

Deep Dive into App Connect Integration

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IBM

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Session: JH



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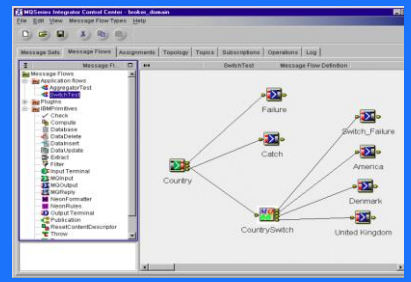
What is Integration For?

Provides routing and transformation to enable integration of any application and data securely

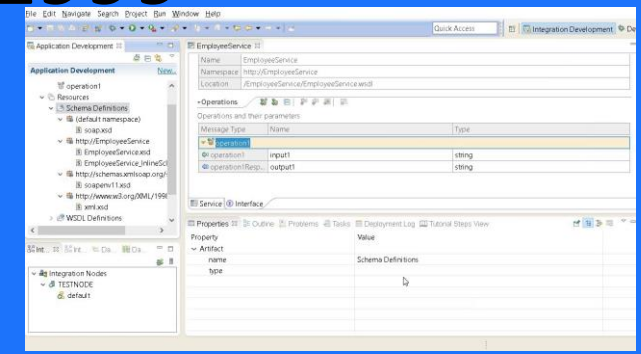


20 years of innovation

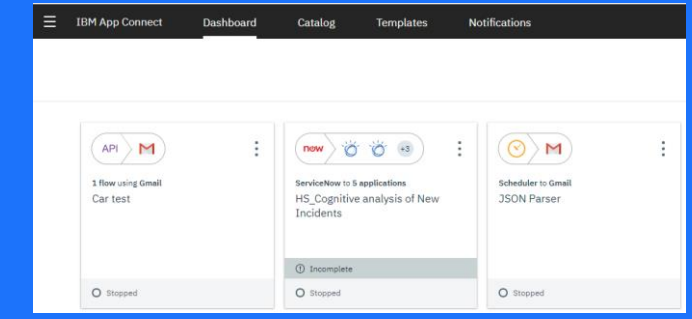
#1 in market share for application integration every year since 1999



WebSphere Business Integration Message Broker



WebSphere Message Broker



IBM Integration Bus
IBM App Connect



60 years of innovation

Hursley Laboratory, Winchester
Home of CICS, WebSphere MQ, App Connect +
more



Current trends in Integration

Predicts 2019: Democratization of IT Requires Different Strategies for Integration

Gartner

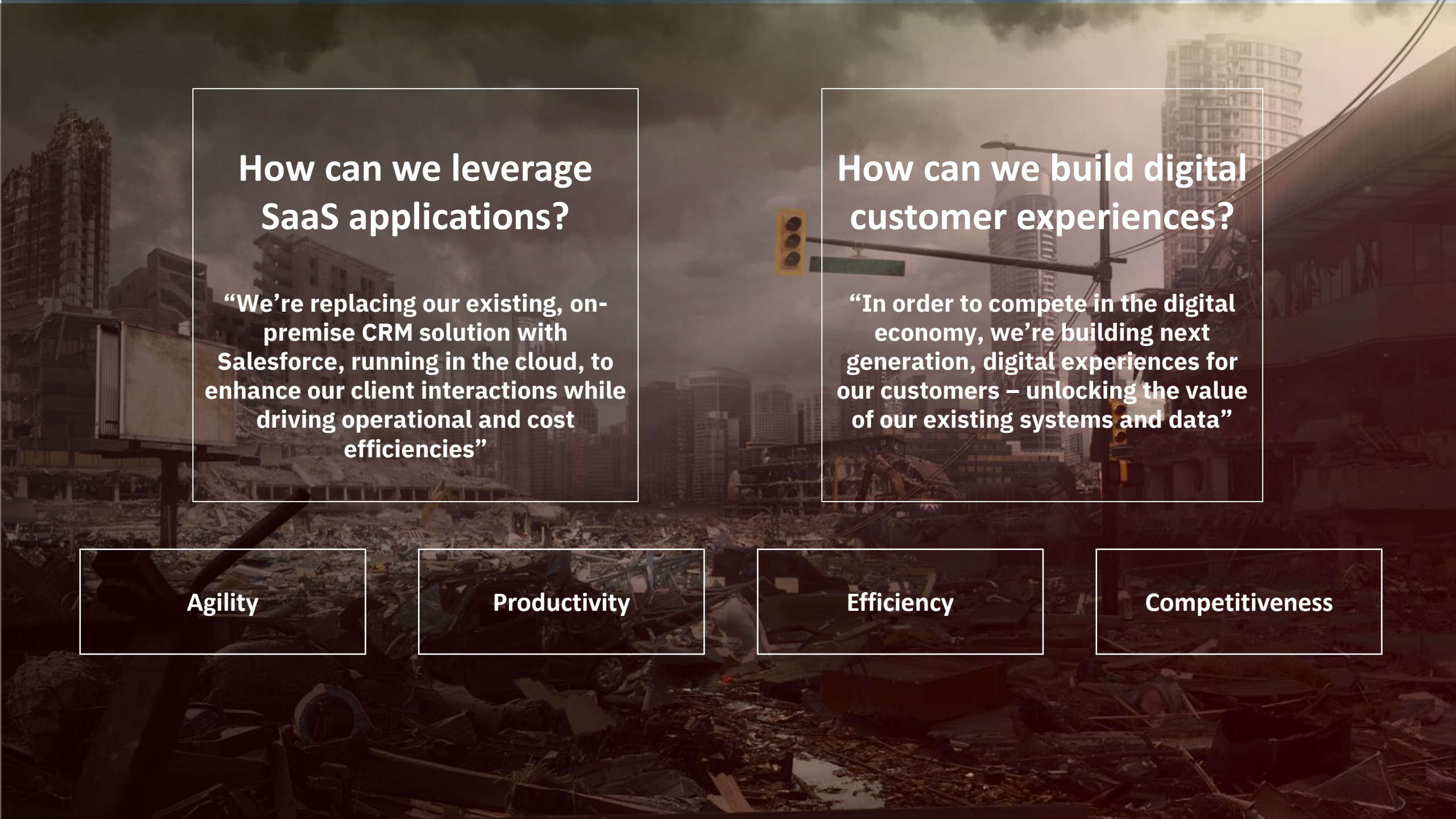
Published 21 January 2019 - ID G00375379 - 22 min read

Integration is no longer the realm of the specialist. Application leaders responsible for integration should look to use modern technologies and approaches in order to remove the burden on specialists and empower individuals throughout their organization.

<https://www.gartner.com/document/3898763?ref=TypeAheadSearch&qid=d7adfdd29e91ae19>

Appocalypse





How can we leverage SaaS applications?

“We’re replacing our existing, on-premise CRM solution with Salesforce, running in the cloud, to enhance our client interactions while driving operational and cost efficiencies”

How can we build digital customer experiences?

“In order to compete in the digital economy, we’re building next generation, digital experiences for our customers – unlocking the value of our existing systems and data”

Agility

Productivity

Efficiency

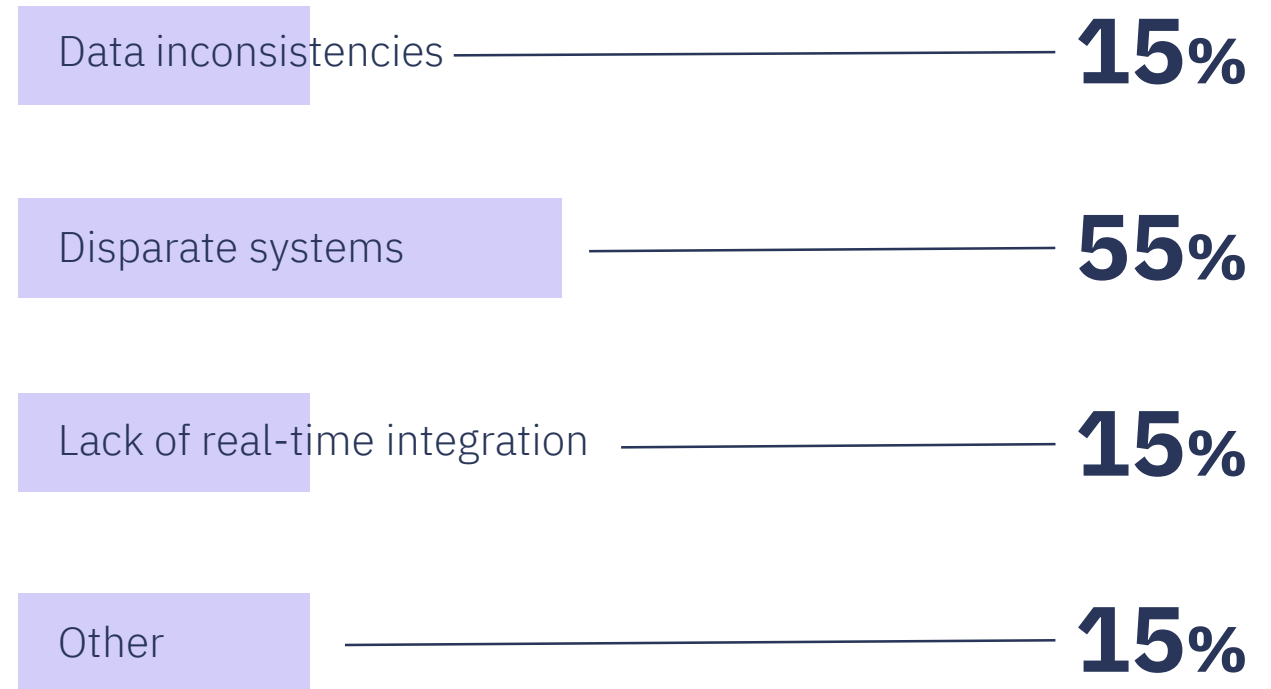
Competitiveness

84%

Of companies
fail in their Digital
Transformation
objectives

[Source: Forbes](#)

The Cause of an Incomplete Customer View by Company over 10,000 employees



**2017 State of Salesforce Report, Bluewolf, an IBM Company*



How do we

Escape the *Apocalypse?*

*Make it quicker
and easier to
build
integrations*

*Support new
integration use
cases, ride the
iPaaS wave*

*Reduce the
complexity of
the integration
environment*

*Embrace **agile**
integration
architecture*

In 2017, in large organizations, at least 65% of new integration flows were developed outside the control of middleware teams.

-Gartner



Integration specialist

Builds complex integrations across a varied ecosystem.

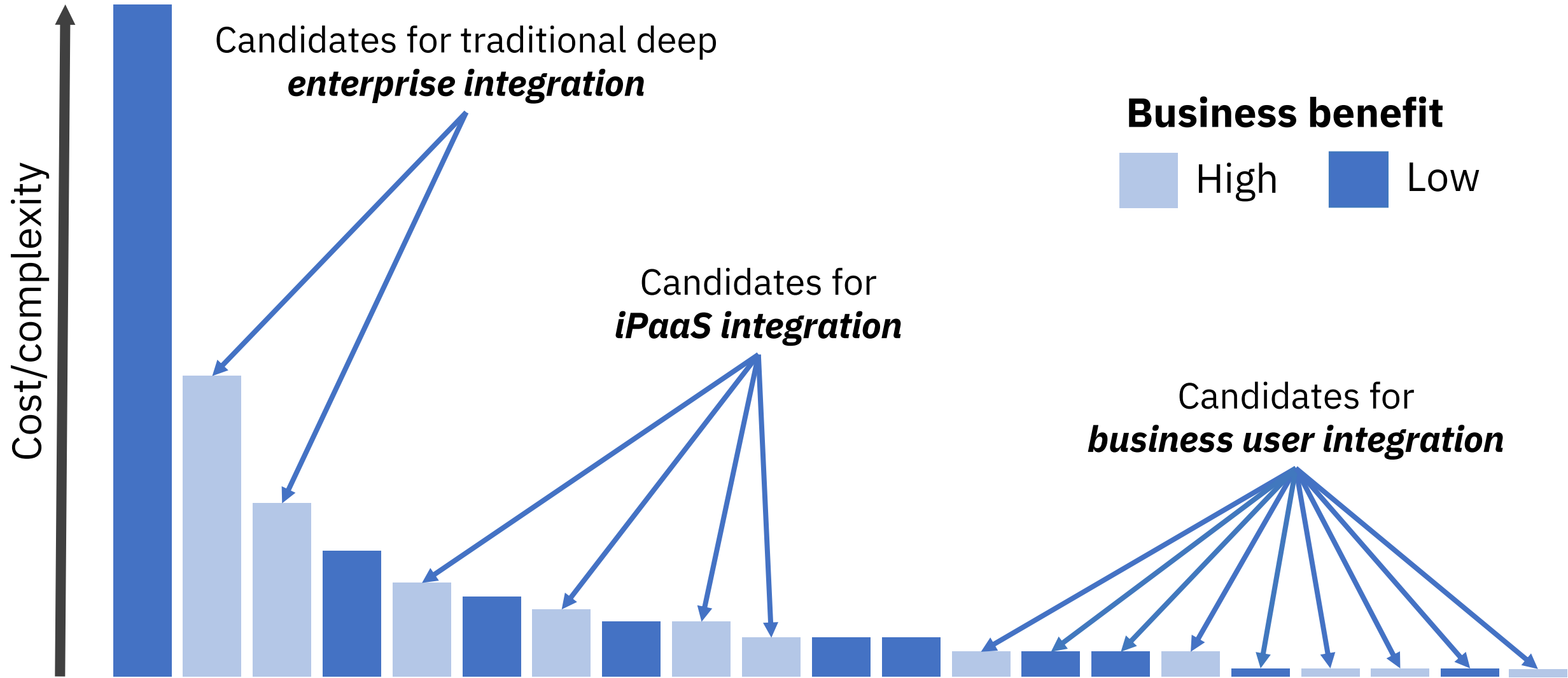
Responsible for managing and securing data, enterprise-wide.

Application Developer

Builds applications that need to access data from across the organisation.

In first instance will look to write code rather than use a tool.

The long tail of integrations



Integration Platform as a Service (iPaaS)

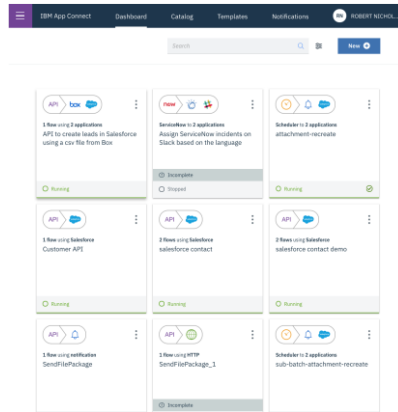
Characteristics of an iPaaS

- Vendor operated and managed platform
- Model-driven, no-coding development tools
- Prepackaged integrations
- Embedded API management
- Rapidly increasing range of capabilities

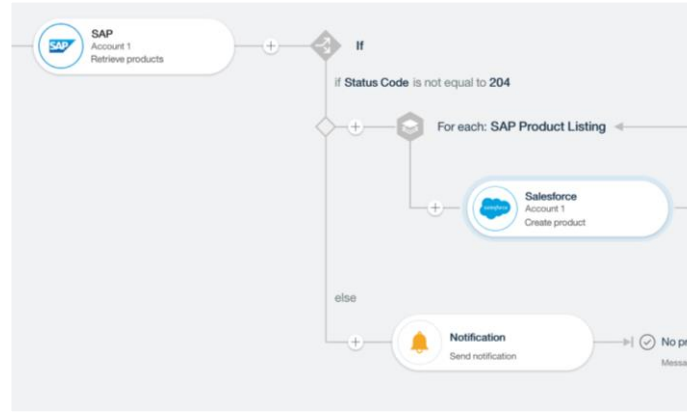
Best for...

- Short time to value
- Cloud/ Mobile center of gravity
- Mid-complexity integrations
- Unconventional integrators (citizen/ ad-hoc)
- Businesses willing to invest in new tech/ skills

IBM App Connect Designer



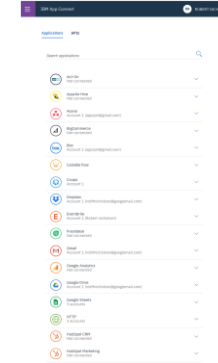
easy, guided, intuitive
data-driven tooling



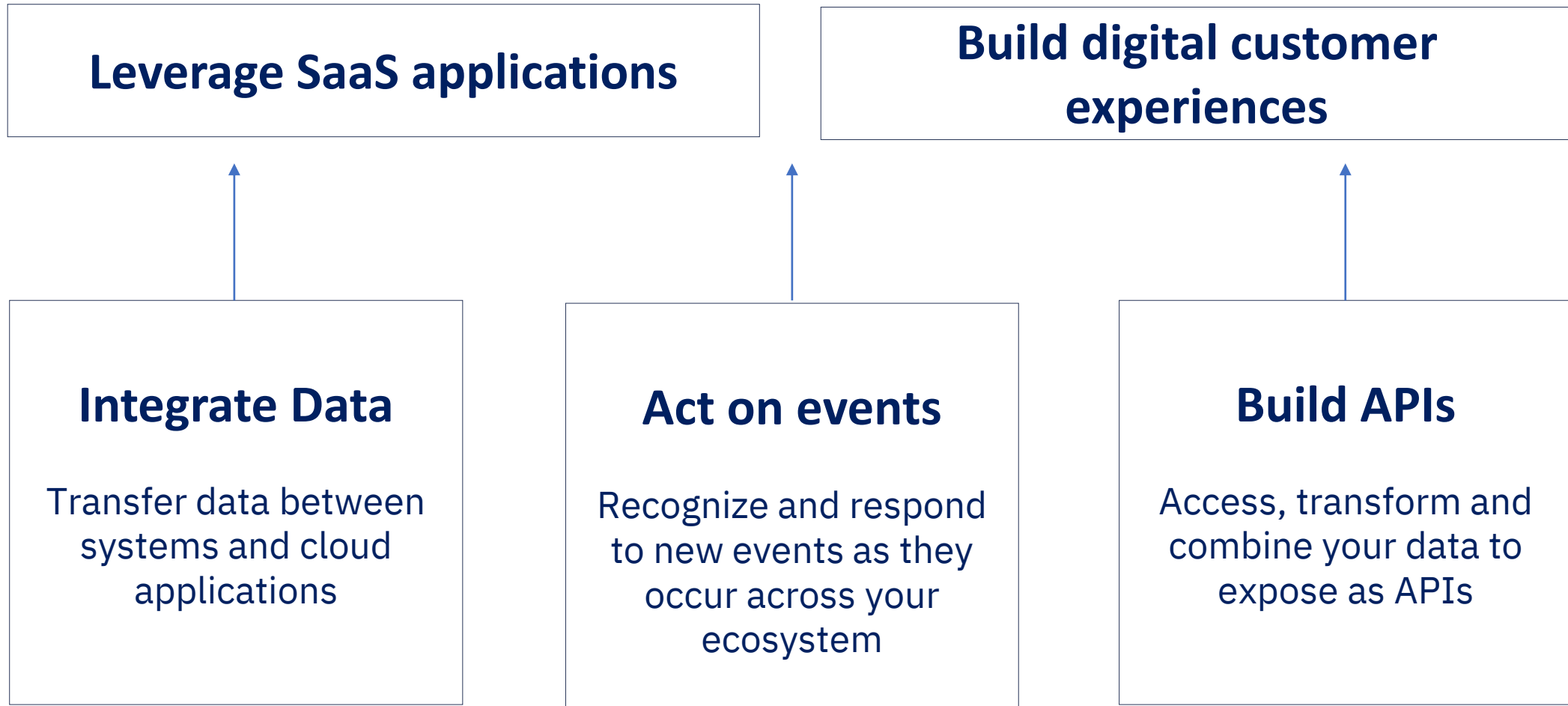
for all type of users
citizen, ad-hoc,
specialist integrators



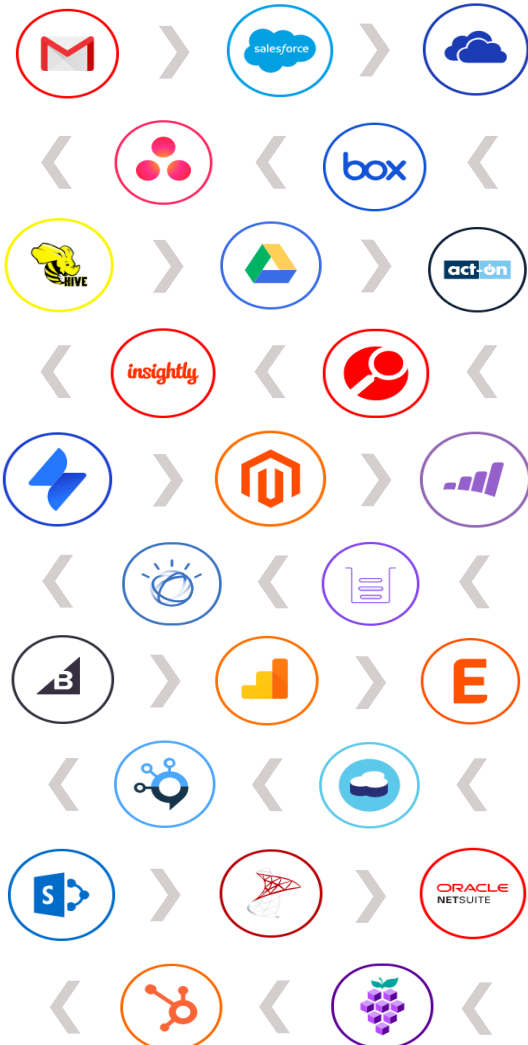
increase productivity
reduce time to market
increase ROI



scalable, secured
industry standard &
all best practices
baked into the platform



Connect Applications and Data



Leverage 100+ pre-built connectors

Sales, HR, CRM, HCM, Finance, Marketing, AI...

Built-in optimization

- Metadata and business object aware
- Configured to listen and trigger to change events
- Process data in batch/bulk when moving large volume of data
- Robust and resilient to failure with built-in fail-over and retry mechanism

All SaaS endpoints are included in Enterprise license

Customers get free entitlement to connectors with v11 via a free cloud hosted plan
































[Contact AskApplicationIntegration@uk.ibm.com to provision free plan](mailto:AskApplicationIntegration@uk.ibm.com)

Can't find the connector you need...

Contact offering management to help us understand opportunities you are seeing and get things prioritized

[Contact AskApplicationIntegration for a connector](#)

Current List of connectors

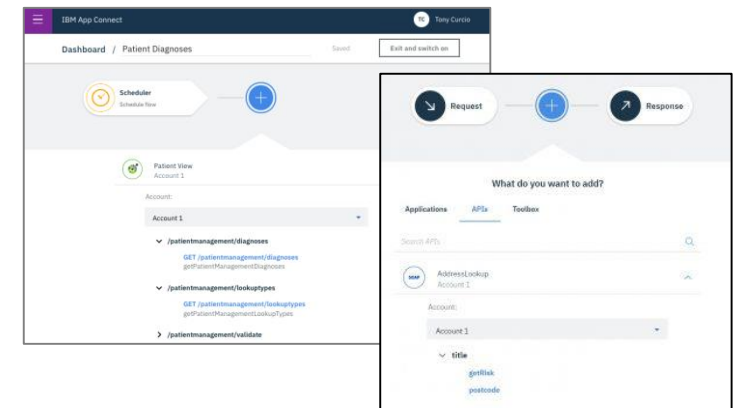
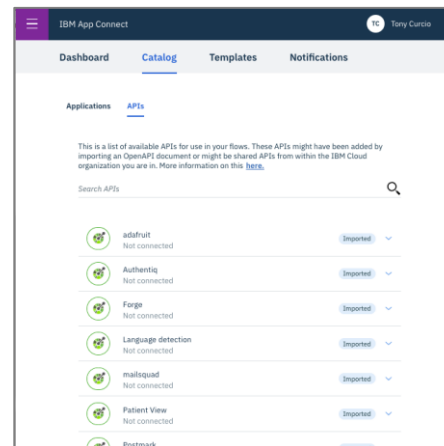
 Act-On Not connected	 HubSpot Marketing Not connected	 Jira Service Desk Not connected	 Salesforce Files Not connected	 Wufoo Not connected
 Apache Hive Not connected	 IBM Cloud Object Storage S3 Not connected	 Magento Not connected	 Salesforce Libraries Not connected	 Zoho CRM Not connected
 Asana Account 1 (appcjet@gmail.com)	 IBM Cloudant Not connected	 MailChimp Not connected	 Salesforce Marketing Cloud Not connected	
 BigCommerce Not connected	 IBM Db2 Account 1	 Marketo Not connected	 Salesforce Pardot Not connected	
 Box Account 1 (appcjet@gmail.com)	 IBM Event Streams Account 1	 Microsoft Dynamics 365 for Sales Not connected	 Salesforce Service Cloud Not connected	
 Callable flow	 IBM Food Trust Not connected	 Microsoft Office 365 Not connected	 SAP (via OData) Not connected	
 Coupa Account 1	 IBM MQ Not connected	 Microsoft OneDrive for Business Not connected	 ServiceNow Account 1	
 Dropbox Account 1 ([redacted]@googlemail.c	 IBM Watson Campaign Automation Not connected	 Microsoft SharePoint Account 1	 SFTP Not connected	
 Eventbrite Account 1 (Robert nicholson)	 IBM Watson Discovery Account 1	 Microsoft SQL Server Not connected	 Slack Account 1 (rob_nicholson@uk.ibm.com)	
 Freshdesk Not connected	 IBM Watson Language Translator Not connected	 MySQL Not connected	 Stripe Not connected	
 Gmail Account 1 ([redacted]@googlemail.c	 IBM Watson Natural Language Classifier Not connected	 NetSuite CRM Not connected	 SugarCRM Not connected	
 Google Analytics Not connected	 IBM Watson Personality Insights Not connected	 NetSuite ERP Not connected	 SurveyMonkey Not connected	
 Google Drive Account 1 ([redacted]@googlemail.c	 IBM Watson Tone Analyzer Not connected	 NetSuite SuitePeople HCM Not connected	 Trello Not connected	
 Google Sheets 3 accounts	 InsideView Not connected	 Oracle Database Not connected	 Twilio Not connected	
 HTTP 2 accounts	 Insightly Not connected	 Salesforce 5 accounts	 Web Crawler Beta 6 accounts	
 HubSpot CRM Not connected	 Intacct Not connected	 Salesforce Commerce Cloud Digital Data Not connected	 WordPress Not connected	

Do you have an application definition file? [Add your application now](#)

Extend the reach of your connectivity



- Simplest means to register new endpoints supply an OpenAPI or WSDL file and give your “connector” a name and a description
- Connect securely to endpoints public/private, in cloud/on premise
- Onboard your org’s APIs, SaaS/Software (like [IBM Maximo](#)) or take advantage of online libraries like [apis.guru](#) to expand the org reach to 1000s of endpoints
- Once imported, these APIs can be easily added to any integration



Act on events

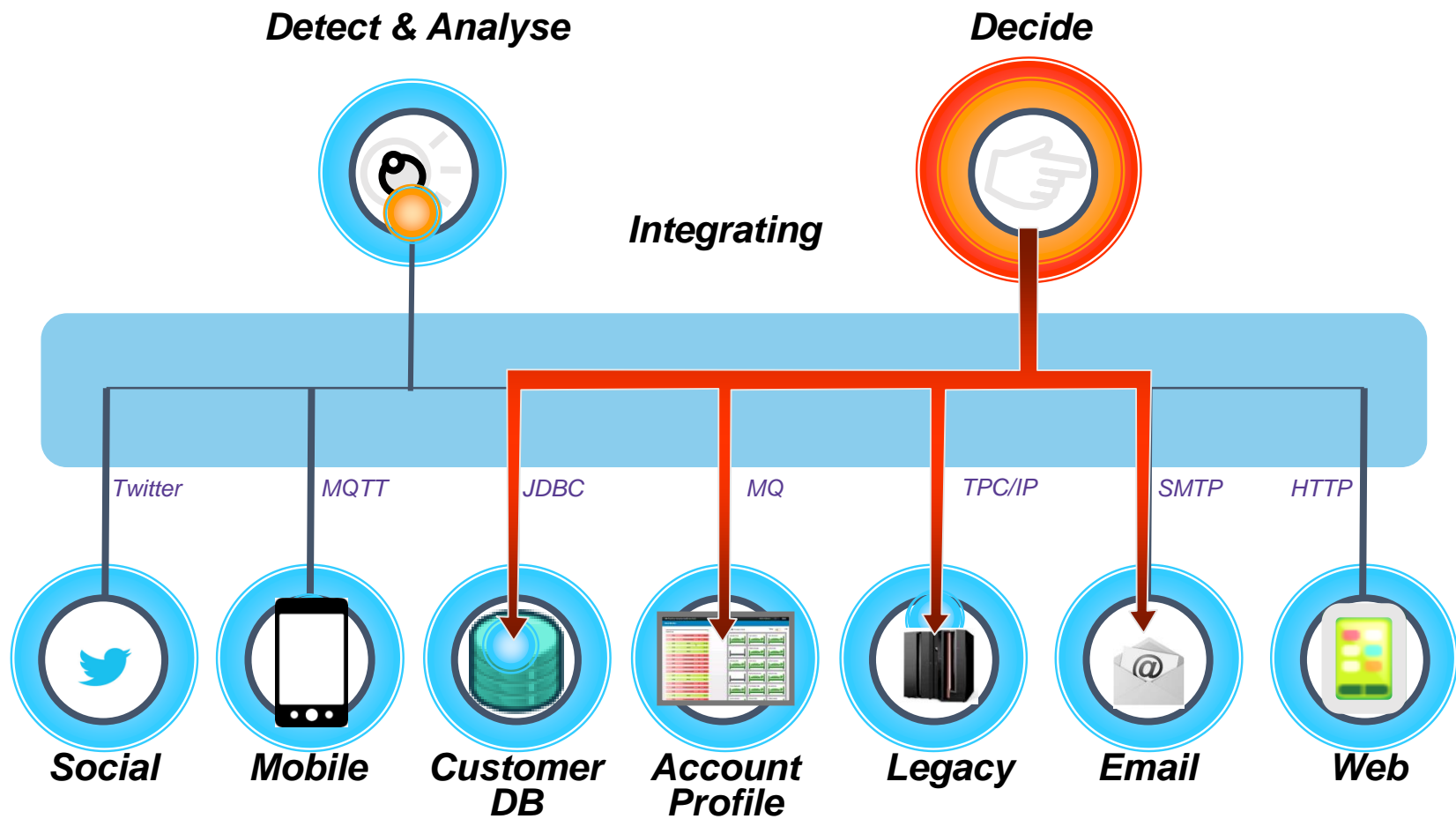
- New events are taking place across the organization:
 - New sales order
 - New marketing lead
 - Customer complaint
- Reacting to these events, in real-time, enables organizations to capture new opportunities and provide enhanced customer experiences
- Building workflows ensures that the right-follow on action is taken
- Capturing information about the event enables teams with the context to apply it to react quickly

“Customers expect organizations to respond to events as they occur in real time”

Gartner

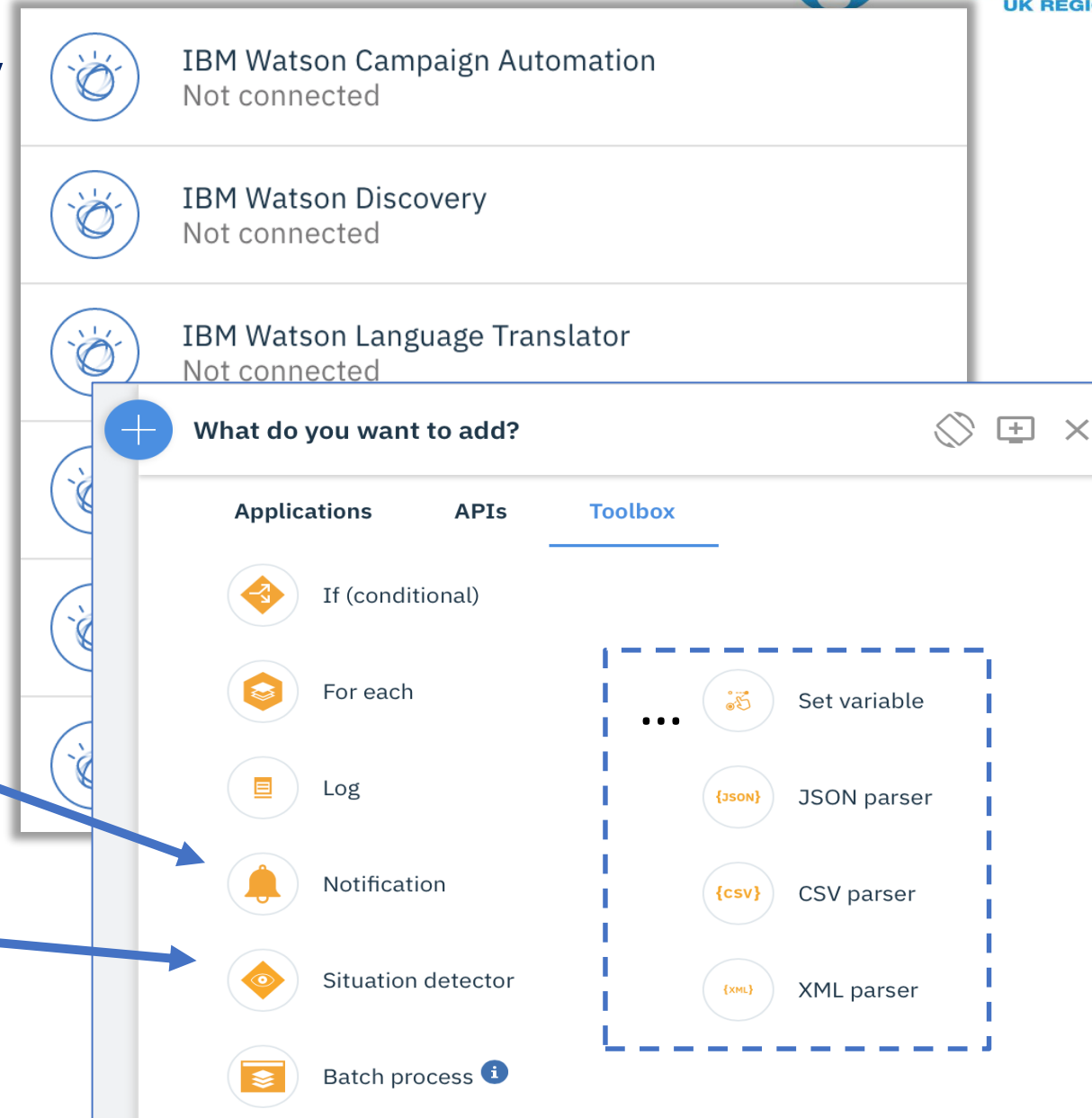


Act on Events



Demo 1 Act on Salesforce event to Cloudant

- Out of the box connectivity to Watson Cognitive services enables users to apply AI services to flows
- Works from the same simple configuration model and can act on data from any application you connect to
- Notify a person of something, or you want them to choose an action to take next
- Detect things that occur as a combination of multiple flows running.



Demo 2 Situation Detection based on Watson Analysis with Service Now Ticket

Data Copy – optimized batch workloads

High Throughput

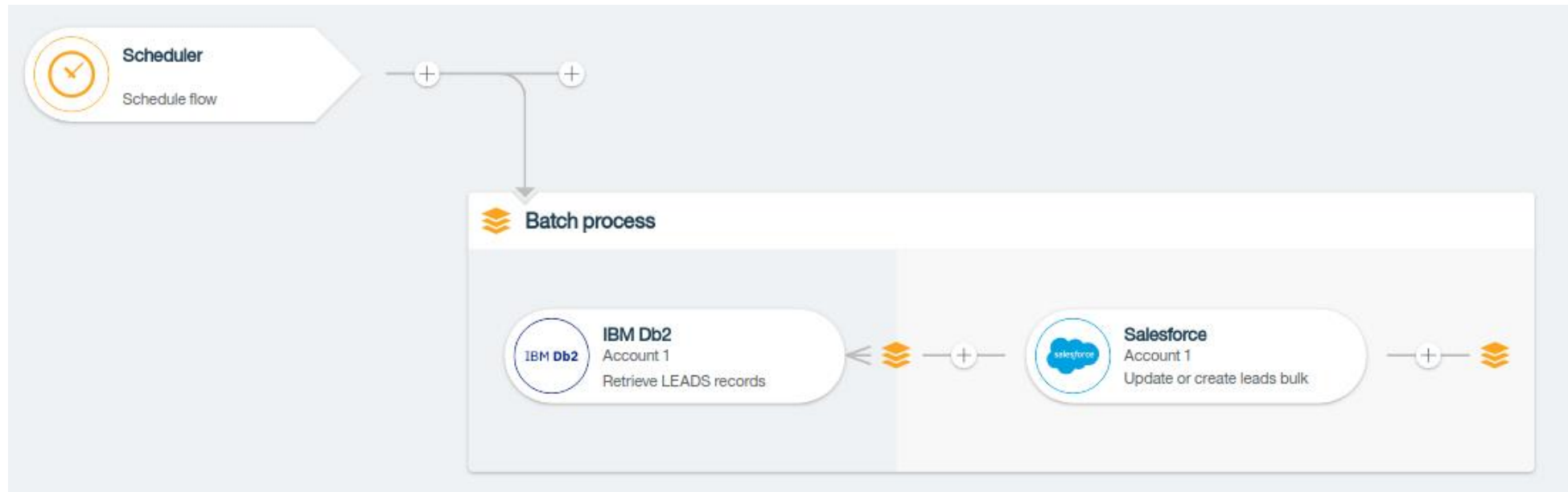
horizontally scaled engine
with no fixed limits – can use
1000s engines in parallel

Smart connectors

system is frugal with API calls
using REST or Bulk APIs as
provided by endpoint

Enrich data

allows interacting with
multiple endpoints within
any batch process



Building APIs – the challenge

- APIs enable developers to create services which deliver a highly personalized, accurate and relevant customer experience
- However, this data exists in a myriad of endpoints – from legacy critical business systems to more modern, innovative applications
- These endpoints don't always exist as accessible interfaces
- Integration bring this data together and exposes it in a way that's easily consumable and conforms to industry standards

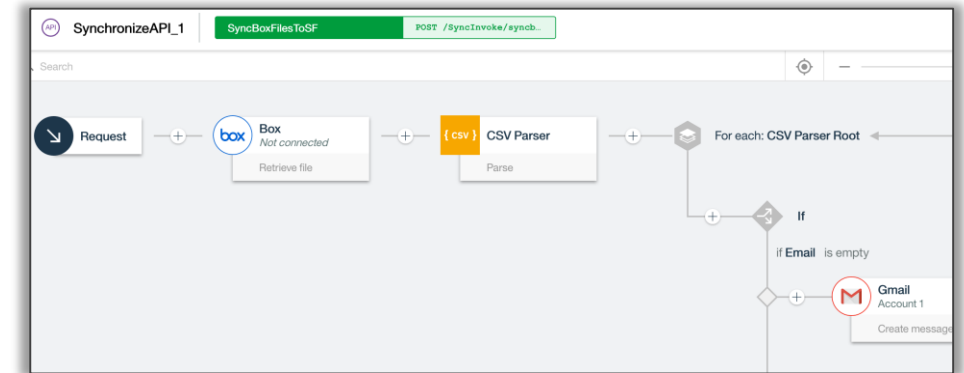
“APIs are the windows to new ecosystems - they allow firms to expand into markets they may never have previously considered”

Harvard Business Review

<https://hbr.org/2015/01/the-strategic-value-of-apis>

Build your APIs in minutes with App Connect

- Easily build resource centric APIs through a model-driven approach, without the need to code
- Extensive connectivity to reach data from any system or endpoint
- Define the operations for the API:
 - define models using connector metadata
 - define CRUD and custom operations for your models implemented as flows
 - define nested and array data for your API request/response
 - generate the proper metadata on the flow request / response endpoints to align
 - Automatic Open API doc generation
- Expose as a well-formed, REST API – ready to share with development teams



Operation Name	Method	Endpoint	Action
SyncSFToSF	POST	/SyncInvoke/syncsfstosf	Edit flow
SyncBoxFilesToSF	POST	/SyncInvoke/syncboxfilestosf	Edit flow
Retrieve SyncInvoke by ID	GET	/SyncInvoke/{id}	Implement flow
Replace or create SyncInvoke by ID	PUT	/SyncInvoke/{id}	Implement flow

Additional options: Create SyncInvoke, Add a custom operation.

Manage your APIs

- Embedded IBM API Connect functionality allows users to apply basic management
- For advanced management and socialization, publish APIs to the IBM Cloud Catalog and utilize IBM API Connect
- Consume APIs in App Connect from API Connect catalog
- Download the OpenAPI doc to use with development teams
- Automated sync between flow metadata and model definition as changes to the model or flow occur

The screenshot displays the IBM API Connect management interface for an API named 'OGE61H'. The top section shows the API name and route. Below this, three cards provide summary information: Rate Limit (None), Security (API key, CORS enabled), and Sharing (Not shared with Cloud Foundry organization, 0 Keys). The 'Analytics and Logging' section features a graph of API calls per minute, with 'RESPONSES' and 'AVG RESPONSE TIME' metrics. The 'API Info' section includes an 'API definition' dropdown menu with options for 'API definition', 'Export YAML file', 'Export JSON file', and 'Open in API Connect'. The 'Security and Rate Limiting' section is expanded, showing 'Application authentication' settings (Require applications to authenticate via API key) and 'Rate limiting' settings (Limit API call rate on a per-key basis, Maximum calls: 1000, Unit of time: Second).

Demo 3 Create an API to discover your nearest ATM by using Open Source ATM data



How do we

Escape the *Apocalypse*?

*Make it quicker
and easier to
build
integrations*

*Support new
integration use
cases, ride the
iPaaS wave*

*Reduce the
complexity of
the integration
environment*

*Embrace **agile
integration
architecture***

Overall integration “surface area”



Enterprise Ownership Boundary

SaaS applications

Applications on public cloud

Applications on Virtual Private Clouds

Application

“Islands” of compute connected by “bridges” of integration

Applications on Private Clouds

Enterprise IT Pain Points

Current **integration portfolio is bloated.**

Unprepared to support the **increasing shift to cloud-centricity** and to **enable digital use cases**

No single point of accountability for integration, and integration delivery by specialists only **hinders ability to scale capability**

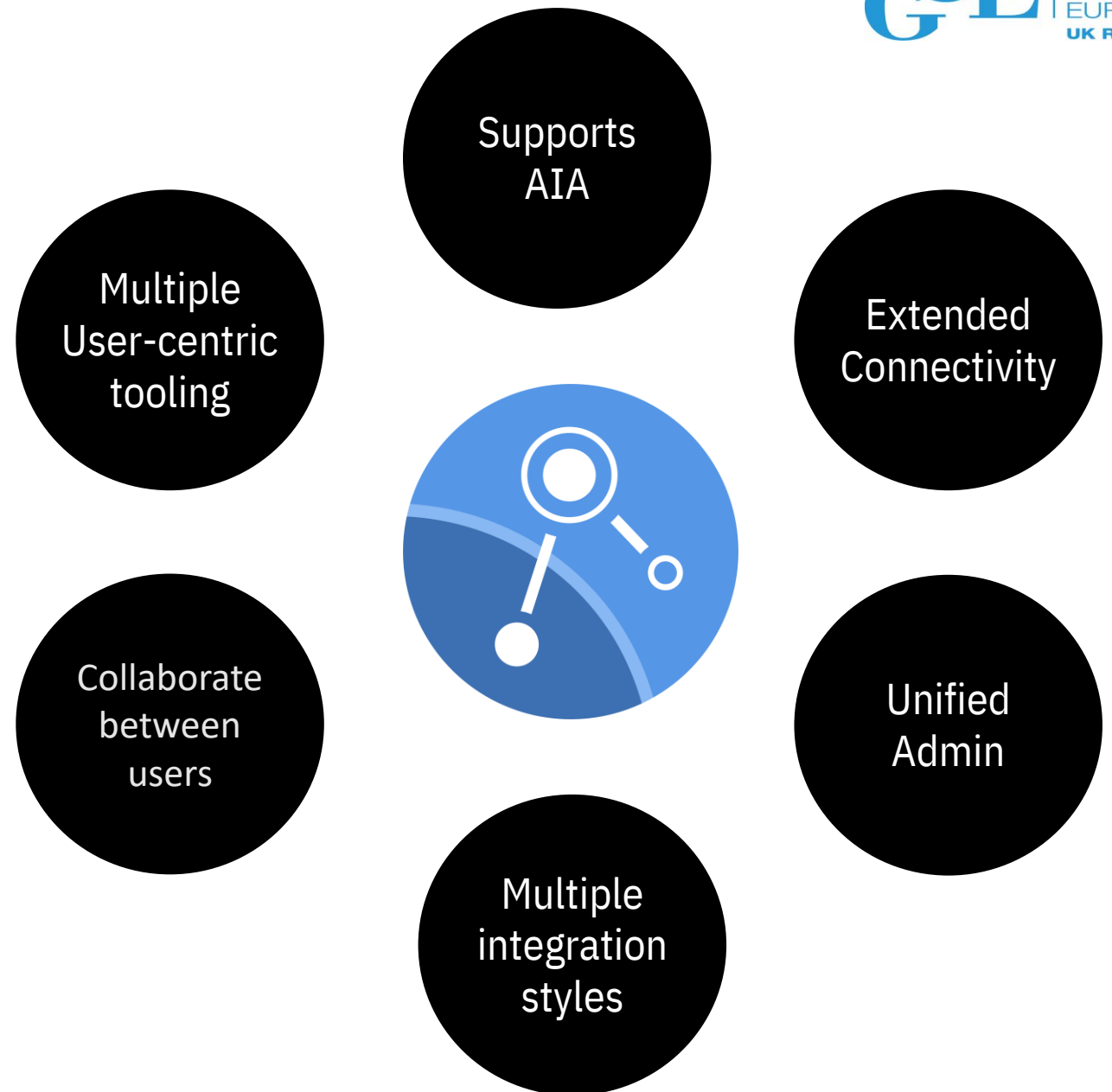
An absence of strong centralised governance has led to **overlapping integration platforms,** a lack of interoperability and limited reuse

IBM App Connect Enterprise

Key capabilities to solve your app integration challenges

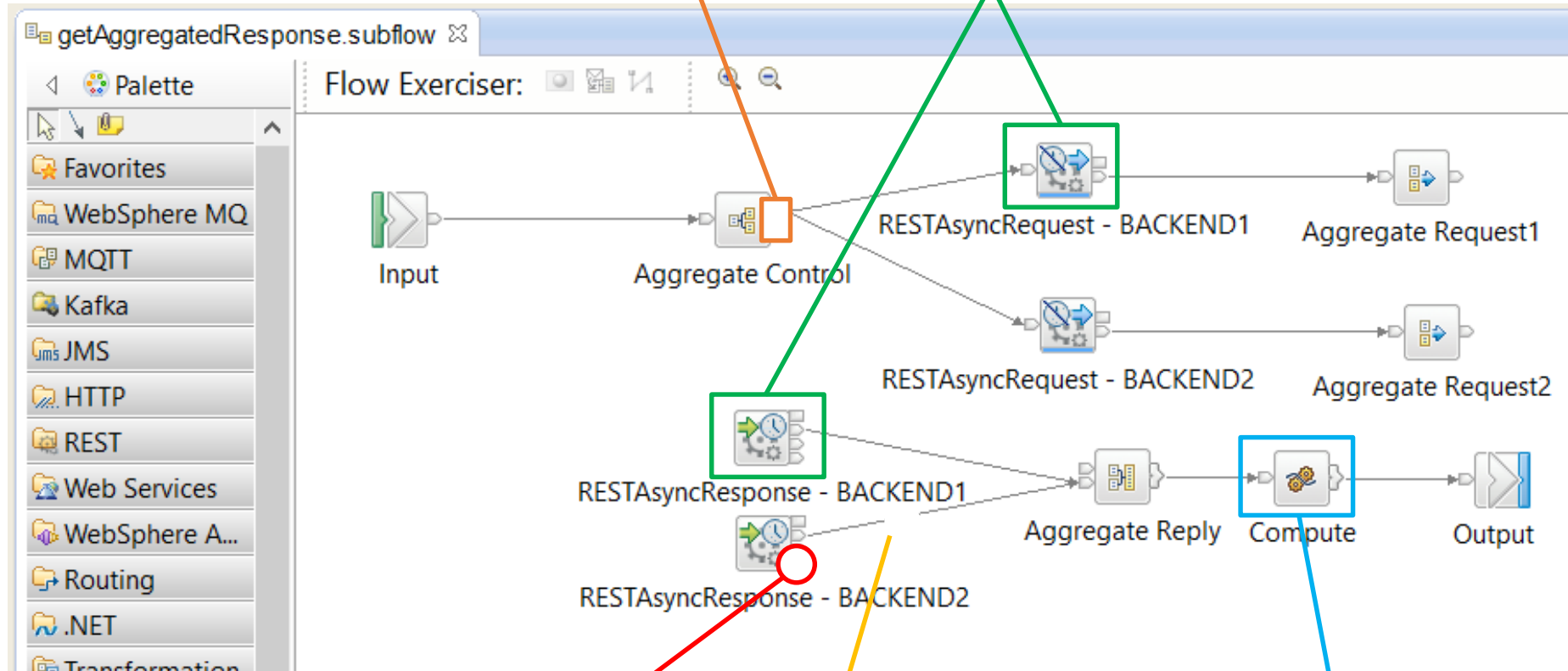
Combines the existing, industry-trusted **IBM Integration Bus (IIB)** technology with new cloud native Designer technologies

Supports a breadth of integration needs across a modern digital business



Multiple Terminals on a message flow node

Thread switching



The Try / Catch concept

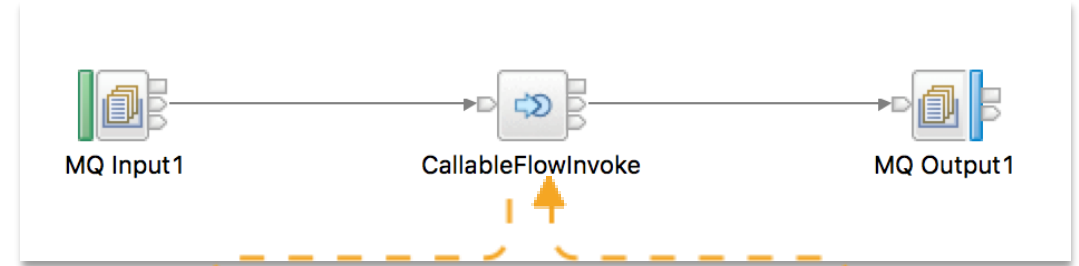
Code versus Configuration

Message Domains / Strong typing

App Connect Enterprise – callable flows

Callable flow configuration details:

- Invoke
- *Application: AppConnectToIB
- *Endpoint: WRITE_TO_FILE
- LocalEnvironmentVariables:
 - FileName: abc demo1.txt
 - DirectoryName: abc /tmp/fileout
- Message.JSONData

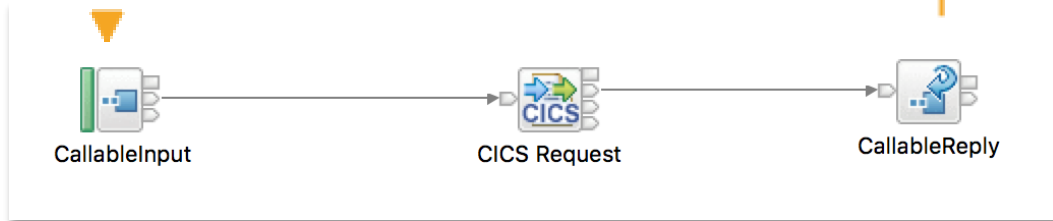


What do you want to add?

Applications APIs Toolbox

Find an application action (e.g. "Create Lead")

- Act-On Not connected
- Adobe Sign Not connected
- Asana Not connected



App Connect Enterprise – Integrated Dashboard

- A single, merged dashboard to manage integration assets
- **Integration servers** containing:
 - IIB Applications
 - IIB REST APIs
 - IIB Integration Services
 - IIB Shared Libraries
- **App Connect runtime**
- Event driven flows
- APIs flows
- Batch flows
- A single monitoring dashboard
- A common mgmt CLI & API

The screenshot displays the IBM App Connect Enterprise Integrated Dashboard. The top navigation bar includes 'Dashboard', 'Applications', 'Templates', and 'Notifications'. A search bar and a 'New' button are also present. The main content area shows six integration assets, each with a status indicator (green dot) and a 'Running' label. The assets are:

- CallableTimestamp Integration server (1 application)
- CallableTimestampAlternate Integration server (1 application)
- CustomerDatabaseV1 Integration server (1 application)
- 1 flow using Gmail (Gmail_Create_message)
- 1 flow using Slack (Slack_Create_message)
- 1 flow using Google Sheets (GoogleSheets_Create_spreadsheet)

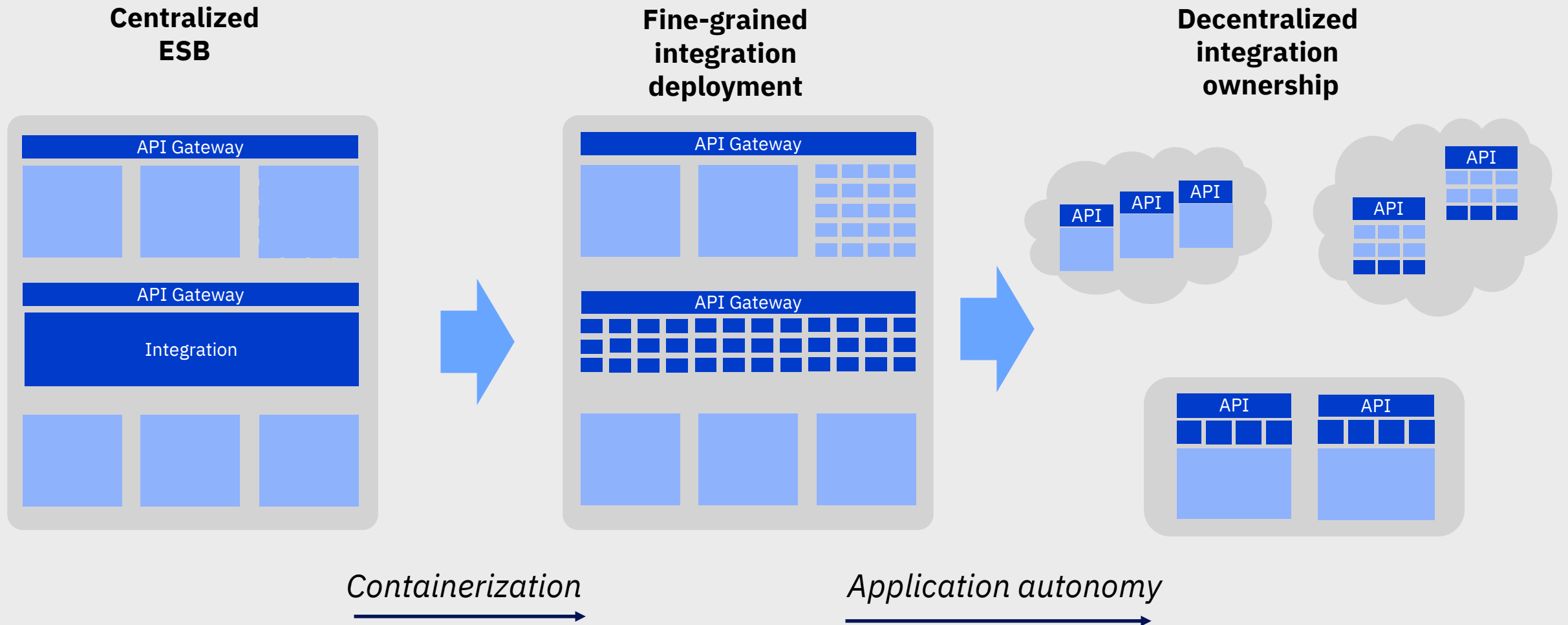
Integration Strategies are changing

“ Integration has become an obstacle to success because traditional, centralized and systematic integration approaches cannot cope with the volume and pace of business innovation. ”

“ A **single ESB** may create bottlenecks in the organizations agility ”



Evolution to **agile integration architecture** – high level view

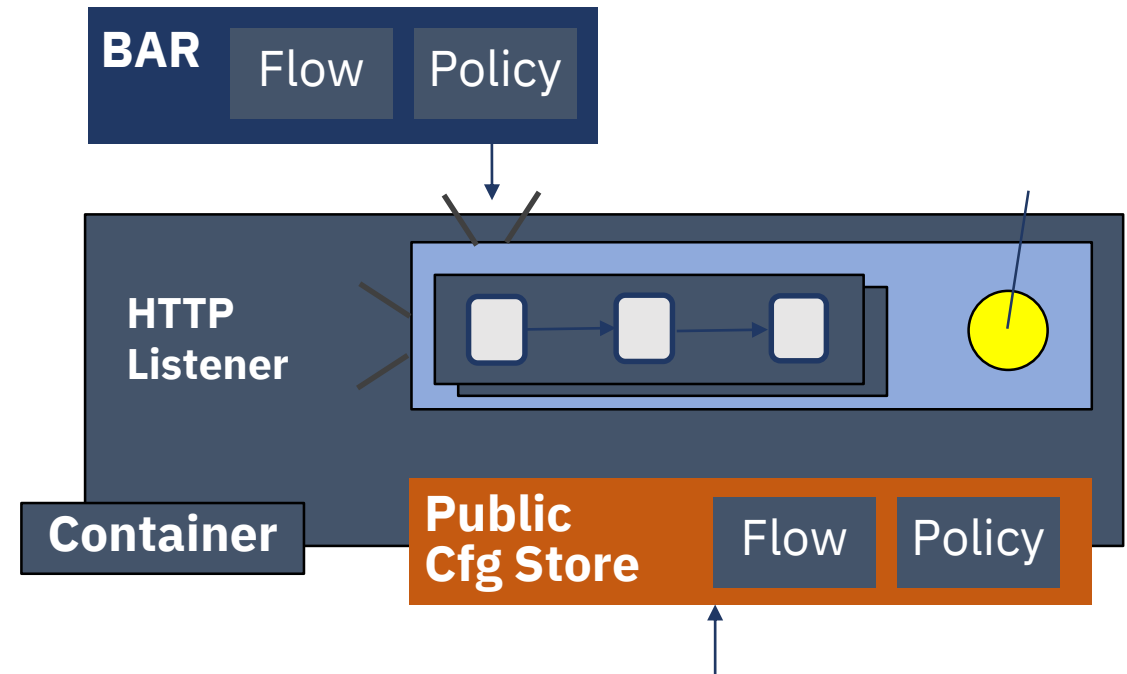


Containerized deployment

Independent integration runtimes for container-based and microservices-aligned architectures

A lightweight, cloud-native runtime that can be used

- as part of a DevOps / agile approach; the lightweight container spins up in seconds
- in a microservices model - managed and deployed by the microservice teams close to the microservice
- Across multiple clouds – private, public, or as a fully managed cloud service
- Consistent support - Integrations can run as-is without any changes

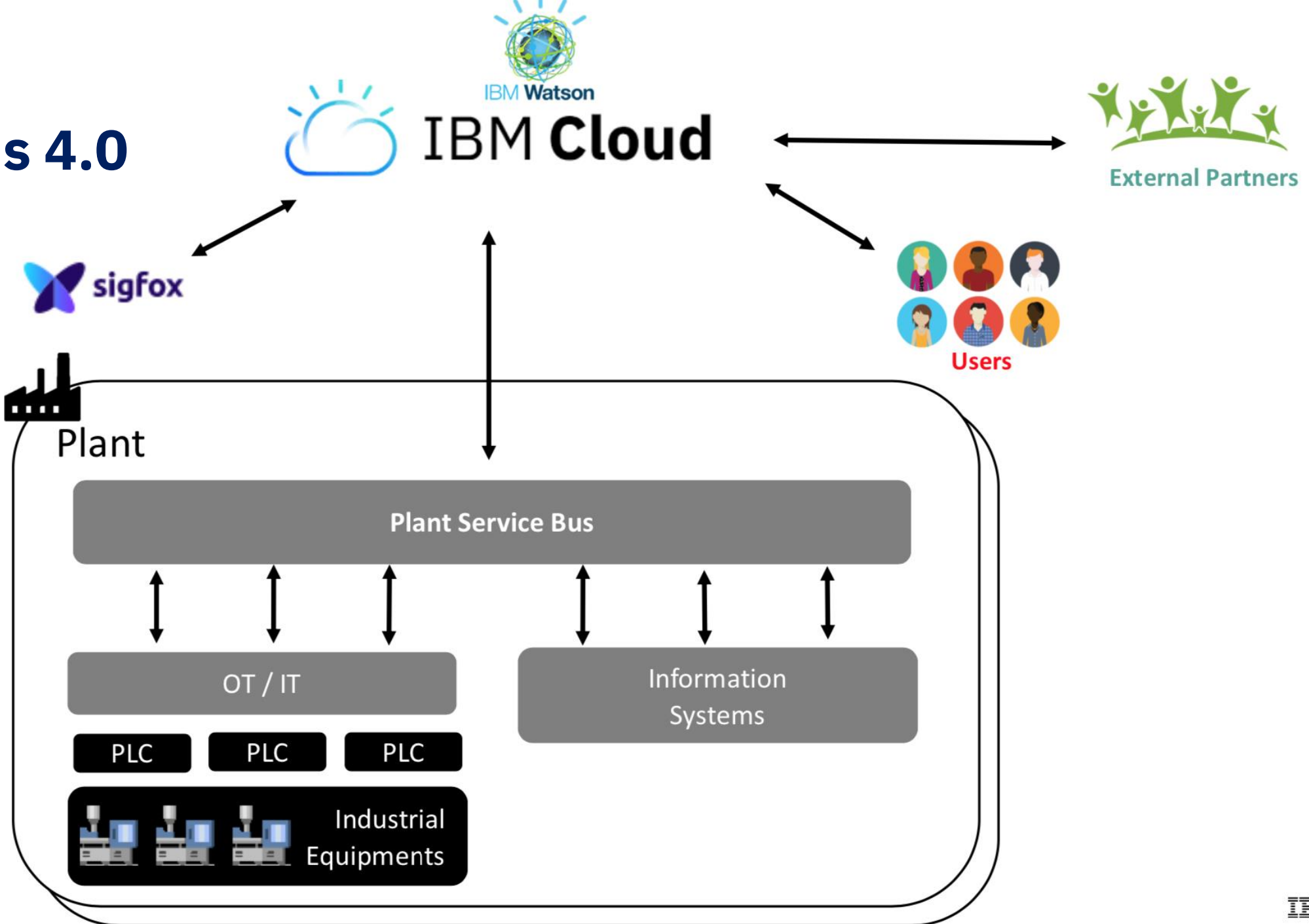


2019 App Integration Strategy

Our vision is for App Connect to be a **single product** with Professional and Enterprise tiers that can be purchased as software, installed and managed by the customer, or as a cloud service, managed by IBM.

- *Ensure App Connect operates seamlessly in the IBM Cloud Integration Platform providing consistency of development, administration and operation of our key integration capabilities (app integration, API lifecycle, messaging, gateway, and high-speed transfer).*
- *Enhance App Connect Enterprise to support full migration from IIB, and leverage the enterprise features of ICP where they choose AIA as their preferred architecture.*
- *Extend App Connect cloud service capabilities to support demand for more use cases for enterprise iPaaS including connectivity to on-premise applications such as SAP, files or databases*
- *Continue to blend App Connect software and service into a single, hybrid solution, enabling Designer authored integrations to run in software*

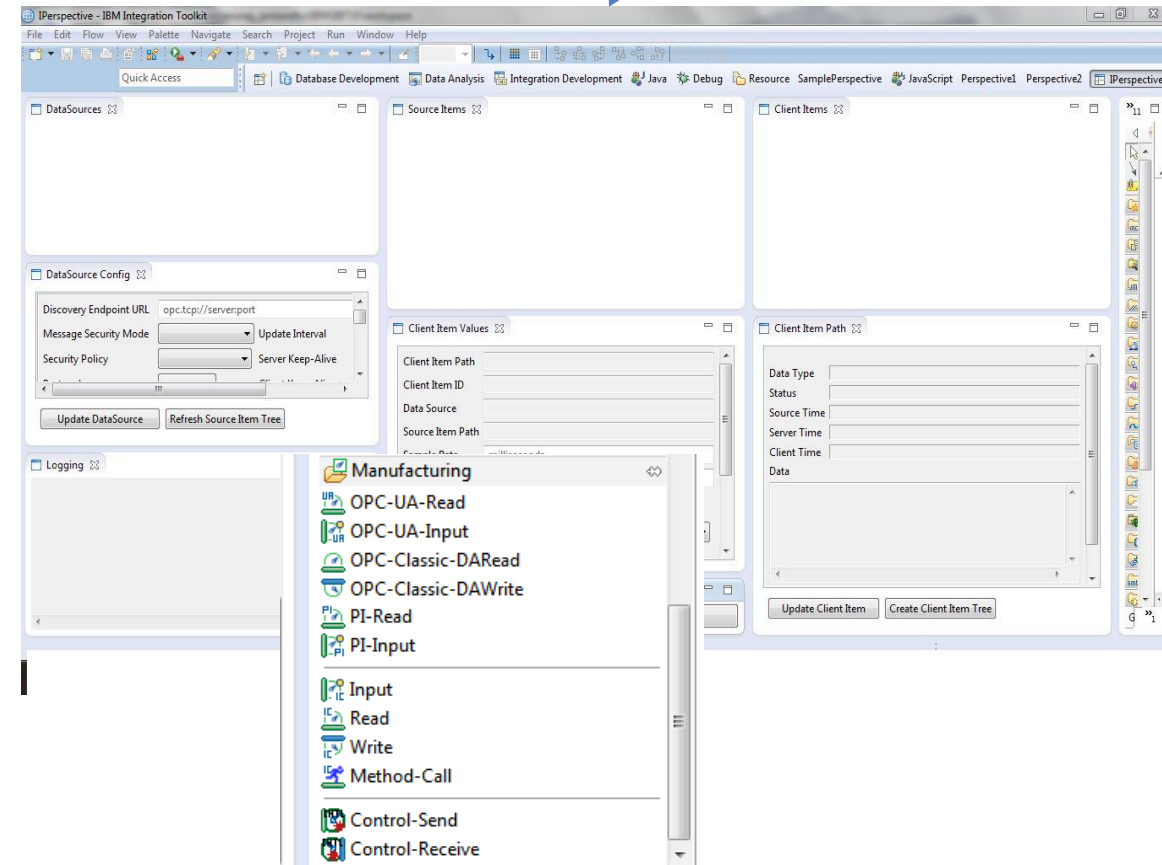
L'Oreal Operations 4.0



IBM App Connect for Manufacturing v2.0

GA June
2019

- **New Industry Client Perspective**
 - Available in Toolkit on IIB v10
 - Support for ACE v11 now available since Q3
- **New OPC-UA nodes**
 - Read, Write, Input
 - MethodCall
- **High Availability which can tolerate failure:**
 - Device Failures
 - Dropped Connections
 - OPC-UA Server failures
- **Removal of runtime dependency on a database**
- **Support for Containers**
 - ACE v11 Support now available



What would making the job of debugging an integration easier?

“Integrate testing/debugging inside of the UI so you can test your integrations (very important)”

“Alerts”

“Ability to quickly identify the bad data in the input message.”

“Point to the root cause of problems right away”

“Look at the before and after messages”

“Easy tracing”

“Run time available for testing all in dev environment itself”

“Must be clear info of the error inc the full error details”

“Quickly identify problem and drill down to root cause of problem”


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Do it online at <http://conferences.gse.org.uk/2019/feedback/JH>

<https://www.ibm.com/developerworks/rfe/>

This session is JH

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 This is the three digit number on the bottom of your delegate badge

2. Was the length of this presentation correct?

 1 to 4 = "Too Short" 5 = "OK" 6-9 = "Too Long"


1 2 3 4 5 6 7 8 9

3. Did this presentation meet your requirements?

 1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

4. Was the session content what you expected?

 1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

