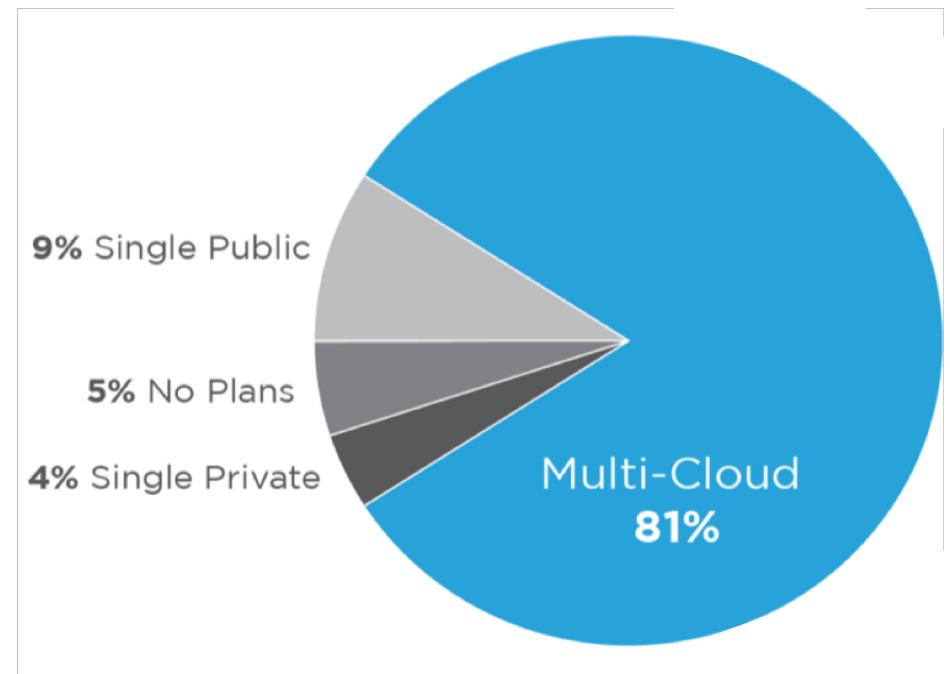# IBM **Cloud**

Yann THEAU

Christian CAGNOL

IBM
22 janvier 2019

Is Multi-Cloud Vision or Reality?

81%

of all respondents with 1000+ employees follow a Multi-Cloud strategy

9% Single Public

5% No Plans

4% Single Private

Multi-Cloud 81%

RightScale 2018 State of the Cloud Report - Respondents with 1000+ Employees

Market Trends

"The urgency to get to cloud and modernize one's organization as part of the digital transformation is more pressing than ever."

65% customers self-describe as hybrid already and have more than 2 cloud providers

– Forrester, Private Cloud In 2020: Defining The Future Of The Enterprise Data Center

$443B
$96B
Private Cloud market size in 2017
IBM MD&I

20%
Private Cloud market CAGR thru 2020
- *IBM MD&I*

$1.1B
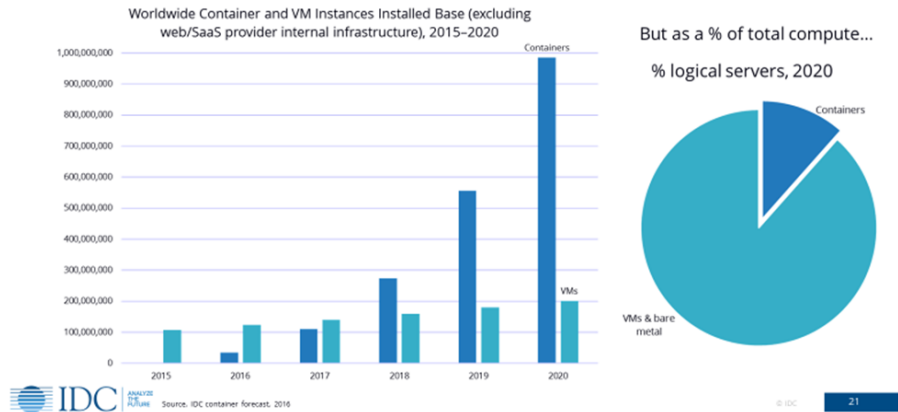Application container market size in 2018
451 Research

35%
Application container market CAGR thru 2021
451 Research

3

Les containers, nouvelle unité de production d'infrastructure

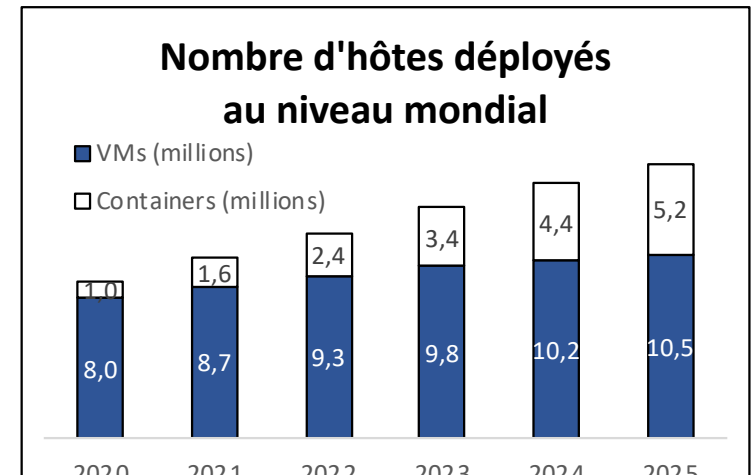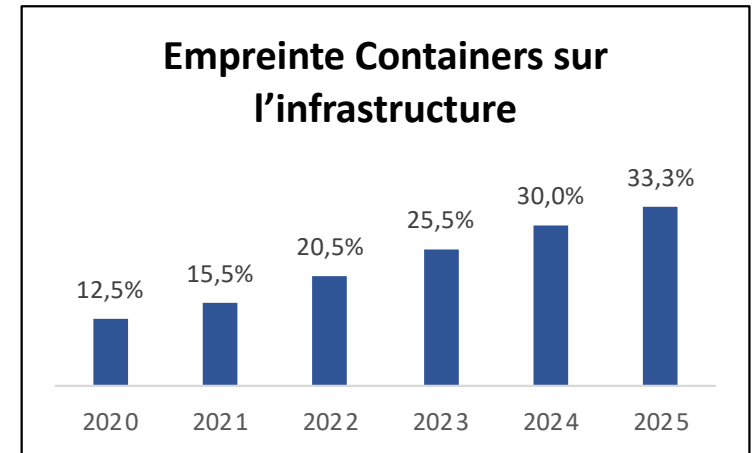**Les containers vont dominer l'infrastructure IT d'ici 5 ans ...**

Worldwide Container and VM Instances Installed Base (excluding web/SaaS provider internal infrastructure), 2015–2020

But as a % of total compute...
% logical servers, 2020

Source: IDC container forecast, 2016

... Et les VMs ne serviront surtout à faire tourner le « Legacy ».

Tous les types de déploiements adopteront les Containers

Deployment Model	2015	2016	2017-e	2022-p	CAGR (2017–2022)
Public Cloud	318.0	360.3	419.1	1,709.2	32.5%
Private Cloud	208.4	240.9	286.0	1,298.9	35.3%
Hybrid Cloud	161.0	187.9	225.2	1,072.2	36.6%
Total	687.4	789.1	930.4	4,080.4	34.4%

En m$

Empreinte Containers sur l'infrastructure

12,5% (2020), 15,5% (2021), 20,5% (2022), 25,5% (2023), 30,0% (2024), 33,3% (2025)

Nombre d'hôtes déployés au niveau mondial

- VMs (millions)
- Containers (millions)

	2020	2021	2022	2023	2024	2025
Containers	1,0	1,6	2,4	3,4	4,4	5,2
VMs	8,0	8,7	9,3	9,8	10,2	10,5

CONTAINERS

IBM Cloud : choix et flexibilité de la technologie d'exécution

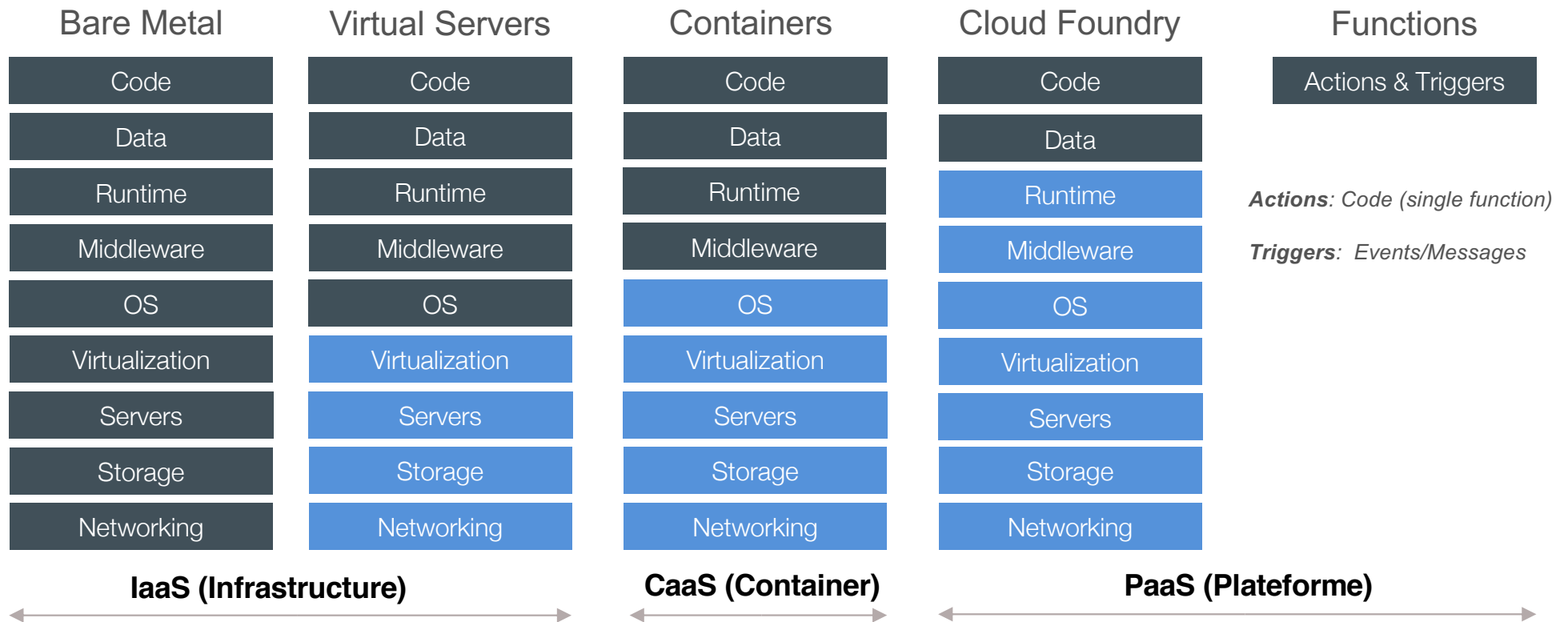| PERFORMANCE & CONTROL		PORTABILITY	DEVELOPMENT SPEED	
Bare Metal Maximum performance and control	**Virtual Server** Leverage existing languages and tools	**Containers** Maximum portability	**Platform as a Service** Extensive runtime options	**Serverless** Maximum speed with serverless apps

IaaS (Infrastructure)   CaaS (Container)   PaaS (Plateforme)

IBM Cloud : choix et flexibilité de la technologie d'exécution

● Customer Managed
● Service Provider Managed

Bare Metal	Virtual Servers	Containers	Cloud Foundry	Functions
Code	Code	Code	Code	Actions & Triggers
Data	Data	Data	Data	
Runtime	Runtime	Runtime	Runtime	
Middleware	Middleware	Middleware	Middleware	
OS	OS	OS	OS	
Virtualization	Virtualization	Virtualization	Virtualization	
Servers	Servers	Servers	Servers	
Storage	Storage	Storage	Storage	
Networking	Networking	Networking	Networking	

Actions: Code (single function)

Triggers: Events/Messages

IaaS (Infrastructure) ← →
CaaS (Container) ← →
PaaS (Plateforme) ← →

IBM Cloud

Start building immediately using 190+ unique services.

Last updated on January 21, 2019
https://ibm.biz/cloud-cheatsheet

Compute
- Bare Metal Server
- Cloud Foundry Enterprise Environment
- Dedicated Virtual Server
- Functions
- HPCaaS from Rescale
- Kubernetes Service
- Public Virtual Server
- Reserved Virtual Server
- Transient Virtual Server
- WebSphere Application Server

Storage
- Block Storage
- box
- Cloud Object Storage
- Cloud Object Storage (Classic)
- File Storage
- Object Storage OpenStack Swift (infrastructure)

Networking
- Citrix NetScaler VPX
- Cloud Load Balancer
- Content Delivery Network
- Direct Link Connect
- Direct Link Dedicated
- Direct Link Dedicated Hosting
- Direct Link Exchange
- Domain Name Service
- FortiGate Security Appliance 10Gbps
- FortiGate Security Appliance 1Gbps
- Hardware Firewall
- Hardware Firewall (Dedicated)
- Internet Services
- IPSec VPN
- Juniper vSRX
- Local Load Balancer
- SSL Certificates
- Subnets/IPs
- Virtual Router Appliance

- VLAN

AI
- AI OpenScale
- Compare Comply
- Discovery
- Knowledge Catalog
- Knowledge Studio
- Language Translator
- Machine Learning
- Natural Language Classifier
- Natural Language Understanding
- Personality Insights
- PowerAI
- Speech to Text
- Text to Speech
- Tone Analyzer
- Visual Recognition
- Watson Assistant
- Watson Studio

Databases
- CloudAMQP
- Cloudant
- Compose Enterprise
- Compose for Elasticsearch
- Compose for etcd
- Compose for JanusGraph
- Compose for MongoDB
- Compose for MySQL
- Compose for PostgreSQL
- Compose for RabbitMQ
- Compose for Redis
- Compose for RethinkDB
- Compose for ScyllaDB
- Databases for Elasticsearch
- Databases for Etcd
- Databases for PostgreSQL
- Databases for Redis
- Db2
- Db2 Hosted
- Db2 Warehouse
- ElephantSQL
- GEO Web Services
- Hyper Protect DBaaS
- InfluxCloud
- Informix
- Lift CLI
- Messages for RabbitMQ
- SQL Query

Developer Tools
- Activity Tracker
- Alert Notification
- Auto-Scaling
- Availability Monitoring
- Cloud Monitoring with Sysdig
- Container Registry
- Continuous Delivery
- DevOps Insights
- Event Management
- Globalization Pipeline

- Log Analysis
- Log Analysis with LogDNA
- Mendix Platform Service
- Monitoring
- PagerDuty
- Toolchain
- Workload Scheduler

Analytics
- Analytics Engine
- Apache Spark
- Cognos Dashboard Embedded
- Decision Optimization
- Geospatial Analytics
- Information Server
- Master Data Management
- Streaming Analytics
- Weather Company Data

Integration
- API Connect
- App Connect
- Event Streams
- MQ
- Rocket Mainframe Data
- Secure Gateway
- SPLICE Pre-CAT Insurance Notifications

Internet of Things
- AT&T Flow Designer
- AT&T IoT Data Plans
- Bosch IoT Rollouts
- Car Diagnostic API
- Internet of Things Platform
- Precision Location
- UnificationEngine

Security and Identity
- App ID
- Certificate Manager
- Contrast Security
- FusionAuth
- Key Protect
- Security Advisor
- Twilio Authy
- Twilio Verify

Web And Mobile
- App Launch
- Mobile Foundation
- Phunware Location Based Services
- Phunware Mobile Marketing Automation
- Push Notifications
- Telstra Messaging API
- Zuznow

Web and Application
- Conversation.one
- Esri ArcGIS for Developers
- Intelligent Travel API
- Mapbox Maps
- Nexmo

- Twilio Programmable SMS
- Twilio Programmable Video
- Twilio Programmable Voice
- Voice Agent with Watson

Finance
- Accern-API
- Accrete.AI: Rational Exuberance
- Accrete.AI: Rumor Hound
- Accrete.AI: Topic Deltas
- Alloy
- Bondevalue-API
- Coalesce for Risk and Compliance Monitoring
- Difitek
- Dwolla
- Envestnet | Yodlee
- HazardHub Property Risk Data API
- Morningstar
- Natural Language Generation APIs
- Payeezy
- Plaid
- Powerlytics Behavior/Propensity Model API
- Powerlytics Consumer Income API
- Powerlytics Investable Assets & Wealth API
- Quovo
- RelSci
- RiskSpan RS Edge Loan Analytics
- Totum Risk
- TradeIt
- TrueRisk Labs - Equity Predictions Using Advanced AI
- WealthEngine API
- Xignite Market Data APIs
- Ylabs

Blockchain
- Blockchain

VMware
- Cloud Private Hosted
- Cloud Secure Virtualization
- F5 on IBM Cloud
- FortiGate Security Appliance on IBM Cloud
- FortiGate Virtual Appliance on IBM Cloud
- HyTrust CloudControl on IBM Cloud
- HyTrust DataControl on IBM Cloud
- HyTrust KeyControl on IBM Cloud
- Managed Services for Veeam on IBM Cloud
- Managed Services for Zerto on IBM Cloud
- Managed Services from IMI
- Mission Critical VMware on IBM Cloud
- NetApp ONTAP Select
- Spectrum Protect Plus on IBM Cloud
- Veeam on IBM Cloud
- VMware Cloud Foundation on IBM Cloud
- VMware vCenter Server on IBM Cloud
- VMware vSphere on IBM Cloud
- Zerto on IBM Cloud

Built for all your applications. AI Ready. Secure to the core. This is the IBM Cloud. Visit cloud.ibm.com today.

Voir https://console.bluemix.net/catalog/?category=platform
Export du catalogue avec informations descriptives des services (format Excel,Word) sur http://mycatalog.mybluemix.net/
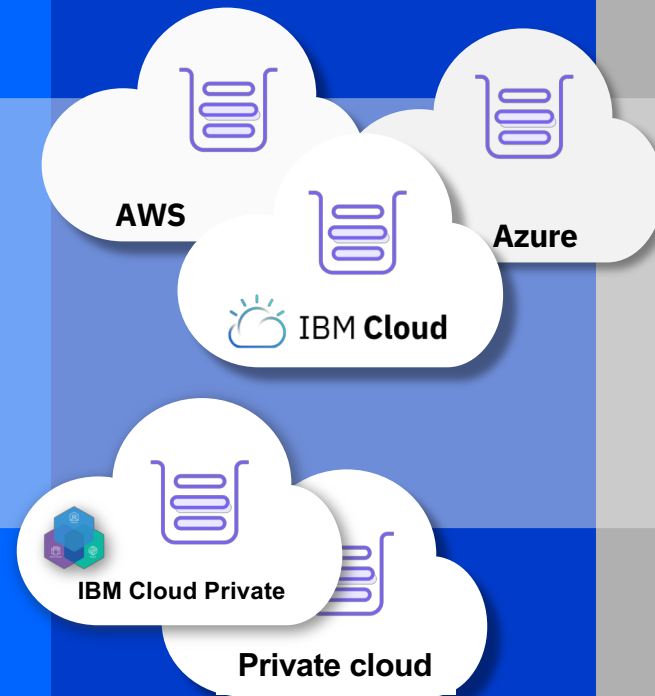
MQ on Cloud – truly multi-cloud

MQ on Cloud queue managers can now be provisioned onto infrastructure in **AWS** ensuring that MQ is exactly where you need it - close to your applications.

Your infrastructure is provisioned within the IBM account in AWS, billing from IBM with same purchase options as for IBM Cloud

Consistent user experience for managing on-premise and multi-cloud environments

EU: IBM Cloud in London, AWS in Dublin, more coming.. let us know where you need it!

new

IBM Cloud Private

IBM Cloud Private is a **K8s platform** to develop **modern applications** based on **micro-services architectures** behind the enterprise's firewall while consuming IBM's catalog (**helm charts**) of **middleware and software** or 3rd party assets.

Leverage Open Standard Technologies

Containers	Orchestration	Management	Provisioning
Executable package of software that includes everything needed to run it	Automate deployment, scaling, and management of containerized applications	Define, install, and upgrade Kubernetes applications	Infrastructure as code to provision public cloud and on-premises environments

IBM Cloud Private

Cloud native features for the enterprise… on any infrastructure!

IBM Middleware, Data, Analytics and Developer Services
Cloud enabled middleware, messaging, databases, analytics, and cognitive services to optimize current investments while rapidly innovating

IBM WebSphere   IBM DB2   IBM MQ   IBM DataPower Gateways   IBM API Connect   IBM Blockchain   IBM Data Science Experience   open source

Enterprise grade services for Middleware, Data, Analytics, DevOps And AI

Core Operational Services
Simplify Operations Management, Security, and Hybrid integration

kibana   logstash   elasticsearch   **DevOps**

Enterprise grade operations, across your Hybrid IT environment

Kubernetes-based Container Platform
Industry leading container orchestration platform across private, hybrid & public clouds

Cloud Foundry
For prescribed app development & deployment
CLOUDFOUNDRY

IBM Cloud Automation Manager
TERRAFORM
Infrastructure as Code provisioning on public and on-prem clouds
IBM Cloud   Microsoft   amazon webservices   openstack   vmware

Open by design, preventing vendor lock-in

Runs on existing IaaS: vmware   openstack   Power Systems   System Z   Any x86   amazon webservices

Leverage existing investments

Third Party alliances: Dell   Cisco   NetApp   HP   Nutanix …
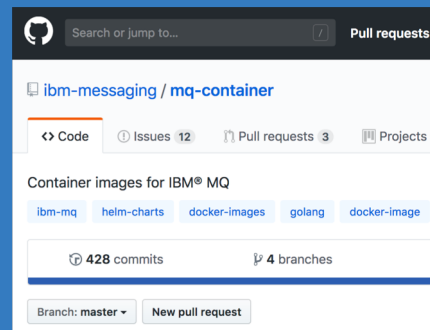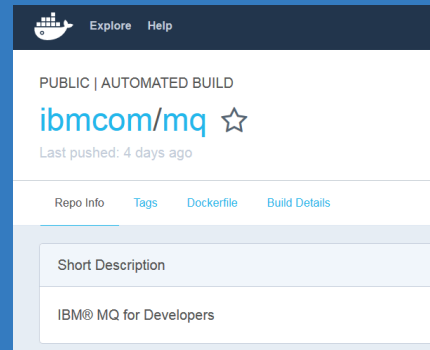
MQ in Containers

Supporting public and private cloud deployments

Why?

- Self service

- Simplified upgrade

- Consistency

- Scale / HA

- Isolation

github.com/
ibm-messaging/
mq-container

MQ has been supporting Docker containers since 2015 with images on Docker Hub and Docker Store and sample setups on Github

MQ provides Helm charts for deploying MQ into Kubernetes platform, on-prem or on cloud, such as IBM Kubernetes Service

MQ Advanced is available as a fully supported product with **IBM Cloud Private**

deploy IBM certified software containers into an IBM provided Kubernetes platform or an existing Red Hat OpenShift
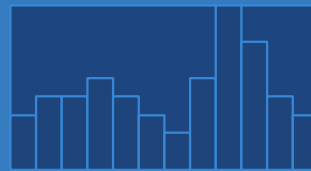
new

Hourly licensing

IBM has introduced the ability to purchase an entitlement based on the container size in Virtual Processor Cores and the number of hours that MQ was deployed in each container
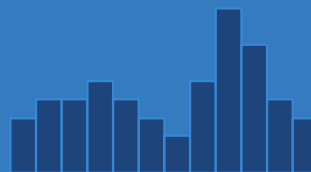
New for MQ 9.1

Pre-purchase *core hours*

Use the hours as needed, whether that's constant or varies across the day, week or year.

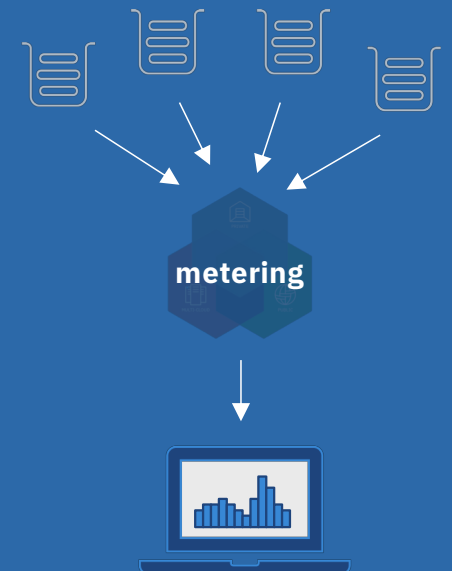Traditional licensing

Hourly licensing

Fully portable

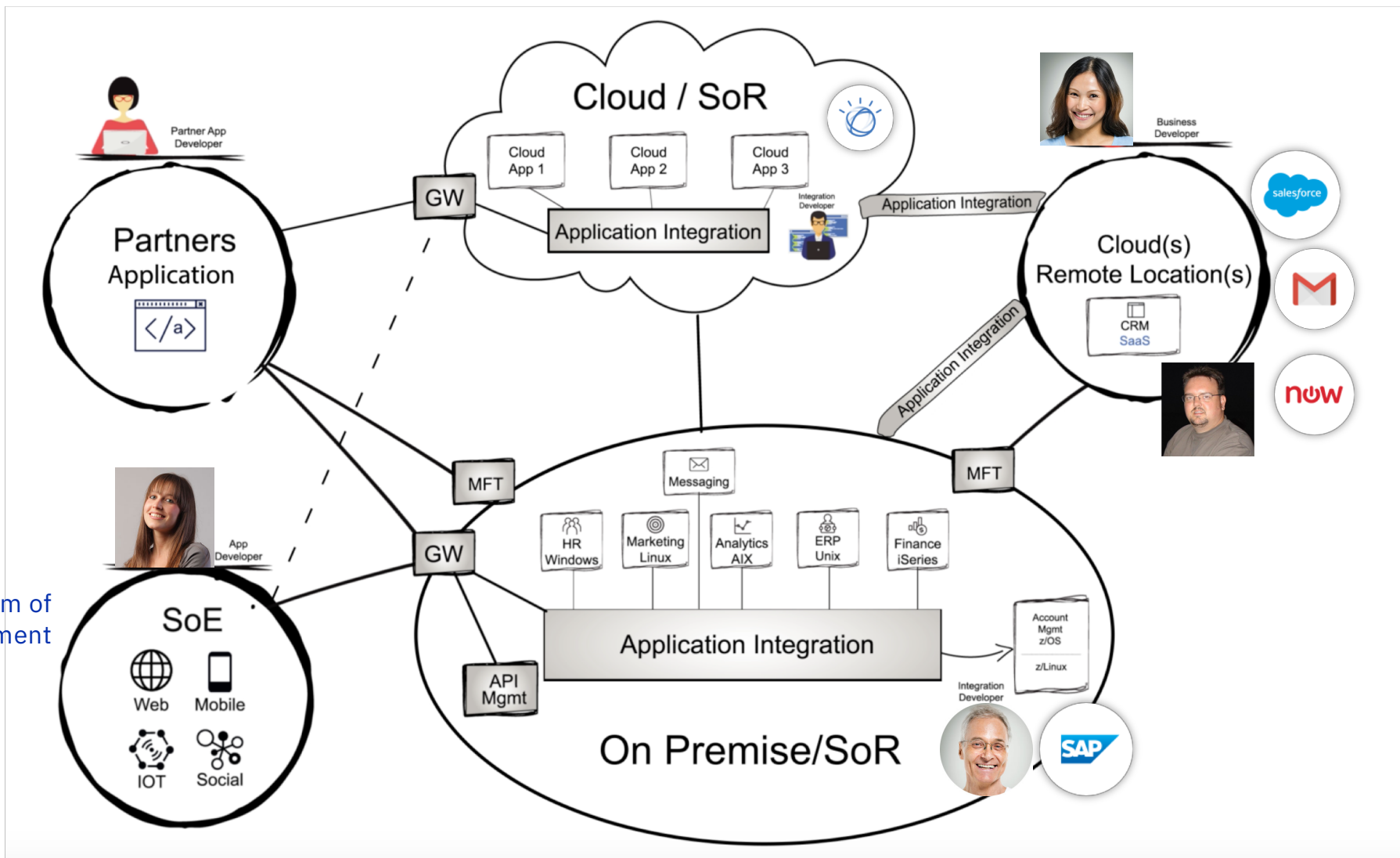Deploy containers wherever and whenever you want, and move them with ease

Available for Docker containers (including Kubernetes and OpenShift) both on-prem and in the cloud

No ILMT requirement

On-prem metering service provided in IBM Cloud Private used to track usage

metering

Cloud / SoR

Cloud App 1
Cloud App 2
Cloud App 3

Application Integration

Integration Developer

Application Integration

Partner App Developer

Partners Application

Business Developer

Cloud(s) Remote Location(s)

CRM SaaS

salesforce

Application Integration

App Developer

MFT

Messaging

MFT

GW

HR Windows
Marketing Linux
Analytics AIX
ERP Unix
Finance iSeries

Account Mgmt z/OS
z/Linux

SoE

Web   Mobile

IOT   Social

GW

API Mgmt

Application Integration

On Premise/SoR

Integration Developer

SAP

SoE : System of Engagement

SoR : System of Records

One
Platform
for
Simple,
Fast,
and
Secure
Multicloud
Integration
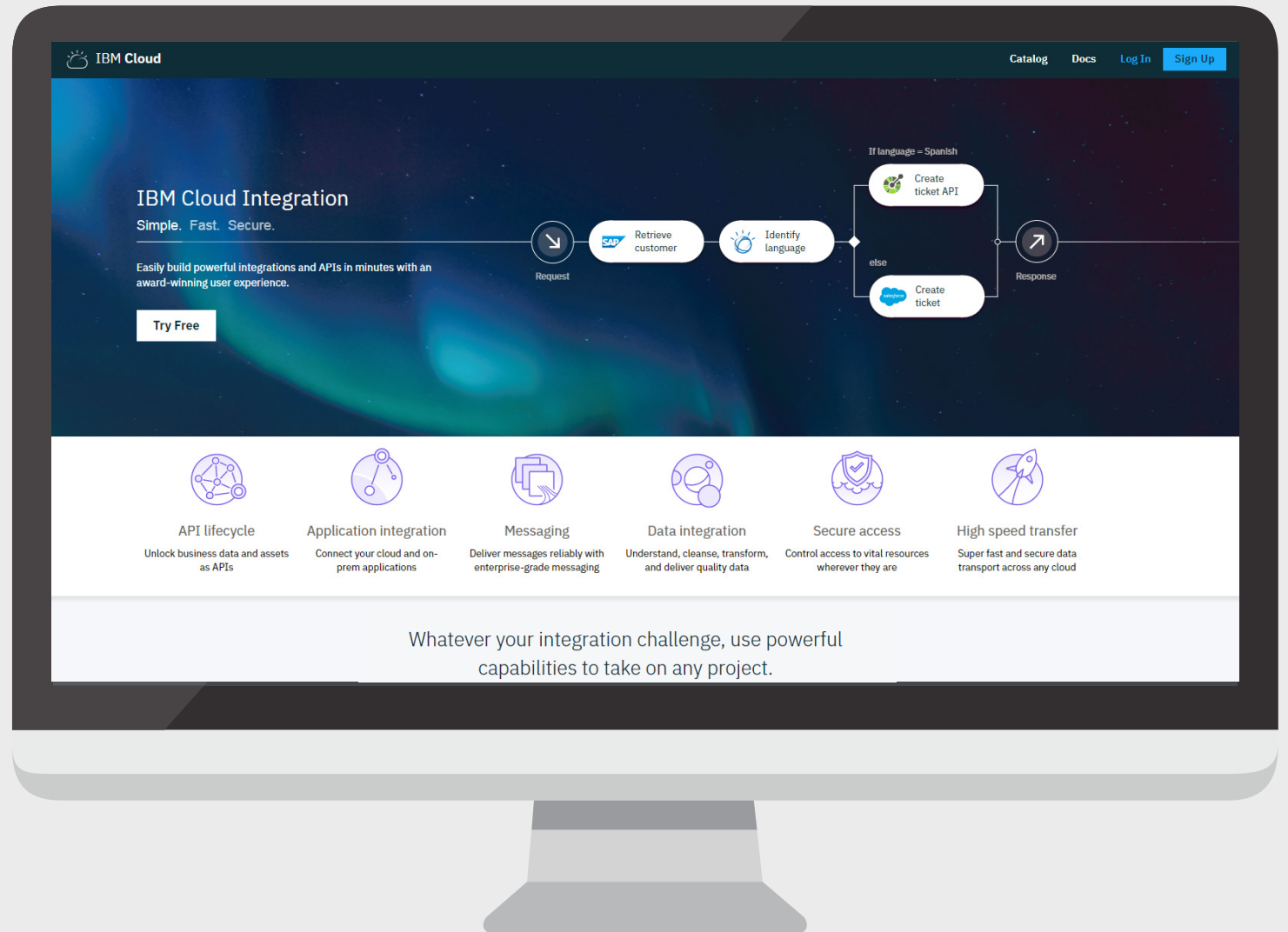
Industry leading capabilities to accelerate business value

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

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3 options de Plates-formes

Par ordre d'apparition

- Application Integration Suite (2017)
  - ▲ AIS Enterprise= API Connect Enterprise + App Connect Enterprise

- Flex Bundle (2018)
  - ▲ Flex Bundle is a novel concept providing maximum flexibility to clients
  - ▲ Clients can buy a number of Flexpoints and distribute them across the following products
    - ☐ API Connect Enterprise, DataPower Gateway Virtual Edition, App Connect Enterprise (formerly IIB), MQ Advanced, Aspera

- Cloud Integration Platform (2019)
  - ▲ A unique Product which unifies the capabilities of these traditional offerings:
    - ☐ API Connect Enterprise, DataPower Gateway Virtual Edition, App Connect Enterprise (formerly IIB), MQ Advanced, Event Streams

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For internal and business partner use only

IBM
Application
Integration
Suite
Enterprise

Unified, enterprise-grade software offering to connect and transform data & APIs to **build new digital experiences across multi-cloud and microservice environments.**

AIS Enterprise brings together the industry leading capabilities of **App Connect Enterprise** and **API Connect Enterprise** as a compelling unified offering containing integration, API management and security features.

Customers can choose to **trade up to AISE** from AIS, App Connect Enterprise, App Connect Standard, IIB Adv, IIB Standard
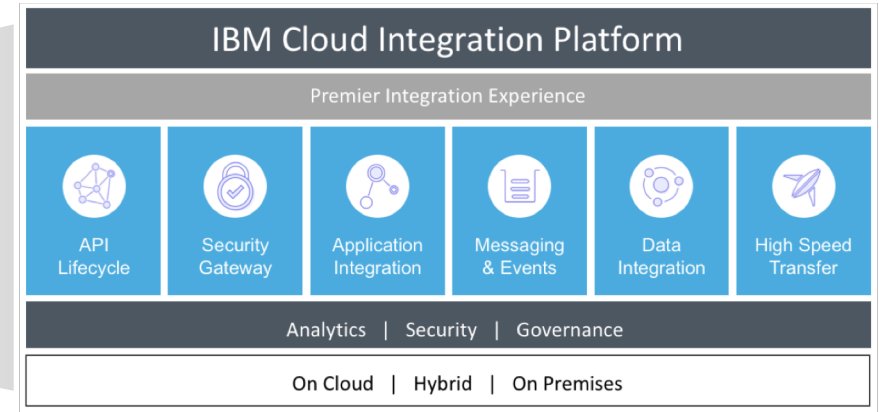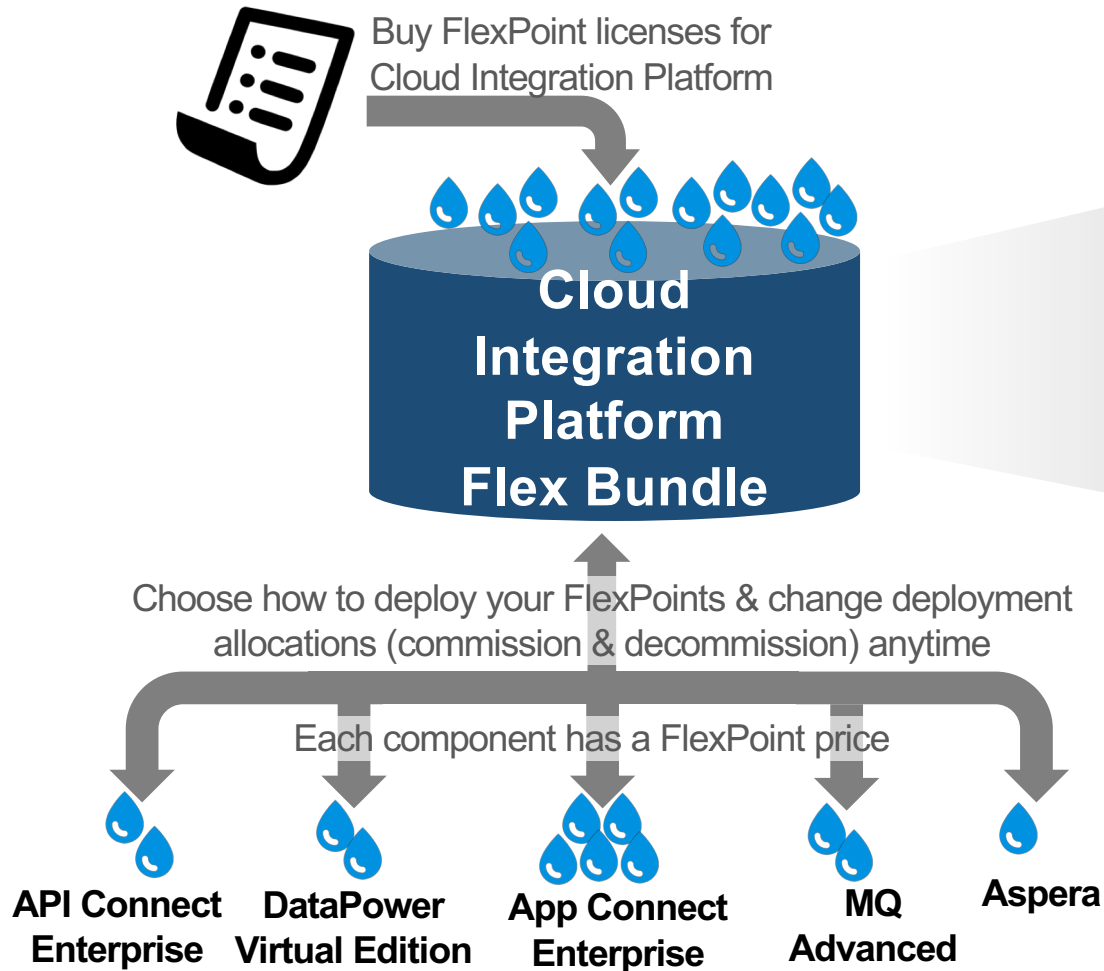
PVU & VPC based parts available (both prod. and non prod.)

1 x PVU/ VPC of AISE = 1 x PVU/VPC ACE + 1 x PVU/ VPC APICE

To utilize the full breadth of capabilities, a minimum recommended install of 12 PVU is advised

A full sizing is strongly advised to determine the right quantity of cores/PVUs for your customer

Introducing the IBM Cloud Integration Flex Bundle

Buy FlexPoint licenses for Cloud Integration Platform

Cloud Integration Platform Flex Bundle

Choose how to deploy your FlexPoints & change deployment allocations (commission & decommission) anytime

Each component has a FlexPoint price

API Connect Enterprise

DataPower Virtual Edition

App Connect Enterprise

MQ Advanced

Aspera

IBM Cloud Integration Platform

Premier Integration Experience

API Lifecycle	Security Gateway	Application Integration	Messaging & Events	Data Integration	High Speed Transfer

Analytics | Security | Governance

On Cloud | Hybrid | On Premises

IBM Cloud Integration Platform Flex Bundle contains entitlements to:
- API Connect Enterprise
- DataPower Gateway Virtual Edition
- DataPower Gateway Modules
- App Connect Enterprise (formerly IIB)
- MQ Advanced
- Aspera

How does the Cloud Integration Flex Bundle work?

THIS IS EASY!!!!

- **Trade Up existing entitlements** to Cloud Integration Flex Bundle

- Buy Cloud Integration Platform Flex Bundle via a single part number

- **Use** IBM Cloud Integration products **as needed**

- **Change** which products are used **as needs change**

Perpetual License

Component Offering	Metric	FlexPoints
IBM API Connect Enterprise	PVU	368
IBM API Connect Enterprise Non Production	PVU	185
IBM App Connect Enterprise (IBM Integration Bus)	PVU	1,386
IBM App Connect Enterprise Non Production	PVU	693
IBM Aspera High-Speed Transfer Server	Install	79,750
IBM Aspera Sync Application	Install	9,108
IBM DataPower Gateway Virtual Edition	PVU	285
IBM DataPower Gateway Virtual Edition Non Production	PVU	202
IBM DataPower Gateway Virtual Edition For Developers	Auth User	13,860
Integration Module for IBM DataPower Gateway Virtual Edition	PVU	100
Application Optimization Module for IBM DataPower Gateway Virtual Edition	PVU	81
B2B Module for IBM DataPower Gateway Virtual Edition	PVU	113
IBM MQ Advanced	PVU	191
IBM MQ Advanced High Availability Replica	PVU	39
IBM MQ Advanced for Developers	Install	3,102

A calculator can easily convert your PVU/Installs/API calls etc. into FlexPoints quantity you need

Online Calculator: https://flexpoint.mybluemix.net/

IBM Cloud Integration Platform: Includes

The customer can buy IBM Cloud Integration Platform through a single part number. The offering comes with capabilities powered by market-leading IBM programs as supporting programs:

- **Cloud Integration Platform** Navigator
- **API Connect Enterprise** to manage and create APIs and microservices
- **App Connect Enterprise** to integrate any-to-any applications
- **MQ Advanced** - the best messaging solution in the industry
- **Event Streams** –enterprise Kafka
- **Data Power Gateway Virtual Edition** for security and API Gateway

Customers can deploy as much of any capability as they need simply by licensing additional cores of Cloud Integration Platform

Cloud Integration Platform: overview

Improved UX:
-Install
-Platform Navigator
-SSO and logs
-Single VPC Price

Capabilities delivered leveraging IBM's market leading Integration offerings

Deploys on Docker Kubernetes Foundation (included) on x86 architecture

IBM Cloud Integration Platform

| ACE | APIC | DP |
| MQ | ES | ASP*. |

IBM Cloud Private foundation

*Aspera CLI included to connect to a separate Aspera server

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- The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract.

- The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

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