AWS re:Invent

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ENT321

Incremental application refactoring to increase business agility

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Agenda

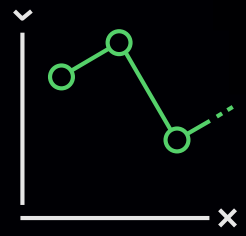
1. Business agility and AWS
2. Refactoring to microservice
3. Accelerating refactor with Flux
4. Demo
5. Q&A

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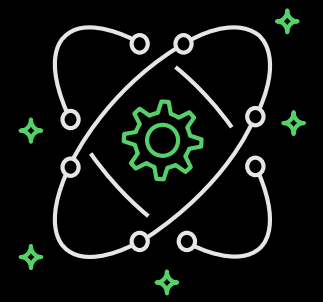
Why maximize your business agility with AWS



Cost savings (TCO)



Performance



Business agility

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Challenge: Refactoring monolithic applications



Business

- Slow product innovation
- Decreased time to market
- Drive unclear team ownership boundaries
- Changes have unforeseen side effects



Technical

- High coupling and low cohesion
- Difficult and infrequent deployments
- Apps are brittle and difficult to understand
- Rapid experimentation has the potential of high scale collateral impact

7 Rs

- Refactor
- Re-platform
- Repurchase
- Rehost
- Relocate
- Retain
- Retire

Business value

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That sounds great, but . . .

- It takes too long
- It’s too expensive
- I don’t have the AWS knowledge to get started
- I’ve got to change my organization first

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The law of holes . . .

The first law of holes is:

"If you find yourself in a hole, stop digging."

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Why refactor to microservices?

- Reduced deployment blast radius
- *Functional autonomy, single responsibility*
- Increased development velocity
- *Focused scalability*

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Transforming your business and apps

"Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure."

Melvin E. Conway, coiner of Conway's Law

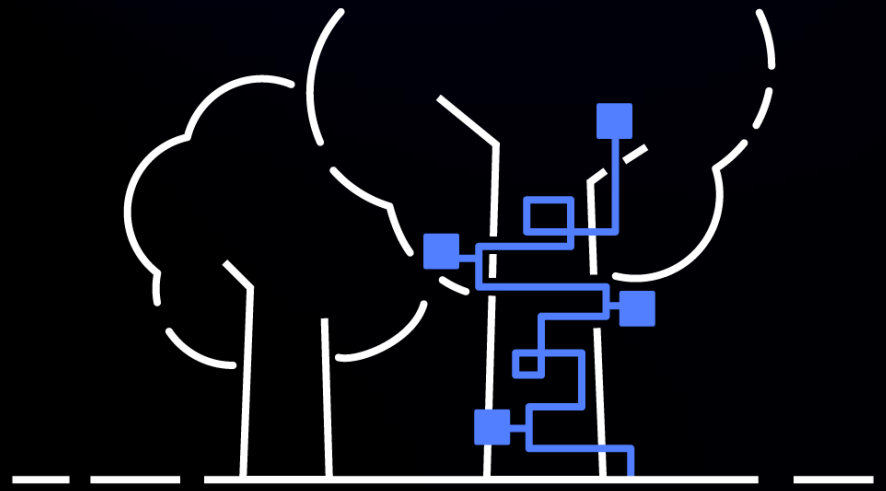


Organization, processes, technology

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Maximize agility with lower risk

STRANGLER FIG REFACTORING



"[G]radually create a new system around the edges of the old, letting it grow slowly over several years until the old system is strangled."

Martin Fowler, Thoughtworks

Benefits of the Strangler Fig pattern

- Agility
- Frequent releases
- Lower risk
- Immediate benefits
- Easier rollback

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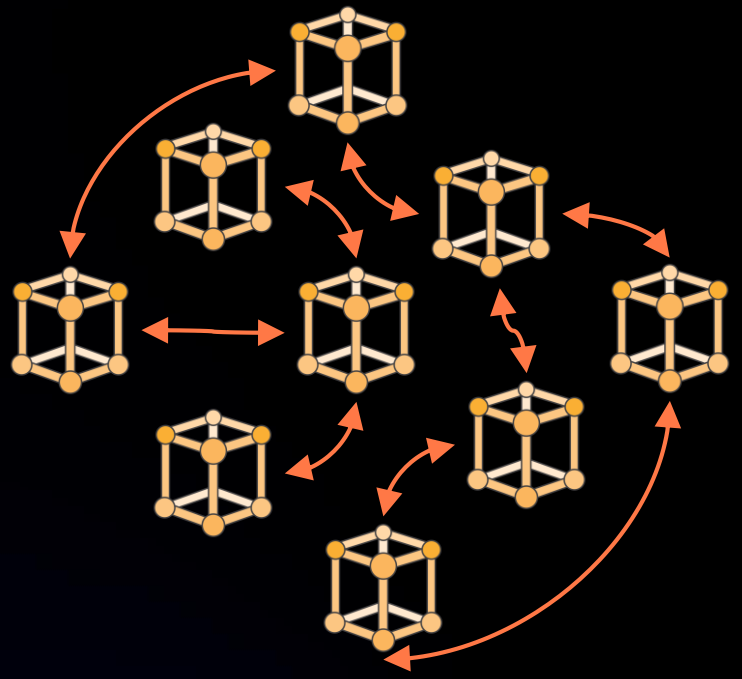
Decomposition options

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Pattern types

- Auxiliary service
- Business capability
- Business transaction
- Service per team
- Business subdomain (domain-driven design)

- Event storming



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Refactor incrementally

Use the Strangler Fig pattern to achieve team independence and a modern app architecture

1. Define the interface to the first piece to be refactored
2. Design, implement, and test the new capability
3. Redirect old to new
4. Delete old code or service

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Launch a new feature, fast

Leave and layer offers an alternative starting point

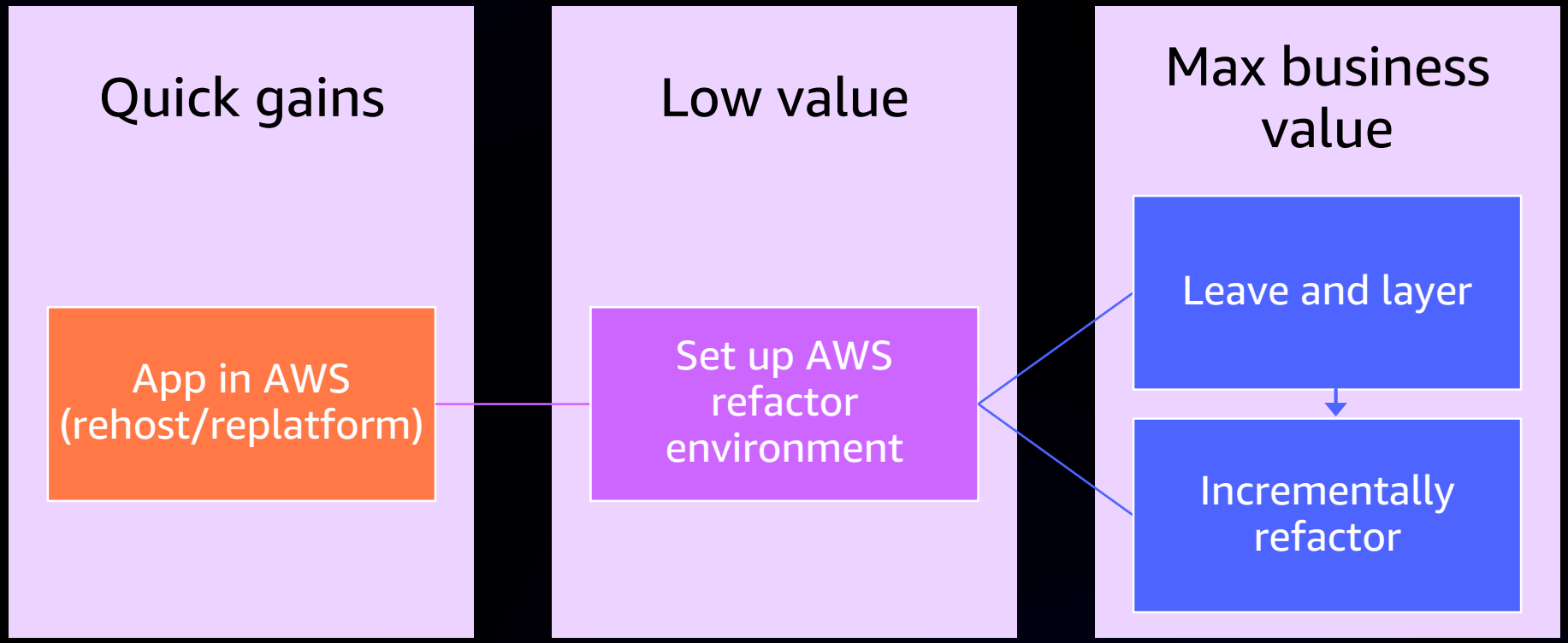
Enhance or extend the app with new features in microservices without touching the old application

Launch a new capability or expand your business fast and with minimal risk

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Executing incremental refactor in AWS

STRANGLER FIG REFACTORING ON AWS



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Why multi-account?

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- Resource isolation
- Security isolation
- Cost and billing clarity
- AWS resource limits
- Business unit separation
- Multiple development teams

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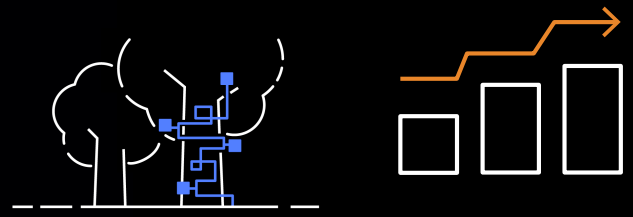
Multiple refactor patterns for app transformation



Launch a new feature, fast

Leave and layer offers an alternative starting point

- Enhance or extend the app with new features in microservices without touching the old application
- Launch a new capability or expand your business fast and with minimal risk



Refactor incrementally

Use the **Strangler-fig** to achieve team independence and a modern app architecture

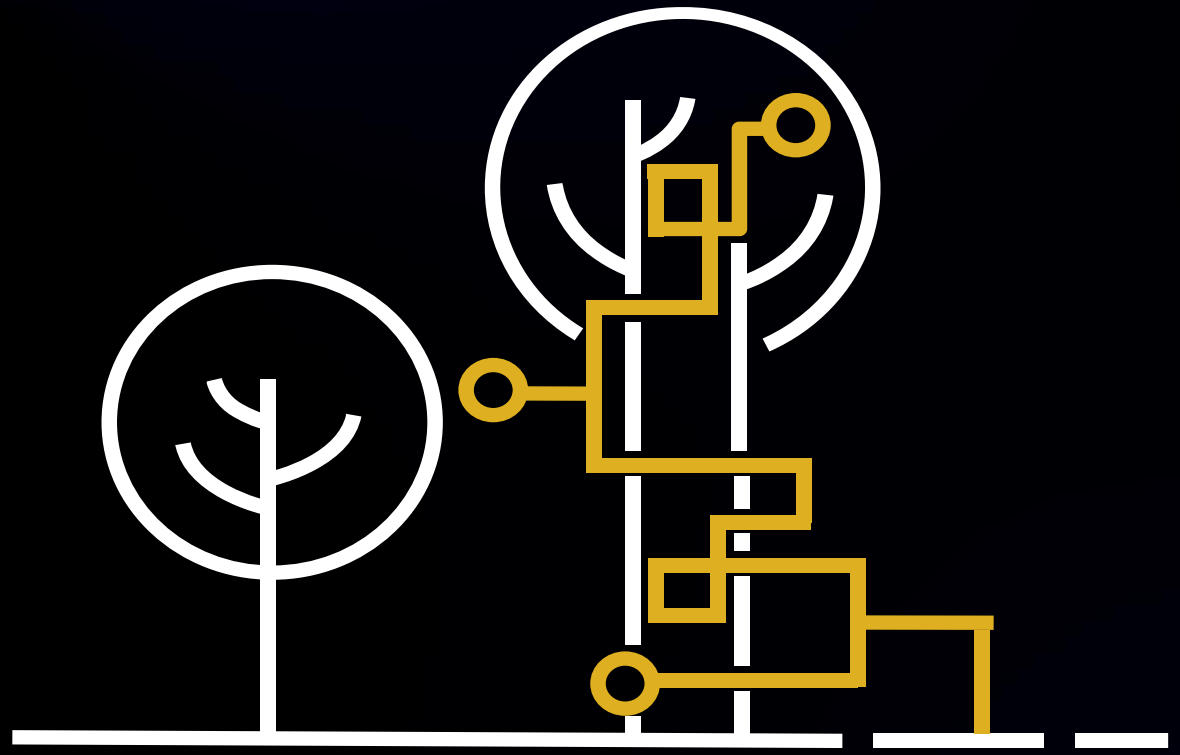
- Define the interface to the first piece to be refactored
- Design, implement, and test the new capability
- Redirect old to new
- Turn off old code or service

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Introducing AWS Migration Hub Refactor Spaces

Transform your applications faster



Start refactoring applications in days instead of months

Combine your legacy app and microservices into a single application

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Delivering customer choice

Using Migration Hub Refactor Spaces you can define the right approach for each application:



Choose how fast you want to transform an app

Choose how much app transformation to do



Launch new features in microservices with minimal risk to the existing app



Partial app transformation running old and new together



Complete app transformation eliminating the existing app

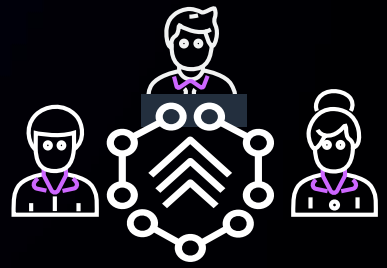
Leave and layer

Strangler-fig

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Accelerate incremental app transformation



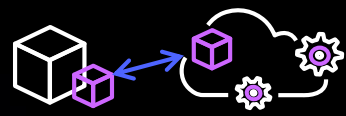
AWS Migration Hub
Refactor Spaces



Reduce the time to set up and manage a refactor environment



Shield application consumers from infrastructure changes



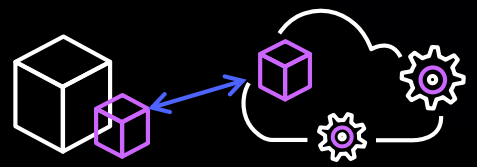
Re-route traffic from old to new across multiple AWS accounts

Start **refactoring** applications in **days** instead of months

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Refactor Spaces orchestration



Transit Gateway, Resource Access Manager, and VPCs to bridge networking across accounts to simplify communication between old and new services

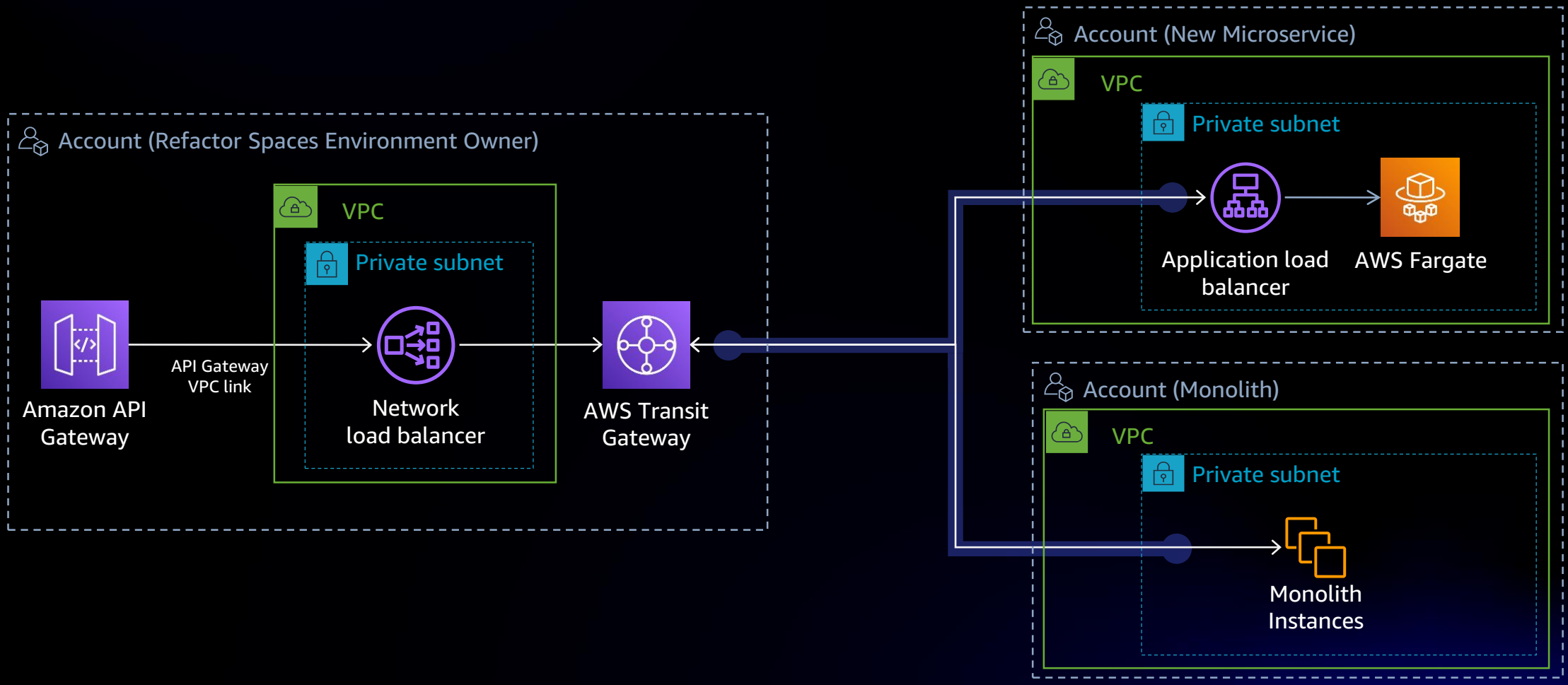
API Gateway for external access to transparently add new services or incrementally route traffic from old to new

Resource sharing across multiple accounts

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App refactor with Refactor Spaces

Create Refactor Spaces environment → Add accounts → Create application proxy → Create services with VPC or Lambda → Add routes



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Refactor Spaces demo

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Refactor Spaces Launch Partners

Deloitte.



vFunction

CAYLENT

virtusa

/thoughtworks



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Pricing

No charge for Refactor Spaces during its preview period

When the preview period ends, charged based on:

1. Number of hours you run refactor environments
2. API requests to Refactor Spaces

Plus a free trial period for environment hours and monthly free API requests

See https://aws.amazon.com/migration-hub/pricing/ for more details

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Refactor Spaces is available today in . . .

US East (N. Virginia)
US East (Ohio)
US West (Oregon)
Europe (Ireland)
Europe (Frankfurt)
Europe (Stockholm)
Asia Pacific (Sydney)
Asia Pacific (Tokyo)
Asia Pacific (Singapore)

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How to get started refactoring

Create your first Flux environment from the Migration Hub console today!

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Thank you!

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