



# OptumRx QuickBytes

## SESSION 2 – Introduction to Application Programming Interfaces

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Overview of APIs

Different types of APIs

API SDLC

API Operations

OptumRx API Ecosystem

# Overview of APIs

## APPLICATION

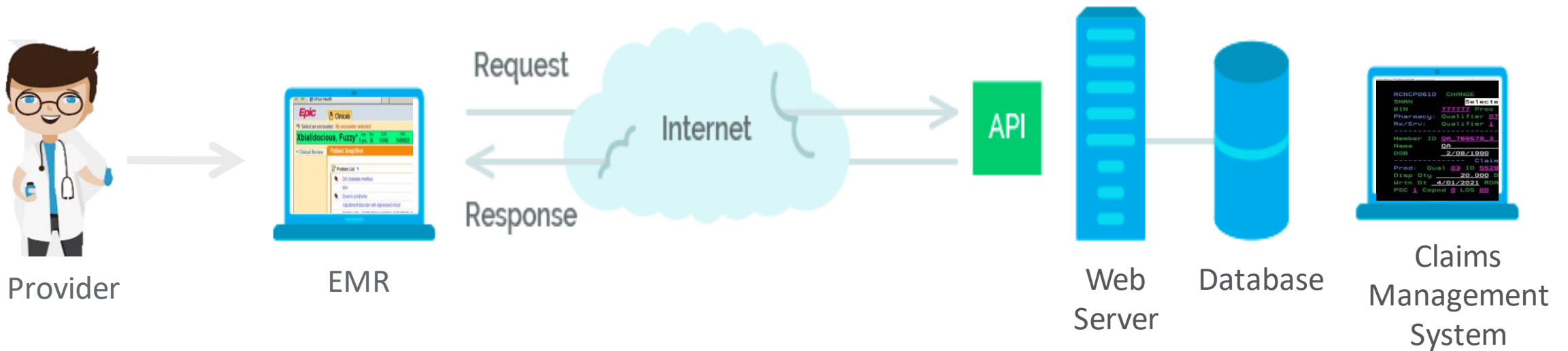
- **Software program** that runs on your **computer**.
- Web browsers, e-mail programs, word processors, games, and utilities are all **applications**

## PROGRAMMING

- Process of writing instructions that get executed by **computers**.
- The instructions, also known as code is user to perform a task or solve a problem.

## INTERFACE

Shared boundary across which two or more separate components of a **computer** system exchange information.



## Public API's

**Public APIs** are those which are designed to be used by the general public.

- No approval
- Free of charge
- Nominal fee after trail

## Private API's

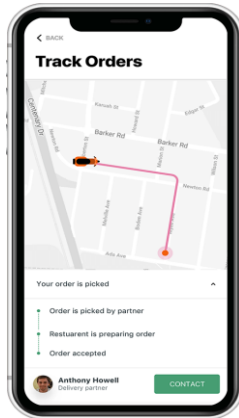
**Private API's:** APIs which are only built for internal use

- Cannot be shared by external public are private APIs.
- Used to exchange data between internal apps

## Partner API's

**Partner API's :** These API's can only be accessed by a selective **group** of people.

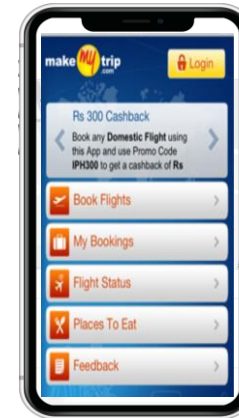
- The API supplier only grants API keys to the partners
- Used to exchange data between external partner apps



Google Map  
Public API



Amazon add items  
to cart API



Spicejet reservations  
at Make my trip  
(Travel Portal)

# Example



An **operation** is a link between a resource, a route and its related controller. **API** Platform automatically registers typical CRUD **operations** and describes them in the exposed documentation

## Traditional Database Operations

CREATE	Creates data elements in the server
READ	Reads data elements in the server
UPDATE	Update element/s in the server
DELETE	Delete an element from the server

## Modern RESTful API Operations

POST	Create a new resource
GET	Search for a task and get a specific resource.
PUT	Update an existing resource
DELETE	Delete an existing resource

**CREATE** an Account

**UPDATE** Account Information

**DELETE** Items from a shopping cart



**GET** the list of books when you search for books

**POST** the order in the Amazon Server

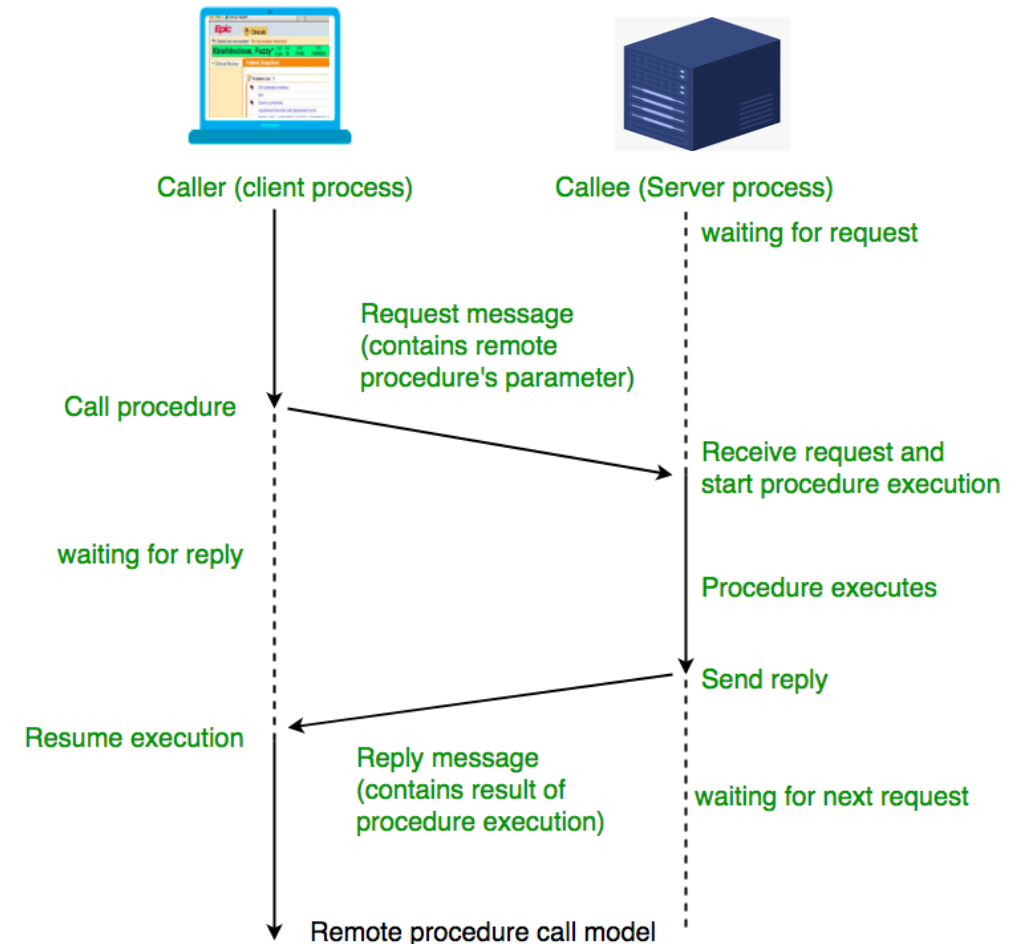
**PUT** updates the order details when you cancel an Item



## WHY ARE STANDARDS REQUIRED?

A key attribute of APIs is their ability to standardize data exchanges among diverse systems and hardware platforms. These exchanges are made possible by a common set of API protocols accepted as standards.

API Standard	Definition
Remote Procedure Call (RPC)	specifies client-server interactions.
Simple Object Access Protocol (SOAP)	contains syntax rules for requests and responses. SOAP APIs are defined using WSDL which describes network services and procedure information
Representational State Transfer (REST API)	sets constraints for creating Web services and providing system interoperability.



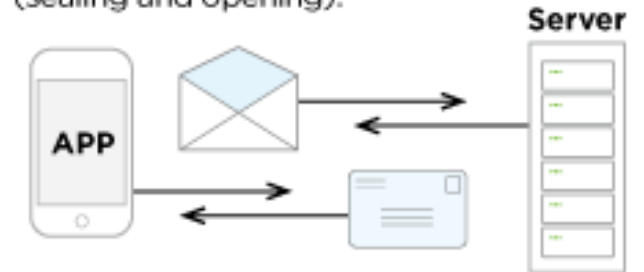
# REST APIs vs. SOAP APIs

	SOAP API	REST API
DEFINITION	SOAP is a protocol	REST is an architectural standard
	Has strict XML Based standards	No official standard for REST APIs
	SOAP Focuses on exposing pieces of application logic	Accessing named resources through a single consistent Interface
EASE OF DOCUMENTATION	Complex in terms of documentation	Simple to understand
SUPPORTED LANGUAGES	SOAP only permits XML	REST permits many different API Formats
PERFORMANCE	SOAP is comparatively less scalable	REST has better performance and scalability
CACHEABILITY	SOAP based reads cannot be cached	REST Reads can be Cached

## SOAP vs. REST APIs

SOAP is like using an envelope

Extra overhead, more bandwidth required, more work on both ends (sealing and opening).



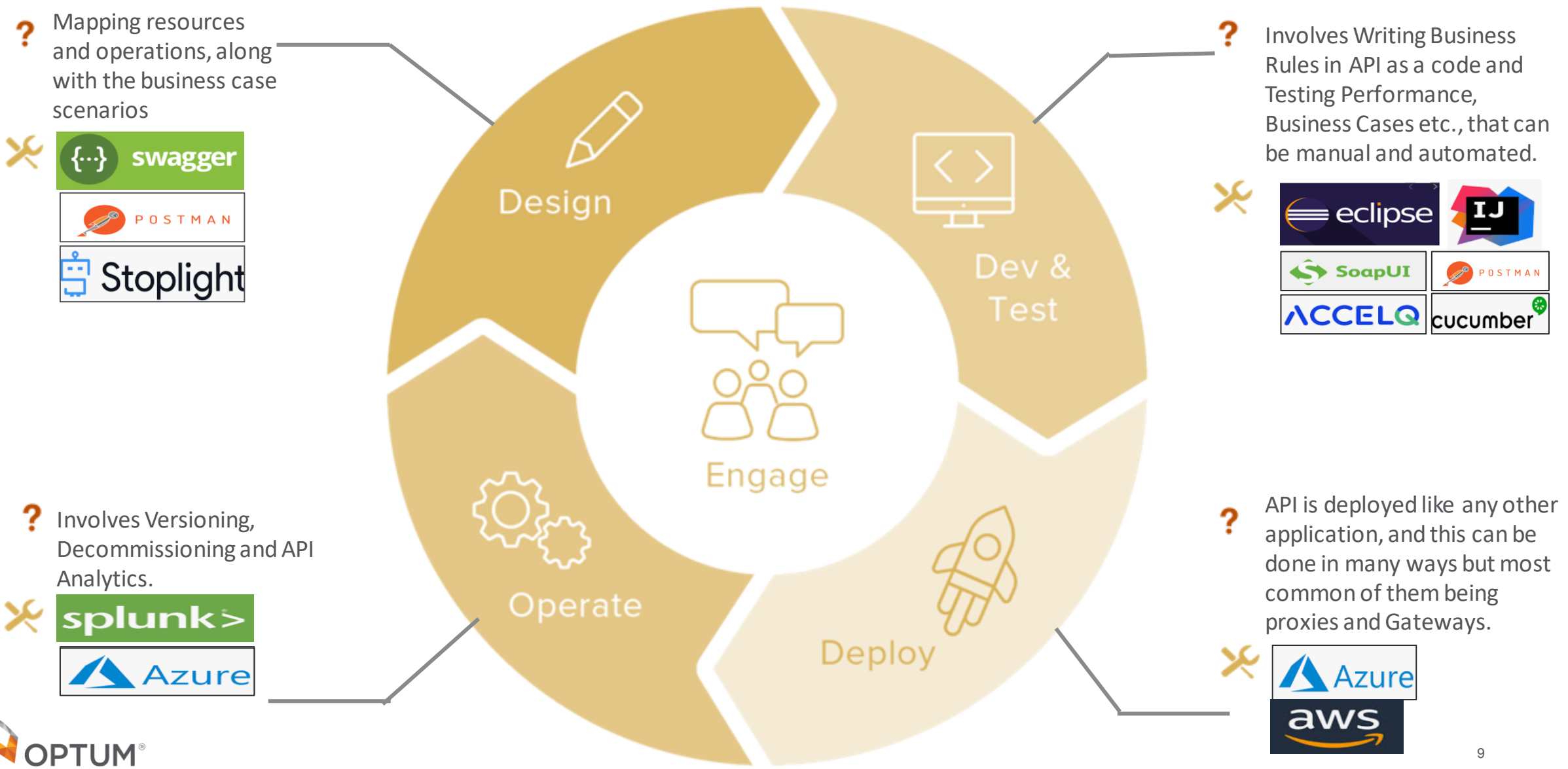
REST is like a postcard

Lighterweight, can be cached, easier to update.



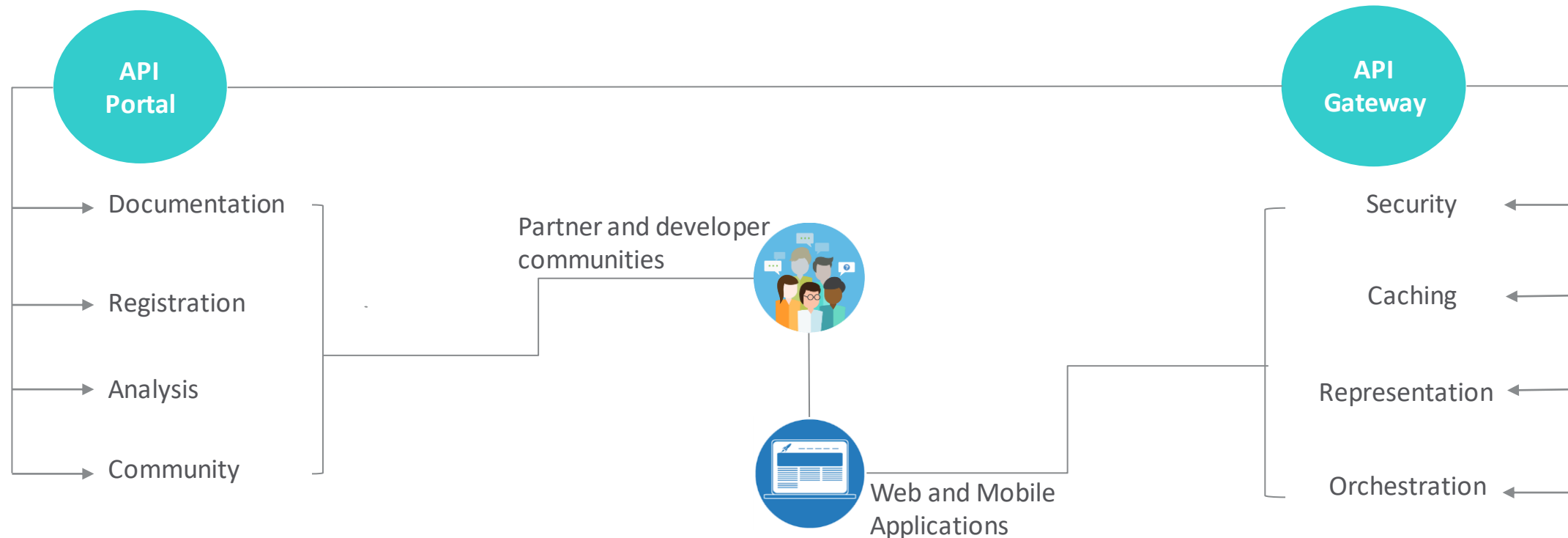


# API SDLC



# API Management

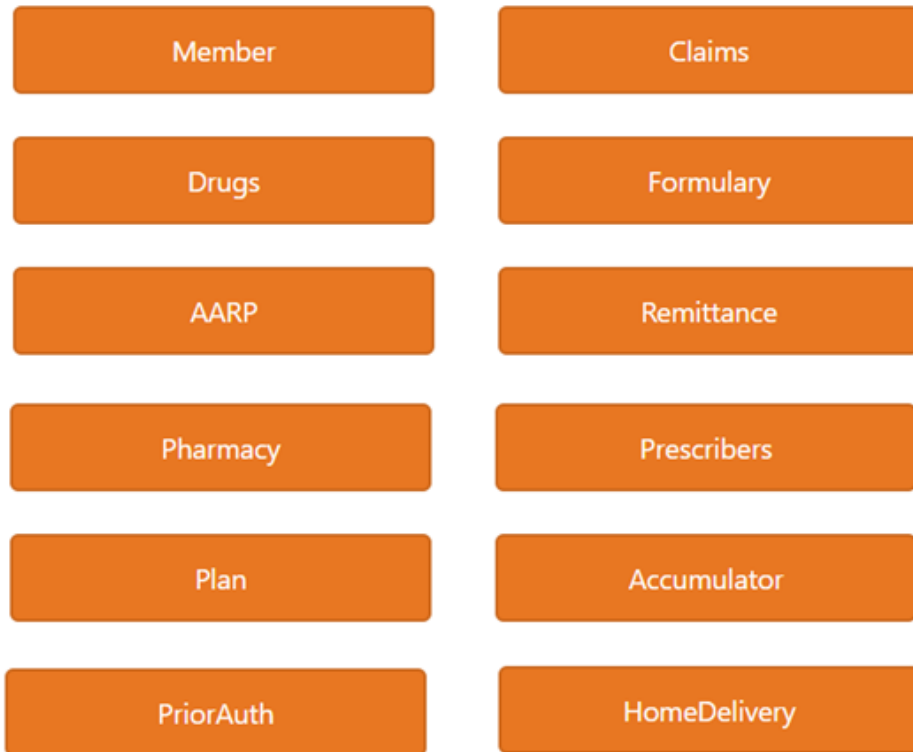
**API management** is the process of designing, publishing, documenting and analyzing **APIs** in a secure environment. Through an **API management** solution, an organization can guarantee that both the public and internal **APIs** they create are consumable and secure



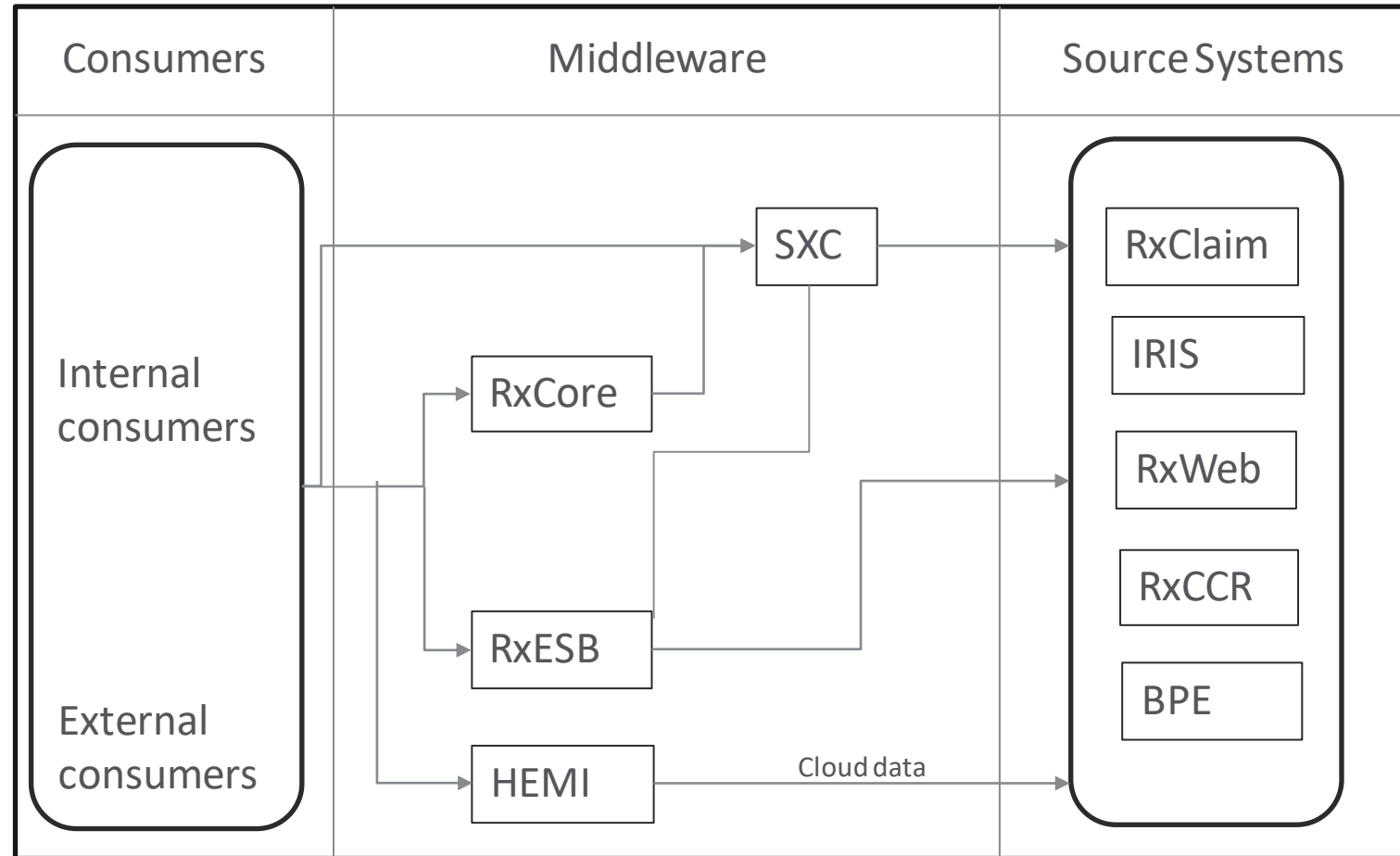
Azure APIM, Apigee Edge, MuleSoft Anypoint Platform and Kong are leading market players in the APIM Market

## ECS APIs IN OptumRx

- Optum Rx ECS has a total of **276 APIs** that are used by 215 external and internal customers accounting for **11 Billion transactions per month** on an average



## CURRENT API IMPLEMENTATION





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