



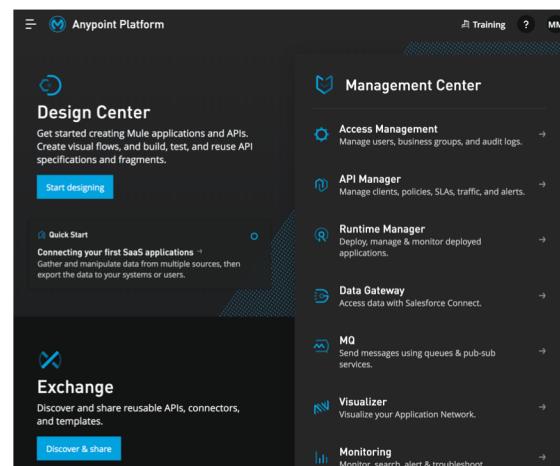
# Module 2: Introducing Anypoint Platform



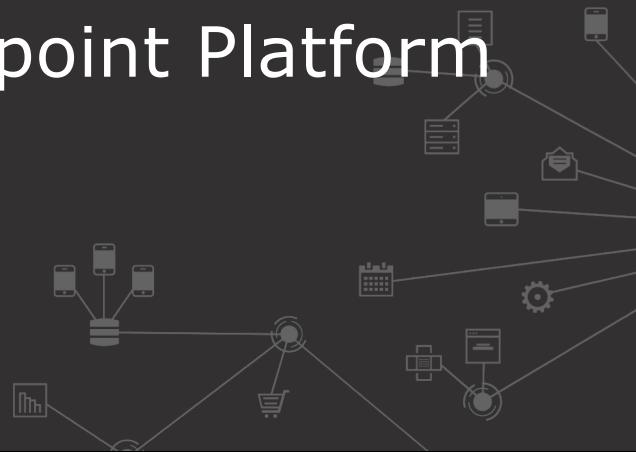
At the end of this module, you should be able to



- Describe the benefits of Anypoint Platform and MuleSoft's approach to be successful with it
- Describe the role of each component in building application networks
- Navigate Anypoint Platform
- Locate APIs and other assets needed to build integrations and APIs in Anypoint Exchange
- Build basic integrations to connect systems using Flow Designer



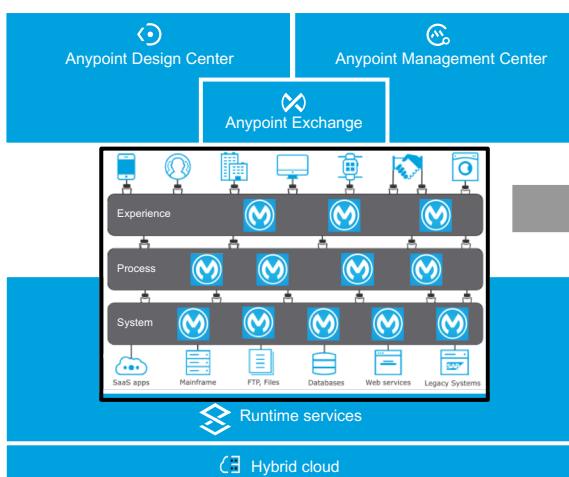
# Introducing Anypoint Platform



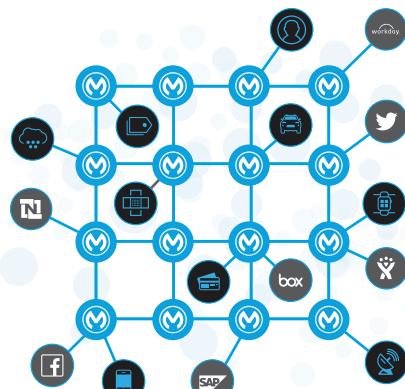
Anypoint Platform uniquely enables the building of an application network

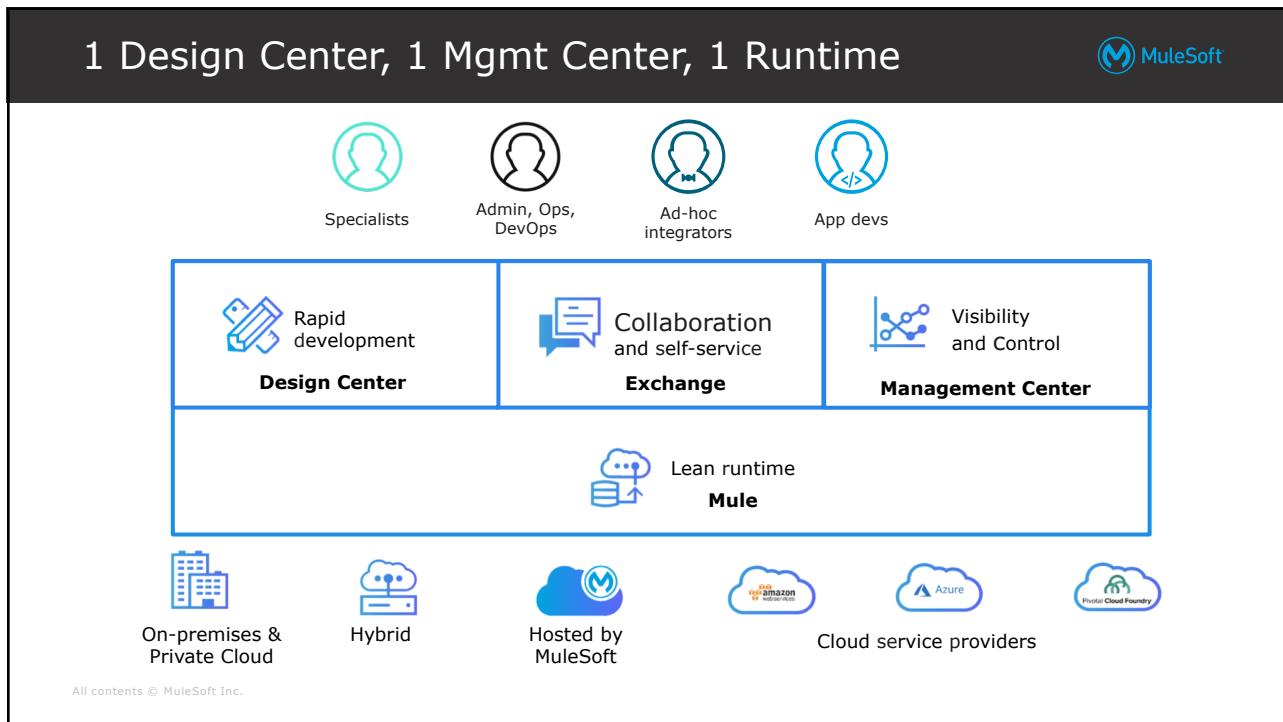
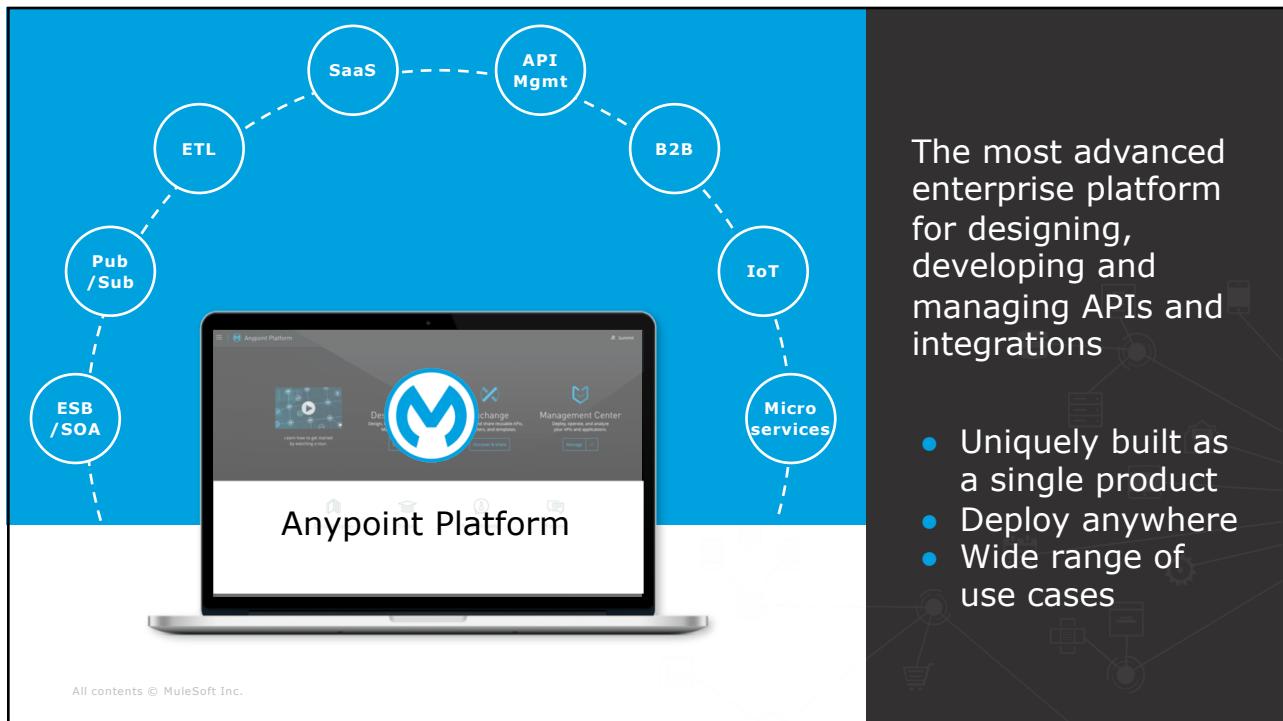


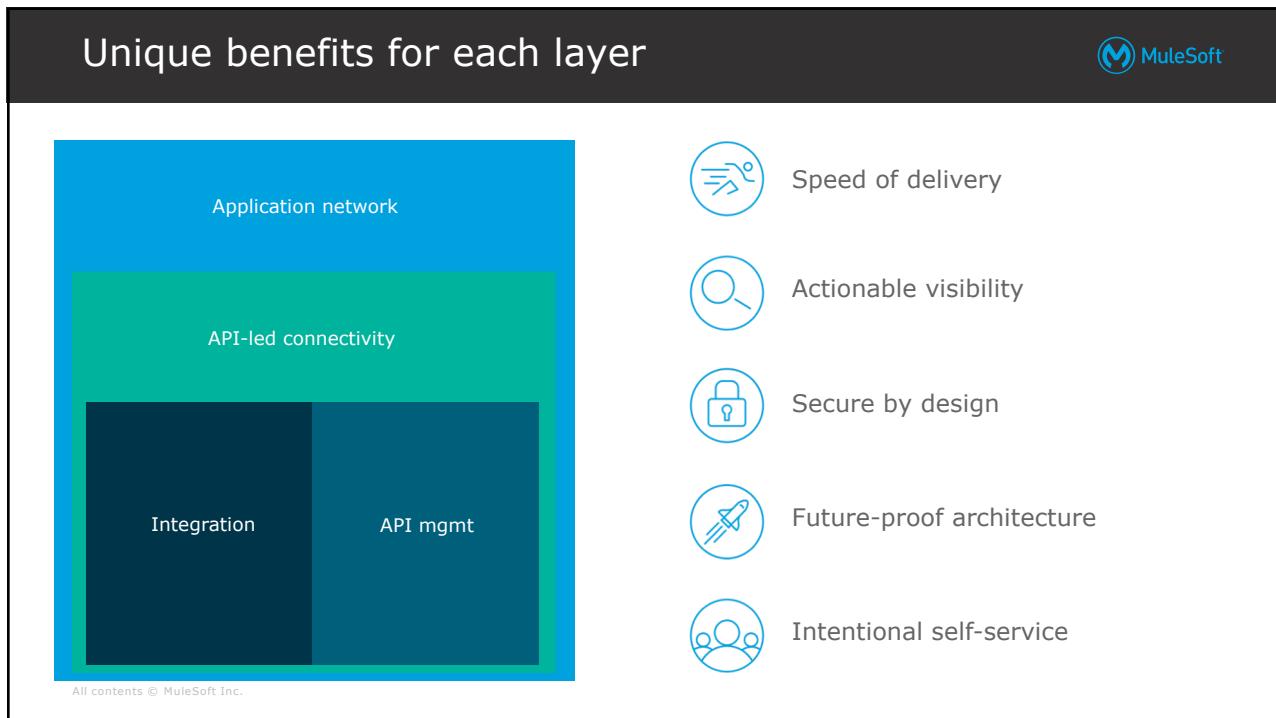
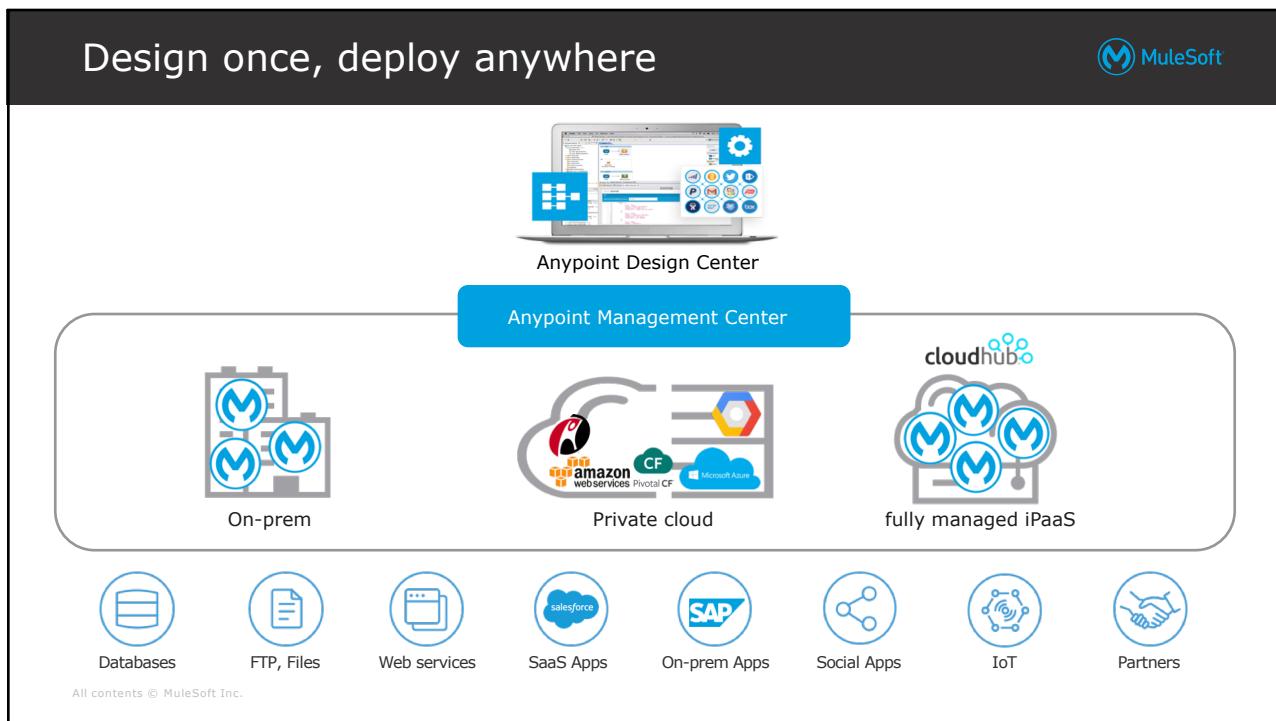
## Anypoint Platform



## Application network



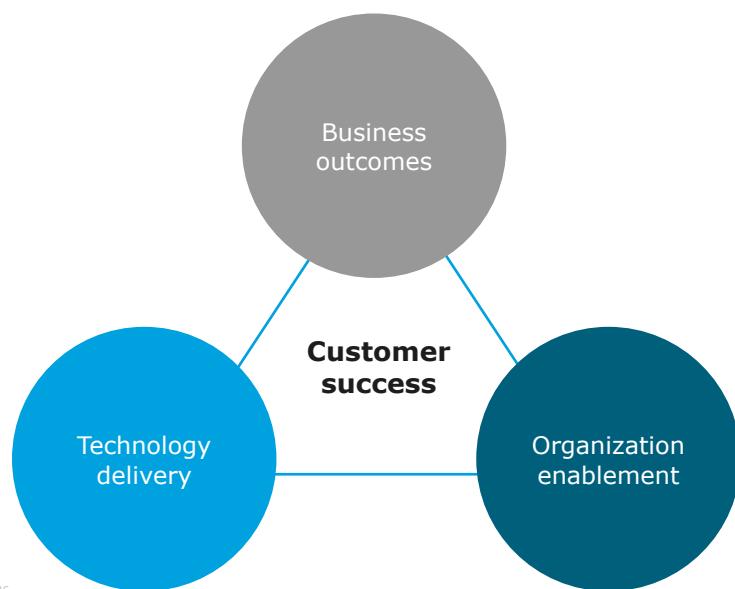




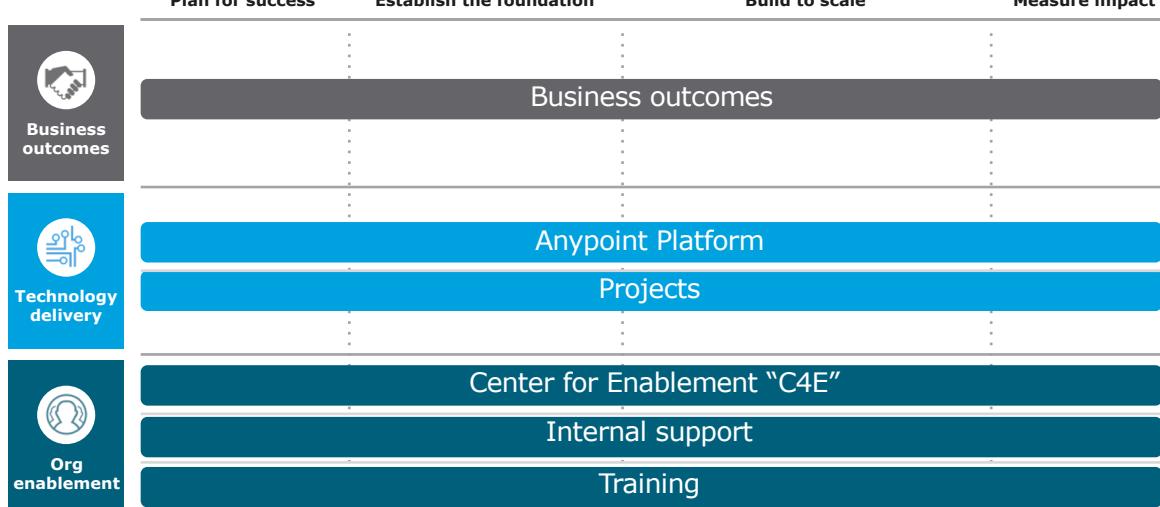
# Achieving success with Anypoint Platform



MuleSoft's approach is centered around 3 core pillars  MuleSoft



## Defining the path to achieve success



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## MuleSoft has a blueprint for you to follow

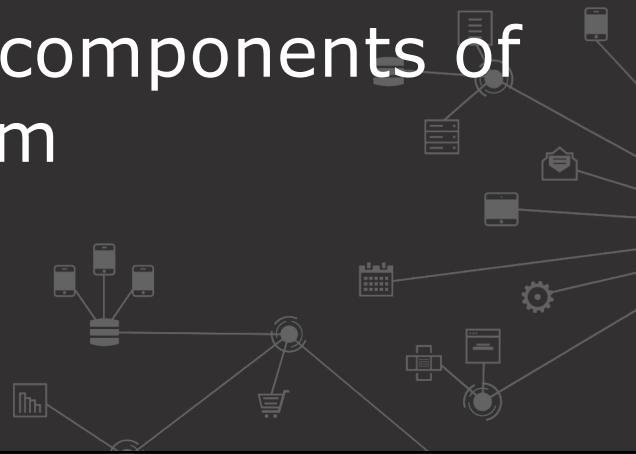


	Plan for success	Establish the foundation	Build to scale	Measure impact
 Business outcomes	Agree on business outcomes and KPIs Develop the overall success plan	Monitor and manage	Refresh the success plan	Measure business outcomes
 Technology delivery	Define Anypoint platform vision and roadmap Design Anypoint platform architecture and implementation plan	Deploy Anypoint Platform	Refine and scale Anypoint Platform	Measure Anypoint platform KPIs
 Org enablement	Prioritize IT projects and quick wins Staff and onboard the project teams	Define reference architecture Launch initial projects and quick wins	Onboard additional project teams Launch additional projects	Measure project KPIs
	Assess integration capabilities Establish the C4E operating model	Build and publish foundational assets Evangelize	Drive consumption	Measure C4E KPIs
	Onboard MuleSoft Determine the internal support operating model	Staff, train and launch team Publish support guidance and self-serve materials	Monitor Anypoint Platform	Measure support KPIs
	Agree on initial roles Train the initial team(s)	Develop the broader training plan Launch experiential learning opportunities	Update training plan	Conduct skills assessment

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Note: For details about individual steps, contact your MuleSoft Customer Success Manager

# Introducing the components of Anypoint Platform



## API development cycle: API specification



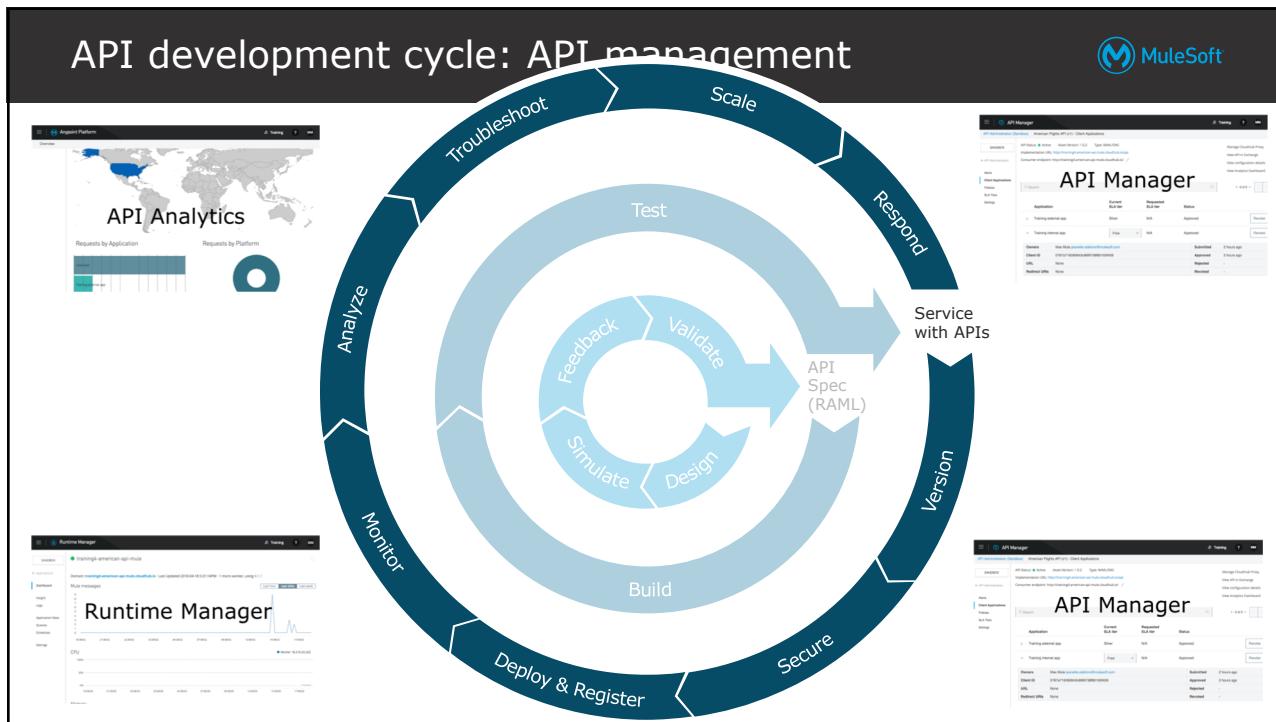
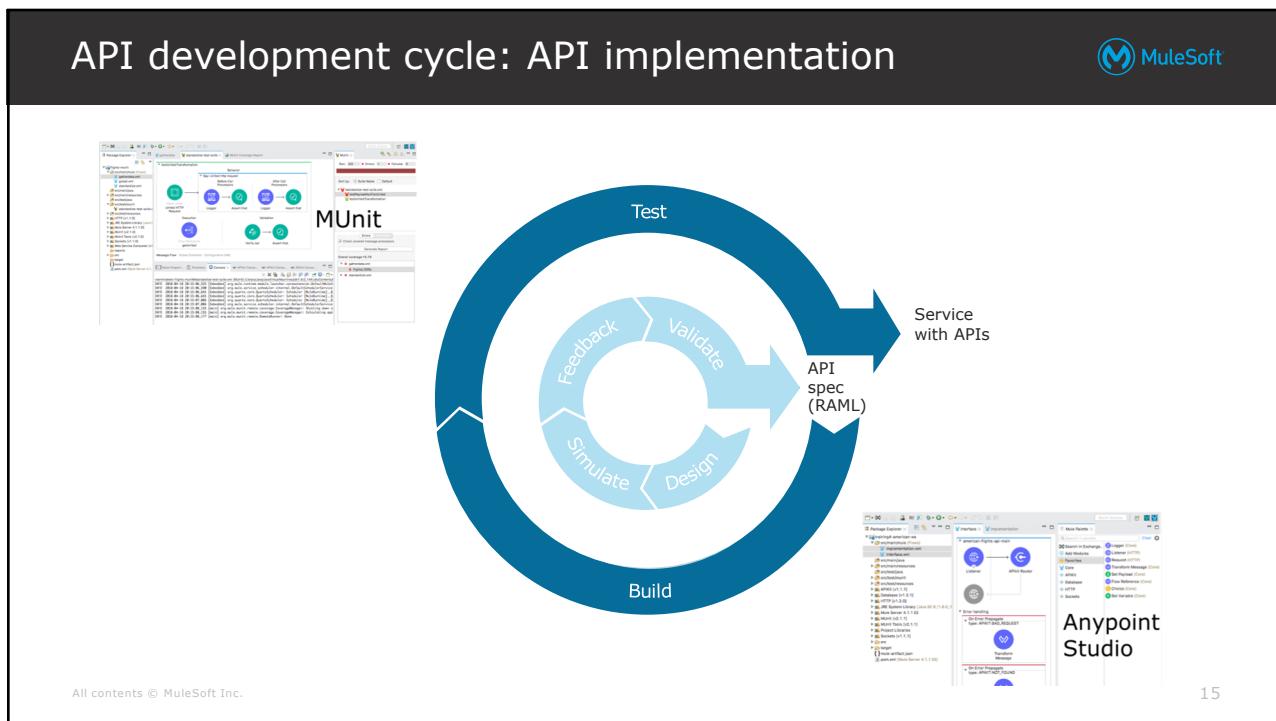
The diagram shows four stages of the API development cycle arranged in a circle:

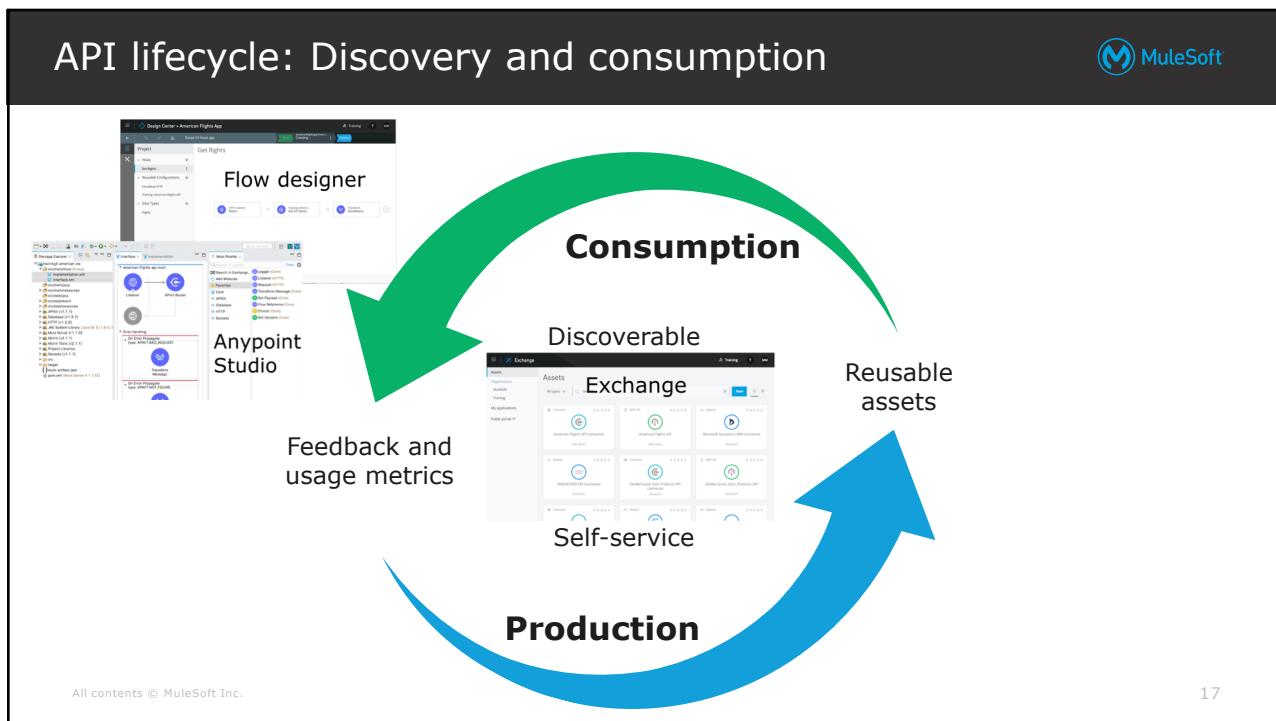
- Design:** Represented by the top-right segment of the circle.
- Simulate:** Represented by the bottom-left segment of the circle.
- Validate:** Represented by the top-left segment of the circle.
- Feedback:** Represented by the bottom-right segment of the circle.

Surrounding the cycle are four screenshots of MuleSoft tools:

- API portal:** Shows the Exchange interface with an API listed.
- API console:** Shows the API summary and a Mocking Service interface.
- API designer:** Shows the API designer interface for creating API specifications.
- API notebook:** Shows the API notebook interface for writing and executing API tests.

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## Anypoint Exchange

MuleSoft

The screenshot shows the Anypoint Exchange interface with a sidebar for 'All assets' and 'My applications'. The main area displays four asset cards: 'SAP Connector - Mule 4' (provided by MuleSoft Organization, 5 stars), 'Salesforce Connector - Mule 4' (provided by MuleSoft Organization, 5 stars), 'Amazon S3 Connector - Mule 4' (provided by MuleSoft Organization, 5 stars), and 'Accelerator for Healthcare' (provided by MuleSoft Organization, 5 stars). A large blue infinity symbol logo is positioned on the right side of the slide.

- A library of assets
- The central repository that is critical to the success of building an application network
- Ensures assets are published somewhere they can be discovered and reused

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## What does (and should) Exchange contain?



- MuleSoft-provided **public** assets available in all accounts to all users
  - You can work with MuleSoft to get APIs and connectors certified and added
- **Private** content only available to people in your org
  - Assets added by anyone in your org are added to your private Exchange
- Your organization should populate it to contain everything you need to build your integration projects
  - Including APIs, connectors, diagrams, videos, links, and more

All types
Connectors
Templates
Examples
REST APIs
SOAP APIs
HTTP APIs
API Spec Fragments
Custom

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## REST APIs and API portals in Anypoint Exchange



- When a REST API is added to Exchange, an **API portal** is automatically created for it
- An API portal has
  - Auto-generated **API documentation**
  - An **API console** for consuming and testing APIs
  - An **automatically generated API endpoint** that uses a **mocking service** to allow the API to be tested without having to implement it
- API portals can be shared with both internal and external users
- In the last module, you used a public API portal created from Anypoint Exchange for a private organization (Muletraining)

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## REST connectors in Anypoint Exchange



- When a RAML 1.0 API specification is added to Exchange, a **connector** is automatically created for it
  - The connector can be used in Mule applications to make calls to that API
  - REST Connect is the name of the technology that performs this conversion

The screenshot shows the MuleSoft Anypoint Exchange interface. The left sidebar has sections for 'All assets' (Training (master), Provided by MuleSoft), 'My applications' (Public portal, Settings), and a 'New asset' button. The main area is titled 'All assets' with a search bar. It displays four connector assets:
 

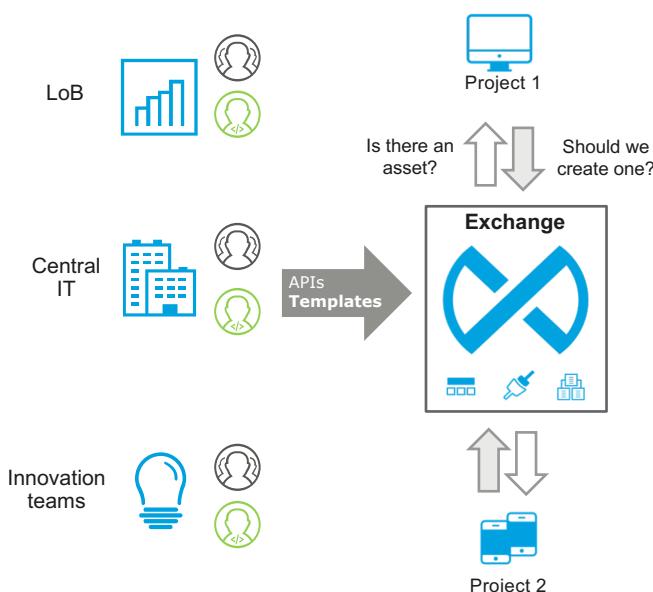
- SAP Connector - Mule 4 (SAP icon, 5 stars)
- Salesforce Connector - Mule 4 (Salesforce icon, 5 stars)
- Amazon S3 Connector - Mule 4 (Amazon S3 icon, 5 stars)
- Accelerator for Healthcare (Custom icon, 5 stars)

 Each asset includes the provider ('MuleSoft Organization') and a link to the details page.

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## Using Exchange: Success of C4E in action



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## Walkthrough 2-1: Explore Anypoint Platform and Anypoint Exchange



- Explore Anypoint Platform
- Browse Anypoint Exchange
- Review an API portal for a REST API in Exchange
- Discover and make calls to the Training: American Flights API in the public Exchange

The screenshot shows the Anypoint Exchange interface. The left sidebar has options like 'All assets', 'Training (manner)', 'Provided by MuleSoft', 'My applications', 'Public portal', and 'Settings'. The main area is titled 'Assets provided by MuleSoft' and shows 'Showing results for REST APIs.' There are five cards displayed:

- REST API: Apian API (MuleSoft Organization) - 4 stars
- REST API: Training: American Flights API (MuleSoft Organization) - 5 stars
- REST API: PayPal Payments API (MuleSoft Organization) - 4 stars
- REST API: [unclear] - 5 stars
- REST API: [unclear] - 4 stars

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## Building integration applications and APIs with Design Center



## Design Center anatomy

The interface is divided into two main sections:

- Create a Mule Application**: A simple interface for creating Mule applications using Flow Designer. It features a visual editor with nodes and connections, and two buttons at the bottom: "+ Create new application" and "+ Import application".
- Create an API Specification**: An interface for designing, documenting, and testing API specifications using API Designer. It shows a sample API definition in JSON and two buttons: "+ Create API specification" and "+ Create fragment".

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## Design Center applications

Application	Purpose	In this course	Additional courses
Flow Designer	Web app for building integration apps that connect systems and consume APIs	2 WTs	<ul style="list-style-type: none"> <li>• Anypoint Platform: Flow Design</li> </ul>
API Designer	Web app for designing, documenting, and mocking APIs	Module 3	<ul style="list-style-type: none"> <li>• Anypoint Platform: API Design</li> </ul>
Anypoint Studio	Desktop IDE for implementing APIs and building integration applications	Module 4 In Fundamentals: Modules 6-13	

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## Both Flow Designer and Anypoint Studio create Mule applications



- **Mule applications** can be created
  - Visually using Flow Designer or Anypoint Studio
  - By writing code (primarily XML) using Anypoint Studio (or other tools)
- Under the hood, Mule applications are Java applications using Spring
- Mule applications are deployed to a **Mule runtime**
  - Mule runtimes can be MuleSoft-hosted in the cloud (CloudHub) or customer-hosted in the cloud or on-prem

## Mule is the runtime engine of Anypoint Platform

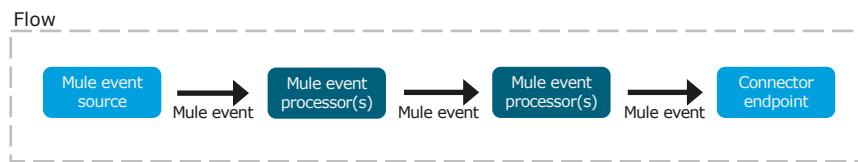


- **A lightweight Java-based enterprise service bus (ESB) and integration platform** that allows developers to connect apps together quickly and easily, enabling them to exchange data
  - Acts as a transit system for carrying data between apps (the Mule)
  - Can connect all systems including web services, JMS, JDBC, HTTP, & more
- **Decouples point-to-point integrations** by having all (non-Mule) apps talk to the bus (to a Mule runtime) instead of directly to each other
- **Can be deployed anywhere**, can integrate and orchestrate events in real time or in batch, and has universal connectivity
- **Enforces policies for API governance**

## Mule 4 applications and flows



- Mule applications receive events, process them, and route them to other endpoints
- **Mule applications** accept and process a **Mule event** through a series of **Mule event processors** plugged together in a **flow**



- An application can consist of
  - A single flow
  - Multiple flows
  - Multiple flows connected together

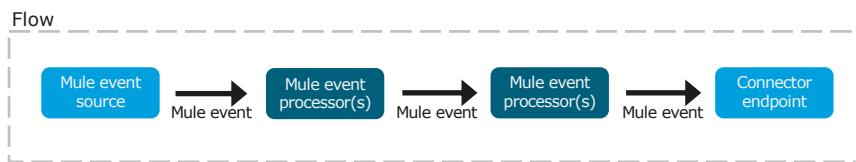
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## What's in a typical Mule 4 flow?



- A **Mule event source** that initiates the execution of the flow
  - Can be triggered by an event such as
    - A consumer request from a mobile device
    - A change to data in a database
    - The creation of a new customer ID in a SaaS application
- **Mule event processors** that transform, filter, enrich, and process the event and its message



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# Creating integration applications with Flow Designer



## Flow Designer anatomy

MuleSoft

The screenshot shows the MuleSoft Flow Designer interface with the following sections:

- Design Center:** Top navigation bar with Training, MM, Run, Deploy, Publish, and application status.
- Project explorer:** Left sidebar showing the Project (American Flights App) and its Flows (Get flights). Other sections include Reusable Configurations (American Flights API), Data Types (CloudHub HTTP), and Flights.
- Application status:** A box showing the application is running.
- Cards:** A section showing three cards: "HTTP Listener flights", "Training - Ameri... Get Flights", and "Transform DataWeave".
- Logs:** A section showing application logs with entries like "Starting Bean: listener".
- Bottom:** Footer with "All contents © MuleSoft Inc." and page number "34".

## Running Flow Designer applications



- When you create a Mule application project in Design Center
  - A new application is created and opened in Flow Designer
  - **The application is deployed to a MuleSoft-hosted Mule runtime (called a CloudHub worker) in the cloud and started**
- When you make changes to the application in Flow Designer and are ready to test it
  - You need to run the application again – which updates the application deployed to the worker



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## CloudHub workers



- **A worker is a dedicated instance of Mule that runs an app**
- Each worker
  - Runs in a separate container from every other application
  - Is deployed and monitored independently
  - Runs in a specific worker cloud in a region of the world
- Workers can have a different memory capacity and processing power
  - Apps can be scaled vertically by changing the worker size
  - Apps can be scaled horizontally by adding multiple workers
- There are workers in different environments
  - Design (for Flow Designer apps only), Sandbox, Production, ...
  - Apps can be promoted from one environment to another

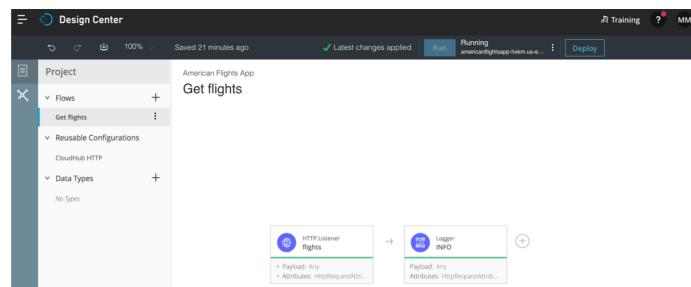
Worker size
0.1 vCores
0.1 vCores 500 MB memory
0.2 vCores 1 GB memory
1 vCore 1.5 GB memory
2 vCores 3.5 GB memory

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## Walkthrough 2-2: Create a Mule application with Flow Designer



- Create a new Mule application project in Design Center
- Create an HTTP trigger for a flow in the application
- Add a Logger component
- Run and test the application
- View application information in Runtime Manager



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# Accessing, querying, and transforming data



## Accessing and modifying Mule 4 event data



- ← The data that passes through flows in the app
- ← Metadata contained in the message header
- ← The core info of the message - the data the app processes
- ← Metadata for the Mule event - can be defined and referenced in the app processing the event

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## Transforming data with DataWeave



- DataWeave 2.0 is the expression language for Mule to access, query, and transform Mule 4 event data
- A JSON-like language that's built just for data query and transformation use cases
  - Full-featured and fully native framework
- Fully integrated with Flow Designer (and Anypoint Studio)
  - Graphical interface with payload-aware development

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## The Transform component

• Has input, output, and preview sections with both drag-and-drop and script editors

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## Walkthrough 2-3: Create an integration application with Flow Designer that consumes an API

• Examine Mule event data for calls to an application  
 • Use the Training: American Flights API in Anypoint Exchange to get all flights  
 • Transform data returned from an API to another format

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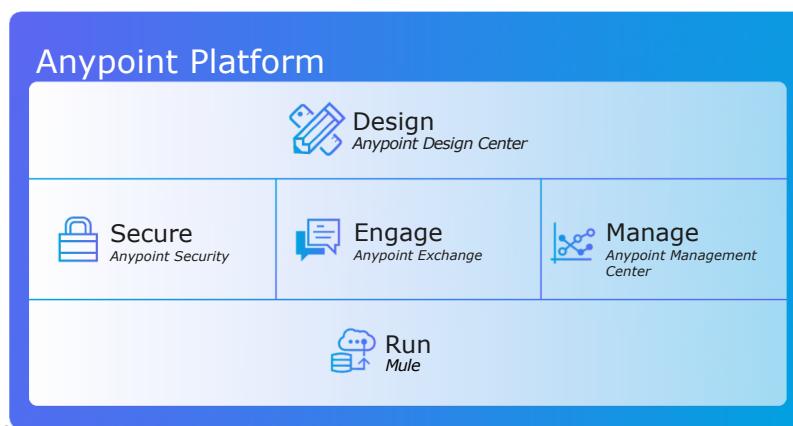
# Summary



## Summary: Anypoint Platform



- **Anypoint Platform** is a unified, hybrid integration platform that creates a seamless **application network** of apps, data, and devices with **API-led connectivity**



## Summary



- Use **Anypoint Exchange** as a central repository for assets so they can be discovered and reused
  - Populate it with everything you need to build your integration projects
- Use **Flow Designer** to build integration applications
  - These are Mule 4 applications that are deployed to a Mule runtime
  - To learn more, take the 1-day *Anypoint Platform: Flow Design* course
- **Mule runtimes** can be MuleSoft-hosted in the cloud (CloudHub) or customer-hosted in the cloud or on-prem
- **DataWeave 2.0** is the expression language for Mule to access, query, and transform Mule 4 event data

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