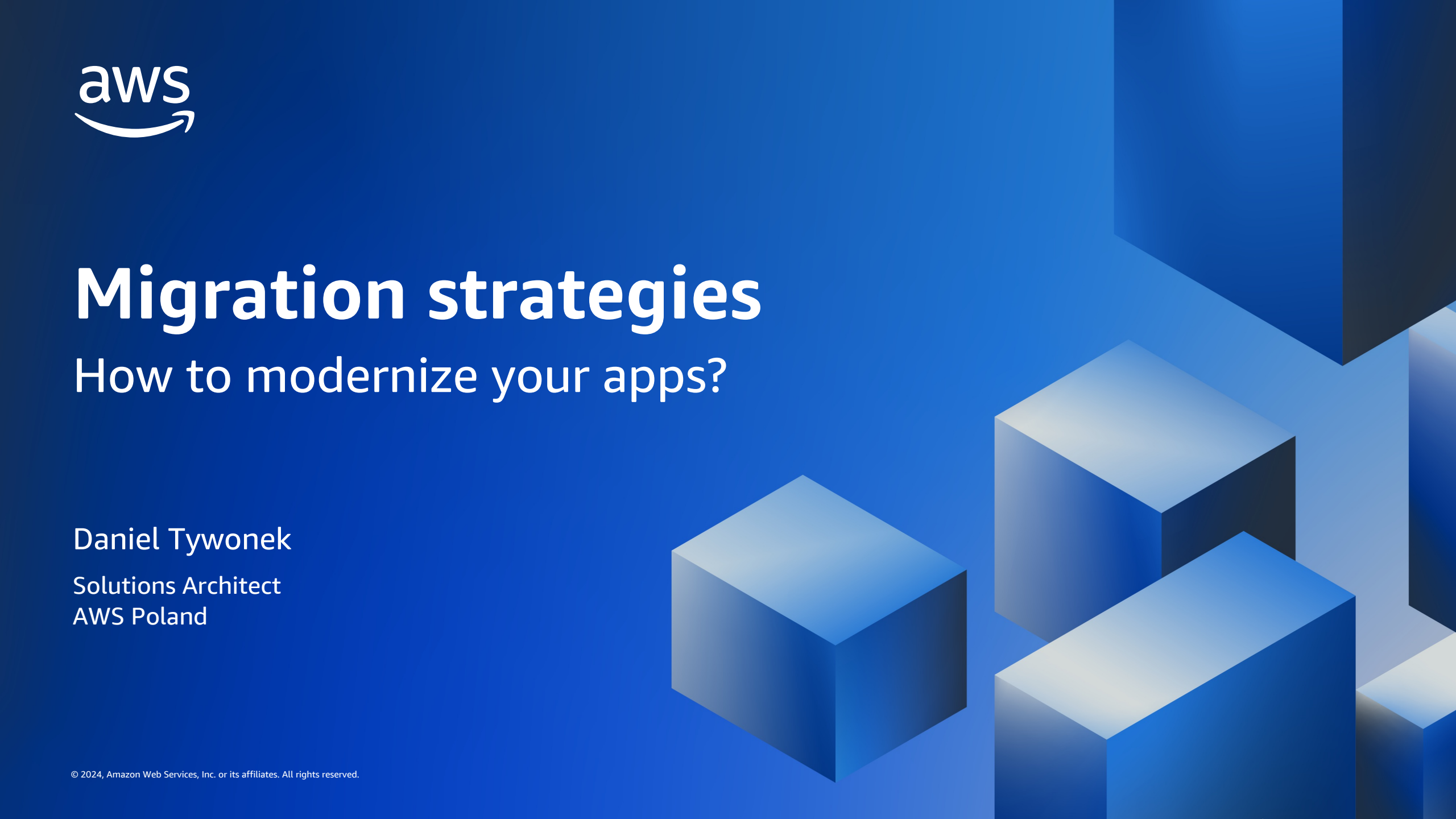


Migration strategies

How to modernize your apps?

Daniel Tywonek

Solutions Architect
AWS Poland

“If we had an easy button, big companies would move their workloads tomorrow.”

Matt Garman

SVP, AWS Sales and Marketing

“We choose to go to the Moon (...) and do the other things, not because they are easy, but because they are hard.”

John F. Kennedy

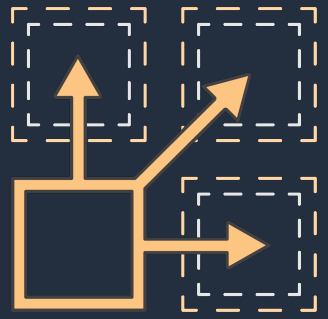
President of United States of America

Pillars of Modernization

Modernization is the refactoring of legacy technology by combining modern infrastructure, architecture, organization patterns together to maximize resiliency, engineering efficiency, and business agility.

Pillars of Modernization

Modernization is the refactoring of legacy technology by combining modern infrastructure, architecture, organization patterns together to maximize resiliency, engineering efficiency, and business agility.

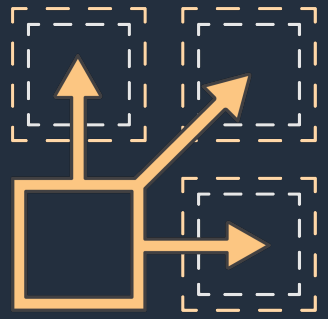


Technology & Architecture

Independent business functions

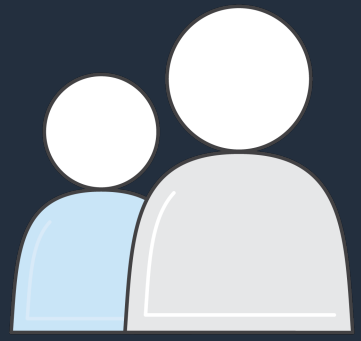
Pillars of Modernization

Modernization is the refactoring of legacy technology by combining modern infrastructure, architecture, organization patterns together to maximize resiliency, engineering efficiency, and business agility.



Technology & Architecture

Independent business functions

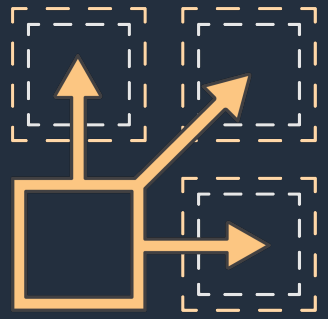


People, Process, & Culture

Organized for Value

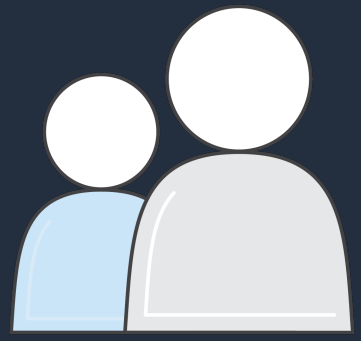
Pillars of Modernization

Modernization is the refactoring of legacy technology by combining modern infrastructure, architecture, organization patterns together to maximize resiliency, engineering efficiency, and business agility.



Technology & Architecture

Independent business functions



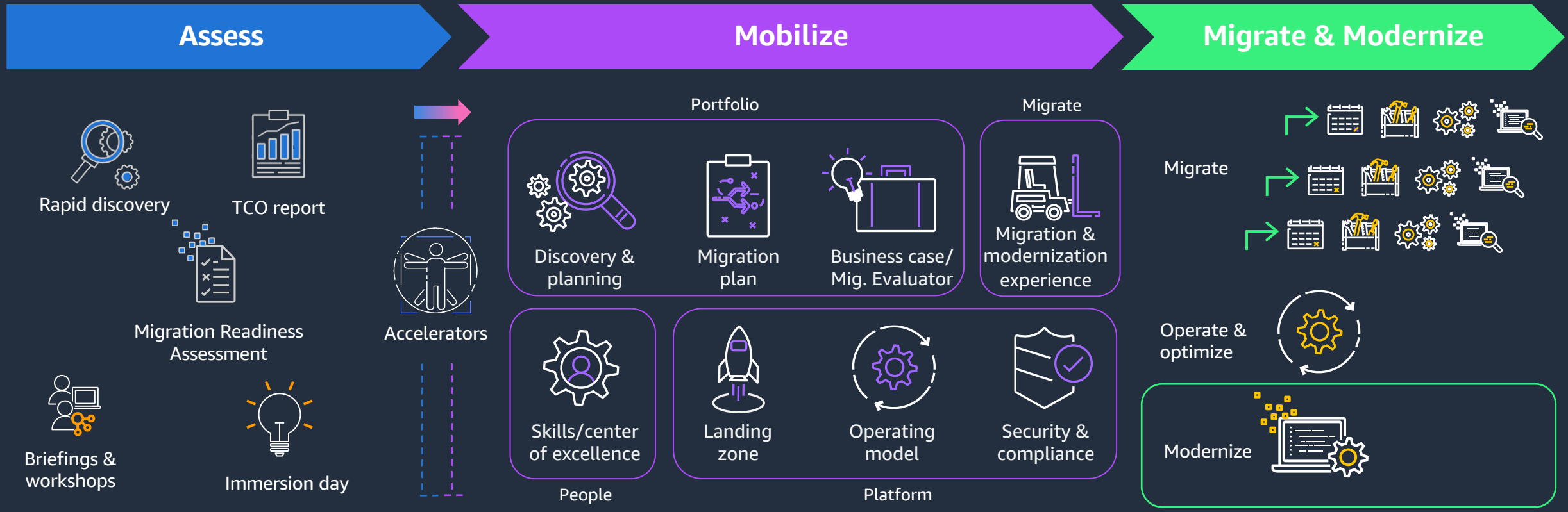
People, Process, & Culture

Organized for Value

Ops & Governance at Scale

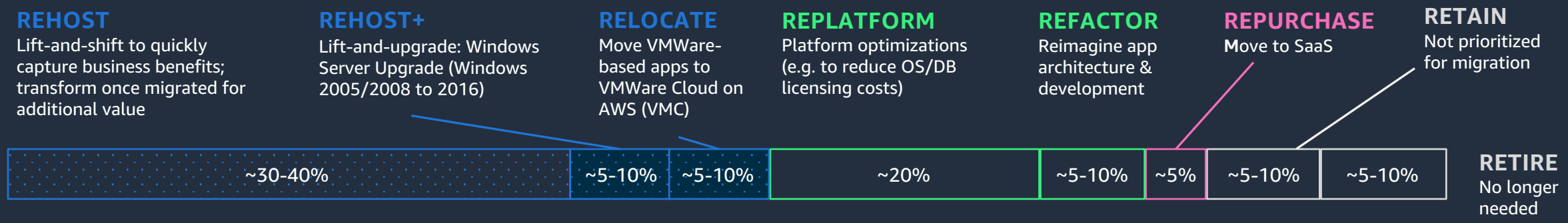
Automate, Enable, & Self-service

AWS Migration Framework



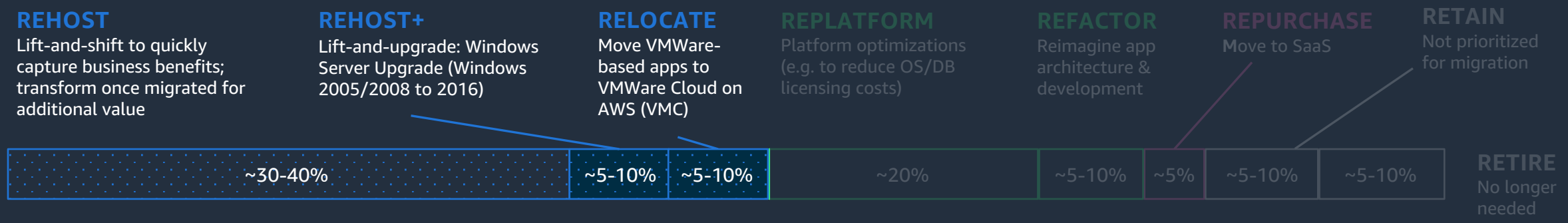
Migration and Modernization Strategies

Typical IT environment by migration strategy:



Migration and Modernization Strategies

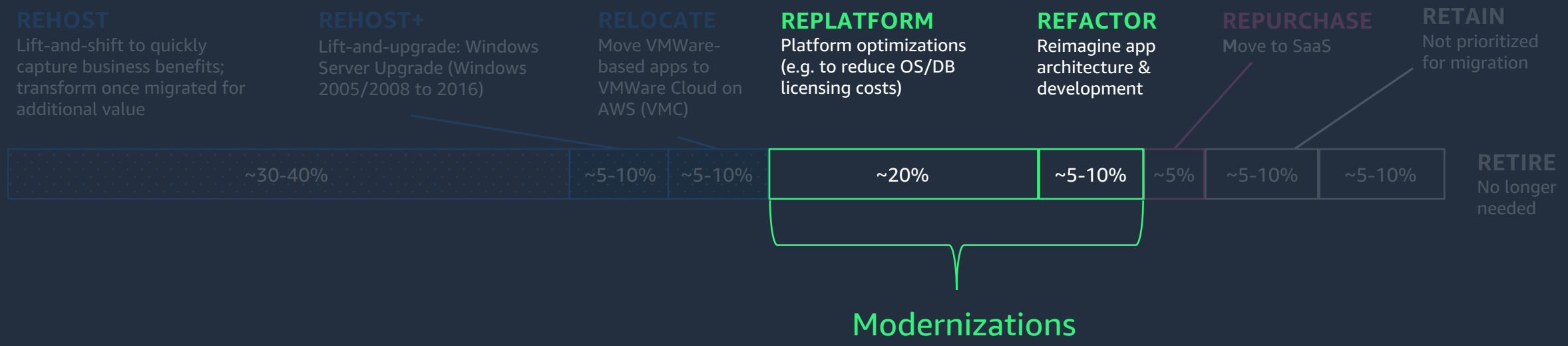
Typical IT environment by migration strategy:



Full spectrum of patterns is important for transformation – but up to ~60% of typical environment can be rapidly migrated at a predictable price, freeing time & budget to focus on modernization

Modernization Strategies - how do they fit?

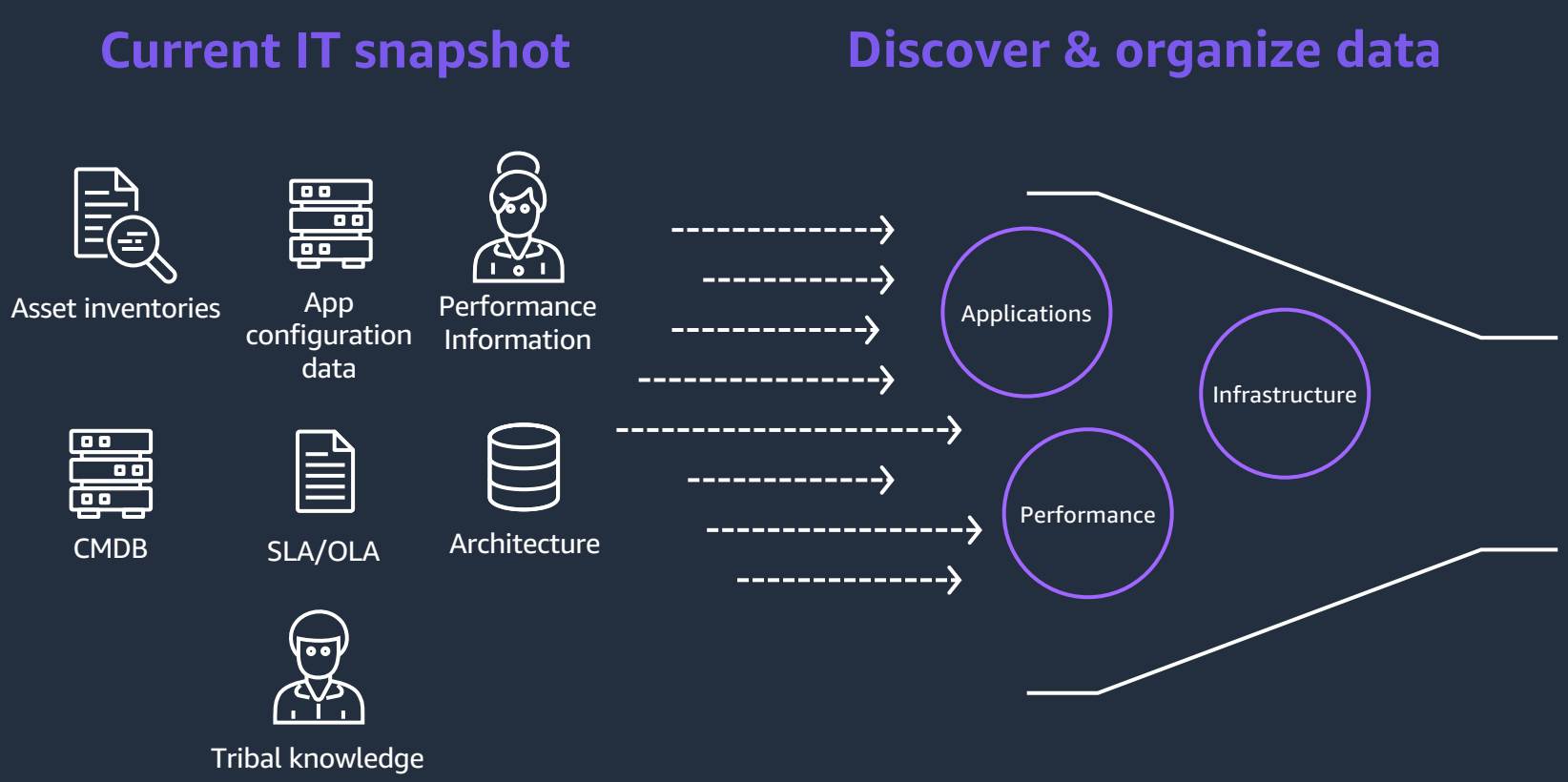
Typical IT environment by migration strategy:



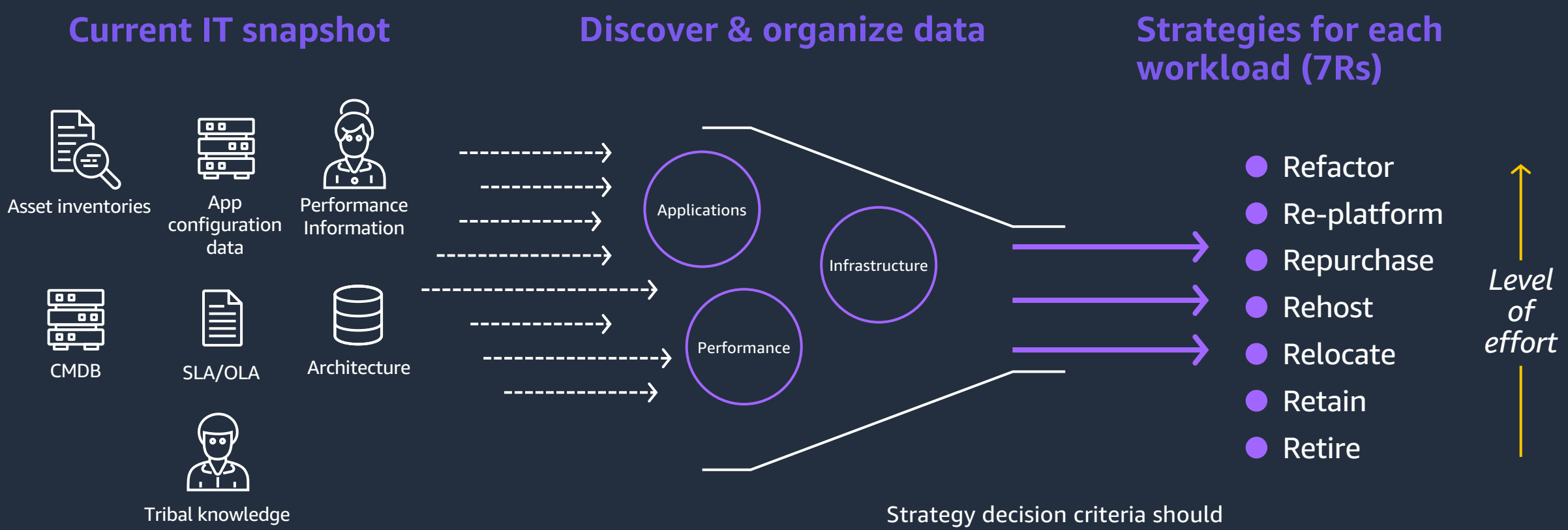
How to make a proper selection?

Current IT snapshot

How to make a proper selection?



How to make a proper selection?



Business selection criteria

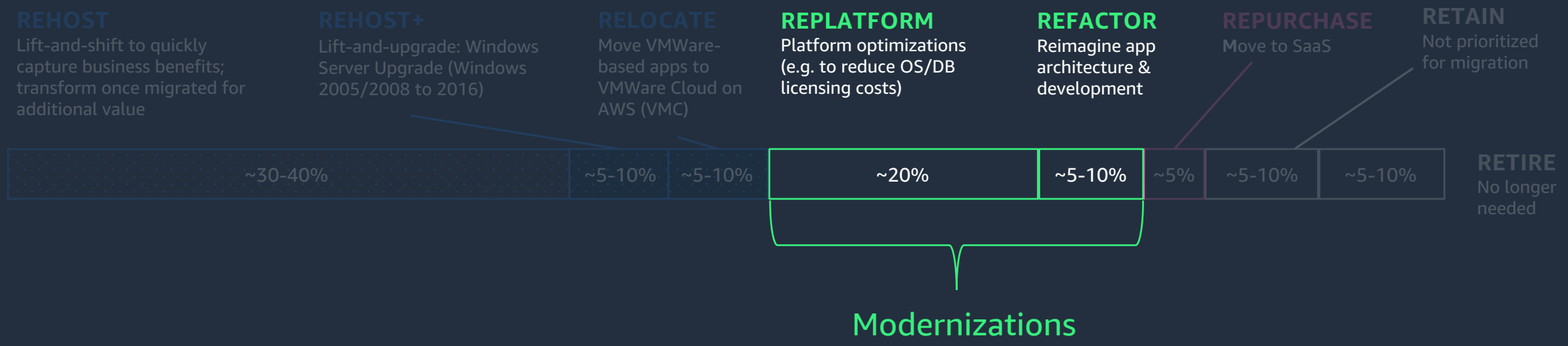
- LOB, critical to business success
- Customer facing
- Significant impact to revenue
- Proprietary business logic
- Market differentiator
- Value exceeds cost

Technical selection criteria

- Old technology, no support
- Performance & scalability issues
- Difficult to extend capabilities
- Lack of skillset, lost knowledge
- Too many bugs, spaghetti code
- Expensive to sun, difficult to integrate

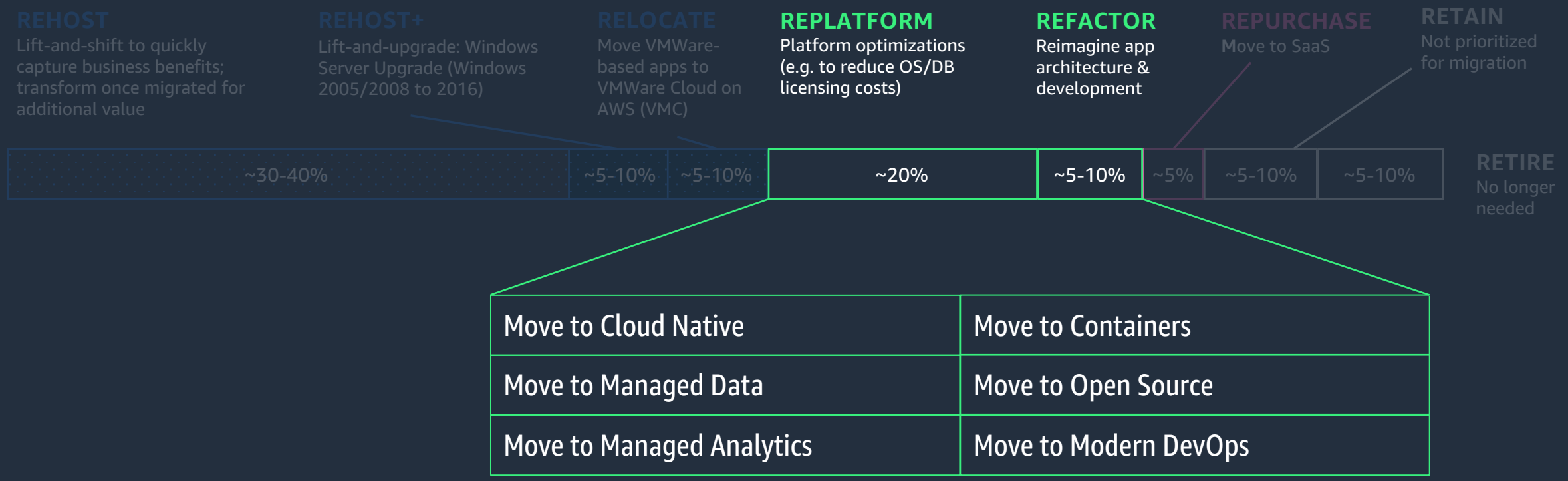
Modernization Strategies - how do they fit?

Typical IT environment by migration strategy:



Modernization Pathways

Typical IT environment by migration strategy:



*Note: Pathways are *a* way, not the only way*

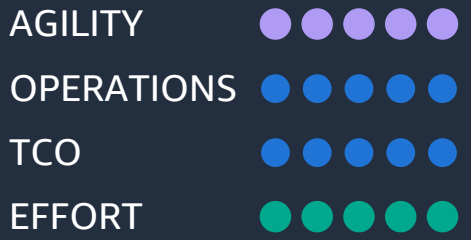
Modernization Pathways

Move to Cloud Native

What it is

Decomposing monolith applications into loosely coupled distributed architectures using microservices.

Move to Cloud Native



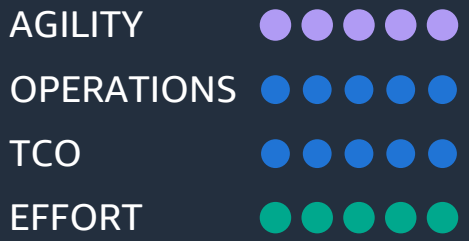
What it is

Decomposing monolith applications into loosely coupled distributed architectures using microservices.

Key concepts introduced

- Domain Driven Design
- Microservices
- Event based architecture
- Data autonomy
- Iterative modernization with Strangler Fig pattern
- Serverless
- Containerization

Move to Cloud Native



What it is

Decomposing monolith applications into loosely coupled distributed architectures using microservices.

Key concepts introduced

- Domain Driven Design
- Microservices
- Event based architecture
- Data autonomy
- Iterative modernization with Strangler Fig pattern
- Serverless
- Containerization

AWS Services

- AWS Lambda
- Amazon API Gateway
- Amazon Elastic Container Service (ECS)
- Amazon Elastic Kubernetes Services (EKS)
- AWS Migration Hub Refactor Spaces
- Amazon EventBridge
- Amazon Simple Queue Service (SQS)
- Amazon Simple Notification Service (SNS)

Move to Containers

What it is

Containerization of existing workloads and use of fully managed container orchestration services

Move to Containers

What it is

Containerization of existing workloads and use of fully managed container orchestration services

Key concepts introduced

- Containerization
- Operational efficiency
- Environment consistency

Move to Containers

What it is

Containerization of existing workloads and use of fully managed container orchestration services

Key concepts introduced

- Containerization
- Operational efficiency
- Environment consistency

AWS Services

- Amazon ECS
- Amazon EKS
- AWS AppRunner
- AWS Fargate
- AWS ECR
- Red Hat OpenShift Service on AWS (ROSA)
- AWS App2Container

Move to Open Source

What it is

Migrate Windows and SQL Server workloads to open source, .NET into .NET Core

Move to Open Source

What it is

Migrate Windows and SQL Server workloads to open source, .NET into .NET Core

Key concepts introduced

- TCO Reduction
- Unlock Innovation

Move to Open Source

What it is

Migrate Windows and SQL Server workloads to open source, .NET into .NET Core

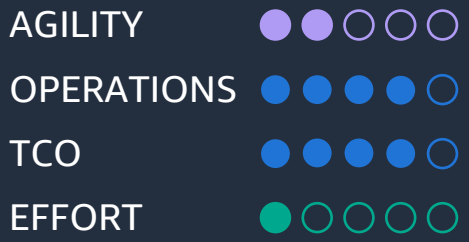
Key concepts introduced

- TCO Reduction
- Unlock Innovation

AWS Services

- Amazon Aurora
- .NET Core on Linux
- Porting assistant for .NET
- Microservice Extractor for .NET
- AWS Application Migration Service (MGN)
- AWS Database Migration Service (DMS)
- AWS Schema Conversion Tool (SCT)

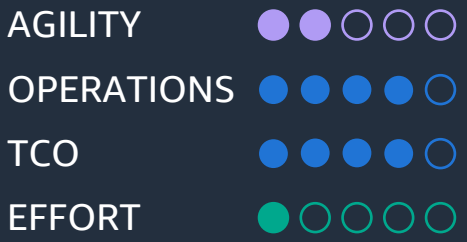
Move to Managed Data



What it is

Move to fully managed purpose-built cloud native databases

Move to Managed Data



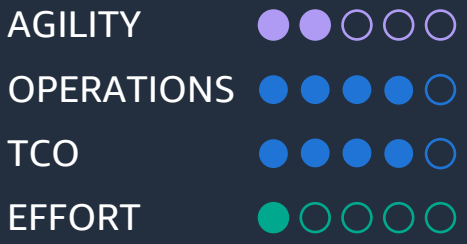
What it is

Move to fully managed purpose-built cloud native databases

Key concepts introduced

- Moving beyond relational
- Increasing resiliency and scale with cloud native databases
- Operational efficiency

Move to Managed Data



What it is

Move to fully managed purpose-built cloud native databases

Key concepts introduced

- Moving beyond relational
- Increasing resiliency and scale with cloud native databases
- Operational efficiency

AWS Services

- Amazon Aurora
- Amazon DynamoDB
- Amazon Relational Database Service (RDS)
- Amazon DocumentDB
- AWS Database Migration Service (DMS)
- AWS Schema Conversion Tool (SCT)

Move to Managed Analytics

What it is

Move to fully managed, cost optimized, data lake and analytics

Move to Managed Analytics

What it is

Move to fully managed, cost optimized, data lake and analytics

Key concepts introduced

- Data Lake Architecture
- Data Catalog
- Self Service Discovery
- Fine grained access controls
- Federated data sharing

Move to Managed Analytics

What it is

Move to fully managed, cost optimized, data lake and analytics

Key concepts introduced

- Data Lake Architecture
- Data Catalog
- Self Service Discovery
- Fine grained access controls
- Federated data sharing

AWS Services

- AWS Lake Formation
- Amazon Redshift
- Amazon Athena
- Amazon EMR
- AWS Glue

Move to Modern DevOps

What it is

Move to modern cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity.

Move to Modern DevOps

What it is

Move to modern cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity.

Key concepts introduced

- Continuous Integration
- Continuous Deployment
- Test Driven Development
- Test Automation
- Infrastructure as Code

Move to Modern DevOps

What it is

Move to modern cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity.

Key concepts introduced

- Continuous Integration
- Continuous Deployment
- Test Driven Development
- Test Automation
- Infrastructure as Code

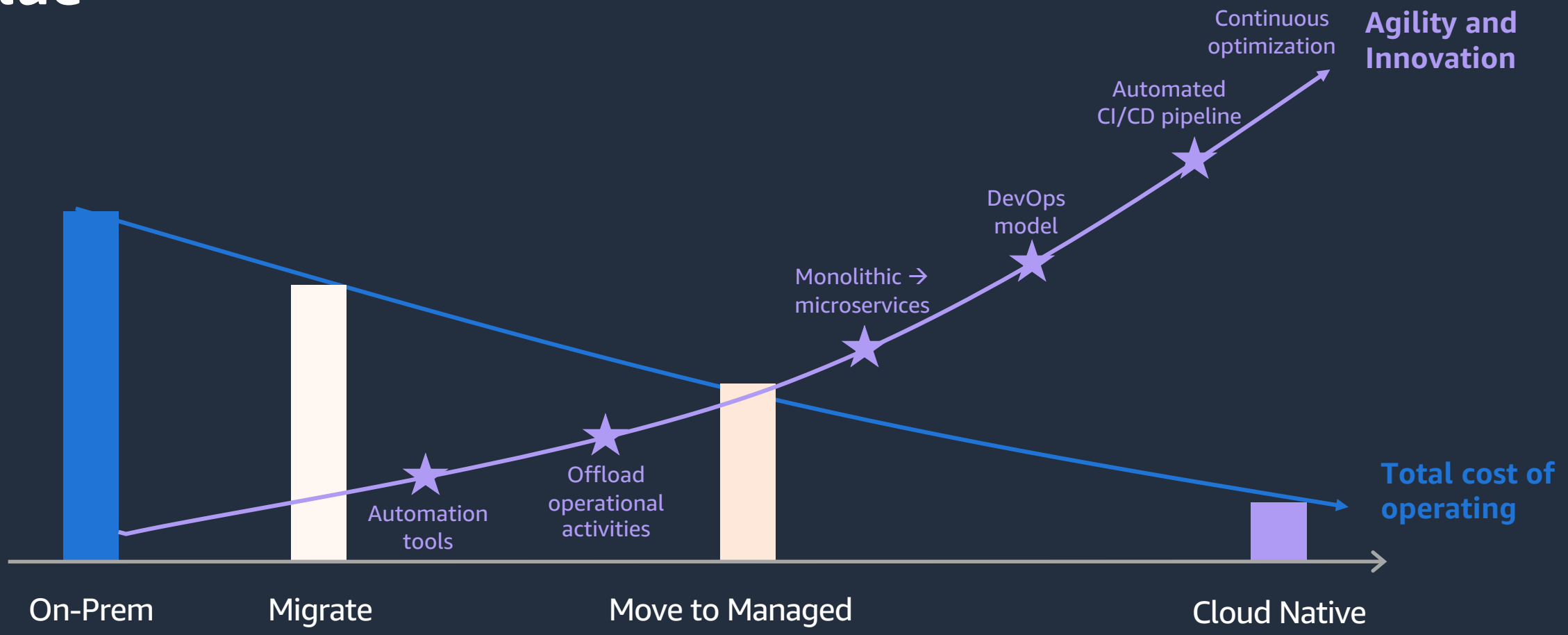
AWS Services

- AWS CodeCommit
- AWS CodeBuild
- AWS CodeDeploy
- AWS CodePipeline
- AWS CDK
- AWS CloudFormation
- AWS Proton
- Amazon CloudWatch
- AWS X-Ray

Modernization Pathways summary

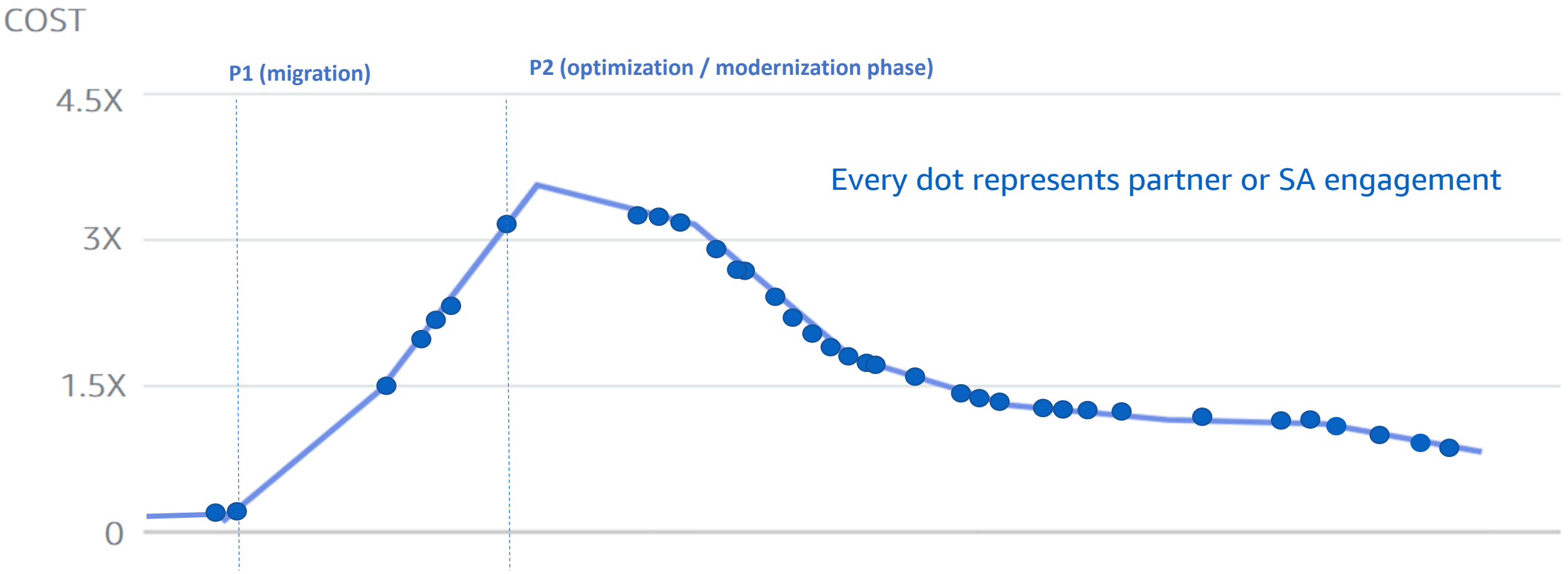
Move to…	AGILITY	OPERATIONS	TCO	EFFORT
Cloud Native	●●●●●	●●●●●	●●●●●	●●●●●
Containers	●●●○○	●●●○○	●●●○○	●●○○○
Open Source	●●●●●	●●●○○	●●●●○	●●●●○
Managed Data	●●○○○	●●●●○	●●●●○	●○○○○
Managed Analytics	●●○○○	●●●●○	●●●●○	●●●○○
Modern DevOps	●●●●●	●●●●○	●●●●○	●●●○○

Modernization increases agility and delivers economic value



Case Study

Large Central Europe FSI cloud journey



Summary and actions we recommend

Actions we recommend

- Ensure executive sponsorship and leadership commitment
- Don’t use a big bang approach
- Choose proper “R”
- Choose proper pathway
- Iterate incrementally; move quickly on small projects and learn
- Refactor ONLY when it provides business value

Survey

https://pulse.aws/survey/APHLECQU

Thank you!

Daniel Tywonek
dtywonek@amazon.com