



# Modernize .NET Applications with AWS

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# Agenda



— Why Modernize with AWS?



— .NET Modernization Journey



— Modernization Tools and Services



— .NET Modernization Success Stories

# Why Modernize with AWS?

A decorative graphic on the right side of the slide. It features a series of concentric circles in shades of orange and yellow, centered around a point. Several curved arrows in the same color palette are overlaid on the circles, pointing in various directions, suggesting a process of evolution or modernization.

# Innovation for Windows on AWS

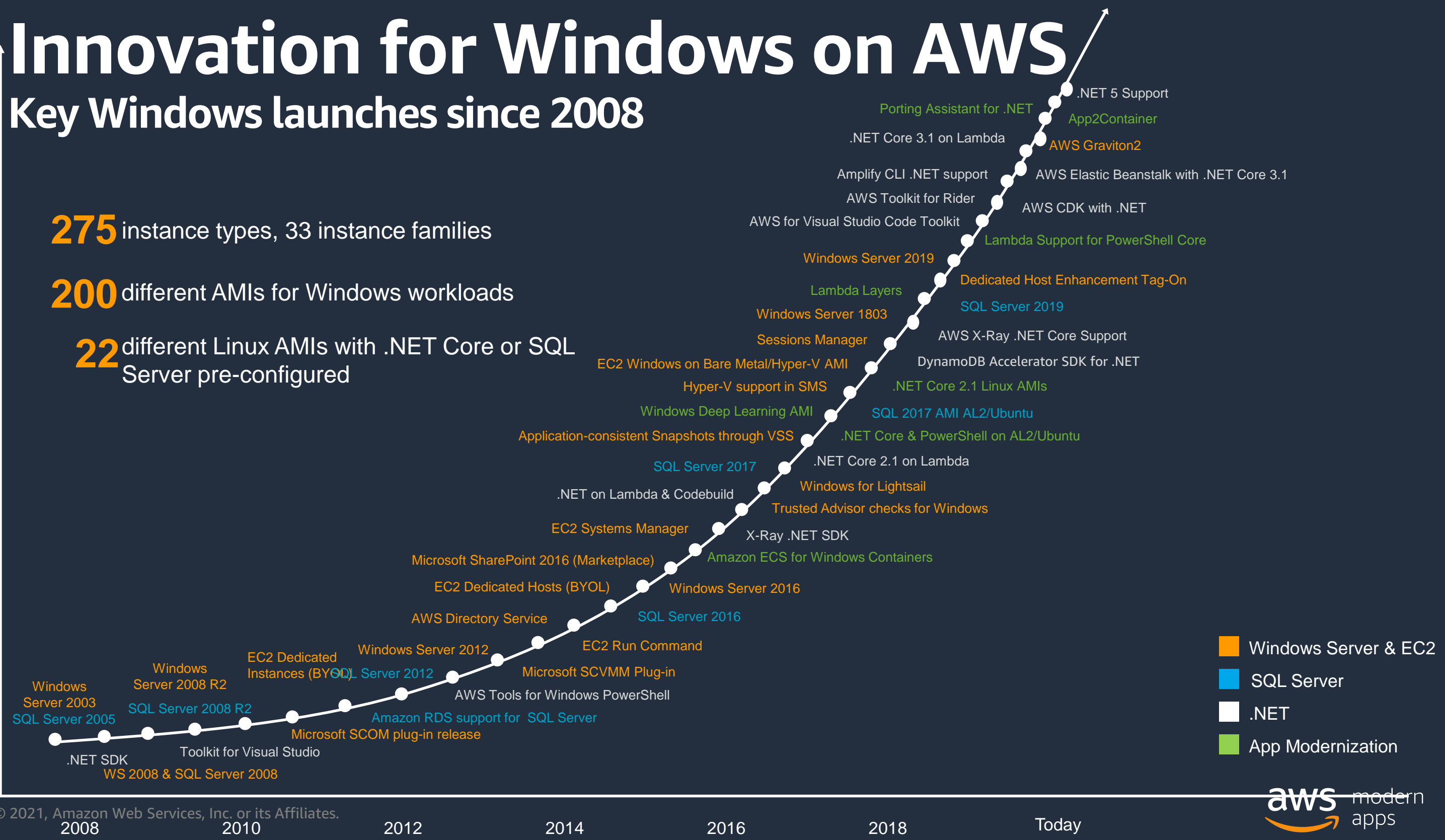
## Key Windows launches since 2008

Customer Adoption

**275** instance types, 33 instance families

**200** different AMIs for Windows workloads

**22** different Linux AMIs with .NET Core or SQL Server pre-configured



# What is Modernization?

**Modernization** is the process of progressively transforming legacy applications and infrastructure to extend into higher value cloud-native services that unlock new business capabilities, accelerate innovation and reduce technical debt.

# Key challenges faced by IT organizations



Pressure to increase **innovation velocity**



Increasing **“technical debt”** of monolithic architectures



Rising **cost** of maintaining legacy applications



Maintaining security and operational **resilience**



Challenges **scaling** infrastructure to meet business needs

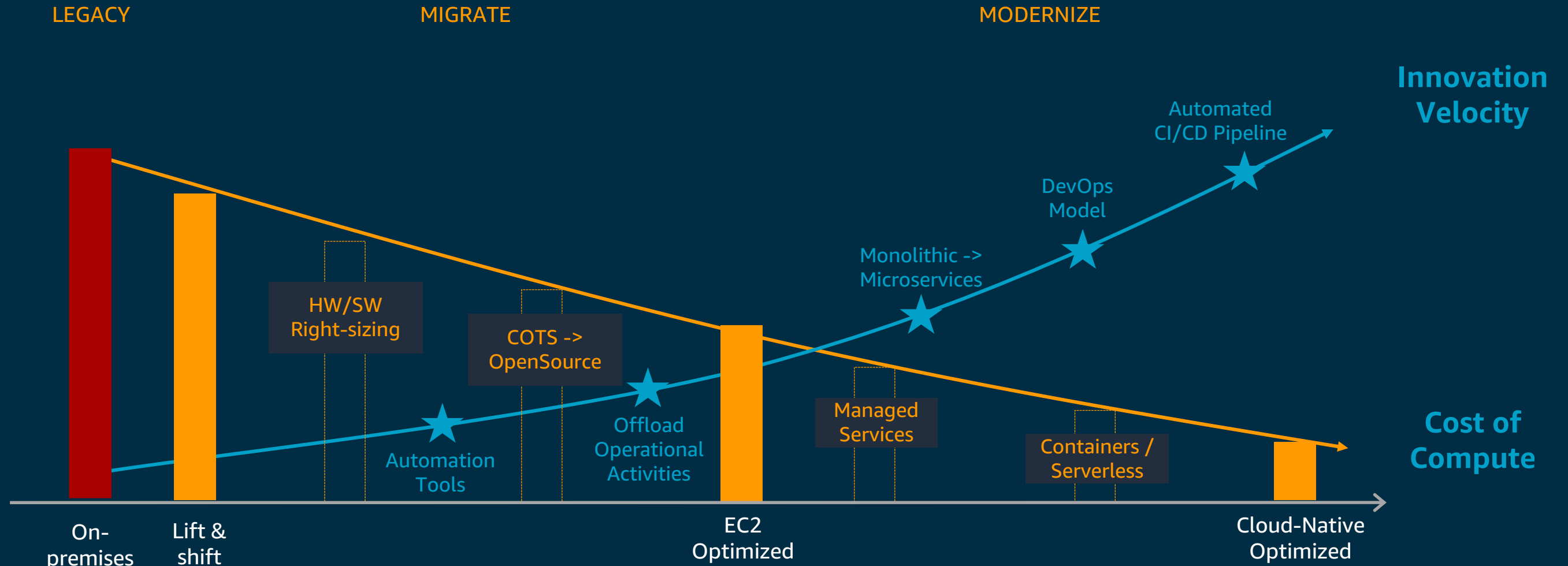


Providing **performance and reliability** during demand peaks/spikes via dynamic scaling

Based on a recent Gartner Cloud Buyer Survey:

- **84%** of customers either agreed or strongly agreed that **application modernization** would be high priority next two years
- **81%** said moving and building apps to be **cloud native** would be high priority
- Since COVID, CXO level modernization conversations are up **23%**. The problem of modernization has transcended from management level now into the executive level

# Fully realize outcomes by Modernizing





# Broad and deep functionality

## TECHNICAL & BUSINESS SUPPORT

- Support
- Professional Services
- Optimization Guidance
- Partner Ecosystem
- Training & Certification
- Solutions Management
- Account Management
- Security & Billing Reports
- Personalized Dashboard

## MARKETPLACE

- Business Apps
- Business Intelligence
- DevOps Tools
- Security
- Networking
- Databases
- Storage

### ANALYTICS

- Data Warehousing
- Business Intelligence
- Hadoop/Spark
- Streaming Data Analysis
- Streaming Data Collection

### DEV OPS

- Elasticsearch
- Data Pipelines
- Interactive SQL Queries
- ETL
- One-click App Deployment
- Resource Templates
- Build & Test
- Application Lifecycle Management
- DevOps Resource Management
- Triggers
- Containers
- Analyze & Debug
- Patching

### MOBILE SERVICES

- API Gateway
- Single Integrated Console
- Identity
- Sync
- Mobile Analytics
- Mobile App Testing
- Targeted Push Notifications

### IoT

- Rules Engine
- Device Shadows
- Device SDKs
- Device Gateway
- Registry
- Local Compute

### MACHINE LEARNING

- Custom Model Training & Hosting
- Image & Scene Recognition
- Facial Recognition & Analysis
- Facial Search
- Text to Speech
- Conversational Chatbots
- Deep Learning (Apache MXNet, TensorFlow, & others)

### ENTERPRISE APPS

- Virtual Desktops
- Sharing & Collaboration
- Corporate Email
- App Streaming
- Communications
- Contact Center

### HYBRID ARCHITECTURE

- Data Integration
- Integrated Networking
- Integrated Identity & Access
- Integrated Resource & Deployment Management
- Integrated Devices & Edge Systems

### MIGRATION

- Schema Conversion
- Exabyte-Scale Data Migration
- Application Migration
- Database Migration
- Server Migration

### APP SERVICES

- Queuing & Notifications
- Email
- Workflow
- Transcoding
- Search

## INFRASTRUCTURE

- Regions
- Availability Zones
- Points of Presence

## CORE SERVICES

- Compute**  
VMs, Auto-scaling, Load Balancing, Containers, Virtual Private Servers, Batch Computing, Cloud Functions, Elastic GPUs, Edge Computing
- Storage**  
Object, Blocks, File, Archival, Import/Export, Exabyte-scale data transfer
- Databases**  
Relational, NoSQL, Caching, Migration, PostgreSQL compatible
- Networking**  
VPC, DX, DNS
- CDN**

## SECURITY & COMPLIANCE

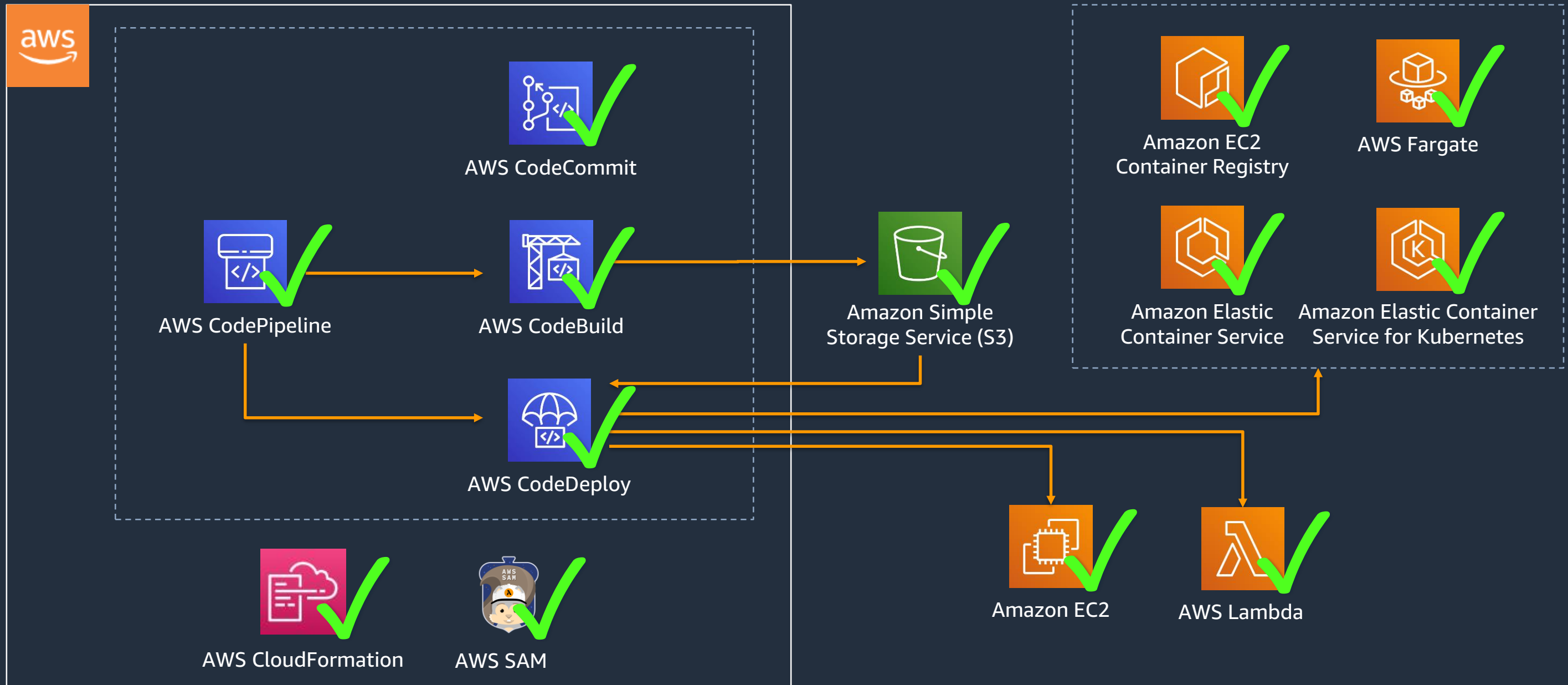
- Identity Management
- Access Control
- Monitoring & Logs
- Account Grouping
- Configuration Compliance
- Key Management & Storage
- Assessment & Reporting
- Resource & Usage Auditing
- Web Application Firewall
- DDOS Protection

## MANAGEMENT TOOLS

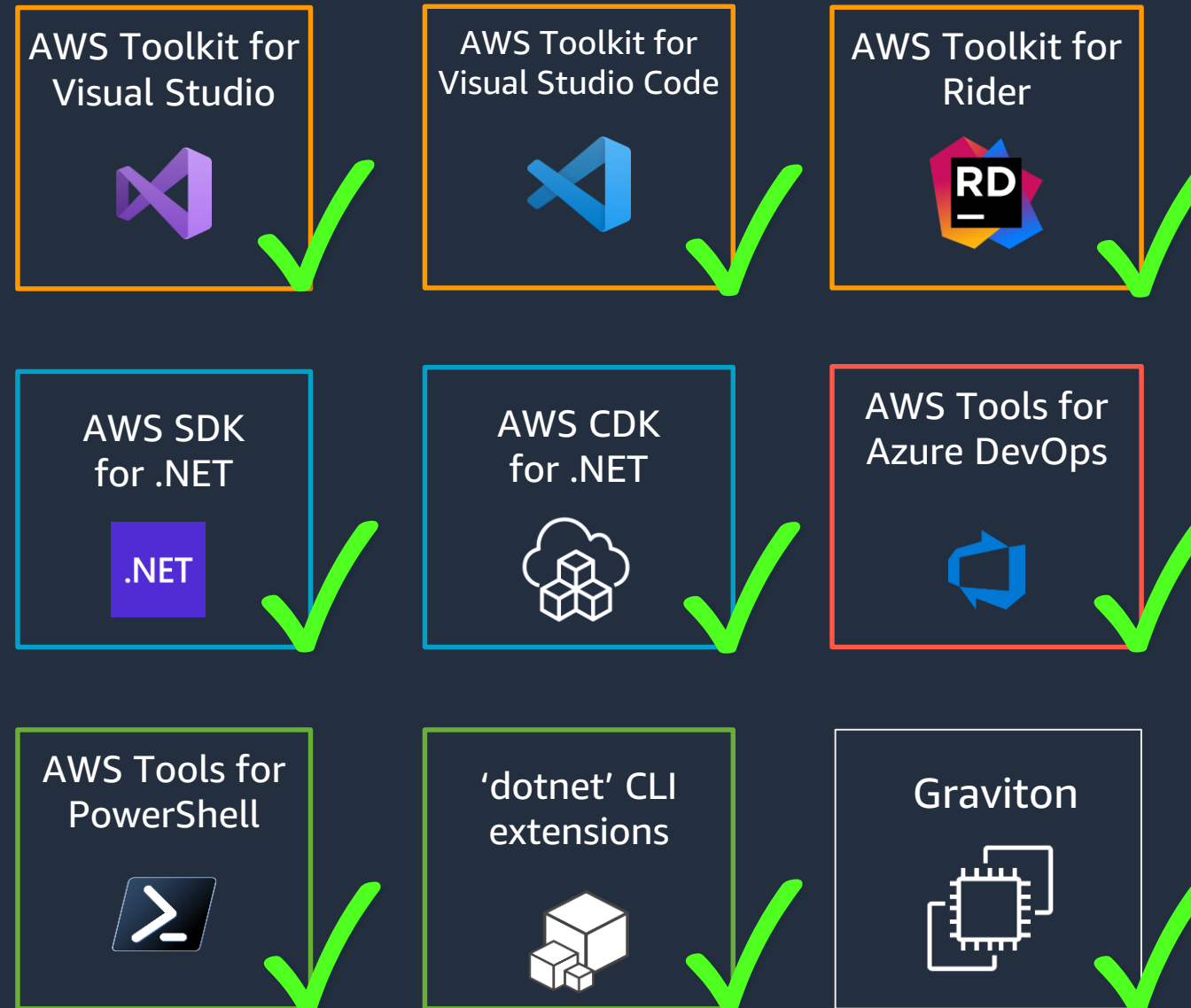
- Manage Resources
- Monitoring
- Service Catalogue
- Server Management
- Configuration Tracking
- Resource Templates



# .NET 5 ready



# .NET 5 ready



# .NET Modernization Journey




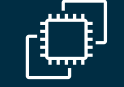

# Windows Modernization pathways

Windows applications

## Relocate/rehost

**MIGRATE TO THE CLOUD**

Apps/DBs run on VMs  
No code changes




VMC on AWS   WinEC2   SQL on EC2

On-prem → Cloud-native

## Replatform

**CONTAINERIZE APPLICATIONS**

Develop and deploy faster  
Application portability  
No code changes



ECS   Fargate   EKS

VMs → Containers

## Refactor/rewrite

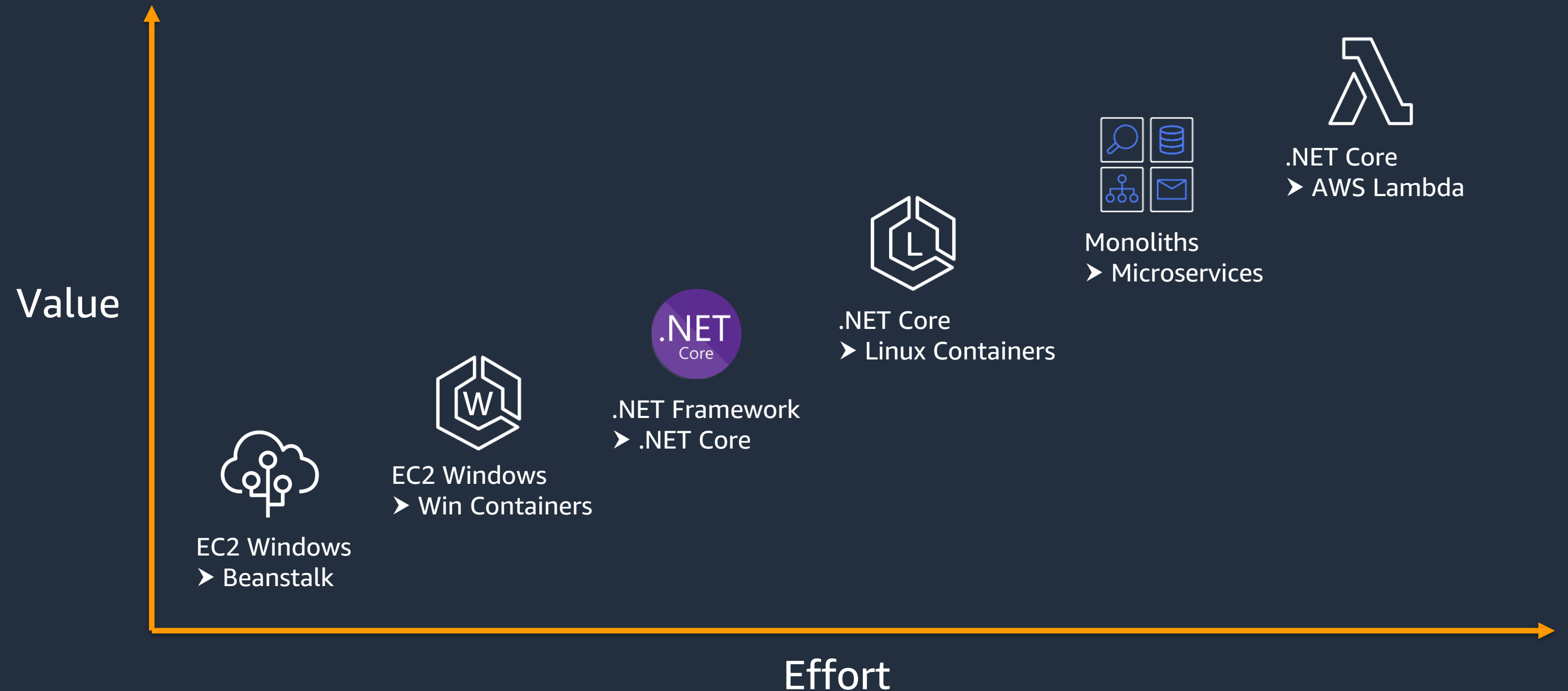
**MOVE TO OPEN-SOURCE**

License freedom/savings  
Performance improvement  
Cross-platform support

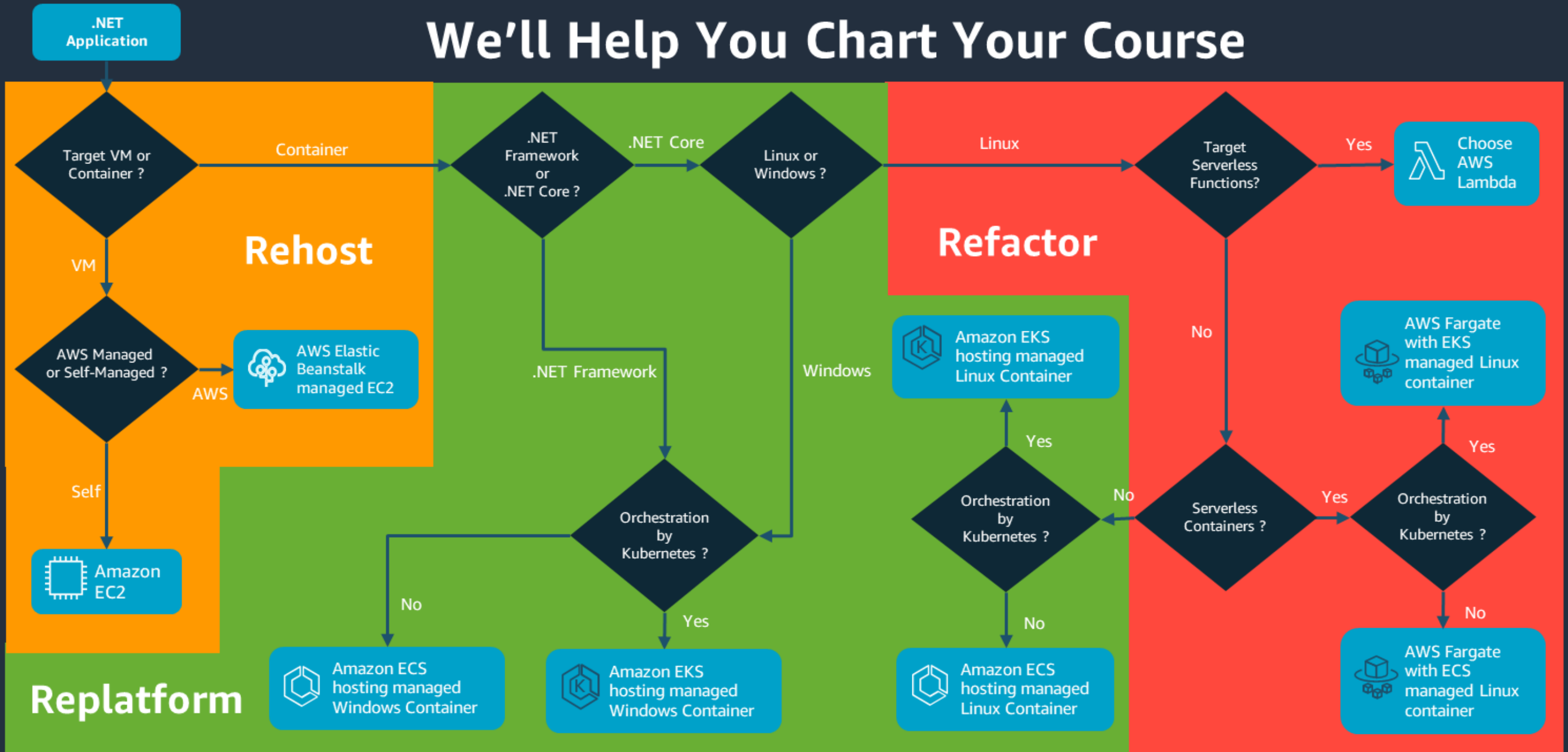
 

.NET Framework → .NET 5 /  
Microservices

# .NET Modernization journey

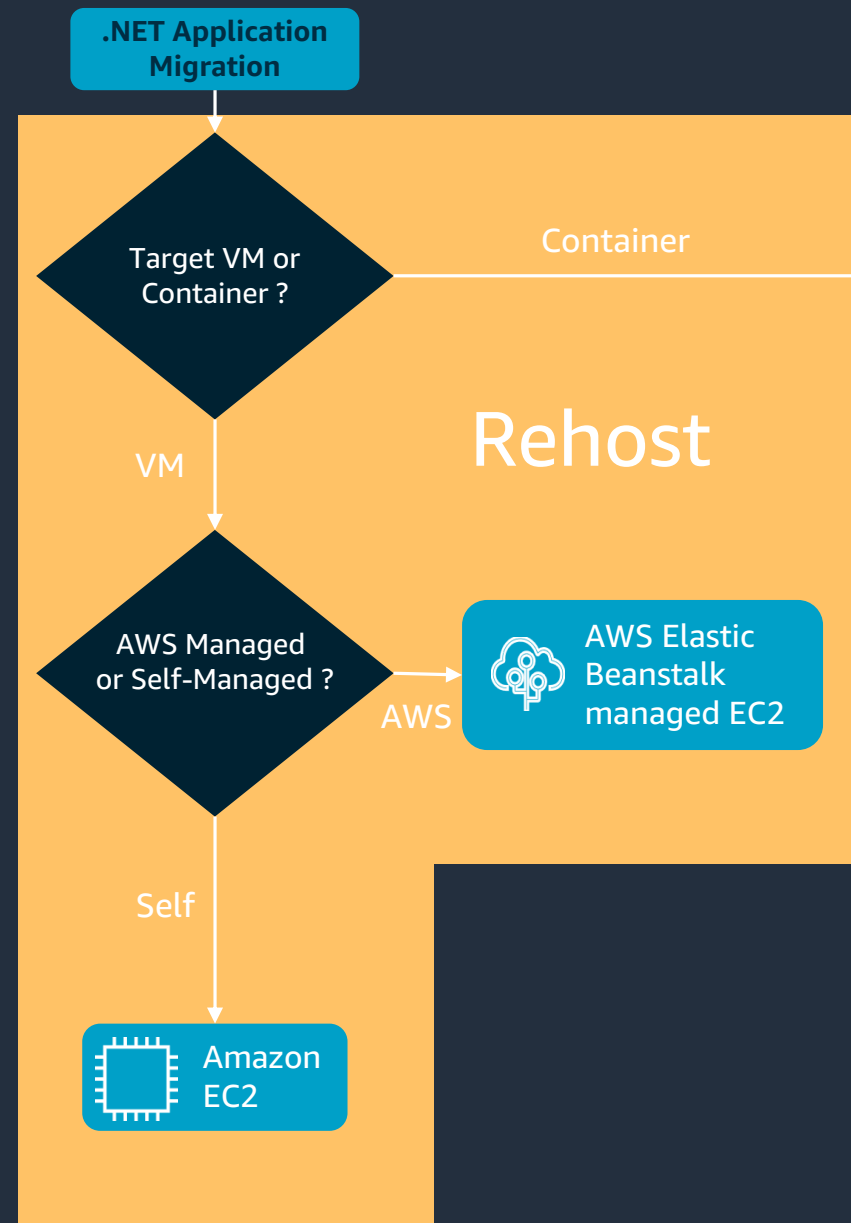


# We'll Help You Chart Your Course

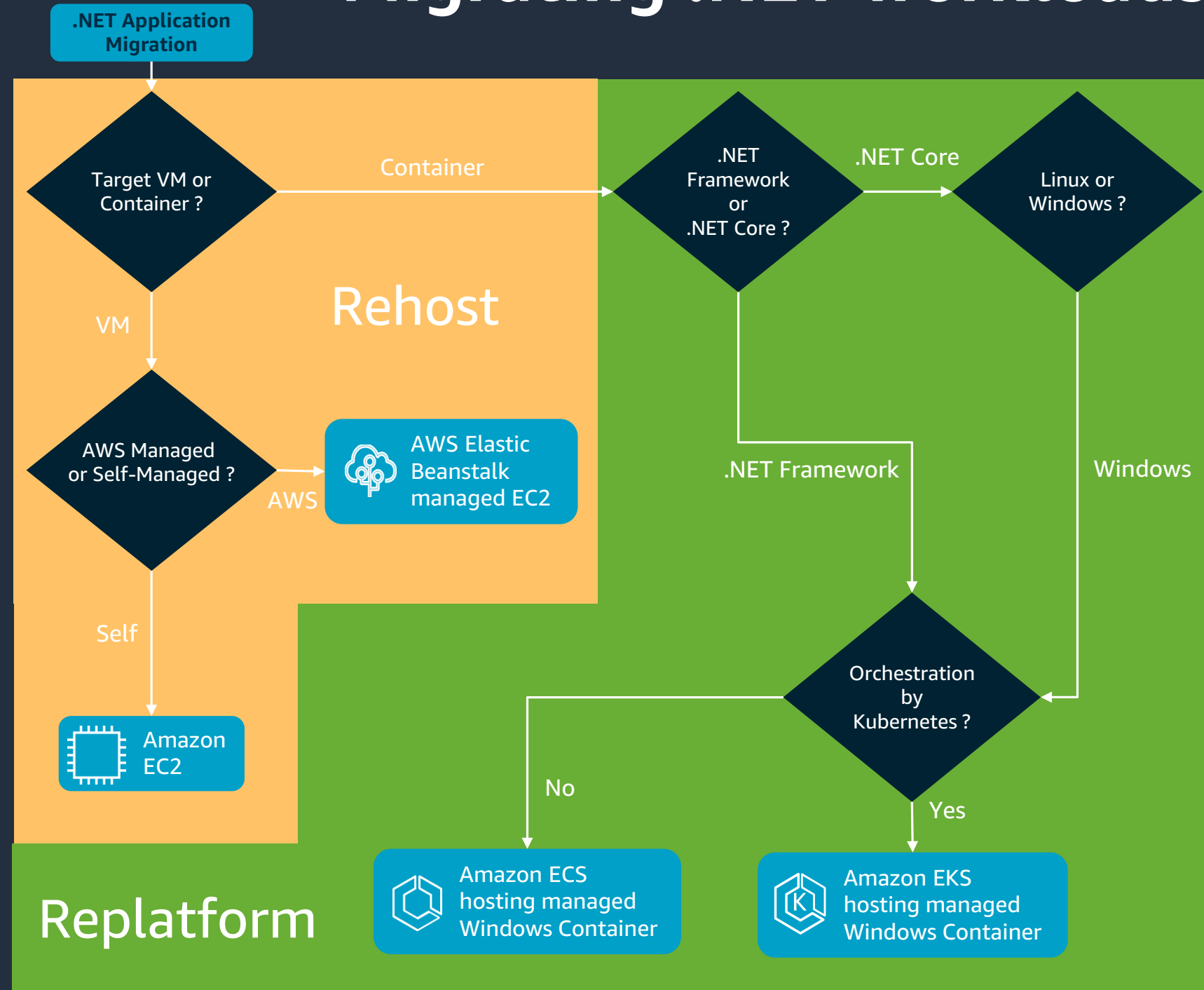




# Migrating .NET workloads to AWS

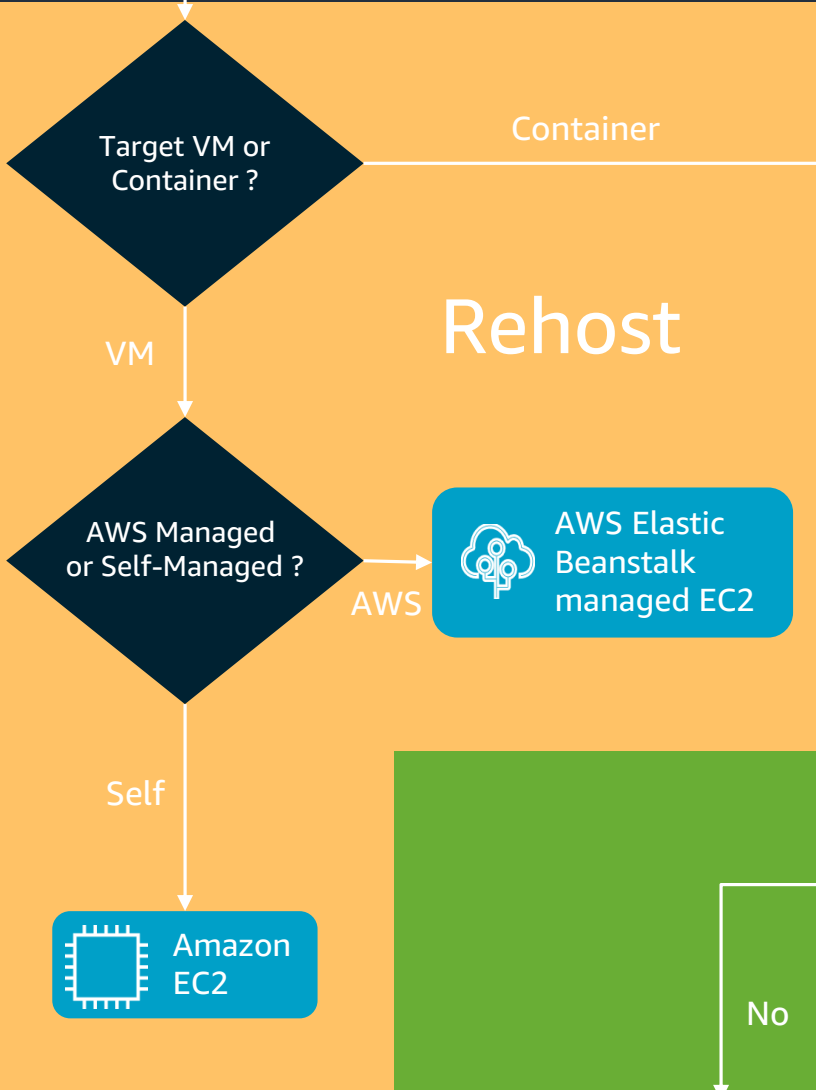


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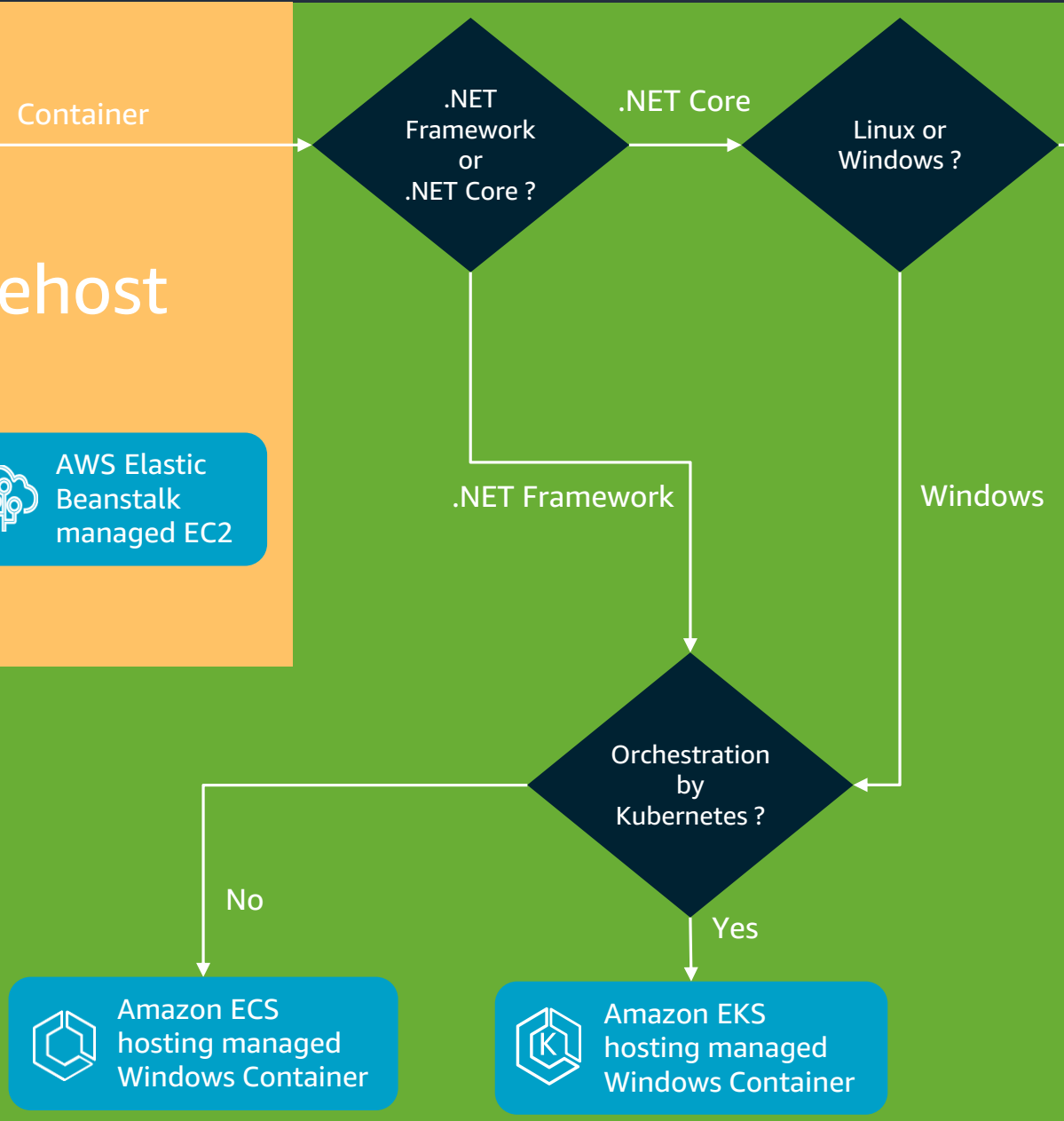


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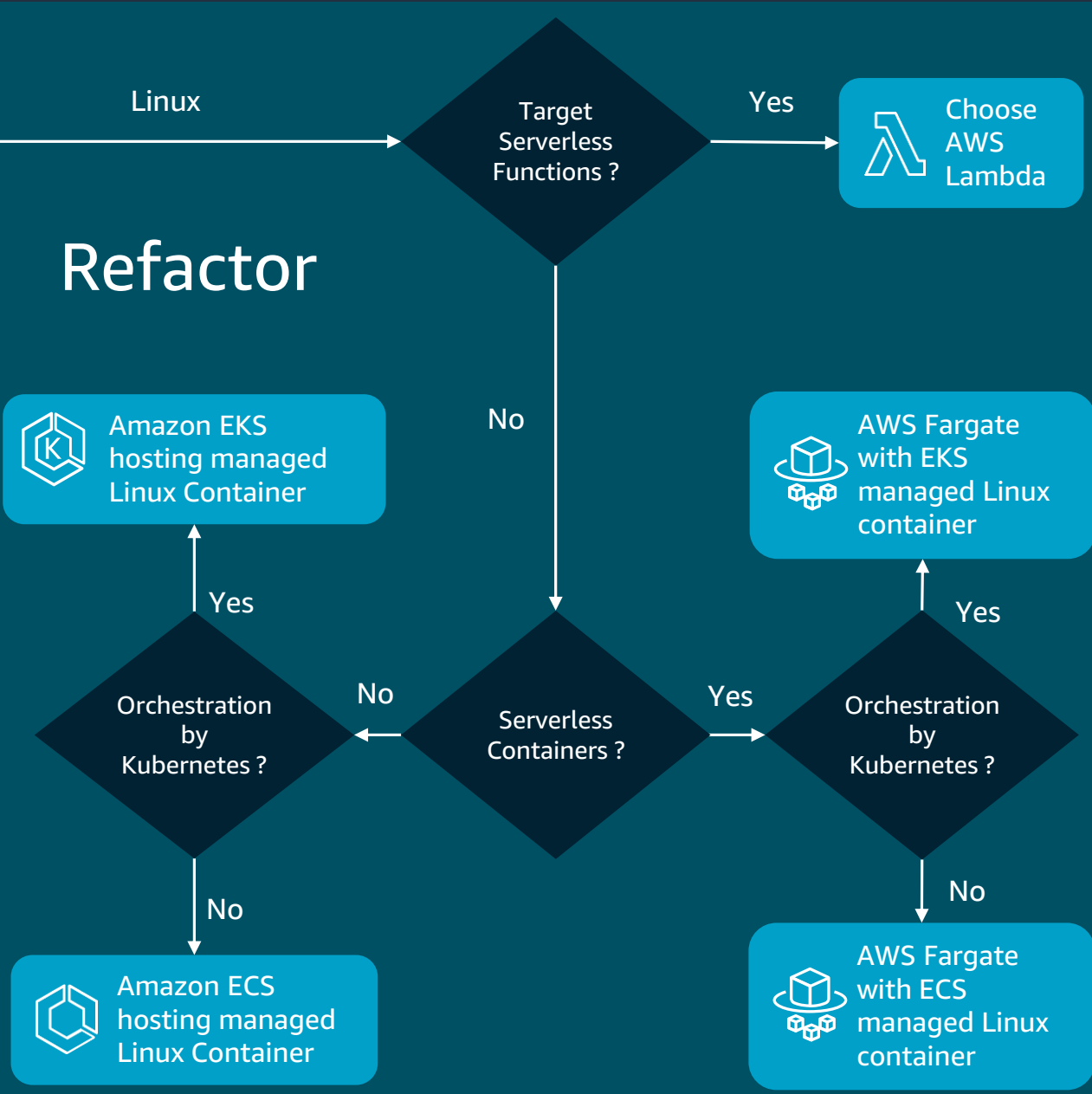
## .NET Application Migration



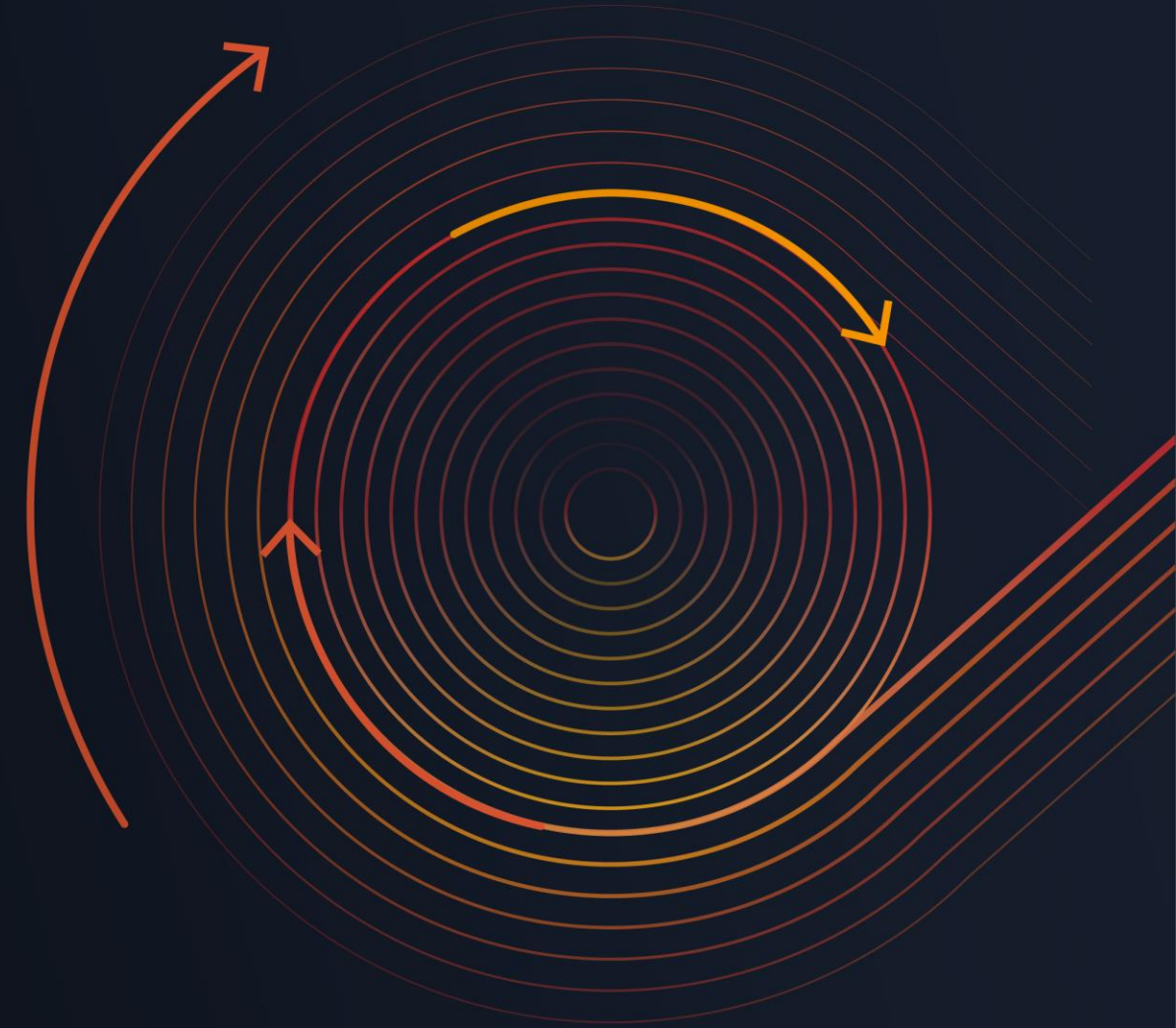
## Replatform



## Refactor



# Modernization Tools and Services



# App2Container



CONTAINERIZE AND MIGRATE  
EXISTING APPLICATIONS



— **Streamline** operations



— **Analyze** your applications  
and **automatically generate**  
a container image



— **Easily deploy** an existing application

<https://aws.amazon.com/app2container>

# Porting Assistant for .NET



INSIGHT AND ASSISTANCE FOR PORTING  
FROM .NET FRAMEWORK TO .NET CORE



— **Scans .NET Framework Applications** to  
generate .NET Core compatibility  
assessment reports



— **Identify incompatible .NET APIs and  
packages** from your .NET Framework  
applications and automatically find  
known replacements



— **Assisted Porting** Updates packages and  
changes package reference files for you to  
start porting.

<https://aws.amazon.com/porting-assistant-dotnet>

# Babelfish for Aurora PostgreSQL



NEW

PREVIEW

Reduce risk, time, and cost migrating from Microsoft SQL Server to Amazon Aurora PostgreSQL. Based on the open source [Babelfish](#) for PostgreSQL.

## Reduced risk



Native support for SQL language and semantics reduces the amount of code changes required to migrate

## Accelerated migrations



Complete migrations from SQL Server to Aurora faster, saving months to years of work from changing application code

## Freedom to innovate

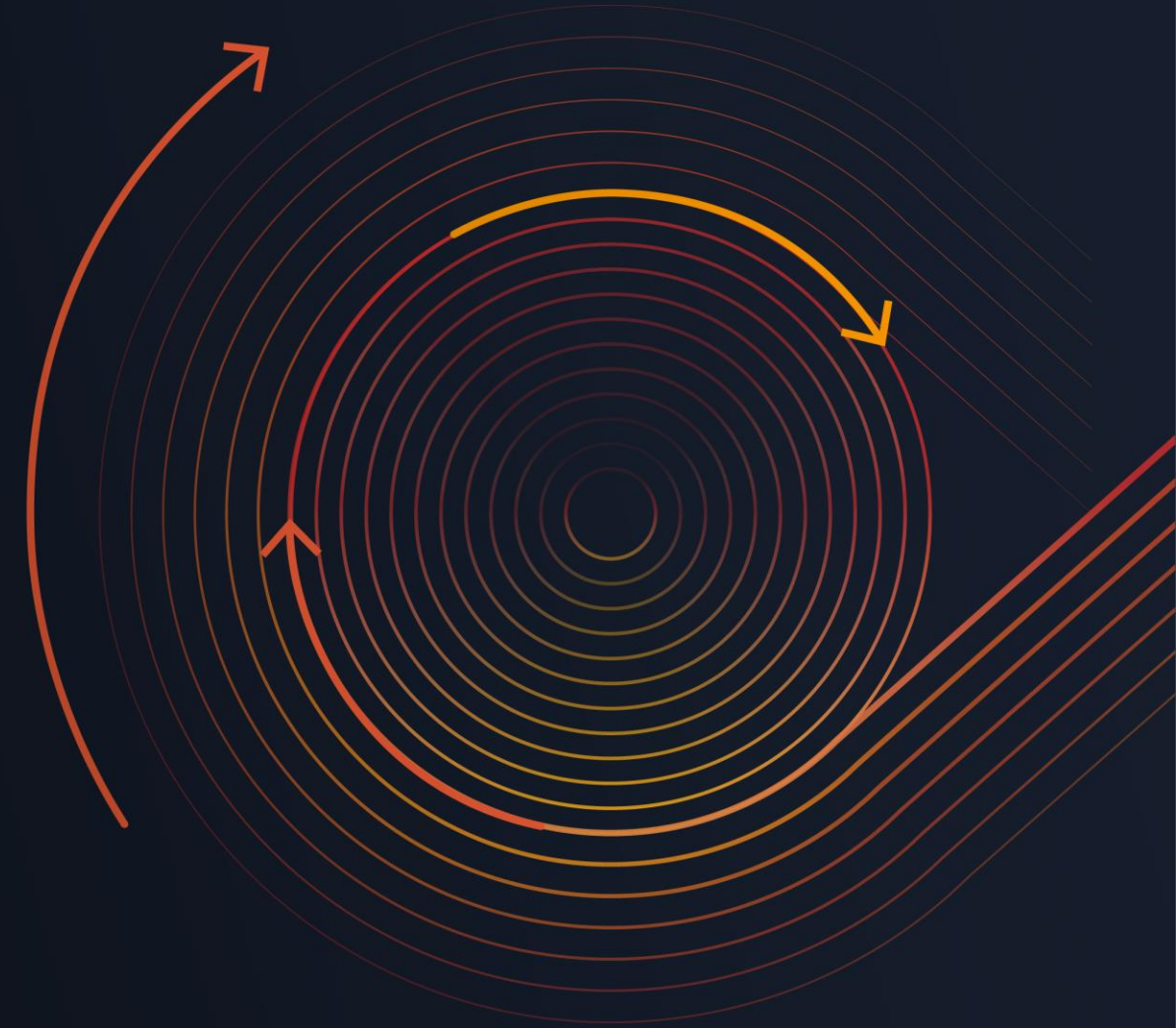


Run SQL Server code side-by-side with new functionality built using native PostgreSQL APIs and continue developing with familiar tools

<https://aws.amazon.com/rds/aurora/babelfish>



# .NET Success Stories



# What are the TCO benefits?

.NET Framework  
on EC2 Windows



.NET Core  
on EC2 Linux

Cost Savings = ~45%

+ additional 40% better price-performance with Graviton2

# Access the latest innovations with Graviton2



**Highest performance**  
in their instance families



**20% lower cost**  
vs same-sized comparable  
instances



**Up to 40% better  
price-performance**  
vs comparable instances

<https://aws.amazon.com/blogs/compute/powering-net-5-with-aws-graviton2-benchmark-results/>

# DraftKings case study

[HTTPS://AWS.AMAZON.COM/BLOGS/MODERNIZING-WITH-AWS/MODERNIZING-LEGACY-NET-APPLICATIONS-DRAFTKINGS-PRINCIPLES-FOR-SUCCESS/](https://aws.amazon.com/blogs/modernizing-with-aws/modernizing-legacy-net-applications-draftkings-principles-for-success/)



*DraftKings Inc. is a digital sports entertainment and gaming company created to fuel the competitive spirits of sports fans with products that range across daily fantasy, regulated gaming, and digital media. When DraftKings merged with [SB Tech](#), they became the only vertically-integrated pure-play sports betting and online gaming company. Based in the United States, DraftKings needed to integrate their software, platform, and people*

“A little over a year ago, we laid out a path to lower costs, increase scalability, application flexibility and improve developer efficiency. We identified an opportunity to get started on this path by modernizing our legacy .NET applications, with step one being a conversion to .NET Core.”

—David Musicant, *Director of Architecture at DraftKings*

# Epos Now case study (Partner: Kloia)

KLOIA IS AN AWS ADVANCED CONSULTING PARTNER

<https://aws.amazon.com/partners/success/epos-now-kloia/>



*Kloia worked with Epos Now to modernize its application environment on AWS, roll out software features in one day instead of three weeks, and scale more easily to accommodate international expansion. Kloia, an AWS Advanced Consulting Partner, helped Epos Now move part of its Windows environment to Linux and .NET Core running on AWS. Epos Now uses Amazon EKS, AWS Lambda, and Amazon API Gateway to more efficiently manage and scale its internal and customer-facing application*

“By modernizing the API, we have started our journey towards releasing more frequently which means we can push out new features to customers when they need them, as opposed to when we can deliver them. The best practices Kloia implemented played a big part in our accelerated delivery. We have a DevOps approach to development now that we have modernized our Windows environment on AWS.”

—Josh Hart, Cloud Architect, Epos Now

App2Container



Bablefish



DraftKings



.NET Porting Assistant



Graviton2



Epos Now

