



# HeidelbergCement Apigee - DeepDive SAP CPI & Apigee hybrid on AKS

Google Cloud

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# Agenda

## 1. **Integration SAP CPI**

- How Google APIM can be used to publish APIs from SAP CPI. Once a connection with SAP CPI is established through an API provider, API Management can connect to it and make it available in a secure and documented way. Google consumption of CPI metadata into API Management.
- How are Google Customers integrating CPI with Google APIM.
- Steps required to be executed in the system

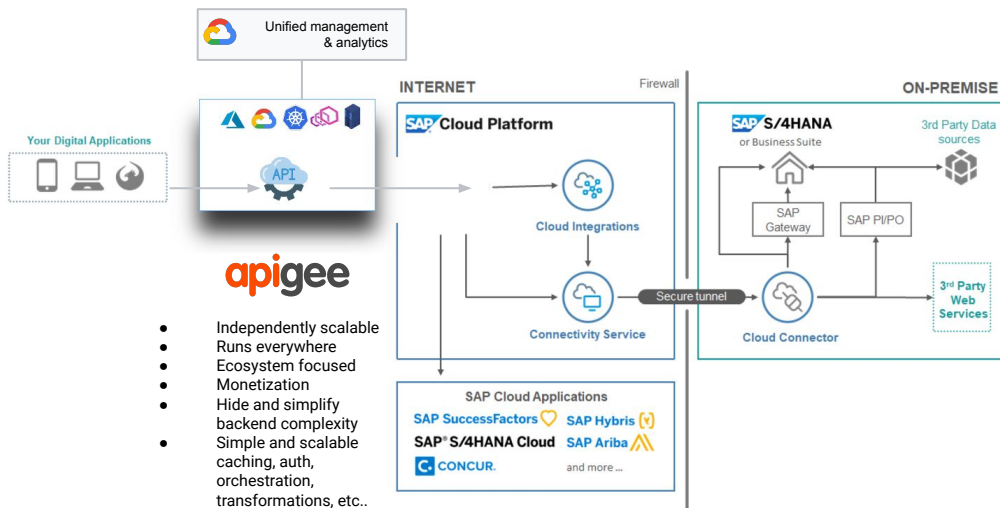
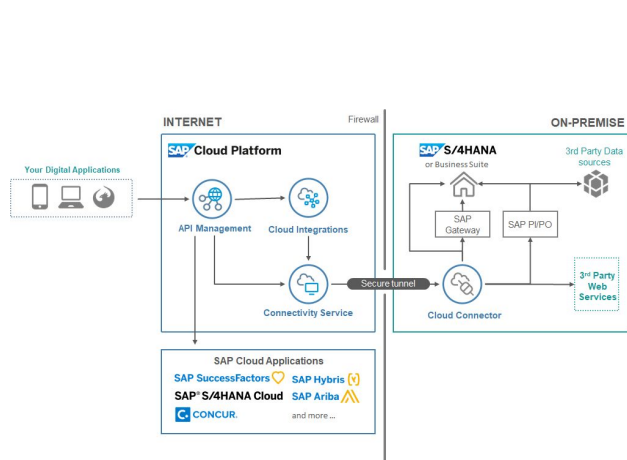
## 2. **How to Install/Integrate/Deploy APIM into HC's cluster on AKS.**

- How to install API Gateway On-Premise or in Cluster (Ideally show a demo of the API gateway installation)
- Is it possible and how to implement routing inside k8s cluster and replace existing Ocelot-based Api Gateway pod
- Which are the technical requirements and dependencies needed for such setup

## 3. **Q&A**

# Apigee with SAP CPI

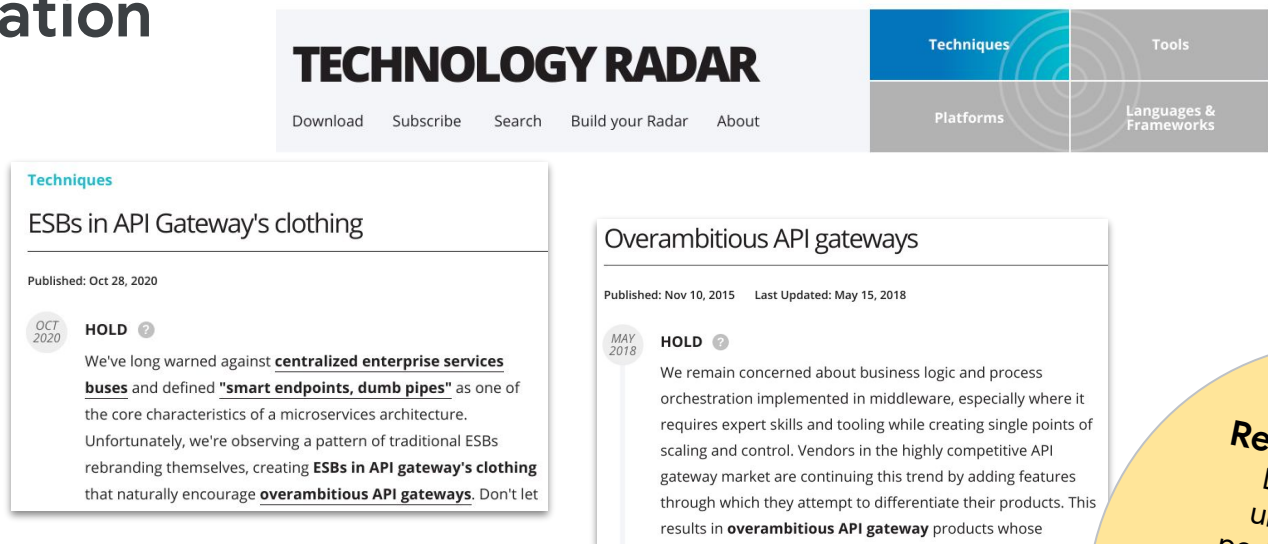
# Best Practice: Decouple APIs from orchestration & integration



- Independently scalable
- Runs everywhere
- Ecosystem focused
- Monetization
- Hide and simplify backend complexity
- Simple and scalable caching, auth, orchestration, transformations, etc..
- Add code or integration in a standards-compliant way, easy to move or scale to a microservice if needed

# Demo

# Best Practice: Decouple APIs from orchestration & integration



<https://www.thoughtworks.com/de/radar/techniques/esbs-in-api-gateway-s-clothing>

<https://www.thoughtworks.com/radar/platforms/overambitious-api-gateways>

**Recommendation:**  
Leverage APIs as uniquely scalable, portable and valuable assets that are loosely-coupled to integration, orchestration & backend systems (NO proprietary SDKs in proxies)

# Apigee API Management Platform

Broad support to enable APIs across platforms

## iPaaS platforms

like SAP Cloud Platform Integration, Dell Boomi, etc.

## Middleware and data integration platforms

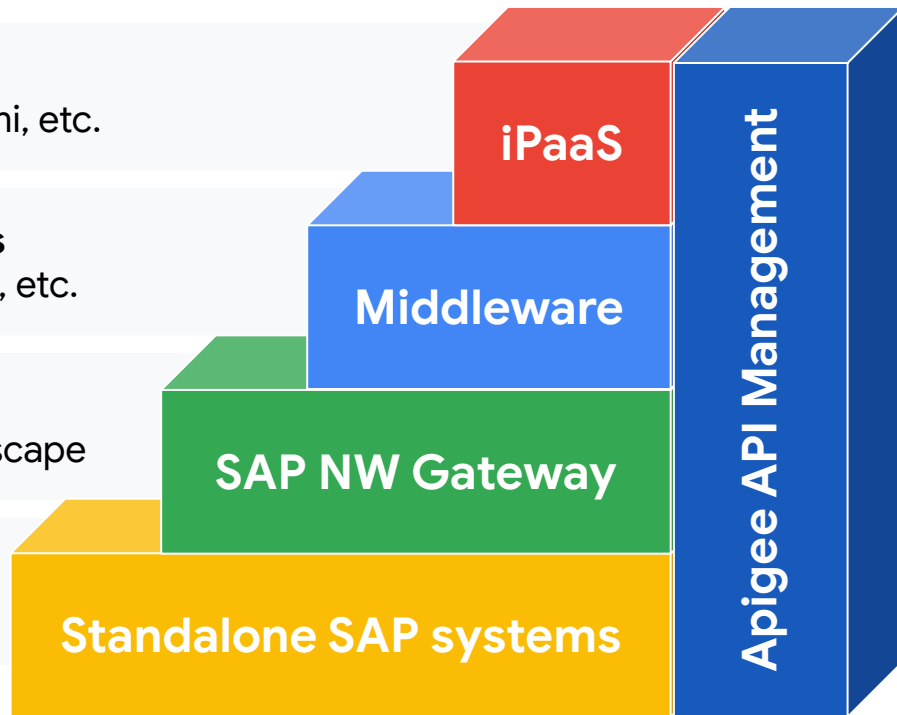
like SAP PO, TIBCO, Software AG, Informatica, etc.

## SAP NW Gateway

either embedded or as a hub in the SAP landscape

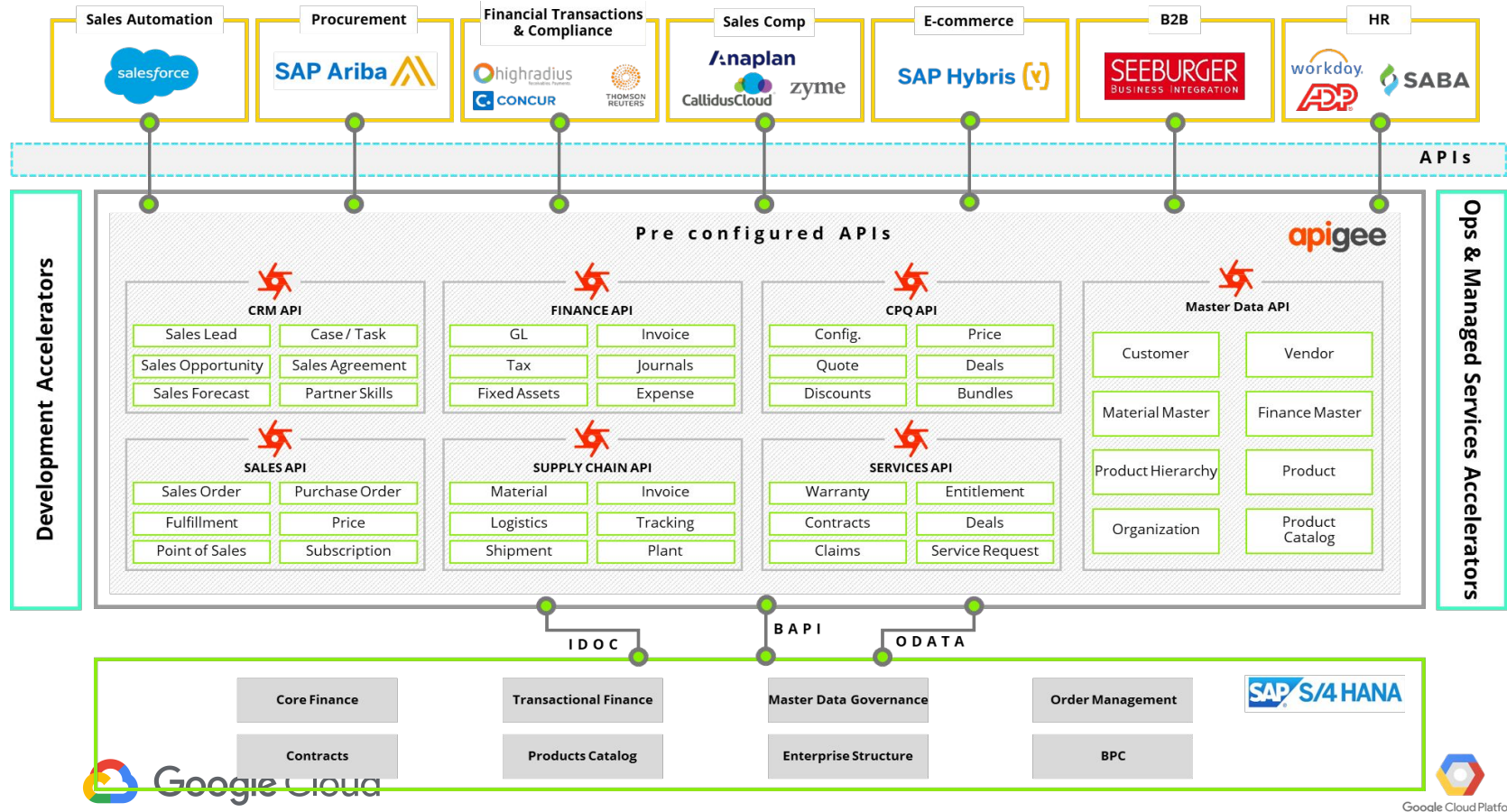
## Built-in SAP interfaces

for NetWeaver or HANA systems

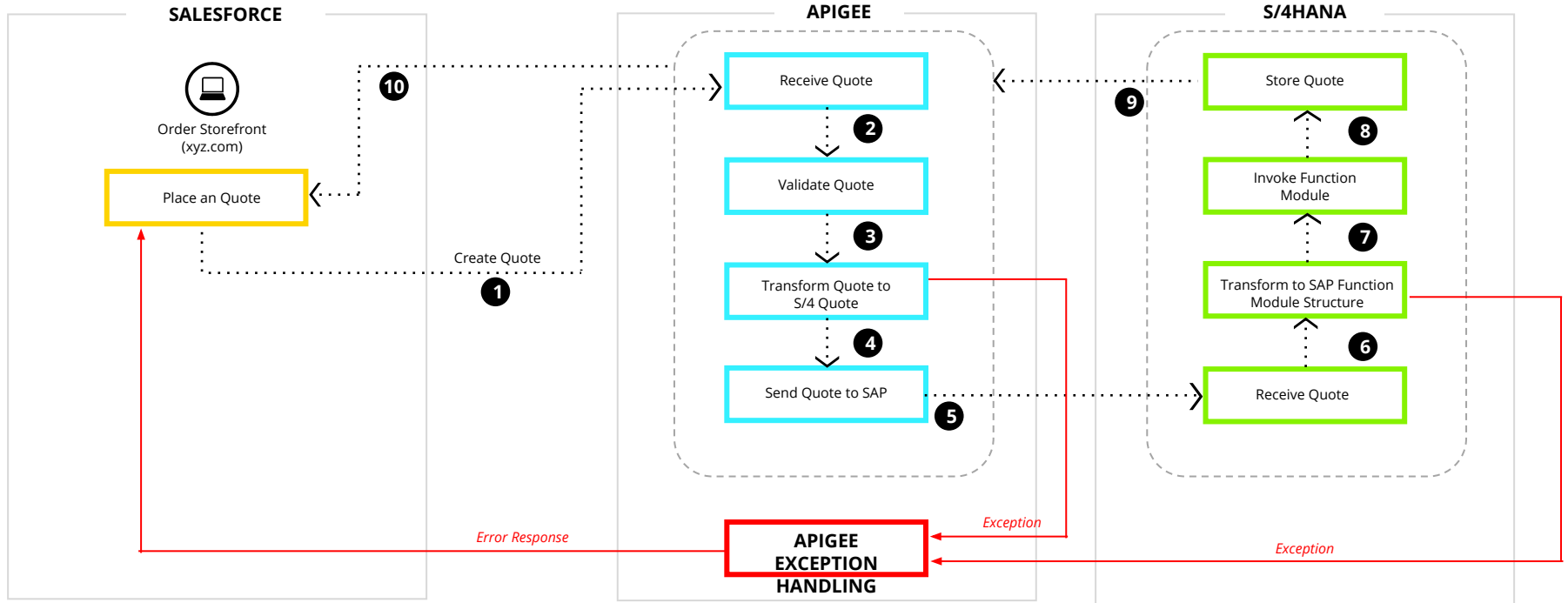




# SAP Service Modernization



# Sample Scenario



1 Send HTTP(S) POST to create an quote from Storefront

2 Pre-process post request for authentication headers

3 Validate the request for mandatory attributes

4 Transform XML Payload received to ODATA request

5 Make ODATA Request to S/4 for creating quote

6 Receive ODATA Request from Apigee

7 Transform ODATA Request structure to S/4 BAPI request

8 Invoke SAP BAPI function module to create quote

9 Once order is created successfully in S/4, send 200 OK response

10 Apigee sends 201 Created response back to the storefront

# Apigee on AKS

# Apigee Runtime Options

## “Managed Runtime”

Apigee  
Runtime



Apigee X

## Hybrid / Multi-Cloud



Apigee Hybrid



Apigee Adapter  
for Envoy

Google  
managed

Control Plane

Runtime Plane

Control Plane

Customer  
managed

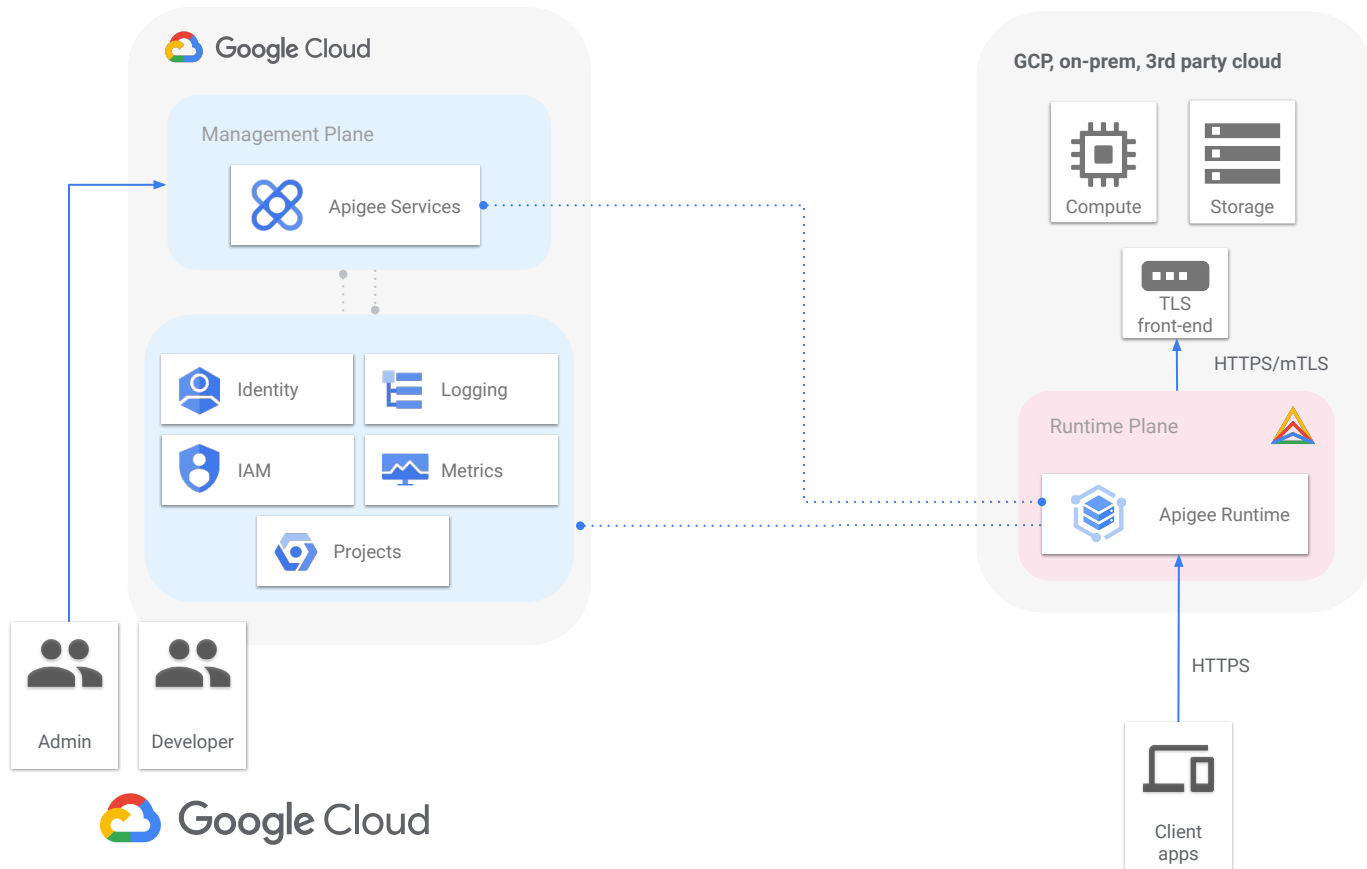
Runtime Plane (Kubernetes)



# Apigee hybrid

Managed by Google

Managed by customer



## Apigee management plane

API lifecycle management capabilities

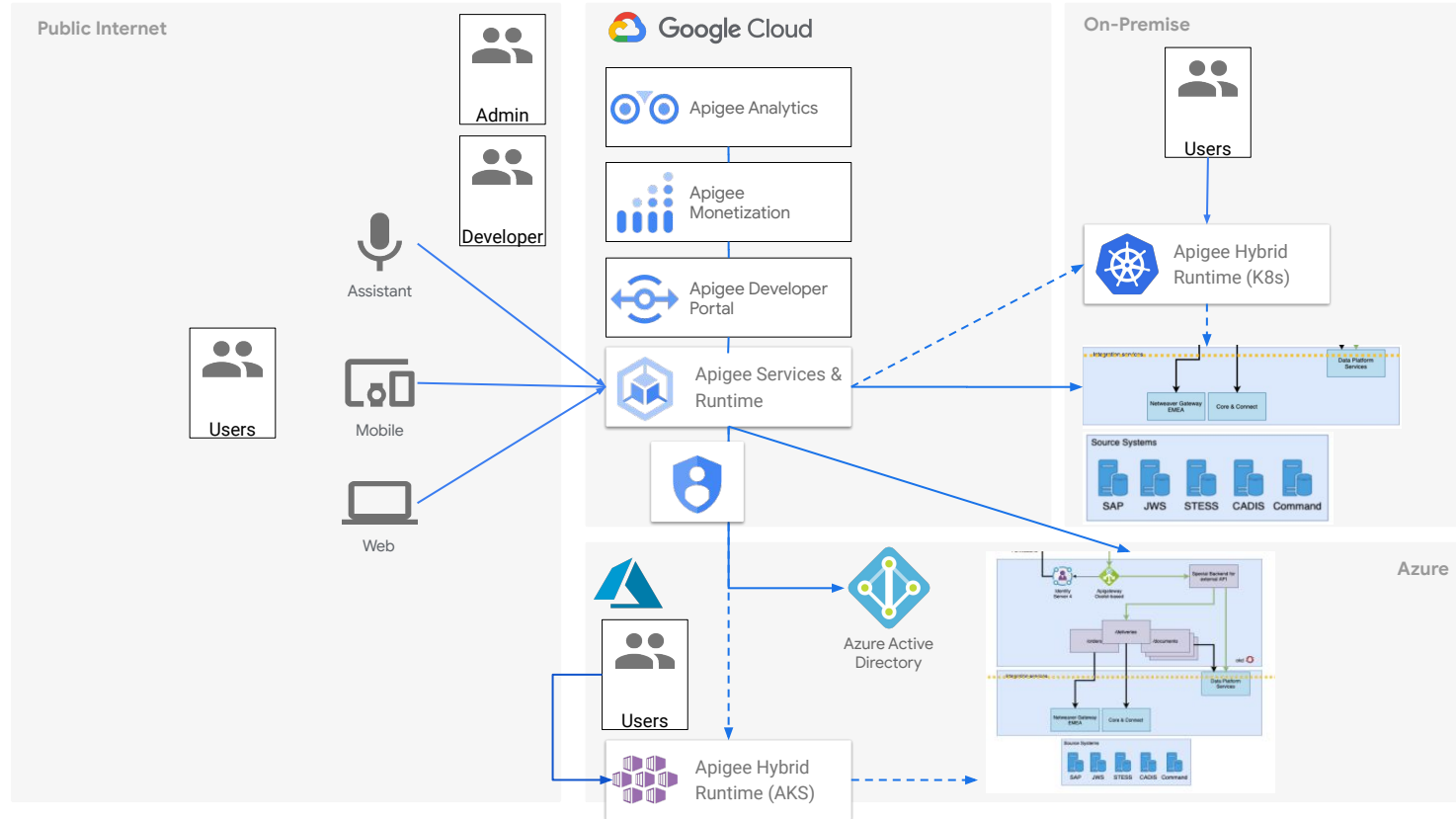
## API runtime plane

Enterprise API gateways

## Containerized runtime

Kubernetes-based, automated updates

# HC API Architecture w Apigee hybrid



# Apigee hybrid on AKS Deployment

<https://cloud.google.com/apigee/docs/hybrid/v1.4/big-picture>

- Deployment of hybrid is the same on all platforms (GKE, AKS, EKS, etc..)
- Easy as **kubectl apply..**
- Only uses native Kubernetes resources (some provided as managed versions from Google Anthos for supportability, but no impact for the customer)

This procedure explains how to set up the cluster in which you will run Apigee hybrid. The instructions vary depending on the platform in which you are running hybrid. Select your platform to see the instructions.

GKE

GKE on prem

**AKS**

EKS

GKE on AWS

## Create an AKS cluster

1. Gather your cluster requirements for Apigee hybrid cluster:

- [Minimum cluster configurations](#)
- [Configure dedicated node pools](#)

2. Check the version of AKS supported by this version of hybrid version 1.4.2:

- [Apigee hybrid: supported platforms](#)

3. Use one of the following sets of instructions to create a cluster:

- Using the Azure CLI: [Quickstart: Deploy an Azure Kubernetes Service cluster using the Azure CLI](#) [↗](#).
- Using the Azure Portal: [Quickstart: Deploy an Azure Kubernetes Service \(AKS\) cluster using the Azure portal](#) [↗](#).

# Apigee Hybrid Architecture

## Istio Gateway (routing and LB)

## Istio Pilot (configuration)

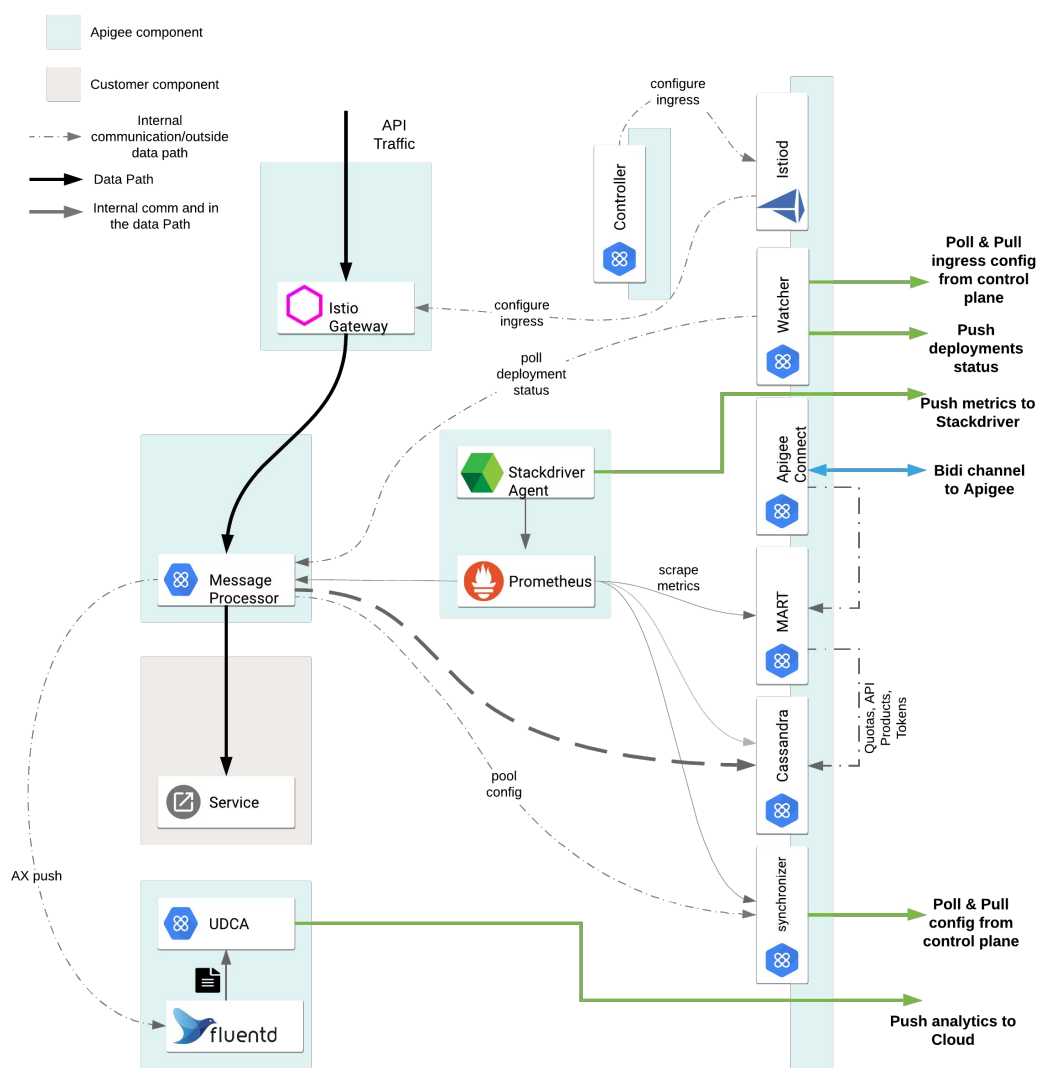
## Message Processor (API Gateway)

## Cassandra (persistence layer)

Synchronizer (replicates data)

MART (management server)

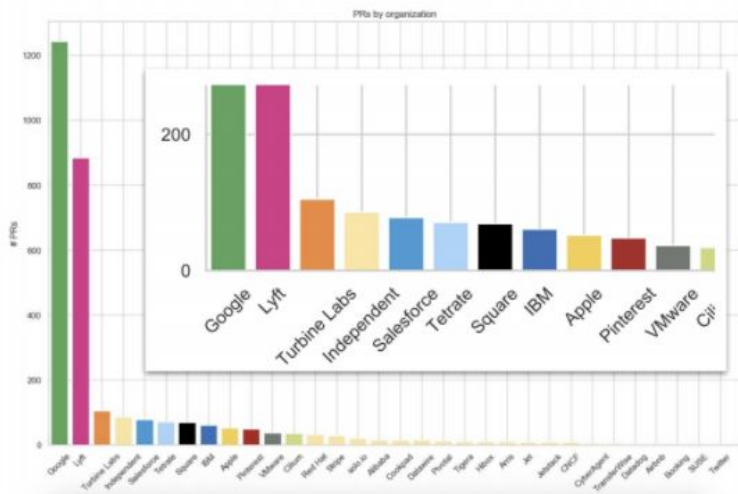
## UDCA (analytics back to cloud)





# Envoy has a lot of traction for microservice proxies

## Envoy @ Google



- > 585 commits in 2019 (~38% total)
- 17 contributors, 3 maintainers
- Googlers involved in ~every PR review
- Do the grungy work
- Building trust with big feature contribs for L7 ILB & Istio
- Balancing *internal* vs. *external*
- Community participation:
  - CNCF, community calls, Slack, mailing lists



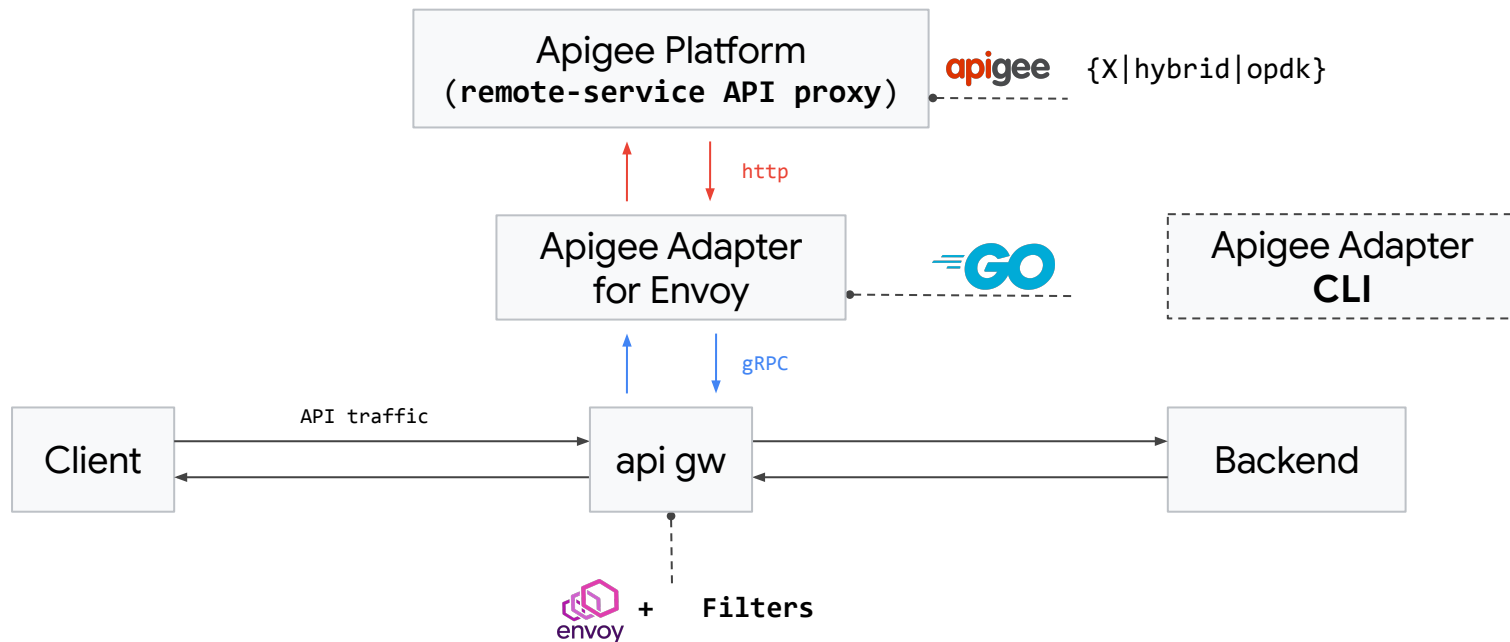
## Implement API Gateways with Ocelot

03/02/2020 • 19 minutes to read • 6 icons

### Important

The reference microservice application `eShopOnContainers` is currently using features provided by `Envoy` to implement the API Gateway instead of the earlier referenced `Ocelot`. We made this design choice because of `Envoy`'s built-in support for the WebSocket protocol, required by the new gRPC inter-service communications implemented in `eShopOnContainers`. However, we've retained this section in the guide so you can consider Ocelot as a simple, capable, and lightweight API Gateway suitable for production-grade scenarios. Also, latest Ocelot version contains a breaking change on its json schema. Consider using Ocelot < v16.0.0, or use the key Routes instead of ReRoutes.

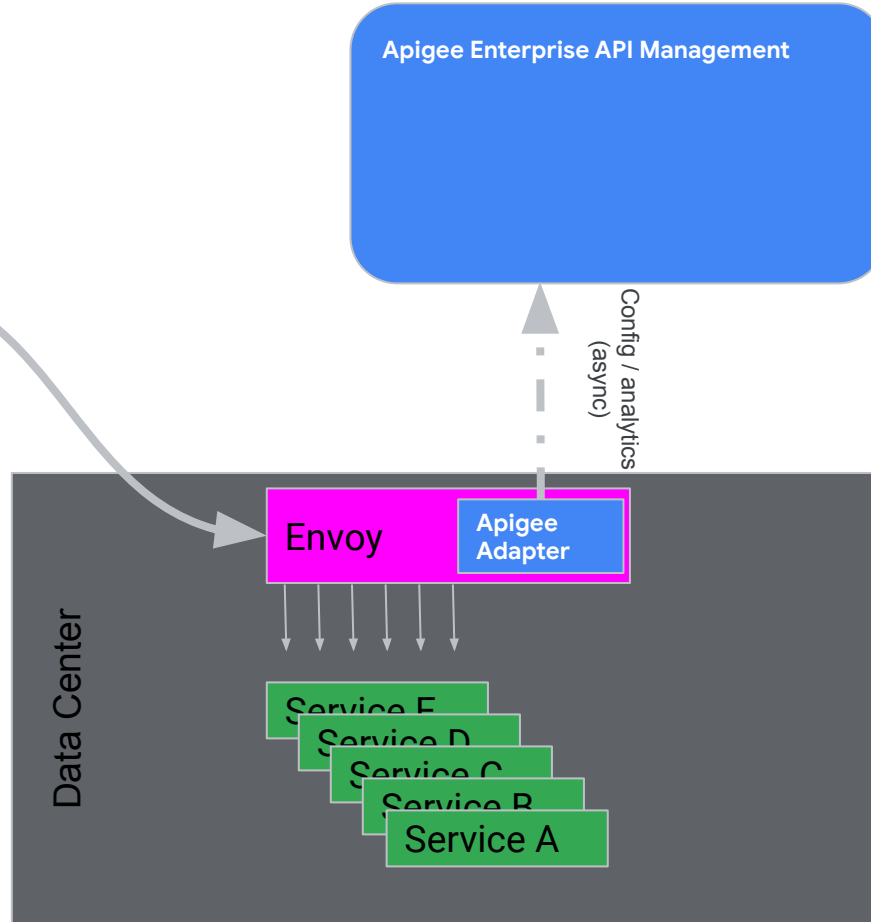
# Apigee Envoy Adapter



# Envoy GW Architecture



HTTPS,  
Websockets,  
gRPC

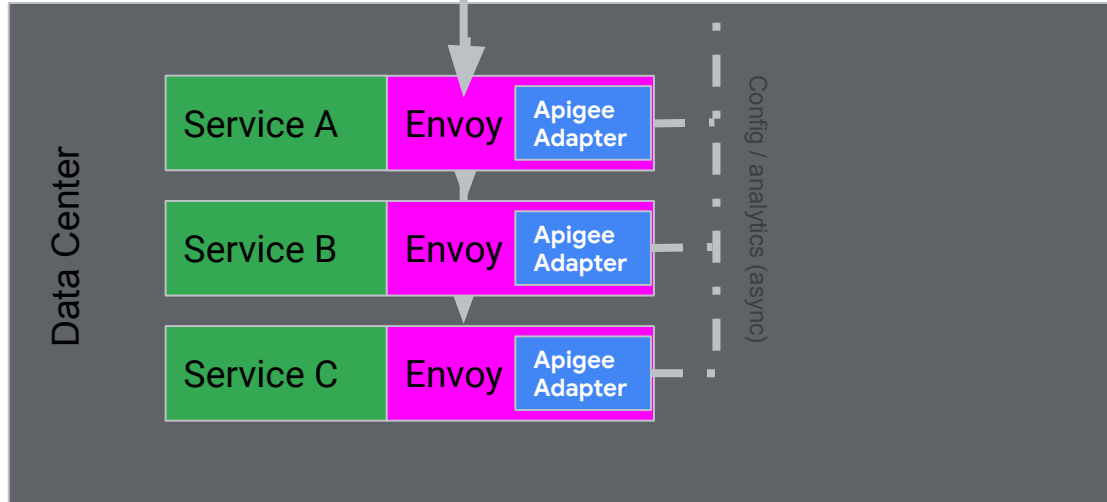


# Envoy Sidecar Architecture

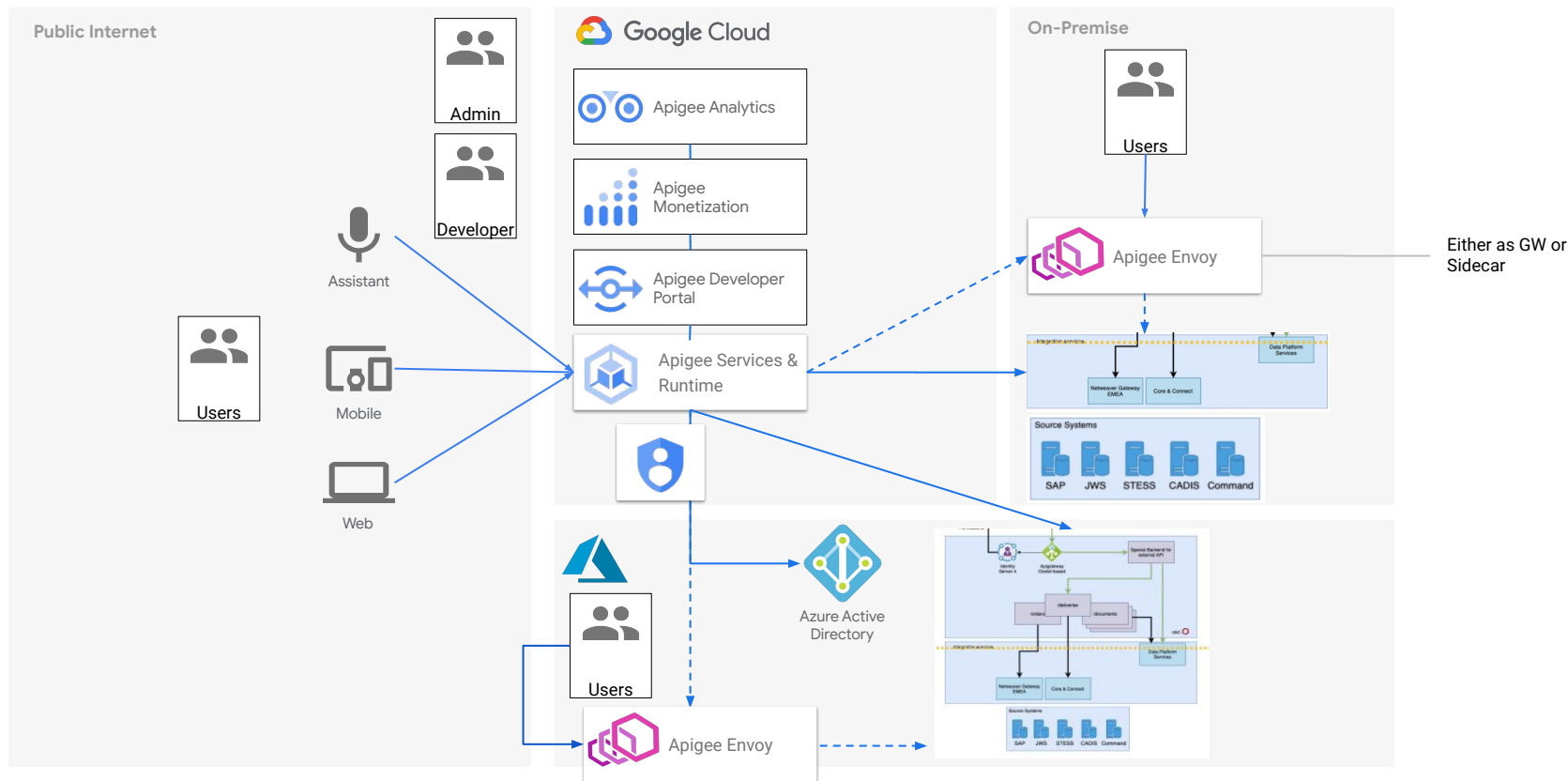


HTTPS, Websockets, GRPC

Apigee Enterprise API Management



# HC Hybrid API Architecture w Apigee X & Envoy



# Demo



**Thank you**

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