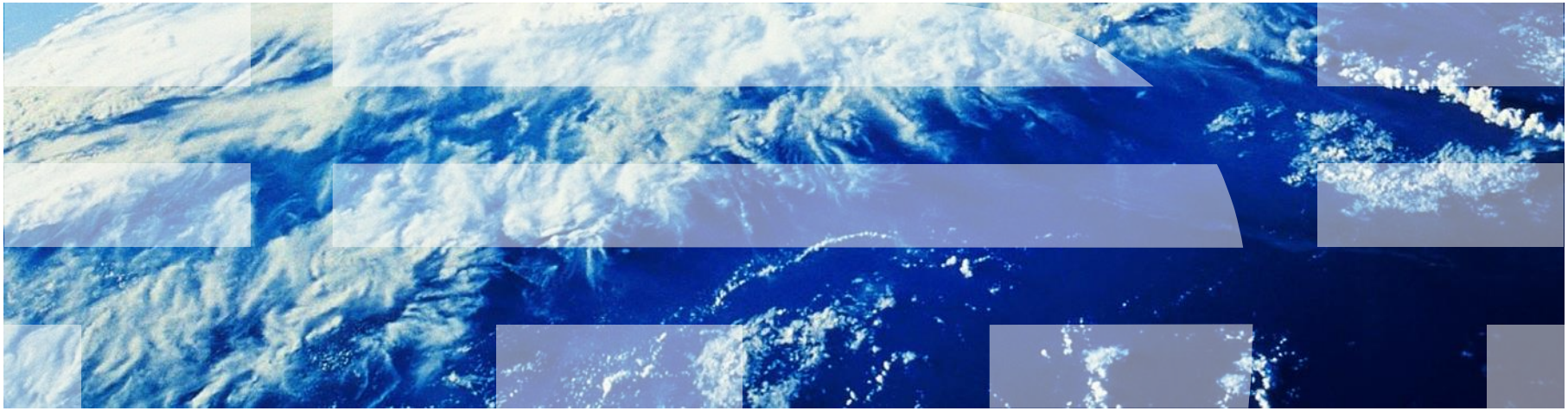
Gautam Kamat & Mangesh Patankar

January 28, 2022

IBM Cloud Pak for Integration (CP4I)

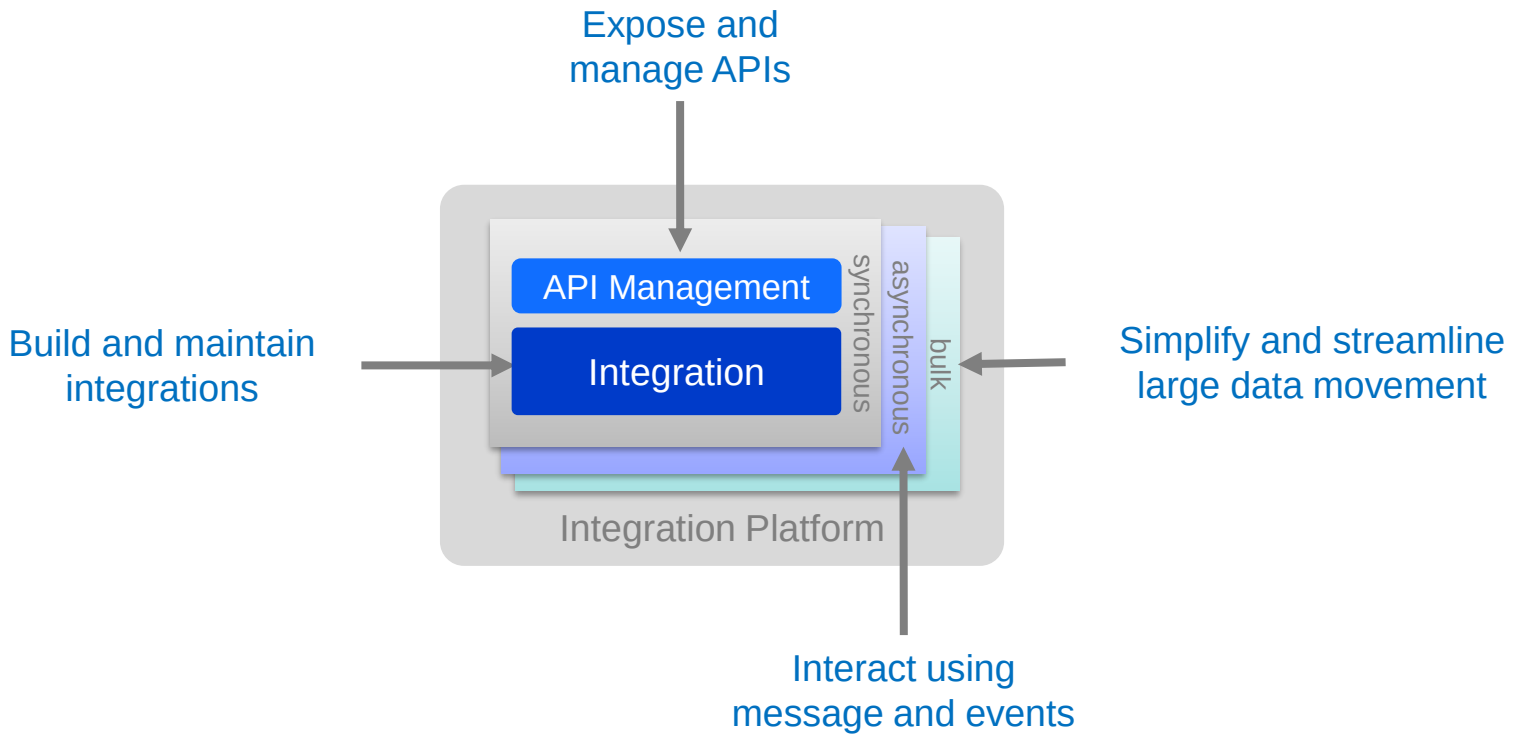
App Connect (ACE), API Management (APIC)



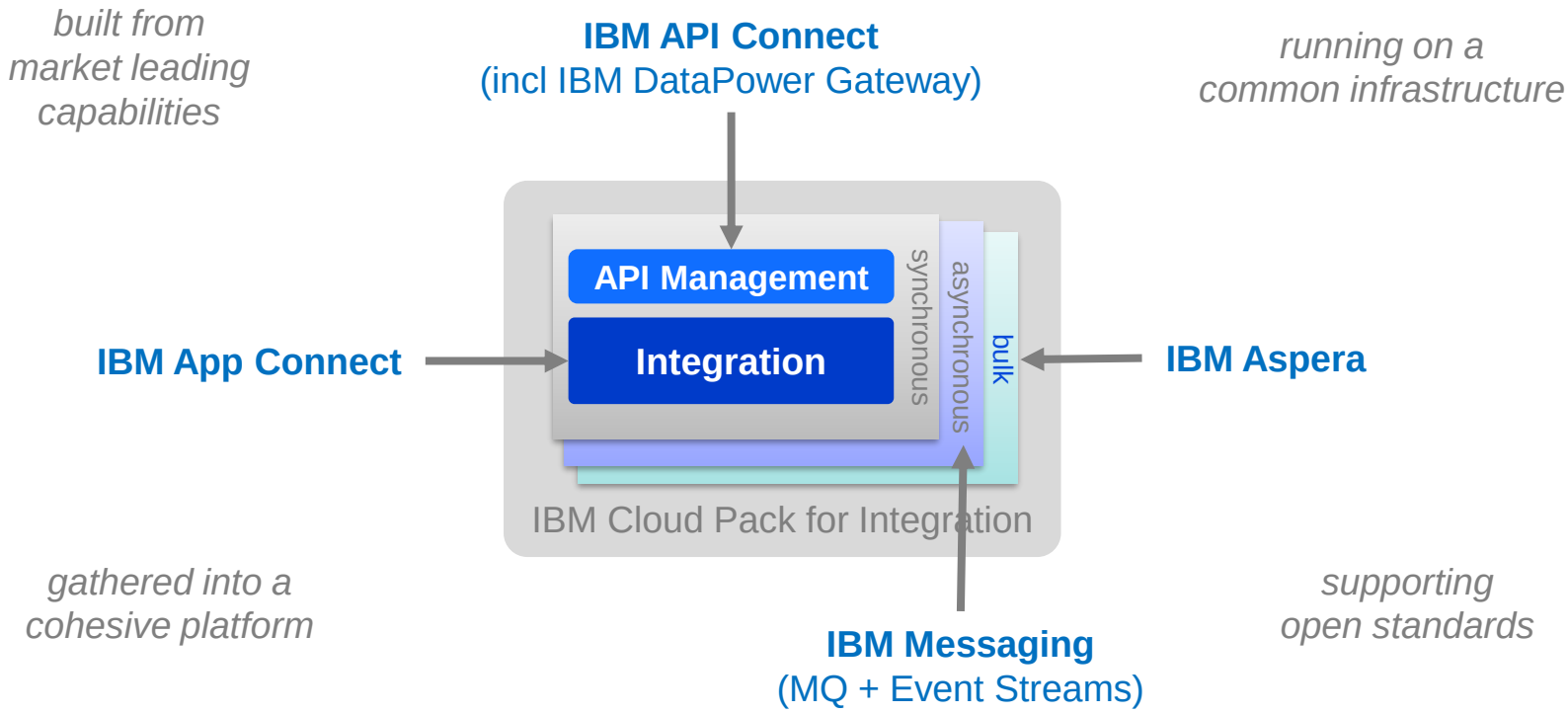
Agenda

- Integration Platform & CP4I
- App Connect – Product Overview, Components, Features
- Implementing an application on App Connect
- API Connect – Product Architecture, Components, Features
- Implementing an API on API Connect

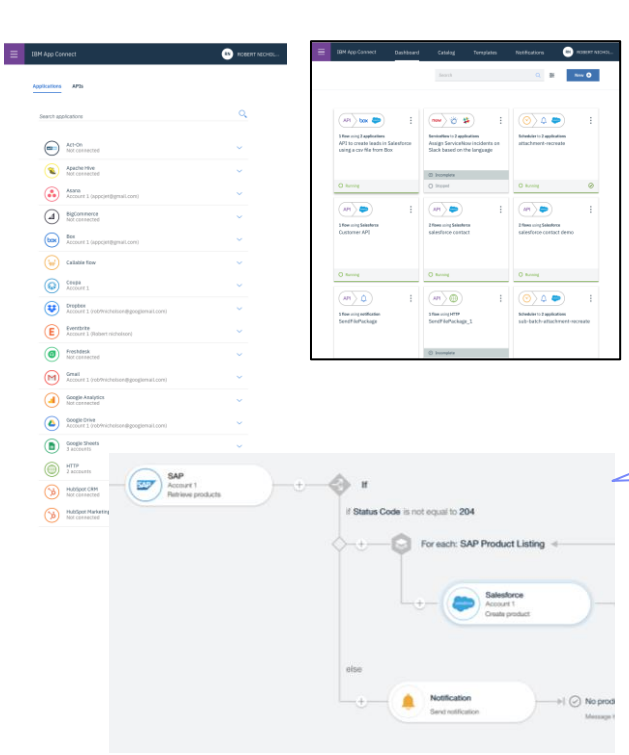
Integration Platform – Core Capabilities



Integration Platform – IBM CP4I

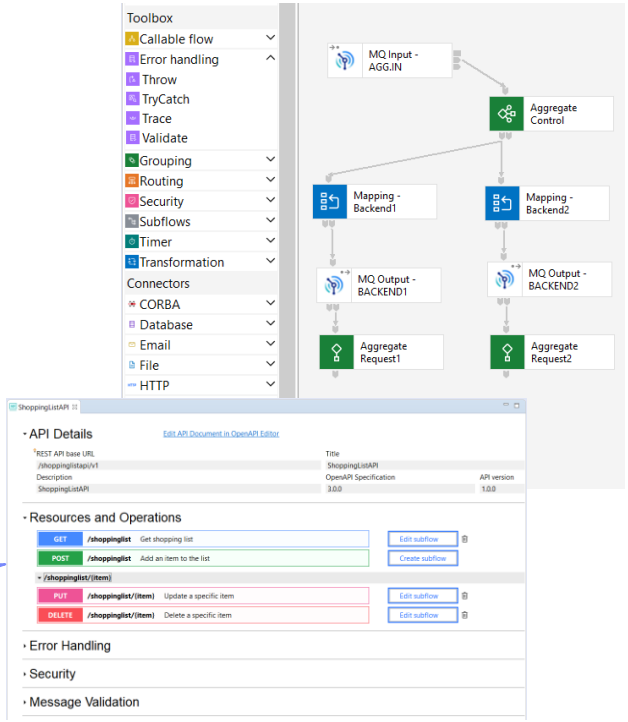


App Connect – Product Overview, Components, Features



Web Console: Integrators to get started with zero training

Eclipse IDE: Integration Specialists to build out the hard stuff



App Connect Designer

- Browser-based usability experience
- Configuration based, model-driven tooling for rapid outcomes
- Strong application connectors
- Supports a broad range of use cases

1. Call shared assets
2. Intermingle functions
3. Fully blended capabilities

App Connect Toolkit

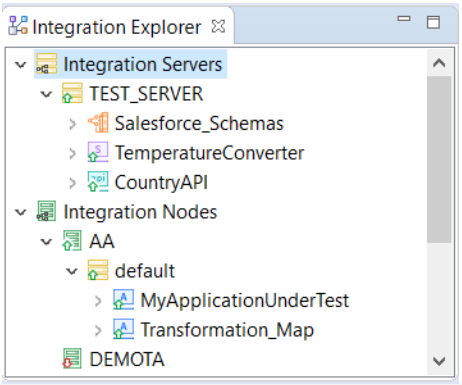
- Powerful integration tooling
- Build and manage integrations for any requirement
- Strong technology connectors
- Utilize with Designer to enable greater collaboration

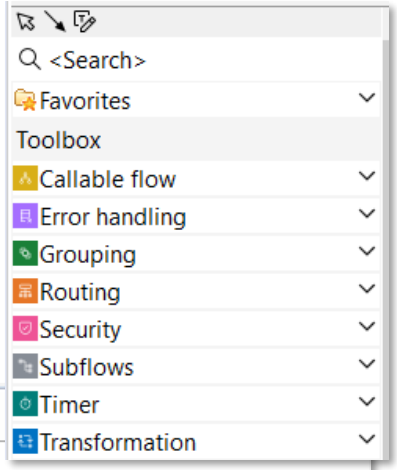
App Connect – Product Overview, Components, Features

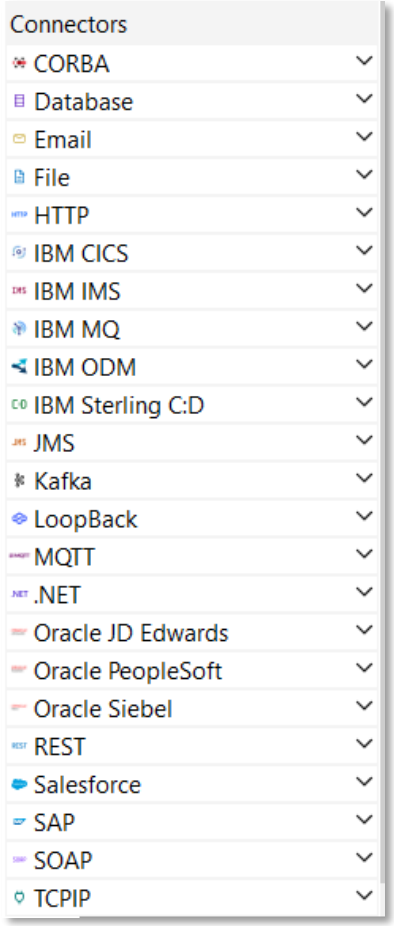
ACE 12 Toolkit

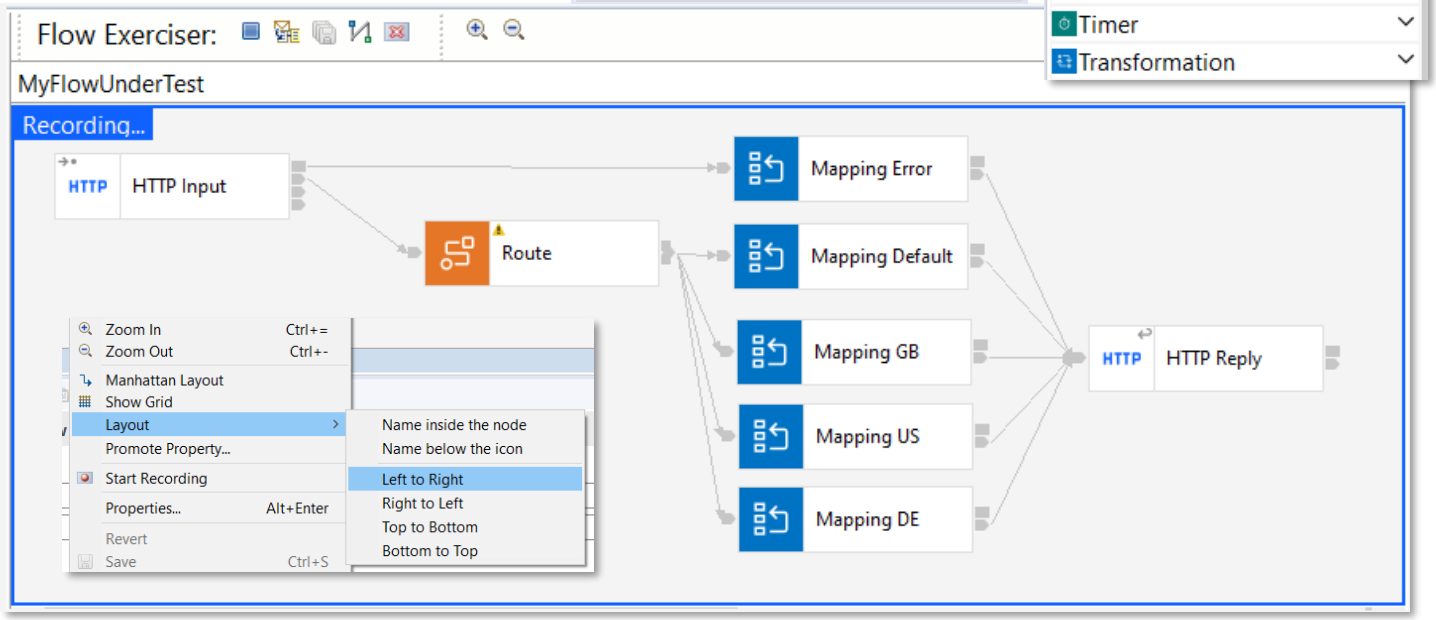
Upgraded and restyled

- Re-based on Eclipse 4.15
- New node icons and layout options
- New Flow Exerciser
- New Message Assembly Editor





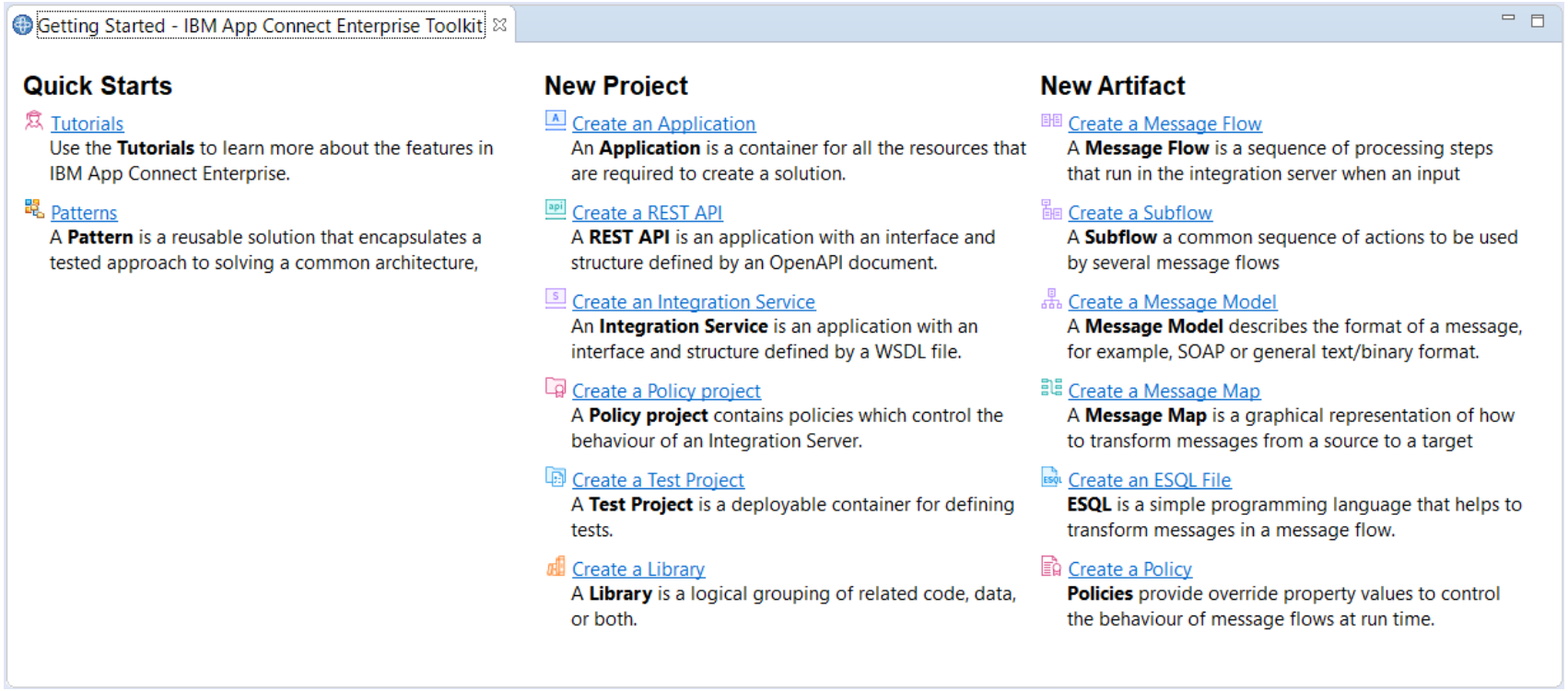




App Connect – Product Overview, Components, Features

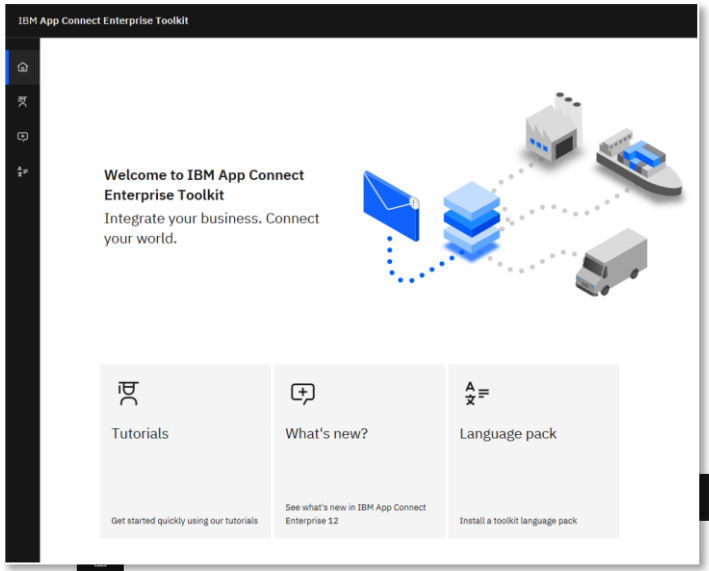
ACE 12 Toolkit

Upgraded and restyled



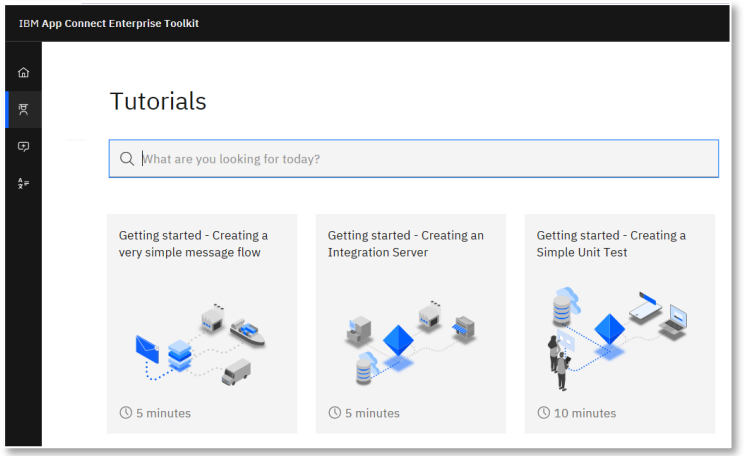
- New styling for key concepts such as integration servers and integration nodes, applications, libraries, REST APIs, integration services, BAR files etc.

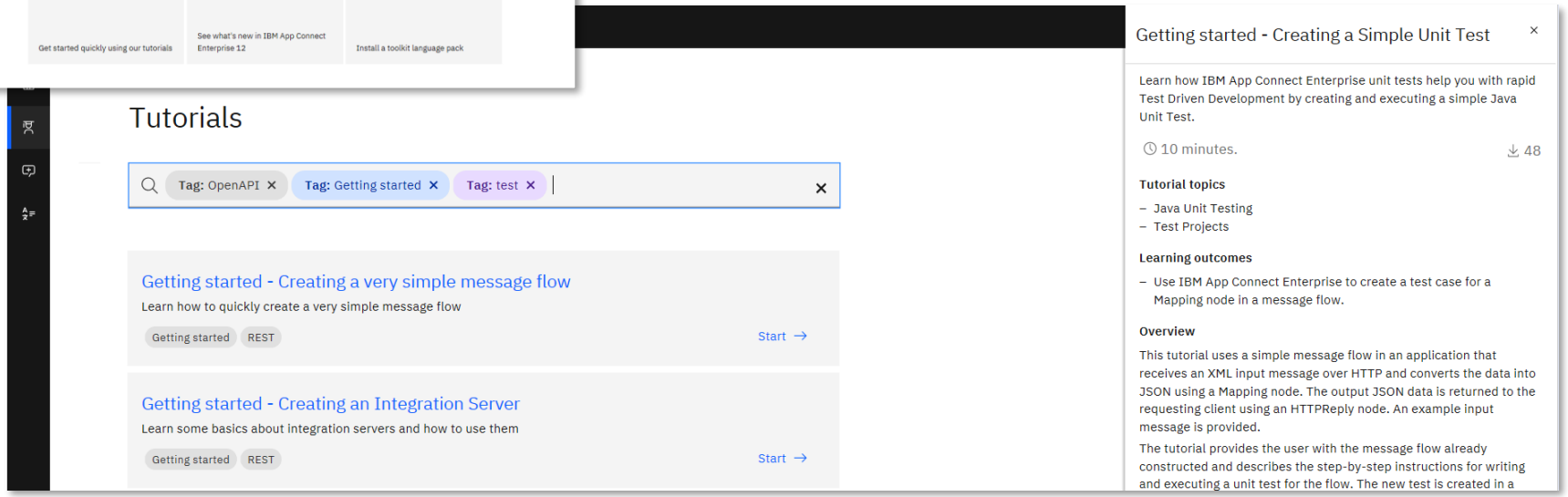
App Connect – Product Overview, Components, Features



App Connect Enterprise Tutorial Gallery

Get Productive quickly, with over 100 Product Tutorials!

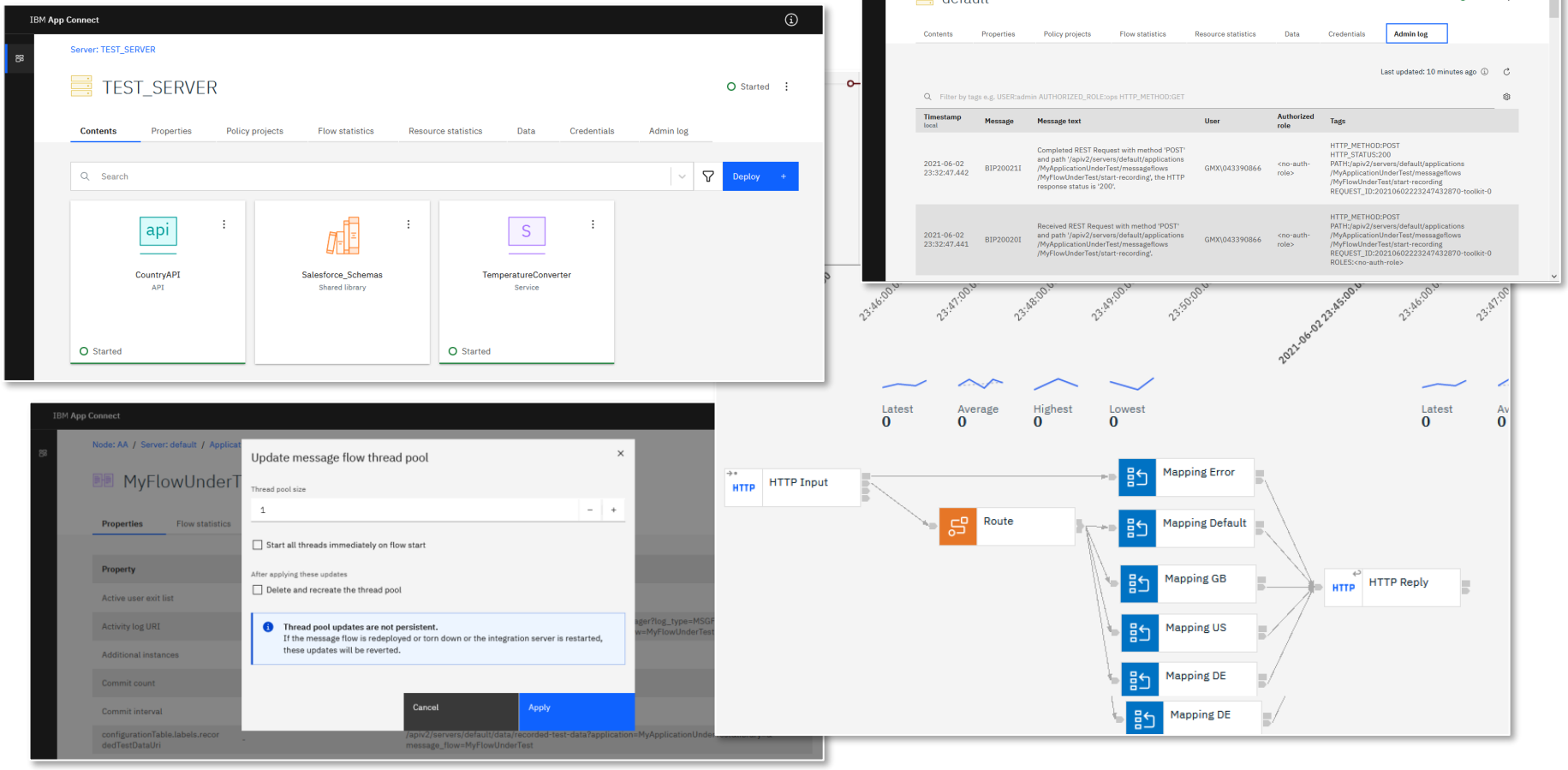




App Connect – Product Overview, Components, Features

ACE 12 Web User Interface

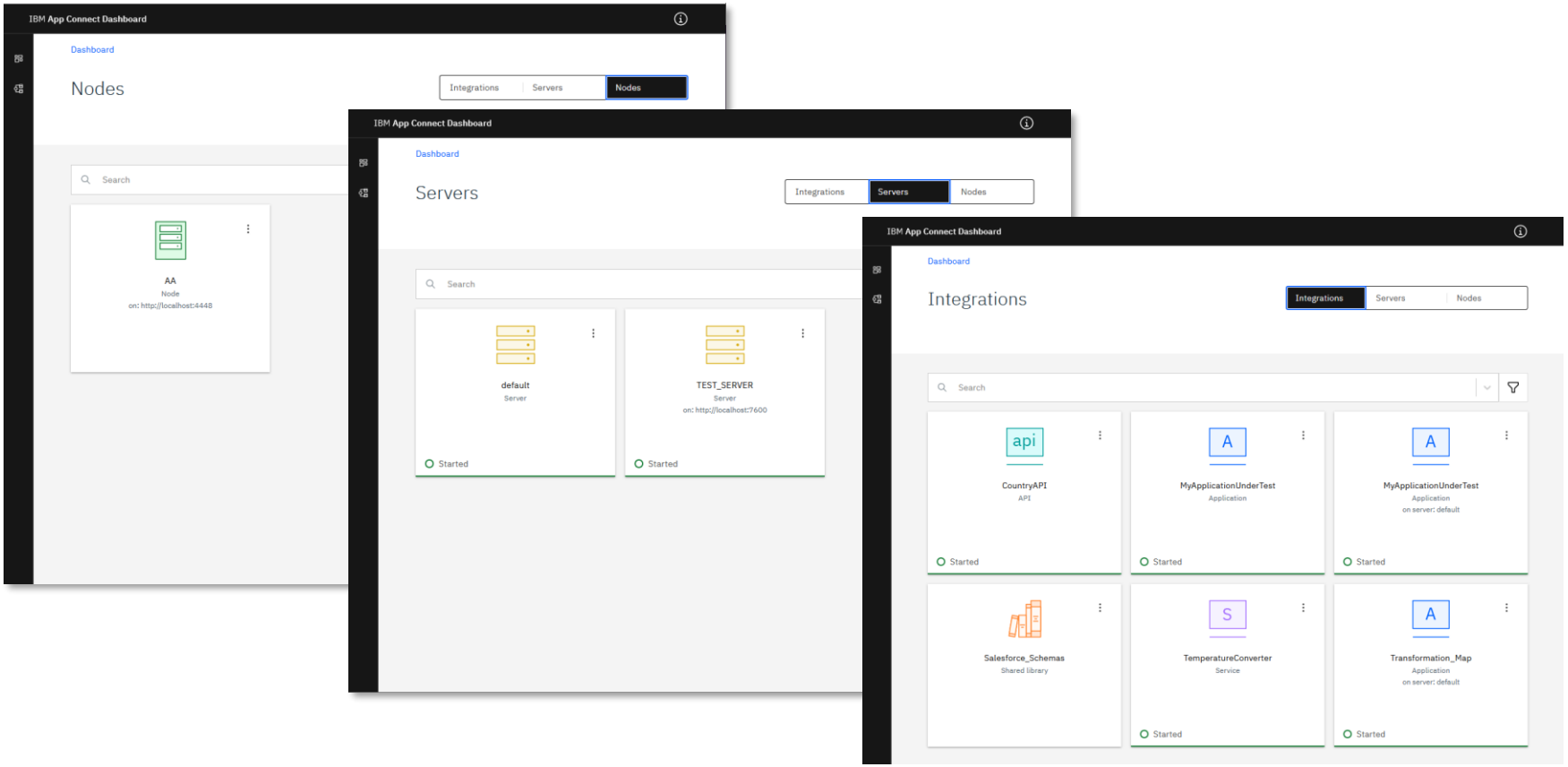
Standardized look and feel



App Connect – Product Overview, Components, Features

IBM App Connect Dashboard

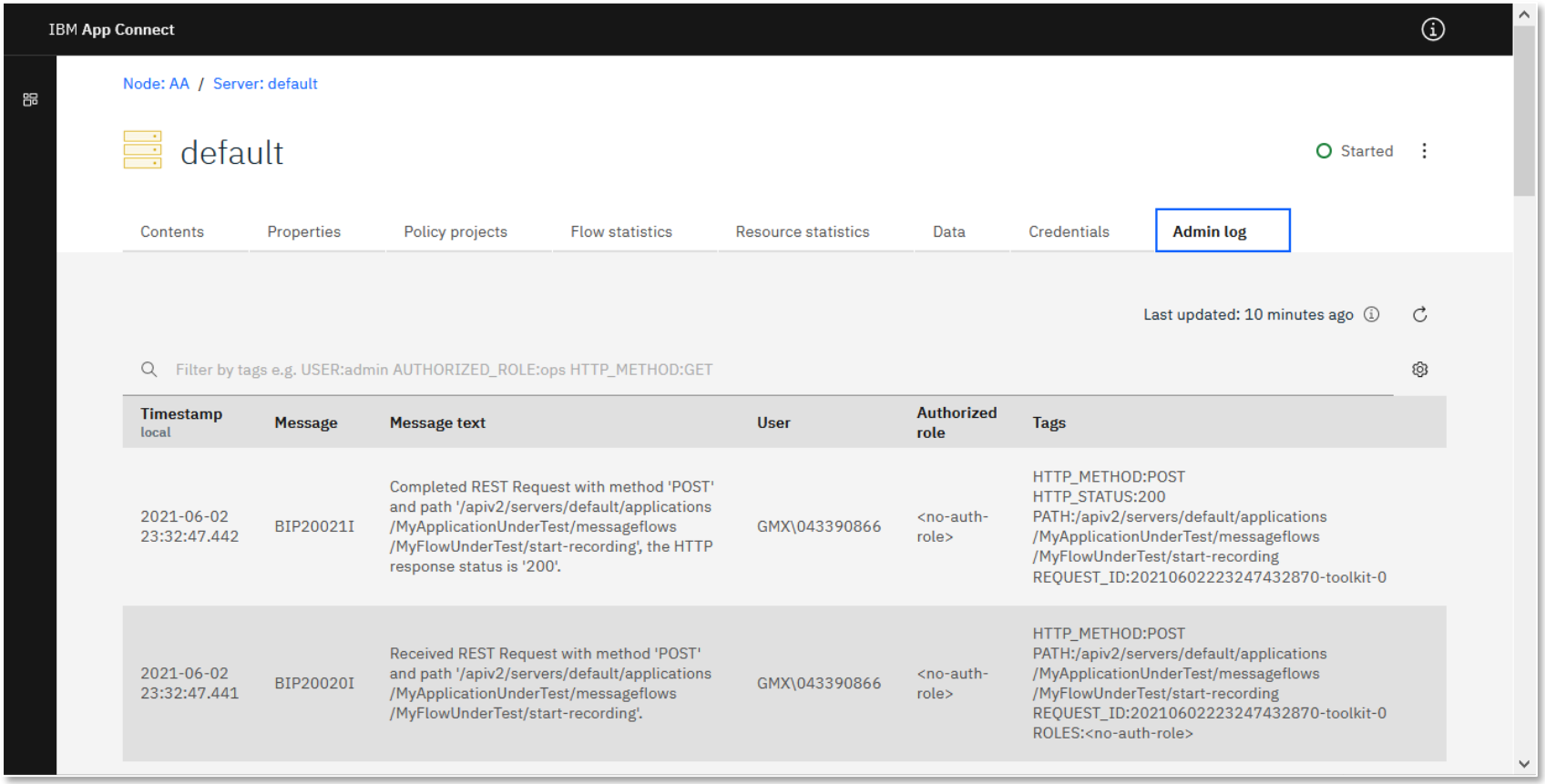
View integrations across any hybrid cloud deployment



App Connect – Product Overview, Components, Features

IBM App Connect Enterprise Web UI Admin Log

An audit log for recording WHO was AUTHORIZED to do WHAT and WHEN



App Connect – Product Overview, Components, Features

IBM App Connect Enterprise Web UI Admin Log

An audit log for recording WHO was AUTHORIZED to do WHAT and WHEN

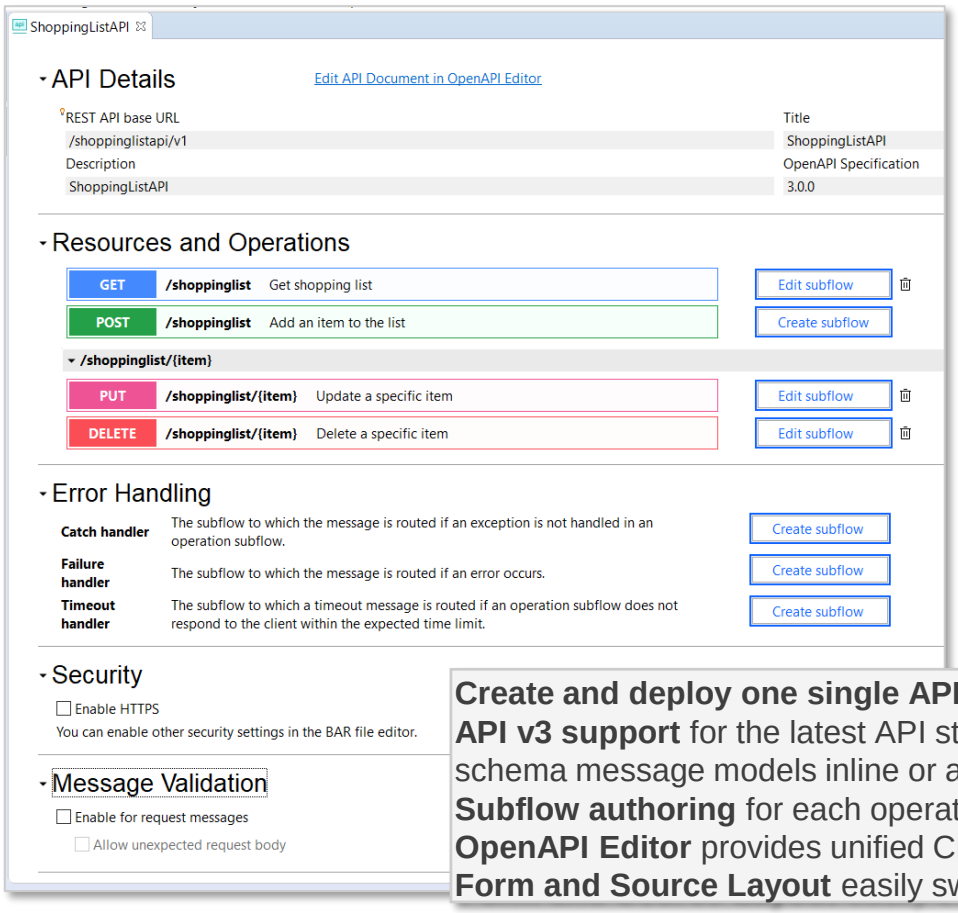
- Record administrative actions executed against the ACE runtime including the Timestamp, BIP Message number, message text, user name, authorized role
- Tagging and Filtering
- Browse log entries from an in-memory store in the product runtime
- Persist to the file system for audit purposes

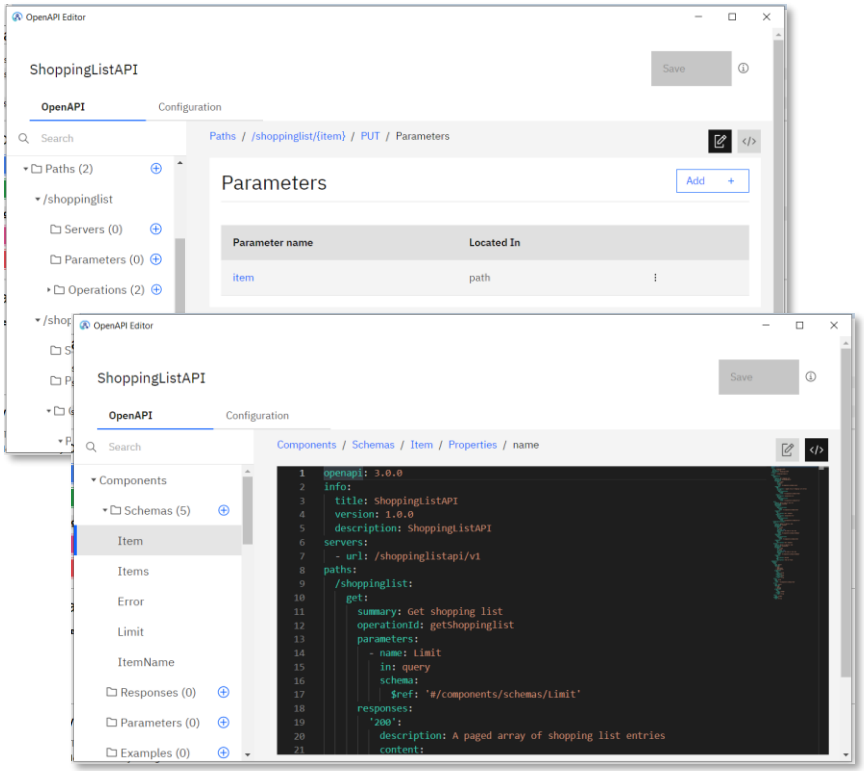
```
AdminLog:
  enabled: true               # Control logging admin log messages. Set to true or false, default is true.
  # When enabled the maximum amount of disk space required for admin log files is
  # fileLogRetentionPeriod * fileLogCountDaily * fileLogSize
  fileLog: false              # Control writing admin log messages to file. Set to true or false, default is false.
  fileLogRetentionPeriod: 30  # Sets the number of days to record admin log.
                              # After this, old files are deleted as new ones are created. Default is 30 days.
  fileLogCountDaily: 10       # Maximum number of admin log files to write per day, default is 10 per day.
  fileLogSize: 100            # Maximum size in MB for each admin log file. Maximum size is 2000MB, default size is 100MB.
  consoleLog: false           # Control writing admin log messages to standard out. Set to true or false, default is false.
  consoleLogFormat: 'text'    # Control the format of admin log messages written to standard out, default is text.
```

App Connect – Product Overview, Components, Features

OpenAPIv3 Validating JSON Parser

Start from scratch or import from JSON or YAML



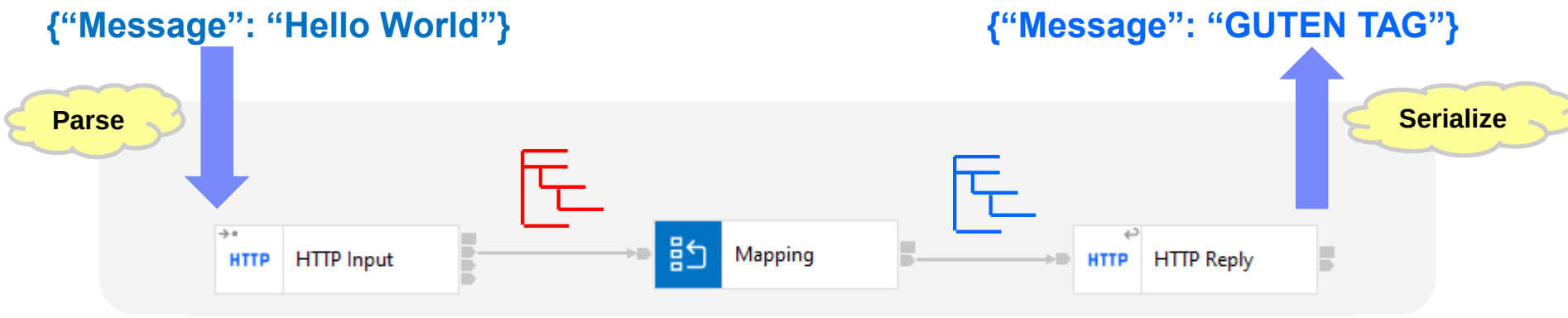


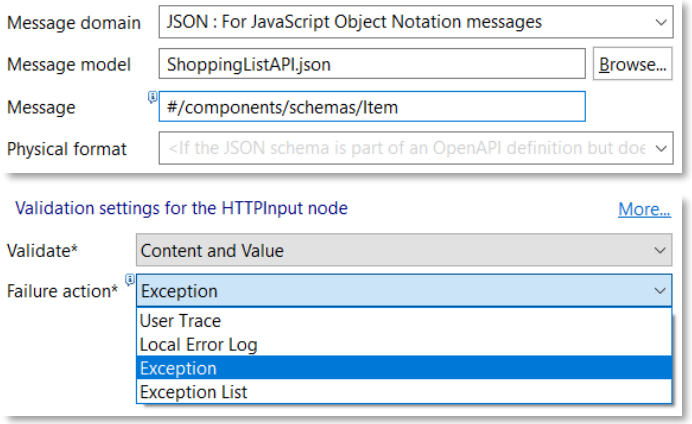
Create and deploy one single API artifact that can be managed through your pipeline stages
API v3 support for the latest API standard, Swagger v2 support too, and support for JSON schema message models inline or as external files.
Subflow authoring for each operation, Catch, Failure and Timeout handlers
OpenAPI Editor provides unified CP4I experience across Toolkit, Designer and APIC
Form and Source Layout easily switchable

App Connect – Product Overview, Components, Features

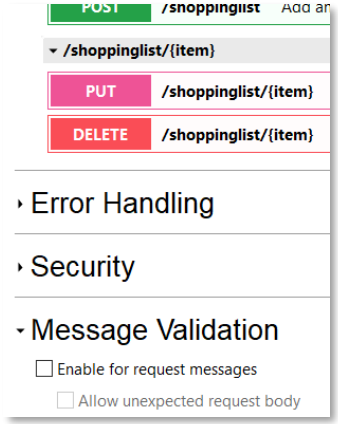
Validating JSON Parser

JSON Schema or OpenAPI metadata as JSON or YAML





- Support for JSON Schema Draft 4 or OASv3
- Validate when converting data to or from a bitstream … input, output or mid-flow
- All the standard failure actions are available
- Based upon the open source RapidJSON technology



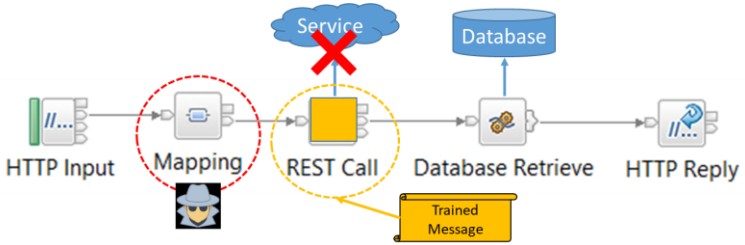
App Connect – Product Overview, Components, Features

Test Driven Development

A new unit testing framework

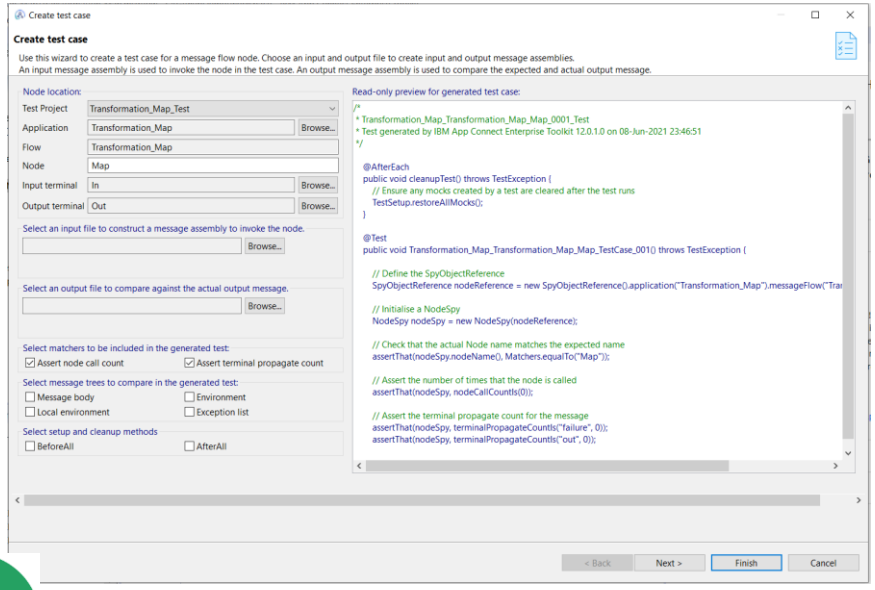
WHY:

- Easier and cheaper to adopt new product versions and make architectural changes such as modernizing and moving to containers
- Do my message flows behave as expected after a development change, an upgrade or an APAR ?
- Do 3rd party / external services behave in a reliable consistent manner?



WHAT:

- New test framework for running unit tests in an Integration Server
- Easy to use Spies, Mocks and Stubs
- Support JUnit assertions, 3rd party matcher libraries (e.g. Hamcrest, JSONAssert and XMLUnit), and product specific matchers for the ACE Message Assembly
- Runtime capabilities for bulk message recording and automated test generation

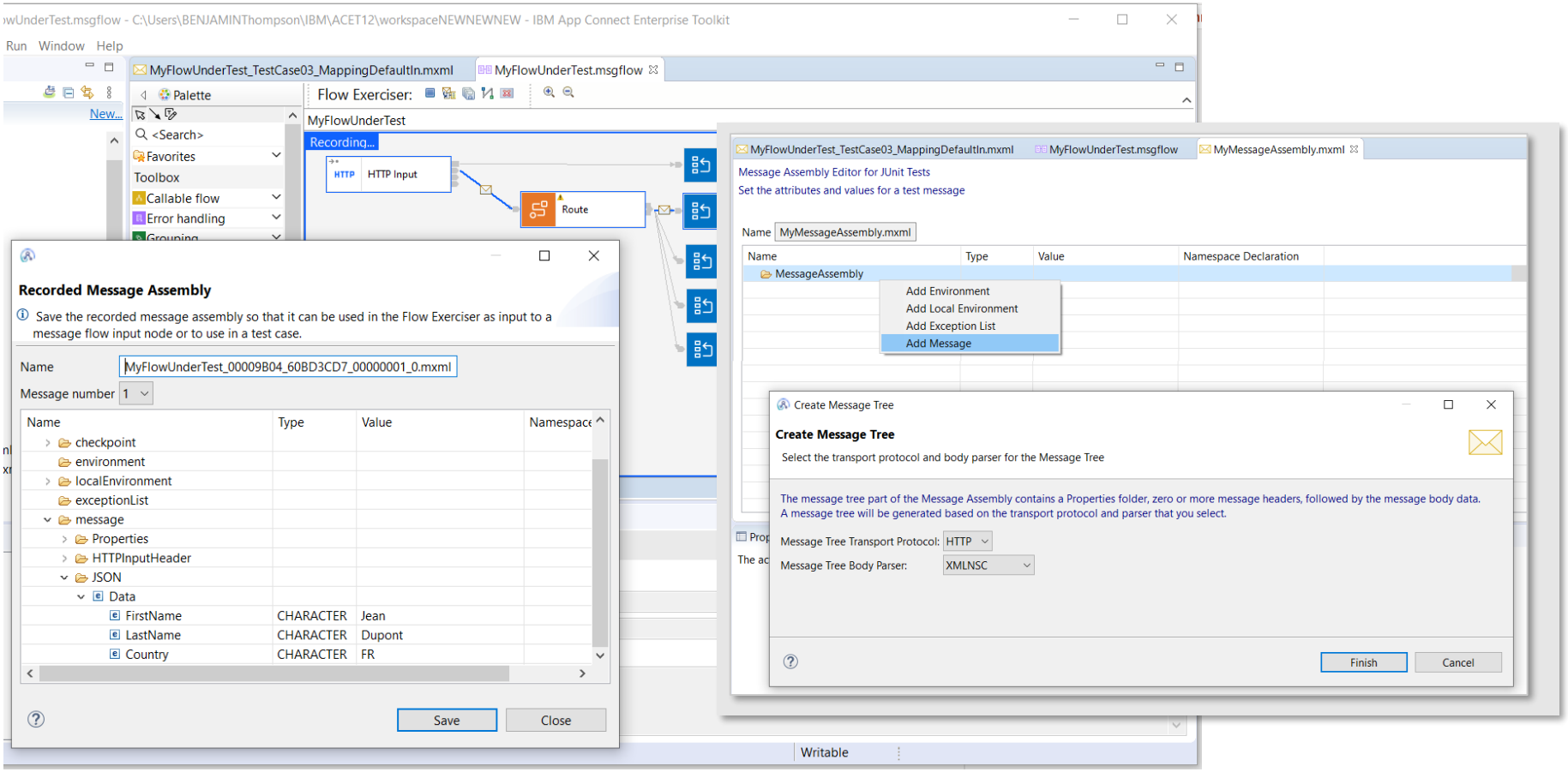


HOW:

Create and run tests during development time or as part of a deployment pipeline:

- Test a single message flow node
- Test a subflow or sequence of several message flow nodes
- Test an entire message flow
- Test an entire integration server

App Connect – Product Overview, Components, Features
Flow Exerciser and Unit Test Framework
The Message Assembly Editor unified the new unit testing framework with the Flow Exerciser

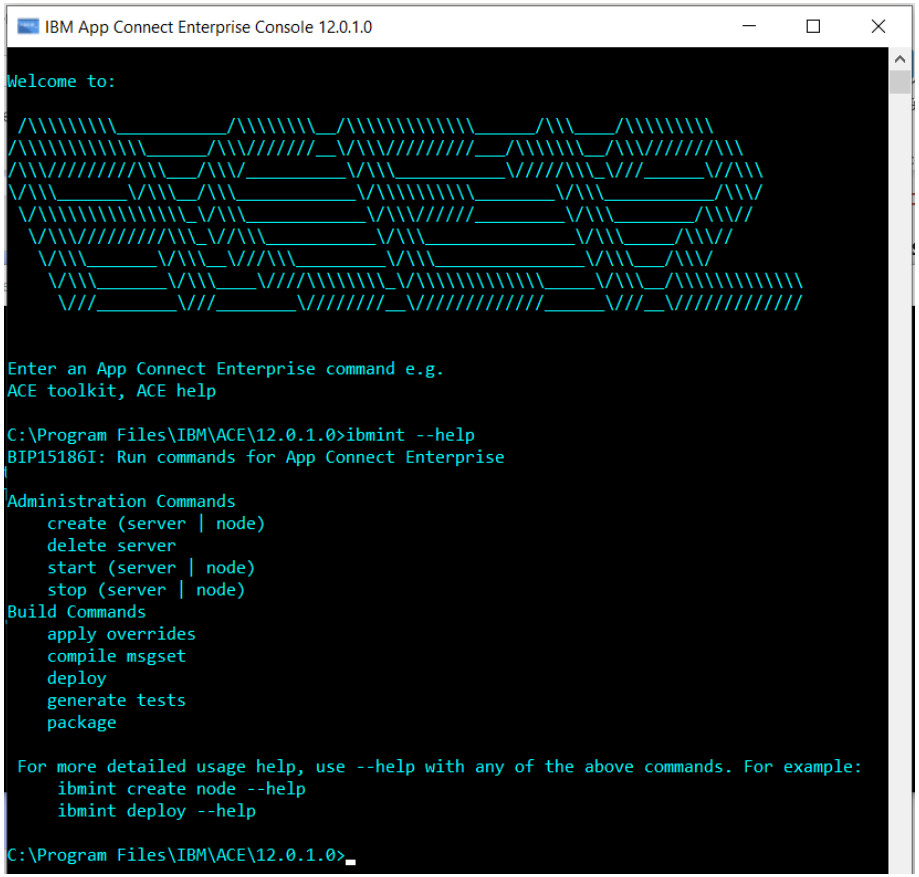


App Connect – Product Overview, Components, Features

New **ibmint** command family

New administration command for helping build automated pipelines from Source to Server

- The **ibmint** command (short for IBM integration!) provides a new family of administrative command actions which can be executed against the ACE 12 runtime.
- **Easily go from source to server** - take authored source integration artifacts such as message flows and message models from version control through to deployment in a server's working directory on the runtime filesystem
- **ibmint** helps new users with a modern, intuitive verb-first command style … very similar to other container and integration technologies such as OpenShift, Docker etc.
- **Full back compatibility** with prior versions - all the existing ACEv11 mqsi* commands are still available and remain fully supported



App Connect – Product Overview, Components, Features

Universal Connectivity & Transformations Powering the Innovations

Content Services Platform
- Box
- IBM FileNet
- MS SharePoint
- CMIS
- MS One Drive
- IBM MDM AE
- Confluence
- Dropbox
- Google Drive
- Google Sheets
- Salesforce Files
- Salesforce Libraries
- WordPress

Cloud Storage
- Amazon S3
- IBM Cloud Object Store

Technology Endpoints
- HTTP
- SOAP
- LDAP
- MS Active Directory
- Website Crawler
- SFTP
- Open API
- IBM Maximo
- Siemens Teamcenter
- Generic JDBC

Cognitive & AI
- IBM Weather Data
- IBM Watson Language Translator
- IBM Watson Discovery
- IBM Watson Natural Language Classifier
- IBM Watson Tone Analyzer
- IBM Watson Visual Recognition

Databases
- IBM DB2
- Oracle DB
- MS SQL Server
- My SQL
- IBM Cloudant
- Redis (Azure, AWS, IBM)
- Google Big Query

Human Capital Management
- Workday
- Kronos
- NetSuite Suitepeople HCM
- Peoplesoft
- IBM Cloudant
- Oracle Taleo

Customer Relations Management
- Salesforce
- MS Dynamics 365 for Sales
- Sugar CRM
- NetSuite CRM
- Oracle Sales Cloud
- Zoho CRM
- Insightly
- Intactt
- HubSpot
- Infusionsoft
- Apttus

IT Service Management & Project Management
- Service Now
- Salesforce Service Cloud
- Jira
- Oracle Service Cloud
- Zendesk
- Fresh desk
- Act-on
- Asana
- Trello

IBM Food Trust

Enterprise Resource Planning
- SAP
- Workday
- NetSuite ERP
- Coupa
- Zuora

Banking & Finance
- MS Dynamics F&(
- NetSuite Finance
- Yapily
- QuickBooks Online
- SAP Concur
- Stripe

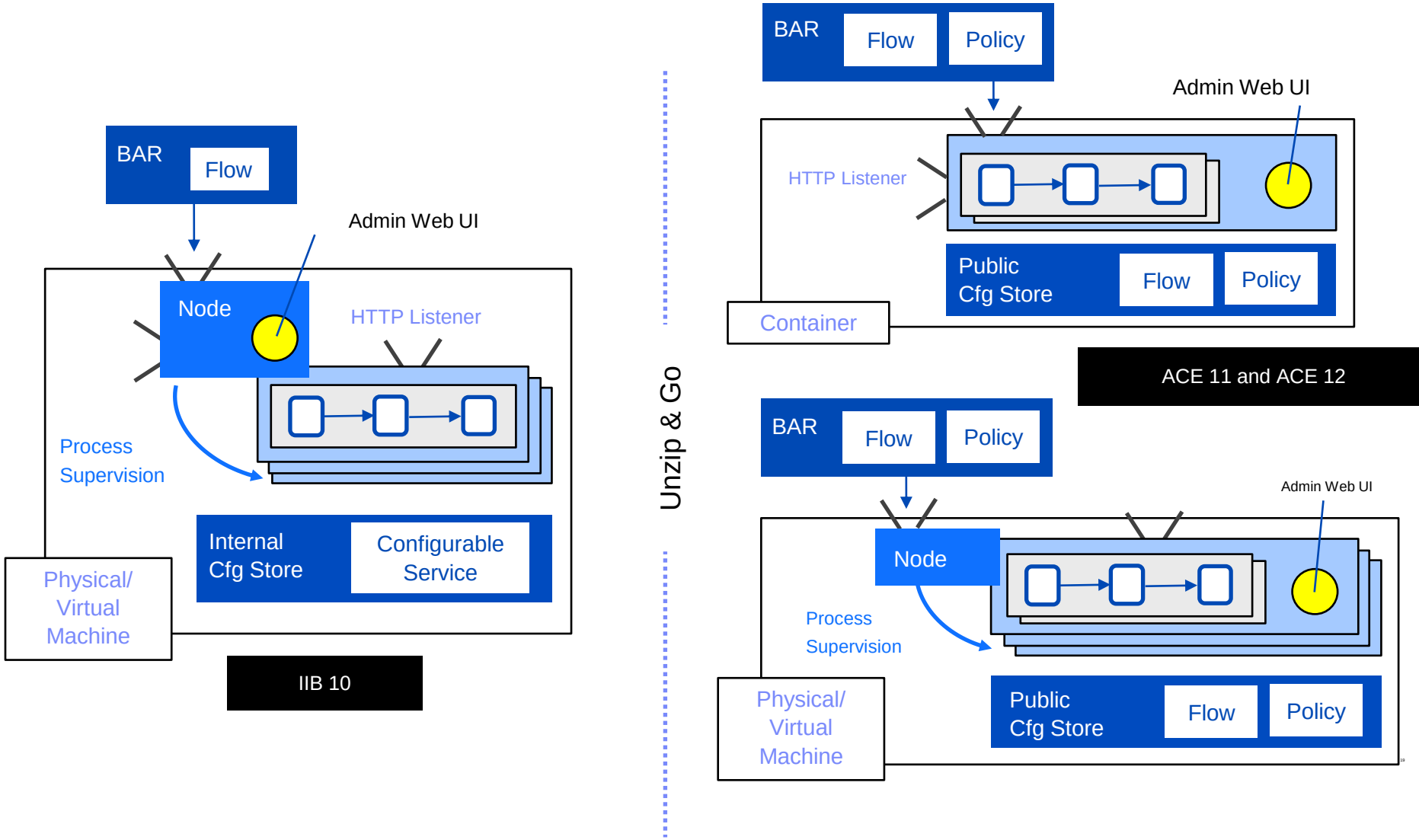
Enterprise Messaging
- IBM MQ
- IBM Event Streams, Kafka
- Amazon SQS
- Amazon SNS
- Google Pub Sub

E-Commerce
- Shopify
- Magento
- Big Commerce
- SAP Commerce Cloud
- Salesforce Commerce Cloud

Marketing
- Marketo
- Google Analytics
- Salesforce Marketing Cloud
- Salesforce Pardot
- Eventbrite
- Infusionsoft
- Mailchimp
- Wufoo
- Acoustic Campaign

Collaboration & Communication
- MS Exchange
- MS Office 365, MS Teams
- Domino
- Cisco WebEx Teams
- Slack
- Gmail
- Twilio, Twitter
- Email

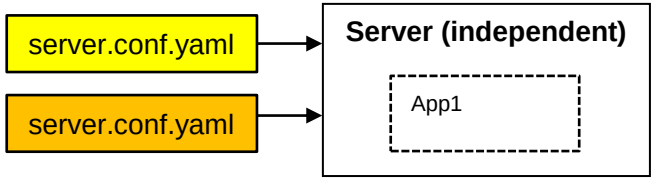
Implementing an application on App Connect



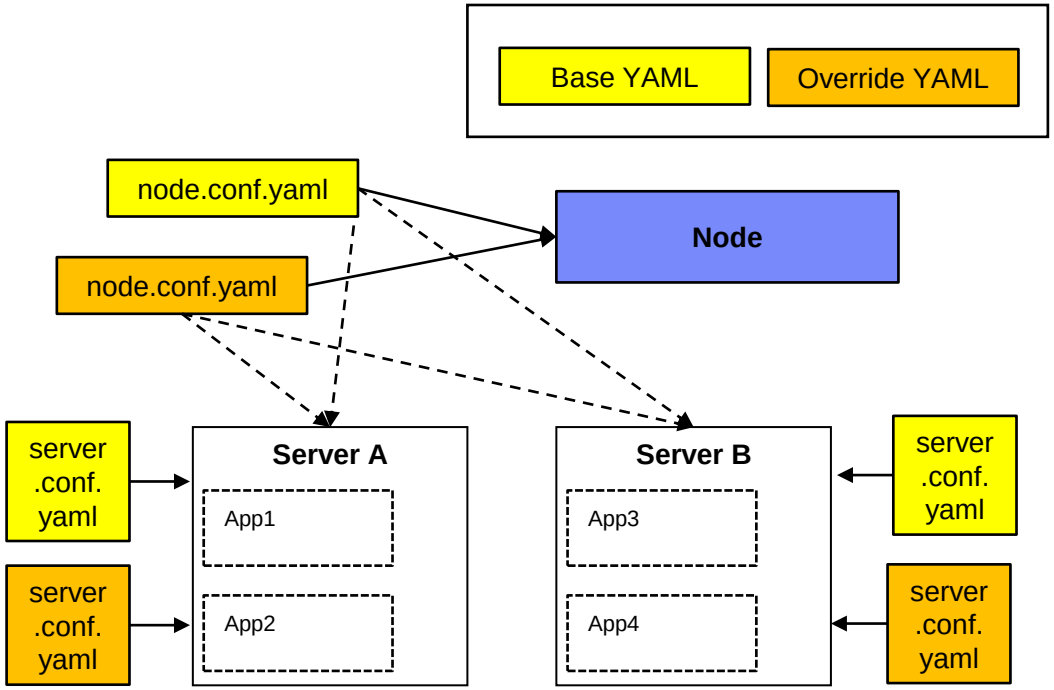
Implementing an application on App Connect

Configuration of Servers through YAML files

Use node.conf.yaml and server.conf.yaml to define the personality of the node and server!

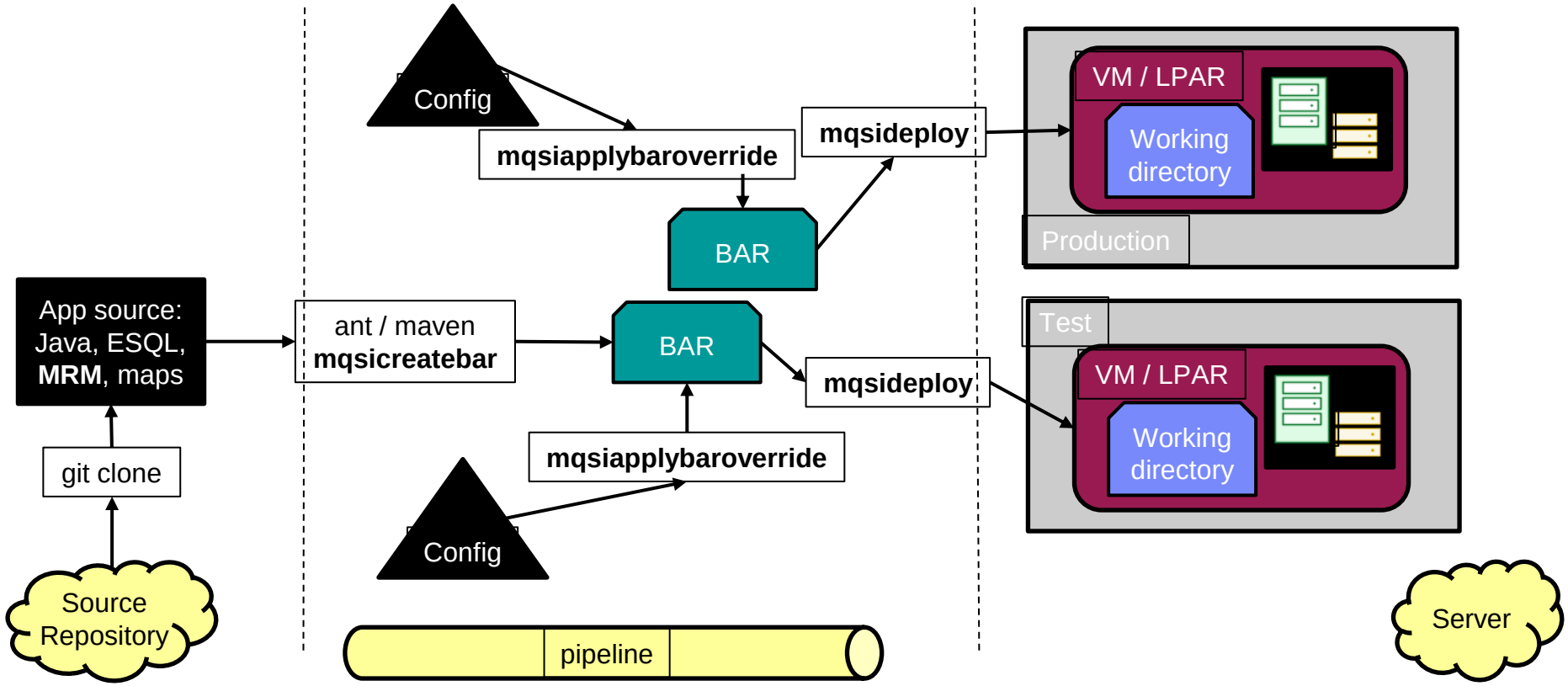


- overrides / server.conf.yaml are provided so that you can maintain a “template” for behavior which can also be overridden
- node.conf.yaml provides a limited set of node wide options
- Node-owned servers inherit settings from the node.conf.yaml
- When you create an integration node, the node.conf.yaml file is located at:
  $MQSI_WORKPATH/components/<Node name>/node.conf.yaml



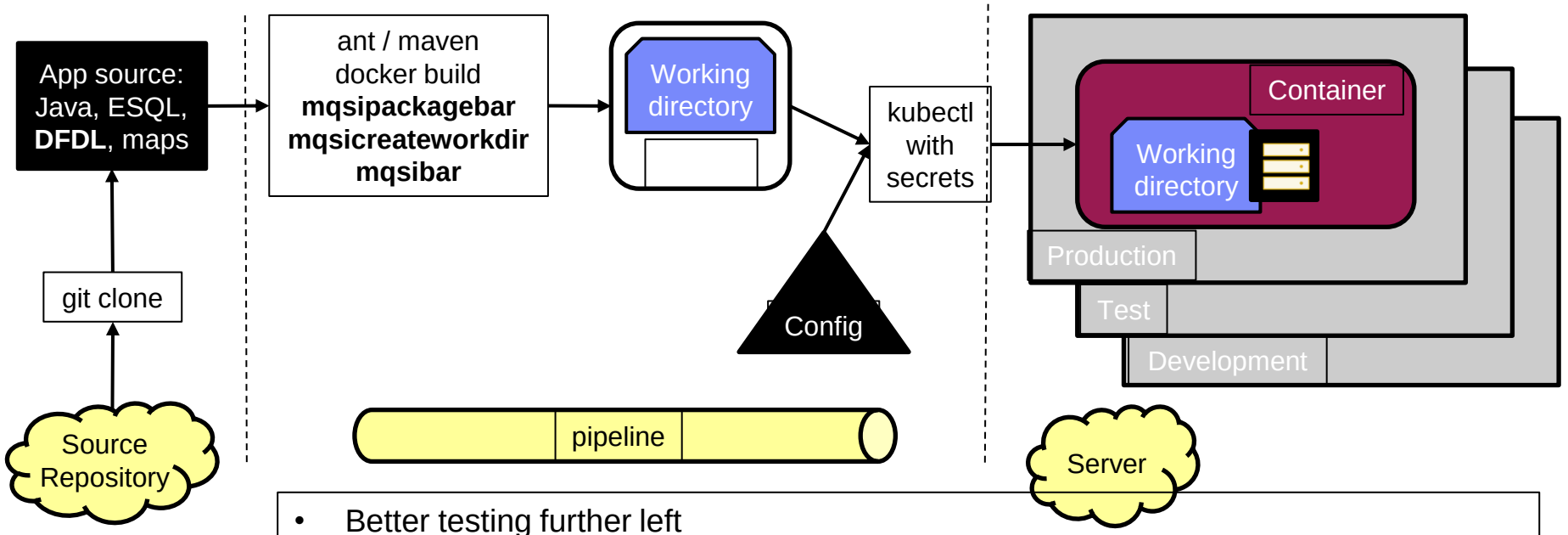
Implementing an application on App Connect
App Connect – Source to Server - Current

ACE 12 helps you build automated pipelines from Source to Server



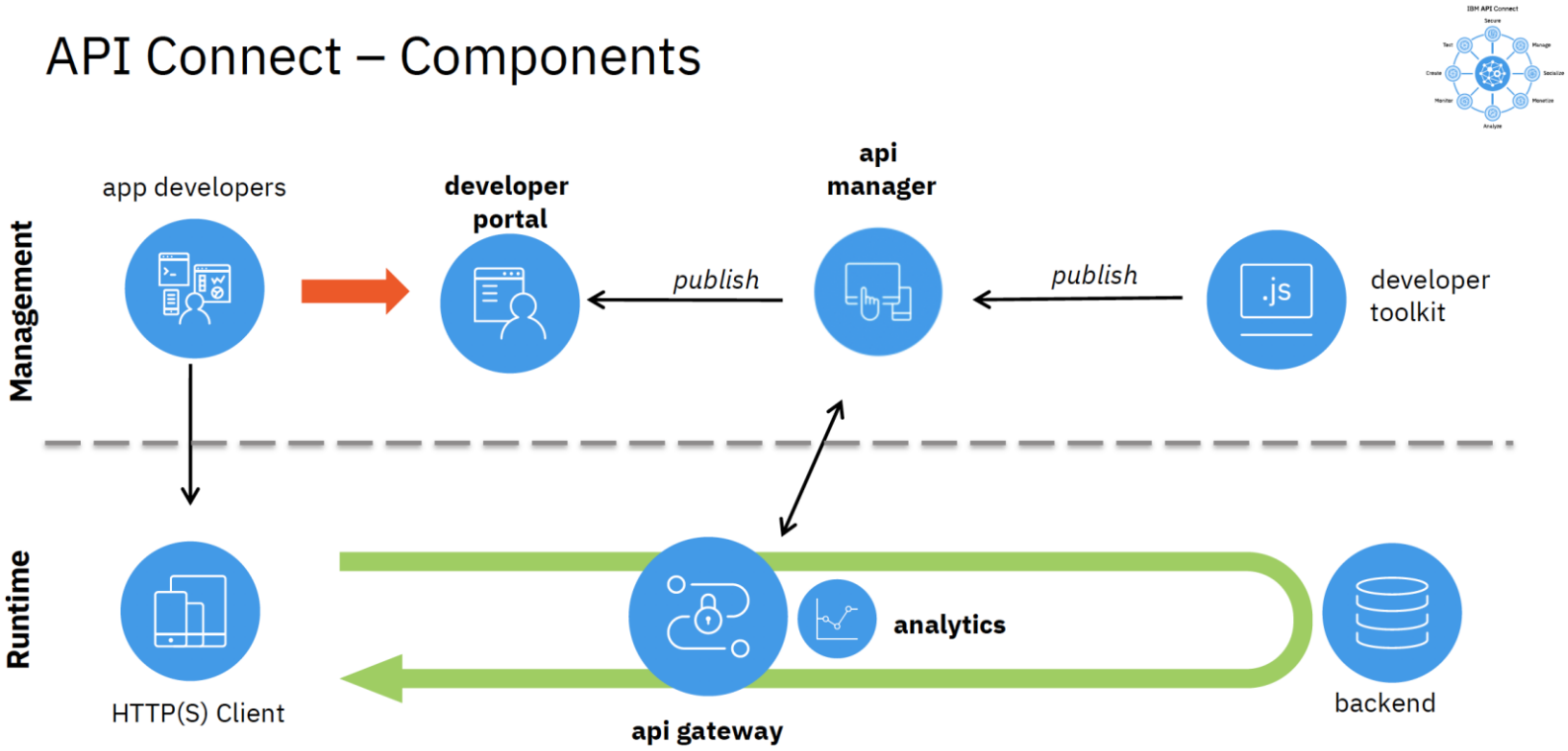
Implementing an application on App Connect
App Connect – Source to Server - Modernizer

ACE 12 helps you build automated pipelines from Source to Server



- Better testing further left
- Improved overrides on container start-up
- For some, no need for a BAR file
- Validation during build phases
- Life is simple – no “integration nodes”, “brokers”, “execution groups” or “MQSI”!

API Connect – Product Overview, Components, Features



API Connect – Product Overview, Components, Features

Components functionality

Gateway Instance

- API Policy Enforcement
- Security & Control
- Traffic control & mediation
- Workload optimization
- Monitoring/Analytics data Collection

Analytics Instance

- API Monitoring Analytics

Management Instance

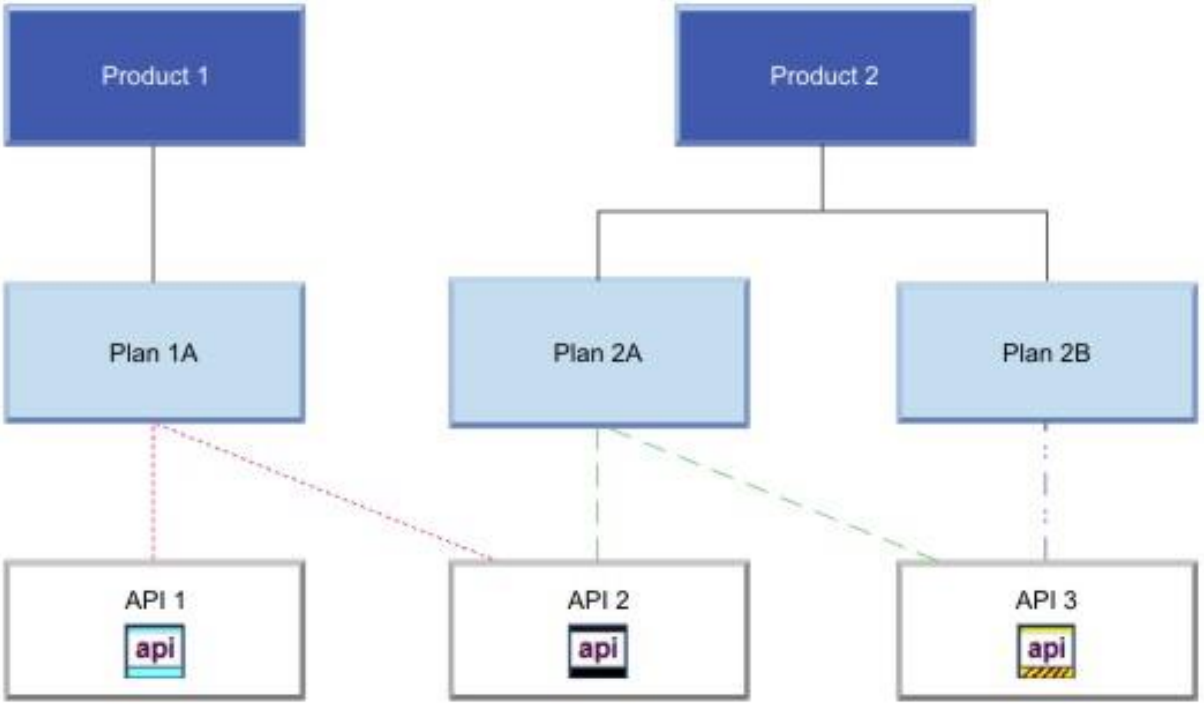
- API Discovery
- API Policy Creation
- Product Version & Lifecycle Management

Portal Instance

- Self-service App Developer Portal based on Drupal 8
- User Management
- Social Collaboration
- Subscription & Community Management

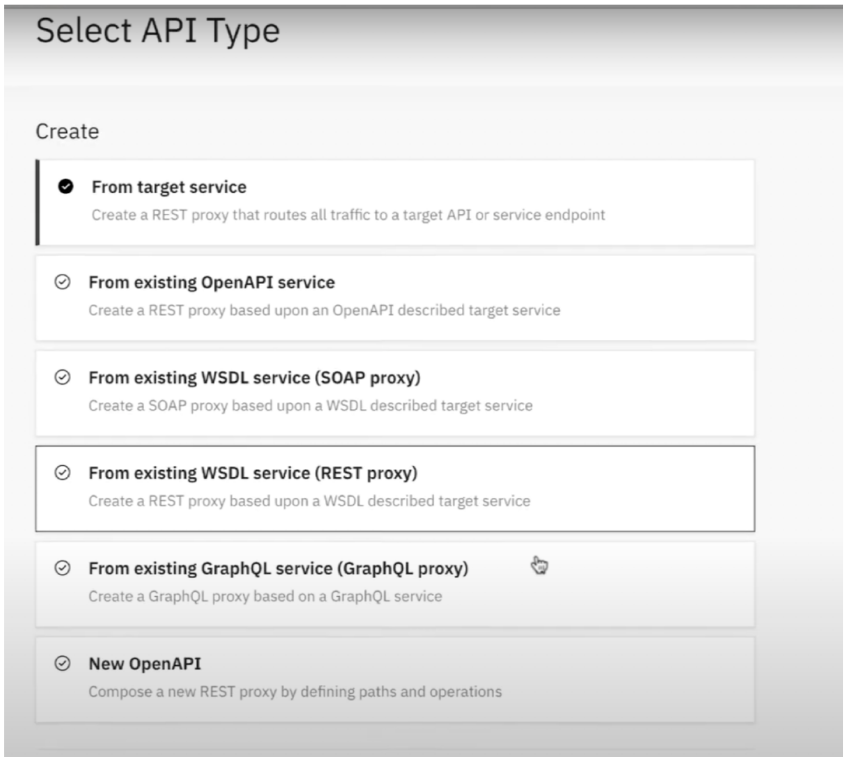
API Connect – Product Overview, Components, Features

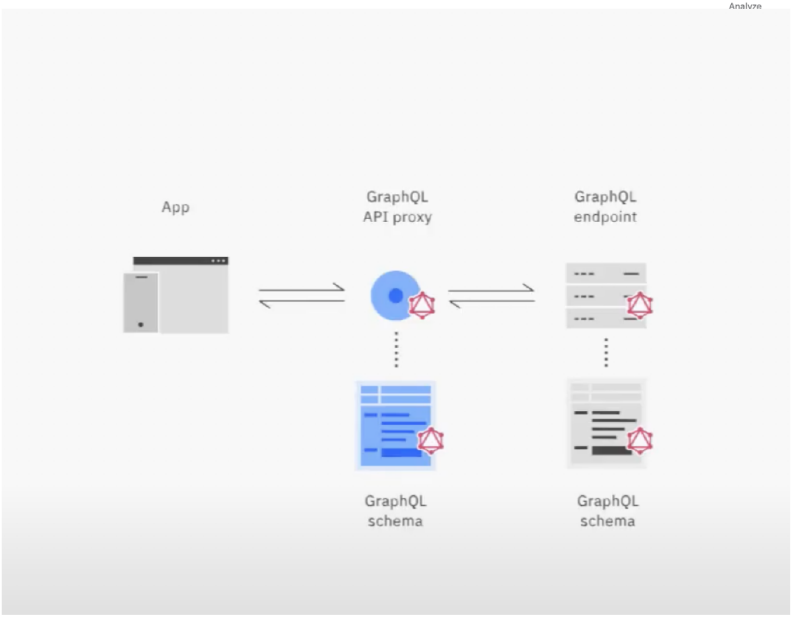
Products, Plans, and APIs - Levels of Segregation



Implementing an API on API Connect

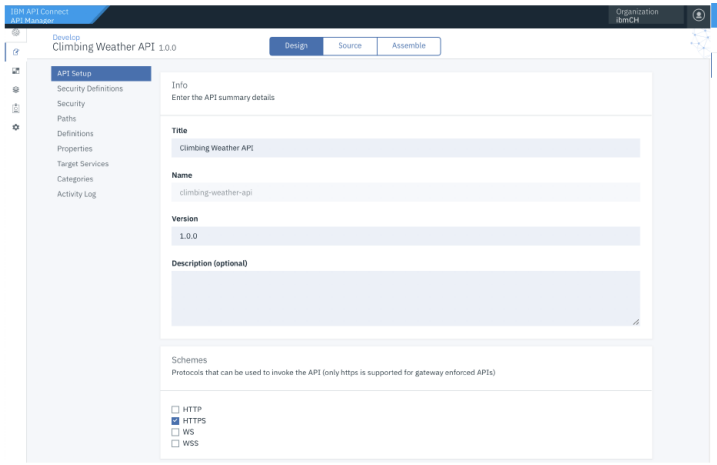
Creating APIs

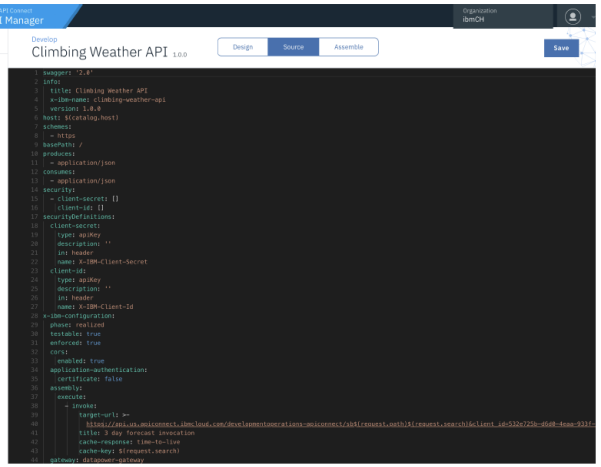


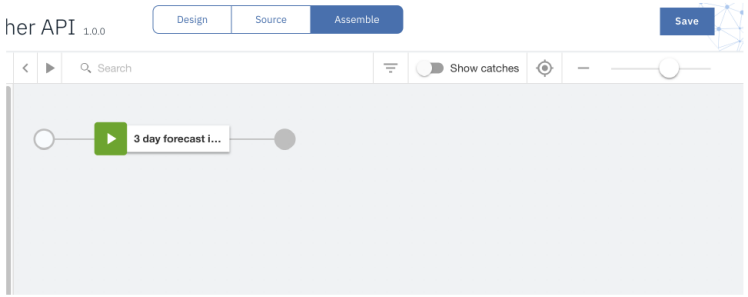


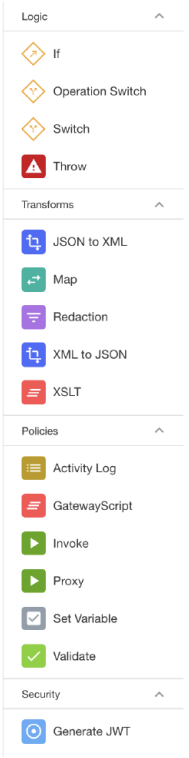
Implementing an API on API Connect

Three views – same source





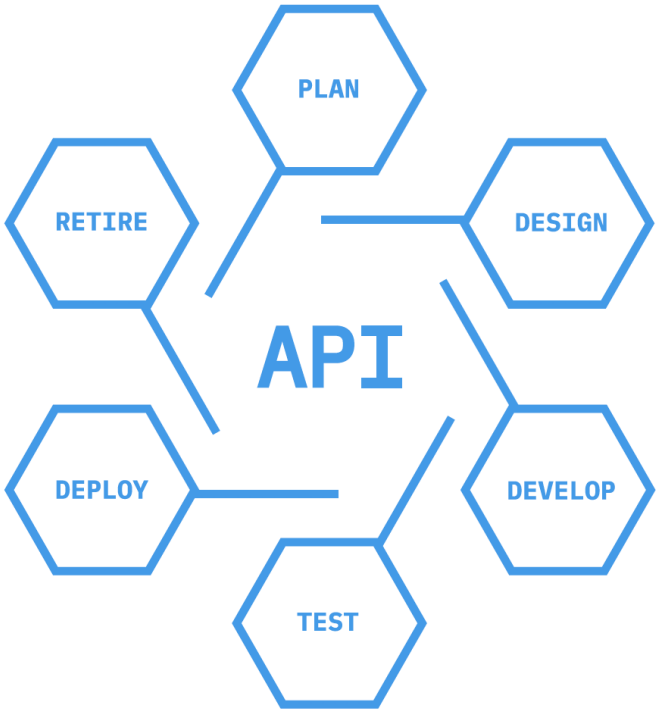




API Connect – Product Overview, Components, Features

Manage APIs through the API Lifecycle

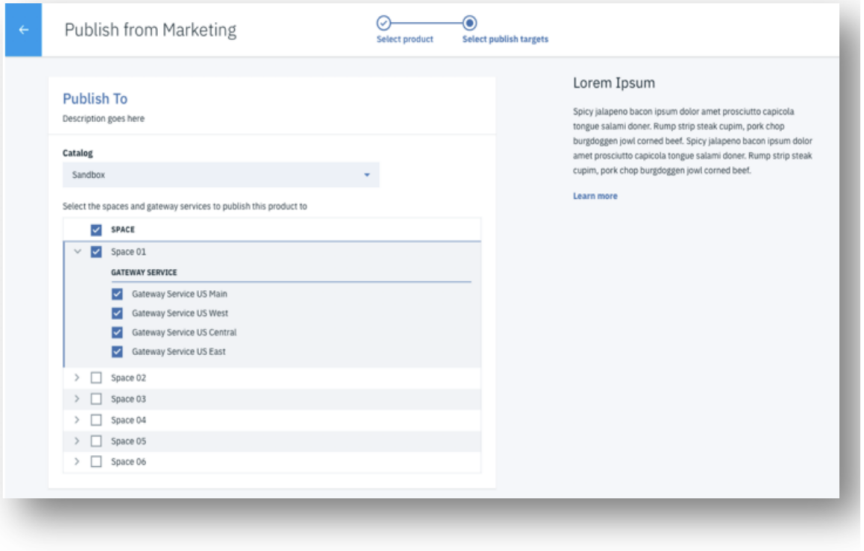
- **Define & Import REST or SOAP APIs** to enable clients to evolve their SOA tier
- **Package APIs into Products** and tailor them to target specific consumer markets
- **Publish and Promote** across different environments to align with DevOps practices
- **Manage and Control API Lifecycle and versioning** from staging to deprecation to meet corporate governance needs
- **Subscription and Community management** to grow go-to-market channels



API Connect – Product Overview, Components, Features

Enhanced API Publishing Control

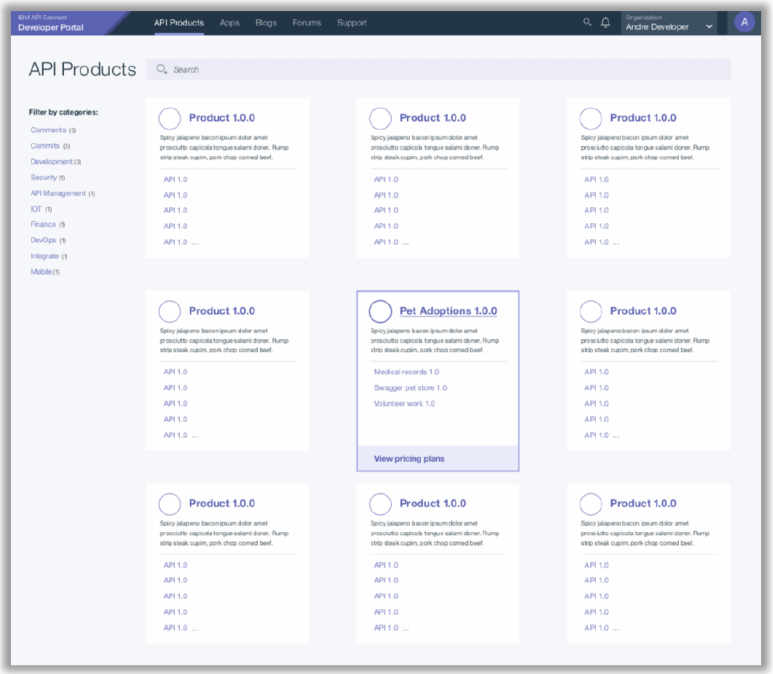
- **Blue/Green deployment support** out of the box for new API versions with ease
- **Granular control to selectively publish APIs to specific gateways** providing flexibility for multiple line of business operation



API Connect – Product Overview, Components, Features

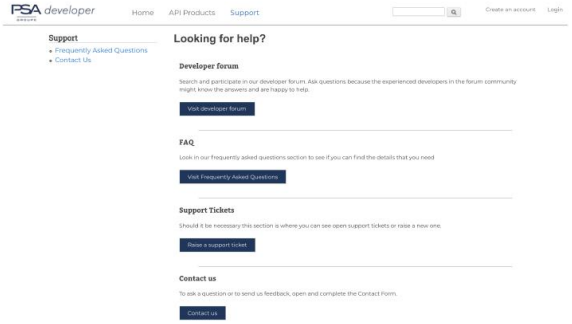
Developer Portal

- **Modern UI/UX design** based on customer and market feedback
- **Simple, powerful and extensible** customizations built on open-source Drupal 8
- **Fast track app creation** with a simple subscription wizard designed to reduce friction
- **Delight and increase app developer productivity** with a first class Portal Analytics experience
- **Effectively engage your developer community** with custom email support

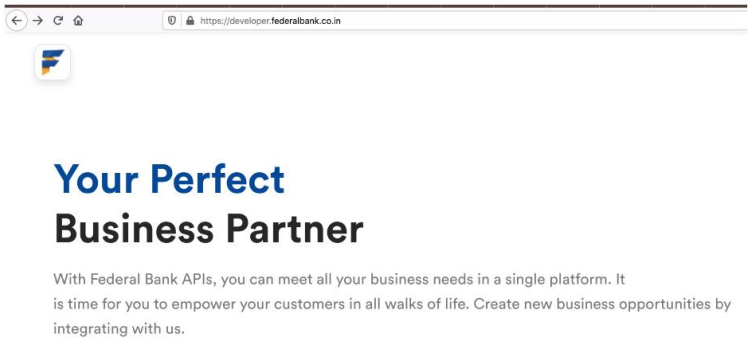


API Connect – Product Overview, Components, Features

Examples



https://developer.royalmail.net/api

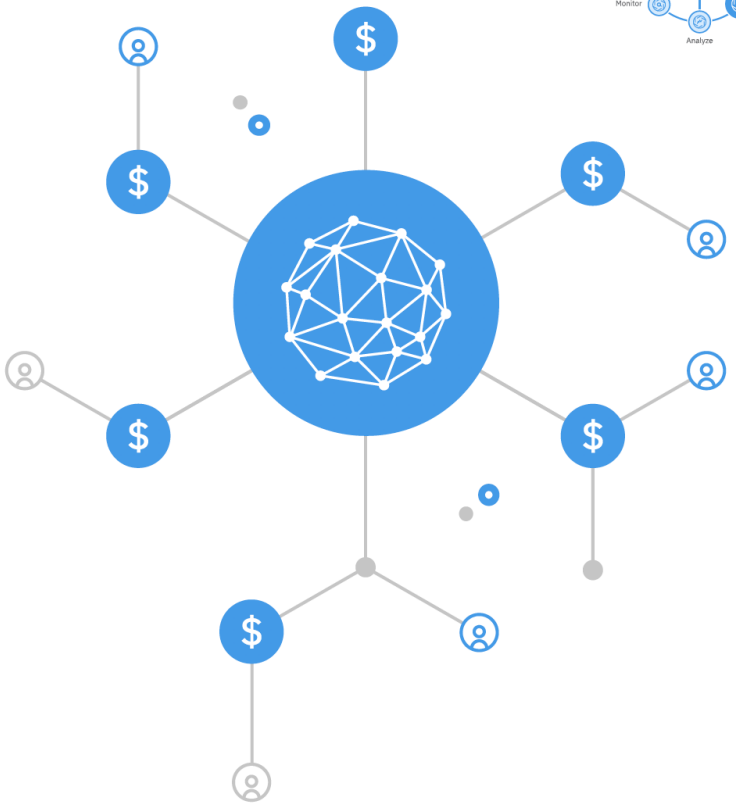


https://developer.federalbank.co.in/

API Connect – Product Overview, Components, Features

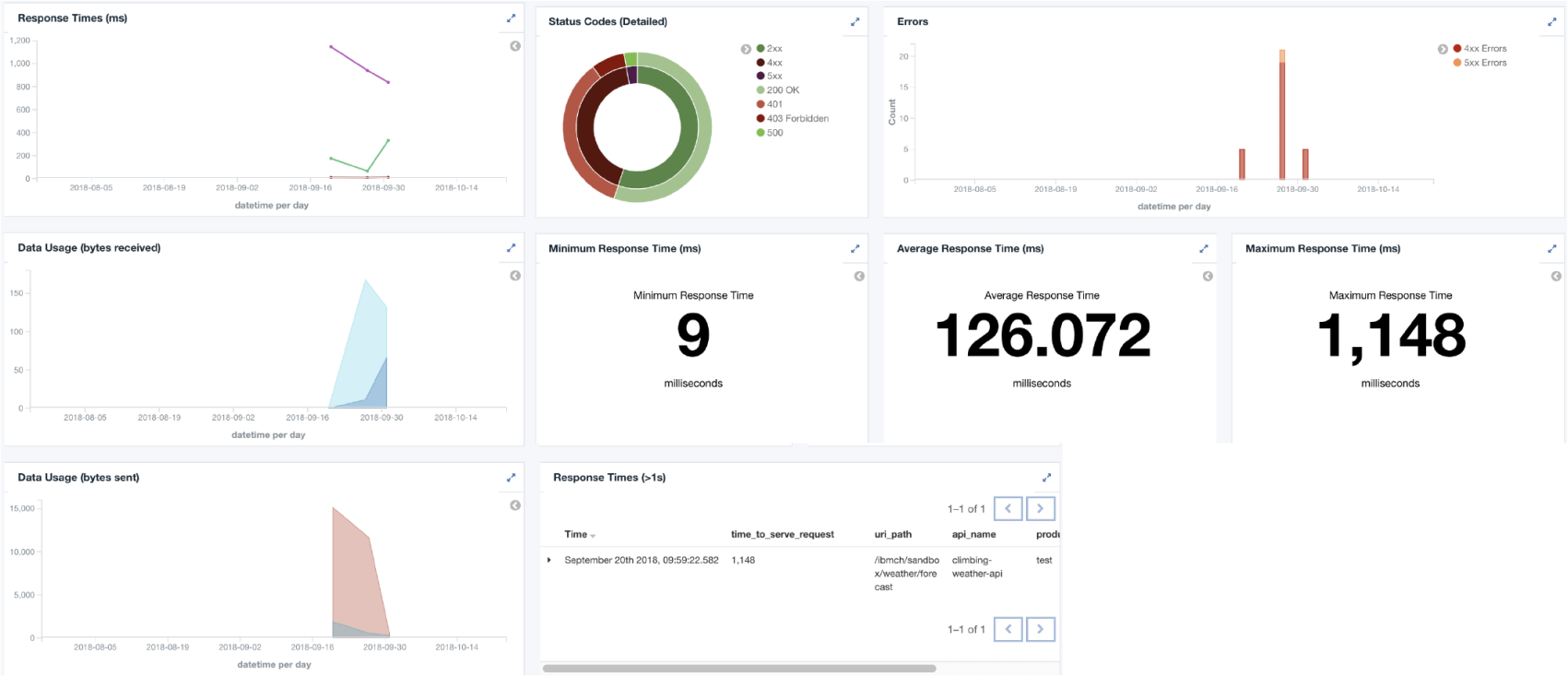
Monetize your API Calls

- **Modern approach & intuitive user experience** providing flexibility to define pricing details
- **Subscription pricing support** to enable recurring payments, popular in SaaS go-to-market strategies
- **Stripe integration OOTB** for smooth user-onboarding and payment collection
- **Analytics, customizable reports** for detailed insights into revenue, usage of monetized APIs
- **Offload API usage data** to existing enterprise tools to handle customized invoicing processes



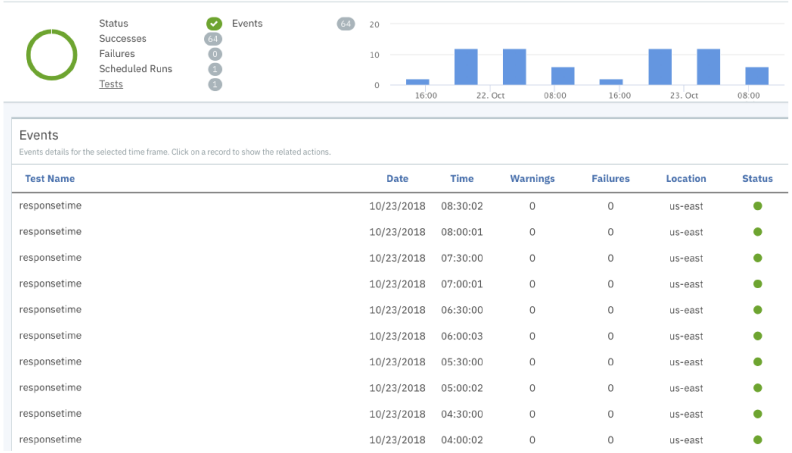
API Connect – Product Overview, Components, Features

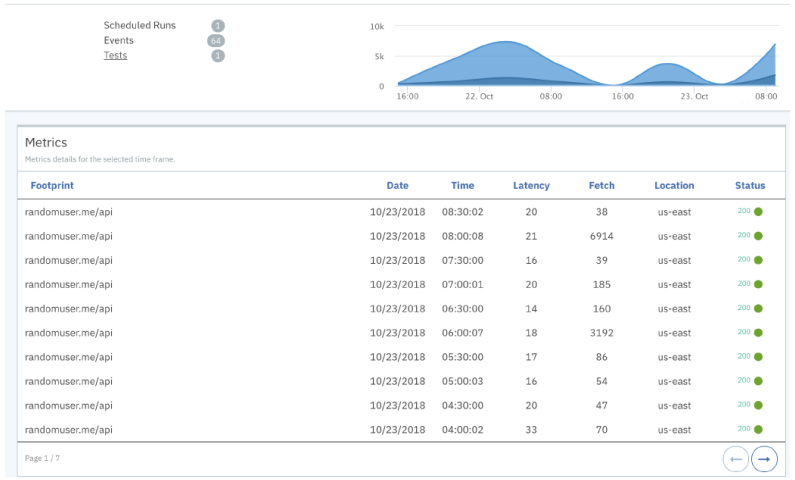
Dashboards – out of the box and custom



API Connect – Product Overview, Components, Features

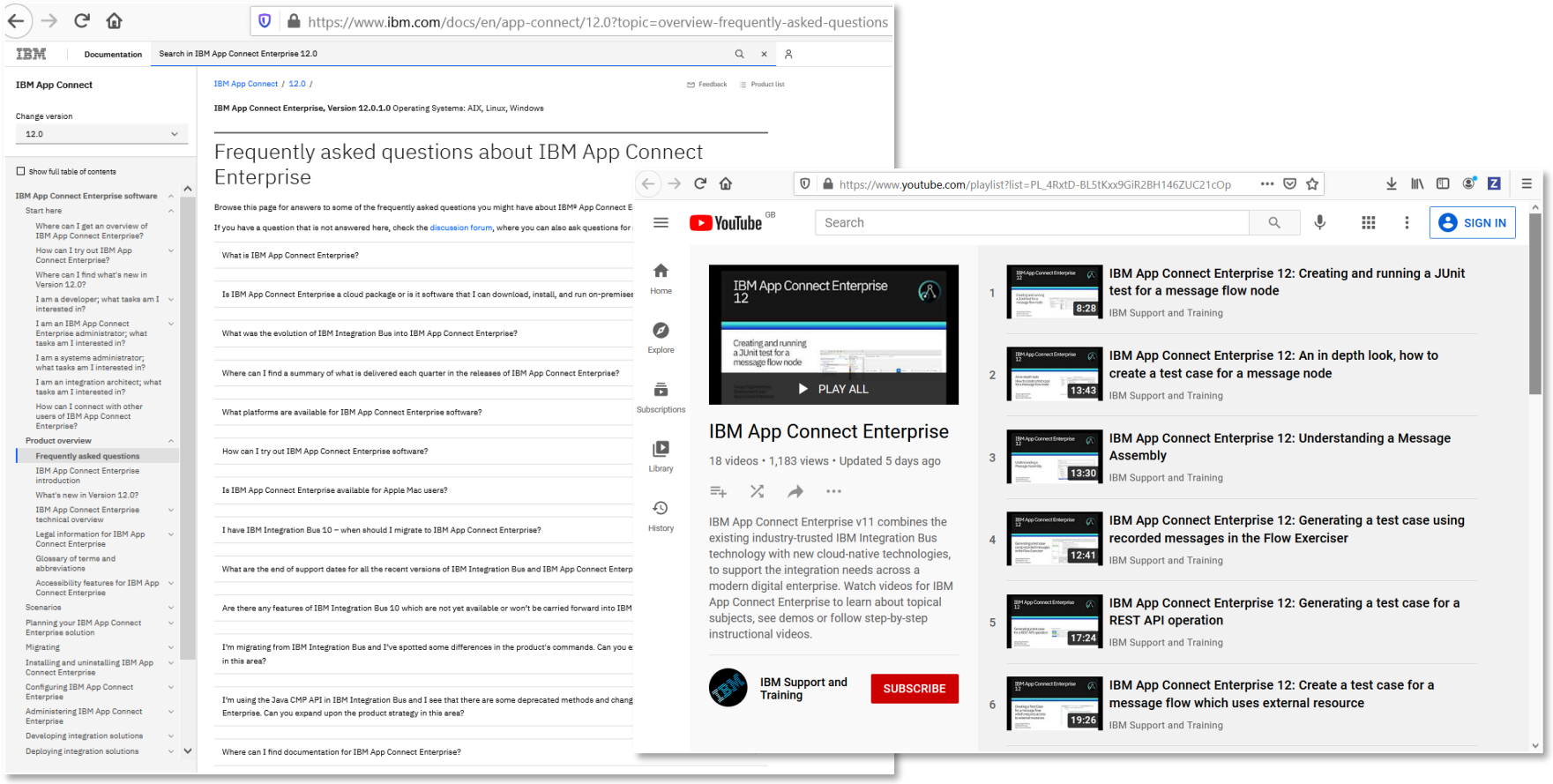
API Test and Monitor





Thank you !

YouTube playlist for IBM App Connect Enterprise 12:
https://www.youtube.com/playlist?list=PL_4RxtD-BL5tKxx9GiR2BH146ZUC21cOp



FAQ page IBM App Connect Enterprise 12:
https://www.ibm.com/docs/en/app-connect/12.0?topic=overview-frequently-asked-questions

App Connect – Product Overview, Components, Features

Universal Connectivity & Transformations Powering the Innovations

- AggregateControl node
- AggregateReply node
- AggregateRequest node
- AppConnectRESTRequest node
- CallableFlowAsyncInvoke node
- CallableFlowAsyncResponse node
- CallableFlowInvoke node
- CallableInput node
- CallableReply node
- CDInput node
- CDOutput node
- Check node
- CICSRequest node
- Collector node
- Compute node
- CORBARequest node
- Database node
- DatabaseInput node
- DatabaseRetrieve node
- DatabaseRoute node

- EmailInput node
- EmailOutput node
- EndpointLookup node
- FileInput node
- FileOutput node
- FileRead node
- Filter node
- FlowOrder node
- FTEInput node
- FTEOutput node
- GroupScatter node
- GroupGather node
- GroupComplete node
- HTTPAsyncRequest node
- HTTPAsyncResponse node
- HTTPHeader node
- HTTPInput node
- HTTPReply node
- HTTPRequest node
- IMSRequest node

- Input node
- JavaCompute node
- JDEdwardsInput node
- JDEdwardsRequest node
- JMSHeader node
- JMSInput node
- JMSMQTransform node
- JMSOutput node
- JMSReceive node
- JMSReply node
- KafkaConsumer node
- KafkaProducer node
- KafkaRead node
- Label node
- LoopBackRequest node
- Mapping node
- MQGet node
- MQHeader node
- MQInput node
- MQJMSTransform node

- MQOptimizedFlow node
- MQOutput node
- MQReply node
- MQTTPublish node
- MQTTSubscribe node
- .NETCompute node
- .NETInput node
- ODMRules node
- Output node
- Passthrough node
- PeopleSoftInput node
- PeopleSoftRequest node
- Publication node
- Real-timeInput node
- Real-timeOptimizedFlow node
- RegistryLookup node
- Resequence node
- ResetContentDescriptor node
- RESTAsyncRequest node
- RESTAsyncResponse node
- RESTRequest node

- Route node
- RouteToLabel node
- SalesforceRequest node
- SAPInput node
- SAPReply node
- SAPRequest node
- SecurityPEP node
- Sequence node
- SiebelInput node
- SiebelRequest node
- SOAPAsyncRequest node
- SOAPAsyncResponse node
- SOAPEnvelope node
- SOAPExtract node
- SOAPInput node
- SOAPReply node
- SOAPRequest node
- TCPIPClientInput node
- TCPIPClientOutput node
- TCPIPClientReceive node
- TCPIPServerInput node