Protecting, Testing and Documenting our API

Kevin Dockx
ARCHITECT

@KevinDockx https://www.kevindockx.com

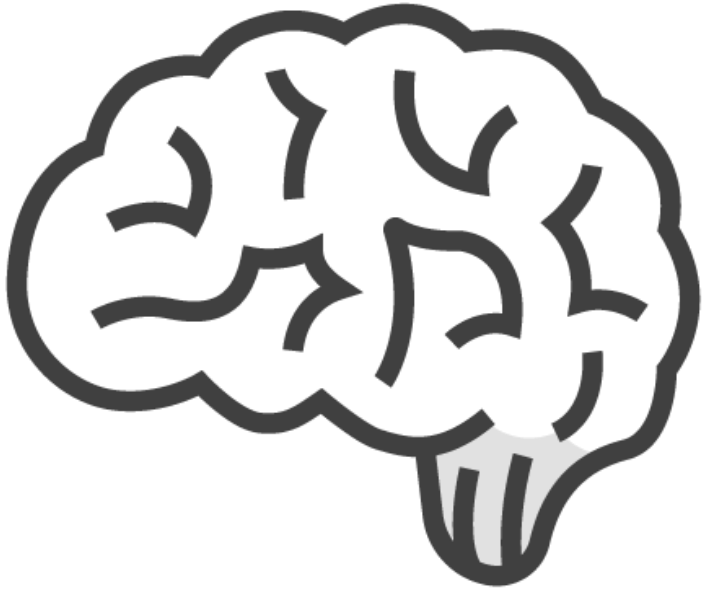
Coming Up

Rate limiting and throttling

Testing our API

Documenting our API

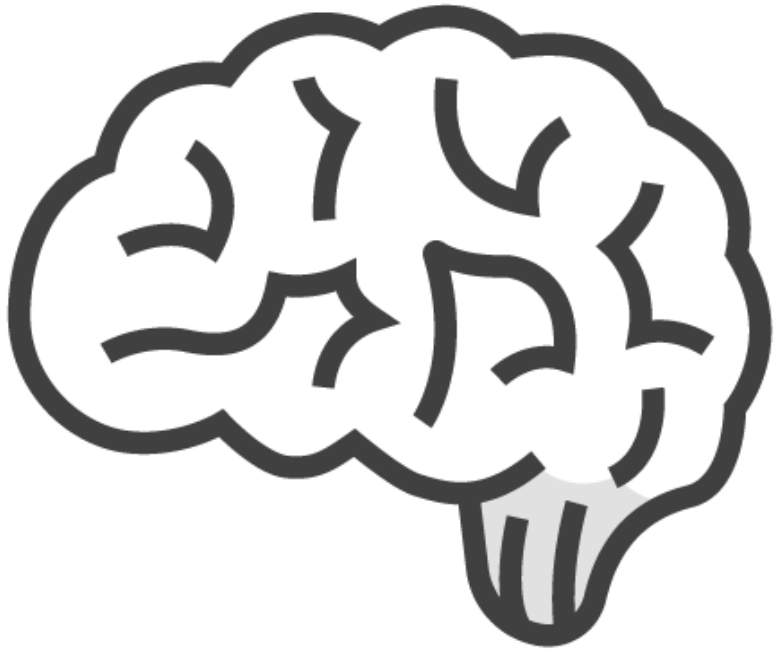
Consumer-level testing



Rate Limiting

Limits the amount of allowed requests to an API (or a specific resource)

Rate Limiting and Throttling



A throttle controls the rate of allowed requests

- Rate limited to 100 requests/hour per client
- Rate limited to 1000 request/day per IP, and 100 request/hour
- Rate limited to 1000 request/day per IP, and 50 to api/authors

Rate Limiting and Throttling

Allowed requests

Should contain rate limiting information in the response headers

X-Rate-Limit-Limit
rate limit period

X-Rate-Limit-Remaining
number of remaining request

X-Rate-Limit-Reset
date/time information on when the limits are reset

Disallowed requests

Warrant a 429 – Too many requests status code

May include a Retry-After response header

Response body should contain details explaining the condition

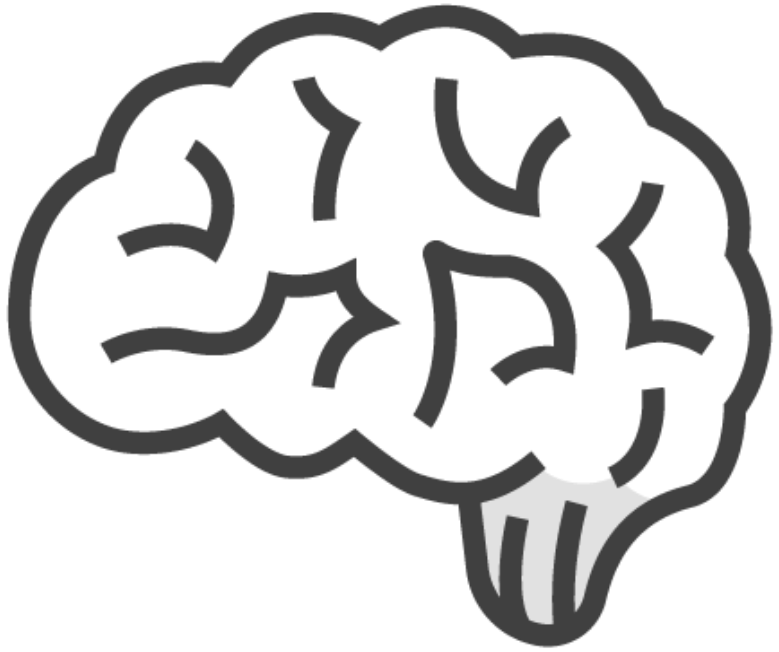
Demo

Rate Limiting and Throttling

Demo

Testing our API with Postman

Automated Testing and Continuous Integration



When checking code in, the code should be verified by an automated build & tests should be run

Newman is a command-line collection runner for Postman

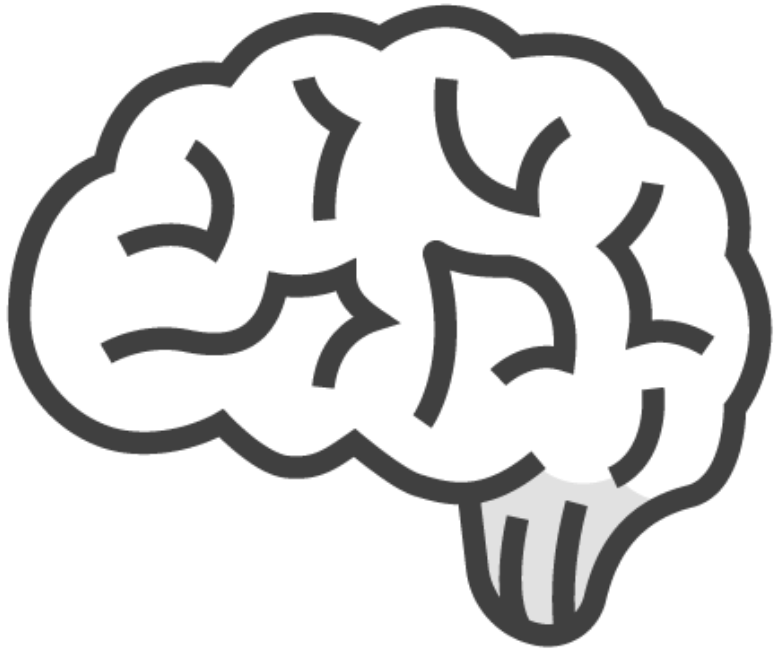
- Allows easy integration with Jenkins, TFS, ... for automated testing

```
newman -c mycollection.postman_collection --exitCode 1
```

Automated Testing and Continuous Integration

Add a build step calling into Newman to run a collection of tests

Documenting our API



The purpose is to provide documentation on how to consume the API

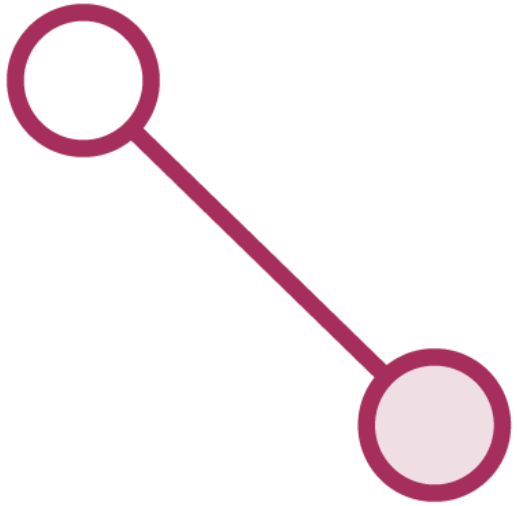
This type of documentation thus serves a different purpose than the technical design containing the outer-facing contract description!

Documenting our API

Resource identifier

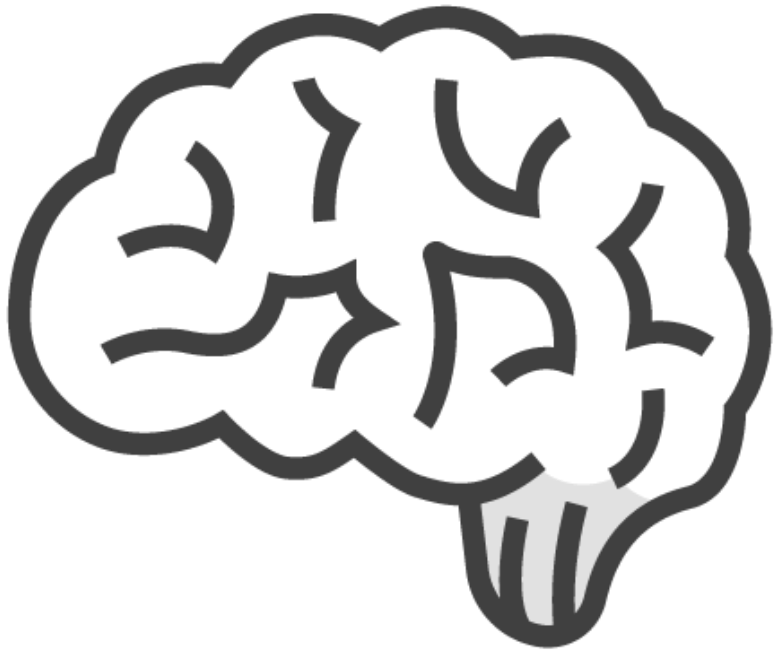
HTTP method

Payload
(+ media types)



Interactive UI

Documenting our API



Swagger OpenAPI (http://bit.ly/2joQ3y1)

Definition format to describe RESTful APIs (currently at v3)

Swashbuckle (http://bit.ly/1R9flui)

OpenAPI v2

No support for action overloading

In ConfigureServices (Startup class)

```
services.AddSwaggerGen(setupAction =>
            {
                setupAction.SwaggerDoc("libraryapi",
                new Info { Title = "Library API Documentation" });
            });
```

Using Swashbuckle

Register services

In Configure (Startup class)

```
app.UseMvc();
app.UseSwagger();
```

Using Swashbuckle

Add Swagger middleware to the request pipeline

swagger.json available at swagger/libraryapi/swagger.json

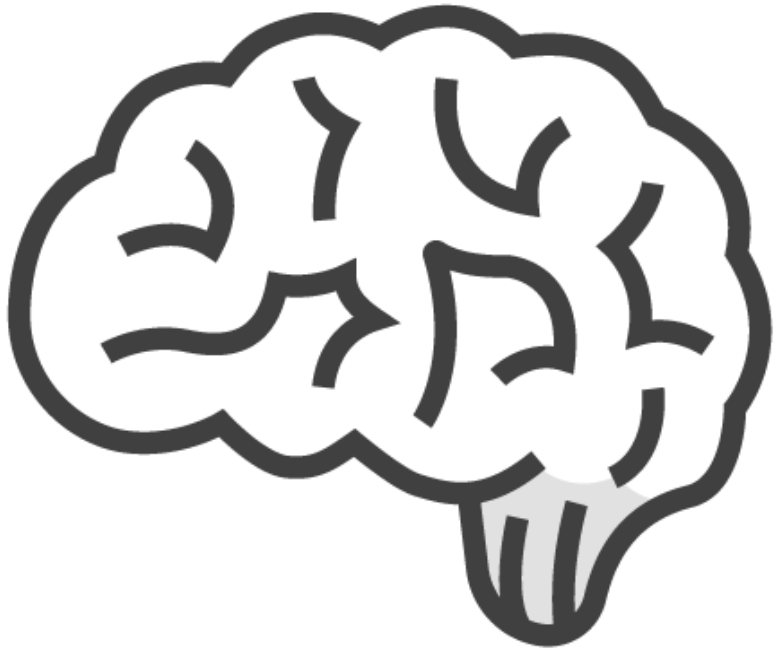
In Configure (Startup class)

```
app.UseSwaggerUi(c =>
{
   c.SwaggerEndpoint("/swagger/lib/swagger.json", "Library API");
})
```

Using Swashbuckle

Add SwaggerUi middleware to the request pipeline

Working with OPTIONS



Can be used by consumers of the API to

- Determine the options and/or requirements associated with a resource
- Determine the capabilities of a server, without implying a resource action or initiating a resource retrieval

```
OPTIONS api/authors

200 OK

Allow: GET,OPTIONS,POST
```

Working with OPTIONS

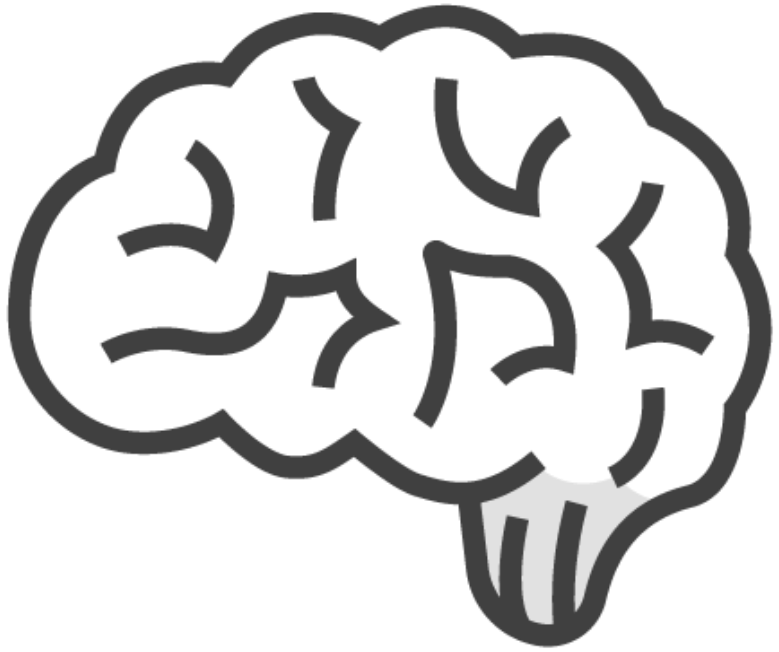
Works on resource level

Should return an Allow header

Demo

Supporting the OPTIONS Method

Working with HEAD



HEAD is identical to GET, but without a response body

Can be used by consumers of an API to test for validity, accessibility, and recent modification

Demo

Supporting the HEAD Method

Summary

Rate limiting limits the amount of allowed requests to an API (or a specific resource)

Postman can be used to write tests against an API

- Use Newman for CI

Good documentation includes

- Resource identifiers
- HTTP methods
- Payload information (media types)

Summary

Use OPTIONS to determine the options and/or requirements associated with a resource, or the capabilities of a server

Use HEAD to test for validity, accessibility, and recent modification

You’re ready to be AWESOME

@KevinDockx