VOXXED DAYS BRUSSELS

Analytics capabilities architectural patterns

A journey for data-driven insights

John Mousa

Sr. Solutions Architect
Amazon Web Services

Architecture is a bridge

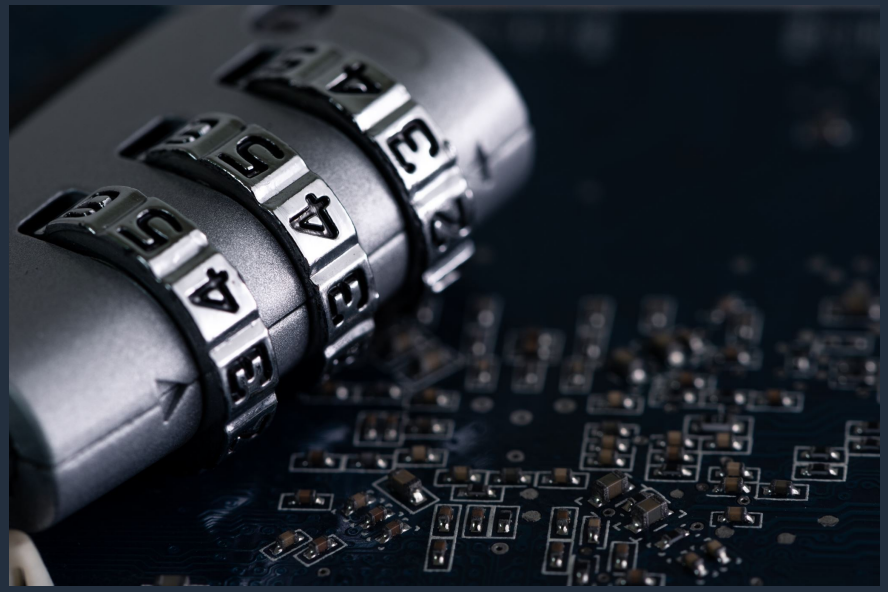
Joining business needs
and technical solutions

Architecture is about long-term

Maximizing the business value taking into account the

Long-term consequences of technical decisions

Long-term decision and commitments

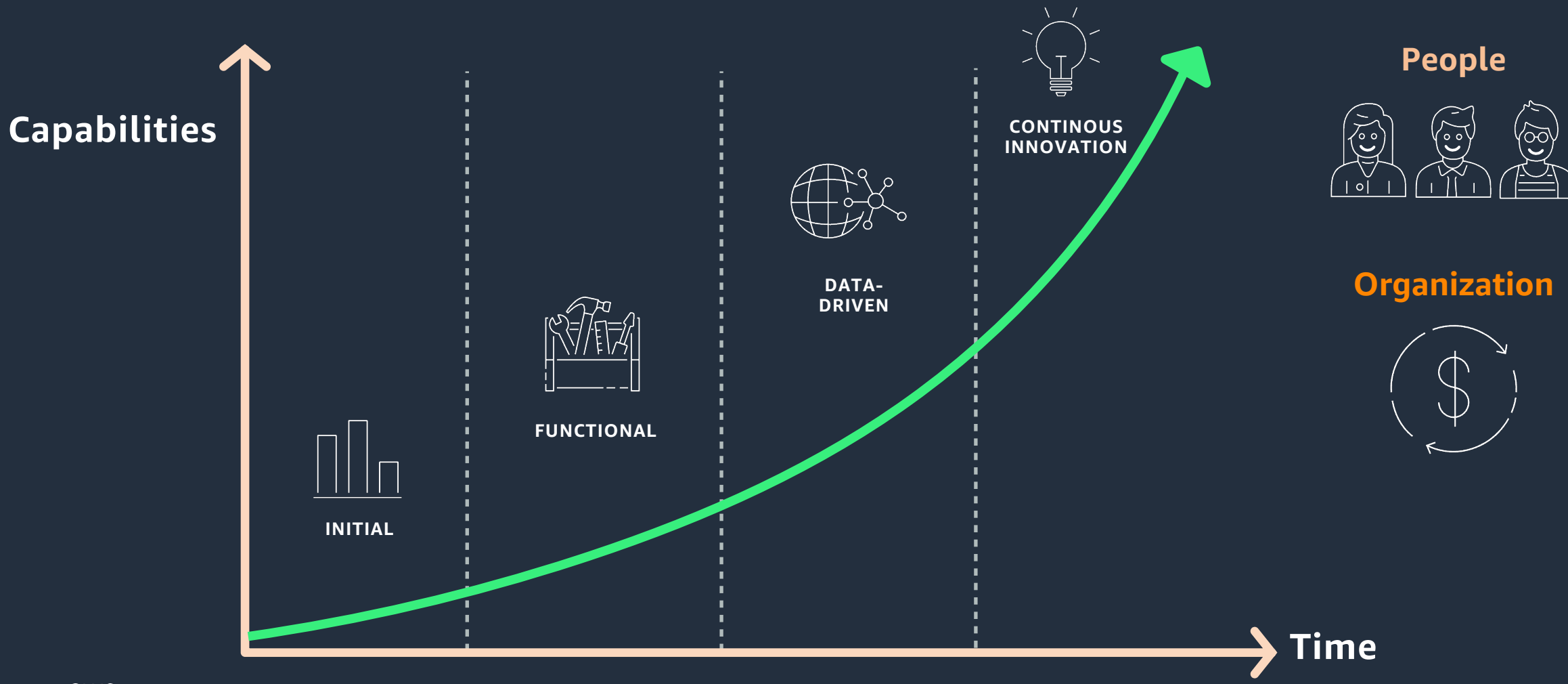


“An evolutionary architecture supports guided incremental change across multiple dimensions”

Rebecca Parsons
Chief Technology Officer

Neal Ford
Director and Software Architect

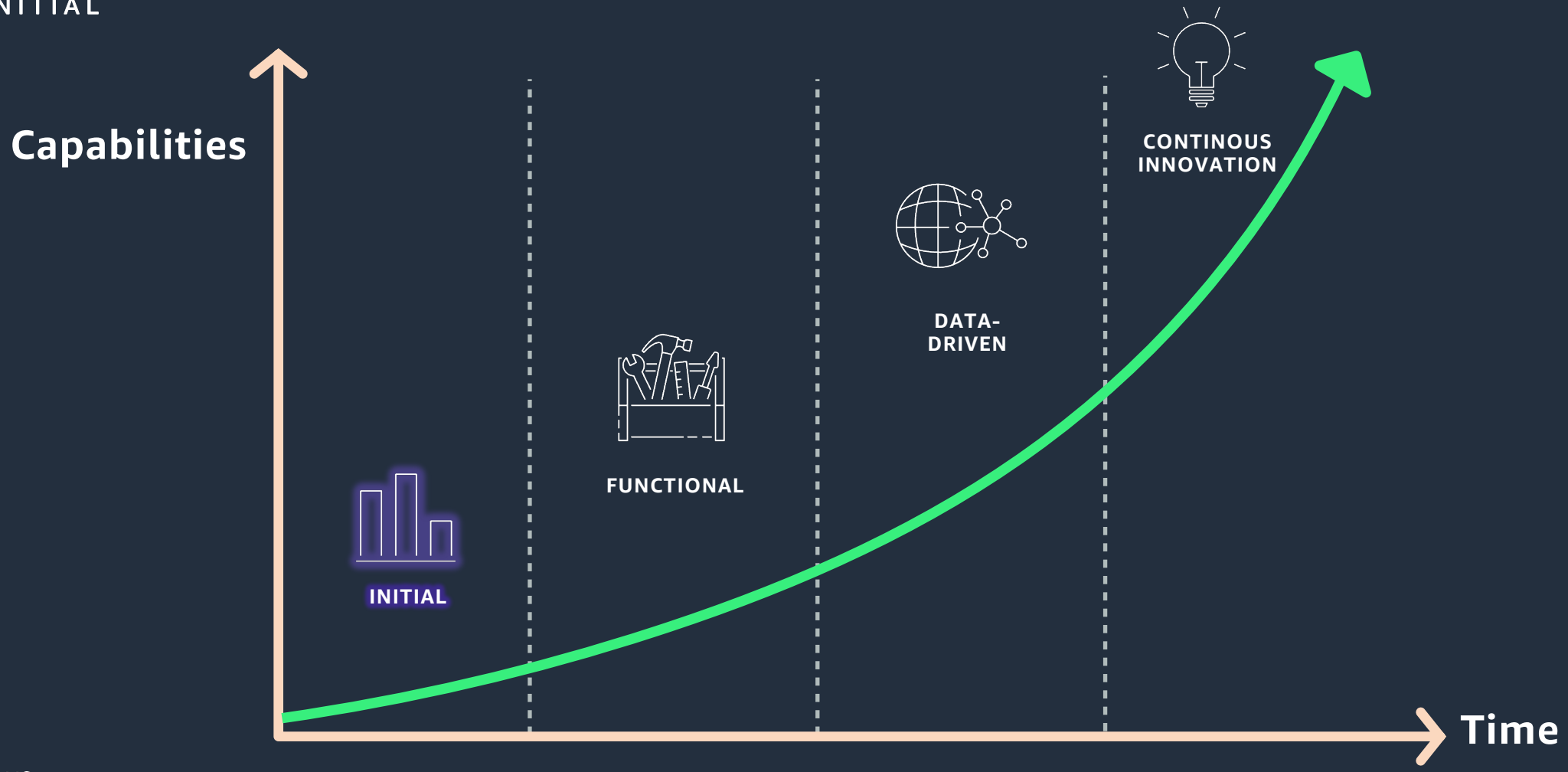
Advancing analytical capabilities model



Let’s start then

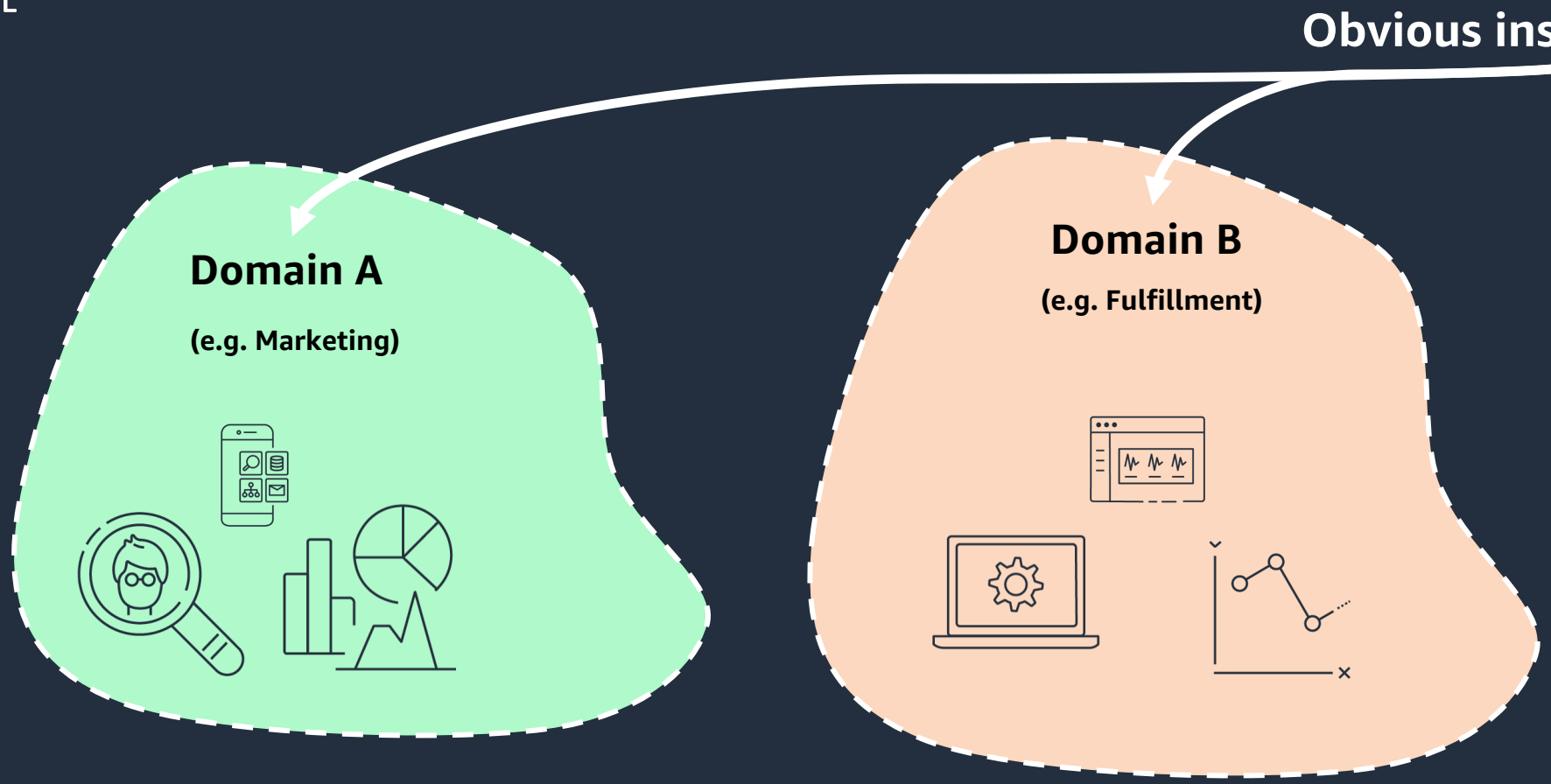
Advancing analytical capabilities model

INITIAL



Organizational landescape

INITIAL



Meet the team

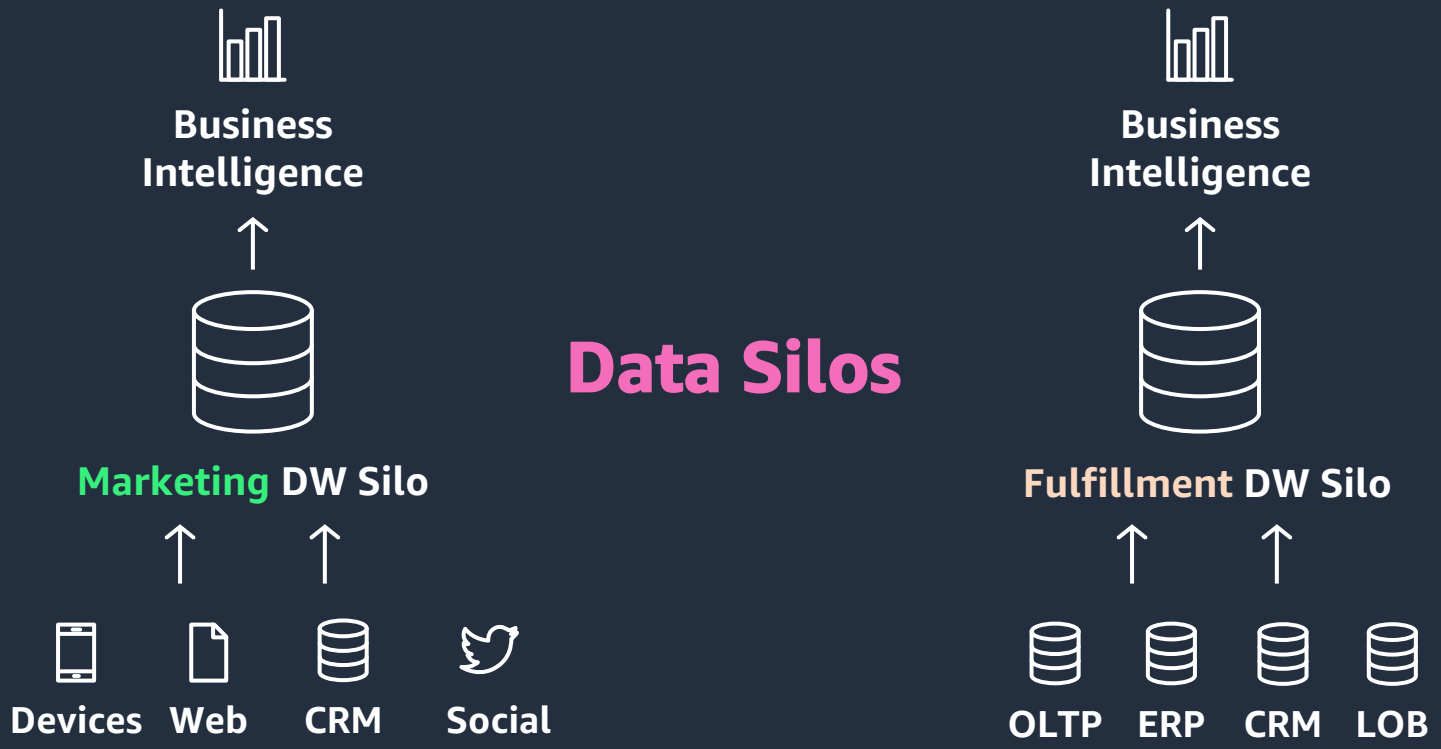
INITIAL

Buzz
from business

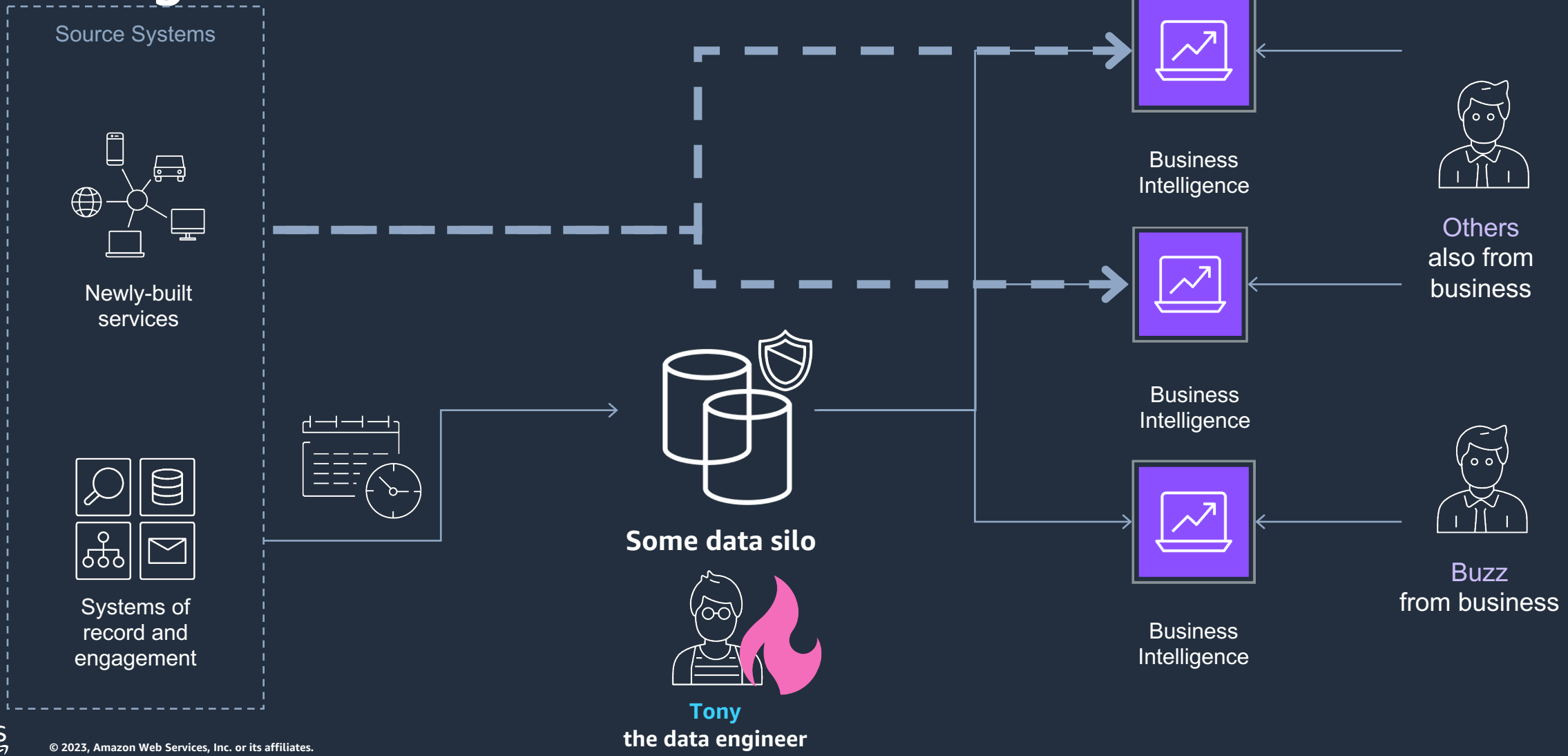
Tony
the data architect

The analytics landescape

INITIAL



Working with silos



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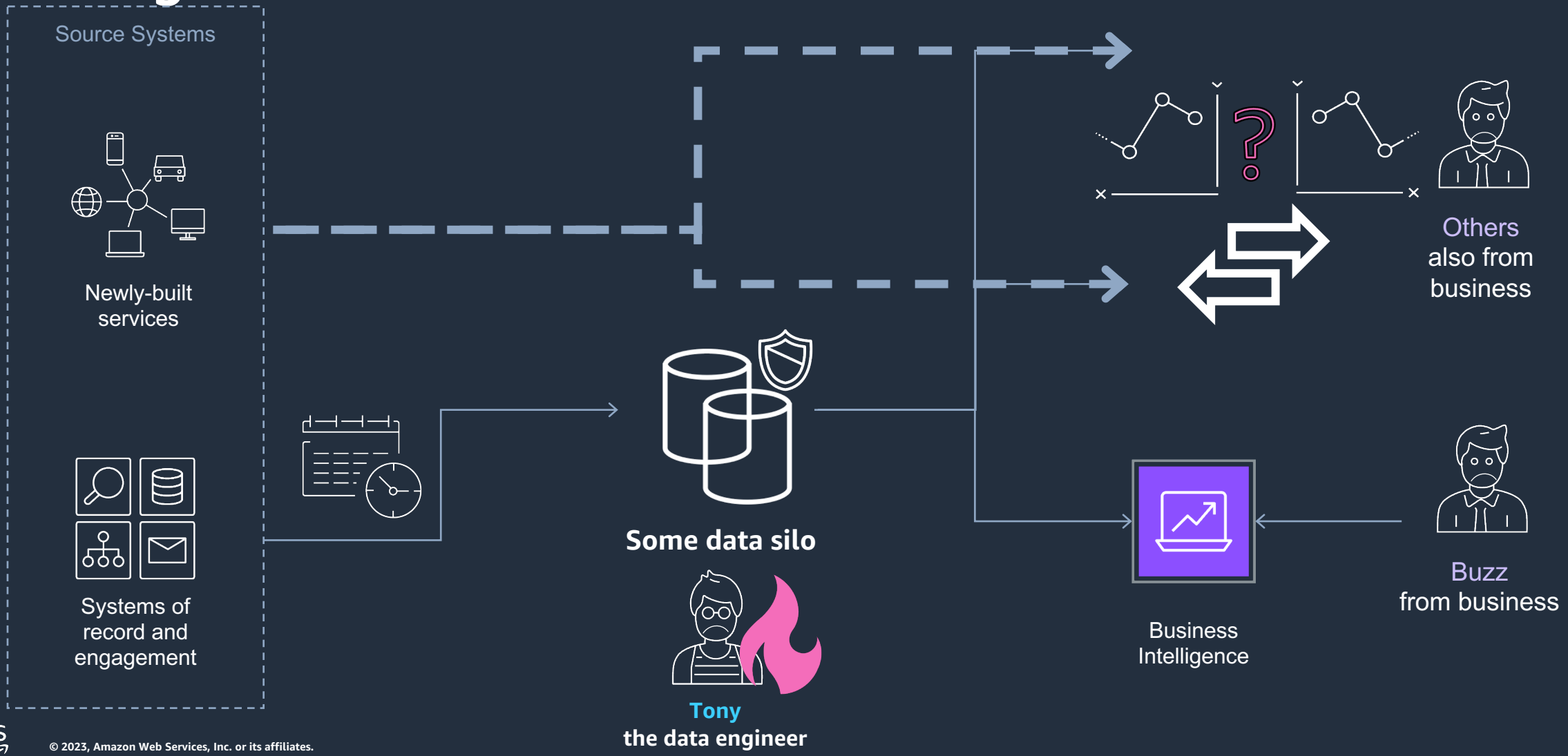
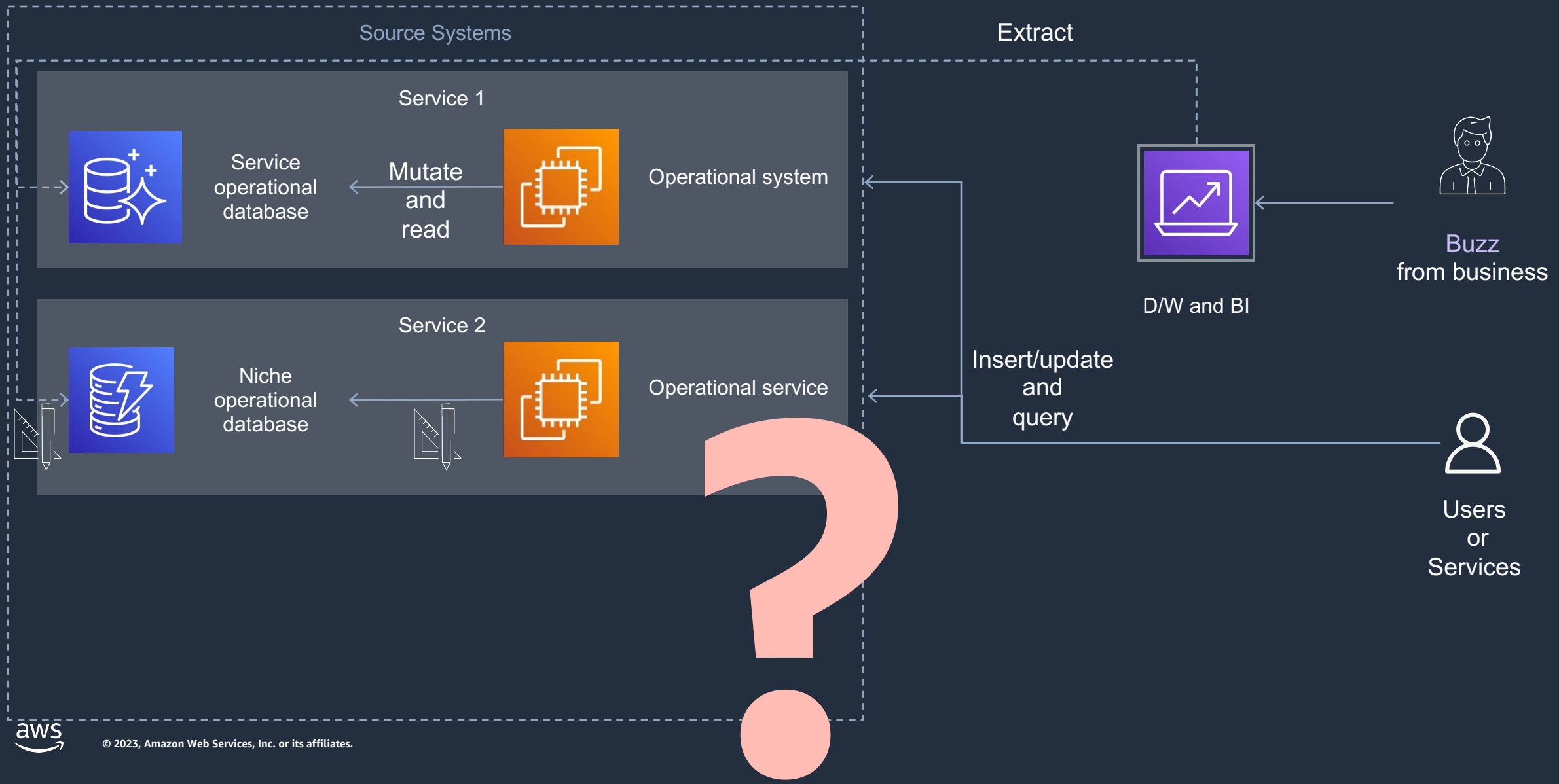
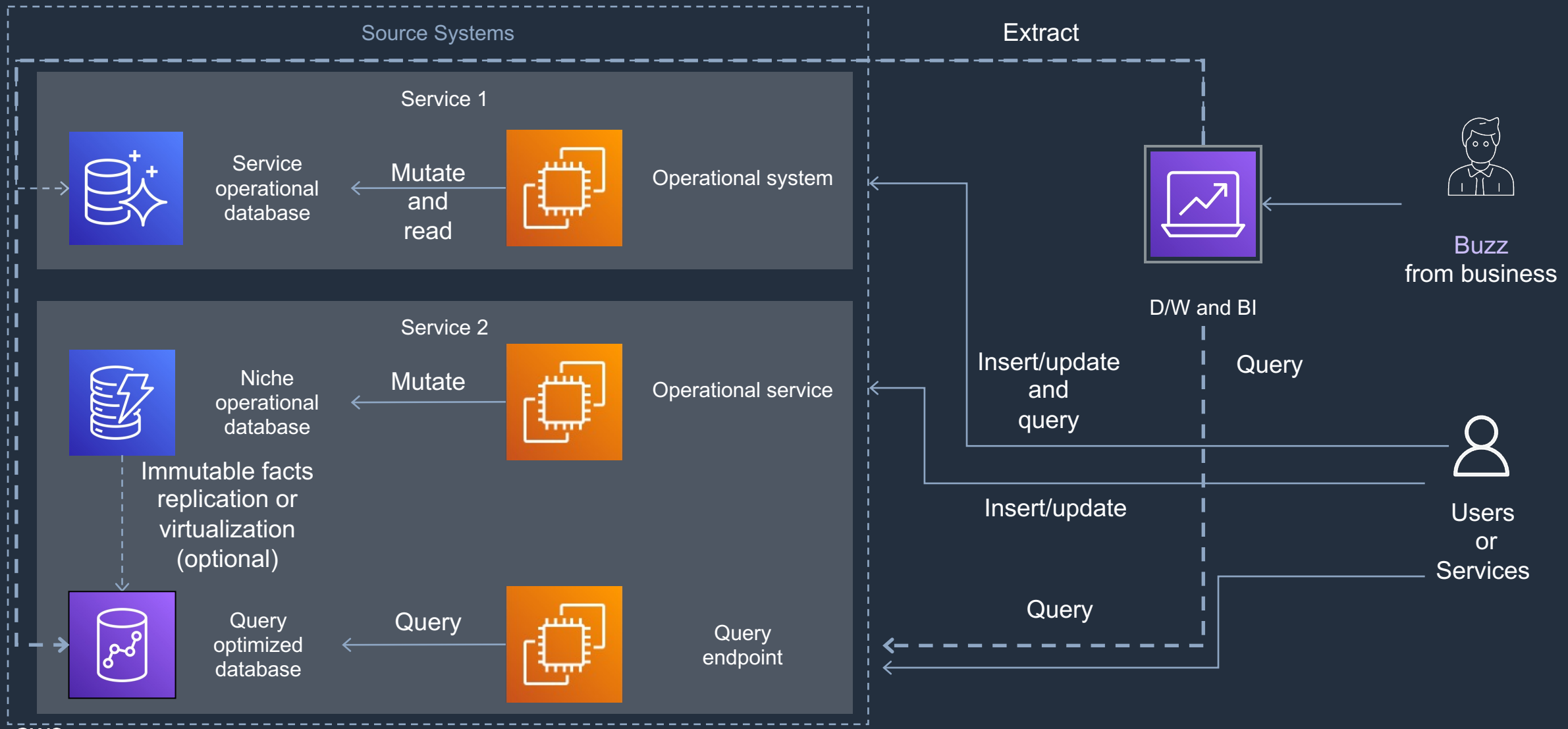


Extracting data from source systems



Extracting data from source systems - CQRS



Data adapters and patterns

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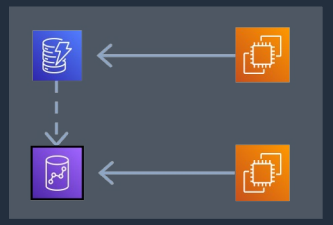
Build effort

DYI, CQRS



Aided

Amazon DynamoDB Streams

AWS Database Migration Service

Amazon AppFlow

0 - ETL

Amazon Aurora 0-ETL

Amazon Athena Federated queries

Challenges to watch out for

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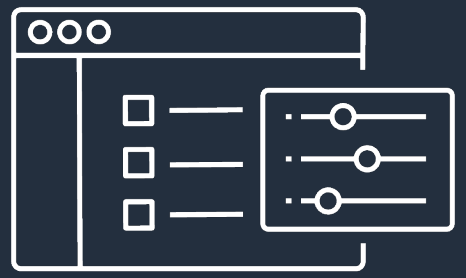
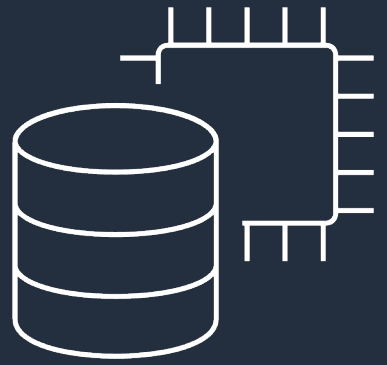
Remove ingestion burden



Don’t overuse bespoke BI tools



Look for object storage support

Advancing analytical capabilities model

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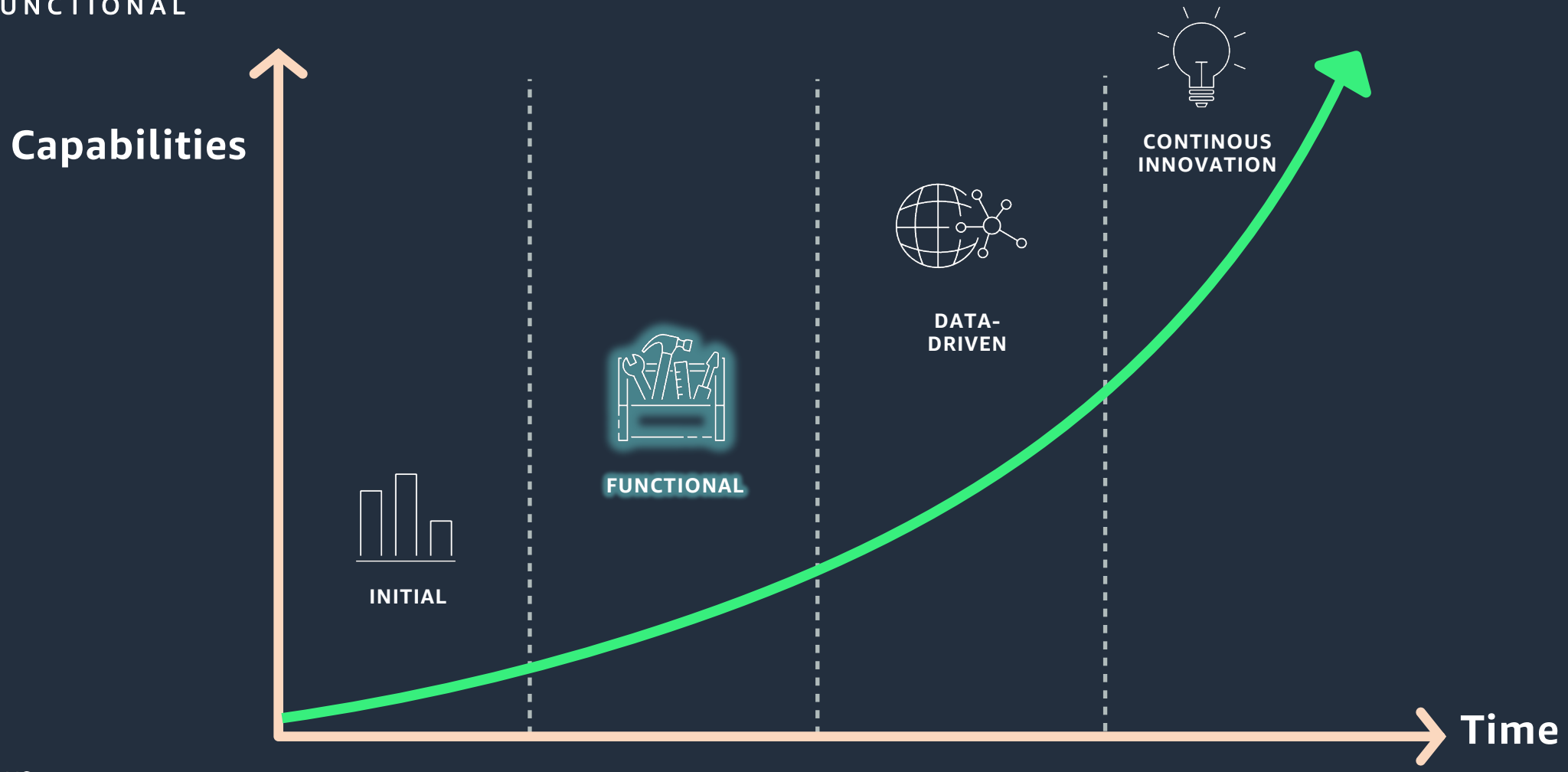

Finding opportunities

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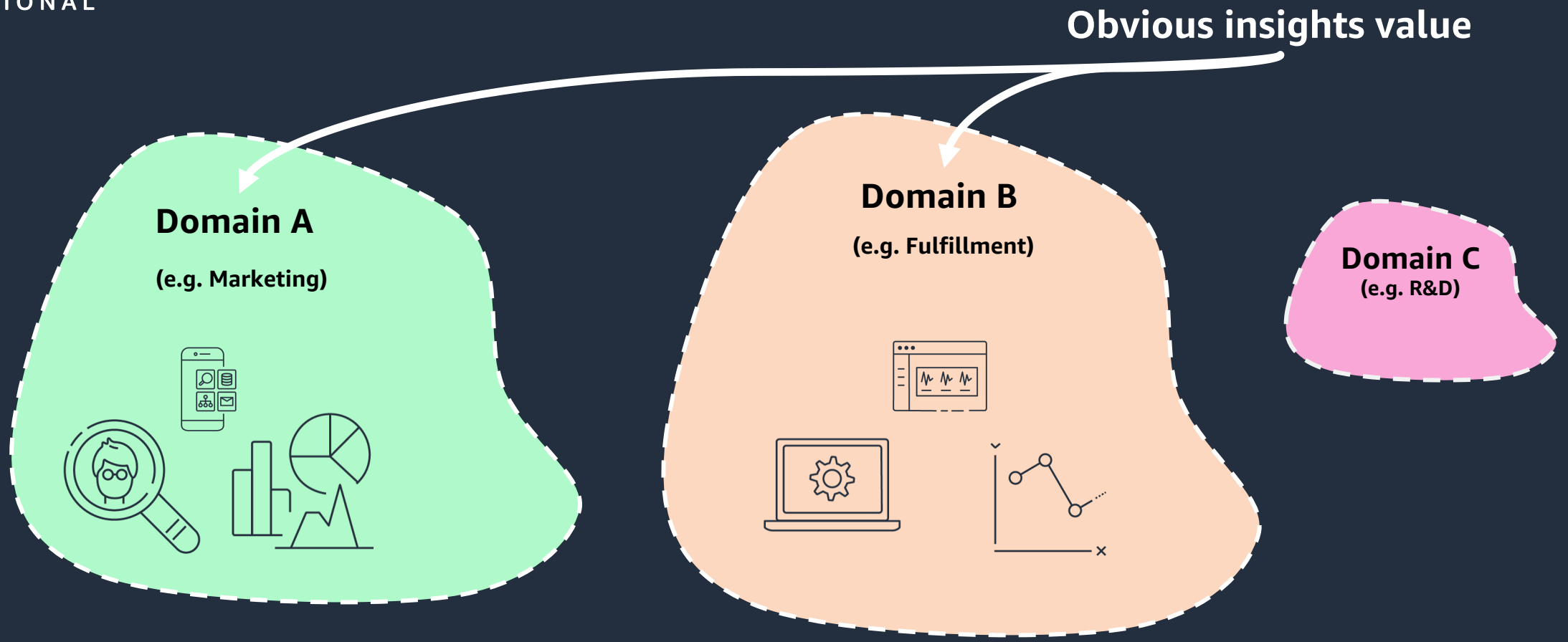

Meet the team

FUNCTIONAL

Buzz
from business

Barbara
the data scientist

Tony
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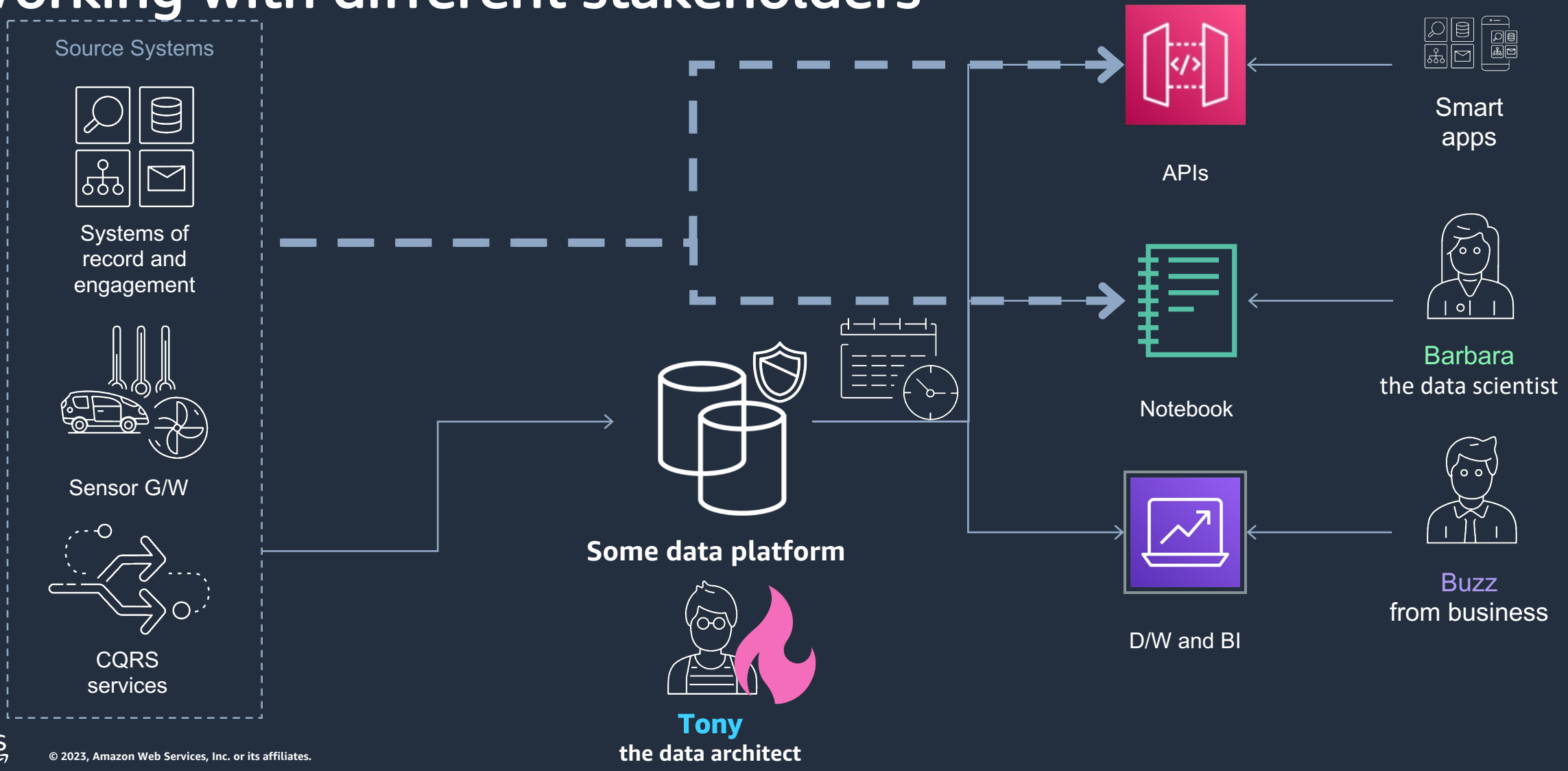
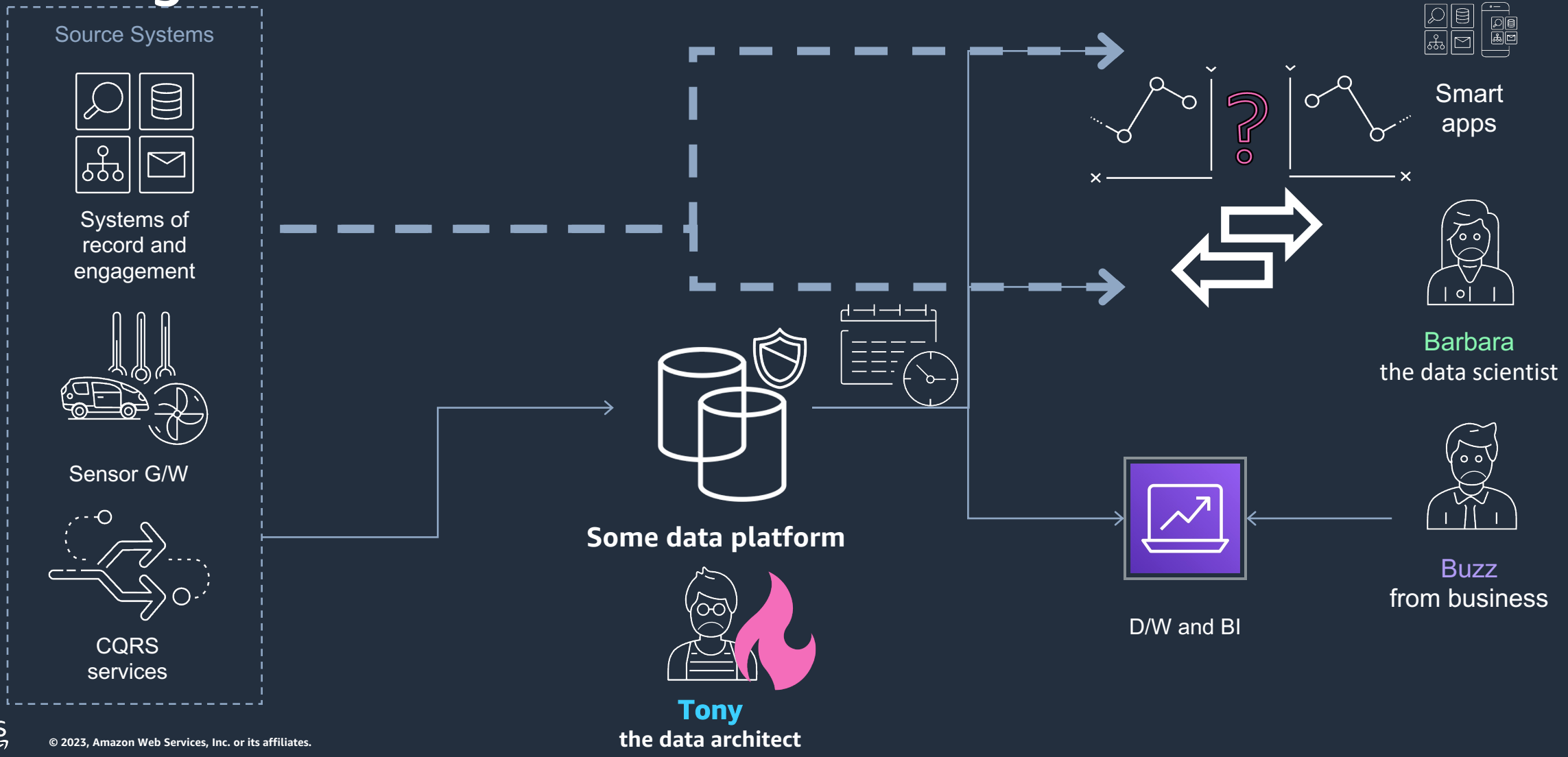
Working with different stakeholders



Working with different stakeholders



Modern data strategy architecture

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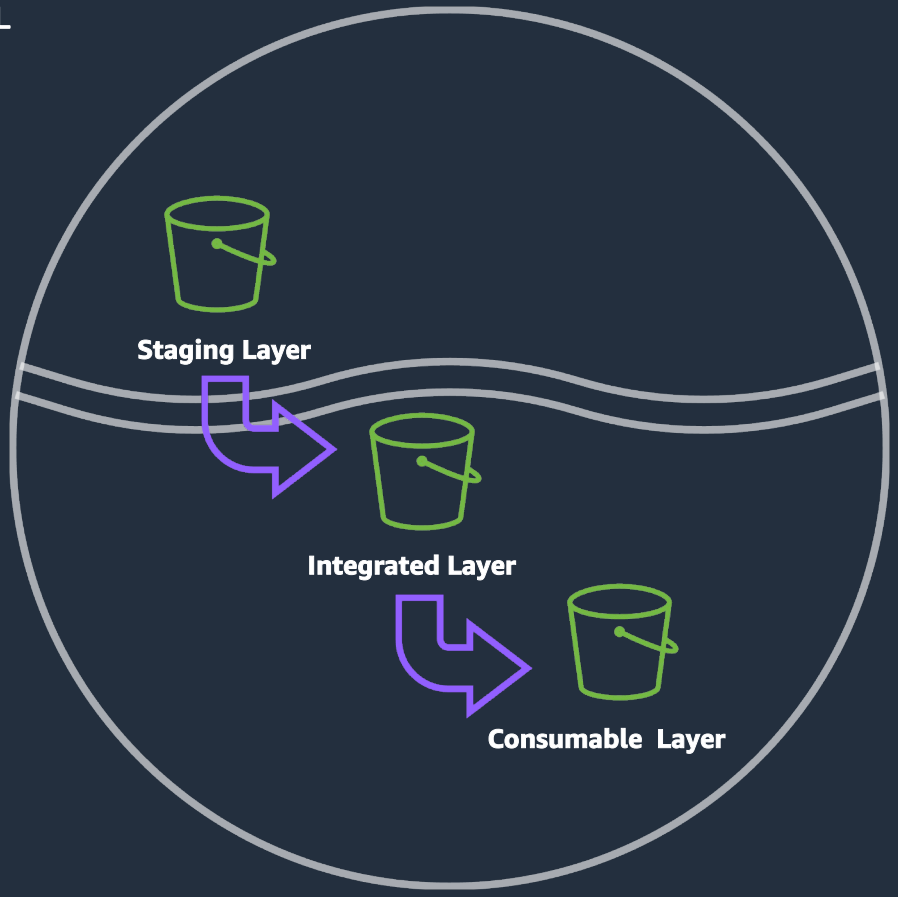
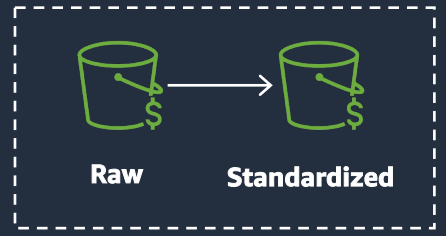


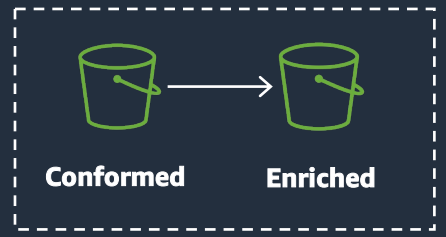
Staging Layer

- Factual source data for all time
- Data treated as immutable
- Cost effective



Integrated Layer

- Trustworthy
- Valuable
- Accessible, Interoperable and Open

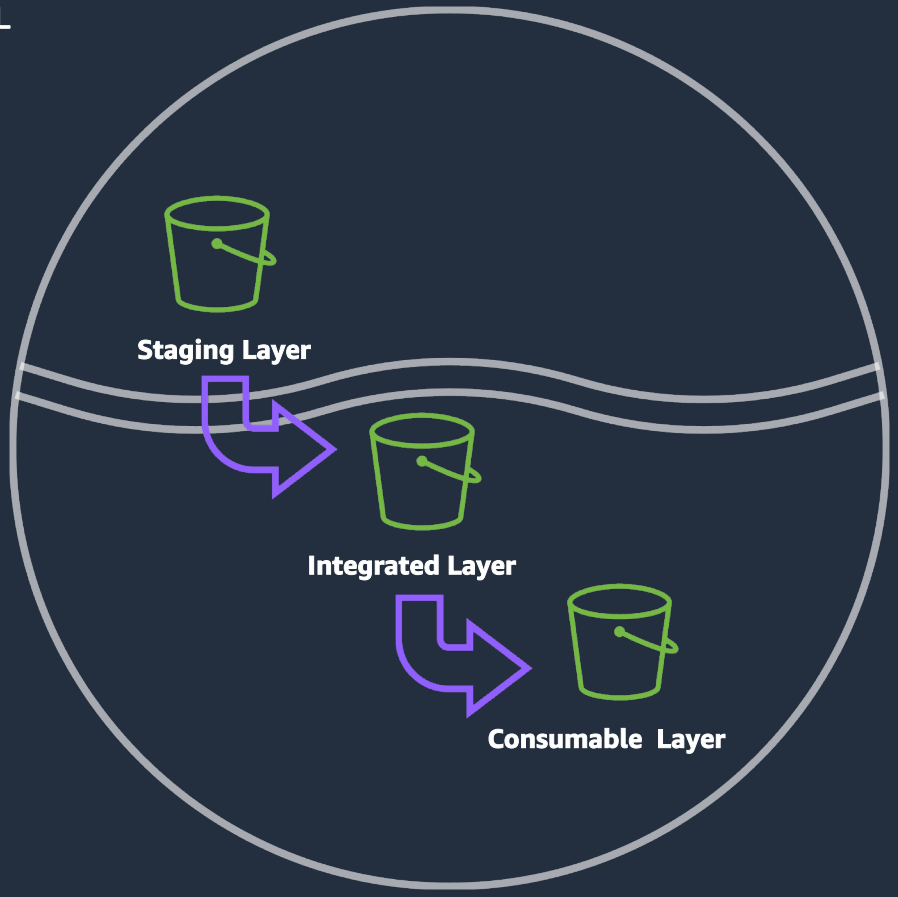


Consumable Layer

- Application-Specific format and granularity
- Fits consumer's technology
- Adds Flexibility to integrated layer

Stakeholders

FUNCTIONAL



Barbara the data scientist
Exploration, Integration, Predictive Models

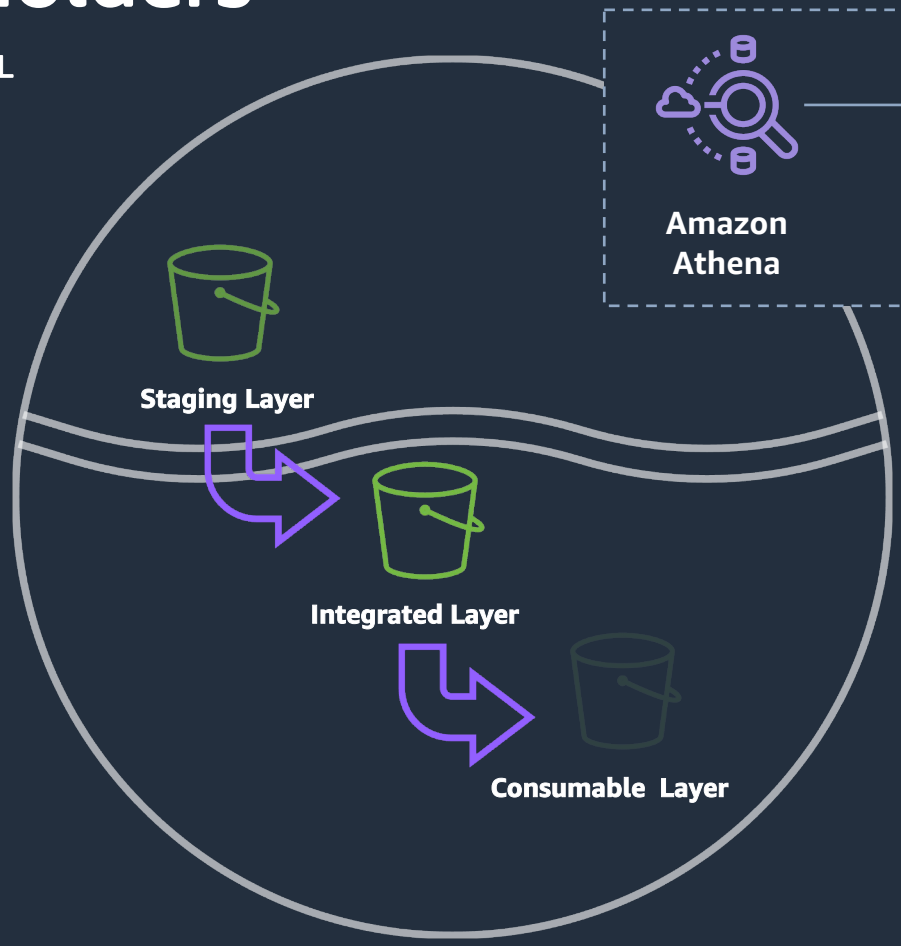
Tony the data expert
Ad-hoc Reports, Exploring KPIs

Buzz from business
Dashboarding, Slice & Dice, What-if

Smart Applications
Exploration, Integration, Predictive Models

Stakeholders

FUNCTIONAL



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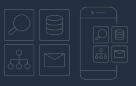

Stakeholders

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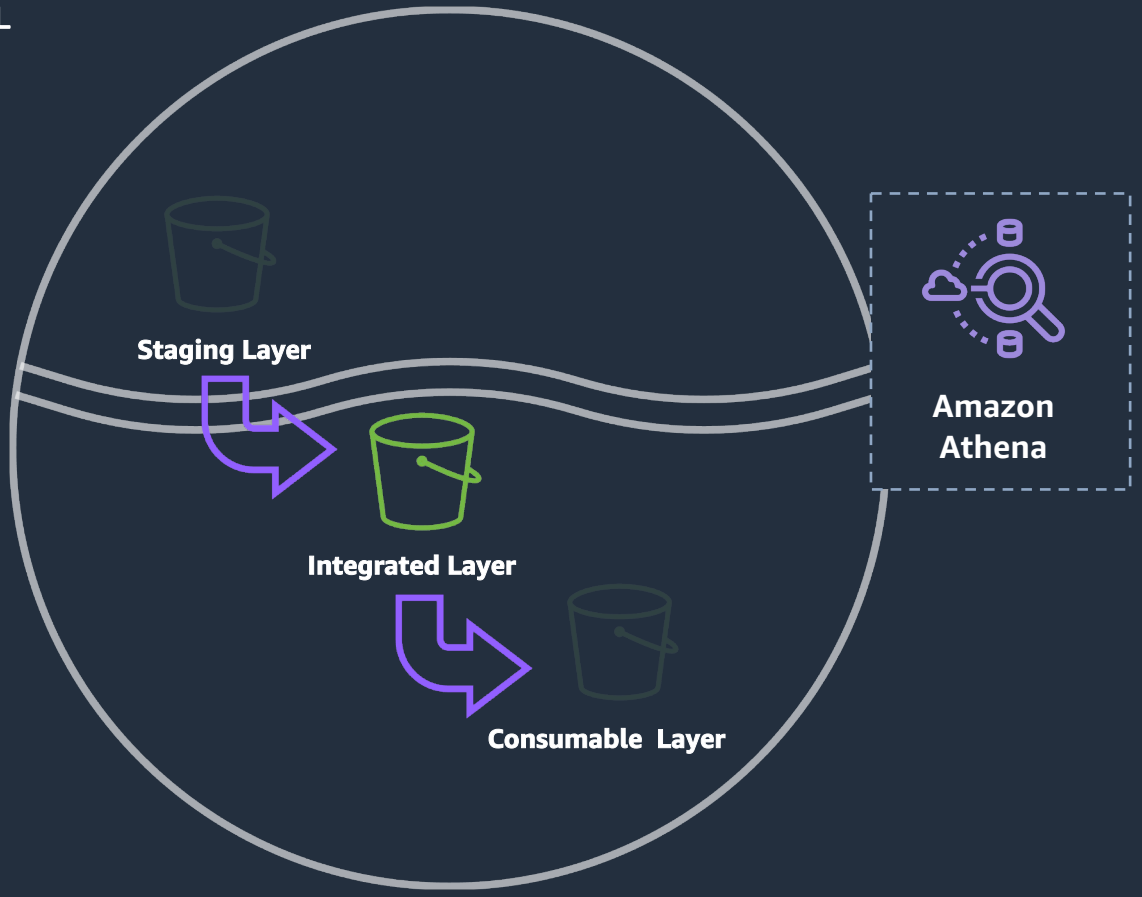

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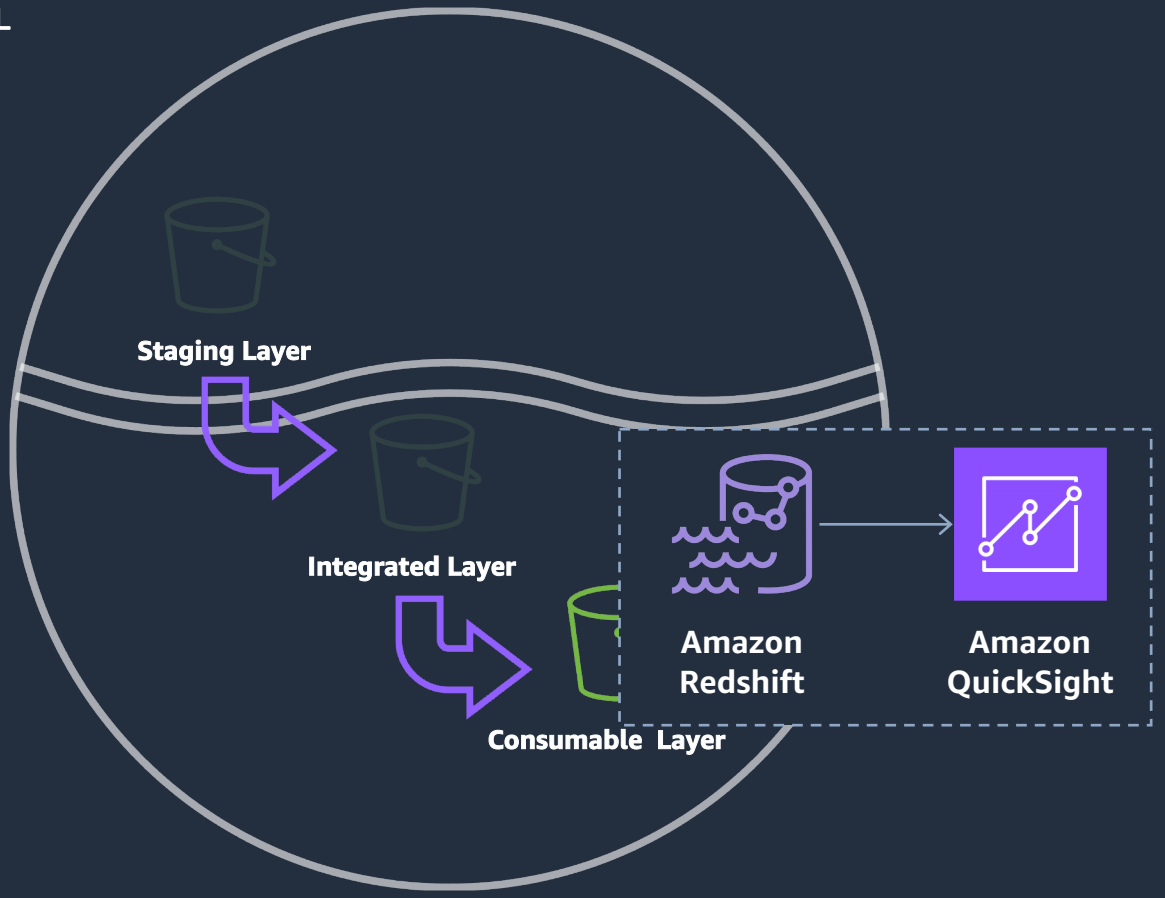

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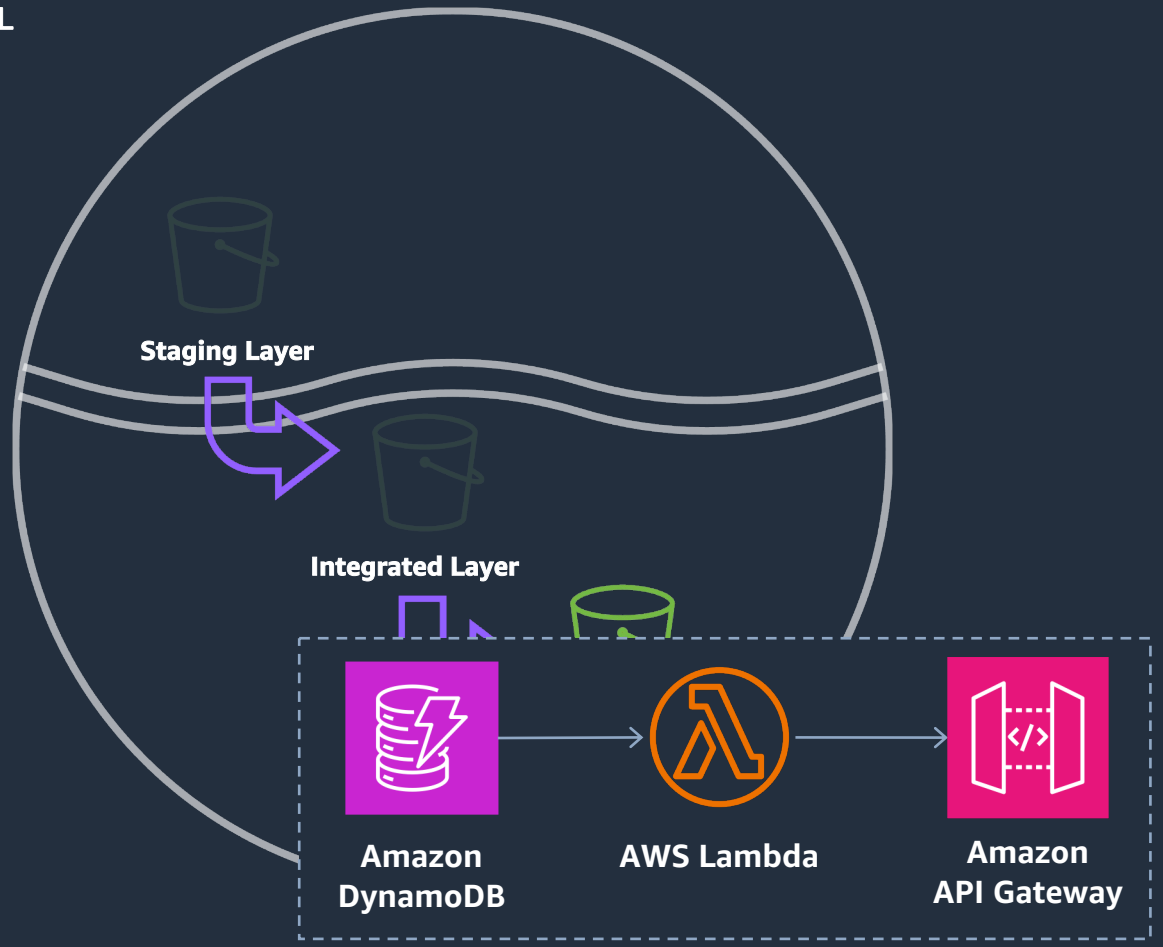

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Exploration, Integration, Predictive Models

AWS expansive serverless data analytics in the cloud

Challenges to watch out for

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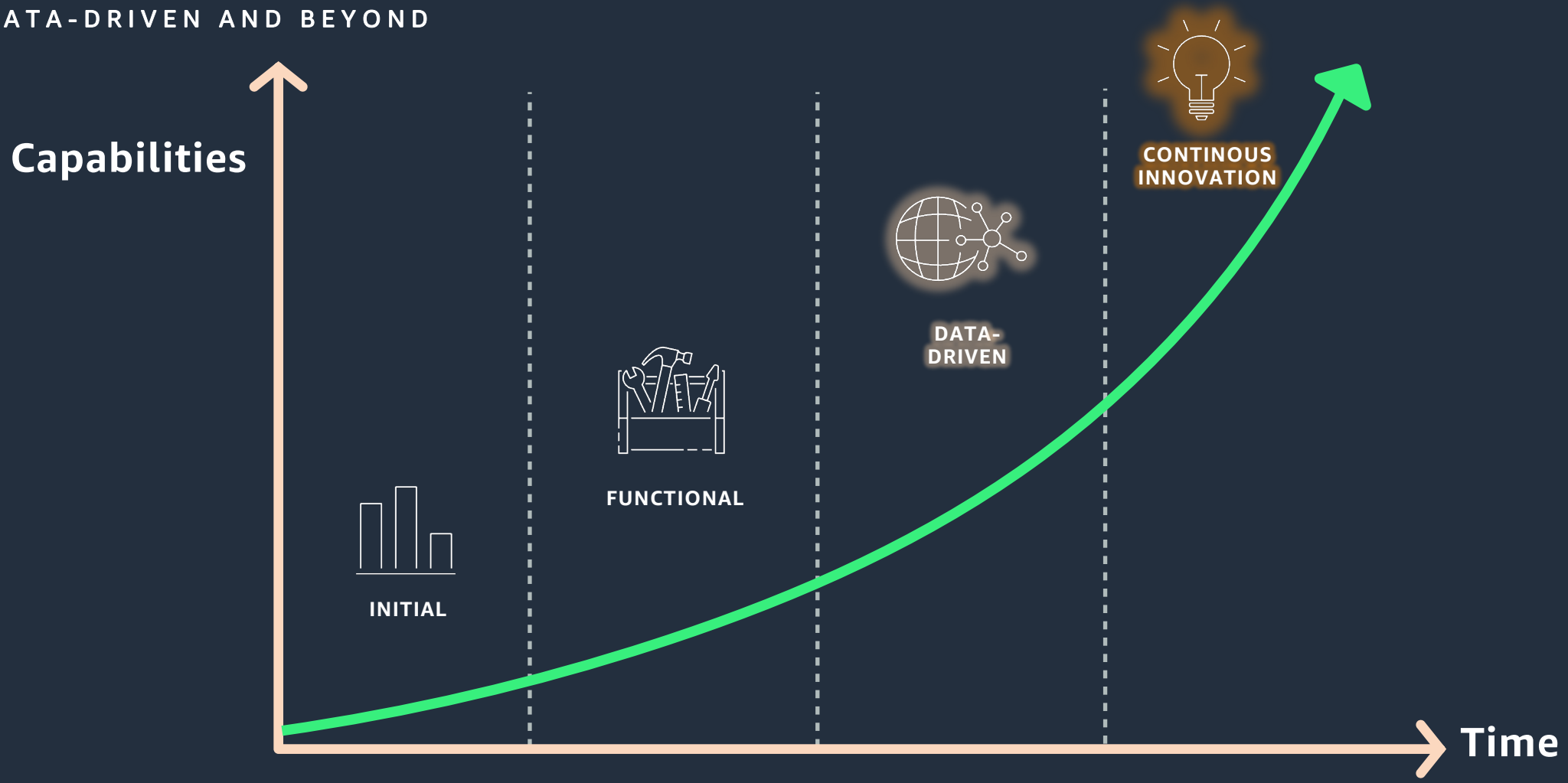
Don’t try one platform to do everything

Don’t let platform own the data

Involve stakeholders in consumption

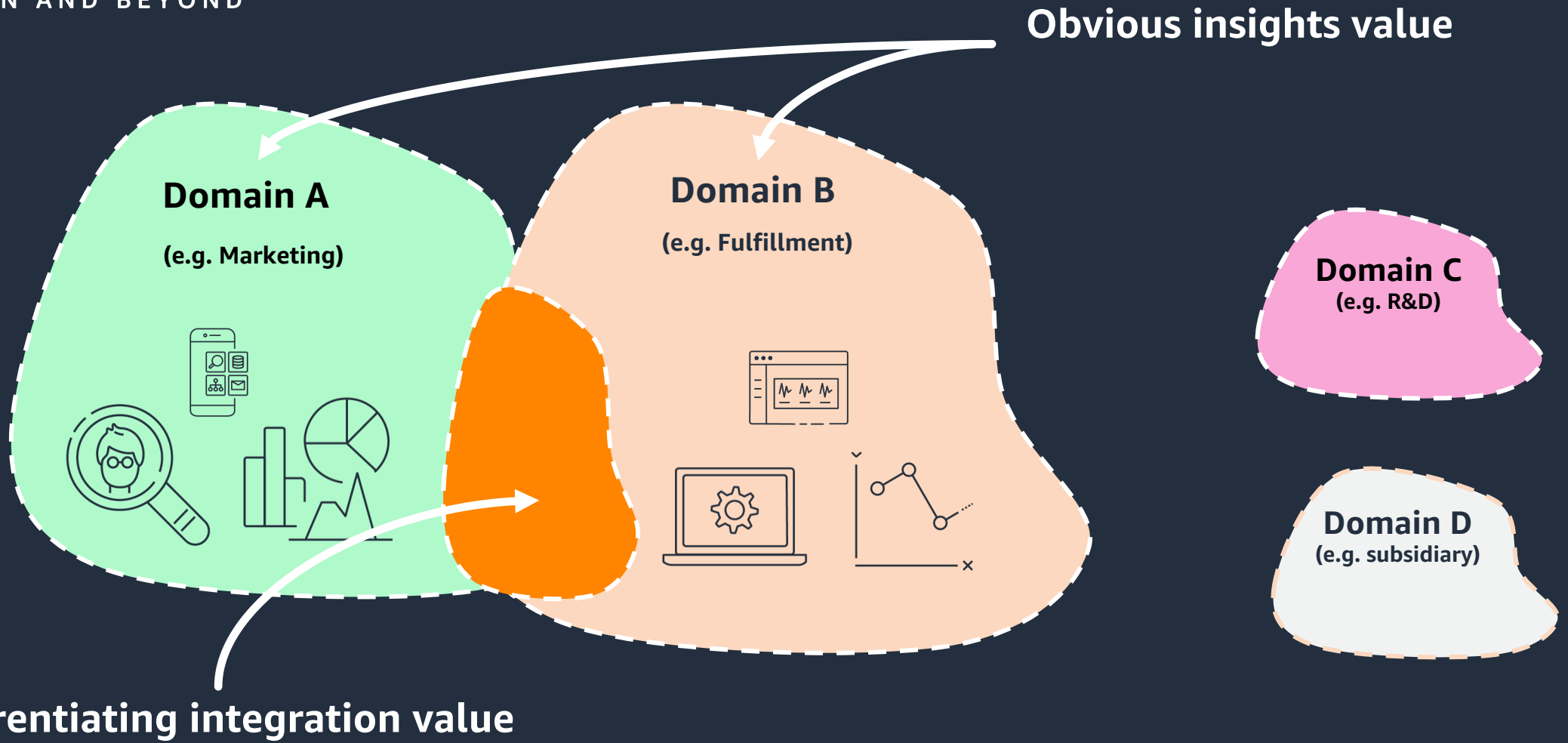
Advancing analytical capabilities model

DATA-DRIVEN AND BEYOND



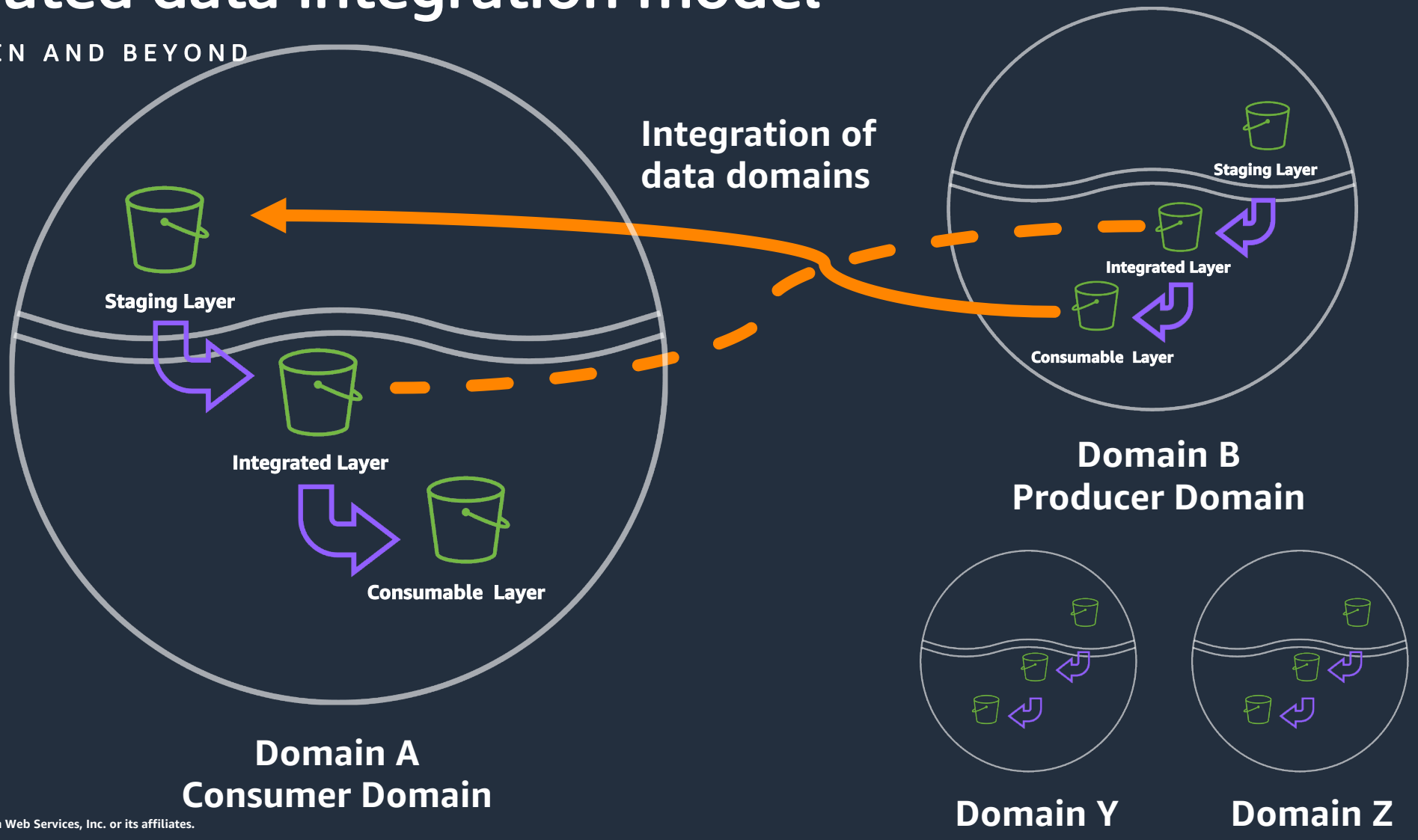
Data integration value for business scalability

DATA-DRIVEN AND BEYOND



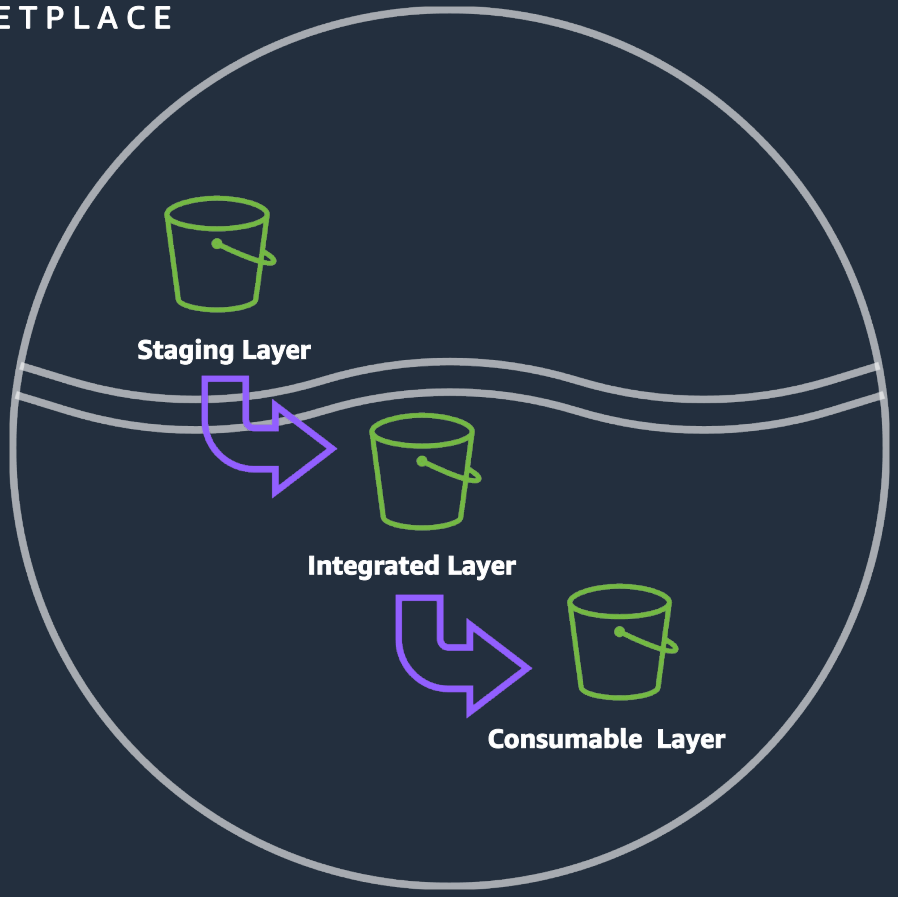
Distributed data integration model

DATA-DRIVEN AND BEYOND



Hub and Spoke approach for Integration

DATA MARKETPLACE

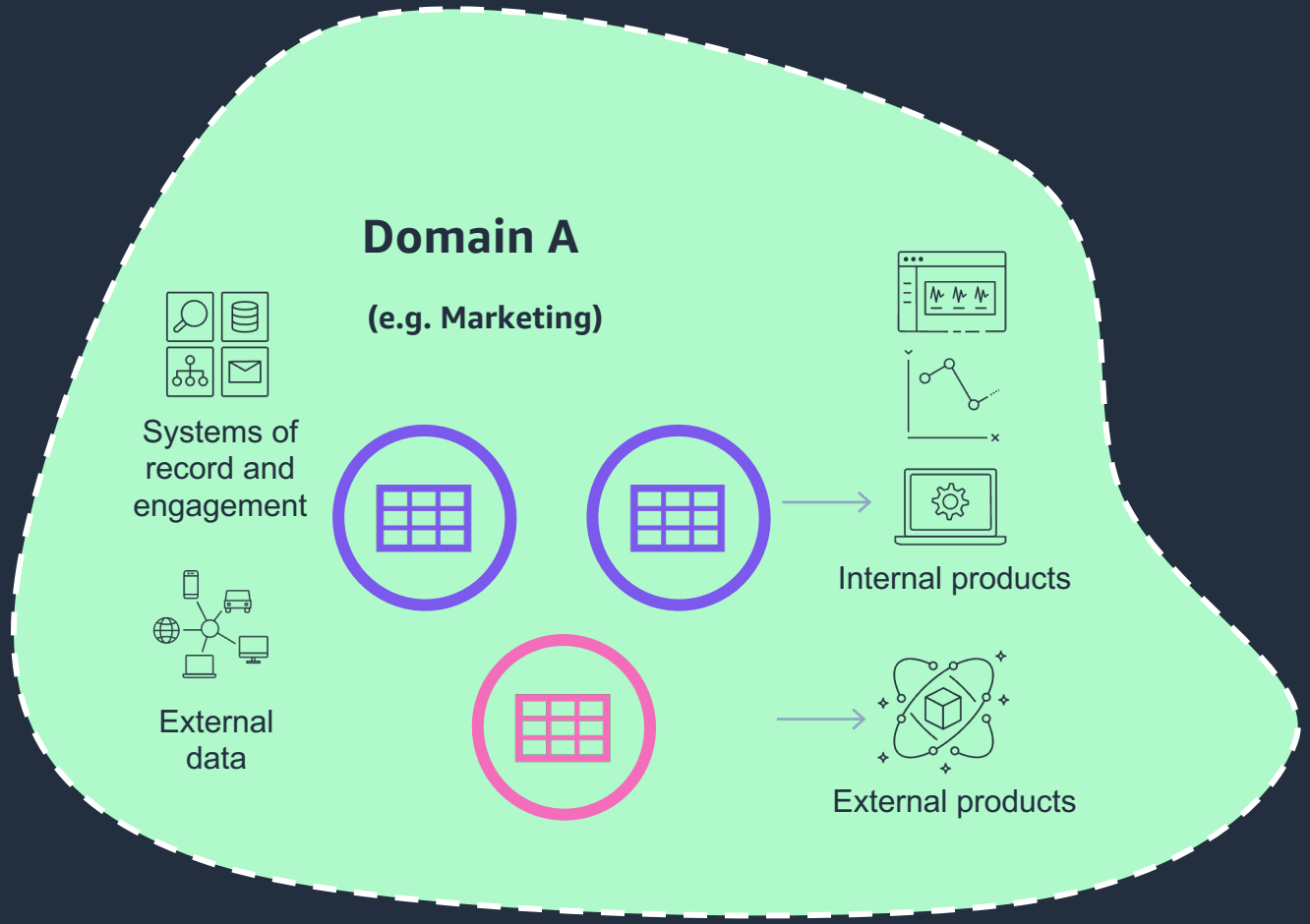


Marketplace

- Frictionless
- Discoverability
- Consumer incentives
- Producer incentives
- Operator incentives

[Good] architectures and models should …

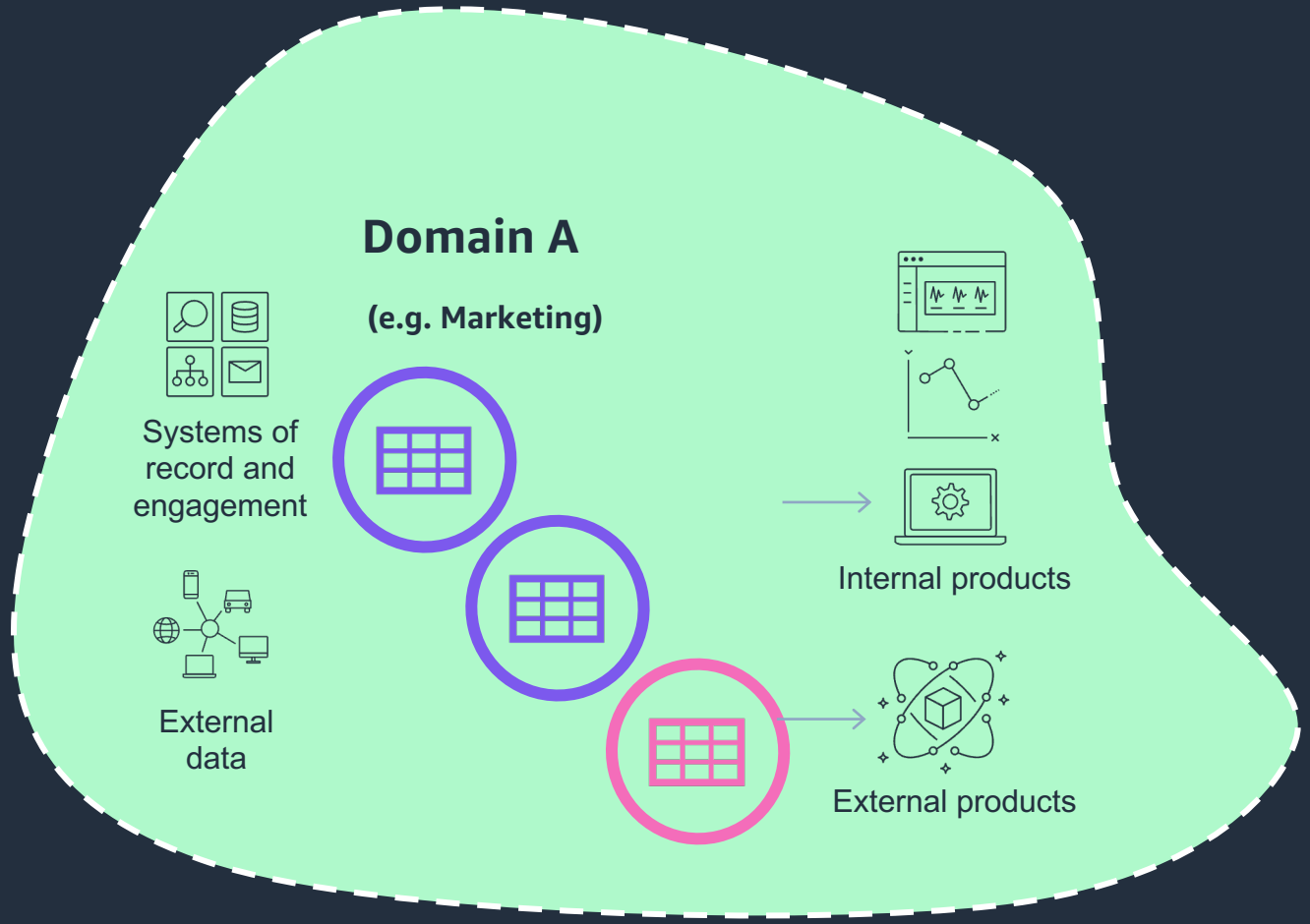
DATA-DRIVEN AND BEYOND



- Capture **domain** data effectively
- Working backwards from domain use cases
  - Flexible enough to create **domain products for main domain stakeholders**
- Enables data products Adhering to governance standards
  - Enables Integrated insights from multiple domains when needed

[Good] architectures and models should …

DATA-DRIVEN AND BEYOND



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AWS Lake Formation

BUILD A SECURE
DATA LAKE IN DAYS

Amazon DataZone

SHARE, SEARCH, AND
DISCOVER DATA AT SCALE

Build data lakes quickly

Simplify security management

Provide self-service access to data

Challenges to watch out for

DATA-DRIVEN AND BEYOND

Govern against silos

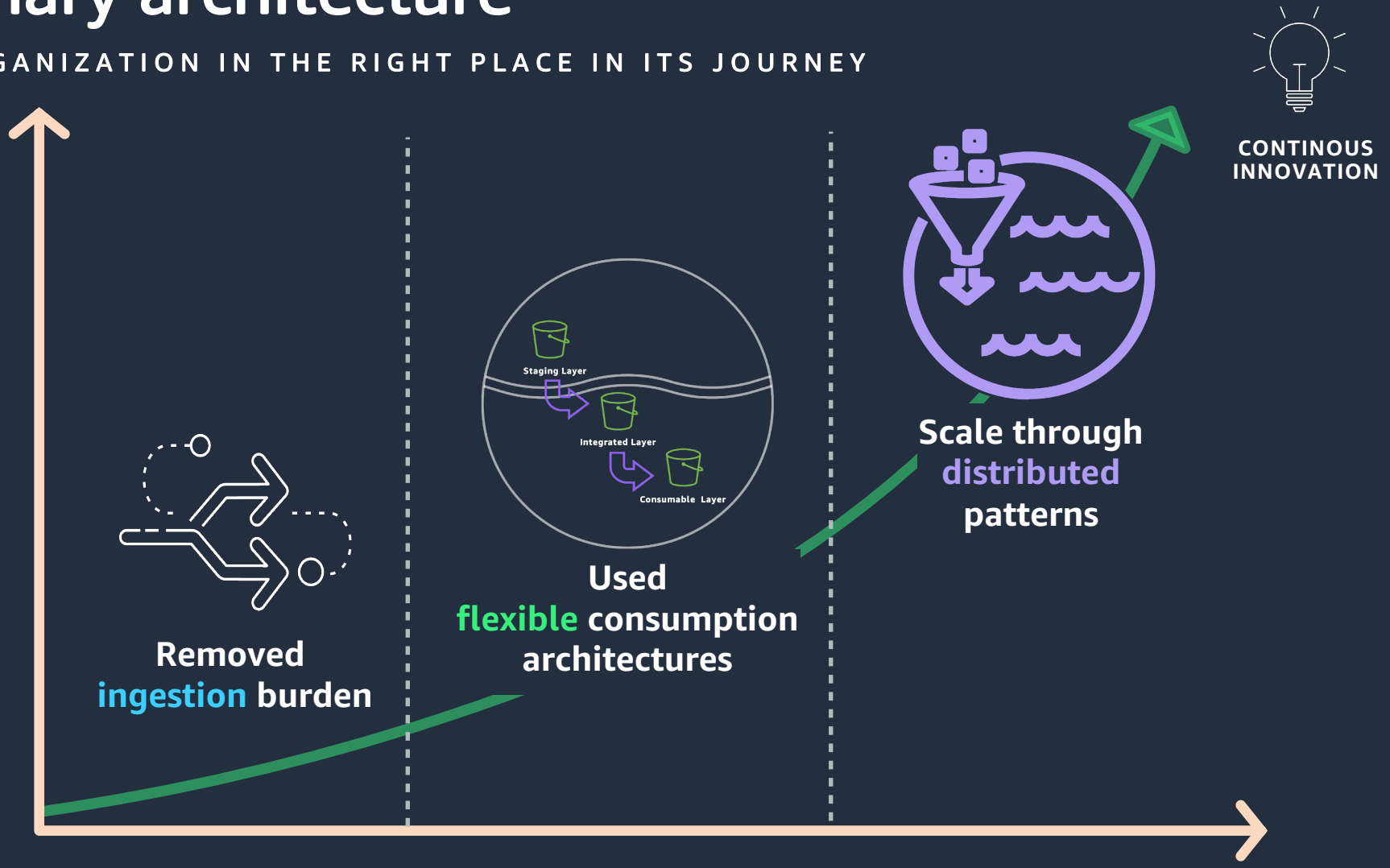
Don’t attempt tight entity 360 models

Govern for open interoperable data layers

End of story?

Evolutionary architecture

MEET YOUR ORGANIZATION IN THE RIGHT PLACE IN ITS JOURNEY



Happy organization, happy team

ENABLING SECURE FRICTIONLESS ACCESS

More Resources

- Modern Data Architecture Whitepaper
- Derive Insights from AWS Modern Data Whitepaper
- Well Architected Framework – Analytics Lens

- AWS serverless data analytics pipeline reference architecture blog post
- AWS Prescripive Guidance – CQRS and enabeling data presistance in microservices
- Data Lake Foundation on AWS – Quick Start
- Build data mesh pattern at scale using AWS Lake Formation blog post

Thank you!

John Mousa
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/johnmousa

https://pulse.buildon.aws/survey/QMFDNVYG