EVOLVE
An HCM Growth Summit

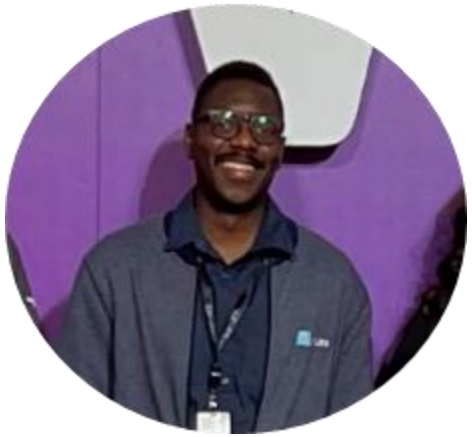
API Strategy & the Asure Marketplace

Presenter: Christian Franklin

2024 Asure Reseller Partner Conference

Asure

Speaker Introduction



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Architects

Integrations, Marketplace, AsureID, Engineering

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Product Manager/Owner

Integrations & Marketplace

Session Agenda

01 Introduction

02 Current state of APIs @Asure

03 Modernization Insight: Guiding Principle

04 API Vision

05 Timelines & Roadmap Prerequisites

06 Q & A

EVOLVE
An HCM Growth Summit

What is an API?

American Petroleum Institute

Natural Gas & Oil ⌄ Products & Services ⌄

EXPERIENCE api

About API

Overview & Mission | Principles | Origins | Timeline

Who We Are

API represents all segments of America's natural gas and oil industry, which supports more than 11 million U.S. jobs and is backed by a growing grassroots movement of millions of Americans. Our nearly 600 members produce, process and distribute the majority of the nation's energy, and participate in API Energy Excellence®, which is accelerating environmental and safety progress by fostering new technologies and transparent reporting. API was formed in 1919 as a standards-setting organization and has developed more than 800 standards to enhance operational and environmental safety, efficiency and sustainability.

Although our focus is primarily domestic, in recent years our work has expanded to include a growing international dimension, and today API is recognized around the world for its broad range of programs:

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Introduction to APIs

- Application Programming Interfaces (APIs) are beneficial ways of transferring information between systems
- Different types of APIs: REST, SOAP, GraphQL, Websockets
- APIs have evolved from basic programming constructs to critical components of modern digital ecosystems
- They allow for interoperability, flexibility and allow for new business models
- In the 1970s APIs were used as software interfaces that allowed various applications to communicate with the operating system

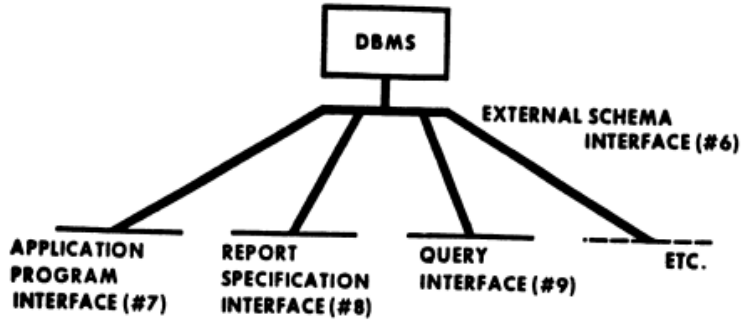
History of APIs

- The term *API* initially described an interface only for end-user-facing programs, known as application programs. This origin is still reflected in the name "application programming interface." Today, the term is broader, including also utility software and even hardware interfaces.[7]

- A diagram from 1978 proposing the expansion of the idea of the API to become a general programming interface, beyond application programs alone[6]

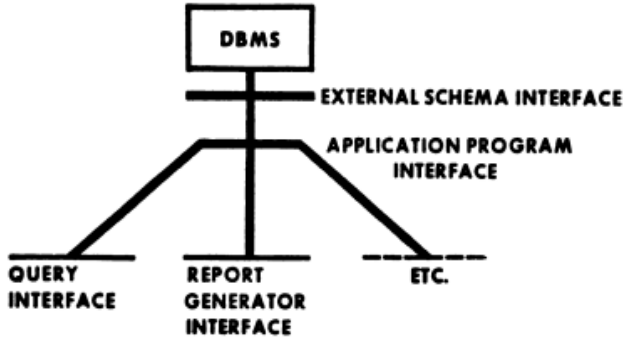
- https://en.wikipedia.org/wiki/API

Figure 5
Application Programmer Interface



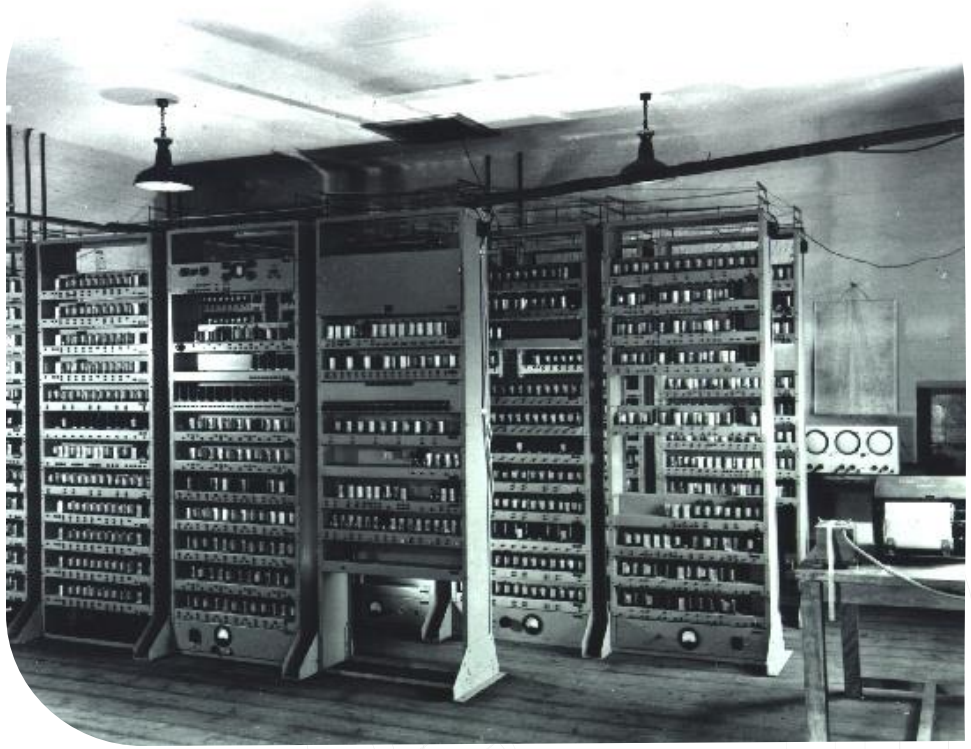
An alternative which has several advantages is to make the API sufficiently rich to enable programs to be written in support of query, report generation, etc. (Figure 6).

Figure 6
Enriched Application Programmer Interface



History Continued

- The idea of the API is much older than the term itself. British computer scientists Maurice Wilkes and David Wheeler worked on a modular software library in the 1940s for EDSAC, an early computer.
- The subroutines in this library were stored on punched paper tape organized in a filing cabinet. This cabinet also contained what Wilkes and Wheeler called a "library catalog" of notes about each subroutine and how to incorporate it into a program.
- Today, such a catalog would be called an API (or an API specification or API documentation) because it instructs a programmer on how to use (or "call") each subroutine that the programmer needs.[7]



History Continued

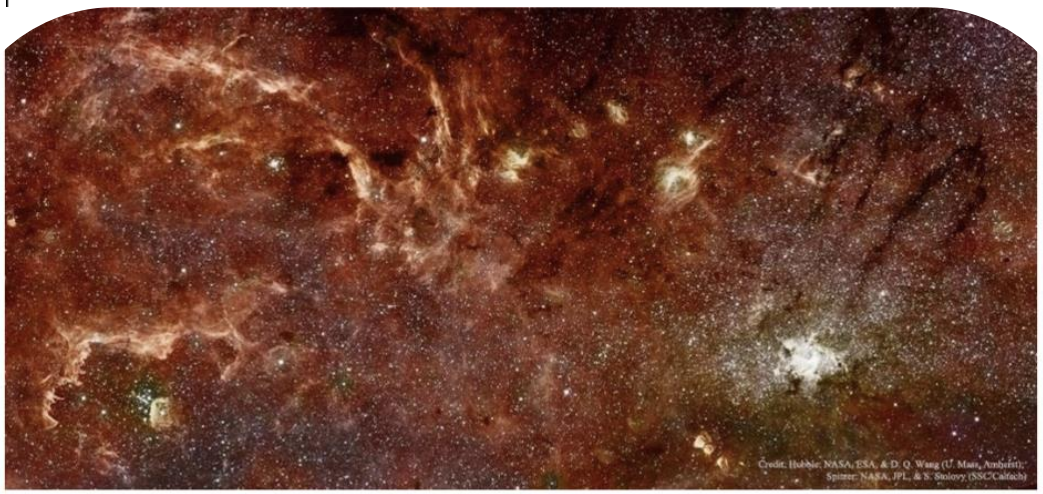
- Although the people who coined the term API were implementing software on a Univac 1108, the goal of their API was to make hardware independent programs possible.[8]
- https://en.wikipedia.org/wiki/API

Modern APIs

- In building applications, an API simplifies programming by **abstracting the underlying implementation** and only exposing objects or actions the developer needs.
- A REST API conforms to the constraints of REST architectural style and allows for interaction with RESTful web services. REST stands for representational state transfer and was created by computer scientist Roy Fielding.
- GraphQL is an open-source data query and manipulation language (created by Facebook) for APIs and a query runtime engine.
- GraphQL enables declarative data fetching where a client can specify exactly what data it needs from an API. Instead of multiple endpoints that return separate data, a GraphQL server exposes a single endpoint and responds with precisely the data a client asked for.

GraphQL

{ APIs }



HTTP Request

`GET https://api.nasa.gov/planetary/apod`

concept_tags are now disabled in this service. Also, an optional return parameter *copyright* is returned if the image is not public domain.

Query Parameters

Parameter	Type	Default	Description
date	YYYY-MM-DD	*today*	The date of the APOD image to retrieve

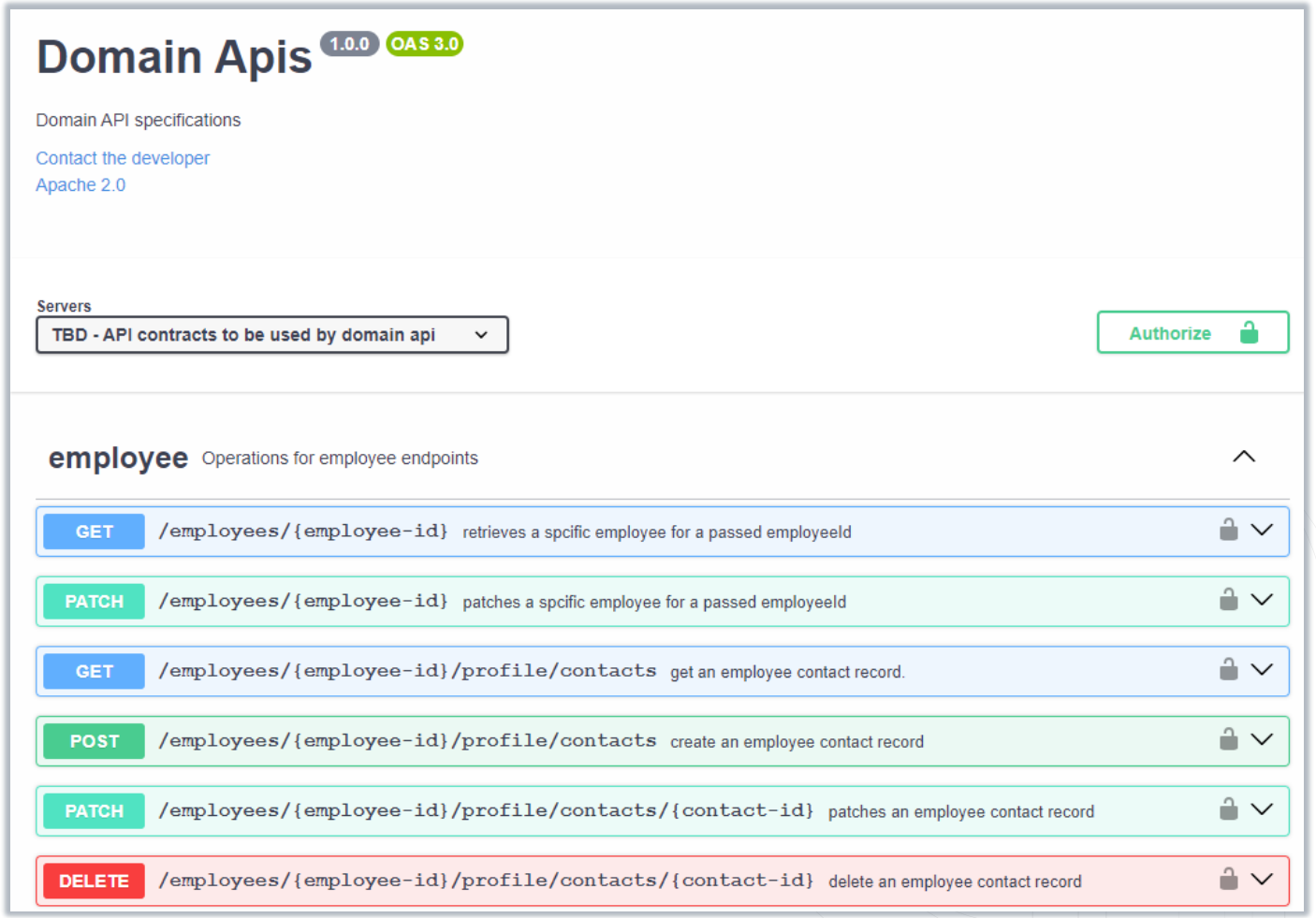
API Example – REST & CRUD

- **REST – Representational State Transfer**
  - ✓ Stateless – each request happens in isolation (no memory from previous or future requests)
  - ✓ All information needed to process a request is within the request itself

- **CRUD Operations and HTTP Methods:**
  - ✓ Create resources using the POST method
  - ✓ Read resources using the GET method
  - ✓ Update resources using the PUT method
  - ✓ Delete resources using the DELETE method

API Design and Development

- **Design Principles:** Simplicity, consistency and adherence to Asure software standards
- **Documentation and Developer Experience:** OpenAPI style specifications that illustrate endpoints
- **Security:** New APIs built and secured with AsureID
- **Versioning:** Versions of API to maintain backward compatibility



Business Value of APIs

Revenue Generation

- Connecting different systems together
- Service for clients

Ecosystem Development

- Build partnerships with vendors and clients
- Work together to create value-added services

Speed of Development

- Once built, can be repurposed for multiple uses
- Depending on system – fast development

Security

- Can utilize modern security practices such as using Oauth
- AsureID

Ease of Management

- Set it and forget it
- Allows others to connect and build vs building from scratch each time

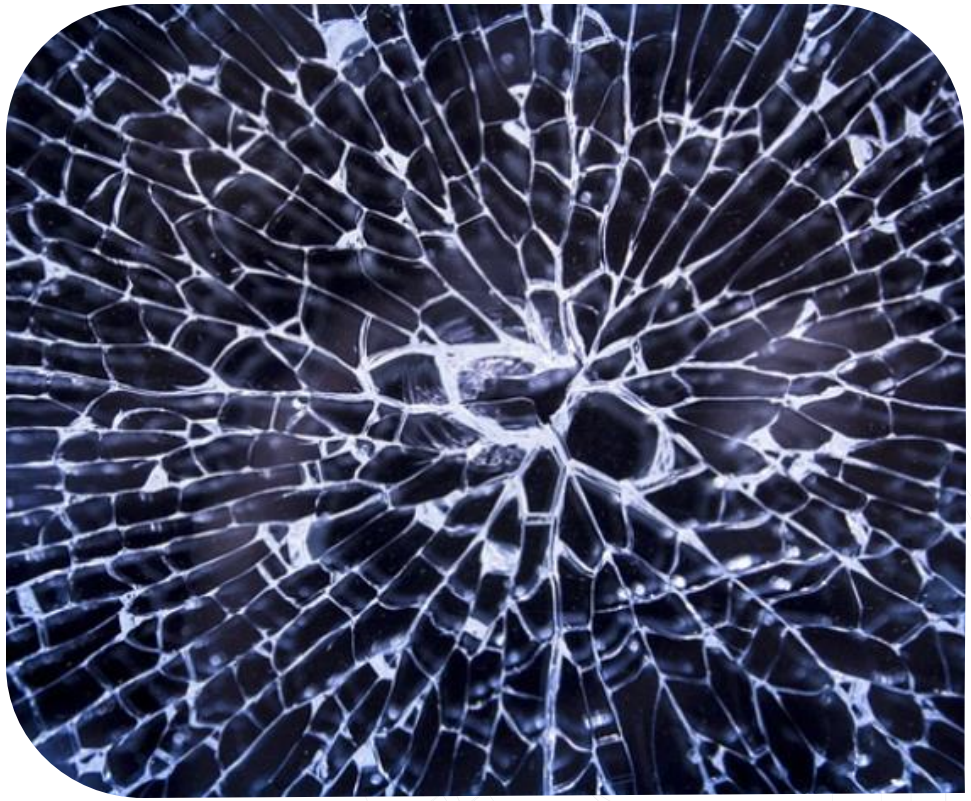
File Integration

Simple method to transmit data from point A to point B

- CSV or Text files that contain relevant data to be transmitted
- Generally sent through SFTP or uploaded through a web portal
- Files must be created and maintained

Current State: Fractured API Landscape

- No reliable singular public API for direct clients, resellers and partners
- Several different APIs by application domains used simultaneously for direct integrations with select partners and clients (direct and resellers)
- No uniform authorization model – Basic Auth, custom JWT, custom API keys
- Implementation in older tech stack: Delphi, .Net Framework MVC
- Hosting and deployment – Windows servers hosting IIS and not truly scalable
- Non-multitenant
- Hard to add new functionality and deliver timely



Modernization @Asure: Guiding Principle

Software built at Asure should be cloud-native,observable, extensible, geographically resilient, support compliance requirements and operational workflows. All of this must be served in a scalable and cost-effective manner. This is every team's ownership.

API Vision

01 Developer Portal

- API collections
- Authorization for APIs
- Self-service generation of API credentials
- Sandbox environment generation

02 Developer APIs

- Data APIs
- Event APIs (subscriptions)
- RESTful domain-based covering core HCM domains – benefits, payroll, time, employee, etc.

03 Developer SDKs

- Downloadable SDKs inbuilt support for exponential back-off, retries
- Support for ease of event subscription

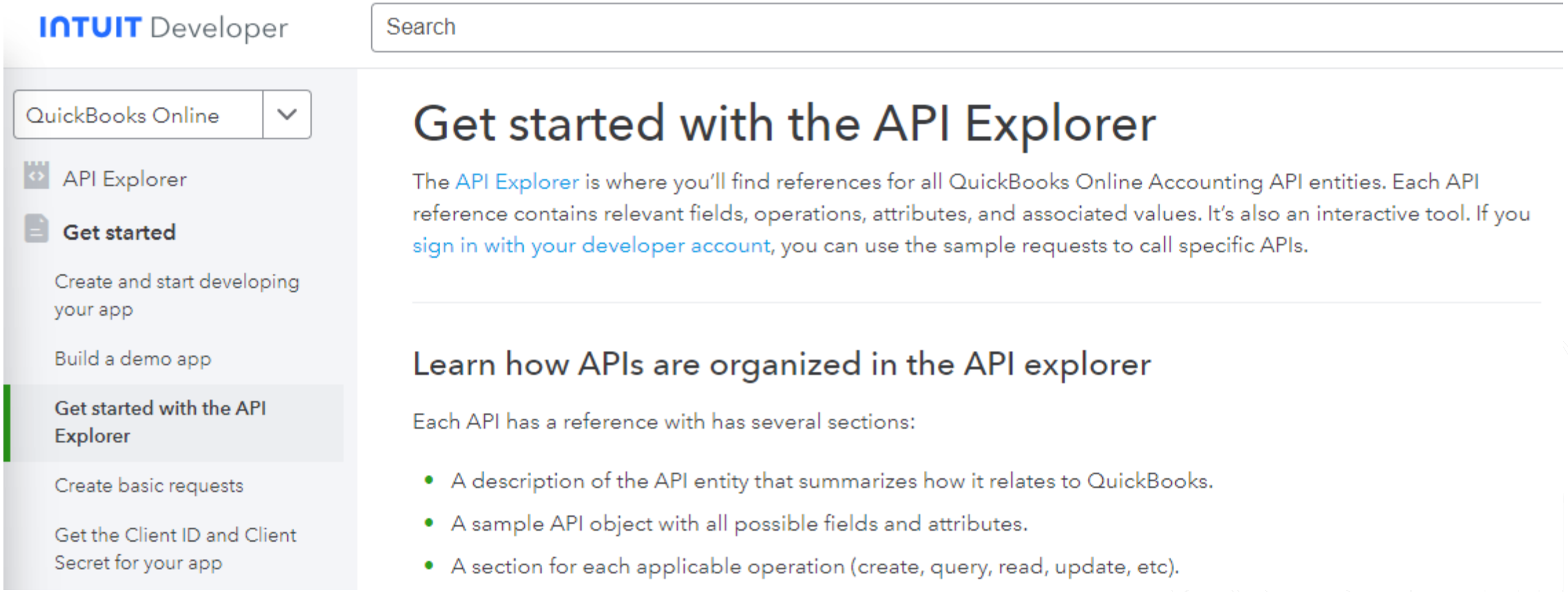
04 Partner APIs

- Customized unpublished APIs for specific partners to support Asure Marketplace and strategic partners

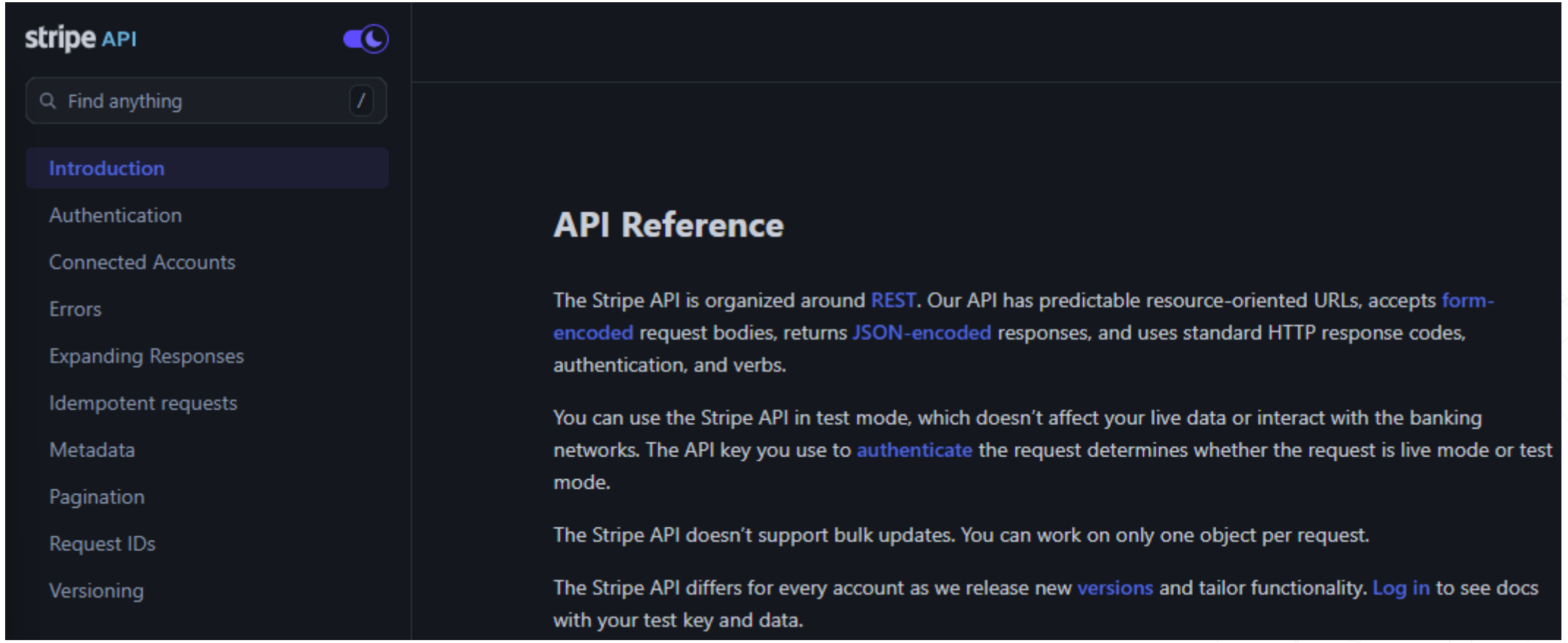
05 Security Model

- OAuth2 JWT token-based authorization (initial)
- Financial Grade API support: mTLS, DPoP
- Tenant Isolation

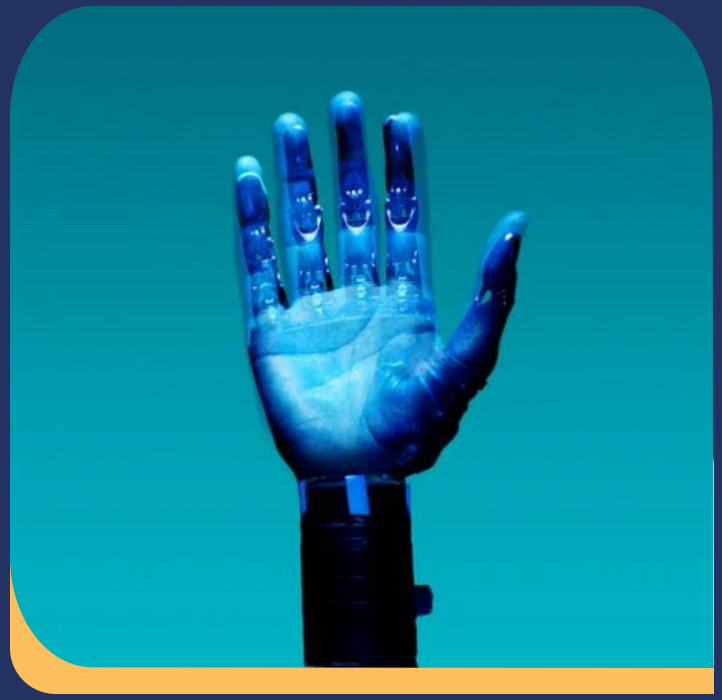
Intuit Developer Portal



Stripe Developer Portal



Status: Current Iteration



Continuous Improvement Continuous Development

- First iteration of domain-based APIs built to support Employee Portal to provide necessary data from current source systems of record
- Unified Asure GraphQL-based API to power new web and mobile platforms with federation to the domain-based APIs
- Integration of APIs with AsureID for JWT-based token authorization
- Not ready for 3rd party consumption

Roadmap & Timeline Prerequisites: API v1.0

- Backend Integration Phase Completion
- Support for Service Bureau users and administrative users
- Integration of payroll systems into AsureID (Small & Mid-market)
- Integration of Time & Labor into AsureID

API First Development

Create APIs

- Ensure correct data attributes are being used
- Generic enough to allow for cross platform development
- Reusable and extensible
- Designing with 3rd parties in mind

Connect APIs to New & Old Applications

- Employee Portal
- Employer Portal
- Microservices

Expand APIs

- Expand on existing APIs rather than building new for each project
- Improving with 3rd parties in mind

API Based Integrations

Vendor Dependent

- Not all vendors support APIs
- Some required data elements not always available

Impact

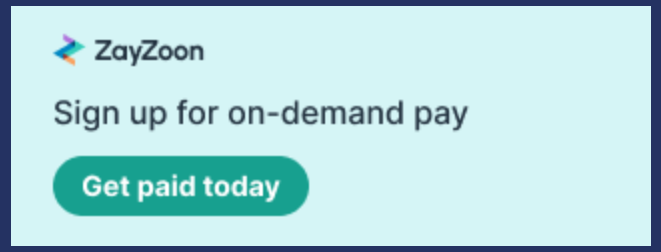
- Is it solving a problem worth solving?
- Will it be widely used?

Solution

- Ease of use
- Hands-off
- Seamless

Asure Marketplace

EQUIFAX®



aws

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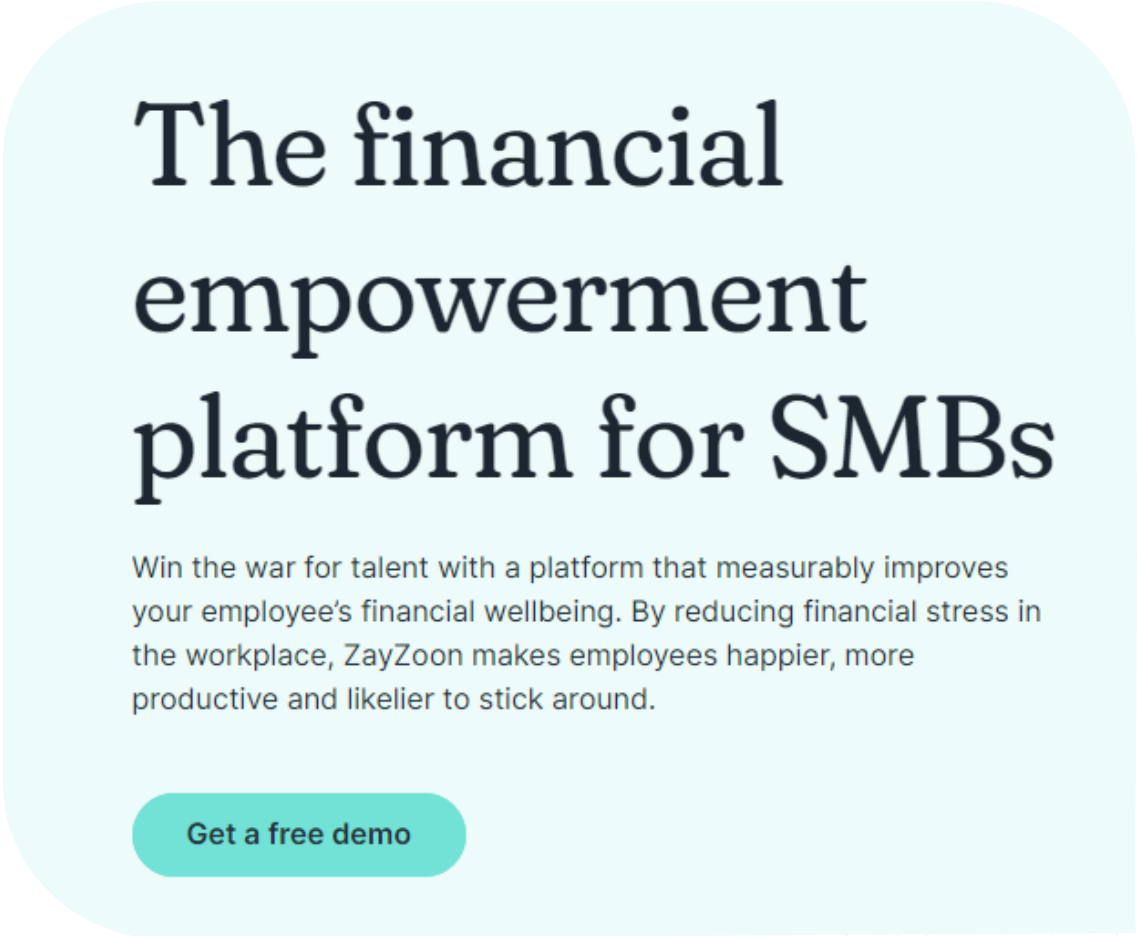
- Access driven – can be turned on/off at different levels
- Vendors only have access to clients and employees that have the integration turned "on"
- Secure – no access given without permission (consent management)
- Modern design

Marketplace: ZayZoon

- API based integration
- Utilizes Asure Datastore / Data Lake
- Evolution Scheduled Task
- Mangrove APIs
- Wages automatically reported to ZayZoon
- Deductions automatically imported to Employees
- Deductions automatically reported to ZayZoon



Marketplace: Equifax

Employers

Employers provide encrypted income and employment data, which is updated each pay cycle.

The Work Number handles verification requests, lessening the manual load on HR departments.

Credentialed Verifiers

Access vital data securely and instantly 24/7.

Credentialed verifiers with a permissible purpose can easily access important data so there is less waiting on consumers to provide documentation to complete manual verifications.

Employees

Employees can receive decisions faster.

Verifiers can get the information they need instantly to help expedite important decisions, almost always without additional action needed from the consumer.

Marketplace: Equifax

- API based integration
- Utilizes Asure Datastore / Data Lake
- Can be turned on/off per company
- Employees can review information through Equifax's Employment Data Report, request a data freeze, and more

Marketplace: E-Comp

- Evolution API based integration
- After turning “on” the API – simple to add/remove clients
- Provides real time payroll data to E-Comp via API
- Removes the need to send file uploads or reports

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Marketplace: Vestwell

- File based integration
- File transfer is automated
- Integration manages and sends payroll files to Vestwell
- Files received from Vestwell are processed by integration and can be automatically imported using EvoExchange
- Available on both Evolution and Mangrove


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Thank You!

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