



IBM Integration Bus

V10 Differentiators

Co-Presented by

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IIB Headway in 21st Century

- MQSI to Message Broker to Integration Bus You've come a long way baby!
- Marketplace info – “Integration Engine” & “Enterprise Service Bus”
- **New Part Numbers for different Licensing approaches:**
 - ▶ Application Integration Suite (AIS) (non-perpetual cloud license)
 - ▶ IIB Advanced
 - ▶ IIB Standard
- **IIB Survival:**
 - ▶ Some customers have expressed wanting to deinstall WMB and start with good intentions, but homegrown solutions and competitive products just don't scale.
 - ▶ 3000+ trained IIB Developers in the marketplace
 - ▶ Ever expanding connectors (47 nodes in v6 – 122 nodes in v10 (training is now broken into two classes: Part 1 (5 days), part 2 (5 days): WM666, WM667

IIBv10 Differentiators – Agenda/Outline

- **This session is a technical overview of the IIBv10 new capabilities**
 - ▶ CLR/.NET integration out-of-the-box
 - ▶ LoopBack request node for No SQL (Strong Loop acquisition)
 - ▶ Kafka node
 - ▶ Support Packs/Industry Packs
 - ▶ IIB in a Container (Docker/Kubernetes)
- **Competitors: technical discussion on IIB competitor solutions**
 - ▶ Cast Iron
 - ▶ Mule
 - ▶ BizTalk
 - ▶ TIBCO
- **Cloud integration Capability**
 - ▶ IIB Switch (IIB On-Prem, IIB in-the-cloud integration)
 - ▶ What CAN run on the cloud;

What CAN'T run on the clouds specific use cases where IIB reigns.

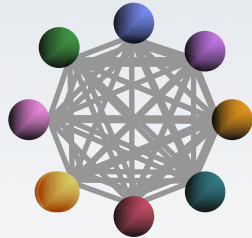
Goal of the class is to middleware administrators to converse more comfortably on the features and functions of IIBv10 compared to former versions and MQ alone.

Why Customers Chose IIB for Integration

- Longevity in the marketplace (IBM)
- Most fully-featured integration product – that isn't straight “connector-based”
- Differentiators against Cast Iron, MuleSoft, Microsoft Products, etc. - should talk about vendor-proprietary versus open source versus open “standards”
- Visionary to Inception. Product was visionary back in 2000 – Gartner. ESB standards were actually created by IBM – then turned over to the standards body who thought that was a good idea....

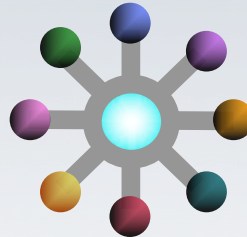
SOA Maturity – Integration Capability

Messaging Backbone



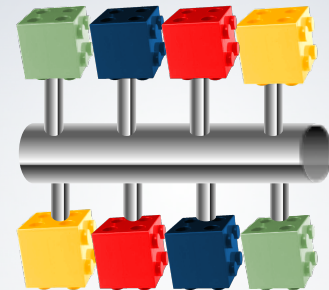
- Point-to-Point connection between applications
- Simple, basic connectivity

Enterprise Application Integration (EAI)



- EAI connects applications via a centralized hub
- Easier to manage larger number of connections

Service Orientated Integration

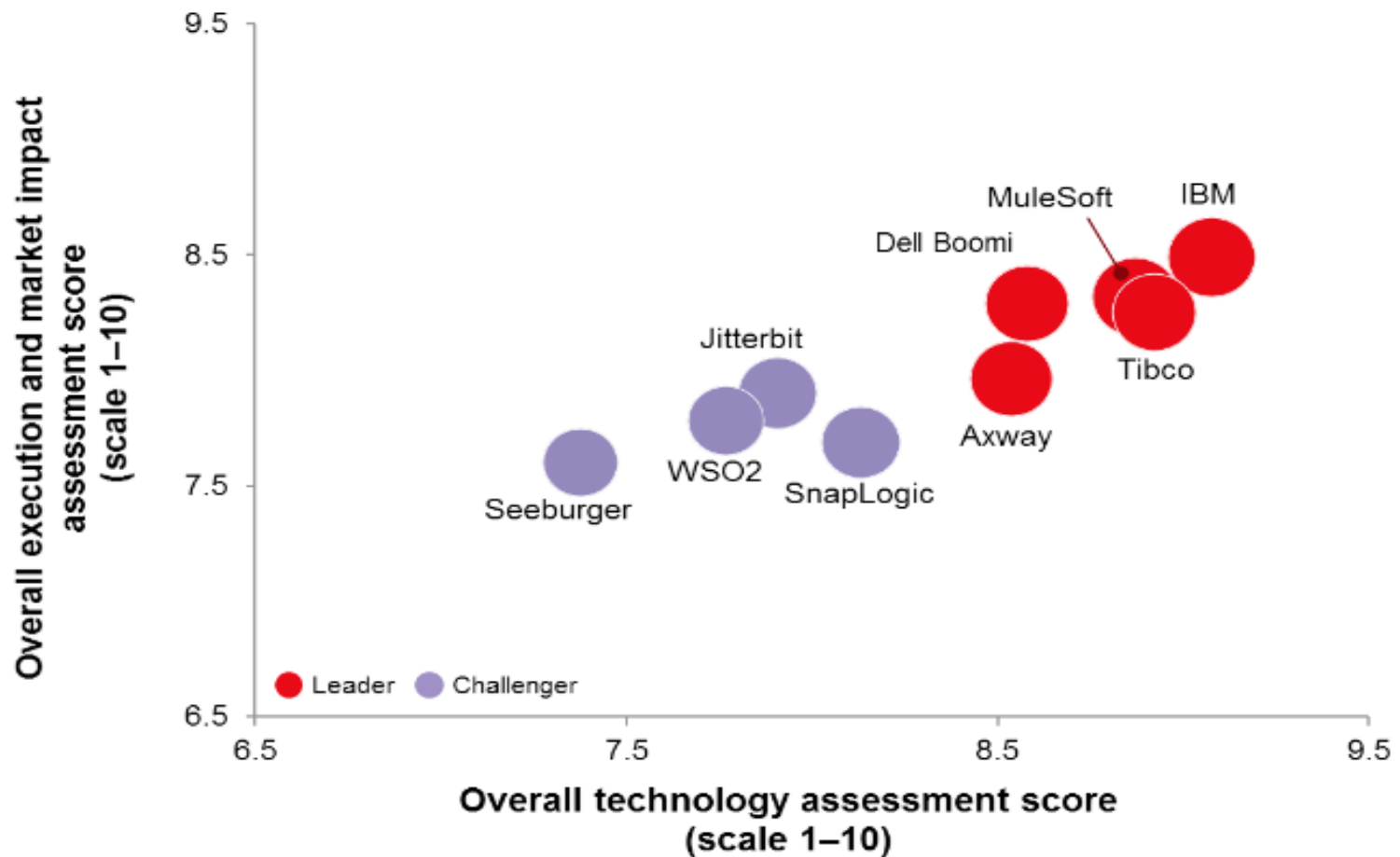


- Integration and choreography of services through an Enterprise Service Bus
- Flexible connections with well defined, standards-based interfaces

Flexibility

As Patterns Have Evolved, So Has IBM

Figure 2: Ovum Decision Matrix: Middleware-as-a-service suites, 2017–18



Note: Bubble size represents the product of the scores achieved for the "technology" and "execution and market impact" evaluation dimensions.

Source: Ovum

Longevity in the Marketplace

- **Version 10 – Another IBM Name Change – “Integration Bus”**
 - ▶ Formerly WebSphere Message Broker
 - ▶ Formerly MQSeries Integrator
 - ▶ Formerly product developed by IBM and Neon (Neon adapters) MQSI 2.1

- **Mature IBM Resources, Training, and Go-To Partners**
 - ▶ IBM Technical Support (1-800-call-IBM)
 - ▶ IIB InfoCenter
 - ▶ IBM DeveloperWorks
 - ▶ Developer Classes and advanced topics
 - ▶ IIB Administrator Classes and advanced topics
 - ▶ TxMQ MSP Services while you ramp up skillsets with 1-hour SLA access to certified and skilled middleware engineers and administrators

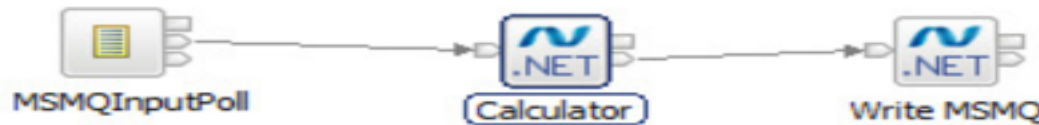
IIB v10 Differentiators

- CLR/.NET integration out-of-the-box – MORE Microsoft Customers!
- LoopBack request node for NoSQL (Strong Loop acquisition)
- Kafka node
- Support packs & Industry pacs
- IIB in a Container

IIB v10 Differentiators

content for CLR/.NET integration

- IIB includes a .NET Compute Node where you can write or reuse your .NET business logic. When a developer double-clicks the node, they are taken to Visual Studio where they can implement custom transformation logic in one of the .NET languages (C#, VB.NET, etc.). The developer has access to any classes available in the .NET framework.
- IBM Integration Bus embeds a Common Language Runtime (CLR) to invoke any .NET logic. It includes full support for the Visual Studio development environment, including the integrated debugger and code templates. The ability to write code in a familiar language shortens the IIB learning curve.



IIB v10 Differentiators

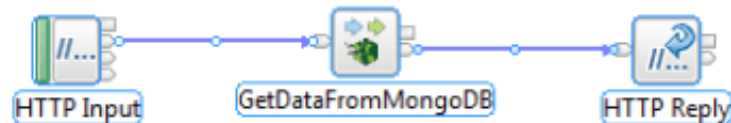
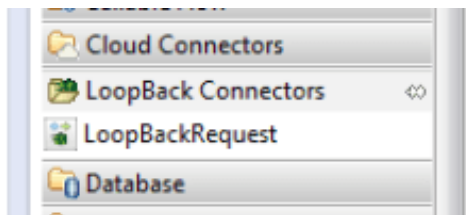
Content for:

LoopBack request node for NoSQL (Strong Loop acquisition)

Using the LoopBackRequest Node in a Message Flow

The LoopBackRequest node can be found in the 'LoopBack Connectors' drawer of the node palette of the Integration Bus ToolKit.

Use of the LoopBackRequest node in a message flow



IIB v10 Differentiators

Content for:

- **Kafka nodes**
- In IBM Integration Bus 10.0.0.7, we have provided 2 new Kafka nodes which can be used for integration solutions which require interactions with topics on a Kafka Cluster. The nodes are in a new Kafka drawer in the toolkit.



The KafkaProducer node allows you to publish messages to a topic on a Kafka server.



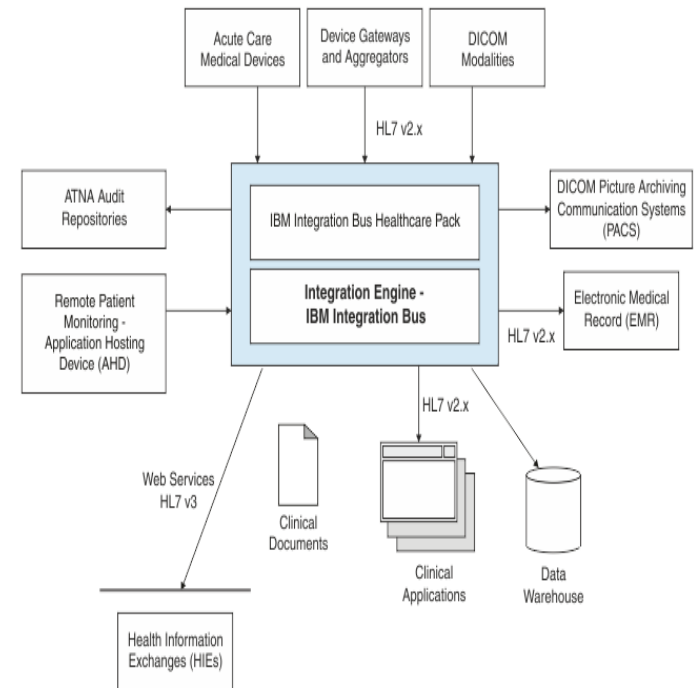
The KafkaConsumer node allows you to consume messages from a topic on a Kafka server.

- **Kafka is an external connection.** This means you will have extra overhead and potentially security concerns.

IIB v10 Differentiators

Content for:

- **Support packs & Industry pacs**
- **Healthcare pack** *Healthcare integration, featuring the integration of clinical applications and medical devices that support Health Level Seven International (HL7)-based information flows, is made easier by the healthcare capabilities of IBM Integration Bus.*
- IBM Integration Bus Healthcare Pack provides pre-built patterns and connections enabling rapid clinical application and device integration for more connected healthcare systems. Improve quality of care and reduce manual errors by exchanging healthcare information with more thoroughness and efficiency—whether you are a healthcare provider, payer, payee or life sciences organization.



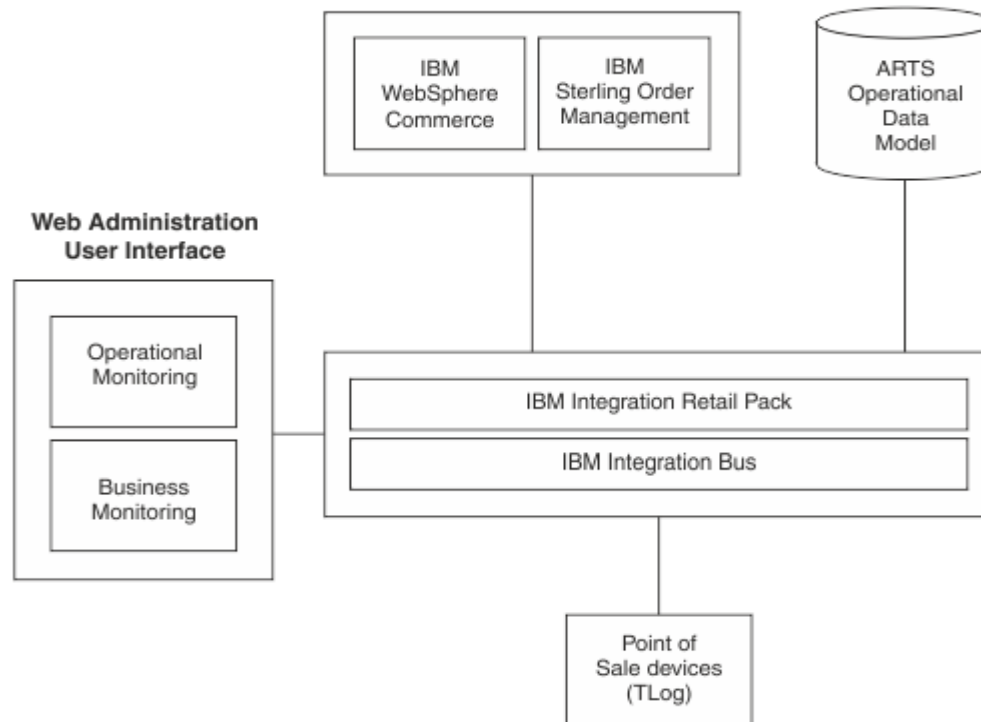
IIB v10 Differentiators

Content for:

- **Support packs & Industry pacs**

- ▶ Retail pack

The following image shows the basic architecture of an IBM Integration Bus Retail Pack configuration:

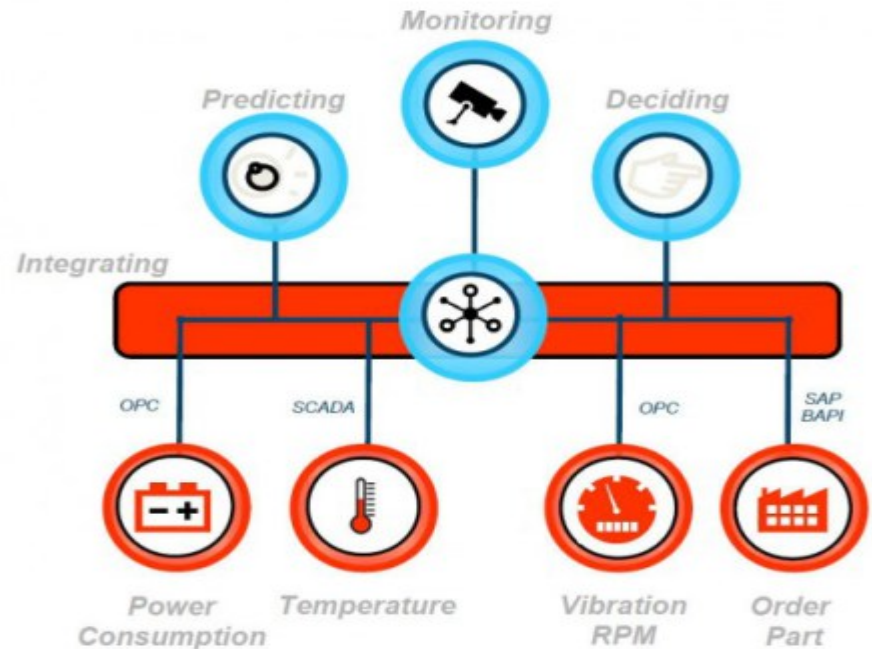


IIB v10 Differentiators

Content for:

- **Support packs & Industry packs**

- ▶ **Manufacturing Pack :** The pack provides a built-in, pattern-based approach to the configuration and deployment of common manufacturing information flows. These patterns help transform production automation data into widely used industry application formats, that enable wider visibility of production activity with web-based monitoring.



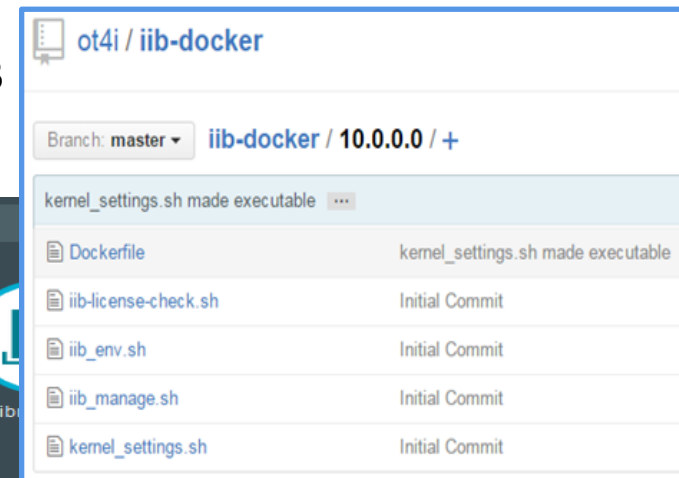
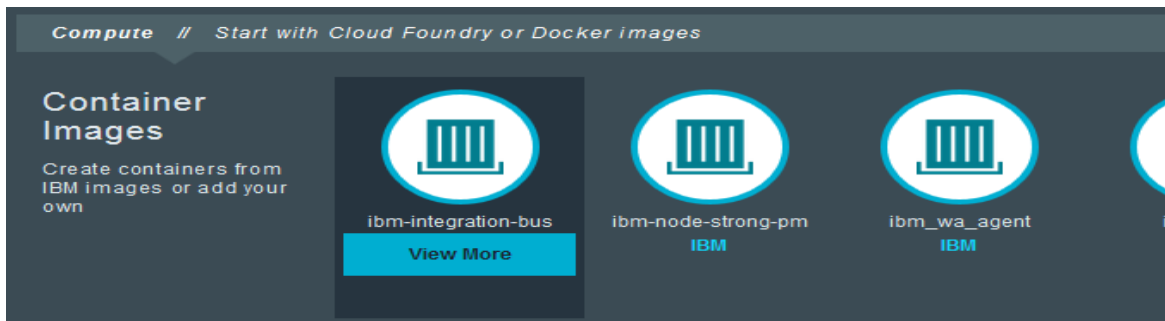
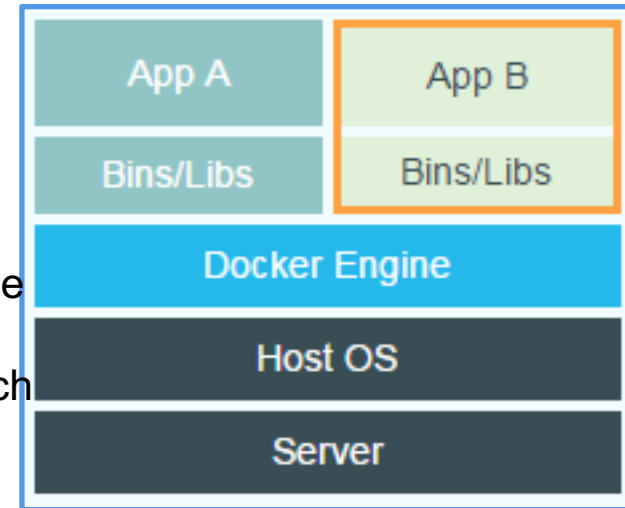
IIB v10 Differentiators

■ IIB can now run in a Container

- ▶ Docker
- ▶ Bluemix Container Service

IIB in Docker (and on Bluemix Container Service)

- IIB Docker image now available on the Bluemix Container Service
- It is fully supported to run IIB (including production usage) in Docker
 - Developer edition binaries linked from Github dockerfile
 - Docker containers securely isolate applications on a single host
 - No need for an entire Hypervisor / Virtual Machine for each container
 - Run many containers simultaneously and quickly scale
 - Launch when needed and then shut down when not!
- IIB runs in Docker as part of the IBM-managed service “IIB on Cloud”

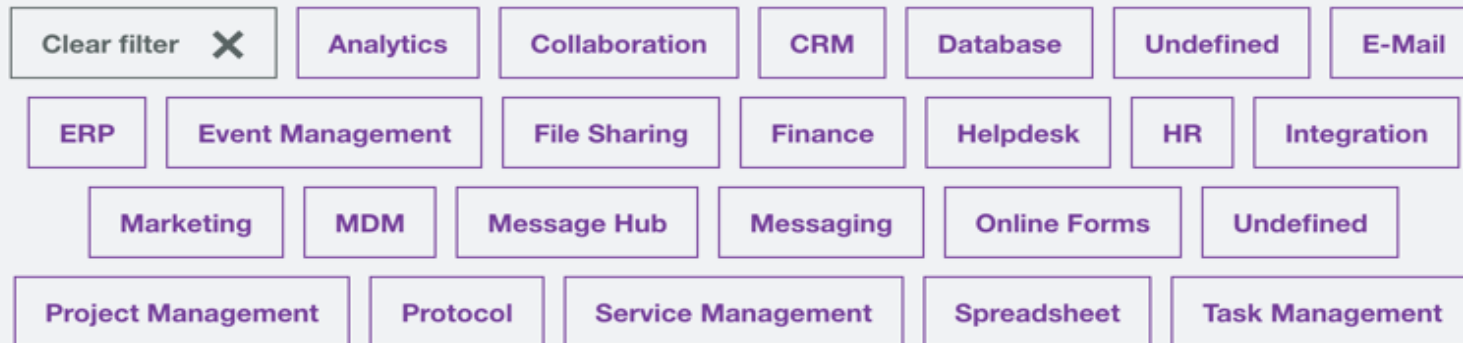


Competitive Analysis: IBM App Connect Pro (fka CastIron)

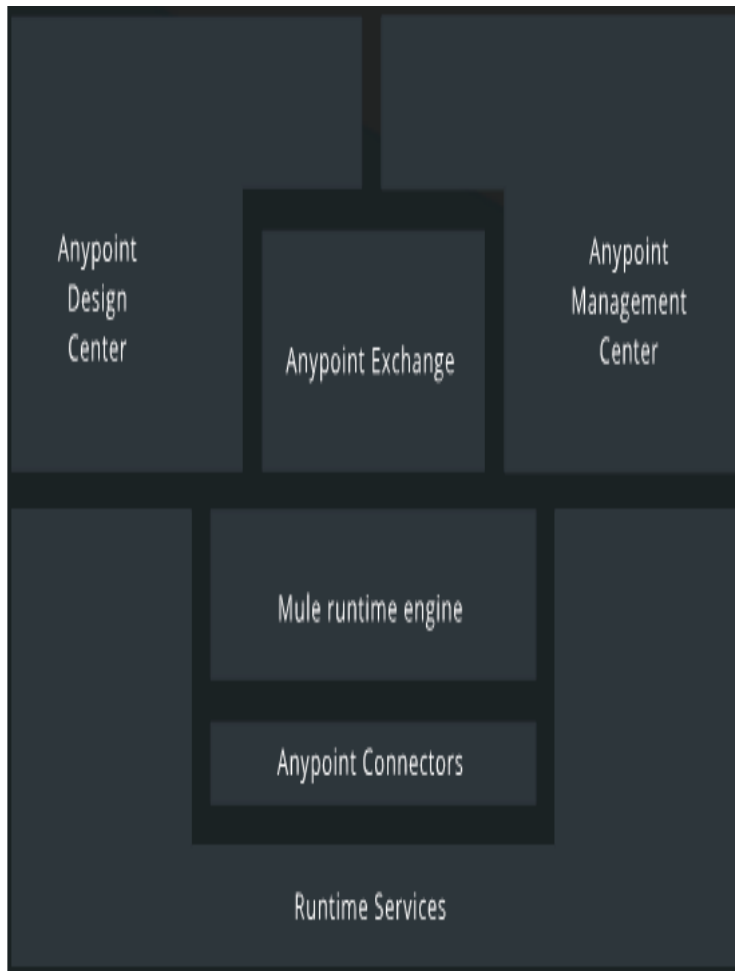
- Connector approach
- Tightly coupled
- Many single points of failure

FILTER BY CATEGORIES

96 APPLICATIONS



Competitive Analysis – MuleSoft



Mule runtime engine - The runtime engine of Anypoint Platform; this is the new name for Mule ESB. It is the same runtime that runs on-premise and in the cloud. Mule ESB is a strong competitor. However, IBM Integration Bus shows better performance, more productive development environment and reduced risk. Including these advantages in mind, IIB delivers a better TCO.

Anypoint Connectors - Pre-built integration solutions for connecting applications, data and devices for cloud and on-premises systems. These connectors come from MuleSoft and other vendors. Make sure you look at how they are supported. Many of them are supported by MuleSoft community or email support (no 24x7 and/or phone support).

Anypoint Design Center - Design APIs, implement integration flows, and build connectors. This is a new name for Mule Studio.

Anypoint Management Center - Manage API users, traffic, SLAs, and underlying integration flows; administer all aspects of Anypoint Platform on-prem and in the cloud from a single unified web interface

Anypoint Exchange - The collaboration hub for Anypoint Platform: search for connectors, templates and examples, shared publicly and within the enterprise

Runtime Services - helps deliver enterprise-grade security, scalability, reliability and high availability

Competitive Analysis – MuleSoft cont.

- IBM and MuleSoft provide advanced integration and API capabilities with their corresponding offerings for ESB and APIm. But there are differences in their support of enterprise connectivity, efficient development environment and reliability.

Capability	IBM	MuleSoft
Connectors	200+ connectors in AIS, including SaaS and enterprise connectors (Oracle, SAP, JDEdwards, etc.) included	~130 connectors, but Community connectors are not supported by MuleSoft, Premium connectors are extra cost, Certified connectors are from 3d party and usually extra cost
Graphical tooling	Graphical Data Mapping and APIC Web-based API designer	DataWeave – new and basic graphical mapping tooling
Dev efficiency	Patterns, property editors, unit testing with Flow Exerciser, GDM. End goal – less hand coding.	Patterns (fewer and basic), DataWeave (basic GDM). End result – more hand coding.
Polyglot environment	Yes - Java, JavaScript, ESQL (open to adding new runtimes as they become available) Can integrate with .Net (incl. .Net runtime)	No – Java Can integrate with .Net (runtime is separate from MuleSoft runtime)

Competitive Analysis – MuleSoft cont.

Capability	IBM	MuleSoft
Secure gateway	DataPower – available in appliance, virtual, cloud, software, Docker form factors. DataPower is an industry standard for secure gateway solution.	Anypoint Gateway – SW gateway
API runtime	Node.js (StrongLoop) for scalable REST APIs (Mobile/Web), or IIB for system API/SOA	Mule runtime – Java based for all APIs and integration needs. Not efficient for Web/Mobile APIs
DEV to QA/PROD deployment	Integrations can be deployed from within dev tooling	Integrations have to be exported/imported to QA/PROD
Upgrade policy	IBM heavily invests in making migration as easy as possible. For example, clients can migrate their integration flows from IIB v.6.1 to IIB v.9 or v.10 practically without any changes.	MuleSoft doesn't provide such a smooth upgrade policy. The last example is a very abrupt change in its graphical mapping tooling in 2015 from Data Mapper to DataWeave technology.

Competitive Analysis – BizTalk (on Prem)

- Proprietary Microsoft Solution
- Supported protocols limited to: HTTP, HTTPS, FTP, SFTP, WCF, Service Bus (SB), Azure Blob, REST APIs. Supports XML and XSLT transformations. Recently introduced JSON support.
- Constrained to Windows platform and MSMQ (Microsoft MQ).
- From start-to-finish the time required to be up and running with a basic operating system installation is 30 minutes for IIB 10 and over 3 hours for BizTalk 2016 (which includes several cycles through Windows Update).

Competitive Analysis – Azure Service Bus (cloud)

- **Proprietary Microsoft Solution**
- **Only runs on Azure stack (windows)**
- **Azure Service Bus (ASB) is the set of Azure messaging services that include Queue, Topic(pub/sub), Relay, Notification Hub, and Event Hub. These services support REST API's and can be accessed from inside or outside of the Azure Cloud. The Relay service supports messaging between an Azure app and an app in a different cloud or on-premise by providing a rendezvous point for outgoing connections.**
- **The Notification Hub forwards SMS messages the provider's service. Biztalk can use the Service Bus to exchange messages with external apps and systems that span multiple clouds or in the on-prem enterprise.**
- **ASB has none of the capabilities that IIB (or even BizTalk) has for message transformation, enrichment, intelligent routing, protocol conversion, etc. The only things that ASB provide are message transport services - point-to-point queues, pub/sub topics, and a message relay service that enables endpoints to communicate in situations where they might not have been able to do so natively because of firewalls or NAT. Everything else that happens to a message must be done at the application level, in code.**

Competitive Analysis - Tibco

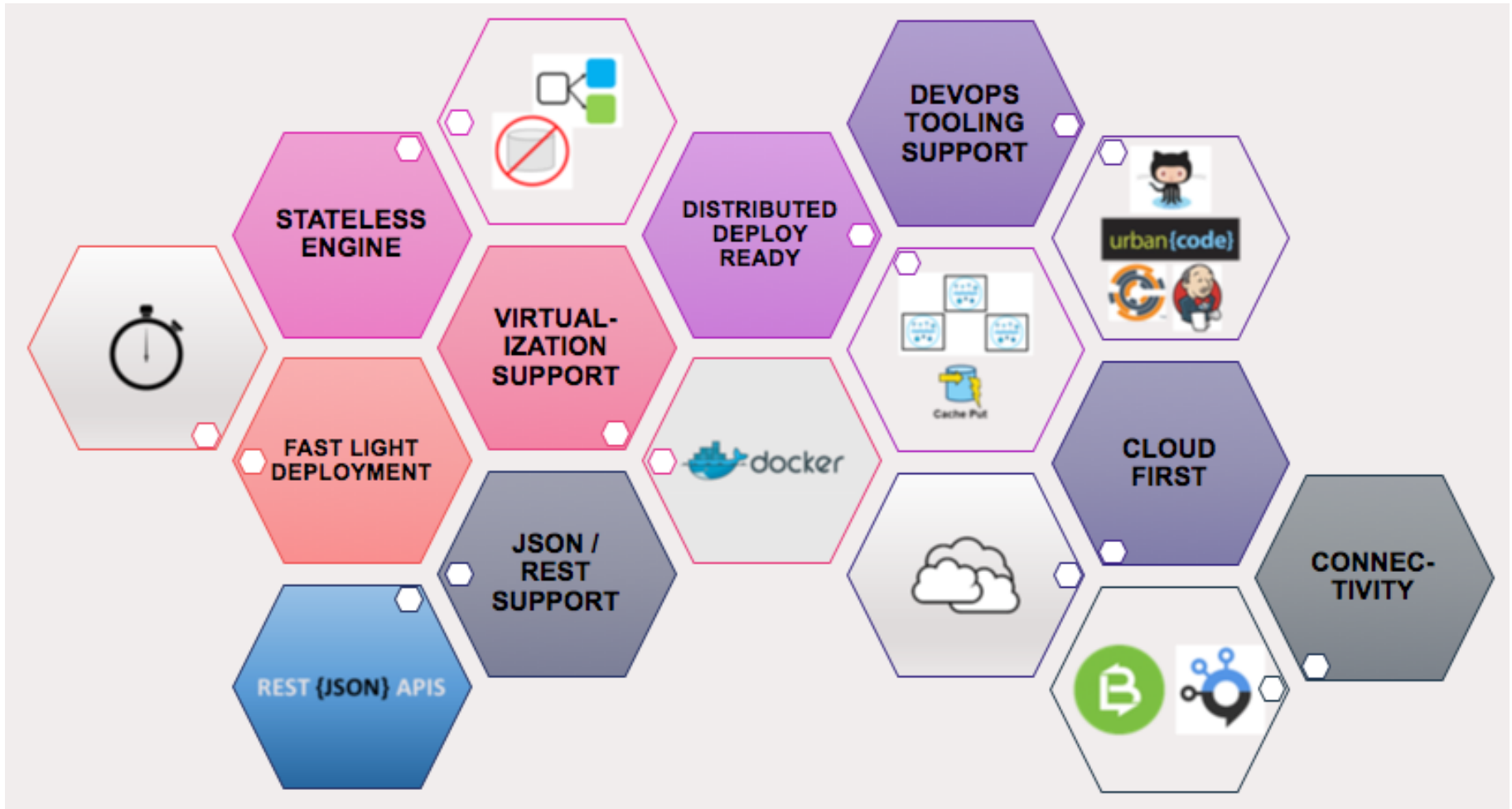
- TIBCO is limited in advanced parsing technique.
- No out of the box Active/Active HA capability which results inability to support the 5 9s.
- No pattern authoring, no in-line rules or decision mgmt without plugs, must pay extra for SAP integration, IIB has standard industry content for health care, financial services and other industries.
- IIB has superior .Net and .Net integration, ability to call services dynamically, superior monitoring/auditing of flows out of the box among other items.
- IIB now has additional mobility patterns.

But IIB is about more than routing and transforming data!

- Create, manage and socialize **APIs**
- **Mobile** and device integration
- **Security** policy enforcement
- Provide integration for **business processes**
- **Cloud** integration
- Understanding and tuning system **workloads**
- Gaining insight From **business data**
- Act upon **business rules**
- Applying **analytics** to in-flight data



IIB 10: A Light-Weight Integration Runtime



Hybrid Integration using the IIB Switch

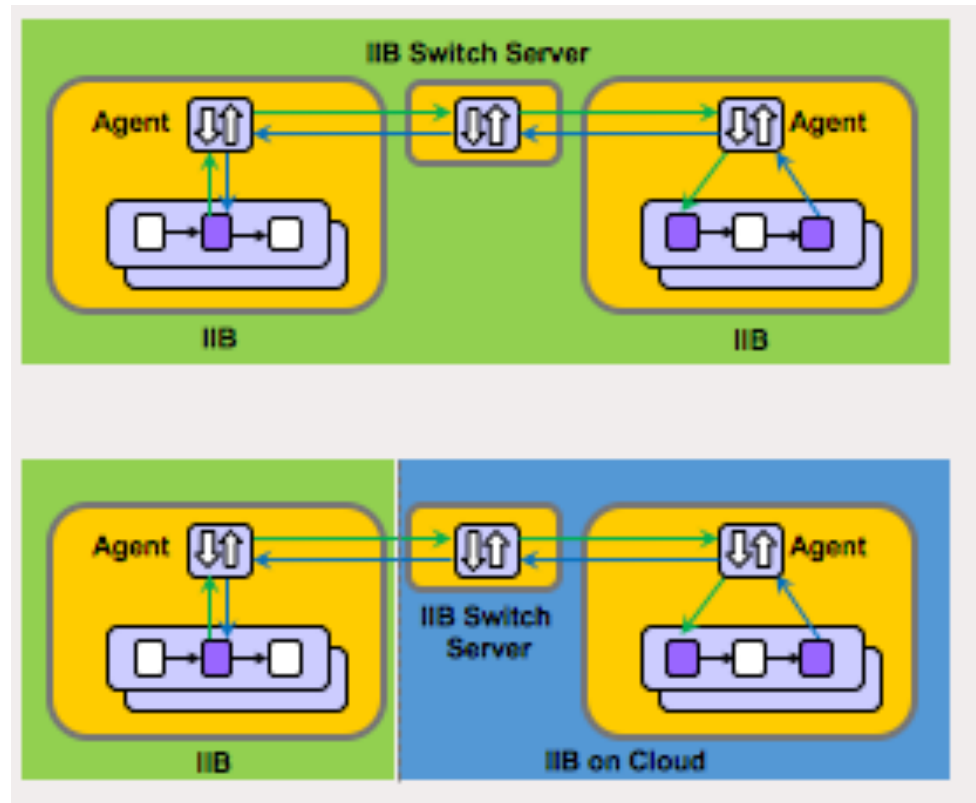
Simpler to run IIB in a cloud architecture due to deployment processing and flow runtime all coordinated using a single OS process

Split processing between different Integration Servers

Flows communicate using a Switch server and connectivity agents

If callable flows are deployed in IIB (on-prem, in Docker, or in another vendor's IaaS such as AWS or Azure) then the agent contains certificates to secure the web socket connections to the Switch server

If splitting work between IIB and IIB on Cloud, the Switch server is created and managed for you in the cloud



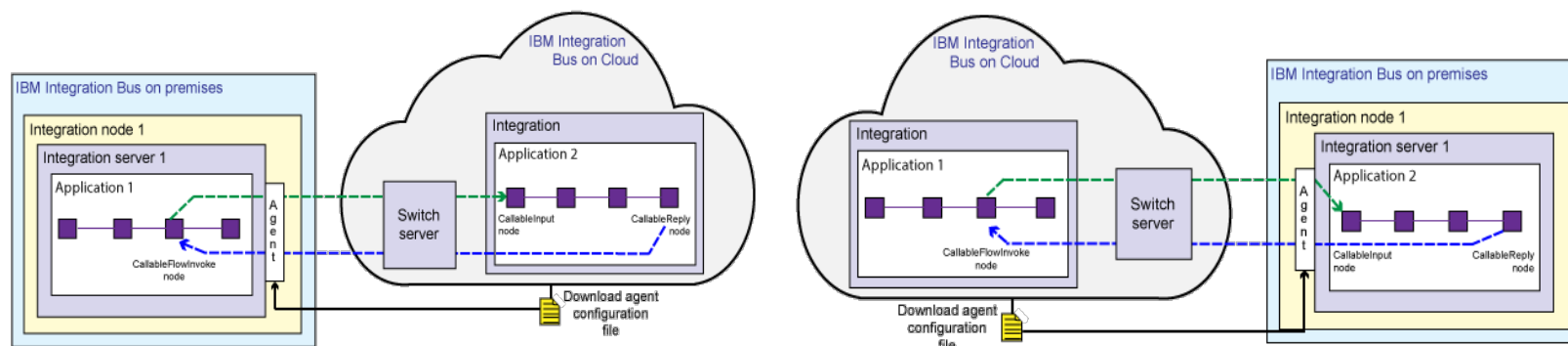
Cloud Integration Capability

- **A number of subscription types are available:**
- **Free**
 - ▶ With the free subscription, you can try the service for free for 30 days. During this time, you can have 5 integrations uploaded to your space at any time, but you can run one integration only. Inactive integrations are stopped after 3 hours, but you can restart them when you need them. If you have questions while you are using the service for free, you can ask them in an on-line community forum.
- **On demand**
 - ▶ With the on demand subscription, you can create and run as many integrations as you want in your space. No minimum term is specified for this level of subscription, and you are billed monthly in arrears. You are charged for what you use per hour. You can obtain support from an on-line community forum.
- **12-month subscription**
 - ▶ This subscription is currently available to existing IBM Integration Bus customers only and is for a minimum term of 12 months. You are billed in advance for each subscription, and you can buy multiple subscriptions. For each subscription, you can have 10 integrations uploaded to your space at any time, but you can run one integration only. Therefore, to run more integrations, you should buy more subscriptions. You can obtain support from IBM Support, or from an on-line community forum. For short-term workloads, on-demand subscriptions provide the greatest flexibility because you pay for what you use, based on integrations that are running. For enterprises, the 12-month subscription offers the best price for committed usage.

Cloud Integration Capability

■ IIB Switch (IIB On-Prem, IIB in-the-cloud)

- If one flow is in IBM Integration Bus while the other is in IBM Integration Bus on Cloud, you must configure communication between them. The flows use a Switch server to route data, and connectivity agents to connect securely to the Switch server. The Switch server, which routes data, is managed by IBM Integration Bus on Cloud. The connectivity agent contains the certificates that your flows require to communicate securely with the Switch server. A connectivity agent must be running in the IBM Integration Bus integration server where you have deployed your on-premises message flows.
- You can split flows into multiple callable flows. However, for simplicity, the following tasks describe how to create two flows only: a calling flow and a callable flow.



- The Switch server is created in IBM Integration Bus on Cloud. You must download an agent configuration file from the cloud, and use it to configure the on-premises connectivity agent.

Cloud Integration Capability

■ What CAN run on the cloud

• CallableFlowAsyncInvoke	• CallableFlowAsyncResponse	• CallableFlowInvoke	• CallableInput
• CallableReply	• Compute	• Database	• DatabaseInput
• Filter	• FlowOrder	• HTTPAsyncRequest	• HTTPAsyncResponse
• HTTPHeader	• HTTPInput ¹	• HTTPReply	• HTTPRequest
• Input	• JavaCompute ²	• Label	• Mapping ²
• MQGet	• MQInput	• MQOutput	• MQReply
• Output	• Passthrough	• ResetContentDescriptor	• RESTAsyncRequest
• RESTAsyncResponse	• RESTRequest	• Route	• RouteToLabel
• SOAPAsyncRequest	• SOAPAsyncResponse	• SOAPEnvelope	• SOAPExtract
• SOAPInput ¹	• SOAPReply	• SOAPRequest	• Throw
• Trace	• TryCatch	• Validate	• XSLTransform

Use Cases for IBM Integration Bus

- Expansion of the MQ transport to add integration services capabilities (data transformation, brokered pub/sub engine)
- SAP Integration (SAP nodes included in Advanced Edition)
- Enterprise Service Bus “ESB” – Maturing the SOA with ESB capability
- Integration Bus – Providing centralized services for integration swiss army knife

Get more information

- IIB v10 Overview: <https://www.youtube.com/watch?v=CM9EBoJ4SDc>
- IIBv10 Technical Overview:
<https://www.youtube.com/watch?v=9RyXxCiqlV8>
- Recent video showcasing IIB Rest APIs and their integration with API Connect: <https://www.youtube.com/watch?v=hlcTkEHIzgU>
- Integration YouTube Channel
<https://www.youtube.com/user/IBMintegrationMedia>
- Integration Twitter Handle: @IBMintegration
- Integration DeveloperWorks <https://developer.ibm.com/integration/>
<https://developer.ibm.com/integration/docs/ibm-integration-bus/>

Questions & Answers



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