Fuse 7: L'integrazione ai tempi del container

A.Tarocchi - Senior Software Engineer

A.Cosentino - Senior Software Engineer

N.Ferraro - Senior Software Engineer

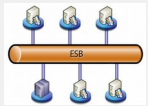
#RedHatOSD

AGENDA

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

AGILE INTEGRATION

SHORT HISTORY OF INTEGRATION

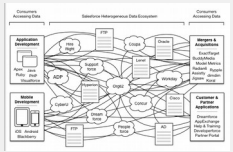


First decade of 2000
SOA and ESB

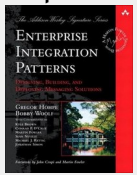
2007
Apache Camel
first release

APACHE Camel

Since the beginning of time
ad hoc point to point
spaghetti integration



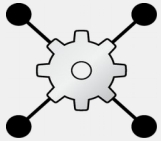
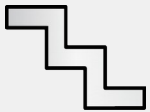
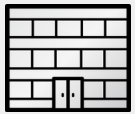
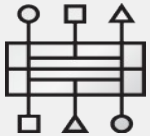
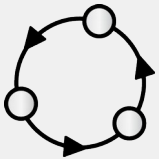
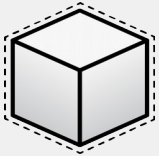
2003
Enterprise Integration Patterns
book published



nowadays
Agile
integration

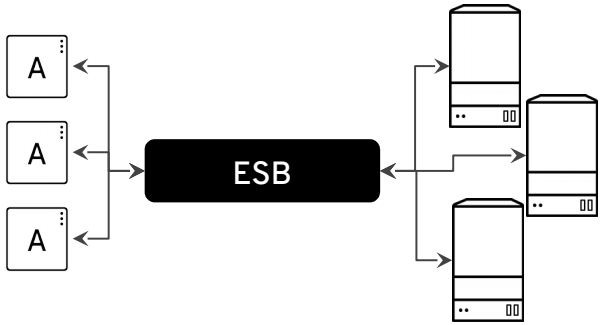
ENTERPRISE IT IS UNDERGOING FUNDAMENTAL CHANGE

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

Service Endpoints	Architecture	Development Process	Deployment	Infrastructure
				
Webservices	Monolith	Waterfall	Server/VM	Data Center
				
APIs	Microservices	CI/CD	Container	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

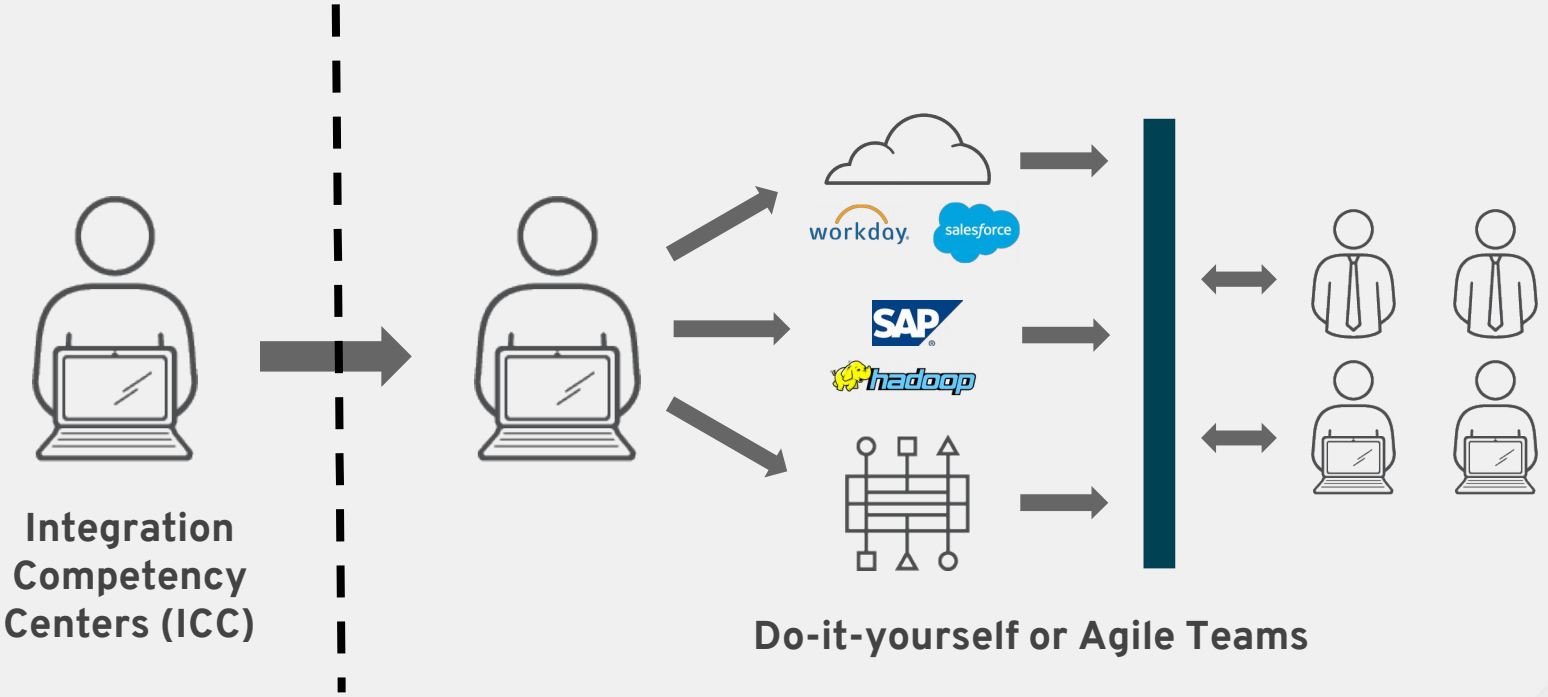
Modern architectures and app development requires more agile integration

Distributed Integration ♦ APIs ♦ Scalability

Agile Teams ♦ Cloud App Dev ♦ DevOps

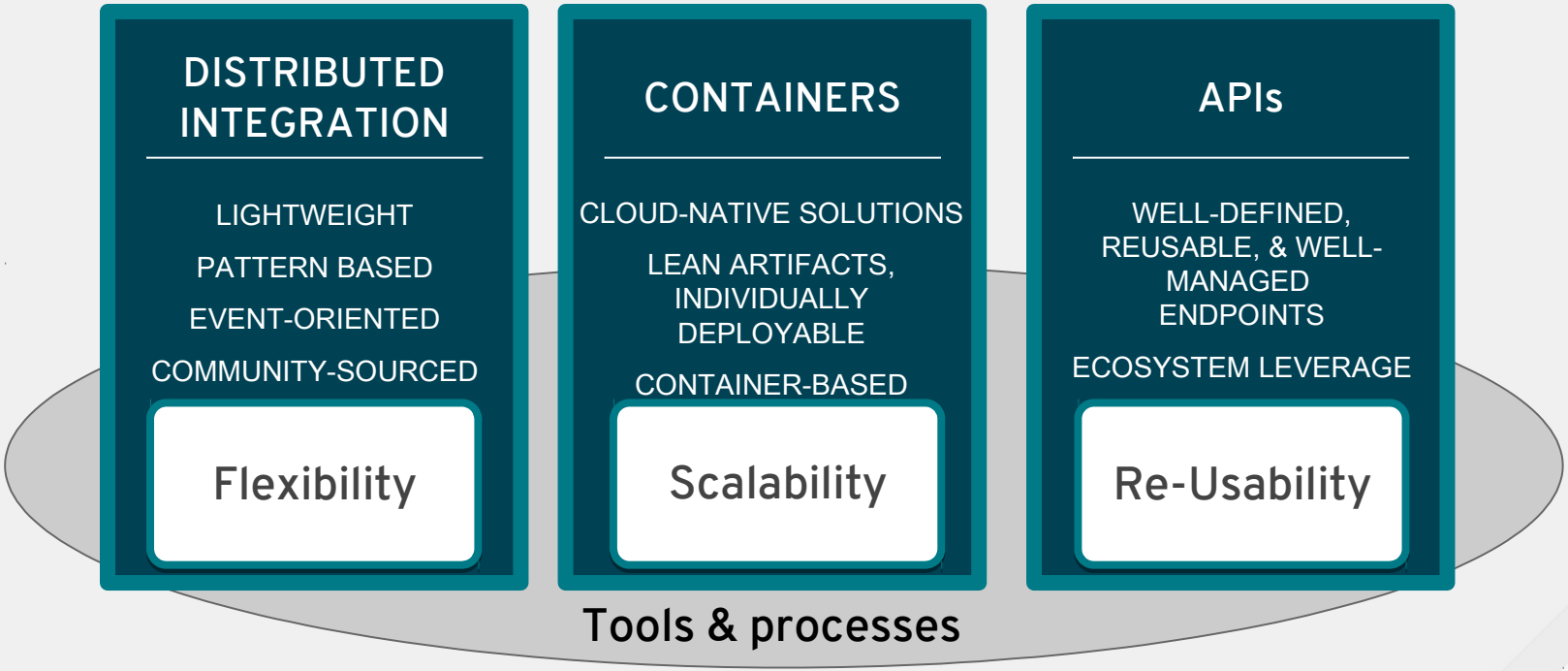
USE INTEGRATION WHERE NEEDED, RATHER THAN CENTRALIZING

ADAPTING TO ORGANIZATIONAL CHANGE



API-CENTRIC AGILE INTEGRATION

KEY FOUNDATIONAL CAPABILITIES NEEDED BY TODAY'S ENTERPRISES



API-CENTRIC AGILE INTEGRATION

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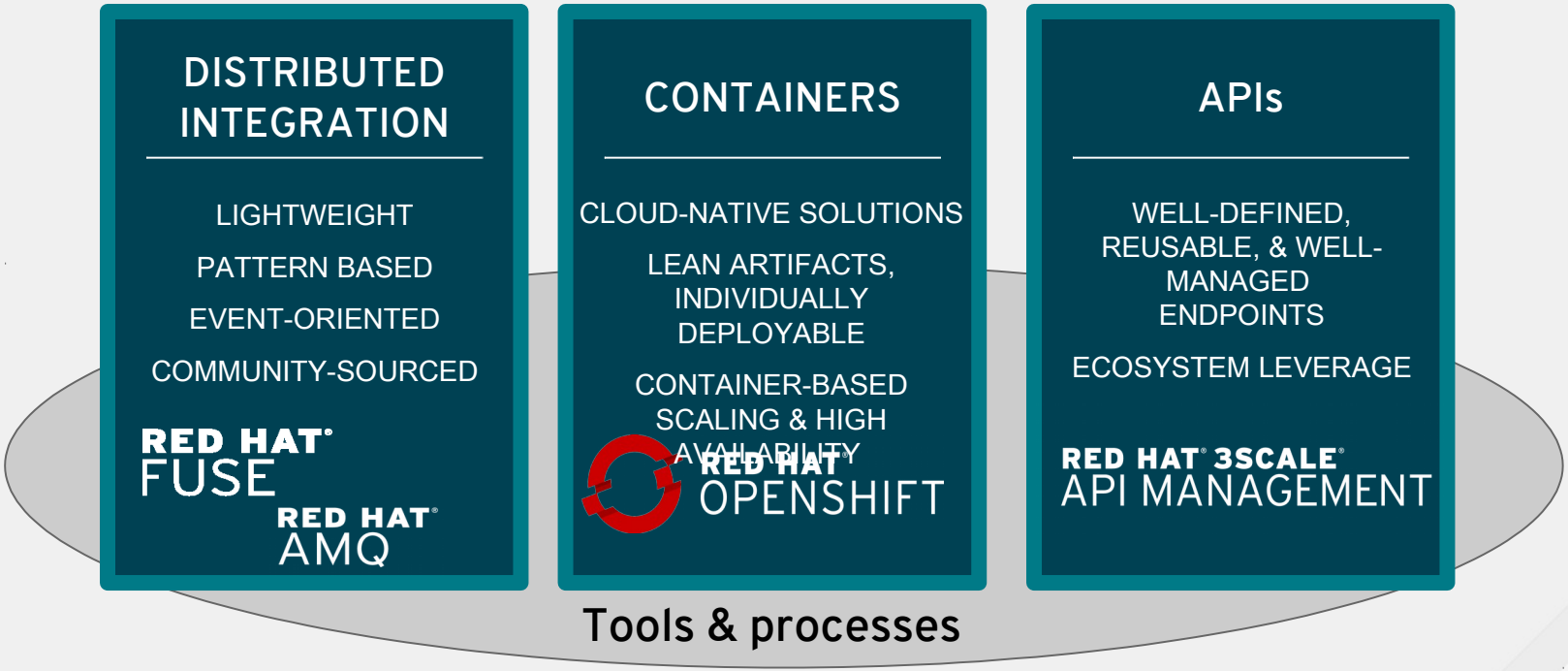
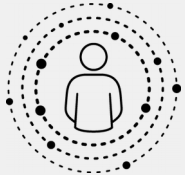


RED HAT FUSE

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	Karaf	EAP
Apache Camel	Apache Camel	Wildfly Camel
Spring Boot	Karaf	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

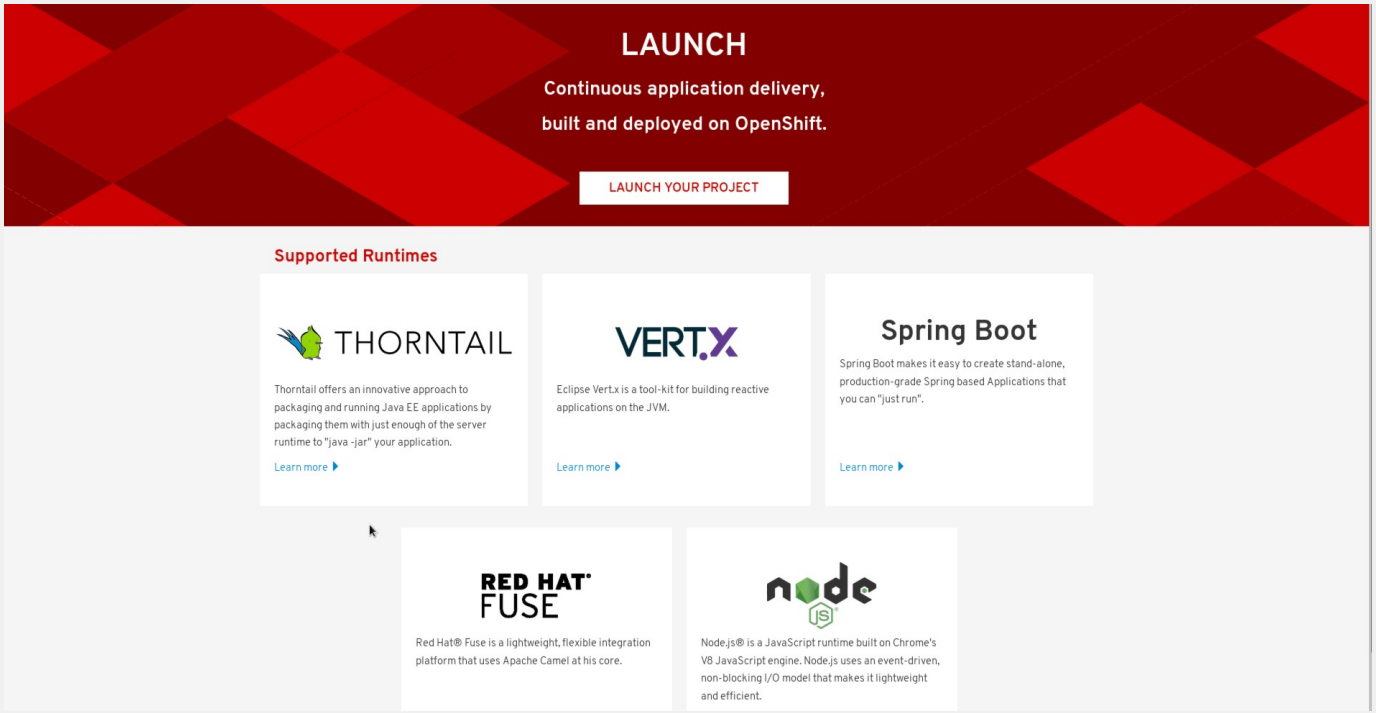
FUSE ON OPENSHIFT

- 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**

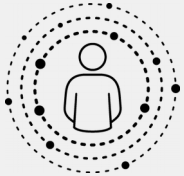
EASIEST WAY TO TRY FUSE ON OPENSHIFT

https://developers.redhat.com/launch



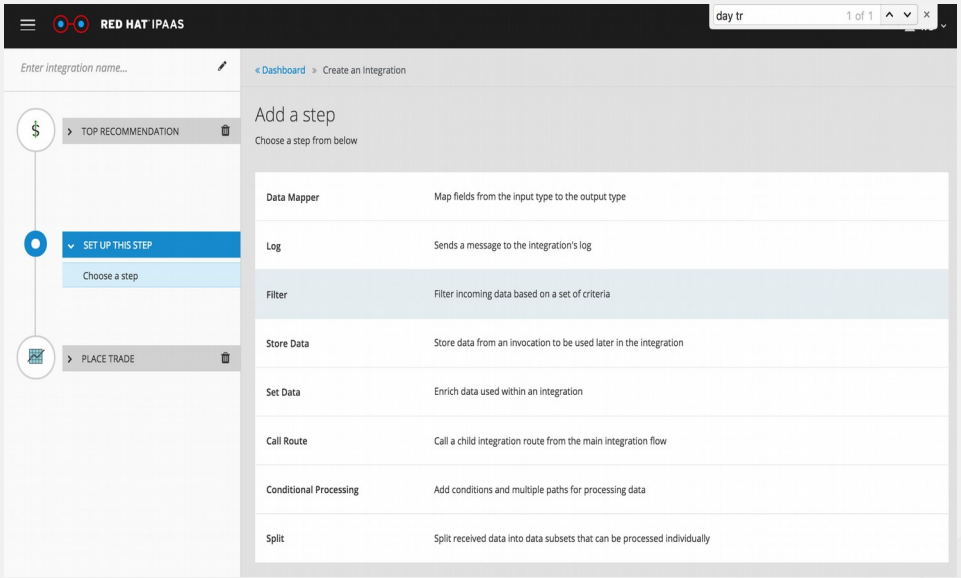
NEW CAMEL COMPONENTS

- 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

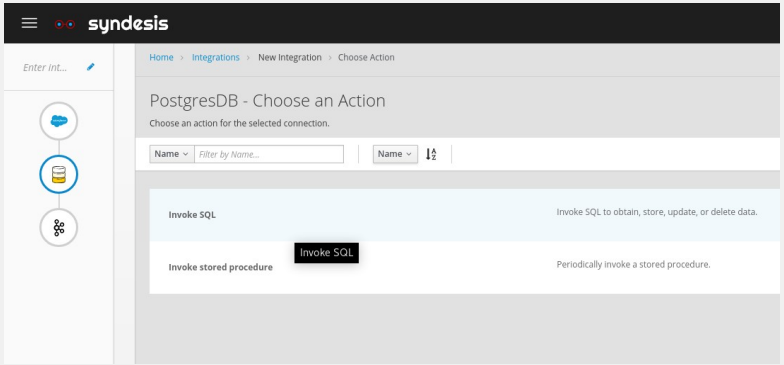
- A Integration Platform as a Service (**iPaaS**)
- Based on the Syndesis upstream project https://github.com/syndesisio/syndesis
- The engine is always Apache Camel
- Main concepts:
    - Connection
    - Integration
- The plan is supporting the biggest part of the Camel components as connectors on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

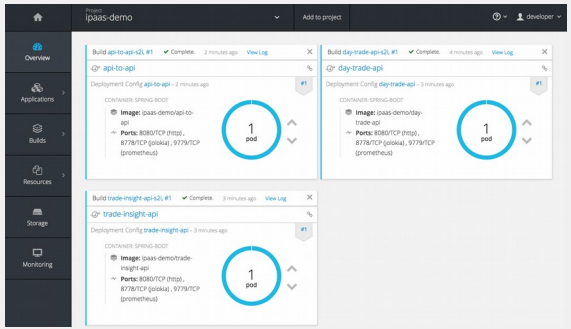


FUSE ONLINE (SYNDESIS)

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

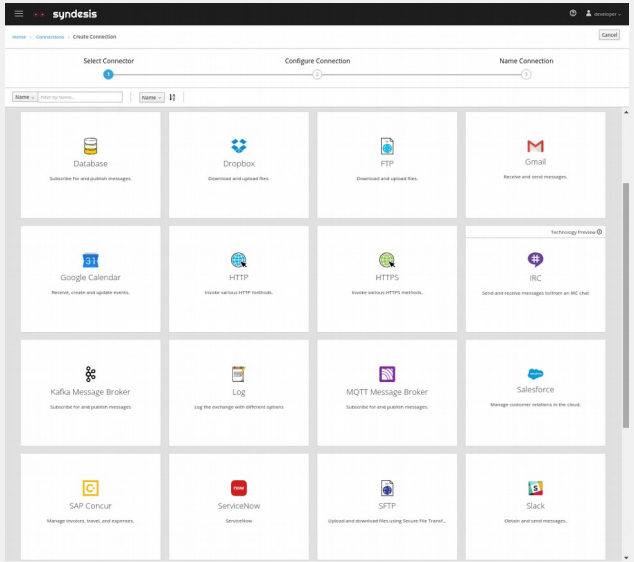




CONNECTORS

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)

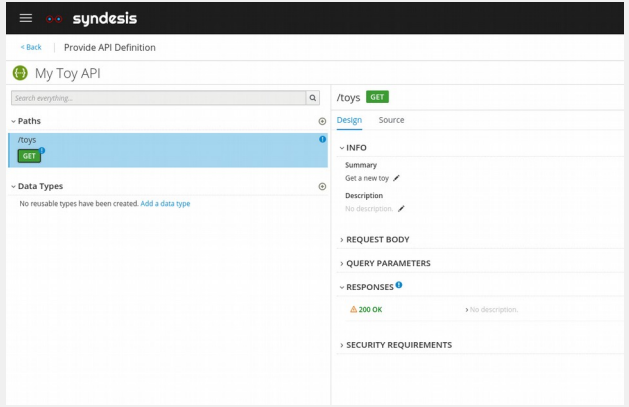
Some examples:

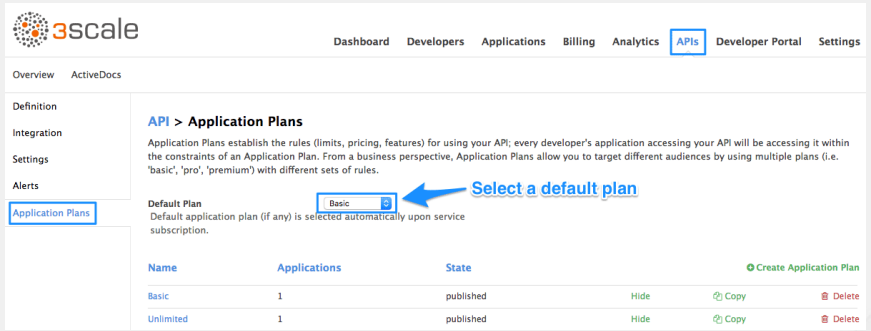
- I want that all messages received by a Telegram chat bot are enhanced with data coming from a rest endpoint and then sent to a Kafka topic
- I want to poll data from a DB table, upload data as files on S3, then notify some other system

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

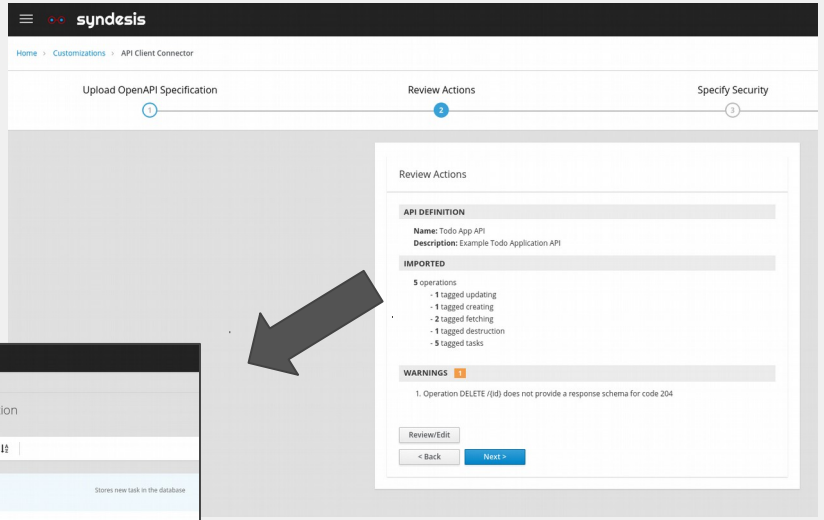




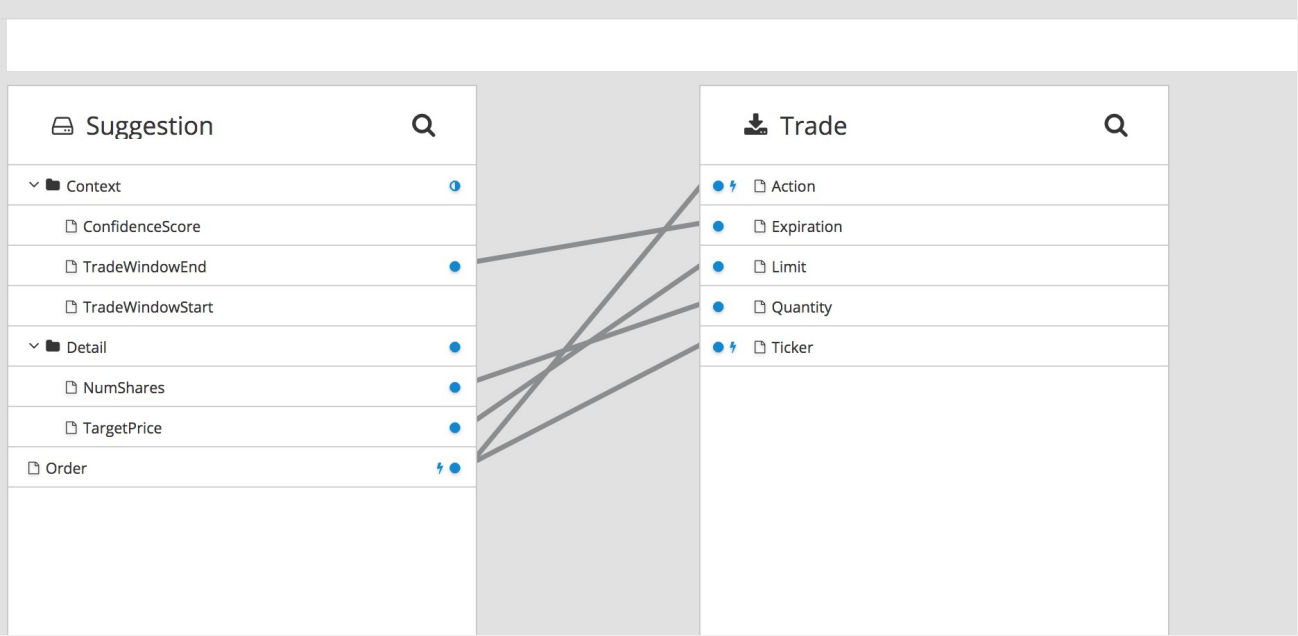
API CONSUMER

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”.



DATAMAPPER

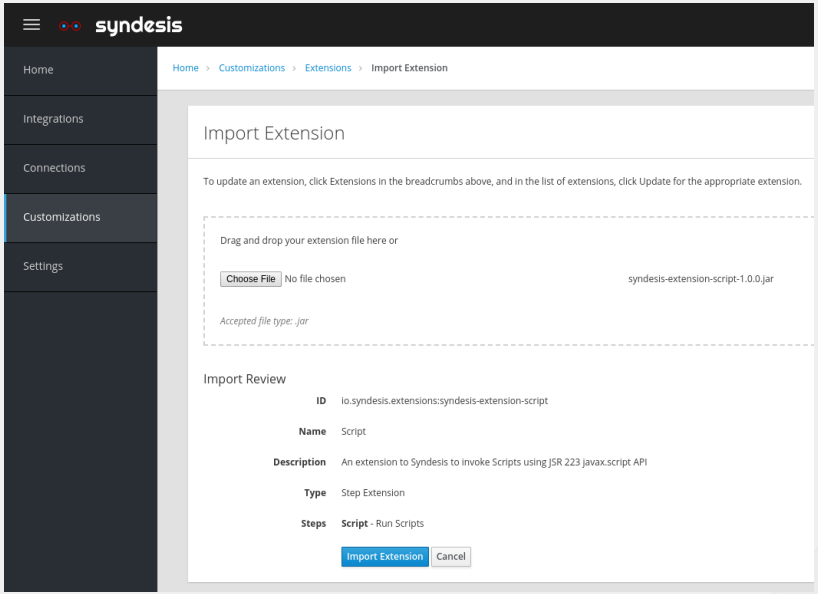

Suggestion
Context
ConfidenceScore
TradeWindowEnd
TradeWindowStart
Detail
NumShares
TargetPrice
Order
Trade
Action
Expiration
Limit
Quantity
Ticker

EXTENSIONS

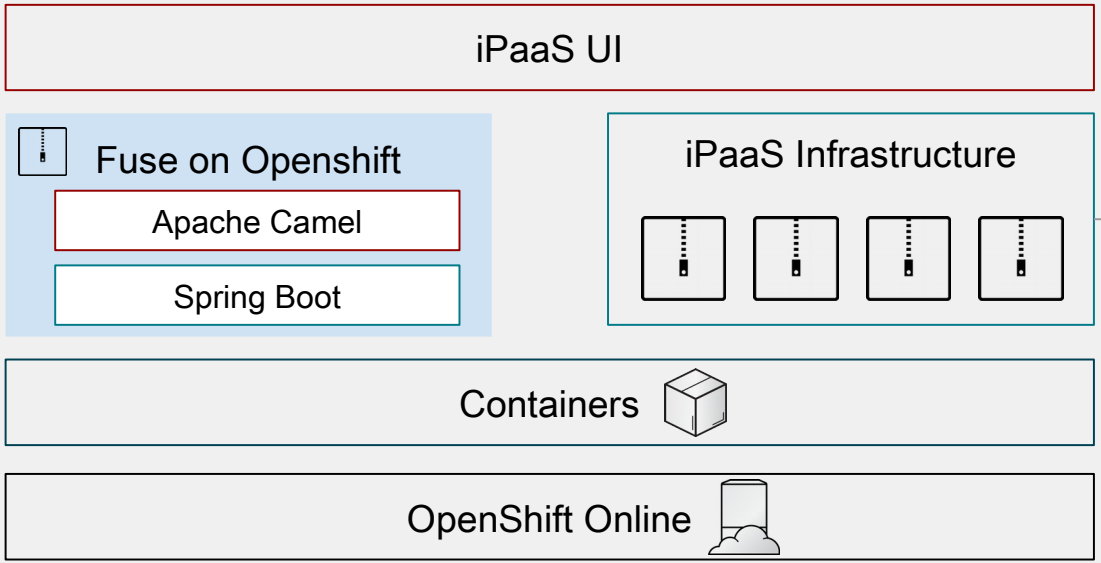
Whatever is not included out-of-the-box in Fuse Online, can be added through a **extension** (connectors or also complex actions).

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/syndesisio/syndesis-extensions



ARCHITECTURE

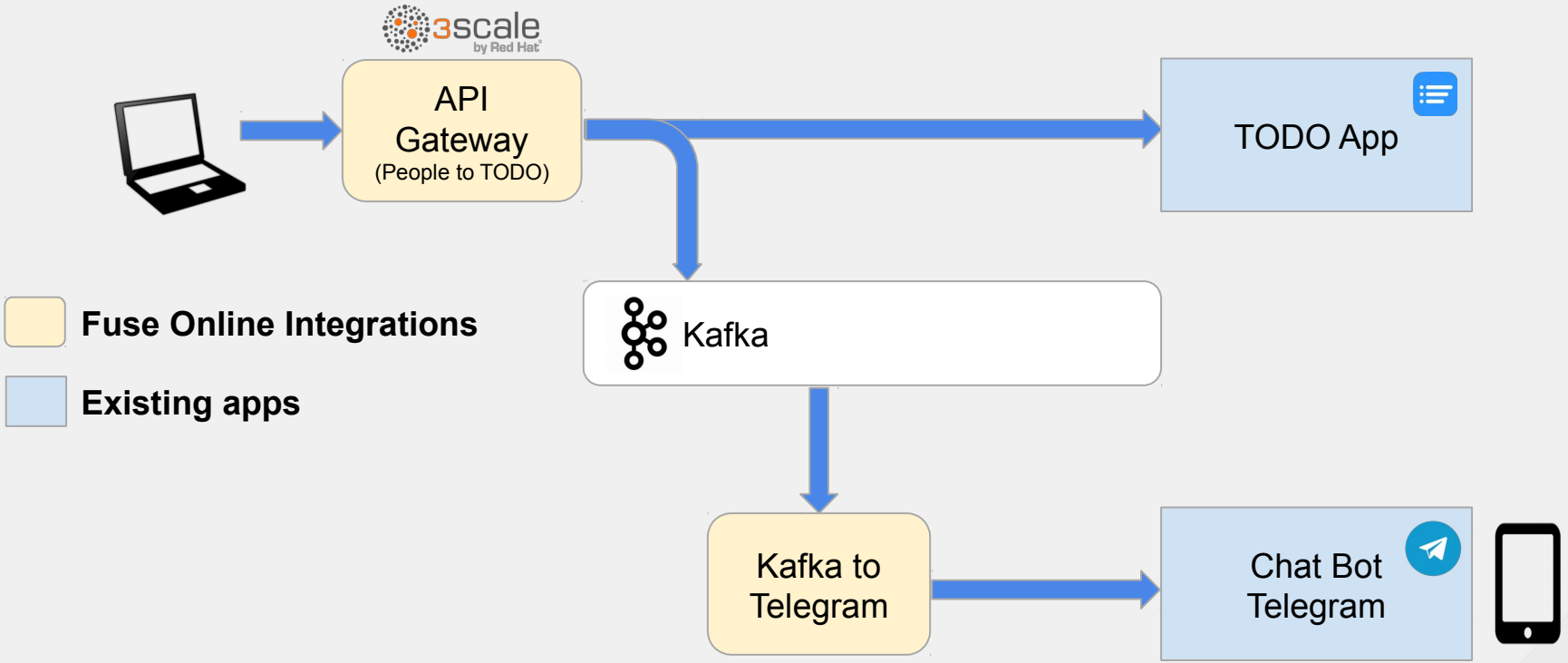


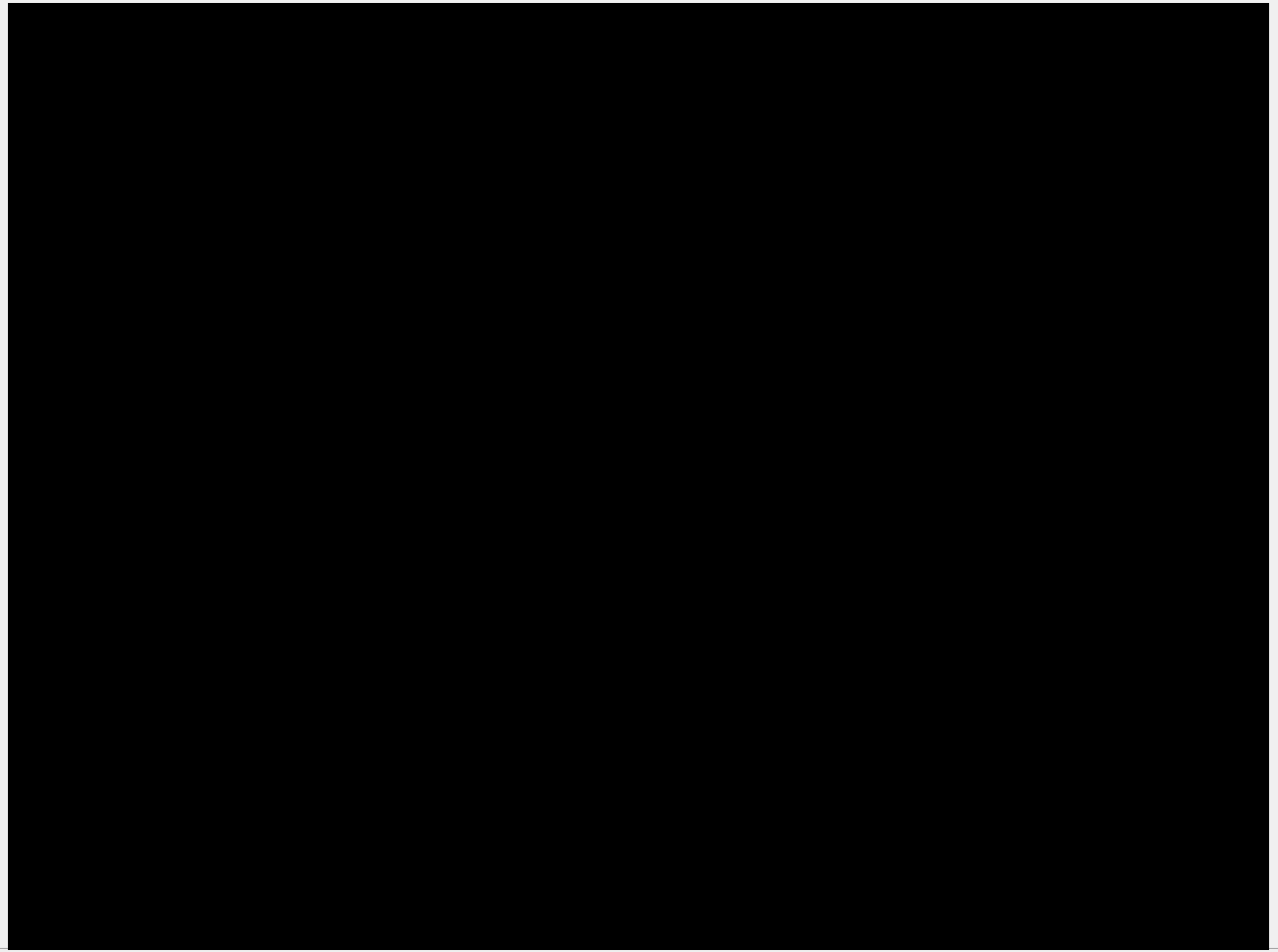
Currently:

- Database
- Rest API Module
- Meta Module
- UI Module

DEMO

DEMO ENVIRONMENT





CAMEL K

APACHE Camel

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/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