adaptTo()

EUROPE'S LEADING AEM DEVELOPER CONFERENCE

28th – 30th SEPTEMBER 2020

AEM.AI & AEM Content Science Platform

Odyssée T., Adobe France

About me (1/2)

- @Adobe France
  - AEM Consultant – 3 years
  - Multi-solutions Architect – 4 years

About Me (2/2)

- Machine Learning Addict
  - Pytorch/TensorFlow/Horovod developer
  - Low Cost Distributed Computing

Distributed Computing

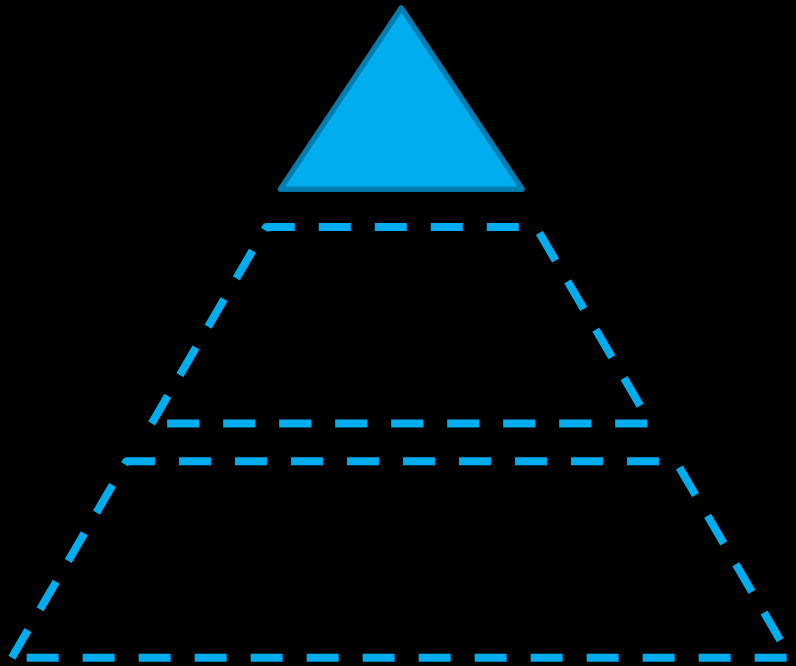
VS

Low Cost Distributed Computing

Plug AI into AEM

AI Capabilities in AEM

AEM's current state



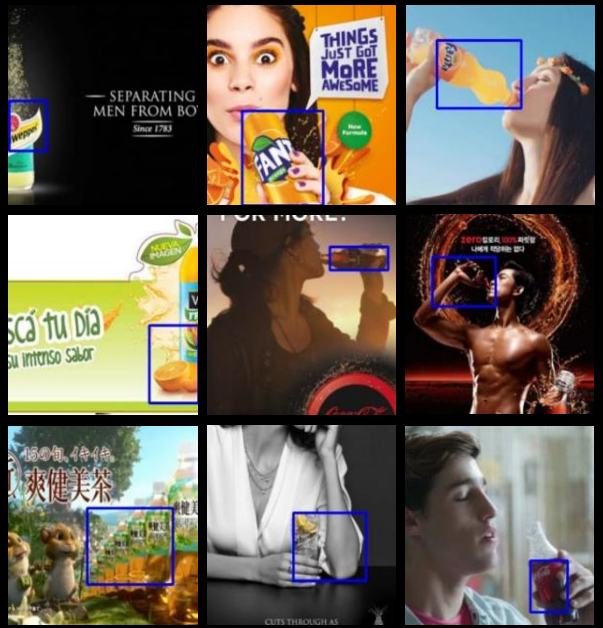
Adobe Sensei

AI Capabilities in AEM

- Smart Image and video tagging
- Smart Crop
- Smart Translation
- Smart Form Conversion
- …
- Thanks to Adobe Sensei!

AEM Content & Commerce AI

Logo Classification



BETA

Facial Recognition

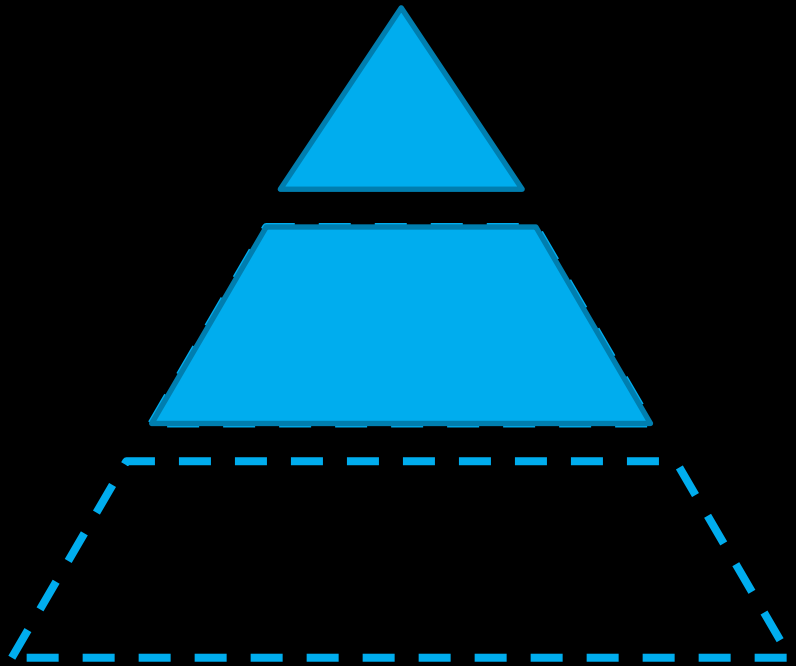
But what about…

- Chatbot,
- Text Analysis,
- Video Transcription,
- Natural Language Capabilities on Search
- …
- AI Capabilities are much larger!

AI Capabilities in AEM

AEM Current State

AEM.AI



Adobe Sensei

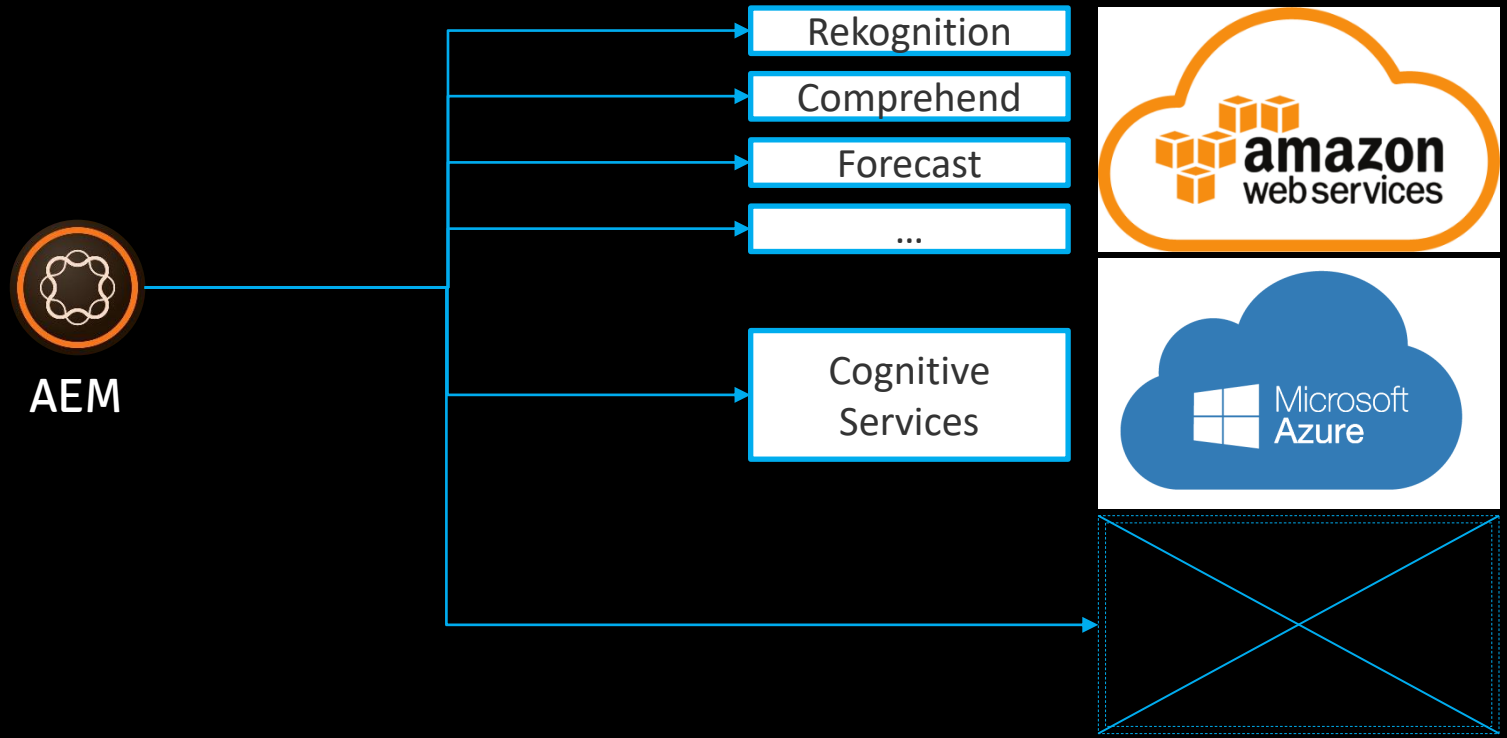
AWS, Azure, Partner's AI platform, …

AEM.AI

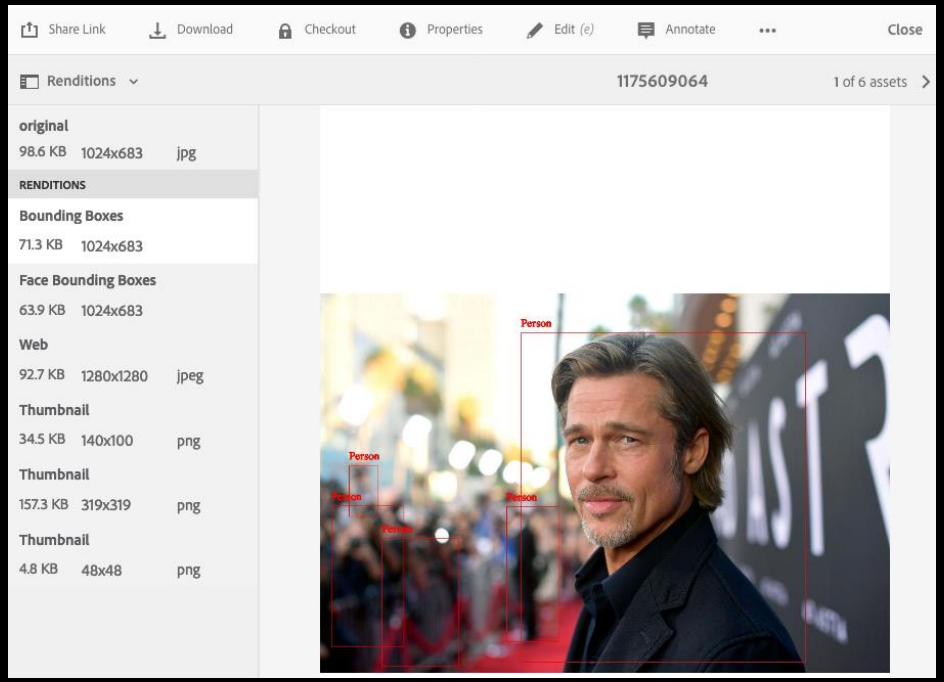
AEM.AI

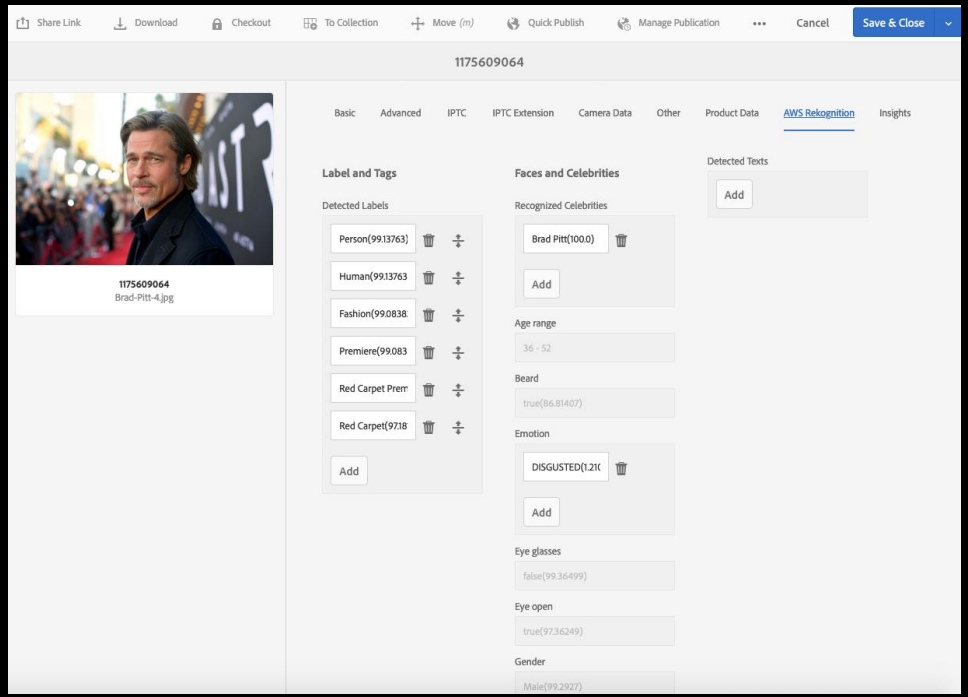
- Open source project
- Integration with 3rd party AI service providers
  - **AWS Java SDK v1 & v2**
  - **Azure**
  - **…**

AEM.AI– Integration with 3rd parties

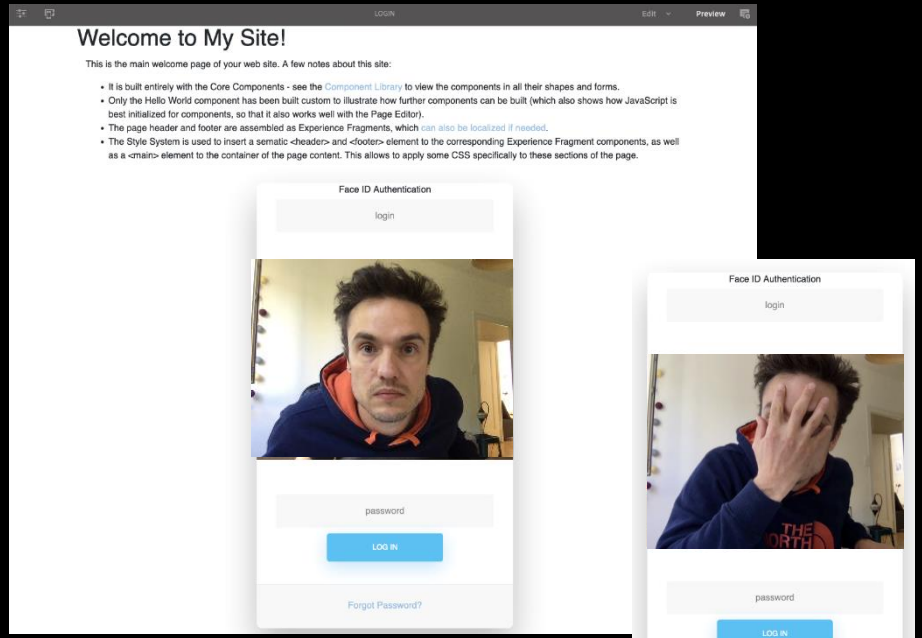


AEM.AI Advanced Tagging



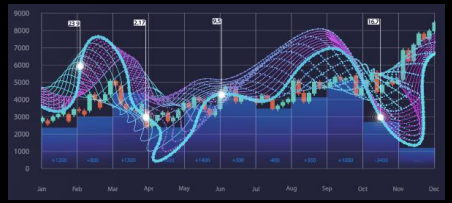


AEM.AI Digital Identity



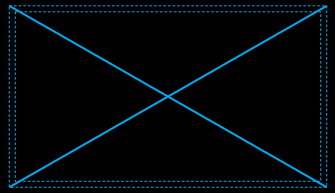
- Enable digital identity verification
  - Authentication
  - Identification
  - Payments

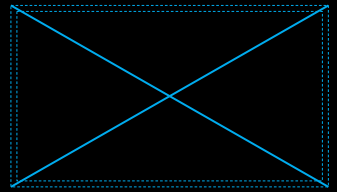
AEM.AI Soon…

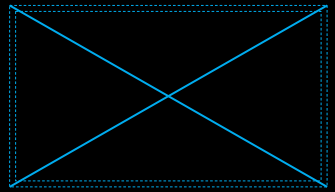


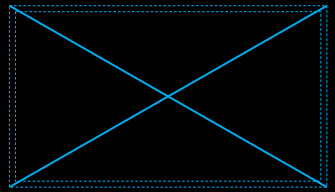
- Author write content by speaking
- Voice and chat bots
- Product Demand Planning

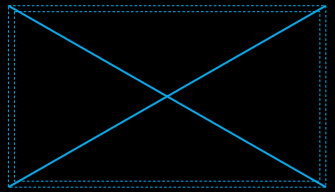
AEM.AI – Open Ecosystem

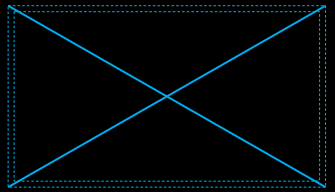










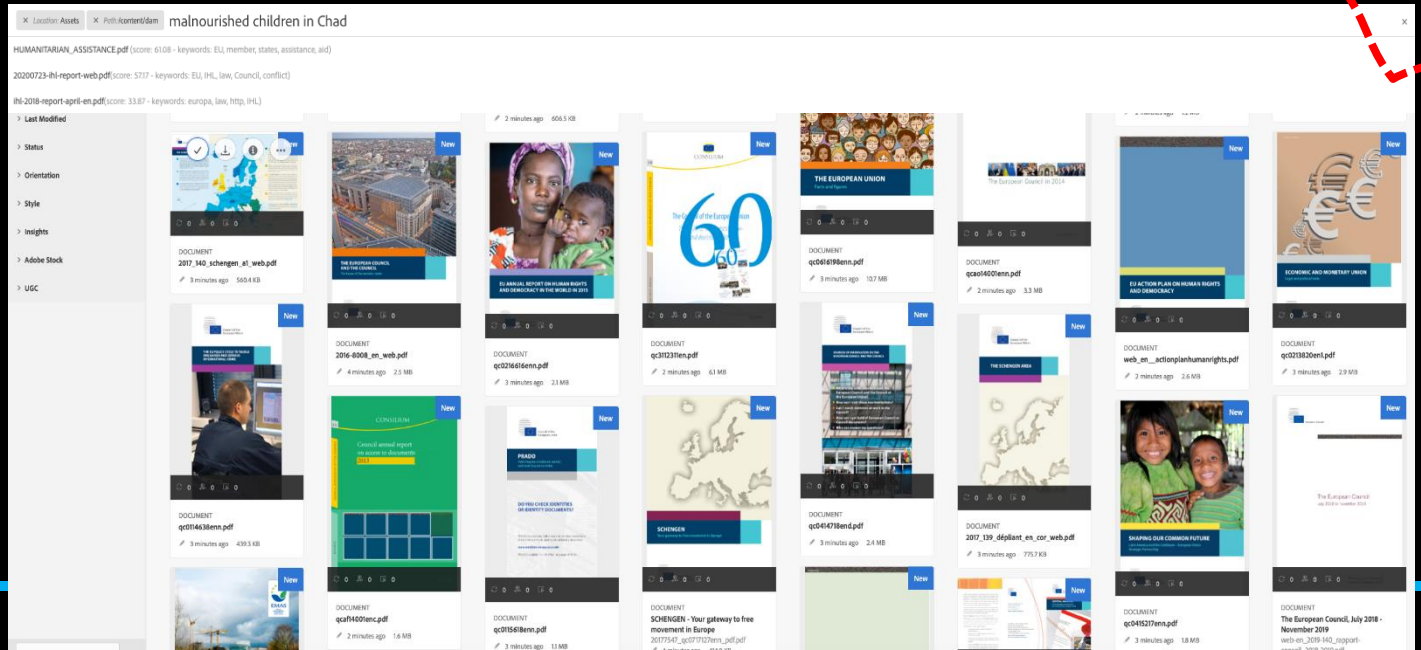


AEM.AI Natural Language Search

Powered by Cap Gemini AI Platform - KIS

- Semantic query, scored probability, synonyms, search suggestions

Also supported in AEM Content and Commerce AI beta

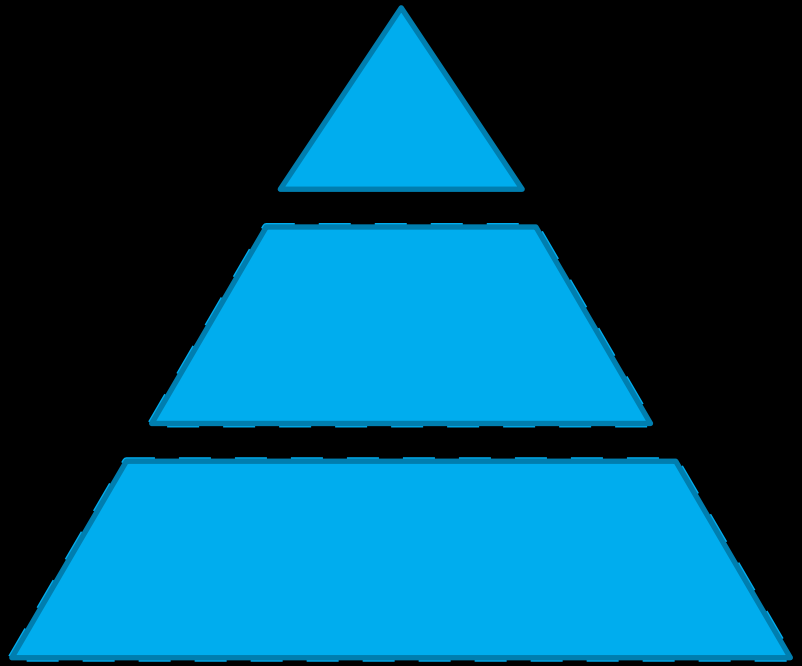


AI Capabilities in AEM

AEM Current State

AEM.AI

AEM_CSP

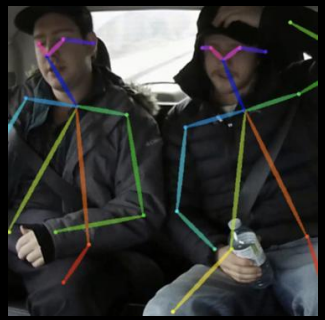


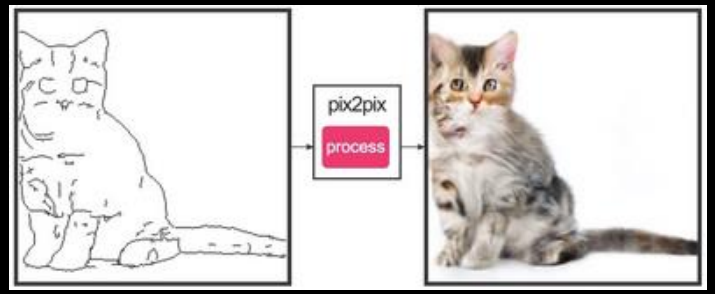
Adobe Sensei

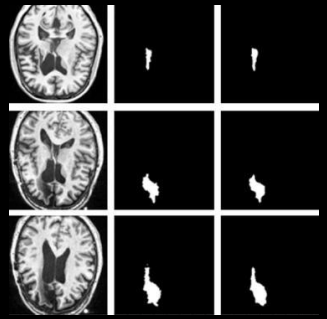
AWS, Azure, Partner's AI platform, …

Data Science, State-of-the-Art AI Models, …

Plenty of cool AI models out there!!!







AI Model: Image Captioning

Generic

“A woman stretching with her arms to the left and up”

Specific

“Lisa A. stretching with the We.Retail Soleil Tunic”

AEM_CSP

AEM_CSP – Typical AI Workflow

01 Define

02 Prepare Content

03 Create AI Model

04 Train the AI Model

05 Inference

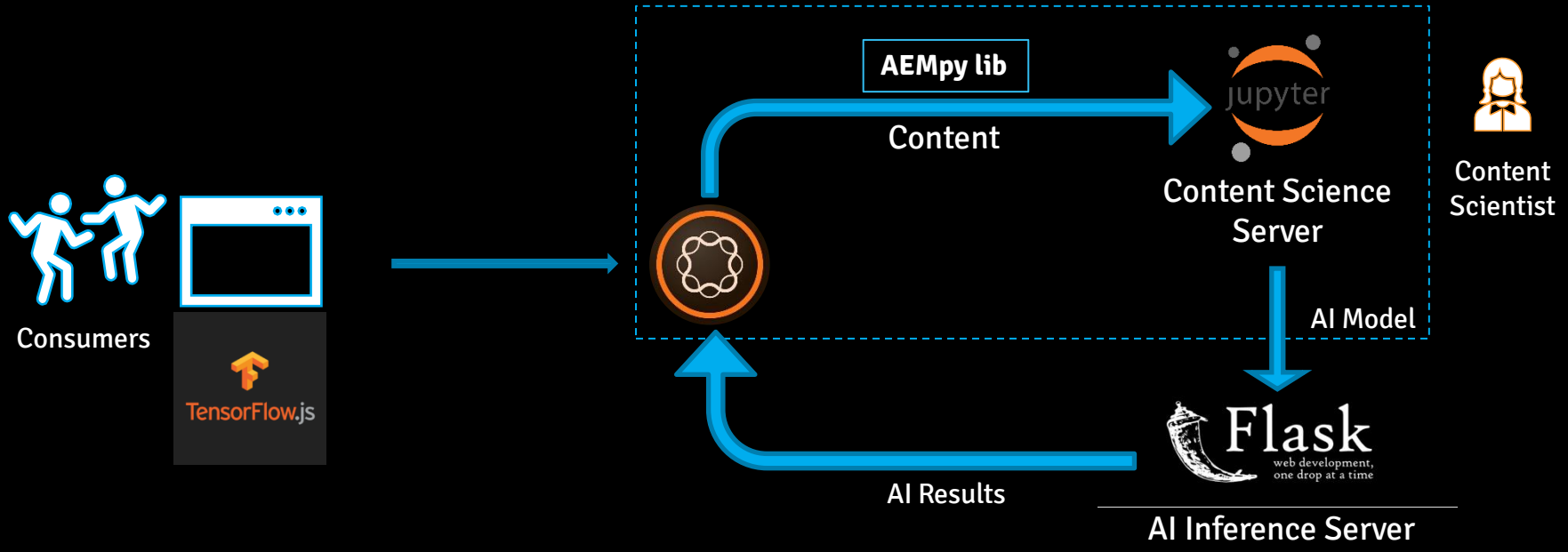
AEM

ML Fwk: PyTorch, TensorFlow, mxnet

Data Science Server: jupyter

Python Web Server: Flask, APACHE HTTP SERVER PROJECT, mod_wsgi

Architecture



AEMpy: Python library for AEM (1/3)

> Python

```
import aempy

myaem = aempy.AEM()

# 1. or
myaem = aempy.AEM(user="admin", password="admin")

# 2. or
myaem = aempy.AEM(host="localhost", port="4502",user="admin", password="admin")
```

AEMpy: Python library for AEM (2/3)

> Python

```
import aempy

assets = aempy.Asset()

# 1. Request an image
img = assets.get_image("/content/dam/myimage.jpg")

# 2. Display the image using high level API
assets.display(img)

# 3. Access properties
img['jcr:content']['metadata']['dam:size']
```

AEMpy: Python library for AEM (3/3)

> Python

```
import aempy
system = aempy.System()

# 1. Request error log
errorslog = system.get_errorlog(5)

# 2. Split and display using Pandas (lib)
dfLog = pd.DataFrame([sub.split(" ") for sub in errorslog])
```

	0	1	2	3	4	5	6	7	8
0	06.08.2020	23:27:08.220	*ERROR*	[sling-threadpool-4861cef9-78cf-4110-9809-3a9b...	com.day.cq.replication.Agent.publish	>>	Content-Length:	0	None
1	06.08.2020	23:27:08.220	*ERROR*	[sling-threadpool-4861cef9-78cf-4110-9809-3a9b...	com.day.cq.replication.Agent.publish	>>	Content-Type:	application/octet-stream	None
2	06.08.2020	23:27:08.220	*INFO*	[sling-threadpool-4861cef9-78cf-4110-9809-3a9b...	com.day.cq.replication.Agent.publish.queue	Job	for	agent	publish
3	06.08.2020	23:27:30.069	*INFO*	[sling-default-2-health-org.apache.sling.disco...	org.apache.sling.discovery.oak.SynchronizedClo...	execute:	no	topology	connectors

Content Science Server

```
In [1]:
%load_ext autoreload
%autoreload 2

from aempy import aem as cq
import pandas as pd
import seaborn as sns
import pandas as pd
import matplotlib.pyplot as plt
```

executed in 7.11s, finished 08:43:16 2020-08-21

1 AEM

```
In [2]:
aem = cq.AEM()
sess = aem.get_session()
```

executed in 30ms, finished 08:43:16 2020-08-21

```
In [4]:
# Assets
assets = cq.Assets()
img = assets.get_asset("/content/dam/we-retail/en/people/womens/women_6.jpg")
assets.display(img)
```

executed in 500ms, finished 08:44:55 2020-08-21

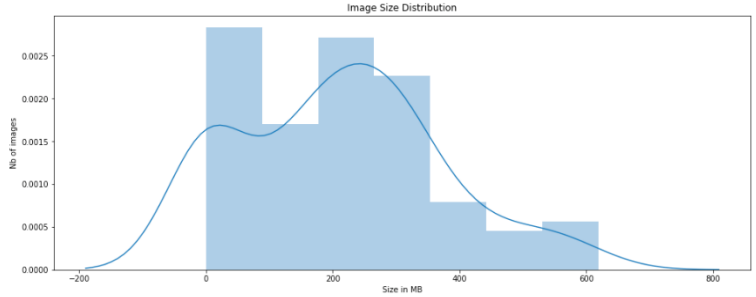
Request: http://localhost:4502/content/dam/we-retail/en/people/womens/women_6.jpg.infinity.json
Request: http://localhost:4502/content/dam/we-retail/en/people/womens/women_6.jpg

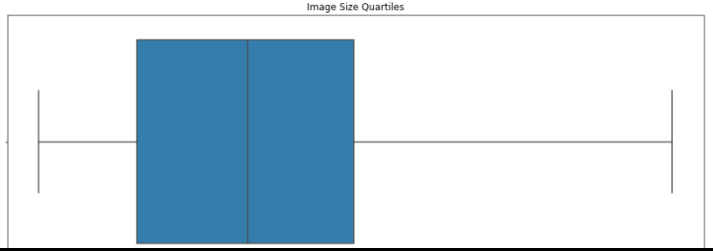
Out[4]:

```
In [8]:
sizesKB = [x/1000 for x in sizes]

plt.figure(figsize=(16, 6))
ax = sns.distplot(sizesKB);
ax.set_title('Image Size Distribution')
ax.set_xlabel('Size in MB')
ax.set_ylabel('Nb of images')

plt.figure(figsize=(16, 6))
ax = sns.boxplot(sizesKB);
ax.set_title('Image Size Quartiles')
ax.set_xlabel('Size in kB')
```

executed in 372ms, finished 08:46:32 2020-08-21

Out[8]: Text(0.5, 0, 'Size in kB')





adaptTo()

Demo: Image Captioning

What's Next?

- **pix2code-template: Mockup to Components**
- **Image generation: From text to image**
- Fork and contribute:
  - github.com/houseofai/aem.ai
  - github.com/houseofai/aem.csp
  - github.com/houseofai/aempy

Appendix

AI Model: Super resolution Image