Leveraging API's and Overview of SAP API Management

Speaker

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Agenda

APIs and the Digital Economy

API Management @ SAP

- Deployment Models
- SAP API Business Hub

SAP HCP, API management

- Use Cases
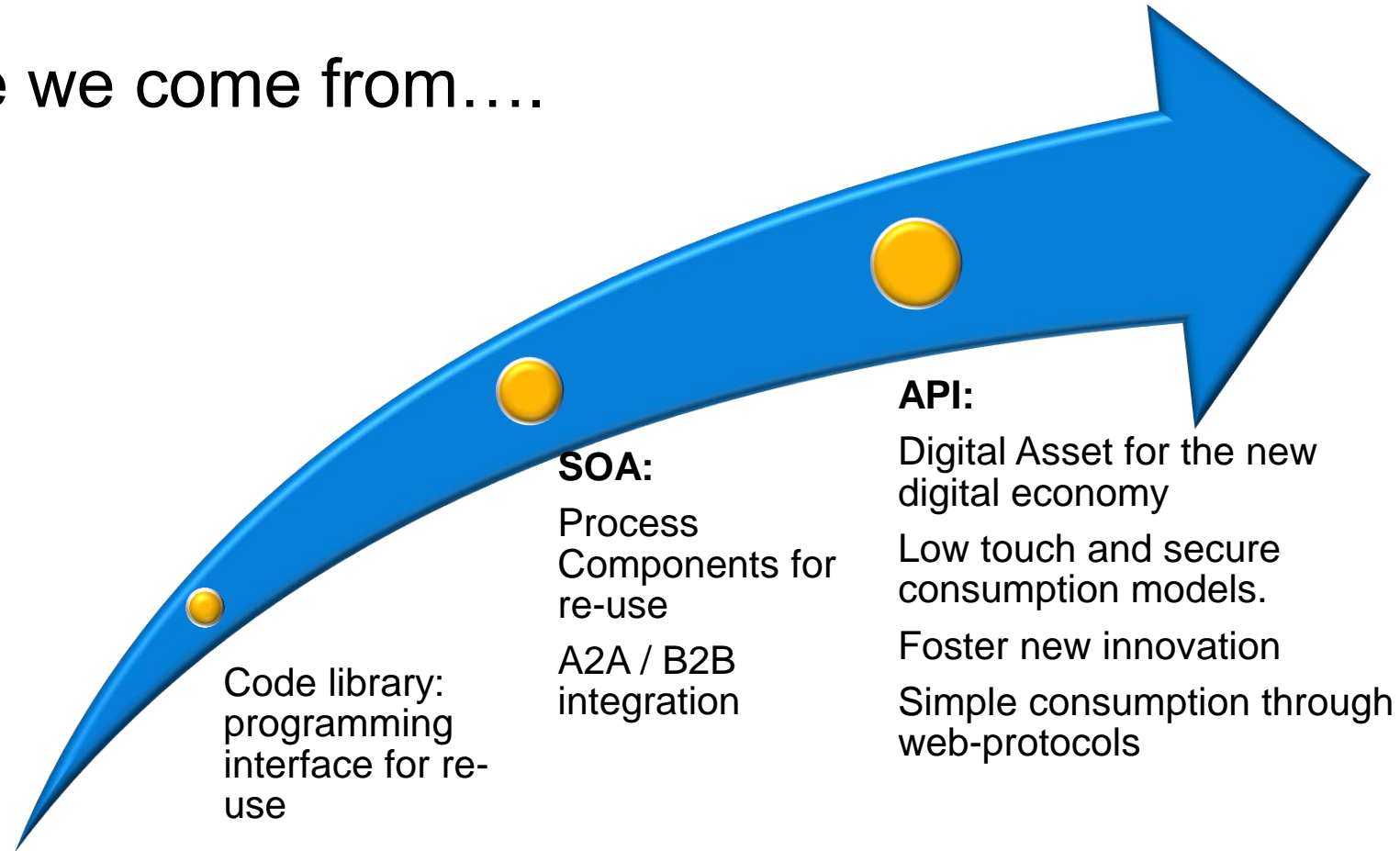- Value Proposition
- API Management in Detail

Demo

Outlook

APIs and the digital economy

From Code Libraries to API Economy

Where have we come from….

API:

Digital Asset for the new digital economy

Low touch and secure consumption models.

Foster new innovation

Simple consumption through web-protocols

SOA:

Process Components for re-use

A2A / B2B integration

Code library: programming interface for re-use

The digital economy

CONSUMERS

BUSINESS PARTNERS

EMPLOYEES
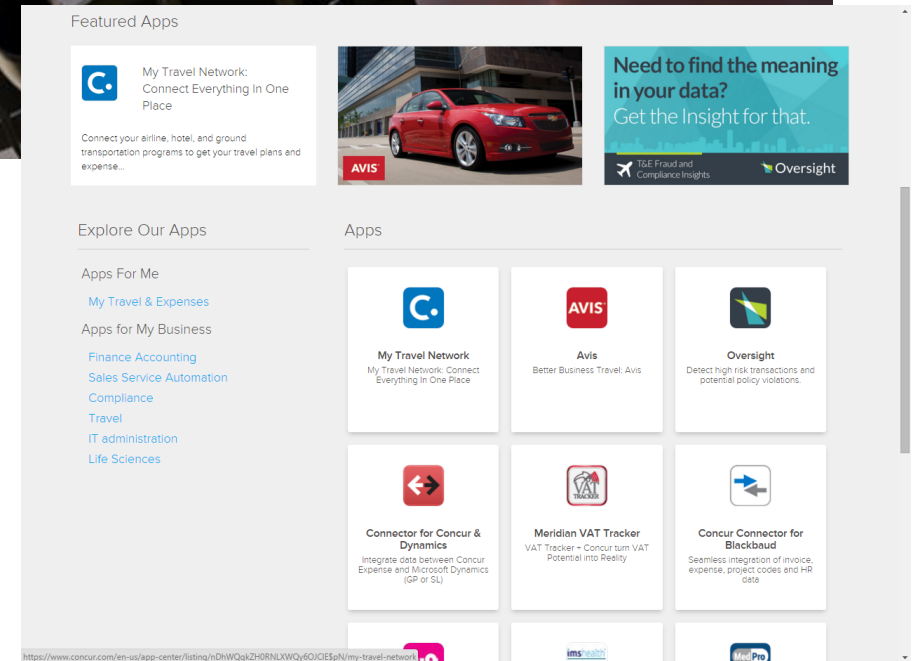
Concur

Quickly discover and try APIs for Expense, Itineray, Travel Profile and others

Tap the $1.3T business travel market* and deliver solutions to 25M business travelers and 23,000 enterprises worldwide

Companies like Uber & Airbnb are using Concur's APIs

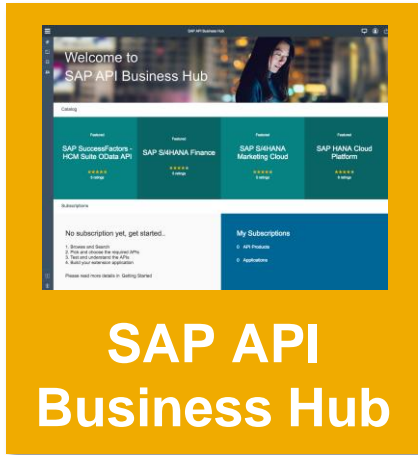# API Management @ SAP

Digital assets and available deployment options

API Management @ SAP
Offerings and deployment options

SAP API Business Hub

- Discover, learn, try and use SAP-provided APIs
- Entry point into the SAP API economy
- http://api.sap.com

API Management

SAP API Management by Apigee 1.0
(On Premise)

- SAP API Management by Apigee 1.0, SP05
- Core-based pricing
- Local installation

SAP HANA Cloud Platform, Api management
(Cloud)

- Fast provisioning, simple access
- Part of the HANA Cloud Platform, SAP´s enterprise PaaS
- Subscription based on API calls
- EU Data Protection as an option
- US-East, EU and APJ data center coverage
- Public trial available

API Management @ SAP
Cloud and OnPremise Deployment Complementing Each Other

SAP HANA Cloud Platform vs. OnPremise implementation – A customer choice

Capability	SAP HANA Cloud Platform, API Management	SAP API Management by Apigee
Licensing Model	Subscription based operational expense	Core-based pricing with annual maintenance fee
Delivery	Continuous monthly delivery	Service Pack Delivery Currently SP05 (Apigee Edge 4.16.05)
High Availability	99.9% (SAP standard for HCP planned for H2/2016) currently 99.5 %	Depending on customer implementation
Operation Responsibility	Customer tenants run in SAP HANA Cloud Platform as per SLA agreements	Customer operates Apigee Edge product
Update Cycle	Monthly delivery; Automatic update	4 shipments per year (Service Packages); update by customer
Support Model	SAP Enterprise Support	SAP Enterprise Support
System Provisioning	SAP Data Center EMEA in Germany and US East Coast; Addt'l data centers planned for 2016	Local deployment in customer data center

SAP API Management and SAP API Business Hub
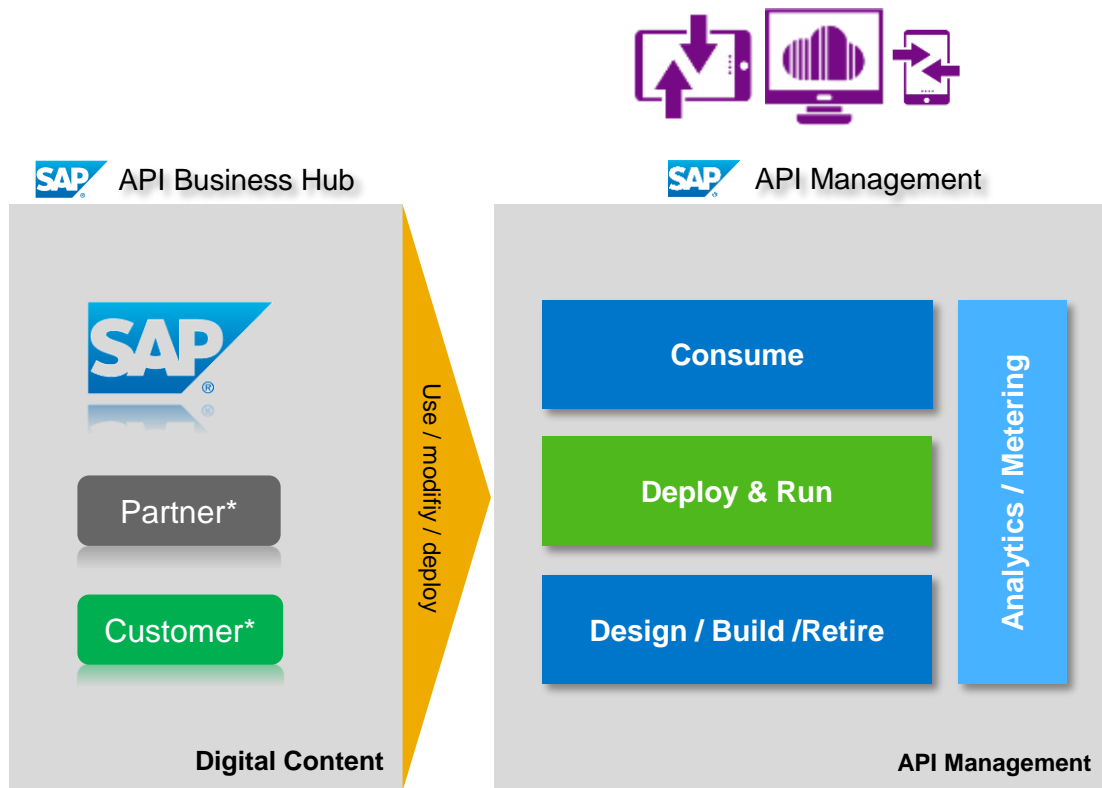
SAP API Business Hub

- Discovery, trial and productive use of pre-built APIs for consumption in Web or mobile applications on SAP HCP.
- Re-use of provided content for deployment into API Management

SAP API Management

- Design, build and integrate APIs from business applications to expose data for external low-touch consumption.
- App developers can consume exposed APIs and build applications on top.
- Securely mange and expose APIs for metering and analytical insights.

*Partner and customer content planned for 2017

SAP HCP, API management

API Management in the cloud

SAP HANA Cloud Platform
Business results in the cloud made simple

Powerful
Enterprise Cloud Platform Capabilities

- User Experience
- Analytics
- Internet of Things
- Collaboration
- Integration

Easy
Access to Enterprise Application Data Sources

- SAP SuccessFactors
- SAP Cloud for Customer
- SAP Ariba
- Concur
- SAP S/4HANA
- SAP Business Suite

Fast
Business Results

Rapid Time to Value:
- Move projects from years to a few months
- Deploy pre-built apps from SAP and our partners for even quicker results

SAP HANA Cloud Platform
The platform-as-a-service to extend, integrate, and build business apps

Extend
Cloud & On-Prem Apps

Quickly add new functionality to your existing cloud and on-prem apps to optimize your existing investments

Integrate
Your Apps and Data

Connect your cloud and on-prem apps to eliminate data silos and make digital access simple, secure, and scalable

Build
Brand New Cloud Apps

Rapidly build and run new cloud apps to solve new problems, engage new customers, and drive new revenue

Integration
Secure, reliable and easy-to-consume access to remote services and applications

Connect any application

- SAP and non-SAP, Java and ABAP systems
- On-premise and in the cloud

Integrate processes and data

- Intra- and inter-company processes with SAP HANA Cloud Platform, integration service
- ETL between on-premises and cloud repositories

Securely share digital assets

- Open API management with SAP HANA Cloud Platform, API management
- Design, Build and Publish APIs for consumption
- Traffic management and scale to billion of calls
- Monitoring with real-time analytics

Simplify application development

- More than 60 prepackaged integration flows
- Choice of protocols - HTTP, RFC, SMTP, POP3, IMAP

Protect your business and your users

- SAP HANA Cloud Platform, cloud connector for secure connections to on-premise systems
- Auditable access history
- Managed in secure SAP datacenters

Read more: Integration

Why should you use SAP API Management ?
Archetypical Usage Scenarios

1 Secure Omni-Channel Access

Secure usage of data and processes in mobile, desktop and devices
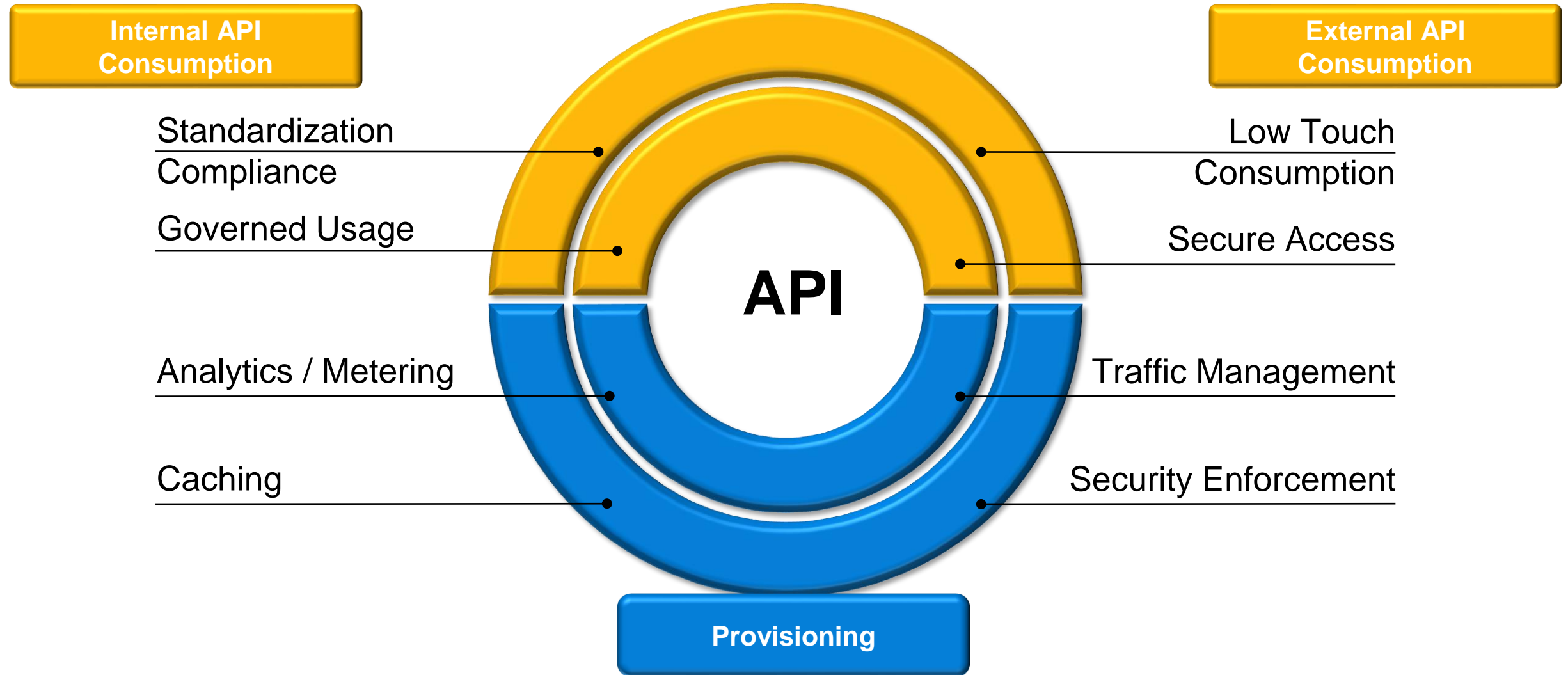
2 Integration / Data Access

Open Business Network Integration/A2A integration (Microservices architecture)

3 Agility and Innovation with bi-modal IT

System of innovation to accelerate agility and innovation in IT departments
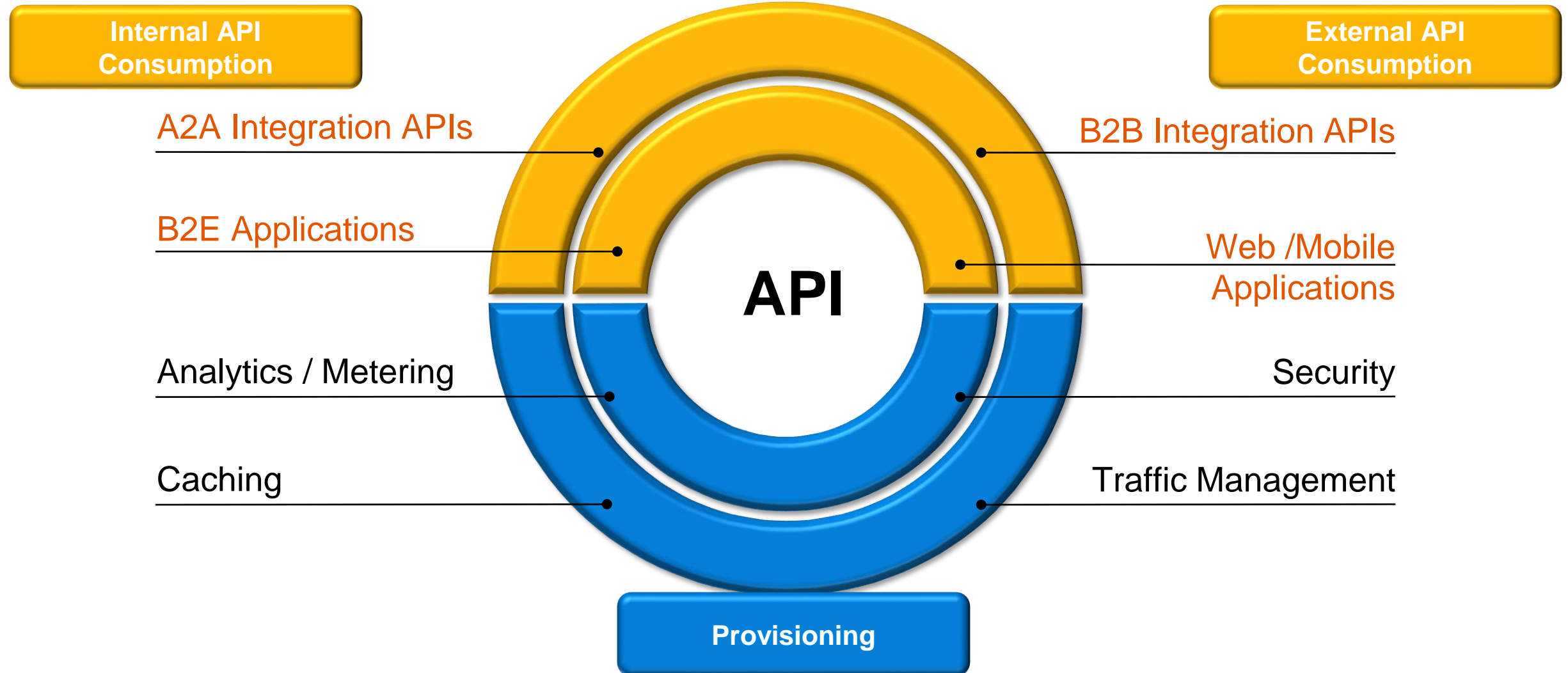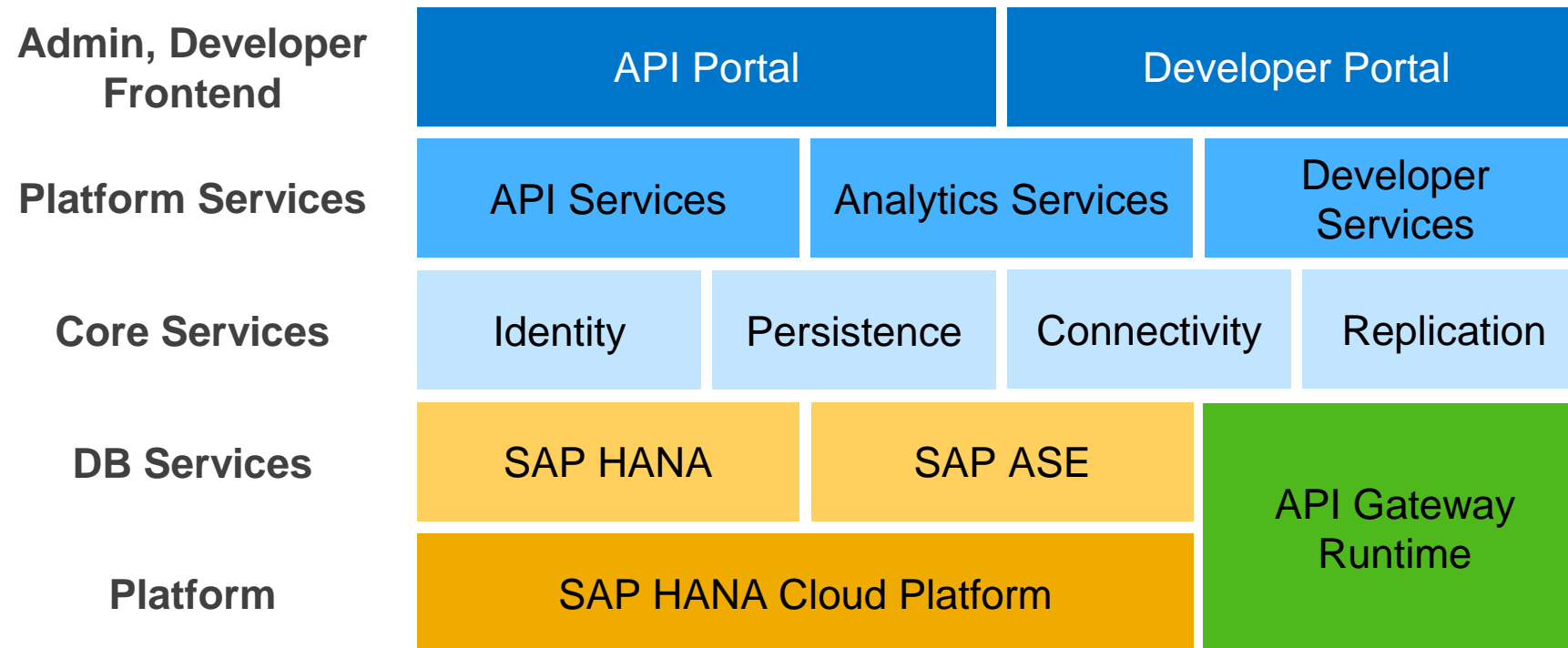
APIs – Within or beyond the corporation
Value proposition

Internal API Consumption

Standardization Compliance

Governed Usage

Analytics / Metering

Caching

External API Consumption

Low Touch Consumption

Secure Access

Traffic Management

Security Enforcement

API

Provisioning

APIs – Within or beyond the corporation
Application scenarios

Internal API Consumption

A2A Integration APIs

B2E Applications

Analytics / Metering

Caching

External API Consumption

B2B Integration APIs

Web /Mobile Applications

Security

Traffic Management

API

Provisioning

SAP HCP, API management
Basic Building Blocks

Admin, Developer Frontend	API Portal		Developer Portal
Platform Services	API Services	Analytics Services	Developer Services
Core Services	Identity · Persistence	Connectivity · Replication	
DB Services	SAP HANA · SAP ASE		API Gateway Runtime
Platform	SAP HANA Cloud Platform		

SAP HCP, API management
Core building blocks integrated with HCP capabilities

Admin, Developer Frontend	API Portal	Developer Portal		Cloud Portal
Platform Services	API Services	Analytics Services	Developer Services	Web IDE / Integration Service (HCI)
Core Services	Identity	Persistence	Connectivity	Replication
DB Services	SAP HANA	SAP ASE	API Gateway Runtime	
Platform	SAP HANA Cloud Platform			

Core Components
SAP HCP, API Management

HCP Component
Use / Integration

SAP HCP, API management
Datacenter availability – today and planning

Netherlands (2017)

Moscow (2017)

Toronto (2017)

Germany

Sterling, VA (Q4 '16)

Phoenix, AZ (2017)

Ashburn

Shanghai (2017)

Tokyo (Q4 '16)

Osaka (2017)

Sao Paulo (2017)

Sydney (Q4 '16)

This is the planned data center availability; which is subject to change without notice
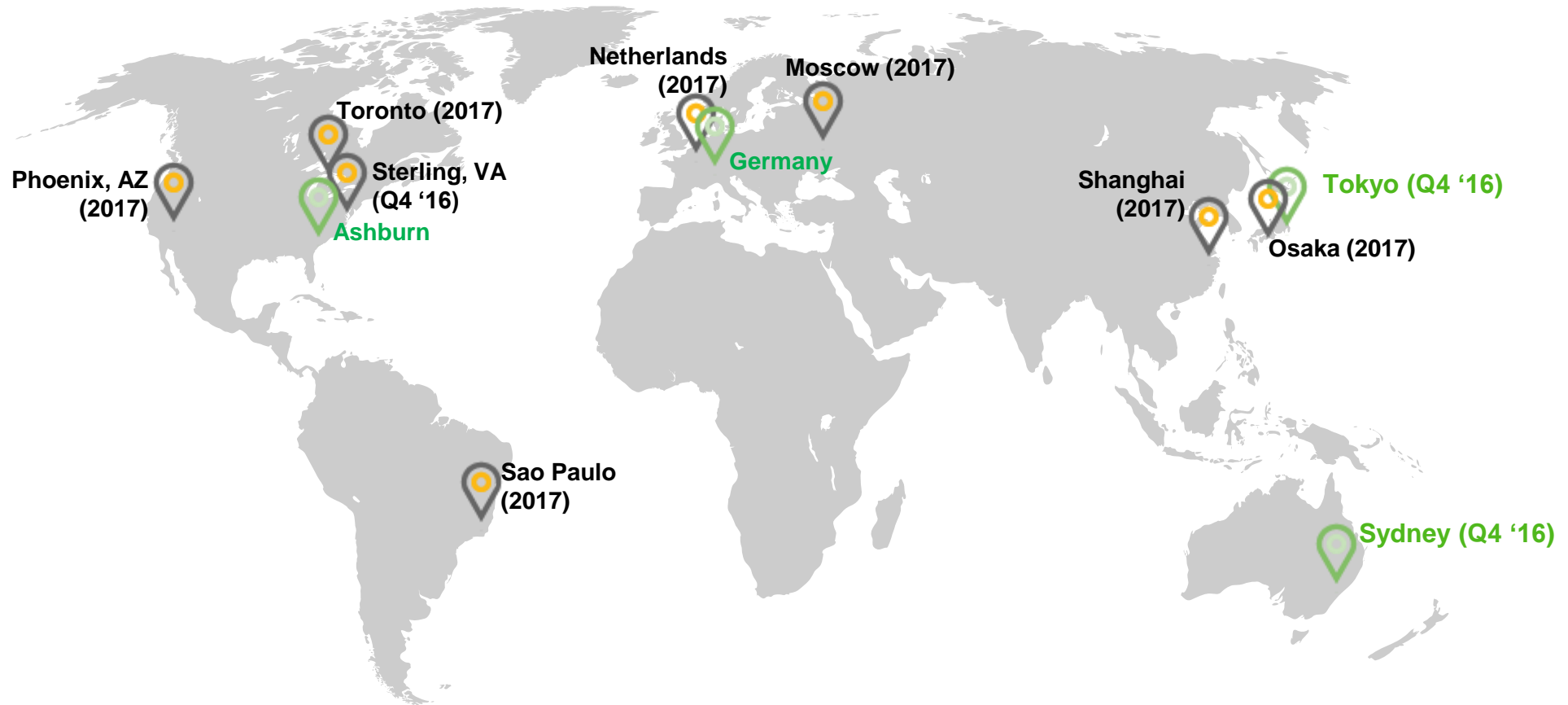
SAP API Management
enabling innovation and bi-modal IT

API platform provides tools to expose and manage APIs Helps create and consume APIs, be it building API proxies as a service provider or using APIs, SDKs, and other convenient services as an app developer

API analytics provides powerful analytical tools to view short and long term usage trends of your APIs. IP, URL, user ID for API call information, latency data can be collected

Developer services provides tools to manage app developers. Provides ability to onboard developers and create a developer portal for publicly available API products

SAP API MANAGEMENT

| API PLATFORM | API ANALYTICS | DEVELOPER SERVICES |
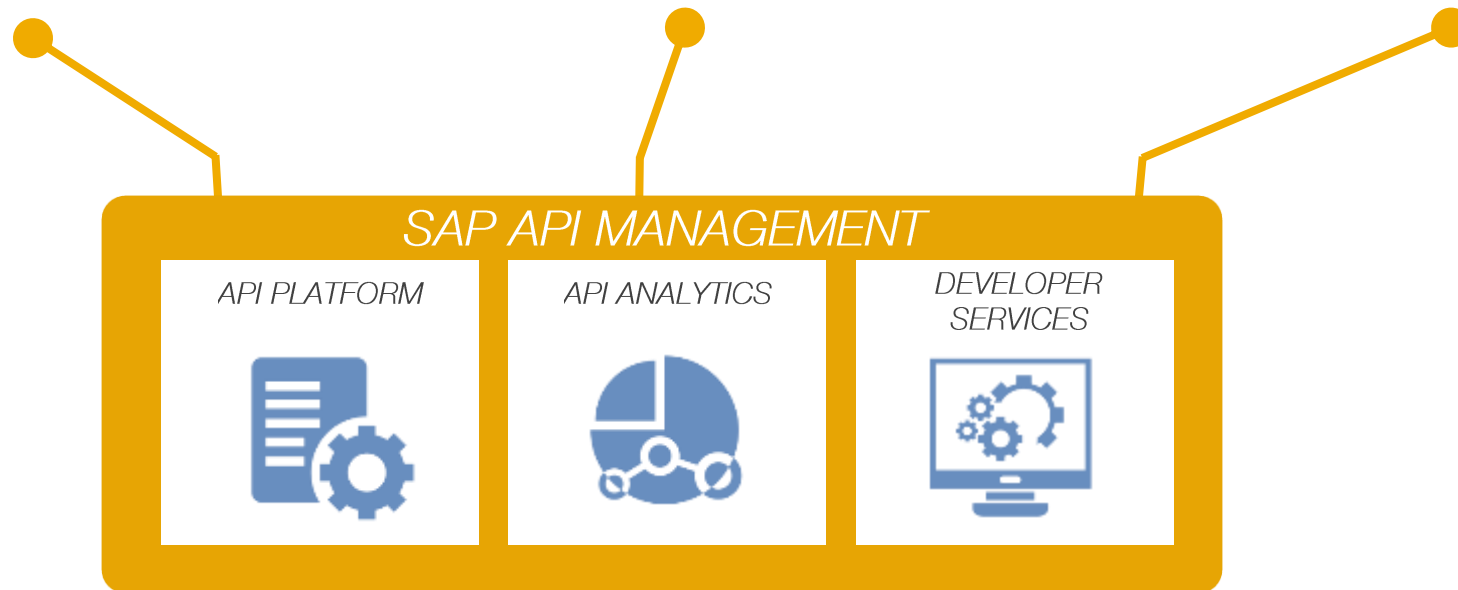
SAP HCP, API management
Cloud deployment view

Browser-based applications

Mobile apps

App Developer

API Builder

Consume

Discover / Subscribe

Build / Analyze

Integrate / Secure

- Web IDE
- API Proxy Runtime
- Connectivity
- Developer Portal
- API Portal

SAP Fieldglass SAP SuccessFactors
SAP Hybris SAP Ariba
SAP
Non-SAP
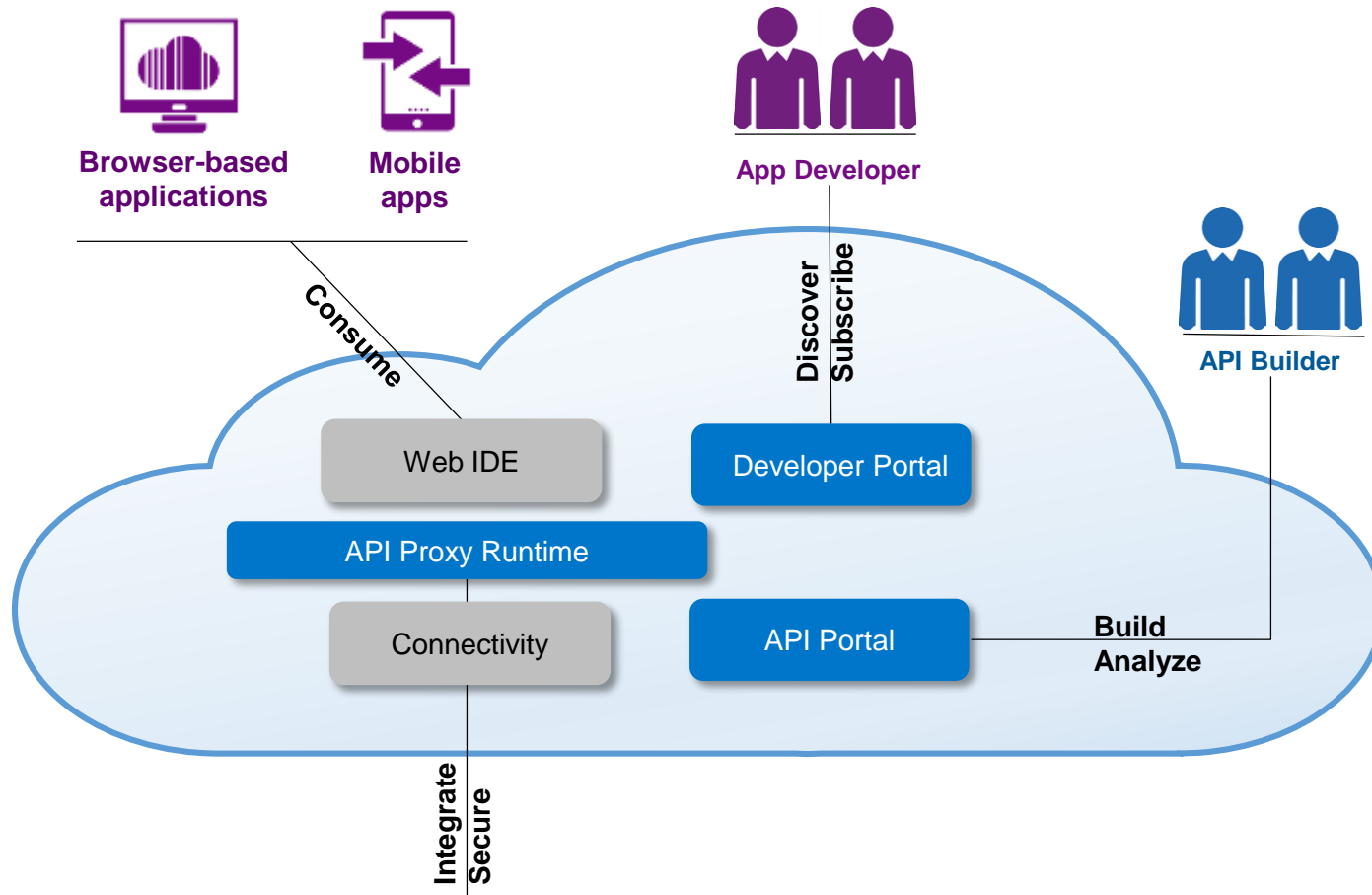
- Premium cloud service in SAP HANA Cloud Platform
- Fast provisioning in regional secure data centers on SAP HANA Cloud Platform
- Make APIs available for discovery and subscription (Developer Portal)
- Consume APIs from web or mobile applications
- Build APIs for external publication and analyze productive usage.
- APIs integrate and secure access to SAP Cloud and On-Premise solutions

Examples of API Management

SuccessFactors runs SAP API Management

Business Challenges

- Safely expose business APIs from various SuccessFactors solutions (Employee Central, Workforce Analytics, Learning)

- Global coverage of SuccessFactors's data center presence (10 data centers)

- Unification of API exposure and API consumption across the solutions. Unification of ODATA exposure and Authentication handling.

- Pro-active API management through throttling, spike arrests and analytical insights about consumption.

- Central management of distributed API proxy runtimes (in the course of 2016).

The Solution: SAP API Management

SAP API Management as part of SAP HANA Cloud Platform helps SAP SuccessFactors to deploy and centrally manage exposed APIs. It secures and unifies access to APIs and provides insights into the consumption.

Why SAP?

SAP provides the **API Management solution in the cloud** which enables customers to leverage the power of API Management without going through complex setup and without investing large capital expenses. This also helped customers start the project quickly and realize the benefits much faster.

API Management in Detail

A look under the hood

SAP API Management
Provision/Manage

🔓 API registration

Support for integration of REST, SOAP and ODATA APIs;

Auto-discovery of SAP Gateway-based Odata services

💬 API mediation / transformation

Protect backend systems from spikes and by enforcing quotas. Support for transformation and mediation

SAP API Management
Manage and Secure

API traffic management

Threat protection

Authentication and authorization

Role-based access control

Protect backend systems from spikes and by enforcing quotas. Support for transformation and mediation

How to secure your APIs
Security at a glance

AccessContro...   BasicAuthent...   ConcurrentRa...   OAuth   Quota   SpikeArrest   ApplicationK...

Browser-based applications —— https —— **SAP HCP, API Management** —— https —— Firewall — Backend
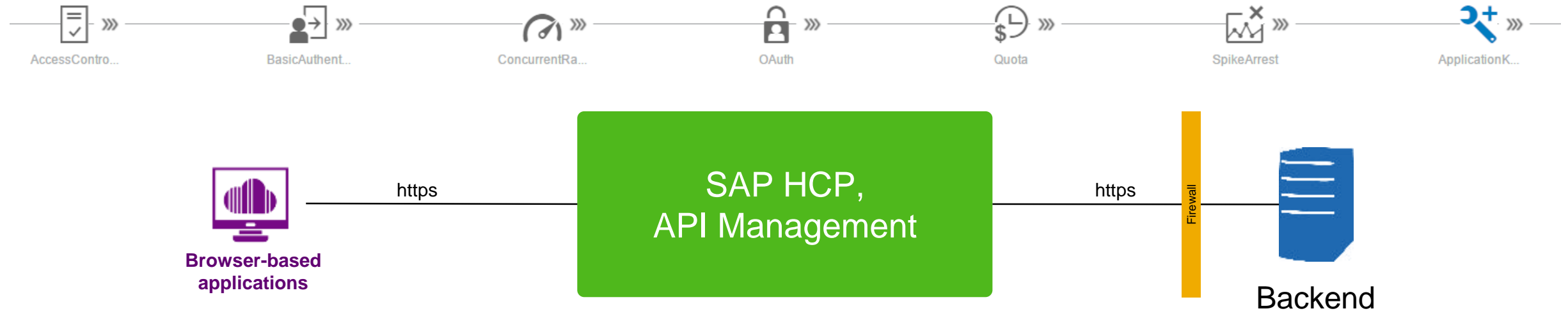
Authentication

- Application Key
- Basic Authentication
- OAuth
- SAML
- X.509

Traffic Management

- Quota (#of calls per time)   → Throttling of inbound requests
- Spike arrest (#of calls per time)   → Throttling of both inbound and backend
- Access control   → Whitelisting / blacklisting
- Concurrent rate limit   → Protecting backend system
- In addition:
  – Transport layer security with custom SSL certificate

How to secure your APIs
Application key scenario
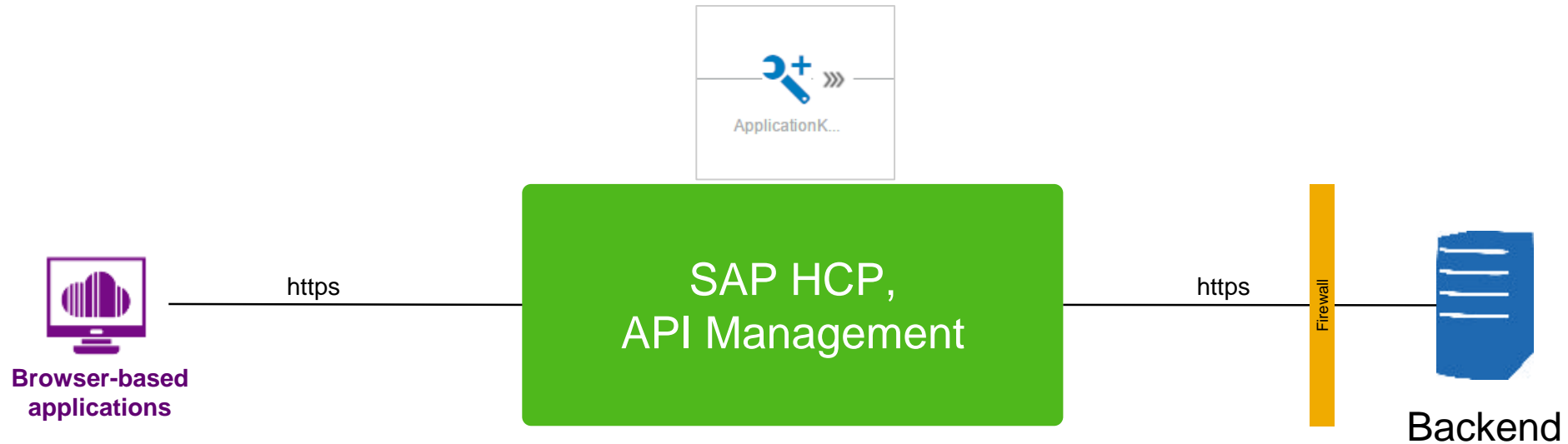
Consumer
- Requests application key as part of subscription
- Submits application key as header variable or request parameter.

API Gateway
- Checks for validity of application key
- Rejects call in case of invalid key; backend is not hit

Value
- Validation of application based on subscription proces

How to secure your APIs
SAP HCP, API management as OAuth provider
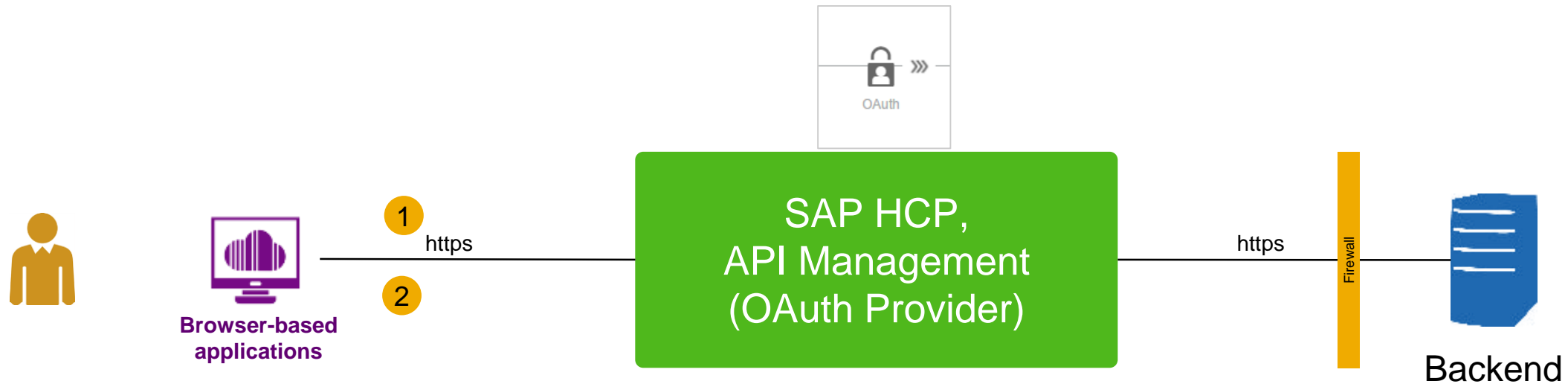
Consumer

1. Request OAuth token w/ application key & secret for a certain validity
2. OAuth token is used in subsequent requests along its validity

API Runtime

- Proxy to issue the OAuth token
- Resource validates the OAuth token with policy

Value

- Validation is done via OAuth token obtained as part of subscription
- Application authorization is only valid for a certain period of time

SAP API Management
Engage/consume

Standard developer portal
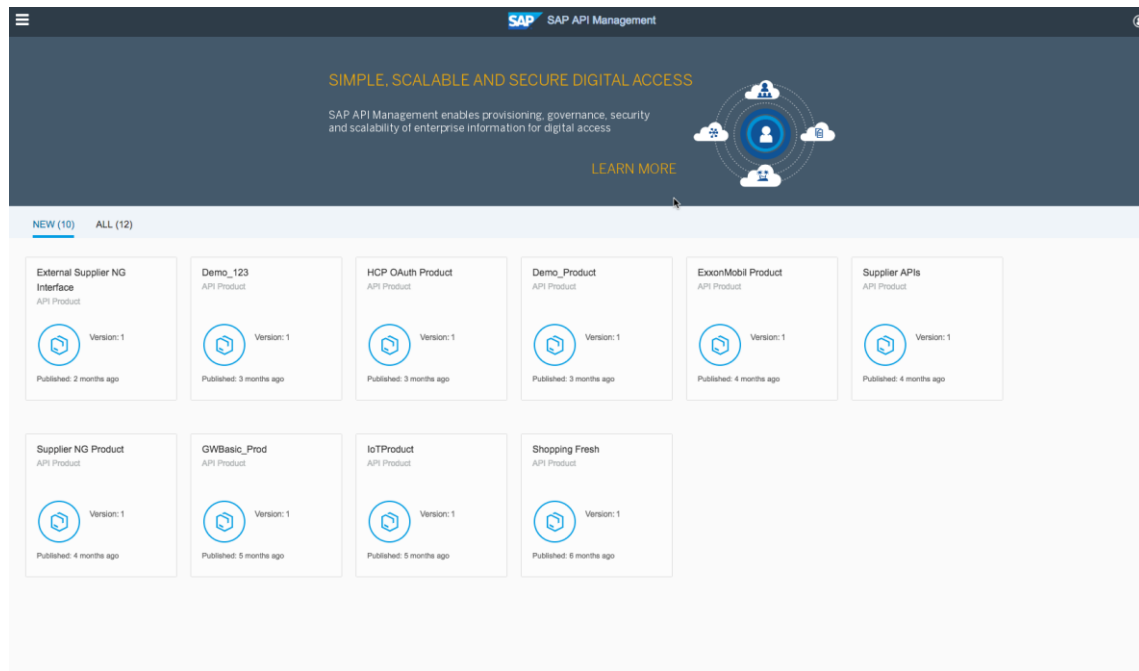
Low-touch consumption model for API consumption.

Standard developer portal for simple use cases

Comes with public API to build custom developer portal solution

Cloud portal for external site
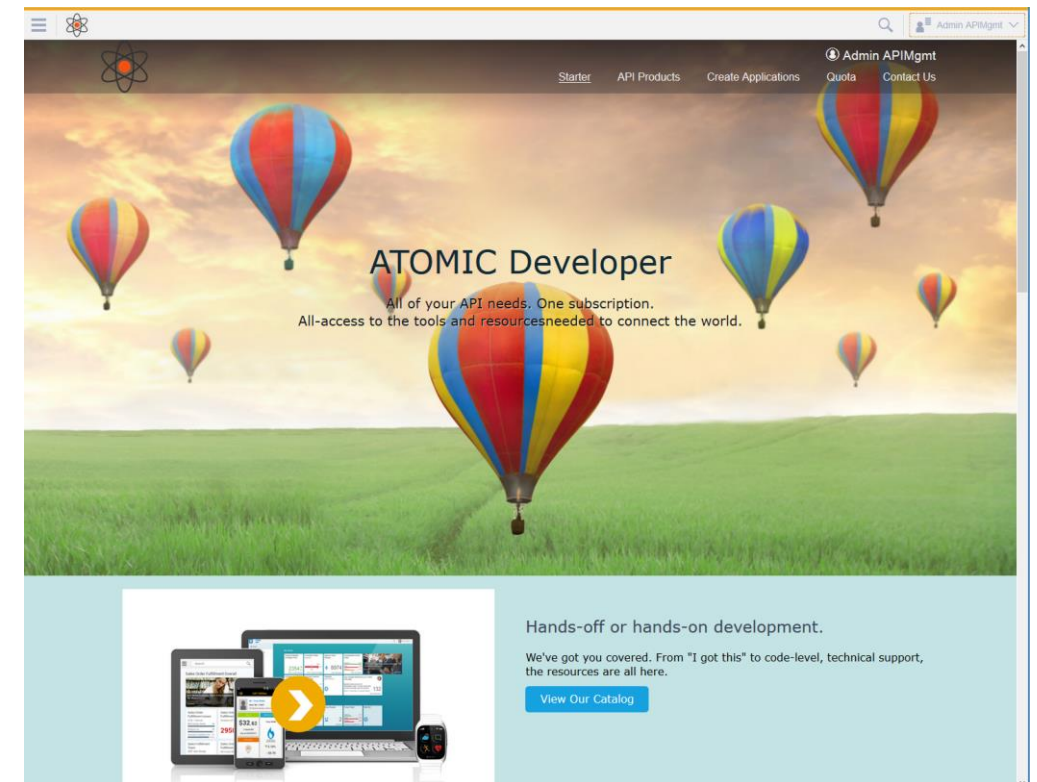
Cloud portal templates available on GitHub.com

SAP API Management
Consume APIs

 SAP HCP, Web IDE

 Fiori, SAPUI5 Application
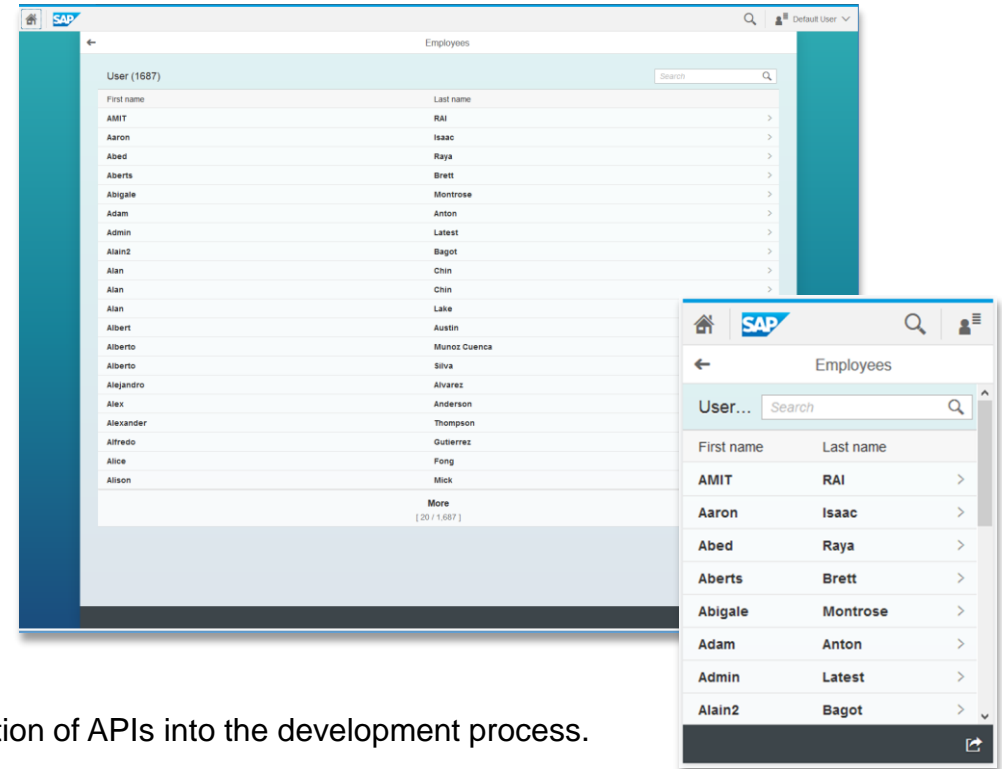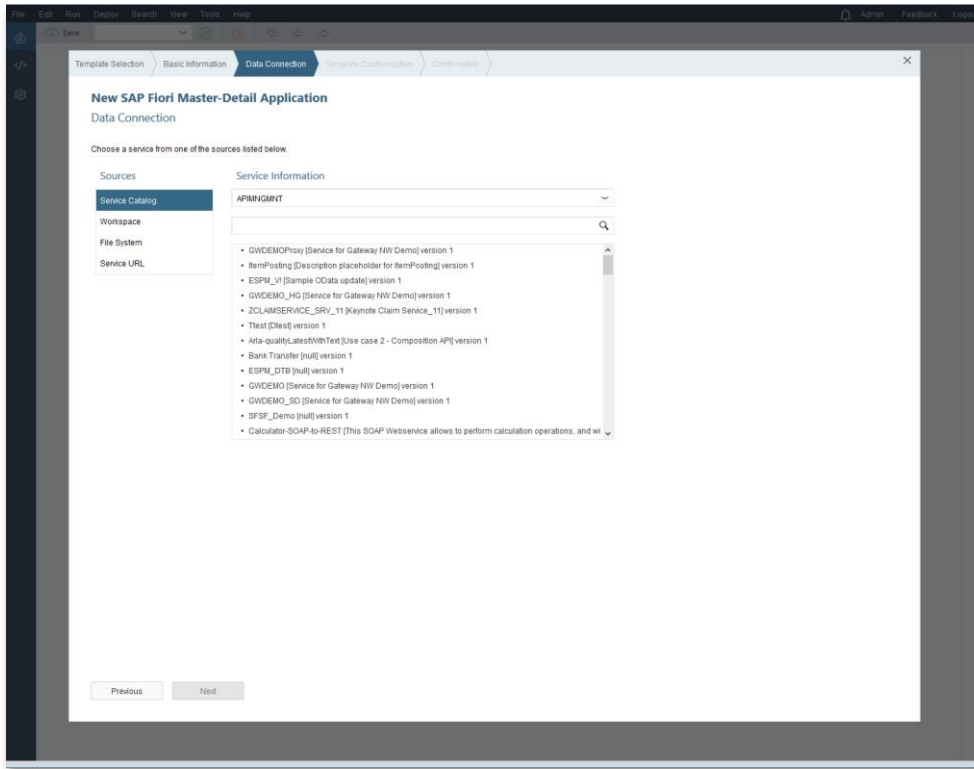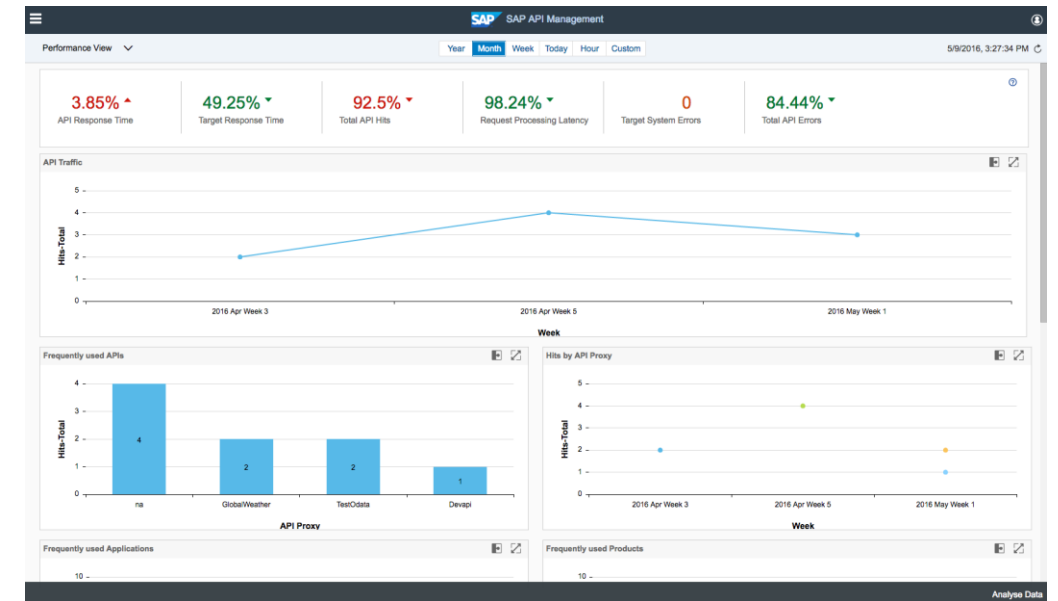
Simple integration of APIs into the development process.

SAP API Management
Analyze

Analytics dashboard

Performance and Error analysis

Analytical Insights both for API provider and API consumer

Reference Use cases

Manage APIs with SAP HANA Cloud Platform API Management and publish them for consumption

European Postal Service & Market Place

Postal Service provides APIs to integrate the shipment process into market places for shoppers.

- **Catalog API**
- **PickUpAndDropOffPoints API**
- **ConsumerShipment API.**

Value Proposition

- Market Place enhanced with integrated shipment logistics for sellers
- Shipment rate transparency for buyers
- Ease of package delivery through drop-off point finder

Next Steps

- Enhance API exposure with additional services (e.g. address validation)
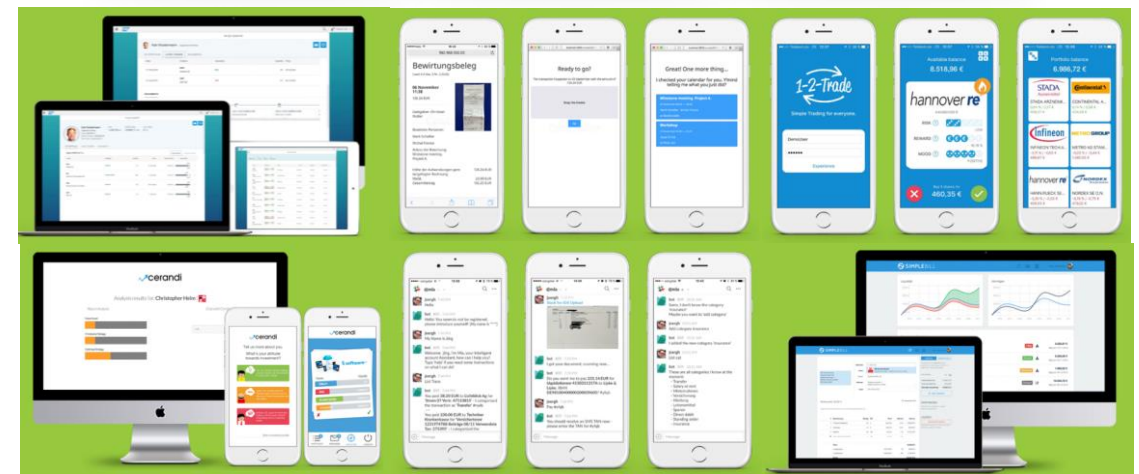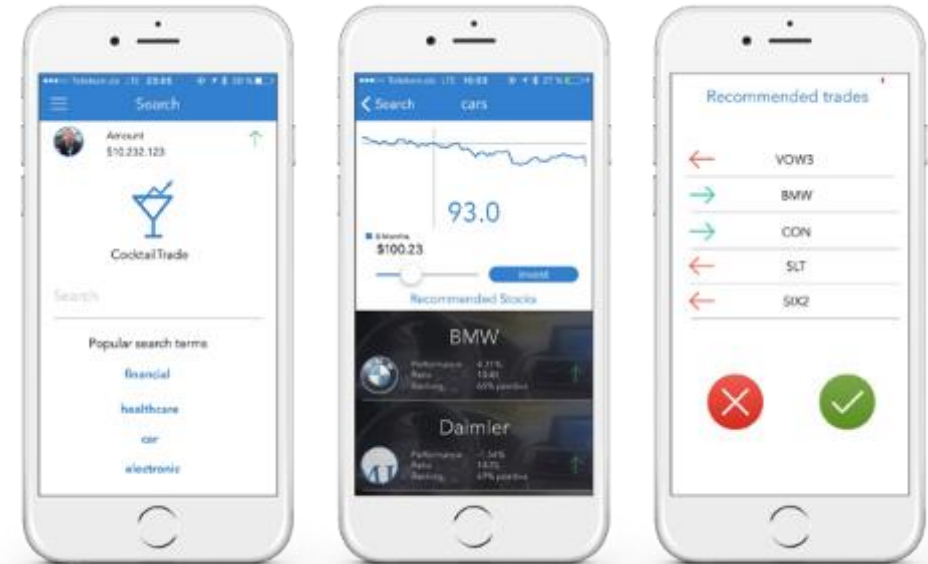
Bankathon

Banks, fintech startups, developers & designers come together to create products customers dream of.

Engage with new talent: teams can discover, test and use APIs from different services via SAP API Management

"BANKATHON CREATES MAGICAL PRODUCTS FOR OUR FINANCIAL LIFE BY USING THE FULL POWER OF MODERN TECHNOLOGIES."

https://www.bankathon.net

Multinational mining, metals, and petroleum company

Business Challenges

- several issues with their *business processes*
- *lack of visibility* into the usage of the services across various apps
- *Security* was another key factor as the customers wanted to protect and monitor APIs from rogue access and message validation of data which may be exposed directly from HANA.
- Requirement to have *single point of access* for various Fiori applications deployed across different SAP backends.

The Solution: HANA Cloud Platform

SAP API Management helps to create a single point of access with authentication brokering and response caching so all services can go through a secure and reliable layer. Real-Time API Analytics of different apps provides metrics for usage, performance and error rate, so it gives visibility of which services or APIs are being used and how much is being used. The solution also helps to monitor if there is any rogue access or unauthorized access.
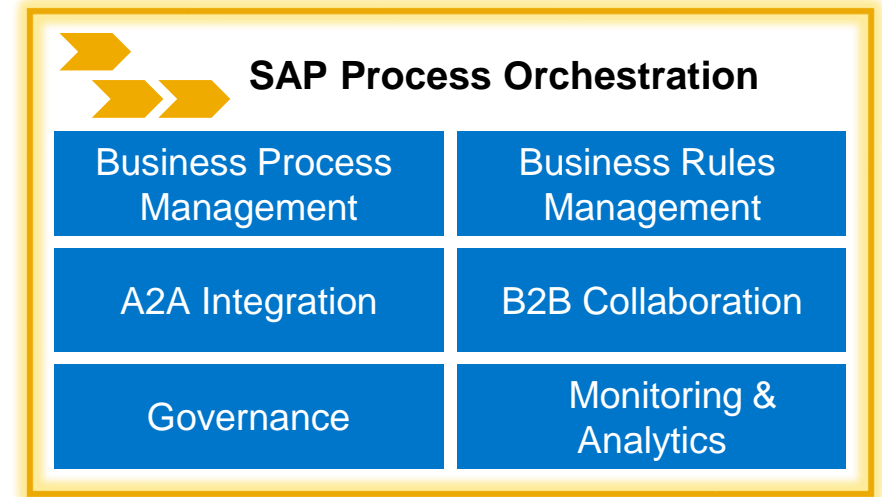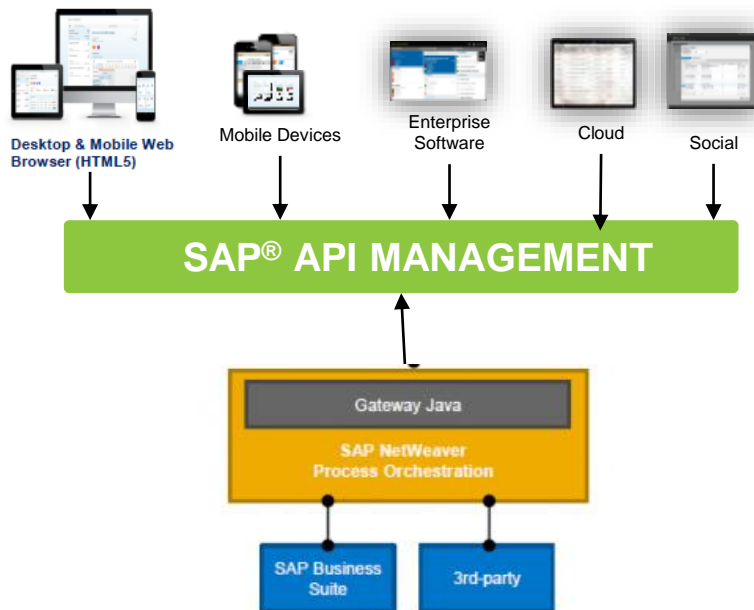
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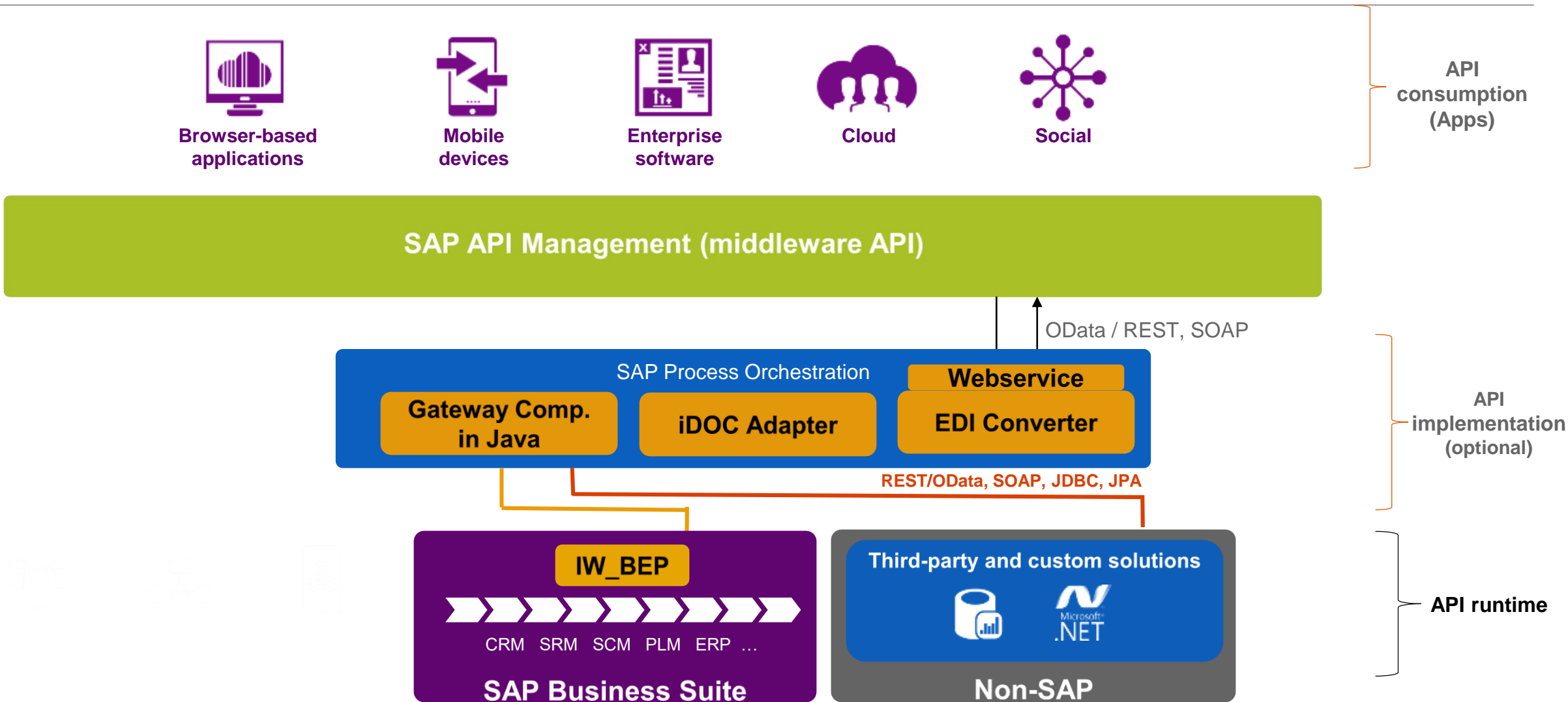
SAP API Management and SAP PI/PO

Needs/Drivers

- **MultiChannel:** Leverage Existing SOA Services to consume in newer channels.
- **Reach:** Developer Reach and Engagement for external adotion of APIs and Services.
- **Transparency**: Lack of Visibility into the usage of the services across various Apps

SAP Process Orchestration

Business Process Management	Business Rules Management
A2A Integration	B2B Collaboration
Governance	Monitoring & Analytics

Desktop & Mobile Web Browser (HTML5)

Mobile Devices

Enterprise Software

Cloud

Social

SAP® API MANAGEMENT

Gateway Java

SAP NetWeaver Process Orchestration

SAP Business Suite

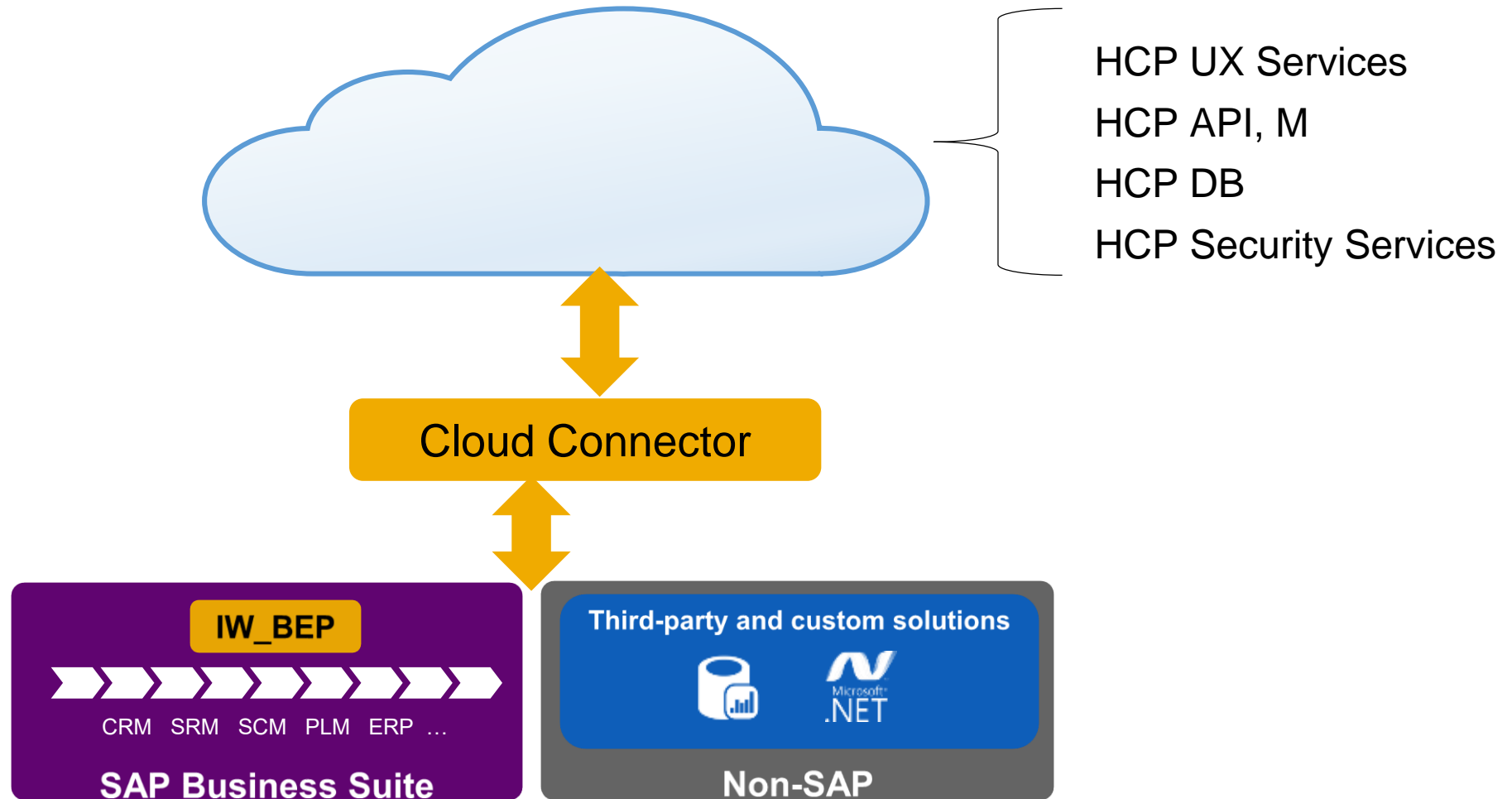3rd-party

Value Proposition

- **MultiChannel**: Transformation of your SOA Services (PI) to modern RESTful APIs in a flash
- **Reach:** Easily expose your APIs through a developer portal that provides documentation and test experiences to minimize the time to production of your apps.
- **Security:** Unified Message Validation and threat protection for All APIs exposed
- **Transparency**: Visualize API performance; error rates and adoption in near real-time
- **Reusabality:** Ability to Re-use the same APIs in other channels with different Authentication and Authorizations

F&B Logistics | Open Integration

API consumption (Apps)

- Browser-based applications
- Mobile devices
- Enterprise software
- Cloud
- Social

SAP API Management (middleware API)

OData / REST, SOAP

API implementation (optional)

SAP Process Orchestration
- Gateway Comp. in Java
- iDOC Adapter
- Webservice
- EDI Converter

REST/OData, SOAP, JDBC, JPA

API runtime

IW_BEP

CRM SRM SCM PLM ERP …

SAP Business Suite

Third-party and custom solutions

.NET

Non-SAP

Business to Employee Application using HCP APIM

Web based App built many years ago used by overall 1000+ employees and few 100 employees everyday.

HCP UX Services

HCP API, M

HCP DB

HCP Security Services

Cloud Connector

IW_BEP

CRM   SRM   SCM   PLM   ERP   …

SAP Business Suite

Third-party and custom solutions

Microsoft .NET

Non-SAP

Summary and Outlook

API Management @ SAP
Outlook

Q4/2016   Future

SAP API Business Hub

- Improved consumption experience (search, community, etc.)
- Test APIs across different environments (sandbox, production)
- SAP WebIDE integration
- Support for decentral authoring environment

- Partner content onboarding
- Monetization of API usage
- Client SDK geneartion for API consumption

SAP HCP, API Management

- Extended data center coverage (APJ, US West, LatAm)
- Integration with SAP HCP, integration service (SAP HCI)
- Open API support for API authoring
- Role-based access control

- Policy templates from SAP API Business Hub
- Cotent re-use from SAP API Business Hub
- Publication of API content to SAP API Business Hub
- Metering and monetization (SAP Hybris Billing-as-a-service)

SAP API Mgmt. By Apigee

- Continuous adoption of Apigee releases
- Current release SAP API Management by Apigee 1.0, SP05 (Apigee 4.16.05)

For full roadmap details go to: https://service.sap.com/saproadmaps

Key Take Aways

SAP API Management is available as

- OnPremise deployment
- Cloud deployment

SAP API Business Hub

- Provides out of the box usable content

Main Use Cases are

- **Secure omnichannel access** to data from business applications
- **Provide open access** for business partners and external applications
- **Enable bi-modal IT** with different speed of innovation

SAP API Management | Trial

Get started with
SAP HCP, API management on
SAP HANA Cloud Platform Trial

✓ **Register and enable SAP HCP, API management via HCP Trial account (http://hcp.sap.com)**

✓ **Connect public and own services via fully functional SAP HCP, API management**

▪ **Helpful SCN Blogs:**
  ▪ Free Trial of SAP API Management on HANA Cloud Platform - http://bit.ly/SAPAPIMTrial
  ▪ How to use SAP API Management on HCP Trial
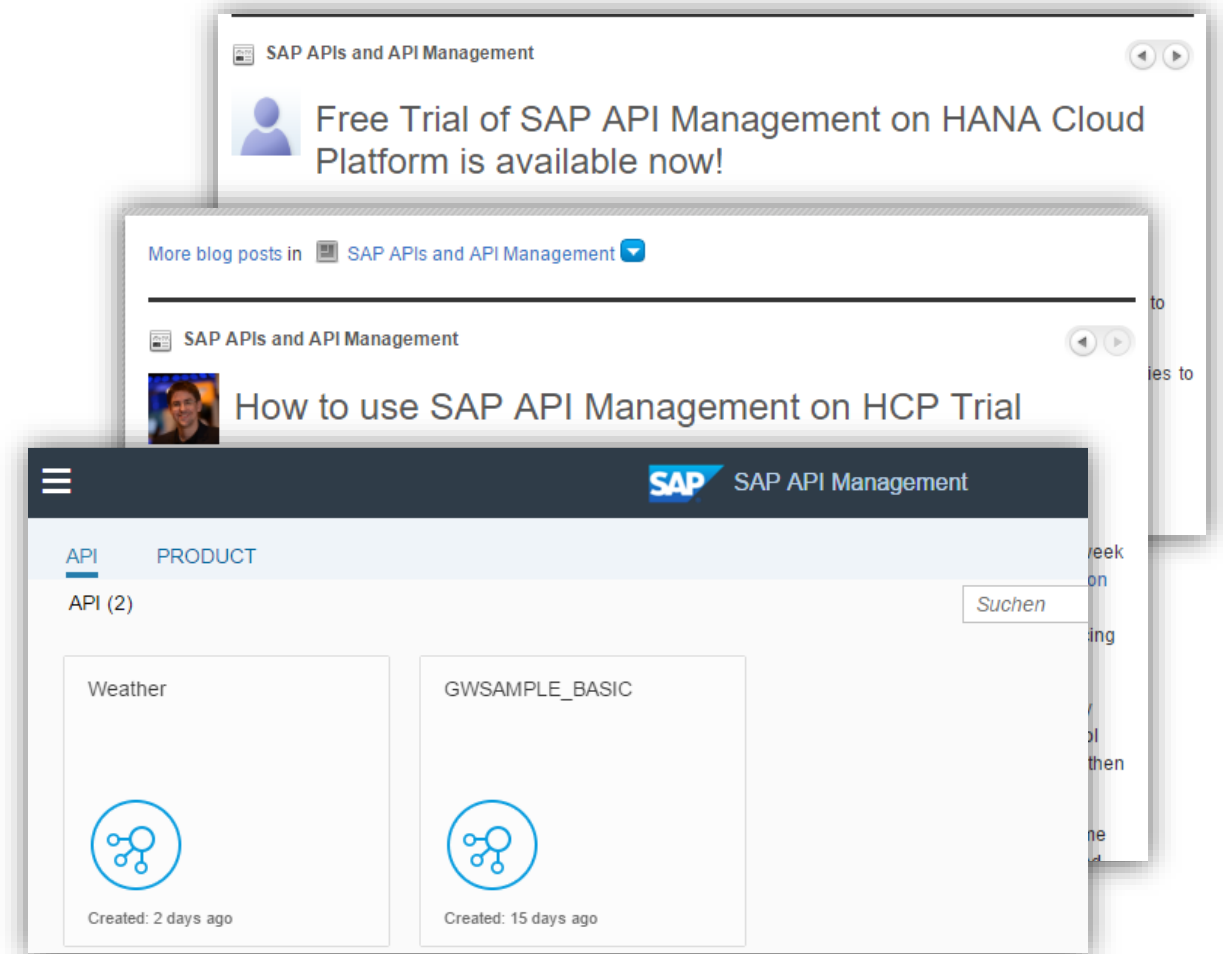
SAP API Management Information Sources

SAP Web site: http://hcp.sap.com/capabilities/api-management.html

Pricing Information: https://hcp.sap.com/pricing.html

Price Comparison Document

SAP API Management: http://scn.sap.com/community/api-management

Online Documentation https://help.hana.ondemand.com/apim_od/frameset.htm?adcbc07b031b4ac285b22867a1216306.html

SAP technology: http://spr.ly/youtube-sap-api-management

SAP Cloud: https://twitter.com/SAPCloud

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indus

collaborate | co-innovate | influence

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