

# IBM API Connect on IBM Cloud Private



# Agenda

- **IBM API Connect on IBM Cloud Private**
- V2018x features
- Resources

# Advantages of running IBM API Connect on IBM Cloud Private

Removes the typical operational challenges faced in the Enterprise such as security, patching, and restart

Provides the ability to scale elastically

Already containerized and available as Helm chart

Deploying and updating software at scale

Allows one common dashboard for monitoring and logging all IBM services and the customer application

# IBM Cloud Private content - Kubernetes



## Core Operational Services

### Monitoring Service

Prometheus or BYO

### Logging Service

Elk or BYO

### Metering Service

Product Insights

### Security

Identify and Access Management  
• LDAP integration and RBAC

Vulnerability Advisor (beta)

## Open Source

### Toolchains & Runtimes

Jenkins  
Apache Tomcat  
Open Liberty

### Messaging

RabbitMQ

### Data Services

MongoDB  
PostgreSQL  
Redis

### Clustering

Galera

### Http Servers

Nginx

### Terminal Access

Web Terminal

## IBM Software

### Data Science

IBM Data Science Experience Developer Edition  
IBM Data Science Experience Local\*

### Integration

IBM Integration Bus for Developers  
IBM Integration Bus  
IBM DataPower Gateway for Developers  
IBM DataPower Gateway Virtual Edition  
**IBM API Connect** 

### App Modernization Tooling

IBM Transformation Advisor

### Monitoring

IBM Cloud Application Performance Management for DevOps (beta)

### HPC

\*coming soon

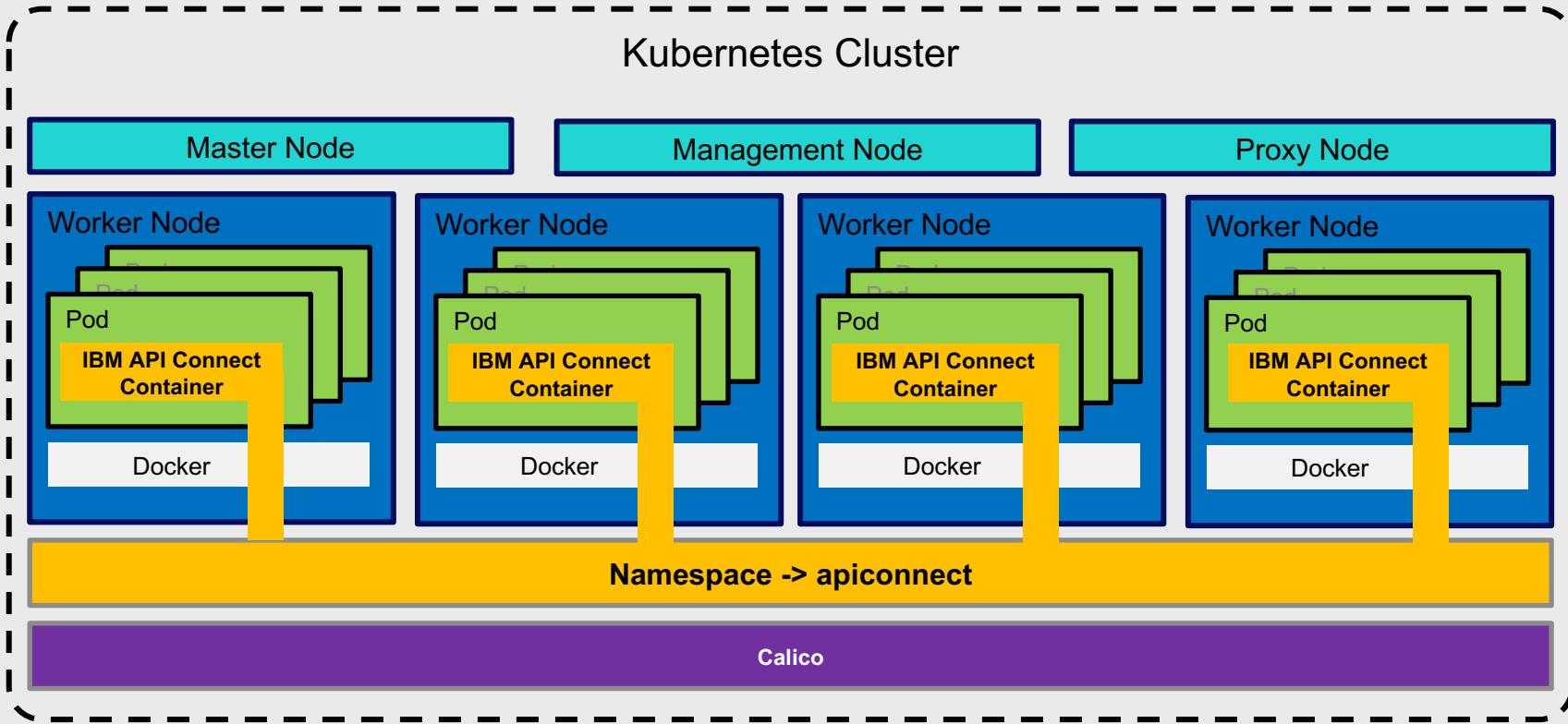
IBM Spectrum LSF Community Edition



Develop or bring your own...

Self written, community and open source compatible with Kubernetes 1.7

# IBM API Connect running on IBM Cloud Private



# Deploying API Connect on ICP

API Connect Helm chart (ibm-apiconnect-ent) available for install

Use a separate namespace for installing API Connect Helm chart

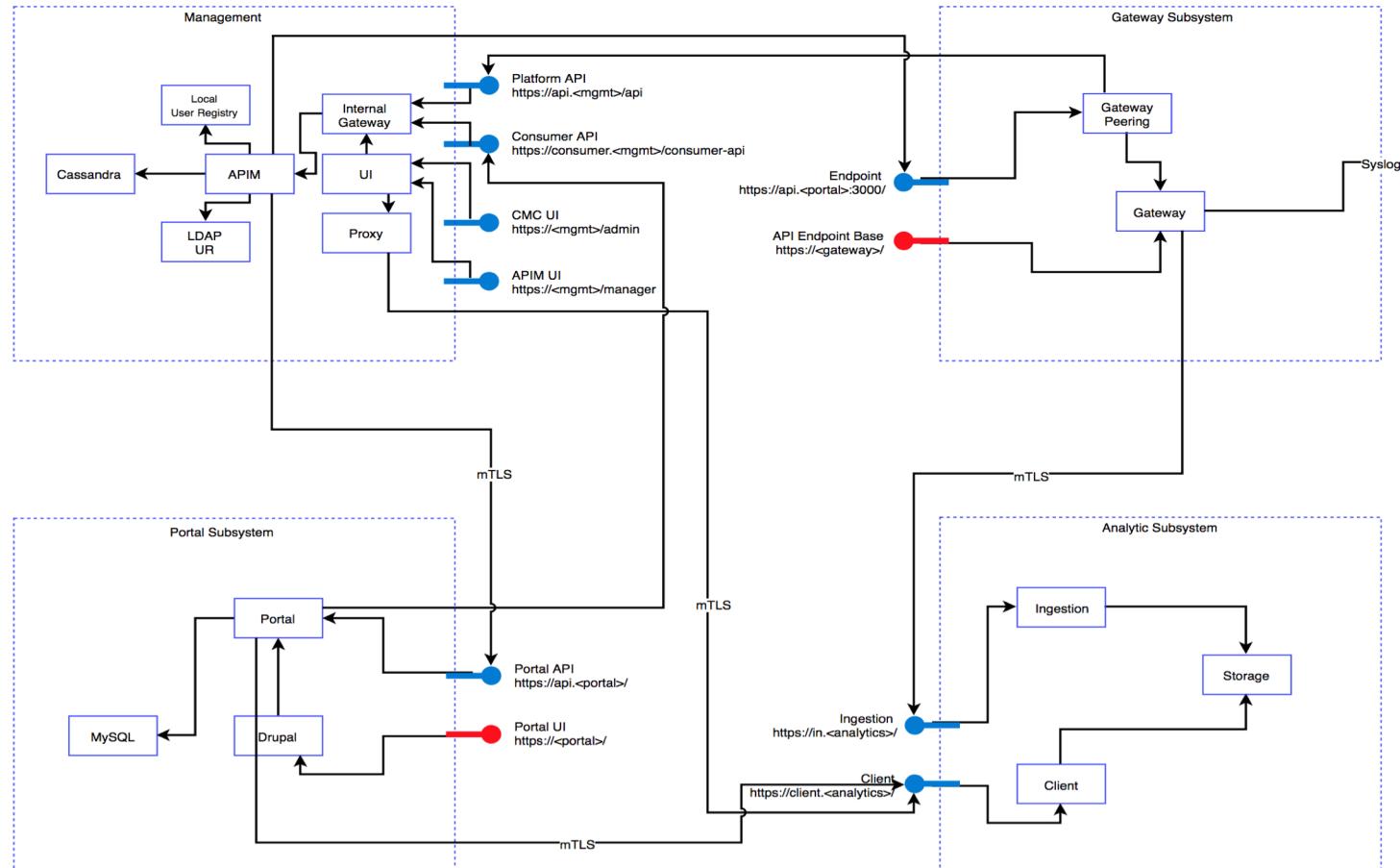
API Connect has four subsystems

- API Management
- Gateway
- Portal
- Analytics

Storage needs to made available for creating Persistent Volumes.

- Using Ceph Block storage using Rook is recommended

# IBM API Connect Subsystems



# IBM API Connect Helm Chart

(1 of 9)

ibm-apiconnect-ent V2.0.8

Configuration: Global

Parameter name	Value	Default value (if any)	Description
registry	mycluster.icp:8500/apiconnect/		Registry containing IBM API Connect images
registrySecret	apiconnect-icp-secret		Image pull secret
createCrdts	true	true	Create Credentials
storageClass	apic.shared.storage		Storage class
mode	demo	standard	Deployment type

**Note:** The ICP artifacts apiconnect-icp-secret and apic.shared.storage should be created before the installing the helm chart

# IBM API Connect Helm Chart

(2 of 9)

ibm-apiconnect-ent V2.0.8

## Configuration: Operator

Parameter name	Value	Default value (if any)	Description
arch	amd64	amd64	Architecture
image	apiconnect/apiconnect-operator	apiconnect-operator	IBM API Connect operator image repository
pullPolicy	IfNotPresent	IfNotPresent	IBM API Connect operator image pull policy
tag	2018-07-19-09-55-55- 1d0c43f772fd3a1c9822260af3682794ed 5d4c01		IBM API Connect operator image tag
helmTlsSecret	helm-tls-secret		Secret with items for base64-encoded helm key.pem, cert.pem, and ca.pem\

**Note:** The defaults shown when configuring the Helm Chart using UI can be used without any modification. The ICP artifacts `helm-tls-secret` should be created before the installing the helm chart

# IBM API Connect Helm Chart

(3 of 9)

ibm-apiconnect-ent V2.0.8

## Configuration: Management subsystem

Parameter name	Value	Default value (if any)	Description
enabled	TRUE	TRUE	Enable the Management subsystem
platformApiEndpoint	apicplatform.INGRESS_CTRL_IP.nip.io		Platform API endpoint
consumerApiEndpoint	apicconsumer.INGRESS_CTRL_IP.nip.io		Consumer API endpoint
cloudAdminUiEndpoint	apiccloud.INGRESS_CTRL_IP.nip.io		Cloud Administrator UI endpoint
apiManagerUiEndpoint	apicmanager.INGRESS_CTRL_IP.nip.io		API Manager UI endpoint
externalCassandraHost			Optional separate Cassandra host

**Note:** The endpoints can be refined using the IP address of the Ingress Controller in the IBM Cloud Private environment.

ibm-apiconnect-ent V2.0.8

Configuration: Cassandra cluster

Parameter name	Value	Default value (if any)	Description
cassandraClusterSize	1	3	Number of nodes in the Cassandra database management cluster.
cassandraMaxMemoryGb	8	16	Maximum memory (in gigabytes) available to the Cassandra database management
cassandraVolumeSizeGb	16	16	Storage volume size (in gigabytes) of the Cassandra database

**Note:** The defaults shown when configuring the Helm Chart using UI can be used without any modification

ibm-apiconnect-ent V2.0.8

Configuration: Cassandra backup

Parameter name	Value	Default value (if any)	Description
cassandraBackupAuthSecret			Auth secret for cassandra backup
cassandraBackupHost			Host for cassandra backup
cassandraBackupPath	/backups	/backups	Path for the Cassandra database management backup
cassandraBackupPort	22	22	Port for the Cassandra database management backup
cassandraBackupProtocol	sftp	sftp	Protocol for the Cassandra database management backup
cassandraBackupSchedule	0 0 ***	0 0 ***	Schedule for the Cassandra database management backup

**Note:** The defaults shown when configuring the Helm Chart using UI can be used without any modification

ibm-apiconnect-ent V2.0.8

Configuration: Cassandra postmortems

Parameter name	Value	Default value (if any)	Description
cassandraPostmortemsAuthSecret			Auth secret for cassandra postmortem upload
cassandraPostmortemsHost			Host for cassandra postmortem upload
cassandraPostmortemsPath	/cassandra-postmortems	/cassandra-postmortems	Path for the Cassandra postmortem upload
cassandraPostmortemsPort	22	22	Port for the Cassandra postmortem upload
cassandraPostmortemsProtocol	sftp	sftp	Protocol for the Cassandra postmortem upload

**Note:** The defaults shown when configuring the Helm Chart using UI can be used without any modification

ibm-apiconnect-ent V2.0.8

## Configuration: Portal subsystem

Parameter name	Value	Default value (if any)	Description
enabled	TRUE	TRUE	Enable the Developer Portal subsystem
portalDirectorEndpoint	apicadmin.INGRESS_CTRL_IP.nip.io		Developer Portal Admin endpoint
portalWebEndpoint	apicportal.INGRESS_CTRL_IP.nip.io		Developer Portal web endpoint
adminStorageSizeGb	1	1	Storage volume size (in gigabytes) for Admin data
backupStorageSizeGb	5	5	Storage volume size (in gigabytes) for backups
dbLogsStorageSizeGb	2	2	Storage volume size (in gigabytes) for logs
dbRootPw	root	root	Database root password
dbStorageSizeGb	12	12	Storage volume size for Developer Portal database
wwwStorageSizeGb	5	5	Storage volume size for Developer Portal database

**Note:** The endpoints can be refined using the IP address of the Ingress Controller in the IBM Cloud Private environment.

ibm-apiconnect-ent V2.0.8

## Configuration: Analytics subsystem

Parameter name	Value	Default value (if any)	Description
enabled	TRUE	TRUE	Enable the Analytics subsystem
analyticsIngestionEndpoint	apicai.INGRESS_CTRL_IP.nip.io		Analytics ingestion endpoint
analyticsClientEndpoint	apicac.INGRESS_CTRL_IP.nip.io		Analytics client endpoint
coordinatingMaxMemoryGb	3	6	Maximum memory (in gigabytes) for defining analytics visualizations
dataMaxMemoryGb	4	8	Maximum memory (in gigabytes) for data
dataStorageSizeGb	50	50	Storage volume size (in gigabytes) for ElasticSearch data
masterMaxMemoryGb	4	8	Maximum memory (in gigabytes)
masterStorageSizeGb	1	1	Storage volume size (in gigabytes) for ElasticSearch master

**Note:** The endpoints can be refined using the IP address of the Ingress Controller in the IBM Cloud Private environment.

ibm-apiconnect-ent V2.0.8

## Configuration: Gateway subsystem

Parameter name	Value	Default value (if any)	Description
enabled	TRUE	TRUE	Enable the Gateway subsystem
apiGatewayEndpoint	apicapi-gateway.INGRESS_CTRL_IP.nip.io		Gateway host name
gatewayServiceEndpoint	apicapic-gateway-director.INGRESS_CTRL_IP.nip.io		Gateway Director endpoint
maxCpu	2	4	Maximum CPU resources that are available to the gateway.
maxMemoryGb	6	8	Maximum memory (in gigabytes) for the gateway
v5CompatibilityMode	on	on	Uses DataPower Classic as Gateway
enableTms	off	off	Enable Oauth Token management System
imageRepository			Image Repository
imageTag			Image Tag
imagePullPolicy	IfNotPresent	IfNotPresent	Image Pull Policy

**Note:** The endpoints can be refined using the IP address of the Ingress Controller in the IBM Cloud Private environment.

# IBM API Connect – Sample list of services

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
glusterfs-dynamic-admin-r0f95cddeae-apic-portal-www-0	ClusterIP	10.0.0.110	<none>	1/TCP	31m
glusterfs-dynamic-backup-r0f95cddeae-apic-portal-www-0	ClusterIP	10.0.0.111	<none>	1/TCP	31m
glusterfs-dynamic-data-r4ec1f68289-apim-elasticsearch-0	ClusterIP	10.0.0.64	<none>	1/TCP	29m
glusterfs-dynamic-data-r608102c30a-analytics-storage-data-0	ClusterIP	10.0.0.239	<none>	1/TCP	30m
glusterfs-dynamic-data-r608102c30a-analytics-storage-master-0	ClusterIP	10.0.0.228	<none>	1/TCP	30m
glusterfs-dynamic-db-r0f95cddeae-apic-portal-db-0	ClusterIP	10.0.0.227	<none>	1/TCP	31m
glusterfs-dynamic-dblogs-r0f95cddeae-apic-portal-db-0	ClusterIP	10.0.0.74	<none>	1/TCP	31m
glusterfs-dynamic-pv-claim-r4ec1f68289-apiconnect-cc-0	ClusterIP	10.0.0.22	<none>	1/TCP	29m
glusterfs-dynamic-web-r0f95cddeae-apic-portal-www-0	ClusterIP	10.0.0.247	<none>	1/TCP	31m
r0f95cddeae-apic-portal-admin-all	ClusterIP	None	<none>	4443/TCP	31m
r0f95cddeae-apic-portal-db	ClusterIP	None	<none>	3010/TCP, 3307/TCP, 4567/TCP, 4568/TCP, 4444/TCP	31m
r0f95cddeae-apic-portal-db-all	ClusterIP	None	<none>	3306/TCP	31m
r0f95cddeae-apic-portal-db-proxy	ClusterIP	None	<none>	3306/TCP	31m
r0f95cddeae-apic-portal-director	ClusterIP	None	<none>	3009/TCP	31m
r0f95cddeae-apic-portal-director-cluster	ClusterIP	10.0.0.28	<none>	3009/TCP	31m
r0f95cddeae-apic-portal-nginx	ClusterIP	10.0.0.122	<none>	443/TCP	31m
r0f95cddeae-apic-portal-web	ClusterIP	None	<none>	4443/TCP	31m
r0f95cddeae-apic-portal-web-cluster	ClusterIP	10.0.0.156	<none>	4443/TCP	31m
r4ec1f68289-a7s-proxy	ClusterIP	10.0.0.15	<none>	8084/TCP	29m
r4ec1f68289-apiconnect-cc	ClusterIP	None	<none>	9042/TCP	29m
r4ec1f68289-apim	ClusterIP	10.0.0.52	<none>	3003/TCP, 3006/TCP	29m
r4ec1f68289-apim-elasticsearch	ClusterIP	10.0.0.154	<none>	8443/TCP, 9200/TCP	29m
r4ec1f68289-apim-es-discovery	ClusterIP	None	<none>	9300/TCP	29m
r4ec1f68289-apim-es-sts	ClusterIP	None	<none>	9300/TCP	29m
r4ec1f68289-juhu	ClusterIP	10.0.0.152	<none>	2000/TCP, 2001/TCP	29m
r4ec1f68289-ldap	ClusterIP	10.0.0.58	<none>	3007/TCP	29m
r4ec1f68289-lur	ClusterIP	10.0.0.61	<none>	3004/TCP	29m
r4ec1f68289-tk-dnld-srv	ClusterIP	10.0.0.175	<none>	8443/TCP	29m
r4ec1f68289-ui	ClusterIP	10.0.0.190	<none>	8443/TCP	29m
r608102c30a-analytics-client	ClusterIP	10.0.0.29	<none>	8443/TCP	30m
r608102c30a-analytics-ingestion	ClusterIP	10.0.0.237	<none>	443/TCP, 8443/TCP	30m
r608102c30a-analytics-mtls-gw	ClusterIP	10.0.0.202	<none>	443/TCP	30m
r608102c30a-analytics-storage	ClusterIP	10.0.0.246	<none>	8443/TCP, 9200/TCP	30m
r608102c30a-es-data-persistence	ClusterIP	None	<none>	9300/TCP	30m
r608102c30a-es-discovery	ClusterIP	None	<none>	9300/TCP	30m
r608102c30a-es-master-persistence	ClusterIP	None	<none>	9300/TCP	30m
rdb5b46f65e-dynamic-gateway-service	ClusterIP	None	<none>	16380/TCP, 26380/TCP	30m
rdb5b46f65e-dynamic-gateway-service-ingress	ClusterIP	10.0.0.105	<none>	3000/TCP, 9443/TCP	30m
re7f96fb7be-cassandra-operator	ClusterIP	10.0.0.167	<none>	1770/TCP	29m

# IBM API Connect – Sample list of pods

```
[root@rsun-rhel-bootmaster01 charts]# kubectl get pods -n apiconnect
```

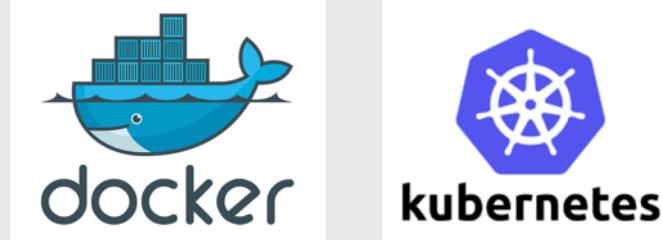
NAME	READY	STATUS	RESTARTS	AGE
apic-v2018.2.9-ibm-apiconnect-ent-operator-55985749f9-cmtsp	1/1	Running	0	28m
r0f95cddeae-apic-portal-db-0	2/2	Running	0	27m
r0f95cddeae-apic-portal-nginx-6794dccfcf-z7ggf	1/1	Running	0	27m
r0f95cddeae-apic-portal-www-0	2/2	Running	0	27m
r4ec1f68289-a7s-proxy-56df7fcc9-z9dgq	1/1	Running	0	25m
r4ec1f68289-apiconnect-cc-0	1/1	Running	0	25m
r4ec1f68289-apim-9b5455c6-dcz55	1/1	Running	0	25m
r4ec1f68289-apim-elasticsearch-0	1/1	Running	0	16m
r4ec1f68289-juhu-659ddb666c-vlpgx	1/1	Running	0	25m
r4ec1f68289-ldap-d77cfb79d-dwrfw	1/1	Running	0	25m
r4ec1f68289-lur-59567bbdd7-q8xfs	1/1	Running	0	25m
r4ec1f68289-tk-dnld-srv-779ddd8467-v6665	1/1	Running	0	25m
r4ec1f68289-ui-7998574fbb-8jzwd	1/1	Running	0	25m
r608102c30a-analytics-client-586d6d9d48-wcd82	1/1	Running	0	26m
r608102c30a-analytics-ingestion-6d6d4df7d5-pfgfq	1/1	Running	0	26m
r608102c30a-analytics-mtls-gw-7cf87f4fb9-dql9d	1/1	Running	0	26m
r608102c30a-analytics-storage-coordinating-556f7bd99b-sc9sb	1/1	Running	0	26m
r608102c30a-analytics-storage-data-0	1/1	Running	0	26m
r608102c30a-analytics-storage-master-0	1/1	Running	6	26m
rdb5b46f65e-dynamic-gateway-service-0	1/1	Running	0	26m
re7f96fb7be-cassandra-operator-78d7fd66c7-bcxlw	1/1	Running	0	25m

# Agenda

- IBM API Connect on IBM Cloud Private
- **V2018x features**
- Resources

# API Connect V2018.x: Deployment Options

**Docker-based images with K8 orchestration** for container based deployments on a customer managed K8 environment or on IBM Cloud Private



**VMWare OVA support** for clients to run on their existing established enterprise virtualization platform

**Customer modifiable open VM images** based on standard Ubuntu OS for clients to customize based on corporate governance needs



**API Gateway available** in hardened cloud, virtual and physical appliance form factors to improve security and time to value

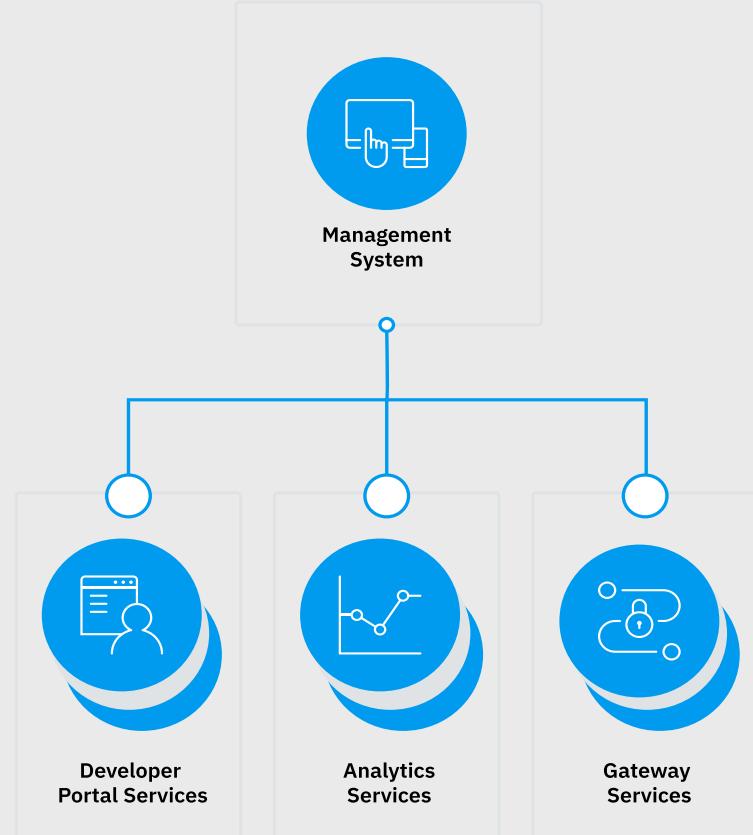
# API Connect V2018.x: Component options

**Standalone API Analytics component** to scale independently based on API project growth

**Zero to N portal clusters** can be configured to a API Connect deployment to align with API project growth

**Native install of APIC toolkit** for enhanced user experience

**Upgrade** through automated migration scripts with a parallel stack setup following modern software practices



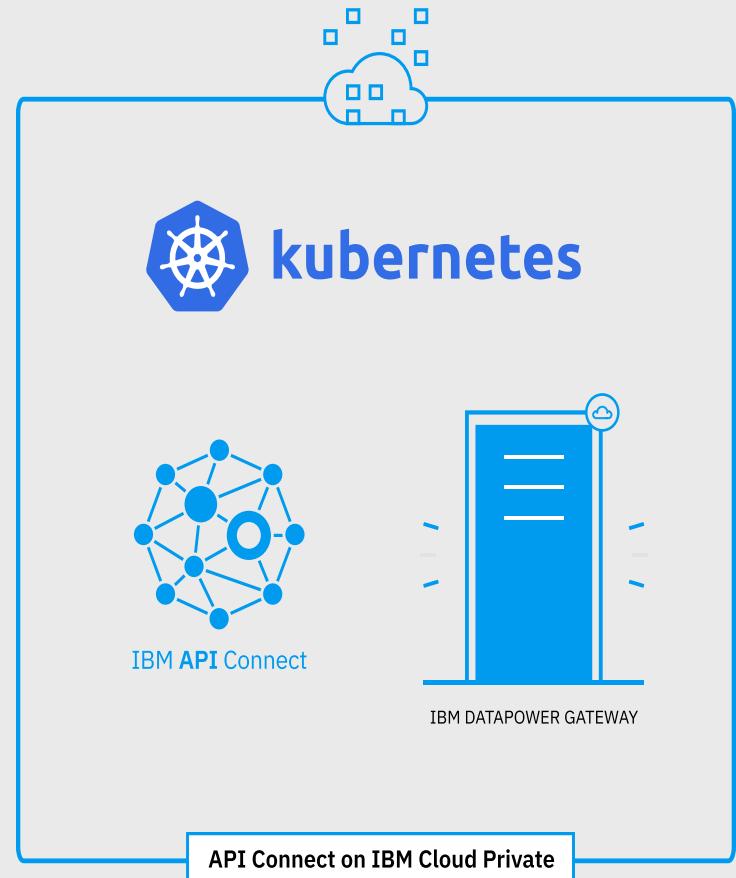
# API Connect V2018.x & DataPower V7.7 on IBM Cloud Private

**Securely expose** business services and data in IBM Cloud Private as APIs to accelerate innovation

**Production-ready** DataPower Gateway on Docker, running in < 1 minute, to accelerate time to value

**Native support for API Connect** with optimizations for logging and monitoring into IBM Cloud Private platform services to reduce total cost of ownership

**Scale Individual API Connect components** through IBM Cloud Private's Kubernetes Platform for simplified scalability and response to unplanned usage spikes



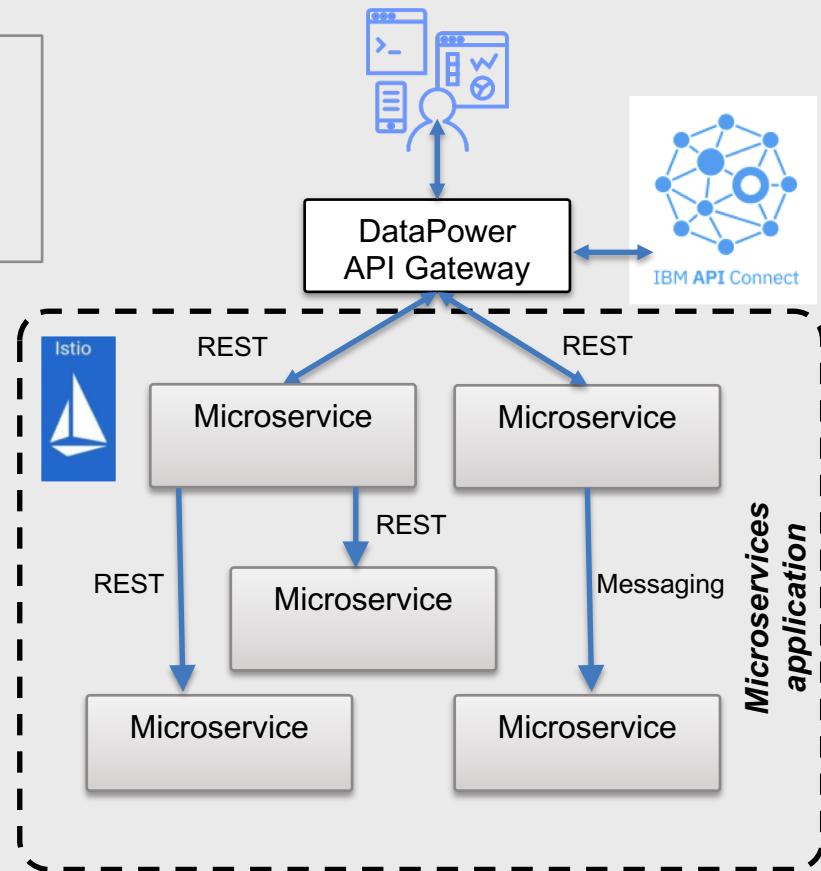
# ISTIO + API Connect: API Management for your Microservices

IBM, along with Google, is a primary contributor to Istio project. IBM API Connect & Gateway offerings plan to integrate with this strategic platform enabling clients to ...

**Complement API management** with microservices management using Istio

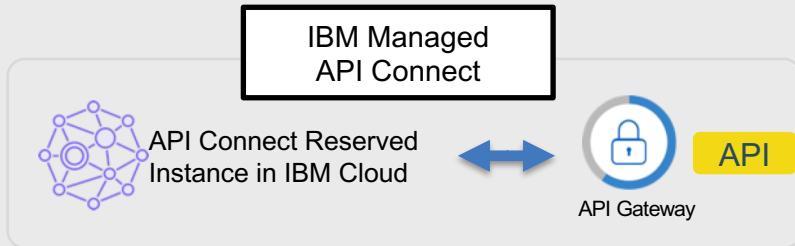
**Expose APIs to external consumers** using DataPower Gateway, combining API security with Kubernetes load balancing and monitoring

**End-to-end transaction tracing** using Zipkin to provide enhanced operational visibility across microservices and APIs



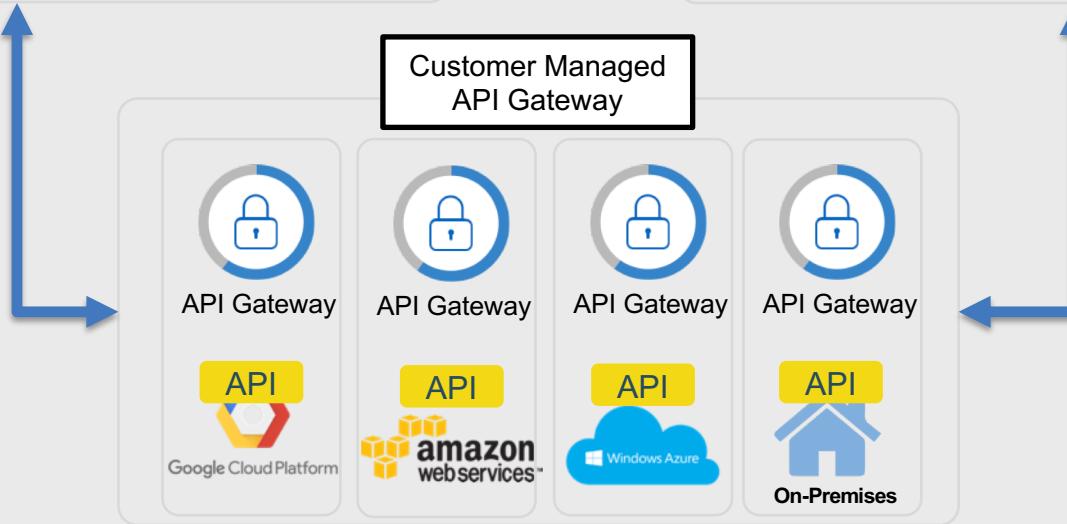
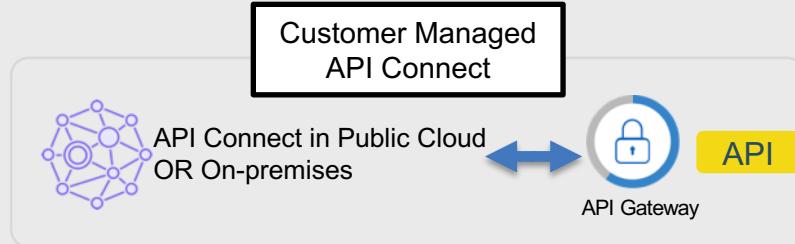
# Central Management of APIs across Multi-Cloud Deployments

**Single-tenant, IBM managed API Connect with co-located DataPower API Gateway on any Cloud**



OR

**Your API Connect with co-located DataPower API Gateway on any Cloud**



# Agenda

- IBM API Connect on IBM Cloud Private
- V2018x features
- **Resources**

# Resources



IBM Knowledge Center - Create, Manage, Secure - Take control of your API lifecycle  
[https://www.ibm.com/support/knowledgecenter/en/SSMNED\\_2018/mapfiles/getting\\_started.html](https://www.ibm.com/support/knowledgecenter/en/SSMNED_2018/mapfiles/getting_started.html)



IBM developerWorks – IBM API Connect  
<https://developer.ibm.com/apiconnect/>



IBM developerWorks – IBM DataPower Gateways  
<https://developer.ibm.com/datapower/docker/>