SD124646

Building Patterns-Based Forge Integrations Using MuleSoft

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Learning Objectives

- Using standards based integration frameworks to connect enterprise systems
- Forge connector for Mulesoft
- Using proven patterns for integrations
- Managing forge authentication in Mulesoft
- Leverage Mulesoft to use Forge capabilities across an enterprise

Description

This class will introduce building integrations with the Forge platform using standard integration patterns in Mulesoft. Mulesoft is a lightweight event-driven Enterprise Service Bus that provides a robust encapsulation of the core integration patterns as described in the popular book Enterprise Integration Patterns by Hohpe and Woolf. We will demonstrate a custom Forge Anypoint connector built on the Mulesoft integration platform that allows for easy access to the capabilities provided by the Forge platform. Using this connector, Forge functions can be accessed directly from the business process flow editor in Mulesoft. We will go over how businesses can leverage this connector to build repeatable integration solutions using Forge and other enterprise applications. The class will provide a technical demo of a business process orchestration connecting a Force.com application and Netsuite with Forge. By using the Mule ESB for Forge integrations, enterprises can benefit by using standard canonical models to interface with multiple systems as well as leverage common enterprise services for monitoring and security. (Joint AU/Forge DevCon class).

Speaker(s)

Seasoned software professional with experience in Integration consulting and Cloud based operations. Over 20 years of experience in all stages of enterprise software development and deployment in a wide range of industries. He is an experienced integration consultant having worked on helping customers successfully integrate enterprise applications across various industries. He has implemented legacy Enterprise Service Bus based integration solutions as well as modern cloud based systems and is proficient with using integration standards such as REST, SOAP and ODATA. He is focused on architecting and implementing patterns based solutions to integrate enterprise applications to help drive adoption and enhance overall value for customers.

Using standards based integration frameworks to connect enterprise systems

Developing bespoke integration solutions to connect enterprise systems often results in significant amount of boilerplate infrastructure code that must be developed to support core capabilities such as security, auditing and routing. Also, developing point to point integrations between various enterprise systems results in a spaghetti integration that is not easy to maintain.

Enterprise Integration Patterns is a book by Gregor Hohpe and Bobby Woolf and describes 65 patterns for the use of enterprise application integration and message-oriented middleware in the form of a pattern language. Several integration frameworks such as the Spring Integration Framework, Apache Camel and Mulesoft evolved based on the patterns described in this book. We will provide an overview of Mulesoft and the advantages of integrating with the Forge platform using Mulesoft in this demo.

Mulesoft is a light weight event-driven integration framework that allows for easily integrating multiple enterprise systems. The following list provides some of the core capabilities of the Mulesoft integration platform:

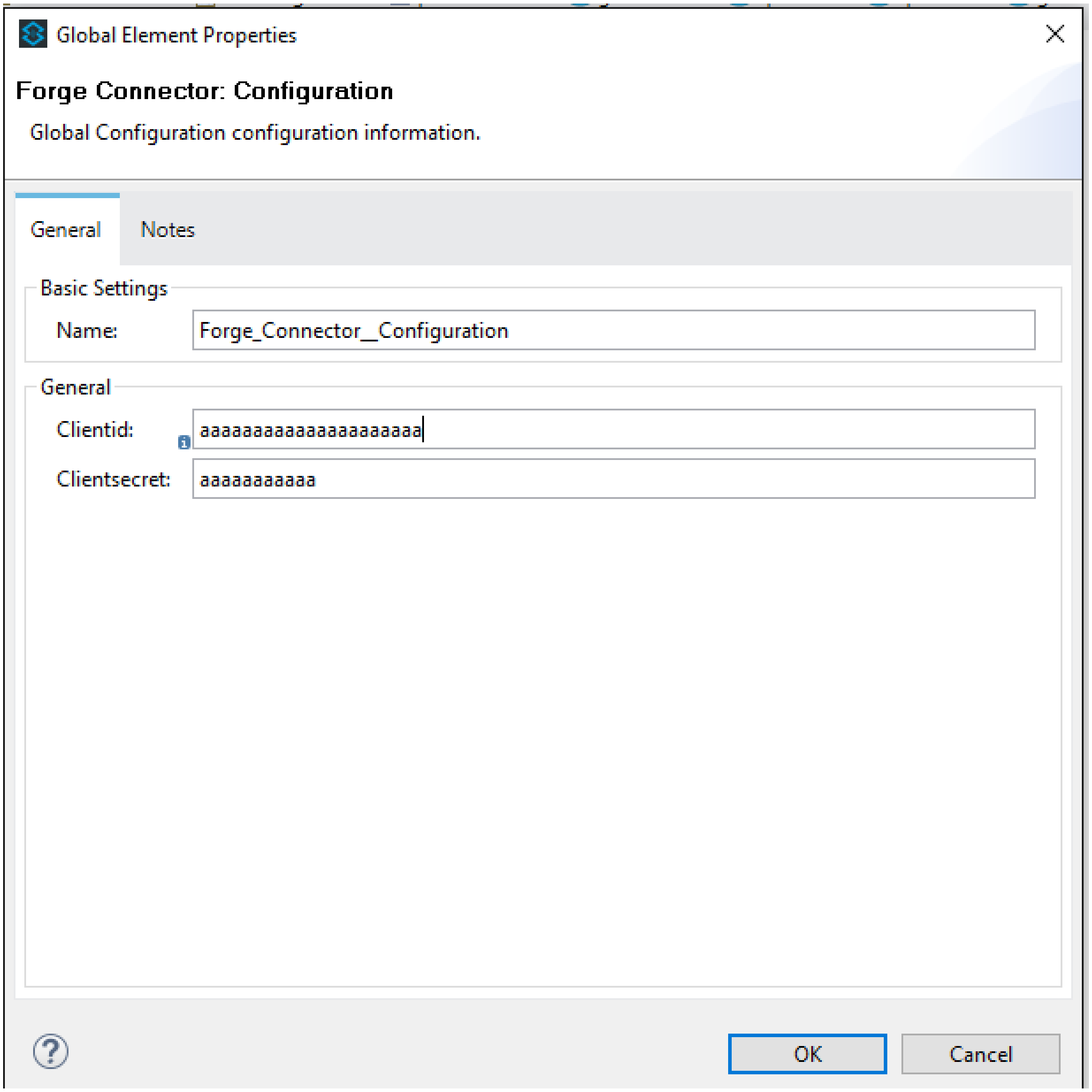
- Lightweight messaging engine to manage flow of data across multiple systems
- Built-in infrastructure for auditing and security
- Robust routing and mediation engine
- Data weave transformation engine
- Extensive component library
- Connectors for all leading application platforms
- Extendable architecture to build custom connectors
- Works well with the spring framework and the POJO model
- Visual Anypoint Studio platform to model the integration flows

Forge Connector for Mulesoft

Mulesoft provides an extensible architecture allowing for the development of custom connectors to any application or platform. In this demo, we will showcase a custom connector that was developed for Forge. By using this connector, we can easily incorporate Forge API within Mulesoft flows. With most common enterprise systems having a connector for Mulesoft, we can easily connect Forge to any enterprise system using a standard Mule flow with a drag and drop interface to map the data elements.

Managing Forge Authentication

We will provide an overview of how the connector can be used to support both the 2-legged and 3-legged OAuth authentication for the Forge API.



Forge Connector: Configuration

Global Configuration configuration information.

Basic Settings

Name: Forge_Connector__Configuration

General

Clientid: aaaaaaaaaaaaaaaaaaaa

Clientsecret: aaaaaaaaaaa

Enterprise Integration Patterns

The core strength of the enterprise integration patterns is that it promotes a message oriented architecture that supports loose coupling and high cohesion.

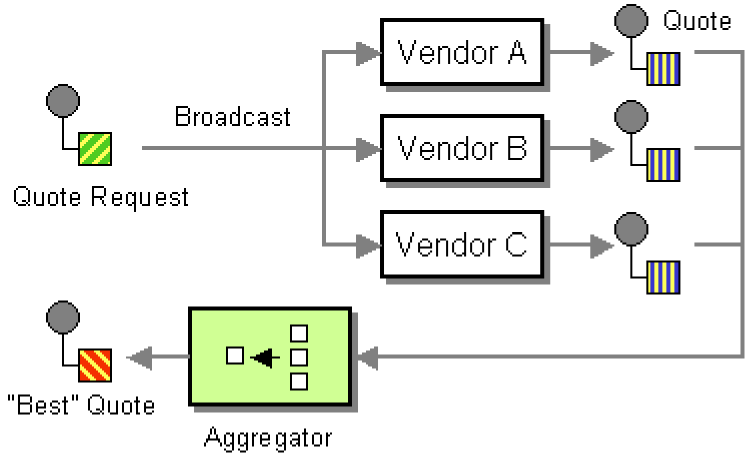
Some of the patterns used in this demo are described below. You can find a more detailed description of all the patterns at the following location: http://www.enterpriseintegrationpatterns.com

Canonical Data Model:

Using a common data format in the message bus allows us to account for variations in the data format when messages flow across multiple systems.

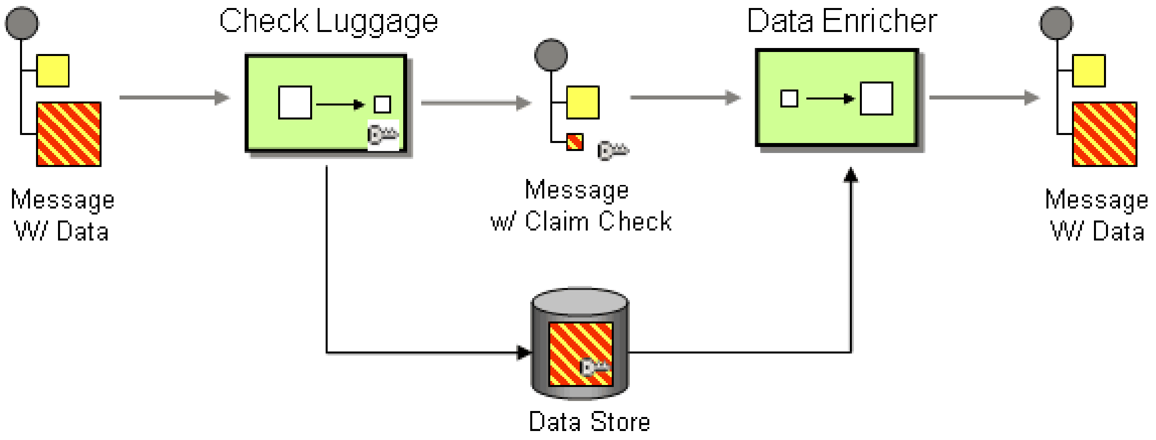
Scatter-Gather:

Send a message to multiple recipients that need to process a request



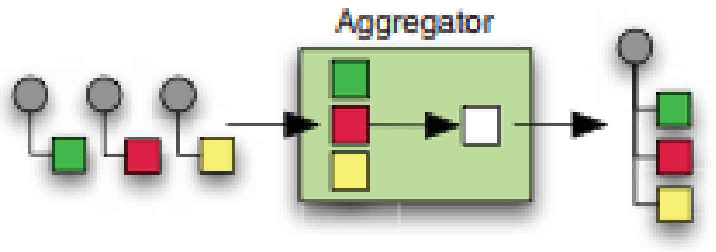
Claim Check:

Pattern used to reduce the data volume of a message



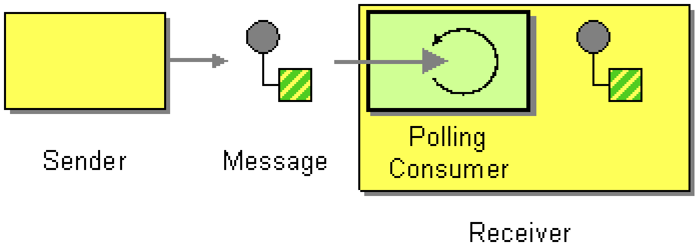
Aggregator:

Combine individual but related messages so that they can be processed as a whole



Polling Consumer:

The receiving process checks a messaging queue and receives them when it is ready



Leveraging Forge with other enterprise applications - Demo

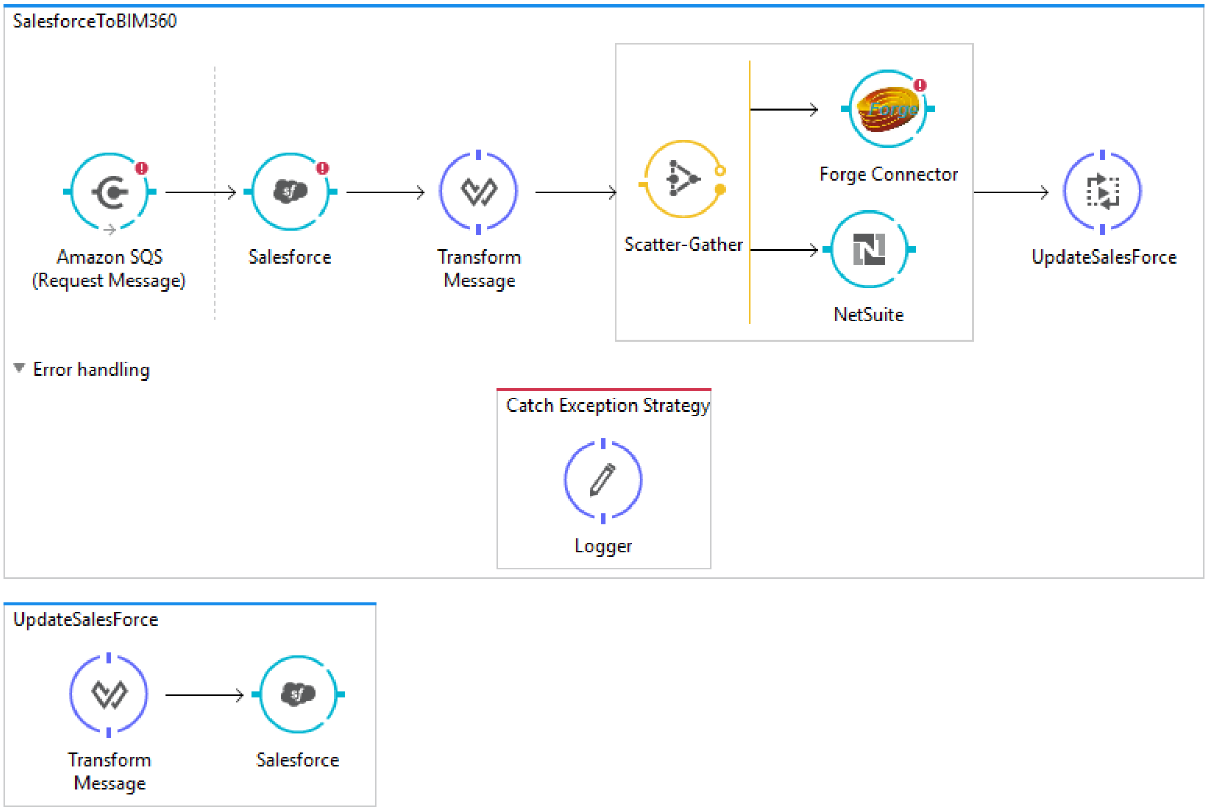
We will demonstrate the following integration scenarios using Mulesoft and the Forge Connector. The enterprise integration patterns used in these integration processes will be highlighted along the way.

Scenario # 1: Synchronize BIM360 project data with Salesforce and Netsuite

The sequence of steps in this integration scenario is as follows:

1. A salesperson creates a new project in Salesforce
2. This event triggers the integration flow in Mulesoft (Amazon SQS is used as the queueing system)
3. The Mulesoft integration flow retrieves the required data from Salesforce and creates a new project in BIM 360 using the Forge BIM 360 API
4. The flow creates a Job in the Netsuite ERP system
5. Any changes to the project value are pushed from Netsuite to BIM360

We will use an Amazon SQS queue as the communication channel between the enterprise systems and Mulesoft. The integration flow in Mulesoft using the Forge connector is shown below:

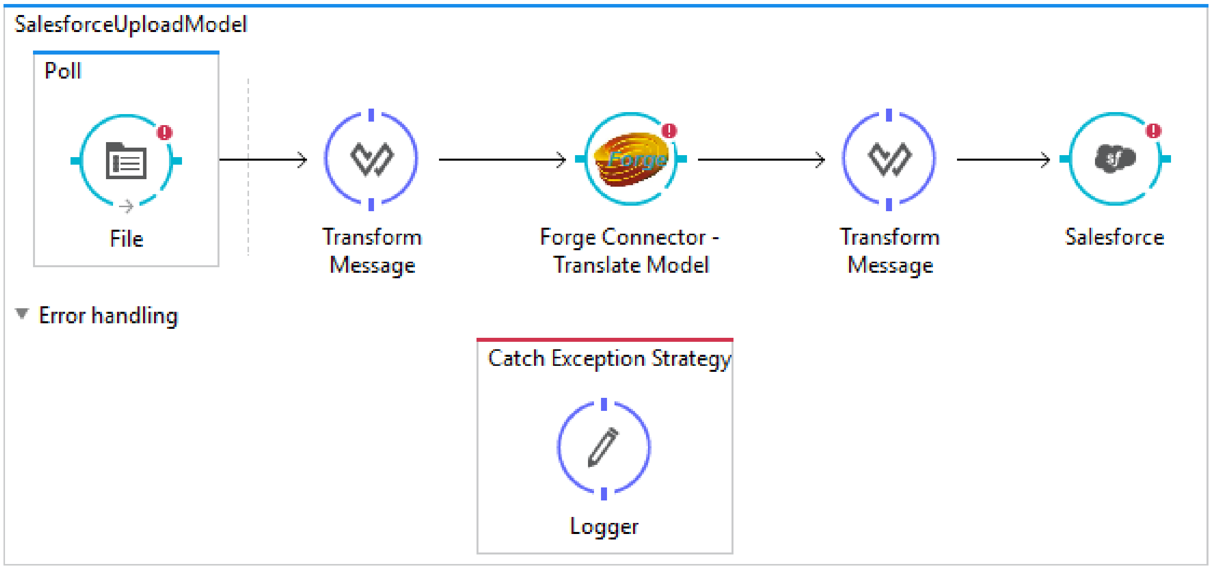


Scenario # 2: Translate Inventor Model and send data to be displayed in embedded Forge Viewer in Salesforce

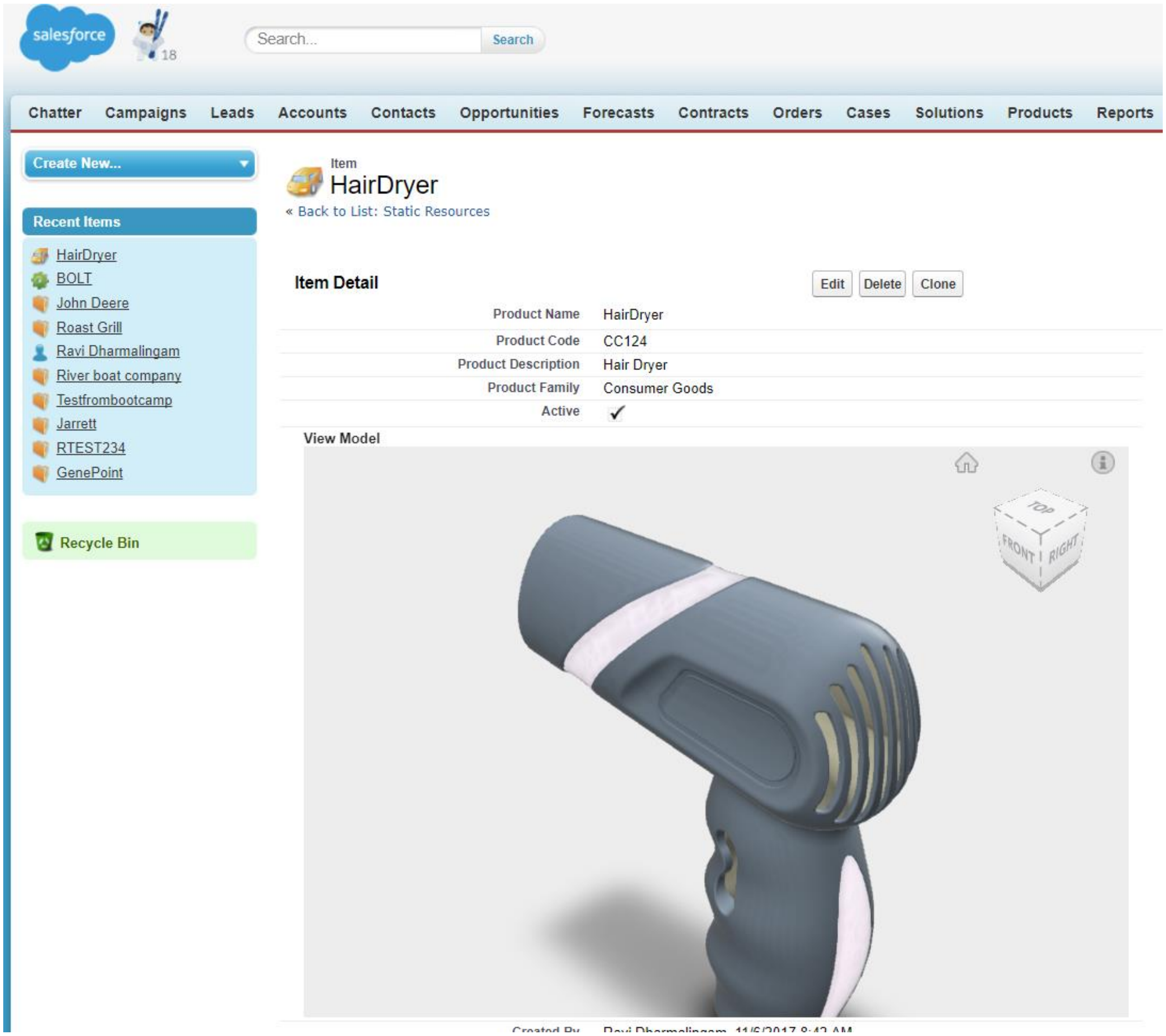
The sequence of steps in this integration scenario is as follows:

1. The marketing team creates a product item in salesforce
2. Designer develops the CAD model for this product and places it in a file share
3. Mulesoft is configured to poll the folder for any new files
4. New files are picked up by Mulesoft which uses the Forge Connector to invoke the model-derivative API to translate the model
5. The link to the translated file is sent to Salesforce.
6. An embedded Forge Viewer is configured in Salesforce to display the model

The integration flow in Mulesoft for this scenario is as follows:



The translated model will be displayed in Salesforce using an embedded Forge Viewer:



Item

HairDryer

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Item Detail

Product Name	HairDryer
Product Code	CC124
Product Description	Hair Dryer
Product Family	Consumer Goods
Active	✓

View Model

Created By Ravi Dharmalingam, 11/6/2017 8:42 AM

Key Takeaways

- Even complex integrations that span across multiple enterprise systems can be simplified by using a pattern oriented approach
- By encapsulating the core Forge capabilities in a Connector that can be mapped in a visual drag and drop interface, we can open up Forge based integrations to non-developers.
- An even-driven messaging architecture for integrations supports loose-coupling and high cohesion providing for greater resiliency for managing evolving needs of enterprise integrations.