



IBM Hybrid Integration Directions

Dave Arnold

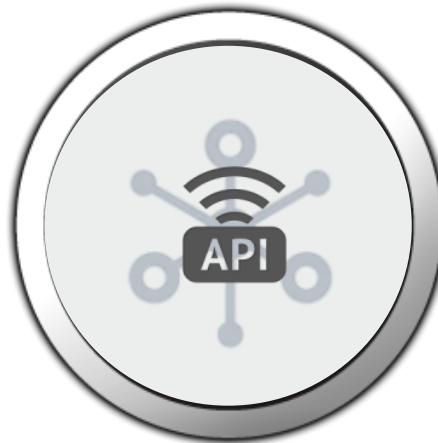
Executive I.T Specialist

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
- IBM Integration Portfolio
- Hybrid Integration Use Case Introduction
 - Building out the Hybrid Integration Use Case – IIB on premise
 - Exploring the Hybrid Integration Use Case with IIB on Cloud

Trends driving the integration market



#1

Increasing need
to integrate
across a hybrid
environment

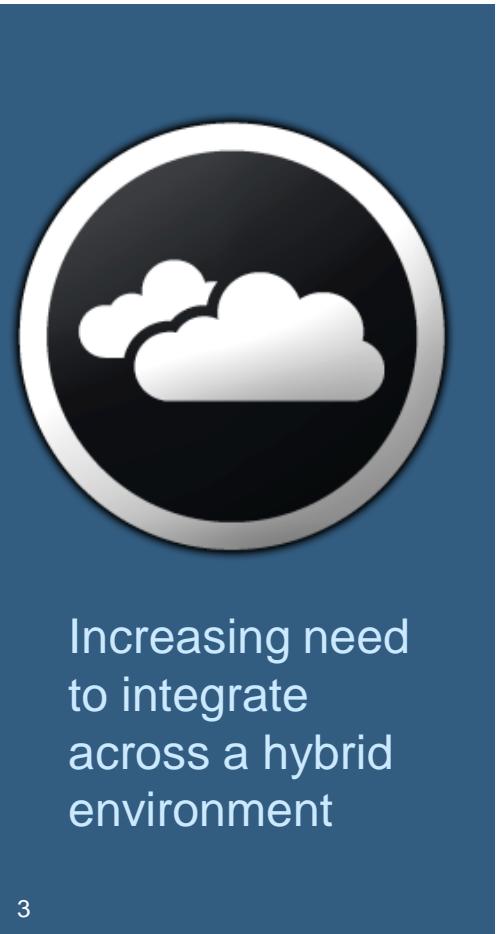
#2

Integration
being adopted
in the line of
business

#3

Digital transformation, API
Economy and the rise of
Microservices

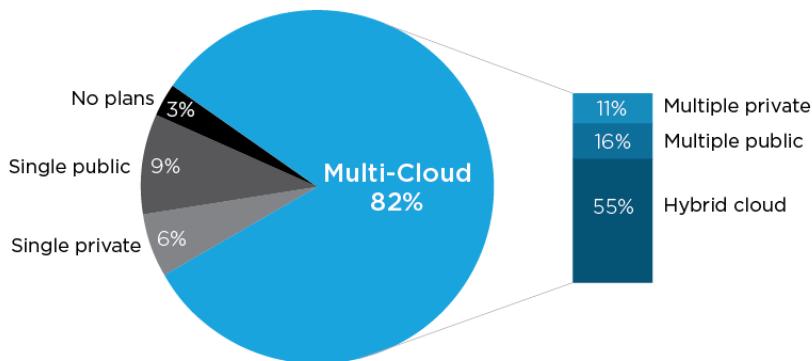
Trend #1—Hybrid



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

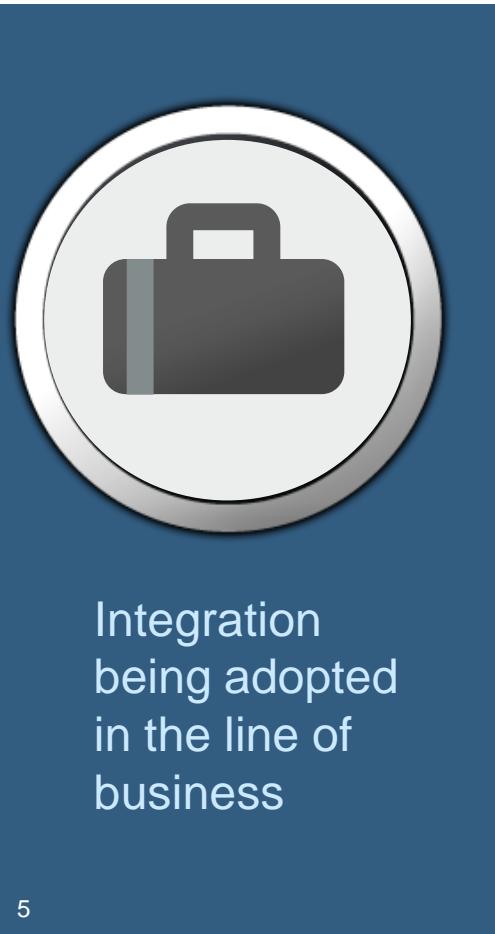
- API, App and Message Connect and DataWorks Services
- WebSphere Connect, WebSphere Blockchain Connect
- zOS Connect for IMS, CICS, WebSphere, MQ & DB2



Optimize any app

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

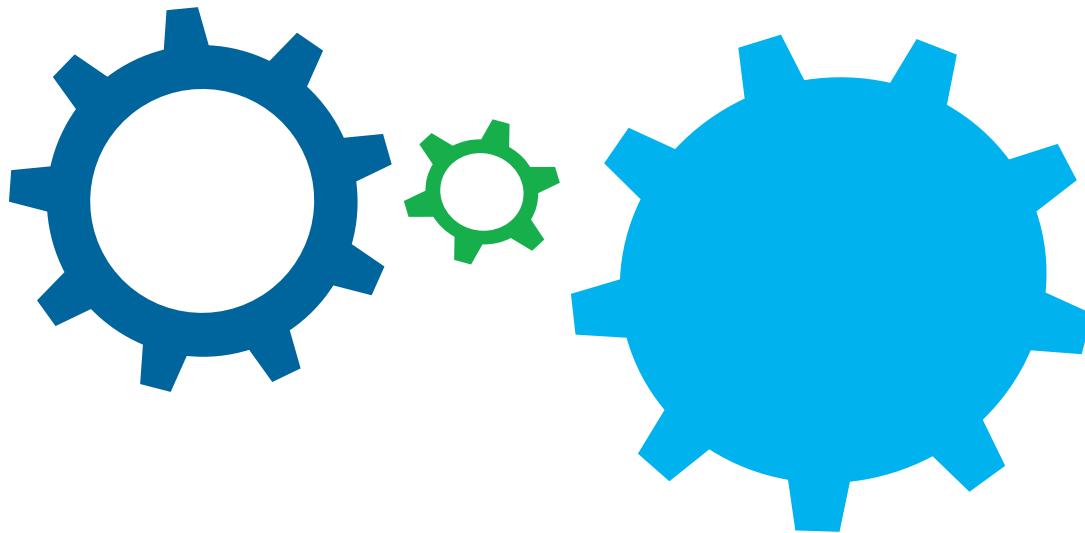
Trend #2—Integration needs outside IT



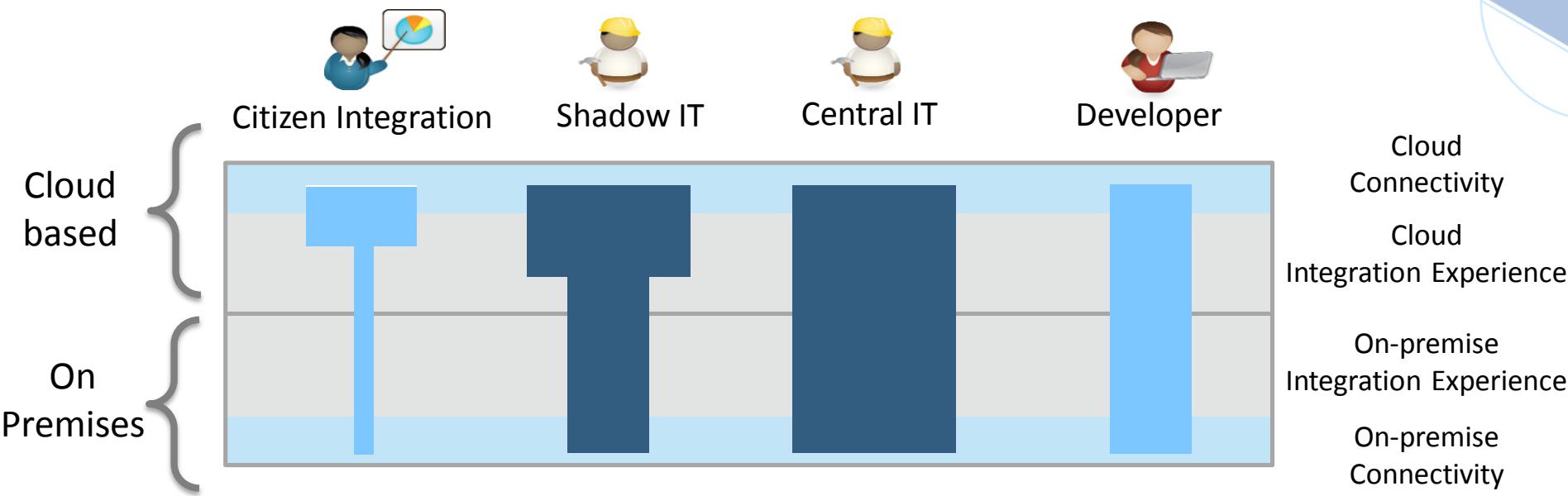
Integration
being adopted
in the line of
business

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

-Gartner

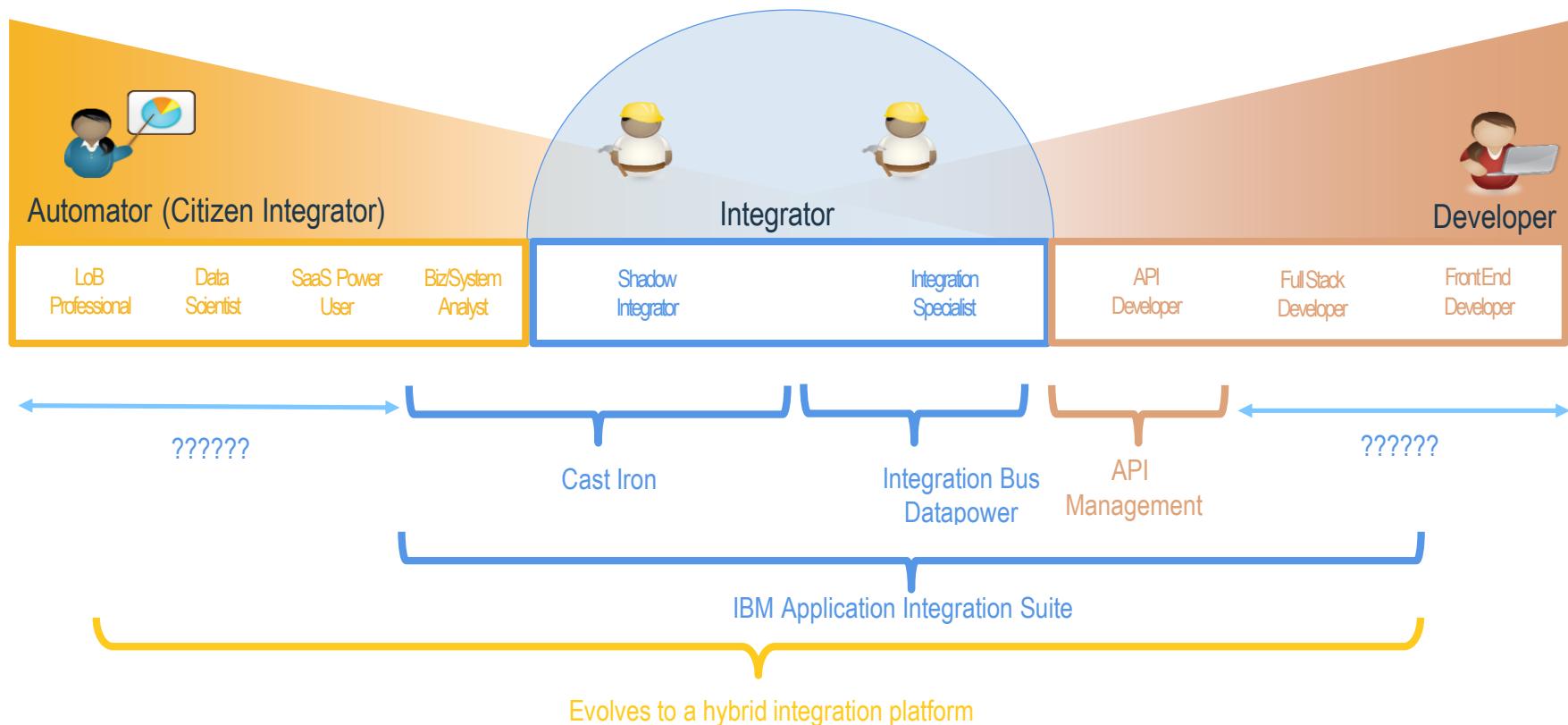


Personas in support of Hybrid Integration

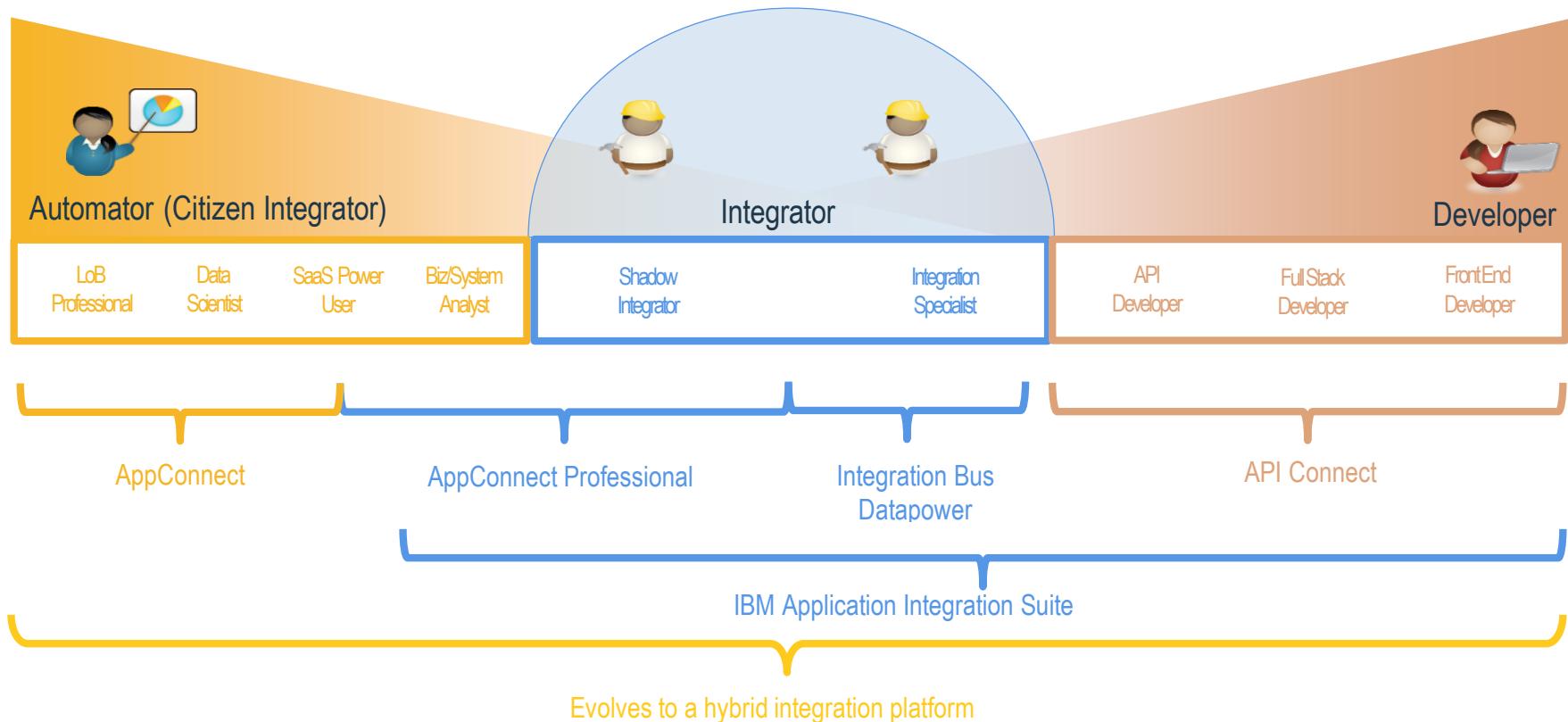


- **Anyone can do it**
- Zero code
- Cloud native
- Many pre-configured connectors
- **Technical person in a business environment**
- Cloud native with on prem options
- Friendly modern style code
- Graphical options
- **Skilled integration practitioners**
- Graphical assist, but full code environment.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

IBM Integration Capability by Persona - 2015



IBM Integration Capability by Persona - 2016



Integration Personas high level product alignment



Citizen Integration



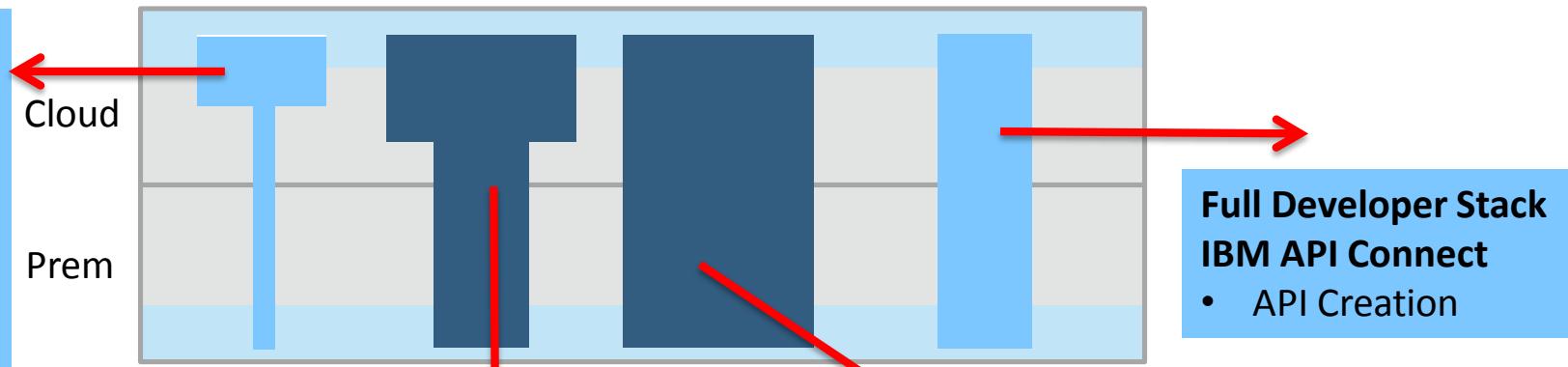
Shadow IT



Central IT



Developer



IBM App Connect Professional (Cast Iron 7.5.1)

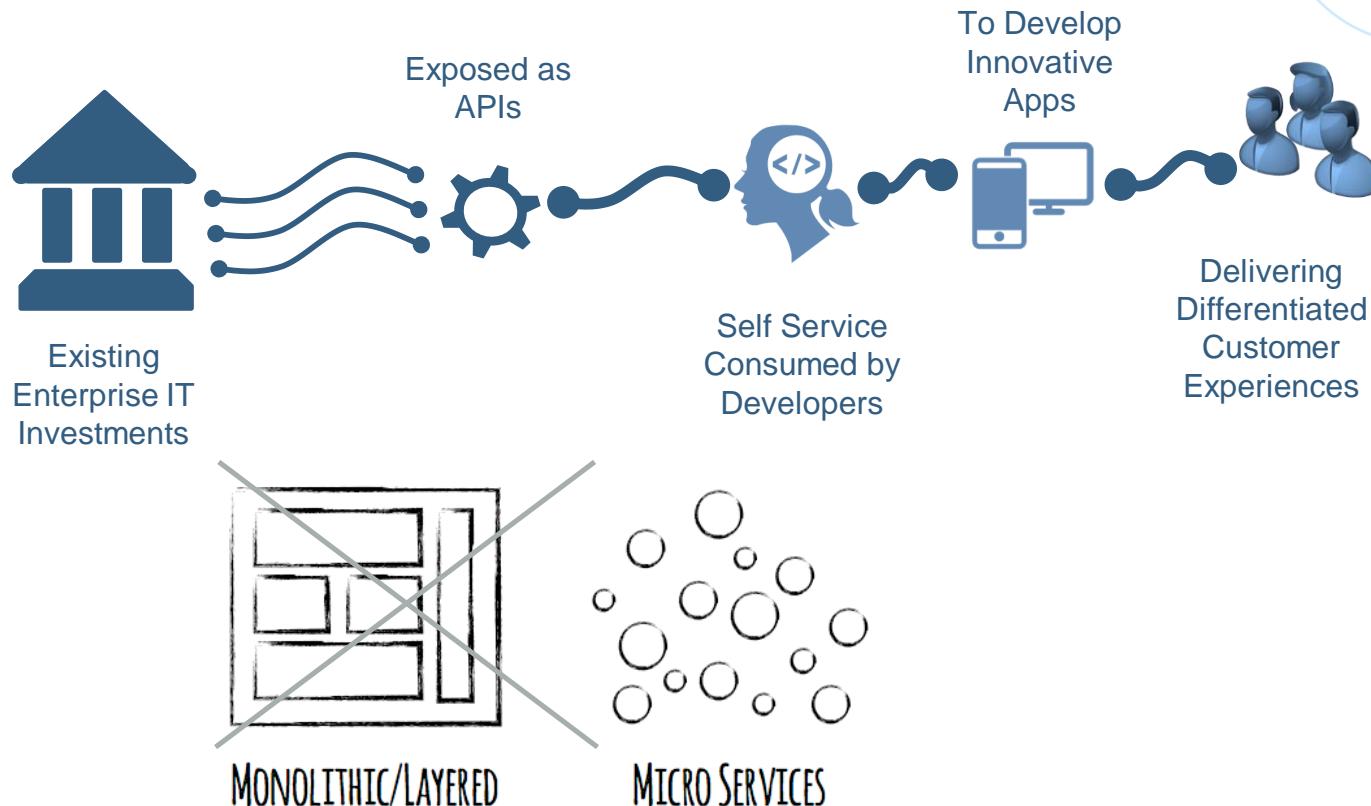
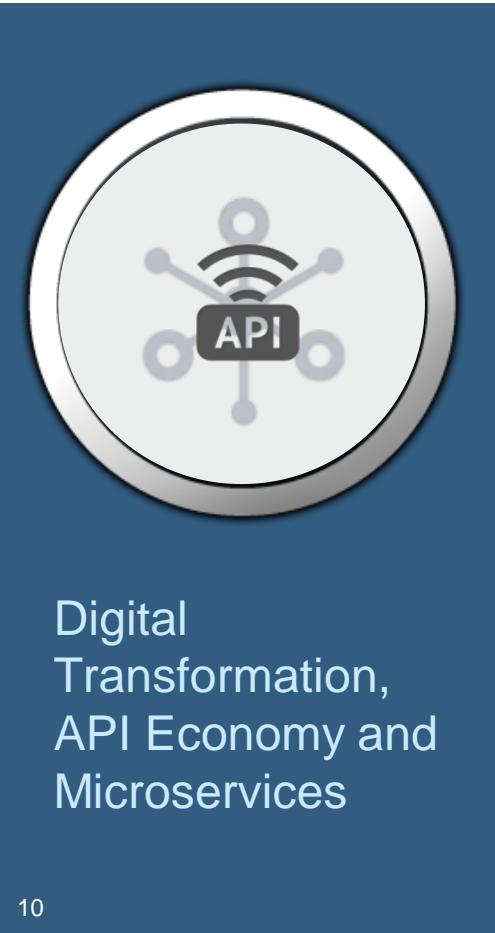
IBM API Connect
• API Management/Creation

IBM Application Integration Suite

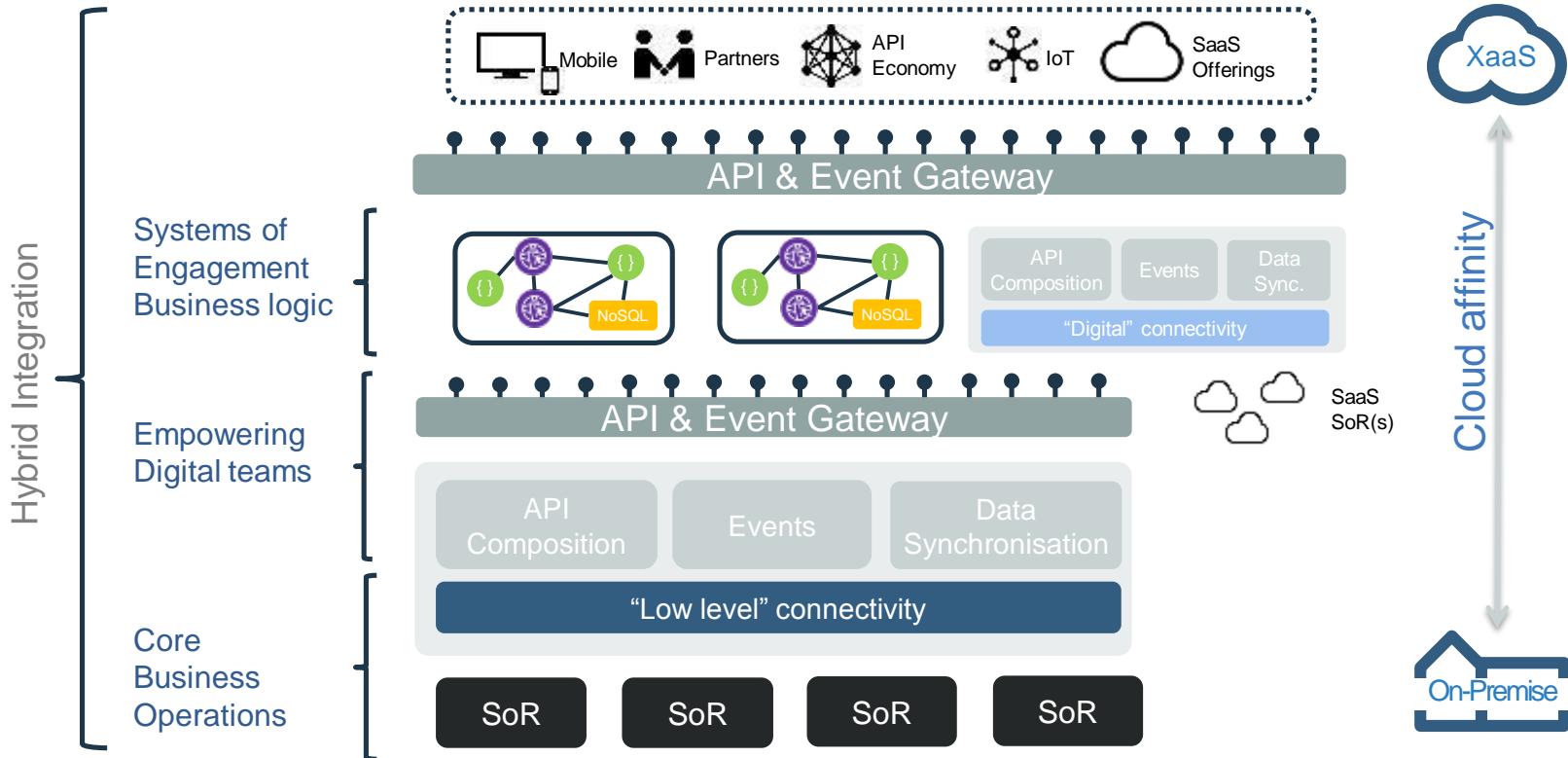
- IBM Integration Bus (ESB)
- Cloud Integration
- **IBM API Connect**
 - API Management/Creation

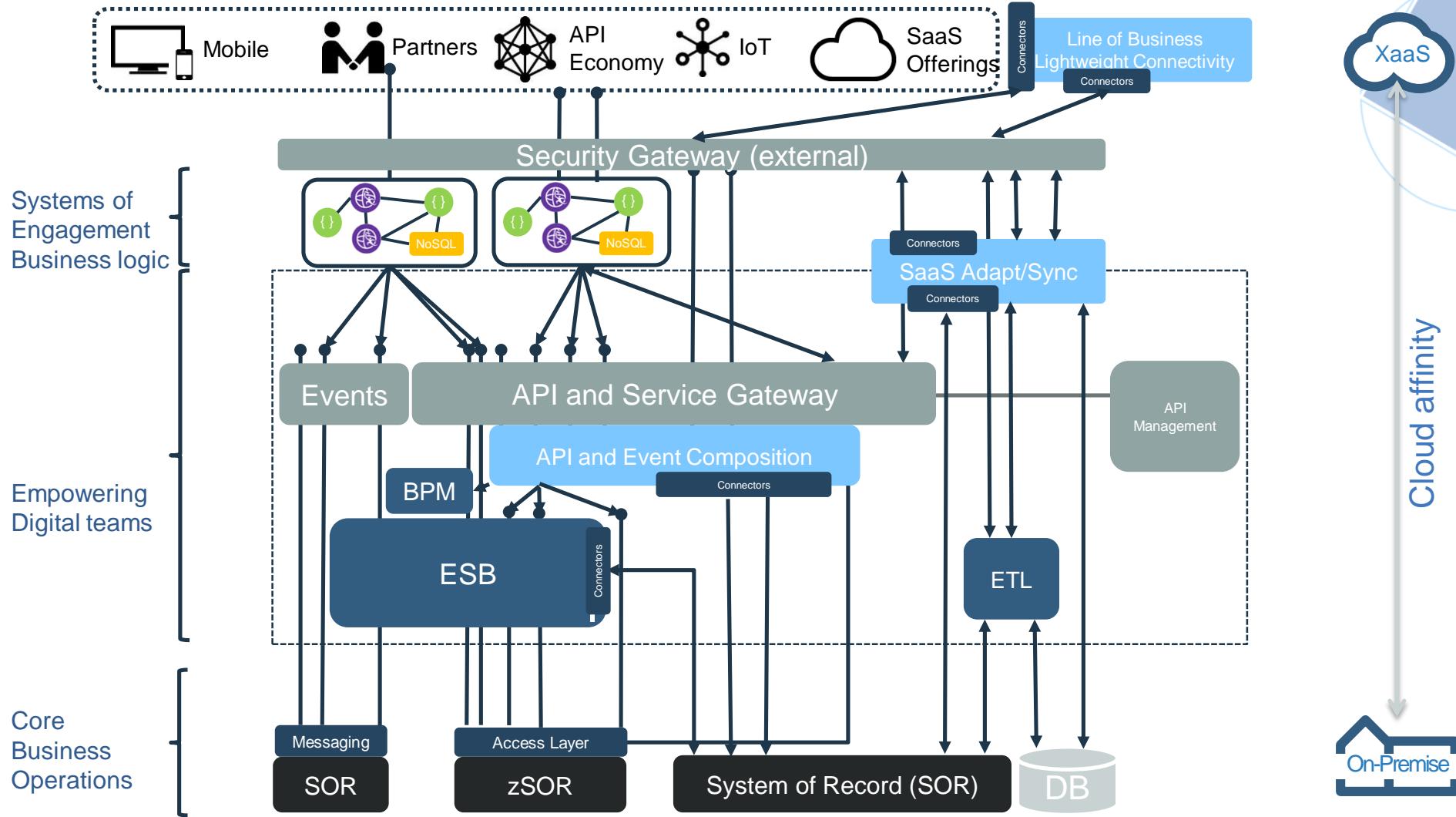
DataPower Gateways

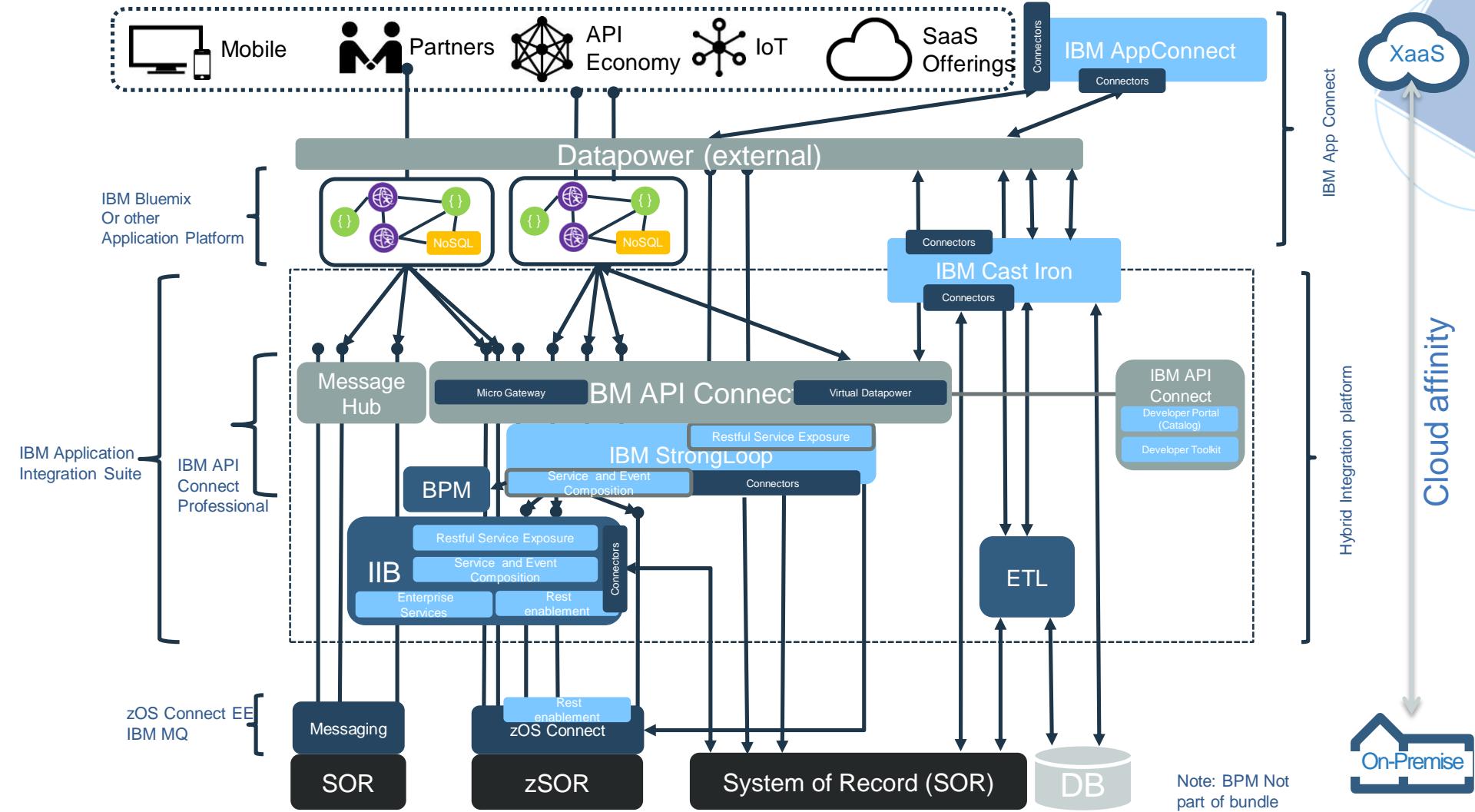
Trend #3—Digital Transformation

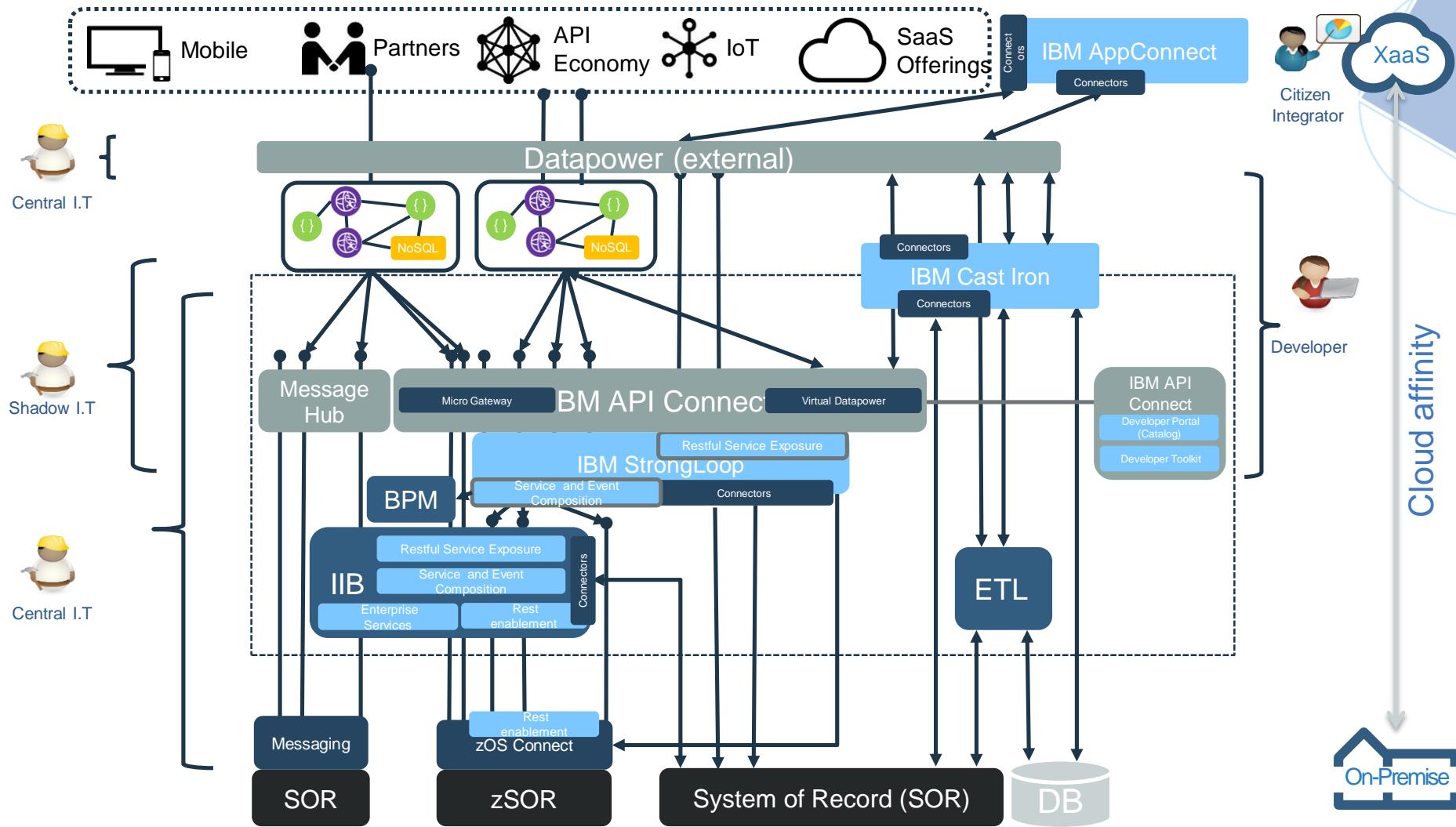


An Architecture for Digital Business







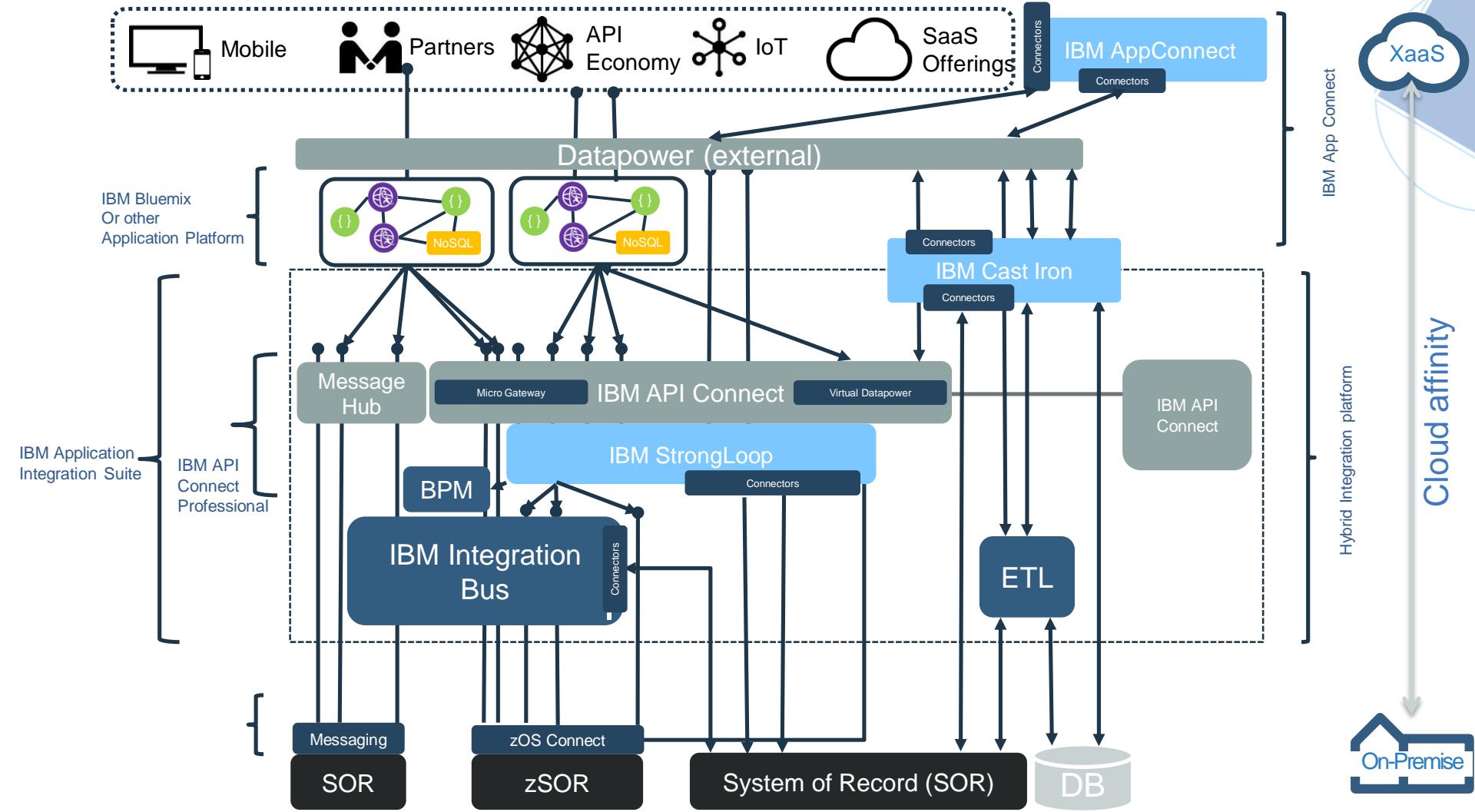


Product Portfolio Overview

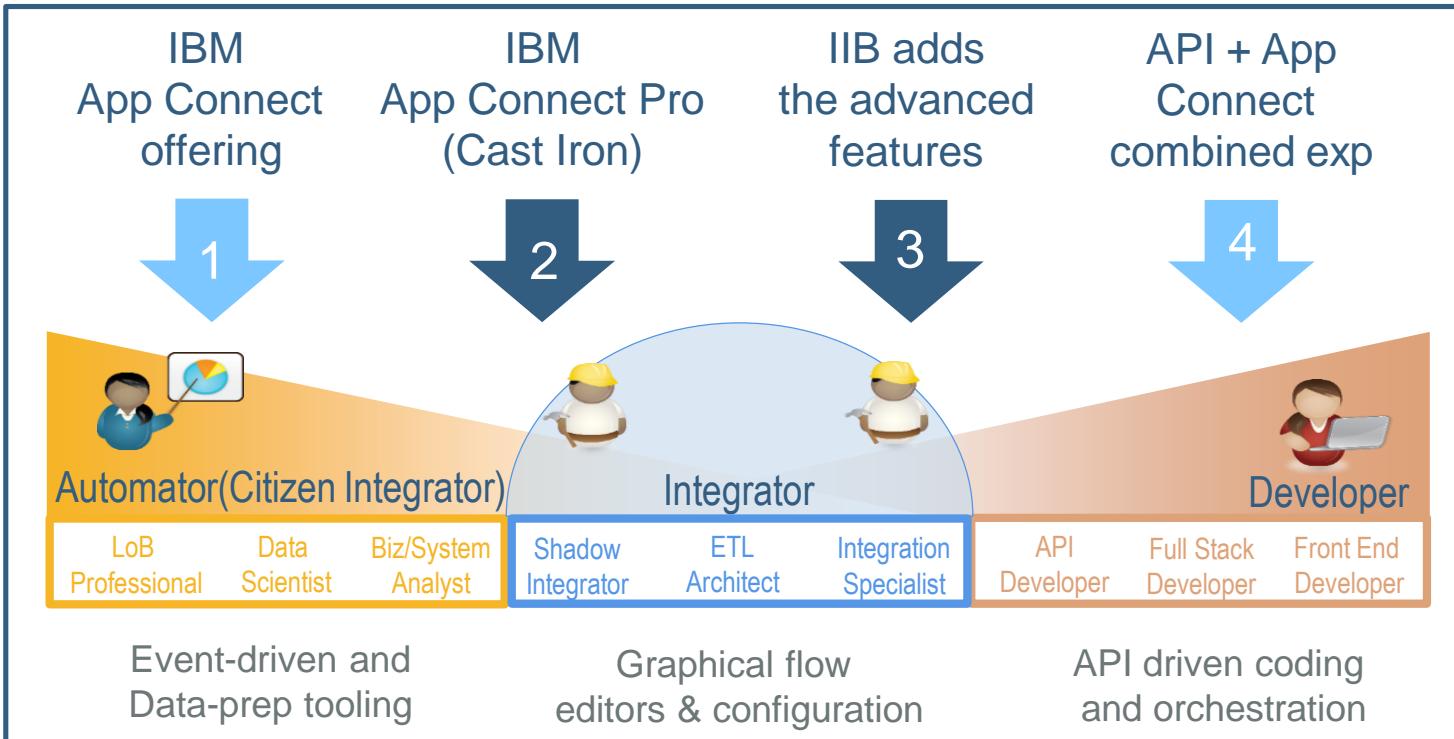
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#ibminterconnect





Integration persona alignment



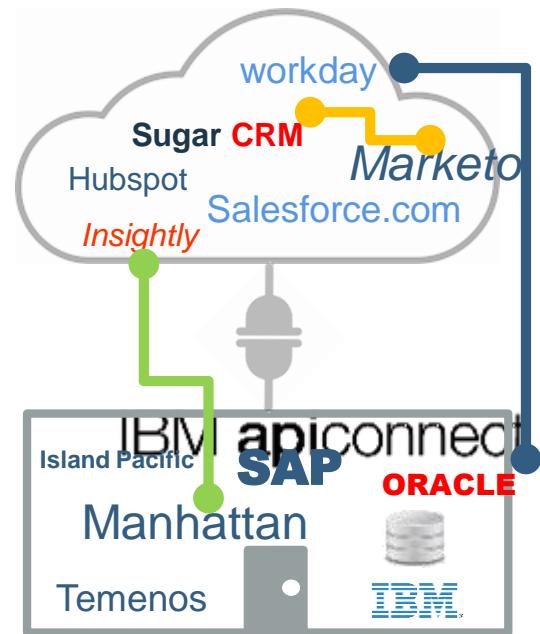
Citizen Integrator: IBM App Connect (SaaS)

What is App Connect?

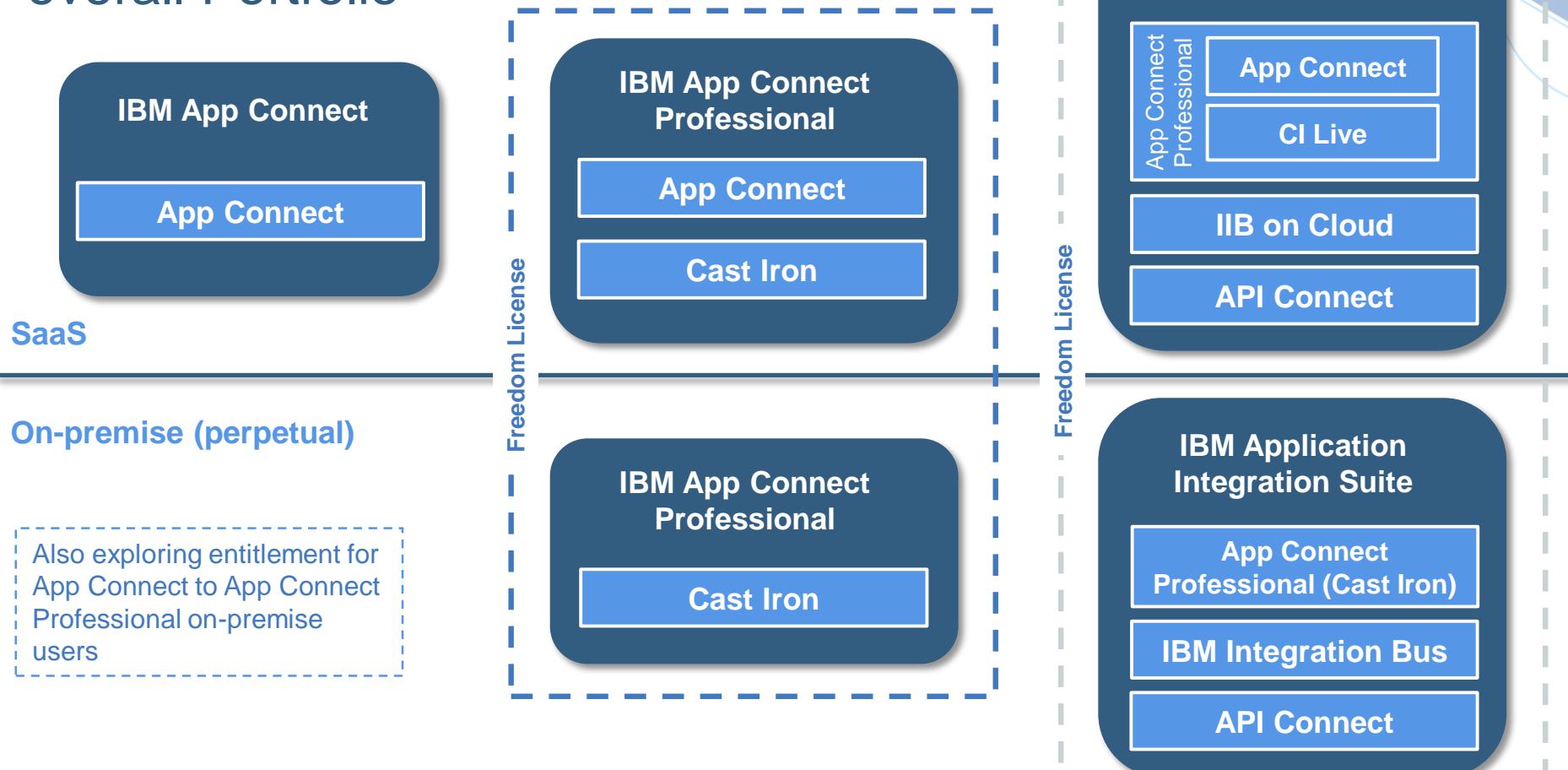
Integration tooling optimized to make Cloud Integration simple.
Business friendly ‘citizen integration’—but connected to IT tools
Delivered as SaaS

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



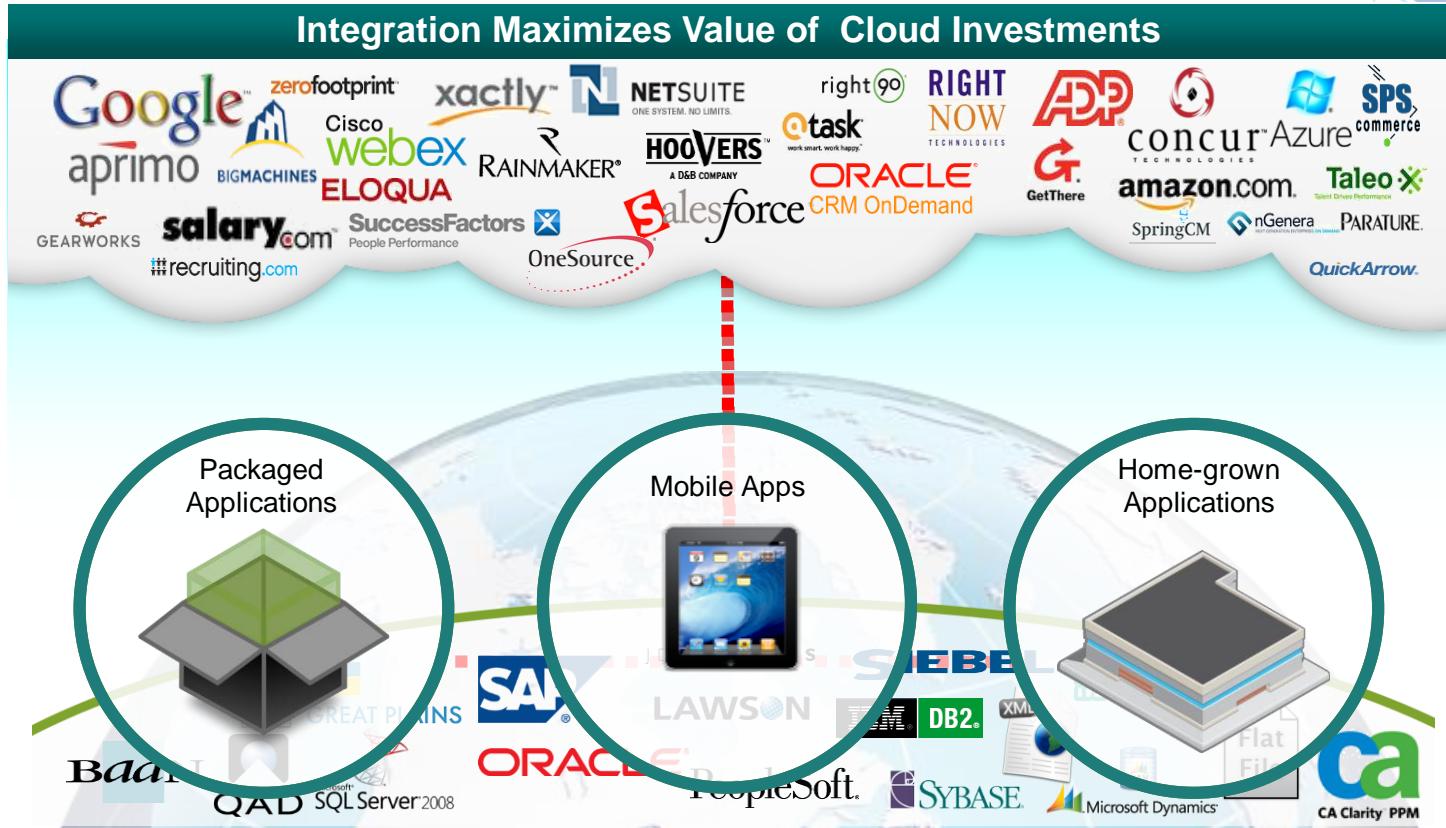
App Connect Professional as part of overall Portfolio



IBM App Connect Professional (encompasses Cast Iron)

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



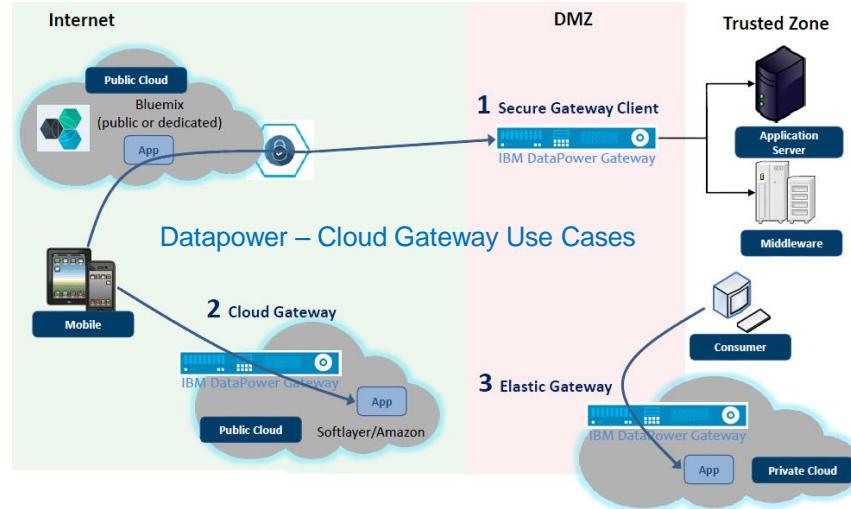
Cloud Ready / Enabled Integration - Datapower

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 3rd 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

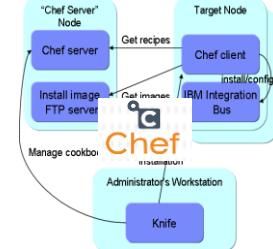
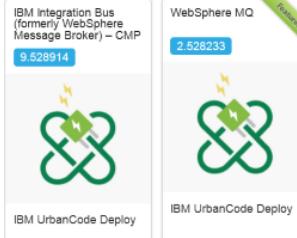
MaaS (“Middleware as a Service”)

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

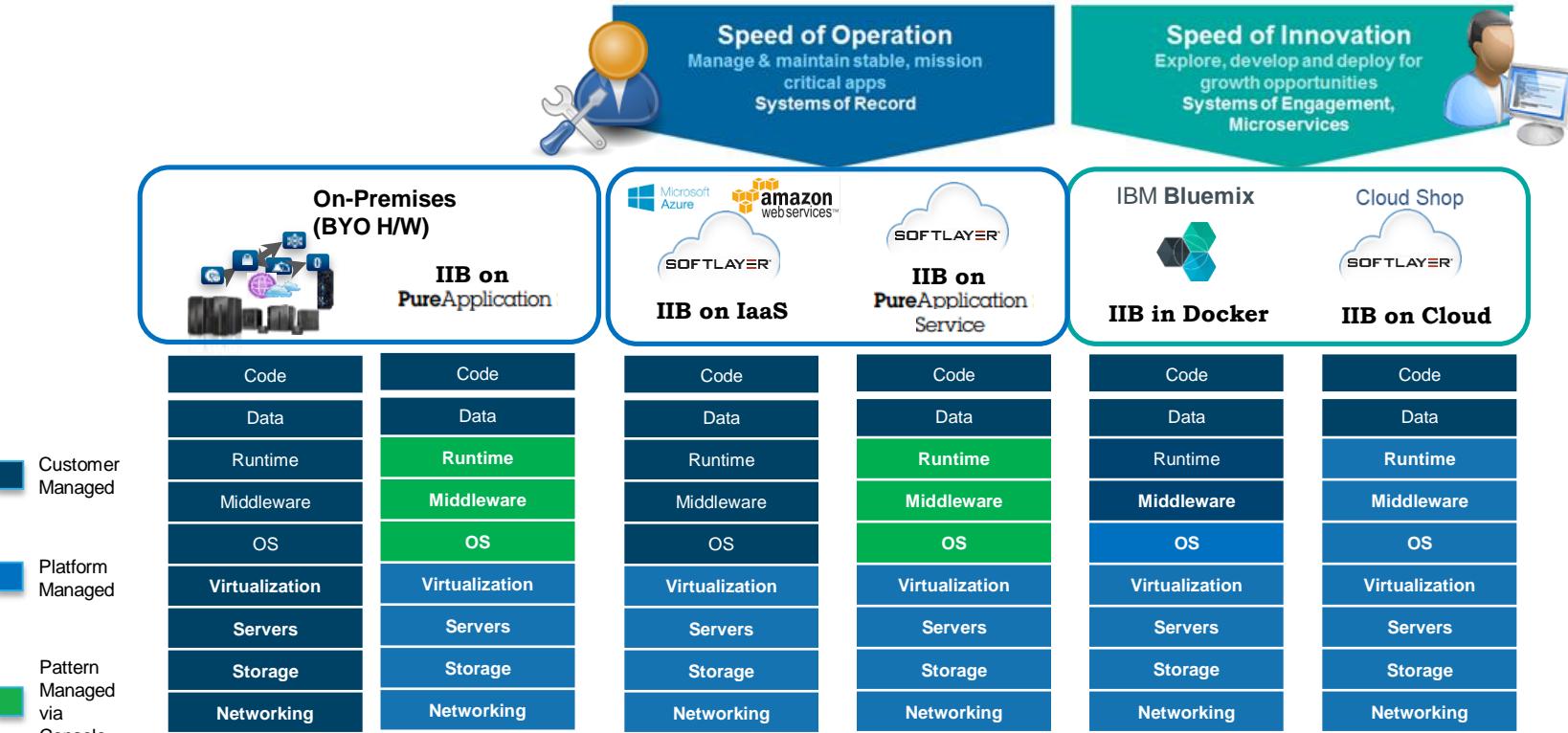
SOFTLAYER®

Microsoft
Azure

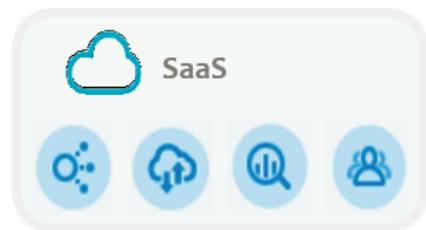
Amazon
web services™ | EC2



Choosing the platform that's right for you

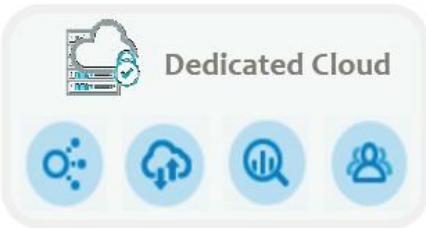


Cloud Ready / Cloud Native – IBM API Connect



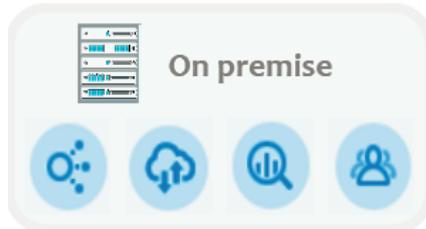
1 | On Cloud

Maximize on cloud economics and agility. Offered as SaaS on SoftLayer and also available through Bluemix



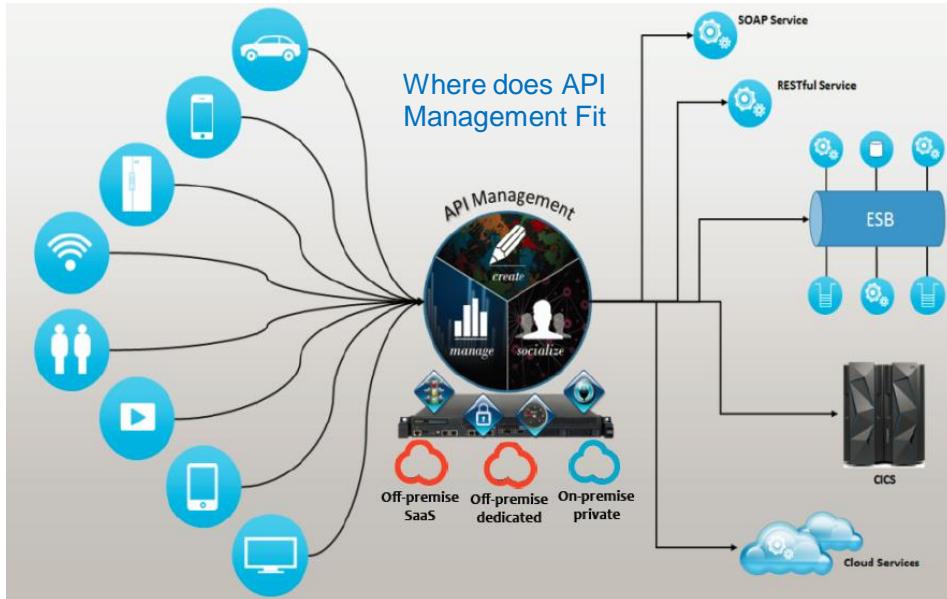
2 | Dedicated

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



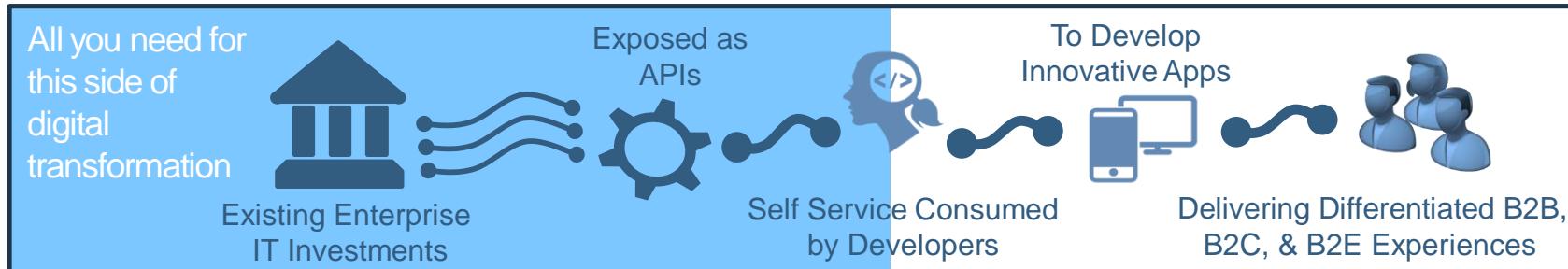
IBM Application Integration Suite (and IBM AIS on Cloud)

What is Application Integration Suite?

A new offering that combines Integration Bus, API Connect, App Conn Pro, 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



IBM AIS on Cloud now announced. IIBoC + API Conn Pro on BM + App Connect Pro (SaaS)

Cloud Ready / Enabled Messaging IBM MQ v9

MQTT Telemetry Transport for IoT. Bridge MQ and MQTT pub/sub



MQ Light API for MQ



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

IBM Pure Applications MQ Pattern

- In Support of Infrastructure as a Service Cloud deployments

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

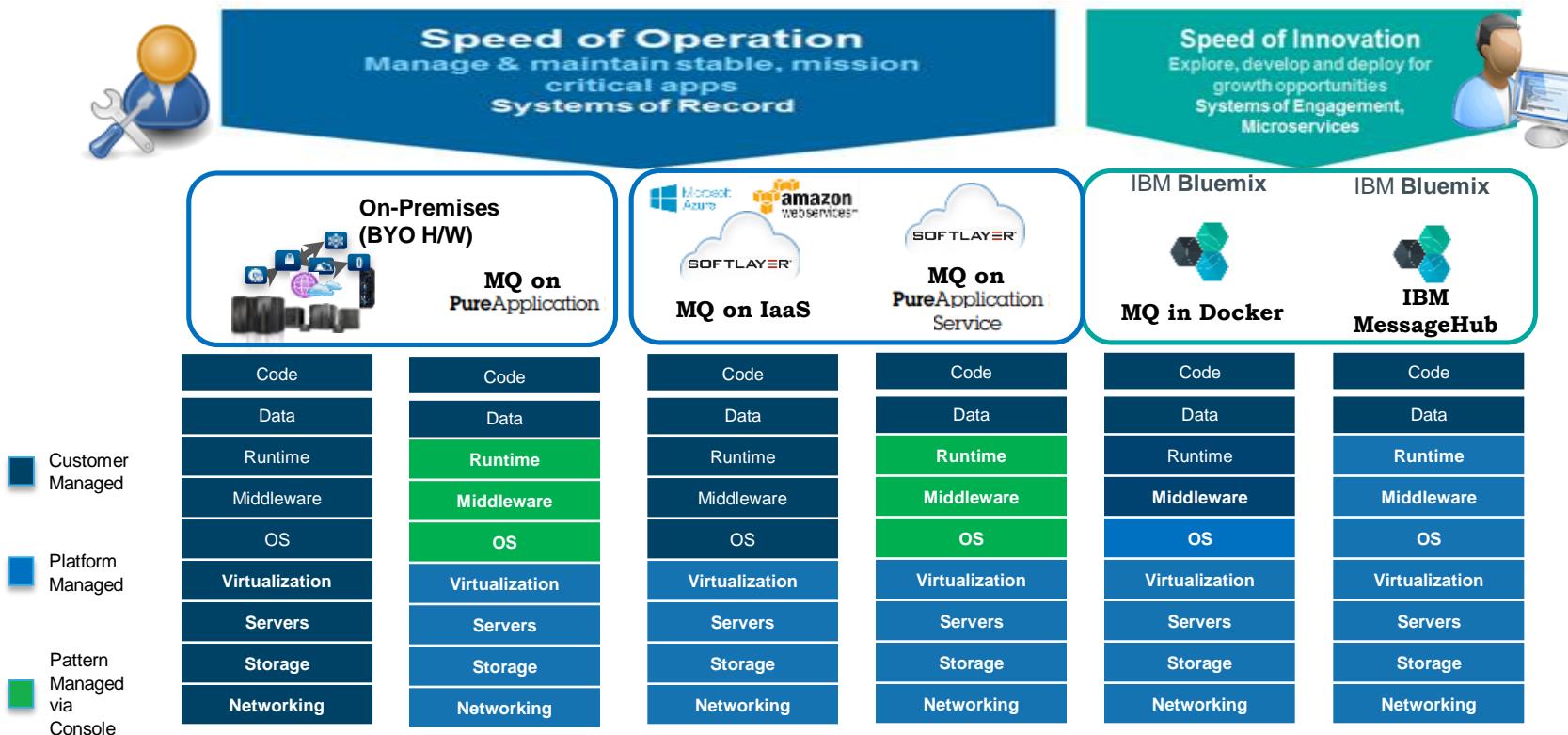
- Original “base” IBM MQ reliable messaging. Packaged to include MQ AMS + MQ MFT but base license entitlement only.
- IBM MQ AMS (Advanced Message Security) - Separate license
 - Adds encryption and decryption of messages as they are PUT and GET to queues to the base MQ Entitlement
- IBM MQ MFT (Managed File Transfer) Service - Separate license
- IBM MQ Advanced
 - Single Licensed part number for IBM MQ + IBM MQ AMS + IBM MQ MFT

IBM MQ Appliance

- MQ v8/v9 rendered as firmware in a Datapower form-factor

IBM MessageHub on Bluemix based on Kafka technology

Choosing the platform that's right for you



Evolving products into a Hybrid Integration Platform

A modular platform for integrating Apps, Data, APIs

Connect Seamlessly

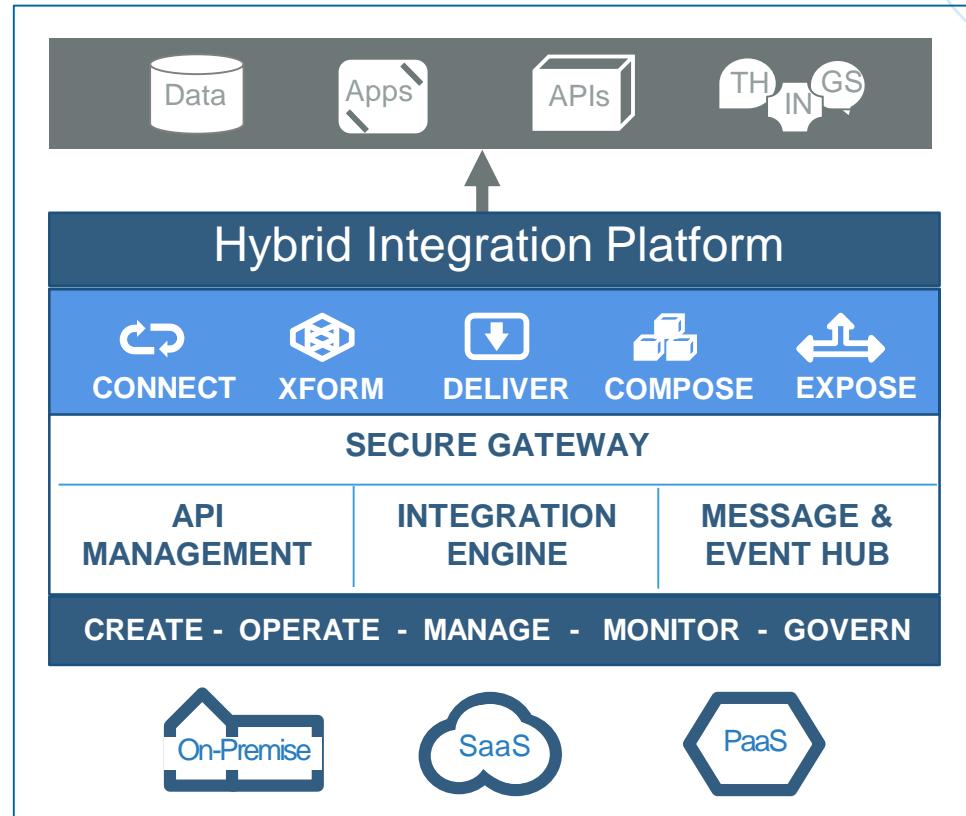
Hundreds of end points to apps and data in the cloud and on premise

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



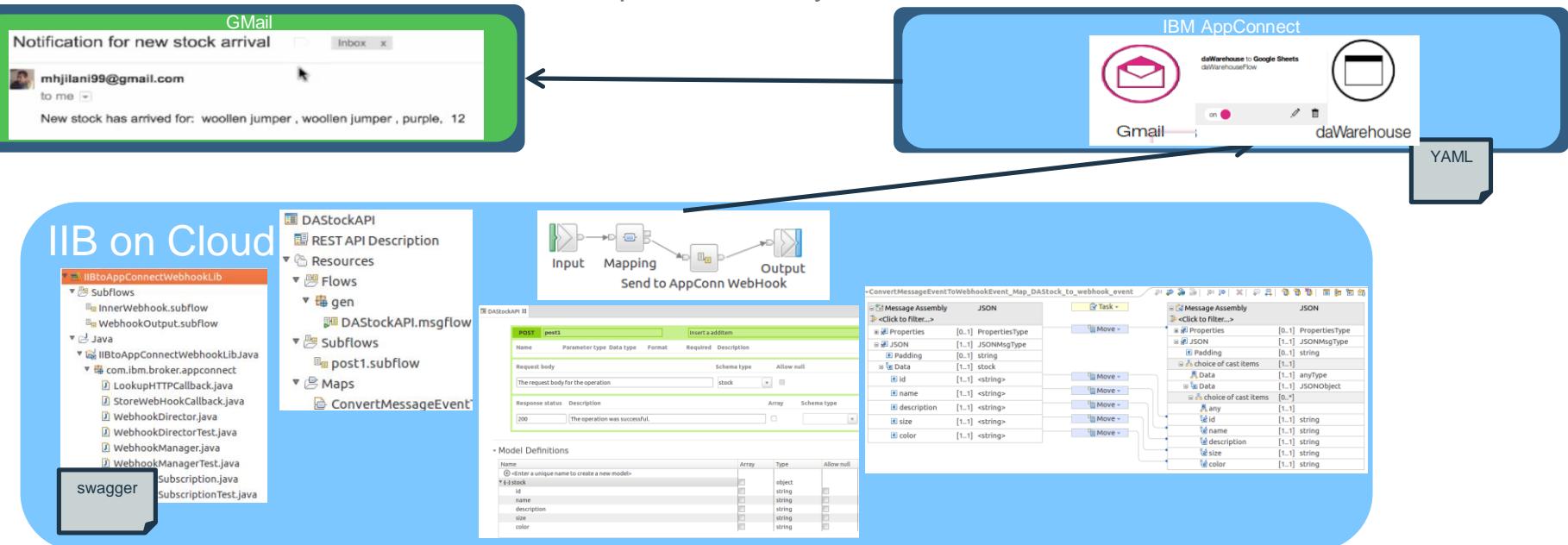


Hybrid Integration Use Case Introduction

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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

3rd Party
Cloud 1

3rd Party
Cloud 2



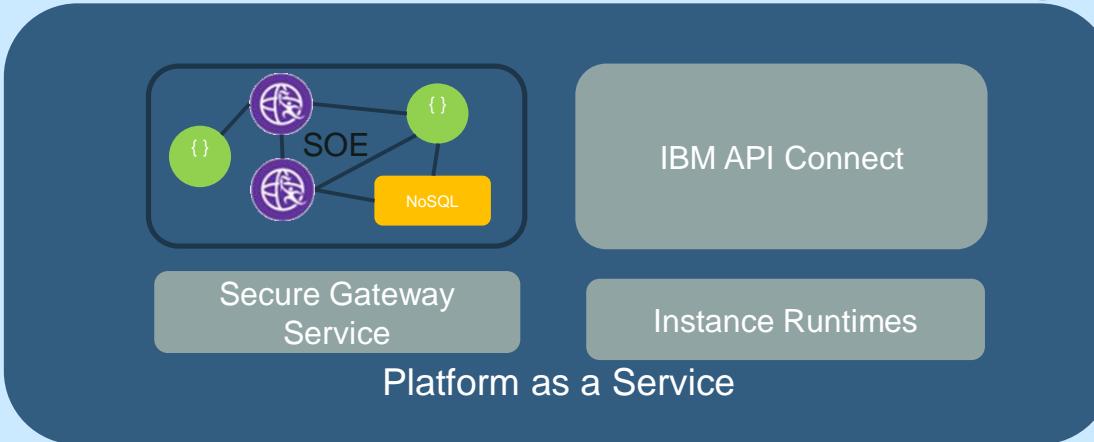
Reality of Cloud to On-premise Integration Landscape



Citizen
Integrator



Public Cloud
Dedicated

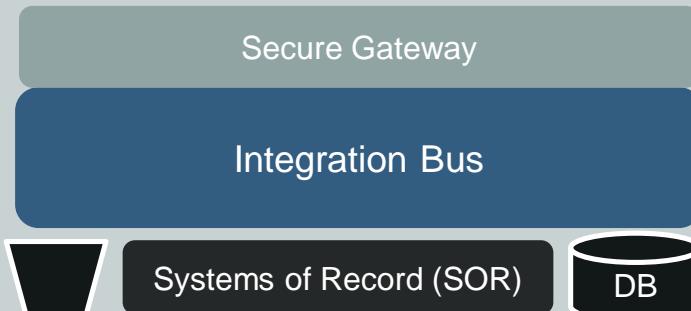


Developer



Shadow I.T

On-premise



Central I.T



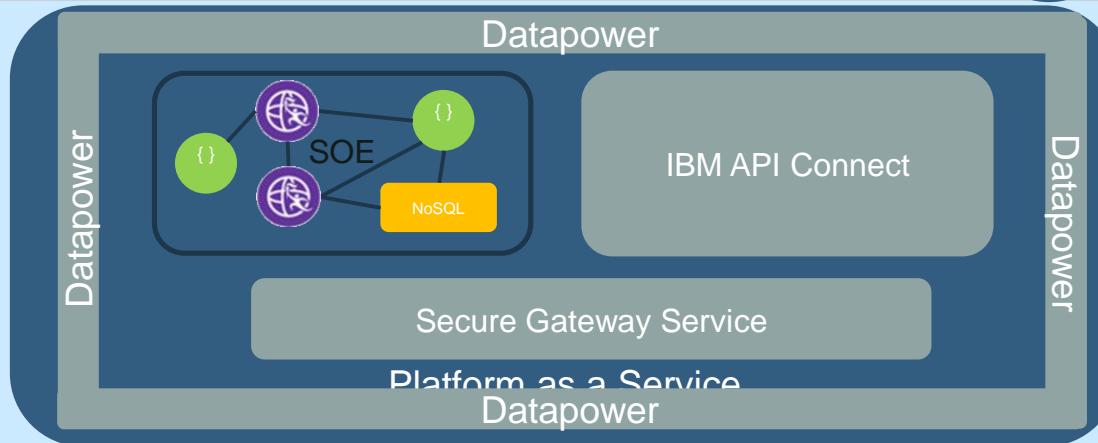
IBM view of Cloud to On-premise Integration Landscape

3rd Party
Cloud SaaS

IBM Cloud
SaaS

IBM Bluemix

On-premise



Citizen
Integrator



Developer



Shadow I.T



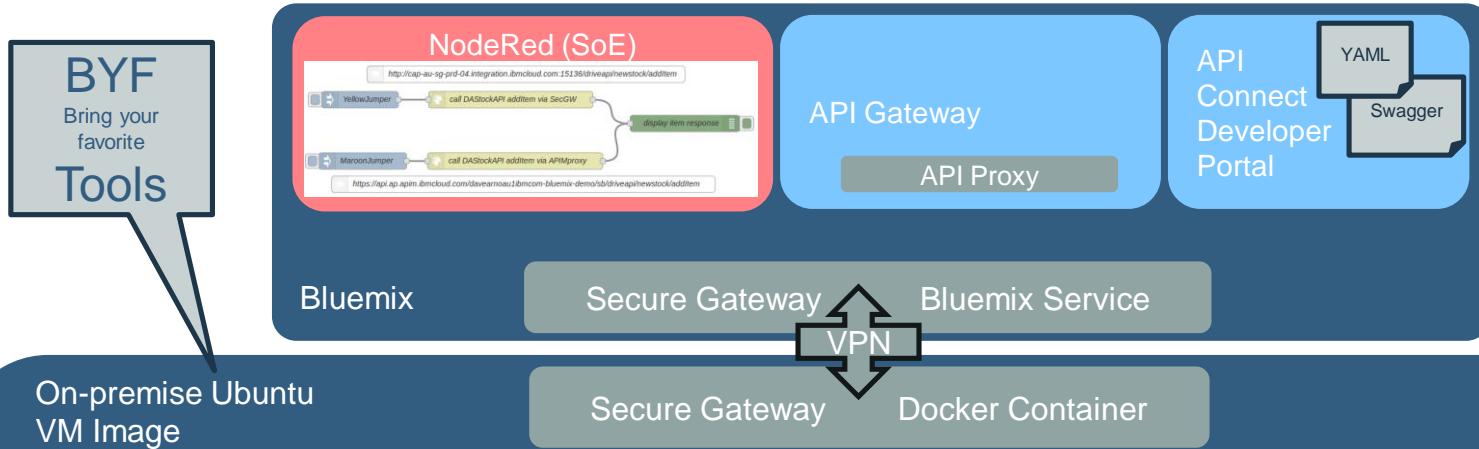
Central I.T

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



On-premise Ubuntu VM Image

System of Record (SOR)

CICS

IIB

M Q

IIB

POST postMember

Name: Name
Parameter type: Data type
Format: Required
Description: Insert a addition

Request body: Schema type: Member
Response status: Description: Array
Schema: 200
The operation was successful.

- Model Definitions
Name: Name
* E Member
polycnum
polycotype
firstname
lastname

CICS/MQSyncToStore_Mapping

Message Assembly MEMBER

Properties [0..1] PropertiesType

MEMBER [1..1] MEMBER

POLICYNUM [1..1] <PICKX_string>

POLICYTYPE [1..1] <PICKX_string>

FIRSTNAME [1..1] <PICKX_string>

LASTNAME [1..1] <PICKX_string>

STREETNUM [1..1] <PICKX_string>

STREETNAME [1..1] <PICKX_string>

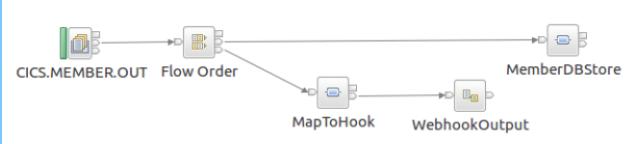
CITY [1..1] <PICKX_string>

PCODE [1..1] <PICKX_string>

AGE [1..1] <PICKX_string>

Insert into SAMPLE/DEMO/MEMBER

Return

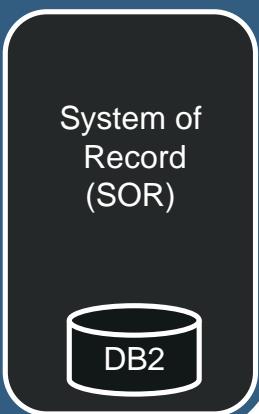
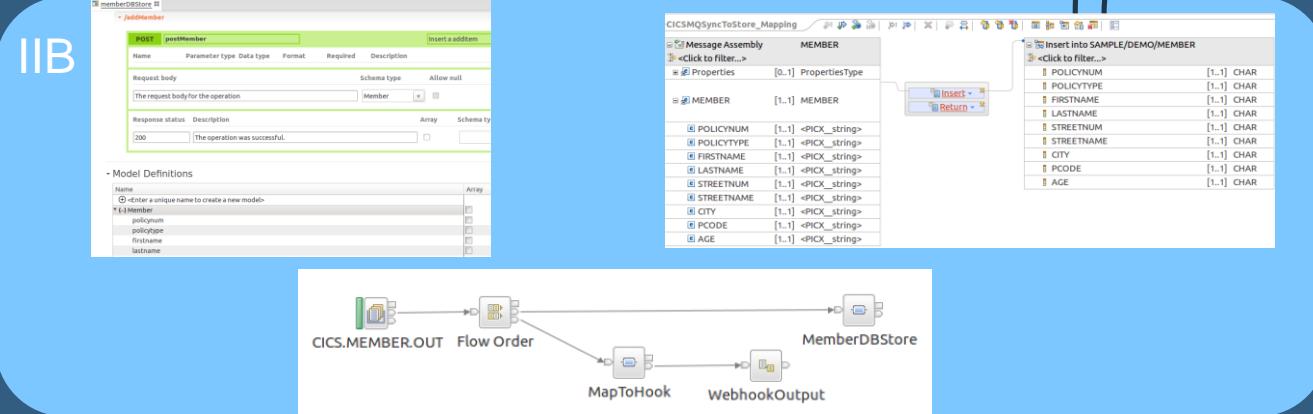
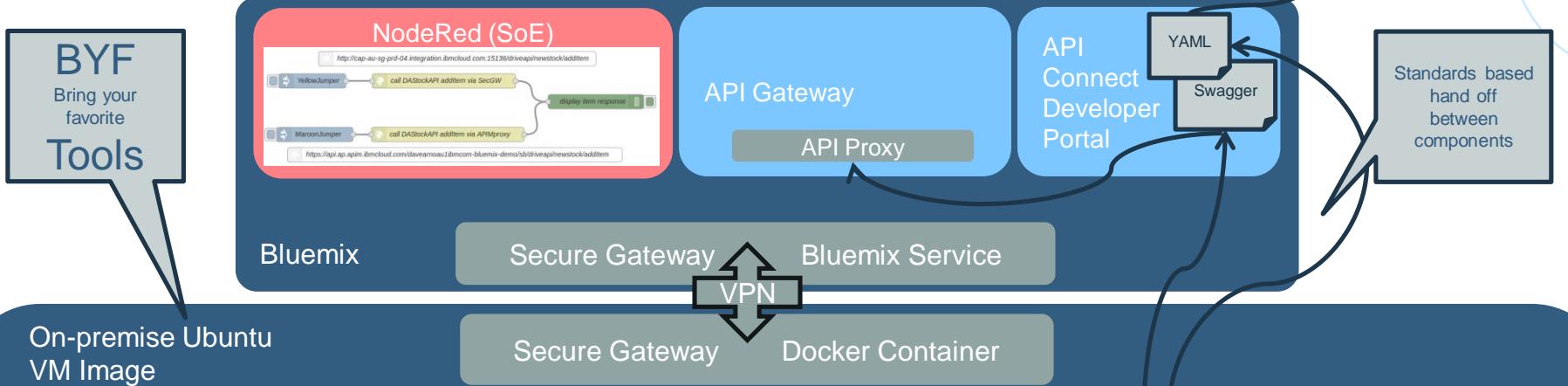


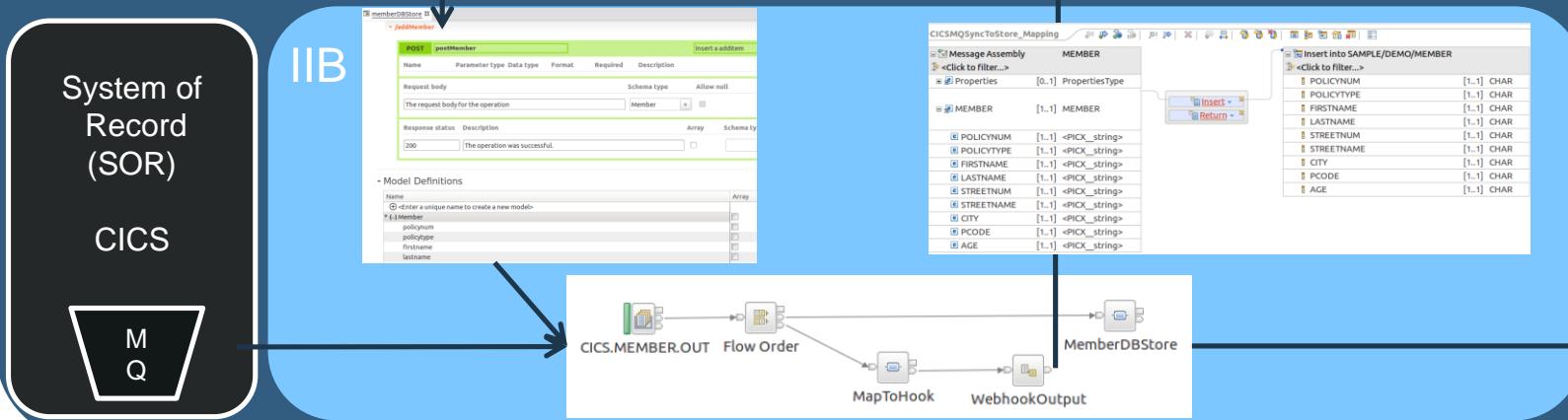
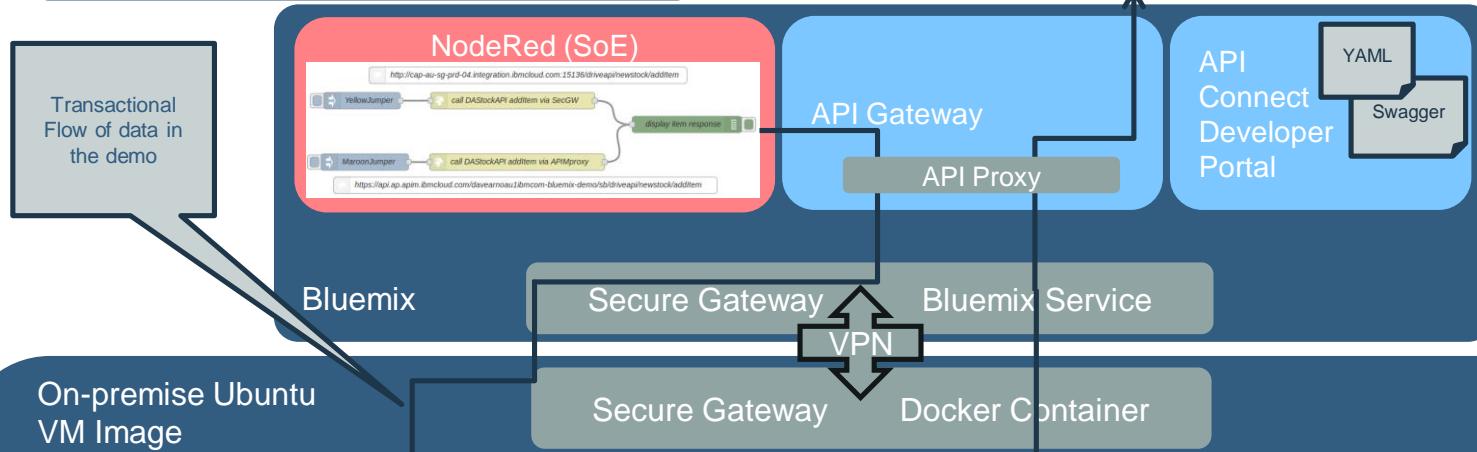
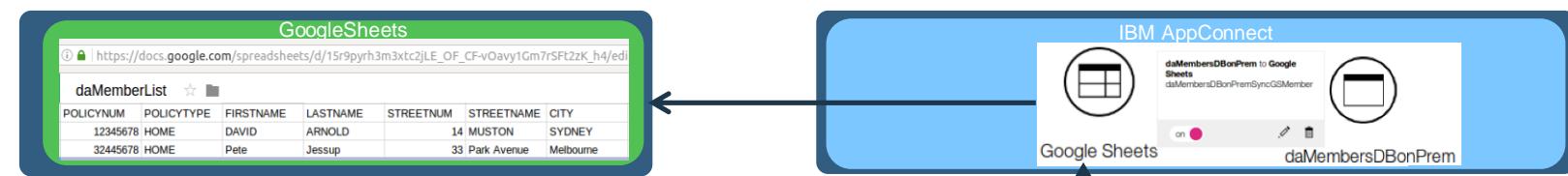
System of Record (SOR)

DB2

GoogleSheets

daMemberList	POLICYNUM	POLICYTYPE	FIRSTNAME	LASTNAME	STREETNUM	STREETNAME	CITY
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	32445678	HOME	Pete	Jessup	33	Park Avenue	Melbourne

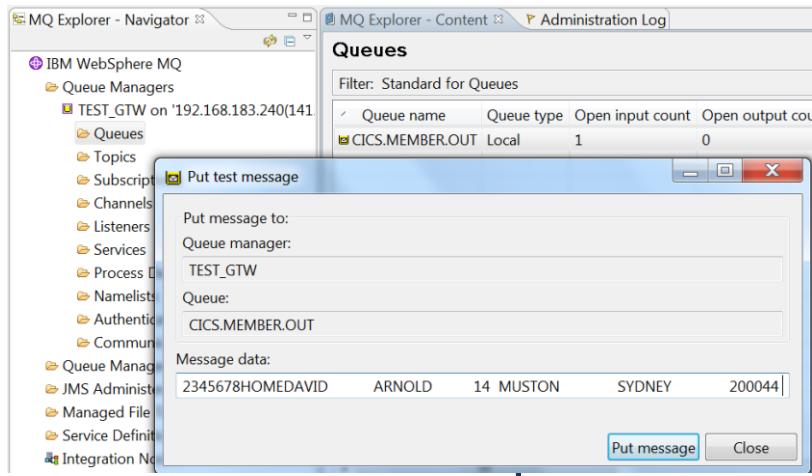






Building out the end to end Hybrid Integration Use Case

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1. OnPremSetUp
2. ModellingCICSdata
3. BuildMQtoDB2BaseIntegration

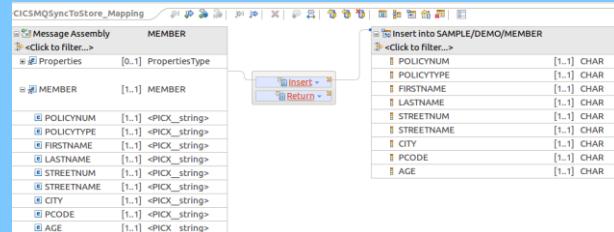
On-premise Ubuntu
VM Image

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

200 The operation was successful.

- Model Definitions

Name Enter a unique name to create a new model:
* Member
 policynum
 policytype
 firstname
 lastname

CICSMQSyncToStore_Mapping

Message Assembly MEMBER

Properties [0..1] PropertiesType

MEMBER [1..1] MEMBER

POLICYNUM [1..1] <PICKX_string>

POLICYTYPE [1..1] <PICKX_string>

FIRSTNAME [1..1] <PICKX_string>

LASTNAME [1..1] <PICKX_string>

STREETNUM [1..1] <PICKX_string>

STREETNAME [1..1] <PICKX_string>

CITY [1..1] <PICKX_string>

PCODE [1..1] <PICKX_string>

AGE [1..1] <PICKX_string>

Insert into SAMPLE/DEMO/MEMBER

Insert Return



4. Build Member API By Hand

5. Test Member API to MQ

6. Test Member API to DB2

System of Record (SOR)



POST http://cap-au-sg-prd-03.integ 

+ Headers

- Data

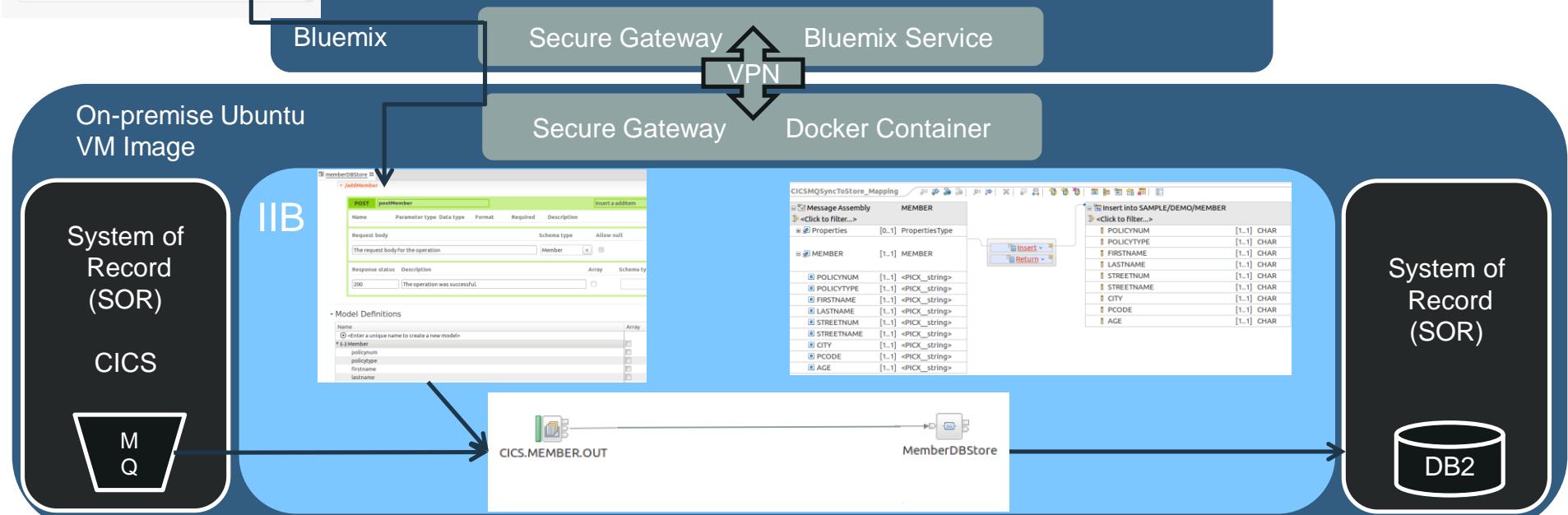
Select one of the options below to include data with the request.

Custom

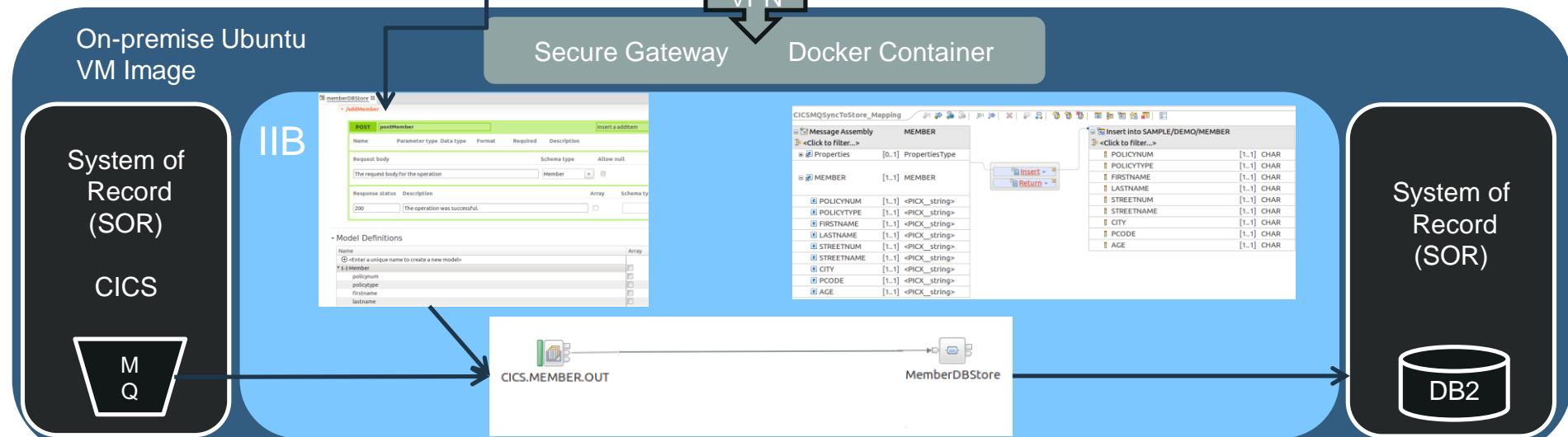
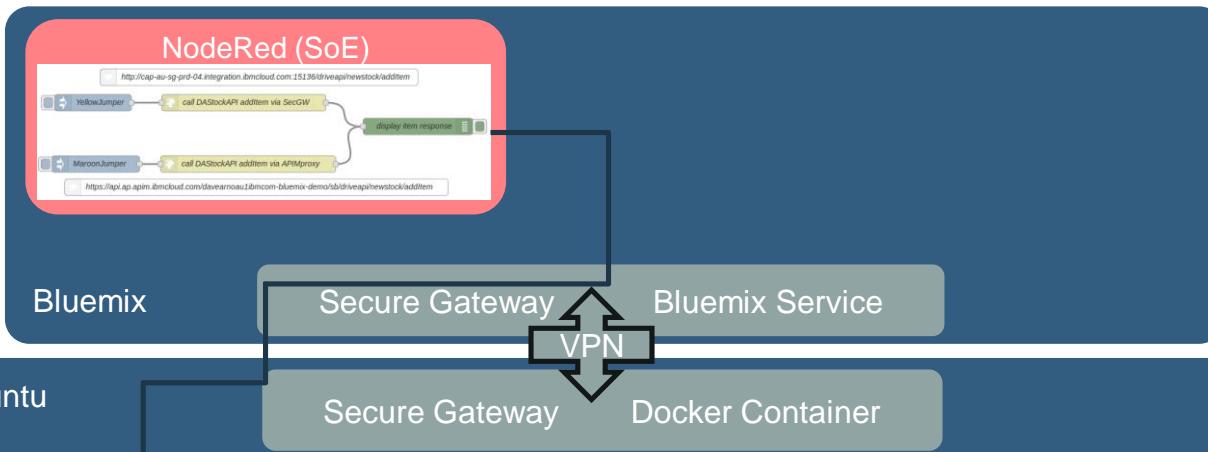
Enter the data and its corresponding MIME type below.

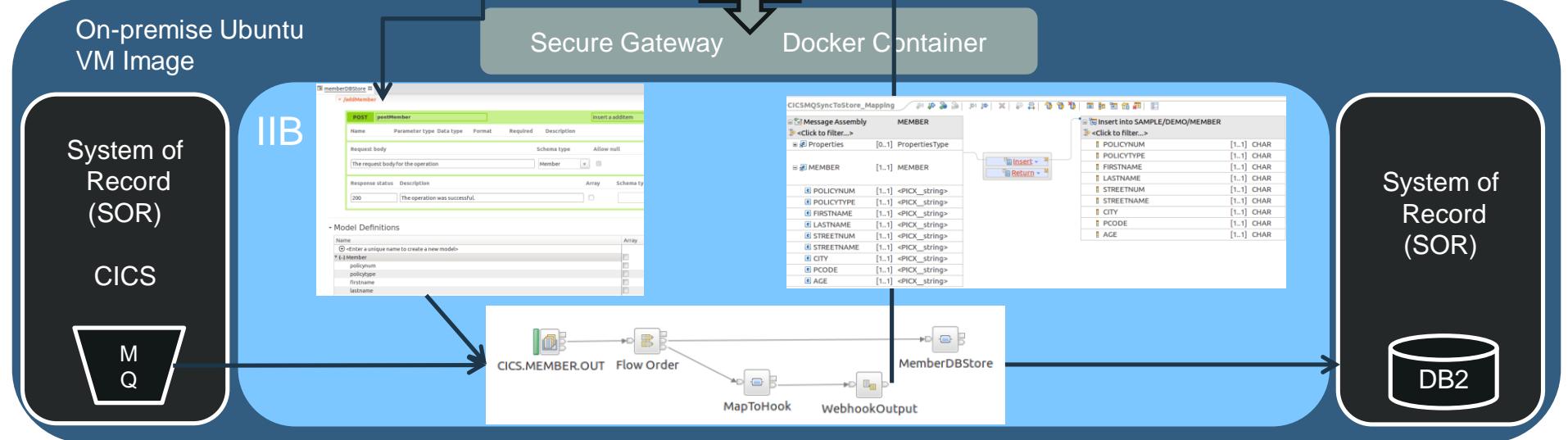
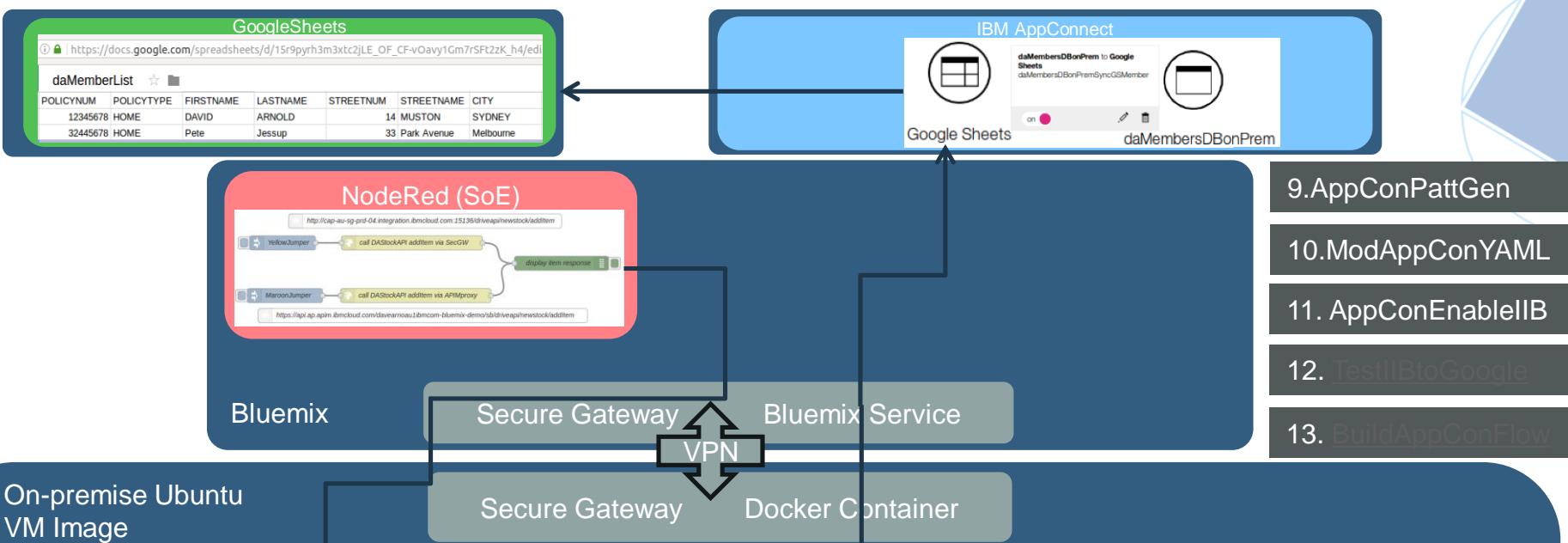
MIME type

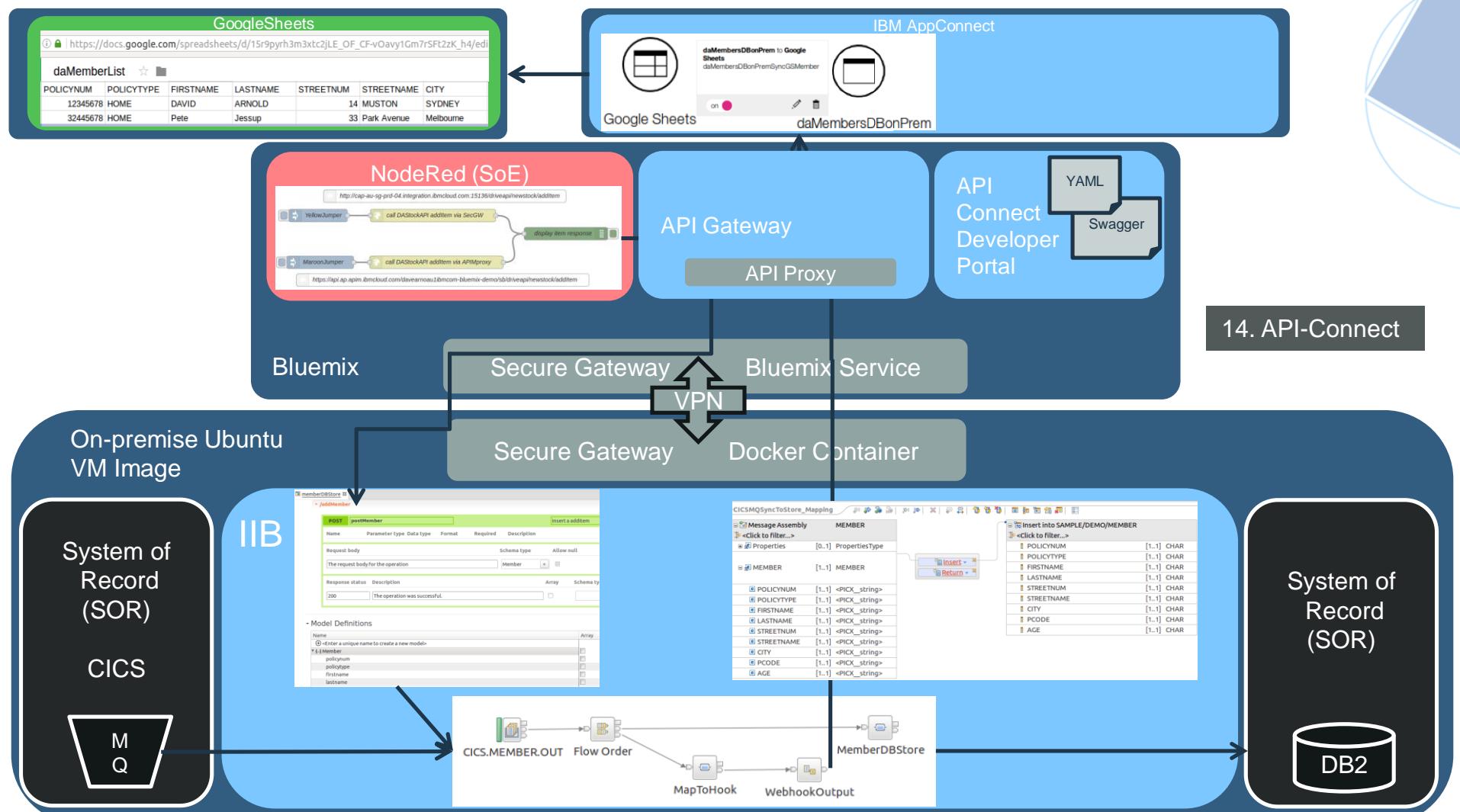
```
{
  "lastname": "Arnold",
  "streetnum": "100",
  "streetname": "Usecase Street",
  "city": "Demoville",
  "PCODE": "2000",
  "age": "44"
}
```

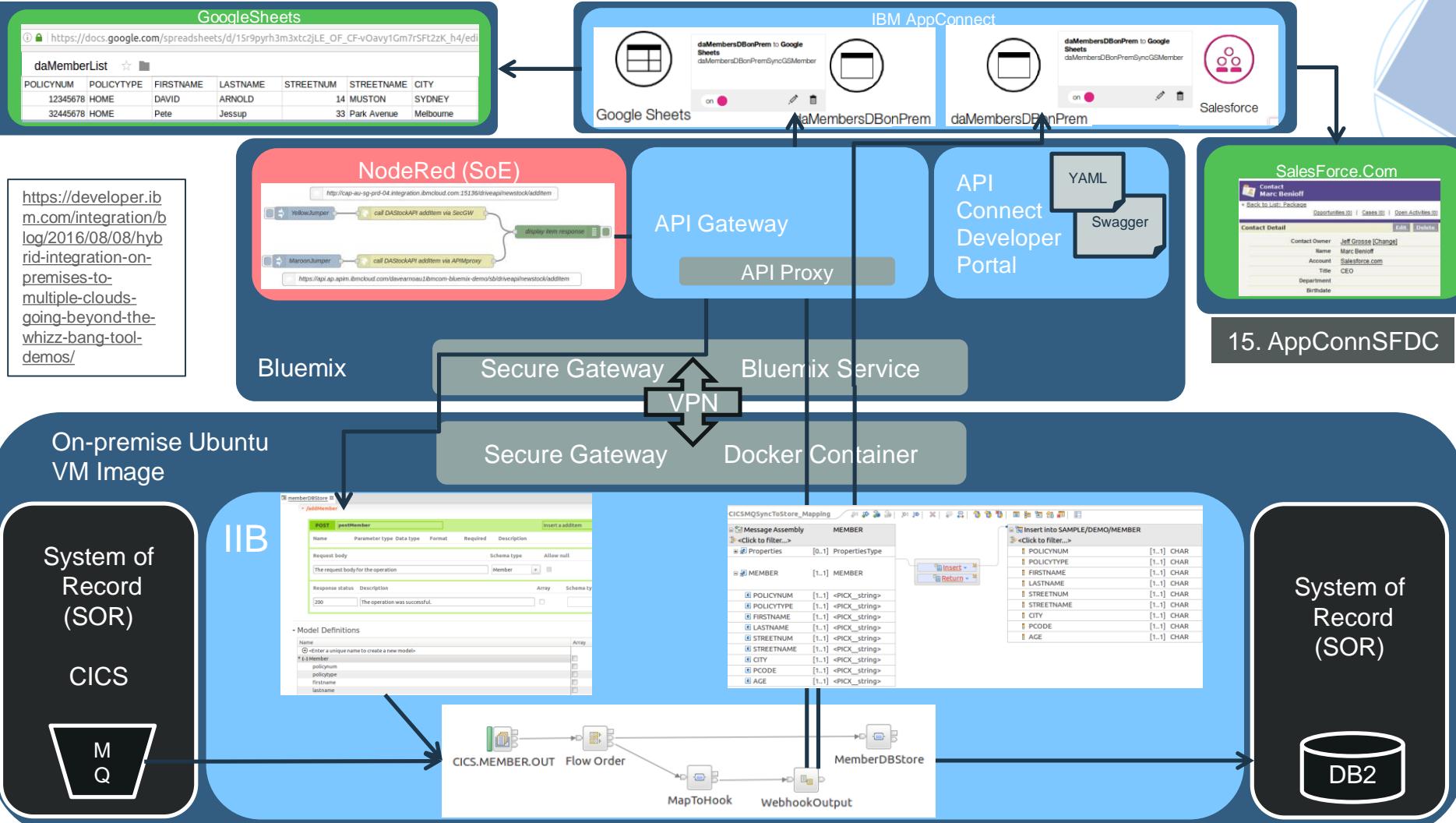


8. Build and Test NodeRed App









On-premise
Ubuntu
VM Image

System of
Record
(SOR)

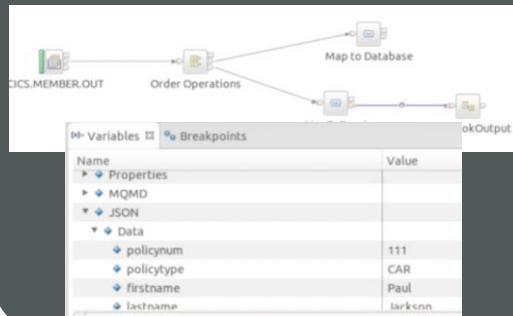
CICS



IIB

IBM Integration Bus Built in Test tools

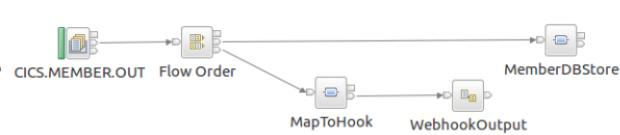
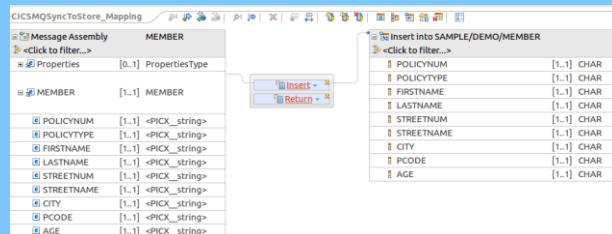
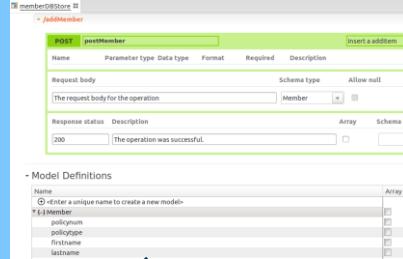
Debugger



Flow Exerciser



16. IIB Debug



System of
Record
(SOR)



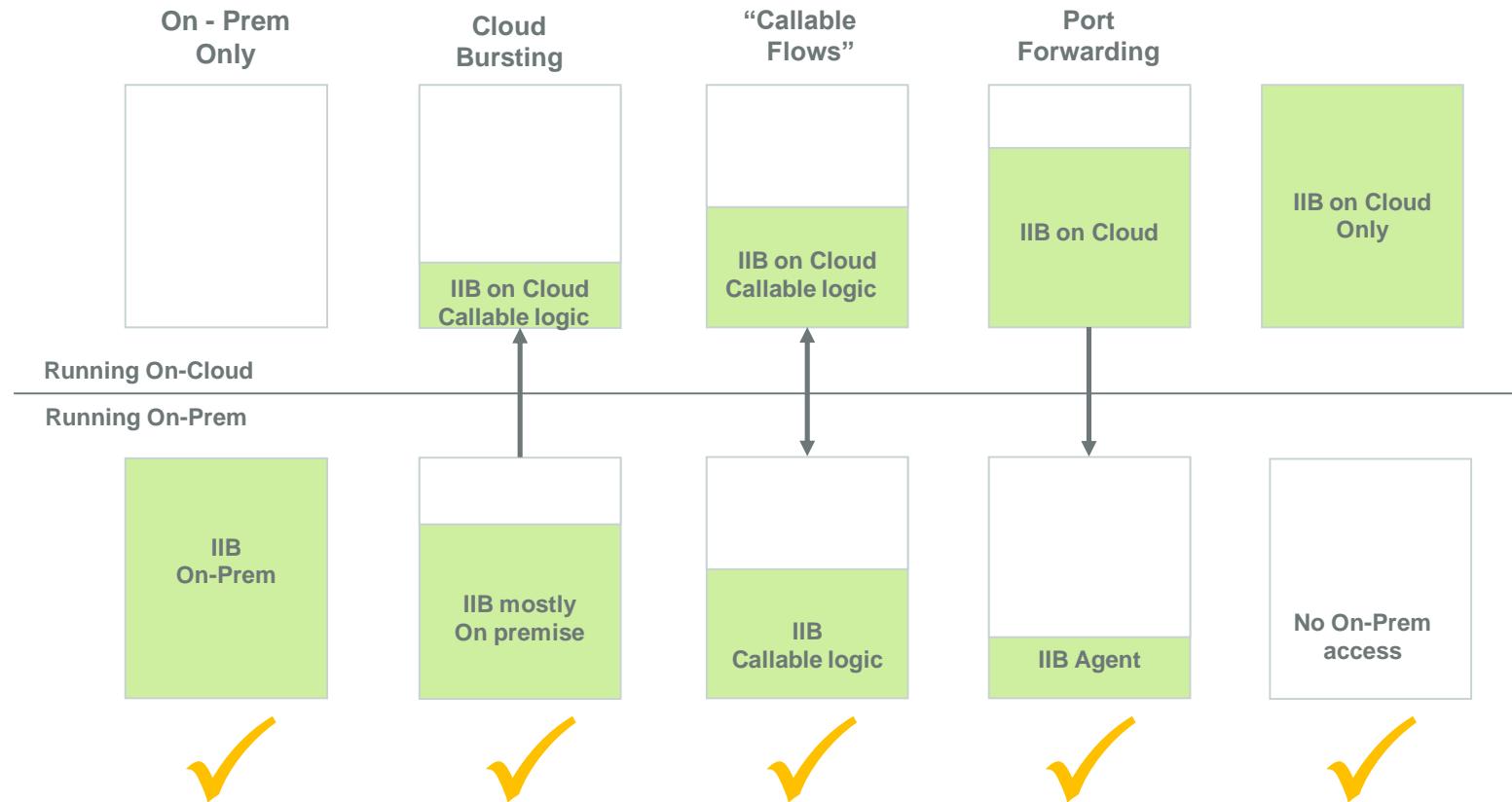


IBM Hybrid Integration

Alternative Use Case with IIB on the Cloud whilst Systems of Record remain on premise

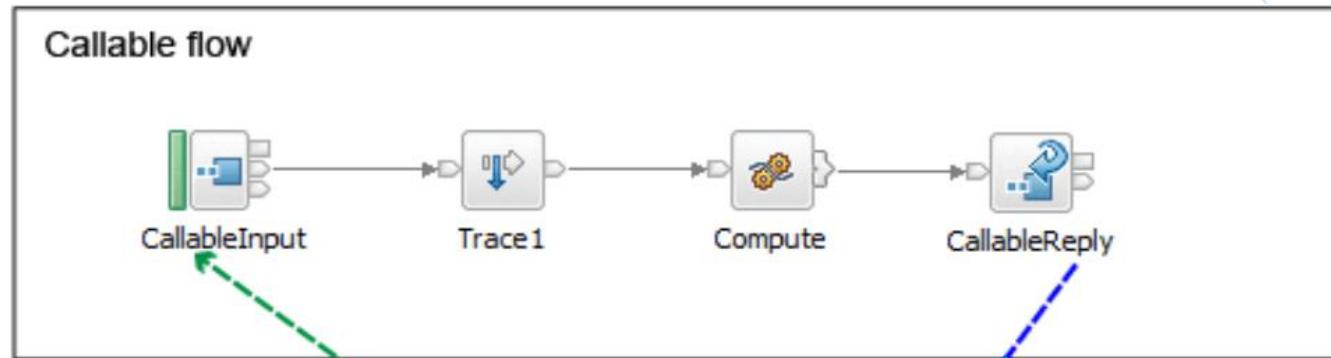
InterConnect 2016
outthink limits

IIB is designed for a phased move to Integration on Cloud

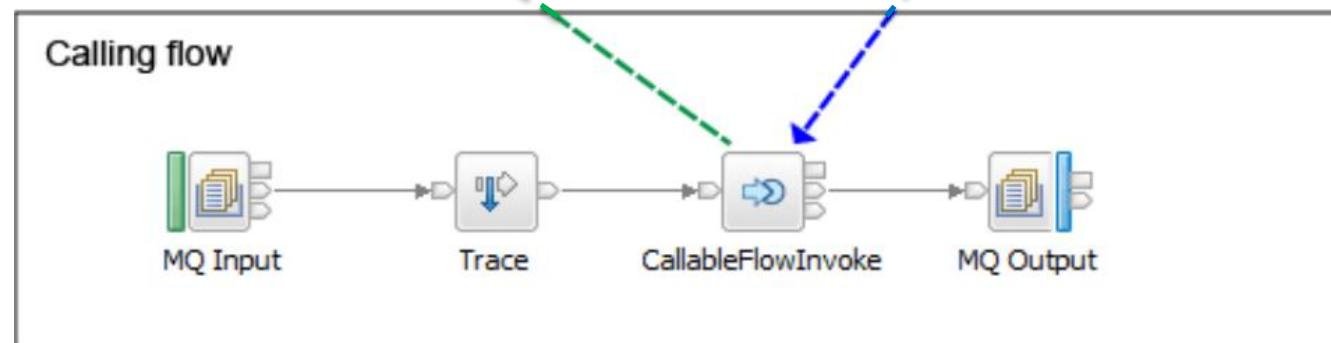


Key Capability – Callable flows

Developers add FlowInvoke node to a message flow which serializes and sends the payload over a secure tunnel (built "IIB Switch") to a "FlowInput" node in another flow, uses the FlowReply send the response back to the original FlowInvoke.



Essentially this allows you to bridge between IIB on premise and IIBoC deployments and vice-versa



Key Capability – IIB Switch Agent

