2110: What's New in IBM Integration Bus?

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InterConnect 2017

IIB Sessions at Interconnect 2017

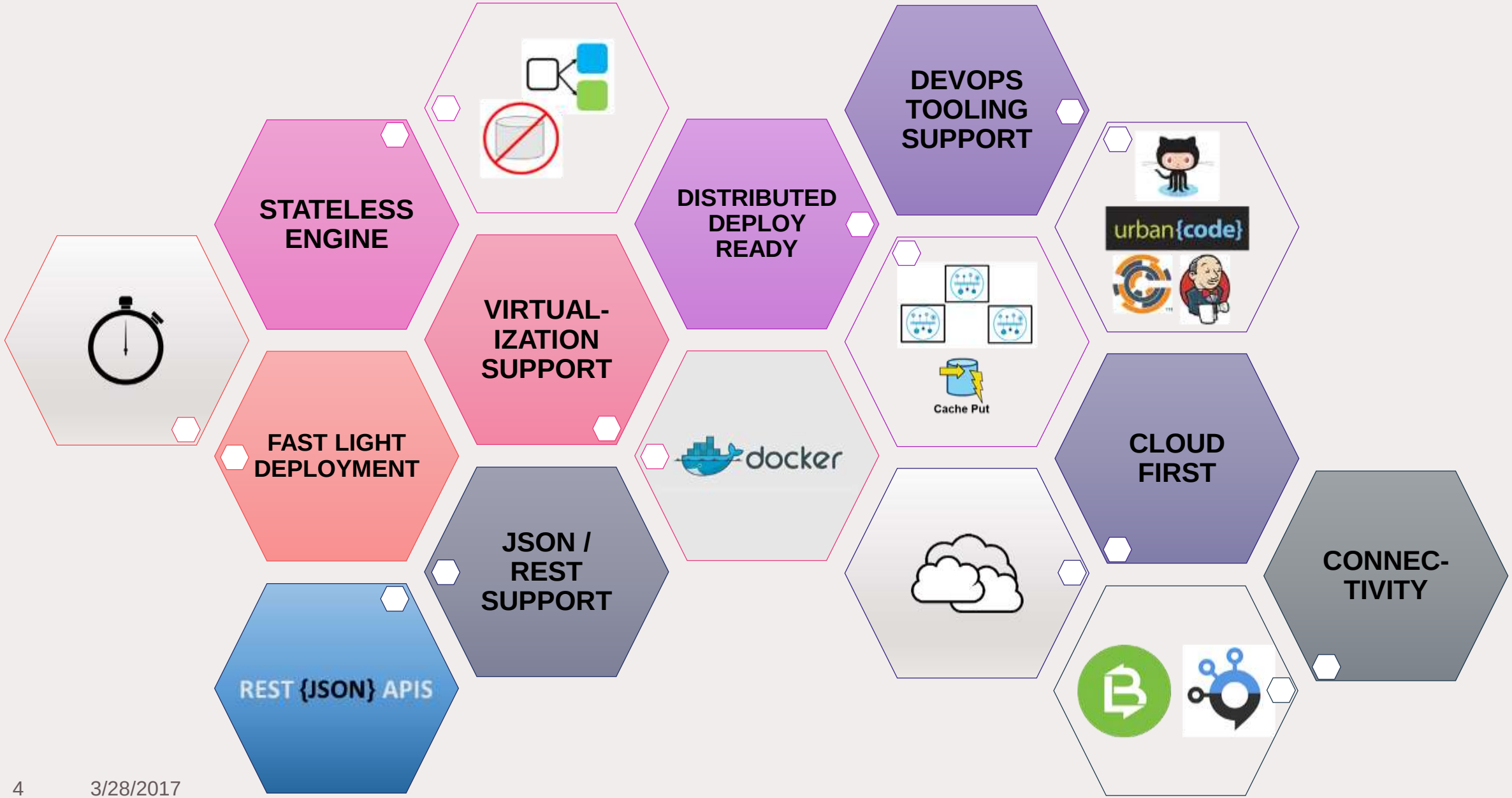
Session	Who	Time
2110A What's New in IBM Integration Bus	BT	Monday 16:15 – 17:00
2141A IBM Integration Bus Futures and Strategy ***(Inner Circle only)***	BT	Tuesday 11:30 – 12:15
2158A Technical Introduction to IBM Integration Bus	GG	Tuesday 13:30 – 14:15
2118A Developing Integrations for IBM Integration Bus on Cloud	GG	Tuesday 14:30 – 15:15
2144A IBM Integration Bus Customer Roundtable	BT	Tuesday 15:45 – 16:30
2121A Docker and IBM Integration Bus	GG	Wednesday 09:00 – 09:45
2151A Effective Administration of IBM Integration Bus	SN	Wednesday 10:15 – 11:00
7445A Application Integration Suite Meet the Experts	BT	Wednesday 14:00 – 14:45
2144B IBM Integration Bus Customer Roundtable	BT	Wednesday 16:15 – 17:00
2124A Operational and Business Monitoring with IBM Integration Bus	SN	Thursday 09:30 – 10:15
2111A IBM Integration Bus and REST APIs	SN	Thursday 10:30 – 11:15
2166A IBM Integration Bus Version 10 Hands-On Scheduled Lab	GG+SN	Monday 13:00 – 14:45
2166B IBM Integration Bus Version 10 Hands-On Scheduled Lab	GG+DS	Thursday 08:30 – 10:15
9402 IBM Integration Bus Version 10 Hands-On Open Lab	None	Any Open Lab Session

In case slides are not your thing …

- https://developer.ibm.com/integration
- Lots of Blog entries, regular updates and links to product demo videos! All our recent enablement material is on youtube

Running IIB in Bluemix Container Service	https://youtu.be/ybGOiPZO3sY
IIB and Kibana dashboards	https://youtu.be/sCPrT2dHKSs
IIB and Hybrid Connect	https://youtu.be/gWbxIooq3_g
IIB and LDAP	https://youtu.be/HrqY9MyfzNs
IIB LoopBack Request node	https://youtu.be/rUK_OQ5-Anw
Using IIB to integrate with MongoDB and Cloudant	https://youtu.be/Is1pphngUlM
Using IIB for REST, Graphical Mapping & Salesforce	https://youtu.be/XIK6QvNSHdY
IIB, Kafka and Twilio SMS:	https://youtu.be/7mCQ_cfGGtU
Using Kafka with IIB	https://youtu.be/kYv0crxL86Y
Consuming REST APIs using the IIB REST Request node	https://youtu.be/C_6gPlrCHZQ
Easy demo of an IIB App Connect node	https://youtu.be/StwPbOiFKzk

IBM Integration Bus - A Lightweight Integration Runtime



IIB v10.0.0.2
Q3 2015

Global Cache upgrade to WXSv8.6
GDM access to Global Cache
REST API integration with APIm
CICS 2 Phase Commit
TCPIP report properties enhancements
WESB conversion enhancements

IIB v10.0.0.3
Q4 2015

Business Transaction Monitoring
CICS 2 Phase Commit on zOS
Oracle stored proc in GDM
Linux Power 8 Little Endian
(RHEL7.1, Ubuntu14.0.0.4, SLES12)

IIB v10.0.0.4
Q1 2016

Callable Flows for linking to IIBoC
Create a REST API without Swagger
JSON Schema support for GDM
Salesforce Request node
LDAP Authentication
Web UI Activity Log
SLESv12 (x86 and Z Systems)

IIB v10.0.0.5
Q2 2016

MQTT SSL and dynamic config
Bulk Push to API Connect
Callable Flows report properties

IIB v10.0.0.6
Q3 2016

REST Request node
REST Async Request & Response nodes
Loopback Request node
MQ version 9 support
Support for YAML format Swagger
Support for REST APIs with node-wide listener
HTTP Logging Enhancements
HTTP Input Query Param split in LE

IIB v10.0.0.7
Q4 2016

Kafka Producer and Kafka Consumer nodes
Hybrid Connect – view IIB instances in Bluemix
Send IIB logs to Kibana dashboard in Bluemix
Pre-built Docker image on Bluemix Containers
Wildcards to simplify LDAP user authentication
Accounting & Stats CSV output
Windows 10 support

IIB v10.0.0.8
Q1 2017

IBM Cloud Product Insights in Bluemix
Asynchronous Callable Flows
JSON support for allOf, anyOf, oneOf
Storing context for REST Async Request
Message Keys for Kafka nodes
10 New Product Tutorials
Node.js and FTE upgrades

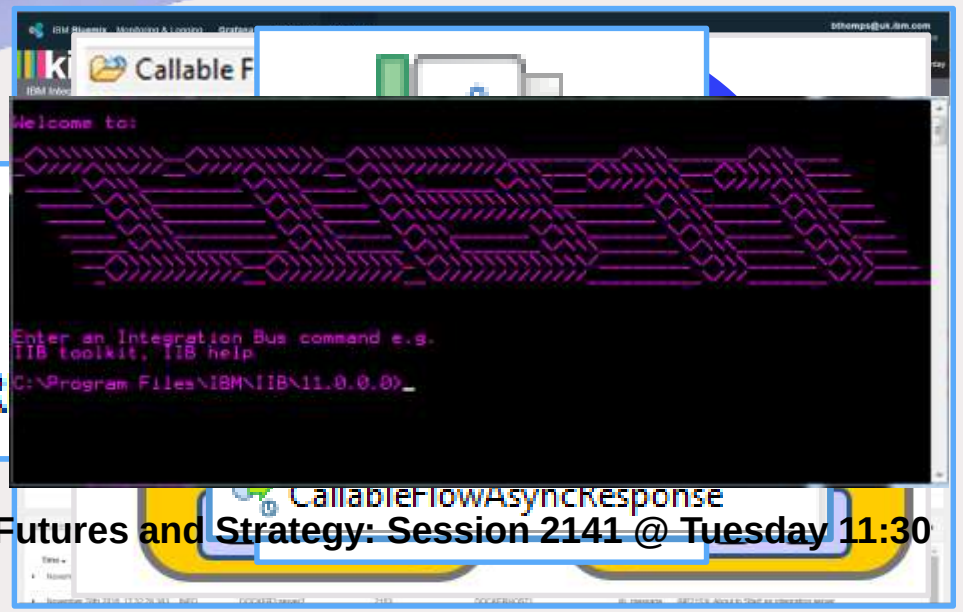
IIBvNext Closed Beta

IIB on Cloud
Q3 2015

IBM Managed Service
Built on Docker containers
Runs on the Bluemix Container Service
Reuse artifacts built for IIB on-premise

IIB Manufacturing Pack
v1.0.0.2 Q3 2016

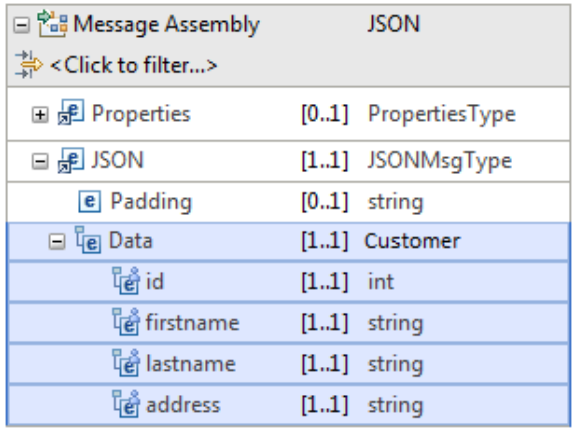
IIBv10 Compatability

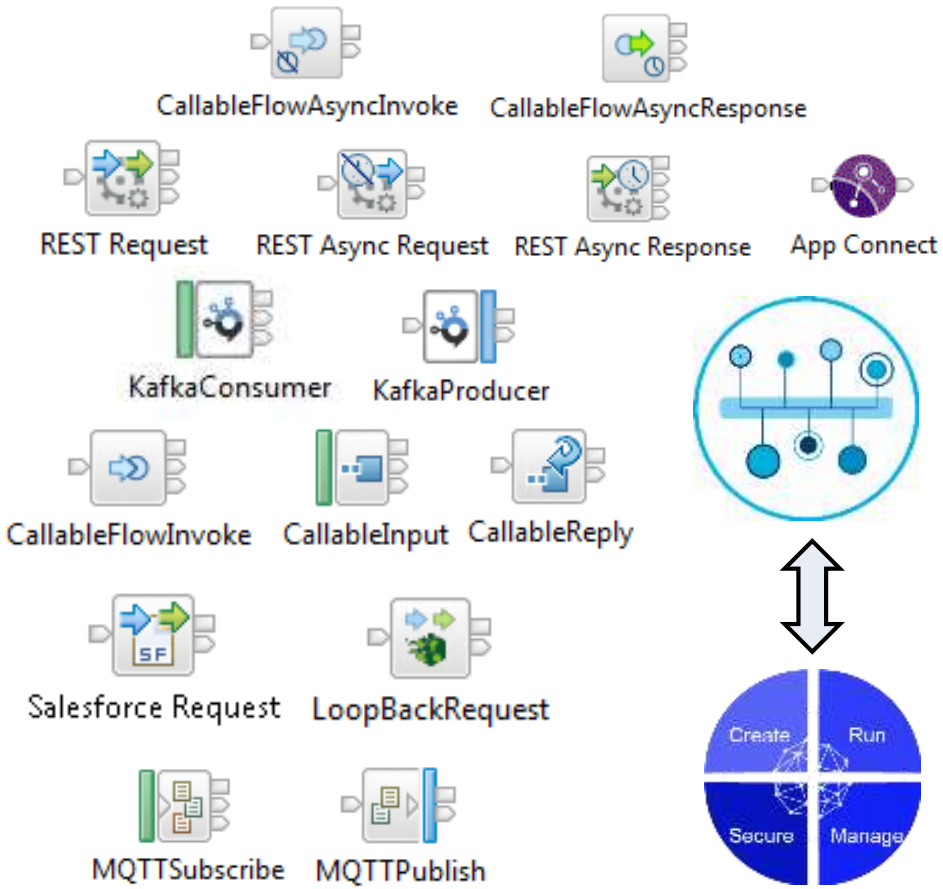


Inner Circle: IIB Futures and Strategy: Session 2141 @ Tuesday 11:30

Since last year, we've been busy!

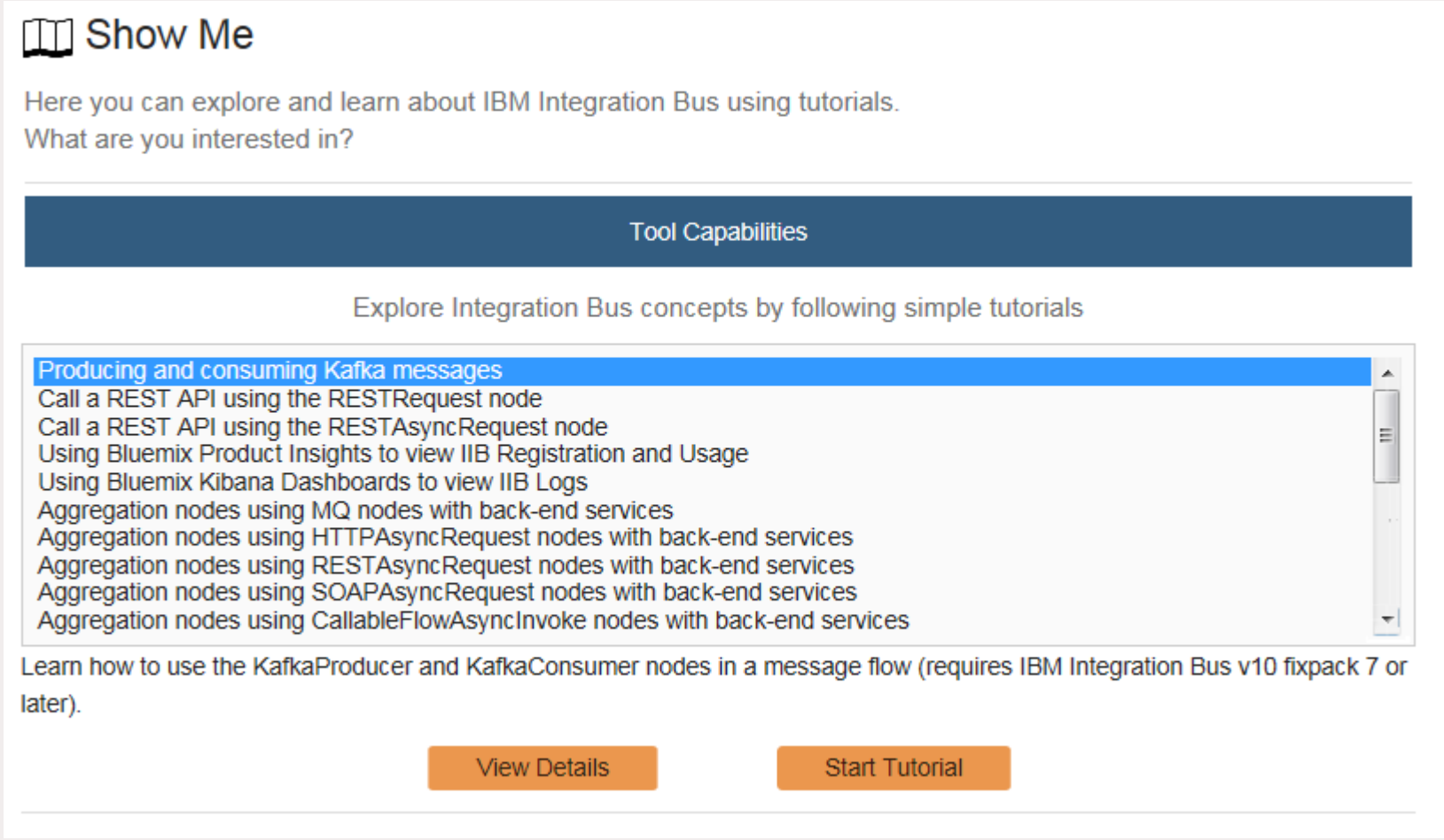
- Callable Flows for Hybrid Cloud scenarios
- Create a REST API without needing a Swagger document
- JSON Schema support for graphical maps
- Salesforce Request node
- LDAP Authentication for admin changes (& wildcarding)
- Web UI Activity Log view for message flows
- MQTT SSL and dynamic configuration
- Bulk push REST APIs to API Connect from IIB Web UI
- REST Request, REST Async Request, REST Async Response
- LoopBack Request node for integrating Apps and NoSQL
- HTTP and REST enhancements
  - Logging, YAML , REST APIs with node-wide listener
- Kafka Producer and Kafka Consumer nodes
- View IIB instances in Bluemix
  - (Hybrid Connect / Product Insights)
- Send IIB logs to Kibana dashboard in Bluemix
- Pre-built Docker image on Bluemix Containers
- Accounting & Statistics CSV output
- Asynchronous Callable Flows
- JSON support for allOf, anyOf, oneOf
- Storing context for REST Async Request



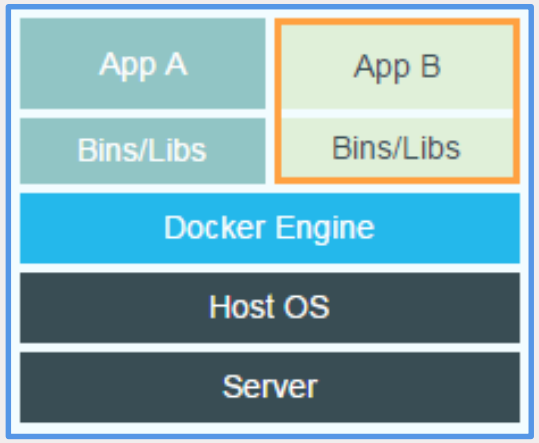


10 New IIB Tutorials Recently Added …

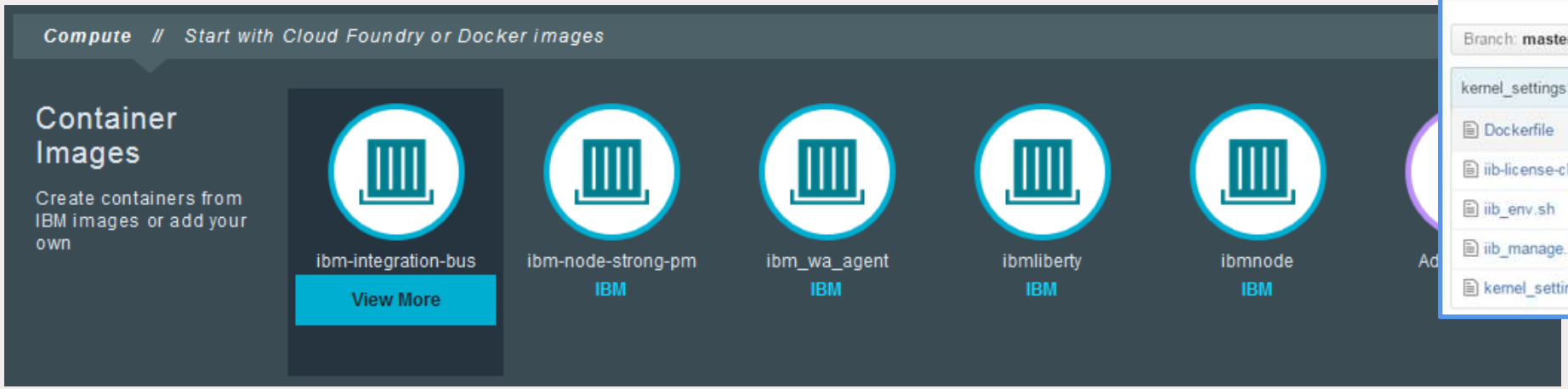
Kafka, Aggregation, REST, Callable Flows, Bluemix Product Insights!



IIB in Docker (and on Bluemix Container Service)



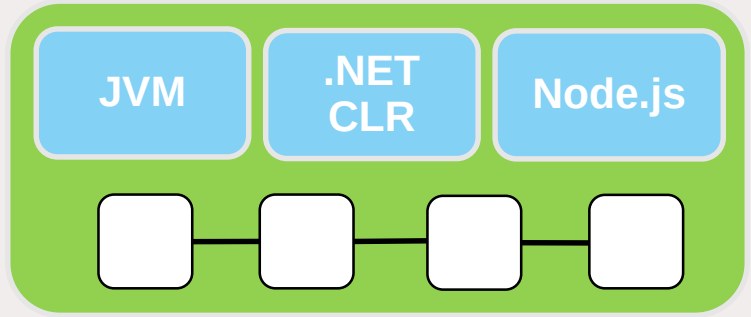
- IIB Docker image now available on the Bluemix Container Service
- It is fully supported to run IIB (including production usage) in Docker
  - Developer edition binaries linked from Github dockerfile
  - Docker containers securely isolate applications on a single host
  - No need for an entire Hypervisor / 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”



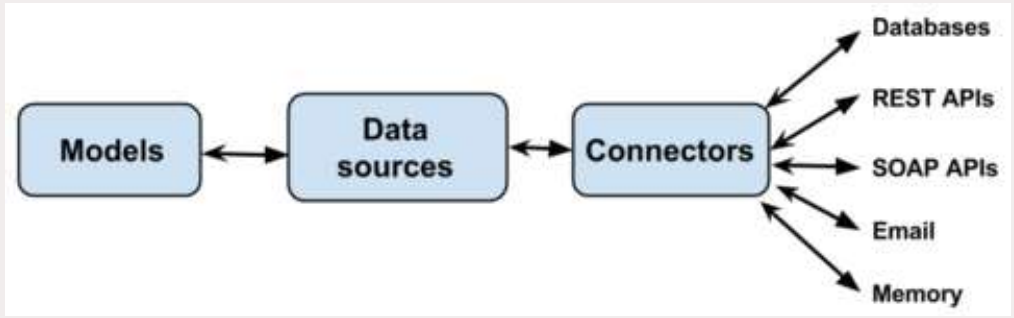
IIB Docker file available on Github: https://github.com/ot4i/iib-docker
Running IIB in the Bluemix Container Service: https://youtu.be/ybGOiPZO3sY
https://developer.ibm.com/integration/blog/2016/11/18/run-ibm-integration-bus-in-bluemix-in-3-easy-steps/

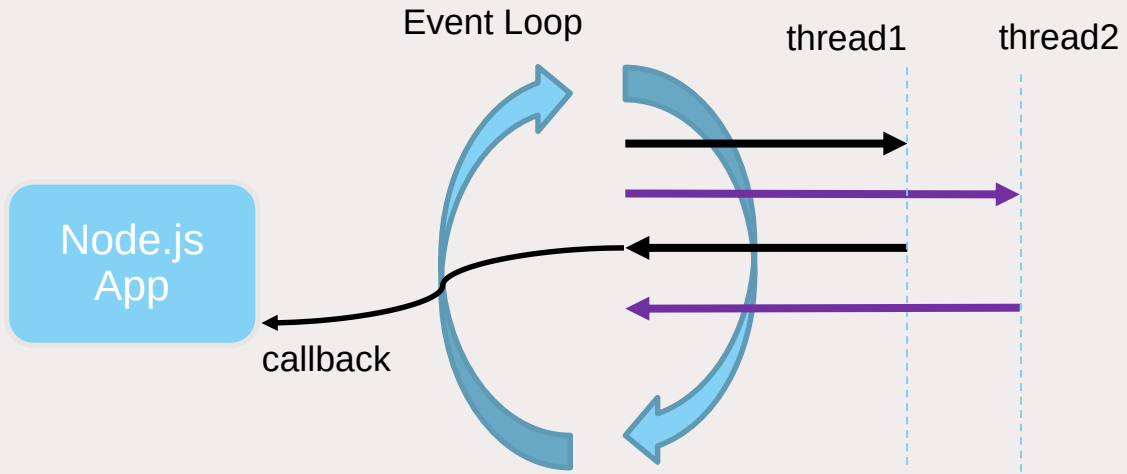
Embedded node.js – Uses and Direction

- JavaScript growing as a language server-side, especially popular in the mobile dev community
- Event-driven, non-blocking I/O model that makes node.js perfect for data-intensive, real-time applications
- IIB embeds node.js within the Integration Server process on Windows and Linux
- Currently we have three main uses for node.js within IIB but this will grow in future:
  - Salesforce Request node
  - LoopBack Request node
  - IIB Switch for secure access to IIB on Cloud



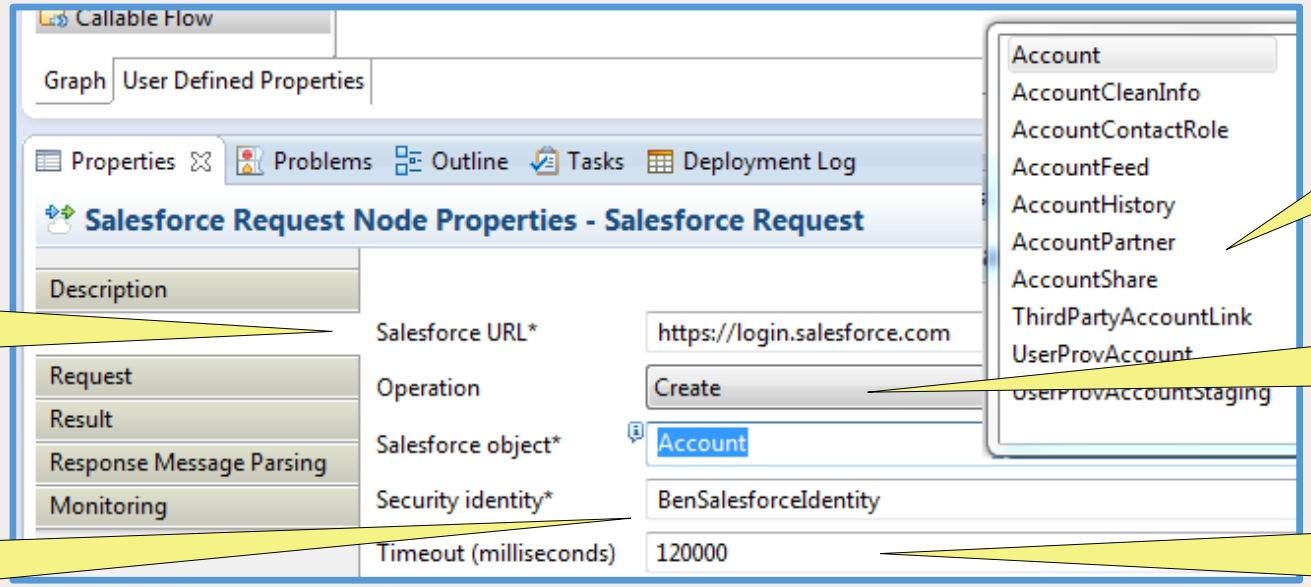
StrongLoop
An IBM Company





Salesforce Request node (Application Integration Suite)

- Built on top of LoopBack technology
- Uses the Force.com REST API to create, retrieve, update, and delete Salesforce records through a LoopBack connector.
- Input and output messages are in JSON.
- Windows and Linux x64 only.



Choose from a list of Salesforce objects or specify a custom object.

The URL of the Salesforce system you are connecting to

Create/Retrieve/Update/ Delete operation can be performed on the object

The security identity used by mqsisetdbparms

Timeout to wait for a response from Salesforce

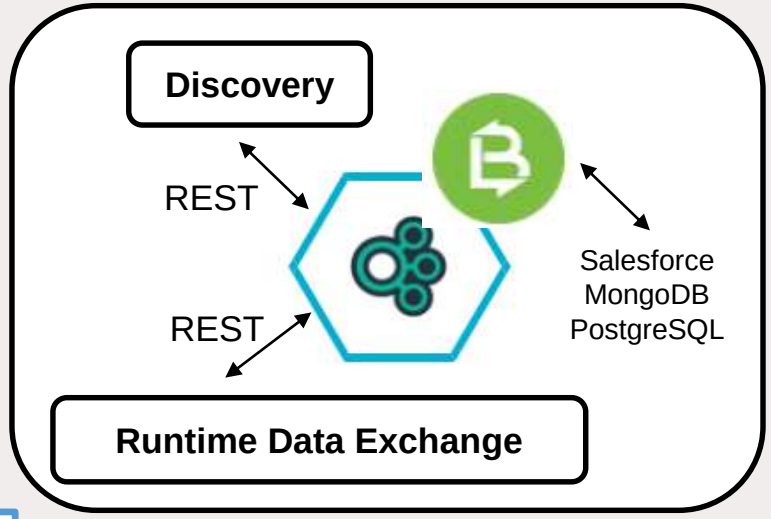
Using IIB for REST, Graphical Mapping & Salesforce: https://youtu.be/XIK6QvNSHdY

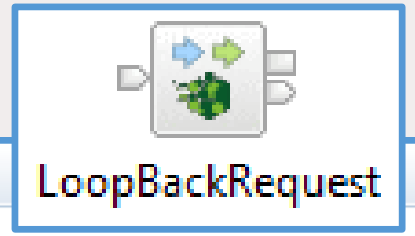
Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): AIS & Salesforce @ Tuesday 12:20-12:40

LoopBack Request node

IIB LoopBack Request node: https://youtu.be/rUK_OQ5-Anw
Using IIB to integrate with MongoDB and Cloudant: https://youtu.be/Is1pphngUlM

- Create, Retrieve, Update, Delete data records in external systems
- Interact with NoSQL databases such as MongoDB, Cloudant and PostgreSQL
- LoopBack is an Open Source node.js framework for authoring connectors – large open source catalog available on line
- npm tool helps you download and install LoopBack connectors which others have already written





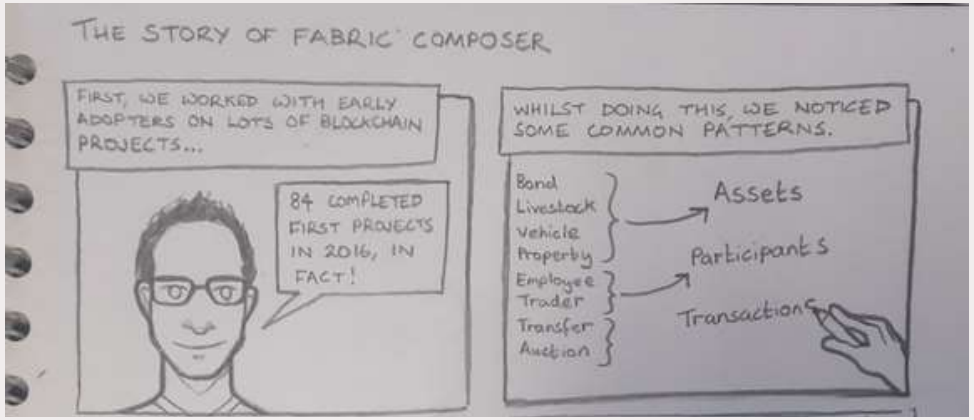
Loopback Request Node Properties - Loopback Request

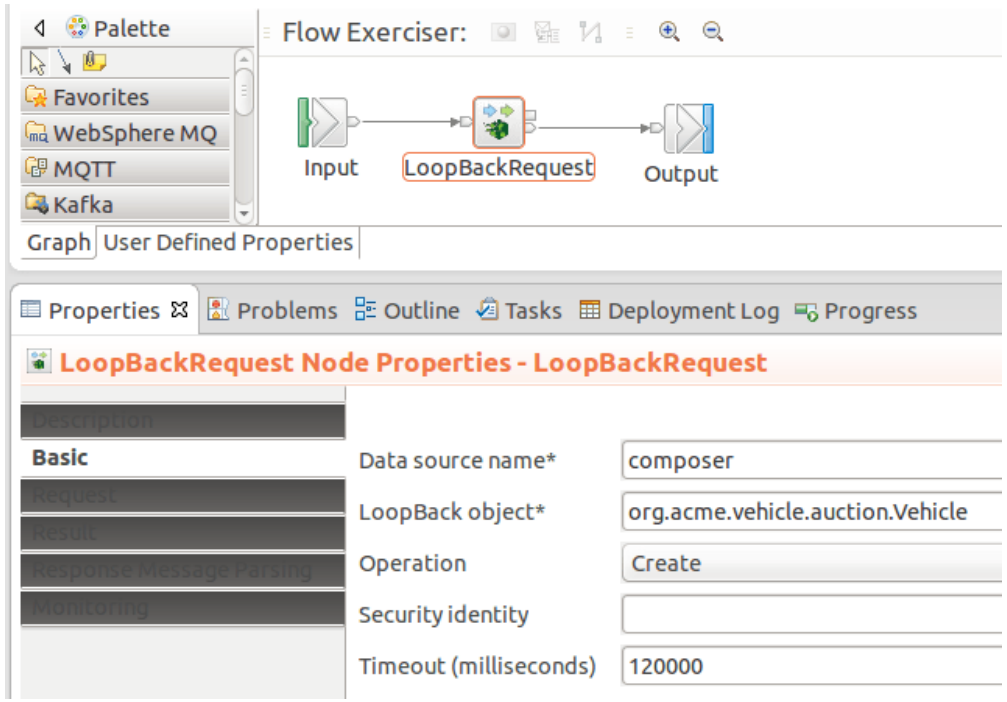
Description	
Basic	
Request	
Result	
Response Message Parsing	
Monitoring	
Location of the datasources.json file*	C:\Program Files\IBM\IIB\10.0.1267.5\server\nodejs\iib-loopback-connector\ds.json
Name of the data source in the datasources.json file to connect to*	BenDatabase
Loopback object*	BenObject
Operation	Create
Security identity	LoopbackIdentity
Timeout (milliseconds)	120000

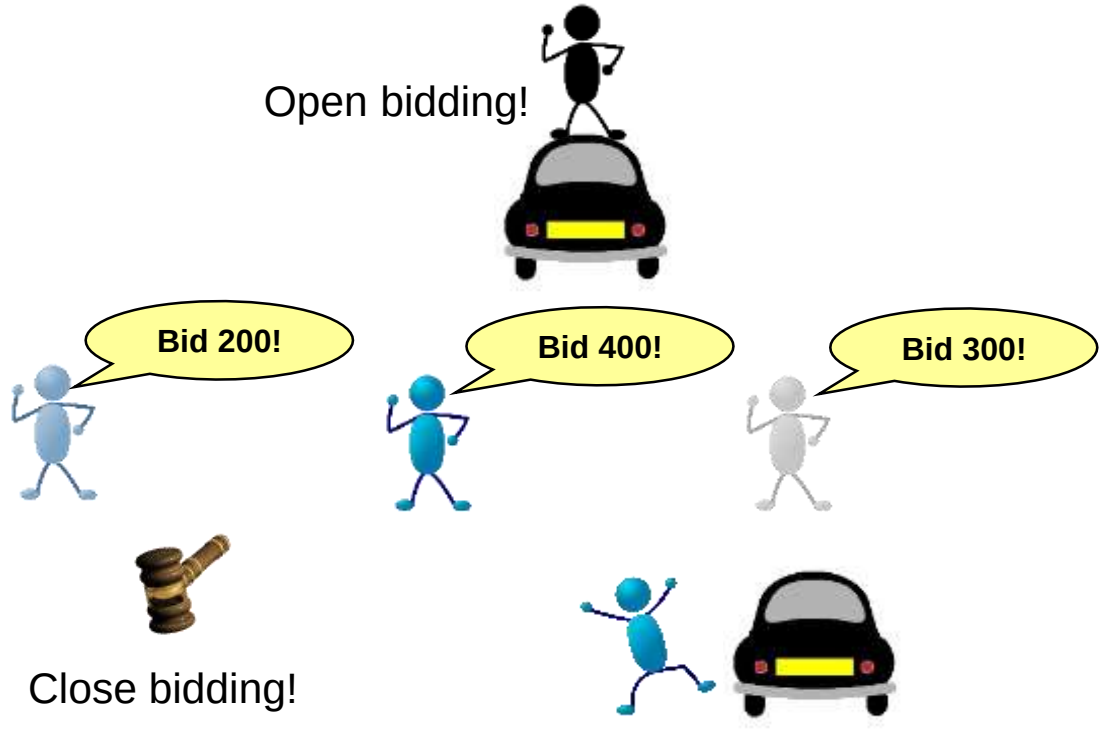
Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & Loopback @ Tuesday 16:00-16:20

Using IIB, LoopBack and Blockchain

- **Blockchain:** A shared digital ledger for recording transactions in a distributed ledger
- **Hyperledger Fabric:** An open source blockchain implementation being developed under the Hyperledger project, which is managed by the Linux foundation.
- **Fabric Composer:** An open source project providing APIs, a modelling language and a programming model to quickly define and deploy business networks and apps which sit on top of Blockchain.

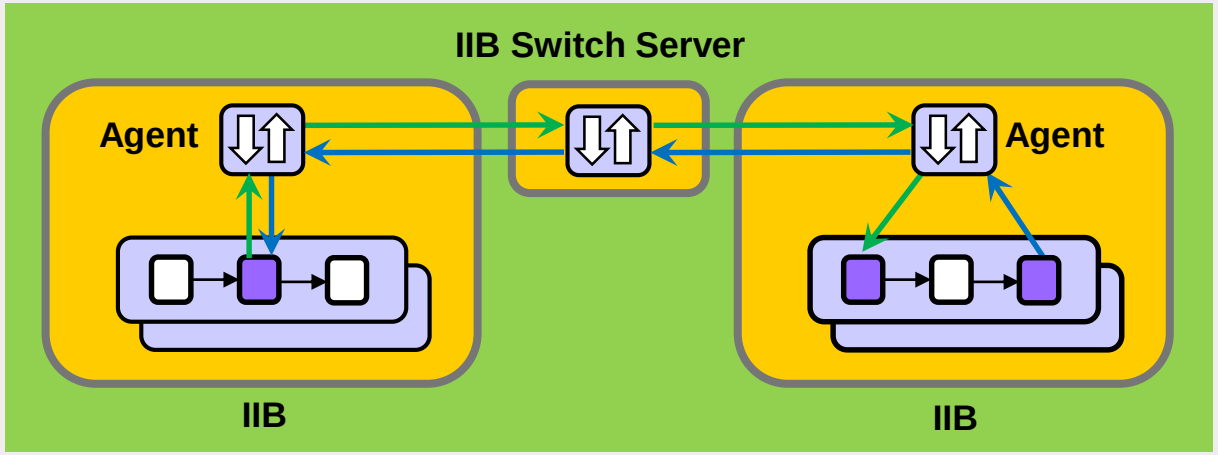


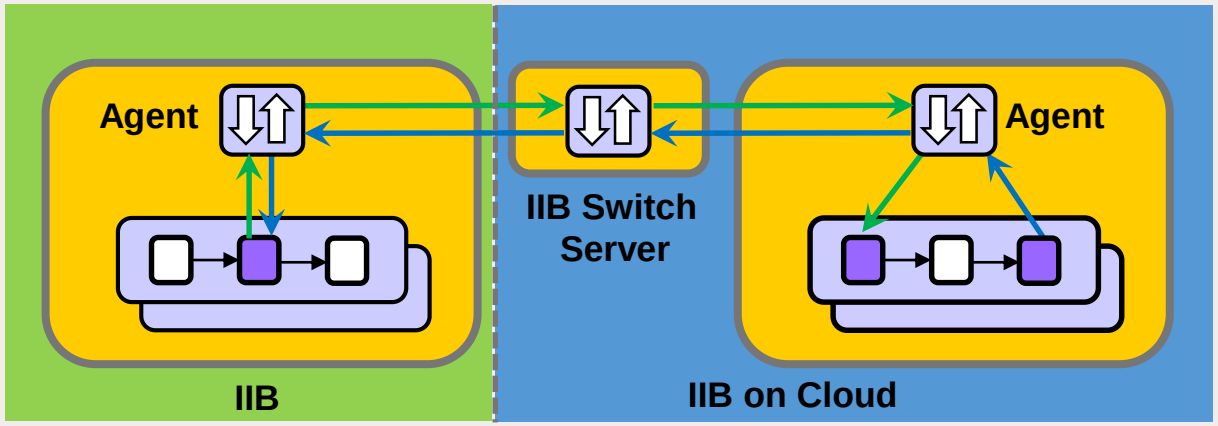




Hybrid Integration using the IIB Switch

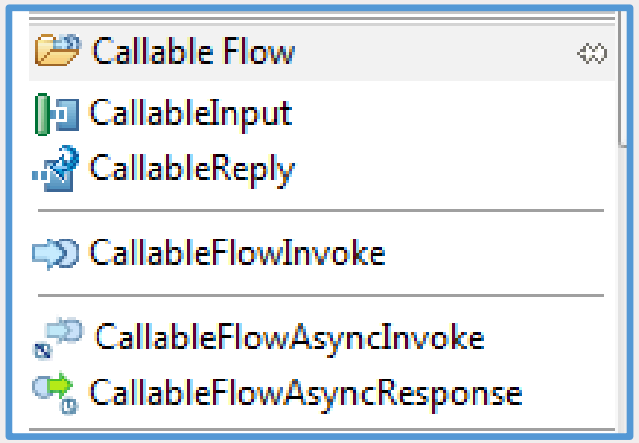
- Simpler to run IIB in a cloud architecture due to deployment processing and flow runtime all coordinated using a single OS process
- Split processing between different Integration Servers
- Flows communicate using a Switch server and connectivity agents
- If callable flows are deployed in IIB (on-prem, 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

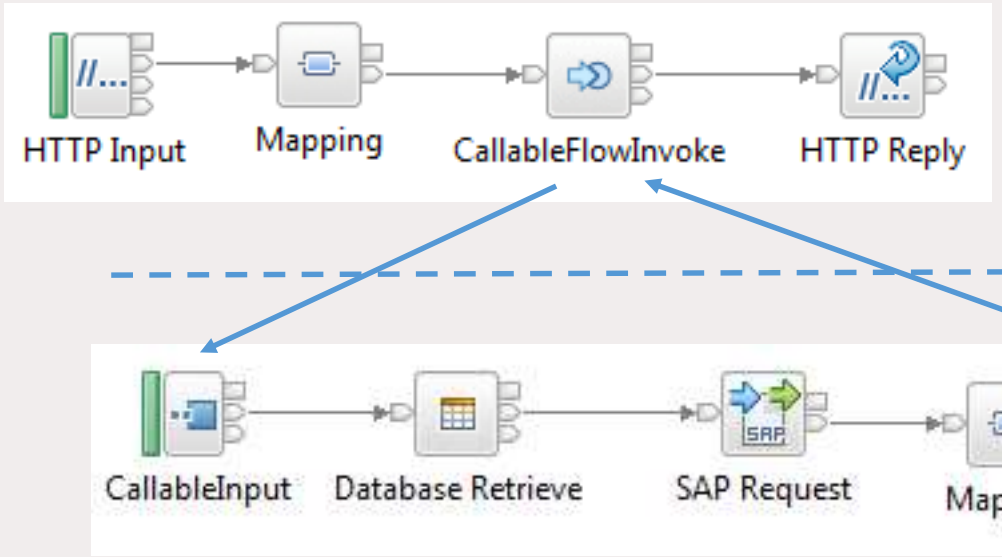


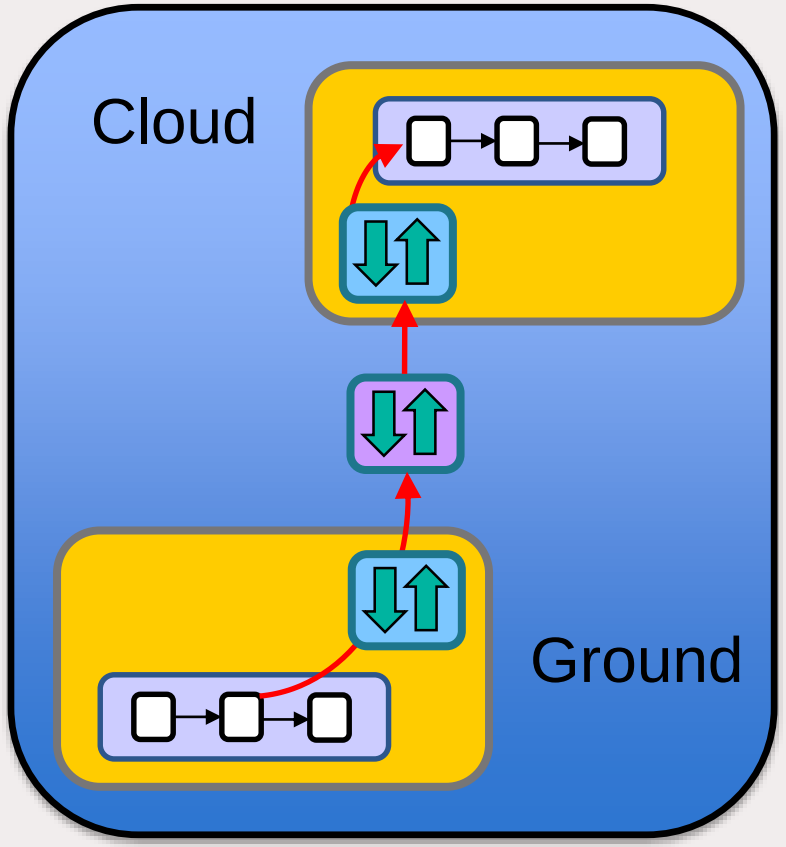


Callable Flows

- True Hybrid integration is achievable right now!
- Cloud burst workload when needed!
- Easily connect IIB running on ground with IIB on Cloud, and in Docker, pure application, other IaaS vendors etc.
- Dynamically control the CallableFlowInvoke node to route to different message flows for specific message traffic
- Dynamic behaviour is also useful for on-premise use cases
- CallableFlowAsyncInvoke and CallableFlowAsyncResponse added in v10.0.0.8

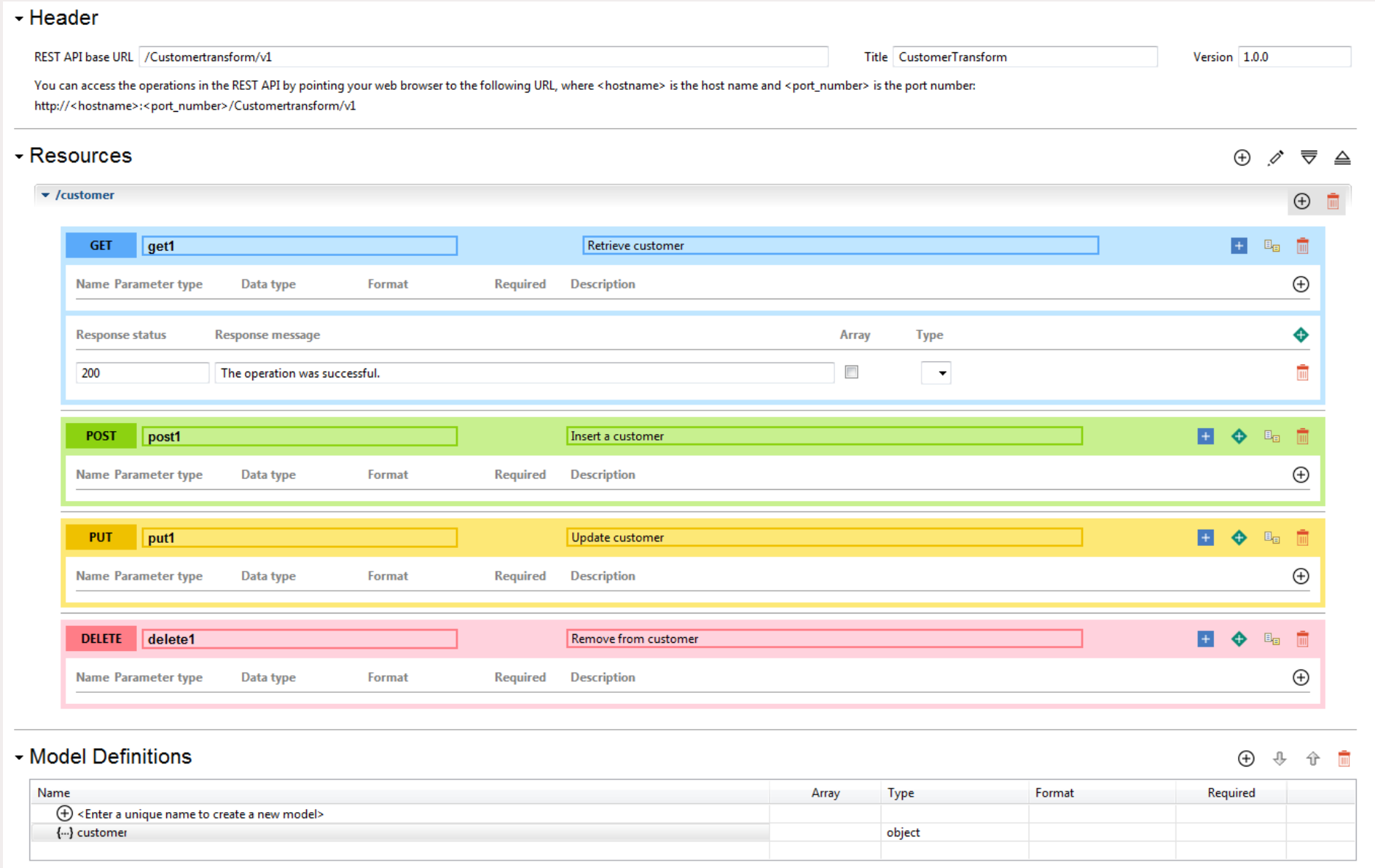




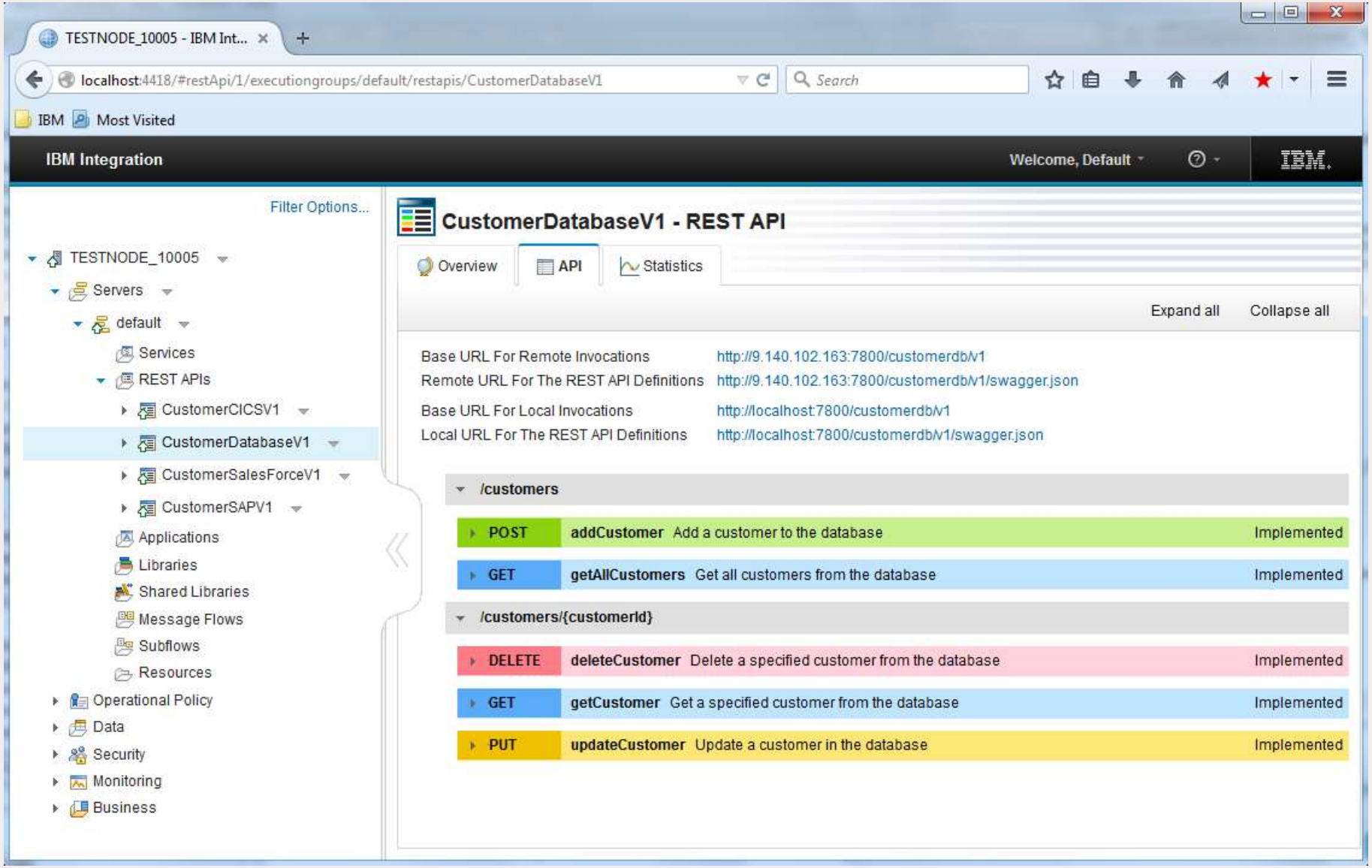


Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): Running IIB Hybrid @ Tuesday 11:20-11:40

Exposing a REST API using IIB

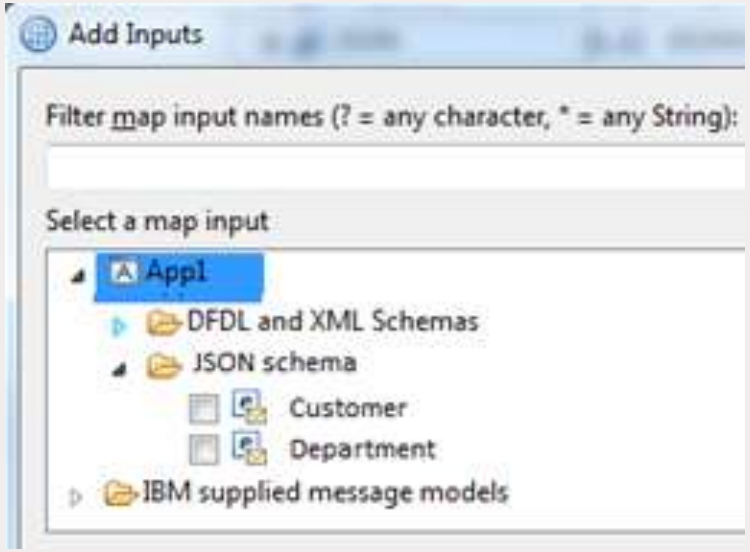


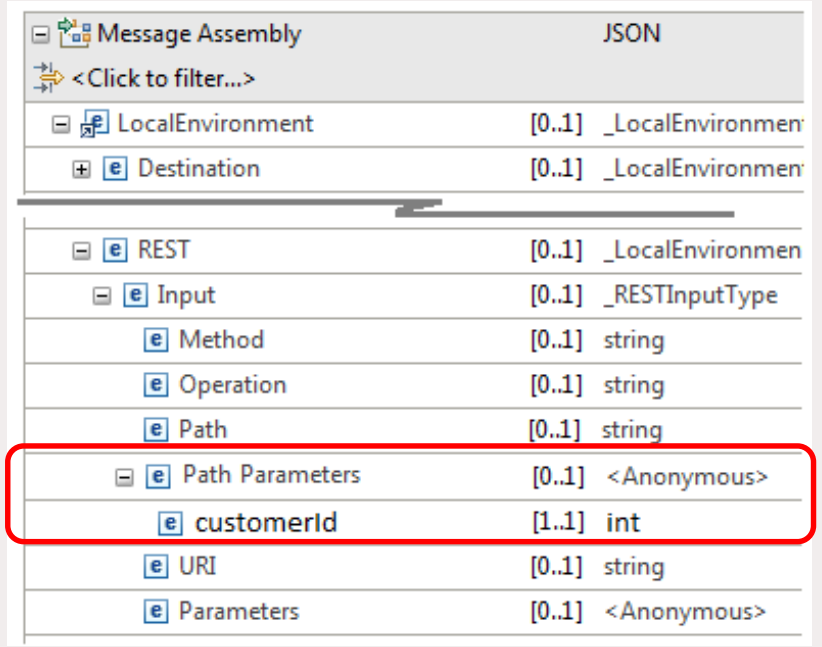
Administering an IIB REST API



JSON Schema in the Graphical Mapper

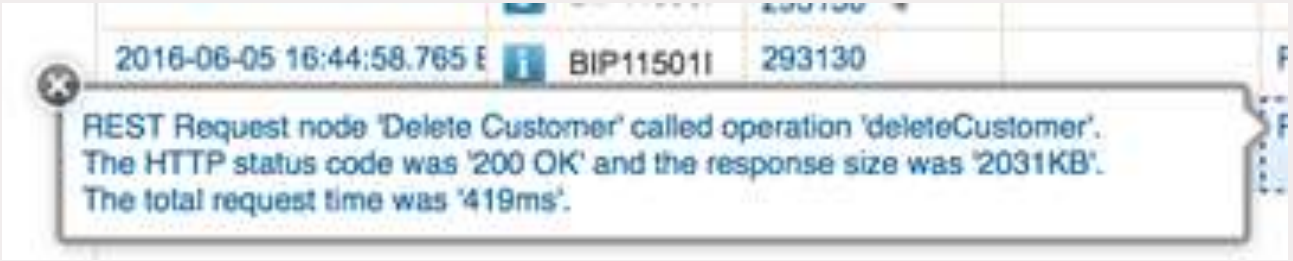
- Easy graphical map creation from JSON Schema
  - Select JSON types from Swagger for source or target
  - When creating maps in a REST API Operation subflow, populate source and target from JSON types
  - Automatic update and validate the Query Path parameters editted within a REST API and used in a map
  - Add new Path Parameters section to LocalEnvironment
- v10.0.0.0: Basic JSON schema support via user defined elements
- v10.0.0.4: JSON schema (from Swagger import) added
- v10.0.0.6: Hold JSON schema inside Application projects in a REST API Catalog folder
- v10.0.0.8: Support for JSON allOf, anyOf, and one of





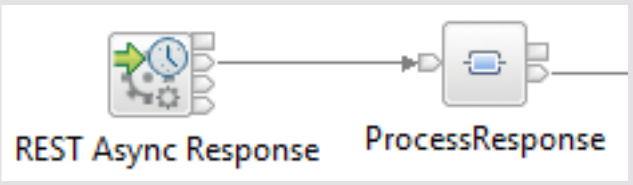
REST Request, REST Async Request and REST Async Response

- Parameters specified using literals or extracted info from the input message
- Request and Response body data sourced from input message by default, but can be from elsewhere e.g. Environment tree
- Chain multiple REST Requests together without intervening transformations
- Accept header and Content-Type rules interact with standard IIB message parsers as you would expect
- Split request / response processing into separate threads of execution using REST Async Request and Response nodes
- Activity log for the message flow provides HTTP status code, response size, and total request time.



Thread 1

Thread 2



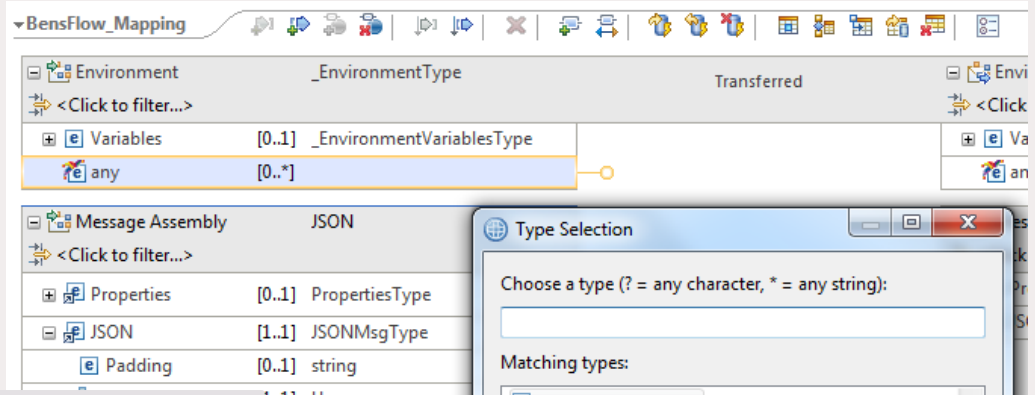
Name	Type	Description	Expression
Authorization	Header	Provide the authorization key that...	'suchASecretAuthKey'
customerId	Path	The ID of the customer to delete fr...	$Root/XMLNSC/Message/DeleteReq/customerId
clientName	Query	Provide the authorization key that...	LocalEnvironment.Variables.CLIENT_NAME

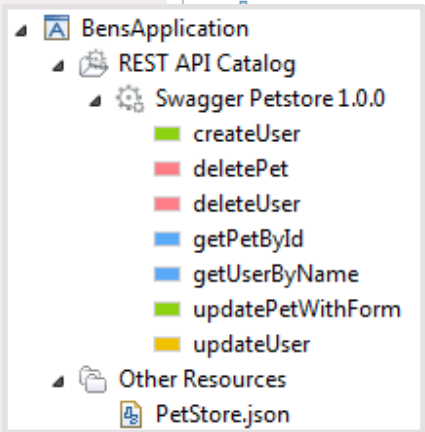
Consuming REST APIs using the IIB REST Request node: https://youtu.be/C_6gPlrCHZQ

Other new REST and HTTP Enhancements

Using IIB for REST, Graphical Mapping & Salesforce:
https://youtu.be/XIK6QvNSHdY

- Swagger can now be stored in Application and Library projects in addition to REST API projects
- YAML format Swagger is also supported
- Casts for JSON types in the Graphical Mapping node
- HTTP Input Query Paramater splitting into Local Env
- REST APIs can now be deployed to the IIB runtime to use the node-wide HTTP listener
- CORS support is added to the node-wide listener too





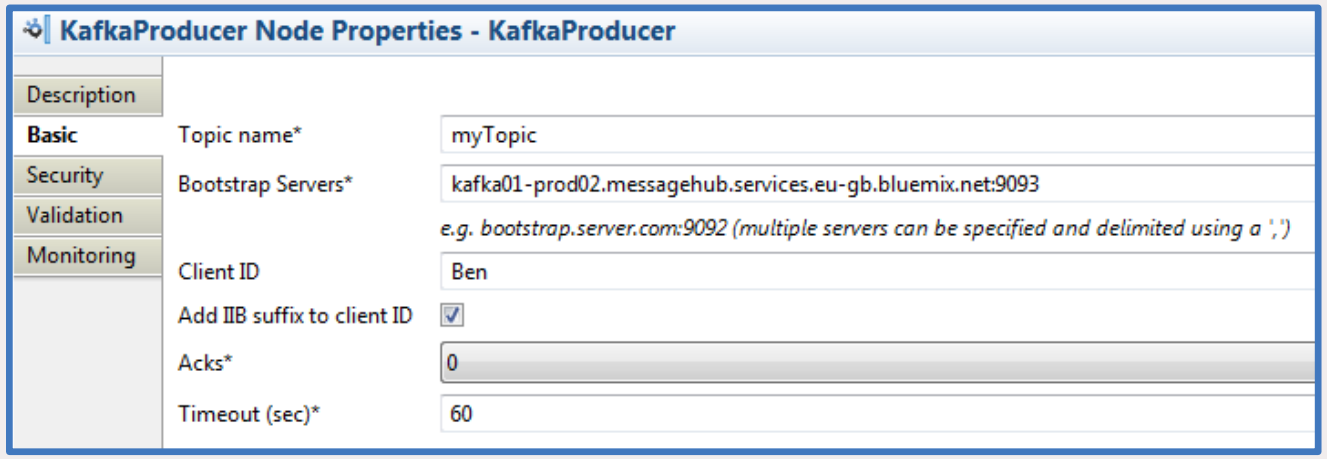
- When IIB responds to an inbound HTTP request, you can add a new X-IIB-Timing property to the HTTP Header to describe elapsed timings for the IIB processing of the request [accessLog = true]

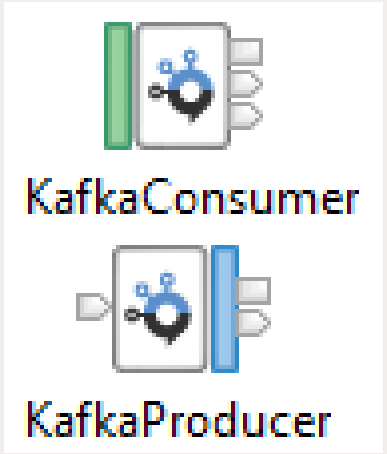
```
mqsichangeproperties TESTNODE_10006 -b httplistener -n accessLog -v true
```

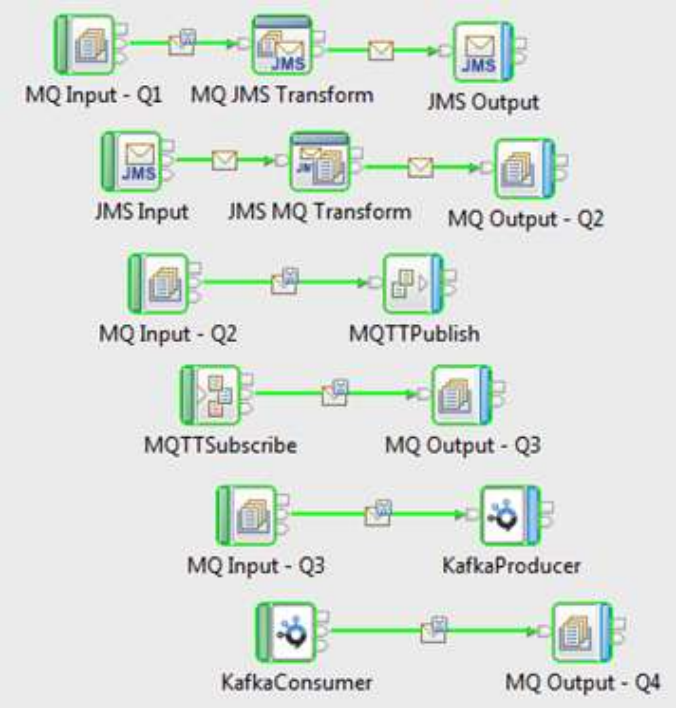
- Tomcat Access Log Valve feature is provided to add a new access log file to the IIB workpath [accessLogPattern]

```
mqsichangeproperties TESTNODE_10006 -b httplistener -o HTTPConnector -n accessLogPattern -
v "%h %l %u %t '%r' %s %b '%{Referer}i' '%{User-Agent}i'  IIB:'%{X-IIB-Timing}o'"
```

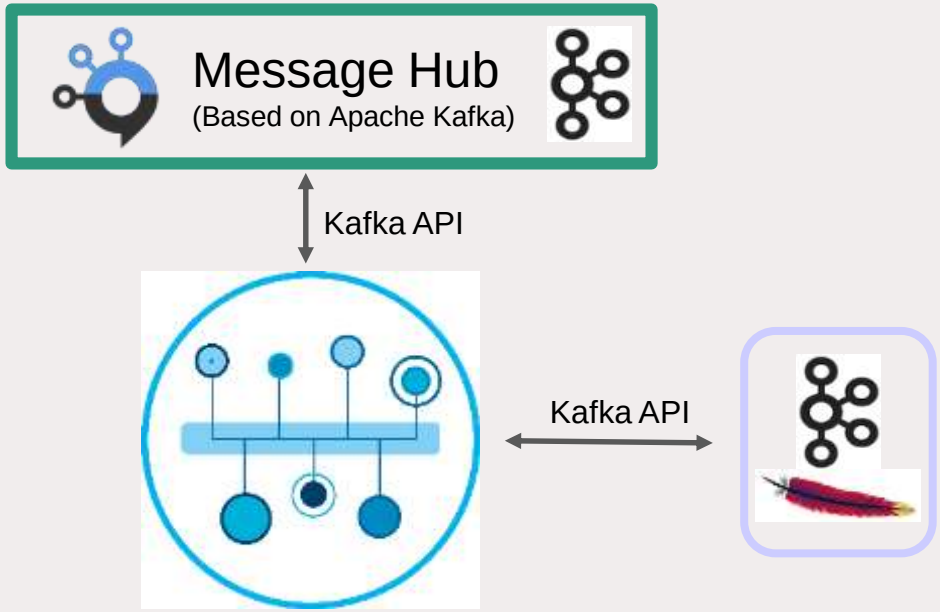
IIB, Kafka and Message Hub







- Use IIB to interact with a Kafka Broker providing distributed commit log based messaging service
- KafkaProducer and KafkaConsumer nodes for connecting IIB message flows with Kafka
- Connect to either a private Kafka Server implementation or the IBM Bluemix MessageHub implementation
- Message flow developer provides Kafka consumer and producer configurations on the nodes
- Security: SASL_SSL security protocol based upon TLSv1.2
- Message Key support added in v10.0.0.8

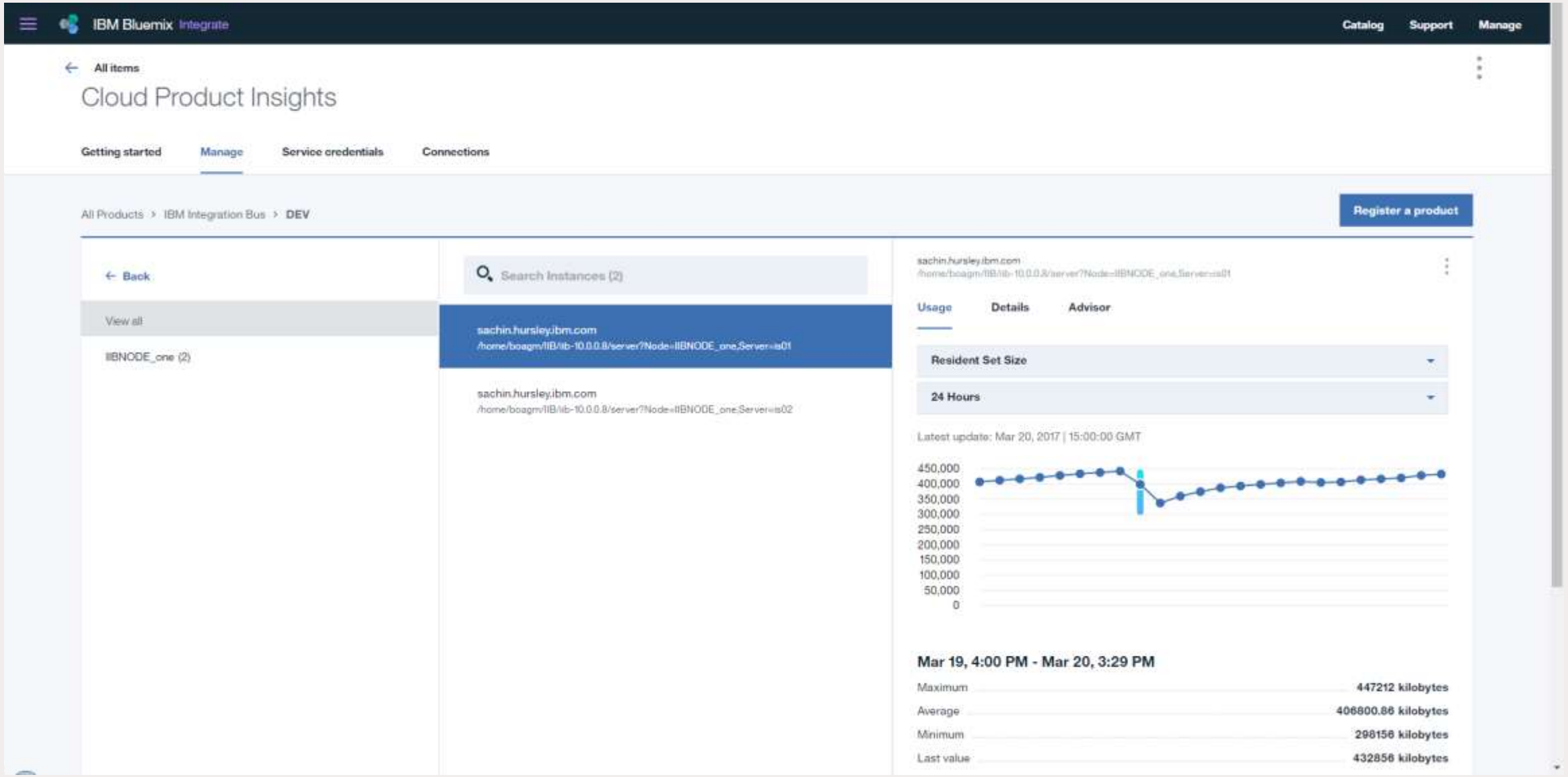


IIB, Kafka and Twilio SMS: https://youtu.be/7mCQ_cfGGtU
Using Kafka with IIB: https://youtu.be/kYv0crxL86Y

Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & Kafka @ Tuesday 15:00-15:20

IIB and Product Insights: https://youtu.be/gWbxlooq3_g

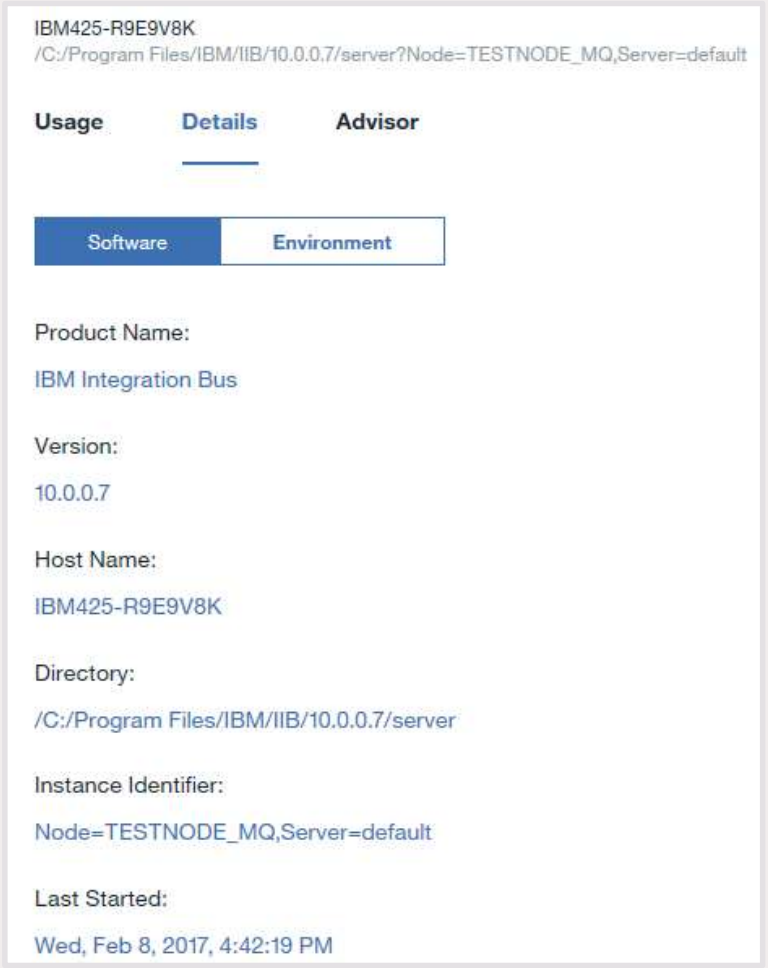
Introducing IBM Cloud Product Insights

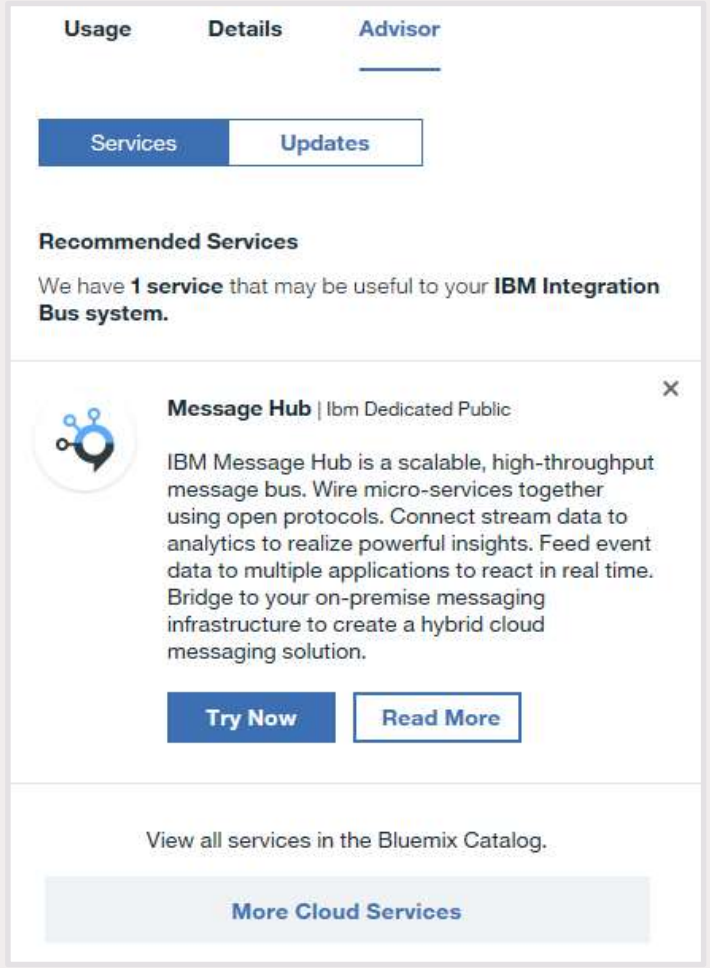


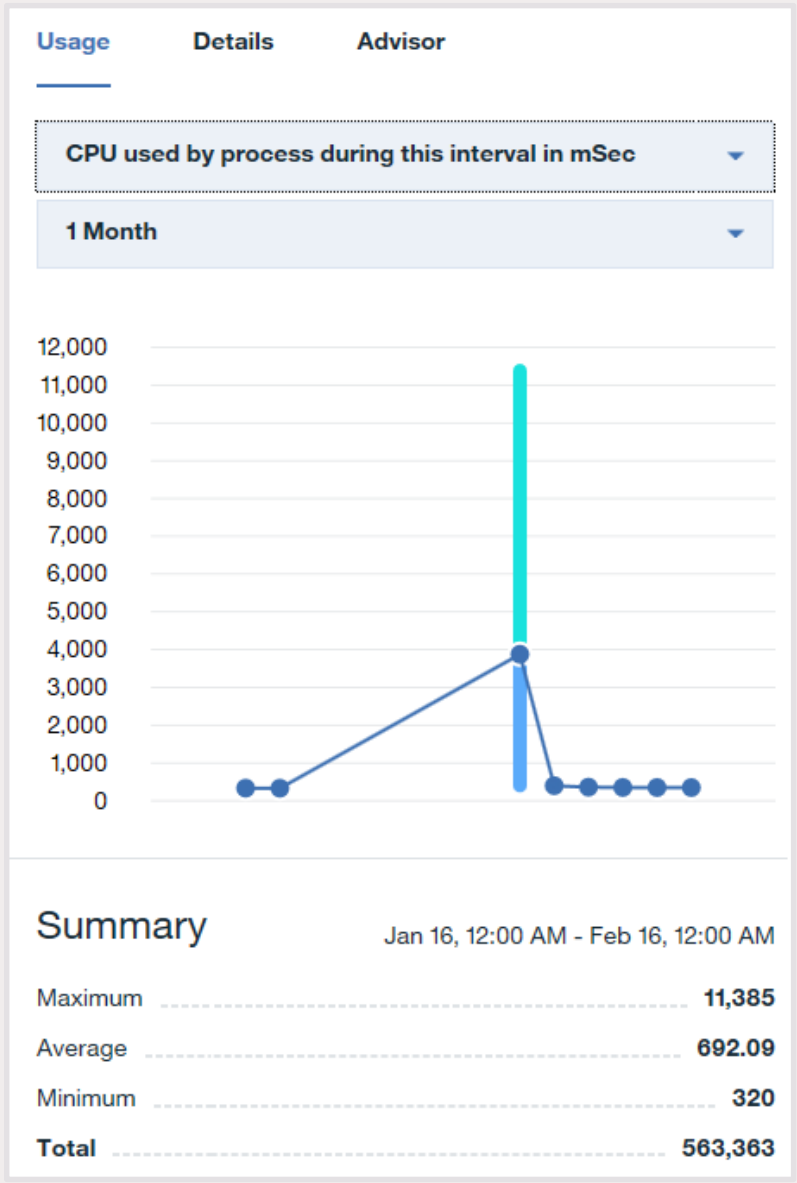
Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & IBM Cloud Product Insights @ Tuesday 12:40-13:00

IIB and Product Insights: https://youtu.be/gWbxlooq3_g

Using Bluemix Product Insights to view IIB Registration and Usage

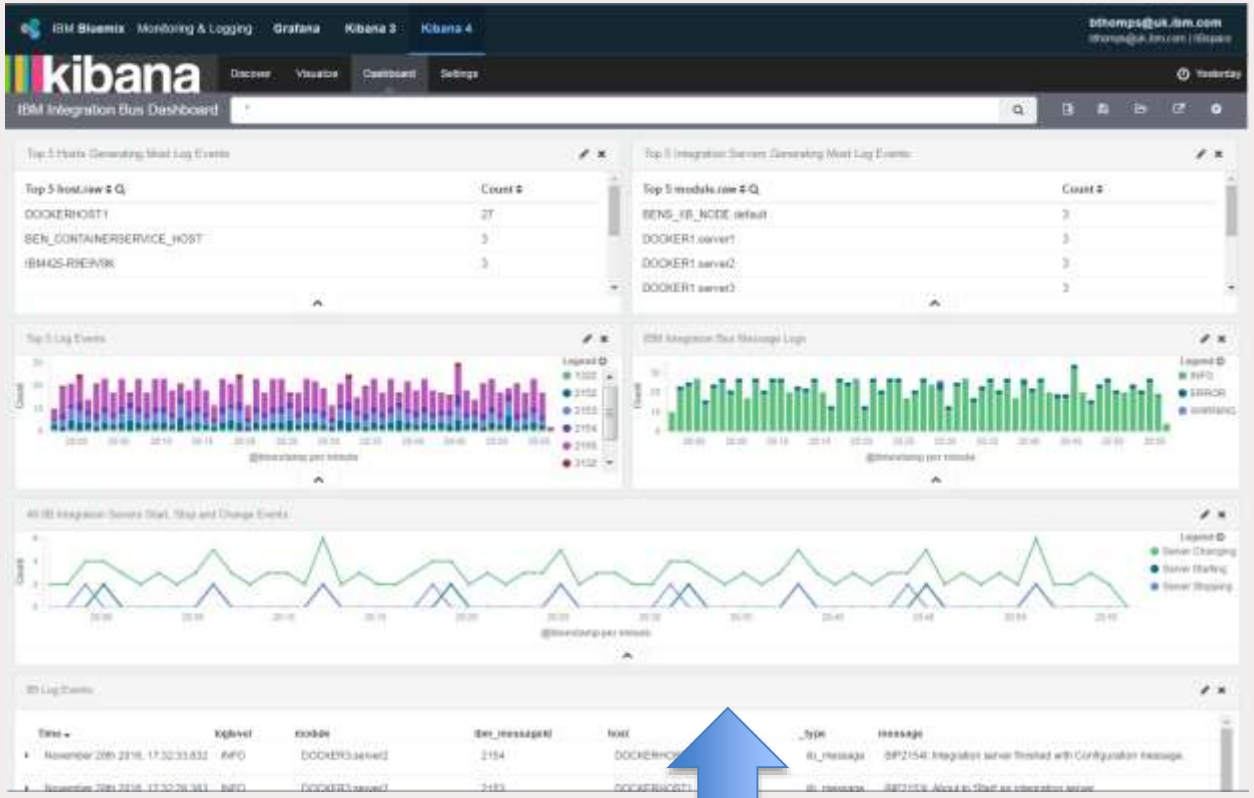






Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & IBM Cloud Product Insights @ Tuesday 12:40-13:00

Using Bluemix Kibana dashboards to view IIB Logs



IIB and Kibana dashboards:
https://youtu.be/sCPrT2dHKSs

DOCKER1.Server1 | DOCKER2.Server1 | DOCKER3.Server1
DOCKER1.Server2 | DOCKER2.Server2 | DOCKER3.Server2
DOCKER1.Server3 | DOCKER2.Server3 | DOCKER3.Server3

DOCKERHOST1

BENS_IIB_NODE.default

BEN_CONTAINERSERVICE_HOST

TESTNODE_BENLAPTOP.default

IBM425-R9E9V8K

Docker

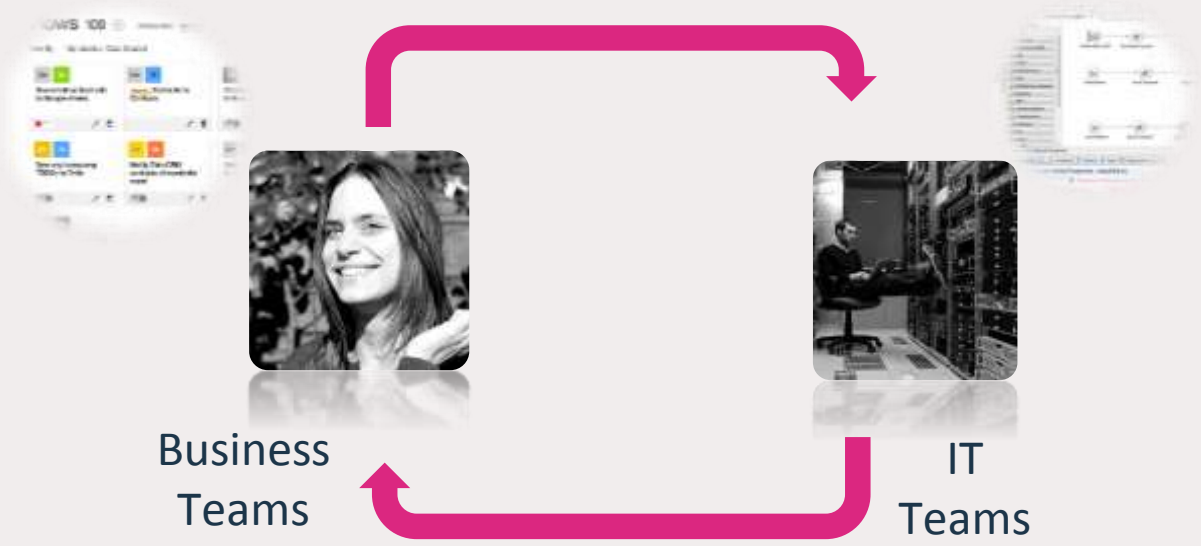
IBM Bluemix Containers

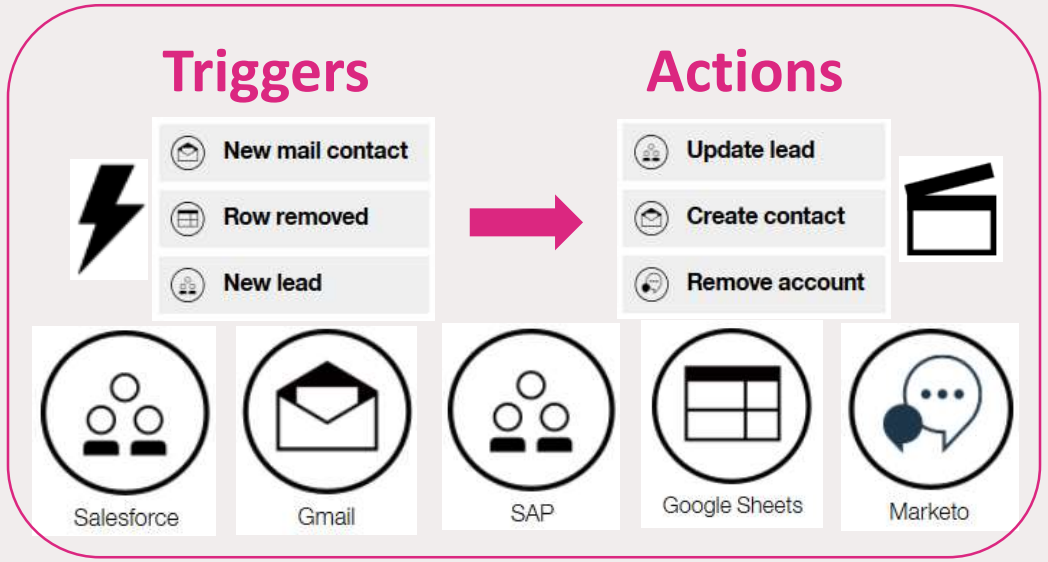
Windows

Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & Kibana @ Tuesday 14:20-14:40

The App Connect 1 slide summary!

- A simple, cloud-based integration platform, running in a Bluemix environment, built on SDK for Node.js
- Utilises common architectural building blocks: Connector service, Message Hub, Bluemix Secure Gateway
- A “flow” currently listens to a single application and does something to another single application
- Two usage tiers:
  - Free (Free, up to 10 flows, 1000 actions per month, all cloud apps)
  - Paid Personal plan ($25 per month, unlimited flows, 5000 actions / month, all cloud apps & on-prem)
- App Connect can also connect apps if they are on a private network using the Bluemix Secure Gateway component (35MB client component runs on-premise – OS X, Windows or Linux)





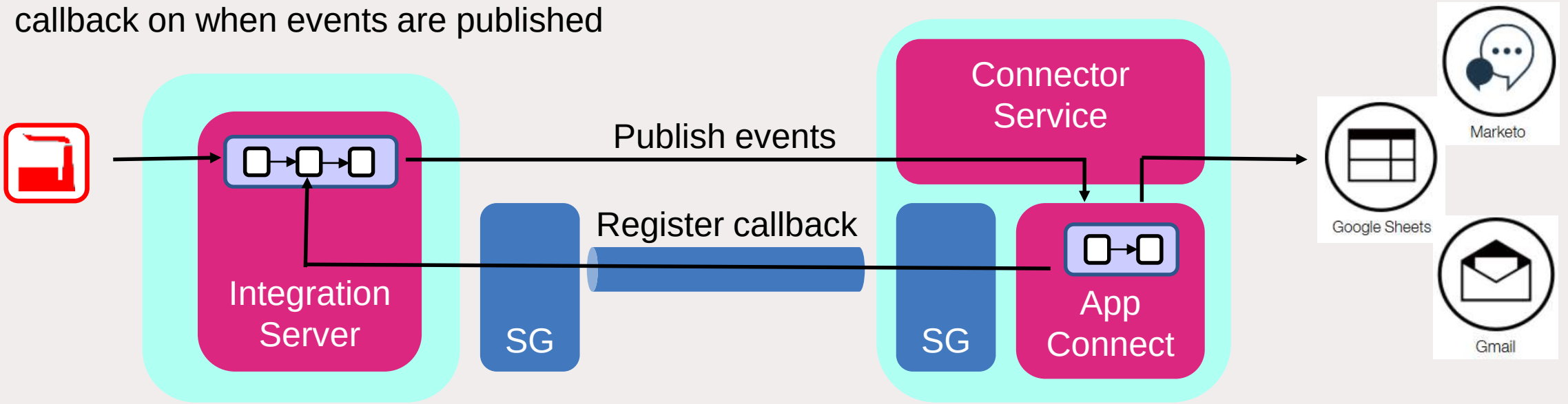
App Connect Profesional (Concourse, Bayside B, Booth#649) @ Tuesday 18:00-18:20
App Connect Profesional (Concourse, Bayside B, Booth#649) @ Wednesday 13:00-13:20

App Connect and IBM Integration Bus

Easy demo of an IIB App Connect node: https://youtu.be/StwPbOiFKzk

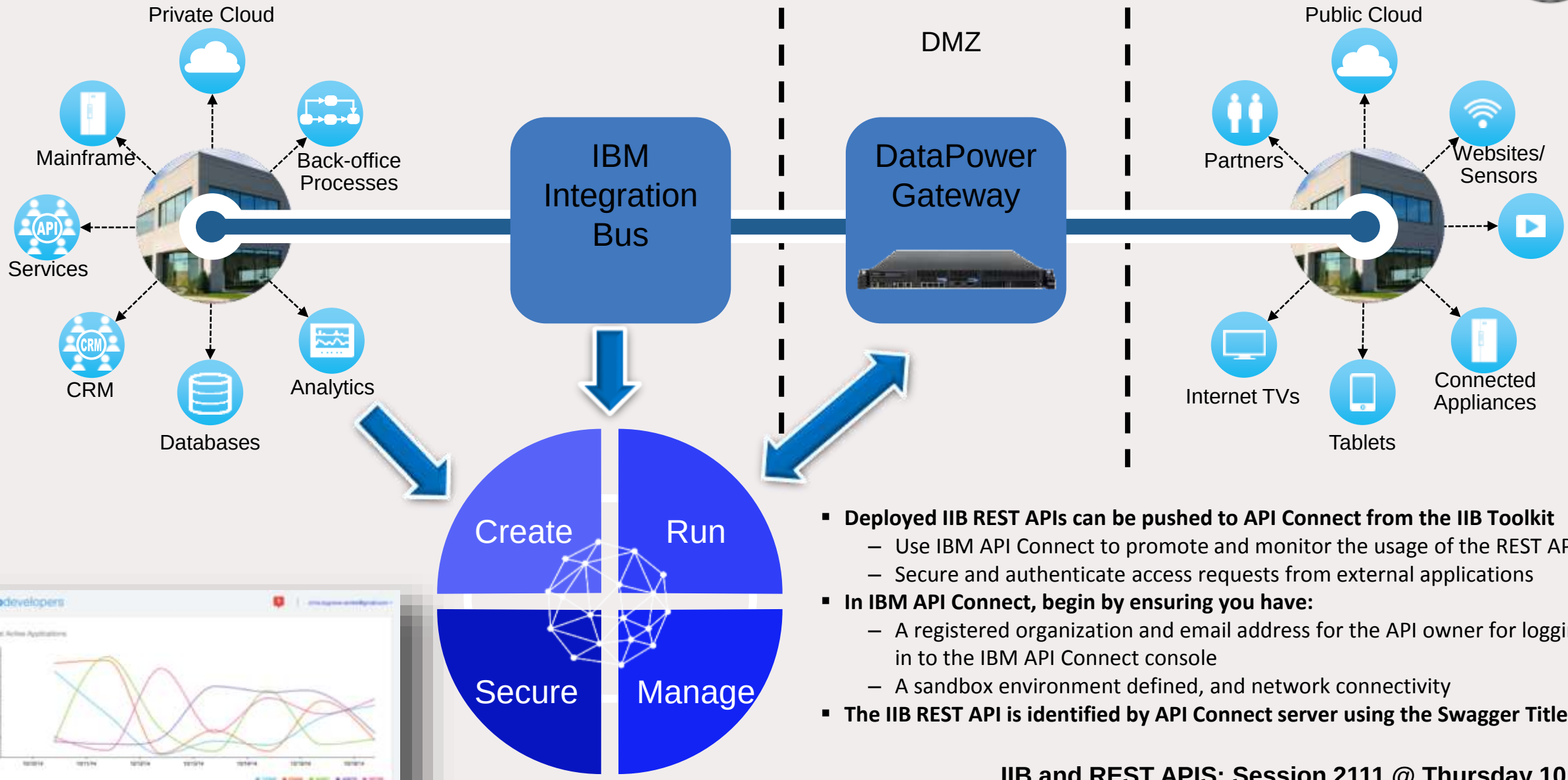
- Webhooks is a simple HTTP notification pattern, allowing a user to define an HTTP callback (~"subscribe") for a given hook
  - E.g. /crm/cust/hook or /warehouse/stock/hook
- To create a webbook, POST to the URL {IIB root}/hookpath
- An id is returned to the post which uniquely identifies the subscription for further calls
- A callback object structure is used to provide a URL to callback on when events are published

REST operation	Webhook path	Description
POST	{IIB root}/{hookpath}/	Create a subscription
GET	{IIB root}/{hookpath}/	List subscriptions
GET	{IIB root}/{hookpath}/{id}/	Get a subscription
PUT	{IIB root}/{hookpath}/{id}/	Update a subscription
DELETE	{IIB root}/{hookpath}/{id}/	Delete a subscription



App Connect Profesional (Concourse, Bayside B, Booth#649) @ Tuesday 18:00-18:20
App Connect Profesional (Concourse, Bayside B, Booth#649) @ Wednesday 13:00-13:20

IIB and API Connect

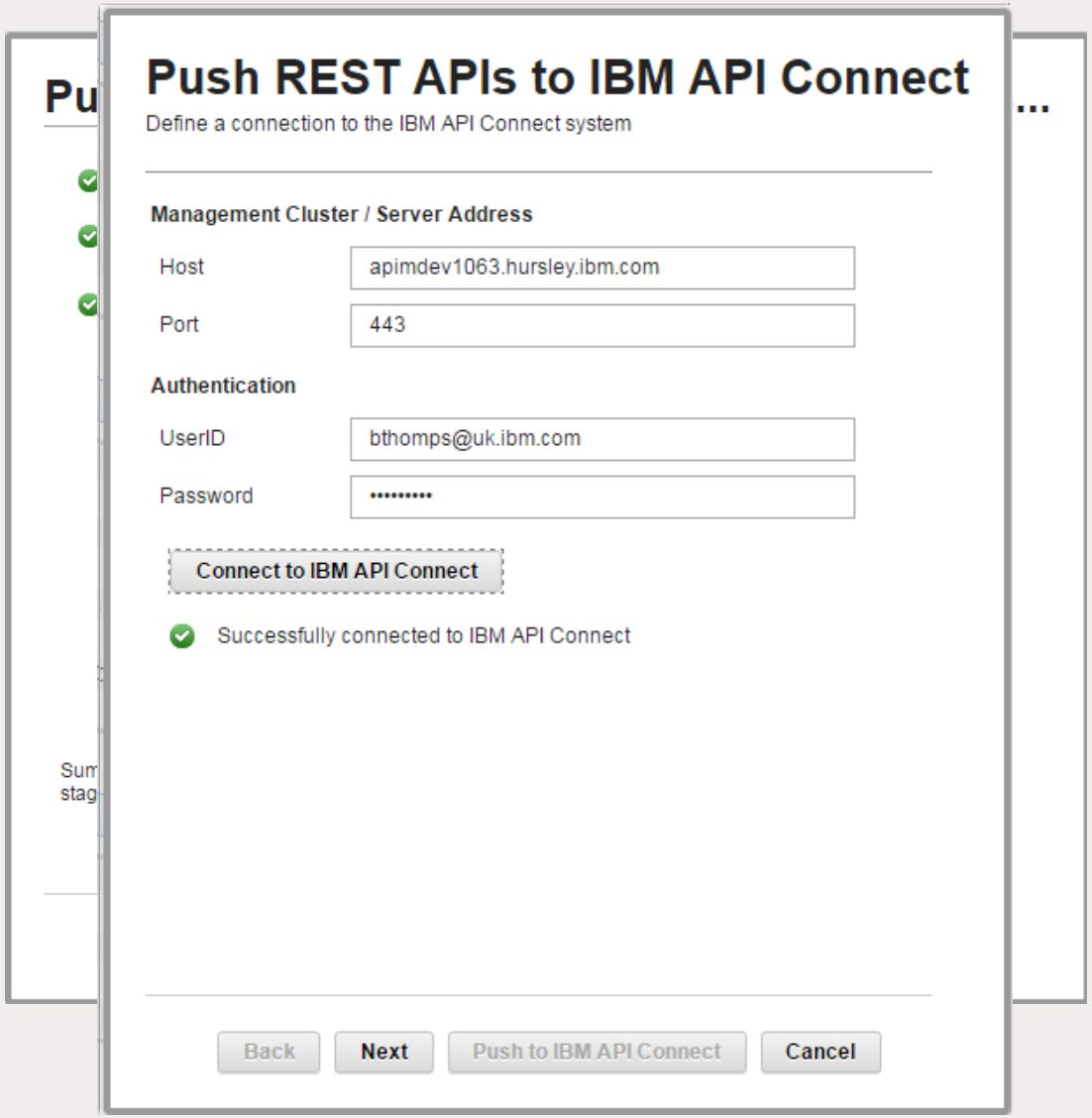


- **Deployed IIB REST APIs can be pushed to API Connect from the IIB Toolkit**
  - Use IBM API Connect to promote and monitor the usage of the REST API
  - Secure and authenticate access requests from external applications
- **In IBM API Connect, begin by ensuring you have:**
  - A registered organization and email address for the API owner for logging in to the IBM API Connect console
  - A sandbox environment defined, and network connectivity
- **The IIB REST API is identified by API Connect server using the Swagger Title**

IIB and REST APIS: Session 2111 @ Thursday 10:30

Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & REST @ Tuesday 17:00-17:20

Bulk Push IIB REST APIs to API Connect



- IIBv10.0.0.2 introduced an IIB Toolkit action to push a REST API definition into the draft workspace of API Management (now called API Connect)
- The next evolution of this feature provided a bulk push mechanism for the IIB Administrator, also allowing direct staging to an API Connect Sandbox environment
- The Open API Swagger (v2) metadata describing the IIB REST APIs is pushed to API Connect
- Use API Connect to manage the REST APIs (from IIB and other products within your enterprise) including definition of security policies, access rules, SLAs and usage analytics
- Associate multiple REST APIs underneath a Product definition

IIB and REST APIS: Session 2111 @ Thursday 10:30

Lightning Talk (Hybrid Cloud Integration Booth, Bayside B): IIB & REST @ Tuesday 17:00-17:20

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