GlobalWeather Service API - Tech Spec

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Summary

GlobalWeather is a free web service. It provides data about the current weather for all major cities around the World, and the major cities for each country. The service is located at http://www.webservicex.net/globalweather.asmx.

This legacy SOAP API web service is accessible for the vast majority of applications over the internet. The proposed new GlobalWeather Service API here will address most of the issues facing many applications these days, building API integrations for bridging the gap between the legacy and modern end users. There would be no need of re-architecting or re-designing the legacy system with RESTful applications, which would save us time and cost.

Goals

- Providing a solution for exposing a legacy SOAP based web service through REST API
- The solution must quickly and easily take existing SOAP - XML based service and generate REST/JSON format
- The solution must consume/expose SOAP endpoint through REST API and the following methods:
  - **GetCitiesByCountry** to get a list of all the cities for any country
  - **GetWeather** to get weather for any city/country combination

Non-Goals

At this stage, these will be not covered:

- Security - *not implemented yet*;

- Authentication & Authorisation - *not implemented yet*;

- Pagination - *not implemented yet*;

- Filters - *not implemented yet*;

- POST, PUT, PATCH, DELETE - *not implemented yet*.

Plans

The plan is to develop a GlobalWeather Service API based on a REST Architectural style. This service will bridge the gap between the exsiting GlobalWeather web service, a legacy based SOAP API and to reach more end-users. Basically, the new service will transform a SOAP message payload to a JSON payload as the majority of applications work with JSON format.
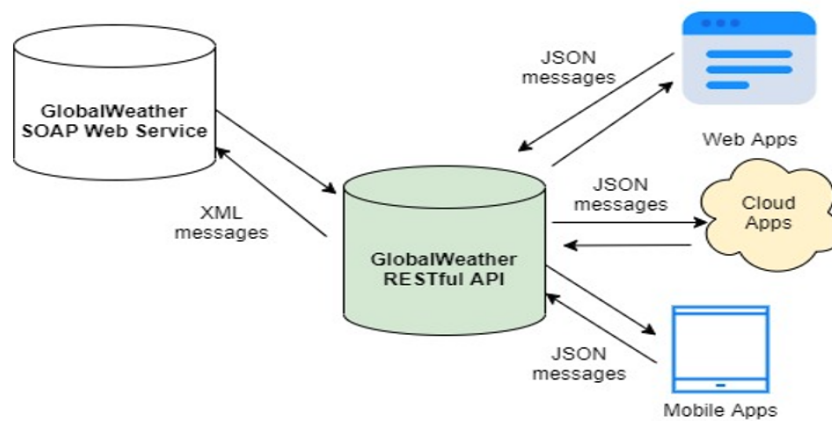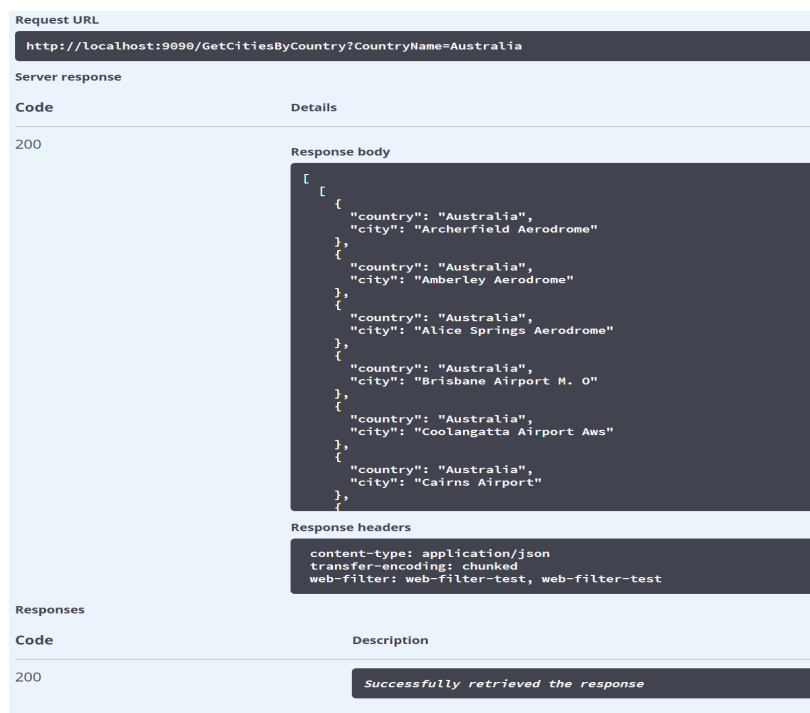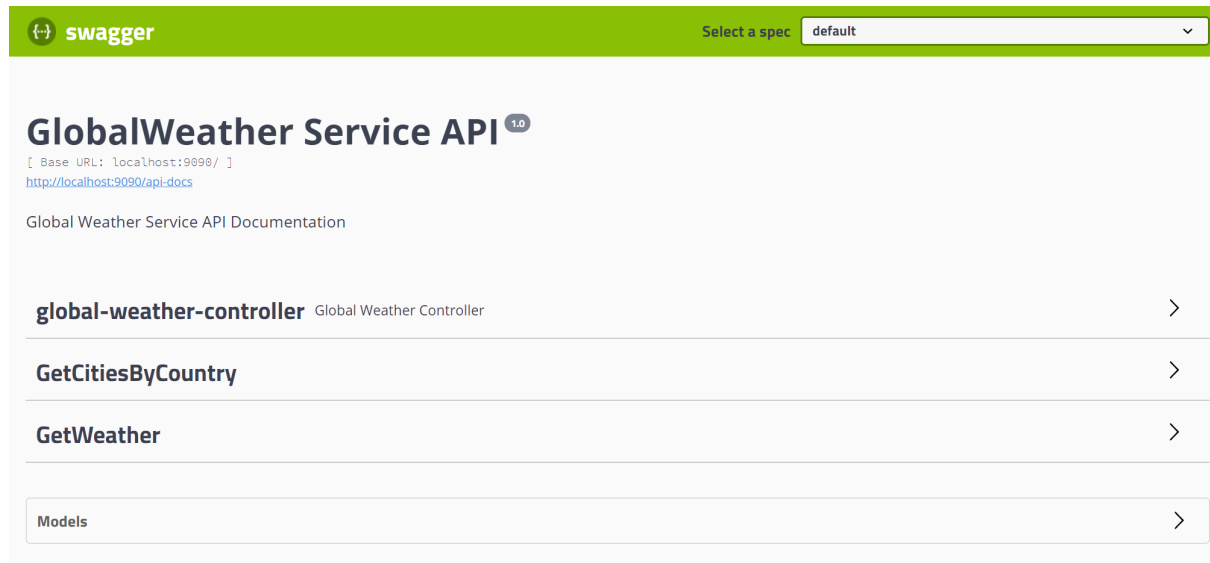

fig.1 REST API integration

The image above shows an example how the new service integrates with the legacy system and other applications.

Here are some screenshots from the initial prototype version of the GlobalWeather Service API:

Examples of how we can use the GET methods:

To get GetCitiesByCountry - http://localhost:9090/getCities/Australia/

To get GetWeather - http://localhost:9090/getWeather/Australia/Melbourne/

Here is the example of the JSON format of the SOAP message.

← → C 🔒 localhost:9090/getCities/Australia/

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Technology stack: Spring Boot with WebFlux, and Swagger.

Spring Boot with WebFlux looks like an excellent framework choice for RESTful applications. Spring WebFlux offers a reactive and non-blocking approach for building Web Applications. The benefit of reactive and non-blocking is the ability to scale with a small, fixed number of threads and less memory, which leads to more graceful handling of loads.

Measuring Impact

Operational metrics give an indication of the operational stability of an API platform. We need to be able to measure API performance, such as the number of APIs, the number of API calls, CPU or memory usage.

Security, Privacy, Risks

Preventing the public API vulnerability of most common attacks is a must. Best practise is to use both SSL/TLS, avoiding DDos attacks, SQL injection, all of this has to be explored and implemented.

Other Considerations

- Hosting - client responsibilities.
- Deployment & Maintainability - team "AR Engineering" will be responsible for outgoing fixes, maintenance and improvements.

Milestones

GlobalWeather REST API stages:

- Research and Design complete: September 20th

- Development complete: September 23th

- QA complete: September 24th

- Deployment delivery complete: September 27th

Open Questions

Any questions or consideration regarding the architectural choice of technologies are welcomed?