

WiFi  
SSID: DELTA\_GUEST  
Password: Delta123

# RED HAT AGILE INTEGRATION

*Enabling your API-Centric Strategy*

Instructor: Simon Green and Gerald Nunn

Date: Nov 26th, 2019





# AGILE INTEGRATION WORKSHOP FRAMEWORK

**Introduction to Agile Integration**

**Agile Integration Product Overview**

## **Developer Track**

OpenShift  
Red Hat Fuse  
3scale  
Apicurio  
Microcks

## **Integrator Track**

OpenShift  
Red Hat Fuse  
3scale  
Apicurio  
Microcks

# Workshop Agenda

8:30 - 9:00 am	Registration and breakfast
9:00 - 10:00 am	An introduction to agile integration Concepts, Use Cases, and Roadmap
10:00 - 11:00 am	“A day in the life” hands-on developer demo
11:00 - 11:15 am	Break
11:15 am - 12:00 pm	Lab—Contract-first API development Choose your own adventure: Track one: API design and management Track two: API development and security
12:00 - 1:00 pm	Lunch
1:00 - 3:30 pm	Lab cont.—Contract-first API development Choose your own adventure: Track one: API design and management Track two: API development and security
3:30 - 4:00 pm	Recap and summary





a·gil·i·ty

*noun*

/ə'jilədē/

ability to move quickly  
and easily

“**Agility**” is the most important  
business capability today.

# in·te·gra·tion

in(t)ə'grāSH(ə)n/

**Noun**

*“the process of bringing together the component sub-systems into one system”*



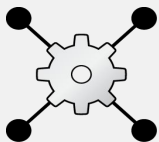
*“Integration” unlocks the true potential of modern enterprises*

# RED HAT AGILE INTEGRATION STRATEGY

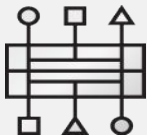
# ENTERPRISE IT IS UNDERGOING FUNDAMENTAL CHANGE

*To remain competitive, businesses need an integration platform capable of supporting current and next generation architectures.*

## Service Endpoints



Webservices



APIs

## Architecture

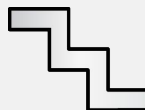


Monolith

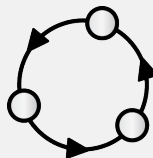


Microservices

## Development Process



Waterfall

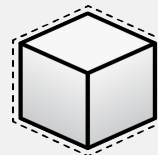


CI/CD

## Deployment

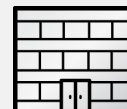


Server/VM



Container

## Infrastructure



Data Center



Cloud

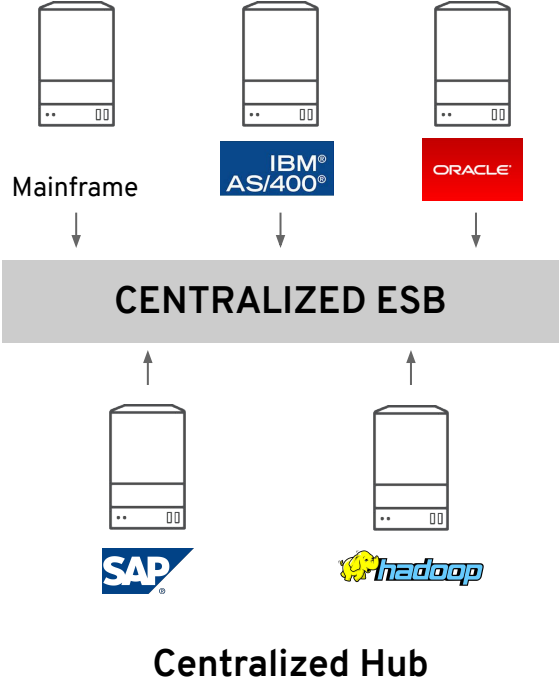


INSTEAD OF RISKING ANYTHING NEW,  
LET'S PLAY IT SAFE BY CONTINUING OUR  
SLOW DECLINE INTO OBSOLESCENCE.



TOM  
FISH  
BURNE

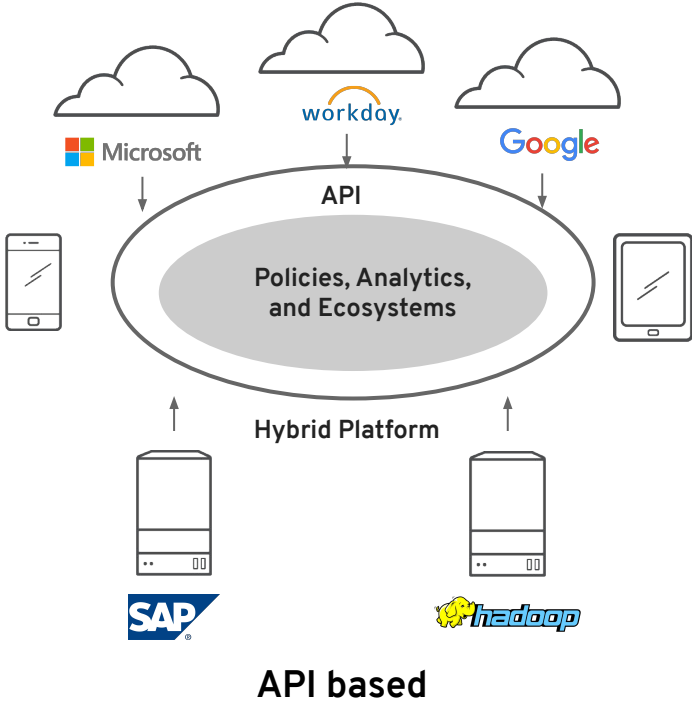
# ADOPTING API-CENTRIC INTEGRATION



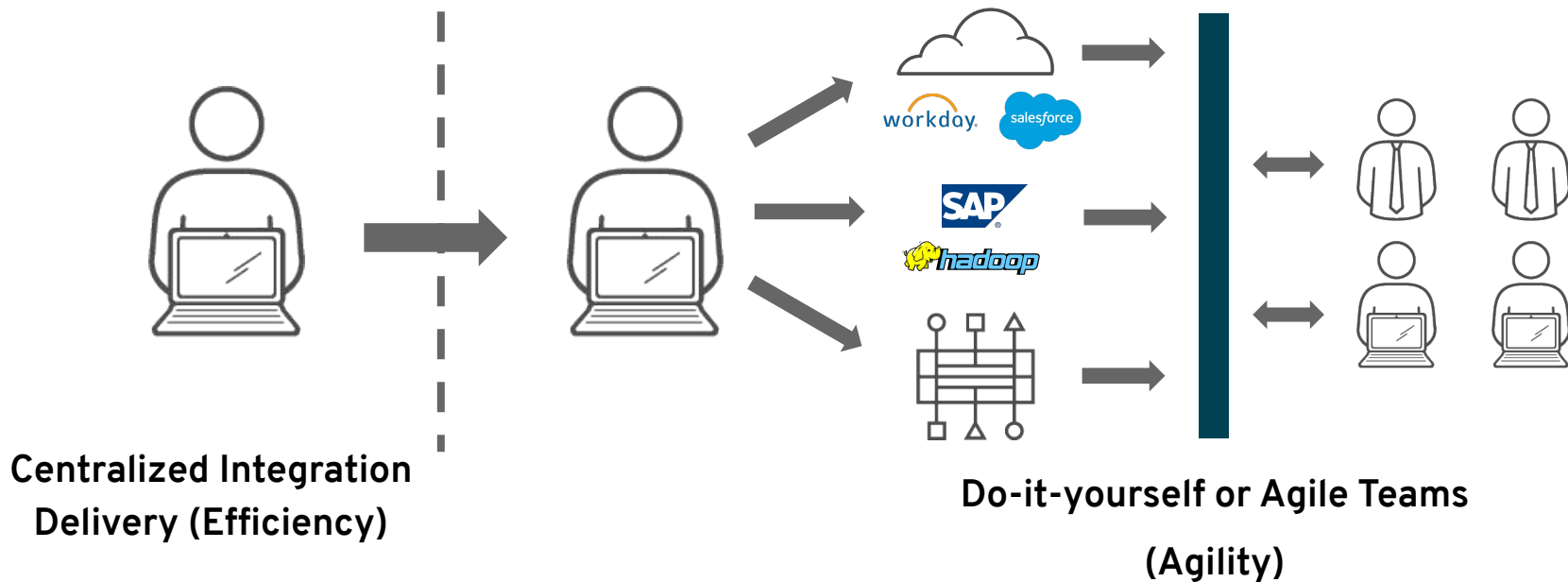
Decentralized



More Agility



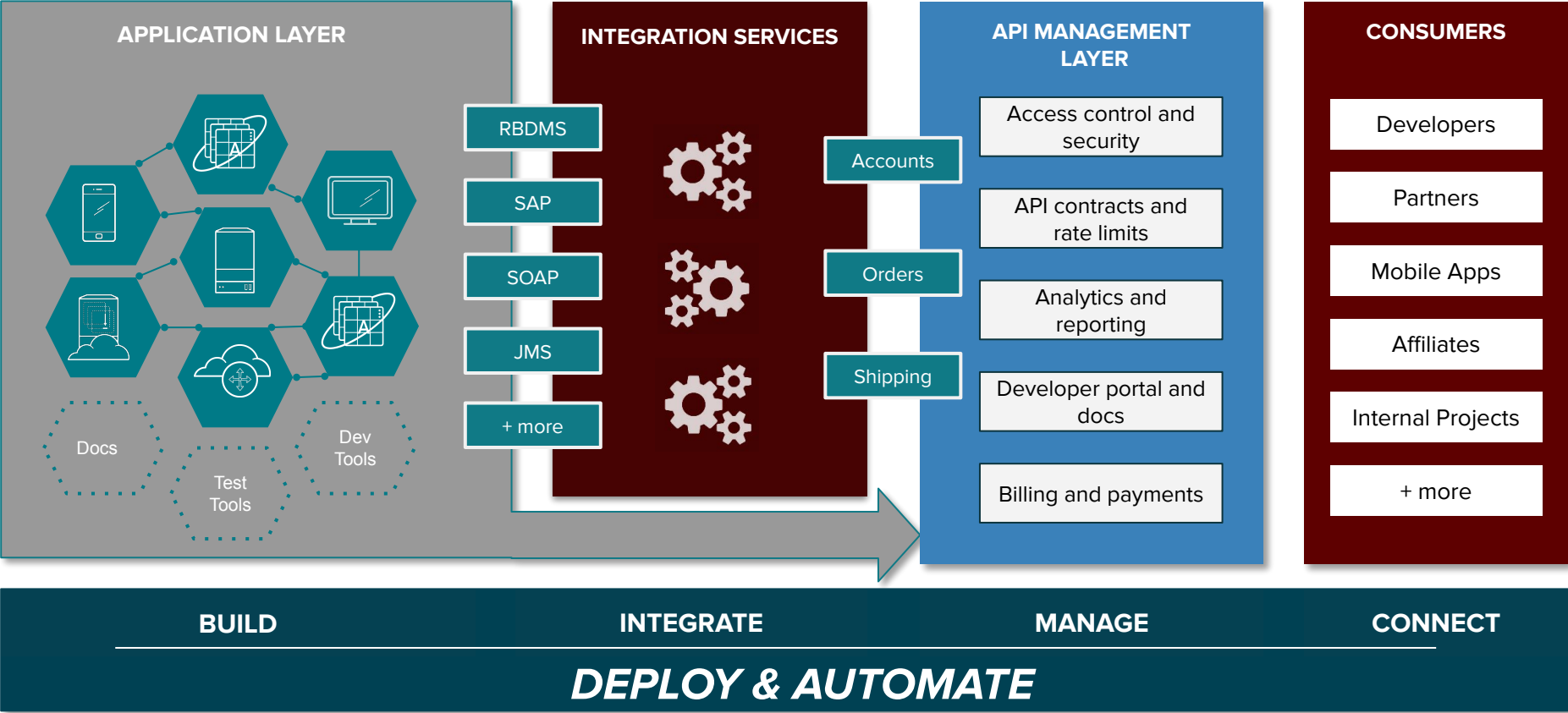
# INTEGRATION DELIVERY IS CHANGING



RESHAPING THE INTEGRATION DELIVERY MODEL: ENABLE DIY TEAMS

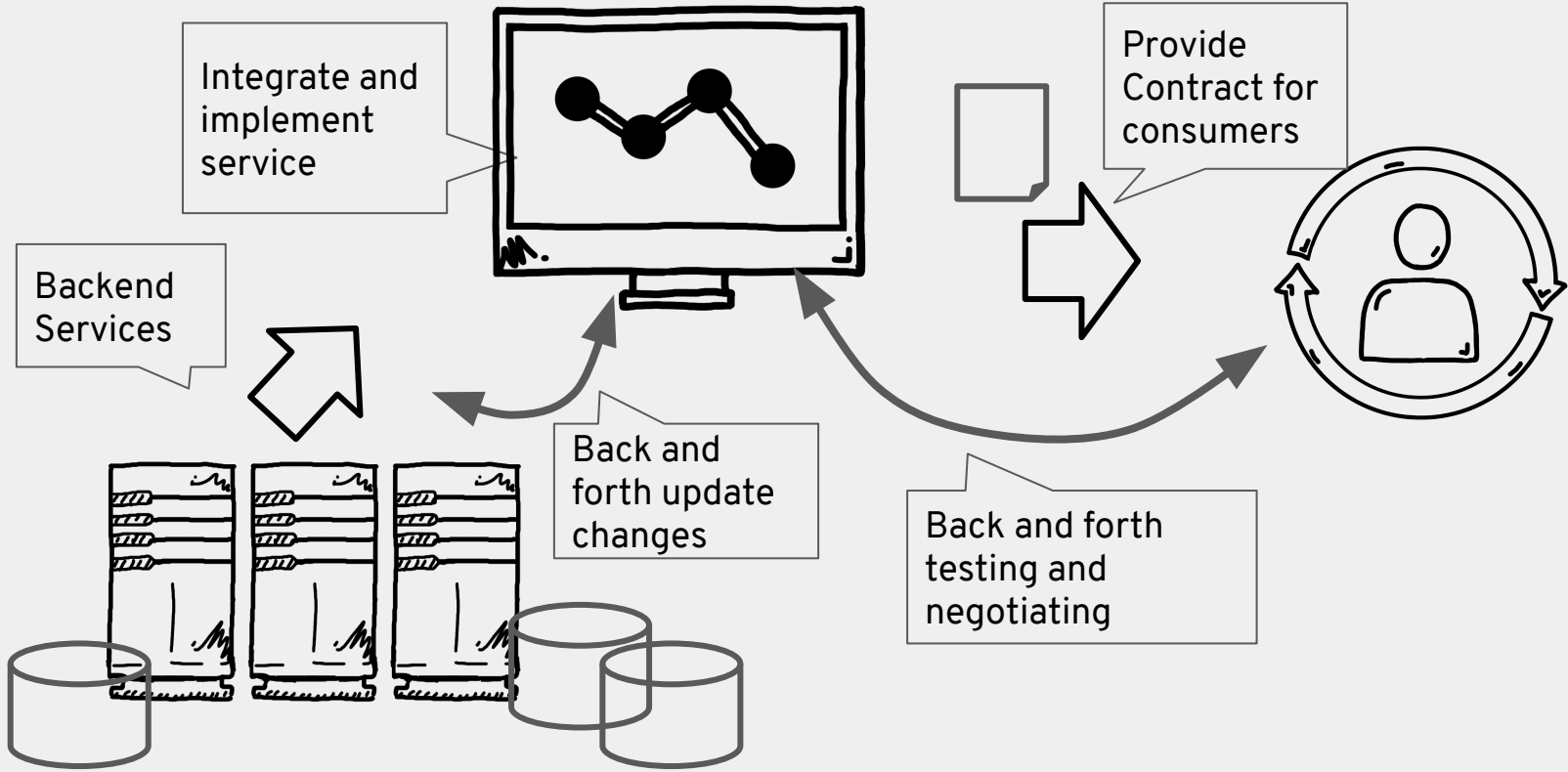


# ENABLING YOUR ENTERPRISE STRATEGY



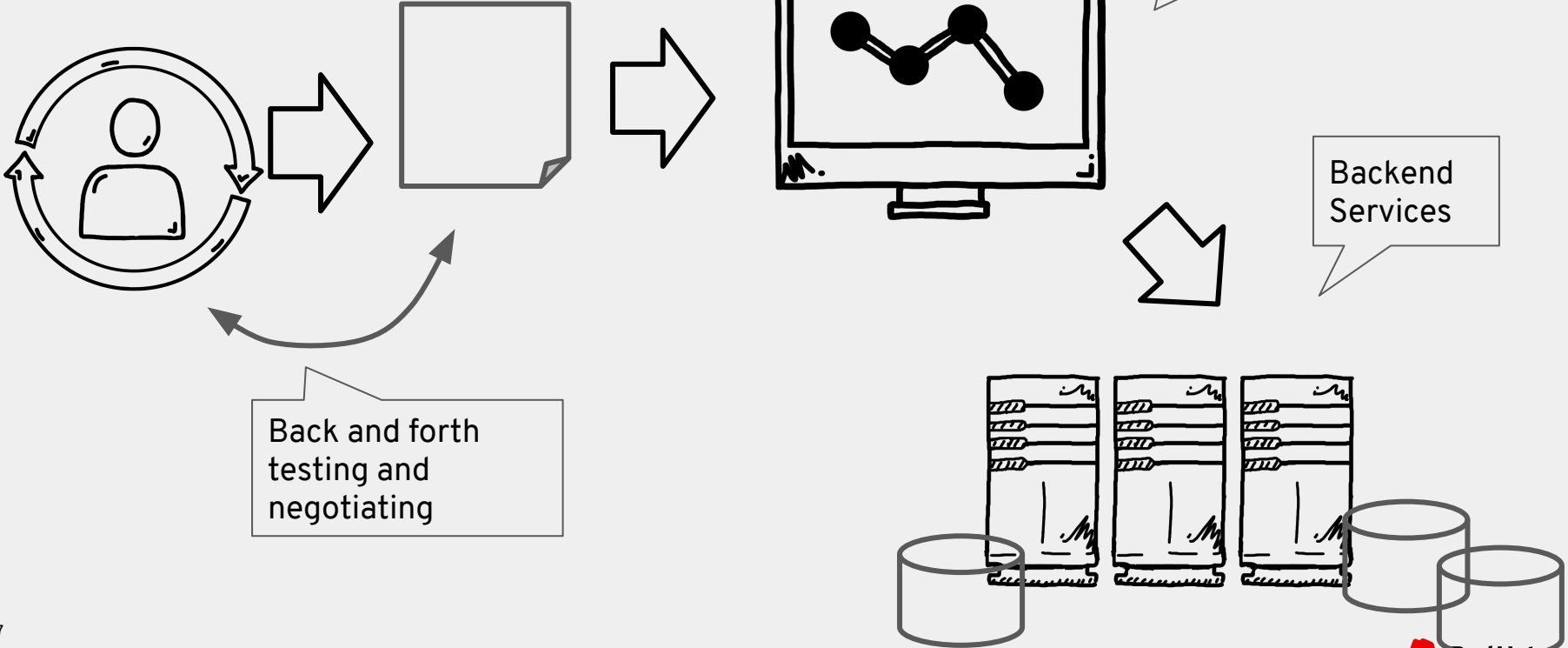
# CODE First

CODE FIRST



# API First

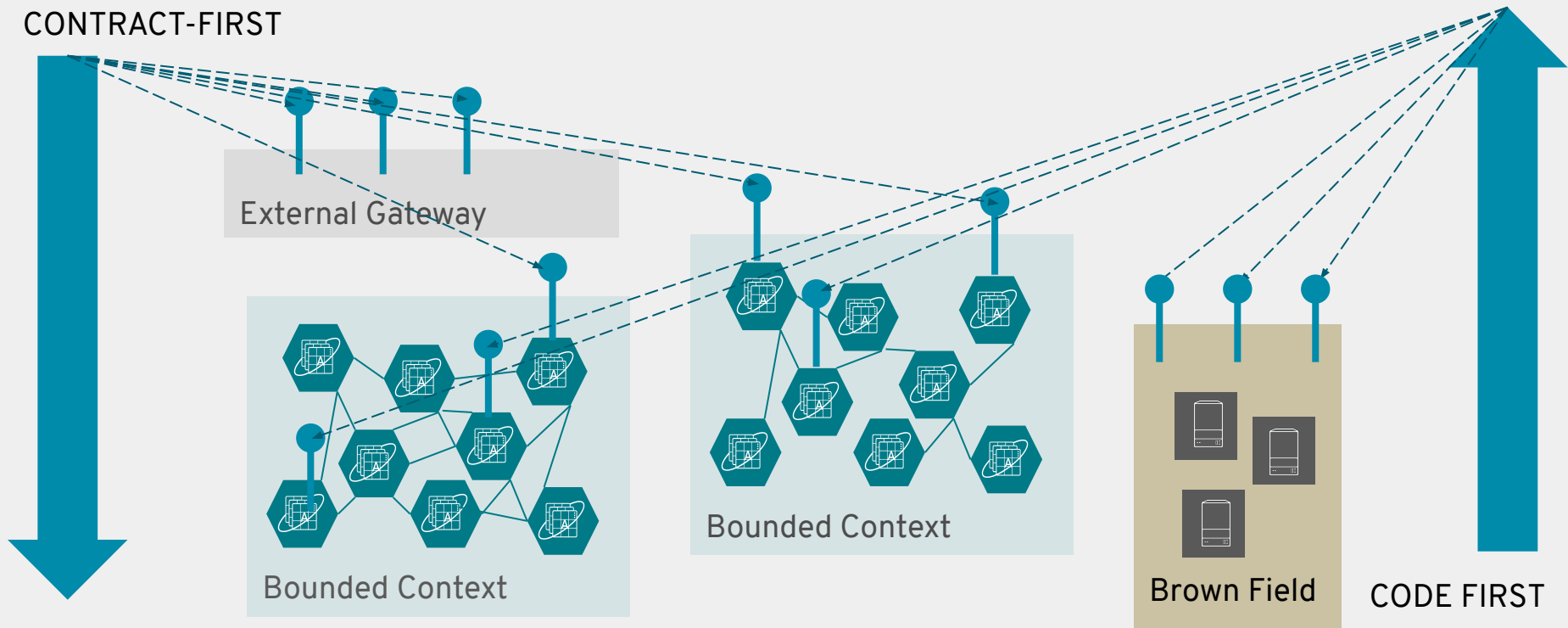
CONTRACT FIRST





# API First

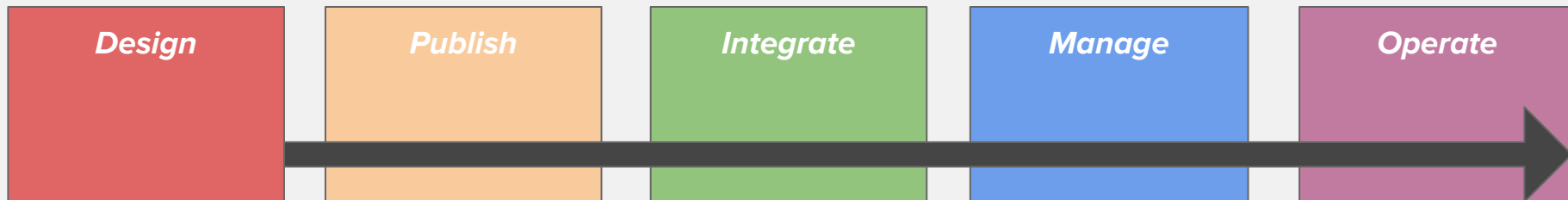
CONTRACT-FIRST



CODE FIRST

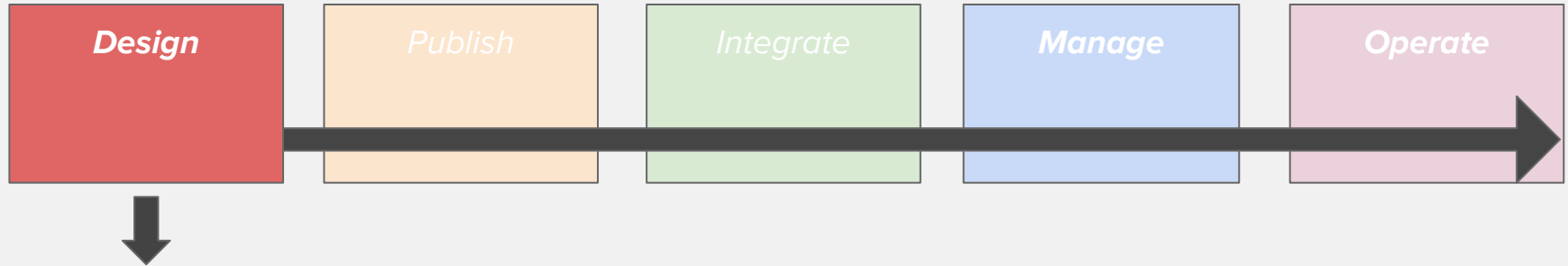
# THE API CENTRIC INTEGRATION

# API-CENTRIC LIFECYCLE PROCESS





# API-CENTRIC LIFECYCLE PROCESS



## Building APIs (Tooling)

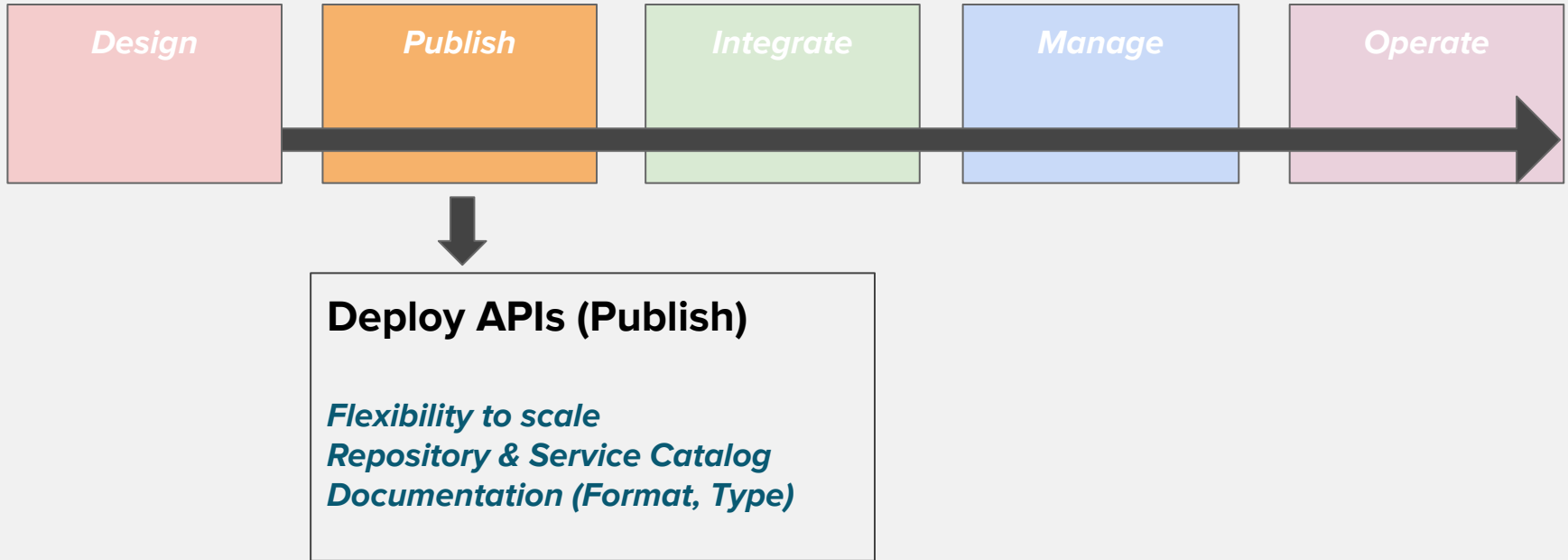
*Dev Platform*

*Dev Tools*

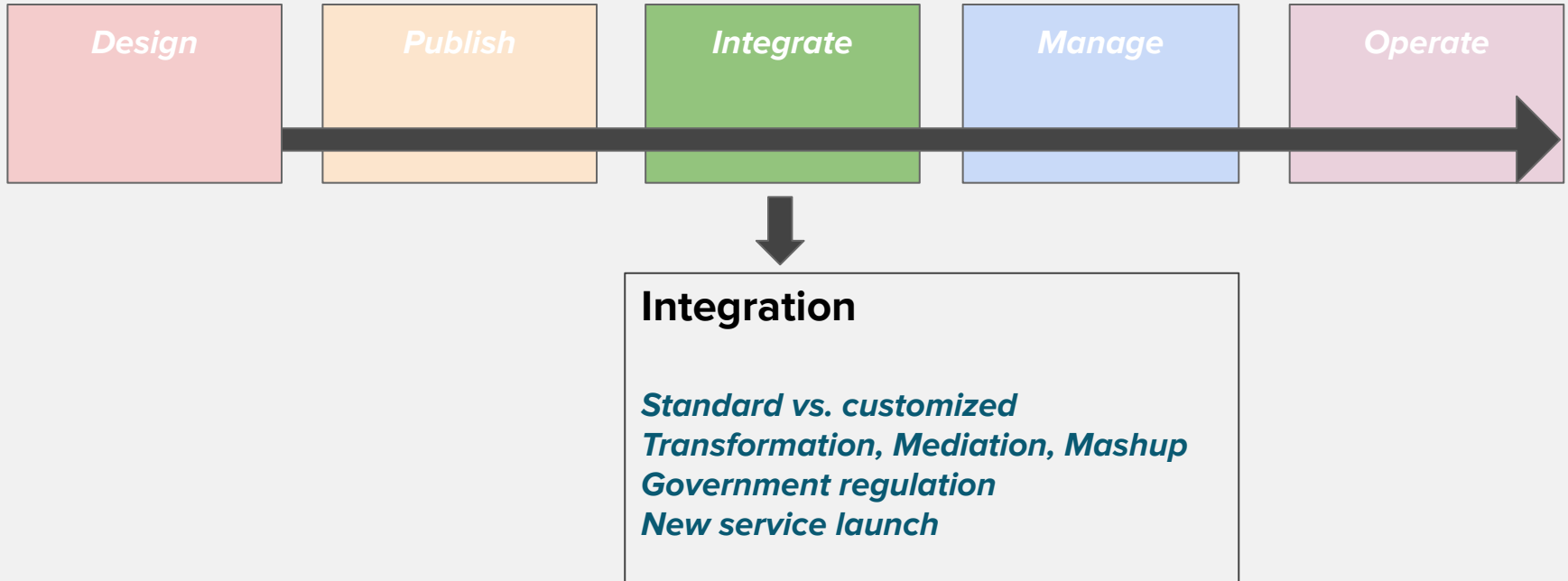
*Support*

*Flexible service and code reuse from backend*

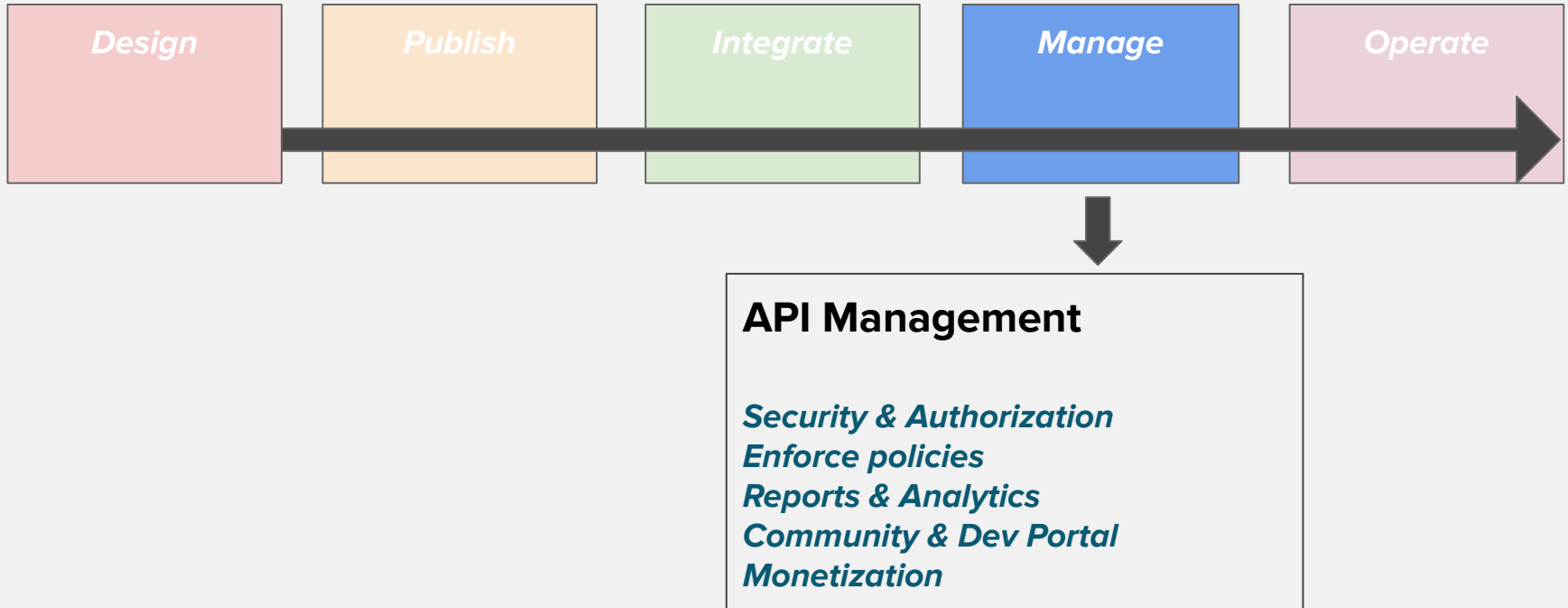
# API-CENTRIC LIFECYCLE PROCESS



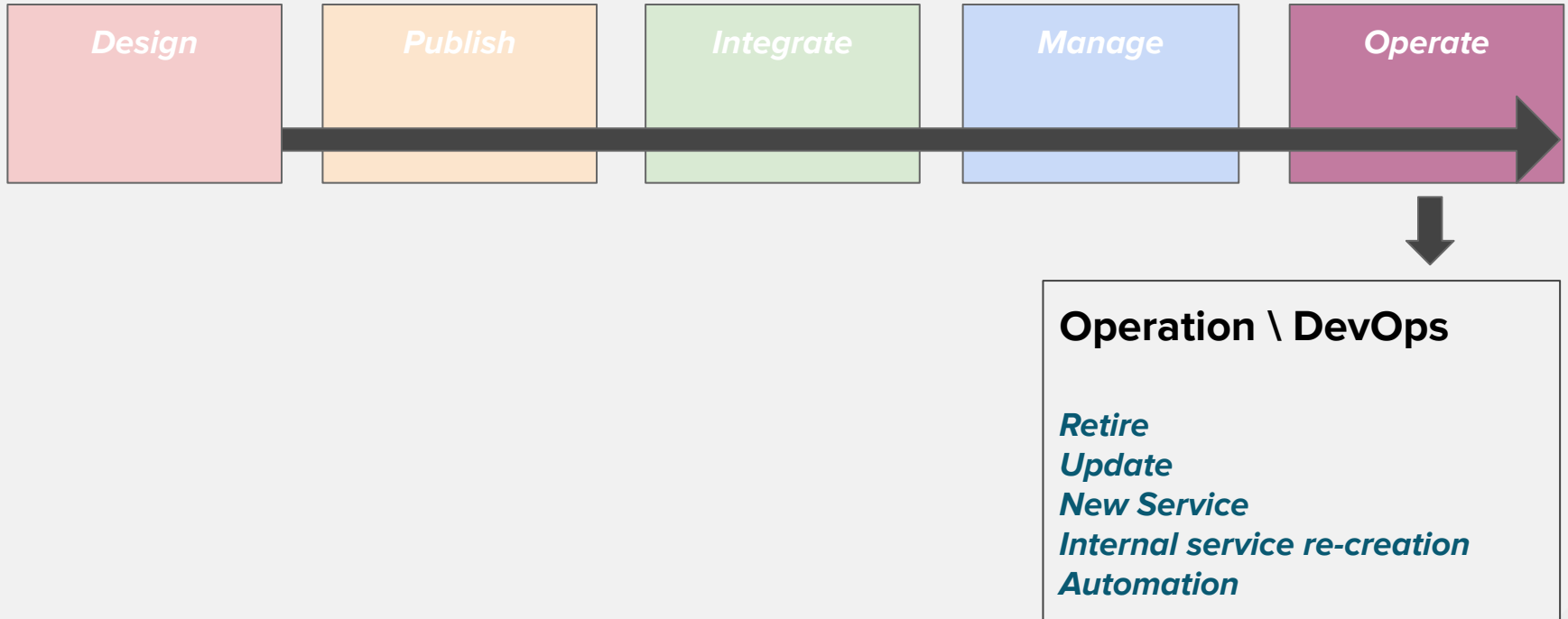
# API-CENTRIC LIFECYCLE PROCESS



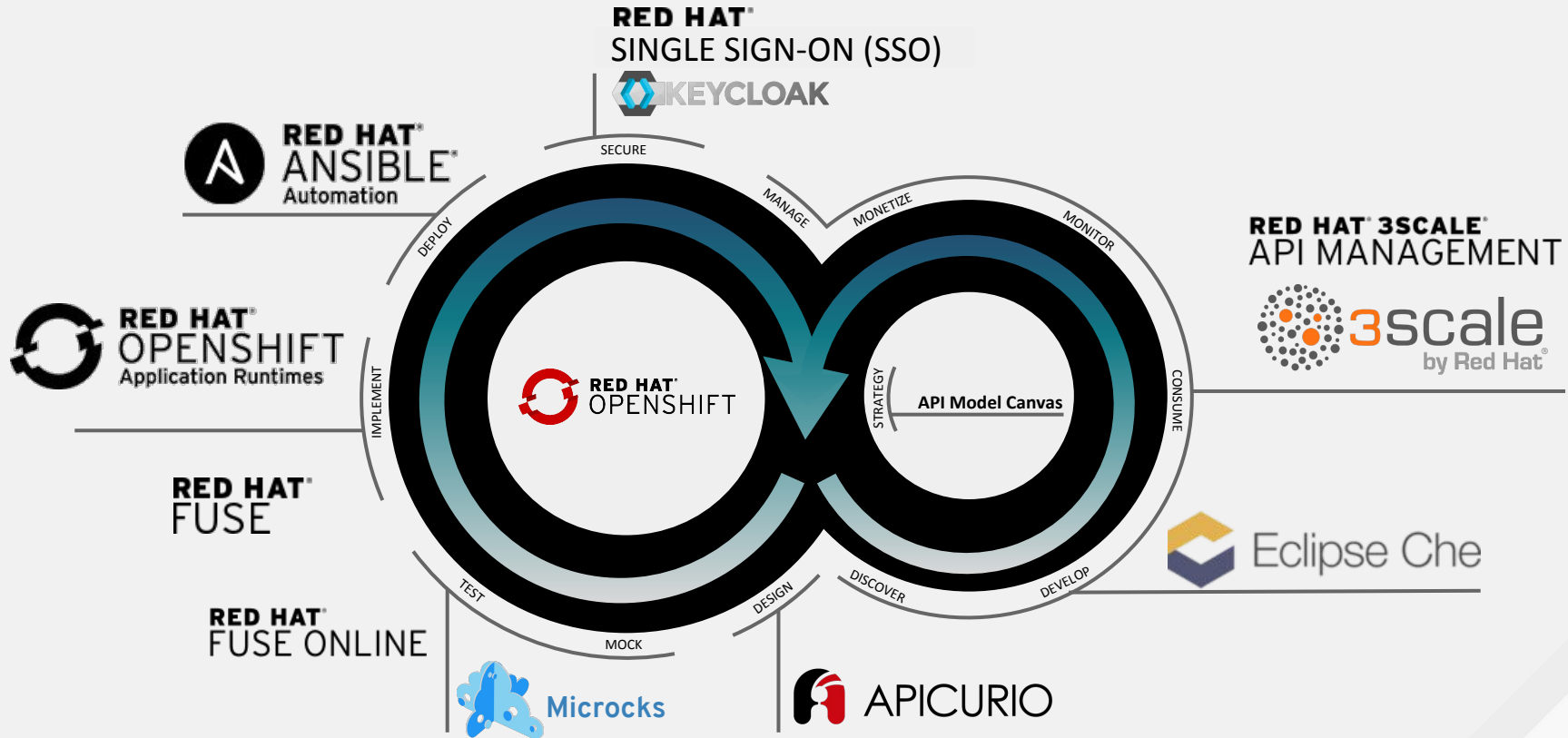
# API-CENTRIC LIFECYCLE PROCESS



# API-CENTRIC LIFECYCLE PROCESS



# RED HAT API LIFECYCLE MANAGEMENT



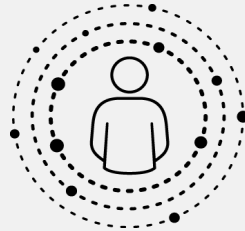


# NEXT GENERATION OF RED HAT AGILE INTEGRATION



## OpenShift

- Scale-out your Integration platform
- Developer-focused
- **Cloud-native integration**



## iPaaS

- Low / No-code UX
- 100% cloud-based
- Drag and Drop
- **Ad-hoc integration**

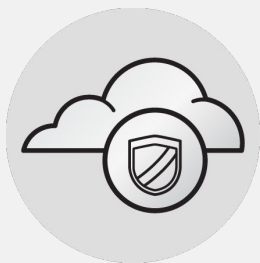


## Standalone

- Single Product Instance
- Developer-focused
- Where you need it
- **Classic integration**

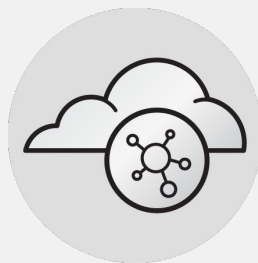
# HYBRID INTEGRATION PLATFORM

Single platform and toolchain across cloud environments provides consistency and flexibility for current and future deployment plans.



## PRIVATE CLOUD

*Deploy on-premise*



## PUBLIC CLOUD

*Deploy on public cloud provider*



## MANAGED CLOUD

*Deployed and managed by  
Red Hat*



# RED HAT AGILE INTEGRATION CONTENT

## WHAT IS AGILE INTEGRATION?

<https://middlewareblog.redhat.com/2017/09/13/what-is-agile-integration/>

## BLUEPRINT FOR AGILE INTEGRATION

<https://go.redhat.com/agile-integration-devops-containers-20180801>

## CONNECT APPS, APIs, DATA & DEVICES

<https://www.redhat.com/en/explore/agile-integration>

## DIGITAL INNOVATION THROUGH AGILE INTEGRATION

[https://www.redhat.com/en/resources/innovation-through-agile-integration?sc\\_cid=701f2000000RXY0AAO%3Fsc\\_cid%3D701f2000000RXXgAAO%3F208172rhb](https://www.redhat.com/en/resources/innovation-through-agile-integration?sc_cid=701f2000000RXY0AAO%3Fsc_cid%3D701f2000000RXXgAAO%3F208172rhb)

# AGILE INTEGRATION WORKSHOP

*Developer & Integrator Tracks*




# INTERNATIONAL INC.

International Inc Financial Services Wins Award

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redhat.

HOME **LOCATIONS** CATEGORY MENU ITEM DEVELOPERS



## International Inc

We've got all you need and so much more!


2 MILLION SUBSIDIARIES  GOVERNMENTAL BODIES  HEALTH CARE CENTERS 

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HOME **LOCATIONS** CATEGORY MENU ITEM DEVELOPERS

### OFFICE TYPE

- Headquarters**
- Regional Office
- Local Office
- ATMs



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Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam congue lectus diam, sit amet cursus massa efficitur sed. Pellentesque efficitur dolor tellus, sit amet vestibulum leo facilisis ac. Nullam vitae fringilla neque. Aliquam erat nunc, vestibulum at suscipit quis, consequat nec lorem. Phasellus porttitor mollis fermentum. Nulla eu eros libero. Donec semper, urna a rhoncus rutrum, nulla neque dignissim neque, nec congue tortor enim id mauris. Nulla euismod dolor lacus, porttitor imperdiet elit ornare nec. In finibus non justo id viverra.



# Hybrid Development: Two Key Personas



## Citizen Integrator

- Tech / Non-Tech
- Low code approach
- High productivity
- Tactical Use Case
- Business focus



## Developer



- Definitely Tech
- Coder (Java, C#, etc.)
- IDE Tooling
- Dev/Ops
- Foundational focus

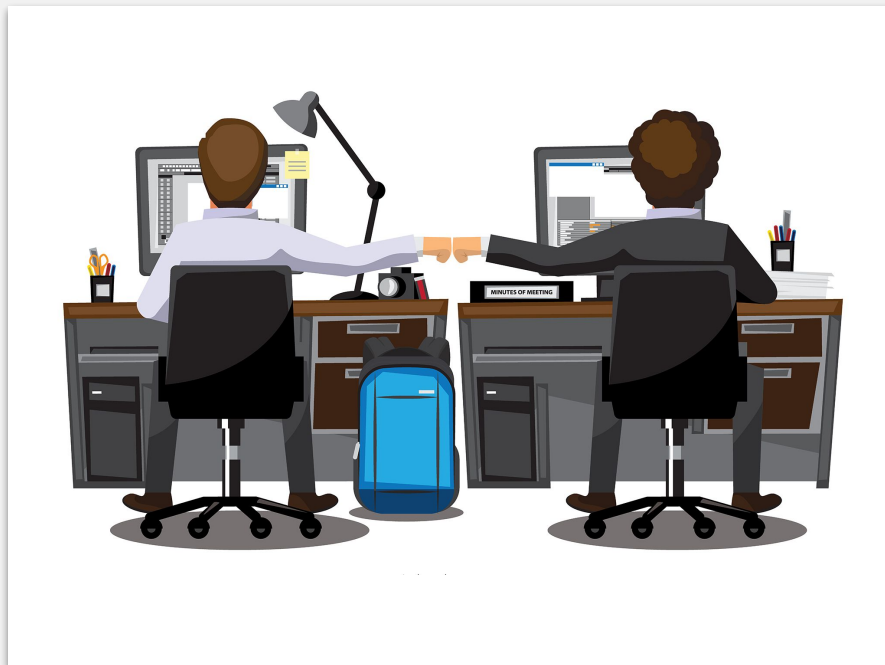


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- IDE Tooling
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Code-free API design and management track

API development and security track

Choose your own adventure

# Agile Integration with APIs and Containers Workshop



redhat.

## Lab One Design

Design APIs with Apicurio

## Lab Five Security

Add security with Red Hat  
SSO

## Lab Two Mocking

Mock and test with Microcks

## Lab Four Managing

Manage API using 3Scale  
API Management

## Lab Three Implementation

Develop cloud-native solution  
with Red Hat Fuse

# Citizen Integrator Track



In this Lab you will learn how to:

**Design** a simple API using API design tools,

**Test** your contract with Microcks,

**Implement** the API in Fuse Online,

**Manage** with 3scale, and finally

**Deploy** your API to the OpenShift Container Management platform.

# DESIGN: APICURIO

## API Contract Design



(API contract specification)



OpenAPI  
contract in Git

» **Purpose:** create an API contract covering technical and syntactic definition of a future API. Contract provides a clear description of API methods and custom resources that are manipulated.

» **Tooling:** Apicurio allows you to design an API contract the easy way ! Provides an online WYSIWYG editor with compliance check on OpenAPI Spec.

» **Output:** Specific OpenAPI contract saved into a Git repository (online version is using GitHub).

» **Enable:** API Designer to distribute clear and concise specification of API to development and consumers.

# TEST: MICROCKS

## Microservices Mocks & Testing

**Multi-type of Services / API support**

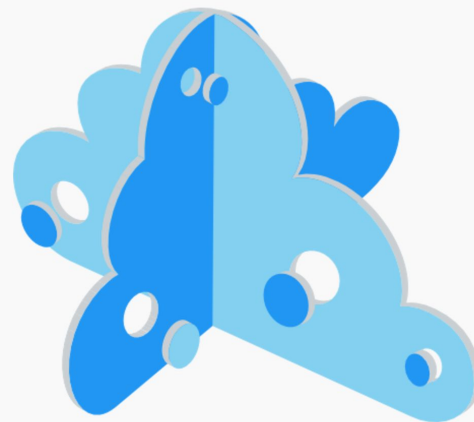
**Usable by functional experts, comprehensive UI**

**Mock support and ability to deploy at scale**

**Ability to use specifications for running tests**

**Misc.**

The communication and runtime tool for your **Micro-services Mocks**



<http://microcks.github.io>

# IMPLEMENT: FUSE ONLINE

LOW-CODE PLATFORM FOR CLOUD-NATIVE INTEGRATION, HOSTED ON OPENSHIFT

Choose a connector

Configure

Map

The screenshot displays the 'Configure Mapper' interface in Fuse Online. At the top, a breadcrumb trail shows the path: « Home » Integrations » New Integration » Configure Mapper. The interface is divided into three main sections: 'Select Connector' (step 1), 'Configure Connection' (step 2), and 'Name Connection' (step 3). Below the steps, there are two search filters: 'Name' with a dropdown and 'Filter by Name...'. The main area contains a grid of connector cards, each with an icon, a name, and a brief description:

- Dropbox**: File upload and download from Dropbox
- FTP**: Upload and download files using File Transfer Prot...
- HTTP**: Http Connector
- HTTPS**: Https Connector
- MQTT**: Publish and Subscribe Messages to a MQTT broker.
- Salesforce**: Cloud-based Customer Relationship Management
- SFTP**: Upload and download files using Secure File Transf...
- Slack**: Send messages to Slack

At the bottom of the interface, there are two data field preview boxes: one for 'email' with '123 fields' and another for 'LastViewedDate' with '80 fields'. An 'Add Transformation' button is visible in the bottom right corner.



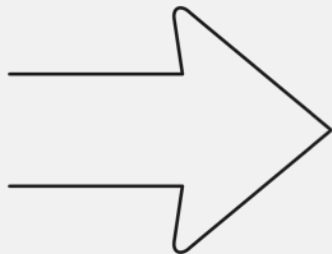
# MANAGE: 3SCALE API MANAGEMENT

ENABLING AN API-FIRST APPROACH

API visibility & control  
enterprise wide

Security, rate limits,  
analytics, API keys,  
developer portal

Manage internal and  
external APIs



Transform internal IT into “API-first”  
approach

Empower teams to deliver their own  
APIs

Provide global visibility and a uniform  
approach

# SECURE: RED HAT SSO

- Based on Apache **Keycloak**
- Open source access and identity manager
- Identity Brokering
- User Federation with LDAP based directory services
- Client libraries for JavaEE, Spring, NodeJS, JS + more



## Single-Sign On

Login once to multiple applications



## Standard Protocols

OpenID Connect, OAuth 2.0 and SAML 2.0



## Centralized Management

For admins and users



## Adapters

Secure applications and services easily



## LDAP and Active Directory

Connect to existing user directories



## Social Login

Easily enable social login



## Identity Brokering

OpenID Connect or SAML 2.0 IdPs



## High Performance

Lightweight, fast and scalable



## Clustering

For scalability and availability



## Themes

Customize look and feel



## Extensible

Customize through code



## Password Policies

Customize password policies

# Developer Track



In this Lab you will learn how to:

**Review** an API contract,

**Test** the API,

**Implement** the API in Fuse,

**Manage** the API using the 3scale Developer Portal and finally,

**Secure** the API with Red Hat SSO

# REVIEW: APICURIO

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(API contract specification)



OpenAPI contract in Git

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**Mock support and ability to deploy at scale**

**Ability to use specifications for running tests**

**Misc.**

The communication and runtime tool for your **Micro-services Mocks**



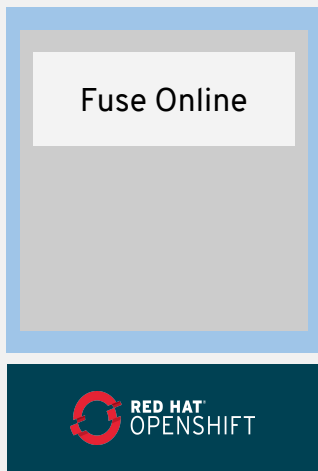
<http://microcks.github.io>

# IMPLEMENT: RED HAT FUSE

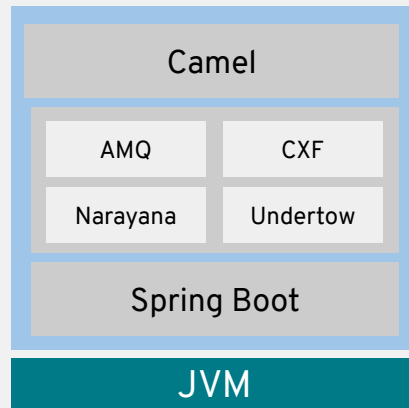
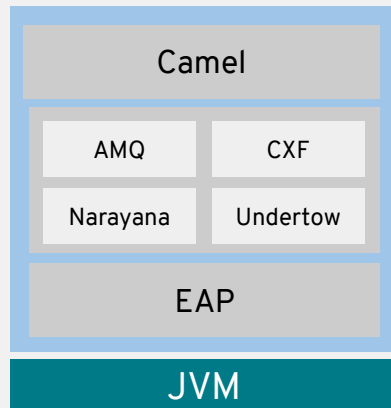
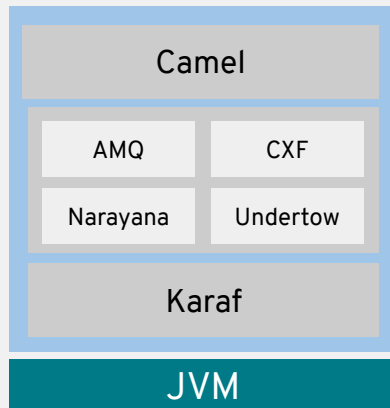
Standardized Integration Platform



For developers



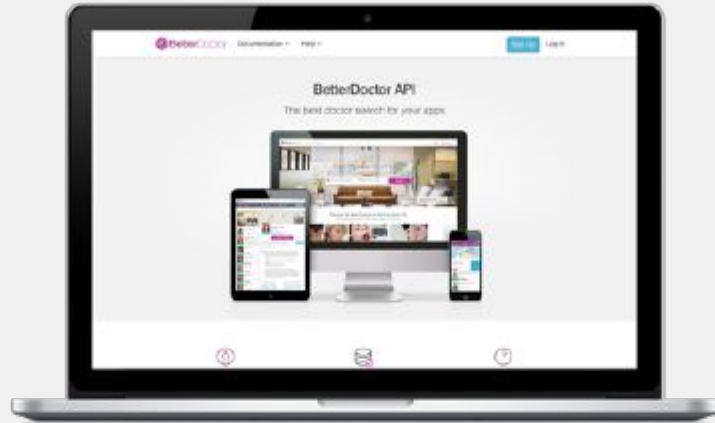
For integrators





# MANAGE: 3SCALE API MANAGEMENT

Your brand. Your developer experience. Your user interface



Interactive API  
Documentation

# SECURE: RED HAT 3SCALE & SSO

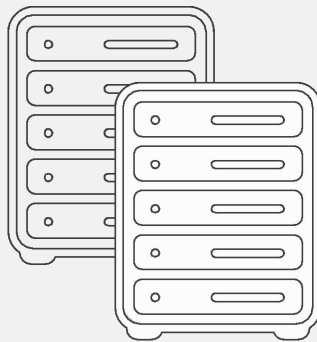
Authenticate and restrict access to your APIs. Protect backend services.

## Multiple authentication mechanisms

- API Key

- App ID / App Key

- OpenID Connect



Authenticate traffic  
Restrict by policy  
Drop unwelcome calls  
Protect backend services  
Generate overage alerts  
Impose rate limits

# AGILE INTEGRATION DEMO

# AGILE INTEGRATION LINK

<https://red.ht/agileintegration-winnipeg>

Activation Key: openshift

# Common Issues

1. Disable VPN if having connectivity issues
2. Disable CORS:
  - a. `chrome.exe --user-data-dir="C://Chrome dev session" --disable-web-security`
3. When running spring-boot locally using `mvn spring-boot:run` it fails with OOM
  - a. Increase memory: `mvn spring-boot:run -Drun.jvmArguments="-Xmx384m"`
4. When using the 3scale Developer Portal in Chrome an “Oh Snap!” error occurs
  - a. Close the preview side pane first

