Integration Technical Conference 2019

Cloud Integration Platform Introduction

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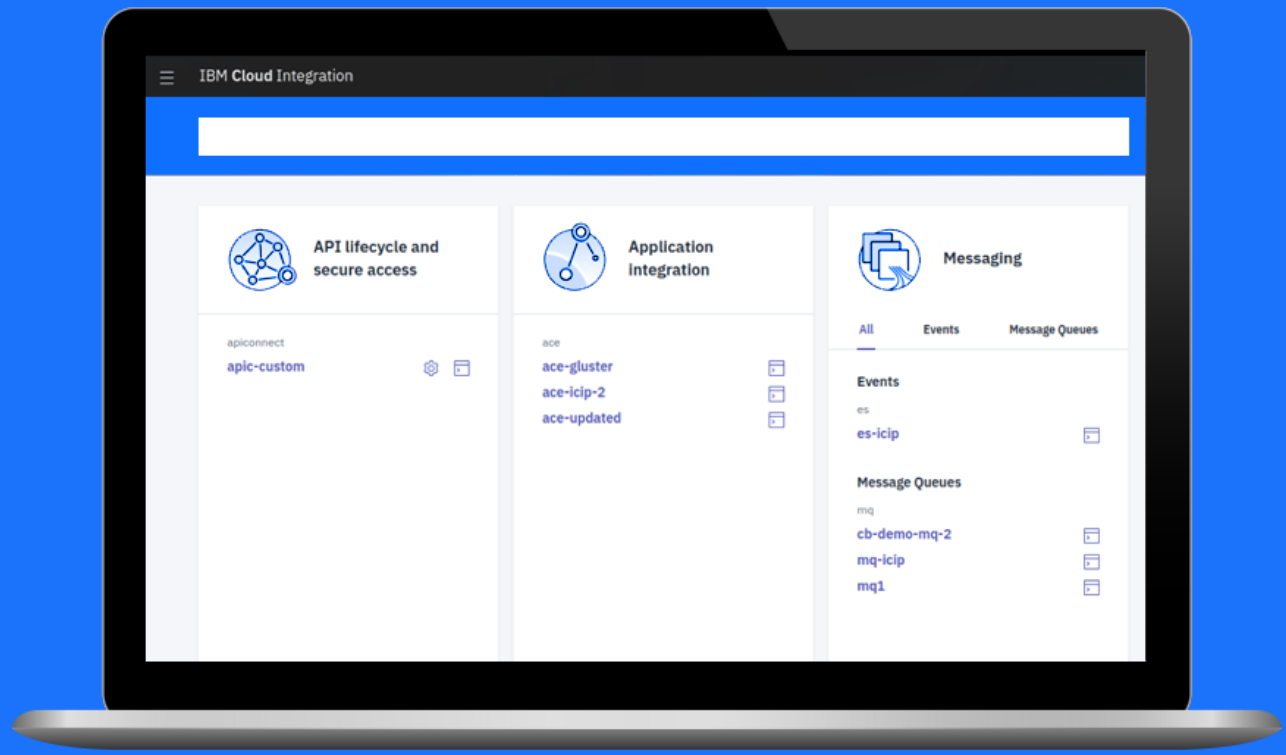
IBM **Cloud**

IBM

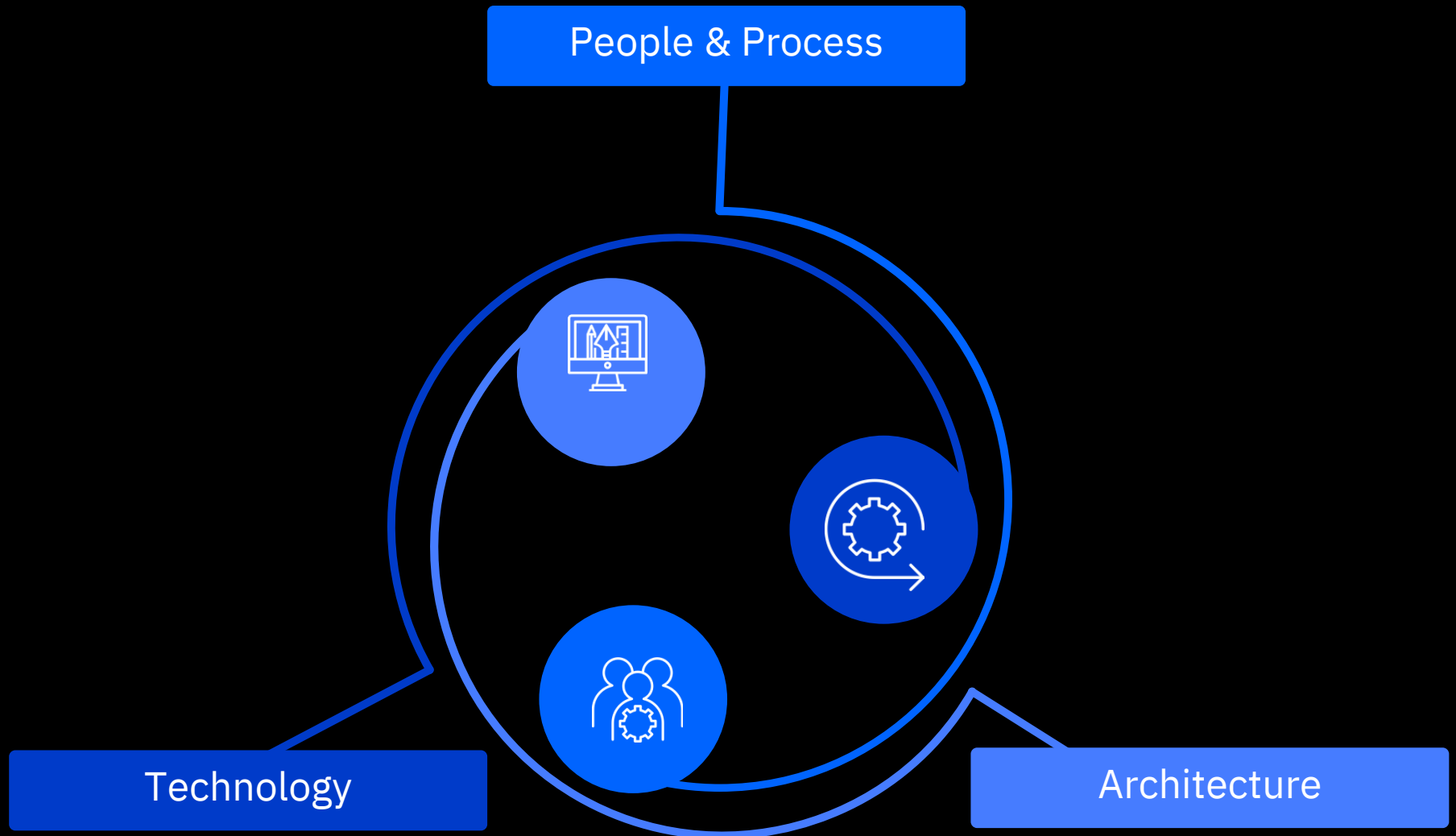
To Effectively Transform Businesses Must Modernize Integration

Typical drivers for clients needs for Hybrid Integration Platforms

- Allow for rapid connection between apps, clouds and internal systems
- Enable reuse and control of integration assets
- Centralize administration of access and use of APIs
- Enable scale to peaks of usage
- Deploy secured integration to any cloud, SaaS service or on-prem environment



Agile Integration Architecture



Agile integration allows you to invest strategically

People & Process

Do more of this
Innovate faster and closer to your line of business

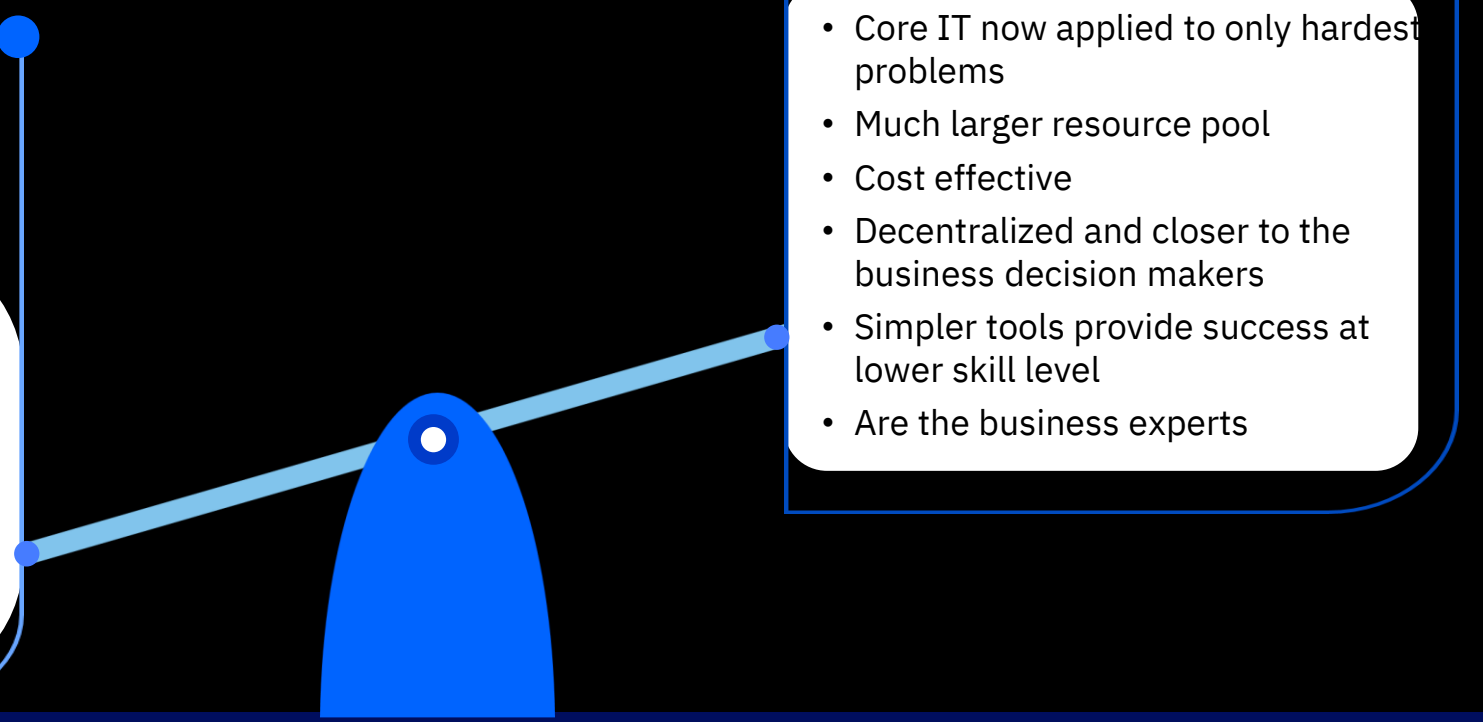
Distributed

- Core IT now applied to only hardest problems
- Much larger resource pool
- Cost effective
- Decentralized and closer to the business decision makers
- Simpler tools provide success at lower skill level
- Are the business experts

Do less of this
Centrally controlled / governed limits innovation

Core IT

- Core IT applied to all challenges
- Limited resource pool
- Expensive resource
- Centralized IT and removed from day to day operations
- High-skilled but single threaded
- Lack business expertise



Source: “A Developer's Guide To Forrester's Strategies For Integration And Digital Business Platforms” Forrester report.

Agile Integration Architecture

Architecture

	Fine grained deployment	Decentralized Ownership	Cloud native infrastructure
	Improve build independence and production velocity	*Accelerate agility and innovation*	*Dynamic scalability and inherent resilience*
Application	Dependency free rapid integration delivery	Business autonomy for integration delivery	Scale and administer integrations with applications that live anywhere
API	Consumer centric exposure of business APIs	Self-administration of API exposure and subscription	Multi-platform cloud agnostic API management componentry
Messaging	Independent application centric messaging	Self-provisioning of messaging and event capabilities	Cloud scale inherently resilient multi-platform messaging

IBM Cloud Integration Platform

– **Most powerful integration platform on the market**

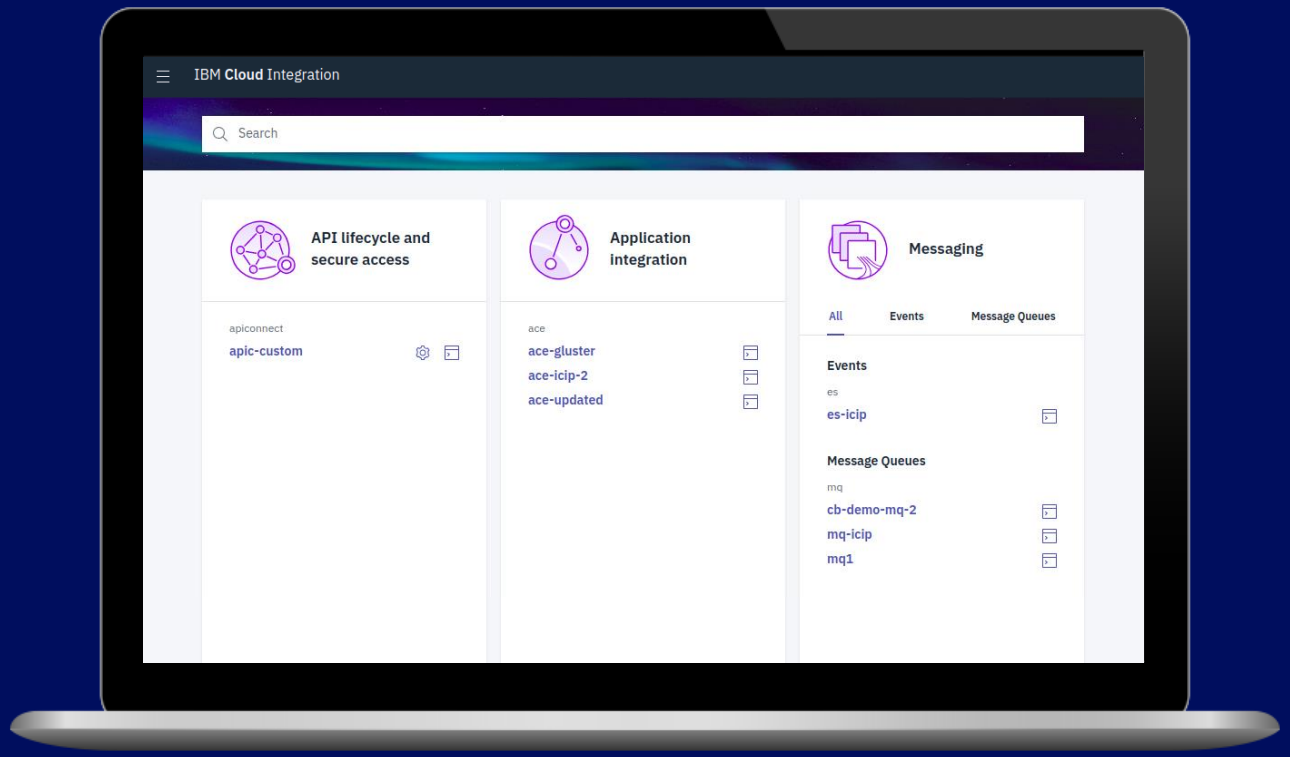
NEW offering incorporating traditional and modern integration including APIs, App Integration, Message queuing, Event streams and Fast file transfer

– **Deploy wherever needed**

Supports deployment on-premises or in any cloud

– **Enterprise grade**

Secure, scalable modern architecture



IBM **Cloud** Integration

Businesses can **save** of their integration cost, **gaining 3x** the speed

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Industry leading capabilities to accelerate business value

Simple

Fast

Secure

API Lifecycle

Unlock business data and assets as APIs

Data Integration

Understand, cleanse, transform and deliver quality data

Application Integration

Connect your cloud and on-prem applications

High Speed Transfer

Super fast & secure data transport across any cloud

Messaging & Events

Deliver msgs reliably with enterprise-grade messaging

Secure Access

Control access to vital resources wherever they are

Cloud Integration Platform removes I.T. friction

Rapid Innovation

- Governed integration services that are flexible for use by LOB
- A variety of methods
- Allows IT to support new business apps and strategic partnerships faster

Lower Costs

- Consistent experience
- Standardized operations model
- Eliminate costs related to managing multiple vendors & tools

Eliminate Complexity

- Core IT only focuses on hardest problems
- Simpler tools provide success at lower skill levels
- Work with existing apps, data, skills, infrastructure

Simplify Operations

- On premise, on cloud
- Core operational services including logging, monitoring, security
- Flexibility to integrate with existing tools and processes

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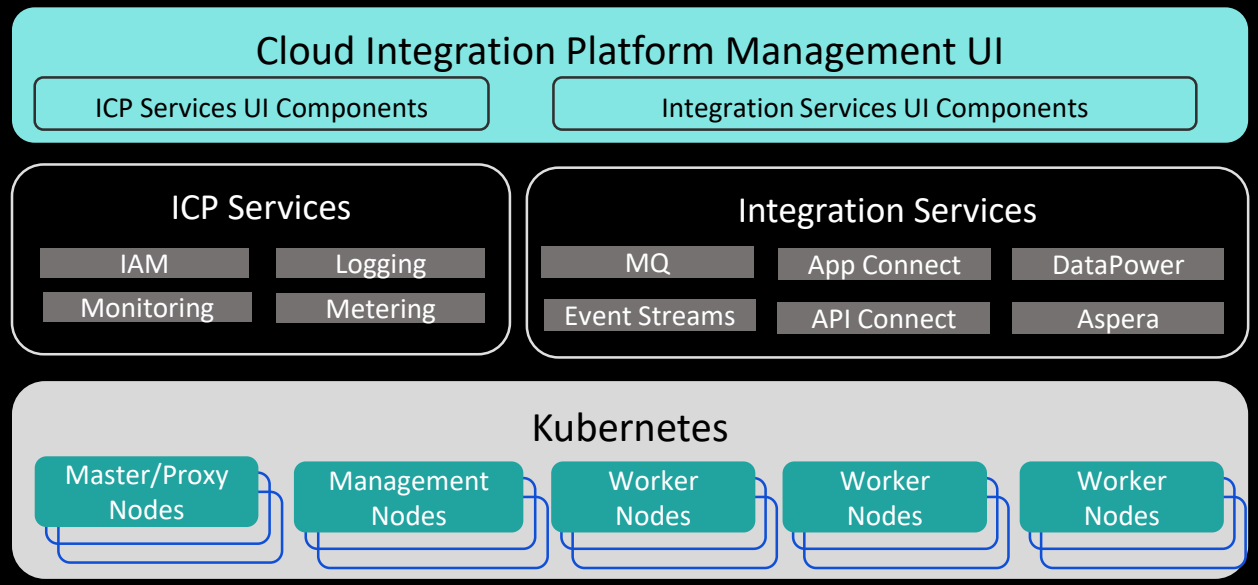
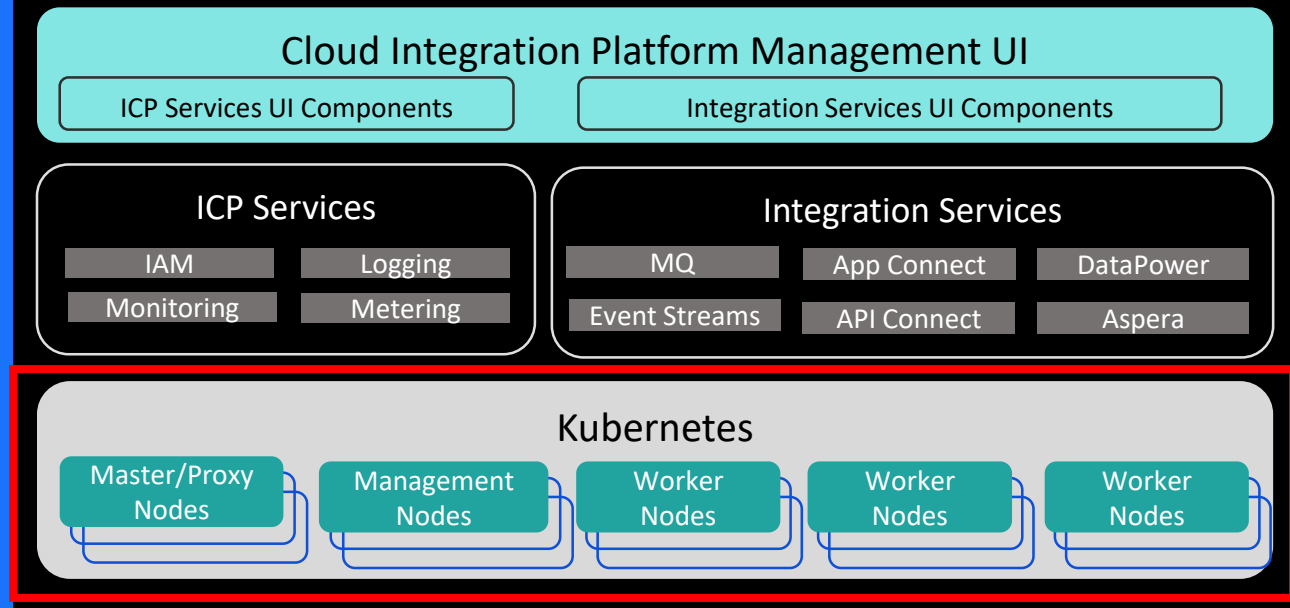
Cloud Integration Platform Architecture



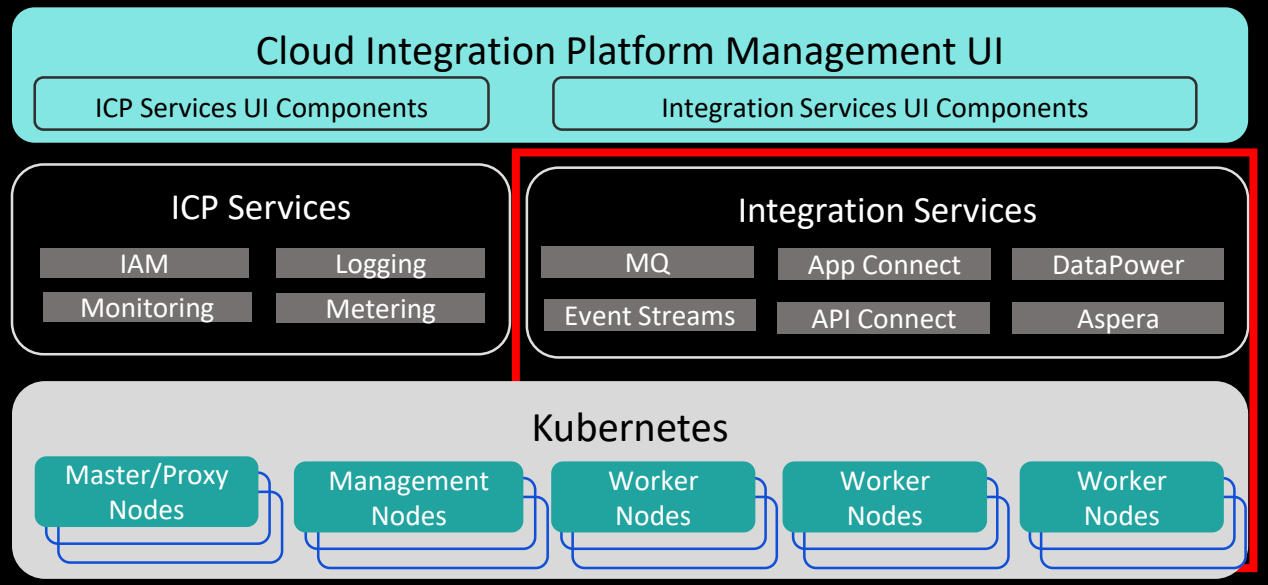
Cloud Integration Platform Architecture

- **Cloud Integration Platform runs on a Kubernetes Infrastructure**
- Installer bundles Kubernetes as part of IBM Cloud Private Foundation
  - Can also be installed onto an existing ICP cluster.
- Currently using ICP version 3.1.1



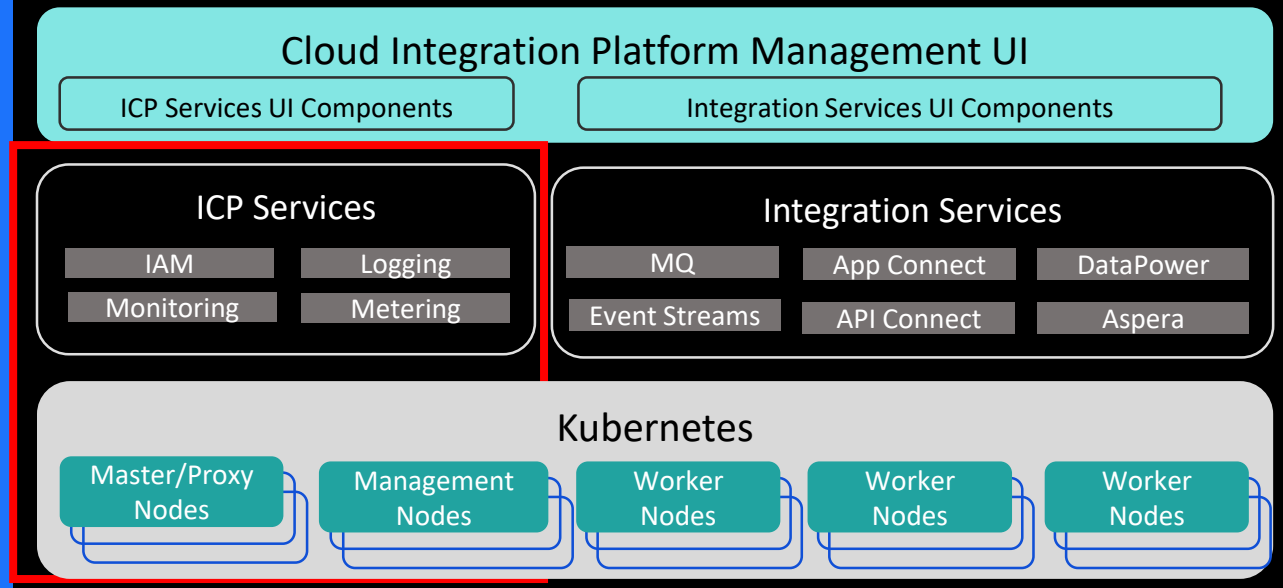
Cloud Integration Platform Architecture

- CIP manages instances of **Integration Services** which run on worker nodes.
  - IBM API Connect v2018.4
  - IBM App Connect Enterprise v11.0.0.2
  - IBM MQ Advanced v9.1.1.0
  - IBM Event Streams v2018
  - IBM Aspera HSTS v1
- Integration services deployed individually as needed to satisfy each use-case.
- Services can be deployed in **Highly Available** topologies across multiple Kubernetes worker nodes or non HA on a single worker
- Deployment and management is via the UI or CLI allowing integration with **CI/CD pipelines**.



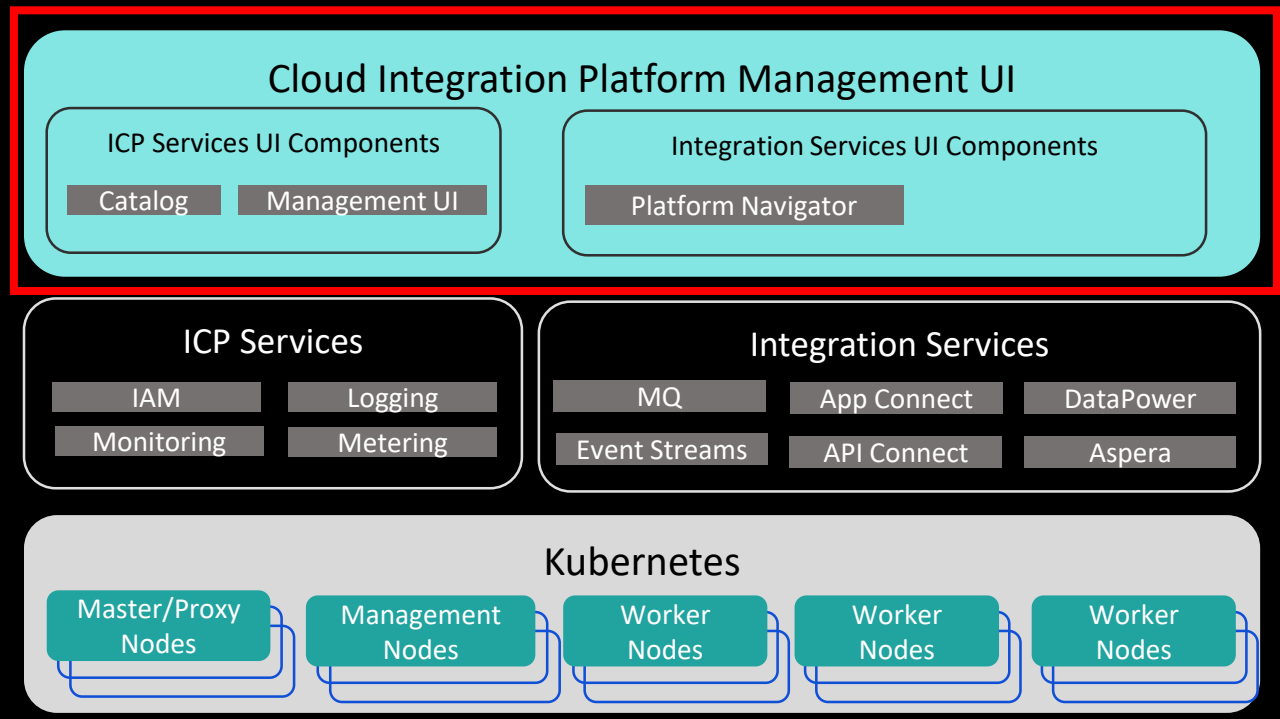
Cloud Integration Platform Architecture

- CIP uses IBM Cloud Private **(ICP) services**
  - Run on Master Proxy and Management nodes
  - HA or non HA configurations.
- Identity and Access Management (IAM)
  - Attaches to Corporare LDAP
  - Team based access control extends K8s RBAC
  - Single Signon to Integration services.
- Logging service
  - Search and visualize log entries - Based on Kibana
- Monitoring Service
  - Customise monitoring dashboards - Based on Promethius
- Metering Service
  - Track usage of software



Cloud Integration Platform Architecture

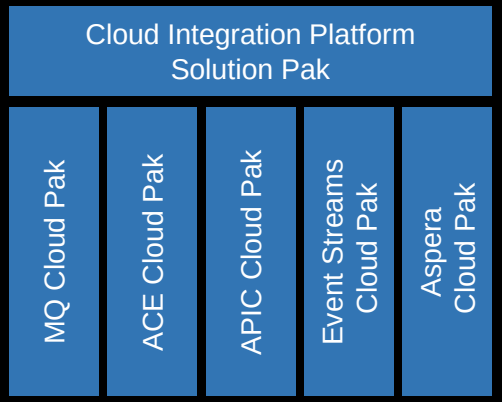
- Management UI unifies the management UIs of the Integration Services and the ICP services.
  - Platform navigator component.
- Single Signon with ICP Platform.
- Uses ICP UI to manage the platform & deployments
  - Catalog and ICP Management UI.



Cloud Integration Platform is built on IBM Cloud Paks.

Cloud Integration Platform Integrates and manages component Cloud Paks.

Deployment and runtime architecture are unchanged.

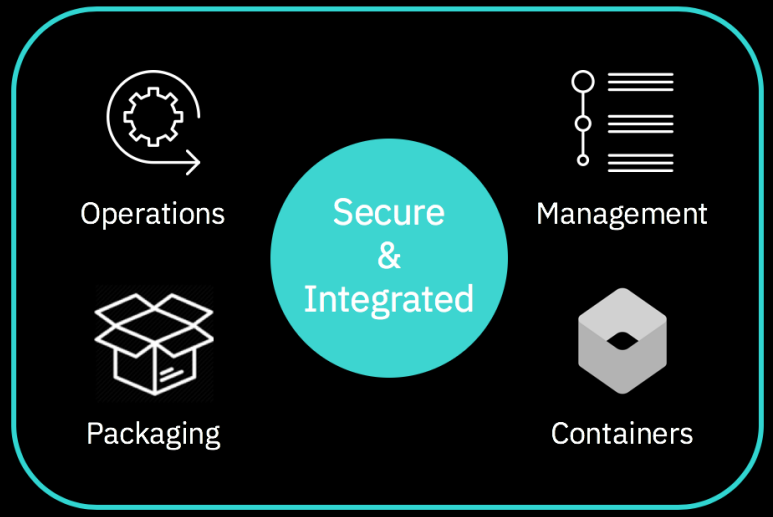


Lifecycle

- Consistent across all IBM Software built for Kubernetes

Pre-integrated

- Logging (Debug)
- Monitoring (Alerting)
- Usage Metering
- License Management



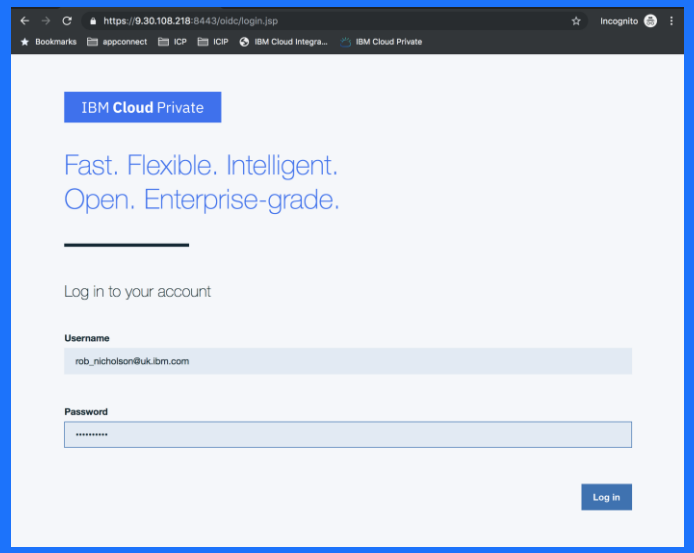
Enterprise Ready & Simple to Deploy

- Orchestrated by the product experts
- Integrated catalog experience
- Open standards packaging
- Secured by ICP IAM

Scanned for Vulnerabilities

- Extendable to Redhat Certified with RHEL base image

Demo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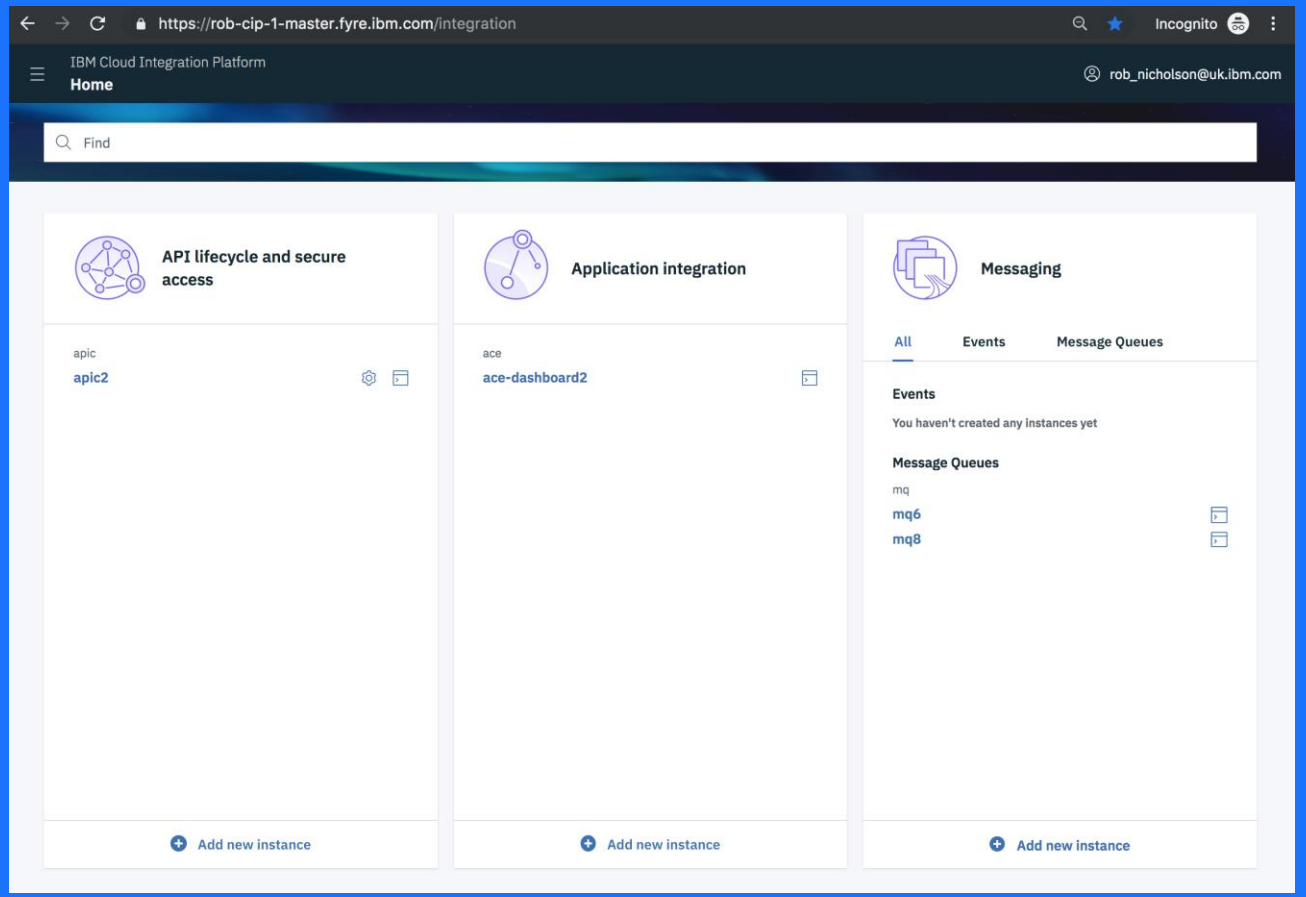
Incognito
Bookmarks
appconnect
ICP
ICIP
IBM Cloud Integra...
IBM Cloud Private
IBM Cloud Private
Fast. Flexible. Intelligent.
Open. Enterprise-grade.
Log in to your account
Username
rob_nicholson@uk.ibm.com
Password
Log in


https://rob-cip-1-master.fyre.ibm.com/integration
Incognito
IBM Cloud Integration Platform
Home
rob_nicholson@uk.ibm.com
Find
API lifecycle and secure access
apic
apic2
Add new instance
Application integration
ace
ace-dashboard2
Add new instance
Messaging
All
Events
Message Queues
Events
You haven't created any instances yet
Message Queues
mq
mq6
mq8
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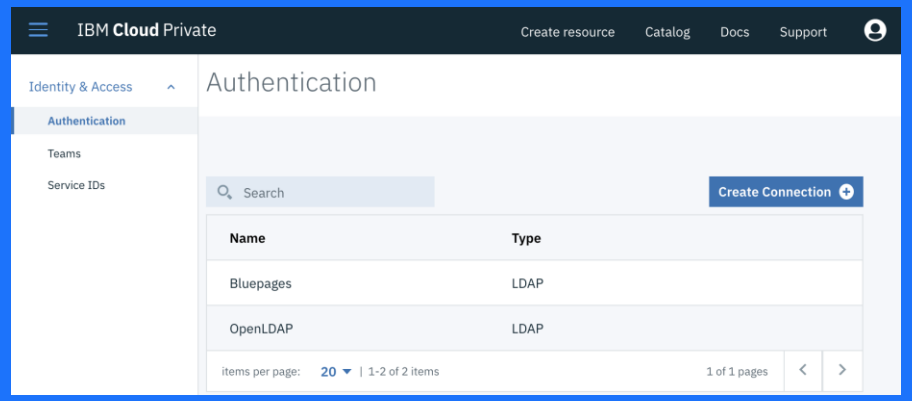
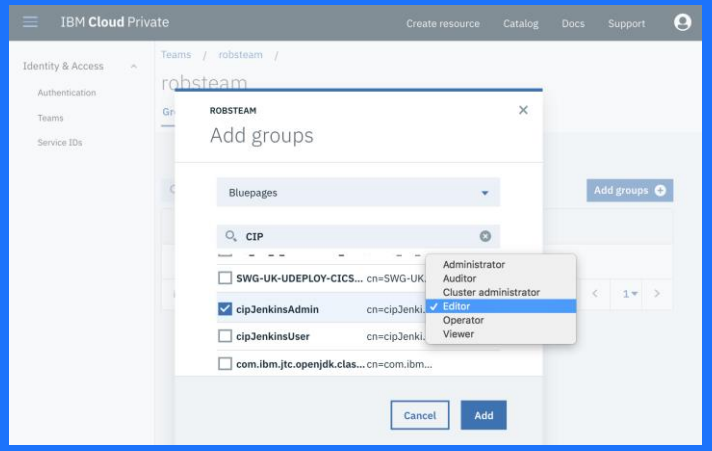
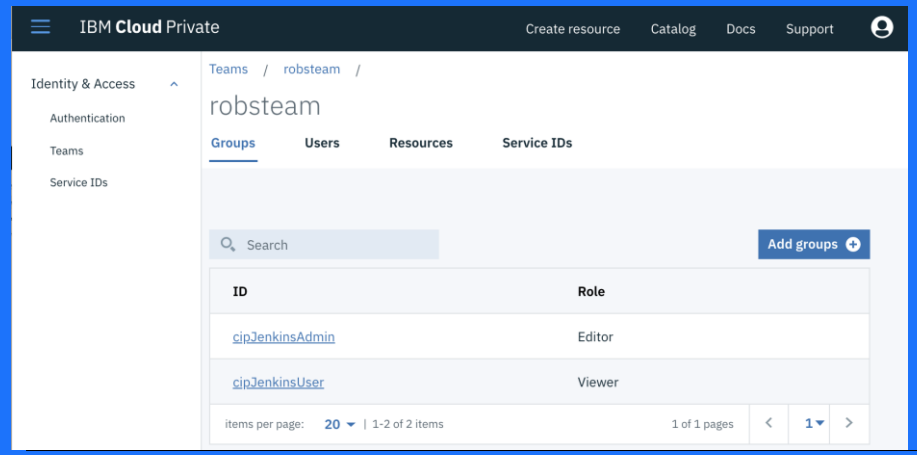
Identity and Access Management



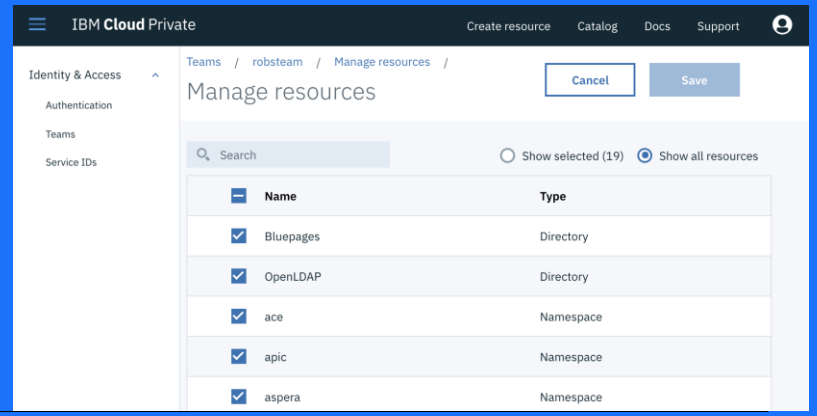
Connect to LDAP server(s)



Assign Users and Groups to Teams



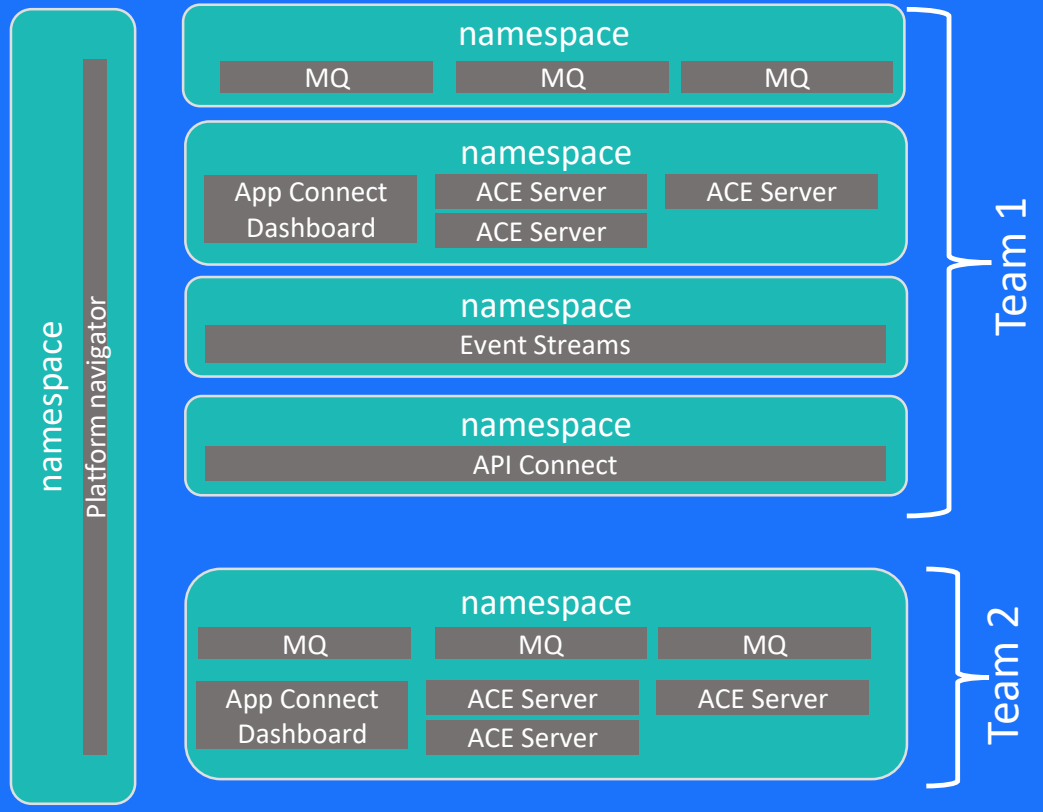
...with appropriate roles



Assign resources to teams

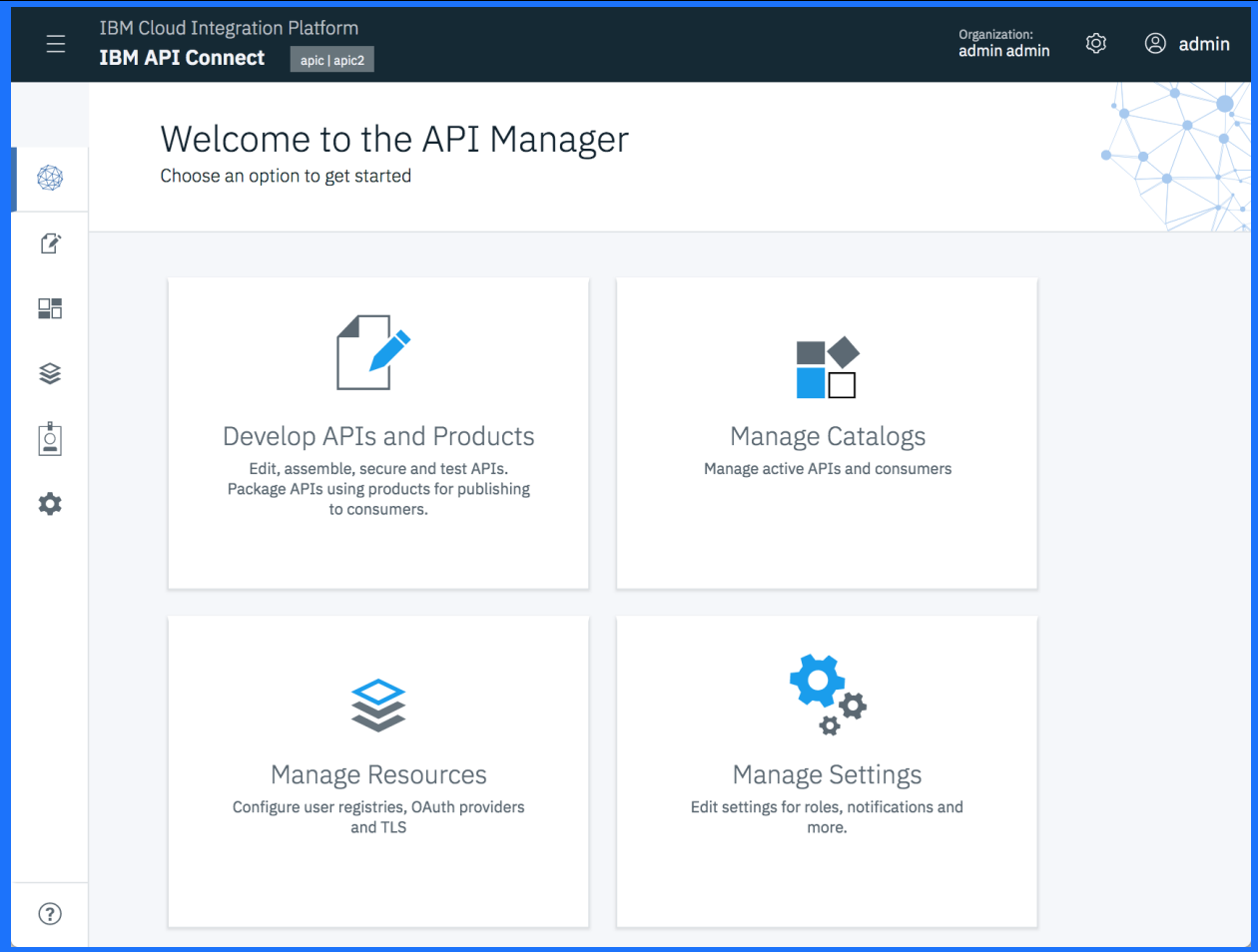
Namespaces

- Kubernetes namespaces provide isolation for teams.
  - Virtual cluster
- CIP Platform Navigator can operate across namespaces.
- Role Based Access Control is applied to namespaces.
  - Determines who can interact with the Helm release.
- Typically each Integration capability is deployed into its own namespace.
  - Event Streams must be installed into its own namespace.
  - Separate namespace is highly recommended for API Connect.



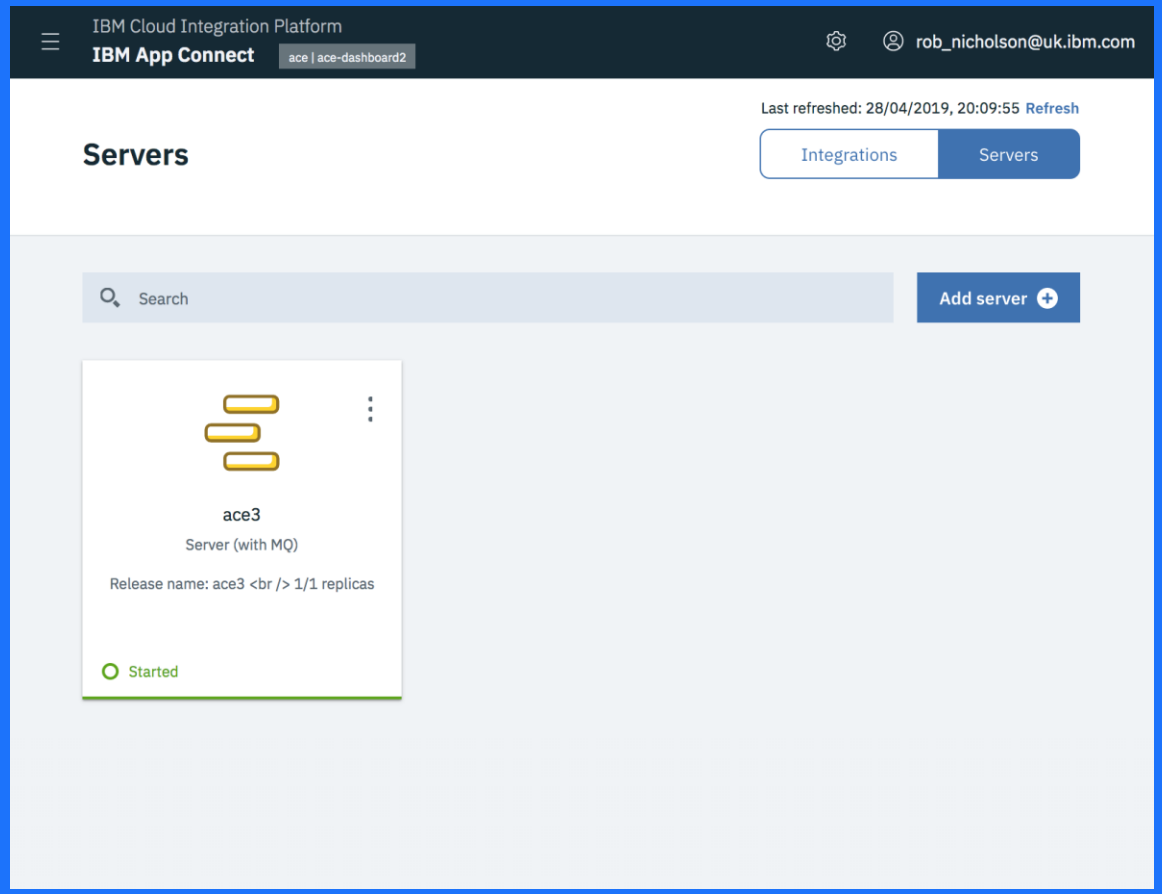
IBM API Connect v2018

- Microservice architecture
- Exposes both the API Manager and Cloud Manager UIs
- Single sign-on support for API Manager included, support for Cloud Manager will come later
- Optionally deploys all API Connect sub-systems – analytics, developer portals, gateways
- Simple HA configuration via the helm chart



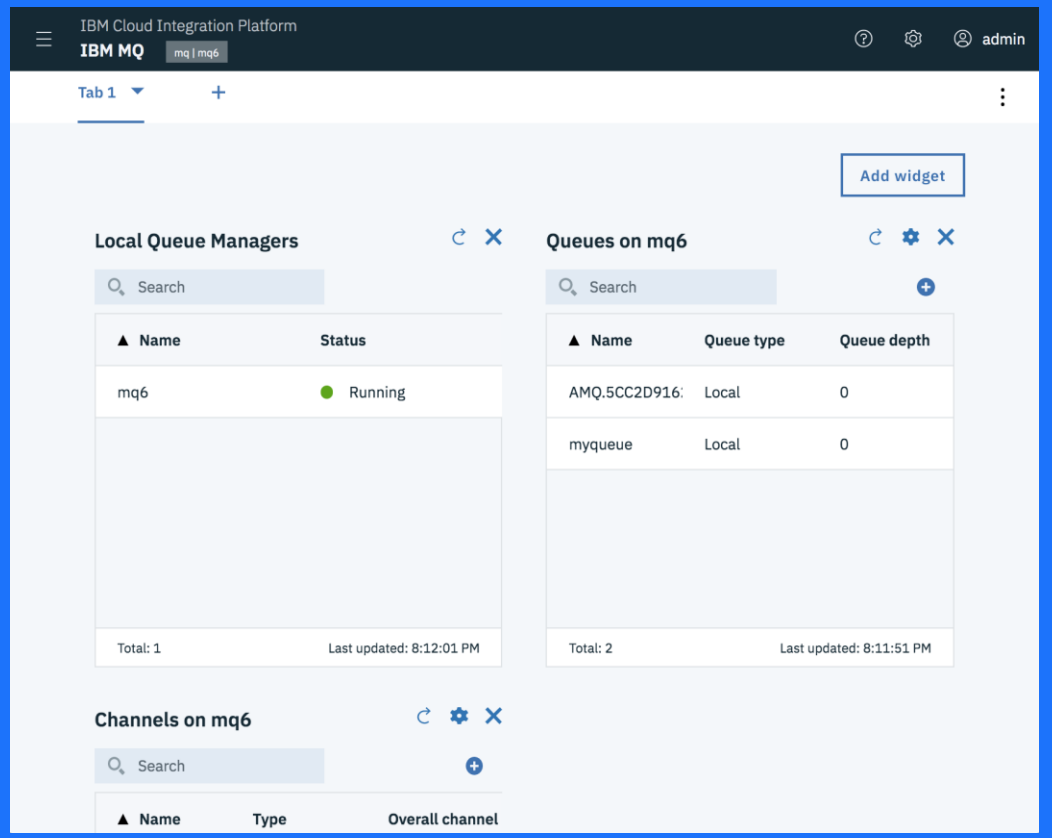
IBM App Connect Enterprise v11

- Delivers an App Connect Dashboard showing all integration servers within a namespace
- Easily deploy a new integration server from a BAR file
- Integrate custom integration server images
- Simple HA configuration via the helm chart



MQ Advanced V9

- Delivers a queue manager and an MQ console
- One queue manager per instance
- Simple HA configuration via the helm chart



IBM Event Streams v2018

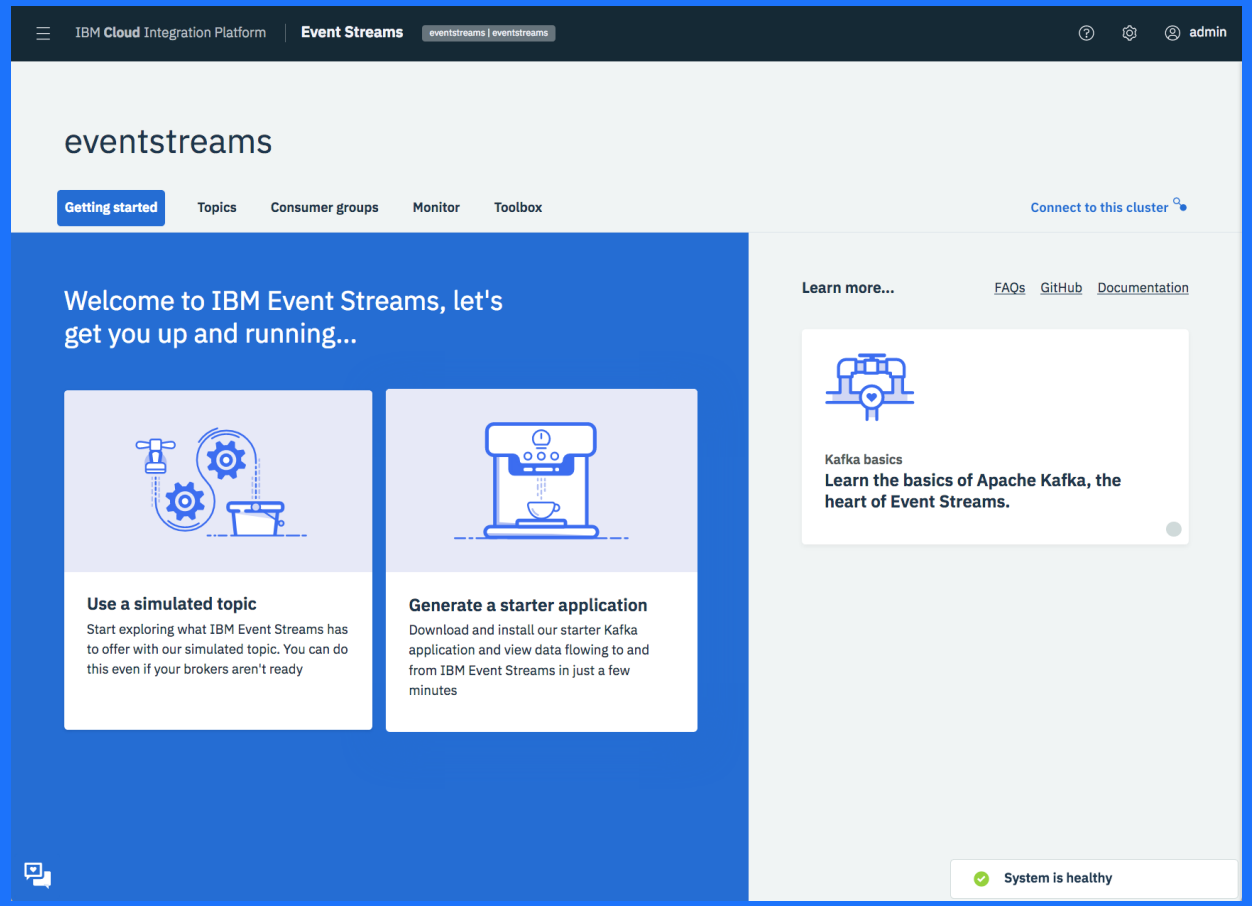
- Deploy production ready Apache Kafka

  onto IBM Cloud Private in minutes
  - Highly available
  - Secure
  - Ready for production

- Each instance is a kafka cluster.

- Role based access control is integrated

  into ICP.



IBM Aspera HSTS v1

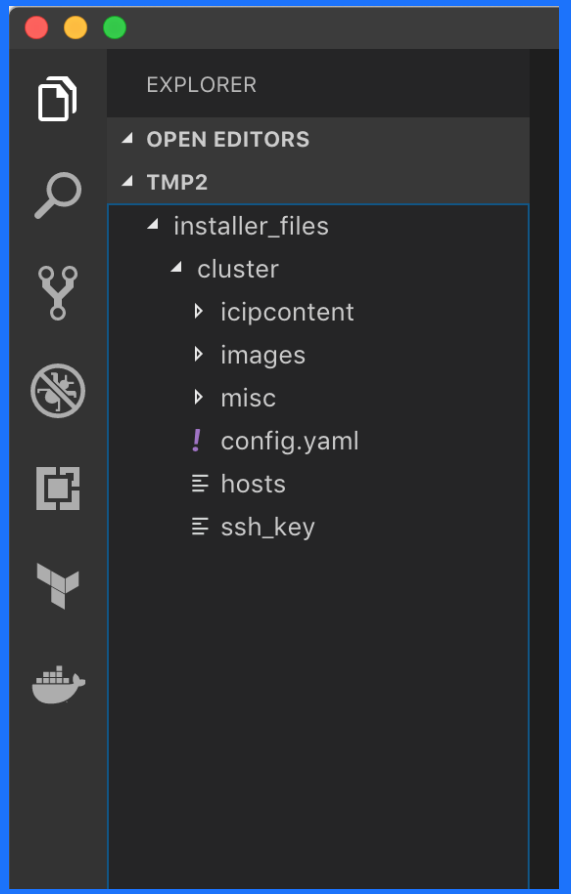
- Aspera High Speed Transfer Server allows ICP cluster to be an endpoint for Aspera FASP High Speed transfers.
  - Supports use cases such as:
    - Retrieving logs from cluster.
    - Transferring content onto cluster at high speed.
- CIP includes the HSTS Helm charts and docker images only.
  - Not yet integrated into the Platform Navigator.

Cloud Integration Platform stand alone Install

- What it does:
  - Installs IBM Cloud Private 3.1.1
  - Load charts and images for all the component products
  - Create an ‘integration’ namespace and start an instance of the platform navigator

Cloud Integration Platform stand alone Install

- Single download
  - Approximately 20GB
- Standard ICP installation procedure
  - Skipping the steps to download ICP and extract configuration files
- Extra tasks run at the end to configure the CIP specifics
  - Defined in the archive_addons section of config.yaml

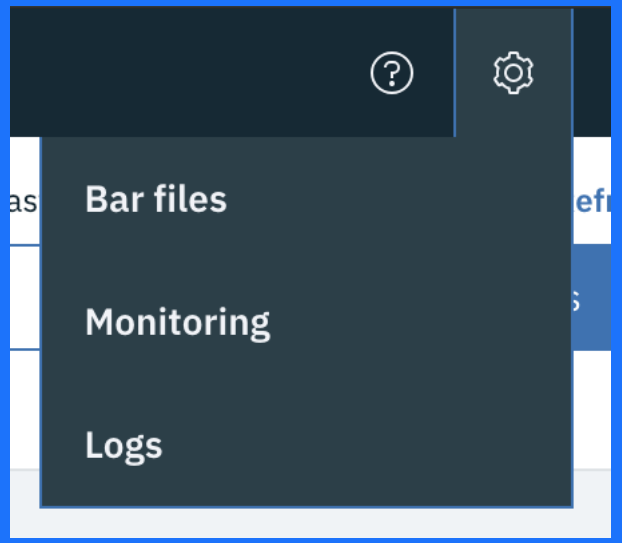


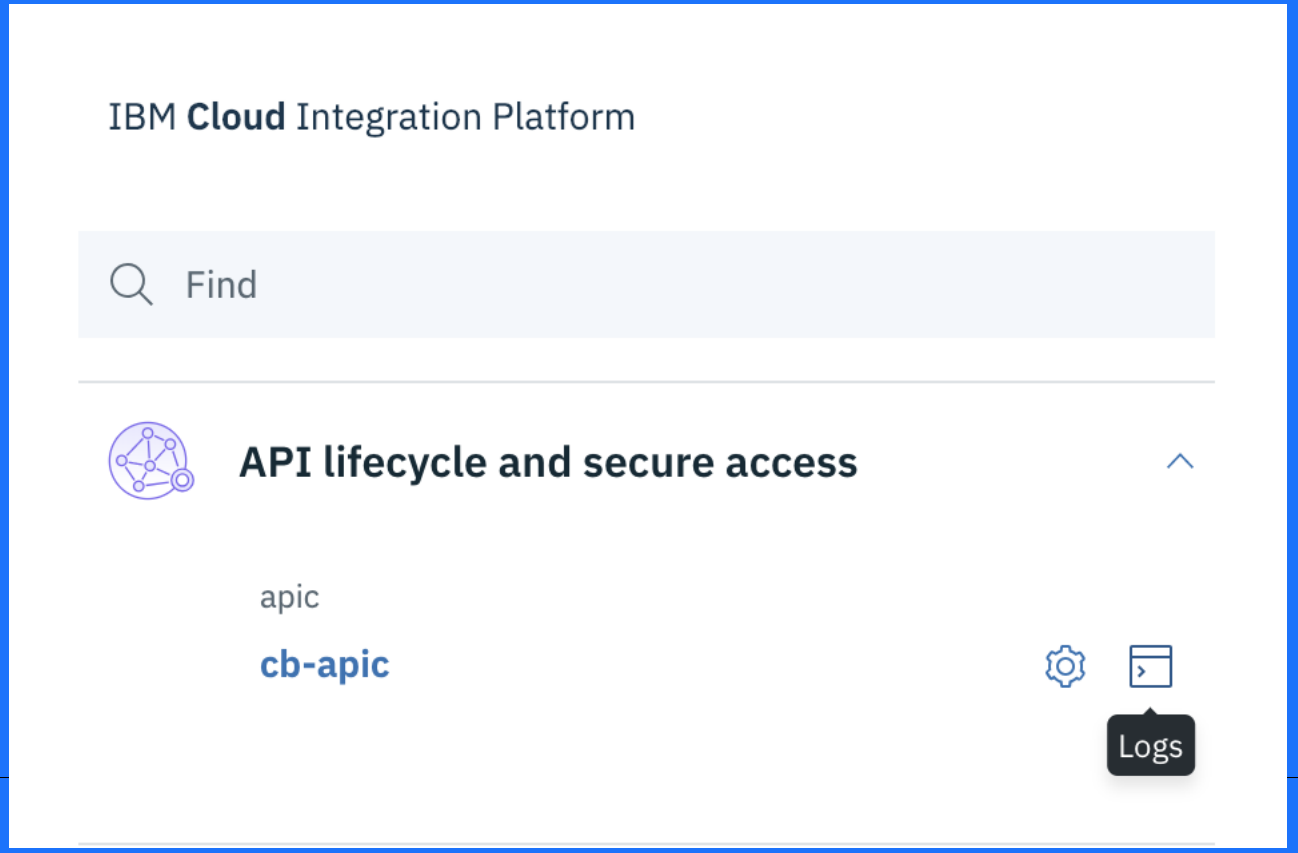
Cloud Integration Platform Install onto existing Cluster

- Cloud Integration Platform is fully compatible with ICP Cloud Native Edition.
- Load the cloudpaks from the installer into the existing cluster.
  - `cloudctl catalog load-archive`
- Helm release the platform navigator.
  - Typically into the ‘integration’ namespace.
- Cloud Integration Workloads can run alongside other workloads on the same nodes
  - Or can use dedicated nodes.

Logging

- All instances send their logs to the ICP logging instance (kibana)
- Logging links available for every individual instance, both in the header and in the instance list

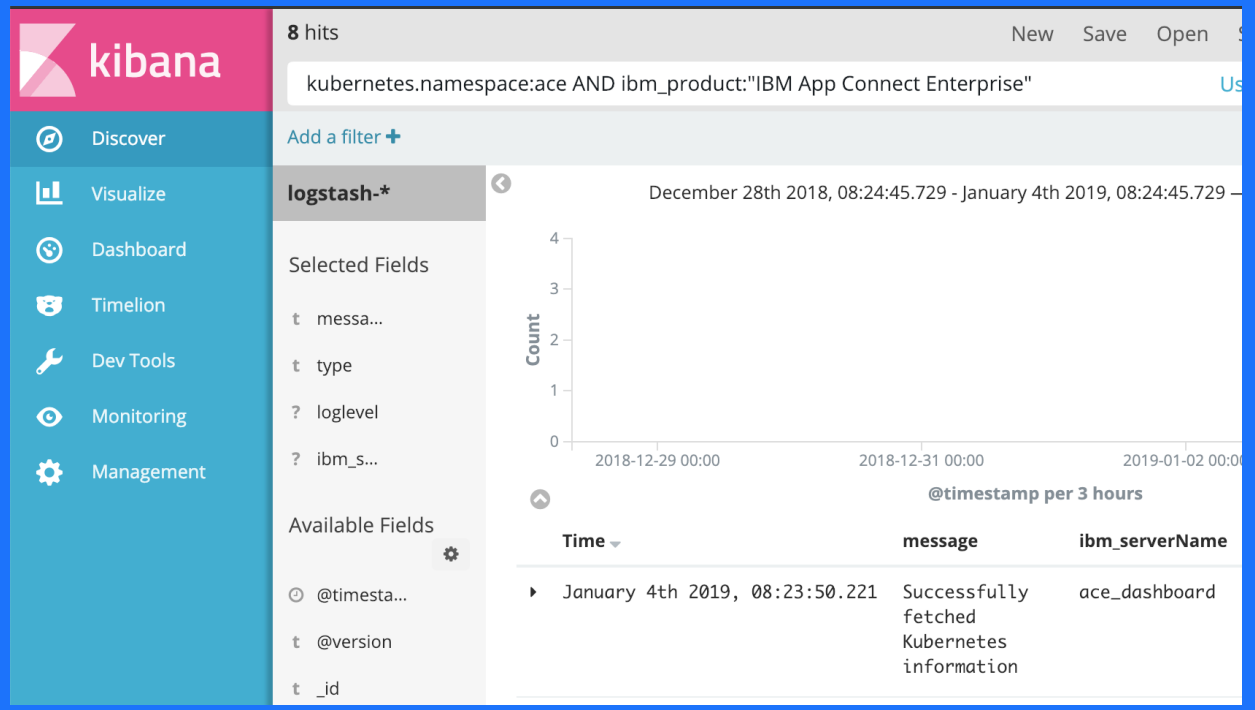




Logging

- Each link launches out to kibana with a pre-defined filter to scope it to a sensible default
- That default depends on the product
  - MQ logging link scopes to the set of pods running the queue manager
  - ACE logging link scopes to instances of the ACE dashboard or ACE integration servers in the same namespace
  - Event Streams, API Connect scope to the entire namespace

- Steps taken to move toward a common logging format – more work to follow



Things to look out for

DNS and certificates.

- You must provide FQDN for the cluster that matches the domain configured as the ICP CA domain.
  - Do not use IP addresses.

2 Options for certificates:

1. Provide your own certificate during installation of CIP and in each helm release.
   - Signed by a CA trusted by browsers in your enterprise.
2. Use the inbuilt cluster CA.
   - Each product signs its certificates with the cluster CA root certificate
   - these signed certificates will be the ones exposed by the cluster on ingress
   - The root CA needs to be trusted by clients machines.
     - It should be added to your OS keychain and marked as trusted

- Otherwise untrusted self-signed certificates will cause the UX will suffer

License and Cores required for minimal and HA

Component	Cores provisioned – Non HA	Cores provisioned - HA	Min CIP licenses non HA	Min CIP licenses HA	Nodes
ICP Foundation. (Master, Proxy, Management nodes)	16	40	0	0	Typically: 2 dedicated Nodes non HA 7 dedicated Nodes HA
CIP Platform, - Navigator,	0.5	1.5	0	0	At least 3 shared Worker Nodes
MQ	1	1 or 2	0.5	0.5 or 1	At least 2 shared Worker Nodes
APIC	16	48	16	48	At least 3 shared Worker Nodes
App Connect	1.1	1.1 or 2.1	3	3 or 6	At least 2 shared Worker Nodes
Aspera	4	12	4	12	At least 3 shared Worker Nodes
Event Streams	20.8	20.8	12	12	At least 3 shared Worker Nodes

Links

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https://www.ibm.com/support/knowledgecenter/en/SSGT7J/welcome.html

Thank You