



G3

SAP Cloud Platform

API Management und SAP API Business Hub

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June, 2019

PUBLIC

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Agenda

API Business Hub

API Management

Overview

Personas

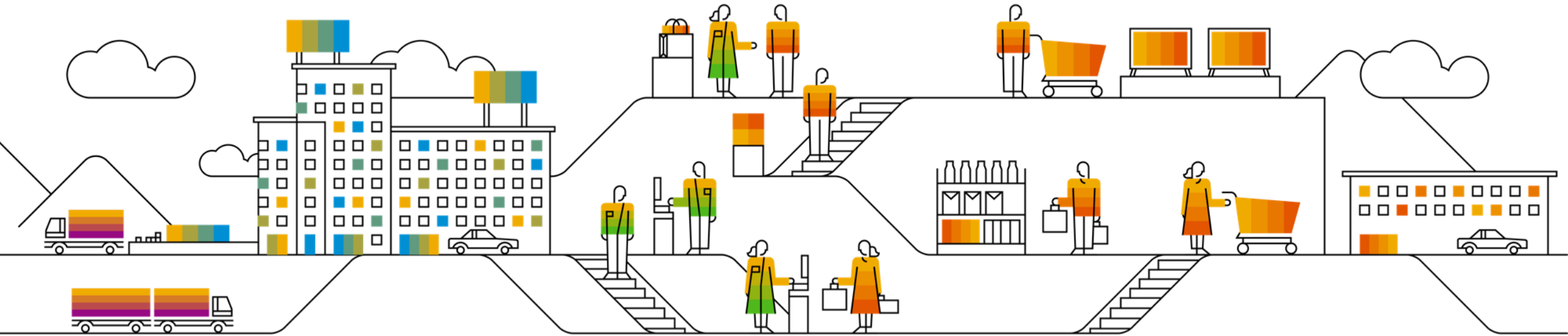
Features and Functions

Components

Architecture

Additional Information

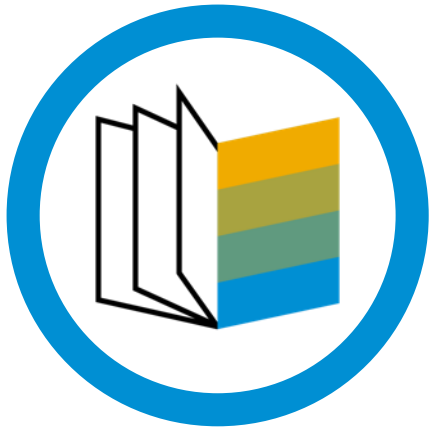
API Business Hub



SAP API Business Hub

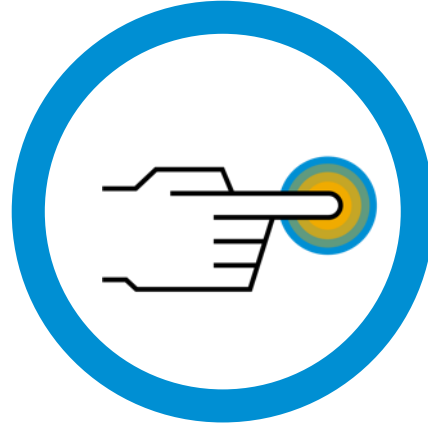
Build Apps and Integrations easily with APIs

Search, discover, experience and consume to right APIs from SAP and select partners for your digital transformation projects



Catalog

Central Place for APIs
from SAP and its
Partners



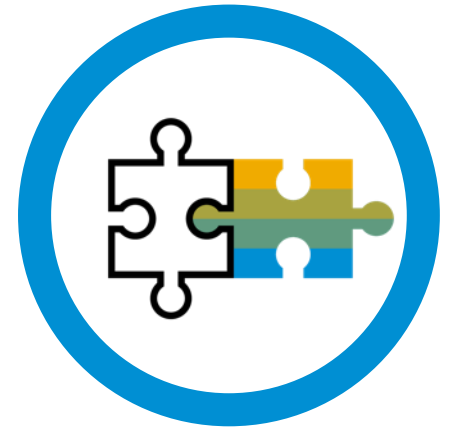
API Sandbox

One click-test experience for
developers via API Sandbox



Pre-packaged accelerators

Integration packages
to integrate APIs

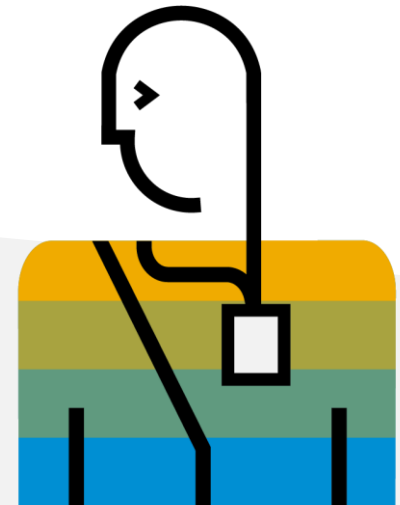
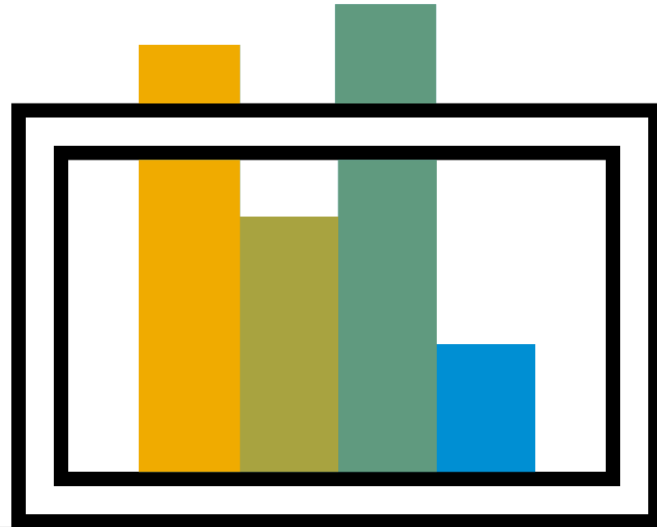


Easy Consumption

Integration with Developer
IDE and Code Generations

Demo

API Business Hub



Overview



SAP Cloud Platform

API Management



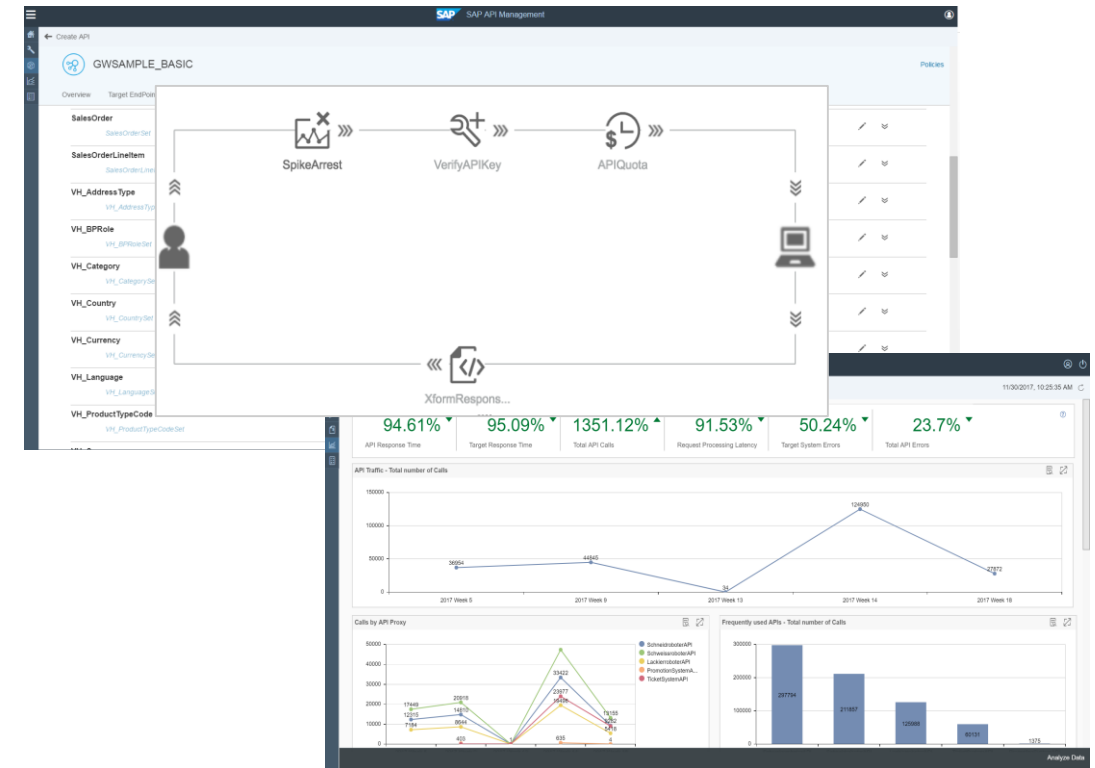
SAP Cloud Platform API management provides simple, scalable and secure access to digital assets through application programming interfaces (APIs) and enables developer communities to consume these.

Key capabilities

- Unified standards-based API access of REST/OData or SOAP services
- Enterprise Grade Security for the APIs against attacks like DoS, CSRF, XSS etc. and robust traffic management
- Real-time insights & analytics on the APIs traffic, usage, error reporting and monitoring
- Developer services to enable developers to try, subscribe, use and manage API consumption

Benefits

- Platform for engaging with and enabling employees and developers - internal and external

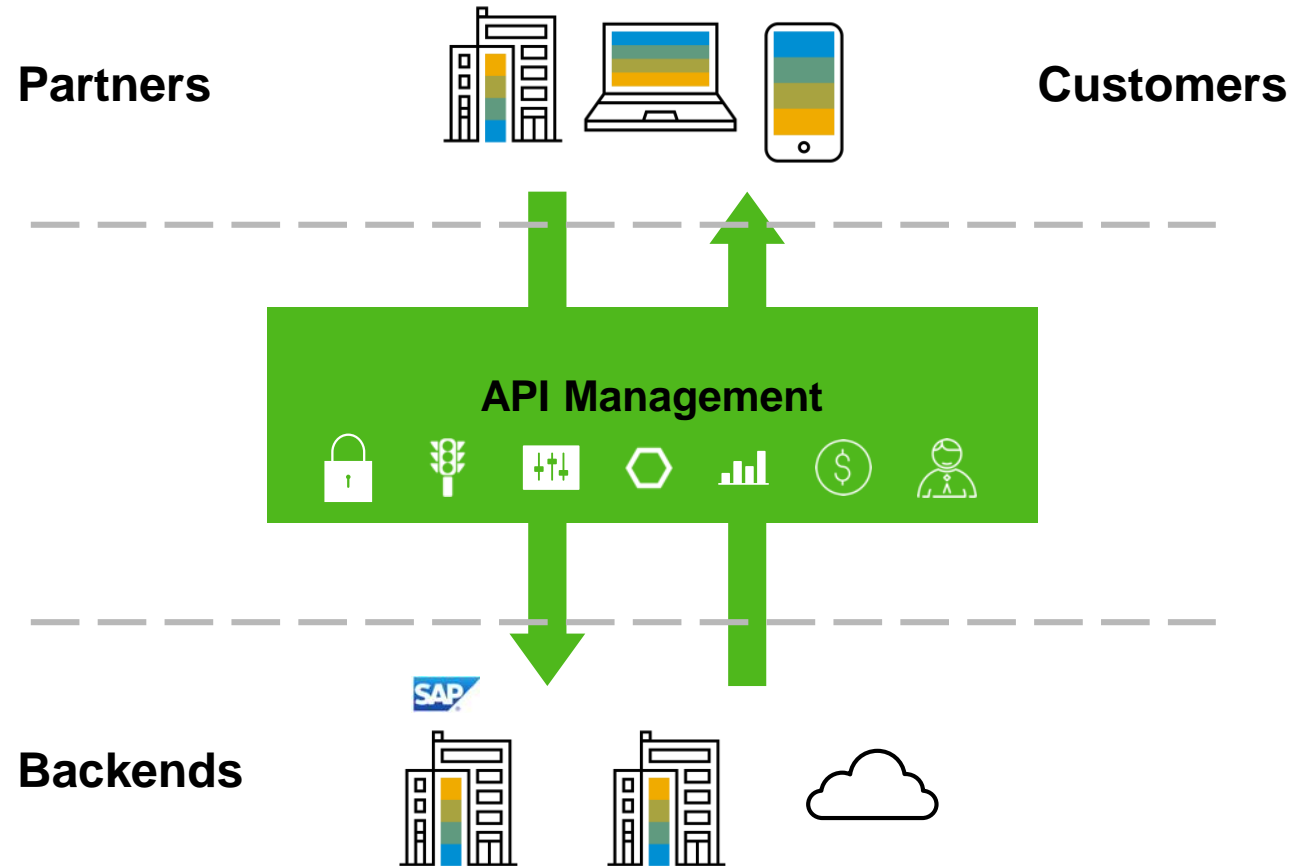


Read more: [SAP Cloud Platform API management](#)

SAP API Management

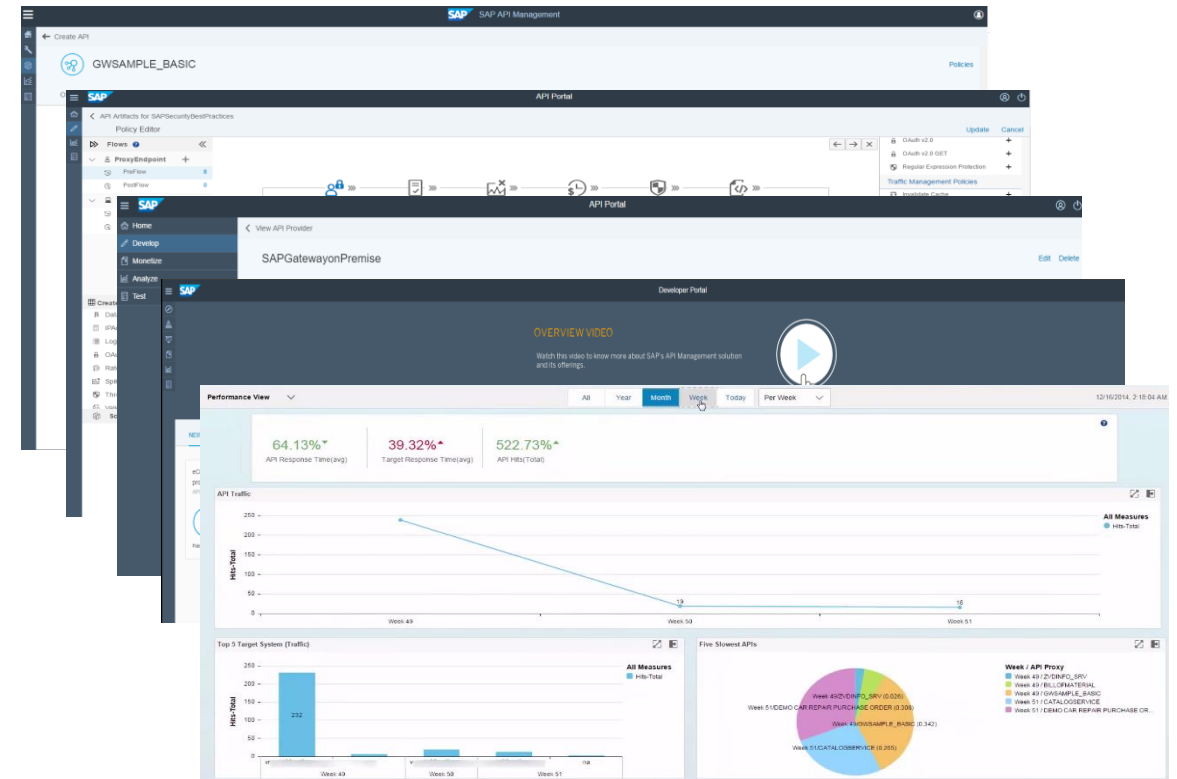
Typical use cases

1. Enterprise-wide governance and security for REST APIs
2. Omni-channel experience for customers and employees
3. Low-touch Open Integrations with partners, suppliers and marketplaces



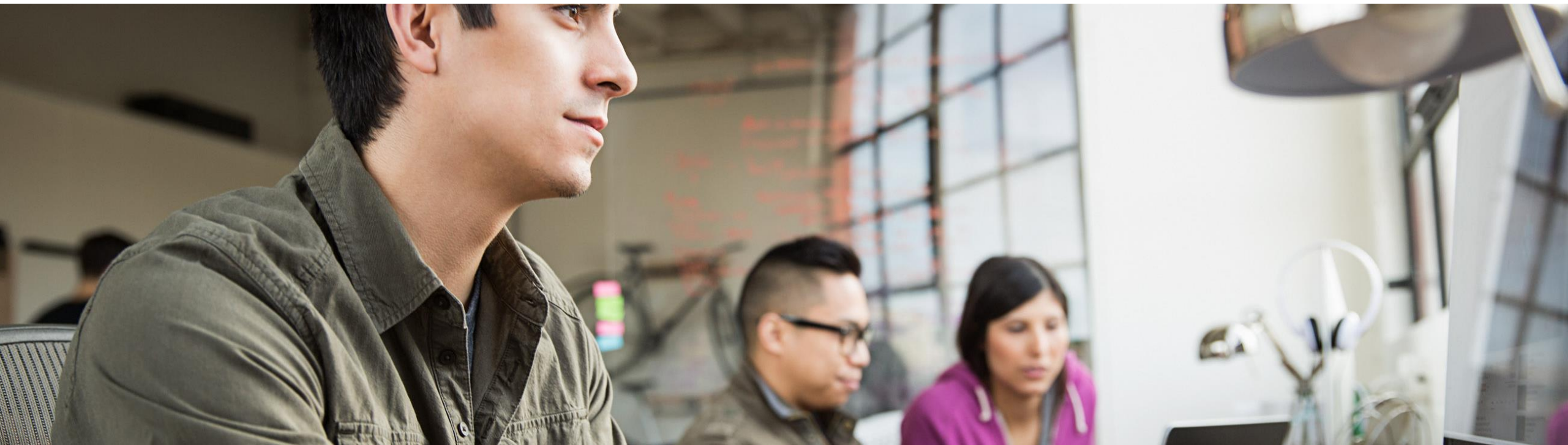
Highlights

- **Best of breed engine** with **streamlined admin and developer experience** in SAP Cloud Platform
- **Increased productivity** with OData
- **Agnostic** REST/OData or SOAP services management
- **Enterprise Grade Security** for the APIs against attacks like DoS, CSRF, XSS etc. and robust traffic management
- **Secure connection to on-premise systems** with **Cloud connector**
- **Integration with SAP Cloud Platform services** such as **SAP API Business Hub**, mobile service, WebIDE, Leonardo IoT, CPI etc.
- Platform for engaging with, and enabling employees and developers – **internal and external**
- **Real-time** insights & analytics on the APIs traffic, usage, error reporting and monitoring

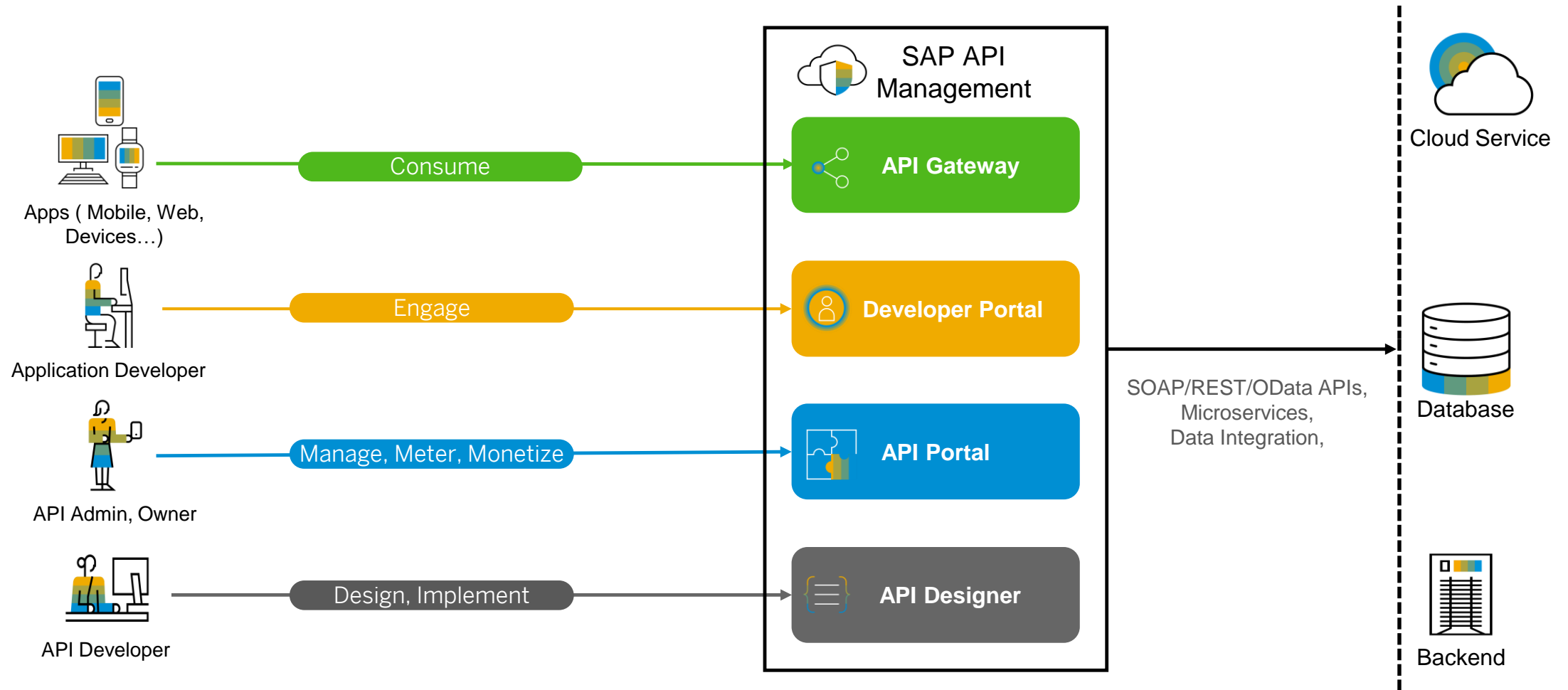


Read more: [SAP Cloud Platform, API management](#)

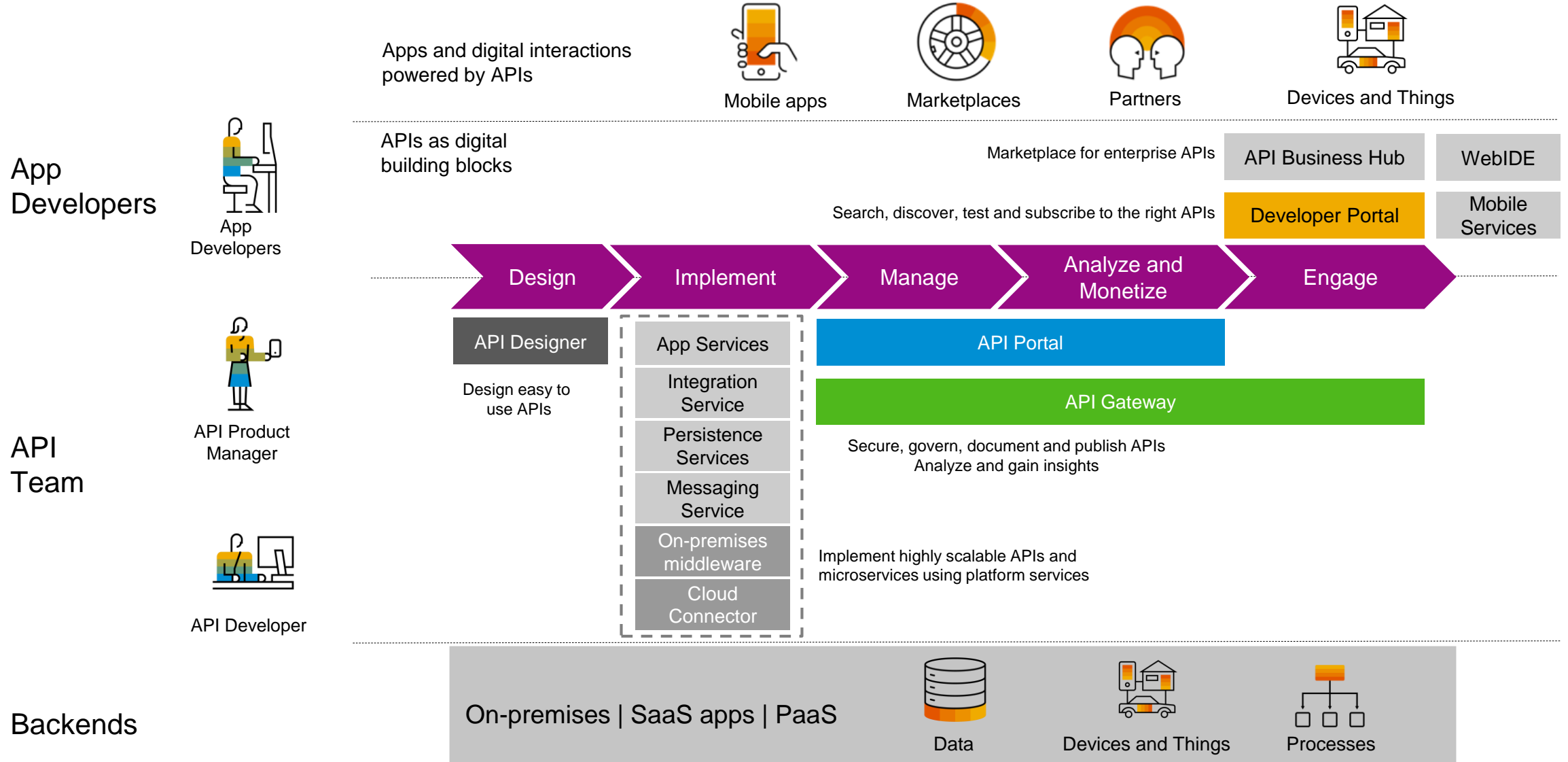
Personas and interactions



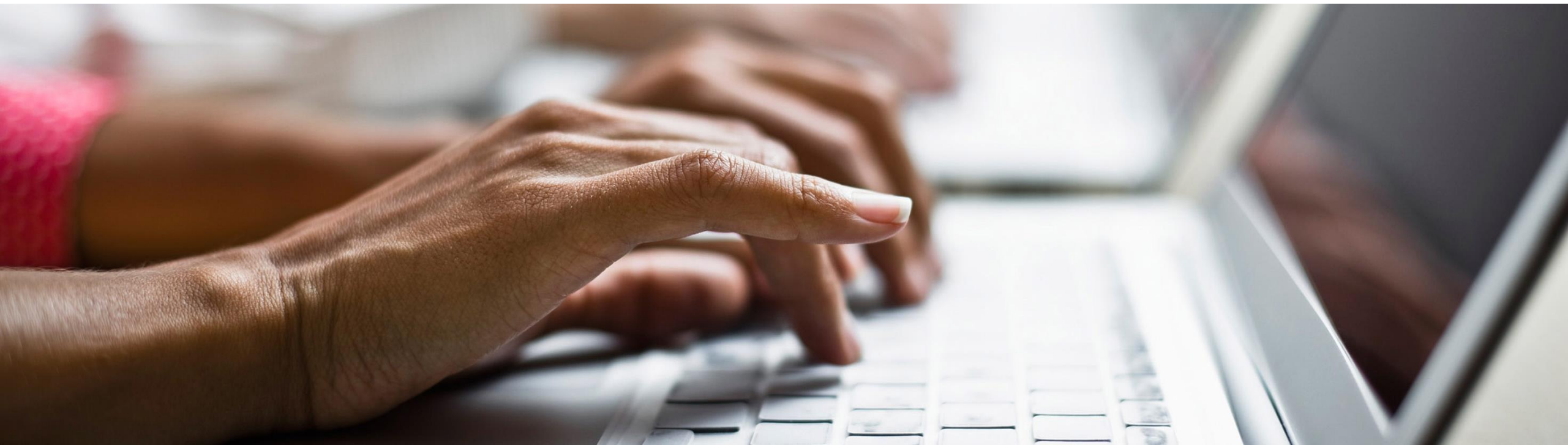
Personas and interactions



Full lifecycle API Management with SAP



Features and functions



API Portal: API Designer

{ } Design-first approach

OpenAPI support

Import your APIs from:

- RAML
- Odata

Generate Server Stubs

- NodeJS
- JAX-RS
- Spring

Generate API in API Management

The screenshot displays the SAP API Designer interface. On the left, a code editor shows an OpenAPI 2.0 specification for 'FinServDemo API'. The specification includes details like version '1', title 'FinServDemo API', and a base path of '/v1/FinServDemoAPI'. It defines a 'get' method for the '/branches' endpoint with three query parameters: 'apikey', 'postalCode', and 'radius'. The right pane provides a visual overview of the API, including its title, version, and a detailed view of the '/branches' endpoint. This view includes a description, an example use case, and a table of parameters.

FinServDemo API
Version 1

Paths
/branches

GET /branches

Description
Returns all branches
This method returns all branches of the Bank located within the radius of the postal code.
Example of use:
/branches?apikey=123&postalCode=65123&radius=25

Parameters

Name	Located in	Description	Required	Schema
apikey	query	The API key provided by the Developer Portal	Yes	string
postalCode	query	The postal code around which to search for branches	No	string
radius	query	The radius (in KM) in which to search for branches	No	string

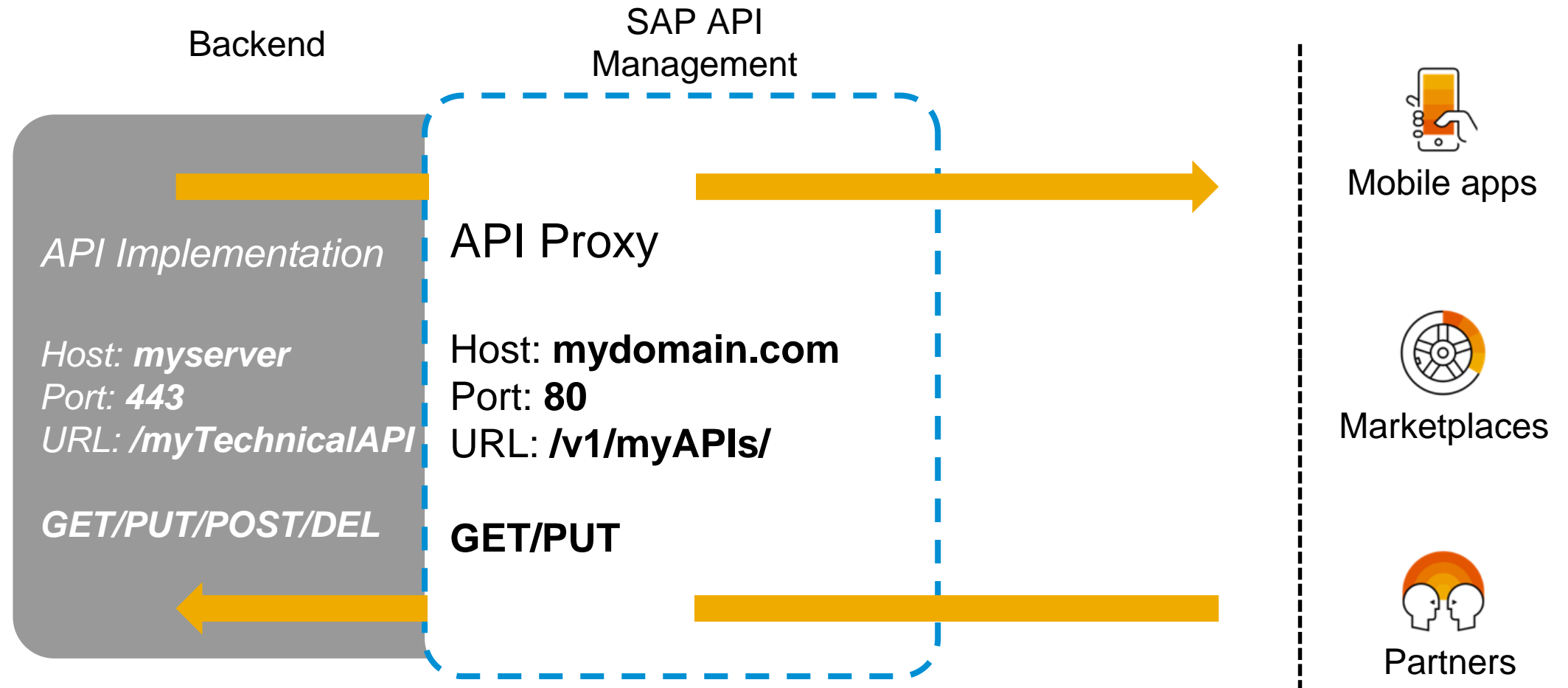
Responses

Code	Description	Schema
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API Portal: Proxies



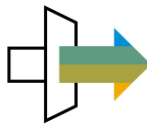
Hide internal information and add specific behavior



API Portal: configure the runtime of the API



Security



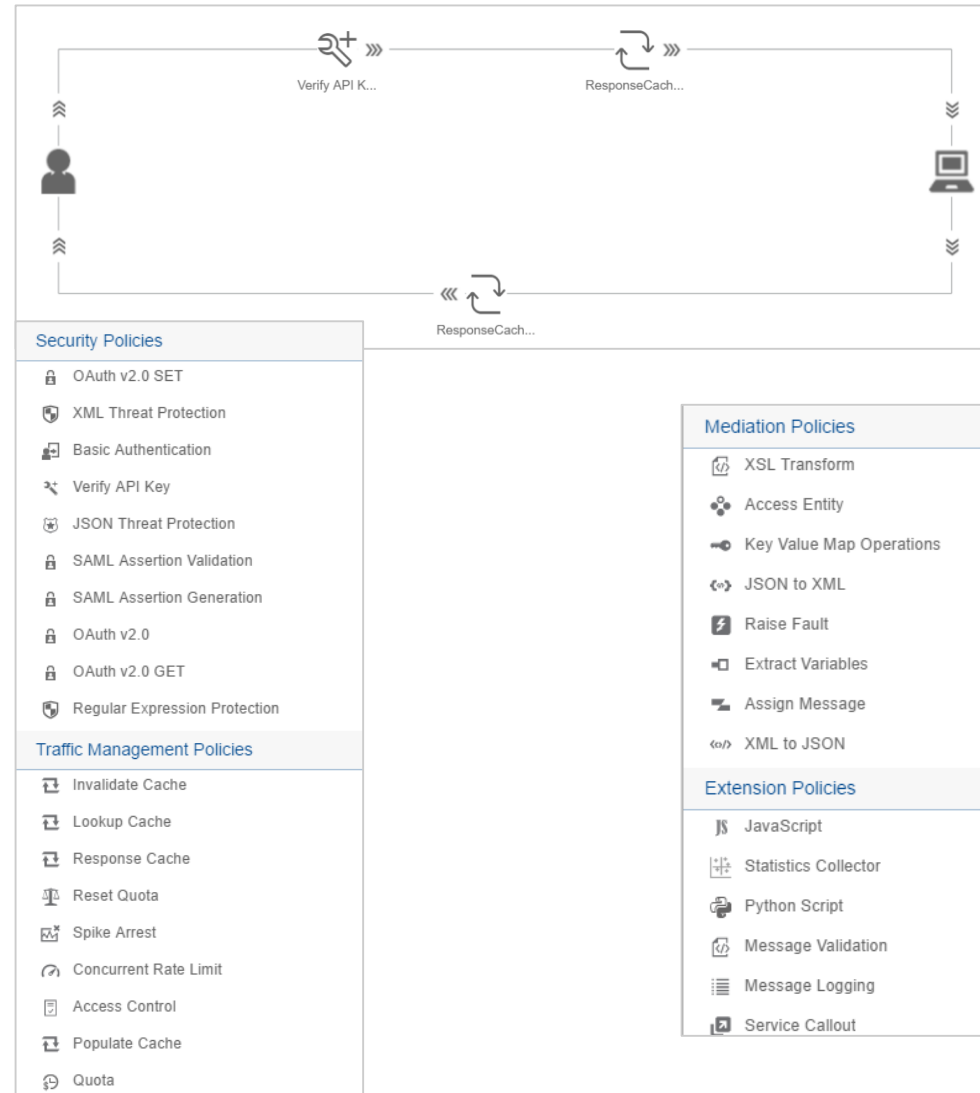
Traffic Management



API mediation

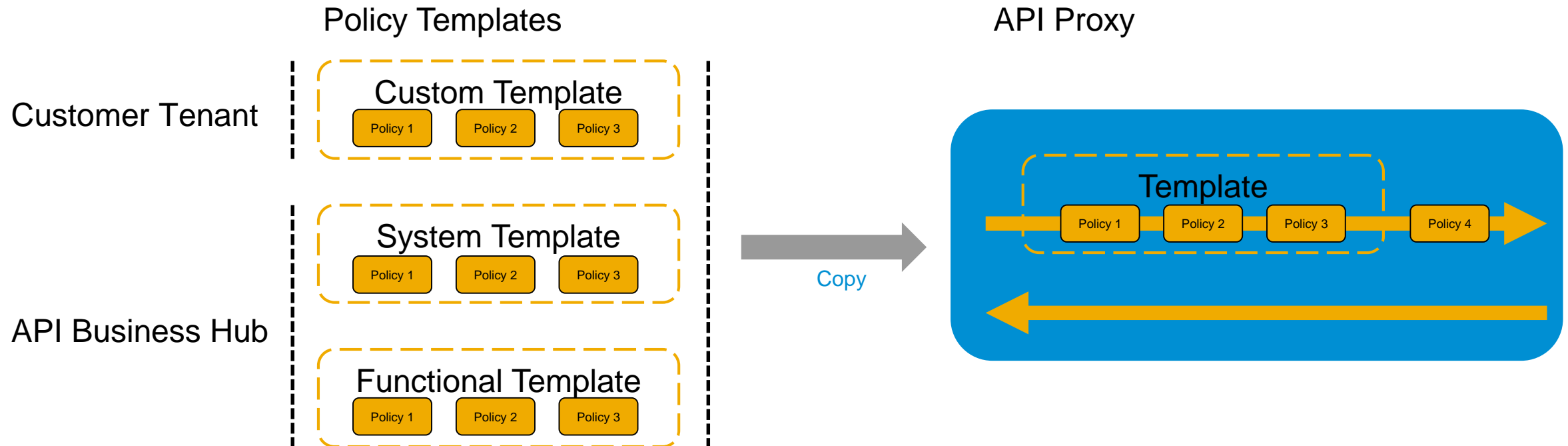


Coding



API Portal: re-use configurations through templates

Package and reuse existing policy sets



API Portal: Security on all levels



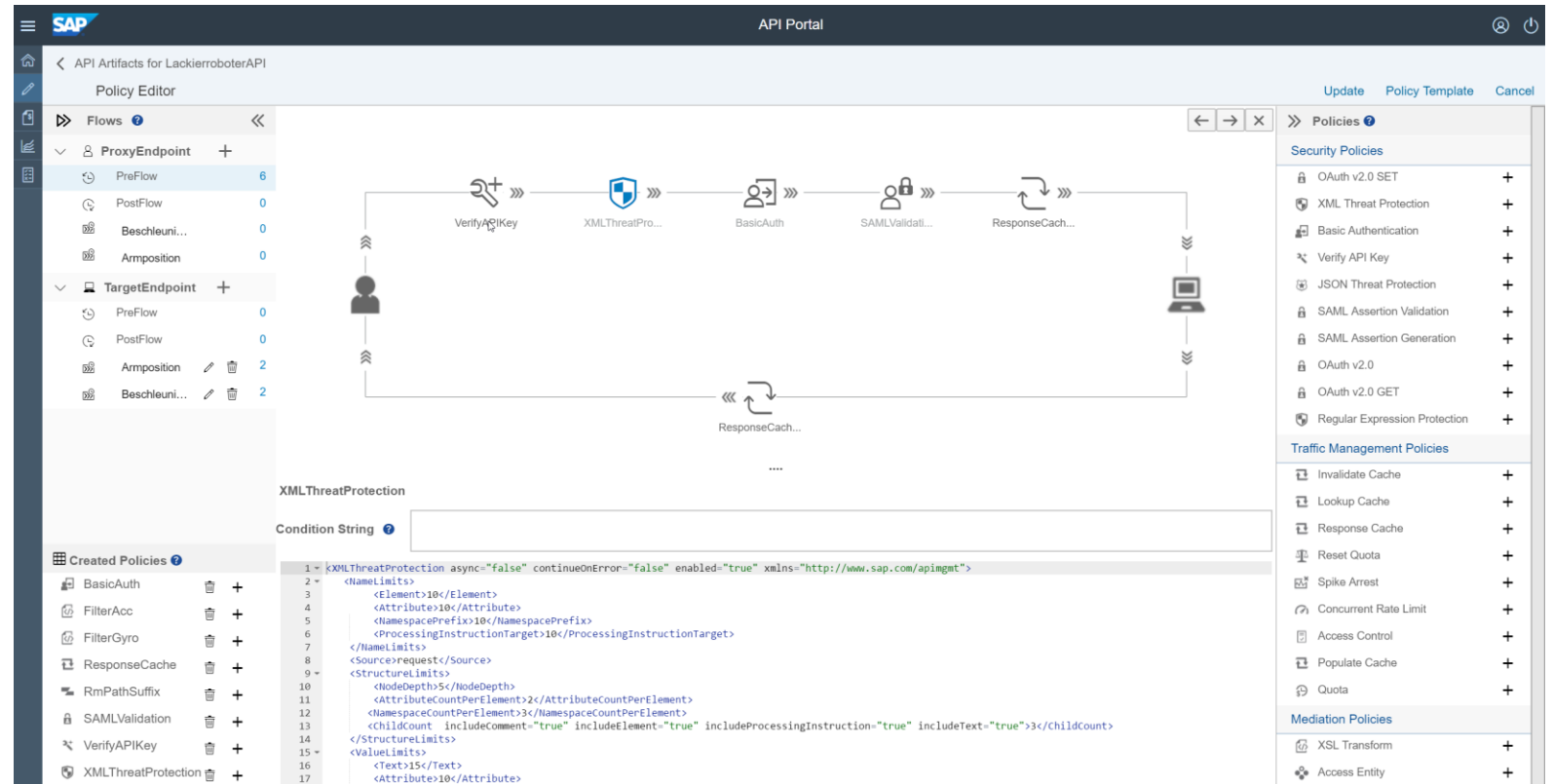
Threat protection



Authentication and authorization



Role-based access control



API Portal – Developer Portal: publish APIs



**Developer
self-registration**



**Documentation
and testing**

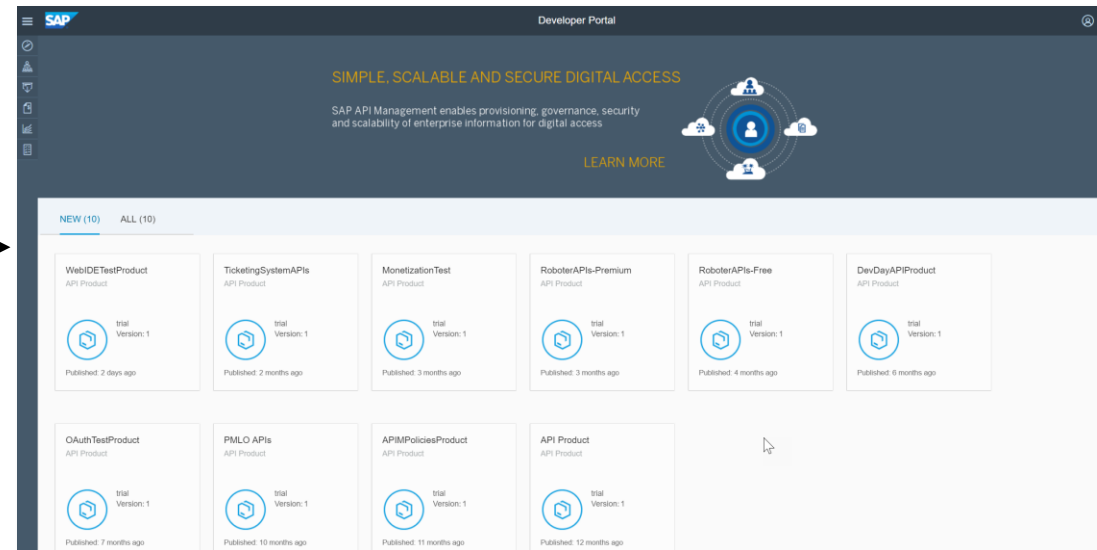


API Subscription



API Owner

Secure
Bundle
Publish



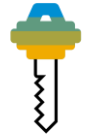
Developer Portal

Self-register
Browse
Test
Subscribe

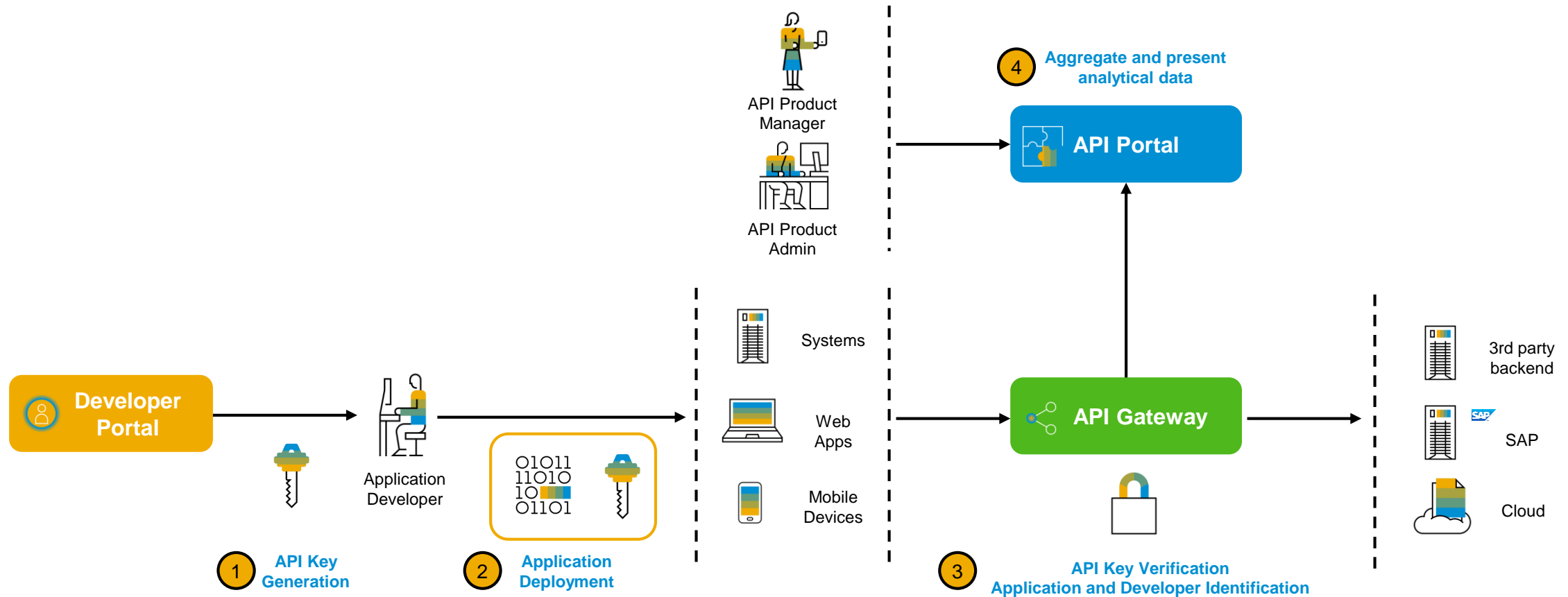


Developer

API Portal – Developer Portal: integrated API key



Track developer and application API usage through the API Key



API Portal: Analytics



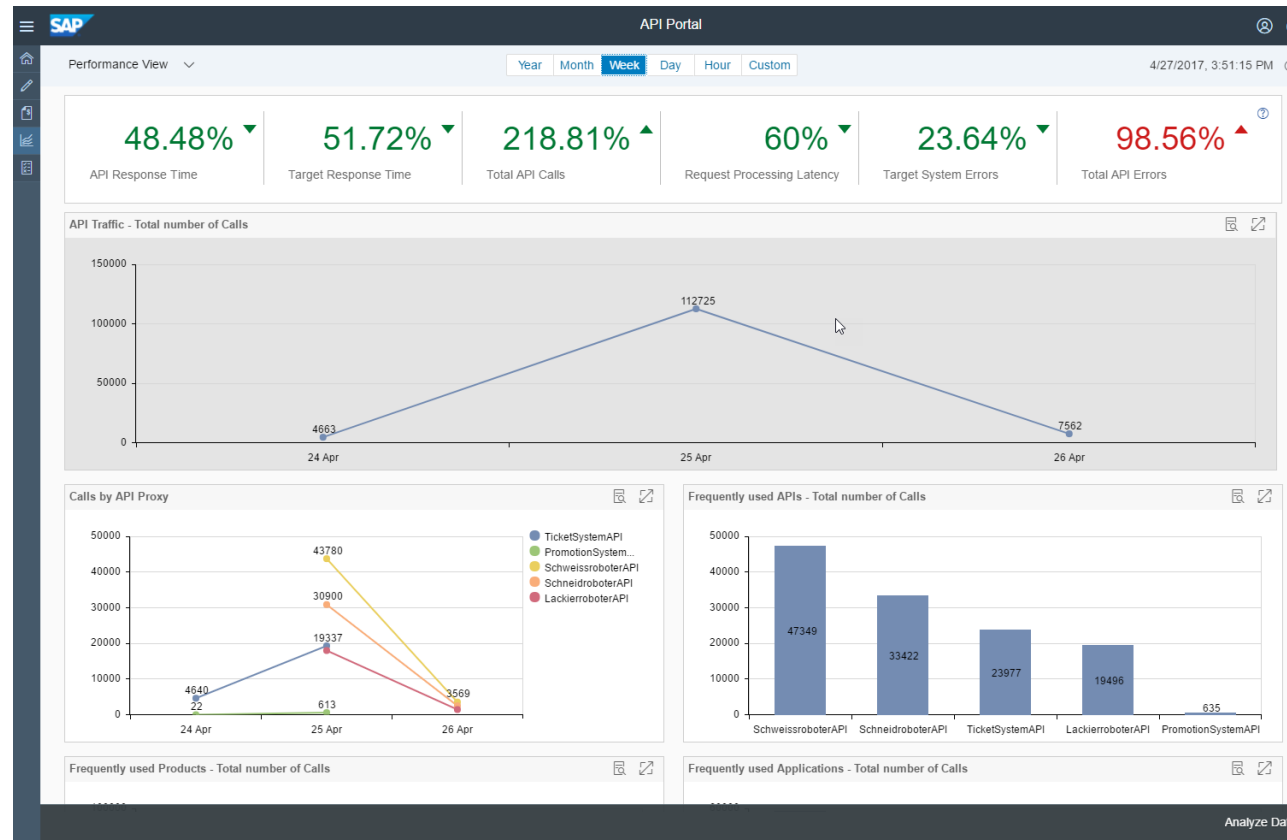
Technical Analysis



API Program Analysis



Custom Dashboards



API Management: Monetize



Create flexible rate plans



Provide billing to API users

SAP API Portal

< Create Rate Plan Save Cancel

Create Rate Plan

Plan Overview

*Name:

Description:

*Frequency:

*Currency:

Rate Plan Type

Plan Type:

*Basic Charge:

Tiers

<input type="checkbox"/>	API Calls From	API Calls To	*Rate per API Cal
<input type="checkbox"/>	0	1000	0.10
<input type="checkbox"/>	1001	5000	0.05
<input type="checkbox"/>	5001	unlimited	0.02

Additional features

1. Custom Templates

Re-use enterprise-wide API patterns: **centralize governance.**



2. Pre-defined Policy Templates

Typical operations such as data filtering, CORS, SQL Threat Protection, URL Masking, error handling, quota, ... are available out-of-the-box from SAP: **speed-up configuration.**



3. Interpretation of OData metadata

OData metadata interpreted in SAP API Management (Resources, Documentation, ...): **speed-up documentation and reduce errors.**



4. SAP API Management APIs

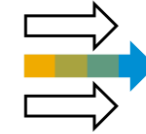
Access artifacts and analytical information of SAP API Management through APIs: **automate operations and integration into monitoring tools.**



A platform approach: integration into SCP

1. SAP Gateway Hub support

Through the „Discovery“ feature: automatic creation of APIs including documentation and resources for SAP backend integration: **reduce implementation time and errors.**



2. OpenAPI (fka. Swagger) support

All SAP APIs are available in the API Business Hub as OpenAPI artifacts and API proxies can be created from OpenAPI definition files: **re-use your assets to speed up your API project.**



3. CloudFoundry support

Automatic binding of Cloud Foundry applications to API management, generation of stubs from the API Designer to be deployed directly in CF: **centrally manage your APIs from any platform**



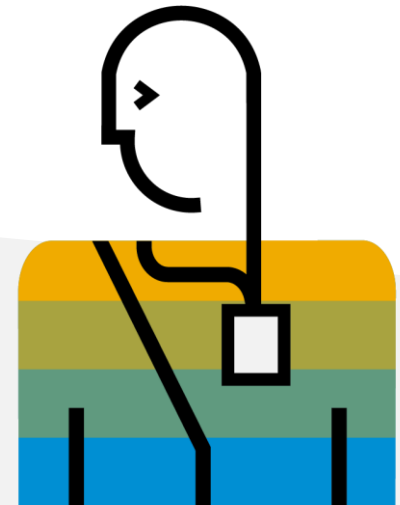
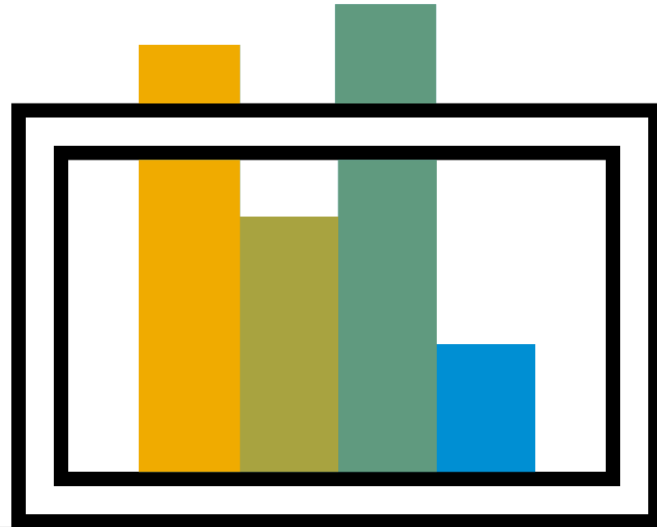
4. WebIDE support

Discovery and usage of APIs from the Developer Portal in WebIDE: **simplify your Developer's work.**

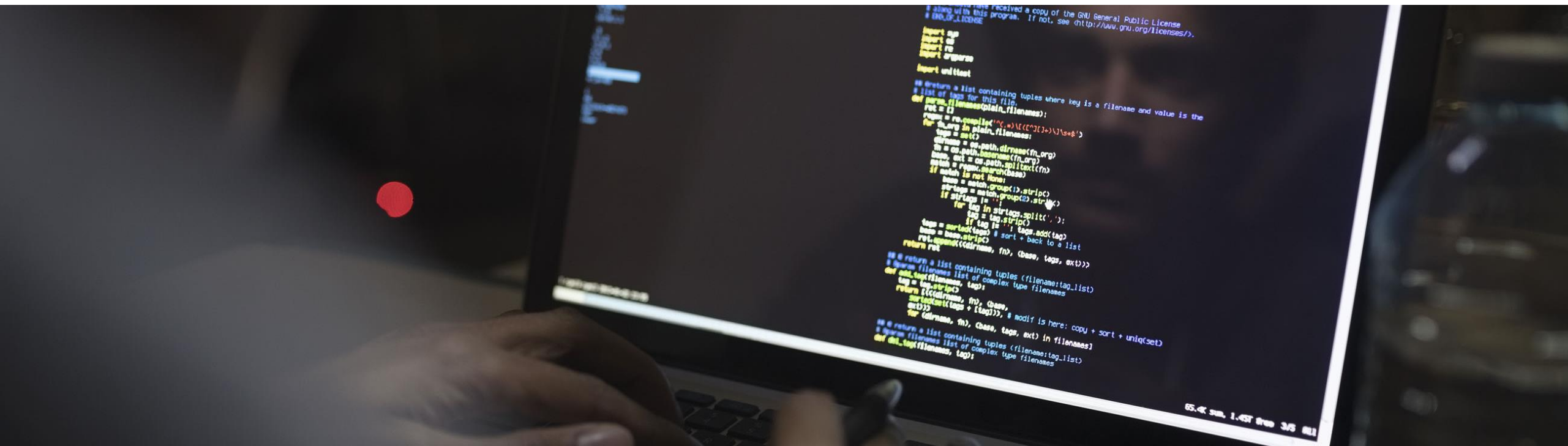


Demo

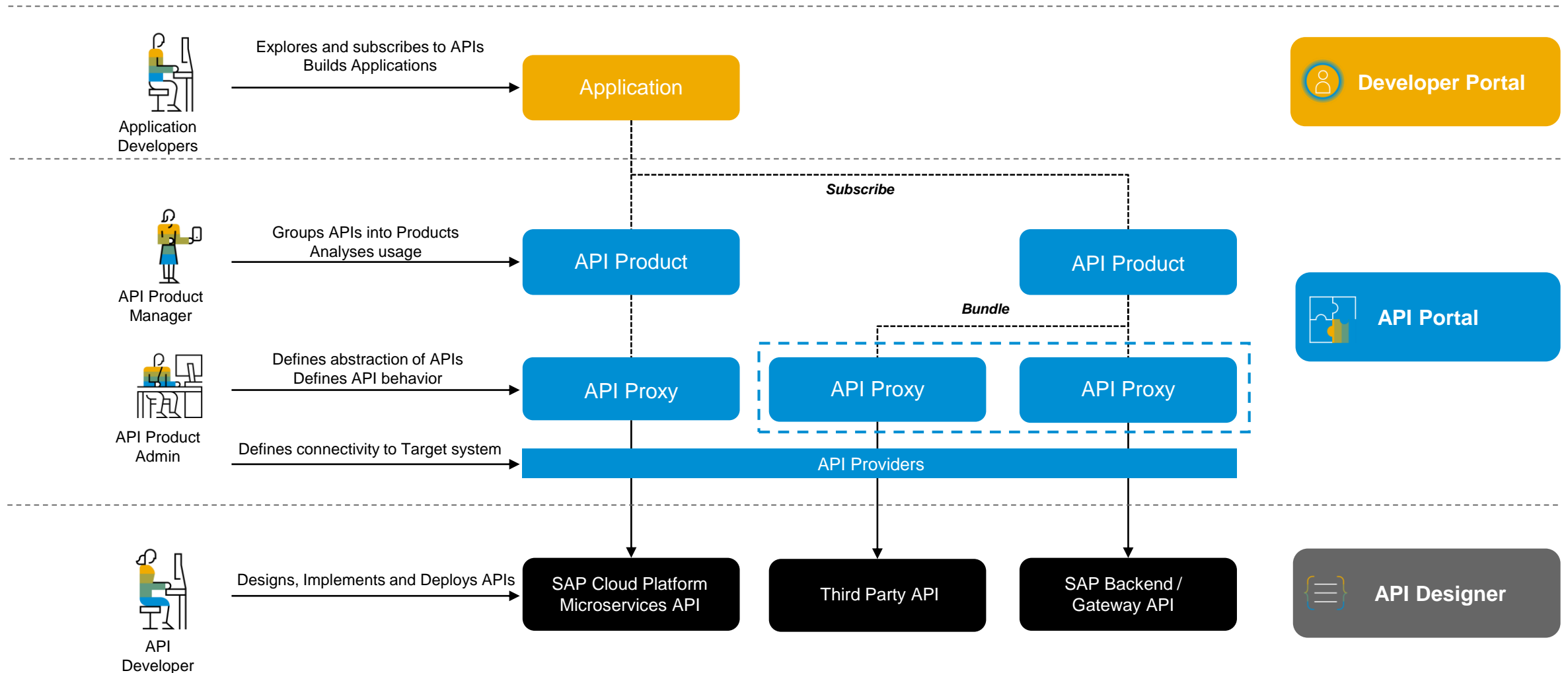
API Management



Components



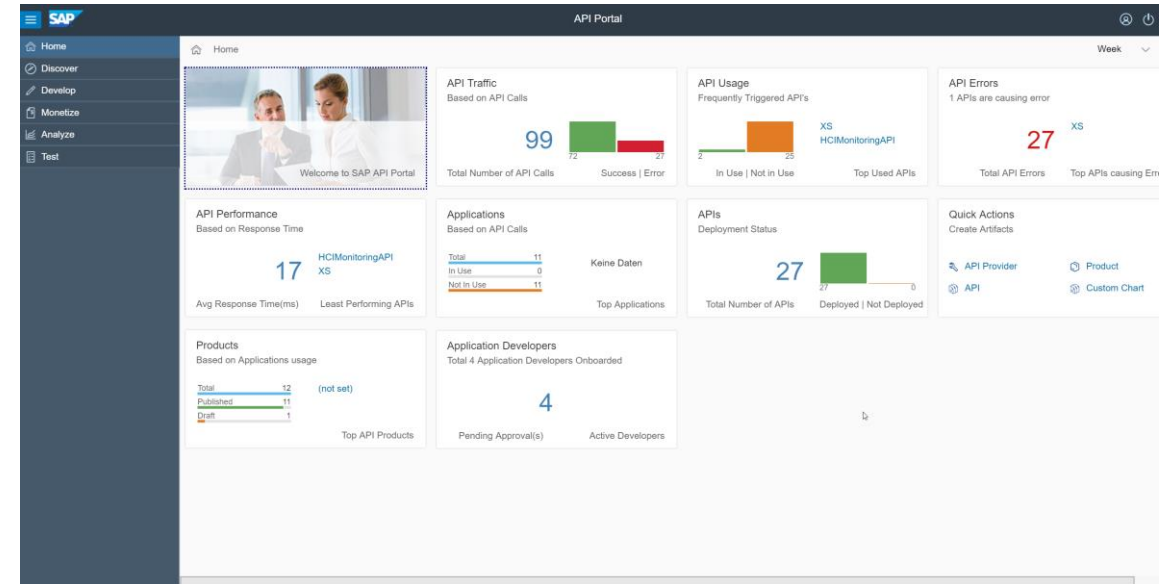
API Management: Personas and Components



SAP API Management Platform – API Portal

SAP API Management Portal is the main entry-point for the API Builder / API Owner. From here the API Owner can:

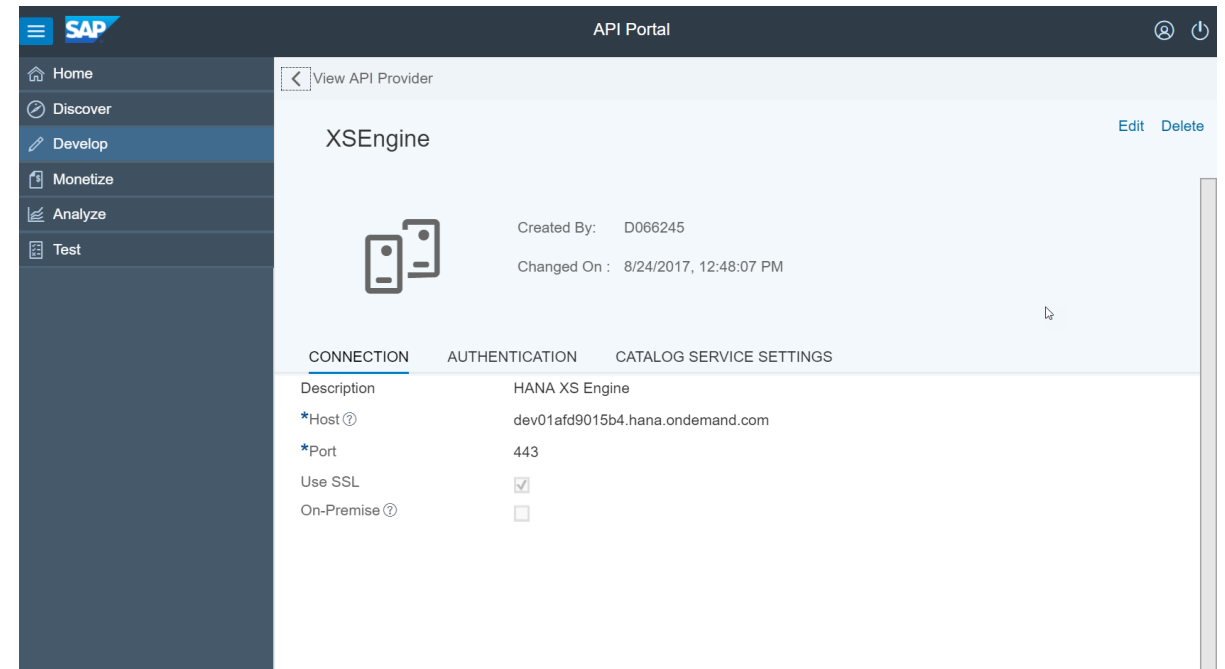
- Create and manage **API Providers**
- Create and manage **API Proxies**
- Create and manage **Products**
- **Analyze** the usage of APIs
- Create and manage **rate plans**



SAP API Management Platform – API Portal – API Provider

- Logical representation of a backend
- Not mandatory
- Simplifies management (eg. transport)
- Simplifies discovery

System



The screenshot displays the SAP API Portal interface. On the left is a dark blue sidebar with navigation links: Home, Discover, Develop (highlighted), Monetize, Analyze, and Test. The main content area is titled 'API Portal' and shows the 'View API Provider' page for 'XSEngine'. It includes a back button, 'Edit', and 'Delete' links. Below the title is an icon of two server racks. Metadata shows 'Created By: D066245' and 'Changed On: 8/24/2017, 12:48:07 PM'. A tabbed interface at the bottom has three tabs: 'CONNECTION' (active), 'AUTHENTICATION', and 'CATALOG SERVICE SETTINGS'. The 'CONNECTION' tab displays the following details:

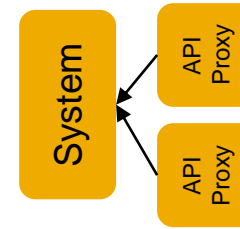
CONNECTION	
Description	HANA XS Engine
*Host ?	dev01afd9015b4.hana.ondemand.com
*Port	443
Use SSL	<input checked="" type="checkbox"/>
On-Premise ?	<input type="checkbox"/>

SAP API Management Platform – API Portal – API Proxies

Facade of an existing REST API or SOAP service

API Proxy allows for:

- Hiding internal implementation information
- Versioning
- Security, Traffic Management, Transformation
- Documentation
- Usage analytics
- Technical analytics



The screenshot shows the SAP API Portal interface. The top navigation bar includes the SAP logo and the title 'API Portal'. Below this, there are tabs for 'API PROVIDERS (10)', 'CERTIFICATES (0)', 'APIS (27)', 'PRODUCTS (12)', 'APPLICATIONS (11)', and 'POLICY TEMPLATES'. The 'APIS (27)' tab is selected. On the left, there is a sidebar with navigation options: 'Home', 'Discover', 'Develop', 'Monetize', 'Analyze', and 'Test'. The 'Develop' option is highlighted. The main content area displays a table of APIs with columns: Name, Status, Type, Last Updated, Description, Calls For This Month, and Action. The table lists several APIs, including 'XS', 'GatewayServiceQuota', 'TicketSystemAPI', 'PromotionSystemAPI', 'PolicyTemplateExample', 'LackierroboterAPI', 'SchneidroboterAPI', and 'SchweissroboterAPI'. Each API entry has a status of 'Deployed' and a 'Last Updated' timestamp. The 'Description' column provides details about each API, such as 'This is the API of the on-premises promotion system of the' for 'PromotionSystemAPI' and 'Diese API stellt alle Sensordaten vom Lackierroboter bereit.' for 'LackierroboterAPI'.

Name	Status	Type	Last Updated	Description	Calls For This Month	Action
XS	Deployed	ODATA	8/24/2017, 2:51:49 PM		98	[Icon]
GatewayServiceQuota	Deployed	REST	8/11/2017, 10:44:27 AM		39	[Icon]
TicketSystemAPI	Deployed	REST	7/6/2017, 9:27:57 AM	TicketSystemAPI	2	[Icon]
PromotionSystemAPI	Deployed	REST	7/6/2017, 9:27:57 AM	This is the API of the on-premises promotion system of the	3	[Icon]
PolicyTemplateExample	Deployed	REST	3/21/2017, 9:46:40 AM		0	[Icon]
LackierroboterAPI	Deployed	REST	3/8/2017, 1:51:39 PM	Diese API stellt alle Sensordaten vom Lackierroboter bereit.	0	[Icon]
SchneidroboterAPI	Deployed	REST	2/22/2017, 3:19:44 PM	Diese API stellt alle Sensordaten vom Schneidroboter bereit.	0	[Icon]
SchweissroboterAPI	Deployed	REST	2/22/2017,	Diese API stellt alle Sensordaten vom	0	[Icon]

SAP API Management Platform – API Portal – API Proxies - Policies

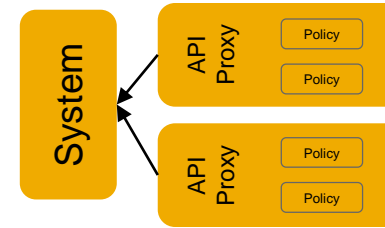
Pre-defined, configurable behavior

Used in the **Policy Editor**, and positioned on the **request or response**

Preconfigured for:

- Security
- Traffic Management
- Message transformation
- Caching

Coding can be added through Java Script



The screenshot shows the SAP API Portal Policy Editor interface. The left sidebar contains a navigation menu with options like Flows, ProxyEndpoint, TargetEndpoint, Created Policies, and Scripts. The main area displays a policy flow diagram with two steps: 'verifyAPIKey' and 'enforceQuota'. The right sidebar lists various policy templates under 'Security Policies' and 'Traffic Management Policies'. The bottom section provides a detailed explanation of what a Flow is and how it is used in the API management context.

Policy Editor

API Artifacts for GatewayServiceQuota

Flows

- ProxyEndpoint
 - PreFlow: 2
 - PostFlow: 0
- TargetEndpoint
 - PreFlow: 0
 - PostFlow: 0

Created Policies

- enforceQuota
- verifyAPIKey

Scripts

Policy Flow Routing properties and Scripts

Flows:

A Flow defines a processing pipeline that can control and channel how the API behaves and the information it carries. The message processing pipeline consists of a request flow and a response flow. ProxyEndpoint and TargetEndpoint define a pipeline to process request and response messages. Each request or response flow is subdivided into: PreFlow: This flow is always executed as the first step in the segment where it is applied.

Security Policies

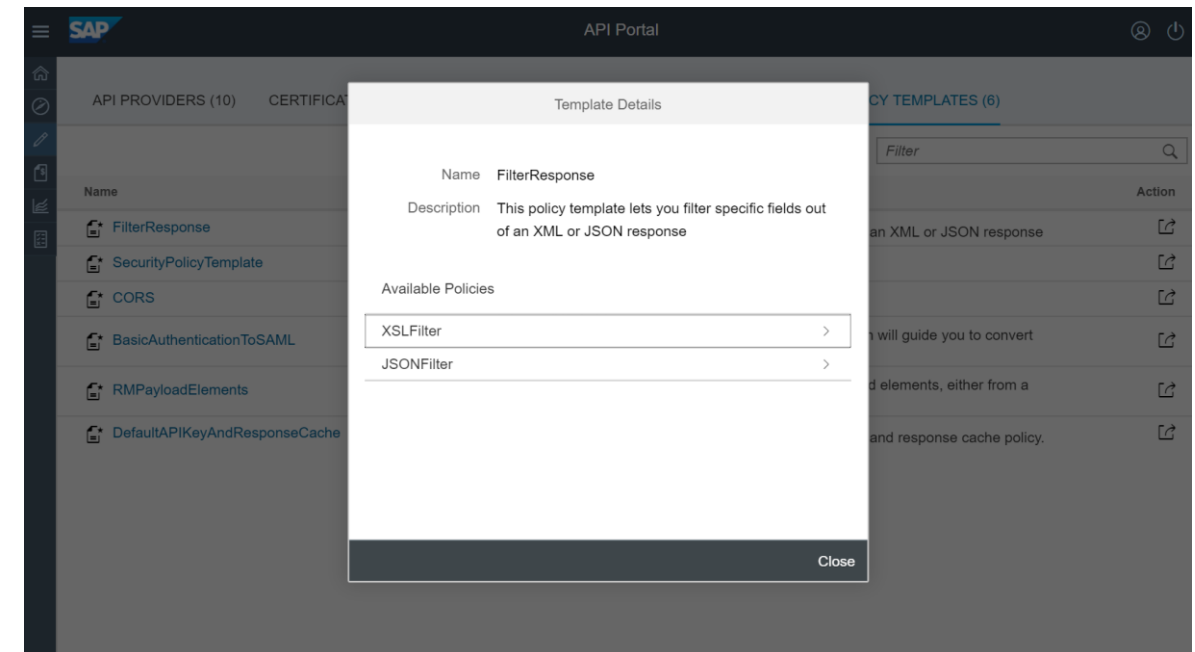
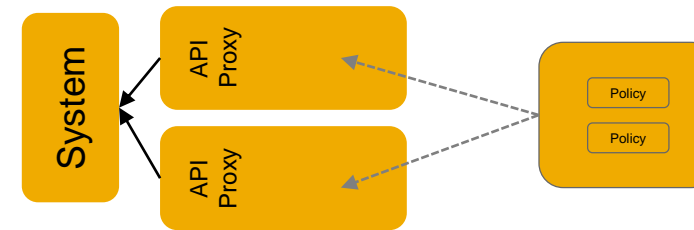
- OAuth v2.0 SET
- XML Threat Protection
- Basic Authentication
- Verify API Key
- JSON Threat Protection
- SAML Assertion Validation
- SAML Assertion Generation
- OAuth v2.0
- OAuth v2.0 GET
- Regular Expression Protection

Traffic Management Policies

- Invalidate Cache
- Lookup Cache
- Response Cache

SAP API Management Platform – API Portal – Policy Templates

- Bundle of policies that can be re-used
- Can be created and managed individually
- Can be re-used from the SAP API Business Hub



SAP API Management Platform – API Portal – Product

Logical bundle of APIs

Can be configured with Quota like:

- Premium Product with unlimited use
- Standard Product with 1000 API Calls/Month

Developers subscribe to API Products in the Developer Portal



The screenshot shows the 'View Product' page in the SAP API Portal. The product is 'RoboterAPIs-Premium', which is in a 'Published' state. It has 0 calls and a validity period from 8/01/2017 to 8/28/2017. The page includes tabs for 'OVERVIEW', 'APIS (3)', 'APPLICATIONS (2)', and 'RATE PLANS (1)'. The 'APIS (3)' tab is active, displaying a table of three APIs: 'LackierroboterAPI', 'SchneidroboterAPI', and 'SchweissroboterAPI', all of which are in a 'Deployed' state.

Name	State
LackierroboterAPI	Deployed
SchneidroboterAPI	Deployed
SchweissroboterAPI	Deployed

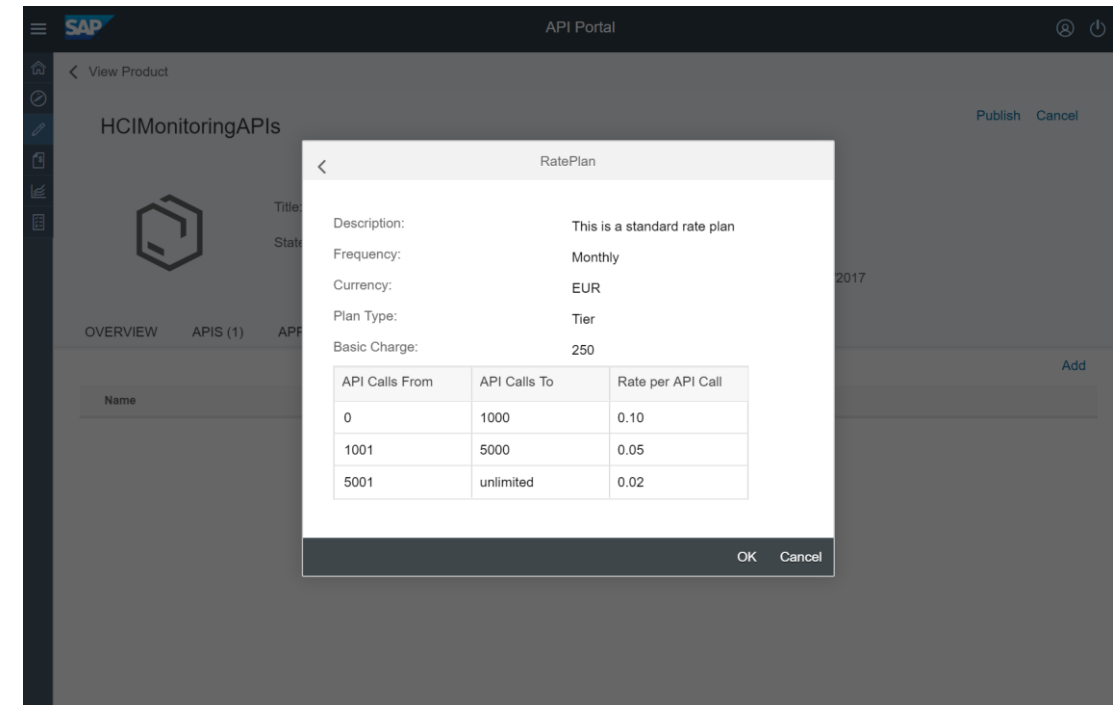
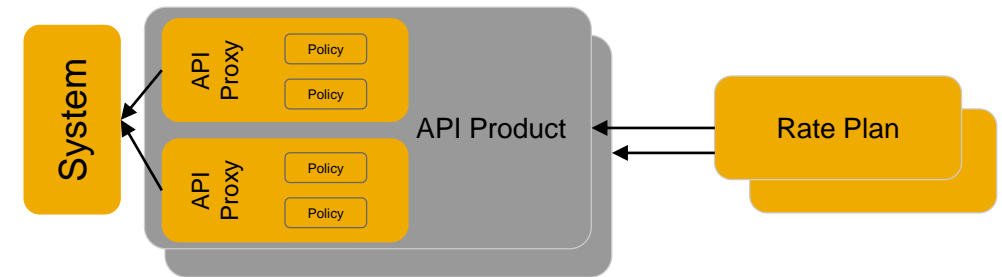
SAP API Management Platform – API Portal – Rate Plan

Defines charging of API usage

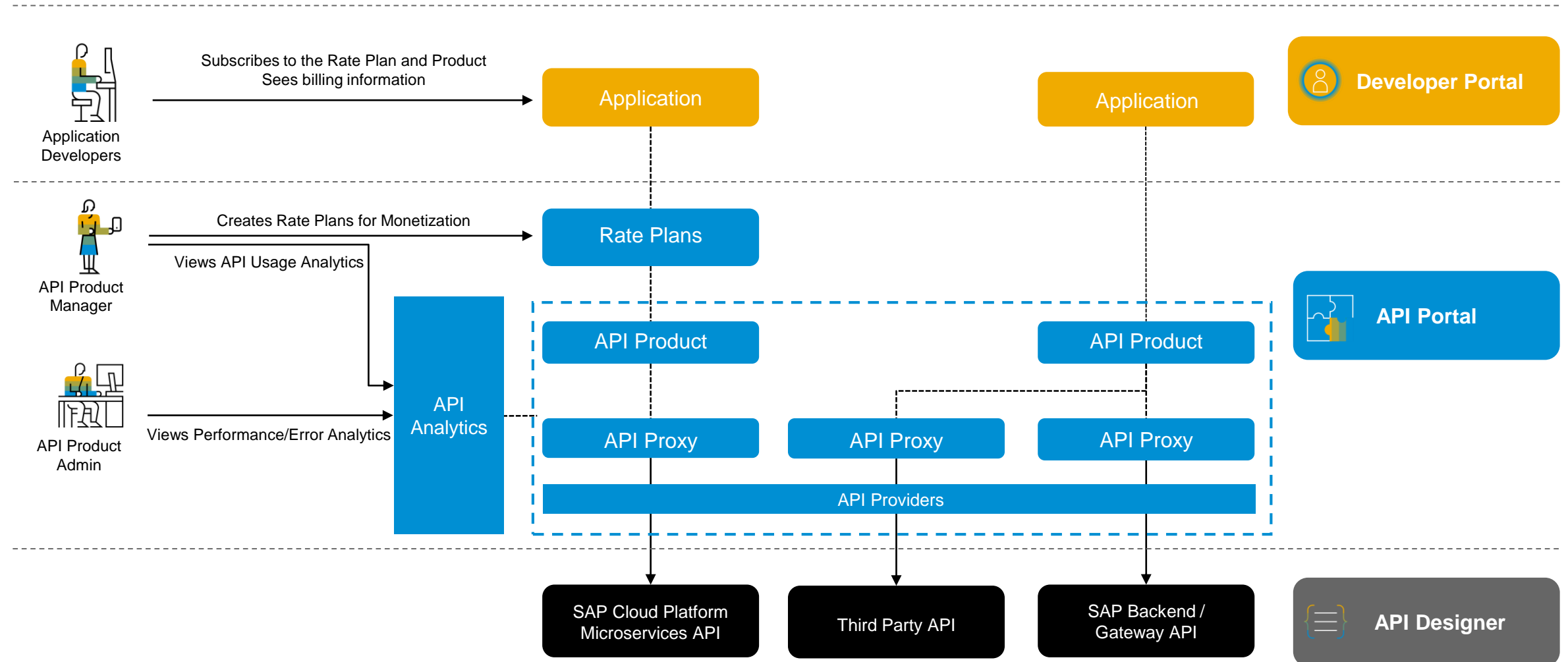
- Basic: Basic charge + X€ per API Call
- Tiered: Basic charge + X€ per Y API Calls

Is attached to one or more API products

API Admin and Developers can see their bills



API Portal: Monetize

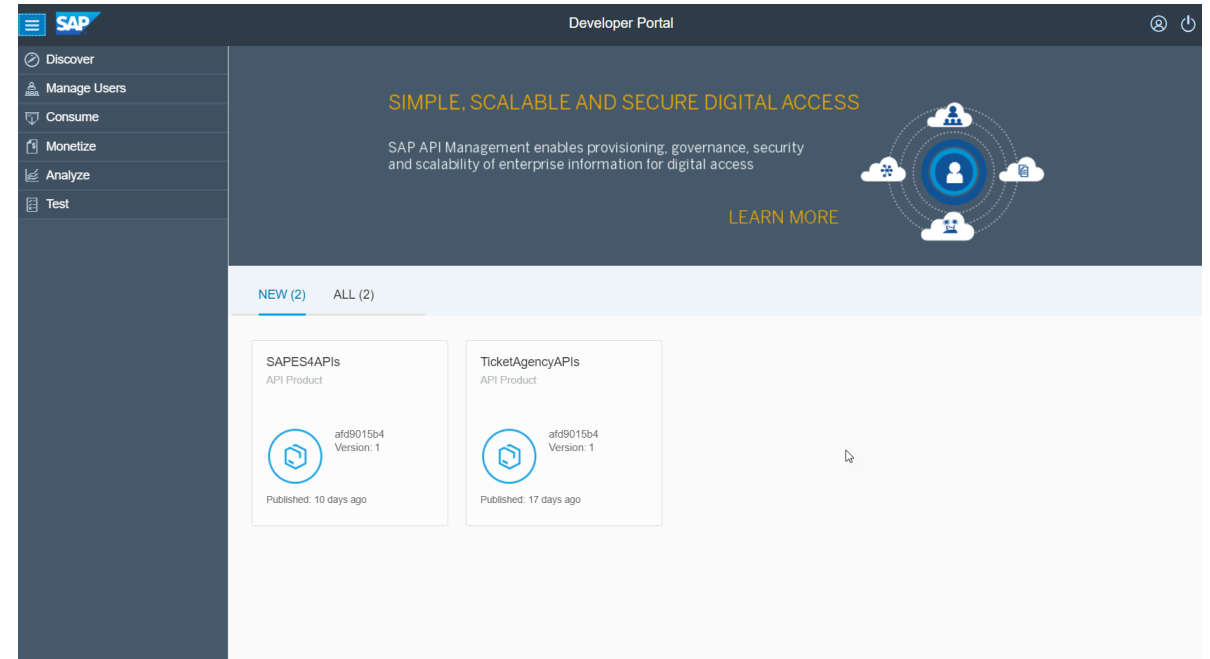


SAP API Management Platform – Developer Portal

main entry-point for the application developer

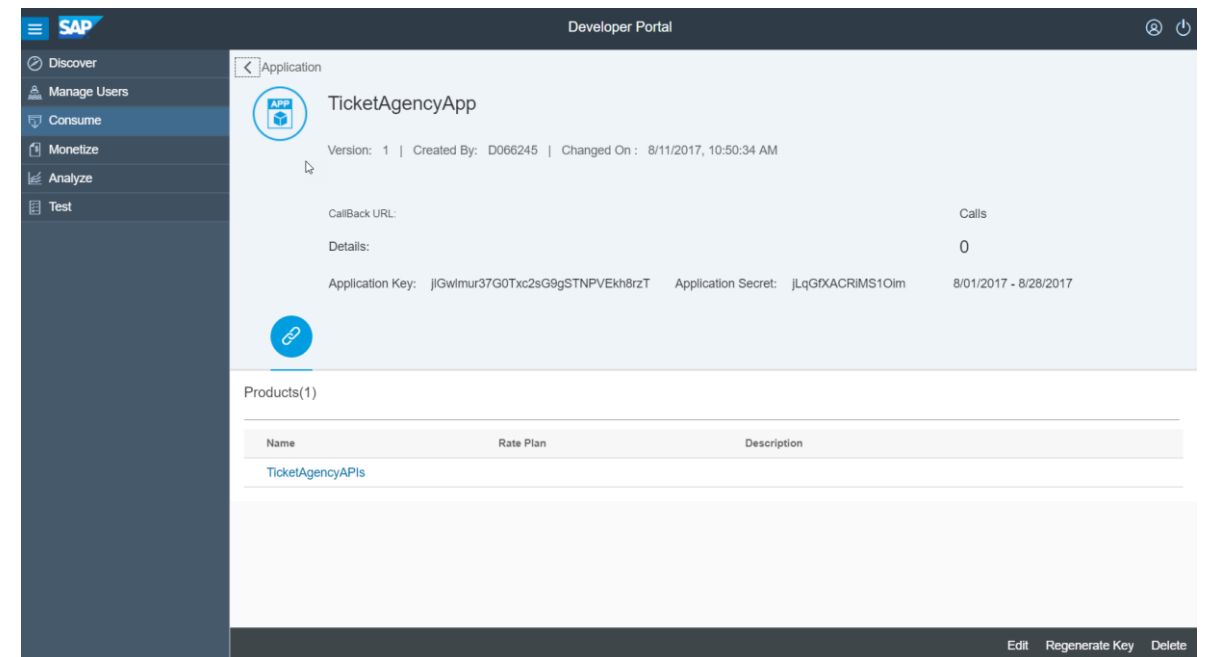
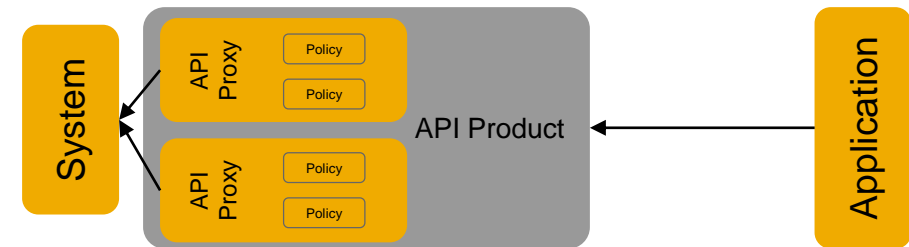
Developers self-register and can:

- Discover available products and the API Proxies which are included,
- Test APIs online,
- **Subscribe** to an **API** product by creating an **Application** (a representation of the „real“ application which he will develop),
- Manage his API keys.



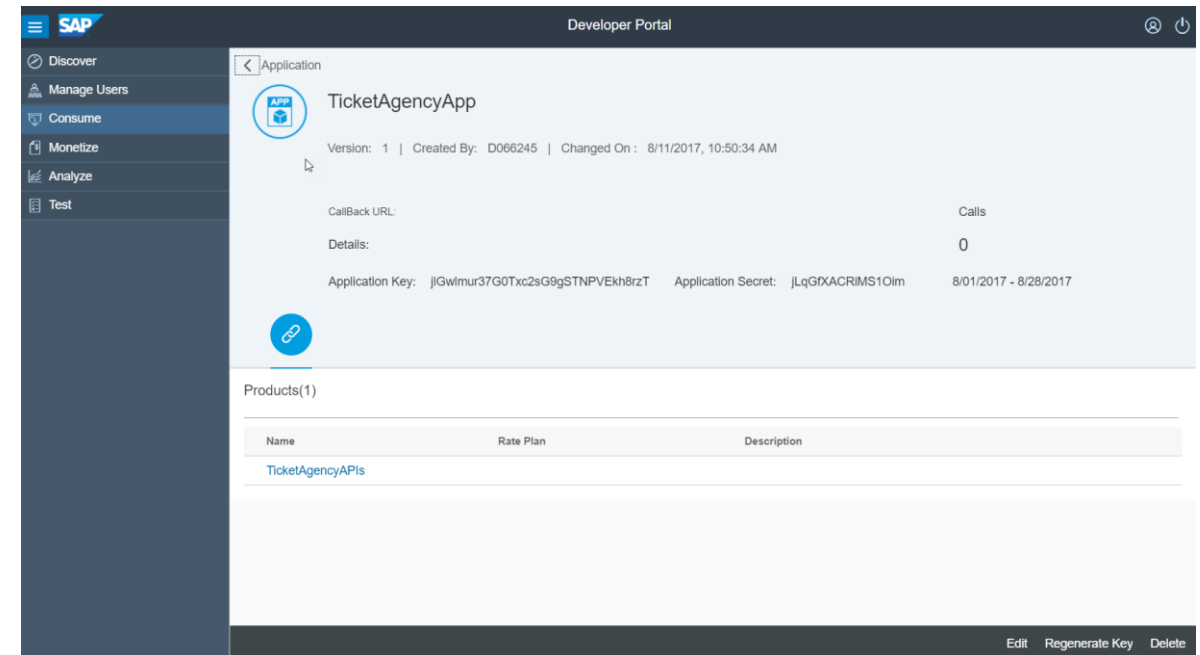
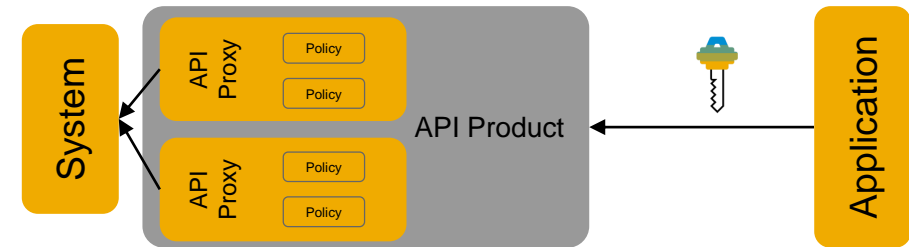
SAP API Management Platform – Developer Portal – Application

- **Applications** represent an **API consumer**
- Applications can be Apps, Web applications, ...: it is not relevant.
- Upon subscription, an API key is created



SAP API Management Platform – Developer Portal – App Key

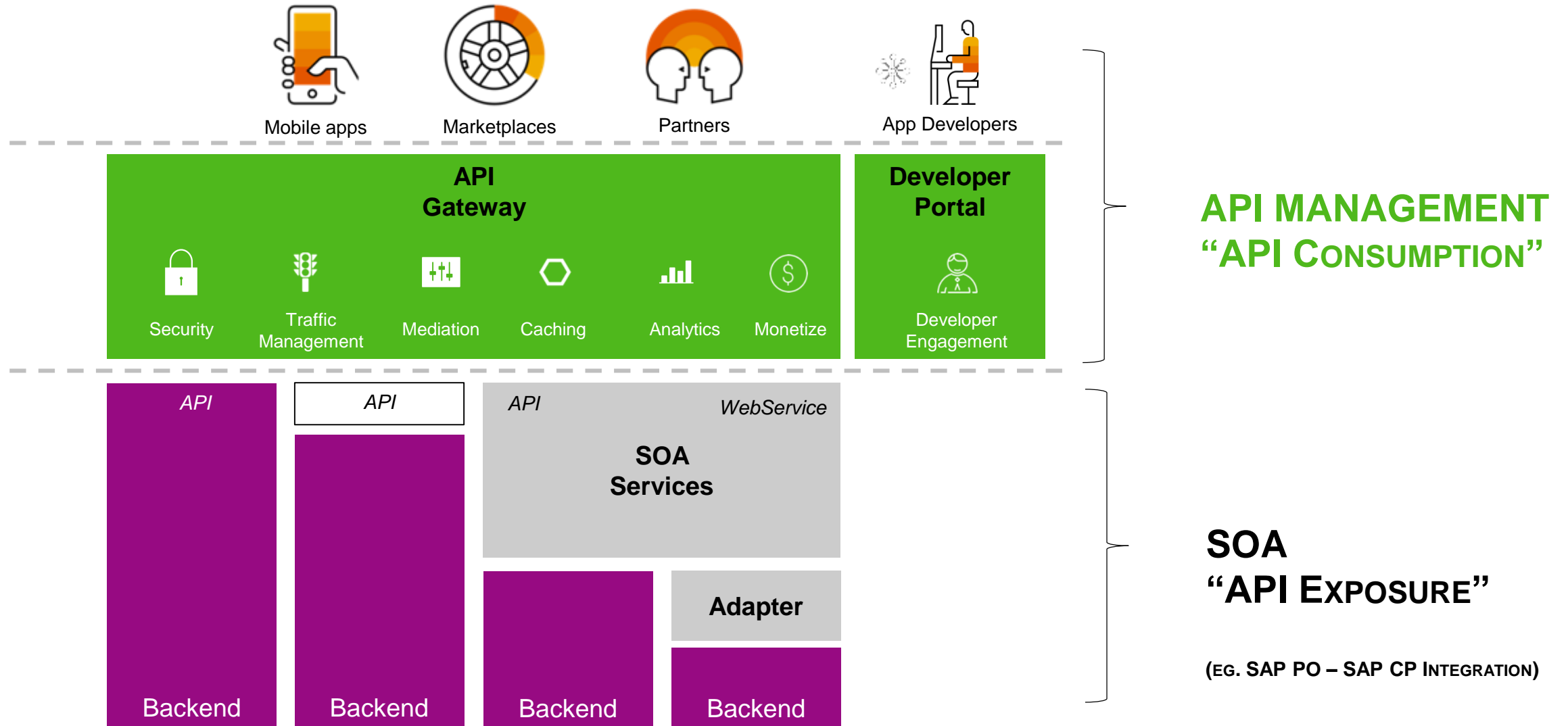
- Each Application is tied to a Developer through an API Key: the API key identifies the Application, and is used primarily for analytics
- It is a best-practice to use **API keys**
- API keys are managed by the **Application Developers**
- API Key is not a security feature!



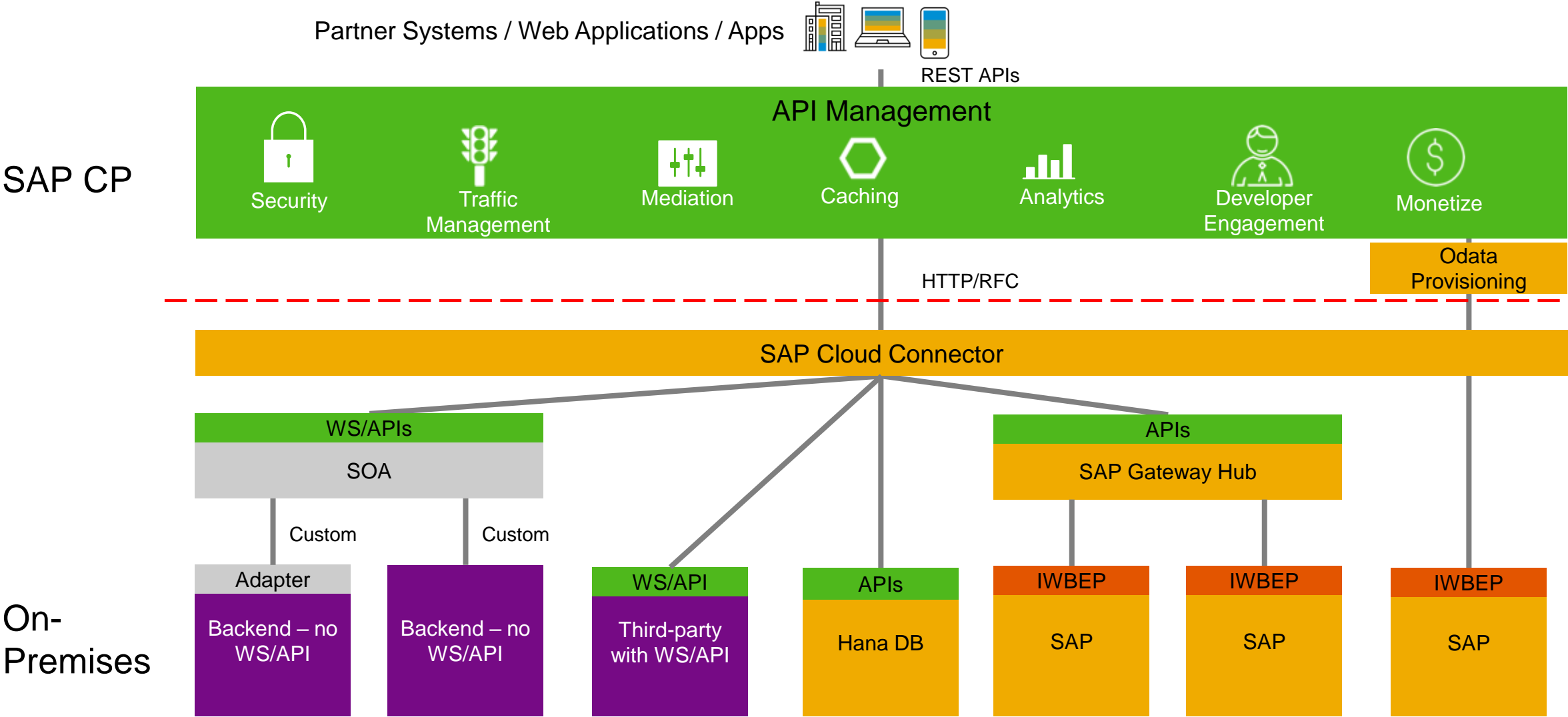
Architecture



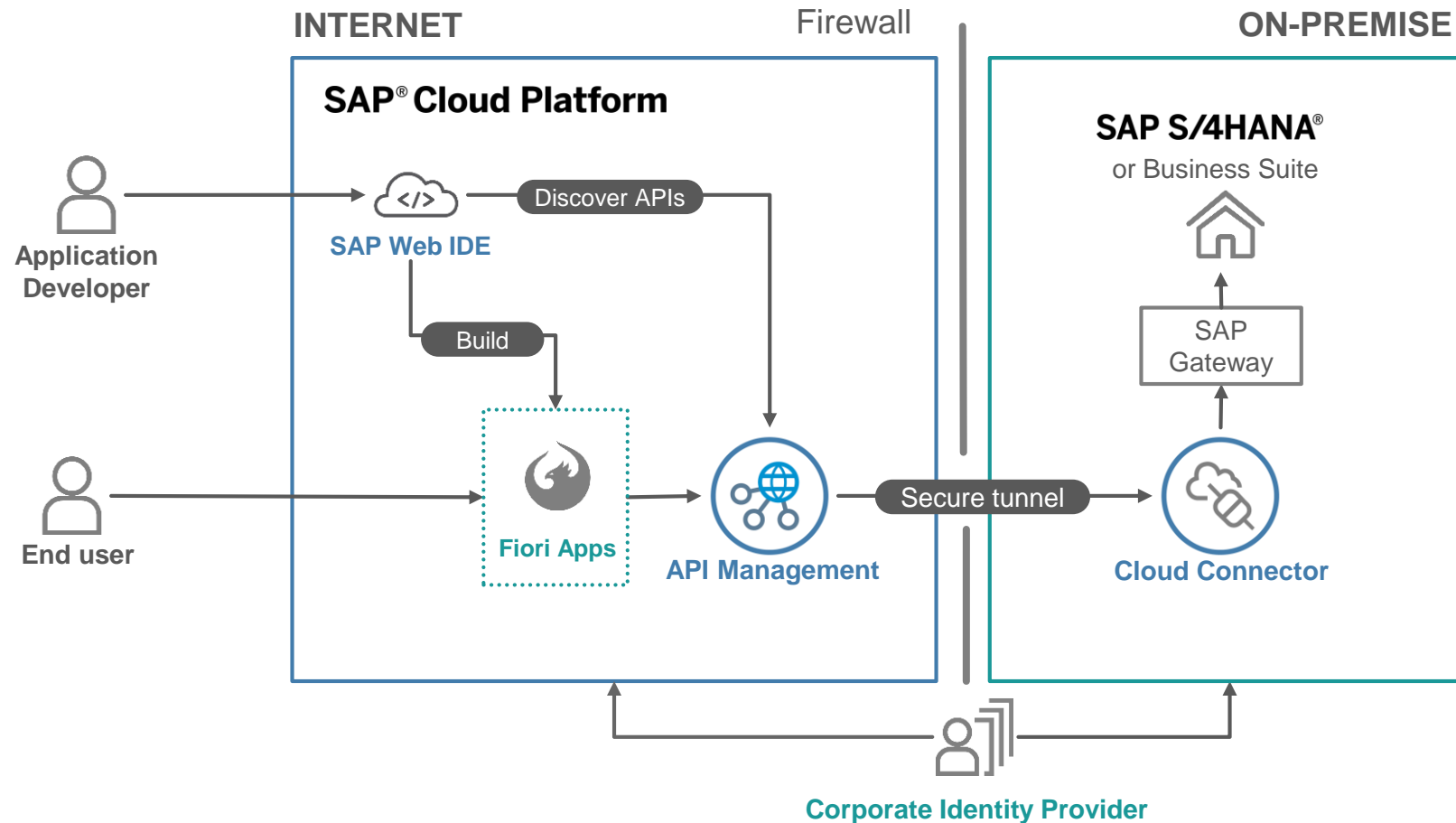
SAP API Management – High-Level Architecture



High-Level Architecture in an SAP Ecosystem

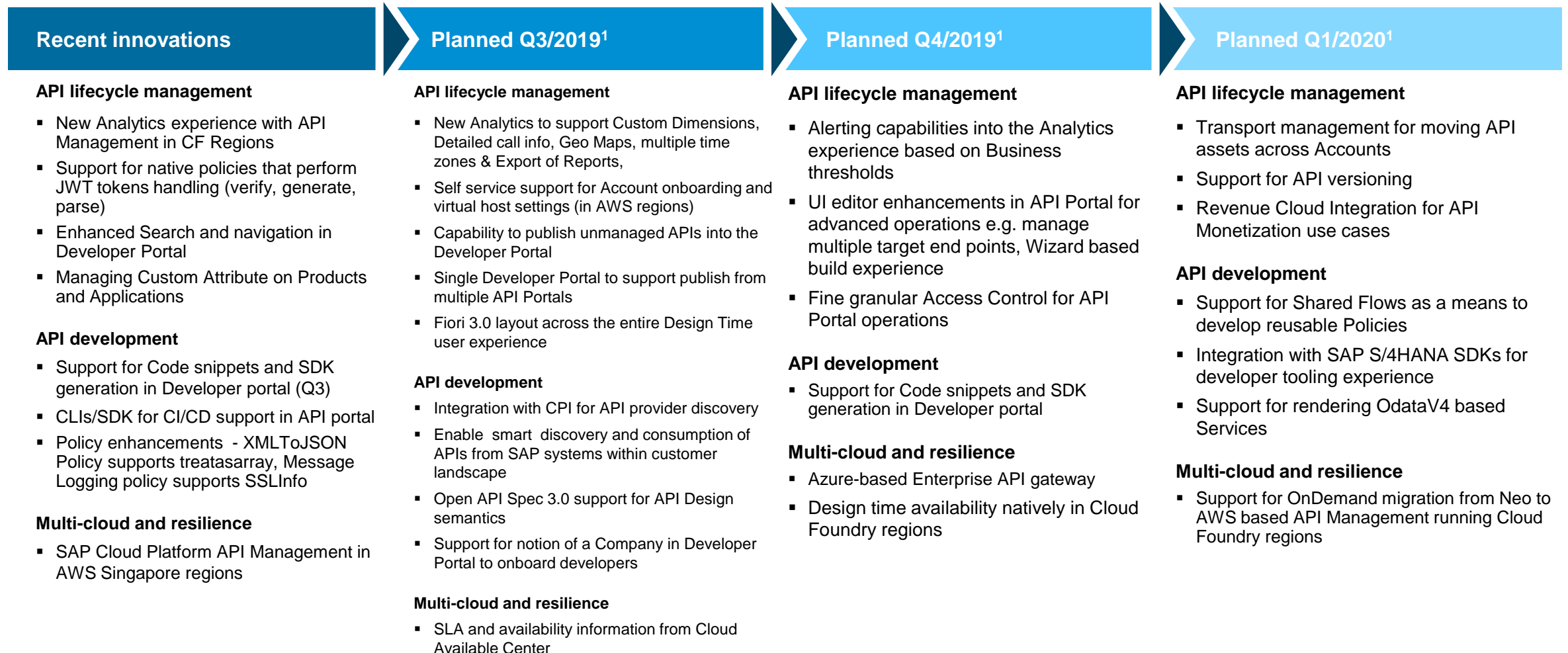


Fiori apps with SAP API Management and Gateway – Web IDE Integrations



SAP Cloud Platform API Management

Product road map overview – Key innovations

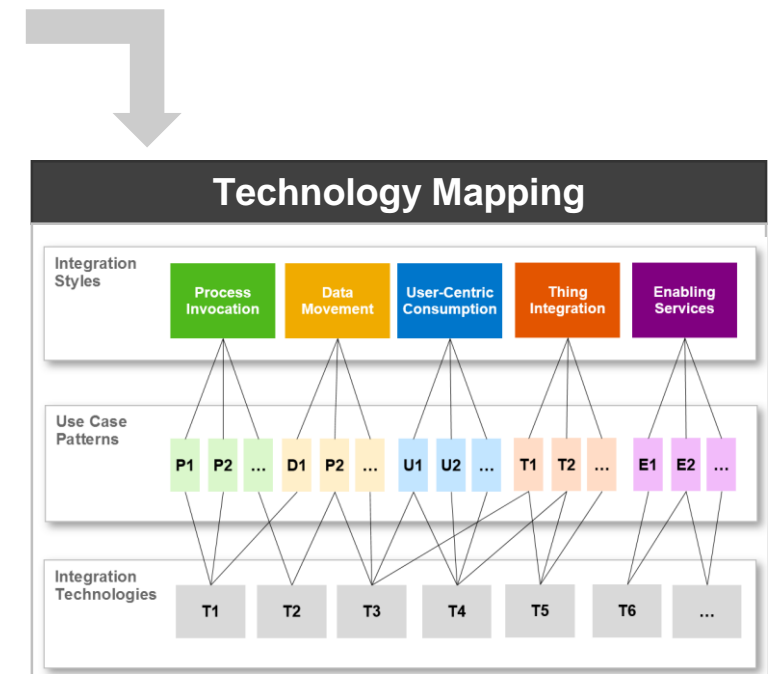
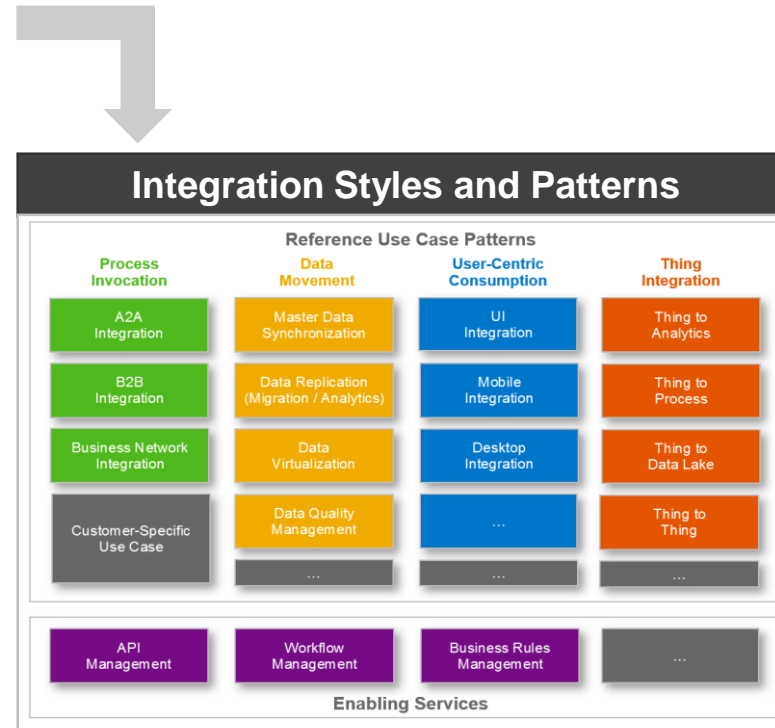
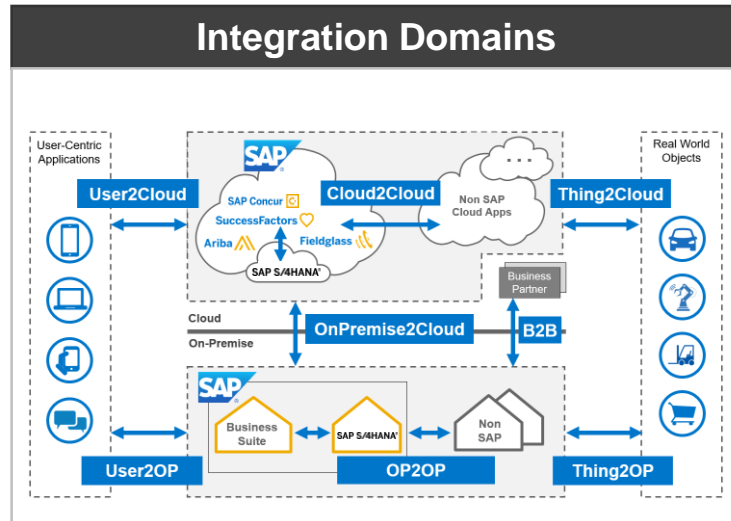


1. This is the current state of planning and may be changed by SAP at any time without notice.

Additional information



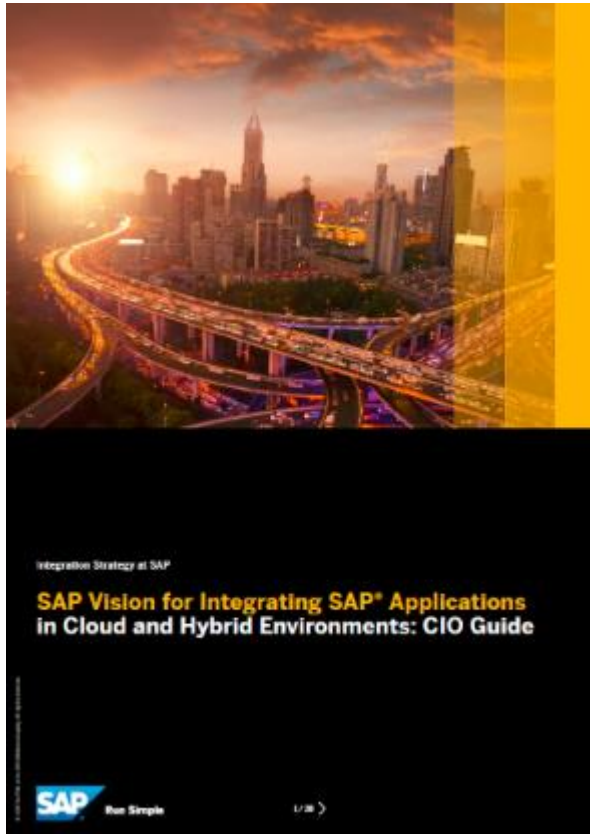
Integration? Integration Solution Advisor - Methodology



<https://blogs.sap.com/2016/03/04/int203-integration-solution-advisor-methodology-isa-m-sap-teched-lecture-of-the-week/>

CIO Guide

SAP's Vision for Integrating SAP Applications in Cloud & Hybrid Environments



Published at SAPHIRE (May 2017)

- Outlines [SAP's long-term integration strategy](#)
- Focus on scenarios in the cloud and in hybrid environments
- Technology Recommendations
 - Process Integration
 - Data Integration
- Outlook & future strategy including application design and integration technology

Thank you

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