Selecting Tools for Developing, Monitoring and Maintaining ML Models

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Agenda

- Navigating the landscape
- Building minimum viable pipelines
- Use-case at Yummly
- Takeaway

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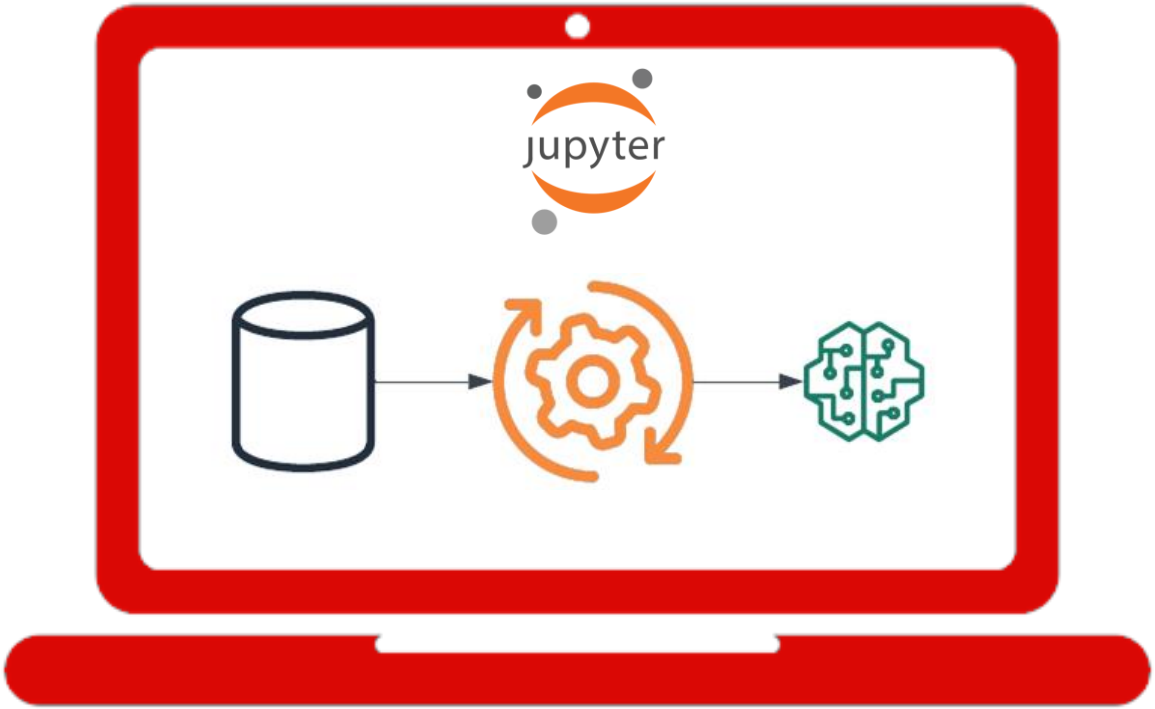
A data scientist's workflow



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Navigating landscape - The paradigms

Feature Store

Stream Processing

Hyperparameter Optimization

Observability

Batch Prediction

CI/CD/CT

Inference

Visualization

Labeling

Versioning

Metadata Store

Tracking

AutoML

Model Registry

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Navigating landscape - Tools and platforms

Start with first principles

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Enter: Minimum viable pipelines

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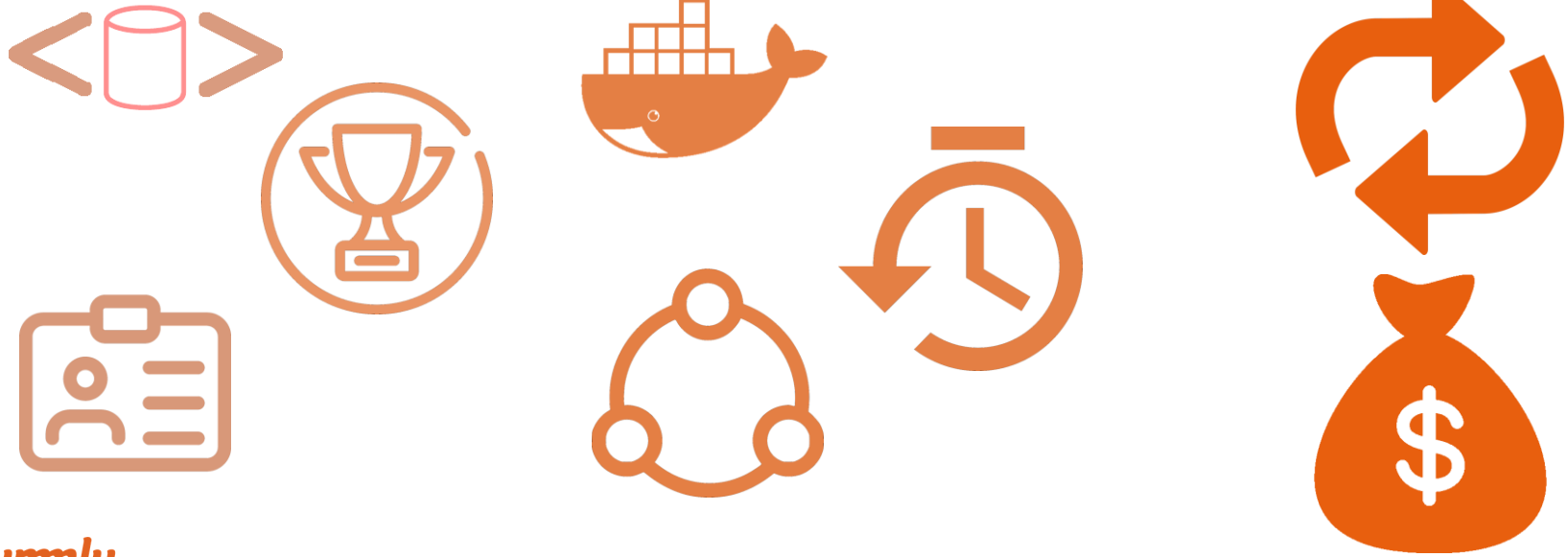
Minimum viable pipelines - Phase 1

Experiment tracking → **Model registry** → **Business impact**



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Minimum viable pipelines - Implementation

Experiment tracking and model registry

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Minimum viable pipelines - Phase 2

Hyperparameter tuning

Data ingestion

Business impact

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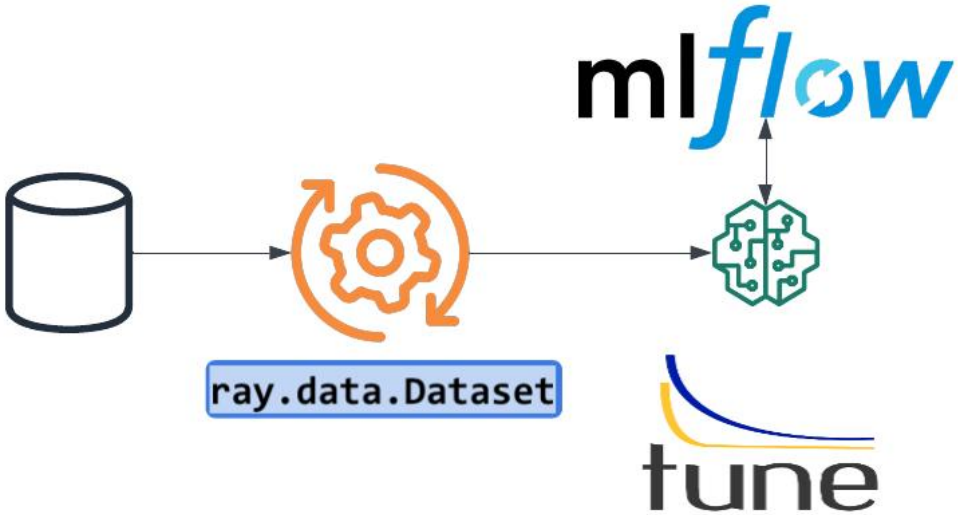
Minimum viable pipelines - Implementation

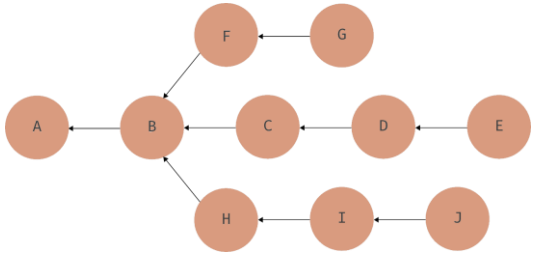
Hyperparameter tuning and data ingestion



Minimum viable pipelines - Phase 3

Dataset and artifact tracking

Business impact



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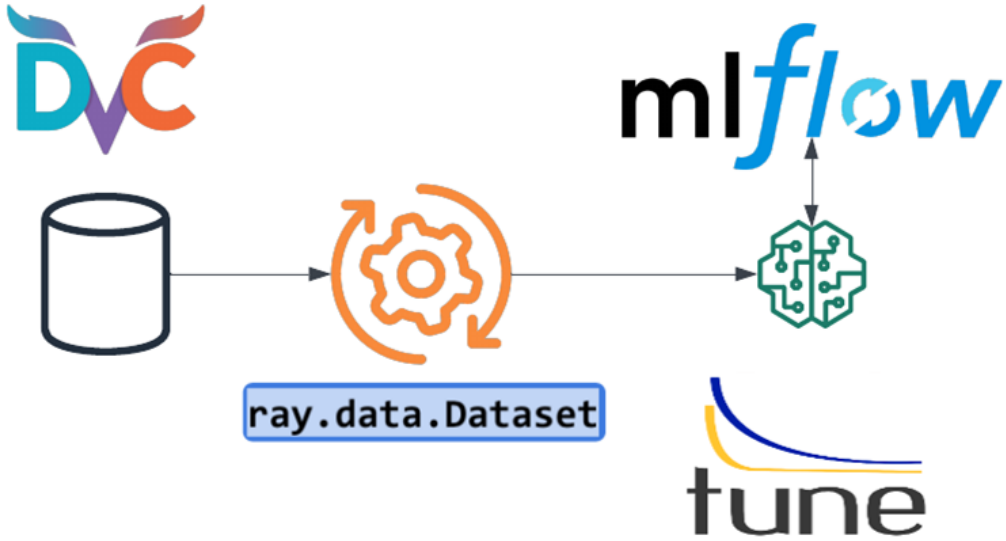
Minimum viable pipelines - Implementation

Dataset and artifact tracking



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Minimum viable pipelines - Together

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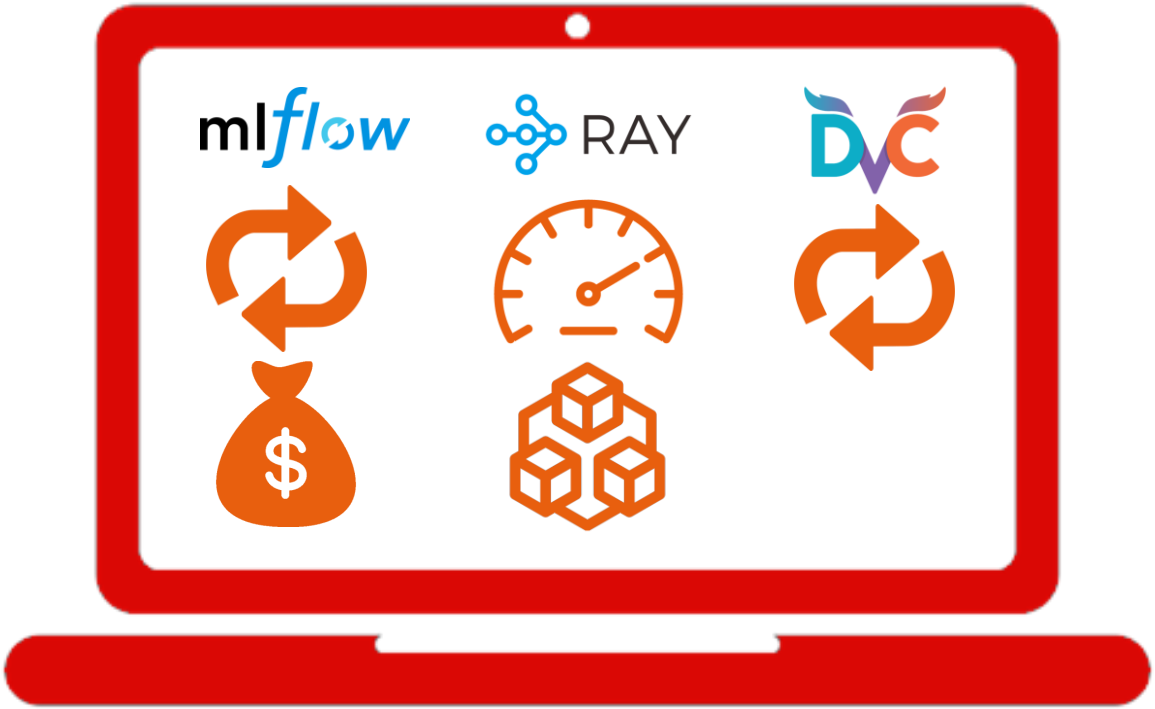
Minimum viable pipelines - Together



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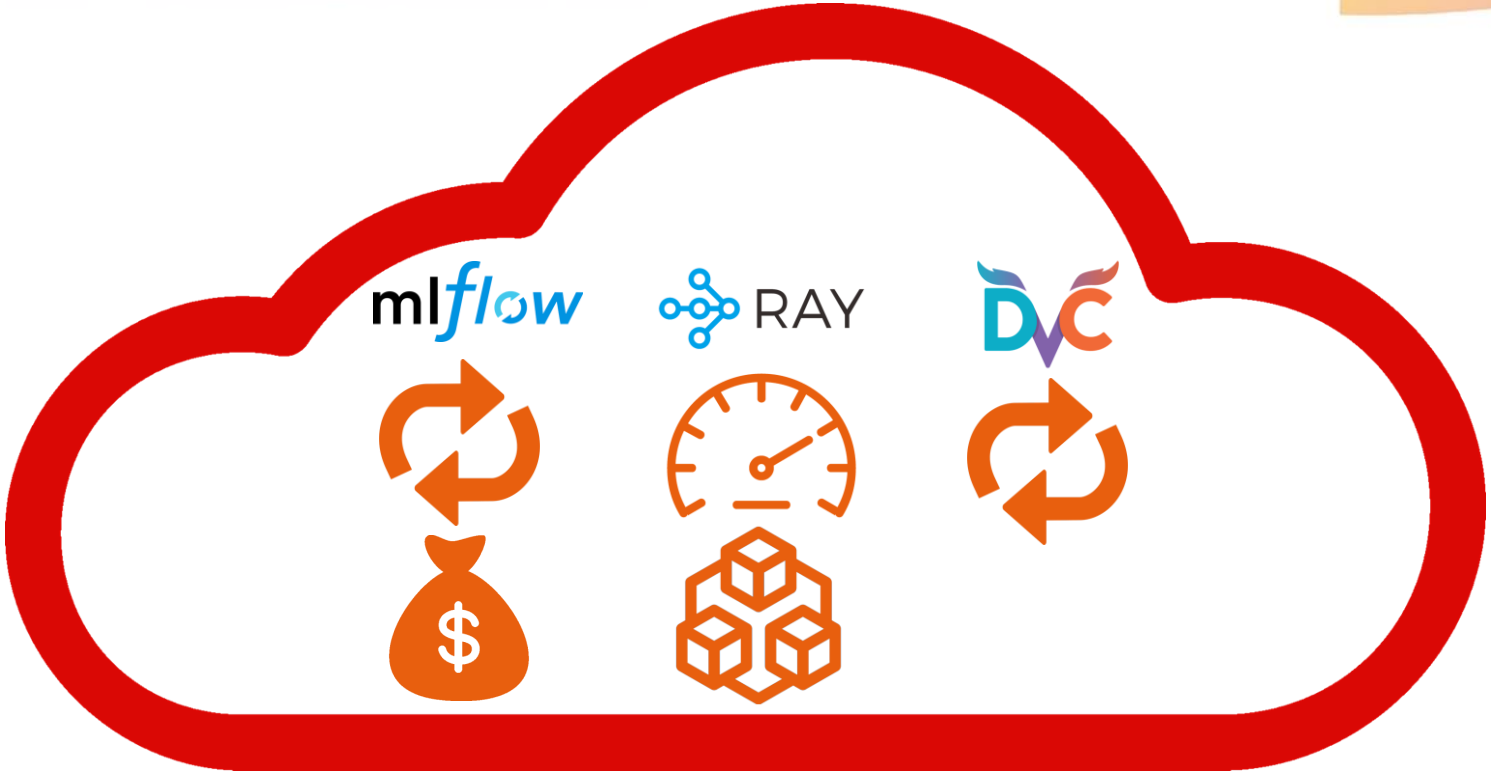
Minimum viable pipelines - Towards scaling



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Use-case: Yummly

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Use case - Yummly

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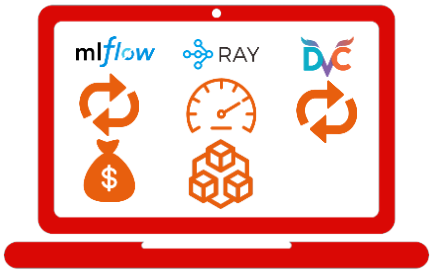
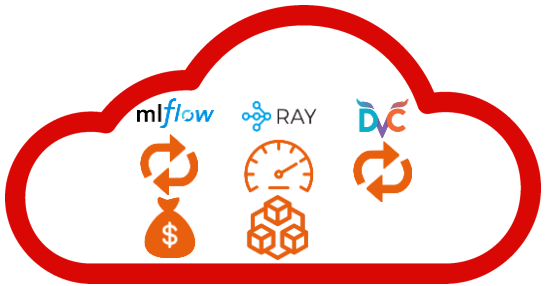
Use case - Journey





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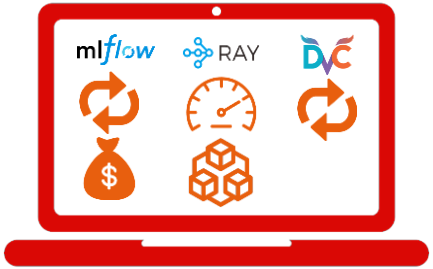
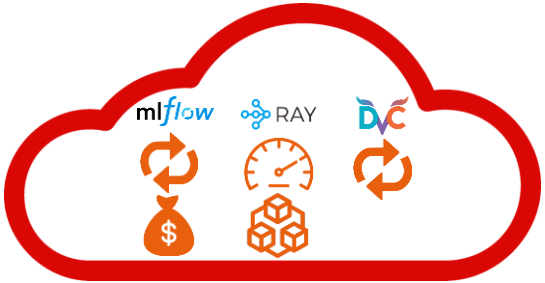
Minimum viable decision - Pause

Use case - Journey





Infrastructure

Agnostic

Aware

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Migration from build to buy

Pipelines
Prediction
Metadata
Workbench
Feature Store
Matching Engine
Deep Learning Containers

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Takeaway

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In gist

Thank you!

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Q/A

Resources

Ray Datasets

Ray Tune

Ray Train

MLFlow Tracking

MLFlow Registry

DVC Docs

Vertex AI Platform

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