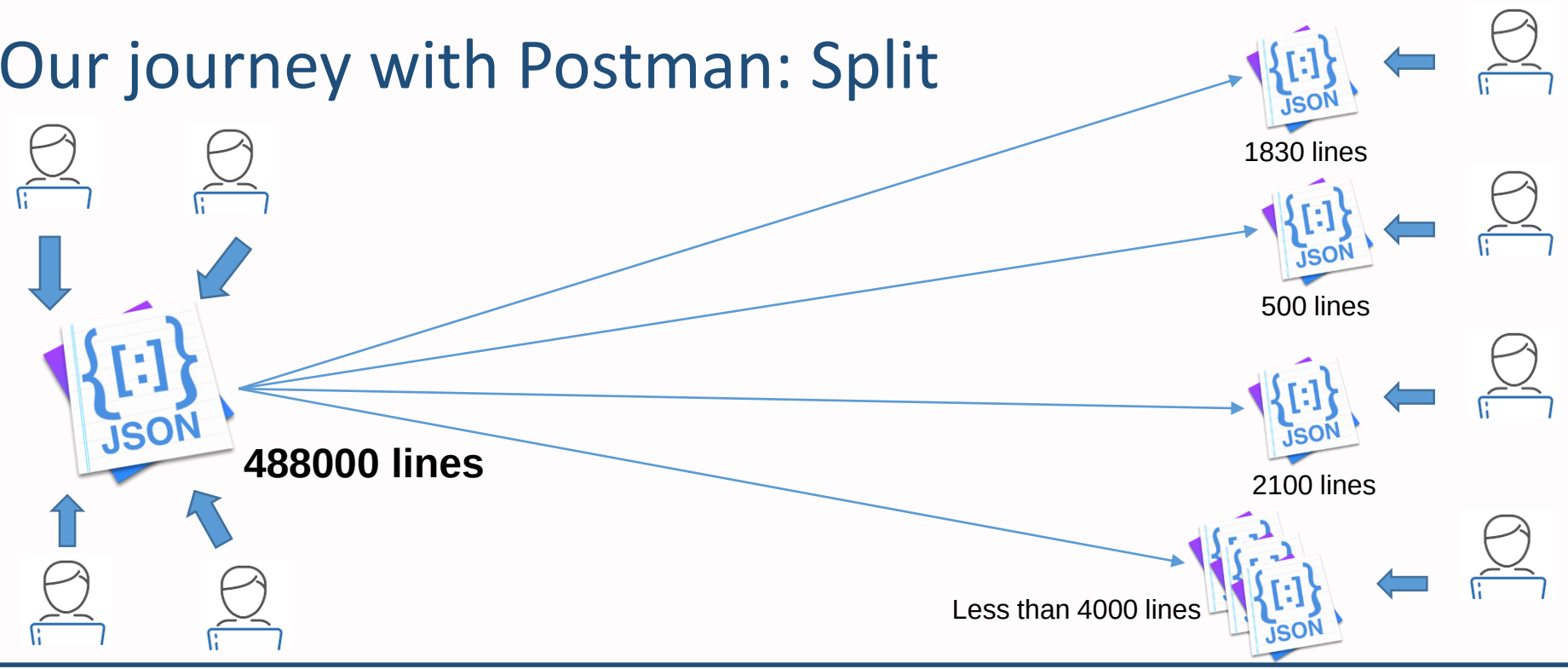
Our journey with Postman: Split



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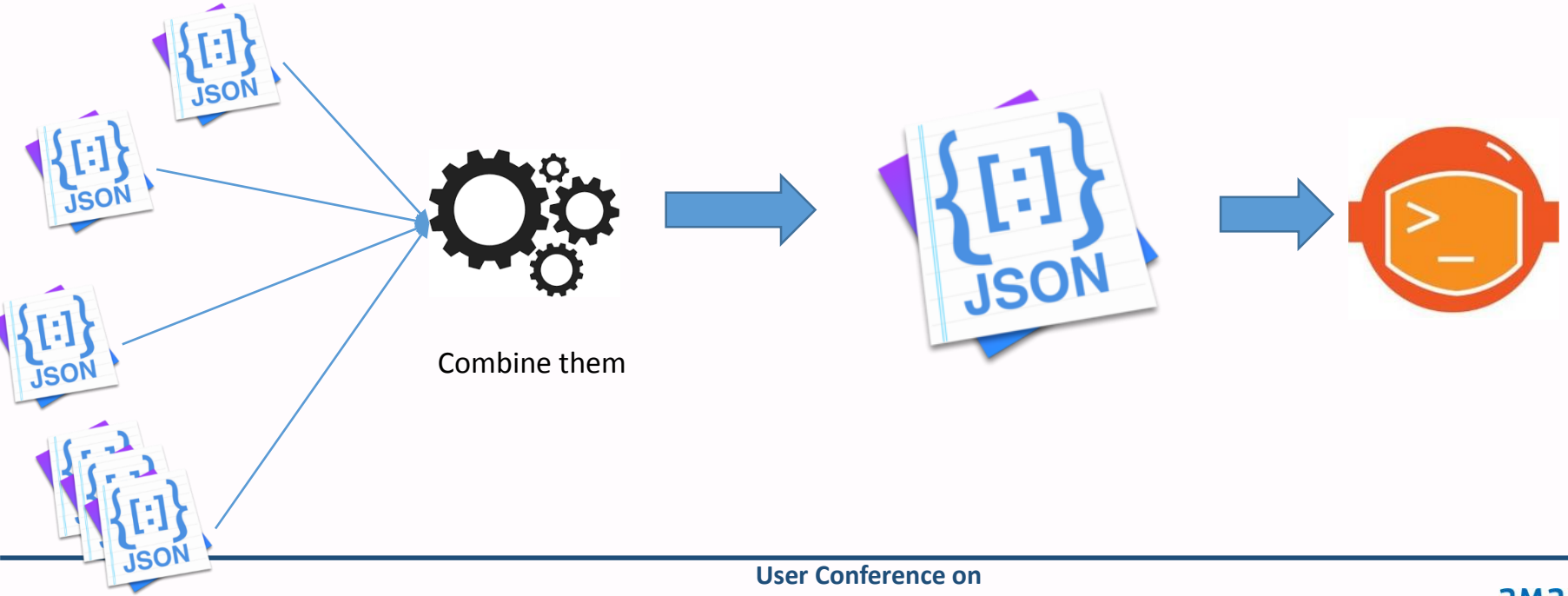
Our journey with Postman: Combine



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Our journey with Postman: BDD

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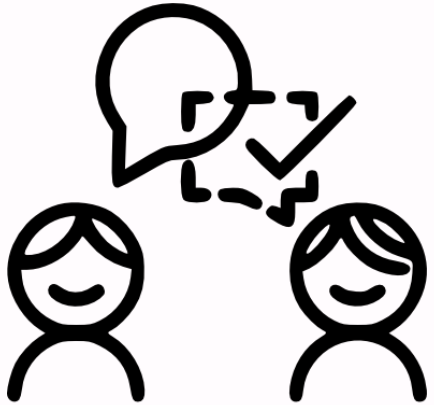
Our journey with Postman: BDD

```
var response = pm.response.json();

tests["Body contains headers"] = response.headers !== undefined;
tests["Header contains host"] = response.headers.host !== undefined;
```

```
var response = pm.response.json();

describe('A call to Postman echo service', () =>{
    describe('when calling get headers', () =>{

        it('should have headers property in body', () => {

        });

        it('should have host property in headers', () => {

        });
    });
});
```



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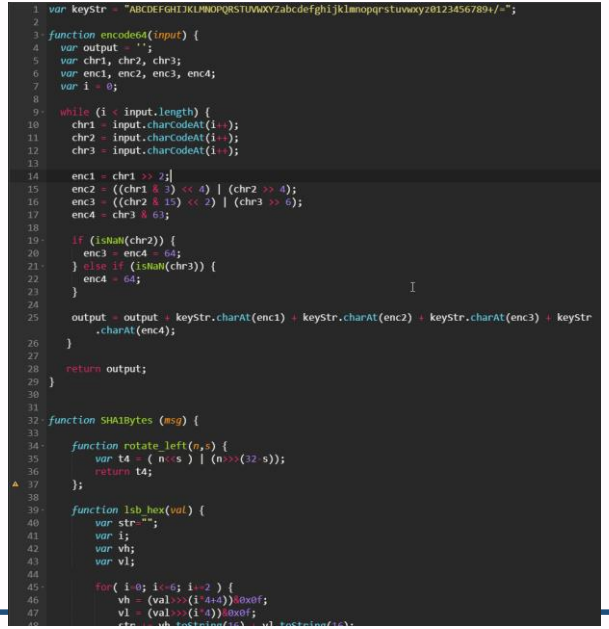
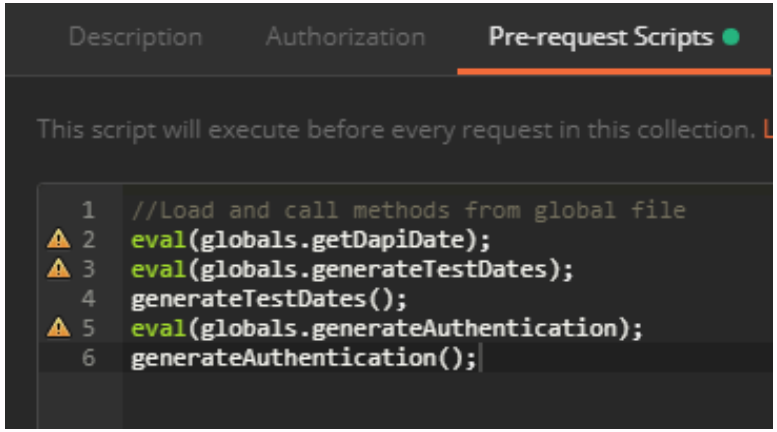
Our journey with Postman: Replication

- Saved re-usable functions into Postman environment



```
var keyStr = "ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/=";

function encode64(input) {
  var output = '';
  var chr1, chr2, chr3;
  var enc1, enc2, enc3, enc4;
  var i = 0;

  while (i < input.length) {
    chr1 = input.charCodeAt(i++);
    chr2 = input.charCodeAt(i++);
    chr3 = input.charCodeAt(i++);

    enc1 = chr1 >> 2;
    enc2 = ((chr1 & 3) << 4) | (chr2 >> 4);
    enc3 = ((chr2 & 15) << 2) | (chr3 >> 6);
    enc4 = chr3 & 63;

    if (isNaN(chr2)) {
      enc3 = enc4 = 64;
    } else if (isNaN(chr3)) {
      enc4 = 64;
    }

    output = output + keyStr.charAt(enc1) + keyStr.charAt(enc2) + keyStr.charAt(enc3) + keyStr
      .charAt(enc4);
  }

  return output;
}


function SHA1Bytes (msg) {

    function rotate_left(n,s) {
        var t4 = ( n<<s ) | (n>>>(32-s));
        return t4;
    };

    function lsb_hex(val) {
        var str="";
        var i;
        var vh;
        var vl;

        for( i=0; i<=6; i+=2 ) {
            vh = (val>>>(i*4+4))&0x0f;
            vl = (val>>>(i*4))&0x0f;
```

510 lines on every request



5 lines on every collection

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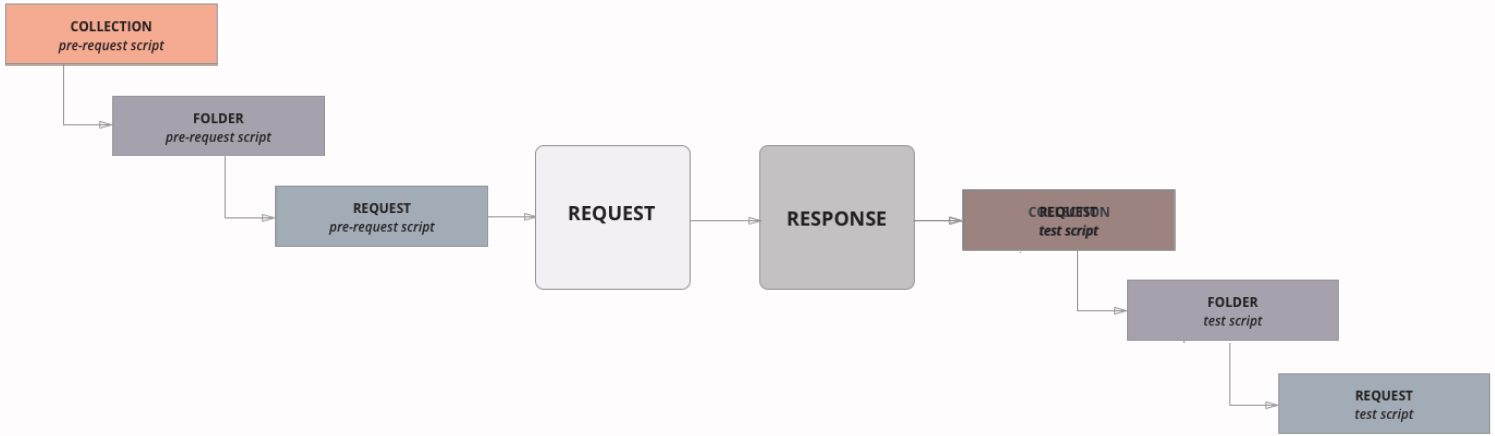
Our journey with Postman: Replication

- Use the collection structure at your advantage



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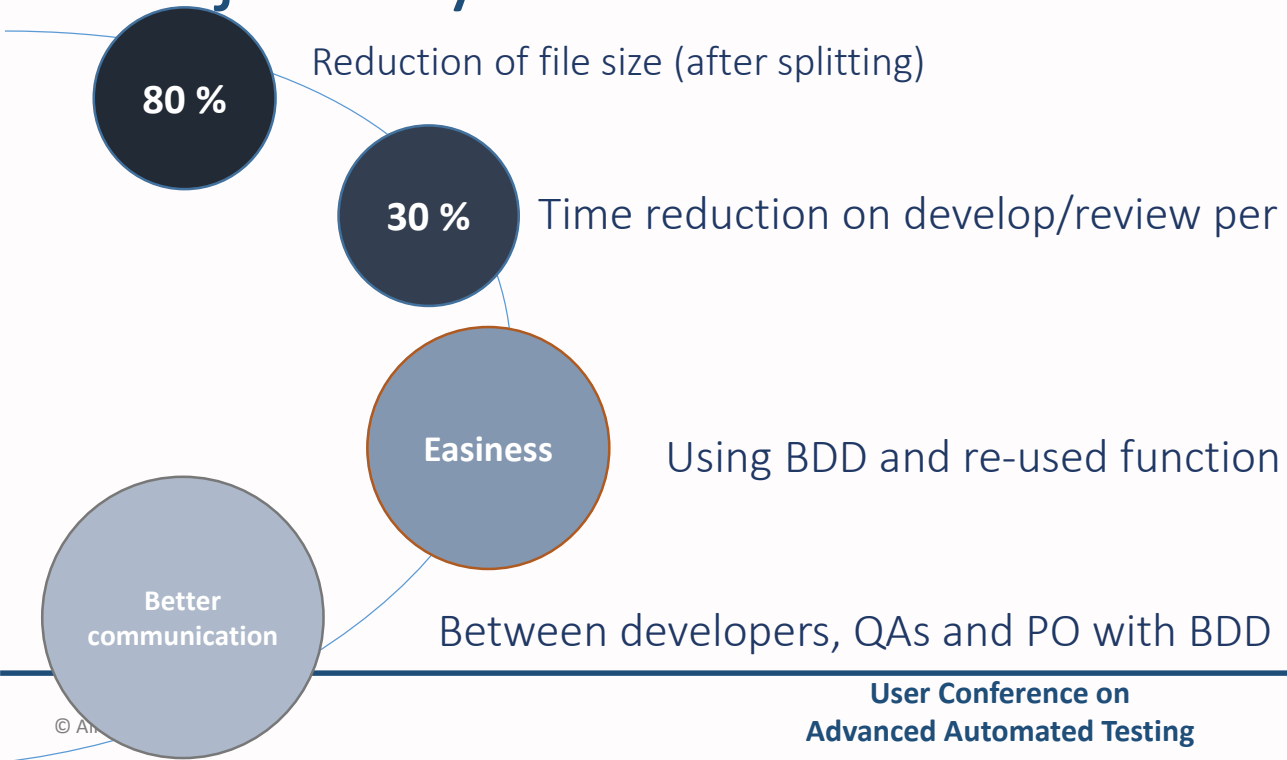
Our journey with Postman: Feedbacks



Key takeaway

- Simple yet powerful tool
- Use small collections to share work
- Integration of Newman with Jenkins
- Avoid duplicate code by using environment
- Use Collection structure to your advantage

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Thank you

Any questions?

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