



# IBM Hybrid Integration Directions

Dave Arnold

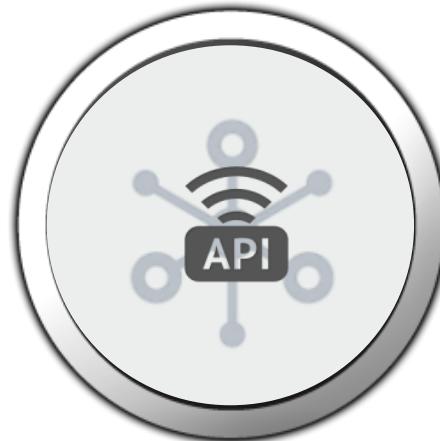
*Executive I.T Specialist*

InterConnect 2016  
**outthink limits**

# Agenda

- Exploring the Trends driving the integration market
  - #1 Integration across the Hybrid Environment
  - #2 Integration outside of Central I.T.
  - #3 Digital Transformation and the API Economy
- An Architecture for the Digital Business
- Hybrid Integration Use Case Introduction
- Building out the Hybrid Integration Use Case
- IBM Integration Portfolio

# Trends driving the integration market

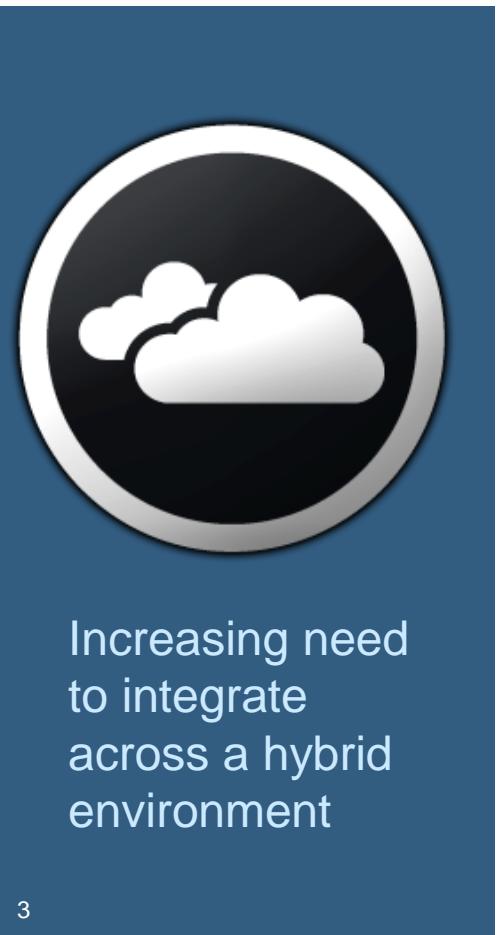


**#1** Increasing need  
to integrate  
across a hybrid  
environment

**#2** Integration  
being adopted  
in the line of  
business

**#3** Digital transformation, API  
Economy and the rise of  
Microservices

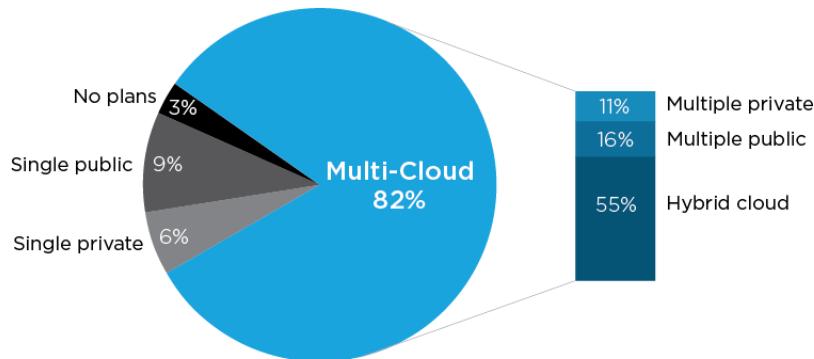
# Trend #1—Hybrid



As organizations' data and applications become more decentralized, integration is gaining focus to the point of being a boardroom topic.

Respondents with 1000+ Employees

**82% of enterprises  
have a multi-cloud strategy**



Source: RightScale 2016 State of the Cloud Report

# IBM Connect to Cloud – Supporting Hybrid Use Cases



## Create new apps

- Java, Node and Swift Runtimes
- Mobile and Web Application Services
- Blockchain DevOps Services



## Connect existing apps and data

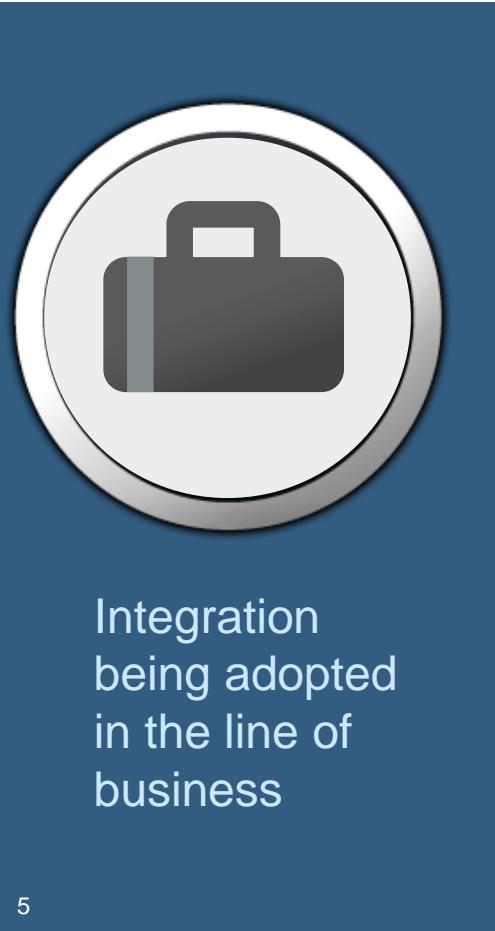
- API, App and Message Connect and DataWorks Services
- WebSphere Connect, WebSphere Blockchain Connect
- zOS Connect for IMS, CICS, WebSphere, MQ & DB2



## Optimize any app

- “on Cloud” managed environments
- Docker Container and VM support
- Cloud Orchestration and Brokerage

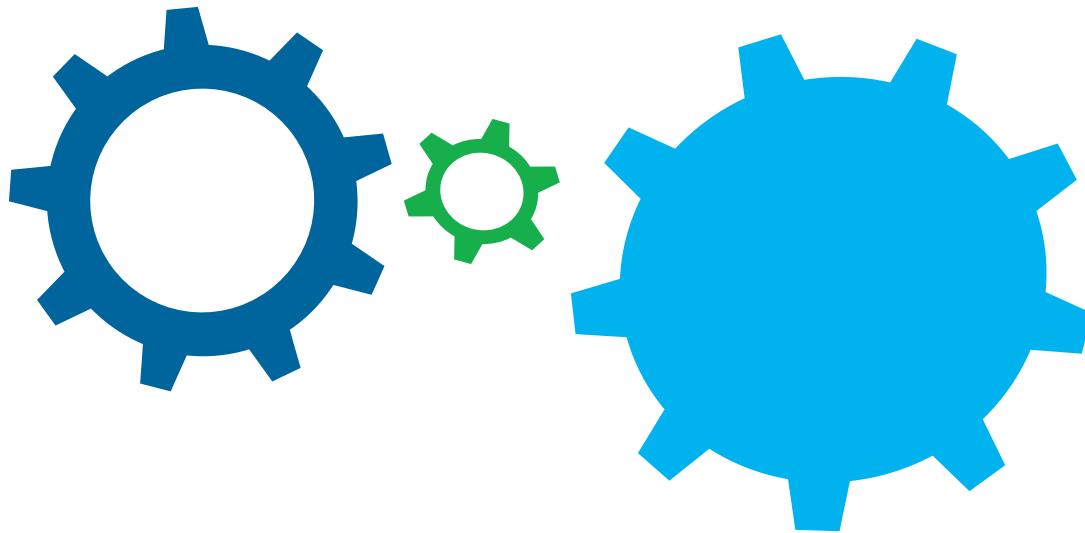
## Trend #2—Integration needs outside IT



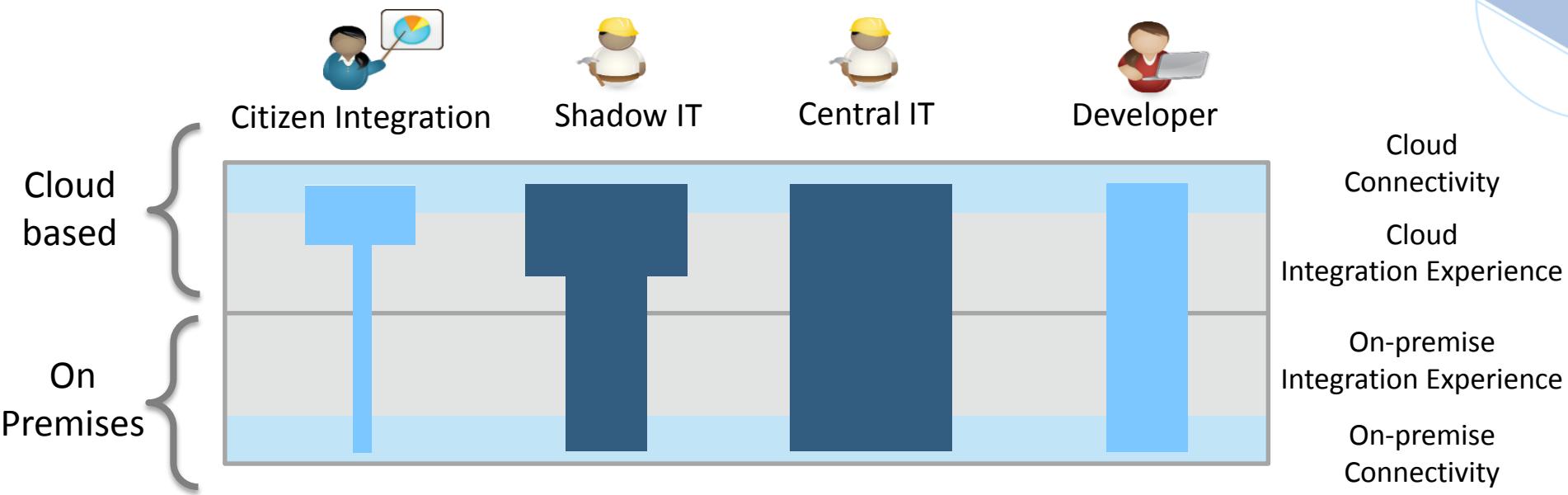
Integration  
being adopted  
in the line of  
business

By 2017, in large organizations, at least 65% of new integration flows will be developed outside the control of IT departments.

-Gartner



# Personas in support of Hybrid Integration



- **Anyone can do it**
- Zero code
- Cloud native
- Many pre-configured connectors
- **Technical person in a business environment**
- Cloud native with on prem options
- Friendly modern style code
- Graphical options
- **Skilled integration practitioners**
- Graphical assist, but full code environment.
- Hybrid deployment
- Connect to anything
- **Skilled Frontend/microservices Developers**
- Leverage APIs surfaced by Shadow/Central I.T
- API orchestration

# Integration Personas high level product alignment



Citizen Integration



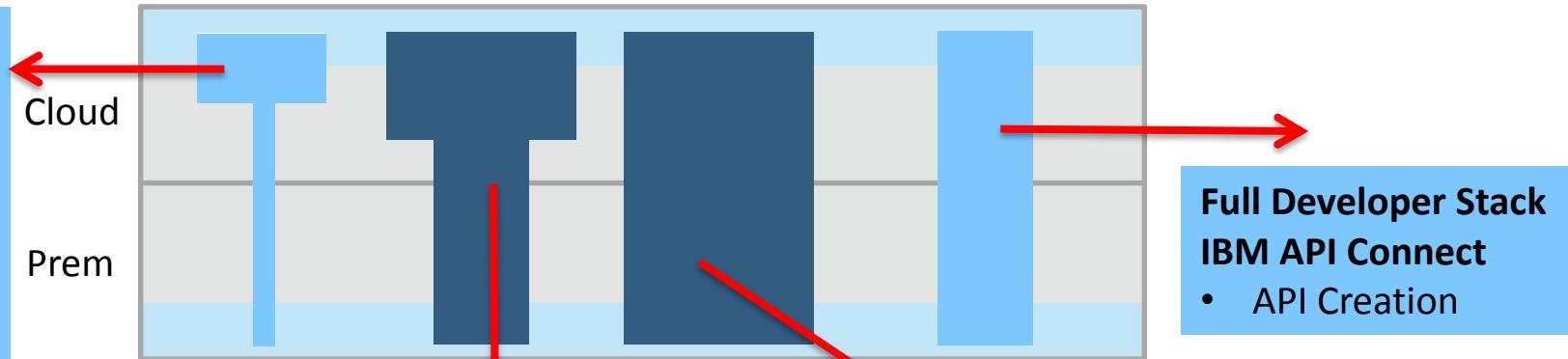
Shadow IT



Central IT



Developer



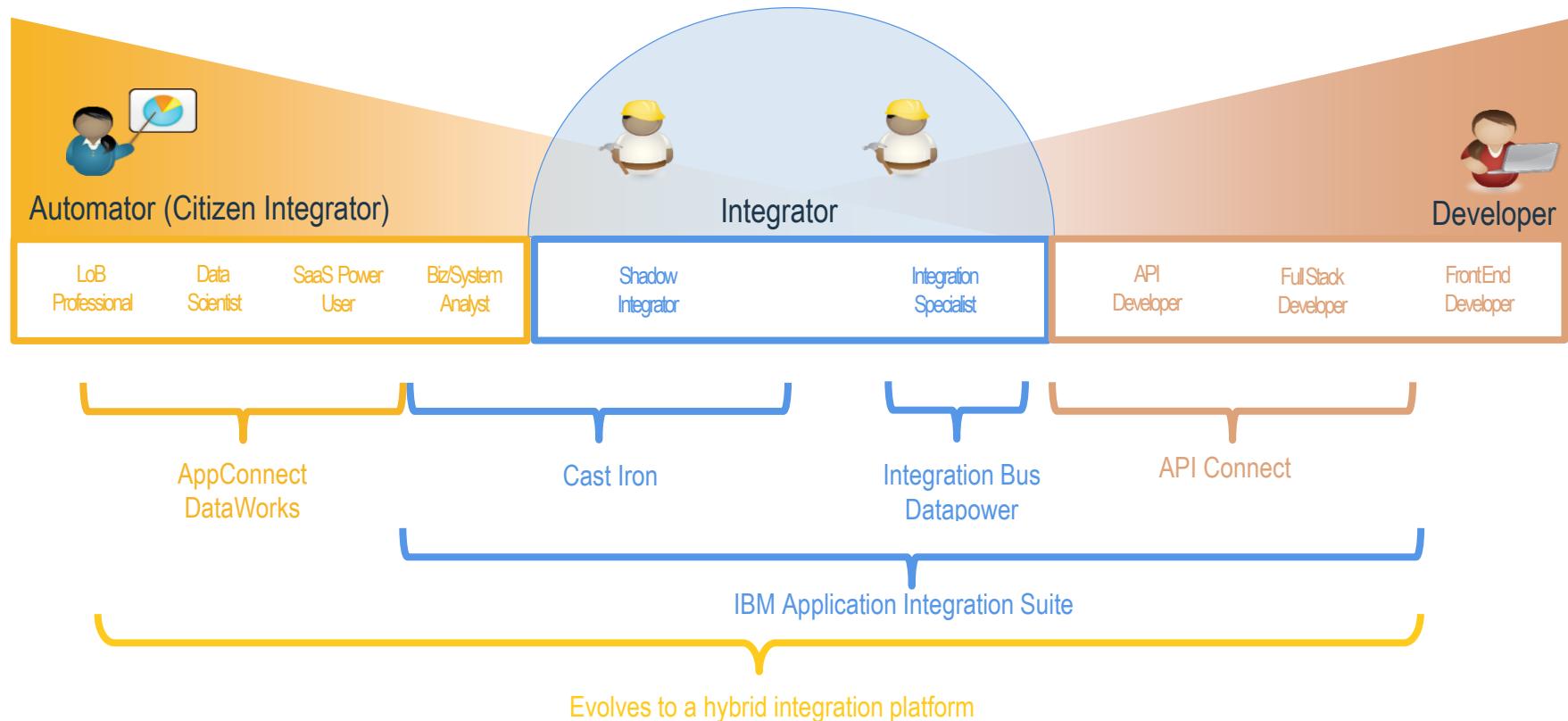
IBM  
AppConnect  
IBM API  
Connect  
• API  
Discovery

Cast Iron 7.5.1  
IBM API Connect  
• API Management/Creation

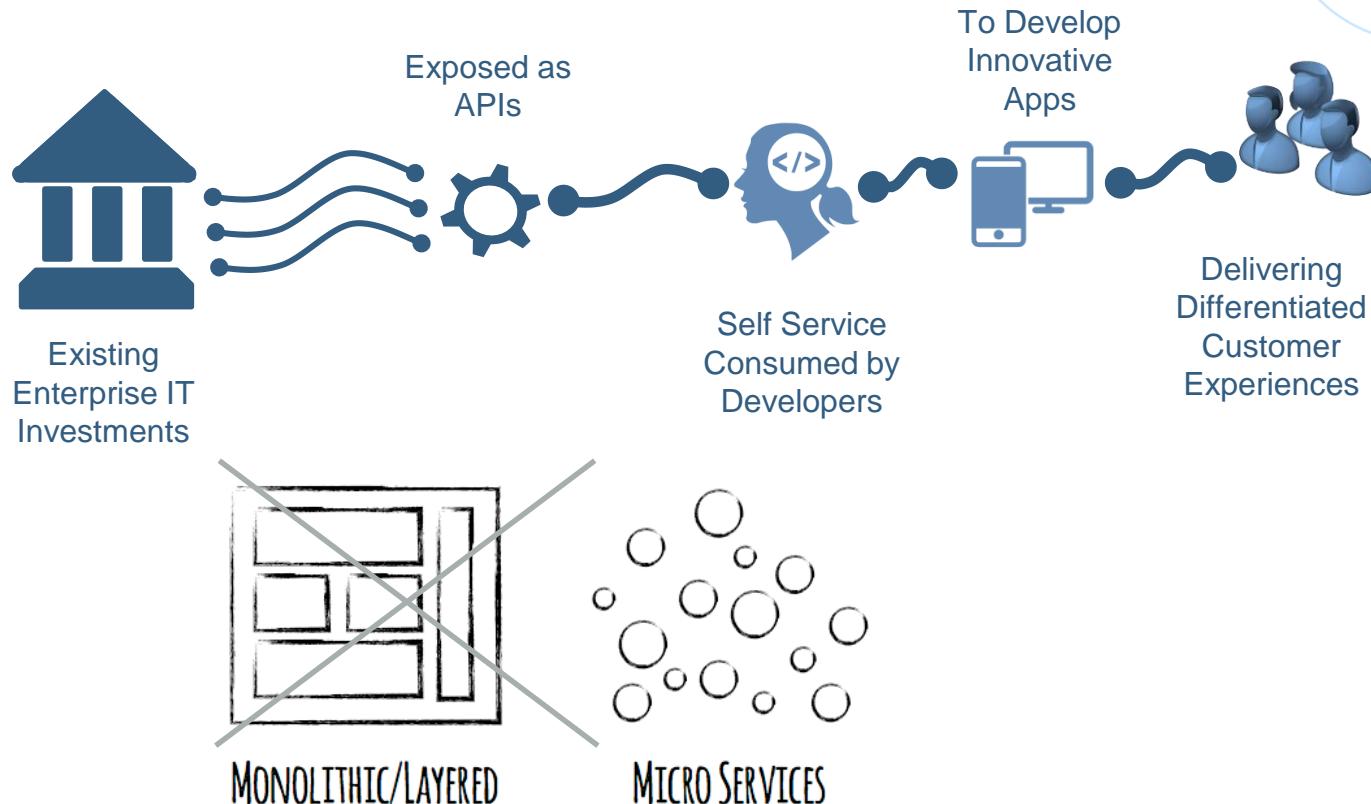
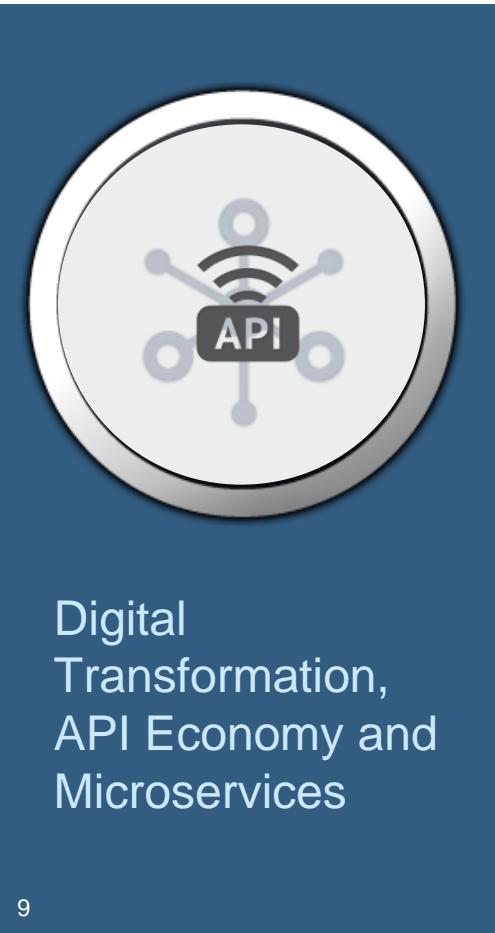
IBM Application Integration Suite  
• IBM Integration Bus (ESB)  
• Cloud Integration  
• IBM API Connect  
• API Management/Creation

DataPower Gateways

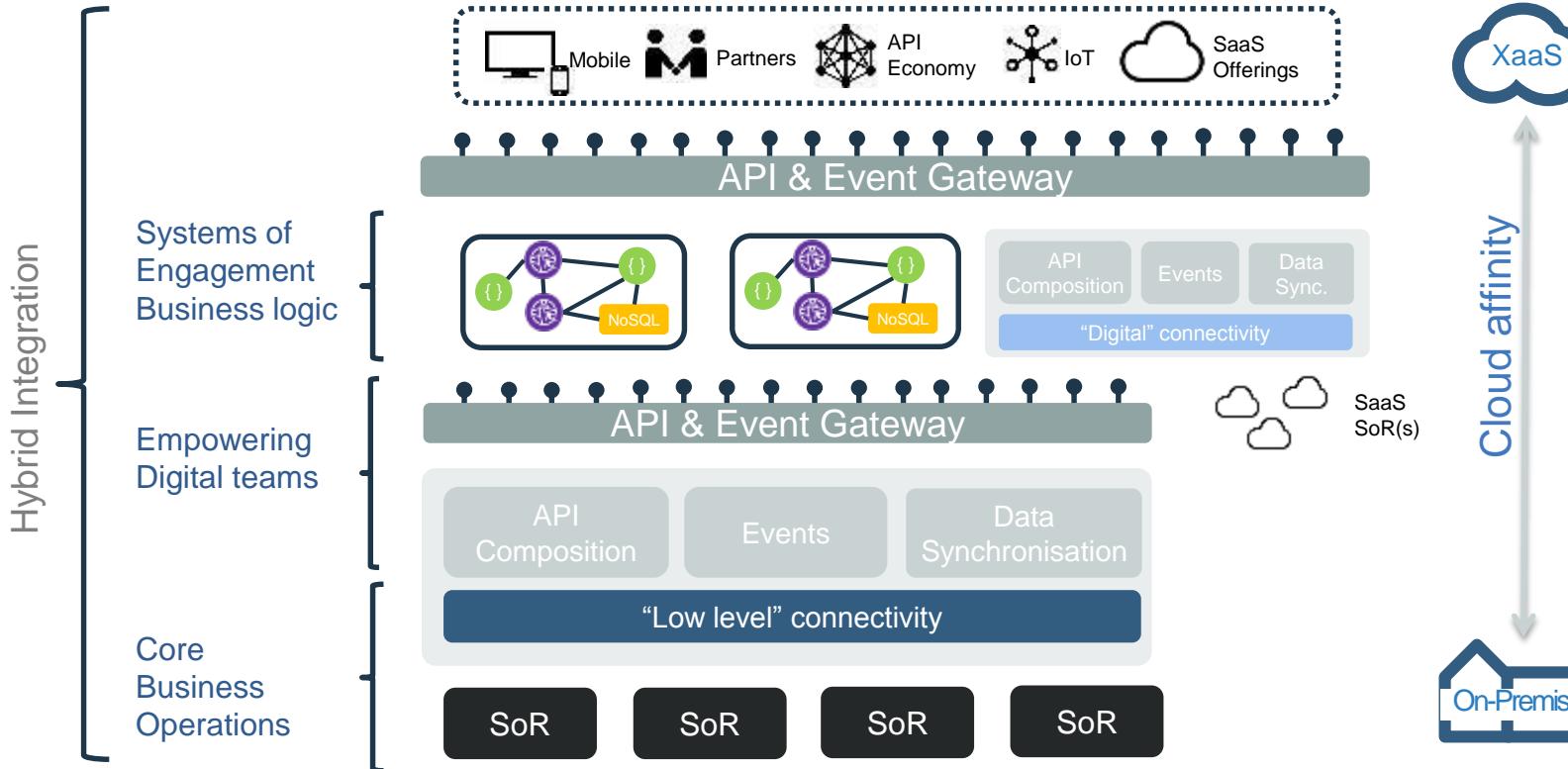
# Summary - IBM Integration Capability by Persona

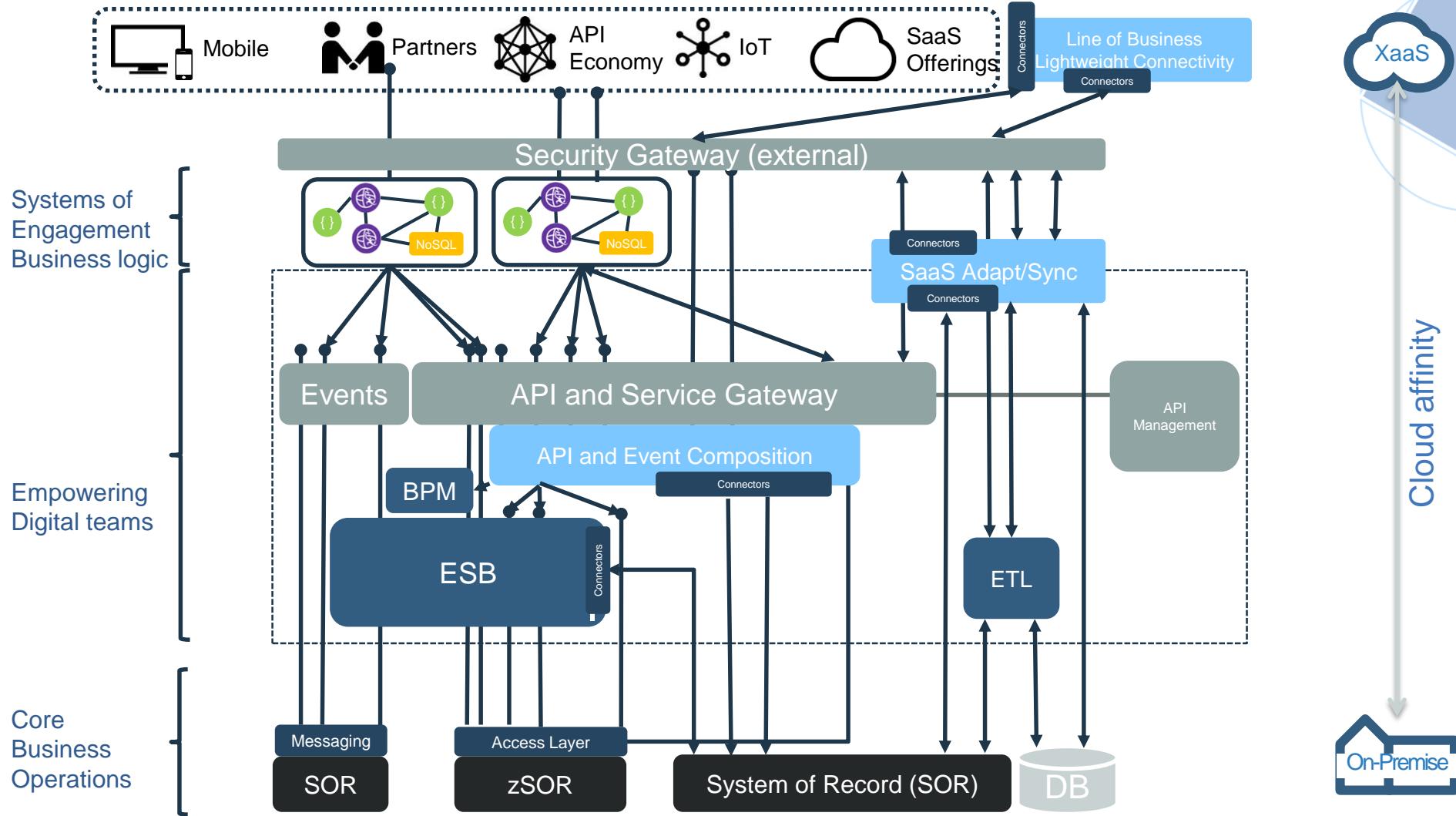


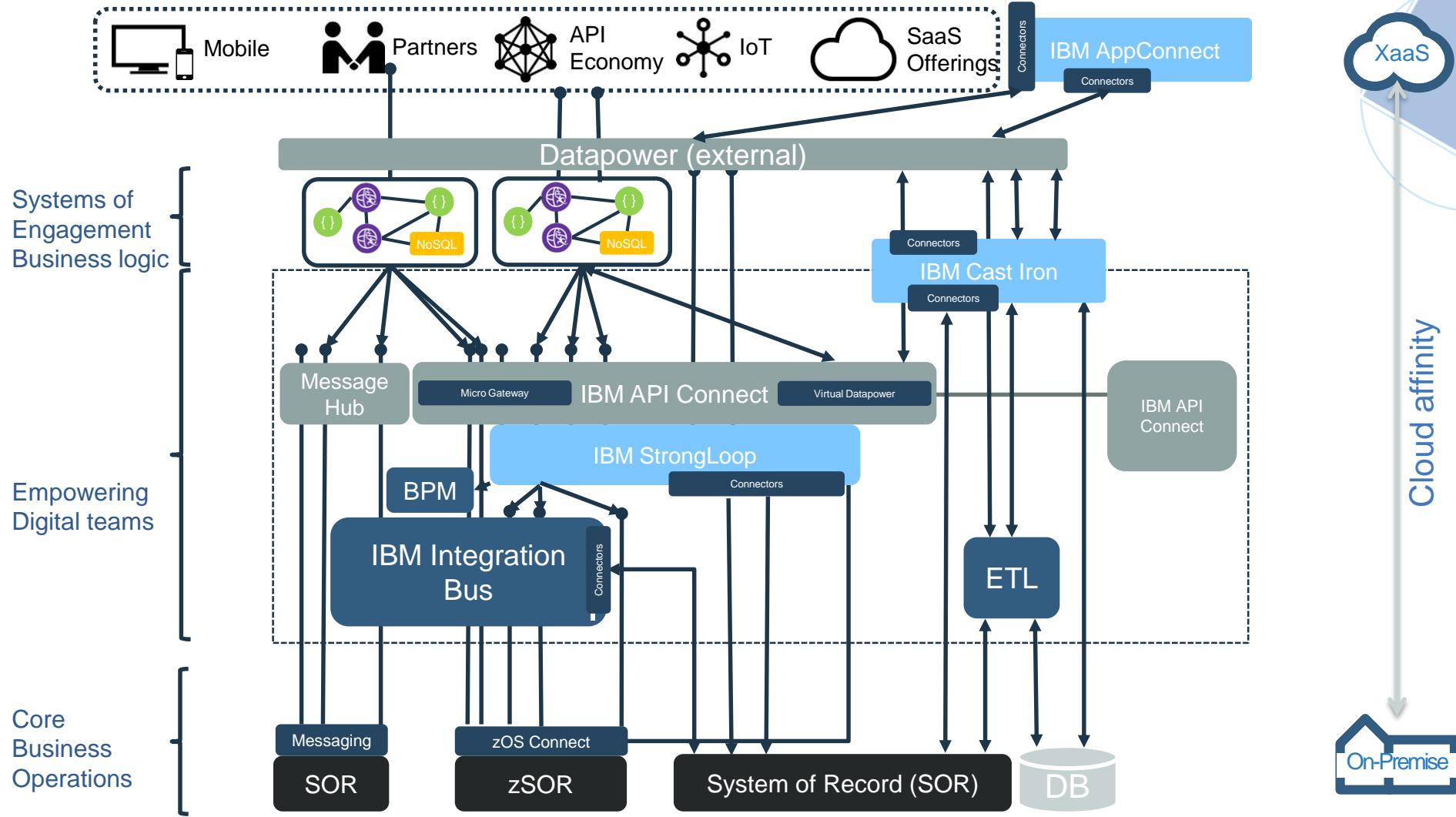
# Trend #3—Digital Transformation

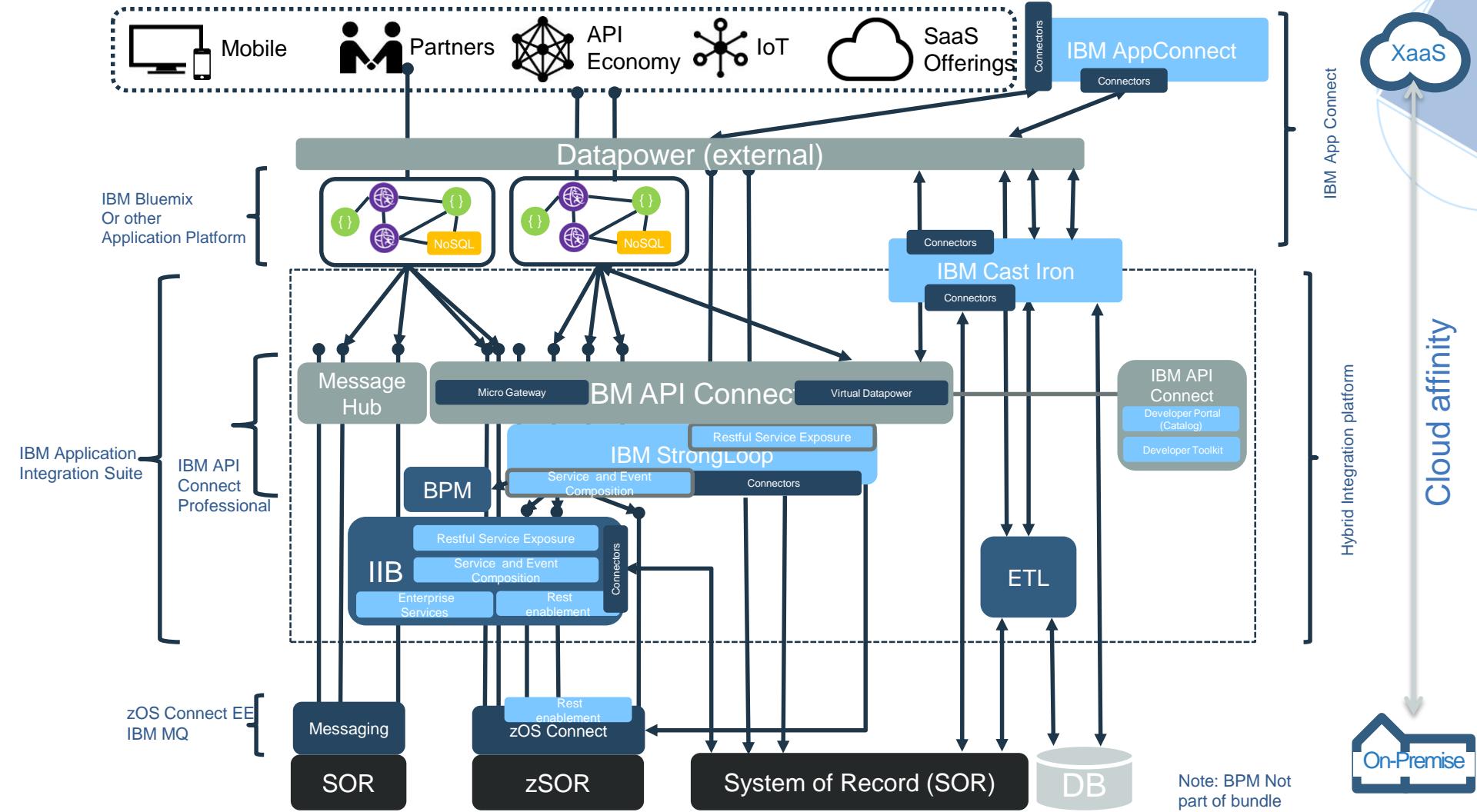


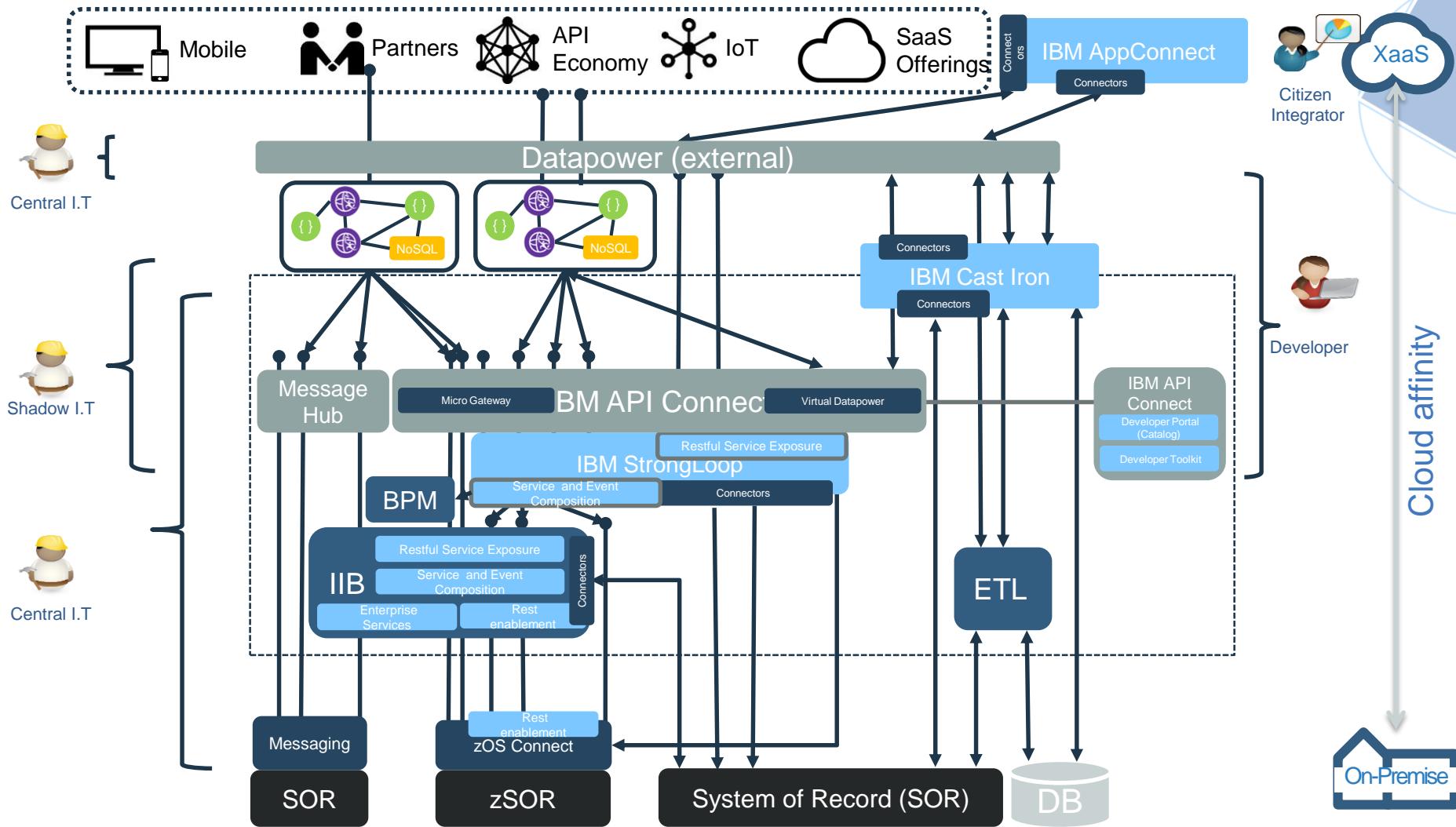
# An Architecture for Digital Business











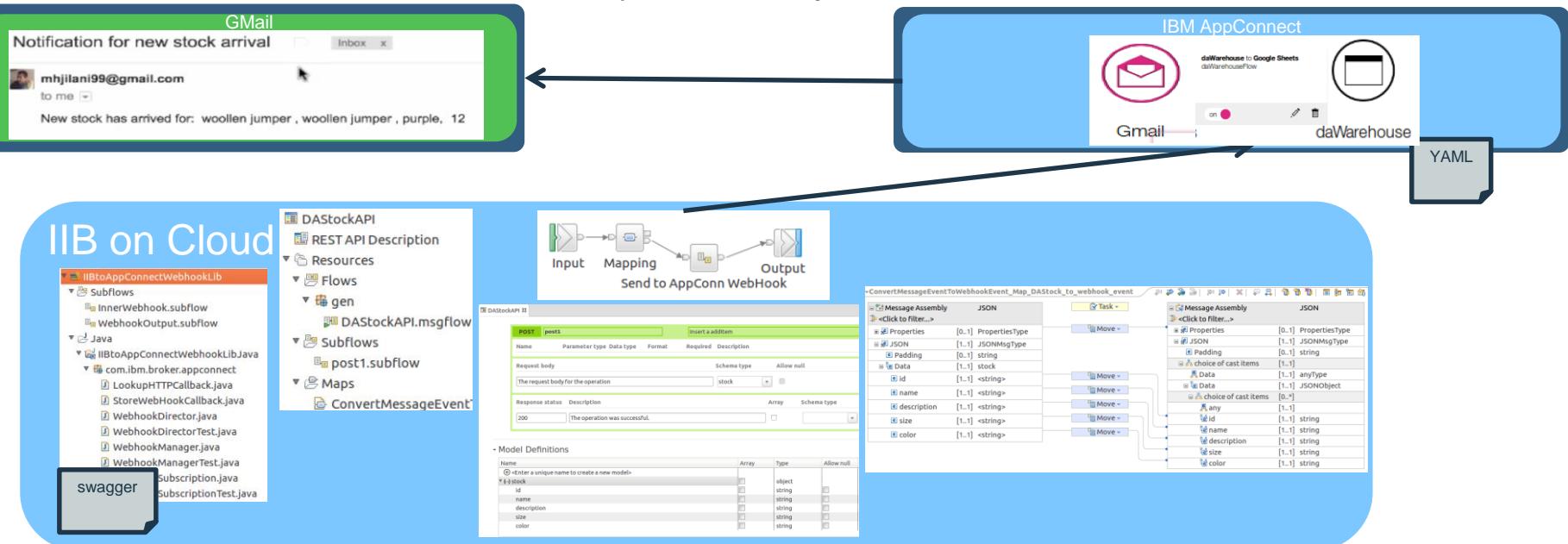


# Hybrid Integration Use Case Introduction

InterConnect 2016  
**outthink limits**

# Typical Cloud to On-premise Integration Demo

A typical integration demo. The type you will see all over the web from our competitors and from IBM ourselves. Showcasing tooling and ignoring security, gateways, access to on-prem data, Socialization of interfaces to the developer community etc etc etc.



Rapid Demo Part 1: IIB artifact build

Rapid Demo Part 2: IBM AppConn configuration

3<sup>rd</sup> Party  
Cloud 1

3<sup>rd</sup> Party  
Cloud 2

Public Cloud  
Dedicated

On-premise



# Reality of Cloud to On-premise Integration Landscape



Citizen  
Integrator



Developer



Shadow I.T



Central I.T



Secure Gateway Service

IBM API Connect

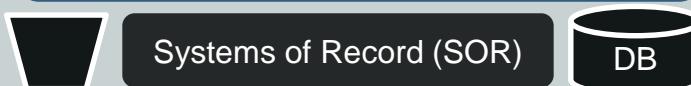
Instance Runtimes

Platform as a Service

Secure Gateway

Integration Bus

Systems of Record (SOR)





# IBM view of Cloud to On-premise Integration Landscape



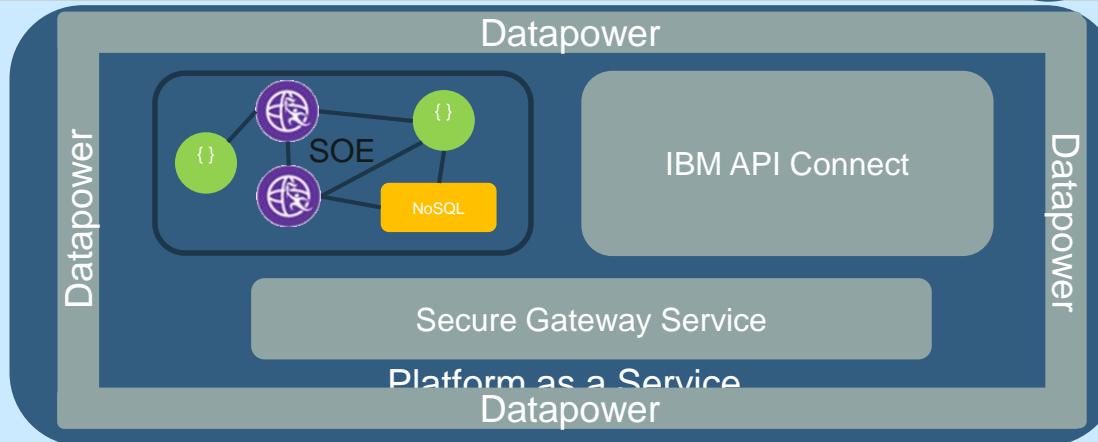
Citizen  
Integrator

3rd Party  
Cloud SaaS



IBM Cloud  
SaaS

IBM Bluemix



Developer



Shadow I.T

On-premise

IBM Secure Gateway Client

IBM Integration Bus



Systems of Record (SOR)



DB



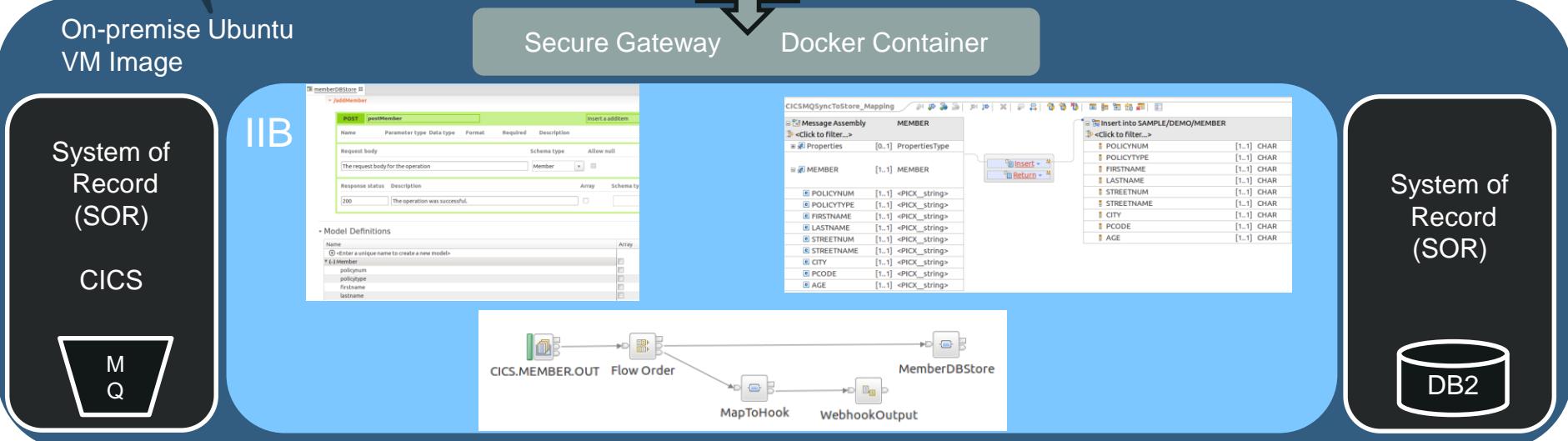
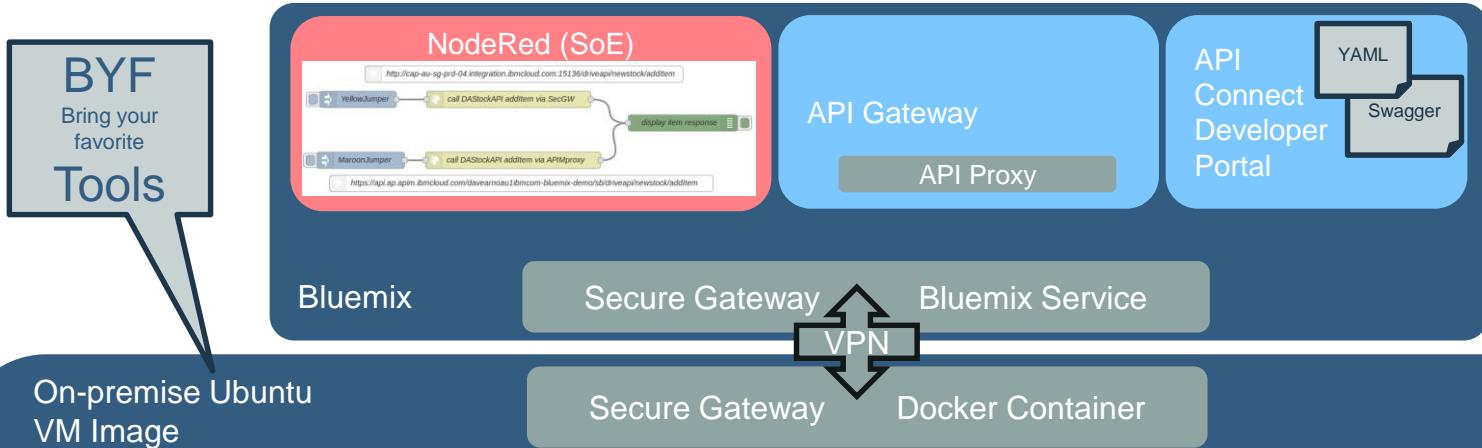
Central I.T

**GoogleSheets**

daMemberList	POLICYNUM	POLICYTYPE	FIRSTNAME	LASTNAME	STREETNUM	STREETNAME	CITY
	12345678	HOME	DAVID	ARNOLD	14	MUSTON	SYDNEY
	32445678	HOME	Pete	Jessup	33	Park Avenue	Melbourne

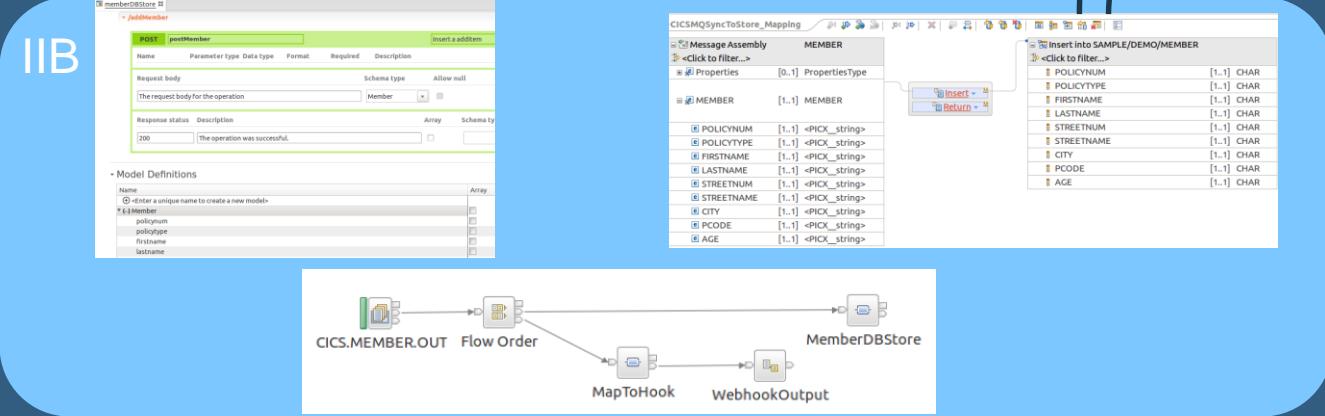
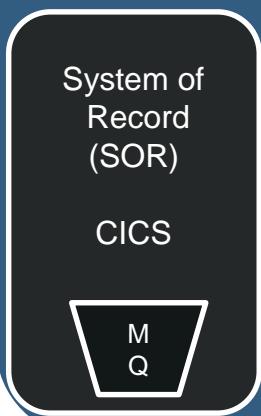
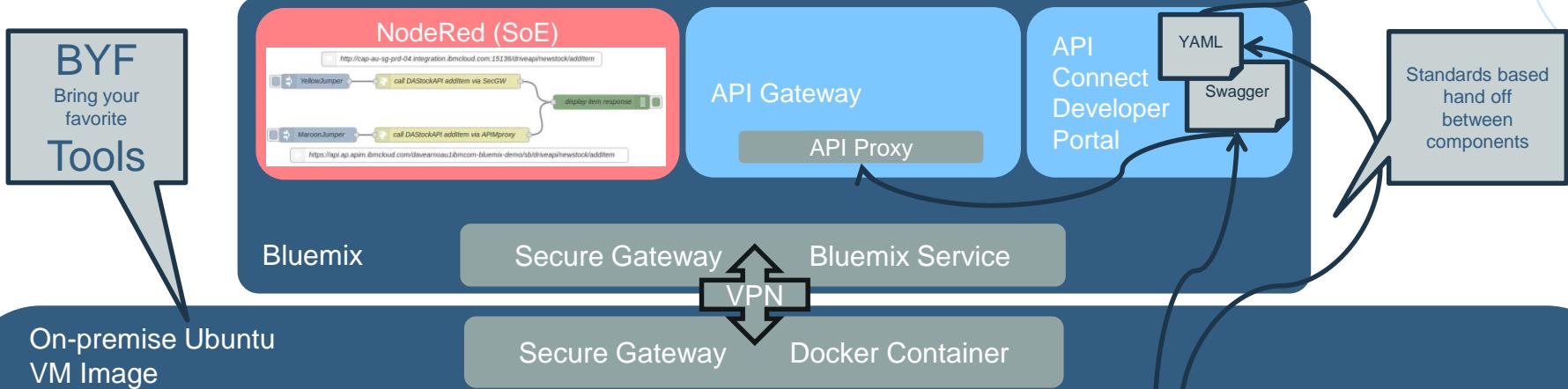
**IBM AppConnect**

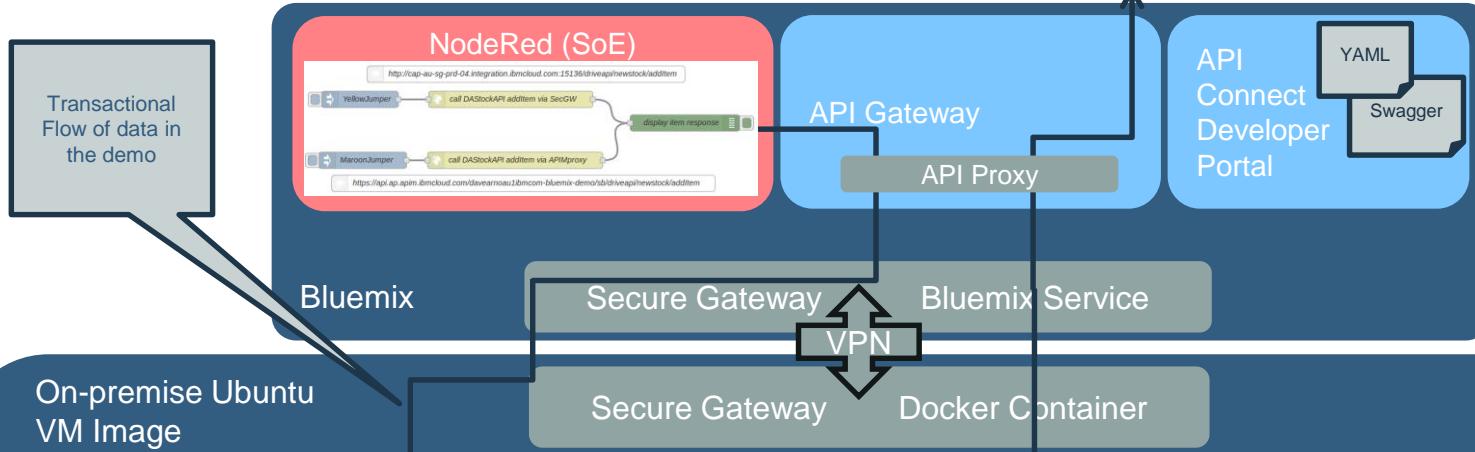
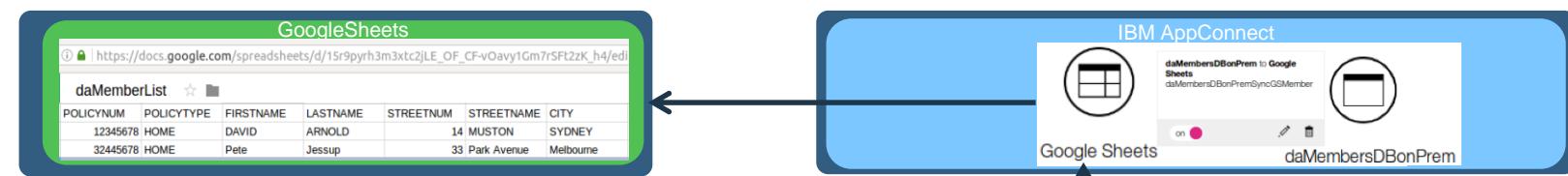
Google Sheets → daMembersDBonPrem



**GoogleSheets**

POLICYNUM	POLICYTYPE	FIRSTNAME	LASTNAME	STREETNUM	STREETNAME	CITY
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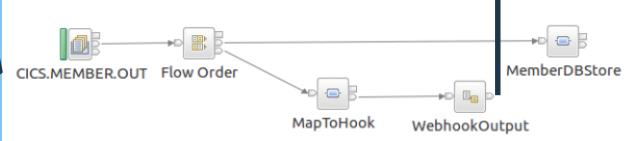
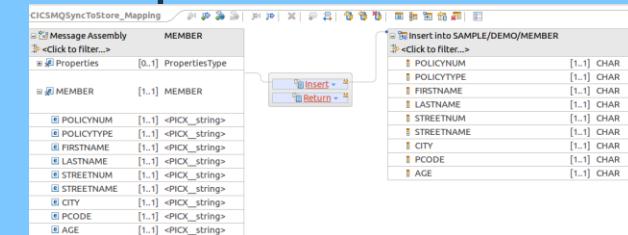
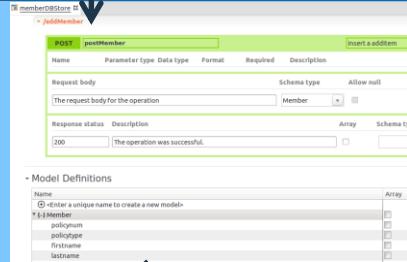




On-premise Ubuntu VM Image

IIB

System of Record (SOR)  
CICS



System of Record (SOR)

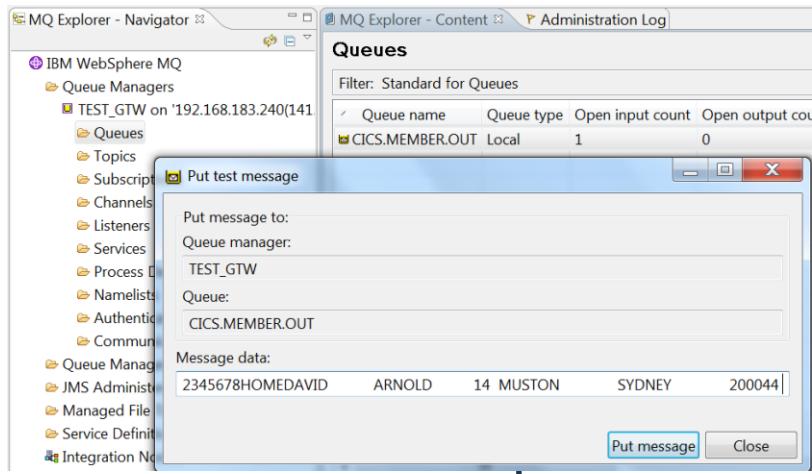




# Building out the end to end Hybrid Integration Use Case

InterConnect 2016  
**outthink limits**

#ibminterconnect



## 1.OnPremSetUp

## 2.ModellingCICSdata

## 3.BuildMQtoDB2BaseIntegration

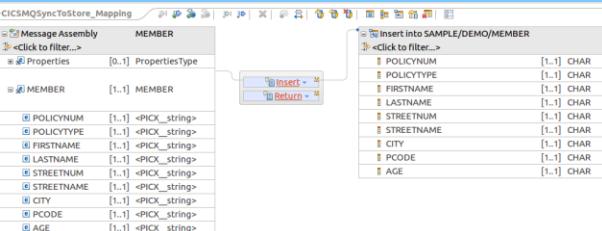
On-premise Ubuntu  
VM Image

System of  
Record  
(SOR)

CICS



IIB



System of  
Record  
(SOR)



**Z REST Easy**

POST ▾ http://localhost:7800/mem1 Send

+ Headers

- Data

Select one of the options below to include data with the request.

Custom

Enter the data and its corresponding MIME type below.

MIME type

```
{
  "lastname": "ARNOLD",
  "streetnum": "100",
  "streetname": "Usecase Street",
  "city": "Demoville",
  "PCODE": "2000",
  "age": "44"
}
```

On-premise Ubuntu VM Image

System of Record (SOR)

CICS



IIB

memberDBStore 25 → postMember

POST postMember Insert a addition

Name Parameter type Data type Format Required Description

Request body Schema type Member Allow null

The request body for the operation

Response status Description Array Schema type

200 The operation was successful.

- Model Definitions

Name

- ④ Enter a unique name to create a new model.
- \* Member
  - policynum
  - politype
  - lastname
  - firstname
  - streetname
  - streetnum
  - city
  - PCODE
  - age

CICSMQSyncToStore\_Mapping

Message Assembly MEMBER

Properties [0..1] PropertiesType

MEMBER [1..1] MEMBER

POLICYNUM [1..1] <PKX\_string>

POLITYPE [1..1] <PKX\_string>

FIRSTNAME [1..1] <PKX\_string>

LASTNAME [1..1] <PKX\_string>

STREETNUM [1..1] <PKX\_string>

STREETNAME [1..1] <PKX\_string>

CITY [1..1] <PKX\_string>

PCODE [1..1] <PKX\_string>

AGE [1..1] <PKX\_string>

Insert into SAMPLE/DEMO/MEMBER

Return

CICS.MEMBER.OUT

MemberDBStore

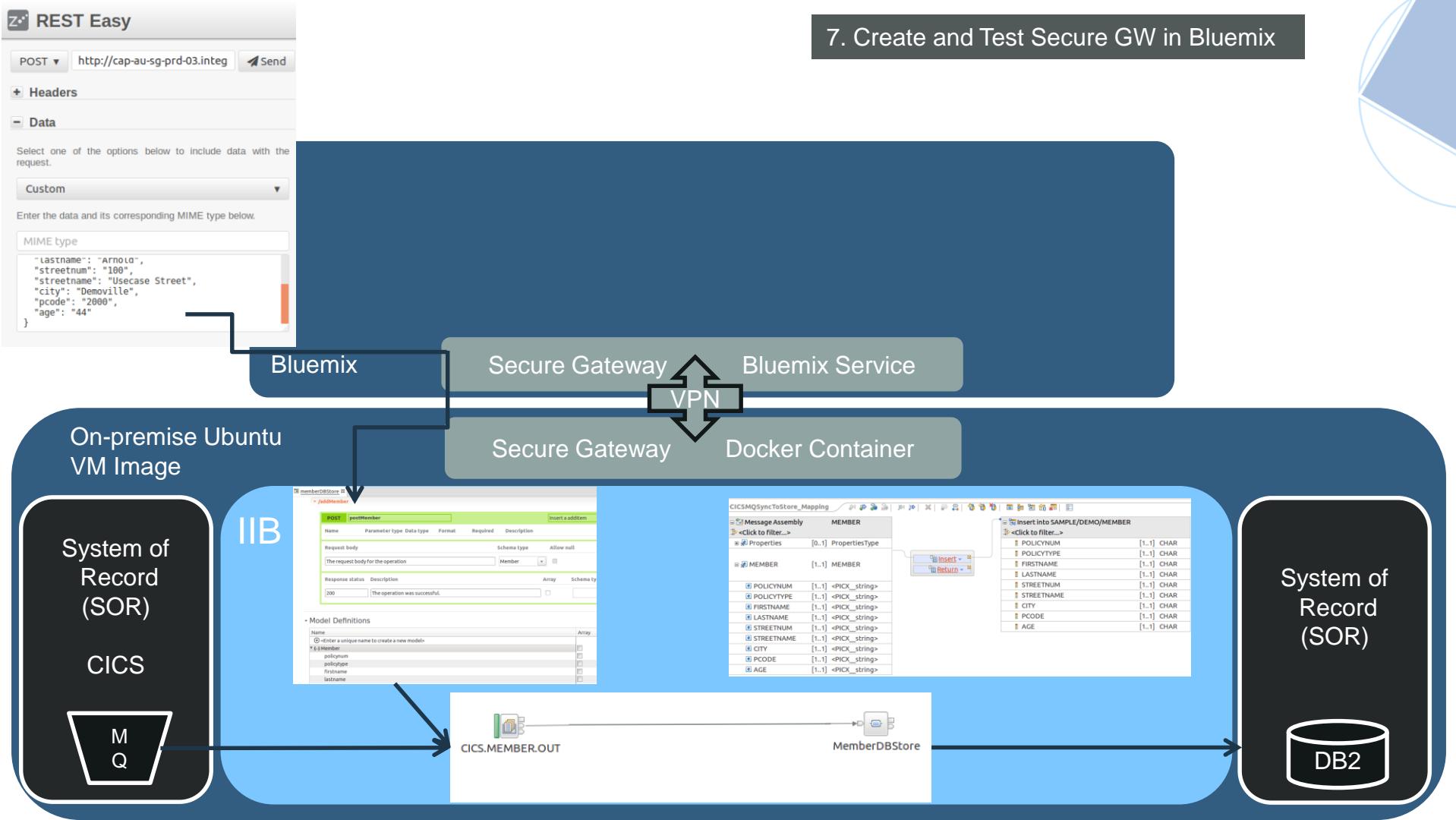
System of Record (SOR)



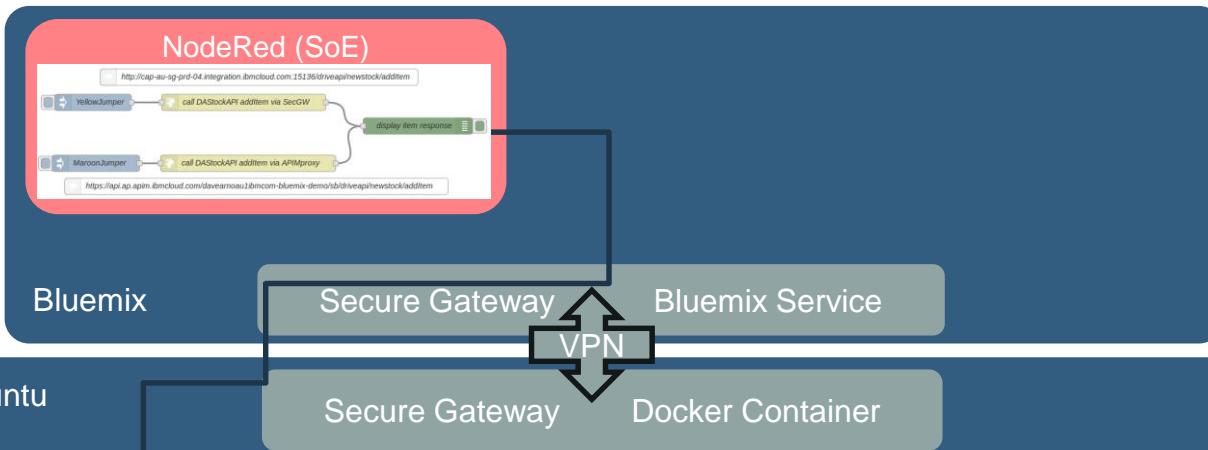
## 4. Build Member API By Hand

## 5. Test Member API to MQ

## 6. Test Member API to DB2



## 8. Build and Test NodeRed App

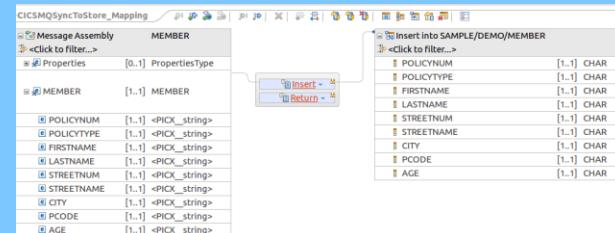
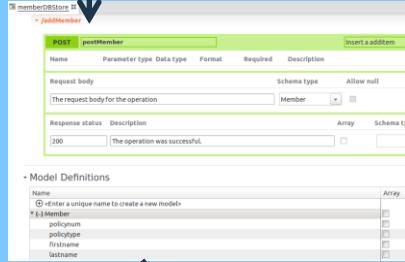


On-premise Ubuntu  
VM Image

System of  
Record  
(SOR)  
CICS

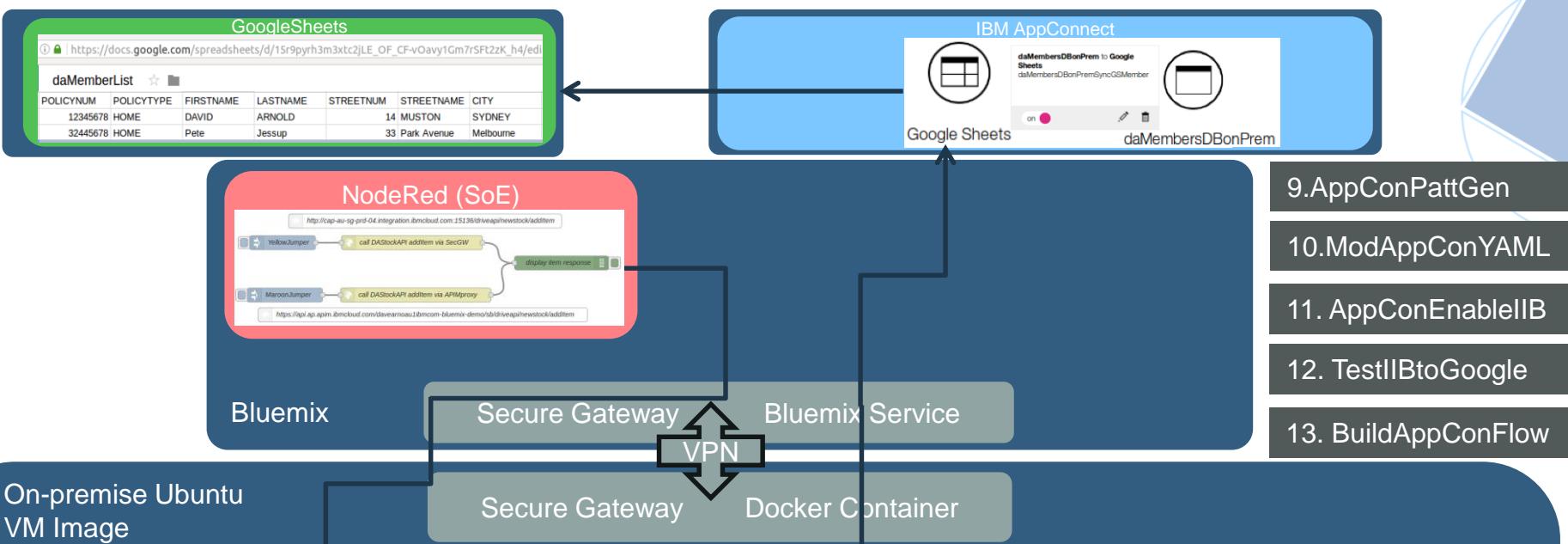


IIB

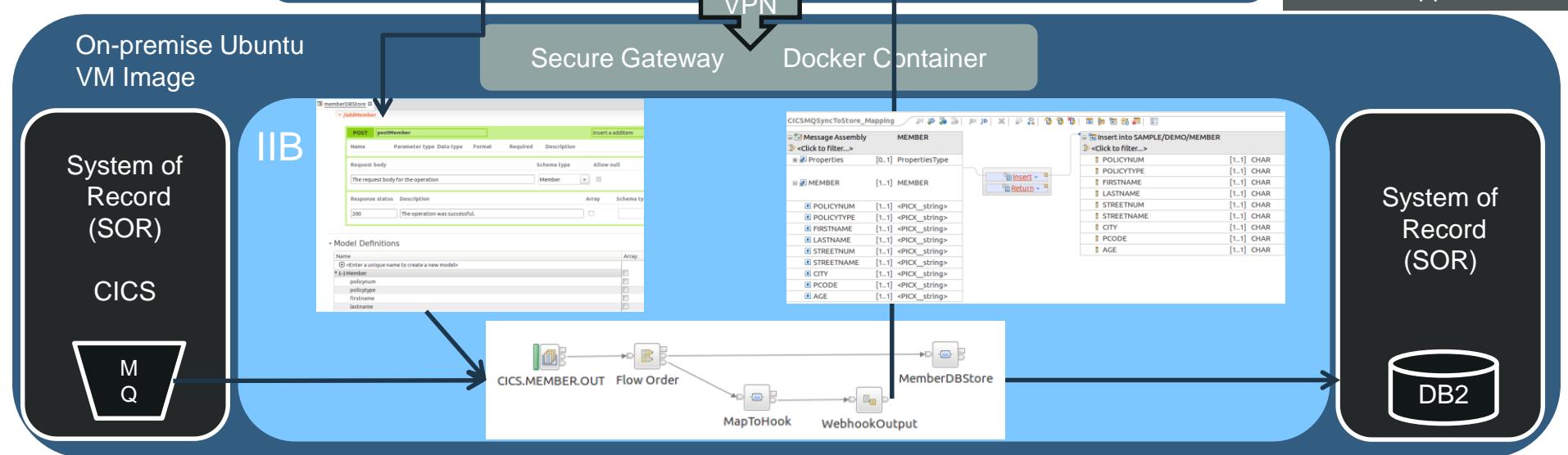


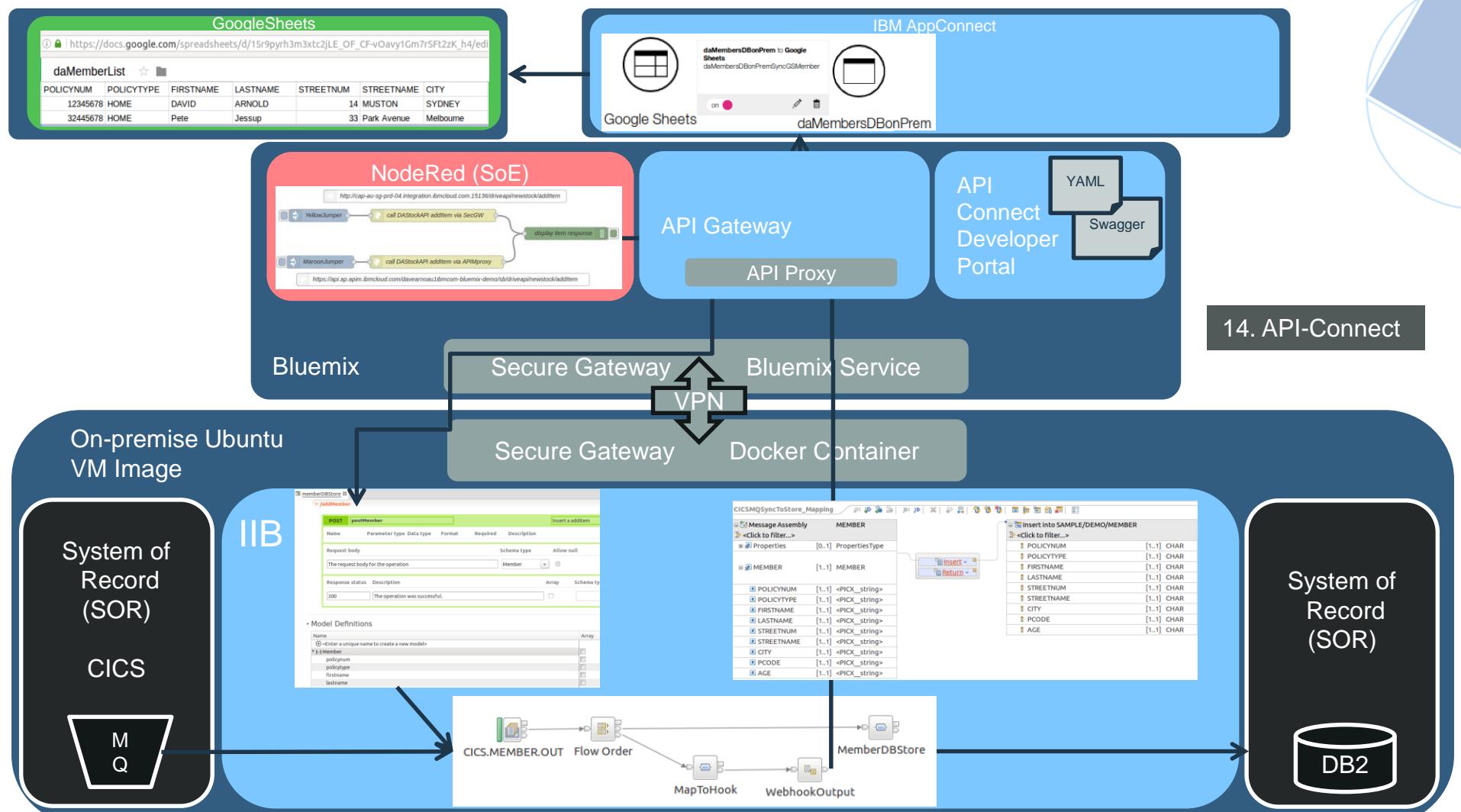
System of  
Record  
(SOR)

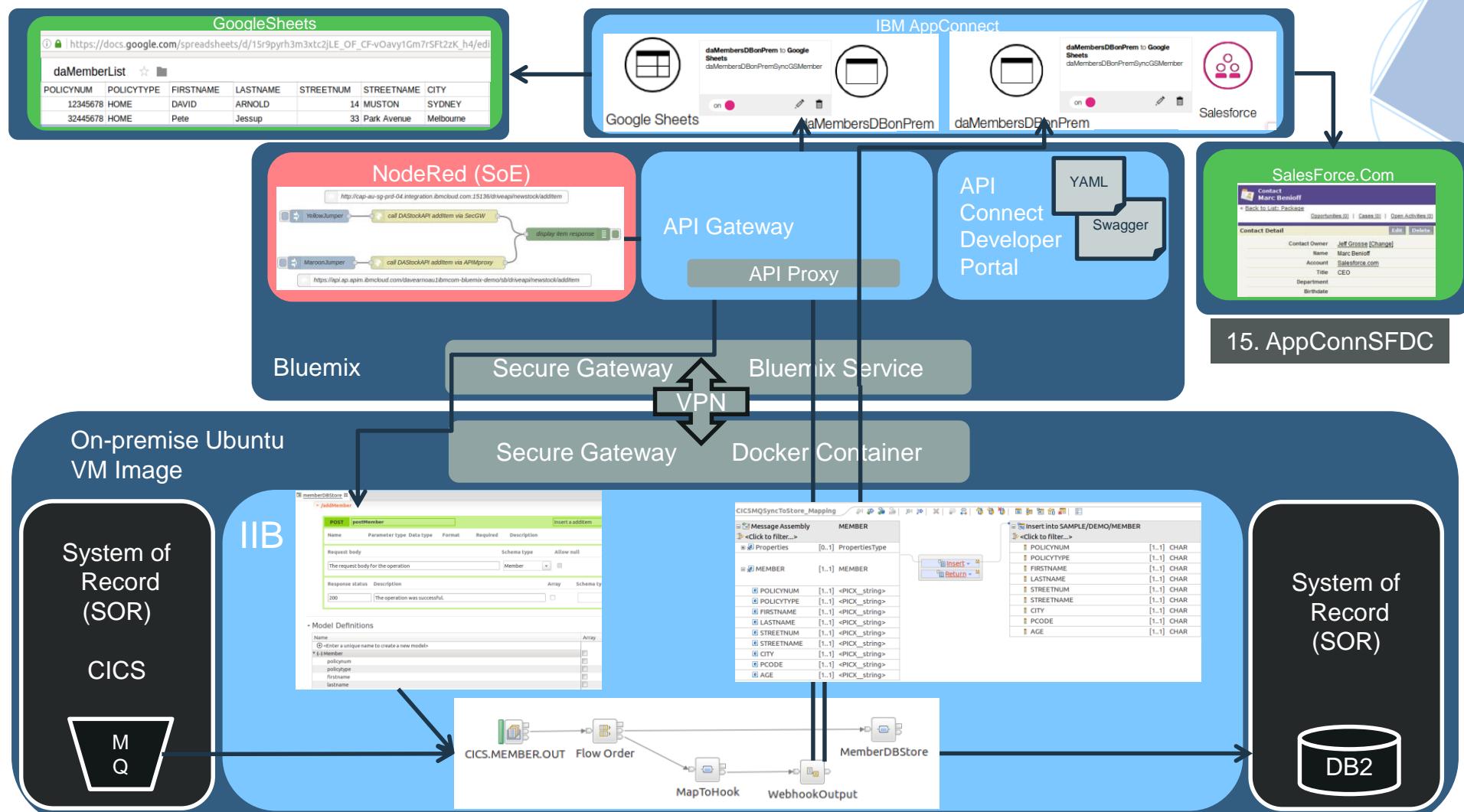




9. AppConPattGen
10. ModAppConYAML
11. AppConEnableIIB
12. TestIIBtoGoogle
13. BuildAppConFlow





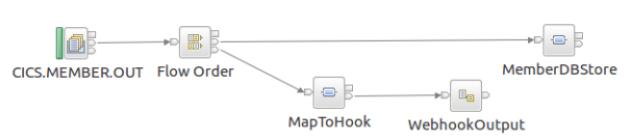
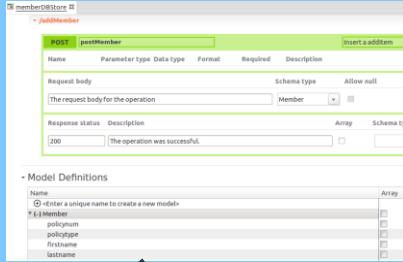


# On-premise Ubuntu VM Image

# System of Record (SOR)

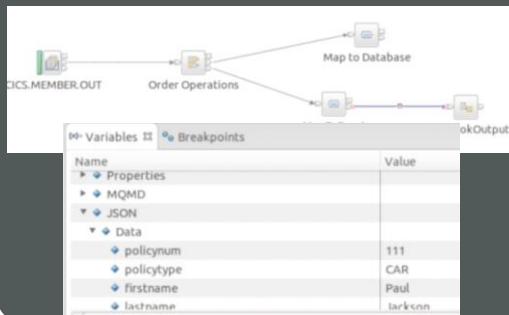


IIB



# IBM Integration Bus Built in Test tools

# Debugger

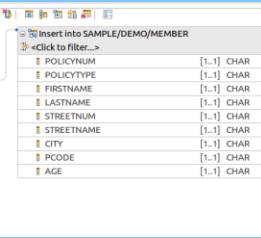


# Flow Exerciser



16. IIB Debug

## System of Record (SOR)



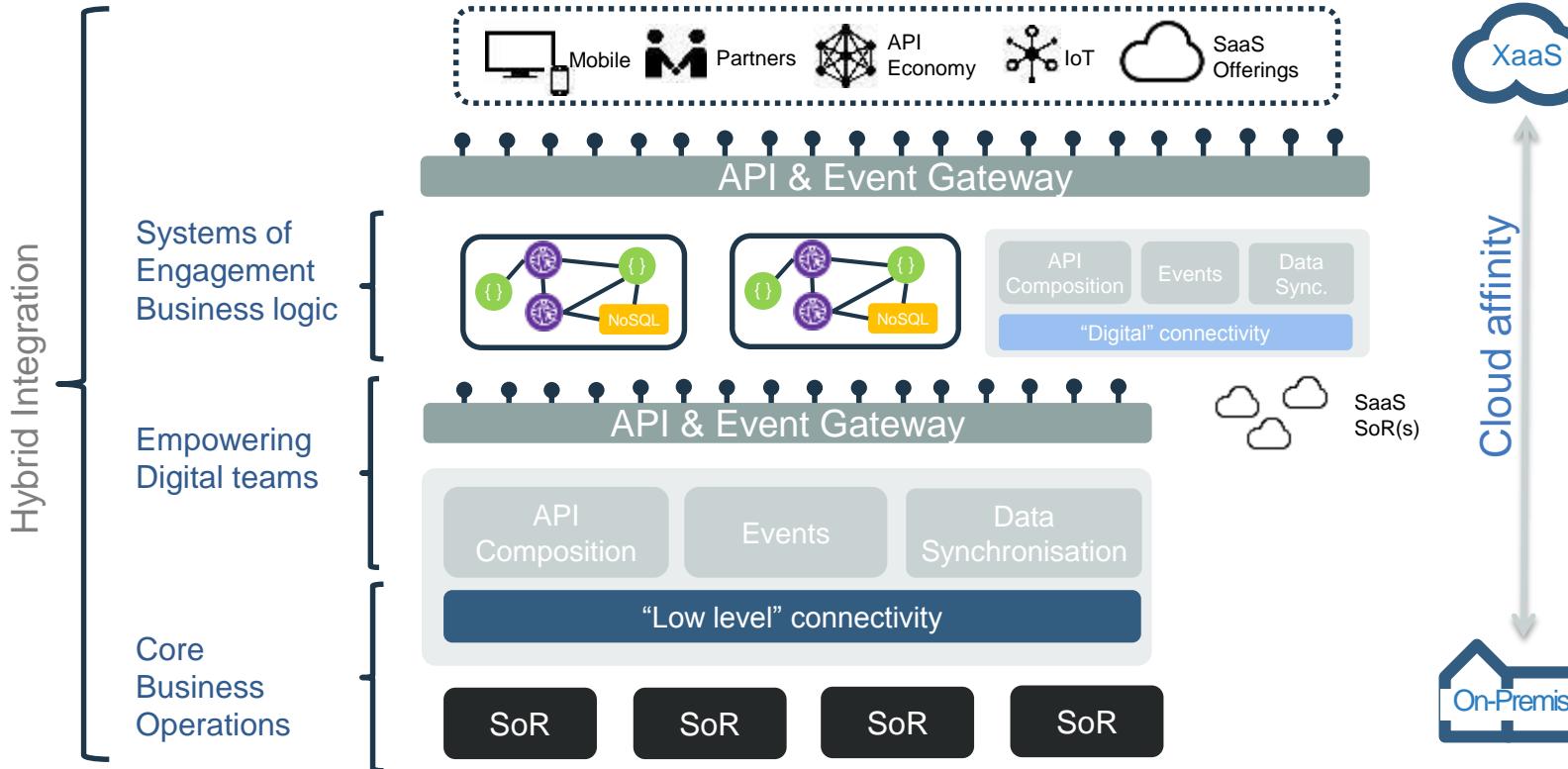
# Product Portfolio Overview

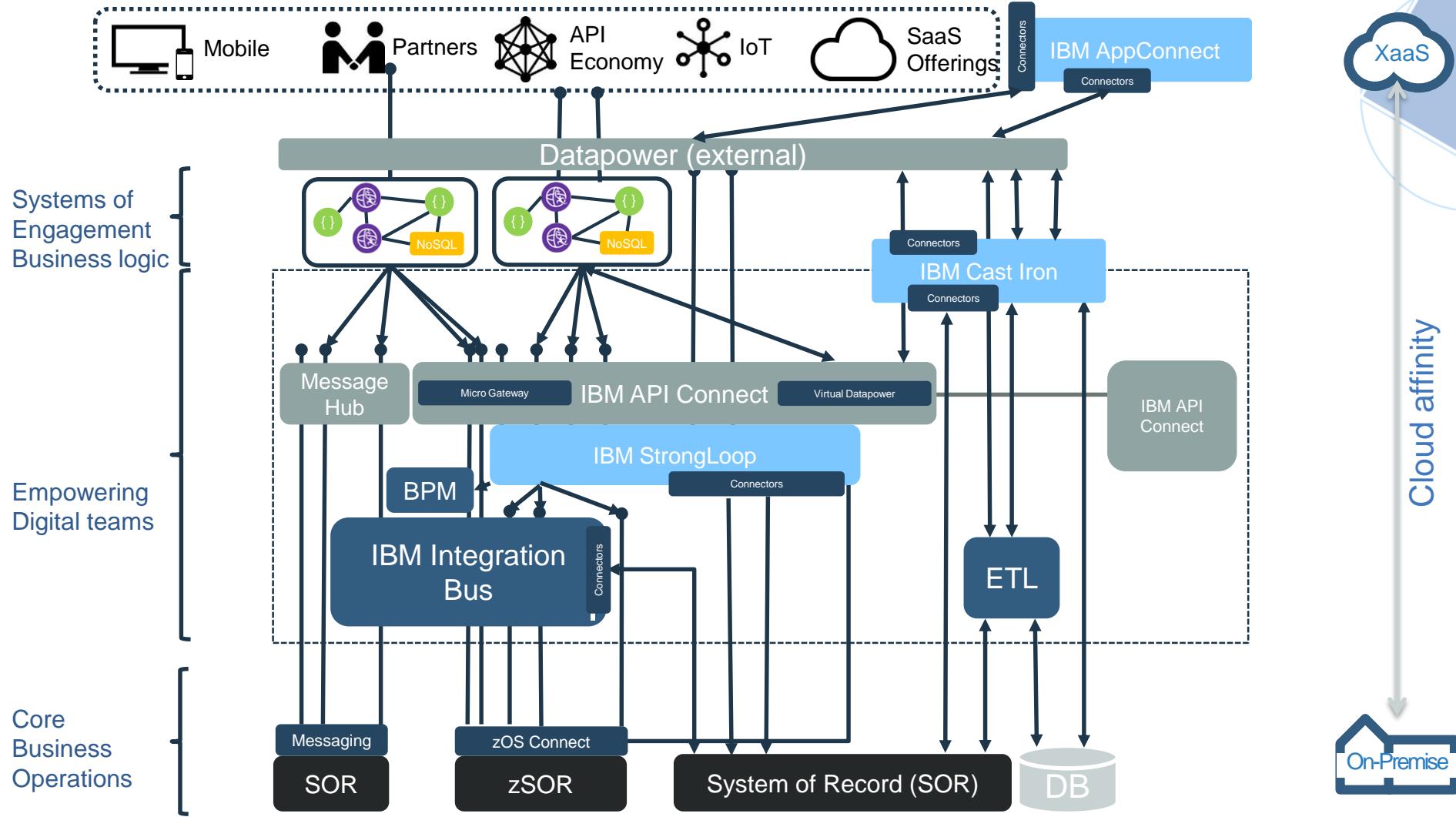
InterConnect 2016  
**outthink limits**

#ibminterconnect

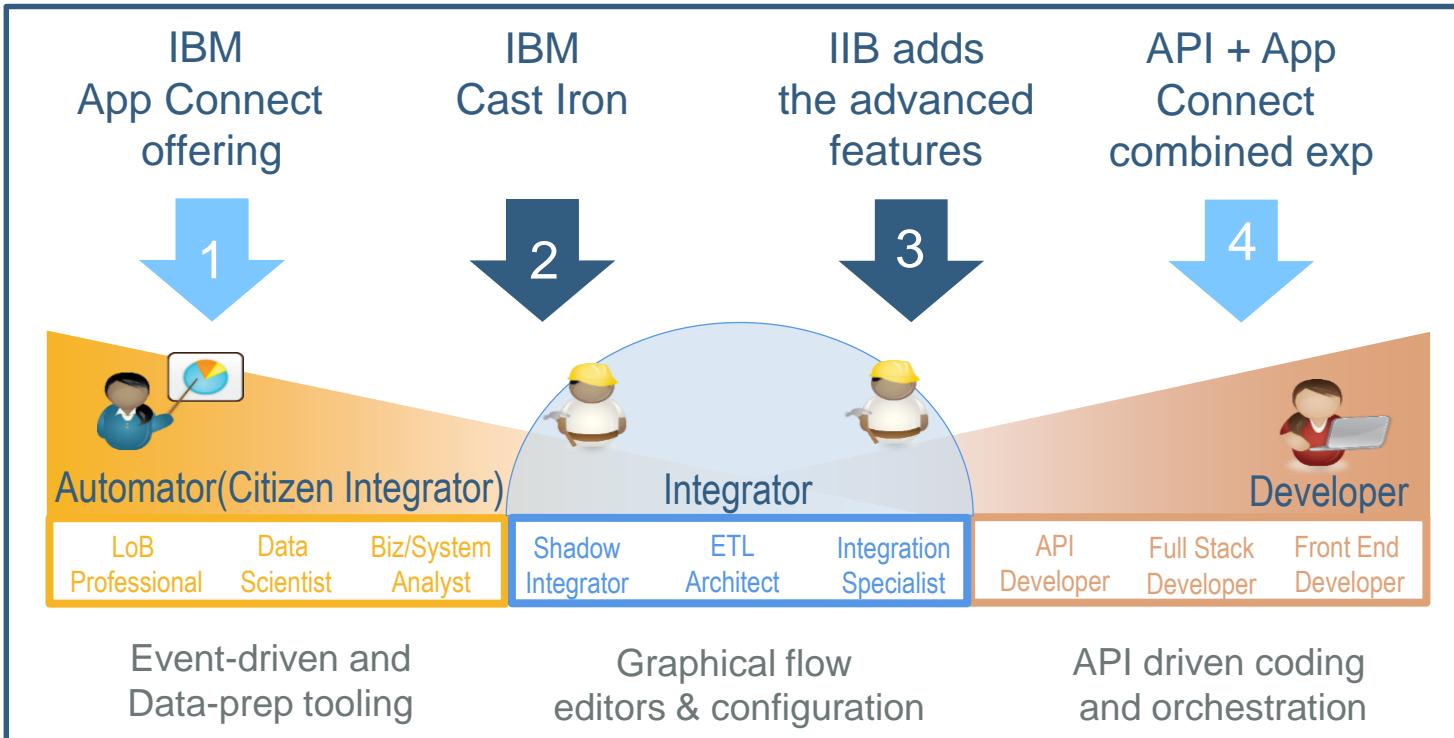


# An Architecture for Digital Business





# Integration persona alignment



# Citizen Integrator: IBM App Connect

## What is App Connect?

Integration tooling optimized to make Cloud Integration simple.  
Business friendly ‘citizen integration’—but connected to IT tools  
Delivered as SaaS

## What does App Connect provide?

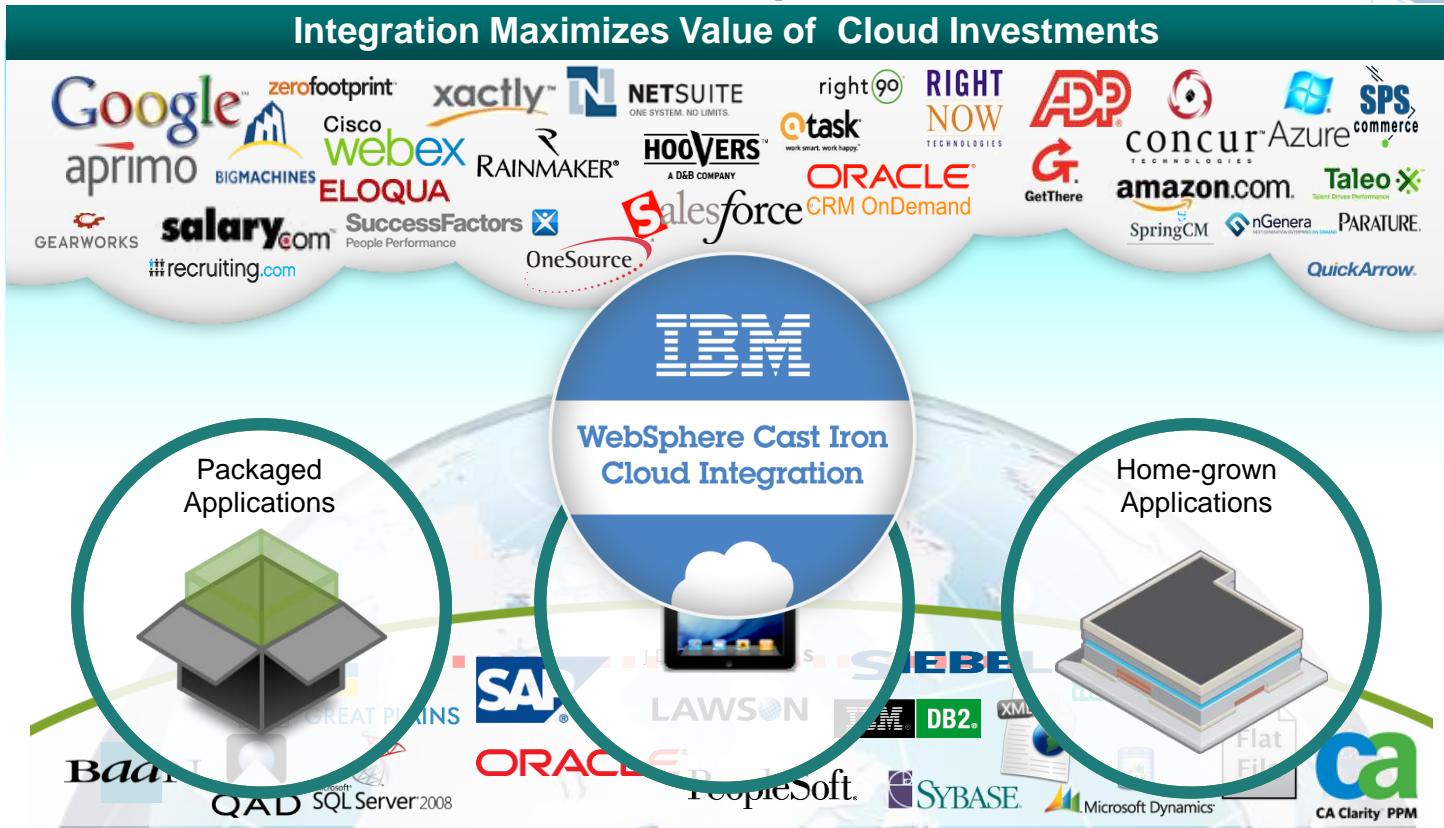
- ✓ “App awareness” allows you to connect your apps in minutes
- ✓ Automation of manual tasks – notifications, events & updates
- ✓ Connect your applications wherever they are... cloud or local
- ✓ Keep customer and other data in sync between multiple apps
- ✓ Build new connections quickly – your tech team can make connecting to legacy apps as easy as modern ones



# IBM Cast Iron for Cloud/SaaS adaption

New Adapters:

- Salesforce Analytics
- MS Dynamics CRM on-premise
- Silverpop
- LDAP/MS Directory
- Box.com
- DocuSign
- Eloqua
- Office 365
- Coupa
- MS Dynamix AX
- MS Dynamics GP
- MS Dynamics NAV
- SAP Cloud for Customer
- InfoSphere MDM
- ServiceNow
- QuickBooks
- Dropbox
- Google Drive



<https://www.youtube.com/watch?v=cSyB2KPCo68>

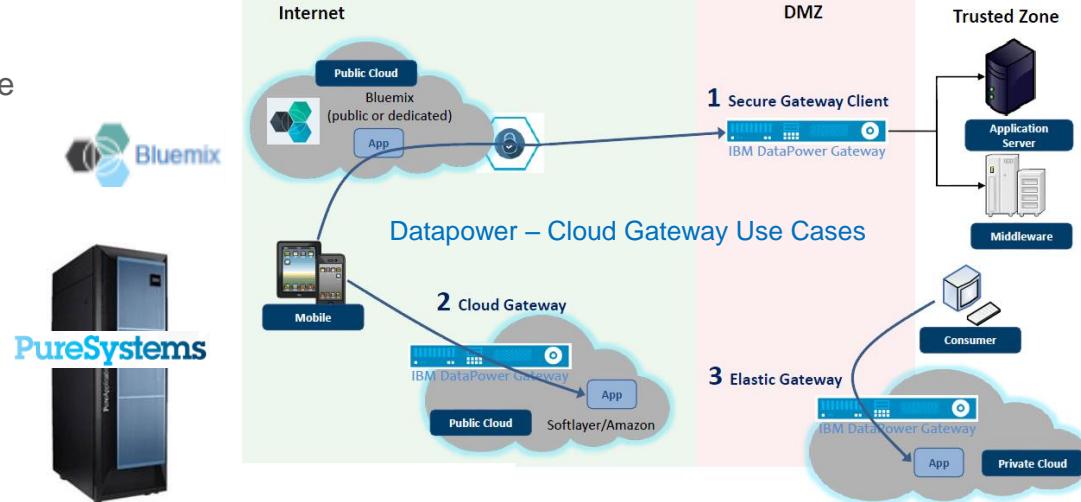
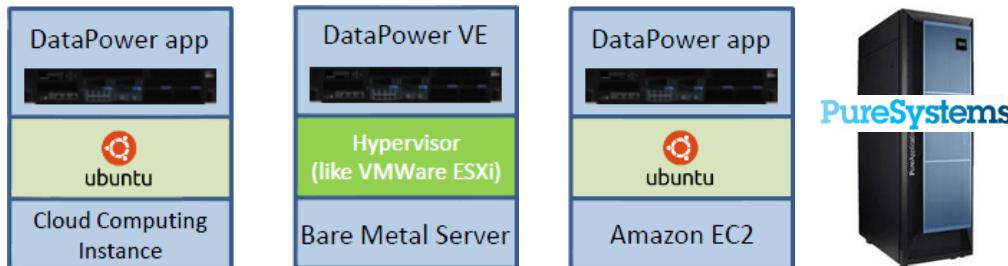
# Cloud Ready / Enabled Integration - Datapower

## IaaS

- DataPower Virtual Edition supports SoftLayer bare metal instances
  - Similar deployment and licensing model to on-premise virtual environments
- DataPower Patterns for IBM PureApplication Service on Softlayer
- DataPower Virtual Edition on
  - SoftLayer Cloud Layer Computing Instance (CCI)
  - Amazon Elastic Compute Cloud (EC2)
- Licensing
  - Perpetual BYOL model
  - Monthly licensing options available

## PaaS

- Baked into IBM Bluemix



# Cloud Ready / Enabled Integration – IBM Integration Bus (IIB)

IaaS - IBM and 3<sup>rd</sup> Party Public cloud deployment ready

- BYOL, BYOSL and rental pricing available
- Azure for example will provision an IIB “image”
- Chef - Open source technology for Install/Config of IIB and MQ, creates qmgrs and integration nodes
- IBM PureApplication System - Automated provisioning of machines as well as deployment of middleware
- IBM UrbanCode Deploy - Orchestrates and automates the deployment of applications, middleware configurations, across the DevOps pipeline.
- Docker Container for IIB from Docker Hub

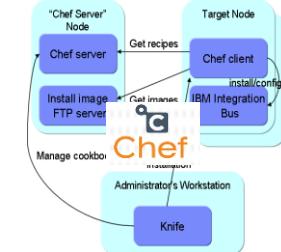
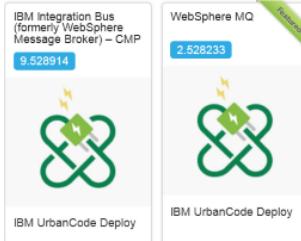
PaaS

- Full function IIB Docker Container in the IBM Bluemix Container Service

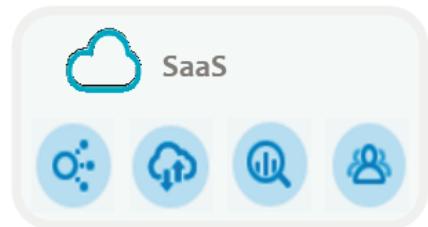
MaaS (“Middleware as a Service”)

- Integration Platform as a Service – IIB in the Cloud pay as you go managed service.

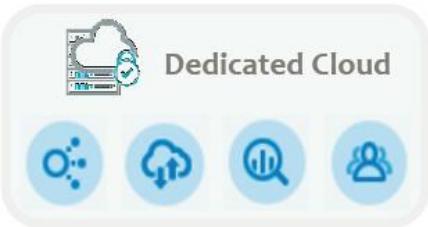
**SOFTLAYER®**



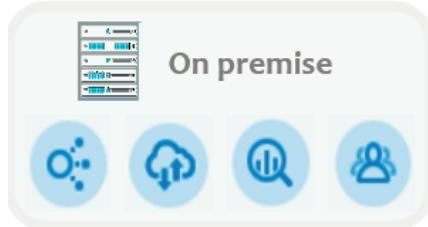
# Cloud Ready / Cloud Native – IBM API Connect



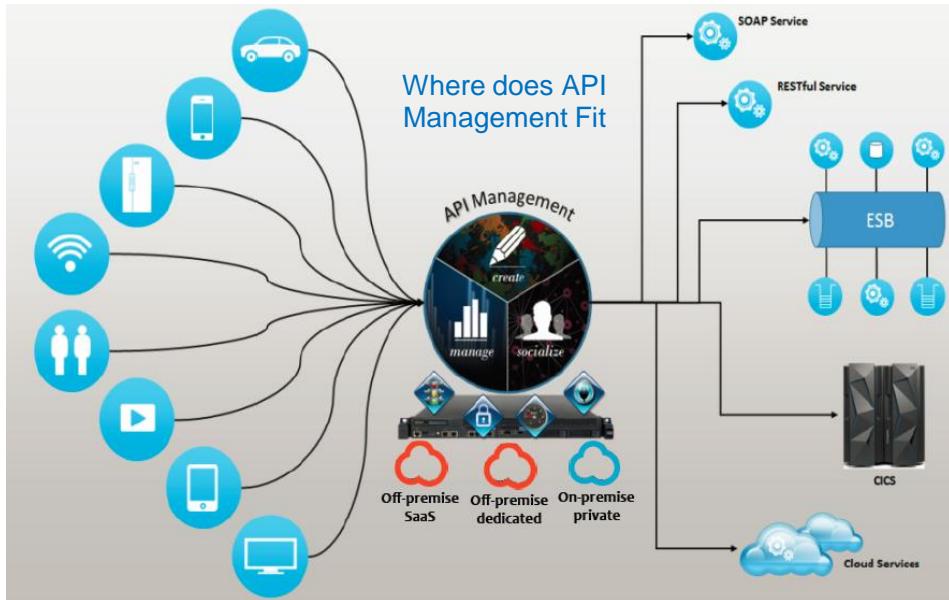
**1 | On Cloud**  
Maximize on cloud economics and agility. Offered as SaaS on SoftLayer and also available through Bluemix



**2 | Dedicated**  
With Bluemix Dedicated API Management, everything is dedicated and connected to you — agility of public cloud, yet feels like home



**3 | On premise**  
Behind your firewall for most sensitive workloads & complete control



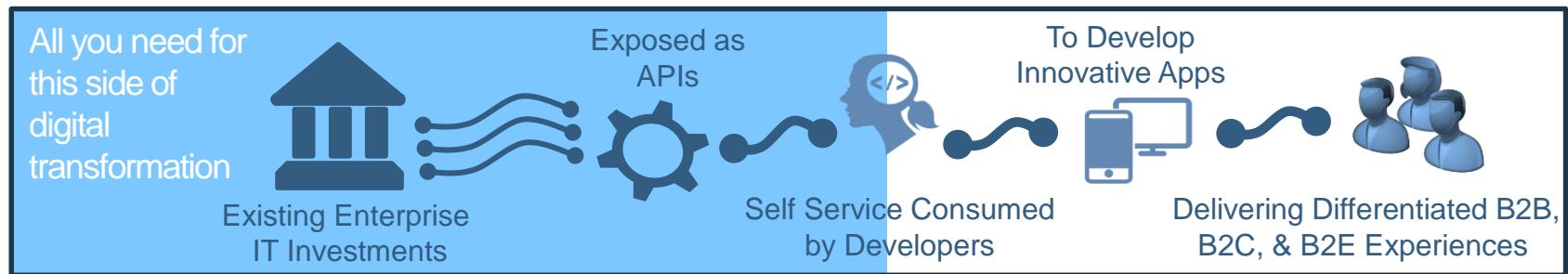
# IBM Application Integration Suite

## What is Application Integration Suite?

A new offering that combines Integration Bus, API Connect, Cast Iron, and a new IIB Salesforce Connector to accelerate a customer's Digital Transformation agenda

## What does Application Integration Suite provide?

- ✓ Build business logic with the highest levels of productivity via application & cloud integration features
- ✓ Integrated tooling to easily publish new integration flows as APIs
- ✓ Secure connectivity to hundreds of cloud and on-premise applications and endpoints



# Cloud Ready / Enabled Messaging IBM MQ v9

## MQTT – Telemetry Transport for IoT

- Bridge MQ Topics to MQTT subscribers



## MQ Light API for MQ

- AMQP listener allows MQLight to participate in MQ pub/sub

## Hypervisor Edition and comprehensive support for IBM Pure Applications

- In Support of Infrastructure as a Service Cloud deployments

## IBM MQ V9 (V8, V7.5 and v7.1 still in support)

- Original “base” IBM WebSphere MQ reliable messaging. Packaged to include MQ AMS + MQ MFT but base license entitlement only.
- **IBM MQ AMS (Advanced Message Security) - Separate license**
  - Adds encryption and decryption of messages as they are PUT and GET to queues to the base MQ Entitlement
    - Built-in, seamless to the applications. A configured solution
- **IBM MQ MFT (Managed File Transfer) Service - Separate license**
  - Adds IBM MQ MFT Endpoint – charged per install

## IBM MQ Advanced

- Single Licensed part number for IBM MQ + IBM MQ AMS + IBM MQ MFT

# Evolving products into a Hybrid Integration Platform

A modular platform for integrating Apps, Data, APIs

## Connect Seamlessly

Hundreds of end points to apps and data in the cloud and on premise

## Develop Rapidly

Intuitive & robust tooling to transform data to meet business needs

## Scale Efficiently

Performance and scalability to meet the SLAs of your business apps

