



Fuse 7: L'integrazione ai tempi del container

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AGENDA

- Agile Integration
- Red Hat Fuse
- Fuse Online (syndesis)
- Demo



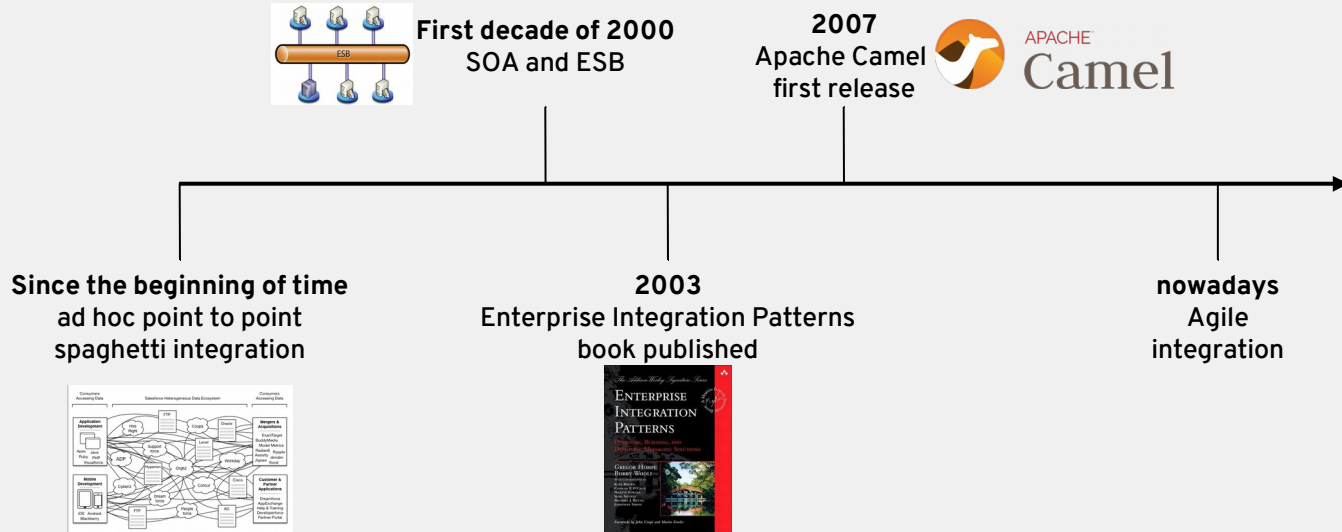
AGILE INTEGRATION



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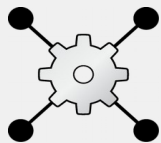
SHORT HISTORY OF INTEGRATION



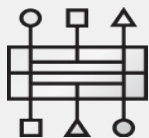
ENTERPRISE IT IS UNDERGOING FUNDAMENTAL CHANGE

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

Service Endpoints



Webservices



APIs

Architecture



Monolith

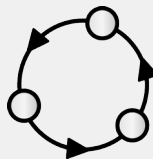


Microservices

Development Process



Waterfall

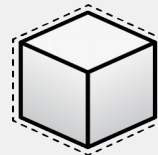


CI/CD

Deployment

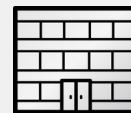


Server/VM



Container

Infrastructure



Data Center

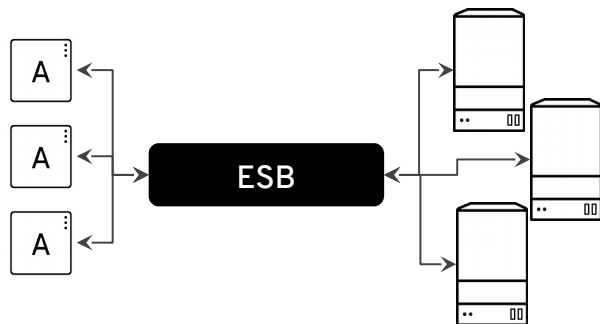


Cloud



AGILE INTEGRATION: DEFINING A NEW METHOD FOR INTEGRATION IN THE HYBRID CLOUD

Traditional integration incompatible with hybrid cloud development



Centralize ♦ Leverage ♦ Simplify

Internal teams ♦ Maximize use of resources

Modern architectures and app development requires more agile integration



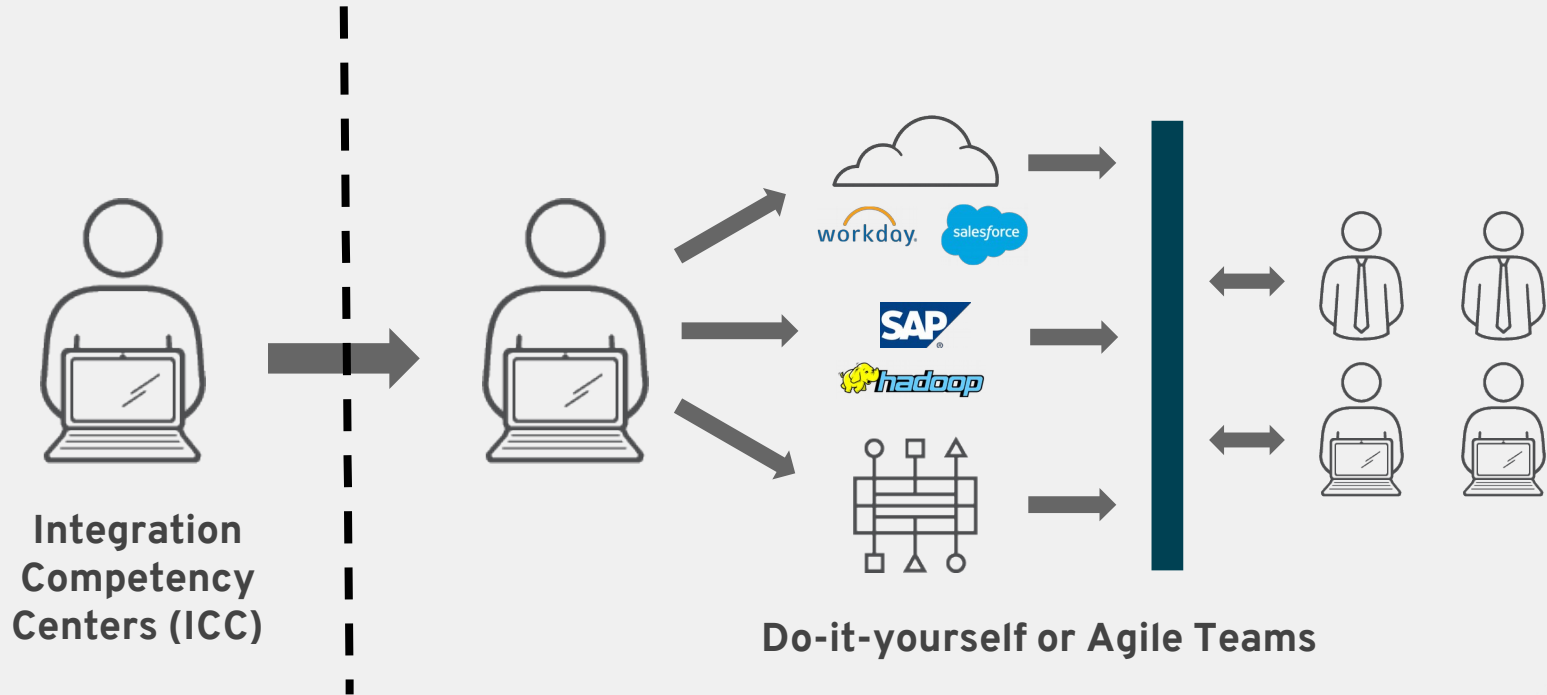
Distributed Integration ♦ APIs ♦ Scalability

Agile Teams ♦ Cloud App Dev ♦ DevOps

USE INTEGRATION WHERE NEEDED,
RATHER THAN CENTRALIZING



ADAPTING TO ORGANIZATIONAL CHANGE



API-CENTRIC AGILE INTEGRATION

KEY FOUNDATIONAL CAPABILITIES NEEDED BY TODAY'S ENTERPRISES

DISTRIBUTED INTEGRATION

LIGHTWEIGHT
PATTERN BASED
EVENT-ORIENTED
COMMUNITY-SOURCED

Flexibility

CONTAINERS

CLOUD-NATIVE SOLUTIONS
LEAN ARTIFACTS,
INDIVIDUALLY
DEPLOYABLE
CONTAINER-BASED

Scalability

APIs

WELL-DEFINED,
REUSABLE, & WELL-
MANAGED
ENDPOINTS
ECOSYSTEM LEVERAGE

Re-Usability

Tools & processes



API-CENTRIC AGILE INTEGRATION

KEY FOUNDATIONAL CAPABILITIES NEEDED BY TODAY'S ENTERPRISES

DISTRIBUTED INTEGRATION

LIGHTWEIGHT
PATTERN BASED
EVENT-ORIENTED
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RED HAT®
FUSE

RED HAT®
AMQ

CONTAINERS

CLOUD-NATIVE SOLUTIONS

LEAN ARTIFACTS,
INDIVIDUALLY
DEPLOYABLE

CONTAINER-BASED
SCALING & HIGH
AVAILABILITY



RED HAT
OPENSIFT

APIs

WELL-DEFINED,
REUSABLE, & WELL-
MANAGED
ENDPOINTS

ECOSYSTEM LEVERAGE

RED HAT® 3SCALE®
API MANAGEMENT

Tools & processes



#RedHatOSD



RED HAT FUSE



#RedHatOSD



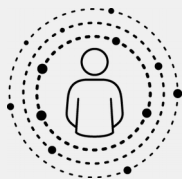
WHAT IS FUSE 7?



Fuse Standalone



Fuse on Openshift



Fuse Online



APACHE[®]

Camel

- More than 10 years of experience
- One of the most active Apache projects
- Integration easier
- EIPs
- >200 components





FUSE STANDALONE

Spring-Boot

Apache Camel

Spring Boot

Karaf

Apache Camel

Karaf

EAP

Wildfly Camel

EAP

Camel Route Java DSL

```
from("kafka:topic")
    .to("http://todoapp/api")
    .to("telegram:mybot?chatId=1234");
```

Camel Route xml DSL

```
<from uri="kafka:topic" />
  <to uri="http://todoapp/api" />
  <to uri="telegram:mybot?chatId=1234" />
```





NOTABLE COMPONENTS AND FEATURES

- **Camel 2.21**
- **Karaf 4.2**
- **Spring Boot 1.5.x**
- **EAP 7.1**
- **Narayana (aligned to EAP 7.1)**
- **Undertow (aligned to EAP 7.1)**
- **AMQ 6.3 and 7.0 certification**
- **CXF 3.1 (aligned to EAP 7.1)**
- **Hawtio 2**
- **Java 8**
- **Features Parity in EAP**





FUSE ON OPENS SHIFT

- Support to run all standalone runtimes on Openshift:
 - Scalable
 - High available
 - Certified container images

- Set of components available to simply work with openshift:
 - Deploy -> **Fabric8-maven-plugin, Kubernetes-client**
 - Integration Testing -> **Arquillian Cube Kubernetes**
 - Container Health Checks -> **Apache Camel Health Checks Framework**
 - Singleton Camel route -> **Master Component and Clustered Routes**





EASIEST WAY TO TRY FUSE ON OPENSHIFT

<https://developers.redhat.com/launch>

LAUNCH

Continuous application delivery,
built and deployed on OpenShift.

[LAUNCH YOUR PROJECT](#)

Supported Runtimes



Thorntail offers an innovative approach to packaging and running Java EE applications by packaging them with just enough of the server runtime to "java -jar" your application.

[Learn more](#)



Eclipse Vert.x is a tool-kit for building reactive applications on the JVM.

[Learn more](#)

Spring Boot

Spring Boot makes it easy to create stand-alone, production-grade Spring based Applications that you can "just run".

[Learn more](#)



Red Hat® Fuse is a lightweight, flexible integration platform that uses Apache Camel at its core.



Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient.



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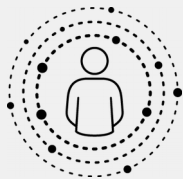




NEW CAMEL COMPONENTS

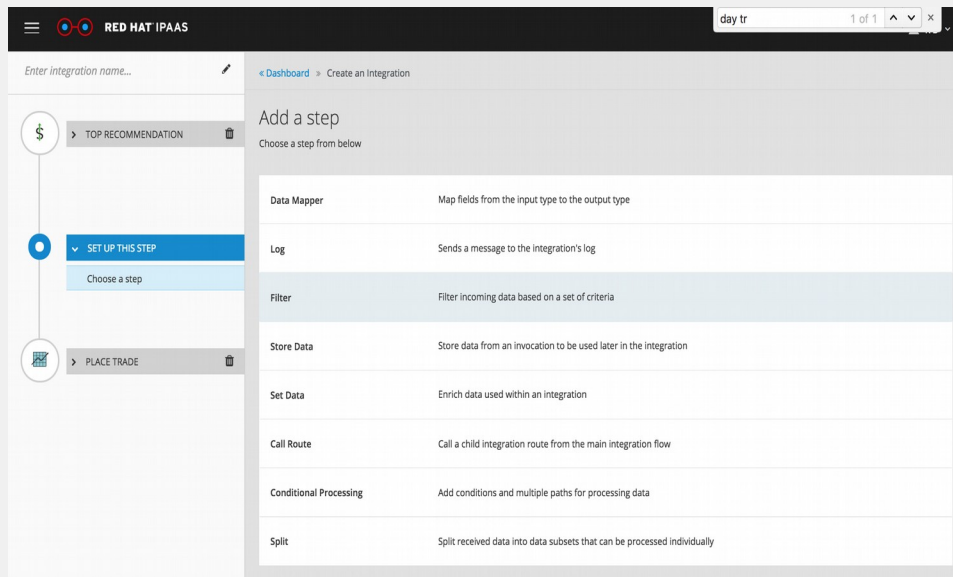
- camel-asn1
- camel-atomix
- camel-azure
- camel-caffeine
- camel-couchbase
- camel-crypto-cms
- camel-digitalocean
- camel-drill
- camel-elasticsearch5
- camel-google-bigquery
- camel-google-pubsub
- camel-grpc
- camel-headersmap
- camel-iec60870
- camel-json-fastjson
- camel-milo
- camel-mongodb3
- camel-olingo4
- camel-openstack
- camel-opentracing
- camel-pubnub
- camel-reactive-streams
- camel-reactor
- camel-rest-swagger
- camel-sjms2
- camel-spring-cloud
- camel-spring-cloud-netflix
- camel-thrift
- camel-tika
- camel-twilio
- camel-zendesk
- camel-zookeeper-master
- camel-yql
- camel-aws
- camel-elasticsearch-rest
- camel-xchange
- camel-wordpress





FUSE ONLINE

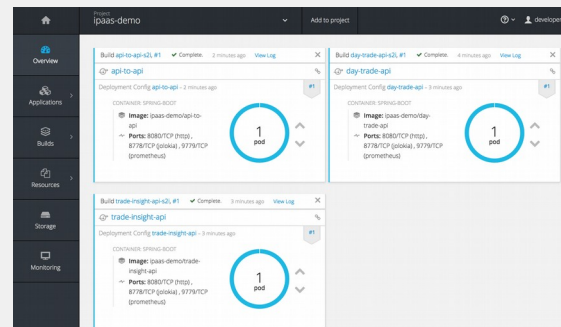
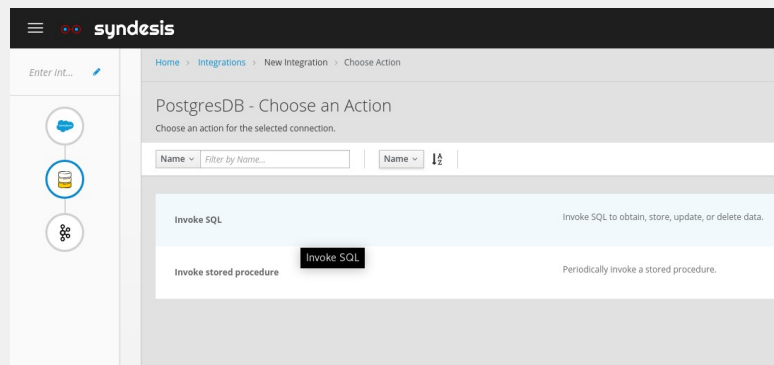
- A Integration Platform as a Service (iPaaS)
- Based on the Syndesis upstream project <https://github.com/syndesisio/syndesis>
- The engine is always Apache Camel
- Main concepts:
 - Connection
 - Integration
- The plan is supporting the biggest part of the Camel components as connectors on this platform



FUSE ONLINE (SYNDESIS)

FUSE ONLINE

- A Integration Platform as a Service (**iPaaS**)
- No Code, Web based UI for **designing integrations**
- Supports multiple **connectors** for several cloud services
- Allows connection of enterprise systems through **extensions**
- The UI designer produces **Fuse on Openshift** integrations



CONNECTORS

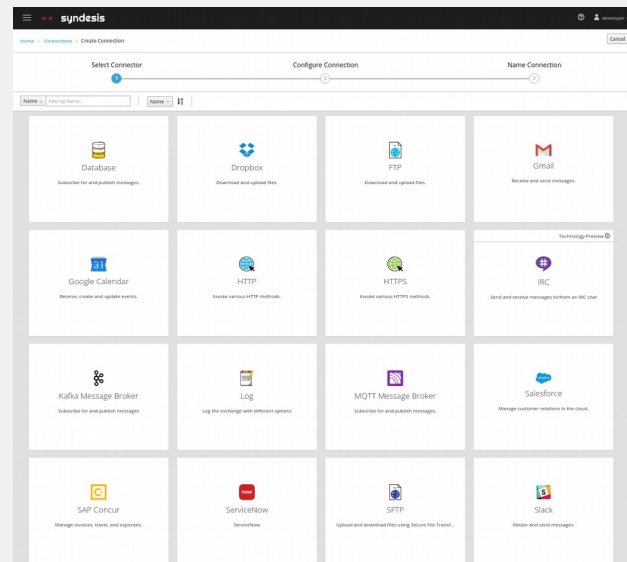
The list of connectors include the following OOB:

ActiveMQ, AMQP, S3, Concur, Dropbox, FTP, Gmail, Google Calendar, HTTP, IRC, Kafka, Log, MQTT, ODATA, Salesforce, ServiceNow, SFTP, Slack, SQL, Telegram, Timer, Twitter, Webhook

Plus **special connectors** and **extensions** (see next)

Some examples:

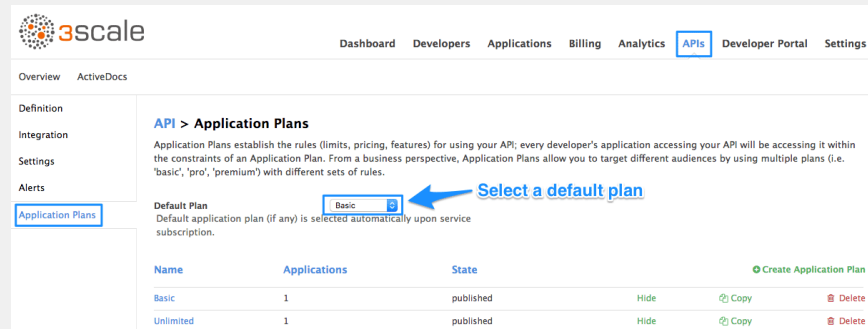
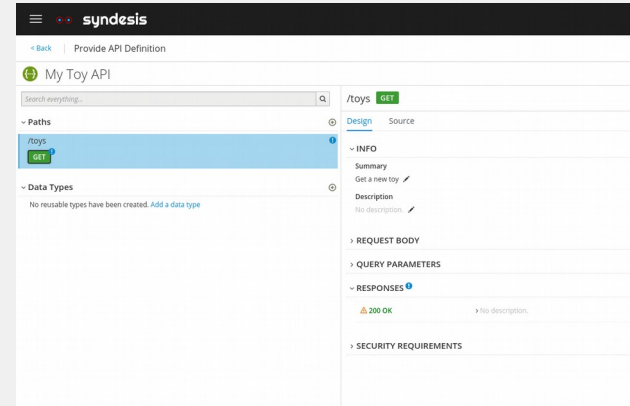
- I want that all messages received by a Telegram chat bot are enhanced with data coming from a rest endpoint and then sent to a Kafka topic
- I want to poll data from a DB table, upload data as files on S3, then notify some other system



API PROVIDER

Fuse online let you:

- **Design** a REST API (or start from OpenAPI spec)
- Define a **flow** of operations for each endpoint
- Manage the API in 3Scale:
 - Traffic control
 - Plans
 - Rate Limiting
 - Dev Portal



API CONSUMER

Allows to connect to **external REST services**.

Users can import a **OpenAPI** definition of a external service and use all defined REST endpoints as “actions”.

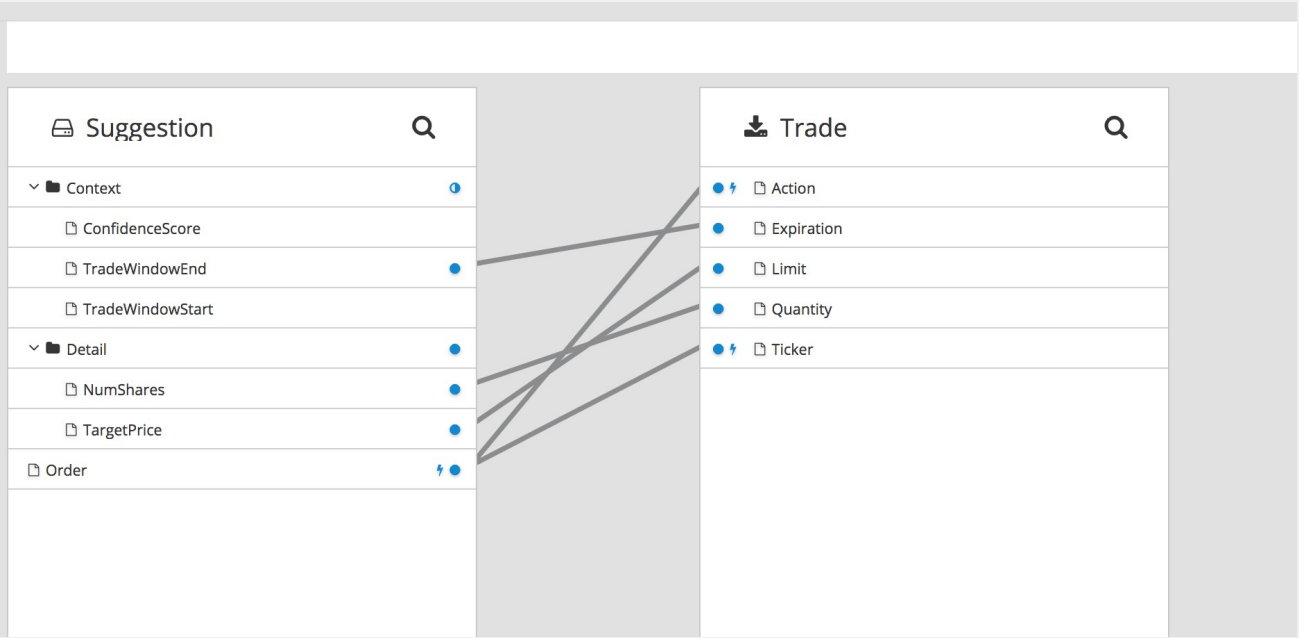
The image displays two screenshots of the Syndesis API Consumer interface. The top screenshot shows a workflow with three steps: 'Upload OpenAPI Specification', 'Review Actions', and 'Specify Security'. The 'Review Actions' step is highlighted with a blue circle and a large grey arrow pointing to a detailed view of the 'Review Actions' panel. This panel shows the 'API DEFINITION' for 'Todo App API' with a description 'Example Todo Application API'. Under 'IMPORTED', it lists 5 operations: 1 tagged updating, 1 tagged creating, 2 tagged fetching, 1 tagged destruction, and 5 tagged tasks. A 'WARNINGS' section indicates that the DELETE (fId) operation does not provide a response schema for code 204. The panel includes 'Review/Edit' and 'Next >' buttons, and a '< Back' button.

The bottom screenshot shows the 'Choose an Action' screen for 'My Local TODO App'. It lists several actions with their descriptions and a 'Create new task' button:

- Create new task: Stores new task in the database
- Delete task: Deletes task by given identifier
- Fetch task: Fetches task by given identifier
- List all tasks: Fetches all tasks from the database
- Update task: Updates task by given identifier



DATAMAPPER



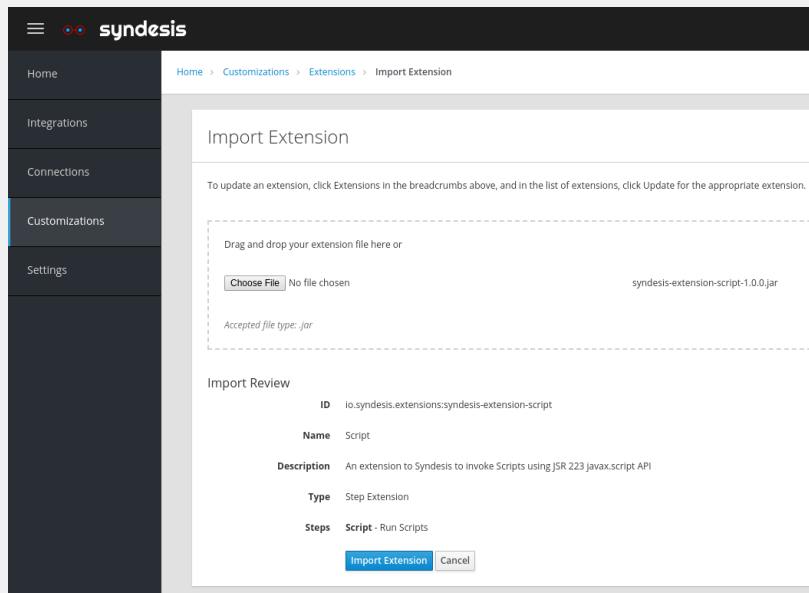
EXTENSIONS

Whatever is not included out-of-the-box in Fuse Online, can be added through a **extension** (connectors or also complex actions).

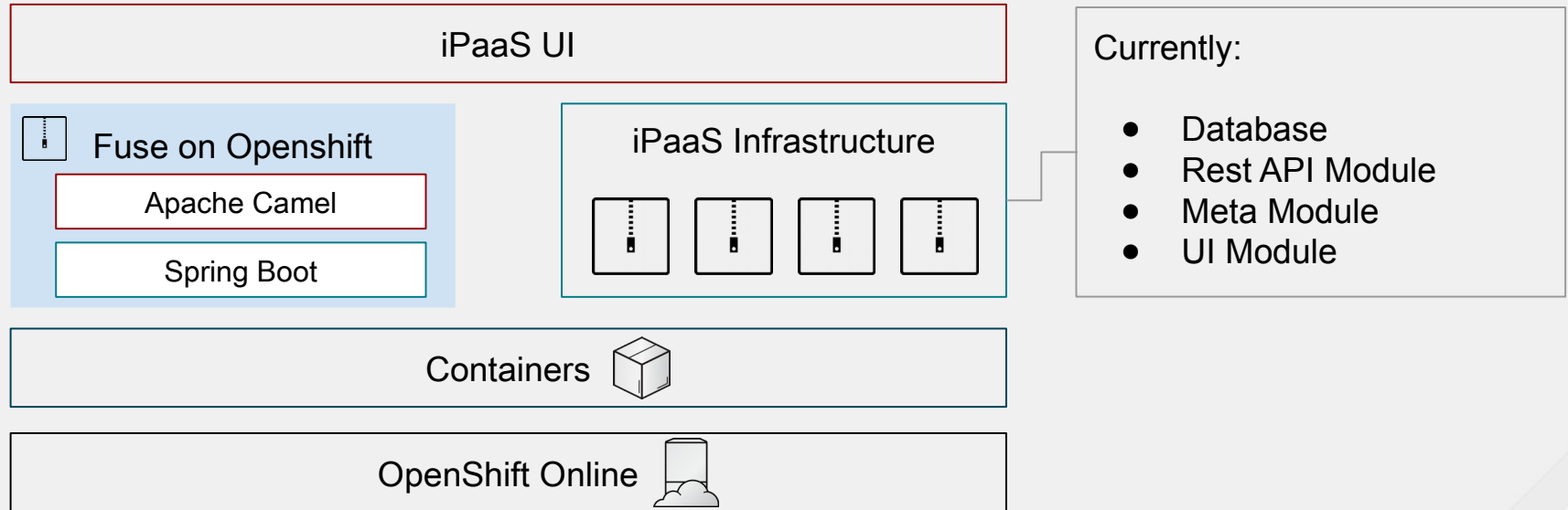
A extension is a **simple Java project** packaged with Maven. You can use all **200+ Camel components** plus your **custom code**.

The main **repository** containing extensions (they are promoted from time to time):

<https://github.com/syndesio/syndesis-extensions>

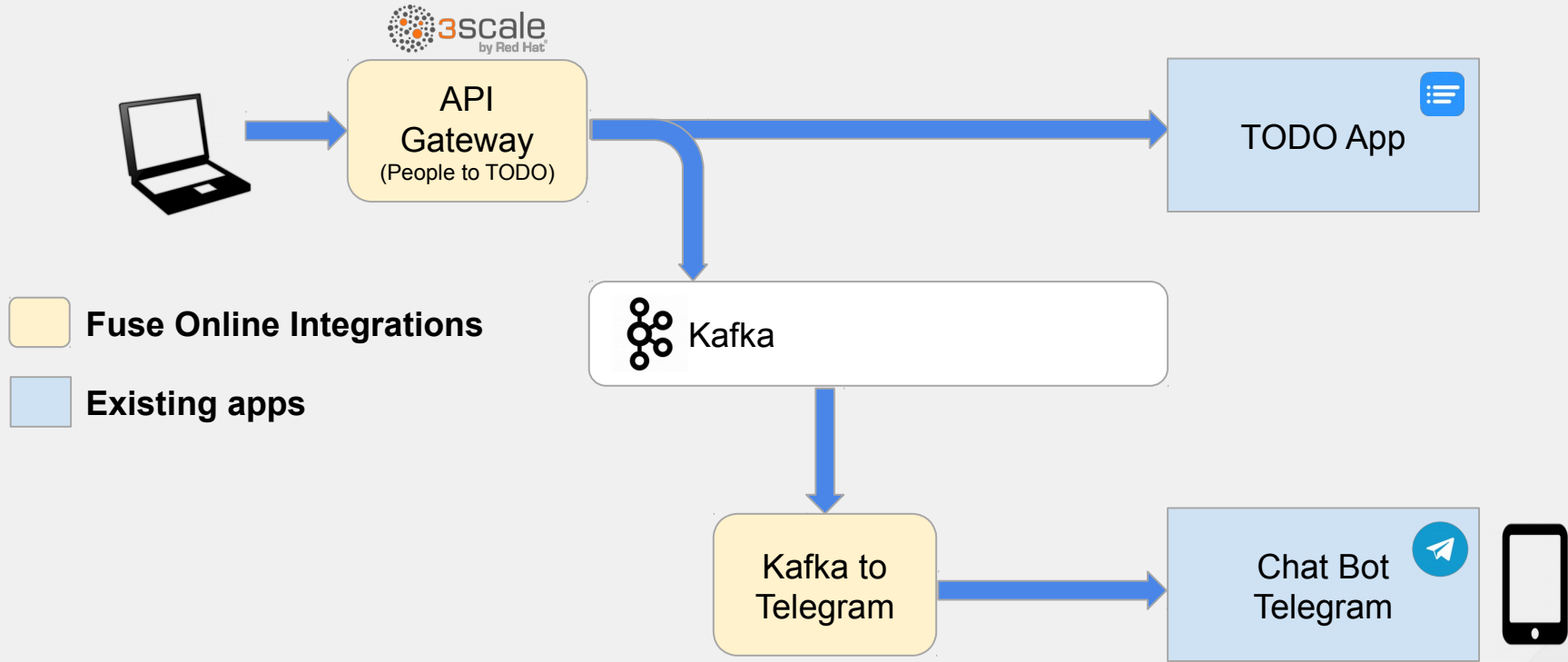


ARCHITECTURE



DEMO

DEMO ENVIRONMENT





CAMEL K



Apache Camel K is a lightweight integration framework built from Apache Camel that runs natively on Kubernetes and is specifically designed for serverless and microservice architectures.

<https://github.com/apache/camel-k>

Goals for Fuse Online:

- Reduce Fuse online deployment time from ~1 minute to **~1 second**
- Integrate Fuse with Knative (Serverless building blocks)



<https://www.nicolaferraro.me/2018/10/15/introducing-camel-k/>

RESOURCES

- Fuse Online: <https://www.openshift.com/products/fuse>
- Syndesis: <https://syndesis.io/>
- Syndesis extension: <https://github.com/syndesisio/syndesis-extensions>
- The easiest way to try fuse 7: <https://developers.redhat.com/launch/>
- Fuse: <https://www.redhat.com/en/technologies/jboss-middleware/fuse>
- Enterprise Integration Patterns: <https://www.enterpriseintegrationpatterns.com/>





GRAZIE PER L'ATTENZIONE

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