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Using Swagger for creating a PingFed Admin API Java Wrapper



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Summary

- PingFederate Admin Api can be used for automating its setup configurations.
- Lack of any programmatic language wrapper makes it hard to use.
- Created Java Wrapper for this purpose **first time ever** in the pingfederate world
- Overcame technical challenges that were roadblock for realising the java wrapper
- Also provide actual demo and example code to prove the approach.
- When working on a SSN verification project for a client created this side project and used it for standing up quickly various pocs on aws. Accelerated and led to project success for client.

The title "Table of Contents" is written in a large, white, bold, sans-serif font, centered on the left side of the slide. The background behind the text is a vertical strip with a blue sky and a green bar on the right, and a cityscape with a large blue pool below.

Introduction

Problem Definition

How this was achieved

Hurdles

Innovation Approach

Demo

Origin Story:

Some time back I had the opportunity to work with a client of mine and use pingfederate to solve a business problem for my client. Not giving more details due to NDAs. This involved working with US government's SSN verification web service and leveraging OIDC for this purpose.

The actual code I wrote was just a few spring boot classes. The project was more about Architecture, Integration, Infrastructure etc. It was a success and quickly delivered.

When working on this project I created a side utility.

This is the side utility- <https://github.com/teq-niq/pingfed-automation>

Highlights:

- This is the **first time** in pingfed world such a utility has been created.
- There are some innovative concepts in it.
- Creating of it had some challenges.
- Will discuss them later alongwith how it was overcome.

What was the problem again?

Problem Definition revisited:

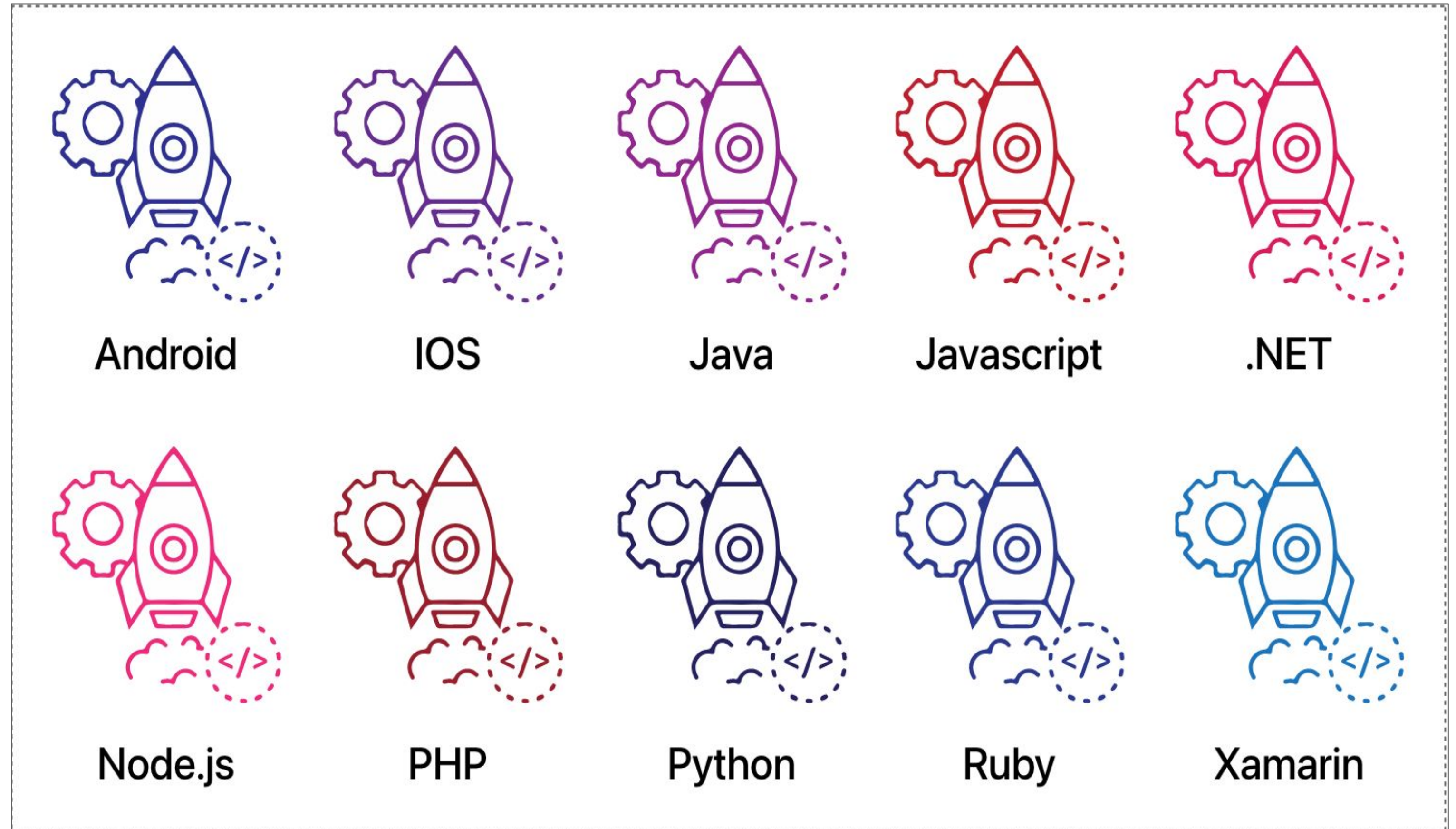
- PingFederate Admin Api can be used for automating its setup configurations.
- Lack of any programmatic language wrapper makes it hard to administer/configure.



Lack of a programmatic wrapper and implications.

- Just to illustrate the problem
- AWS provides SDKs in various programming languages.
- These SDKs sit on top of the underlying rest web service api.
- It's always easier to use the SDK than work with the underlying web services using postman/curl

AWS SDKS



Achieved a Java Wrapper

- Note: First time in the world :)
- Also possible to achieve in other languages if needed

The diagram illustrates the architecture. At the top, a hexagonal box labeled 'Admin API' contains a red button with a person icon and the text 'PingFederate'. Below this box is the text 'Java Rest Client Wrapper'. A blue arrow points upwards from the wrapper towards the Admin API box.

PingFederate

Administrative API Documentation

[Base URL: localhost:9999/pf-admin-api/v1]
[/pf-admin-api/v1/swagger.json](#)

The PingFederate Administrative API is a REST-based interface that provides a programmatic way to make configuration changes to PingFederate as an alternative to using the administrative console.

Expand the resources below to display implementation details on that resource such as the available endpoints, the parameter and response models for the operation, and the model structure of the resources themselves. Each resource operation comes with the ability to interact with the API. You are prompted for proper administration credentials when you try to perform an API operation.

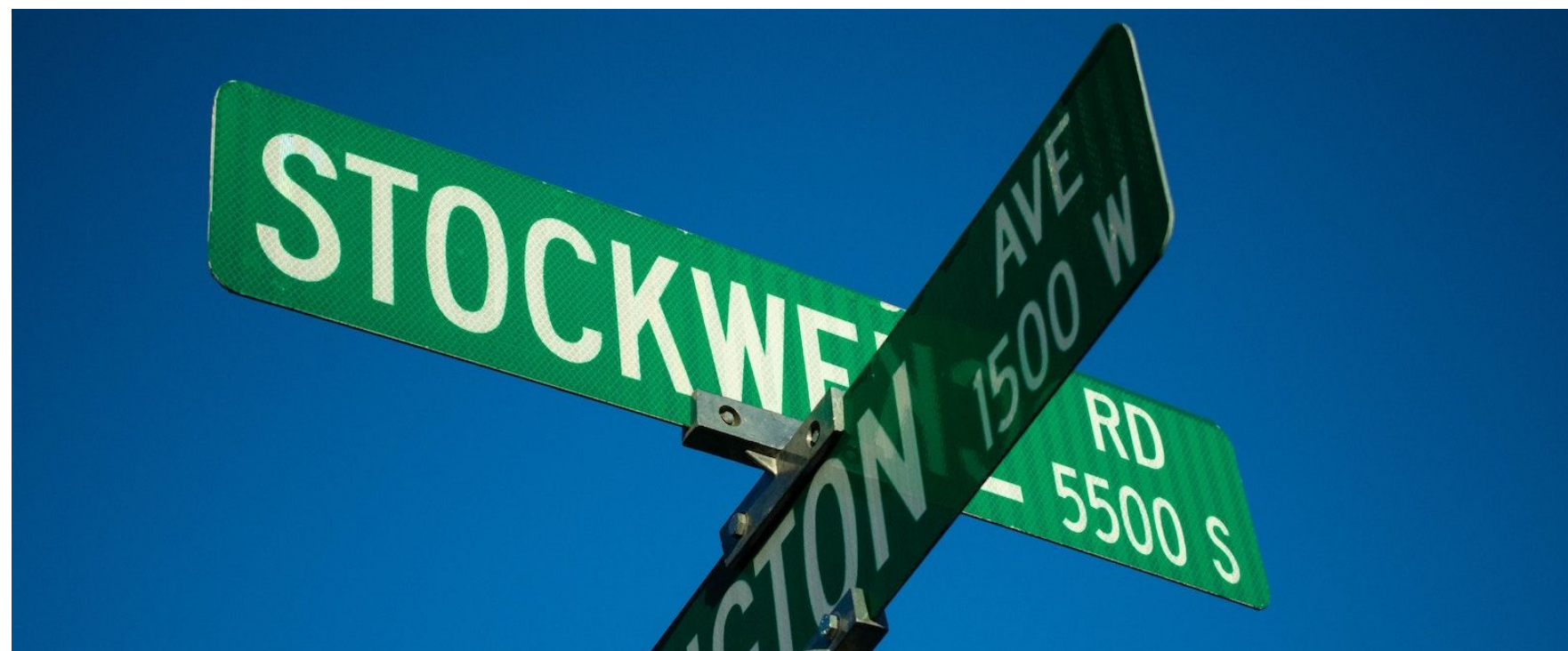
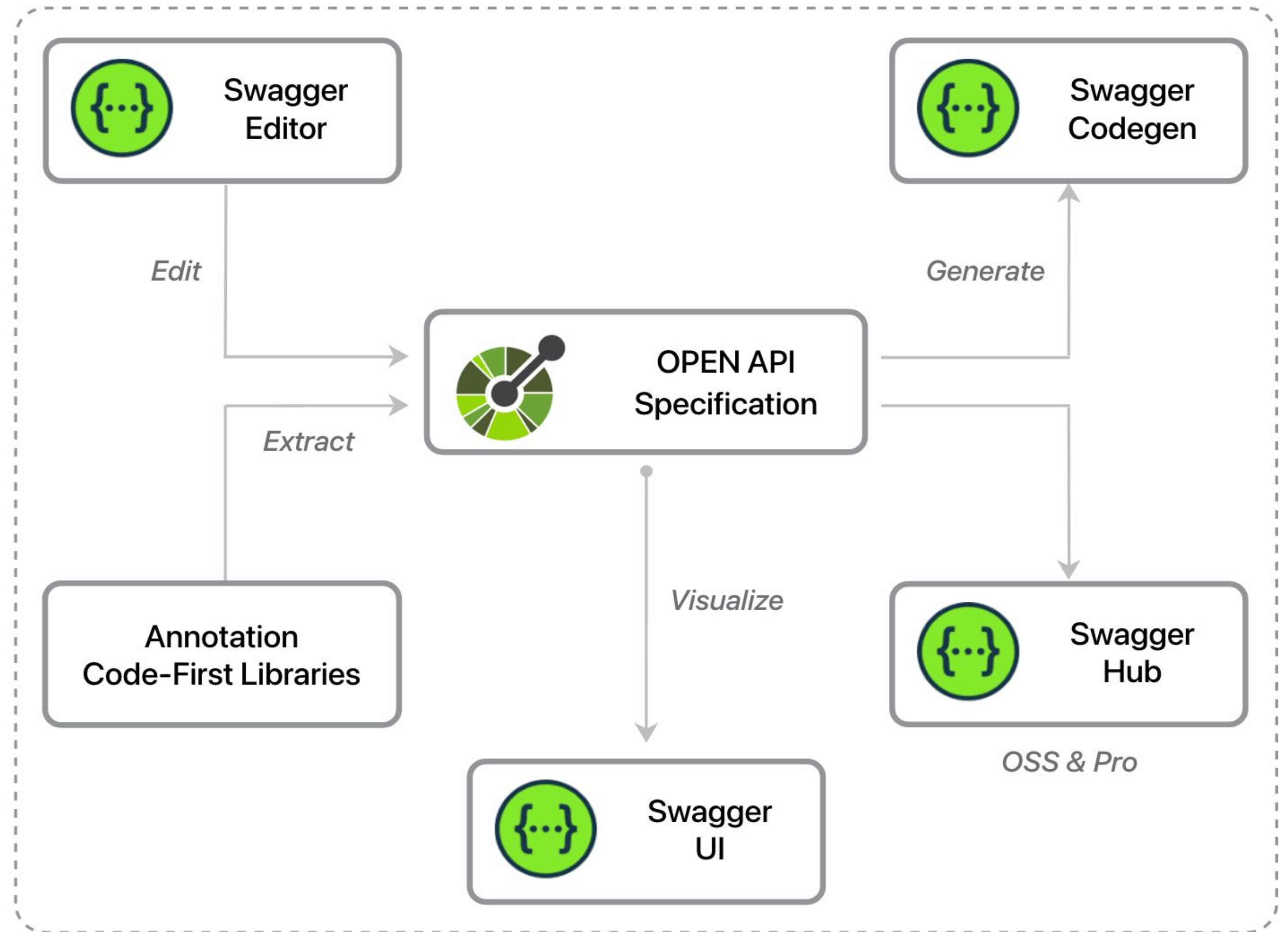
/administrativeAccounts

GET	/administrativeAccounts	Get all the PingFederate native Administrative Accounts. ▾
POST	/administrativeAccounts	Add a new PingFederate native Administrative Account. ▾
GET	/administrativeAccounts/{username}	Get a PingFederate native Administrative Account. ▾
PUT	/administrativeAccounts/{username}	Update the information for a native Administrative Account. ▾
DELETE	/administrativeAccounts/{username}	Delete a PingFederate native Administrative Account information. ▾
POST	/administrativeAccounts/{username}/resetPassword	Reset the Password of an existing PingFederate native Administrative Account. ▾
POST	/administrativeAccounts/changePassword	Change the Password of current PingFederate native Account. ▾

Swagger Recap

Approaches

- API Specs to Code (Design First)
- Code First



Is that all we did?

Yes
&
No

```
<plugin>
  <groupId>io.swagger</groupId>
  <artifactId>swagger-codegen-maven-plugin</artifactId>
  <executions>
    <execution>
      <goals>
        <goal>generate</goal>
      </goals>
      <configuration>
        <inputSpec>${project.basedir}/swagger-json/swagger.json</inputSpec>
        <language>java</language>
      </configuration>
    </execution>
  </executions>
</plugin>
```

```
import com.example.pingfedadmin.invoker.ApiClient;

@javax.annotation.Generated(value = "io.swagger.codegen.languages.JavaClientCodegen", date = "2023-02-14T00:17:56.947+05")
@Component("com.example.pingfedadmin.api.DataStoresApi")
public class DataStoresApi {
    private ApiClient apiClient;

    public DataStoresApi() {
        this(new ApiClient());
    }

    @Autowired
    public DataStoresApi(ApiClient apiClient) {
        this.apiClient = apiClient;
    }

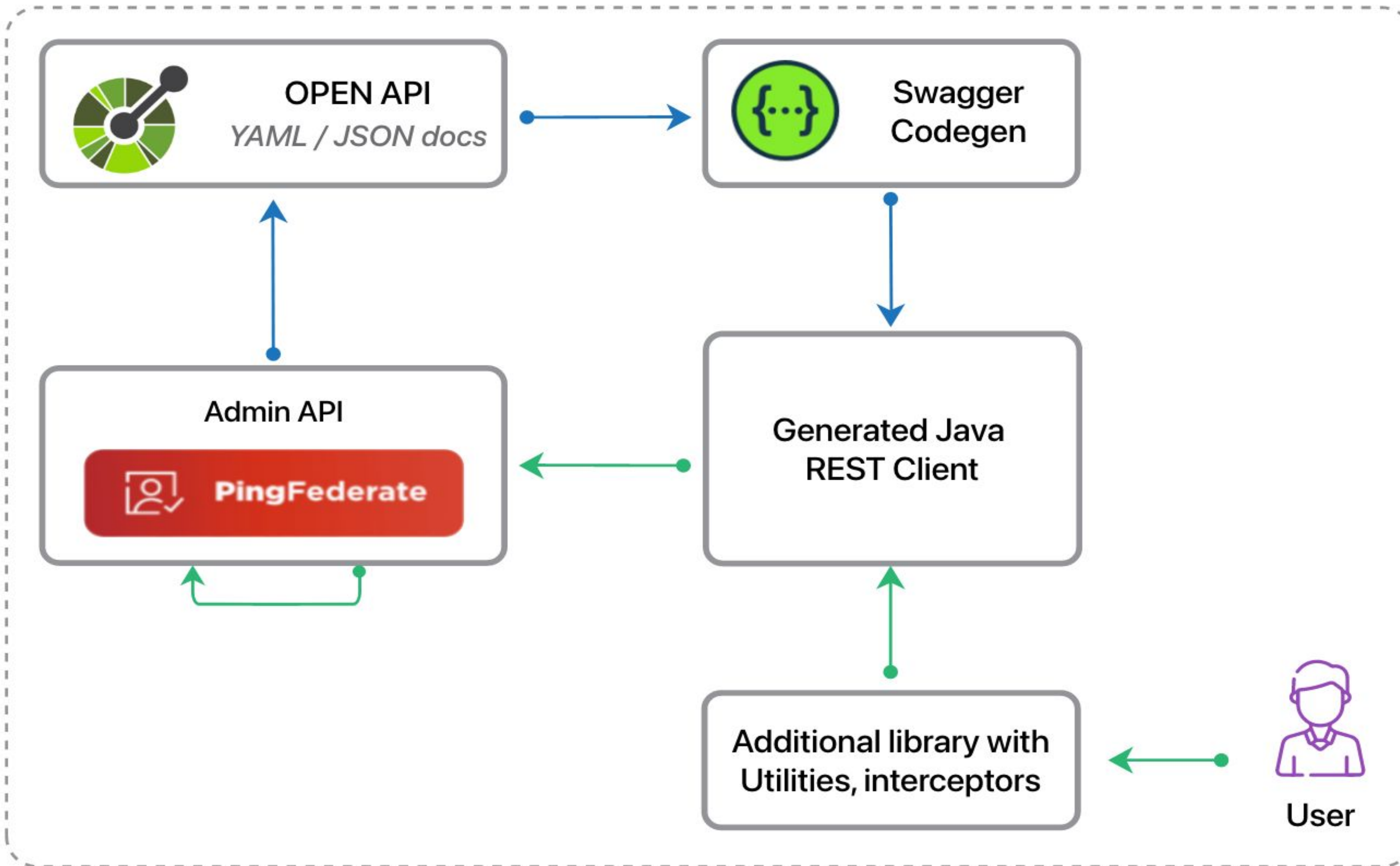
    public ApiClient getApiClient() {
        return apiClient;
    }

    public void setApiClient(ApiClient apiClient) {
        this.apiClient = apiClient;
    }

    /**
     * Create a new data store.
     * Create a new data store. If the data store is not properly configured, a 422 status code is returned along with a
     * <p><b>201</b></p> - Data store created.
     * <p><b>400</b></p> - The request was improperly formatted or contained invalid fields.
     * <p><b>422</b></p> - Validation error(s) occurred.
     * @param body Configuration for new data store. (required)
     * @param xBypassExternalValidation Connection test will be bypassed when set to true. Default to false. (optional)
     * @return DataStore
     * @throws RestClientException if an error occurs while attempting to invoke the API
     */
    public DataStore createDataStore(DataStore body, Boolean xBypassExternalValidation) throws RestClientException {
```



High-Level Solutioning...





Hurdle:

- Generated code was not usable
- Read more about that and the solution adopted here-
<https://github.com/teq-niq/pingfed-automation/blob/main/SwaggerNotes.md>
- In addition to the general approach used we had to innovate further and resolve the hurdles.

Does it really work?



Try it out:

- Follow steps in <https://github.com/teq-niq/pingfed-automation>
- It did something. How do I know it really worked?
- The code base in the repository also contains example demo code examples that can be used to verify that it works. -

<https://github.com/teq-niq/pingfed-automation/blob/main/oidc-check/springboot.oidc.with.angular/README.md>



Demonstration

Supported Ping Federate Versions

- <https://github.com/teq-niq/pingfed-automation/blob/main/versions/versions.md>

Pingfederate	Pingdirectory
11.1.2	9.1.0.0
11.1.3	9.1.0.1
11.2.0	9.2.0.0
11.2.1	9.2.0.0
11.2.2	9.2.0.0
11.2.3	9.2.0.0

Will I keep maintaining this?

- I created this mainly because it helped me standup my pingfed PoCs rapidly when working on a client project.
- I keep doing something different like this all the time.
- Will try maintaining it as long as it does not tax me too much and PingFed itself does not provide similar solutions.
- Long term can keep at it if there are indicators encouraging me to carry on with it- eg stars, likes, clones etc. Will try taking it to a larger audience and see. If there is matching interest will keep it up else will park it.

More stuff by Author

Some of the other swagger articles by Author

- <https://dzone.com/articles/extending-swagger-and-spring-doc-open-api>
- <https://dzone.com/articles/doing-more-with-springdoc-openapi>
- <https://dzone.com/articles/openapi-3-documentation-with-spring-boot>

Contributions in swagger world - Have some contributions in Swagger, openAPITools and in springdoc-openAPI. The direct contributions are mentioned below. (Not mentioning some PRs which were enhanced and merged indirectly.)

- <https://github.com/OpenAPITools/openapi-generator/pull/1252>
- <https://github.com/OpenAPITools/openapi-generator/pull/1179>
- <https://github.com/swagger-api/swagger-core/pull/3510>

Also Listed here

- <https://github.com/swagger-api/swagger-core/graphs/contributors>

Very Minor contributions eg- documentation, sample code

- <https://github.com/awsdocs/aws-doc-sdk-examples/pull/3417>

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Thank You!

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