



# Open Source Feature Store Workshop

## Caixabank Developer Session

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June 2021

# Oracle Cloud Environment for Feature DataStore

Users	Jupyter URL	login
holuser01 to holuser10	<a href="https://129.213.113.81/hopworks/">https://129.213.113.81/hopworks/</a>	<a href="mailto:holuser01@oracle.com">holuser01@oracle.com</a> to <a href="mailto:holuser10@oracle.com">holuser10@oracle.com</a>
holuser11 to holuser20	<a href="https://150.136.14.68/hopworks/">https://150.136.14.68/hopworks/</a>	<a href="mailto:holuser11@oracle.com">holuser11@oracle.com</a> to <a href="mailto:holuser20@oracle.com">holuser20@oracle.com</a>

## Instances *in* DataScienceHOL Compartmet

The [Compute service](#) helps you provision VMs and bare metal instances to meet your compute and application requirements. An [instance](#) is a compute host. Choose between virtual machines (VMs) and bare metal instances. The image that you use to launch an instance determines its operating system and other software.

Create Instance

Name	State	Public IP	Shape	OCPU Count	Memory (GB)	Availability Domain	Fault Domain	Created
<a href="#">featured11</a>	<span>● Running</span>	150.136.14.68	VM.Standard.E4.Flex	8	128	AD-2	FD-1	Sun, Jun 20, 2021, 19:50:42 UT
<a href="#">featured11</a>	<span>● Running</span>	129.213.113.81	VM.Standard.E4.Flex	8	128	AD-1	FD-2	Sun, Jun 20, 2021, 19:32:16 UT

# Environment to download Documentation / Scripts

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GitHub Repository: <https://github.com/operard/featuredslab>

Documentation for Workshop: <https://github.com/operard/featuredslab/tree/main/doc>

Documentation of Hopsworks:

<https://github.com/logicalclocks/hops-examples>

<https://examples.hopsworks.ai/>

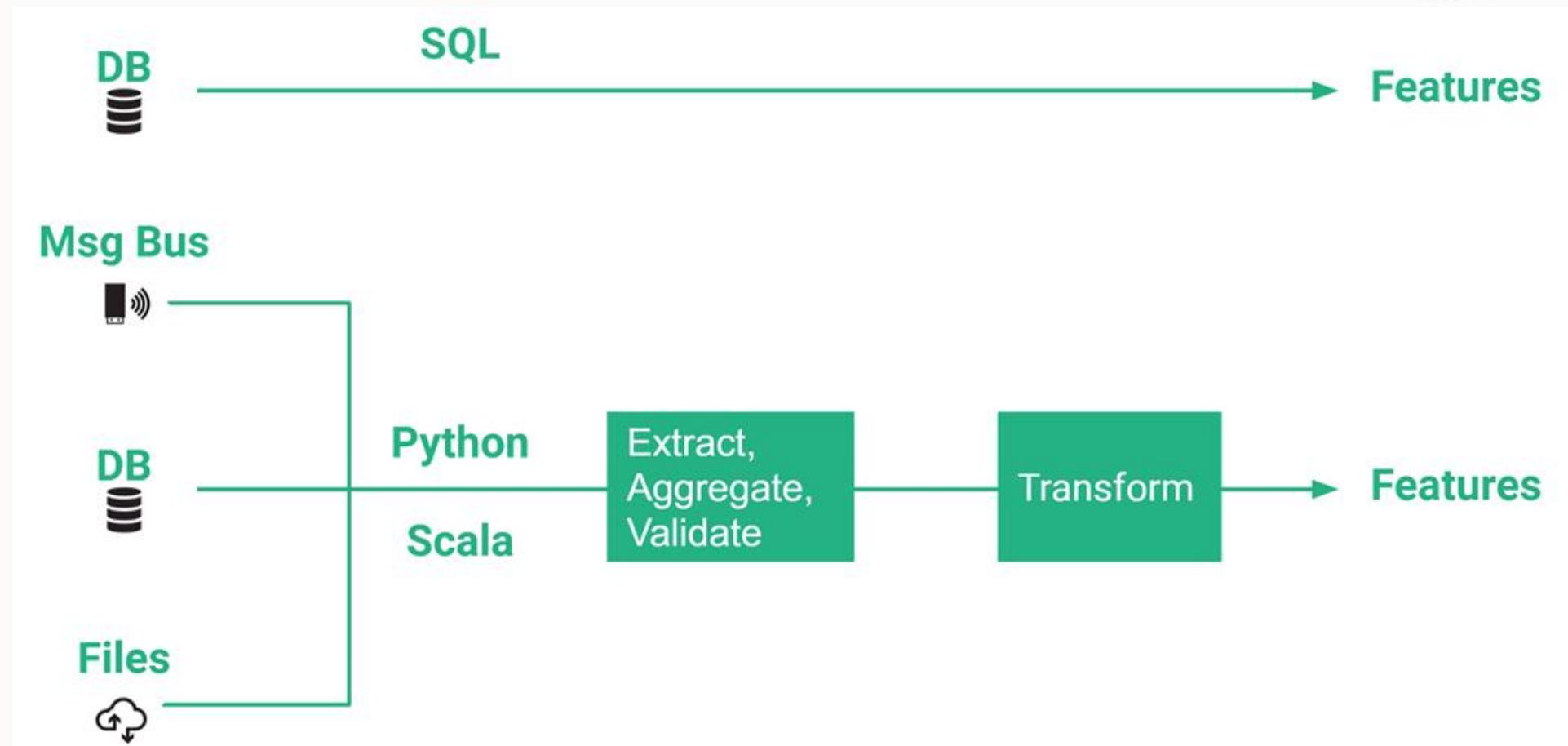
# Open Source Feature Store Concepts

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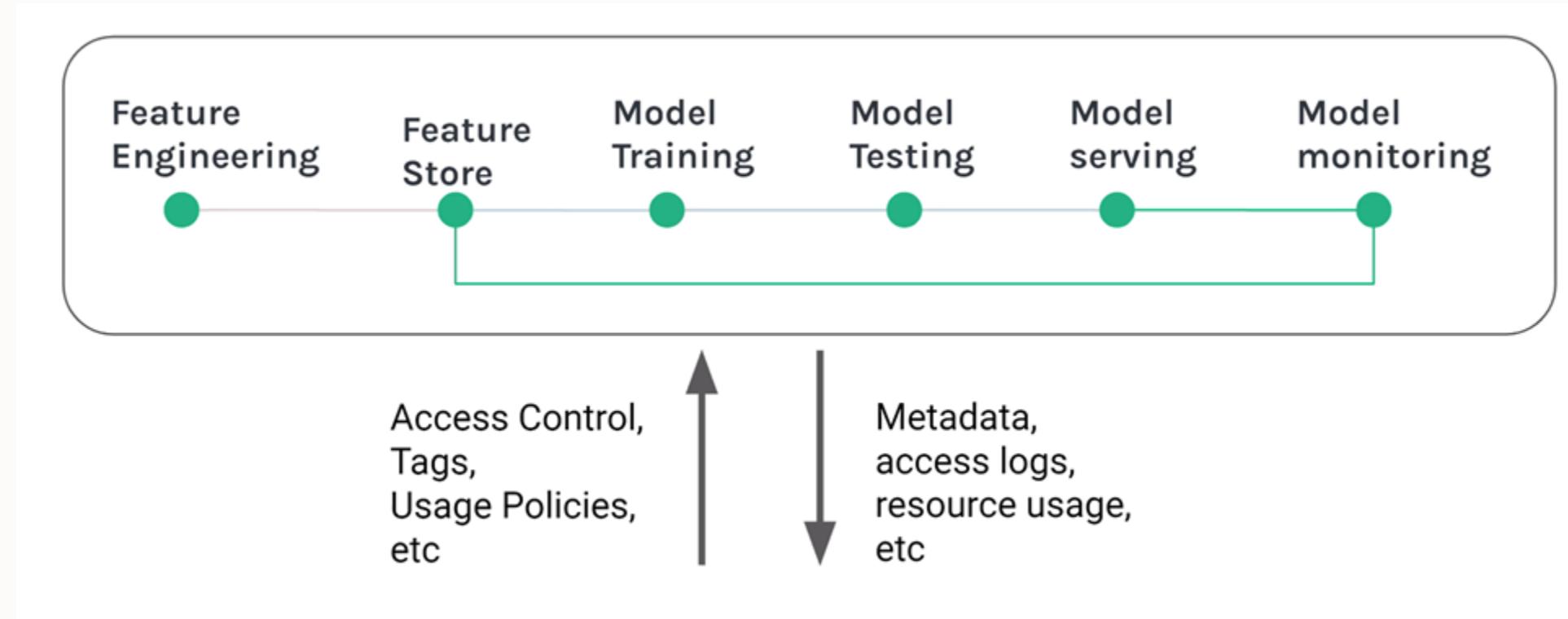
# From ML Pipelines to Production Models



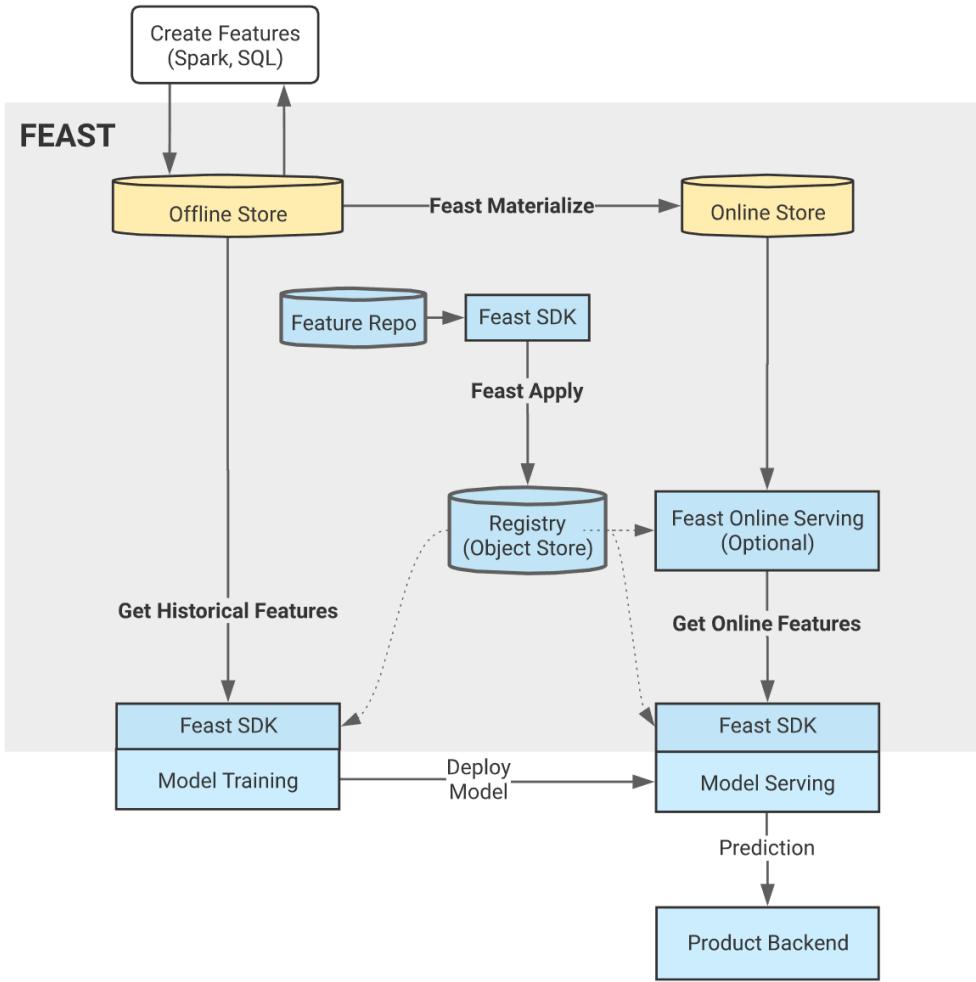
# Feature Engineering Concept



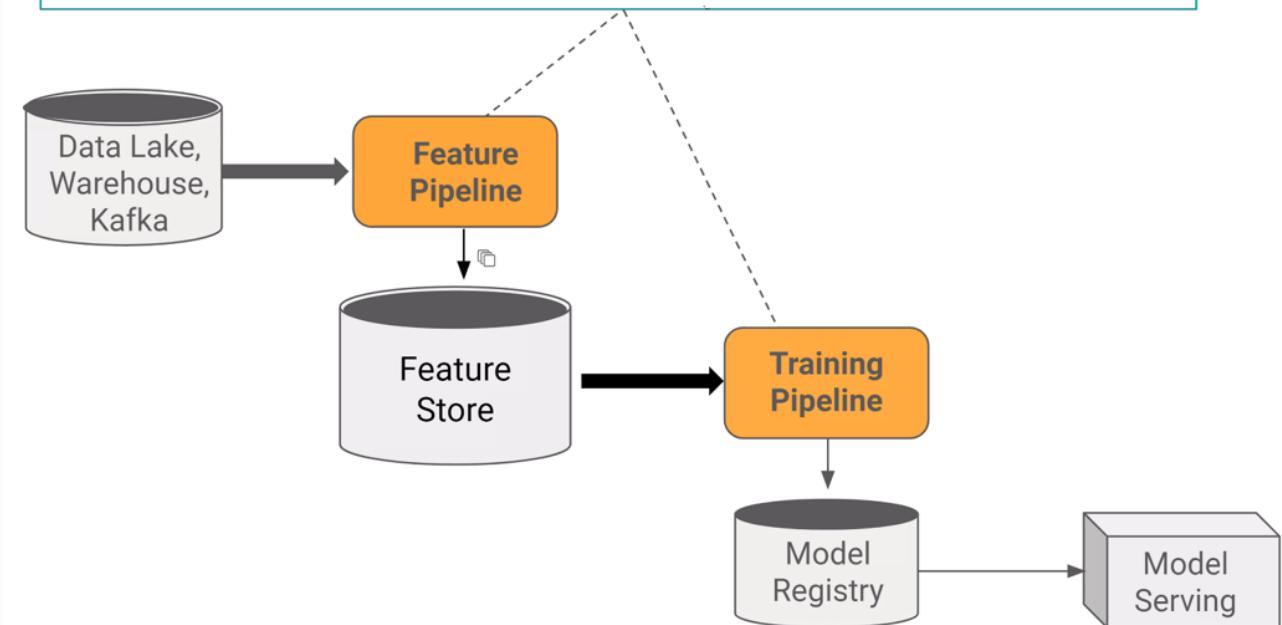
# MLOps for architect- Governance



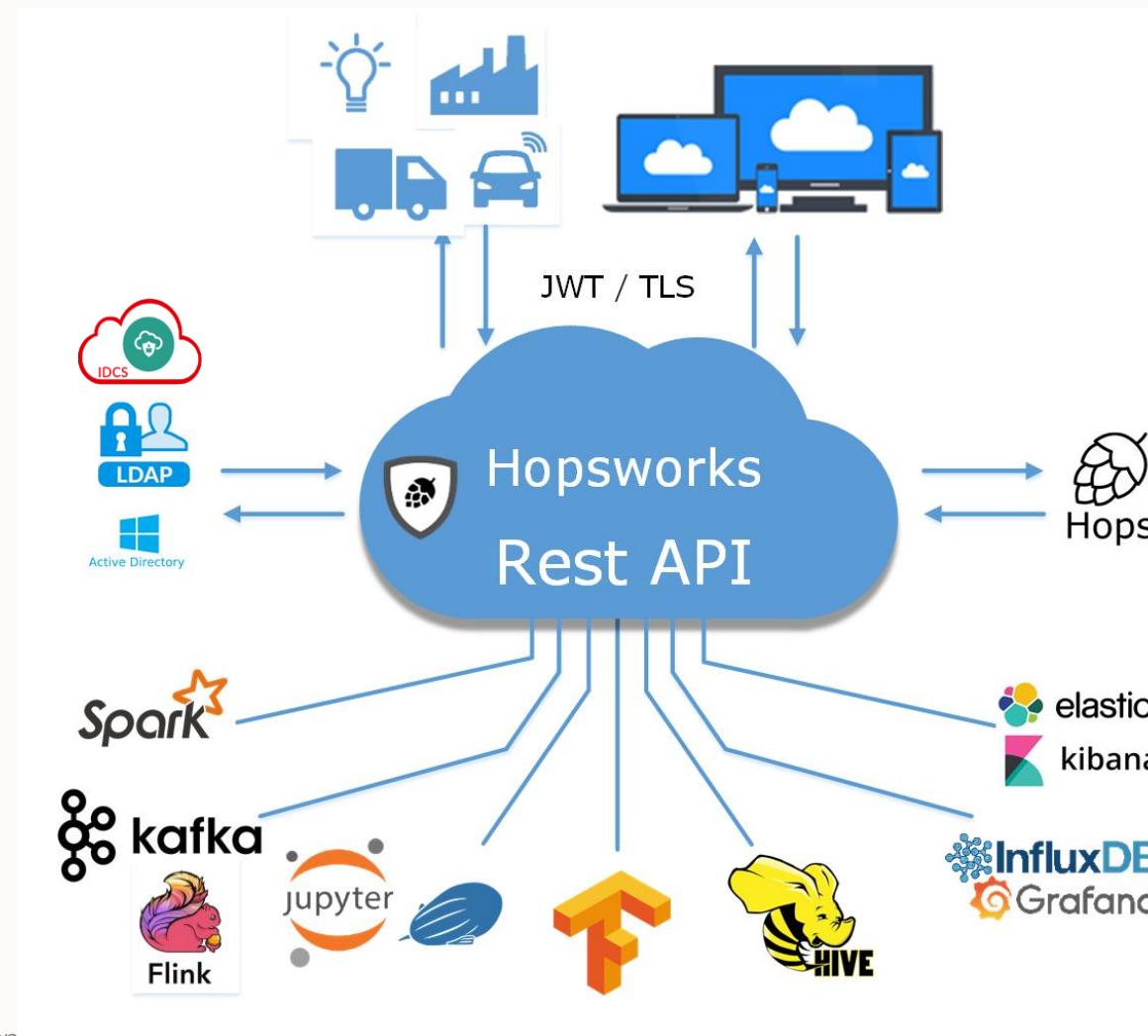
# Open Source Feature Store: FEAST vs HopsWorks



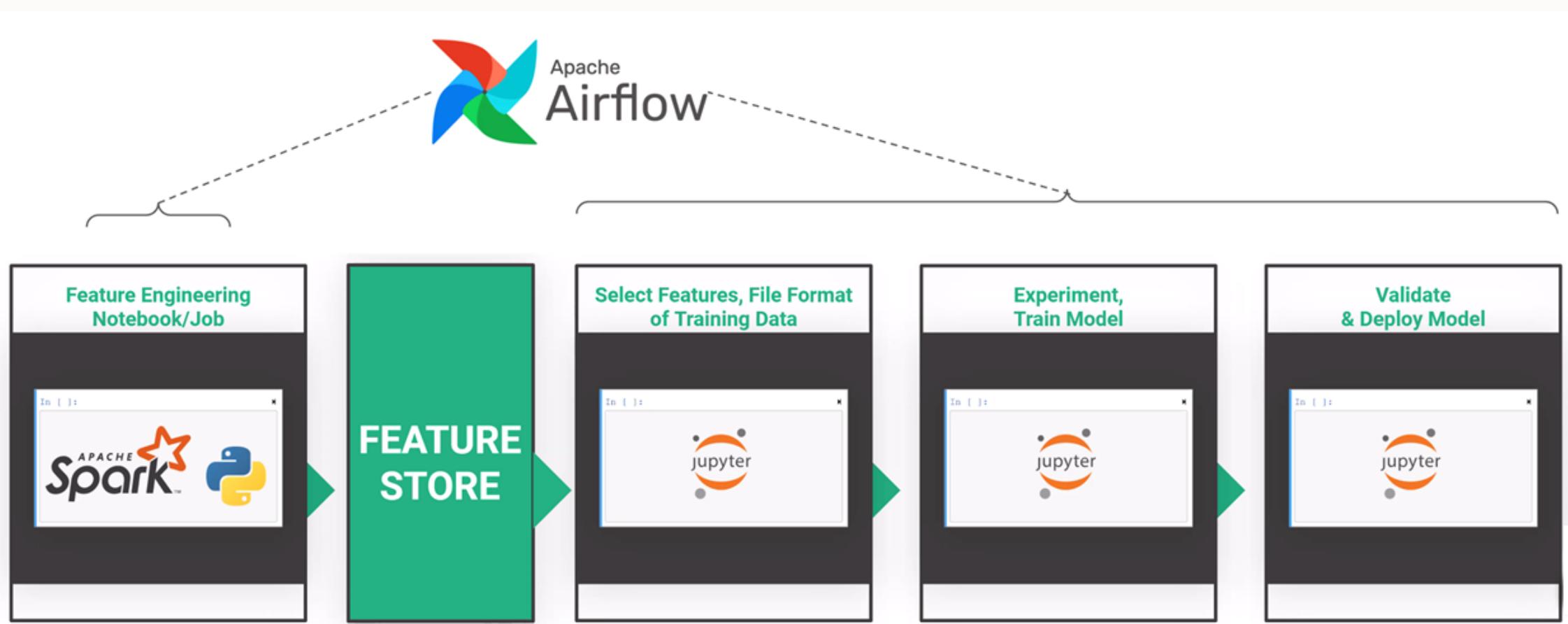
**Orchestrator:** Airflow, Github Actions, Jenkins  
**Actions:** Code commit, New data, time trigger (e.g., daily)



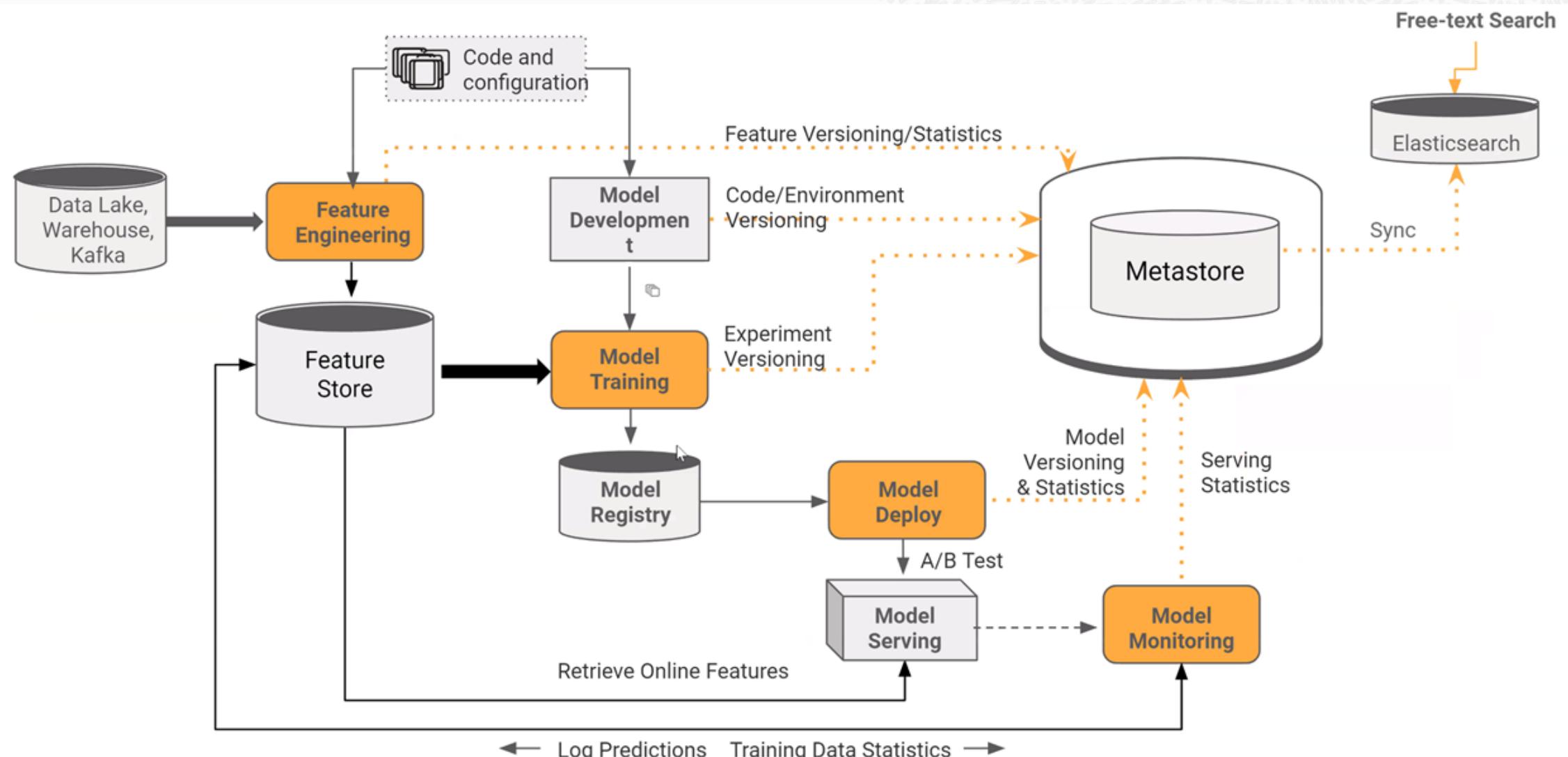
# Open Source HopsWorks



# Feature and Training Pipeline

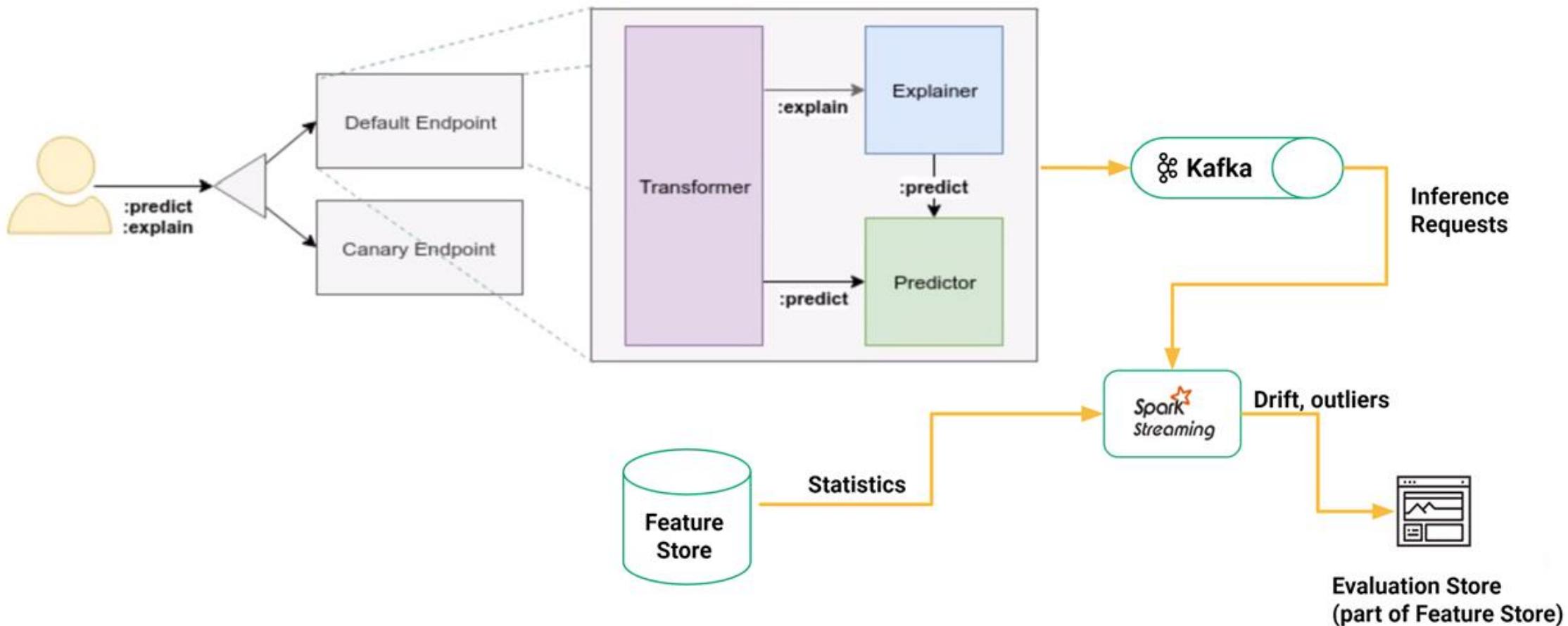


# MLOps with HopsWorks Feature Store



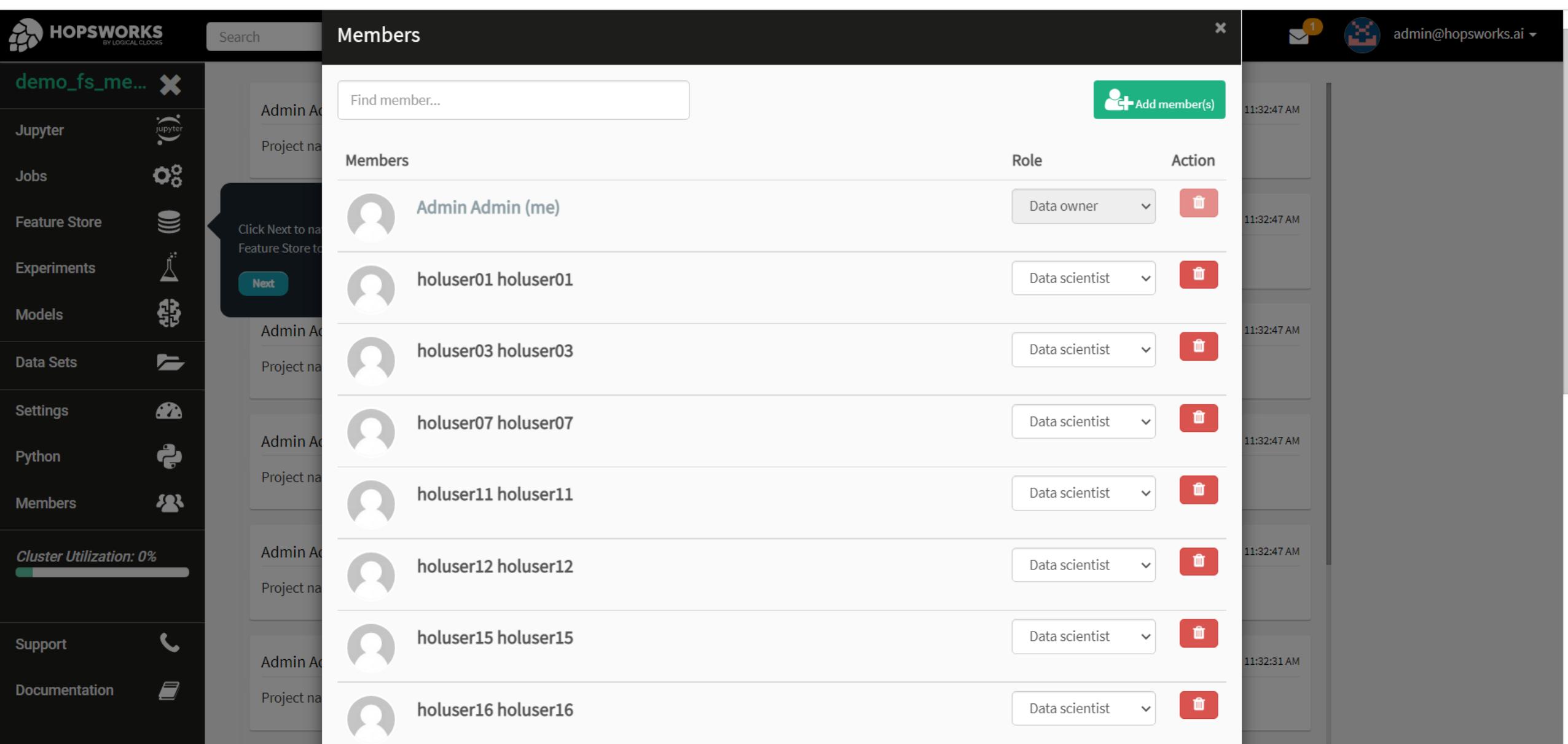
# Model Serving in Hopsworks

Source: <https://github.com/kubeflow/kfserving/tree/master/docs>



# Open Source Feature Store Example: demo\_fs\_meb10000

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Search



admin@hopsworks.ai ▾

**demo\_fs\_me...** 

**Jupyter** 

**Jobs** 

**Feature Store** 

**Experiments** 

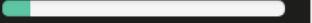
**Models** 

**Data Sets** 

**Settings** 

**Python** 

**Members** 

*Cluster Utilization: 0%* 

**Support** 

**Documentation** 

Search: By name type, owner (case sensitive)  2/20/2021  6/23/2021  Jobs/page: 10

Name	Created on 	Type	Owner	Ongoing	Actions
featurestore_tour_job	Jun 14, 2021 11:32:47 AM	SPARK	Admin Admin	0	     More 

Apps free computer ebo... microsoft openkm bigdata olivier dev amazon mcentric Bookmarks perso oracle teradata gartner » Other bookmarks Reading list

 **HOPSWORKS** BY LOGICAL CLOCKS  

**demo\_fs\_me...** 

**Jupyter** 

**Jobs** 

**Feature Store** 

**Experiments** 

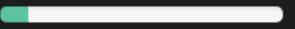
**Models** 

**Data Sets** 

**Settings** 

**Python** 

**Members** 

**Cluster Utilization: 0%** 

**Support** 

**Documentation** 

**Job definition** 

**Import job**

Job name - featurestore\_tour\_job

Job type - SPARK

App file - hops-examples-featurestore-tour-2.2.0.jar

Job details

Main class name  io.hops.examples.featurestore\_tour.Main

Default arguments  --input TestJob/data

Configure and create

Experiment  Parallel Experiments  Distributed Training  Spark (Static)  Spark (Dynamic)

Driver memory (MB): 1024

Executor memory (MB): 2048

Executor virtual cores: 1

Driver virtual cores: 1

The HOPSWORKS logo, which is a stylized globe icon followed by the text 'HOPSWORKS' and 'BY LOGICAL CLOCKS'.

A search input field with a magnifying glass icon.

A user profile icon with a small orange circle containing the number '1'.

A circular user avatar.

[admin@hopsworks.ai](#)

## demo\_fs\_me...

- Jupyter
- Jobs
- Feature Store
- Experiments
- Models
- Data Sets**
- Settings
- Python
- Members

Cluster Utilization: 0%

### DataSets / Jupyter

<input type="checkbox"/>	Type	Name	Owner	Last modified	File size
<input type="checkbox"/>		README.md	Admin Admin	Jun 14, 2021 11:32:26 AM	0.2KB
<input type="checkbox"/>		aws	Admin Admin	Jun 14, 2021 11:32:35 AM	—
<input type="checkbox"/>		azure	Admin Admin	Jun 14, 2021 11:32:35 AM	—
<input type="checkbox"/>		databricks	Admin Admin	Jun 14, 2021 11:32:35 AM	—
<input type="checkbox"/>		datasets	Admin Admin	Jun 14, 2021 1:03:52 PM	—
<input type="checkbox"/>		delta	Admin Admin	Jun 14, 2021 11:32:35 AM	—
<input type="checkbox"/>		feature-bias	Admin Admin	Jun 14, 2021 1:22:18 PM	—
<input type="checkbox"/>		gcp	Admin Admin	Jun 14, 2021 11:32:35 AM	—
<input type="checkbox"/>		hsfs	Admin Admin	Jun 14, 2021 11:32:39 AM	—
<input type="checkbox"/>		images	Admin Admin	Jun 14, 2021 11:32:44 AM	—
<input type="checkbox"/>		petastorm	Admin Admin	Jun 14, 2021 11:32:44 AM	—
<input type="checkbox"/>		snowflake	Admin Admin	Jun 14, 2021 11:32:45 AM	—



Search



holuser20@oracle.com

demo_fs_me...	X
Jupyter	jupyter
Jobs	⚙️
Feature Store	📁
Experiments	🧪
Models	🧠
Data Sets	📄
Settings	⚙️
Python	🐍
Members	👥
Cluster Utilization: 26%	<div style="width: 26%; height: 10px; background-color: #2e7131;"></div>
Support	📞
Documentation	📝

pypi	notebook	6.1.4	PIP	INSTALLED	<button>Uninstall</button>
pypi	numpy	1.19.2	PIP	INSTALLED	<button>Uninstall</button>
pypi	nvidia-ml-py3	7.352.0	PIP	INSTALLED	<button>Uninstall</button>
pypi	oauth2client	4.1.3	PIP	INSTALLED	<button>Uninstall</button>
pypi	oauthlib	3.1.0	PIP	INSTALLED	<button>Uninstall</button>
pypi	oci	2.40.0	PIP	INSTALLED	<button>Uninstall</button>
conda	olefile	0.46	CONDA	INSTALLED	<button>Uninstall</button>
pypi	opencv-python	4.2.0.32	PIP	INSTALLED	<button>Uninstall</button>
conda	openssl	1.1.1h	CONDA	INSTALLED	<button>Uninstall</button>
pypi	opt-einsum	3.3.0	PIP	INSTALLED	<button>Uninstall</button>
pypi	orderedmultidict	1.0.1	PIP	INSTALLED	<button>Uninstall</button>
pypi	oscrypto	1.2.1	PIP	INSTALLED	<button>Uninstall</button>
pypi	packaging	20.9	PIP	INSTALLED	<button>Uninstall</button>

5\_online\_serving....ipynb

1\_create\_feature....ipynb

stores data-set.csv

Show all



60°F Sunny



ESP

9:49

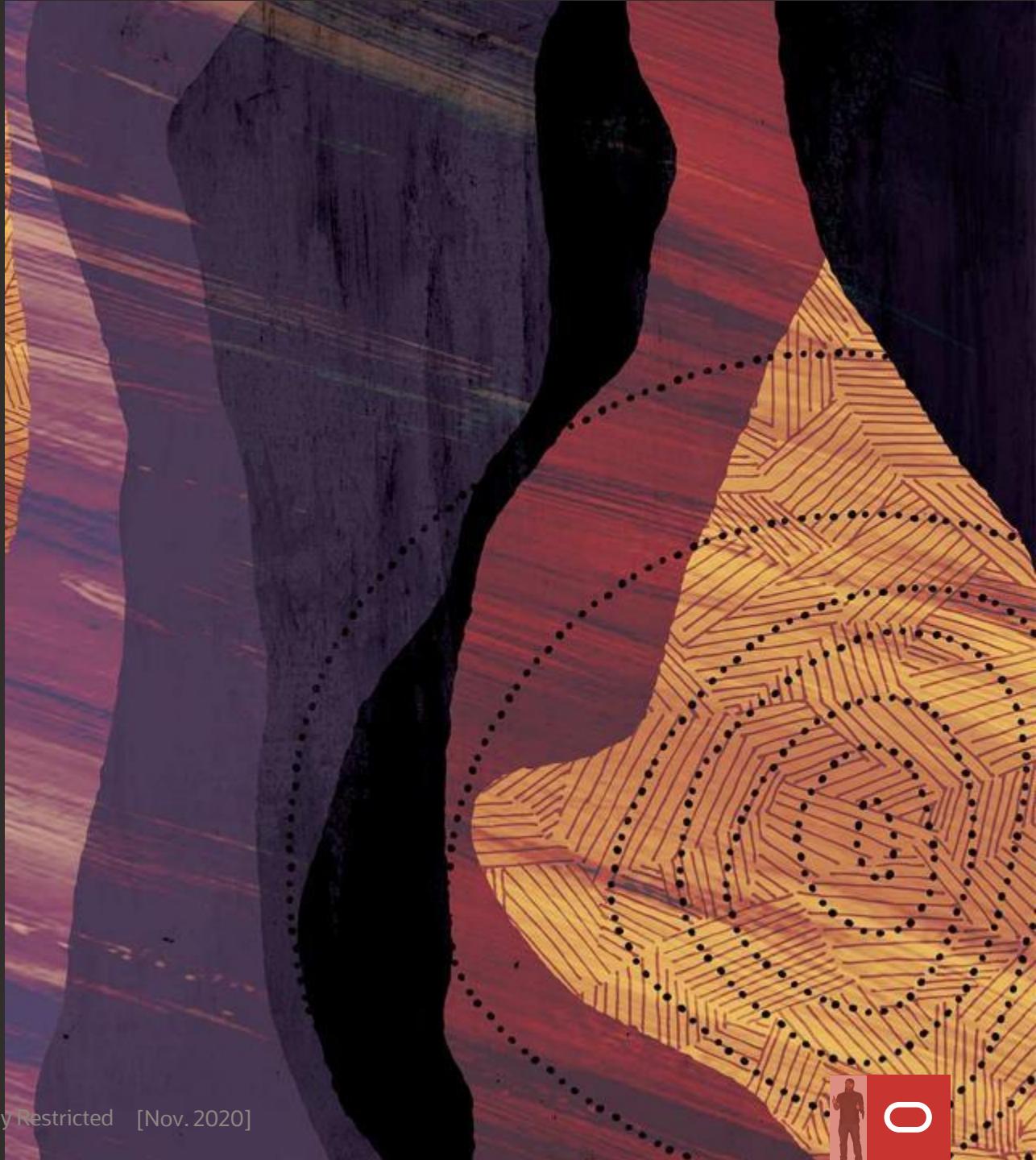
21/06/2021



# Thank You

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**DevRel Team**





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