aws INNOVATE

DATA AND AI/ML EDITION

22 February 2023

Rethinking machine learning for regulated industries

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Solutions Architect
Amazon Web Services

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Agenda

- A modern machine learning platform
- Maturity model
- Making datasets available across the organization
- Automated governance and compliance
- MLOps
- Federated ML

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Modern Machine Learning Platforms

- Better decisions
- Increased efficiency
- Anticipate events
- Improved customer satisfaction
- Learning from others

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Modern Machine Learning Platforms

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- Transparency
- Inclusion
- Accountability
- Security
- Scale

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Modern Machine Learning Platforms

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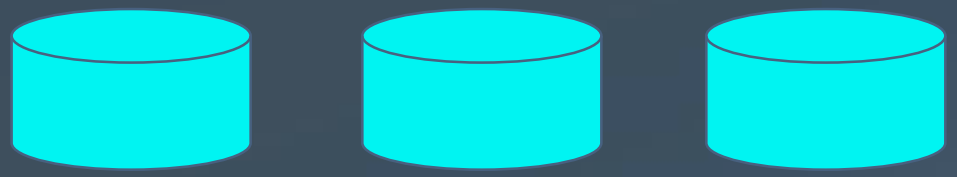
Data



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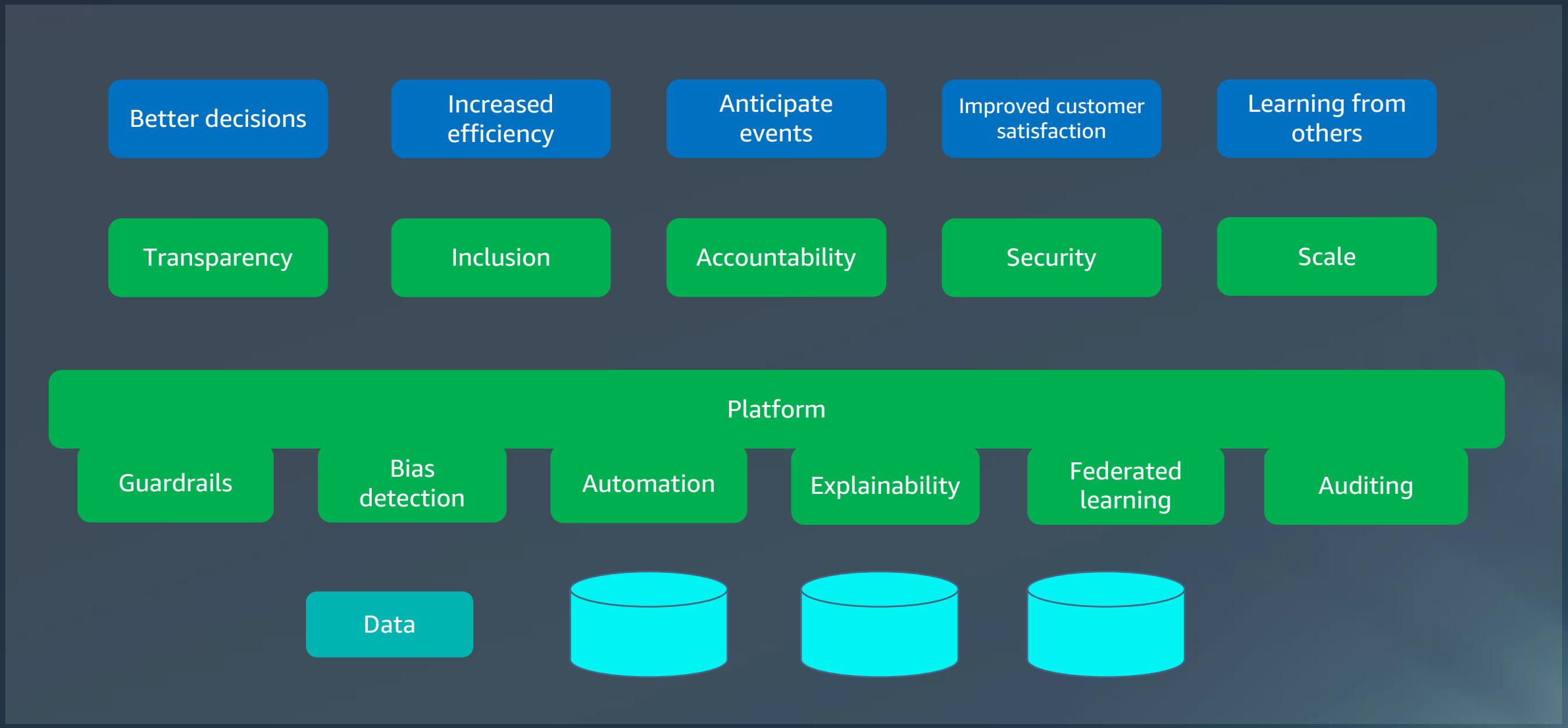
Modern Machine Learning Platforms



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MLOps Maturity Model

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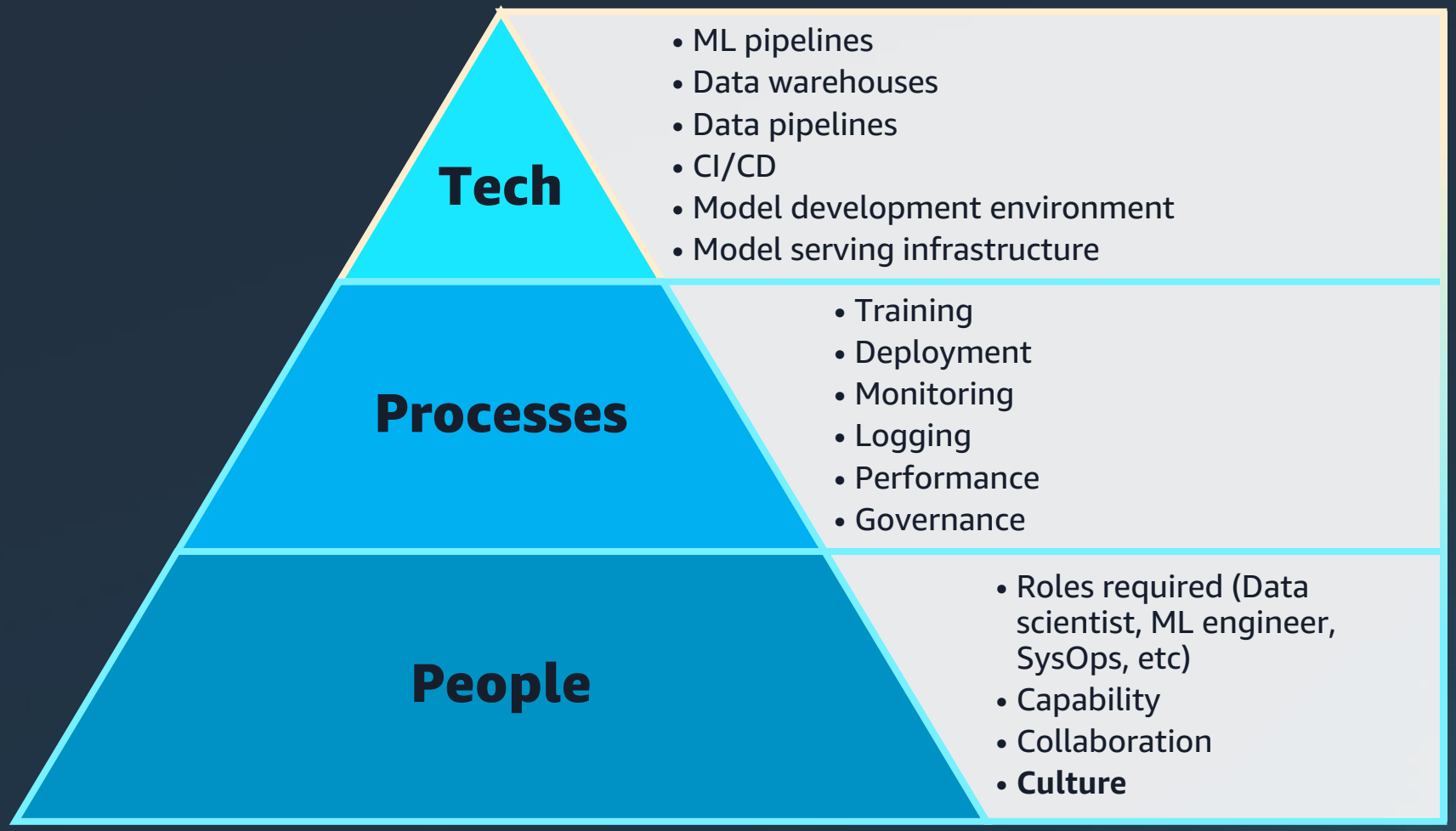
MLOps Requirements



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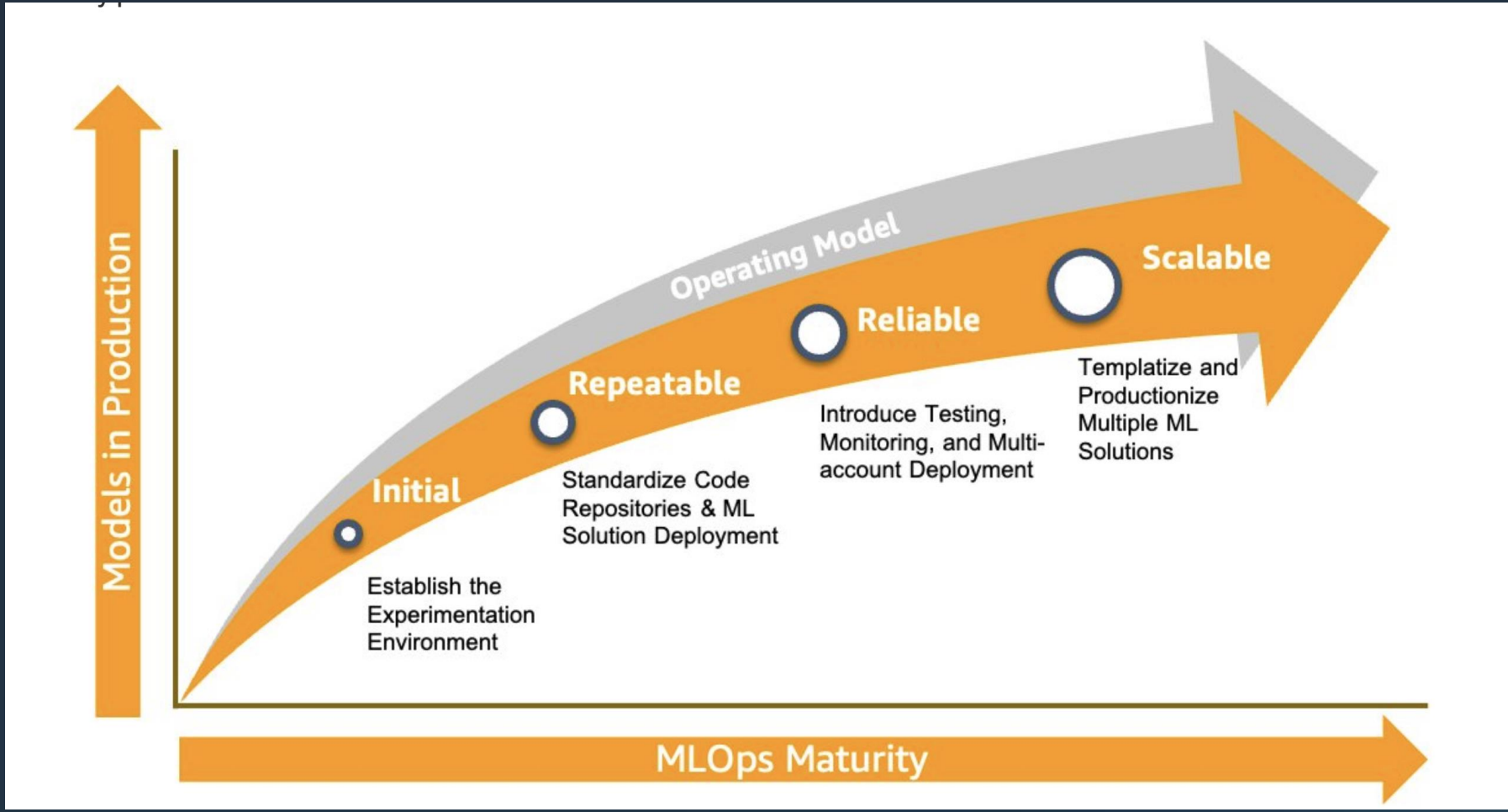
MLOps Maturity Model



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Making Datasets and Features Available Across The Organization

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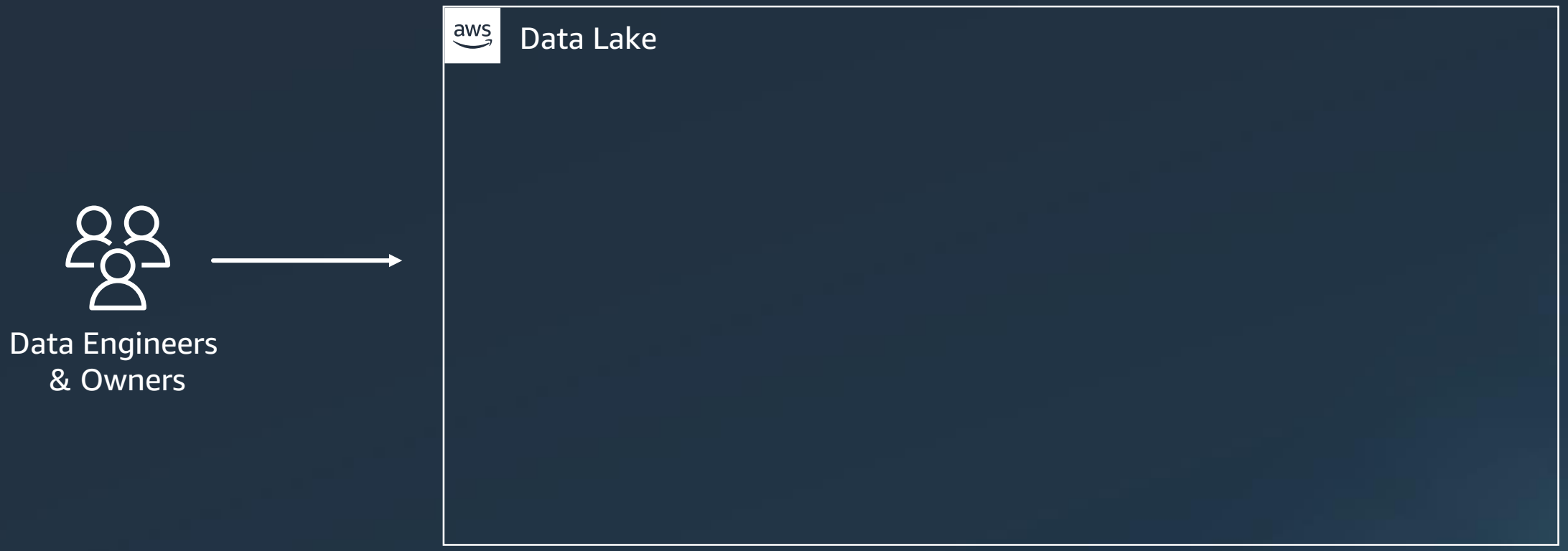
Data Lake



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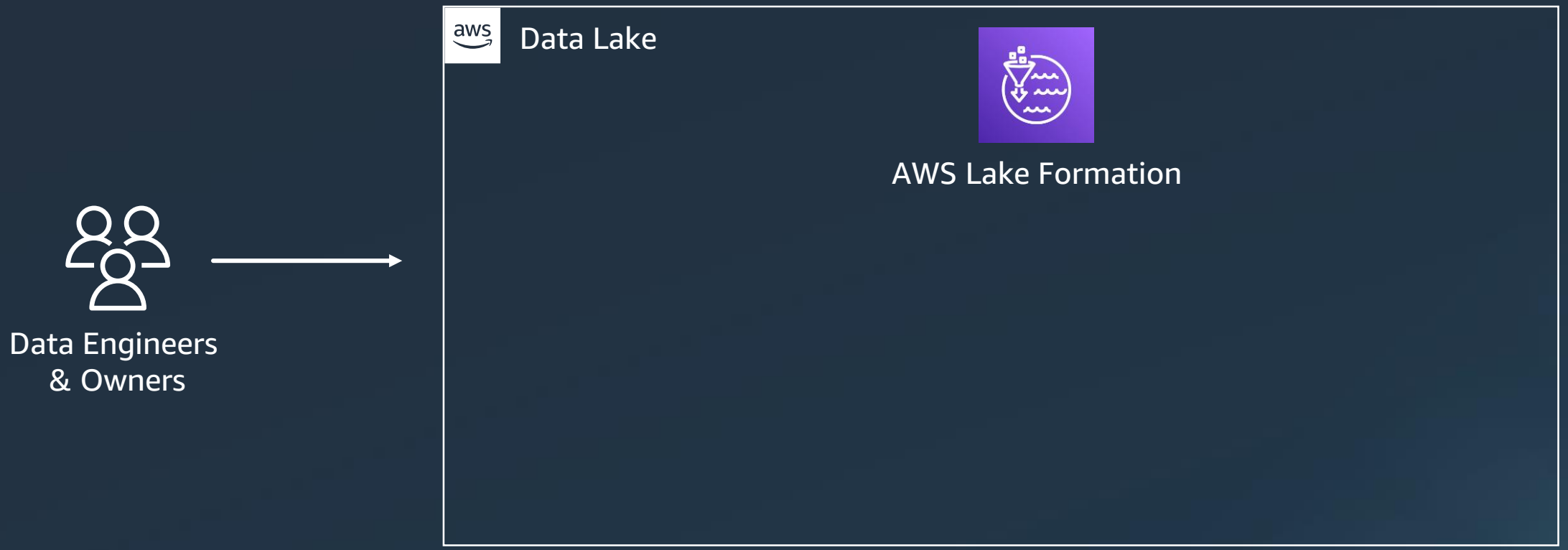
Data Lake



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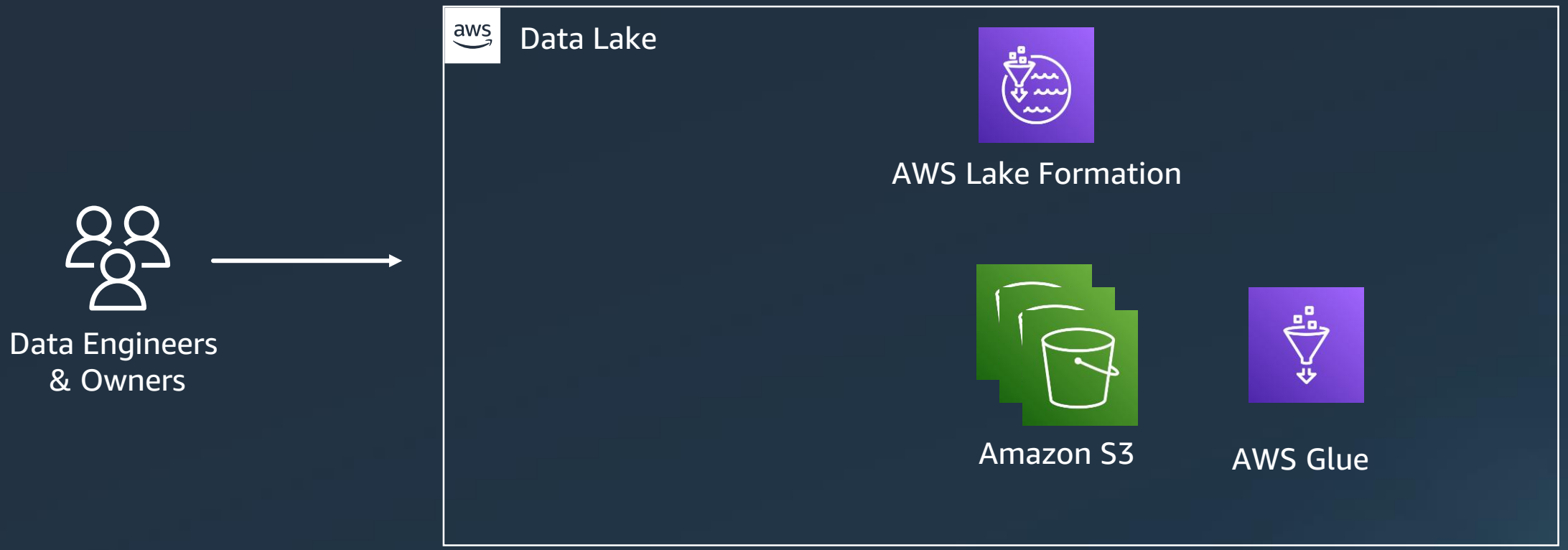
Data Lake



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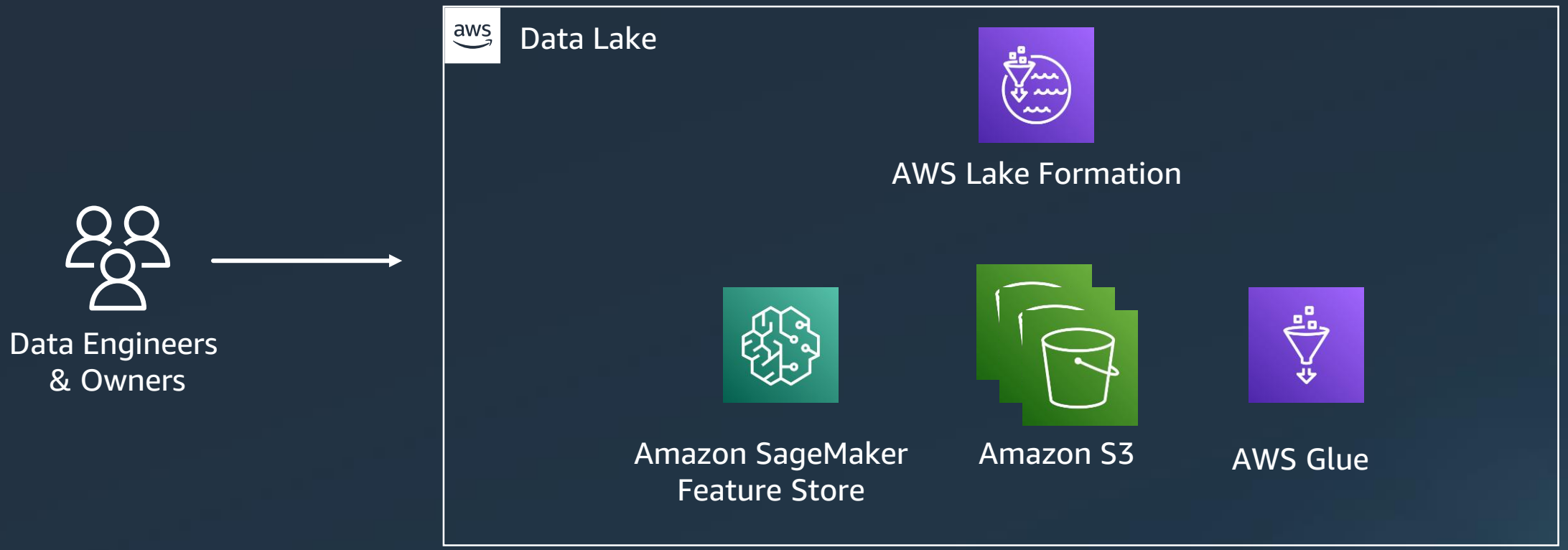
Data Lake



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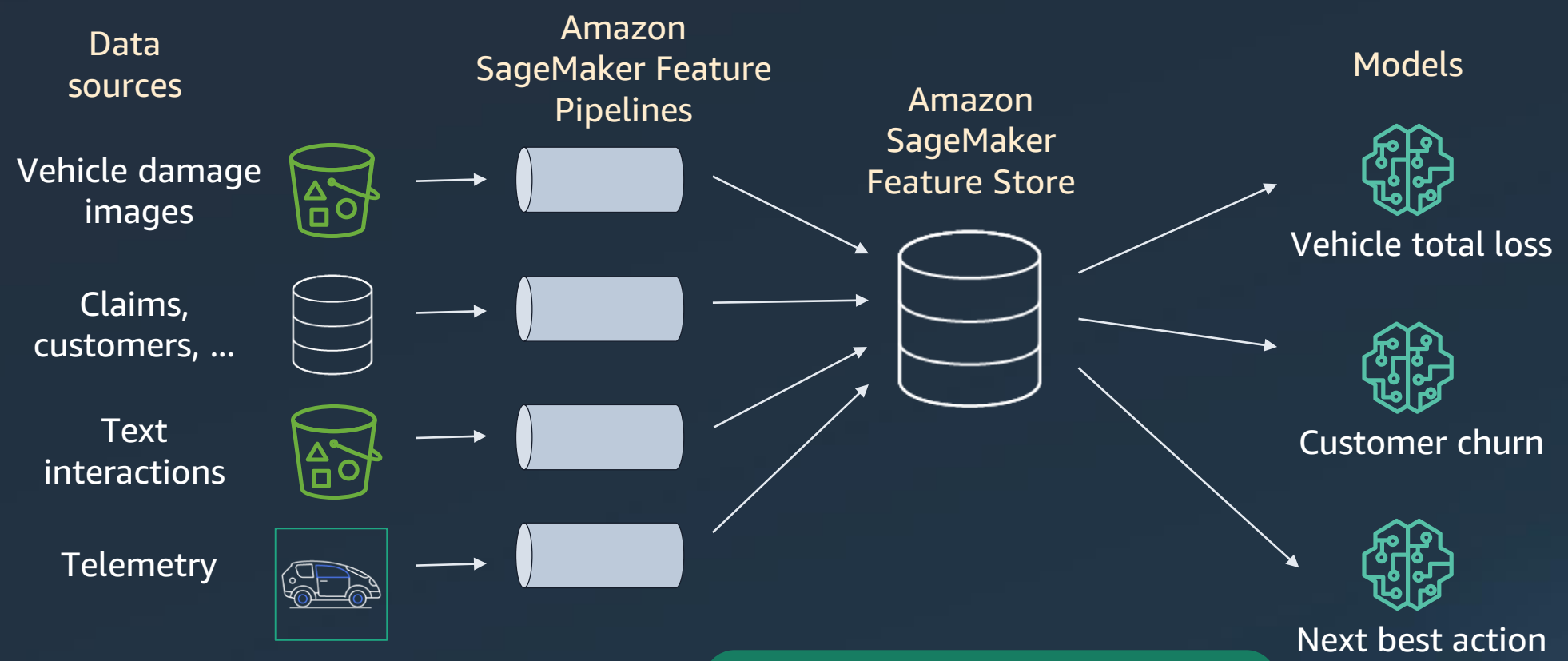
Amazon SageMaker Feature Store



Helps with auditability and traceability requirements to manage risk and compliance

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Automated Governance and Compliance

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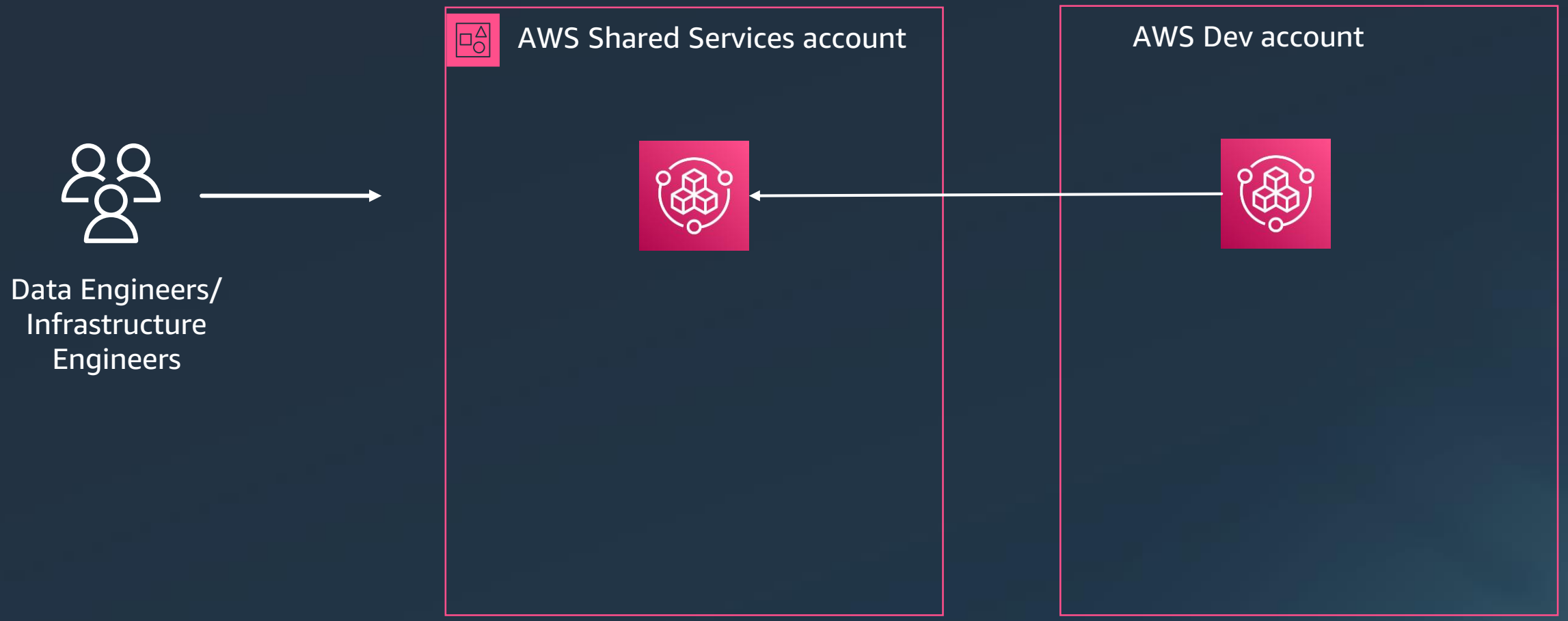
AWS Service Catalogue



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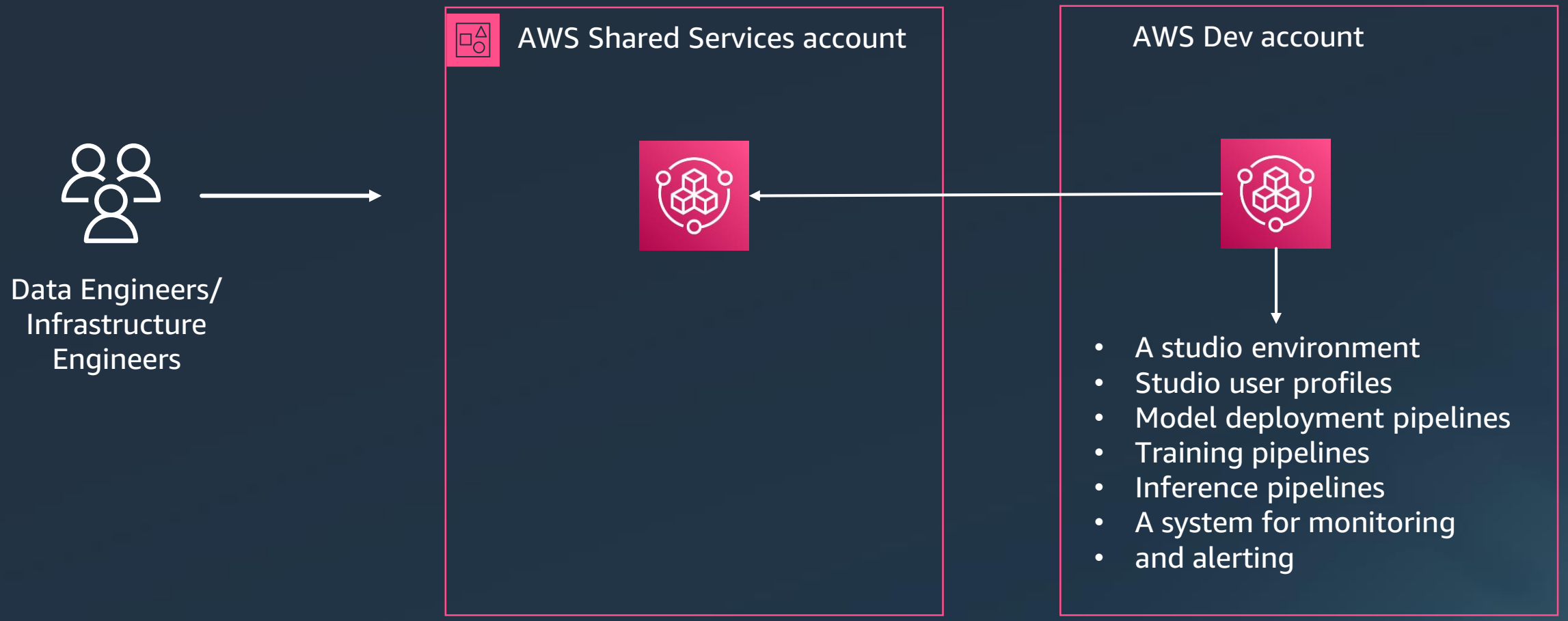
AWS Service Catalogue



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MLOps Tools and Resources

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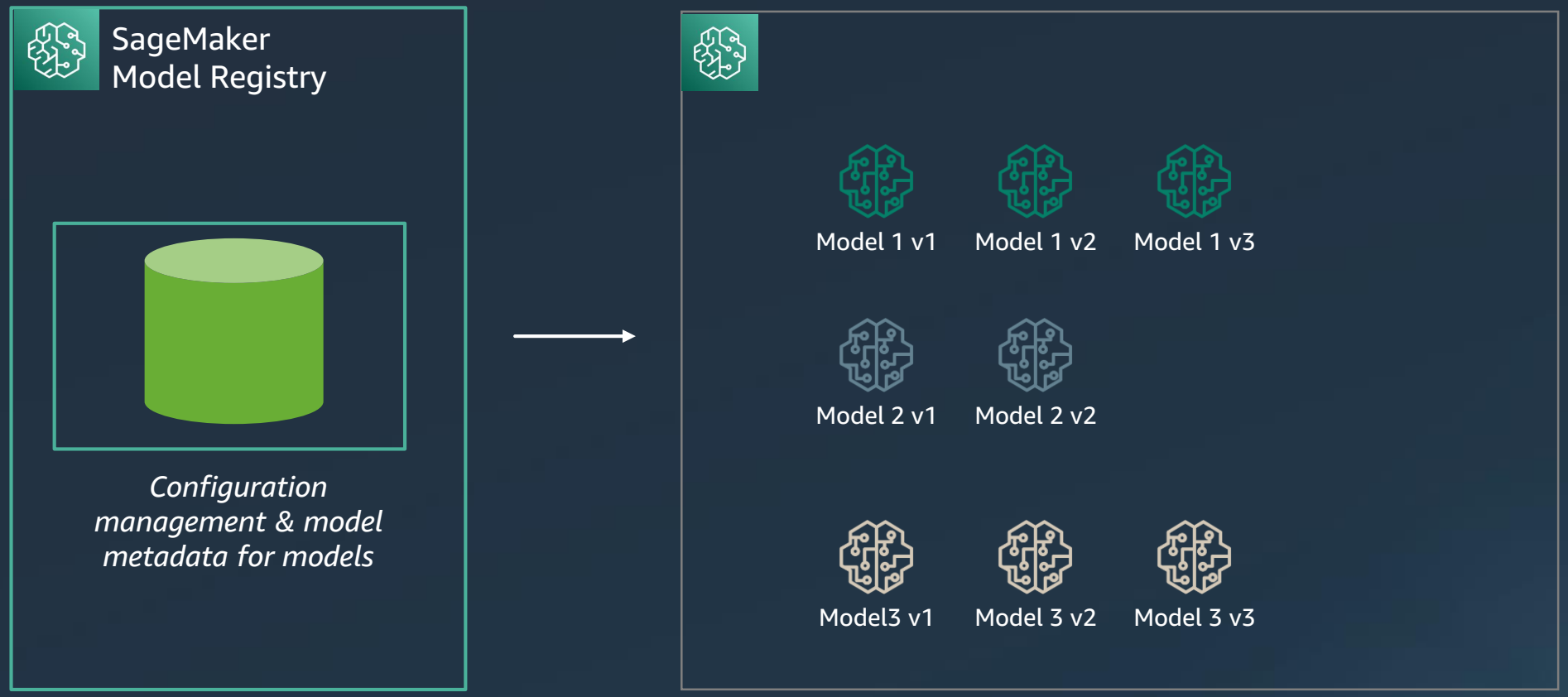
Amazon SageMaker Model Registry



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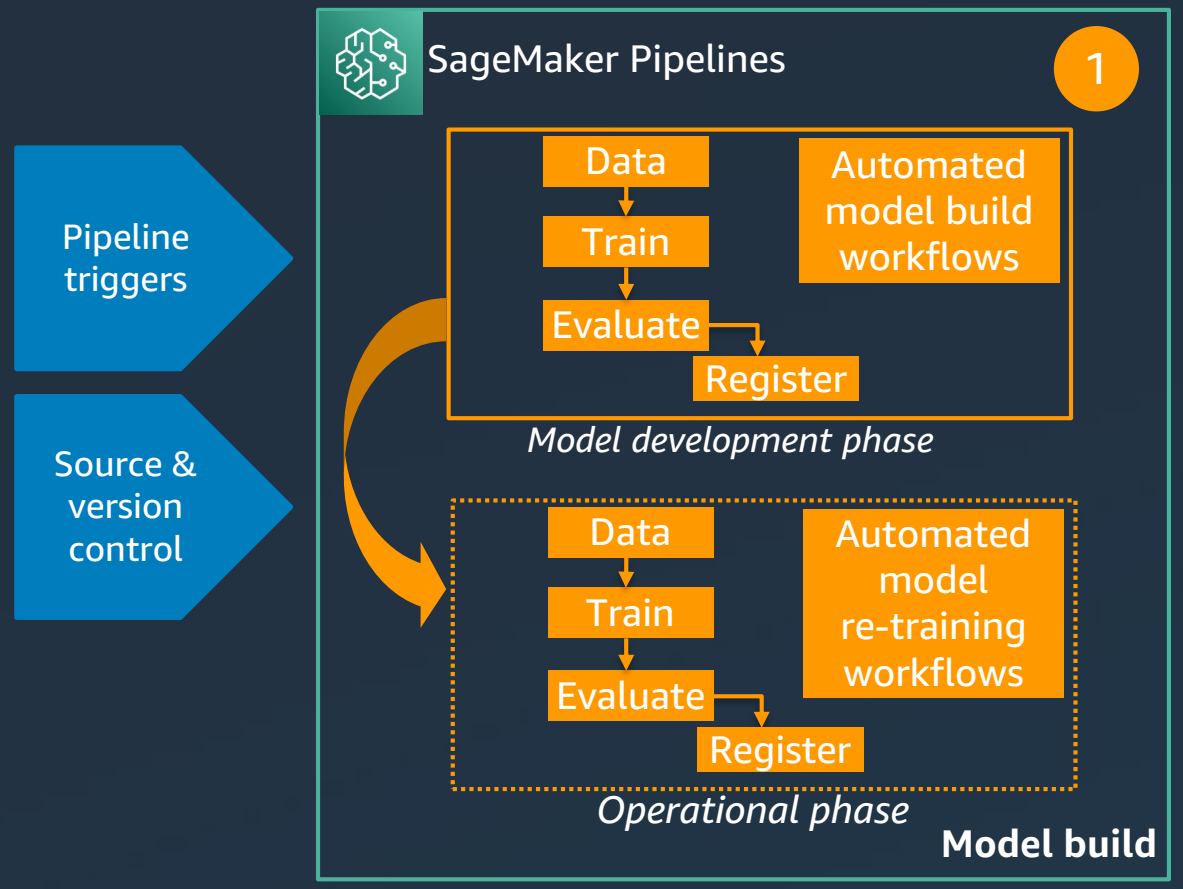
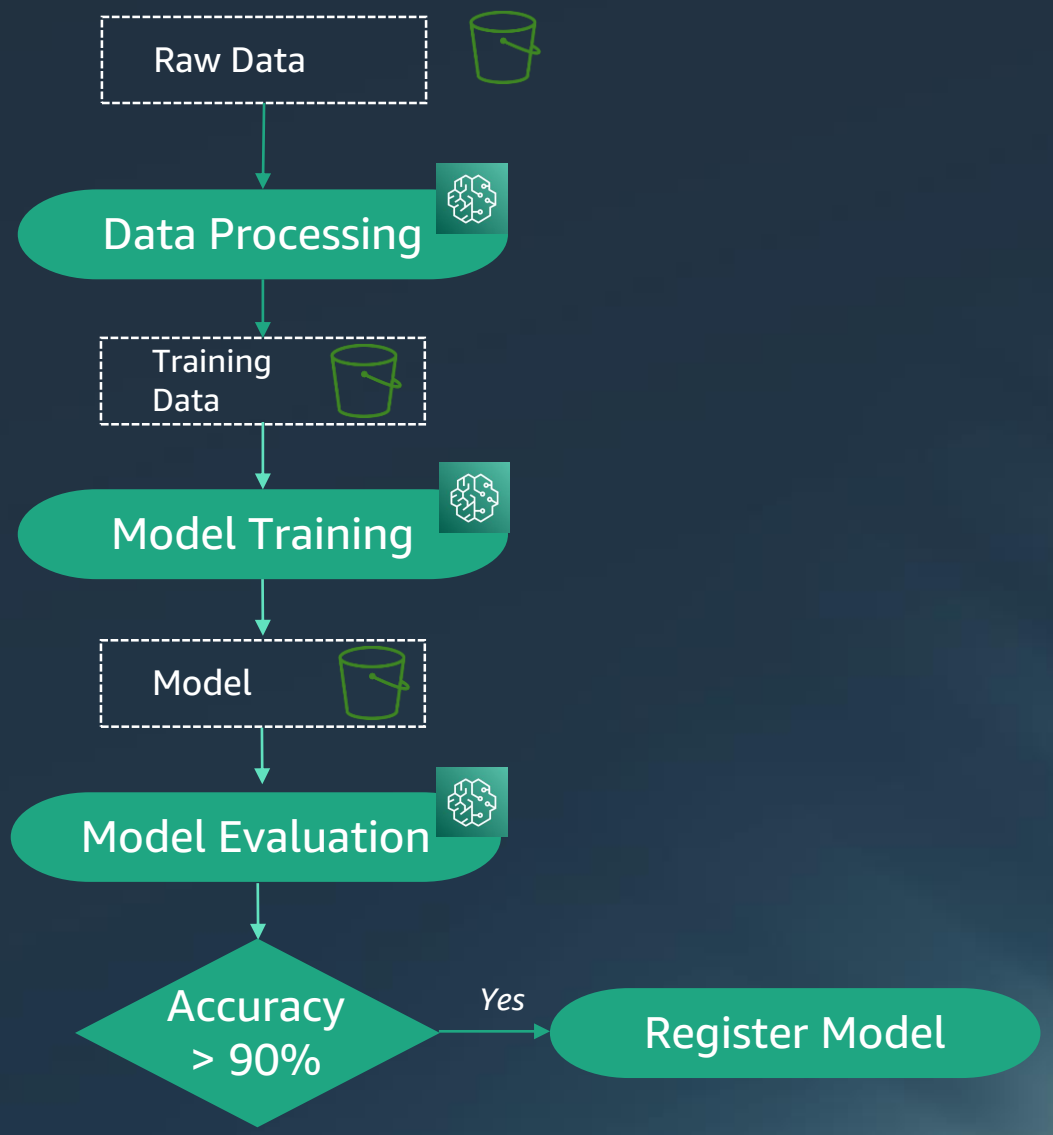
Amazon SageMaker Pipelines





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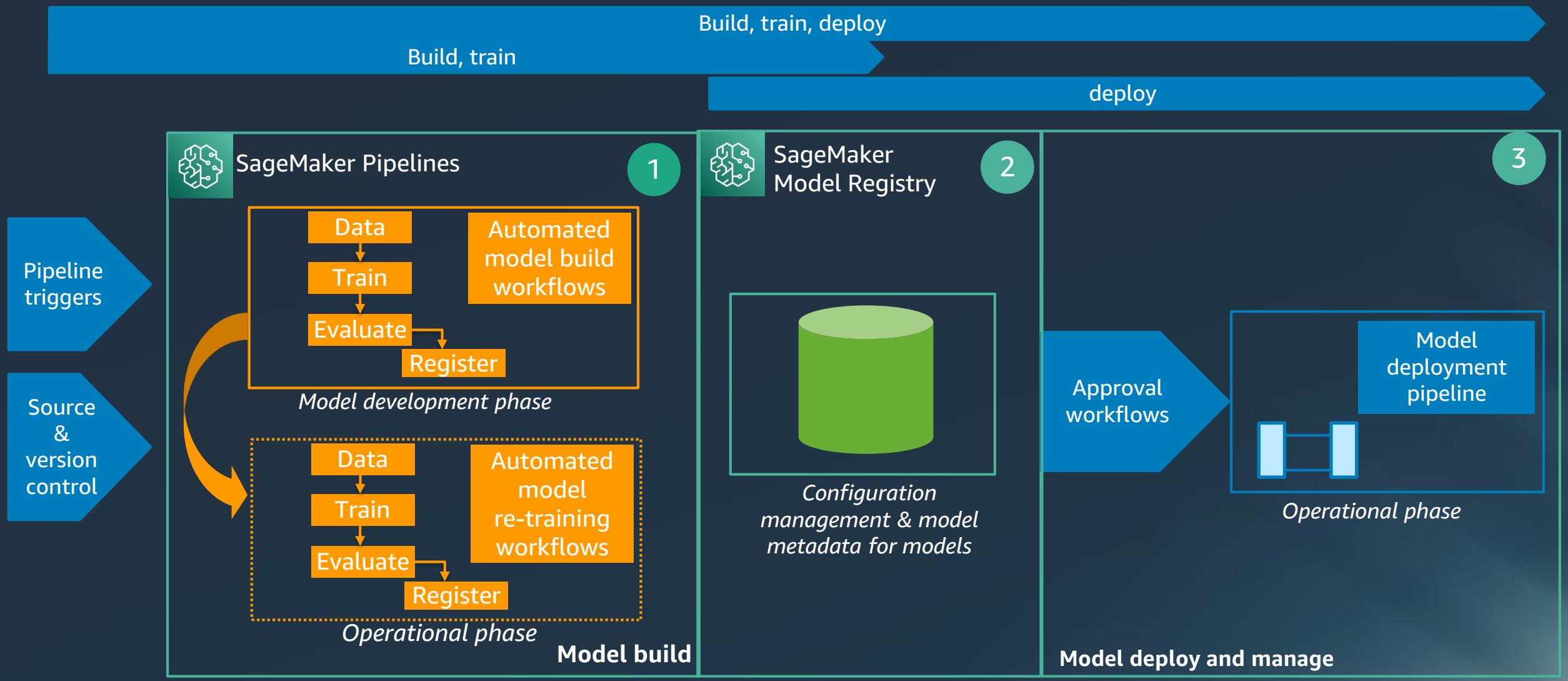
Amazon SageMaker Projects



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Federated Learning

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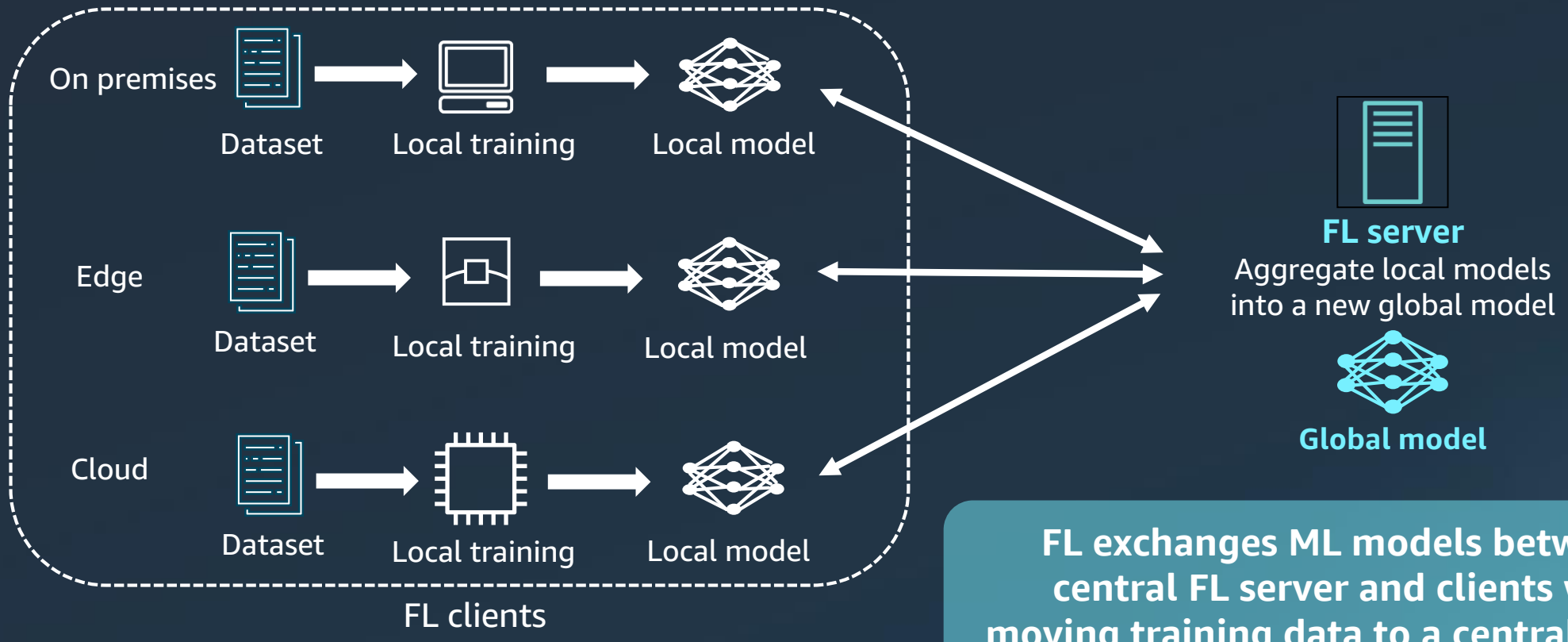
What is Federated Learning (FL)?

FL – a distributed ML approach that trains ML models on distributed datasets

Goal – improve the accuracy of ML models while preserving privacy



FL exchanges ML models between the central FL server and clients without moving training data to a central repository

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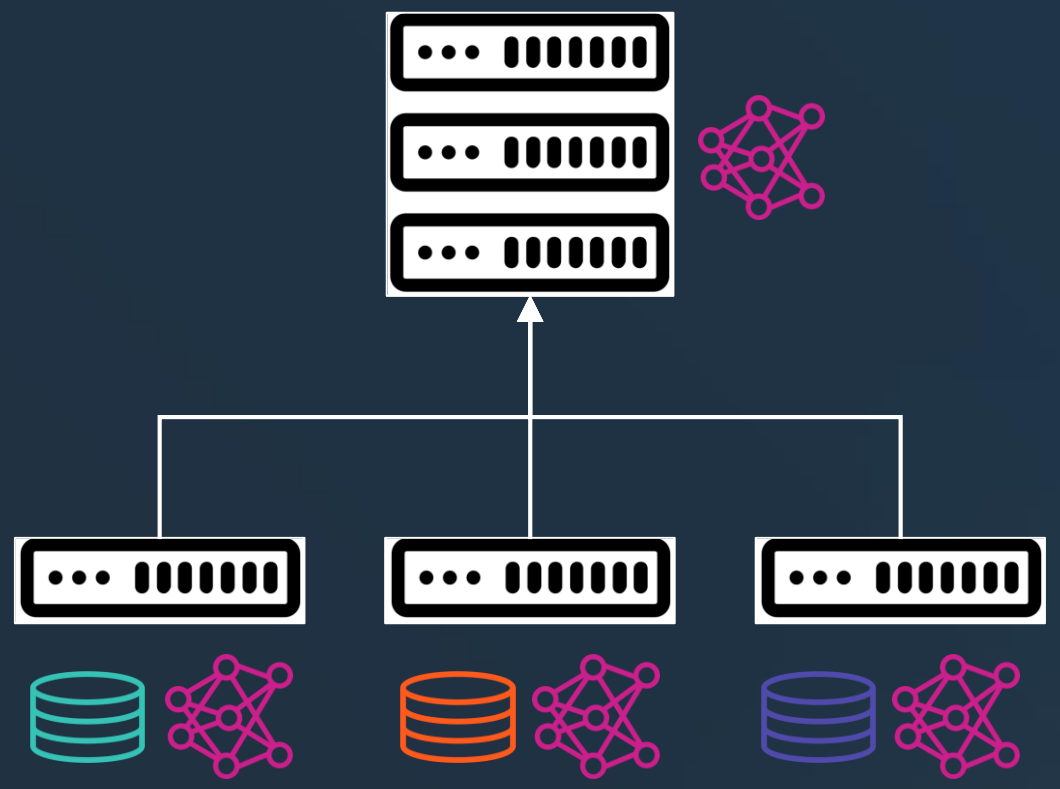
Federated Learning (FL)



1. Server starts with some global model
2. Server distributes global model to each endpoint
3. Each endpoint incrementally trains the global model based on their local training data
4. Endpoints upload locally trained models
5. Server aggregates the local models to produce a new global model
6. Repeat until some termination condition is met
7. Distribute the final model to all parties

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