

New Mexico Environment Department API Integration Platform

Overview

The New Mexico Environment Department, as part of an Exchange Network (EN) grant, is working with the E-Enterprise Federated Identity Bridge to integrate a shared API management platform. State and EPA staff are experimenting with the capabilities of the platform, including its capabilities to:

- Manage permissions so that API owners can manage their own APIs securely and easily provide permissioned access to them
- Host dynamic documentation
- Provide capabilities for a full featured developer portal including interacting with hosted APIs
- Transform and manipulate API data requests and responses

States are currently building a proof of concept API integration using the shared gateway effort to build maps which draw dynamically on state APIs and the Tableau Server tool hosted by the State of Colorado to build maps displaying border state environmental information.

The Challenge

New Mexico's API strategy began as a mitigation plan to facilitate access for internal development teams to access data residing on legacy systems. Many of these systems are Oracle-based and include numerous stored procedures. Being a heavy lift to move all the data off Oracle, the focus became to identify a way to access the data without having to refactor the system. In addition, a further requirement was that New Mexico needed to provide access to this same data for use with GIS tools and to the public.

Alternatives Considered

API Integration Platform tools are continuing to evolve and mature. New Mexico considered the use of open source solutions, however, they felt that even open source solutions had some proprietary aspect. New Mexico selected Google's Apigee Platform for its ease of use, price point (at the time), and ability to meet both functional and technical requirements.

Implementation Approach

New Mexico has followed an Agile approach to the development of its API Integration Platform. They are currently building out the public API portal and populating the inventory of APIs. They have streamlined the creation of APIs via two related services that are currently in use:

- The Universal Data Service is a PHP service which pulls data directly from the Oracle datastore via Stored Procedure and then translates to JSON.
- The Universal Data API leverages NameSpaces – virtual hosts by topic (Air, Waste, Water, etc.) and creates endpoints dynamically via a simple server-based .ini file. This allows them to quickly

provision APIs to proxy via the API Management Platform, and thenceforth, to publish via the API Portal.

The ability to manipulate API proxies has delivered significant value. Now instead of one data source, dozens can be created increasing reusability and the flexibility of the API-First approach.

Best Practices and Lessons Learned

In describing their API strategy and development approach, New Mexico identified the following best practices and lessons learned that may benefit other development teams:

- **Establish API Product Owners** – The Role of the API Product Owner is critical as they ensure development efforts reflect true customer business needs and priorities.
- **Advocate for “API First”** – API Development Teams must be advocates for their services and communicate the benefits of an “[API First](#)” philosophy. Understanding of APIs and their benefits and capabilities is mixed, so outreach and education are critical. As understanding grows, there is overall appreciation that APIs enable greater and more efficient access to data, allowing data to be used in multiple ways outside of a specific application. This speeds up development of new solutions and provides flexibility as to the user interfaces that leverage that data.
- **Do Not Recreate the Wheel** – In the beginning of the development effort, New Mexico tried to create their own API security. They realized it was more efficient, more secure, and less maintenance and support to leverage an existing API Management solution.
- **Look for Low Barriers to Entry** – API Integration Platforms should minimize the burden on development teams. The goal is to implement API standards that provide consistency across the API Integration Platform, but minimize the disruptions to the data provider. It should not be a monumental task to make changes to the data sources because of a change in standards. Implementing standards on platforms versus via data sources significantly lowers the bar for standards adherence.
- **Encourage Collaboration** – Development of an API Marketplace could provide significant value. New Mexico described their vision as an environmental, collaborative, public space to find data that links to each state’s API sites. Data should “live” in the owning organization’s environment, but links are provided from the API Portal so that there is a central location to search for and access APIs. Different levels of security are also provided. For example, there may be an opportunity for collaboration on partner-to-partner APIs that may not yet be ready for public consumption. Organizations could get feedback from partners on their APIs and grow the maturity of the API.

Contacts

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