
AWS
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NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

ENT324

How Georgia-Pacific is accelerating modernization & improving resilience

Neel Sendas

Principal Technical Account Manager
AWS

Steven Dolan

Migration Services Specialist
AWS

Carlos Wiley

Enterprise Architect
Georgia-Pacific

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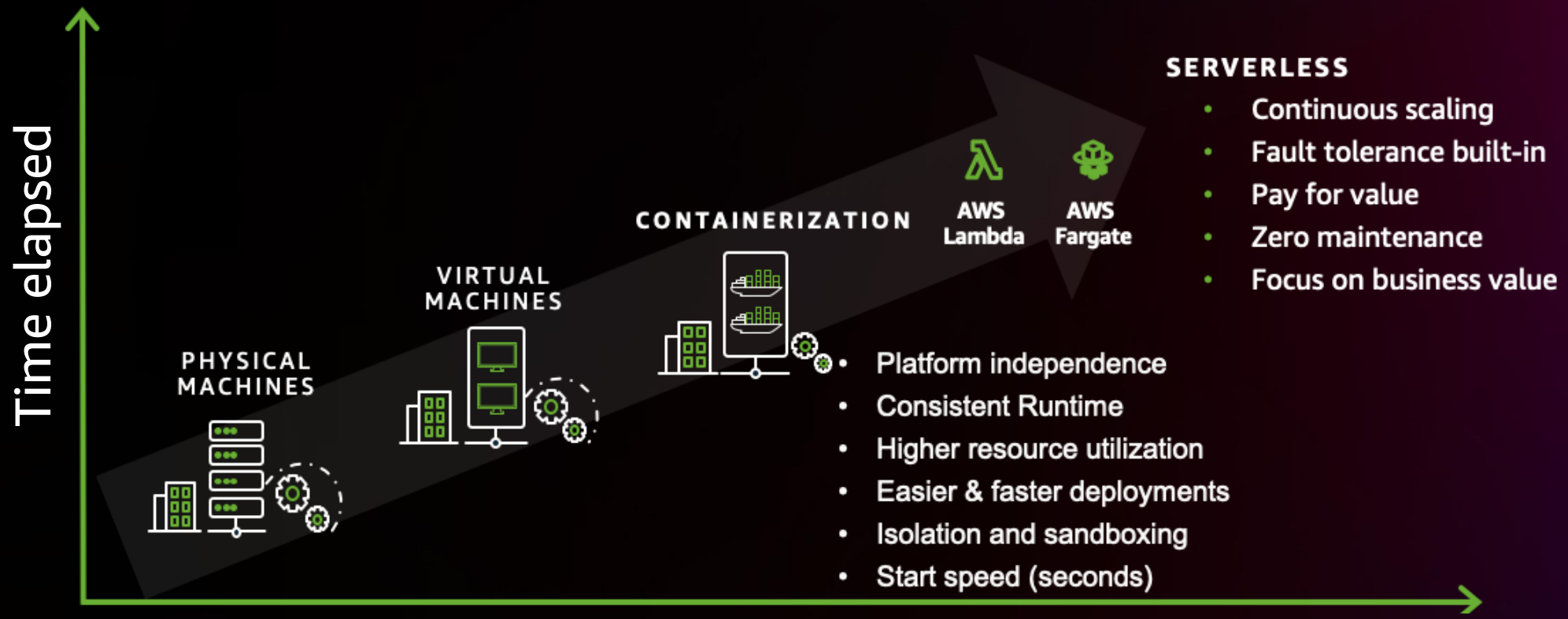
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Agenda

- Cloud application modernization challenges
- Refactoring best practice and patterns
- Accelerating with AWS Migration Hub Refactor Spaces and AWS Resilience Hub
- Demo
- Georgia-Pacific’s journey

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Compute evolution - Levels of infrastructure abstraction



Focus on modernization and level of abstraction

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Application modernization challenge: 1

Refactoring monolithic applications



Business

- Slow product innovation
- Decrease 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

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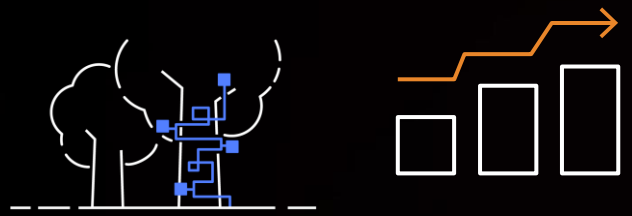
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Incremental refactoring is not easy

- Minimizing risk and impact to application consumers
- Managing the routing of traffic to the existing app and new microservices
- Refactoring across multiple AWS accounts and VPCs

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Refactoring best practice and patterns



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

- Incrementally refactor application
- Limit impact to existing application
- Achieve team independence
- Turn off old code or service

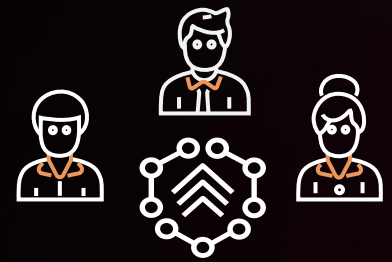


- **Leave and layer** offers an alternative starting point
- Launch a new feature, fast
- Enhance or extend the app with new features in microservices without touching the old application
- Launch a new capability or expand your business fast and with minimal risk

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AWS Migration Hub Refactor Spaces



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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Application modernization challenge: 2

Improving application resiliency



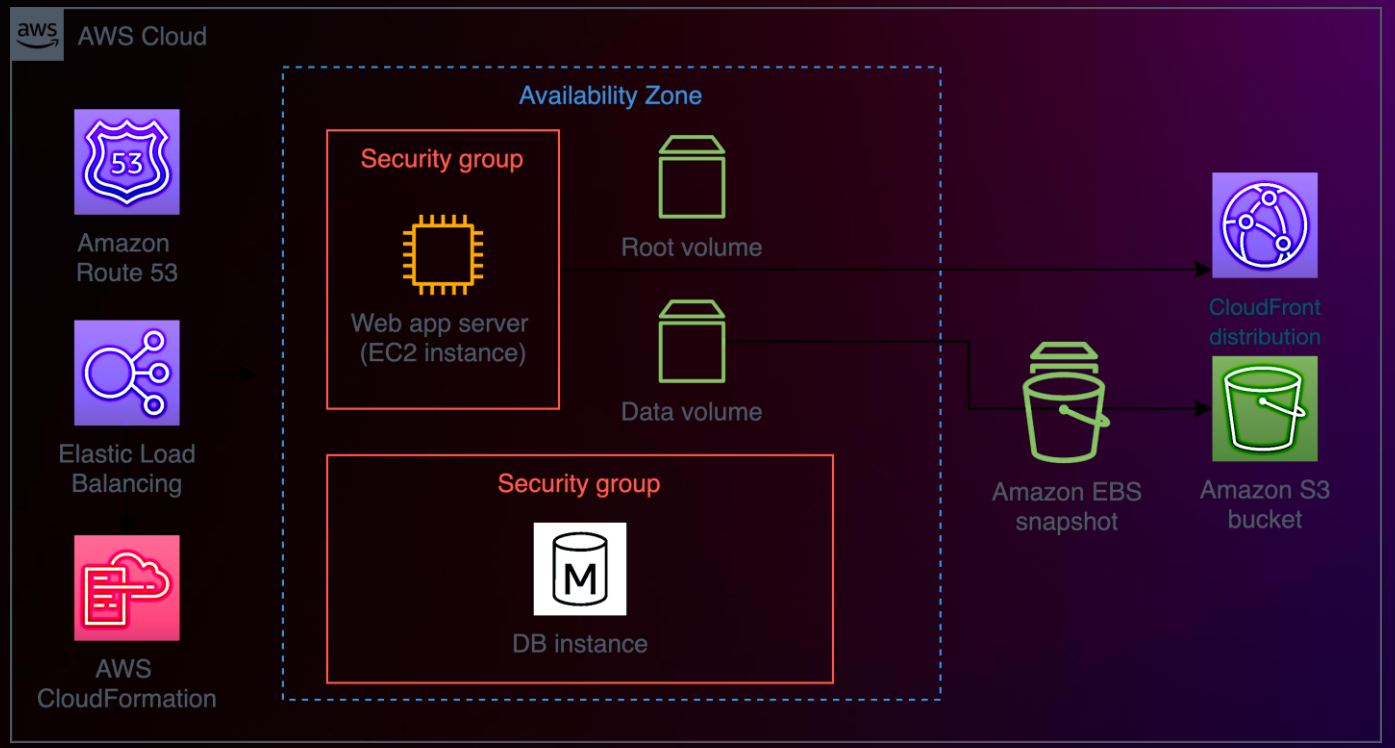
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Architecting a resilient infrastructure

Traditional



Today



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Monitoring and measuring resiliency



Ensuring app owners consider resilience when building new apps

Ensuring existing apps are resilient

Ensuring all new apps are resilient



Tracking app resilience over time

Define and track resilience policy

Understanding resilience across many different AWS services

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AWS Resilience Hub

An application service that provides customers a central place to define, validate, and track the resilience of applications on AWS

Assess

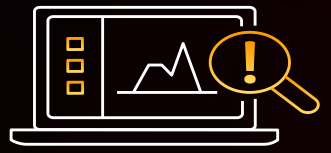


Assess whether or not meet RTO/RPO

Can schedule daily

Or run as part of CI/CD

Resilience recommendations



Optimize for…

Best RTO/RPO

Cost

Minimal changes

Operational recommendations



Alarms

Standard operating procedures (SOP)

Fault injection experiments

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Resilience Hub: Key benefits



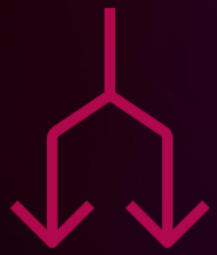
Continuously validate and track application resilience



Consistently meet resilience targets (RTO and RPO)



Identify and resolve resilience-related issues before they occur in production



Reduce application-related outages

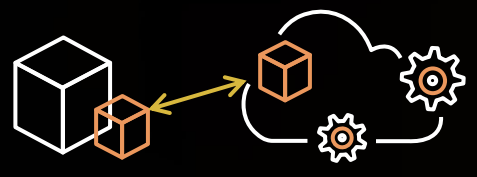
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Deep dive and demo

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Refactor Spaces orchestration



Bridge networking across AWS accounts to simplify communication between old and new services

-Transit Gateway and Resource Access Manager

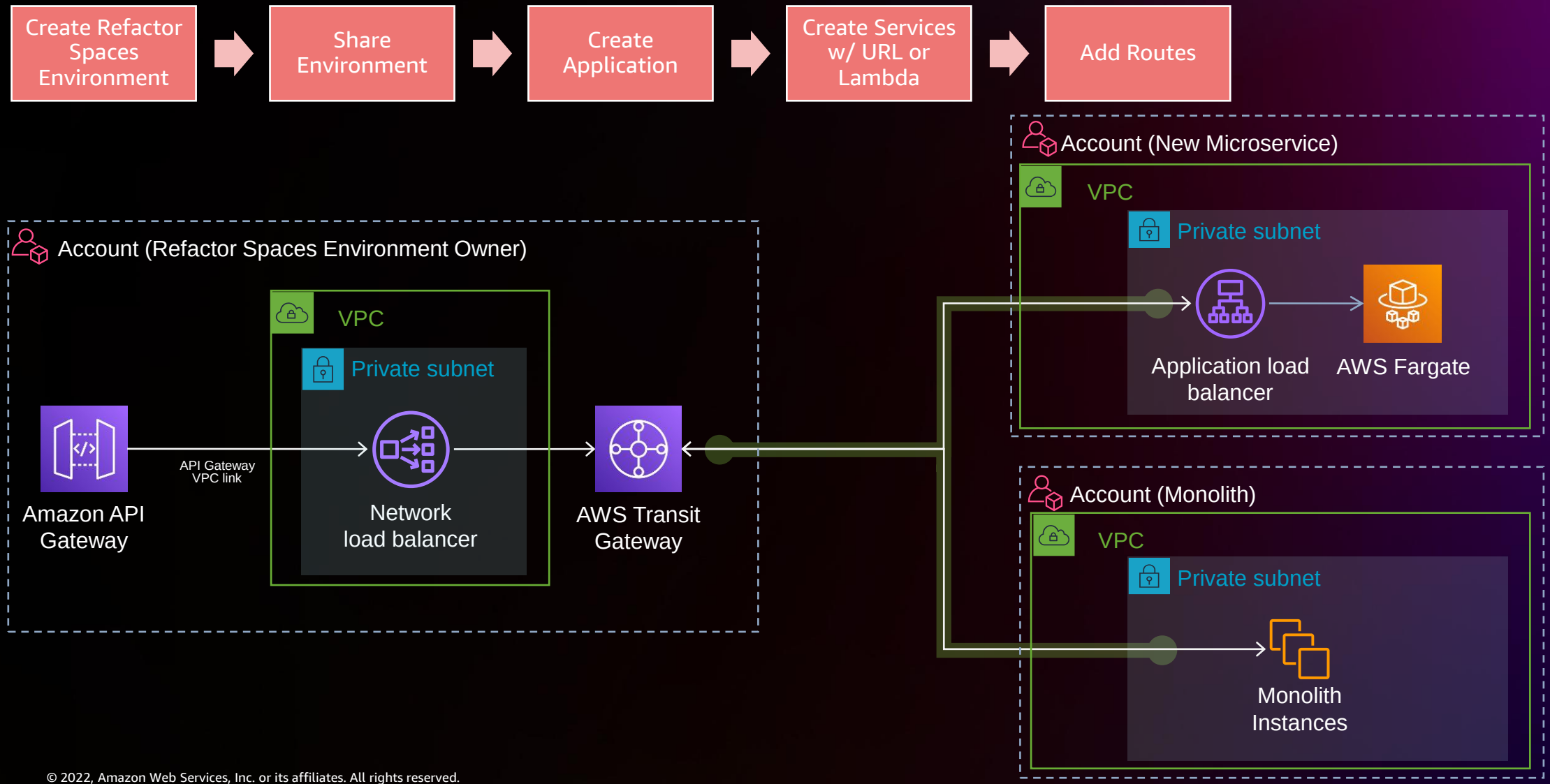
Provide external access and the ability to transparently add new services or incrementally route traffic from old to new

-API Gateway and Network Load Balancer

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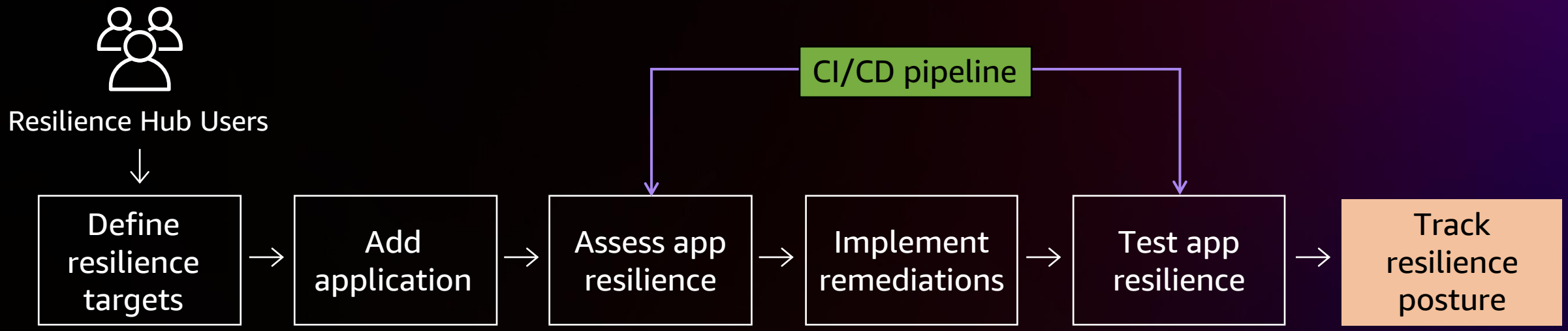
App refactor with Refactor Spaces



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AWS Resilience Hub: Track resilience

- Track the resilience posture of your applications
- Alert operator if resilience posture is compromised
- Track the resilience readiness with ‘Resiliency Score’



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Refactor Spaces demo

1 Environment

1 Application

2 Services (monolith, microservice)

2 Routes (default, route to microservice)

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AWS Management Console

us-east-1.console.aws.amazon.com/console/home?region=us-east-1

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VPC | AWS Migration Hub

Console Home Info

Reset to default layout | + Add widgets

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- API Gateway
- EC2
- IAM
- Resource Access Manager
- Directory Service
- AWS Mainframe Modernization
- AWS Resilience Hub
- CloudFormation
- CloudTrail
- RDS

View all services

Welcome to AWS

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Learn the fundamentals and find valuable information to get the most out of AWS.

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AWS Health Info

Open issues
0 Past 7 days

Scheduled changes
0 Upcoming and past 7 days

Other notifications
0 Past 7 days

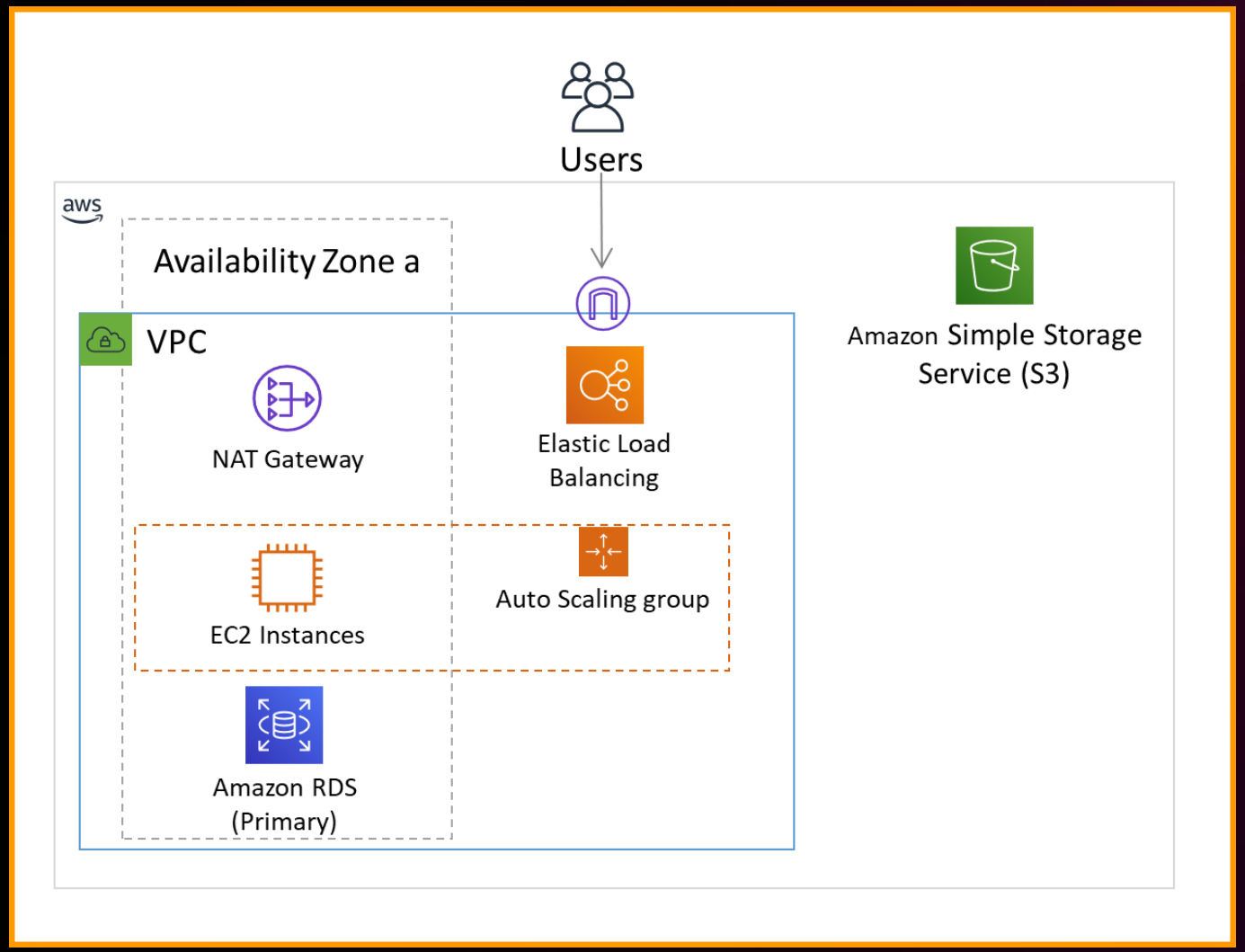
Cost and usage Info

No cost and usage

This could be because you haven't configured AWS Cost Manager or you do not have permission.

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AWS Resilience Hub - Demo



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AWS Management Console

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Resource Groups & Tag Editor | AWS Migration Hub

Console Home Info

Reset to default layout | + Add widgets

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View all services

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Cost and usage Info

Current month costs
$167.51

Forecasted month end costs
$306.32 Up 18% over last month

Last month costs
$260.46

Costs shown are unblended. Learn more

Top costs for current month

AWS Resilience Hub	$84.12
EC2 - Other	$29.23
AmazonCloudWatch	$28.40
Amazon Relational Database Service	$11.01
Amazon Elastic Load Balancing	$6.69

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The Georgia-Pacific journey

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Carlos Wiley

Enterprise Architect

- Cloud Modernization, DR, DevSecOps, and Training

4.5 years with Georgia-Pacific

Fun fact: Avid Pokemon Go player



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Georgia-Pacific at a glance



~30,000
Employees Globally



150+
Locations Worldwide



3
Additional U.S jobs each Georgia – Pacific job supports on average



$15.4 billion
Amount invested into operations since 2013



90%
Of earnings reinvested back into business for growth



4
Community investment areas: education, enrichment, environment and entrepreneurship

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GP's cloud initiatives

Application modernization

- Refactor monolith applications to microservices
- Create infrastructure as code (IaC) modules
- Deploy applications in dedicated accounts

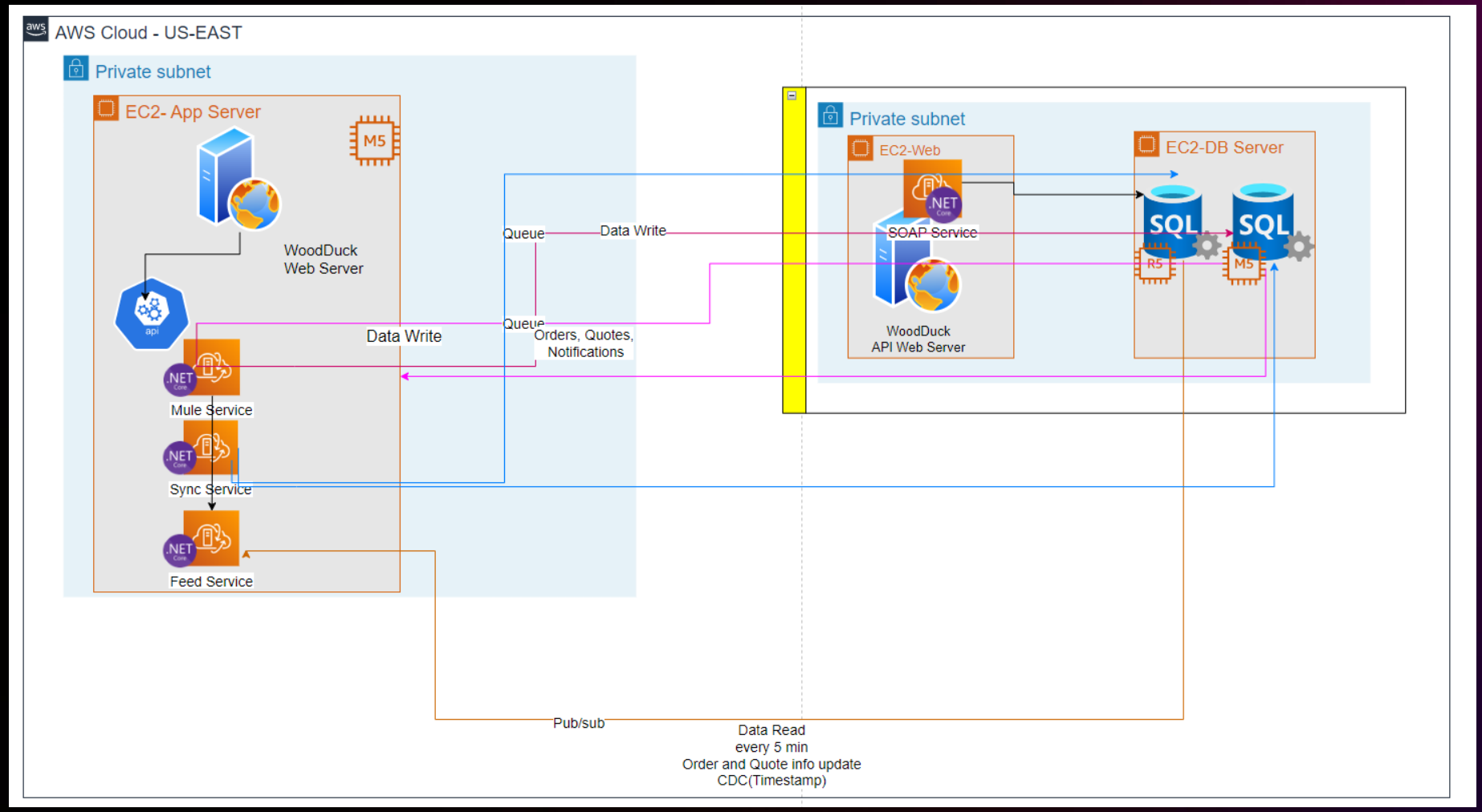
Build resilient infrastructure

- Reduce time spent on DR prep, process, and testing
- Define a process to test serverless applications

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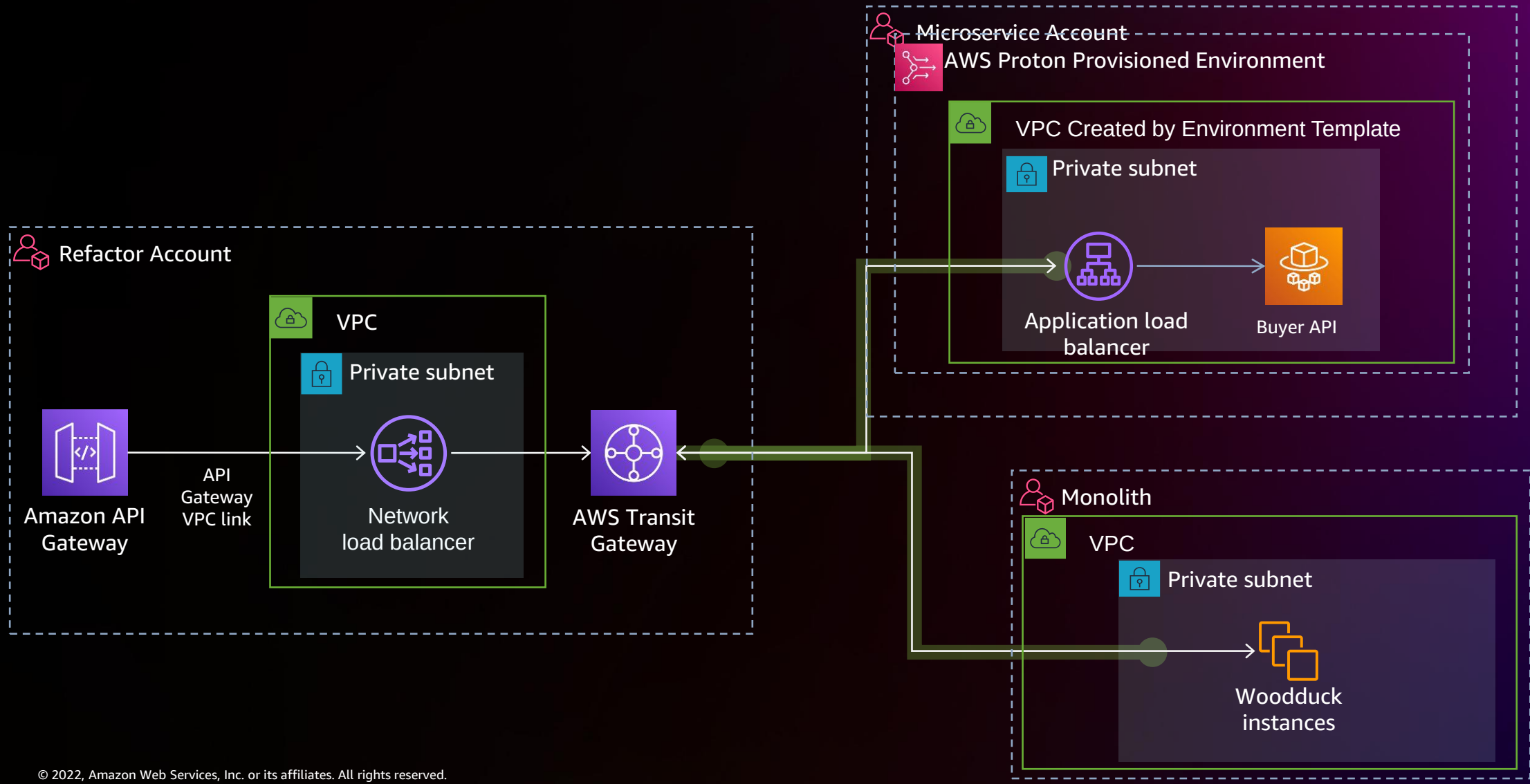
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Refactor Spaces – Proof of concept



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Refactor Spaces – Proof of concept



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Benefits of Refactor Spaces



Increase productivity



Enables daily releases
(previously monthly)



Decrease failure impact



Application composability



90% increased deployment speed

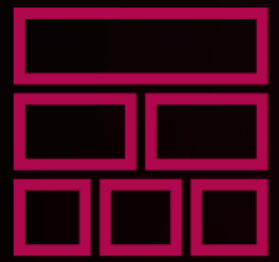
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What’s next for Refactor Spaces



Drive widespread use



Develop additional IaC modules



Identify opportunities for reuse

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GP's cloud initiatives

Application modernization

- Refactor monolith applications to microservices
- Create infrastructure as code (IaC) modules
- Deploy applications in dedicated accounts

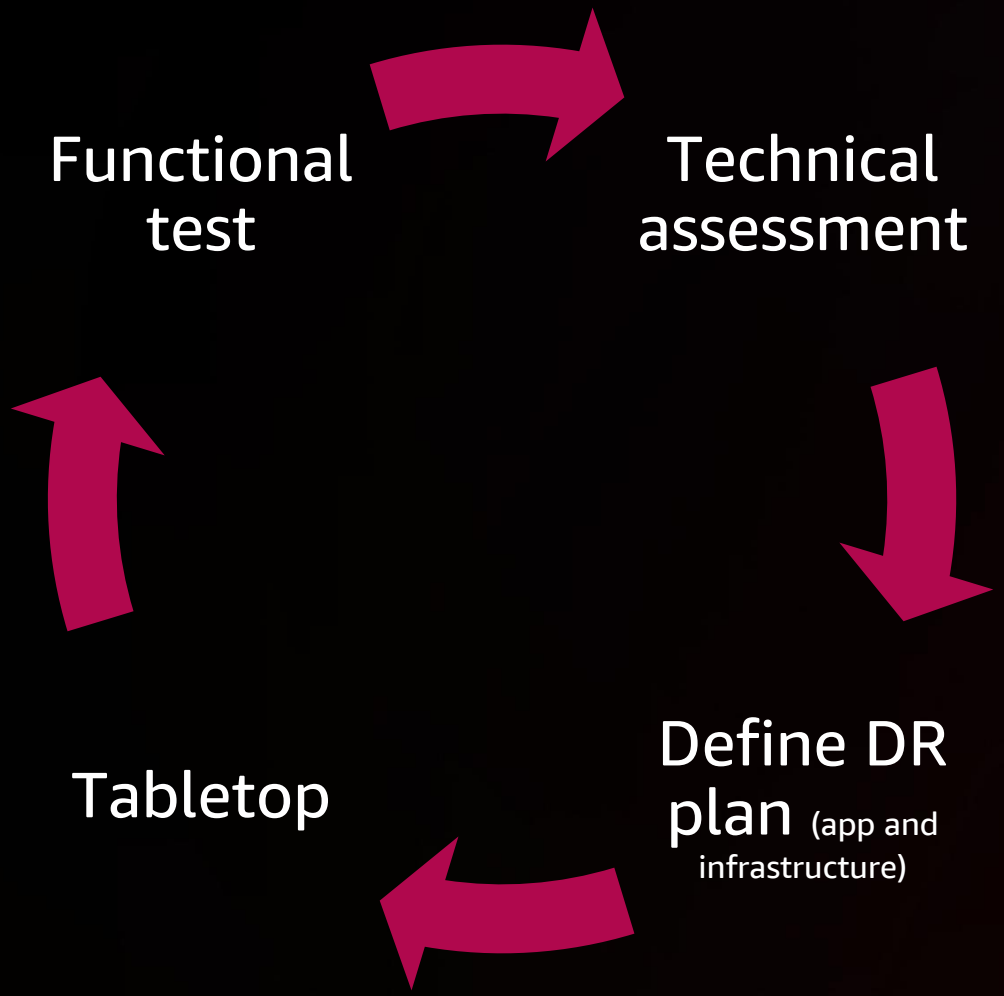
Build resilient infrastructure

- Reduce time spent on DR prep, process, and testing
- Define a process to test serverless applications

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DR current state



Technical assessment

- Manual process to define AWS infrastructure of applications, validate tiers, and remediate issues.

Define DR plan

- Lack of knowledge on how to test AWS infrastructure
- Gaps in recovery steps

Tabletop

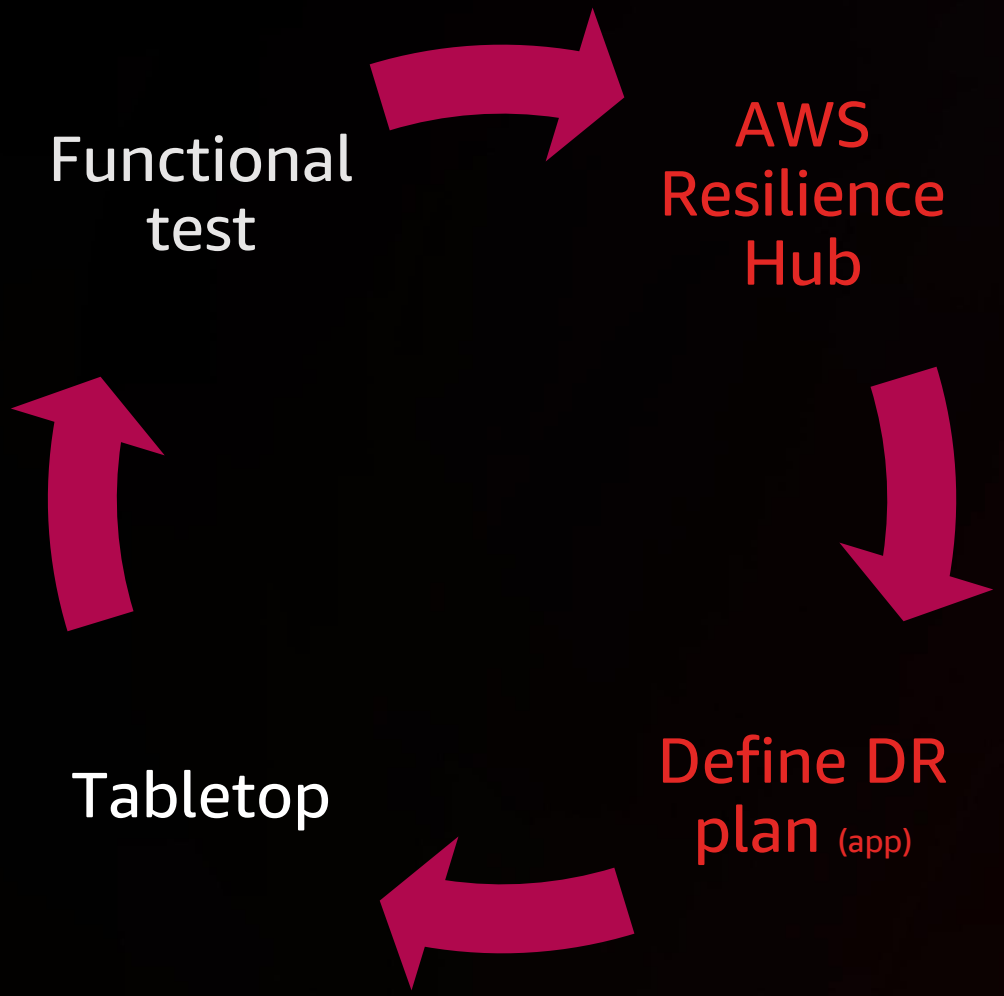
- Rescheduling of meetings due to missing information on DR plans

Functional test

- Currently no process to test serverless applications

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DR with AWS Resilience Hub



AWS Resilience Hub

- Able to catalog all tier 1, 2, and 3 applications with AWS Resource Groups
- Daily automated assessments of applications
- Predefine RPO and RTO policies, based on tiers definition, added to all GP accounts
- Provides recommendations for resolutions after assessment

Define DR plan

- Suggested infrastructure recovery steps provided by AWS Resilience Hub in the form of CloudFormation templates

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Resilience Hub improved operational efficiency



94% increased delivery speed of assessments



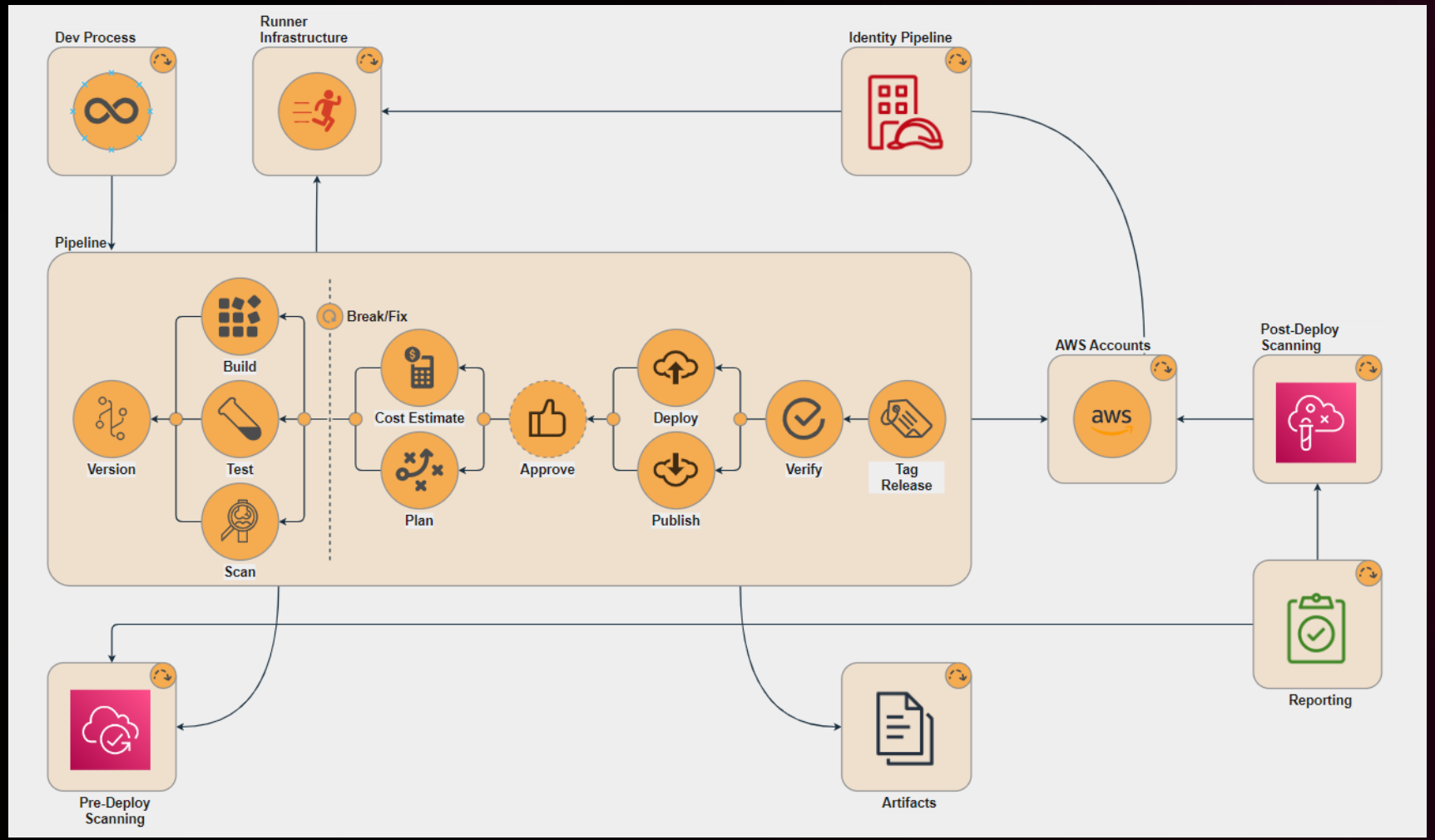
50% time spent decrease on DR processes



Improve DR compliance

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What’s next?



- Add Resilience Hub to our pre and post deployment steps
- Create application resiliency reports
- Integrate Fault Injection Simulator to facilitate stress testing

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Application modernization challenges



Refactoring monolithic applications



Improving application resiliency

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Call to action

- Try Refactor Spaces (3-month free tier) and Resilience Hub (6-month free tier)
- Learn more from blogs, walkthrough videos, and user guides
- Contact your account team to schedule an Immersion Day
- Get hands-on experience by completing workshops:
  - Refactor Spaces – Iterative App Modernization Workshop
  - Resilience Hub – Using AWS Resilience Hub To Monitor Resilient Architectures

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Related sessions

ENT312-R1 – Workshop
Modernizing your workload for speed and flexibility
Friday, Dec 2 – 9:15–11:15 AM

ENT322-R1 – Builders' session
Migrate and modernize at scale
Friday, Dec 2 – 8:30–9:30 AM

ENT223 – Breakout session
Resiliency in the cloud: Disaster recovery with VMware Cloud on AWS
Friday, Dec 2 – 10:45–11:45 AM

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Thank you!

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