



SUMMIT
ONLINE

Streamlining machine learning operations

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Senior Solutions Architect

Amazon Web Services

Agenda

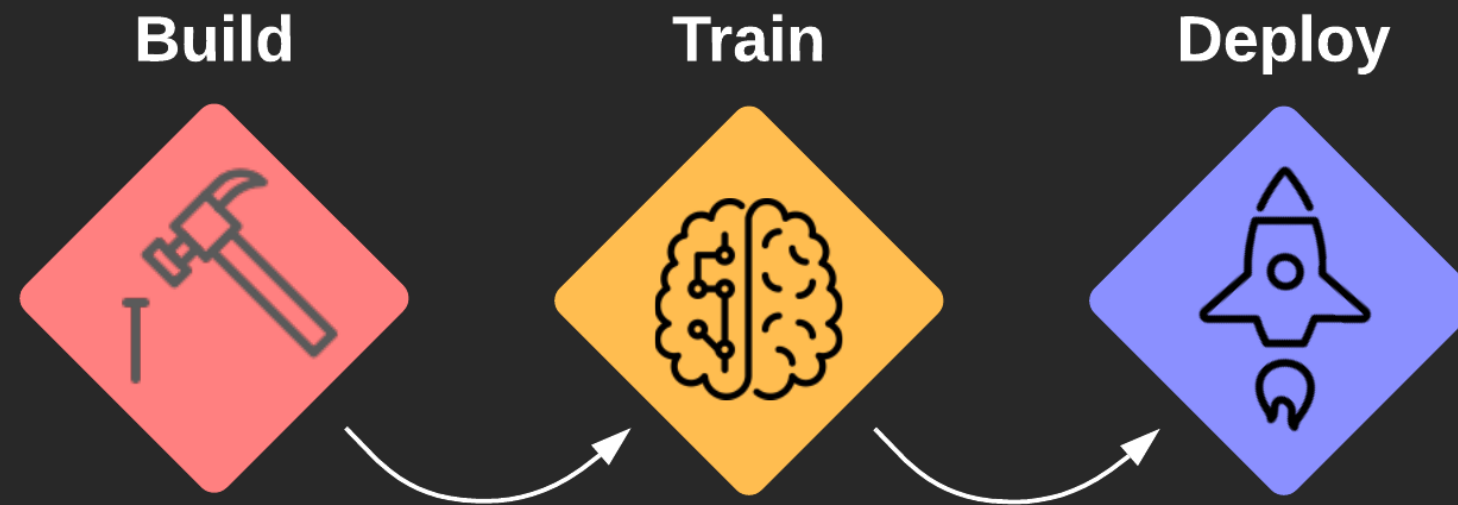
The development cycle of machine learning (ML)

Challenges of ML at scale

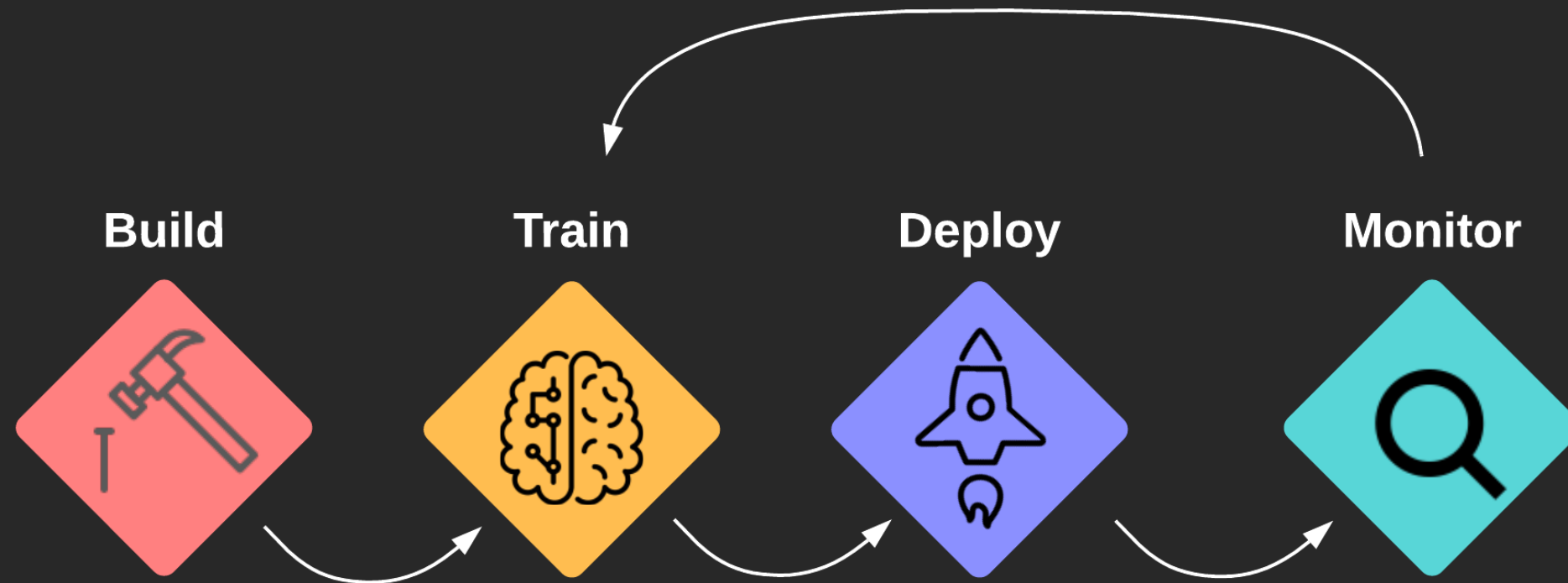
MLOps on AWS

The development cycle of ML

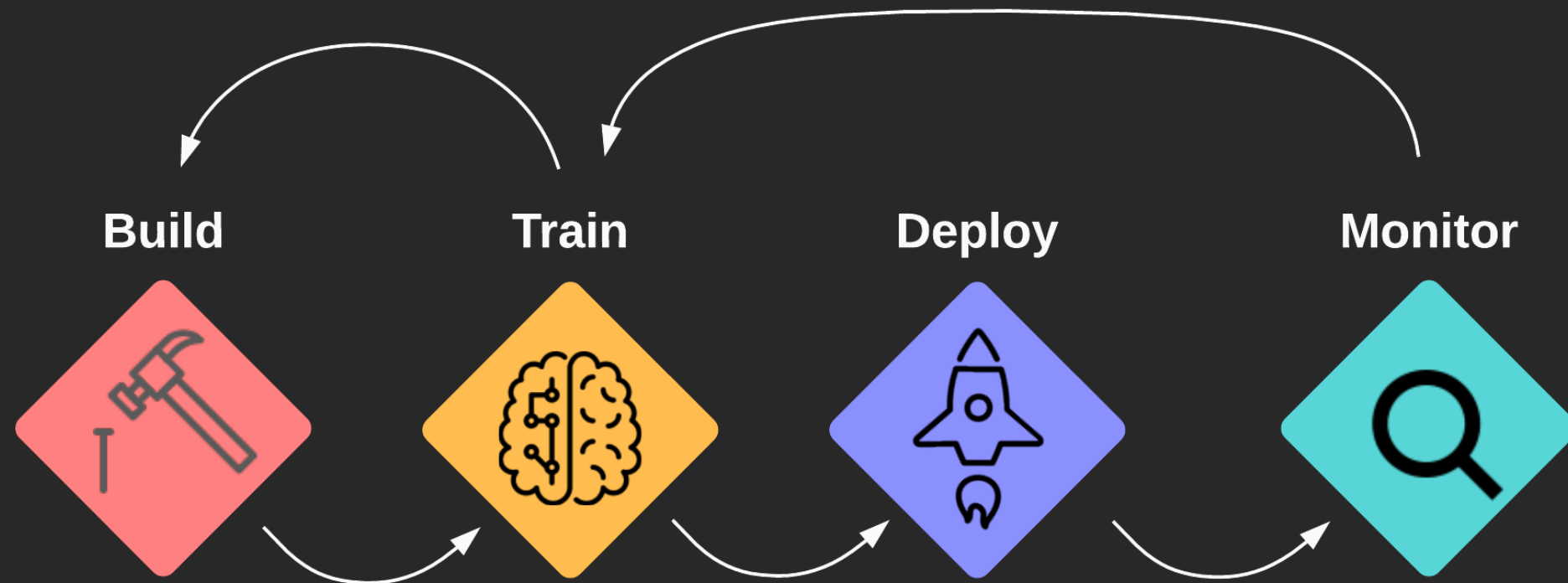
The development cycle of ML



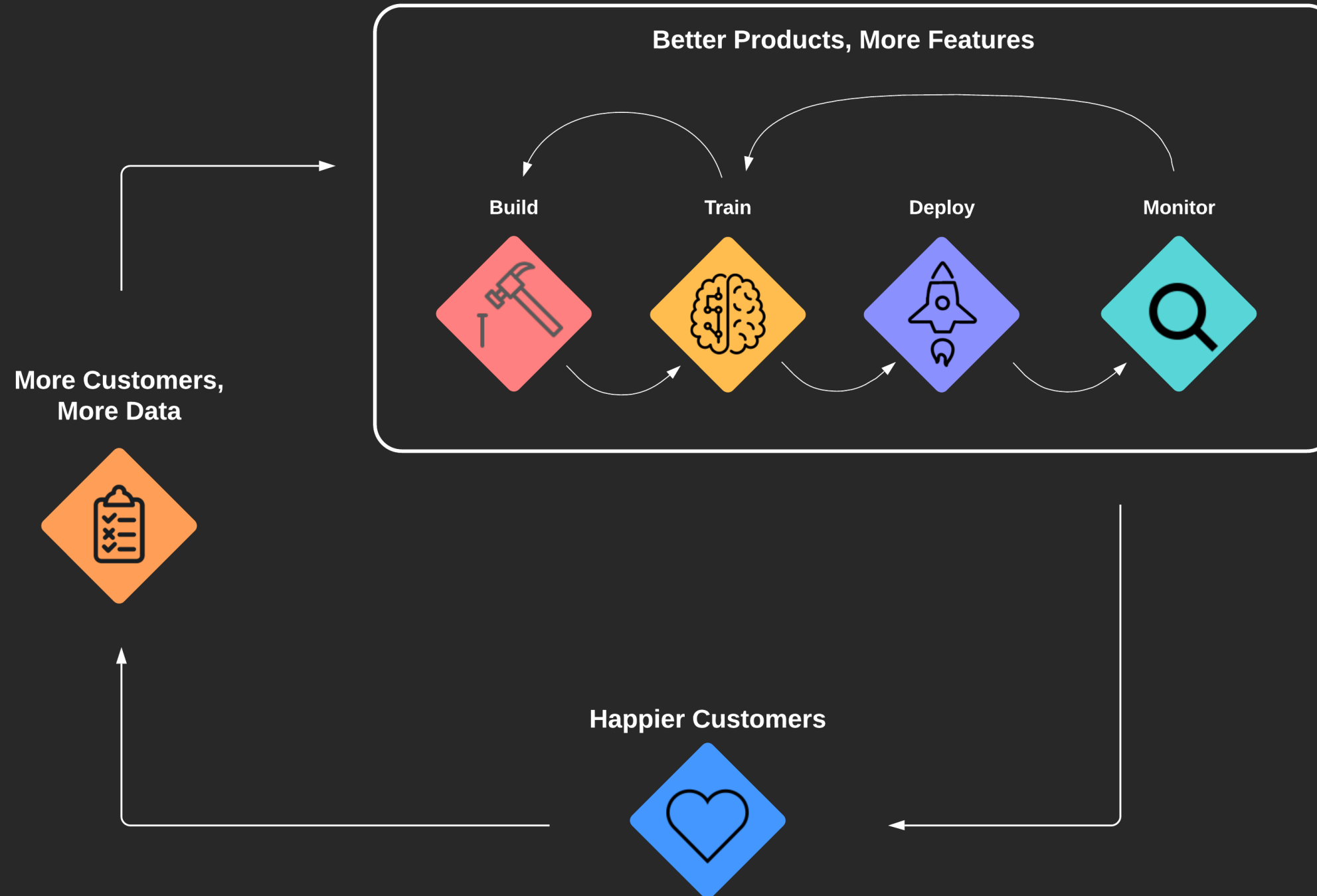
The development cycle of ML



The development cycle of ML

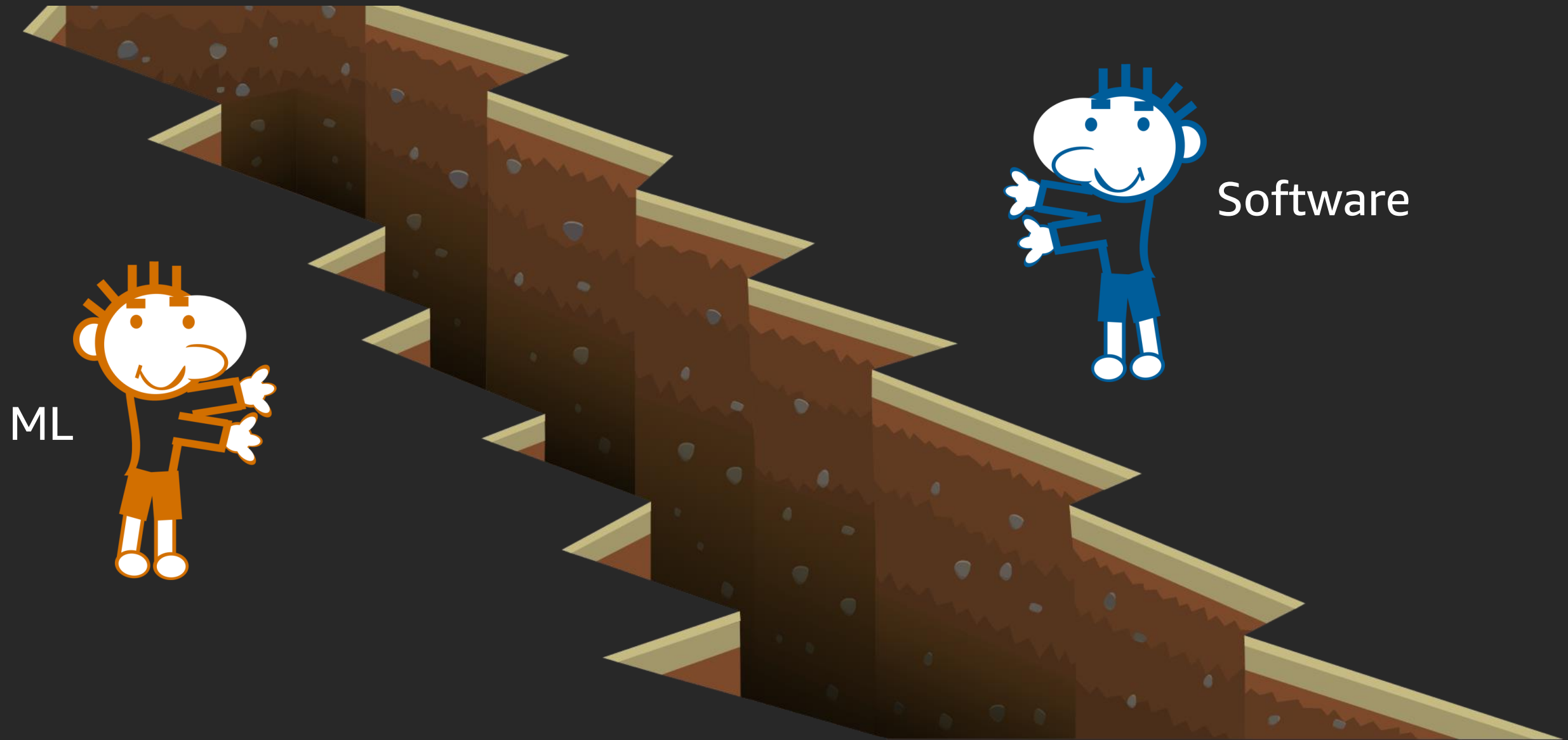


The development cycle of ML

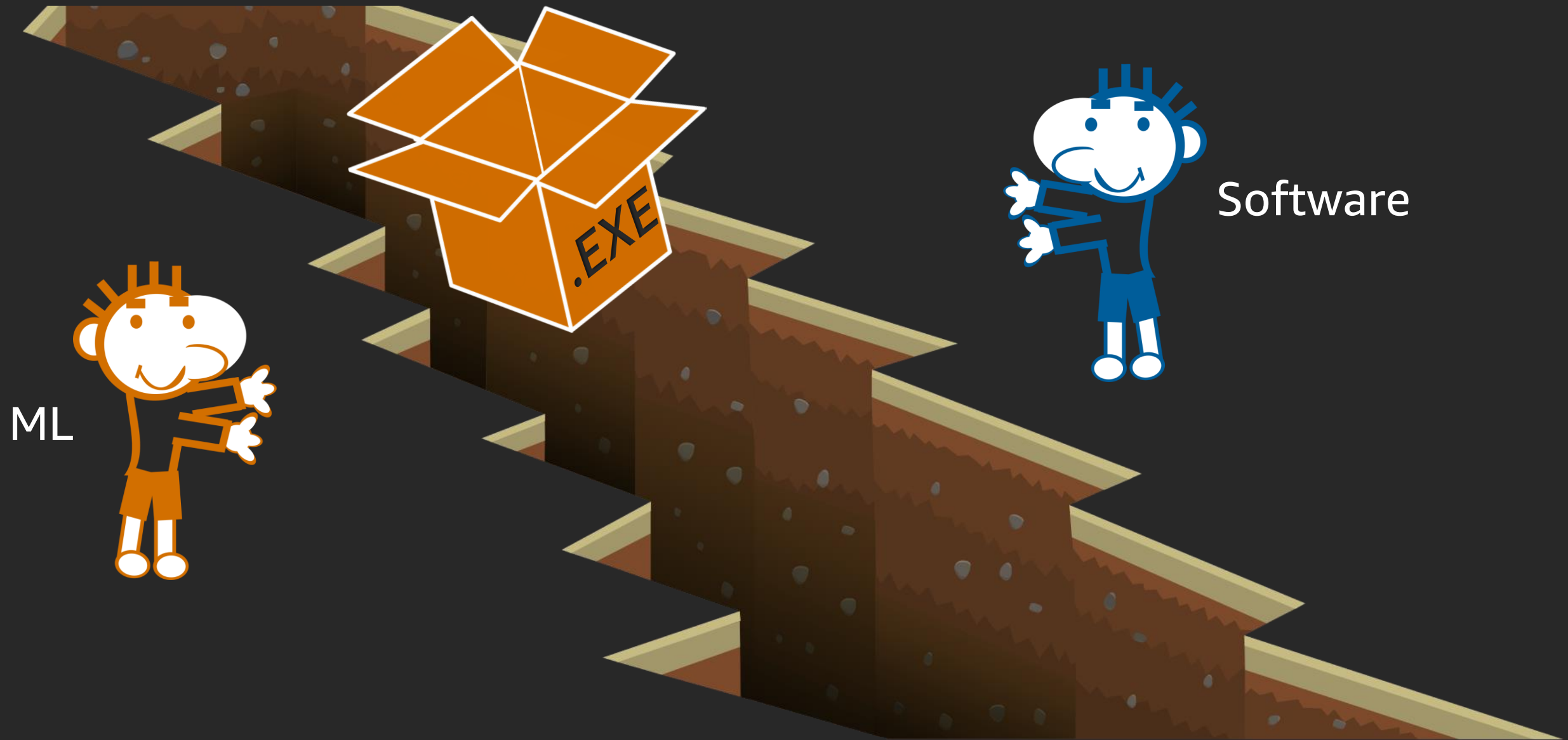


Challenges of ML at scale

Challenges of ML at scale



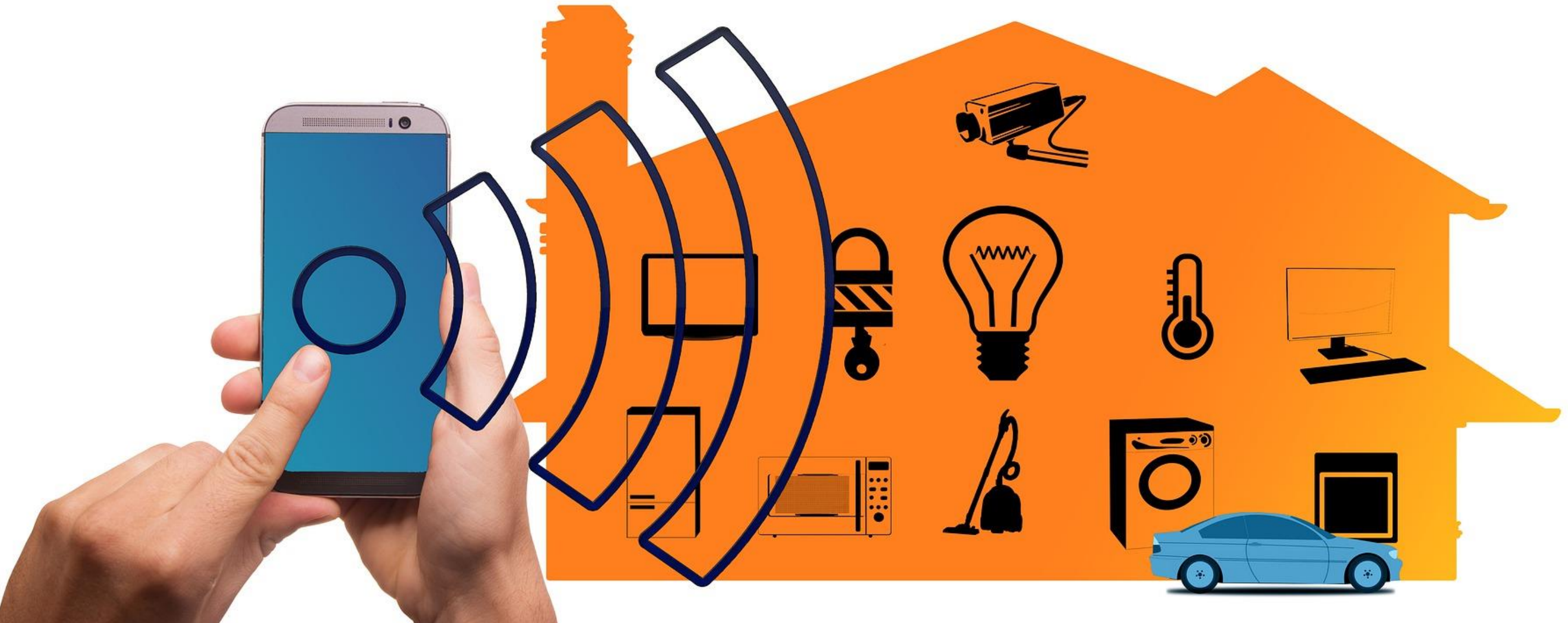
Challenges of ML at scale



Haven't we seen this before?



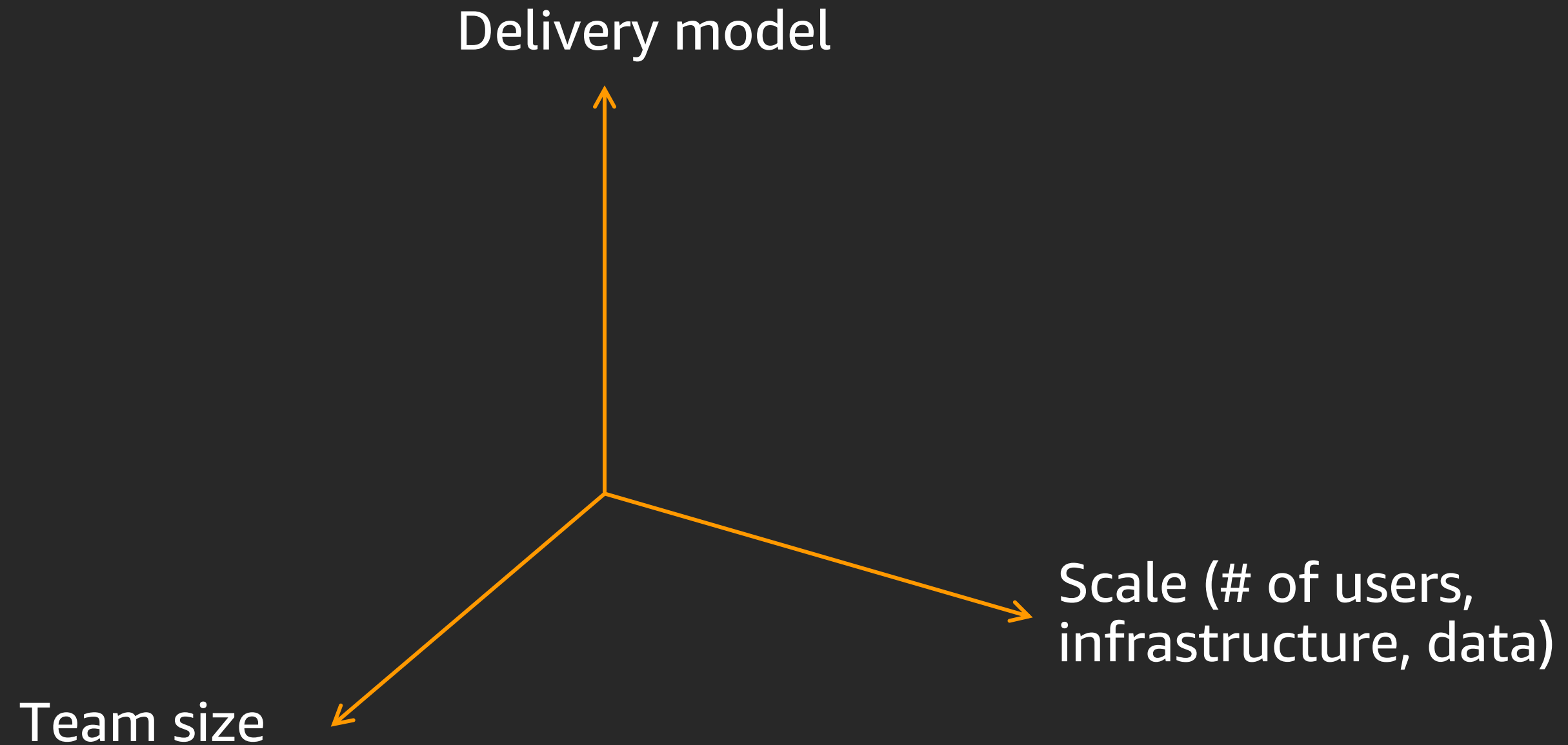
Software is everywhere



Software is everywhere



3 dimensions of increasing complexity



Complexity: Delivery model



SaaS

Build it, run it

CI/CD

Automated workflows

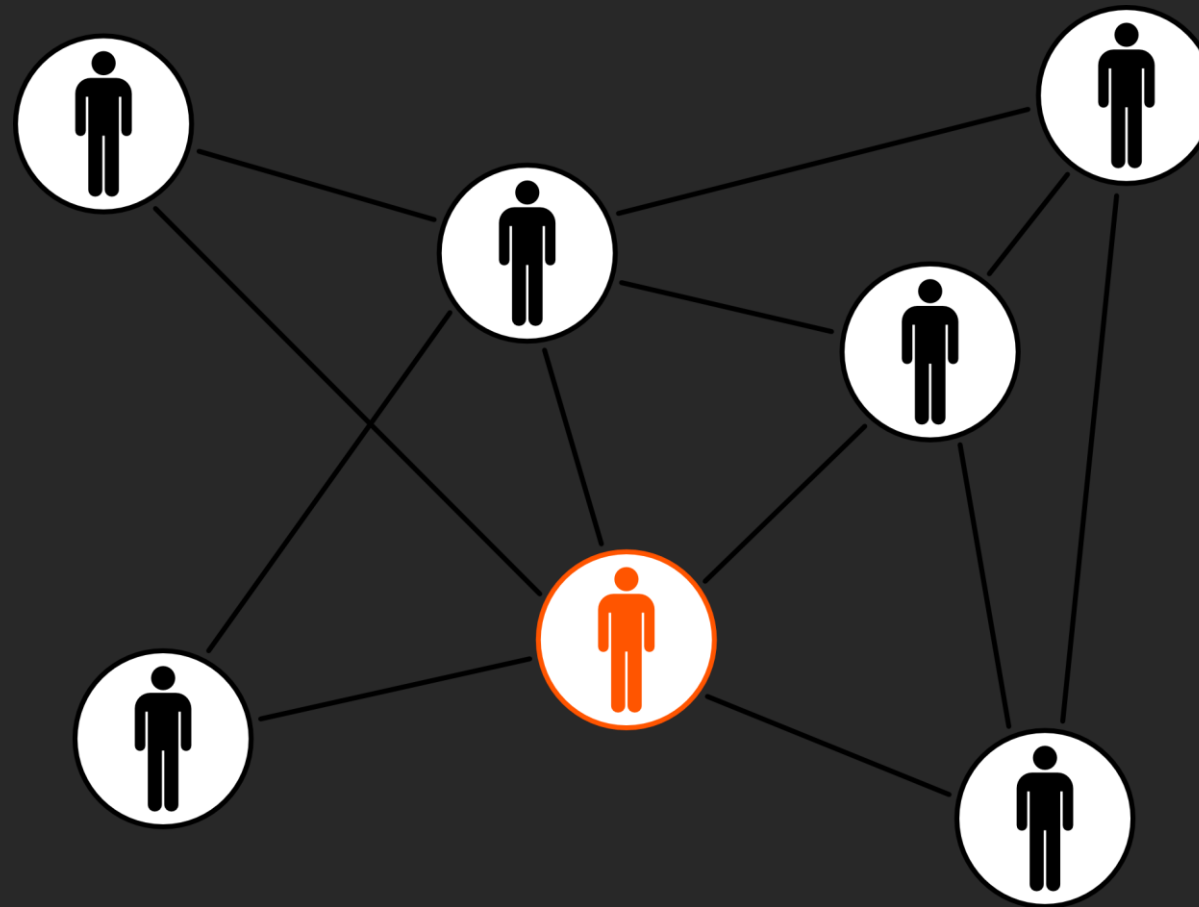
Experiments

A/B testing

Monitoring

Metrics and logs

Complexity: Team size



Notebooks

Exploratory
data analysis

Collaboration

Share
artifacts

Specialization

FE, algorithm
development,
model tuning

Productivity

GPU resources
on demand

Complexity: Scale



Users

Business demands growth



Infrastructure

Elastic, distributed, on demand



Data

Petabyte-scale storage

MLOps on AWS

Workflow orchestration



Metaflow



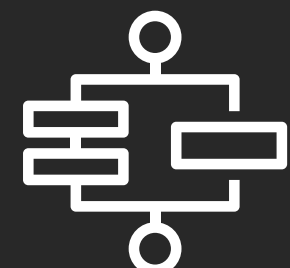
Flyte



Apache Airflow

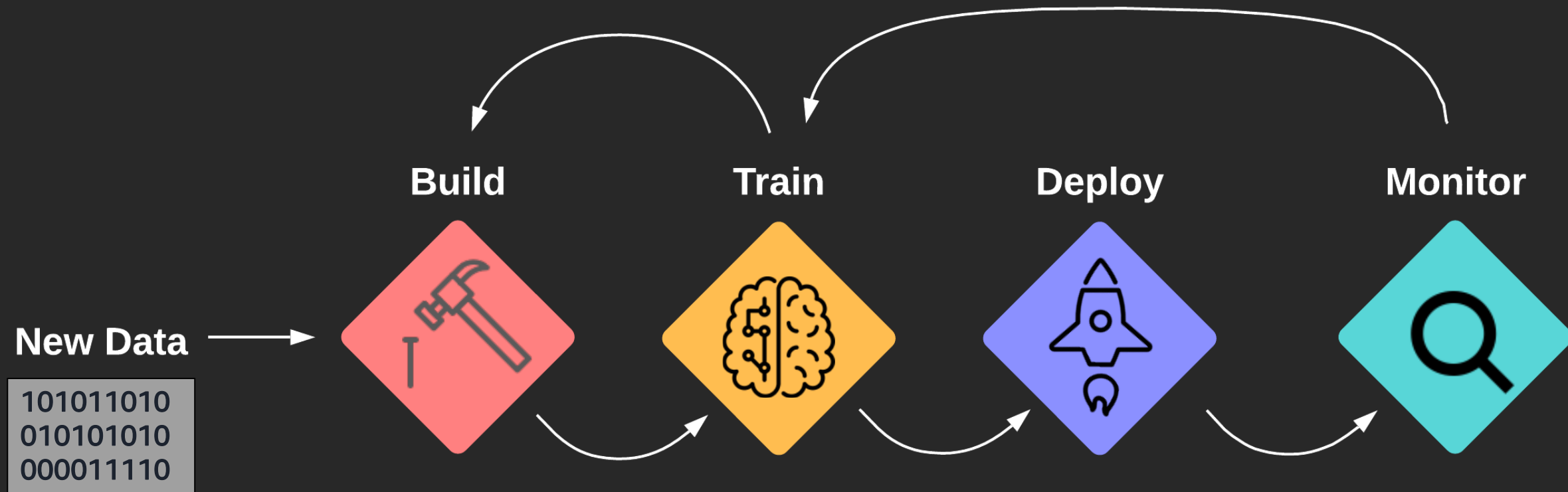


Kubeflow



AWS Step Functions

The development cycle of ML



The development cycle of ML on AWS



The development cycle of ML on AWS



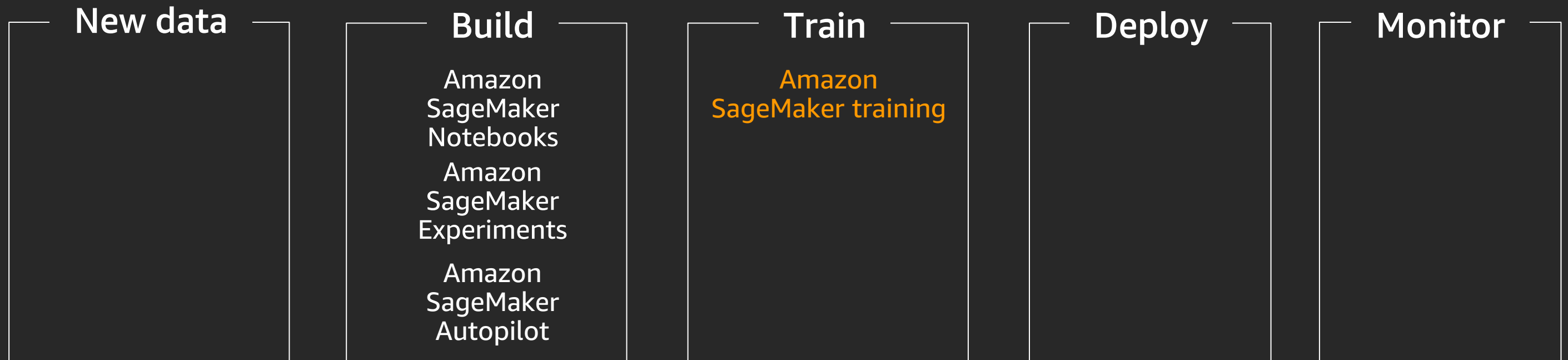
The development cycle of ML on AWS



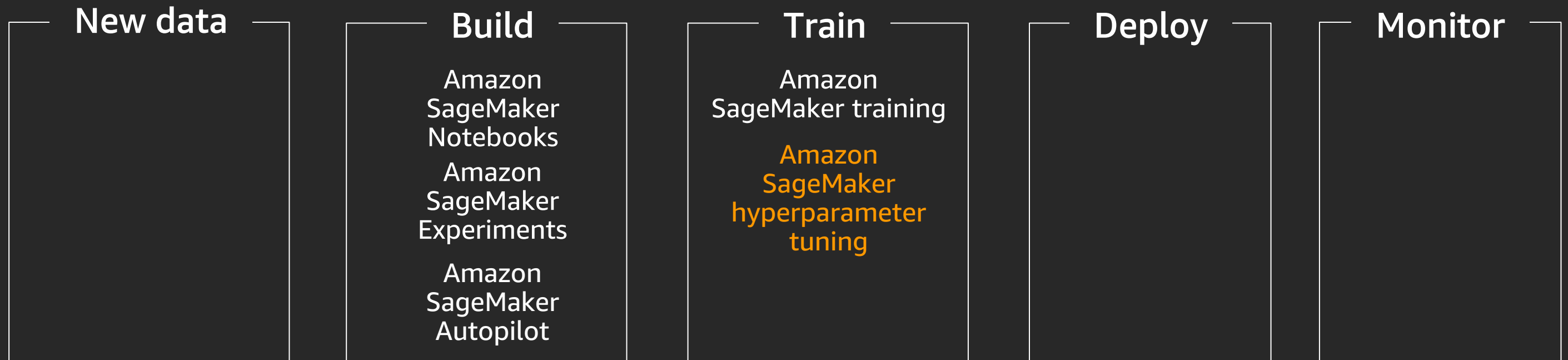
The development cycle of ML on AWS



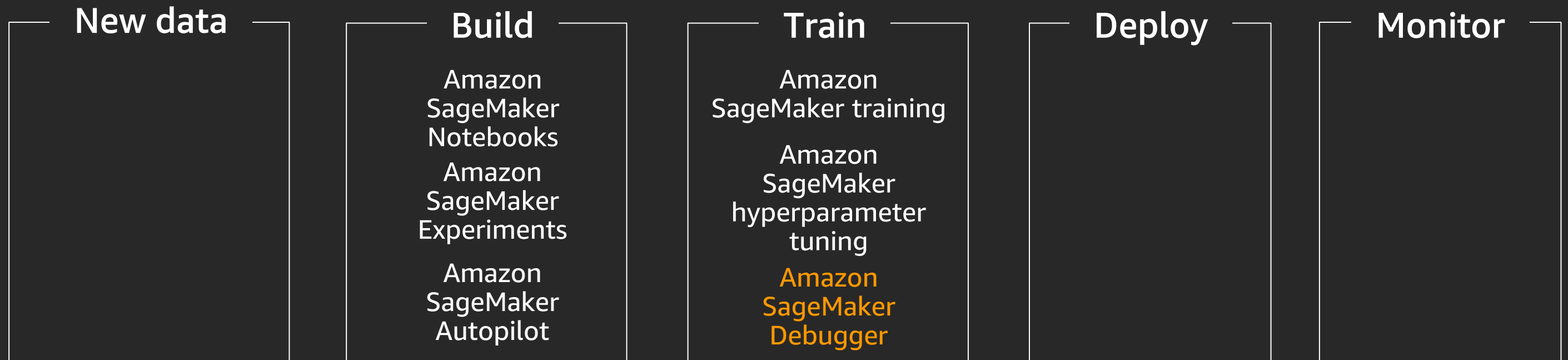
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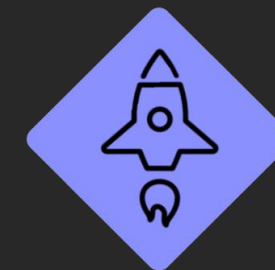
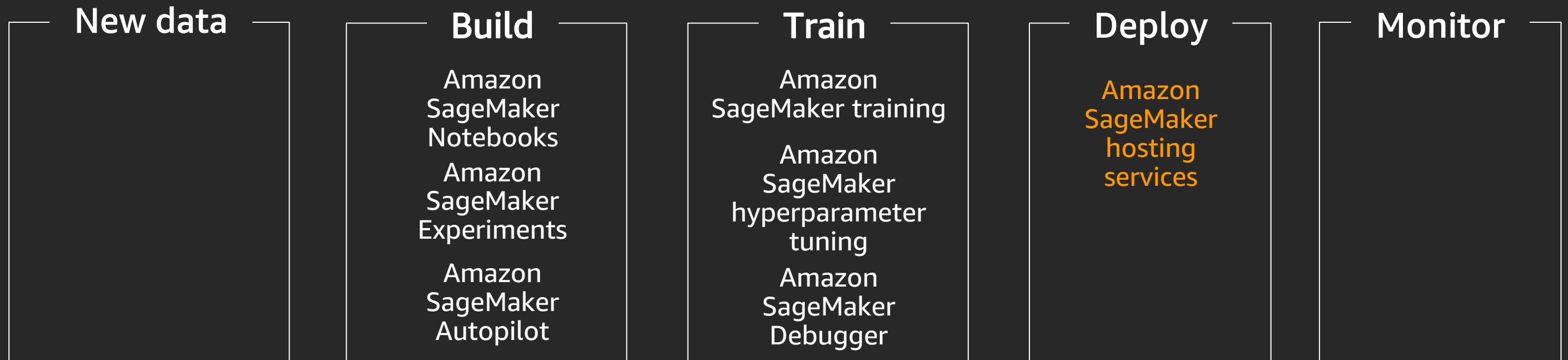
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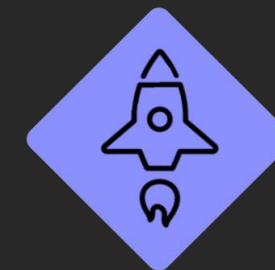
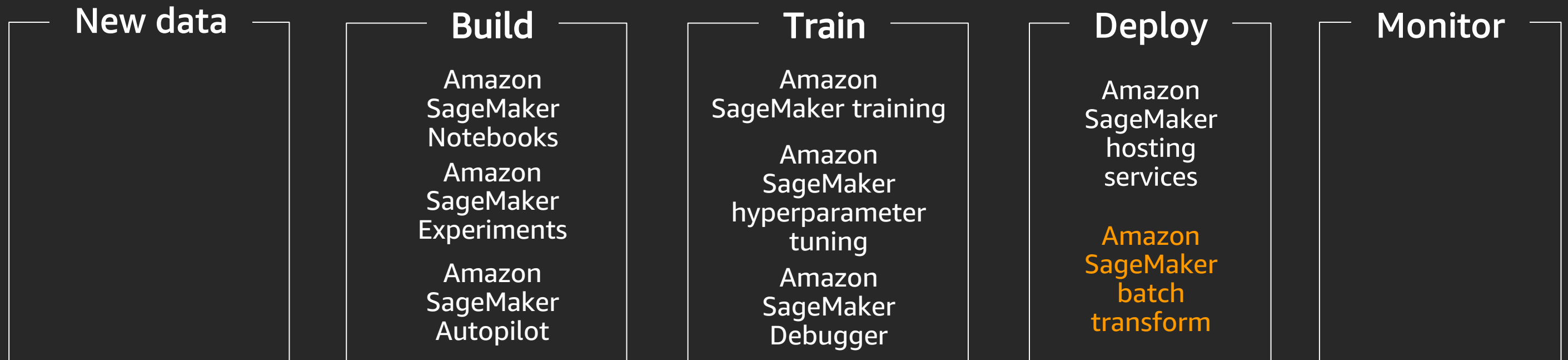
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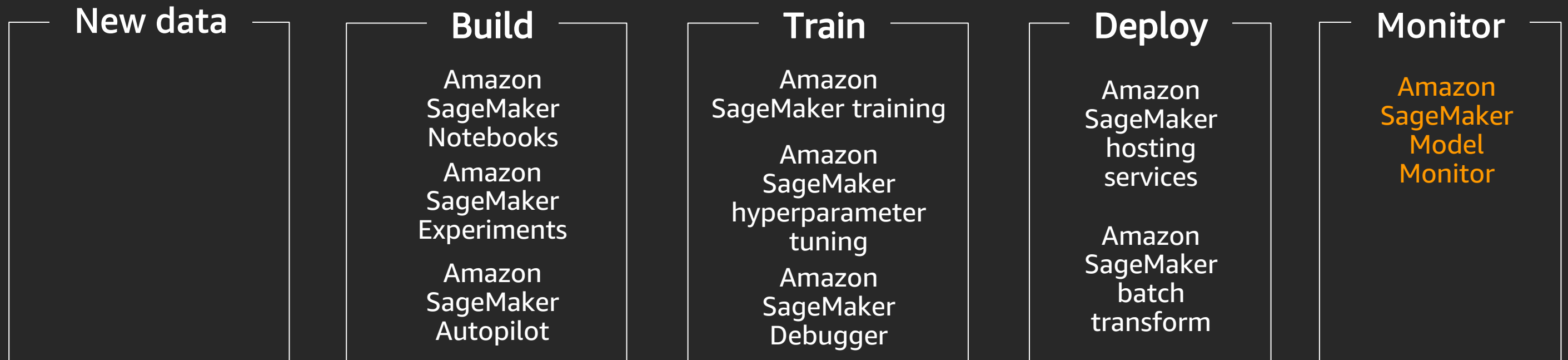
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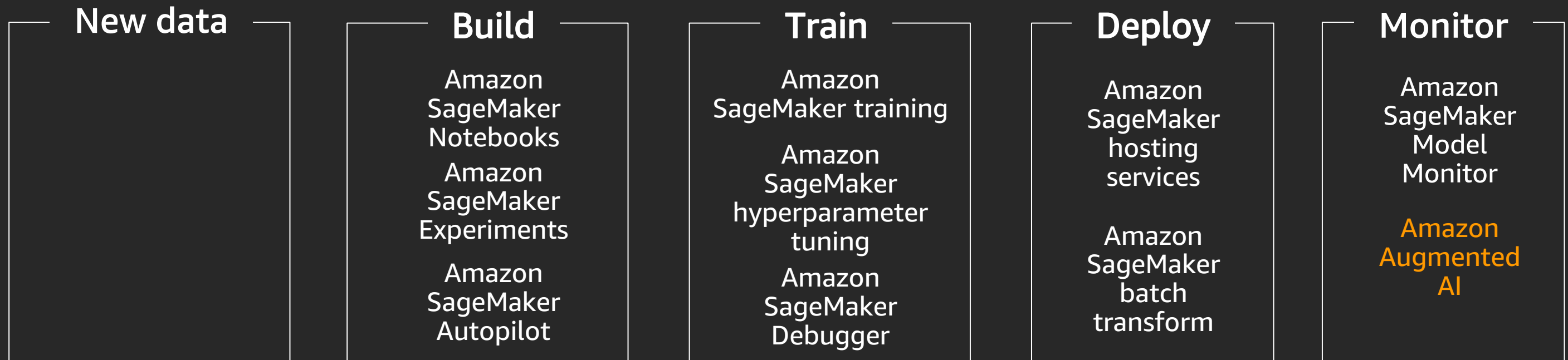
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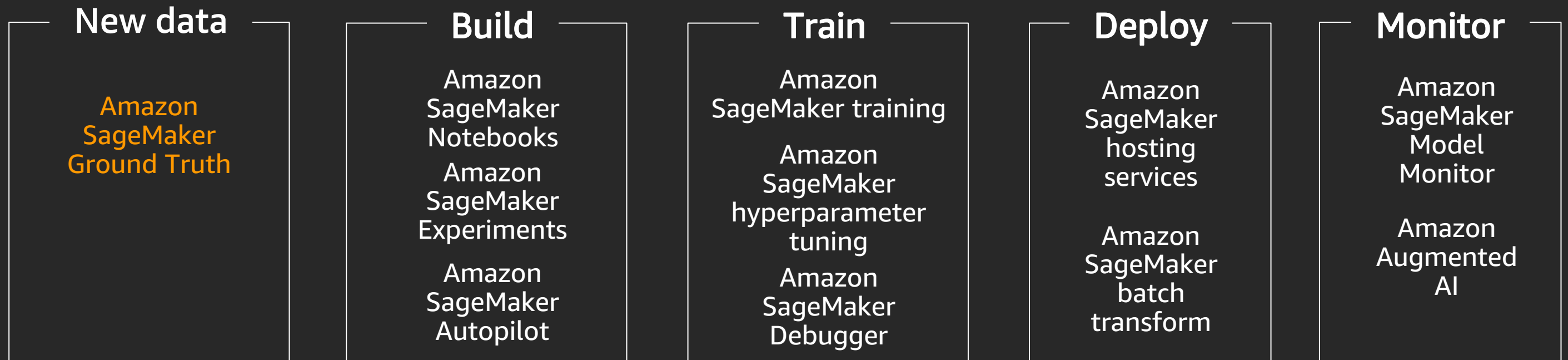
The development cycle of ML on AWS



The development cycle of ML on AWS

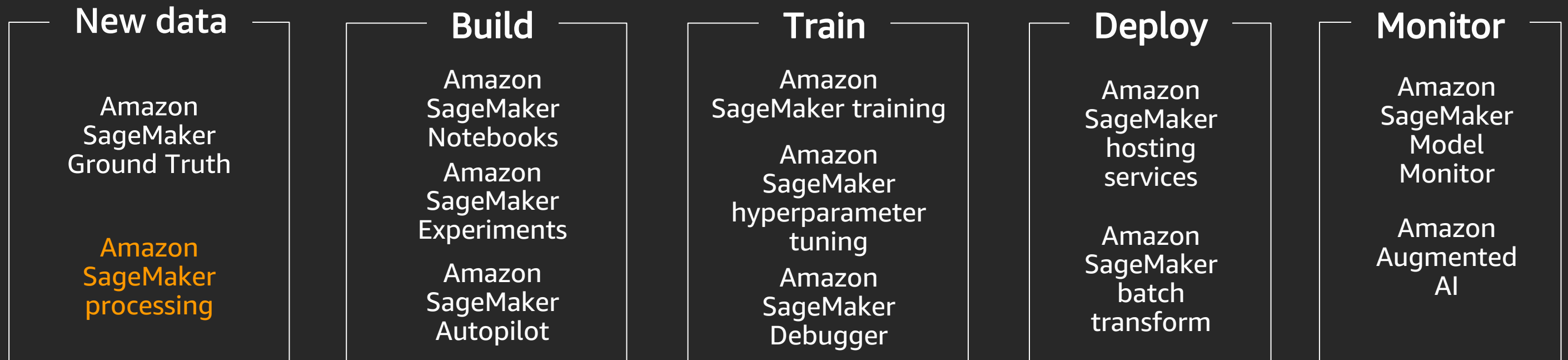


The development cycle of ML on AWS



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The development cycle of ML on AWS



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Amazon SageMaker Studio

New data

Amazon
SageMaker
Ground Truth

Amazon
SageMaker
processing

Build

Amazon
SageMaker
Notebooks
Amazon
SageMaker
Experiments

Amazon
SageMaker
Autopilot

Train

Amazon
SageMaker training

Amazon
SageMaker
hyperparameter
tuning

Amazon
SageMaker
Debugger

Deploy

Amazon
SageMaker
hosting
services

Amazon
SageMaker
batch
transform

Monitor

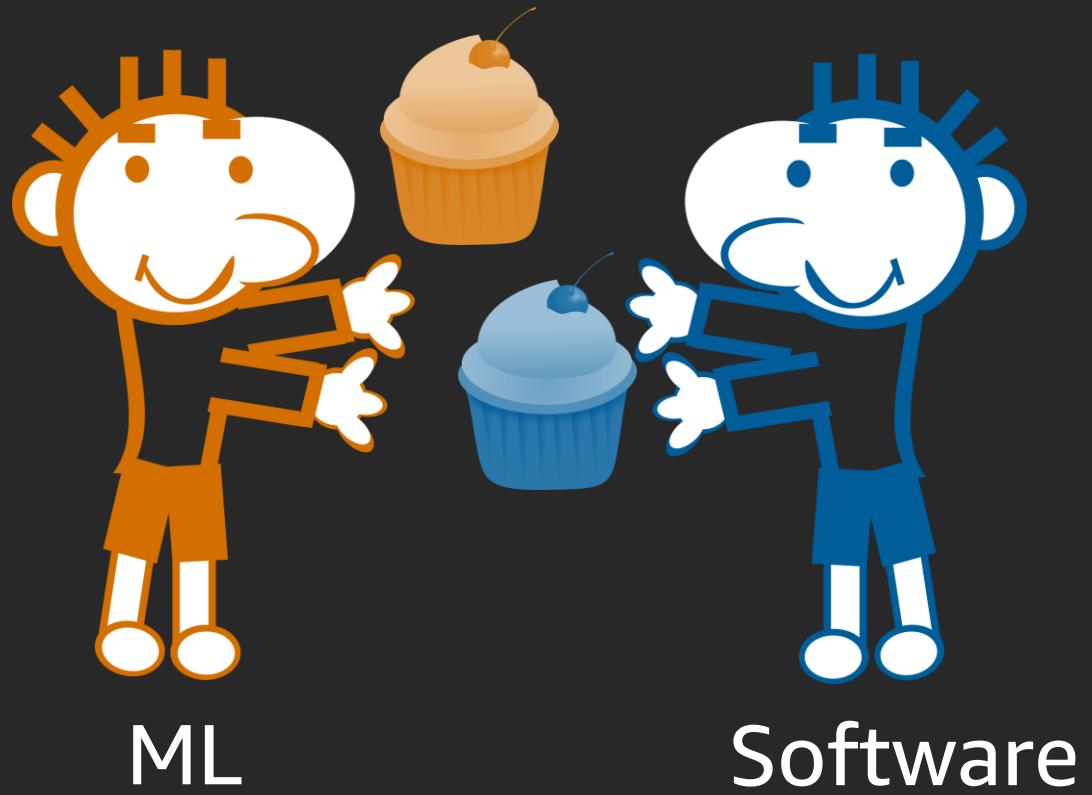
Amazon
SageMaker
Model
Monitor

Amazon
Augmented
AI

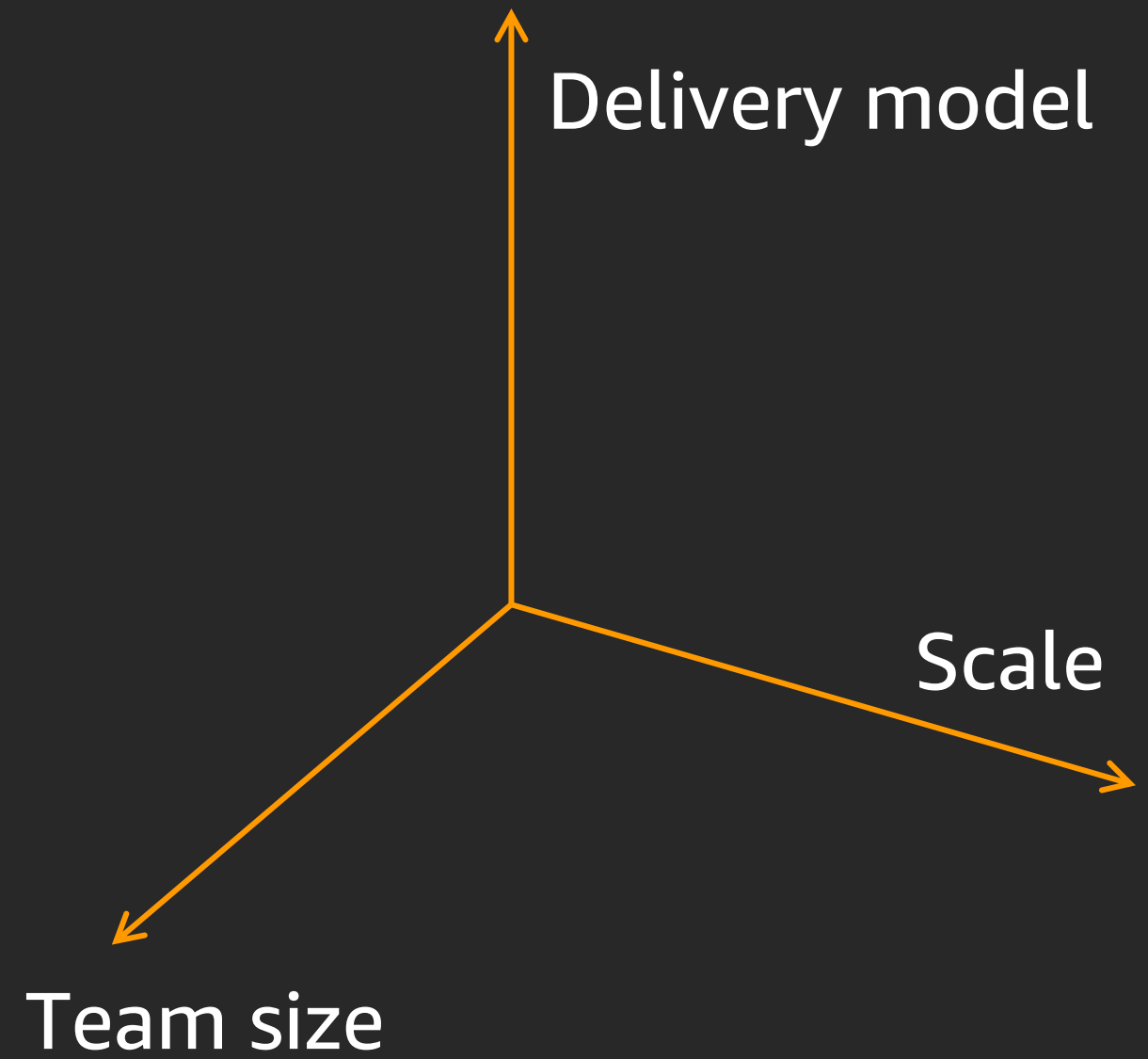
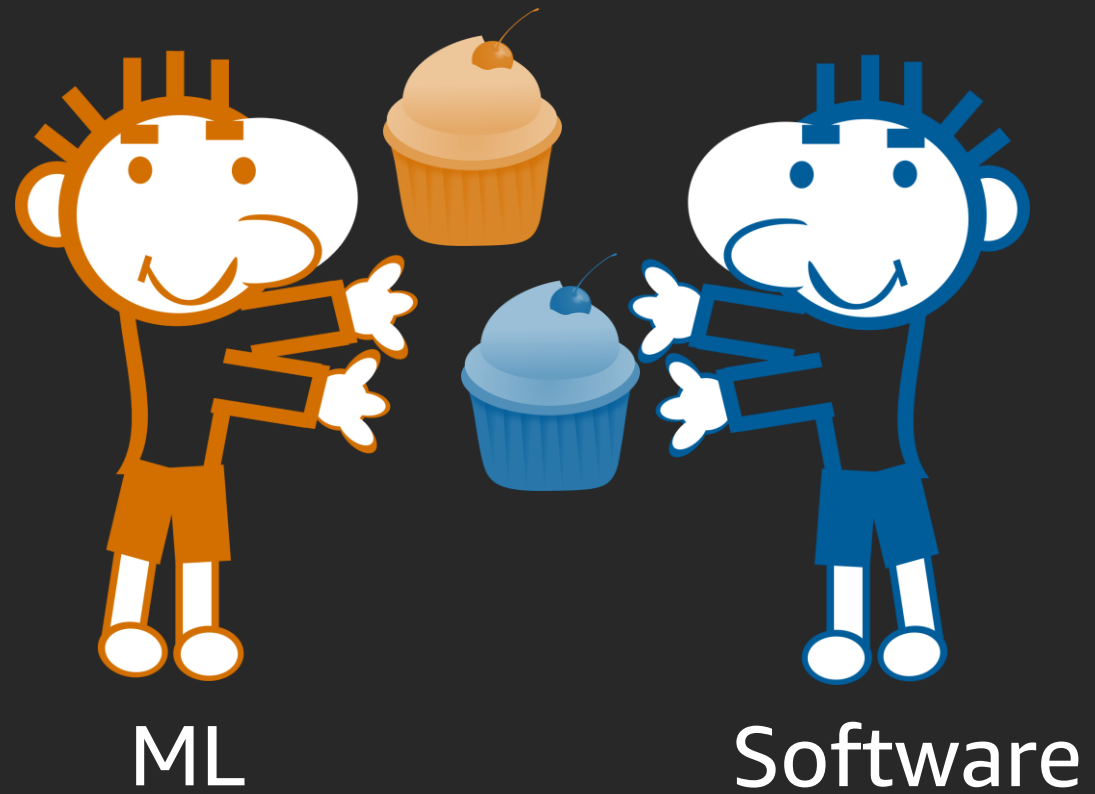


Amazon SageMaker Studio, the first fully integrated
development environment for machine learning

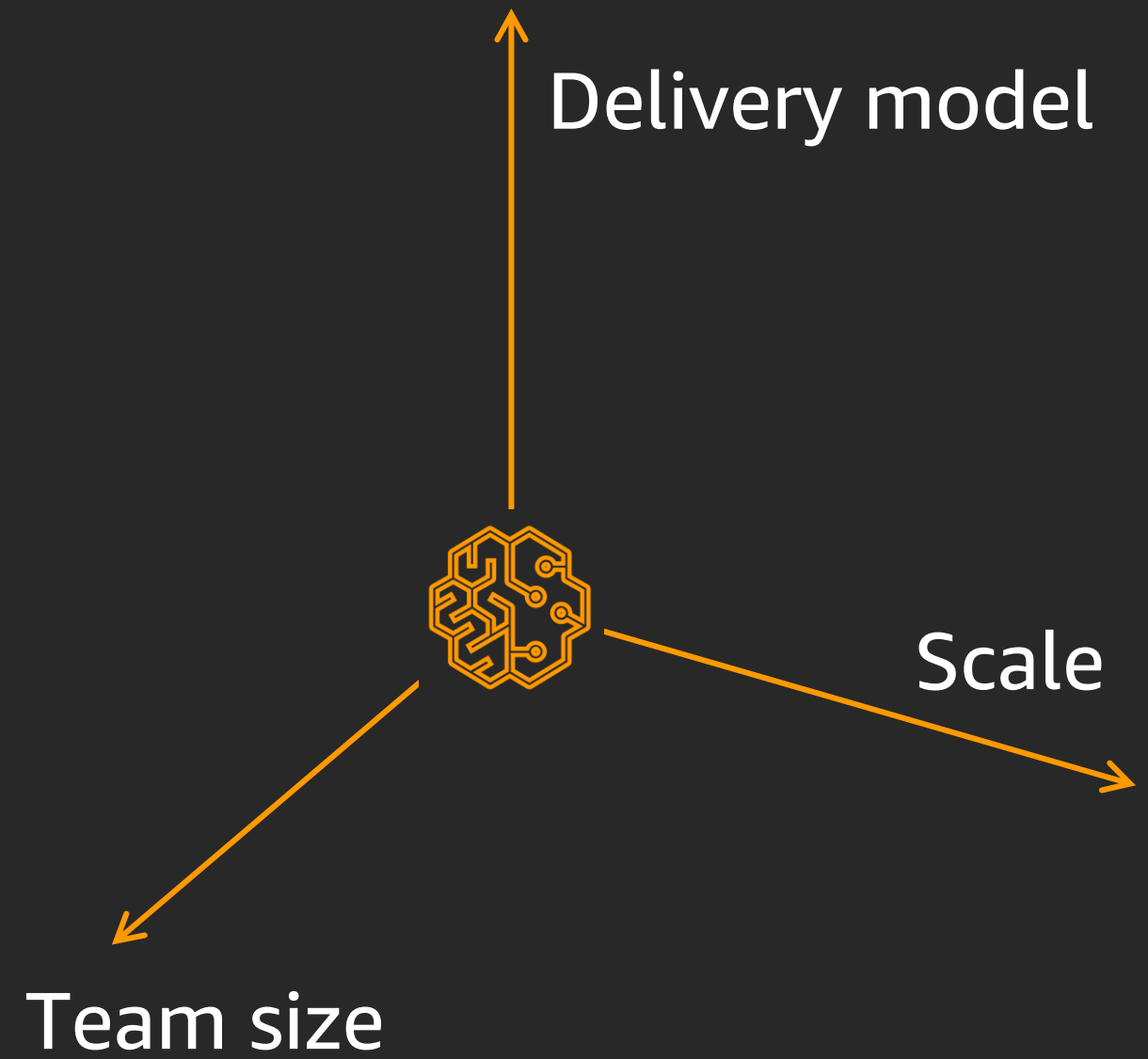
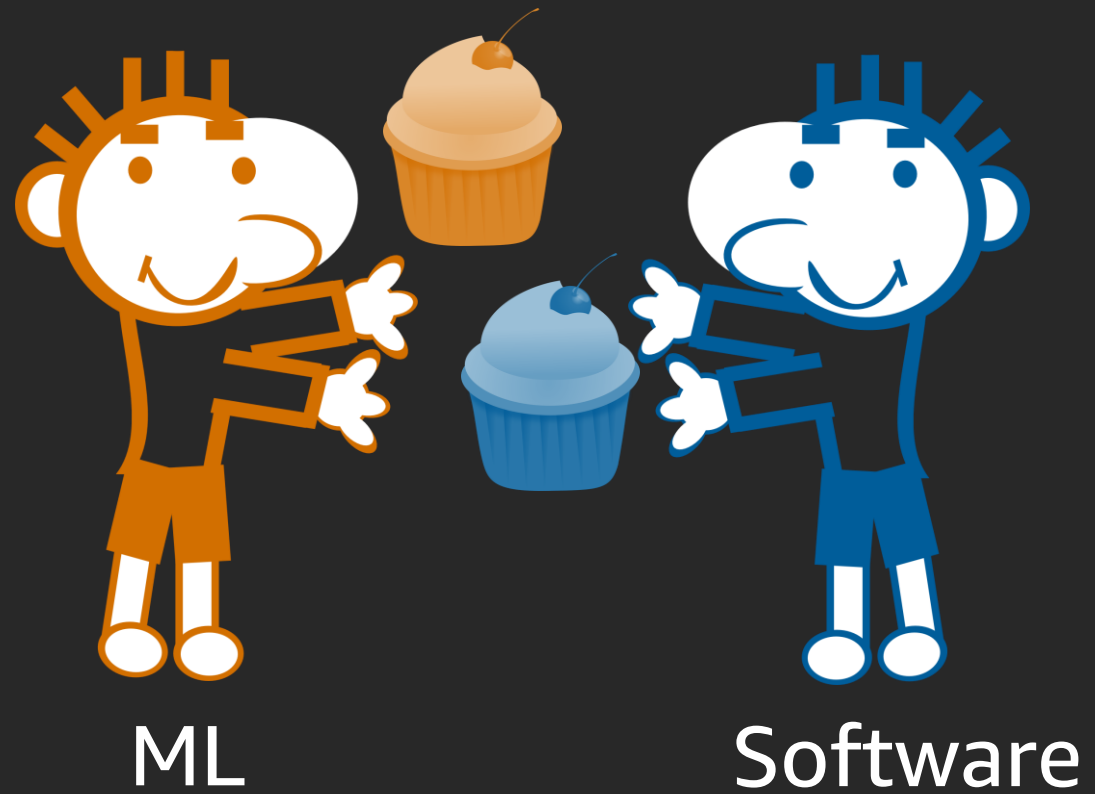
Recap



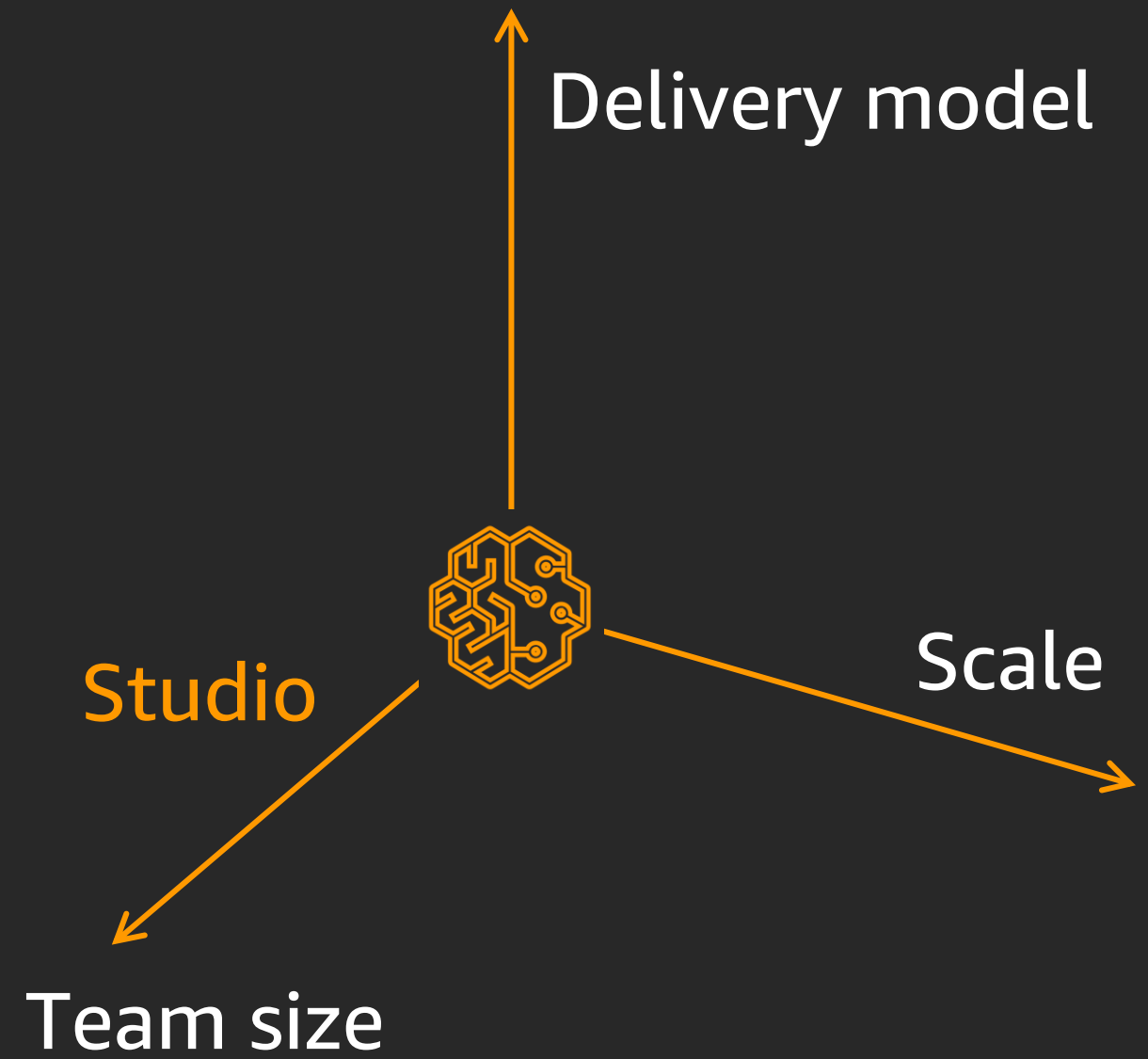
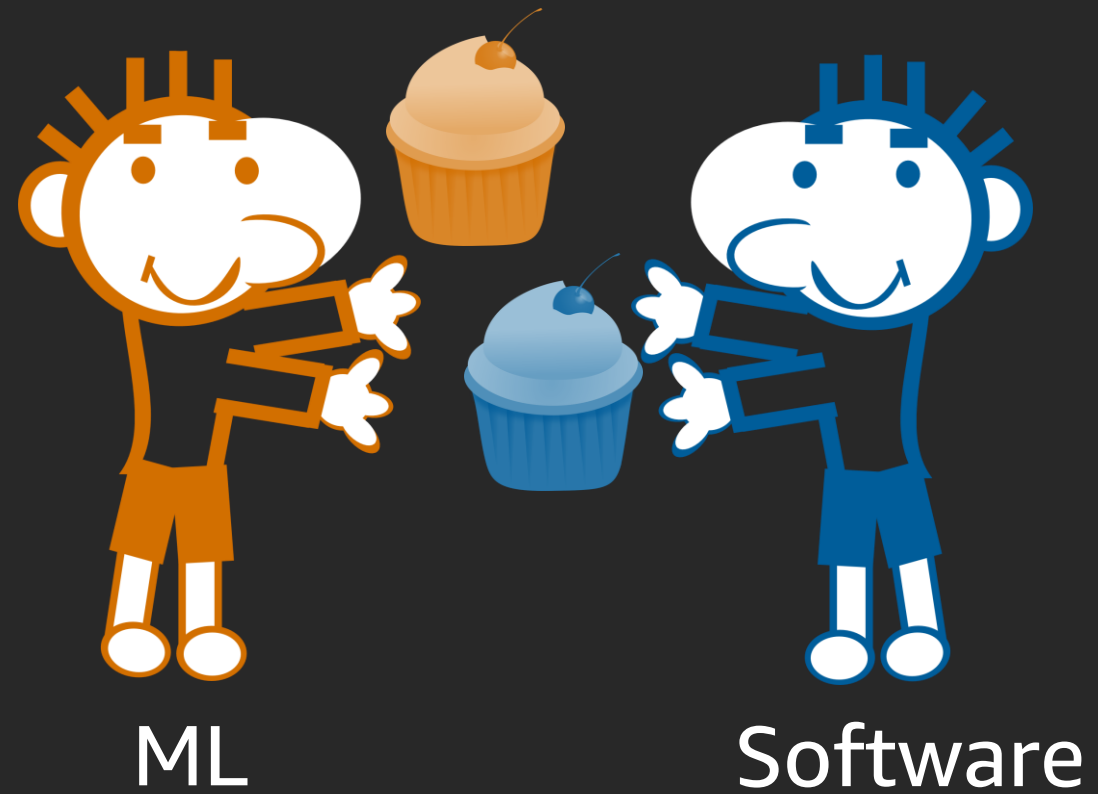
Recap



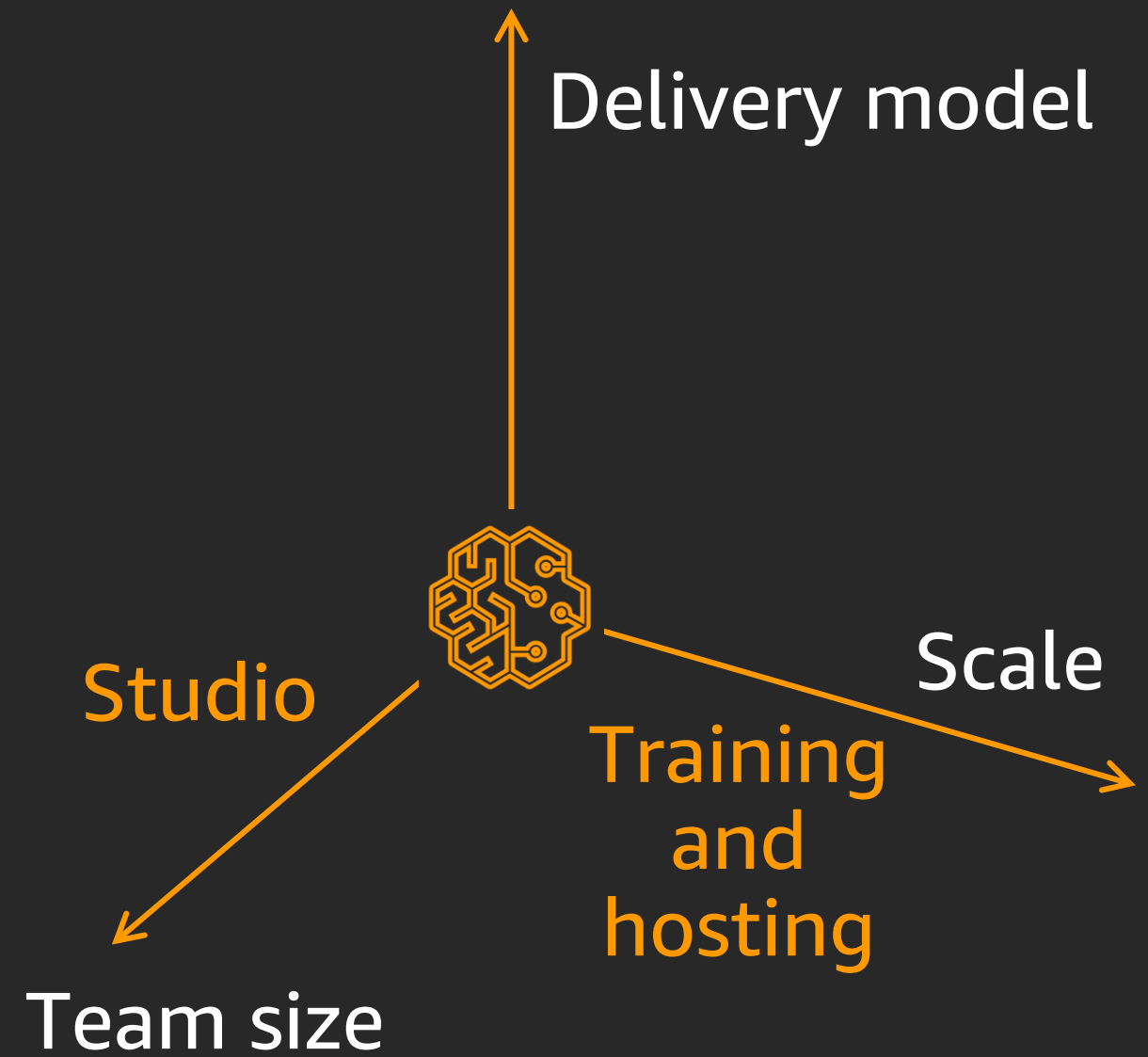
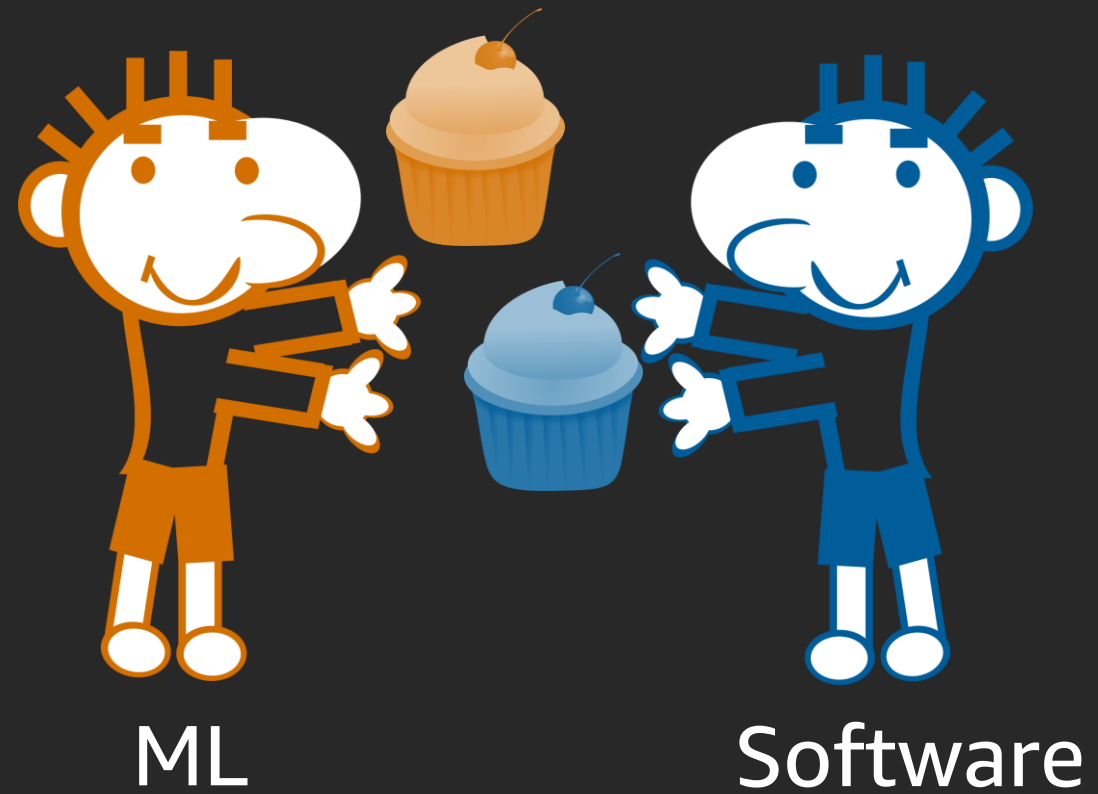
Recap



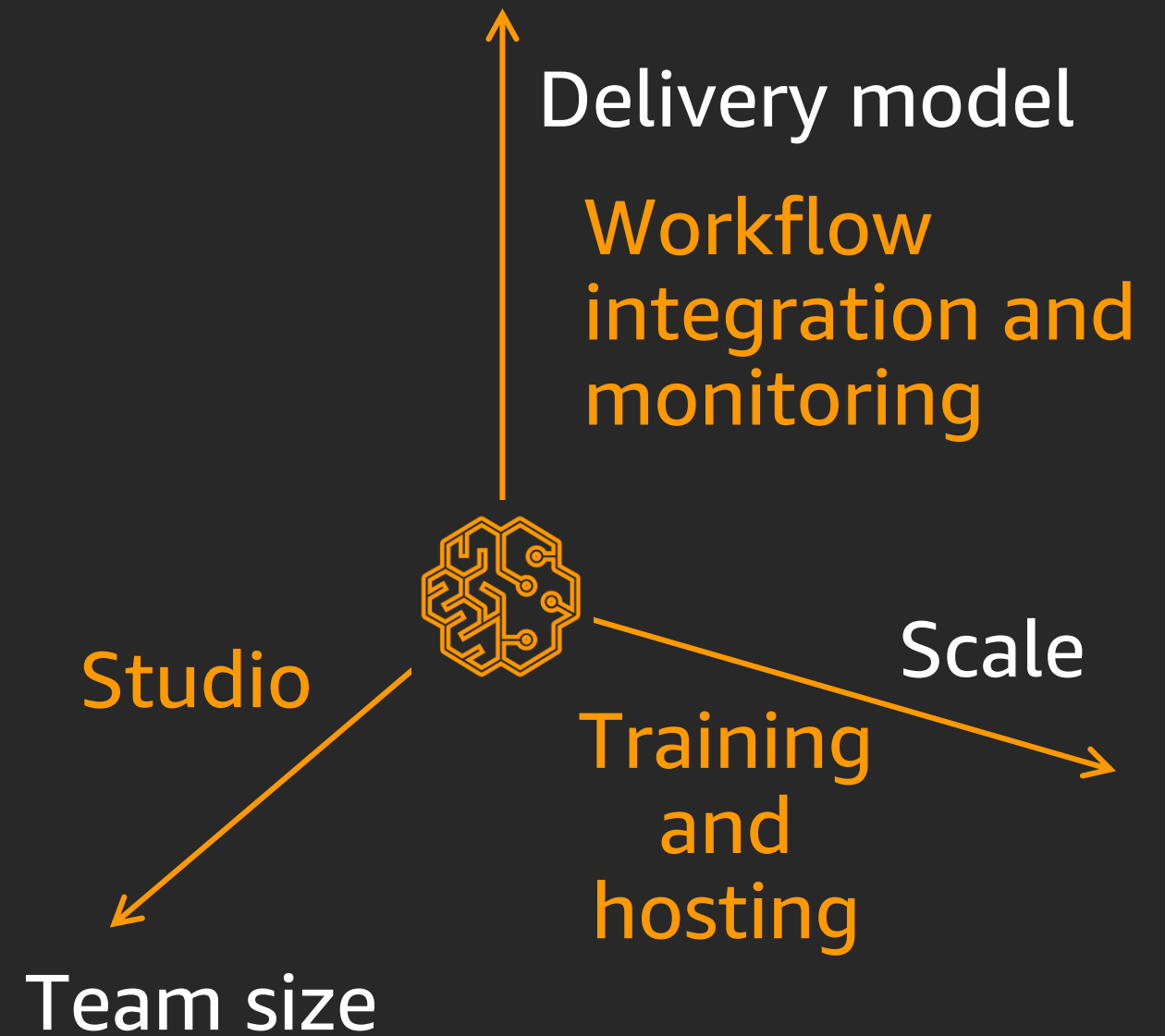
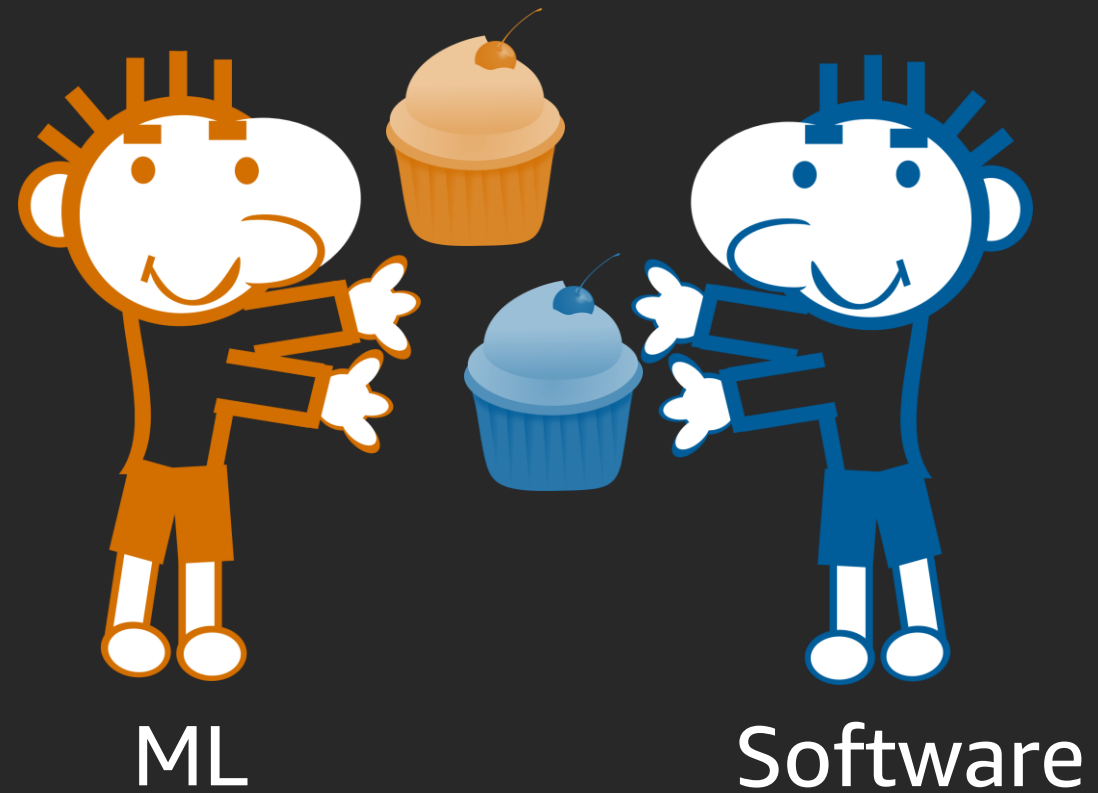
Recap



Recap



Recap

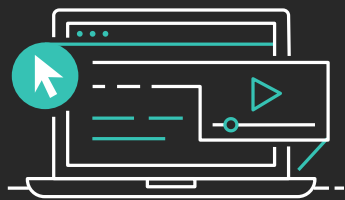


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Thank you!

Kapil Pendse

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