Vriti Magee

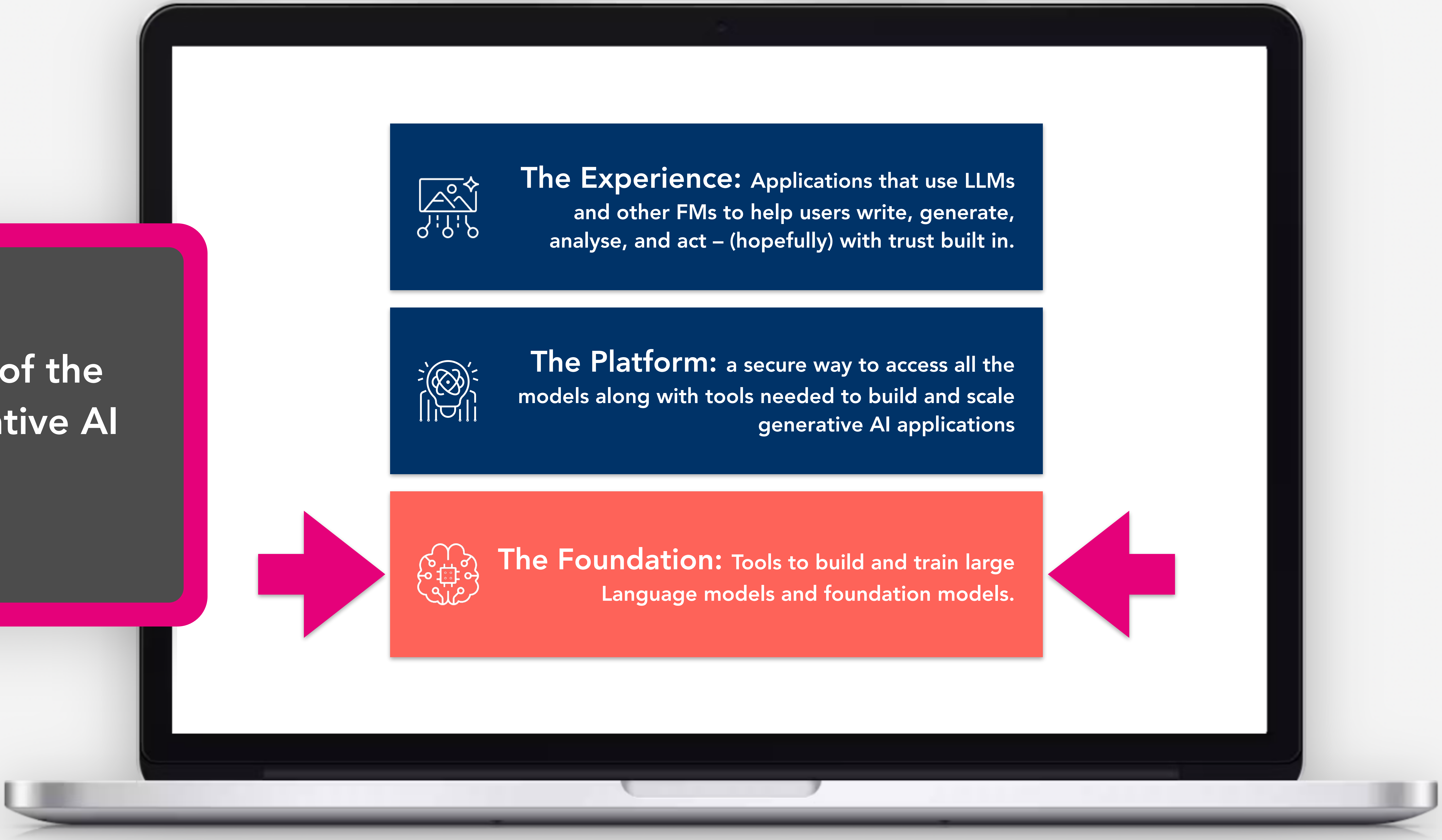
→

Embedding security into the AI/ML lifecycle — without slowing down innovation.

Presented at AppSec & DevSecOps
Melbourne July 2025

Demystifying MLSecOps

Layers of the Generative AI Stack

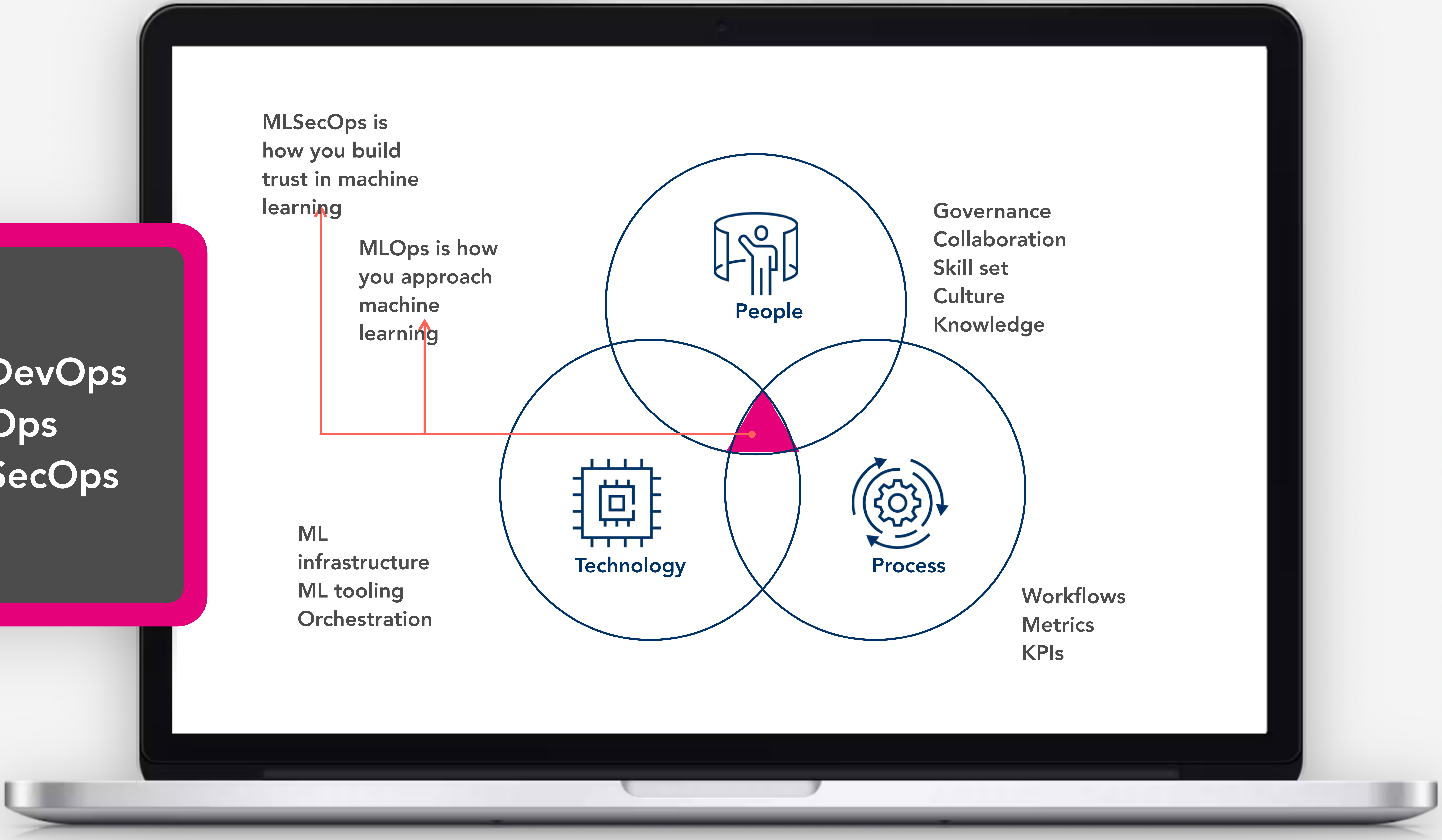


The Experience: Applications that use LLMs and other FMs to help users write, generate, analyse, and act – (hopefully) with trust built in.

The Platform: a secure way to access all the models along with tools needed to build and scale generative AI applications

The Foundation: Tools to build and train large Language models and foundation models.

From DevOps to MLOps to MLSecOps



MLSecOps is how you build trust in machine learning

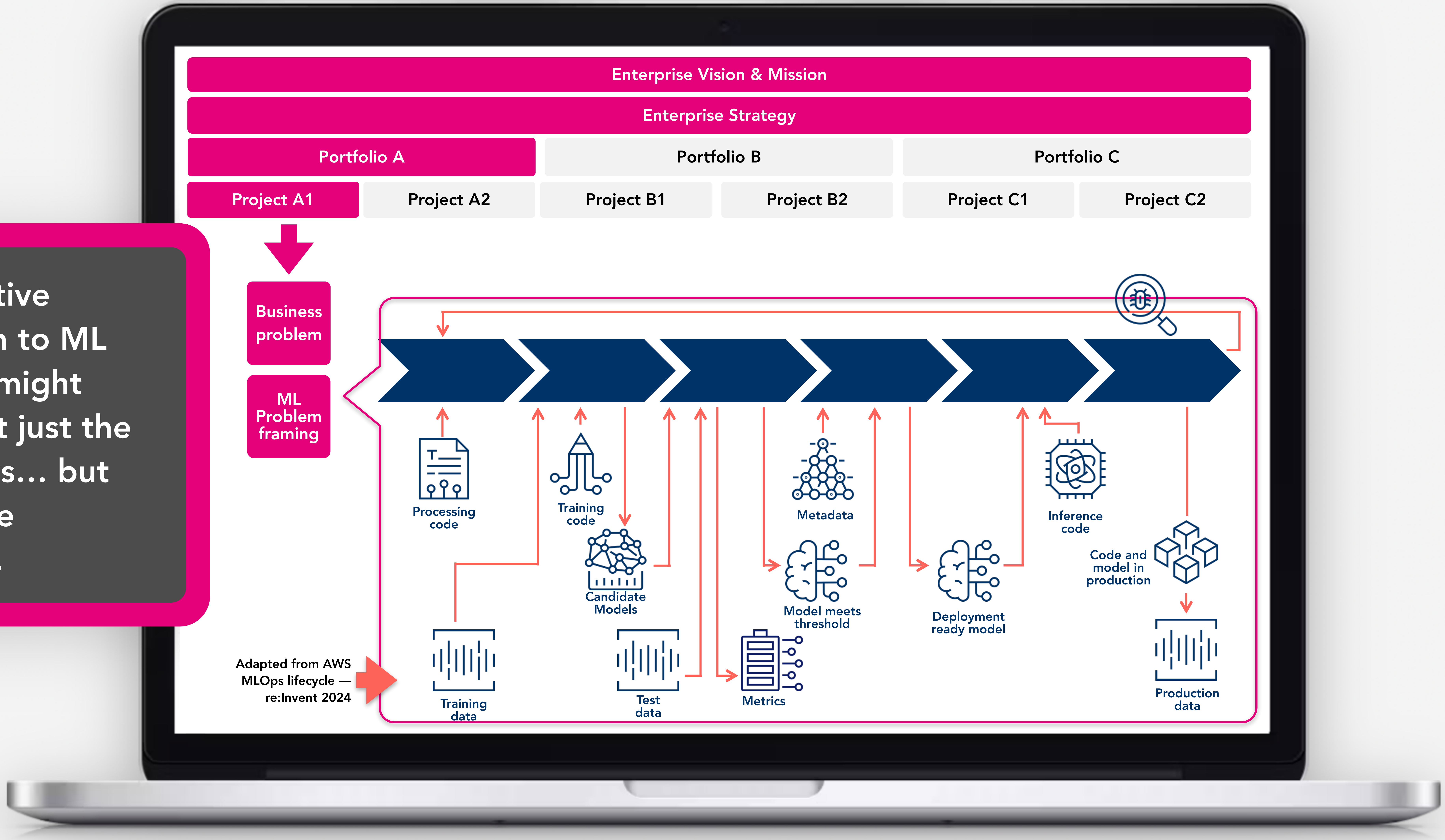
MLOps is how you approach machine learning

Governance
Collaboration
Skill set
Culture
Knowledge

ML infrastructure
ML tooling
Orchestration

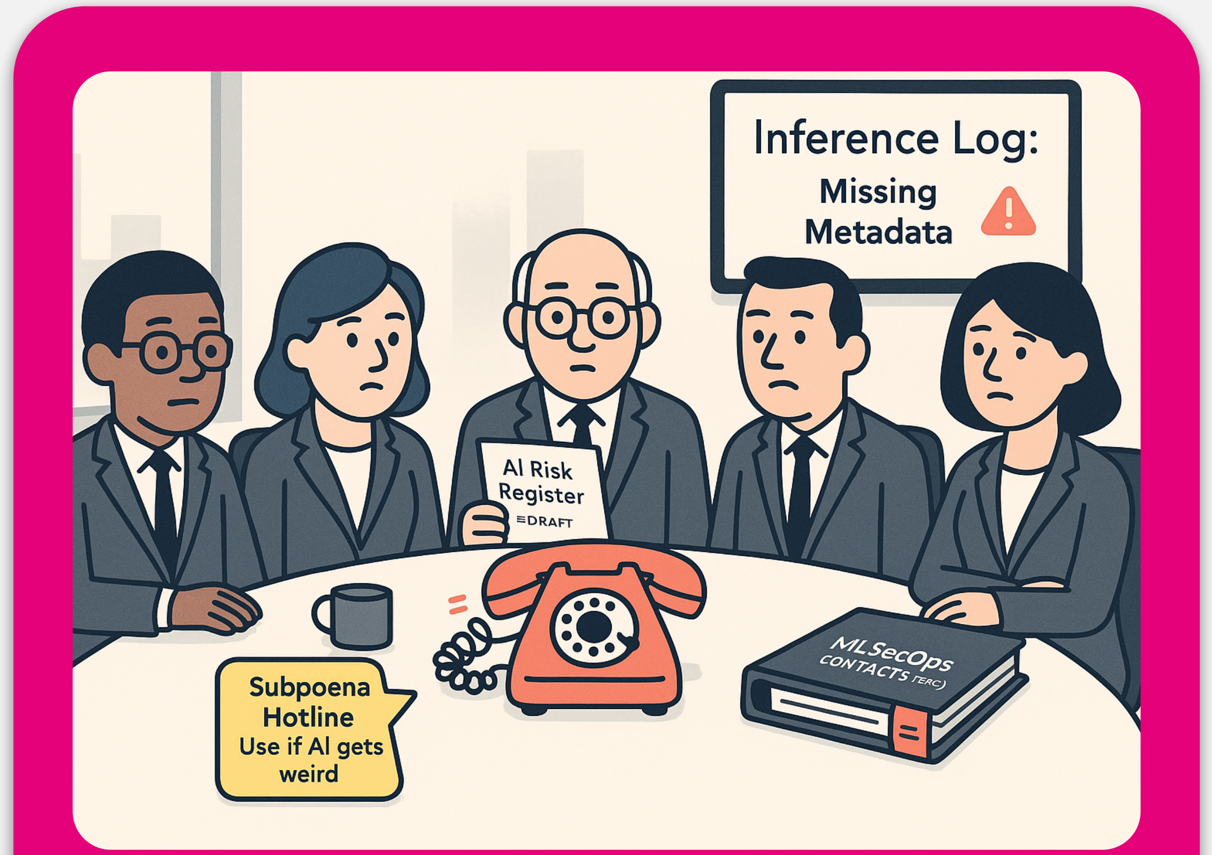
Workflows
Metrics
KPIs

An adaptive approach to ML security might serve not just the engineers… but the entire business.



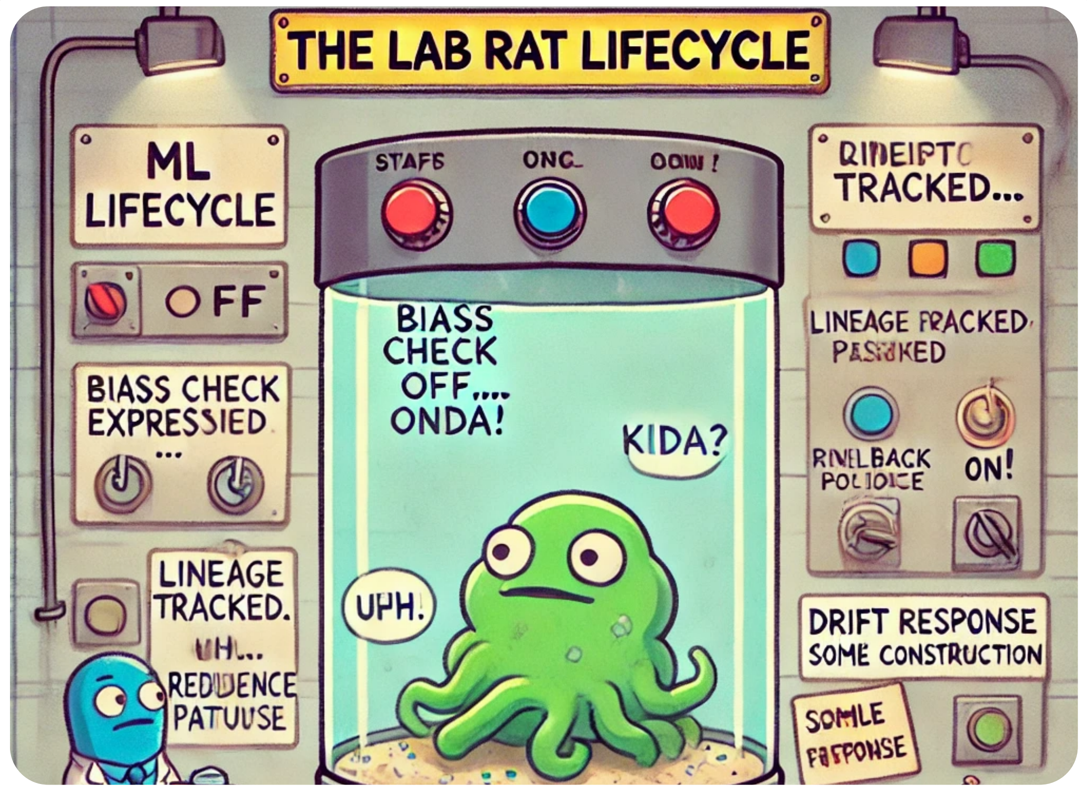
Adapted from AWS MLOps lifecycle — re:Invent 2024

What Matters, Where



Why Boards Care (Even If They Don’t Say ‘MLSecOps’)

The ML Lifecycle, Revisited

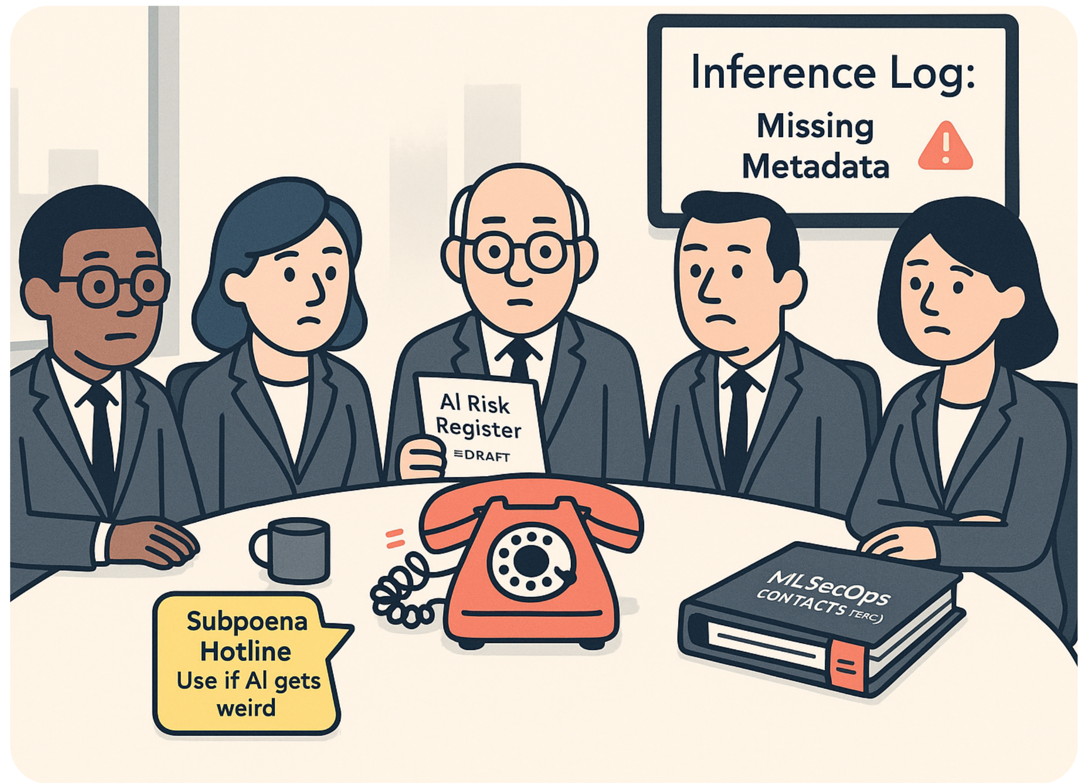


Designing Resilience In (Not Bolting It On)

Why Boards Care (Even If They Don’t Say ‘MLSecOps’)

AI strategy is no longer just about models. It’s about governance, readiness, and trust.

What Matters, Where



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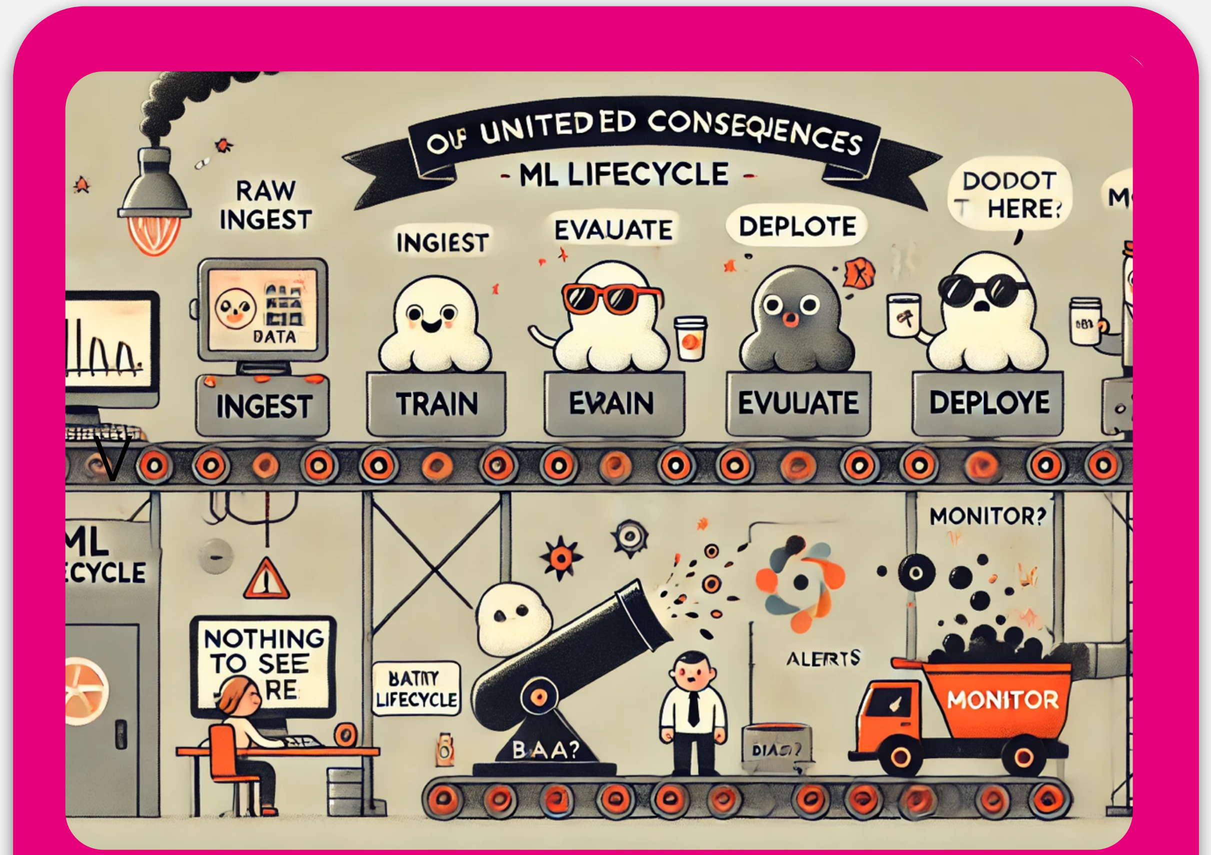

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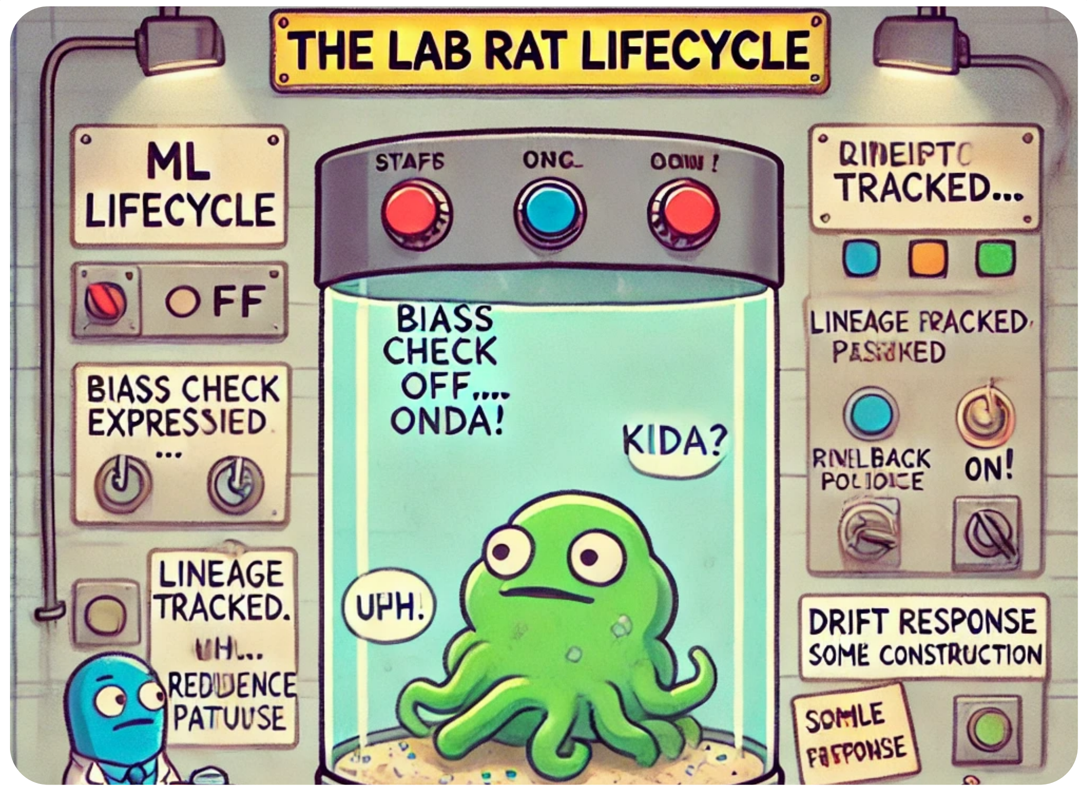

Designing Resilience In (Not Bolting It On)

The ML Lifecycle

Every model follows a lifecycle. But not every lifecycle is visible.

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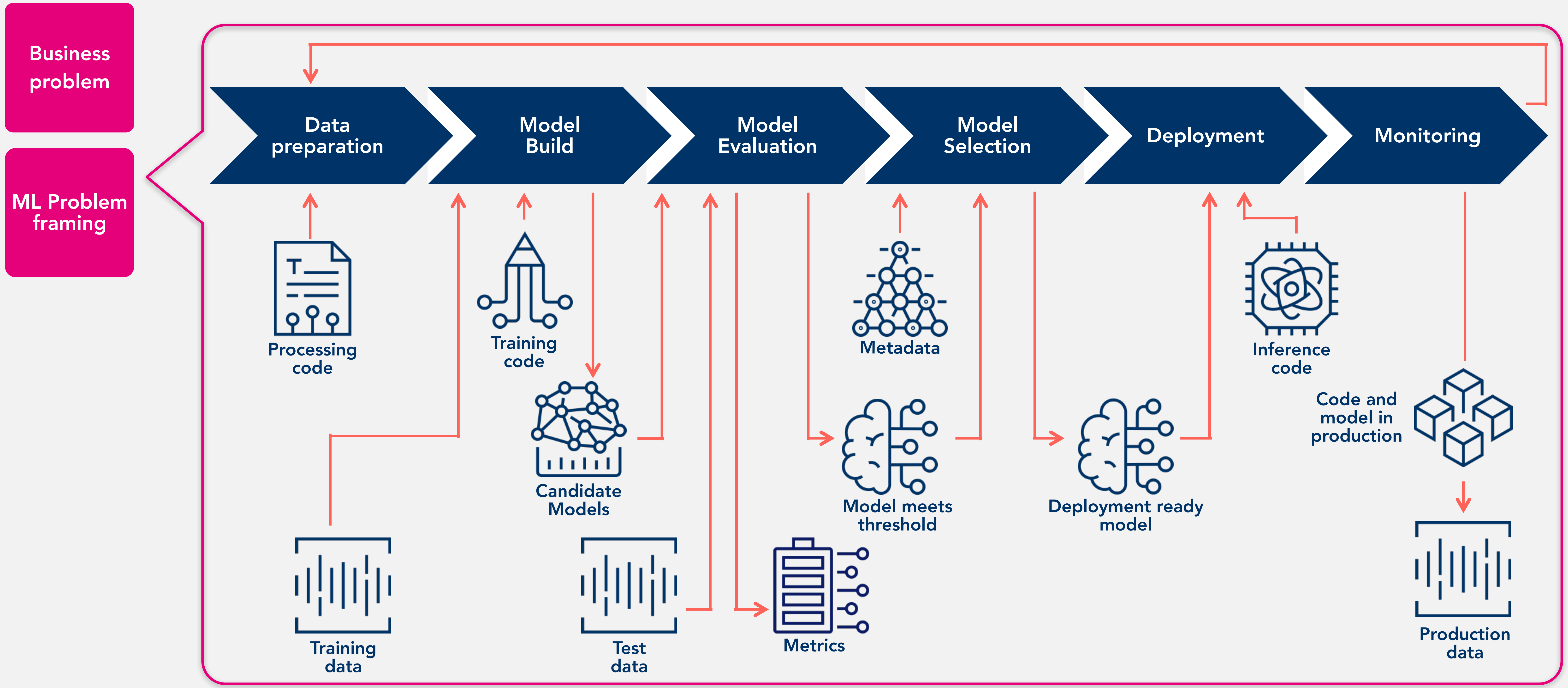

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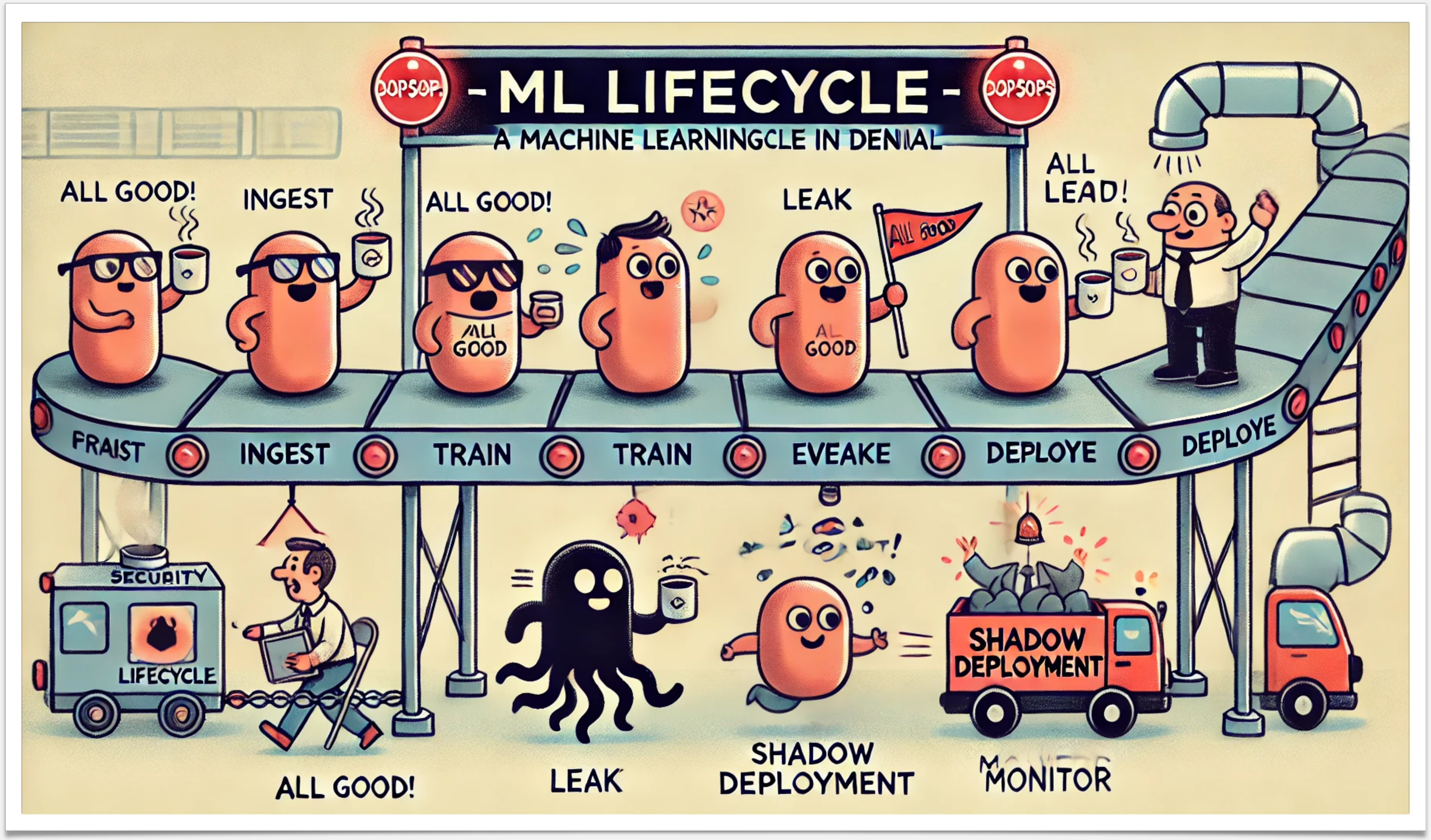
The ML Lifecycle, Where the Gaps Usually Start

Security often enters late. Risk doesn't wait.



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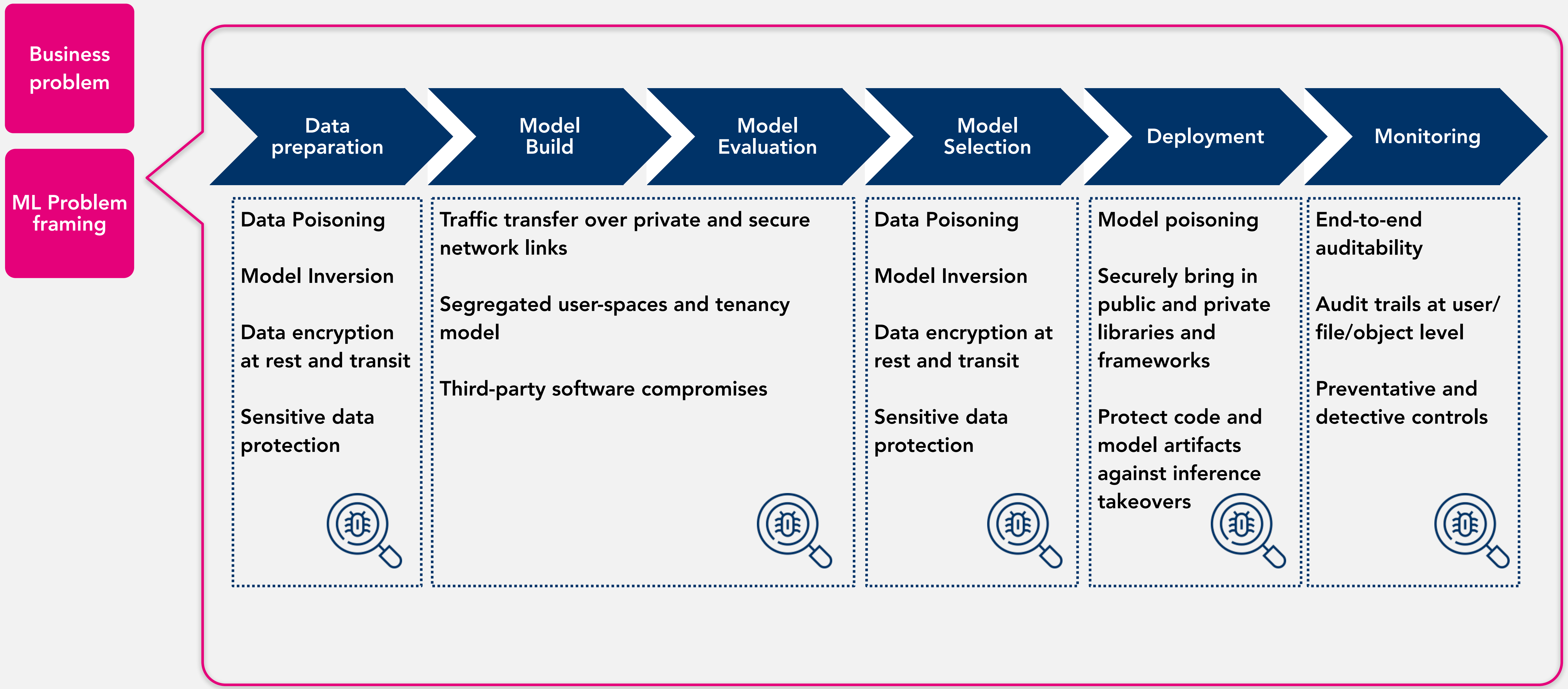
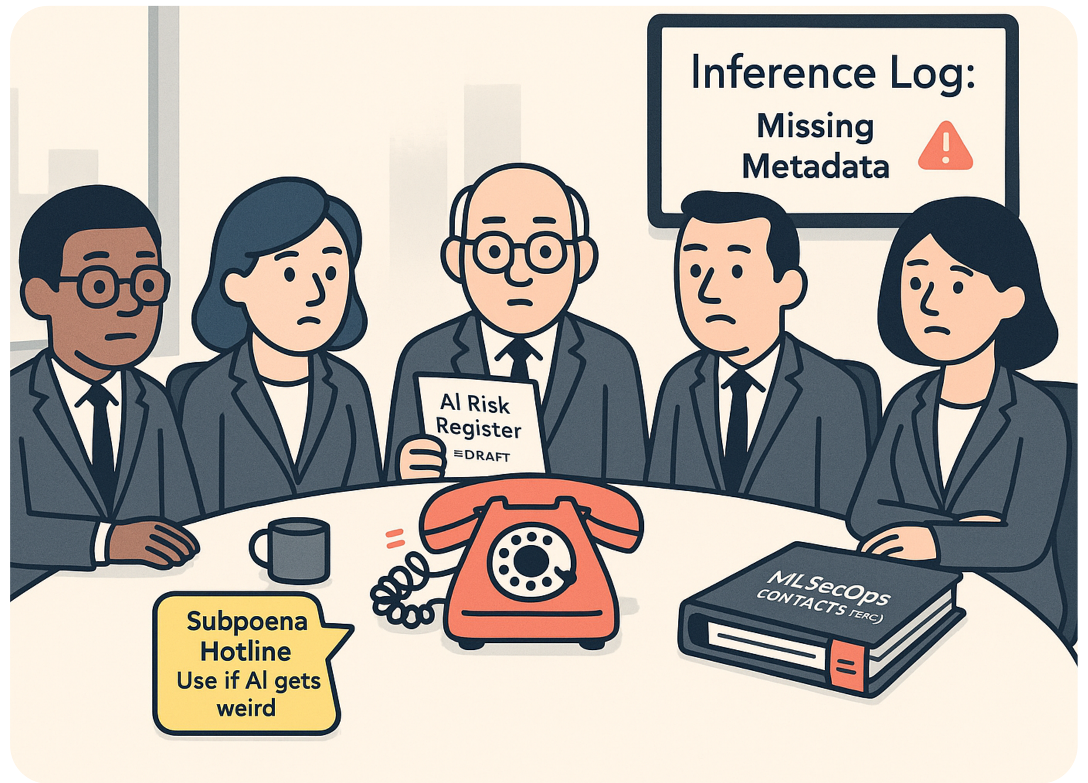


Data preparation	Model Build	Model Evaluation	Model Selection	Deployment	Monitoring
Data Poisoning Model Inversion Data encryption at rest and transit Sensitive data protection	Traffic transfer over private and secure network links Segregated user-spaces and tenancy model Third-party software compromises	Data Poisoning Model Inversion Data encryption at rest and transit Sensitive data protection	Model poisoning Securely bring in public and private libraries and frameworks Protect code and model artifacts against inference takeovers	End-to-end auditability Audit trails at user/file/object level Preventative and detective controls	

Adapted from AWS MLOps lifecycle — re:Invent 2024

What Matters, Where



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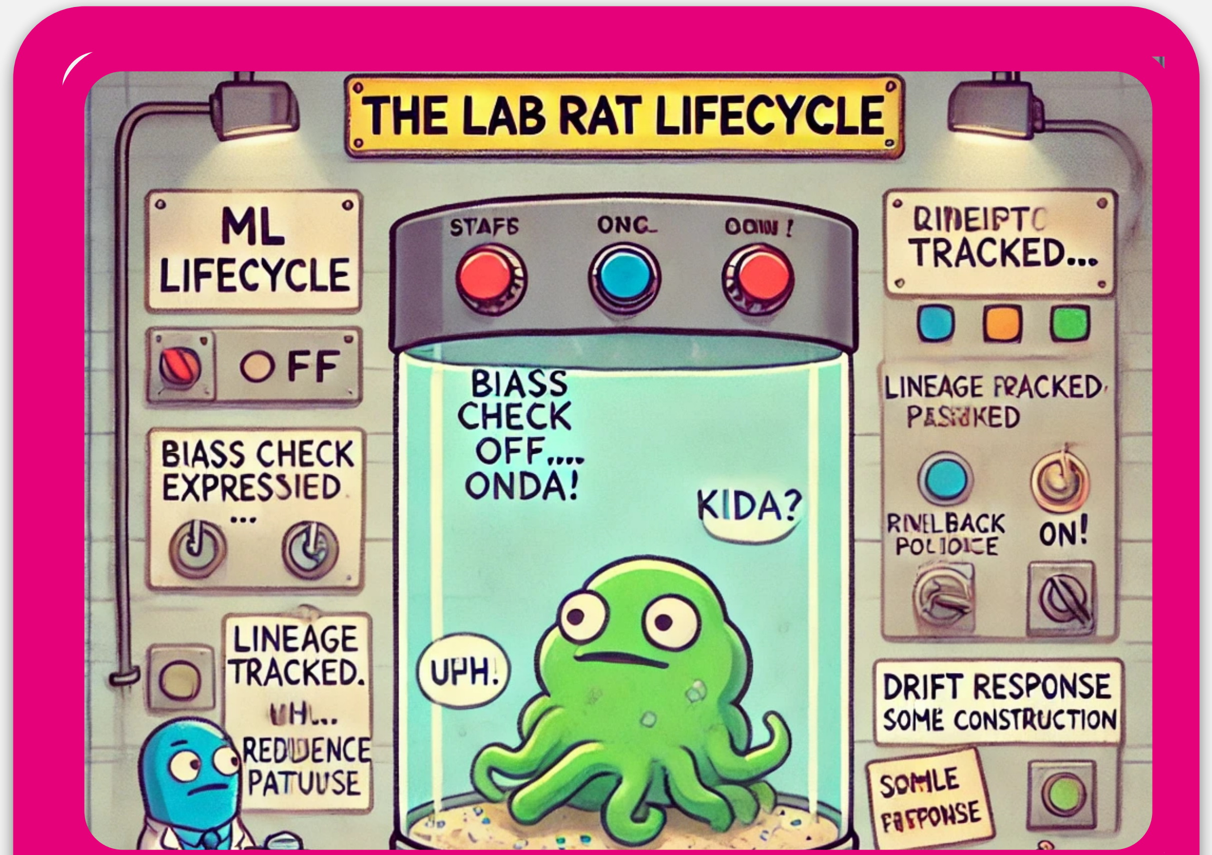
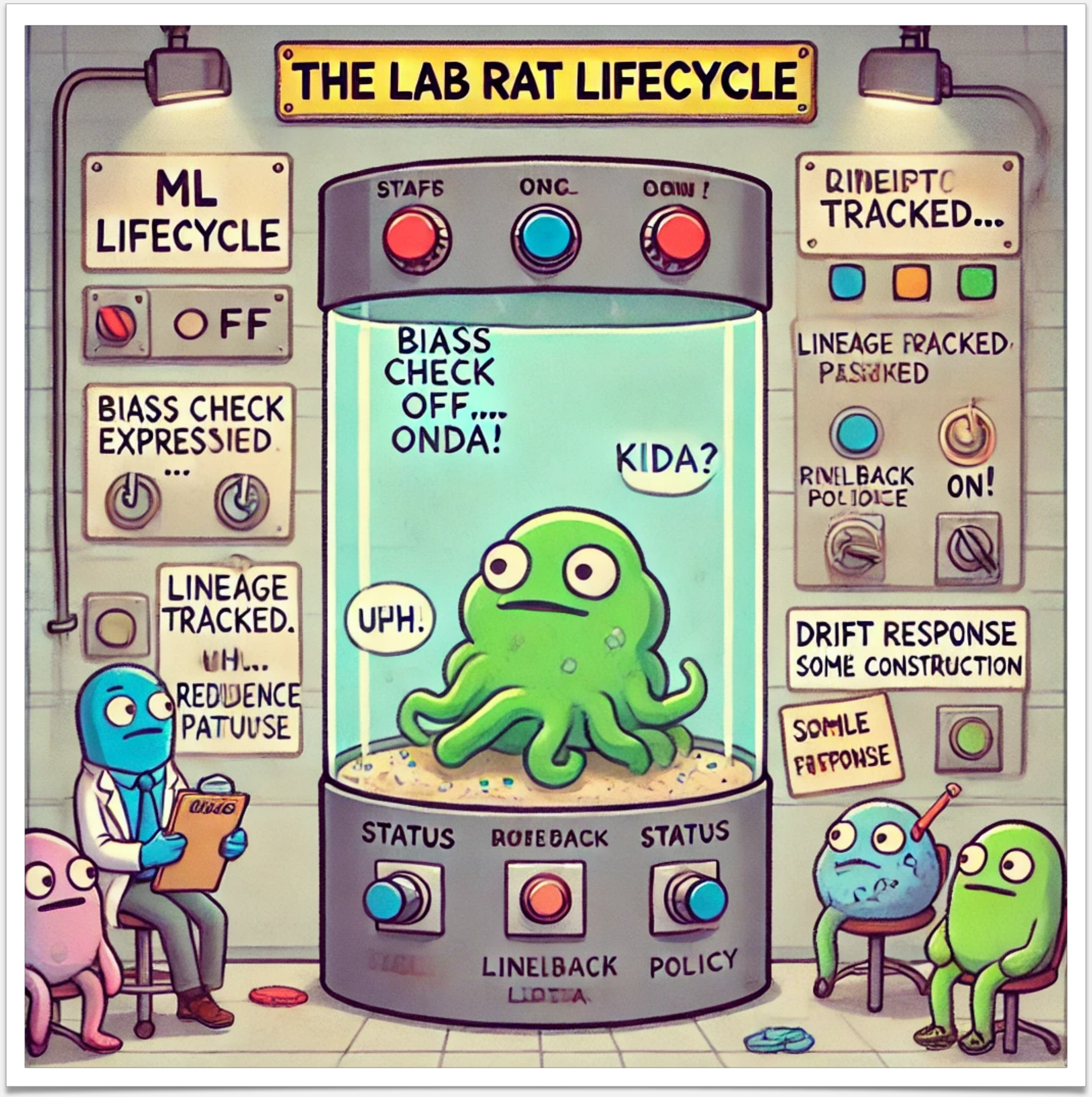


Designing Resilience In (Not Bolting It On)

Designing Resilience In, Not Bolting It On

MLSecOps is how we express trust across the lifecycle — not once, but continuously.



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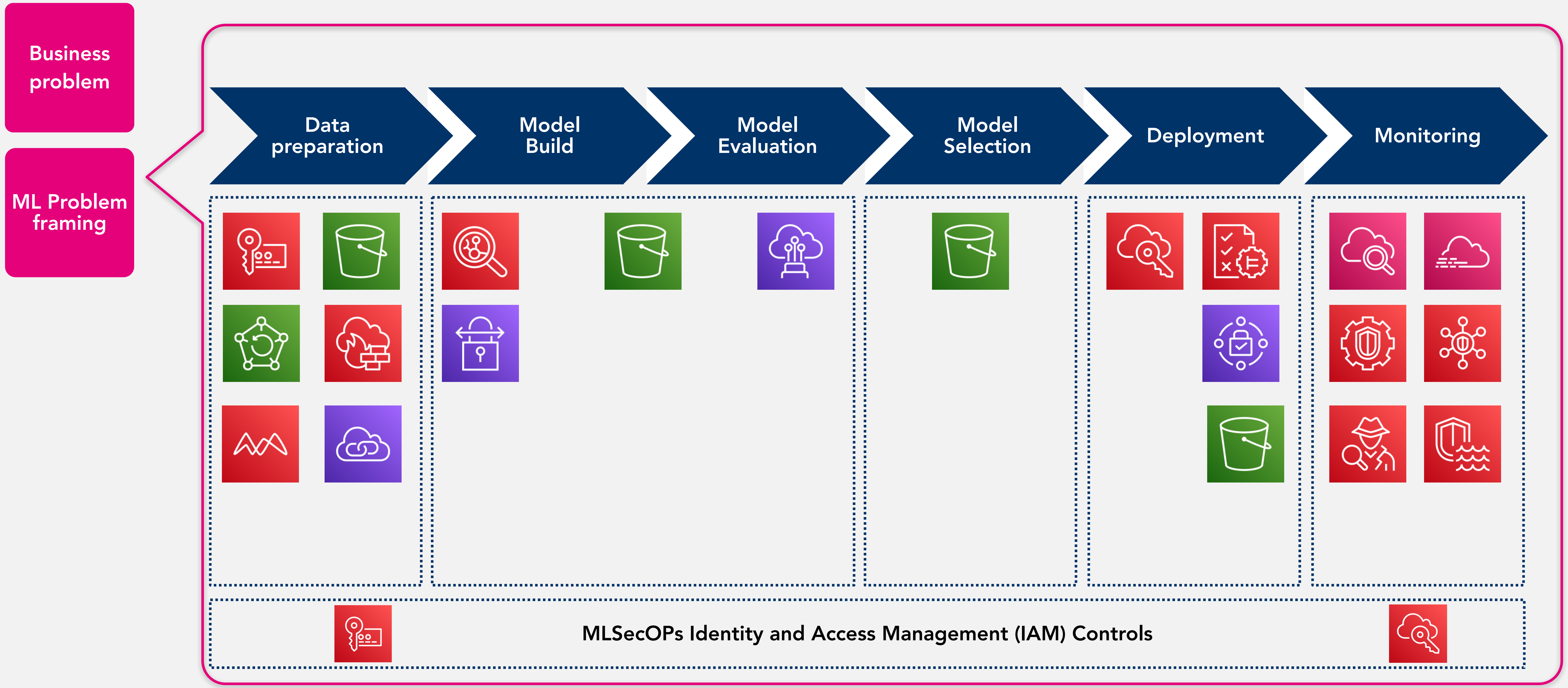
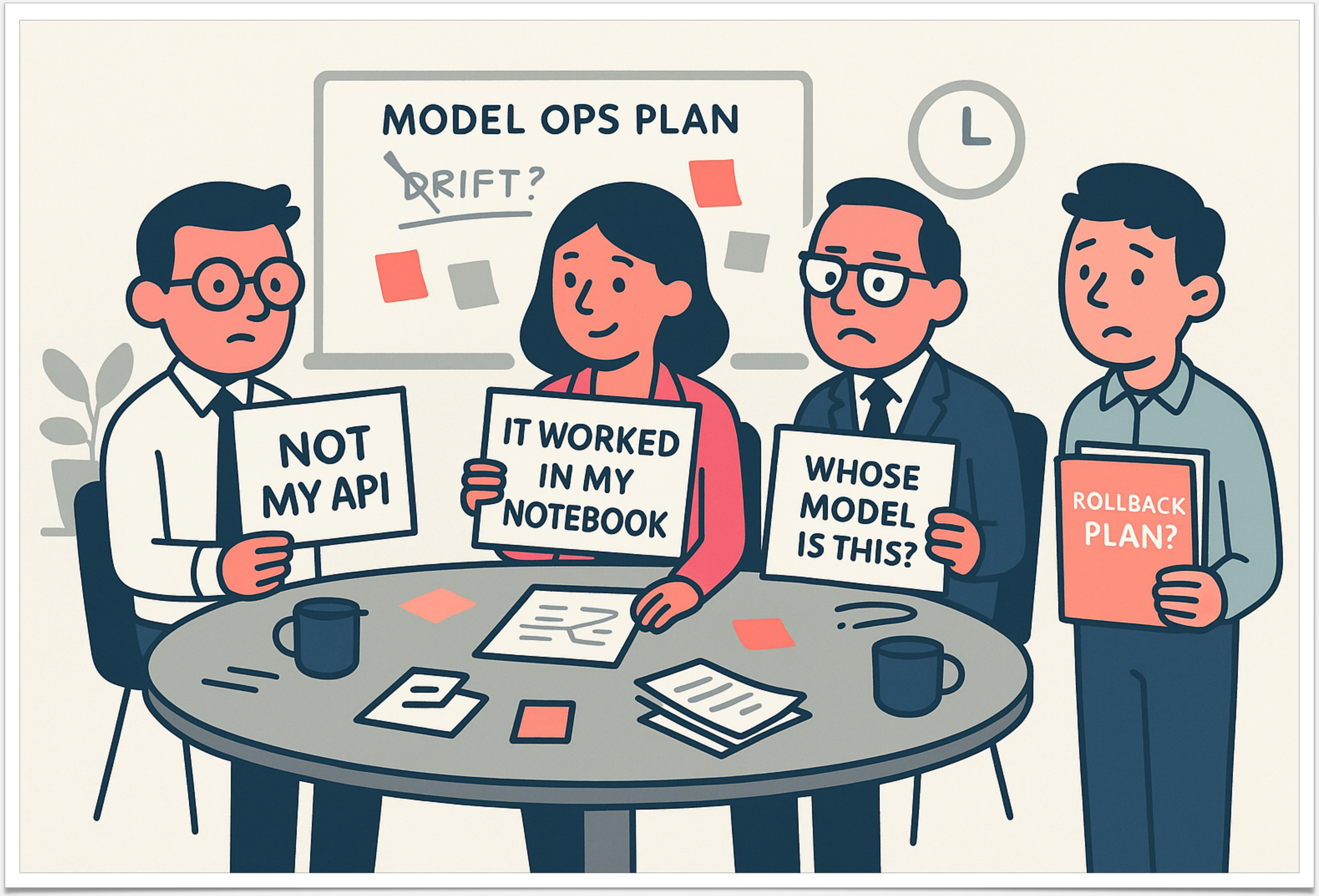


Adapted from AWS MLOps lifecycle — re:Invent 2024

Designing Resilience In, Where the Friction Really Lives

It's not a tooling problem. It's a coordination problem.



Ideas To Get You Started

1. Map your real lifecycle

2. Assign shared ownership

3. Make model behaviour explainable

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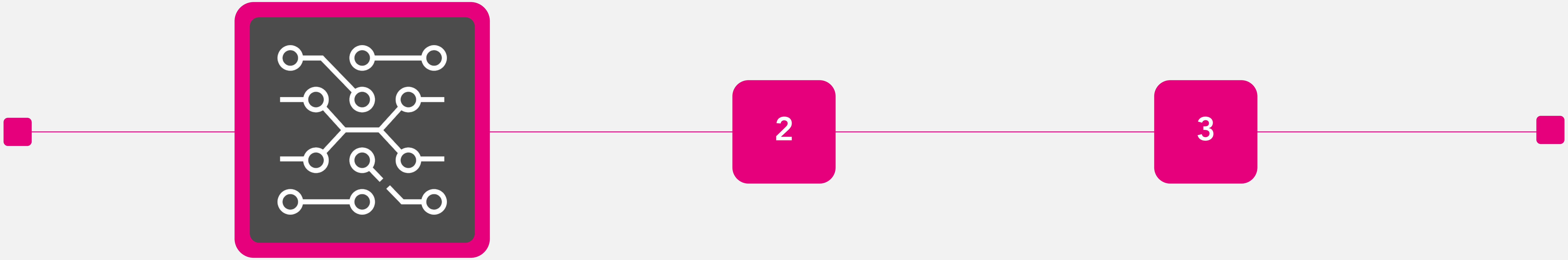


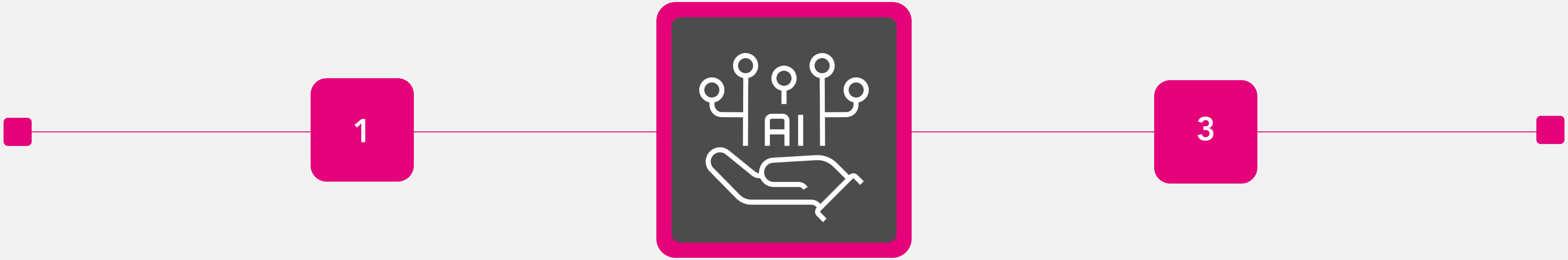
2

3

Map your real lifecycle

Not what's in the docs —
what's actually happening.

Ideas To Get You Started



Assign shared ownership

Clearly define who owns what

Ideas To Get You Started

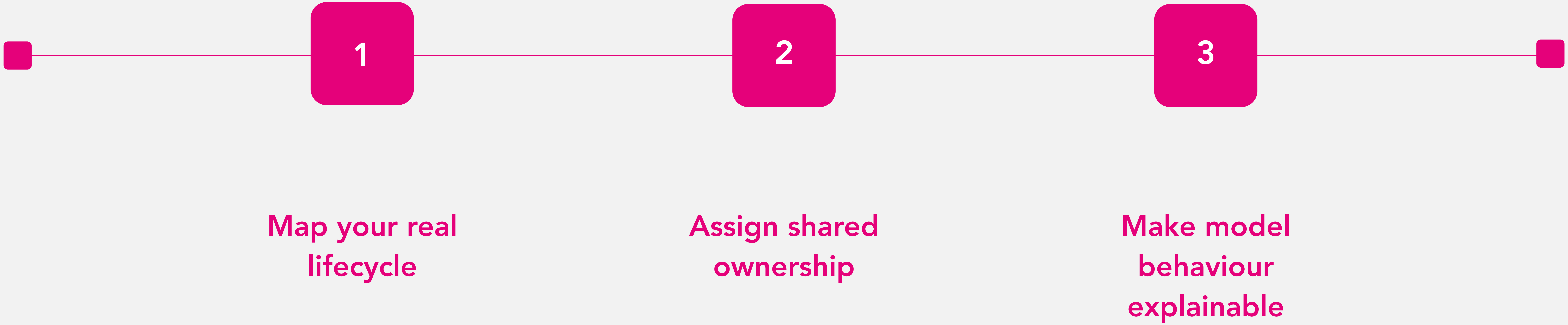
1

2

Make model behaviour explainable

You need just enough traceability to answer: “Why did this model do that?”

Ideas To Get You Started



1. Map your real lifecycle

2. Assign shared ownership

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What Storage Knows (That You Might Not)

Vriti Magee

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Thank you