Resilience at AWS

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Sr. Solutions Architect
Amazon Web Services

Agenda

- Failures, Resilience and Shared Responsibility Model
- Resilience of the AWS cloud
- Resilience of customer workloads in the cloud
- AWS services and offerings for Resilience

"Resilience equals revenue" - Gartner, 2023

Companies realize the importance of resilience in today's technological landscape:

Financial cost

Fortune 1000 companies lose an estimated $1.5B-$2.5B annually due to unplanned system downtime (IDC)

Brand cost

Beyond financial cost, there is also a brand cost

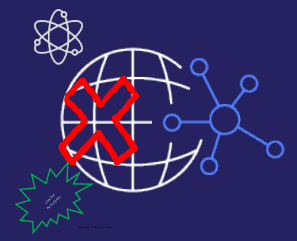
Categories of Failure

Code deployments & configuration
e.g. bad deployment, cred expiration

Core infrastructure
e.g. datacenter failure, host failure

Data and state
e.g. data corruption

Dependencies
e.g. infrastructure, external APIs



Highly unlikely scenarios
e.g. All of internet failure, environmental disasters,

Resilience

Ability of a workload to recover from infrastructure or service disruptions

The mental model

High Availability

Resistance to common failures through design and operational mechanisms at a primary site

Core services, design goals to meet availability goals

Disaster Recovery

Returning to normal operation within specific targets at a recovery site for failures that cannot be handled by HA

Backup & Recovery, Data Bunkering, Managed recovery objectives

Continuous Improvement

CI/CD, observability, moving beyond pre-deployment testing towards chaos engineering patterns

AWS is responsible for the resilience
of the Cloud

Customers are responsible for their resilience
in the Cloud

Resiliency of the cloud

AWS Regions and Availability Zones (AZs)

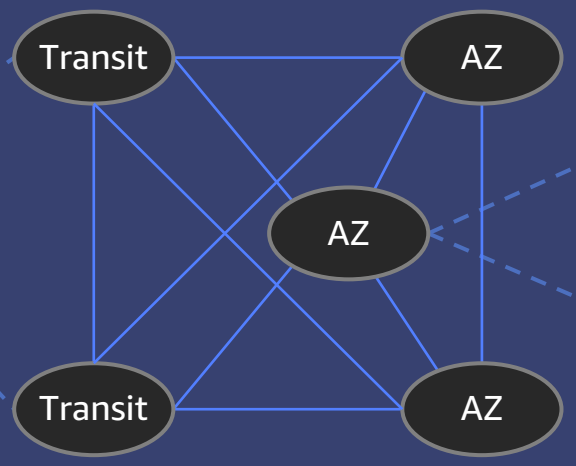
AWS REGIONS ARE PHYSICAL LOCATIONS AROUND THE WORLD WHERE WE CLUSTER DATA CENTERS

33 AWS Regions worldwide

AWS Regions

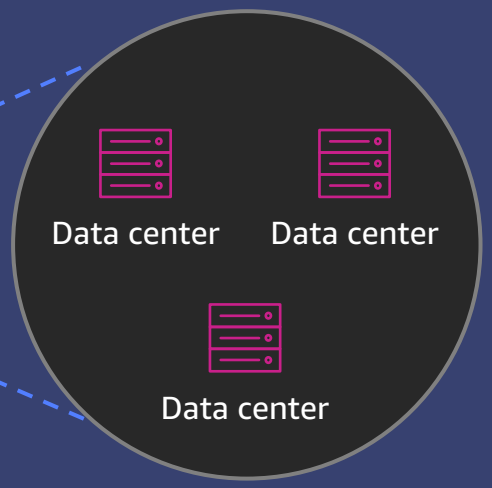
Announced Regions

Each AWS Region has multiple AZs



A Region is a physical location in the world

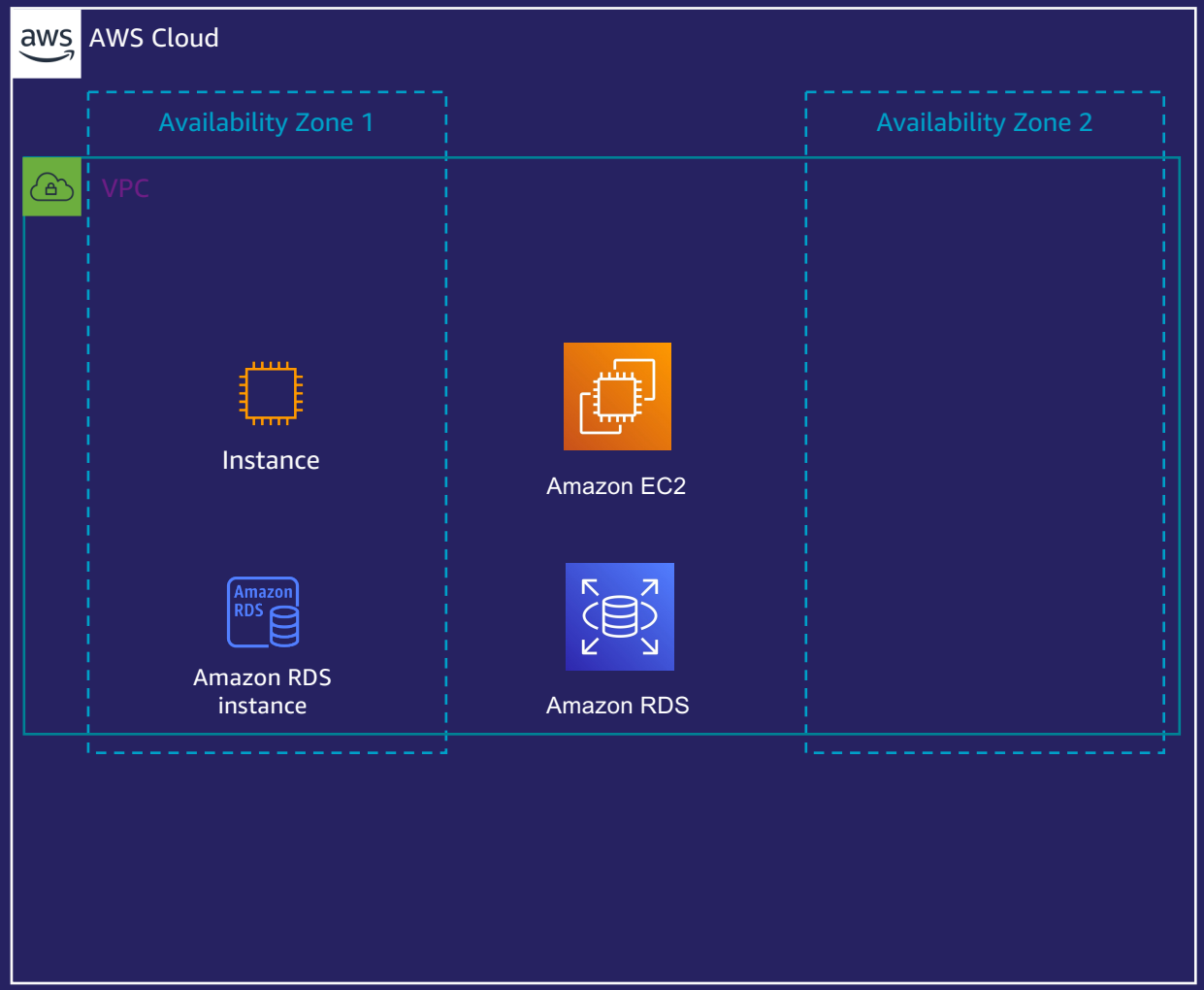
Each AZ includes one or more discrete data centers



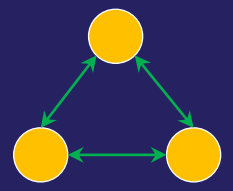
Data centers, each with redundant power, networking, and connectivity, housed in separate facilities.

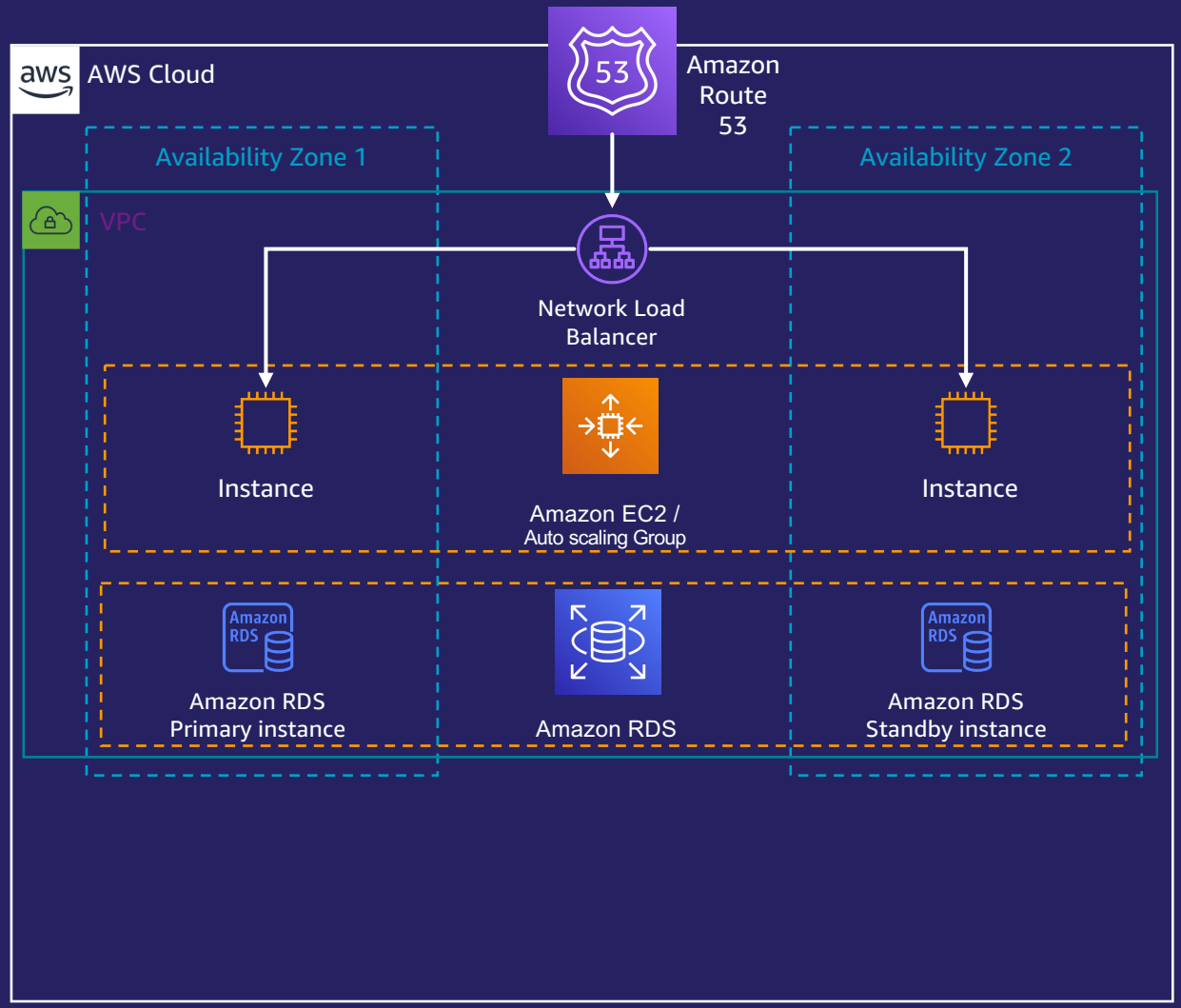
Resiliency in the cloud - High Availability

Multi-zonal high availability

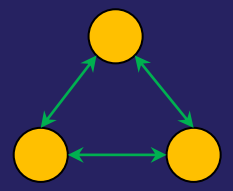


Multi-zonal high availability



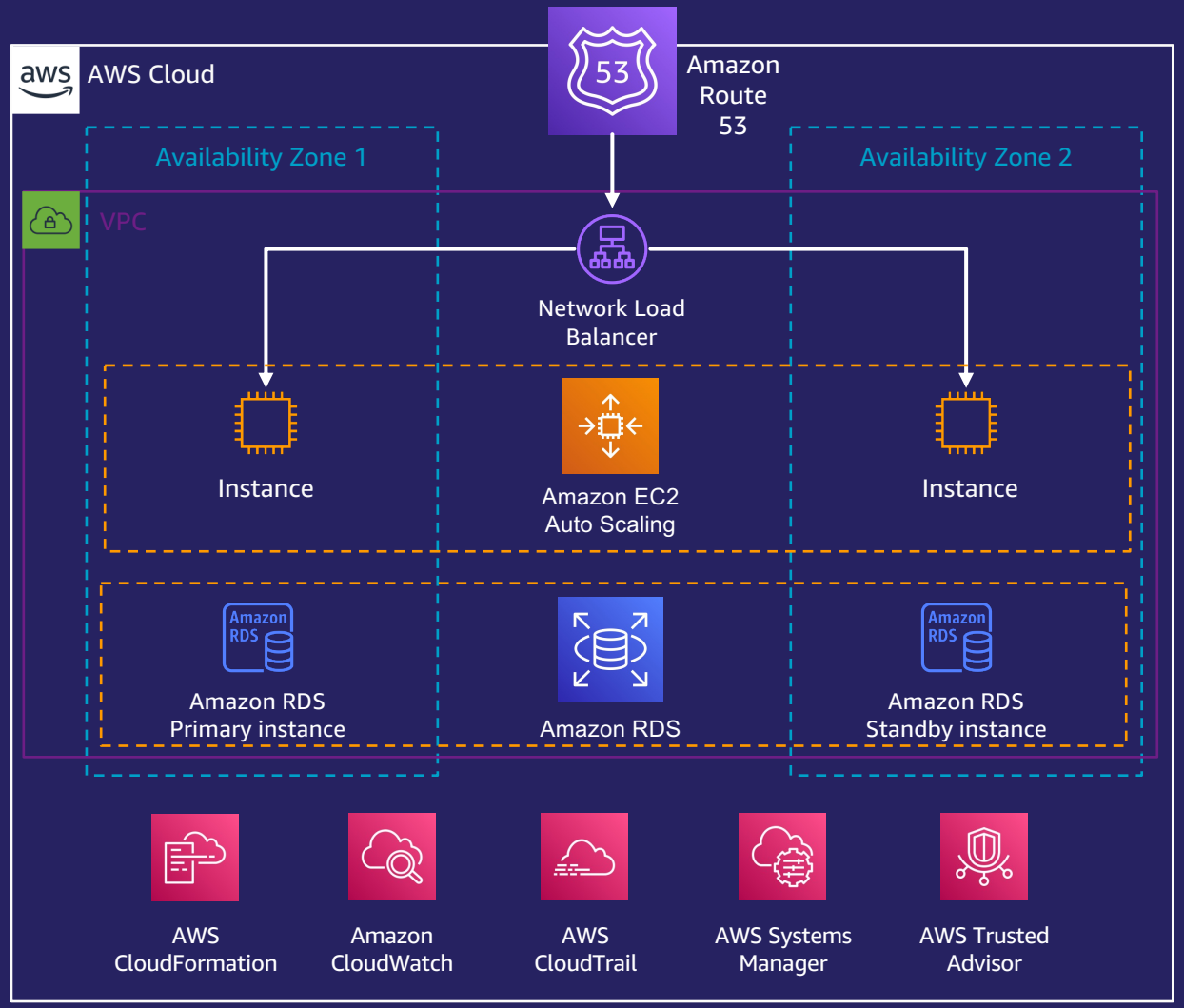


Multi-zonal high availability



MITIGATED

- Load Induced
- Component / Host failure
- Control plane / network interruptions
- Entire Rack Failure
- Datacentre interruptions



NOT MITIGATED

- Operator error / bad deployment
- Regional Failure / Natural Disaster
- All of Internet Failure
- All of provider disruption

Resiliency in the cloud - Disaster Recovery

Strategies for disaster recovery

Backup & Restore

RPO/RTO: Hours

- Lower priority use cases
- Leverage existing backup infrastructure
- Cost: $

Pilot light

RPO/RTO: 10s of Minutes

- Meeting lower RTO & RPO requirements
- Minimal Infrastructure at target site
- Scale AWS resources in response to a DR event
- Cost: $$

Warm standby in AWS

RPO/RTO: Minutes

- Solutions that require RTO & RPO in minutes
- Business critical services
- Cost: $$$

Hot standby (active/passive)

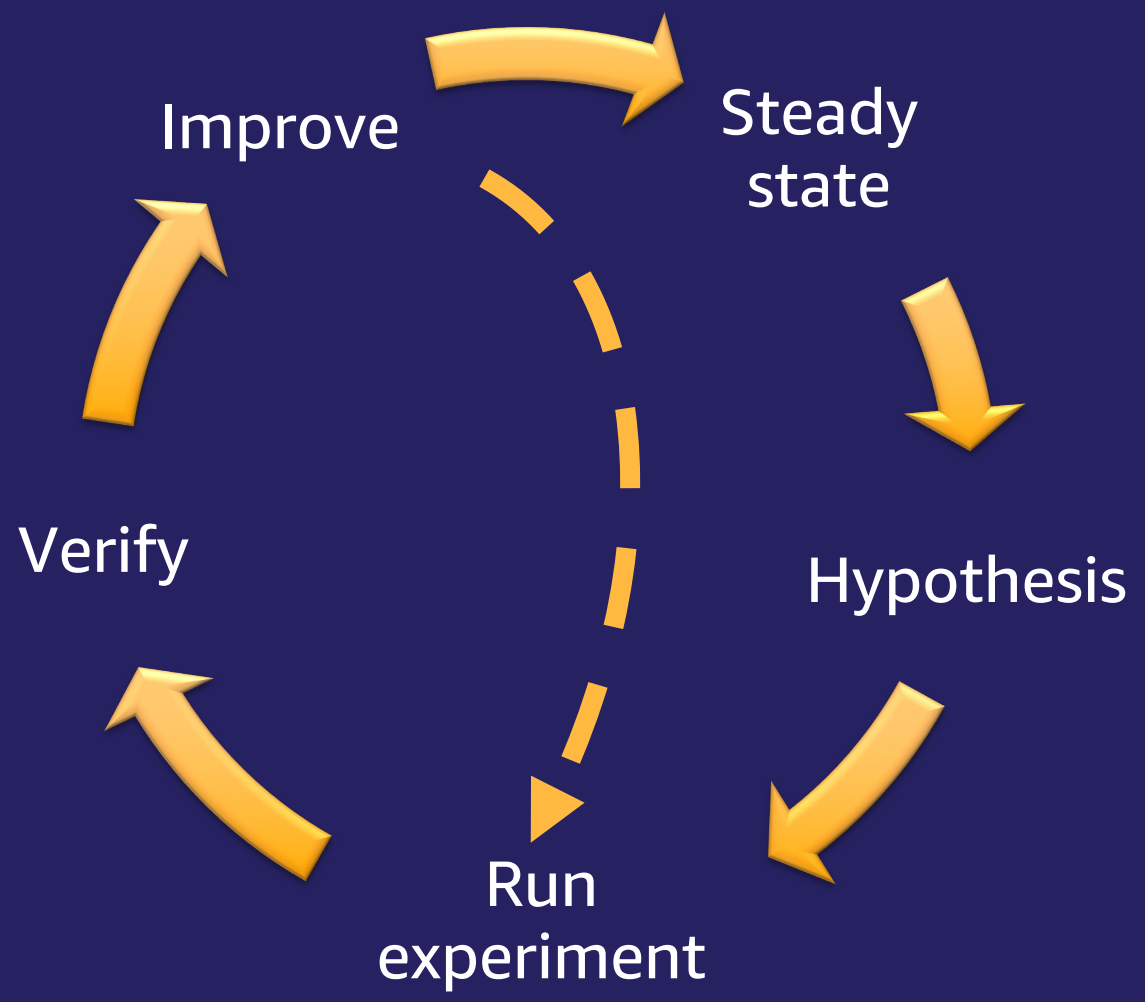
RPO/RTO: Near Real-time

- Failover of your environment in AWS
- Cost: $$$$

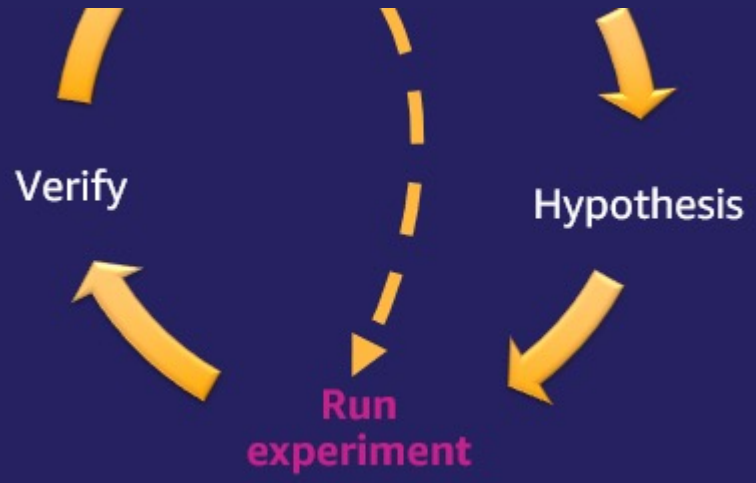
Continuous Improvement - finding the unknowns

Chaos engineering

A scientific method



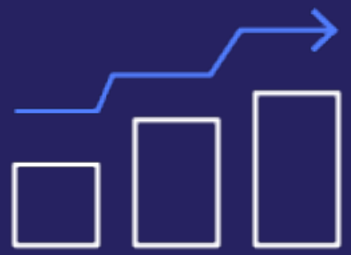
Chaos experiment



Inject events that simulate

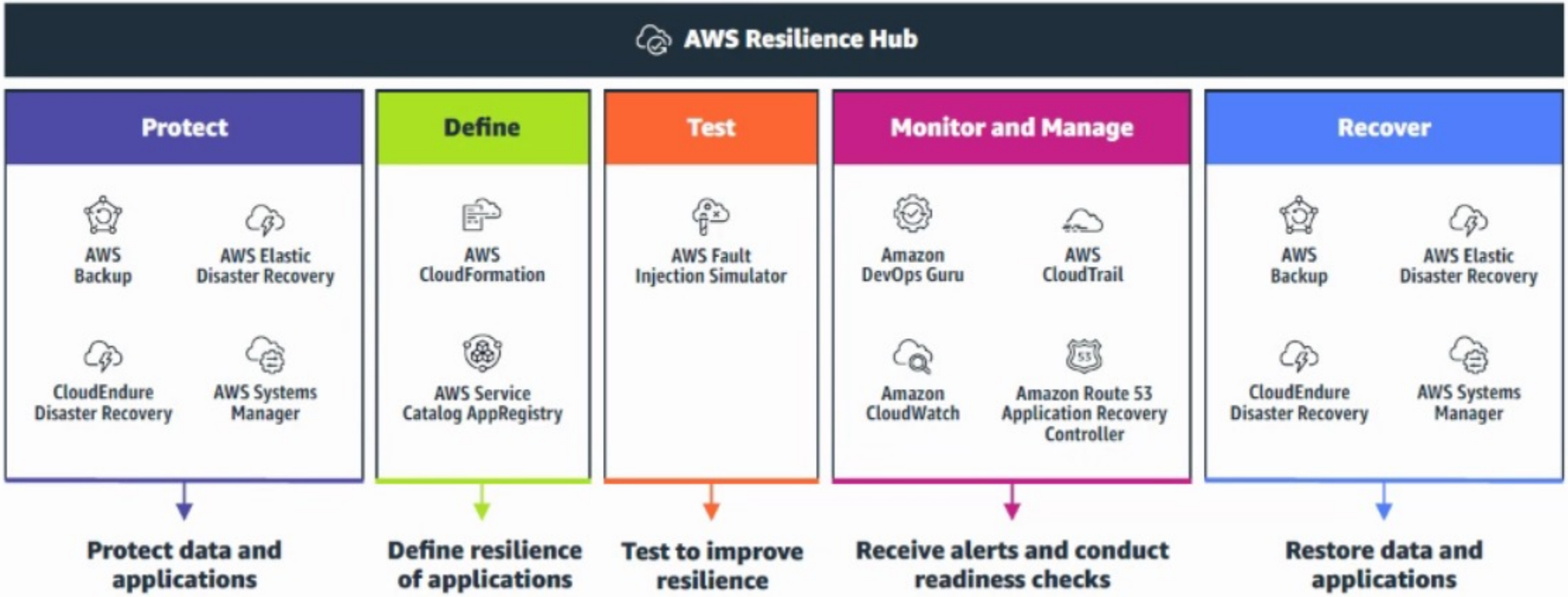
- Hardware failures, such as servers dying
- Software failures, such as malformed responses
- Nonfailure events, such as spikes in traffic or scaling events

Any event capable of disrupting steady state



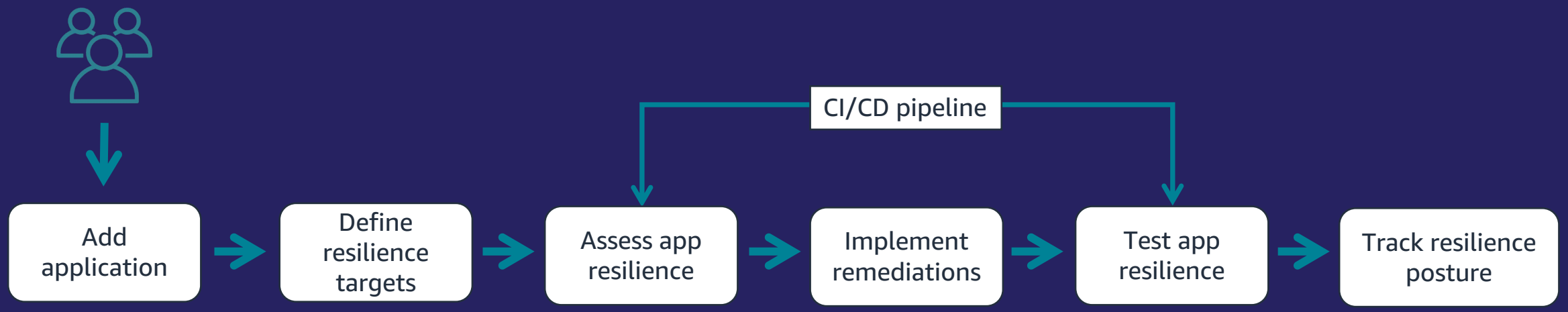
AWS Services for Resilience

How AWS helps you design resilient workloads

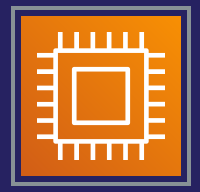


AWS Resilience Hub

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



AWS Resilience Hub | Supported Resources*



Compute

Amazon EC2,
AWS Lambda,
Amazon ECS,
AWS AutoScaling,
Amazon API Gateway

Networking

NAT Gateway,
Amazon Route 53,
Elastic Load Balancing

Database

Amazon RDS,
Aurora,
DynamoDB,
DocumentDB

Storage

Amazon EBS,
Amazon S3,
Amazon EFS,
AWS Backup
AWS Elastic Disaster Recovery

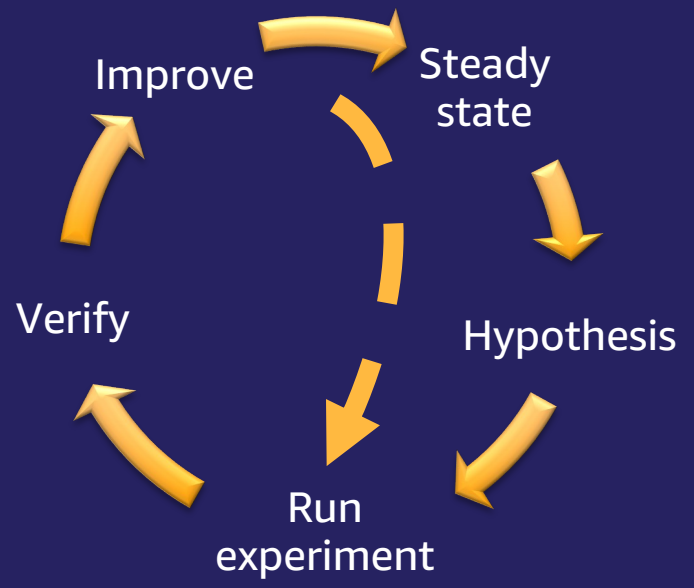
Queues

Amazon SQS

* Latest : https://docs.aws.amazon.com/resilience-hub/latest/userguide/supported-resources.html

AWS Fault Injection Simulator

Fully managed chaos engineering service on AWS



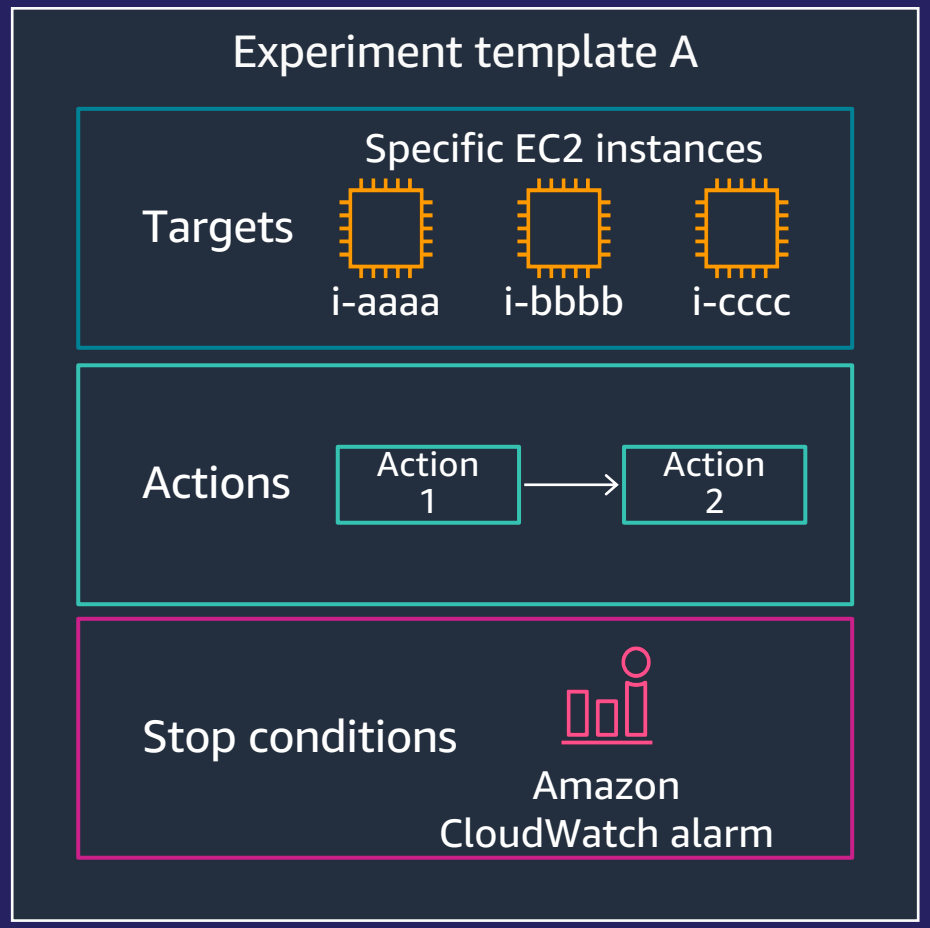
Improve application performance and resiliency

Safely run chaos experiments with fine-grained controls

Test complex, real-world failure scenarios

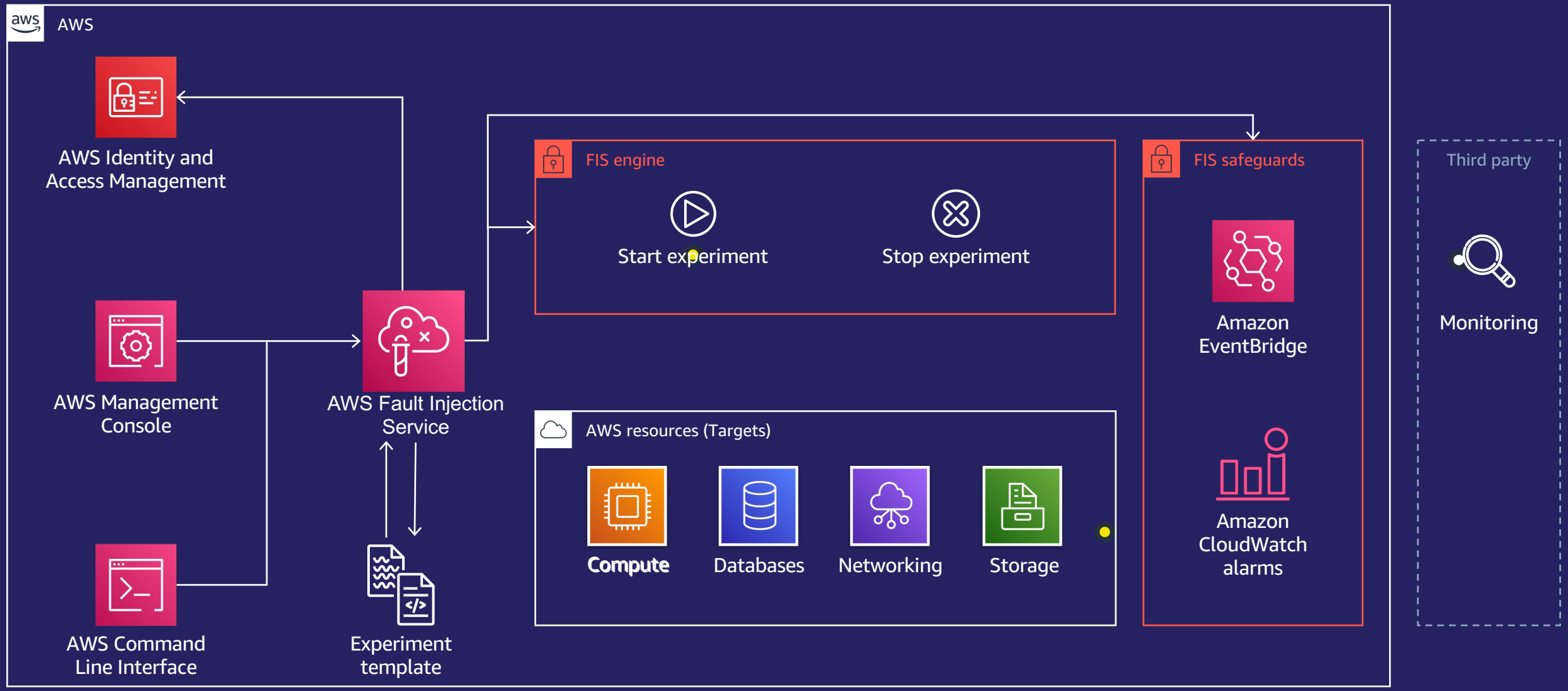
AWS Fault Injection Simulator (AWS FIS)

AWS Fault Injection Simulator



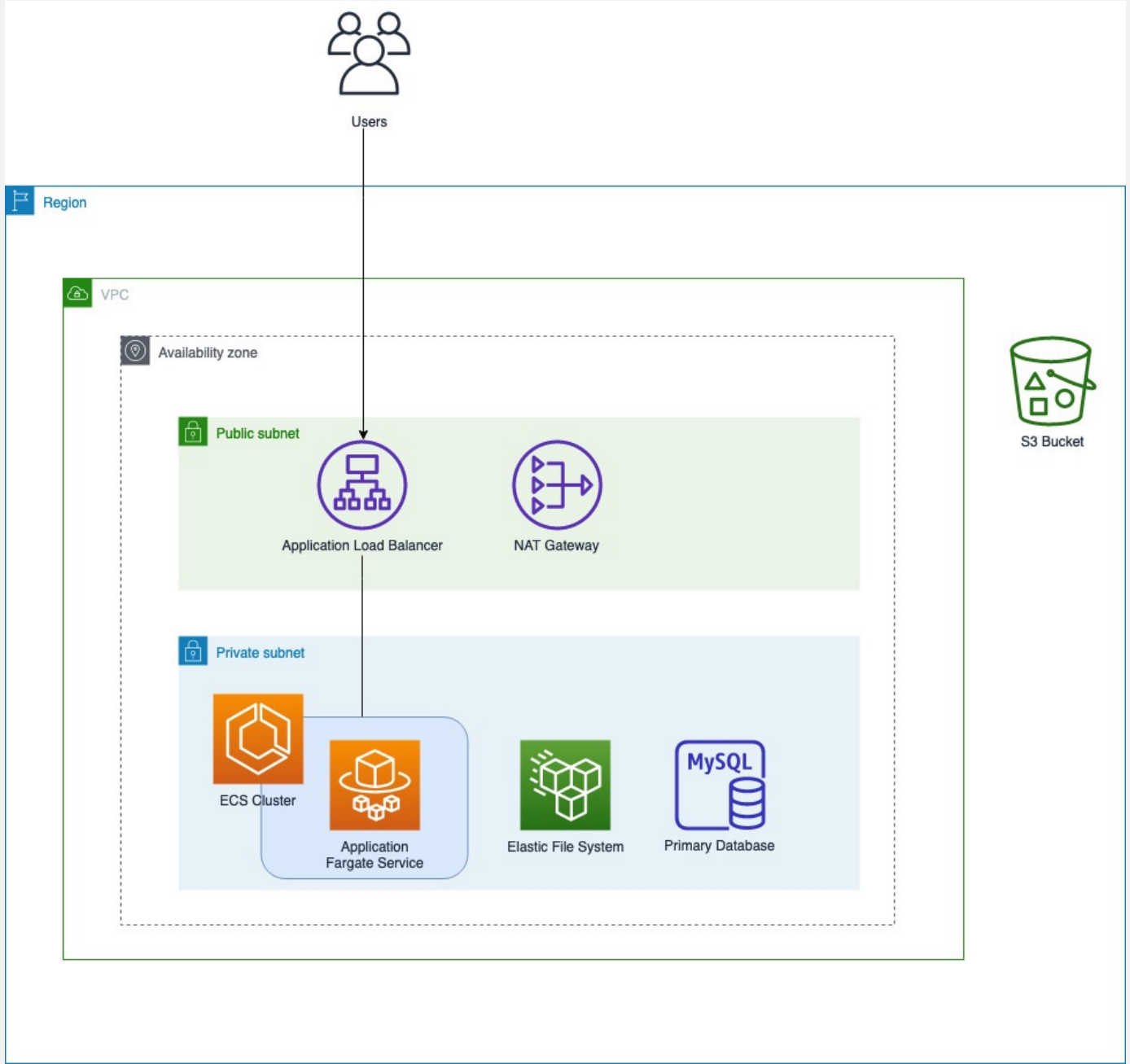
- Server error (EC2)
- Stop, reboot, and terminate instance(s) (EC2)
- API throttling
- Increased memory or CPU load (EC2)
- Kill process (EC2)
- Latency injection (EC2)
- Container instance termination (ECS)
- Increase memory or CPU consumption per task (ECS)
- Terminate nodes (EKS)
- Database stop, reboot, and failover (RDS)
- And more to come soon

AWS Fault Injection Service – Reference Flow



Demo
Resilience Hub & FIS

Sample Application Architecture



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EC2 RDS DynamoDB IAM VPC Lambda

Management & Governance

AWS Resilience Hub

Prepare and protect your applications from disruption

AWS Resilience Hub offers a single place to define, validate, and track the resiliency of applications on AWS. Integrate AWS Resilience Hub into your software development lifecycle.

Get started

Get started with AWS Resilience Hub by describing your existing AWS application and running a report to assess resiliency.

Add application

Pricing (US)

6-month free trial: You can use AWS Resilience Hub with up to 3 applications free of charge during the trial period

Learn more

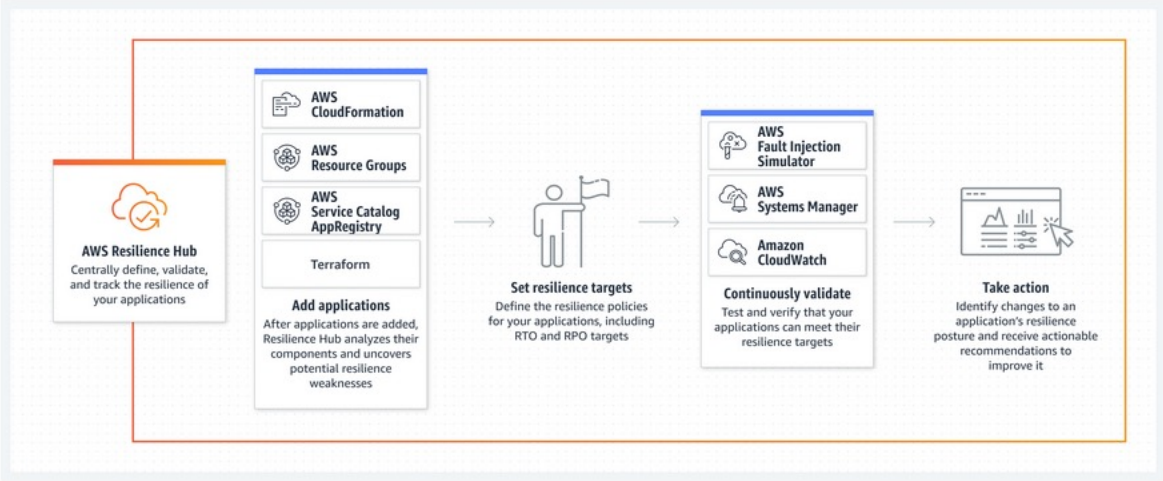
Learn about AWS Resilience Hub

What is AWS Resilience Hub?

Getting started with AWS Resilience Hub

More resources

How it works



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EC2 | RDS | DynamoDB | IAM | VPC | Lambda

AWS Resilience Hub > Applications > Add application

Step 1
Discover application structure

Step 2
Identify resources

Step 3
Select policy

Step 4
Review and publish

Discover application structure Info

Application structure Info

Discover the resources in your application. This creates a reference of your application in AWS Resilience Hub.

- (●) **CloudFormation stacks** — Select your CloudFormation stack to discover resources.
- ( ) **Resource groups** — Select from a list of resource groups.
- ( ) **AppRegistry** — Select from a list of applications created in AppRegistry.
- ( ) **Terraform state files** — Select the S3 bucket that contains your Terraform state file.
- ( ) **Existing application** — Select an existing AWS Resilience Hub application to start.

Select stacks:

You can add up to 20 more CloudFormation stacks.

Choose stacks

Add stack outside of AWS Region

Specify CloudFormation ARN only if your CloudFormation stack is in a different account, different Region, or both.

Please provide ARN

Add stack ARN

Name and description

Application name

Enter an application name

Up to 60 alphanumeric characters, or hyphens, without spaces. The first character must be a letter or a number.

gakkan@amazon.co.uk - 453093286655 / FullAdmin (Not Production Account)

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EC2 | RDS | DynamoDB | IAM | VPC | Lambda

Step 3
Select policy

Step 4
Review and publish

- **CloudFormation stacks** — Select your CloudFormation stack to discover resources.
- **Resource groups** — Select from a list of resource groups.
- **AppRegistry** — Select from a list of applications created in AppRegistry.
- **Terraform state files** — Select the S3 bucket that contains your Terraform state file.
- **Existing application** — Select an existing AWS Resilience Hub application to start.

Select stacks:

You can add up to 19 more CloudFormation stacks.

Choose stacks

DemoApplication
arn:aws:cloudformation:us-east-1:453093286655:stack/DemoApplication/ac265540-39c4-11ed-a4b5-12a61911d817

Add stack outside of AWS Region

Specify CloudFormation ARN only if your CloudFormation stack is in a different account, different Region, or both.

Please provide ARN

Add stack ARN

Name and description

Application name

DemoApplication

Up to 60 alphanumeric characters, or hyphens, without spaces. The first character must be a letter or a number.

Description - *optional*

Enter a description

Application name

DemoApplication

Up to 60 alphanumeric characters, or hyphens, without spaces. The first character must be a letter or a number.

Description - *optional*

Demo Application

The description can have up to 500 characters.

Scheduled assessment - *New* Info

With scheduled assessments, we assess your application daily.

Your application's assessment is scheduled to run daily

Active

Daily assessment schedule is active

I acknowledge that I must enable the required IAM roles and permissions to activate the daily assessment.
Learn More

Tags - *optional*

Assign a tag or label to an AWS resource. Use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add 50 more tag(s).

Cancel Next

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EC2 RDS DynamoDB IAM VPC Lambda

Successfully imported the following cloudFormation stacks: DemoApplication.

Successfully resolved resources

AWS Resilience Hub > Applications > Add application

Step 1
Discover application structure

Step 2
Identify resources

Step 3
Select policy

Step 4
Review and publish

Identify resources Info

Resources (14) Info

AWS Resilience Hub will assess the listed resources, unless you choose to exclude them.

Include resource | Exclude resource

Find resources

1

Any resource type

Logical ID	Resource type	Component name	Physical ID	Status
DrupalNewDB	AWS::RDS::DBIns...	databaseappcompo...	demoapplicatio...	Include
EFSFileSystem	AWS::EFS::FileSy...	storageappcompon...	fs-0a4bec0e7ba...	Include
NatGateway1	AWS::EC2::NatG...	networkingappcom...	nat-06ac77d281...	Include
loadbalancer	AWS::ElasticLoa...	networkingappcom...	arn:aws:elasticlo...	Include
loadbalancerLog...	AWS::S3::Bucket	storageappcompon...	drupalonefs-loa...	Include
service	AWS::ECS::Service	computeappcompo...	arn:aws:ecs:us-e...	Include
AutoScalingTarget	AWS::Applicatio...	-	service/drupalo...	Not sup
AccessPointMod...	AWS::EFS::Acces...	-	fsap-05de321fc...	Not sup
AccessPointProfi...	AWS::EFS::Acces...	-	fsap-0c328df37...	Not sup
AccessPointSites	AWS::EFS::Acces...	-	fsap-0057eb924...	Not sup

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Successfully imported the following cloudFormation stacks: DemoApplication.

Successfully resolved resources

AWS Resilience Hub > Applications > Add application

Step 1
Discover application structure

Step 2
Identify resources

Step 3
Select policy

Step 4
Review and publish

Select policy Info

You must select a resiliency policy to publish your application.

Resiliency policies (1/1) Info

Clear Selection | Create resiliency policy

Find policies

1

Policy name	Tier	RTO
MissionCritical	Mission critical	5m

Cancel | Previous | Next

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

AWS Resilience Hub > Policies

Resiliency policies (0) Info

Actions | Create resiliency policy

Find policies

1

Policy name	Tier	RTO	RPO	ARN	Description

No resiliency policies

No resiliency policies to display

Create resiliency policy

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AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

AWS Resilience Hub > Policies > Create resiliency policy

Create resiliency policy

Choose a creation method

- ○ Create a policy
  Create a policy based on your business needs.
- ◉ Select a policy based on a suggested policy
  Start with a suggested policy.

Basic information Info

Policy name

MissionCritical

Up to 60 alphanumeric characters, or hyphens, without spaces. The first character must be a letter or a number.

Description - *optional*

Mission Critical Application Policy

The description can have up to 500 characters.

Suggested resiliency policies Info

Select a suggested resiliency policy. You can edit the policy details later.

- ○ Non Critical Application
  Tier
  Non critical
  ▶ View RTO and RPO by disruption type
- ○ Important Application
  Tier
  Important
  ▶ View RTO and RPO by disruption type

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
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What's New

Critical Application
Tier
Critical
▶ View RTO and RPO by disruption type

Global Critical Application
Tier
Critical
▶ View RTO and RPO by disruption type

Mission Critical Application
Tier
Mission critical
▼ View RTO and RPO by disruption type

Customer Application RTO and RPO

Info

Type	RTO	RPO
Application	1h	15m

Cloud Infrastructure RTO and RPO

Info

Type	RTO	RPO
Infrastructure	5m	5m
Availability Zone	5m	5m
Region	-	-

Global Mission Critical Application
Tier
Mission critical
▶ View RTO and RPO by disruption type

Foundational Core Service
Tier
Foundational IT core services

MissionCritical

Edit Delete

Summary Tags

Basic information

Name
MissionCritical

Date created
September 21, 2022 at 4:57 PM

Description
Mission Critical Application Policy

Tier
Mission critical

ARN
arn:aws:resiliencehub:us-east-1:453093286655:resiliency-policy/7aebfcdf-5b82-4821-a6ad-a3813042d6a7

Customer Application RTO and RPO Info

Type	RTO	RPO
Application	1h	15m

Cloud Infrastructure RTO and RPO Info

Type	RTO	RPO
Infrastructure	5m	5m
Availability Zone	5m	5m
Region	-	-

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EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Successfully imported the following cloudFormation stacks: DemoApplication.

Successfully resolved resources

AWS Resilience Hub > Applications > Add application

Step 1
Discover application structure

Step 2
Identify resources

Step 3
Select policy

Step 4
Review and publish

Select policy Info

You must select a resiliency policy to publish your application.

Resiliency policies (1/1) Info

Clear Selection | Create resiliency policy

Find policies

1

	Policy name	Tier	RTO
◉	MissionCritical	Mission critical	5m

Cancel | Previous | Next

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EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Resiliency policy MissionCritical was successfully attached to DemoApplication.

AWS Resilience Hub > Applications > Add application

Step 1
Discover application structure

Step 2
Identify resources

Step 3
Select policy

Step 4
Review and publish

Review and publish

Step 1: Discover application structure

Edit

Application structure

Discovery method	CloudFormation stacks
CloudFormation stack	DemoApplication

Name and description

Name	Description
DemoApplication	DemoApplication

Scheduled assessment - *New*

Your application's assessment is scheduled to run daily

Daily assessment schedule is active

Tags

Assign a tag or label to an AWS resource. Use tags to search and filter your resources or track your AWS costs.

Key	Value

AccessPointThe...	AWS::EFS::Acces...	-	fsap-0f0b3fc03f...	Not supported
DB1KMSKey	AWS::KMS::Key	-	0920dfd2-5907...	Not supported
loggroupKmskey	AWS::KMS::Key	-	b3fb0953-95f5-...	Not supported
DB1Secret	AWS::SecretsMa...	-	arn:aws:secrets...	Not supported

Step 3: Select policy

Edit

Resiliency policy

Policy name
MissionCritical

Description
Mission Critical Application Policy

Tier
Mission critical

Customer Application RTO and RPO

Info

Type	RTO	RPO
Application	1h	15m

Cloud Infrastructure RTO and RPO

Info

Type	RTO	RPO
Infrastructure	5m	5m
Availability Zone	5m	5m
Region	-	-

Cancel Previous Publish

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
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- Policies

What's New

Application DemoApplication was successfully published.

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Not assessed Info

Actions

Workflow

1. Publish application

Publish your application and its resources

Republish

2. Assess resiliency

Run an assessment to receive recommendations to improve resiliency

Assess resiliency

3. Set up recommendations

Set up recommended alarms, SOPs, and FIS experiments

Set up recommendations

4. Run experiments

Run experiments on a regular basis to validate resiliency posture

Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

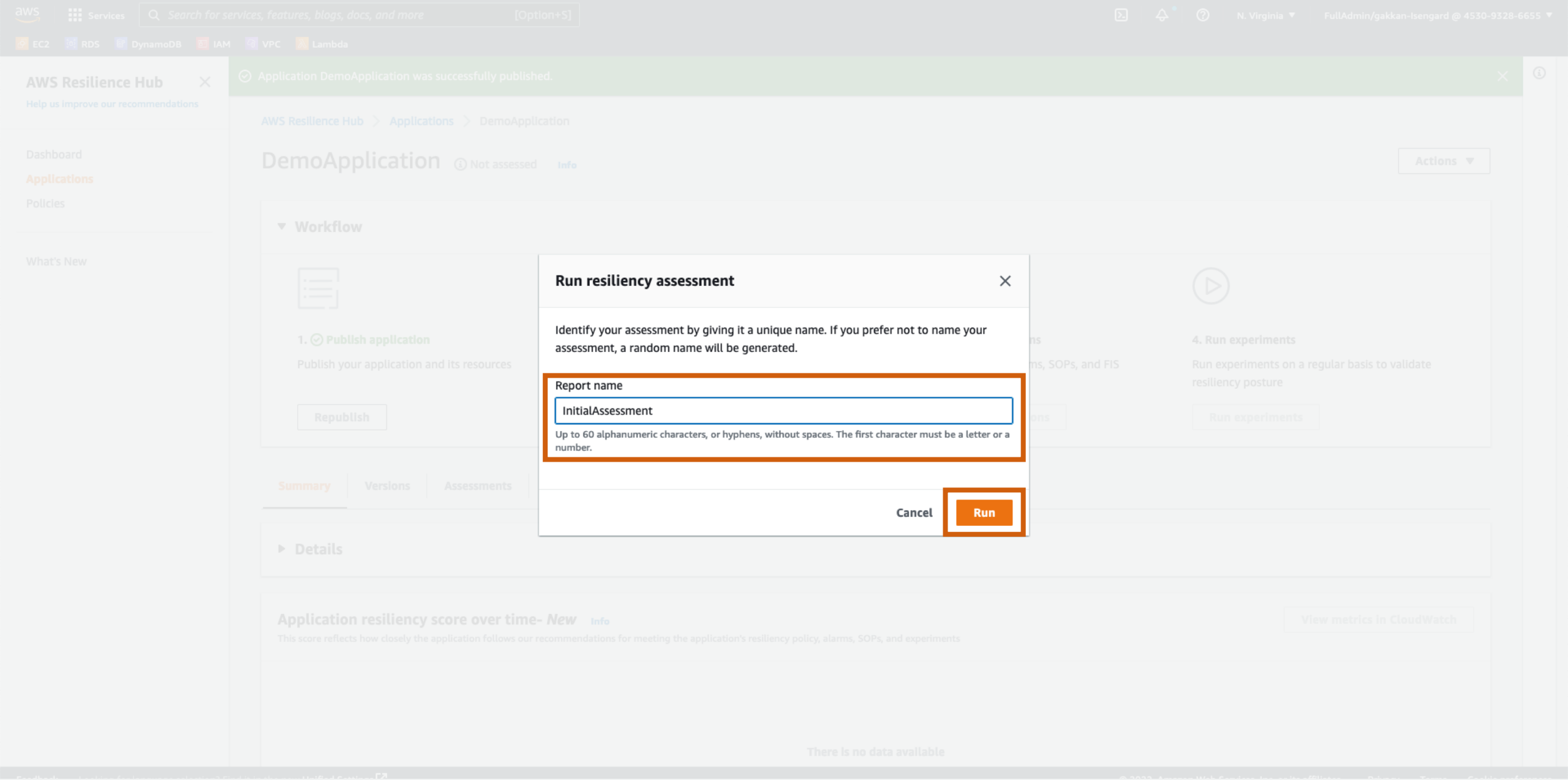
Details

Application resiliency score over time- *New* Info

This score reflects how closely the application follows our recommendations for meeting the application's resiliency policy, alarms, SOPs, and experiments

View metrics in CloudWatch

There is no data available



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EC2 | RDS | DynamoDB | IAM | VPC | Lambda

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Application DemoApplication was successfully published.

Creating assessment report InitialAssessment
Report generation can take a few minutes to complete.

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Not assessed Info

Actions

Workflow

1. Publish application
Publish your application and its resources
Republish

2. Assess resiliency
Run an assessment to receive recommendations to improve resiliency
Assess resiliency

3. Set up recommendations
Set up recommended alarms, SOPs, and FIS experiments
Set up recommendations

4. Run experiments
Run experiments on a regular basis to validate resiliency posture
Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Resiliency assessments (1) Info

Delete | Run new resiliency assessment

Find assessments

1

Name	Status	Compliance status	Invoker	Start time	End time	ARN
InitialAssessment	Pending		User	September 21, 2022 at 4:59 PM	-	arn:aws:

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Assessment report has been generated. View

Assessment report has been generated. View

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Policy breached Info

Actions

Workflow

1. Publish application
Publish your application and its resources
Republish

2. Assess resiliency
Run an assessment to receive recommendations to improve resiliency
Reassess

3. Set up recommendations
Set up recommended alarms, SOPs, and FIS experiments
Set up recommendations

4. Run experiments
Run experiments on a regular basis to validate resiliency posture
Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Resiliency assessments (1) Info

Delete | Run new resiliency assessment

Find assessments

1

Name	Status	Compliance status	Invoker	Start time	End time	ARN
InitialAssessment	Success	Policy breached	User	September 21, 2022 at 4:59 PM	September 21, 2022 at 4:59 PM	arn:aws:

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

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- Applications
- Policies

What's New

InitialAssessment Policy breached

Overview

Application assessed
DemoApplication

Created on
September 21, 2022 at 4:59 PM

Resiliency policy
MissionCritical

Assessment ARN
arn:aws:resiliencehub:us-east-1:453093286655:app-assessment/30d2c44b-7e53-410c-9209-4c8b0f1eca10

Results | Resiliency recommendations | Operational recommendations | Tags

RTO

Resiliency recommendations

Disruption type	Targeted	Estimated
Application	1h	unrecoverable
Infrastructure	5m	unrecoverable
Availability Zone	5m	unrecoverable
Region	-	-

RPO

Resiliency recommendations

Disruption type	Targeted	Estimated
Application	15m	unrecoverable
Infrastructure	5m	unrecoverable
Availability Zone	5m	unrecoverable
Region	-	-

Customer Application RTO and RPO Info

Application 8

Cloud Infrastructure RTO and RPO Info

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EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

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- Applications
- Policies

What's New

Results | Resiliency recommendations | Operational recommendations | Tags

Components (6)

Info

Find components

1

computeappcomponent-ozz

AWS::ECS::Service

Policy compliance

Current: Breached Expected: Breached

databaseappcomponent-ibm

AWS::RDS::DBInstance

Policy compliance

Current: Breached Expected: Meets

networkingappcomponent-csz

AWS::ElasticLoadBalancingV2::LoadBalancer

Policy compliance

Current: Breached Expected: Breached

computeappcomponent-ozz Info

Optimize for Availability Zone (AZ) RTO/RPO.

These changes will help you achieve the lowest possible AZ RTO and RPO during an AZ disruption.

Description

Stateful ECS service with launch type Fargate and EFS storage deployed in multiple AZs. AWS Backup is used to backup EFS and copy snapshots in-region.

Estimated cost $0.00 per month

Architecture type BackupAndRestore

Changes

- Add backups

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	30m	1h
Cloud infrastructure		
Infrastructure	2m	0s
Availability Zone	2m	0s

Best Attainable

Based on your current application you might not meet your policy. These changes will get you as close as possible.

Description

Stateful ECS service with launch type Fargate and EFS storage deployed in multiple AZs. AWS Backup is used to backup EFS and copy snapshots in-region.

Estimated cost $0.00 per month

Architecture type BackupAndRestore

Changes

- Add backups

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	30m	1h
Cloud infrastructure		
Infrastructure	2m	0s
Availability Zone	2m	0s

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Results | Resiliency recommendations | Operational recommendations | Tags

Components (6)

Info

Find components

1

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Policy compliance

Current: Breached Expected: Breached

databaseappcomponent-ibm

AWS::RDS::DBInstance

Policy compliance

Current: Breached Expected: Meets

networkingappcomponent-csz

AWS::ElasticLoadBalancingV2::LoadBalancer

Policy compliance

Current: Breached Expected: Breached

databaseappcomponent-ibm Info

Optimize for Availability Zone (AZ) RTO/RPO.

These changes will help you achieve the lowest possible AZ RTO and RPO during an AZ disruption.

Description

Aurora database cluster with one read replica, with backtracking window of 24 hours.

Estimated cost $98.72 per month

Architecture type WarmStandby

Changes

- Add read replica in the same region
- Change to Aurora
- Enable cluster backtracking
- Enable instance backup with retention period 7

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	15m	5m
Cloud infrastructure		
Infrastructure	2m	0s
Availability Zone	2m	0s

Optimize for cost

Optimize your application to reach the lowest cost that will still meet your policy.

Description

Single MAZ (not Aurora) instance.

Estimated cost $52.08 per month

Architecture type WarmStandby

Changes

- Enable instance MultiAZ
- Enable instance backup with retention period 7

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	30m	5m
Cloud infrastructure		
Infrastructure	2m	0s
Availability Zone	2m	0s

Optimize for minimal changes

Reach your policy limit while keeping implementation changes minimal.

Description

Single MAZ (not Aurora) instance.

Estimated cost $52.08 per month

Architecture type WarmStandby

Changes

- Enable instance MultiAZ
- Enable instance backup with retention period 7

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	30m	5m
Cloud infrastructure		
Infrastructure	2m	0s
Availability Zone	2m	0s

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

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- Applications
- Policies

What's New

1

computeappcomponent-ozz

AWS::ECS::Service

Policy compliance

Current: Breached Expected: Breached

databaseappcomponent-ibm

AWS::RDS::DBInstance

Policy compliance

Current: Breached Expected: Meets

networkingappcomponent-csz

AWS::ElasticLoadBalancingV2::LoadBalancer

Policy compliance

Current: Breached Expected: Breached

networkingappcomponent-rat

AWS::EC2::NatGateway

Policy compliance

Current: Breached Expected: Meets

as possible.

Description

Elastic Load Balancer that is configured in multiple (at least 3) AZs.

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Add targets to the Elastic Load Balancer's target groups in multiple (at least 2) AZs.

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	20m	0s
Cloud infrastructure		
Infrastructure	7m 30s	0s
Availability Zone	7m 30s	0s

Description

Elastic Load Balancer that is configured in multiple (at least 3) AZs.

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Add targets to the Elastic Load Balancer's target groups in multiple (at least 2) AZs.

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	20m	0s
Cloud infrastructure		
Infrastructure	7m 30s	0s
Availability Zone	7m 30s	0s

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

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databaseappcomponent-ibm

AWS::RDS::DBInstance

Policy compliance

Current: Breached Expected: Meets

networkingappcomponent-csz

AWS::ElasticLoadBalancingV2::LoadBalancer

Policy compliance

Current: Breached Expected: Breached

networkingappcomponent-rat

AWS::EC2::NatGateway

Policy compliance

Current: Breached Expected: Meets

These changes will help you achieve the lowest possible AZ RTO and RPO during an AZ disruption.

Description

Highly available NAT Gateway configuration, deployed into each AZ where corresponding resources are located

Estimated cost $32.94 per month

Architecture type MultiSite

Changes

- Add NAT Gateways in multiple AZs. (i.e. every AZ you have resources in)

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	0s	0s
Cloud infrastructure		
Infrastructure	0s	0s
Availability Zone	0s	0s

meet your policy.

Description

Highly available NAT Gateway configuration, deployed into each AZ where corresponding resources are located

Estimated cost $32.94 per month

Architecture type MultiSite

Changes

- Add NAT Gateways in multiple AZs. (i.e. every AZ you have resources in)

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	0s	0s
Cloud infrastructure		
Infrastructure	0s	0s
Availability Zone	0s	0s

minimal.

Description

Highly available NAT Gateway configuration, deployed into each AZ where corresponding resources are located

Estimated cost $32.94 per month

Architecture type MultiSite

Changes

- Add NAT Gateways in multiple AZs. (i.e. every AZ you have resources in)

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	0s	0s
Cloud infrastructure		
Infrastructure	0s	0s
Availability Zone	0s	0s

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

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- Applications
- Policies

What's New

Results | Resiliency recommendations | Operational recommendations | Tags

Components (6)

Info

Find components

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AWS::RDS::DBInstance

Policy compliance

Current: Breached Expected: Meets

networkingappcomponent-csz

AWS::ElasticLoadBalancingV2::LoadBalancer

Policy compliance

Current: Breached Expected: Breached

storageappcomponent-tyc Info

Optimize for Availability Zone (AZ) RTO/RPO.

These changes will help you achieve the lowest possible AZ RTO and RPO during an AZ disruption.

Description

EFS with backups configured

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Enable backups

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	15m	1h
Cloud infrastructure		
Infrastructure	unrecoverable	unrecoverable
Availability Zone	0s	0s

Best Attainable

Based on your current application you might not meet your policy. These changes will get you as close as possible.

Description

EFS with backups configured

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Enable backups

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	15m	1h
Cloud infrastructure		
Infrastructure	unrecoverable	unrecoverable
Availability Zone	0s	0s

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

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- Dashboard
- Applications
- Policies

What's New

Components (6)

Info

Find components

1

computeappcomponent-ozz

AWS::ECS::Service

Policy compliance

Current: Breached Expected: Breached

databaseappcomponent-ibm

AWS::RDS::DBInstance

Policy compliance

Current: Breached Expected: Meets

networkingappcomponent-csz

AWS::ElasticLoadBalancingV2::LoadBalancer

Policy compliance

Current: Breached Expected: Breached

networkingappcomponent-rat

storageappcomponent-wnt Info

Optimize for Availability Zone (AZ) RTO/RPO.

These changes will help you achieve the lowest possible AZ RTO and RPO during an AZ disruption.

Description

General purpose storage for any type of data, typically used for frequently accessed data with versioning. It is designed to provide 99.999999999% durability of objects over a given year.

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Add versioning for S3 bucket

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	5m	0s
Cloud Infrastructure		
Infrastructure	0s	0s
Availability Zone	0s	0s

Optimize for cost

Optimize your application to reach the lowest cost that will still meet your policy.

Description

General purpose storage for any type of data, typically used for frequently accessed data with versioning. It is designed to provide 99.999999999% durability of objects over a given year.

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Add versioning for S3 bucket

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	5m	0s
Cloud Infrastructure		
Infrastructure	0s	0s
Availability Zone	0s	0s

Optimize for minimal changes

Reach your policy limit while keeping implementation changes minimal.

Description

General purpose storage for any type of data, typically used for frequently accessed data with versioning. It is designed to provide 99.999999999% durability of objects over a given year.

Estimated cost $0.00 per month

Architecture type MultiSite

Changes

- Add versioning for S3 bucket

Estimated RTO and RPO

	RTO	RPO
Customer Application		
Application	5m	0s
Cloud Infrastructure		
Infrastructure	0s	0s
Availability Zone	0s	0s

lience Hub
e our recommendations

AWS Resilience Hub > Applications > DemoApplication > Assessment Reports > InitialAssessment

You must run a new assessment on your application if you made any changes to your resources or stacks, or if you published a draft. Reassess

InitialAssessment Policy breached

Overview

Application assessed
DemoApplication

Created on
September 21, 2022 at 4:59 PM

Resiliency policy
MissionCritical

Assessment ARN
arn:aws:resiliencehub:us-east-1:453093286655:app-assessment/30d2c44b-7e53-410c-9209-4c8b0f1eca10

Results | Resiliency recommendations | Operational recommendations | Tags

Components (6)
Info

Find components

1

computeappcomponent-0zz

storageappcomponent-wnt Info

Optimize for Availability Zone (AZ) RTO/RPO.
These changes will help you achieve the lowest possible AZ RTO and RPO during an AZ disruption.

Description
General purpose storage for any type of data, typically

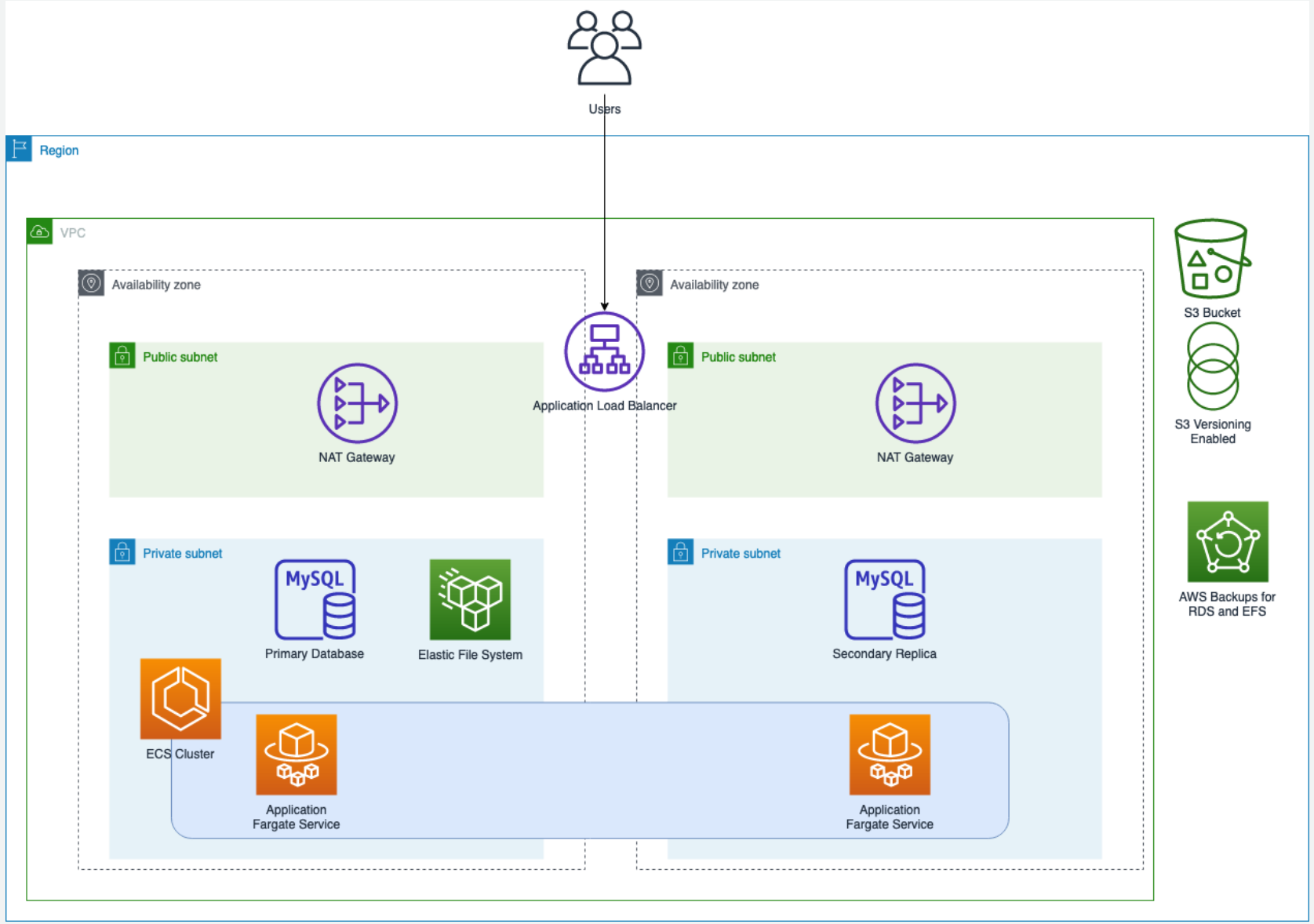
Optimize for cost
Optimize your application to reach the lowest cost that will still meet your policy.

Description
General purpose storage for any type of data, typically

Optimize for minimal changes
Reach your policy limit while keeping implementation changes minimal.

Description
General purpose storage for any type of data, typically

Target Resilience Hub Recommended Architecture



lience Hub
e our recommendations

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Changes detected Info

Actions

Workflow

1. Publish application
Publish your application and its resources
Republish

2. Assess resiliency
Run an assessment to receive recommendations to improve resiliency
Reassess

3. Set up recommendations
Set up recommended alarms, SOPs, and FIS experiments
Set up recommendations

4. Run experiments
Run experiments on a regular basis to validate resiliency posture
Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Resiliency assessments (1) Info

Delete | Run new resiliency assessment

Find assessments

Name	Status	Compliance status	Invoker	Start time	End time	ARN
InitialAssessment	Success	Policy breached	User	September 21, 2022 at 4:59 PM	September 21, 2022 at 4:59 PM	arn:a

Run resiliency assessment

Identify your assessment by giving it a unique name. If you prefer not to name your assessment, a random name will be generated.

Report name

After-ApplyingRecommendations

Up to 60 alphanumeric characters, or hyphens, without spaces. The first character must be a letter or a number.

Cancel | Run

aws | Services | Search for services, features, blogs, docs, and more [Option+S] | N. Virginia | FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 | RDS | DynamoDB | IAM | VPC | Lambda

AWS Resilience Hub

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What's New

Creating assessment report After-ApplyingRecommendations
Report generation can take a few minutes to complete.

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Changes detected Info

Actions

Workflow

1. Publish application
Publish your application and its resources
Republish

2. Assess resiliency
Run an assessment to receive recommendations to improve resiliency
Reassess

3. Set up recommendations
Set up recommended alarms, SOPs, and FIS experiments
Set up recommendations

4. Run experiments
Run experiments on a regular basis to validate resiliency posture
Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Resiliency assessments (2) Info

Delete | Run new resiliency assessment

Find assessments

1

Name	Status	Compliance status	Invoker	Start time	End time	ARN
After-ApplyingRecommendations	Pending		User	September 21, 2022 at 5:17 PM	-	arn:aws:
InitialAssessment	Success	Policy breached	User	September 21, 2022 at 4:59 PM	September 21, 2022 at 4:59 PM	arn:aws:

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia FullAdmin/gakkan-Isengard @ 4530-9328-6655

EC2 RDS DynamoDB IAM VPC Lambda

AWS Resilience Hub

Help us improve our recommendations

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- Applications
- Policies

What's New

Assessment report After-ApplyingRecommendations has been generated. View

AWS Resilience Hub > Applications > DemoApplication

DemoApplication Policy met Info

Actions

Workflow

1. Publish application

Publish your application and its resources

Republish

2. Assess resiliency

Run an assessment to receive recommendations to improve resiliency

Reassess

3. Set up recommendations

Set up recommended alarms, SOPs, and FIS experiments

Set up recommendations

4. Run experiments

Run experiments on a regular basis to validate resiliency posture

Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Resiliency assessments (2) Info

Delete | Run new resiliency assessment

Find assessments

1

Name	Status	Compliance status	Invoker	Start time	End time	ARN
After-ApplyingRecommendations	Success	Policy met	User	September 21, 2022 at 5:25 PM	September 21, 2022 at 5:25 PM	arn:aws:re
InitialAssessment	Success	Policy breached	User	September 21, 2022 at 4:59 PM	September 21, 2022 at 4:59 PM	arn:aws:re

Operational Recommendations

lience Hub
e our recommendations

Assessment report After-ApplyingRecommendations has been generated. View

You must run a new assessment on your application if you made any changes to your resources or stacks, or if you published a draft. Reassess

After-ApplyingRecommendations

Policy met

Overview

Application assessed
DemoApplication

Created on
September 21, 2022 at 5:25 PM

Resiliency policy
MissionCritical

Assessment ARN
arn:aws:resiliencehub:us-east-1:453093286655:app-assessment/bff15848-17d7-41bd-b7d5-a8a408b85a47

Results | Resiliency recommendations | Operational recommendations | Tags

Additional information may be required

The recommendations provided here are based on AWS best practices, but your application may have different resiliency needs.

So you should validate each of your recommendations by testing your application against relevant failure scenarios (customer application error or infrastructure issues, for example).

Note that there's an extra cost for running FIS experiments.

AWS Resilience Hub

Help us improve our recommendations

1. Within one tab (such as Alarms) > in a tab (Alarms, for example), select recommendations you would like to set up.
2. Select Create CloudFormation template and enter a name. AWS Resilience Hub will create a template for you based on the selected recommendations.
3. From the "Templates" tab, you can access your created templates through an S3 URL. Repeat steps 1-2 for SOPs and fault injection experiments, if required.

Operational recommendations

Alarms | Standard operating procedures | Fault injection experiment templates | Templates

Alarms (11) Info

Create CloudFormation template

Find Alarms | Not implemented | 1

Name	Description	State	Configuration
AWSResilienceHub-SyntheticCanaryInRegionA...	A monitor for the entire application, configured to constantly verify that the application API/endpoints ar...	Not implemented	Configuration
AWSResilienceHub-NatGwSuccessfulConnecti...	Alarm by AWS ResilienceHub that is triggered when ConnectionEstablishedCount is less than 50% of Con...	Not implemented	-
AWSResilienceHub-NatGwPacketsDropsAlarm...	A value greater than zero may indicate an ongoing transient issue with the NAT Gateway	Not implemented	-
AWSResilienceHub-NatGwPortAllocationErrors...	Alarm by AWS ResilienceHub that is triggered when too many concurrent connections are open through t...	Not implemented	-
AWSResilienceHub-S35xxErrorsAlarm_2020-0...	Reports when a number of 5xxErrors is high	Not implemented	Configuration
AWSResilienceHub-S34xxErrorsAlarm_2020-0...	Reports when the number of 4xxErrors is high	Not implemented	Configuration
AWSResilienceHub-S3TotalRequestLatencyAla...	Reports when a number of TotalRequestLatency is is high	Not implemented	Configuration
AWSResilienceHub-RDSInstanceOverUtilizedC...	Reports when database used CPU is high	Not implemented	-
AWSResilienceHub-RDSInstanceConnectionSpi...	Reports when database connection count is anomalous	Not implemented	-
AWSResilienceHub-RDSInstanceLowMemoryAl...	Reports when database free memory is low	Not implemented	-
AWSResilienceHub-RDSInstanceLowStorageAl...	Reports when database free storage is low	Not implemented	-

1. Within one tab (such as Alarms) > in a tab (Alarms, for example), select recommendations you would like to set up.
2. Select Create CloudFormation template and enter a name. AWS Resilience Hub will create a template for you based on the selected recommendations.
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Operational recommendations

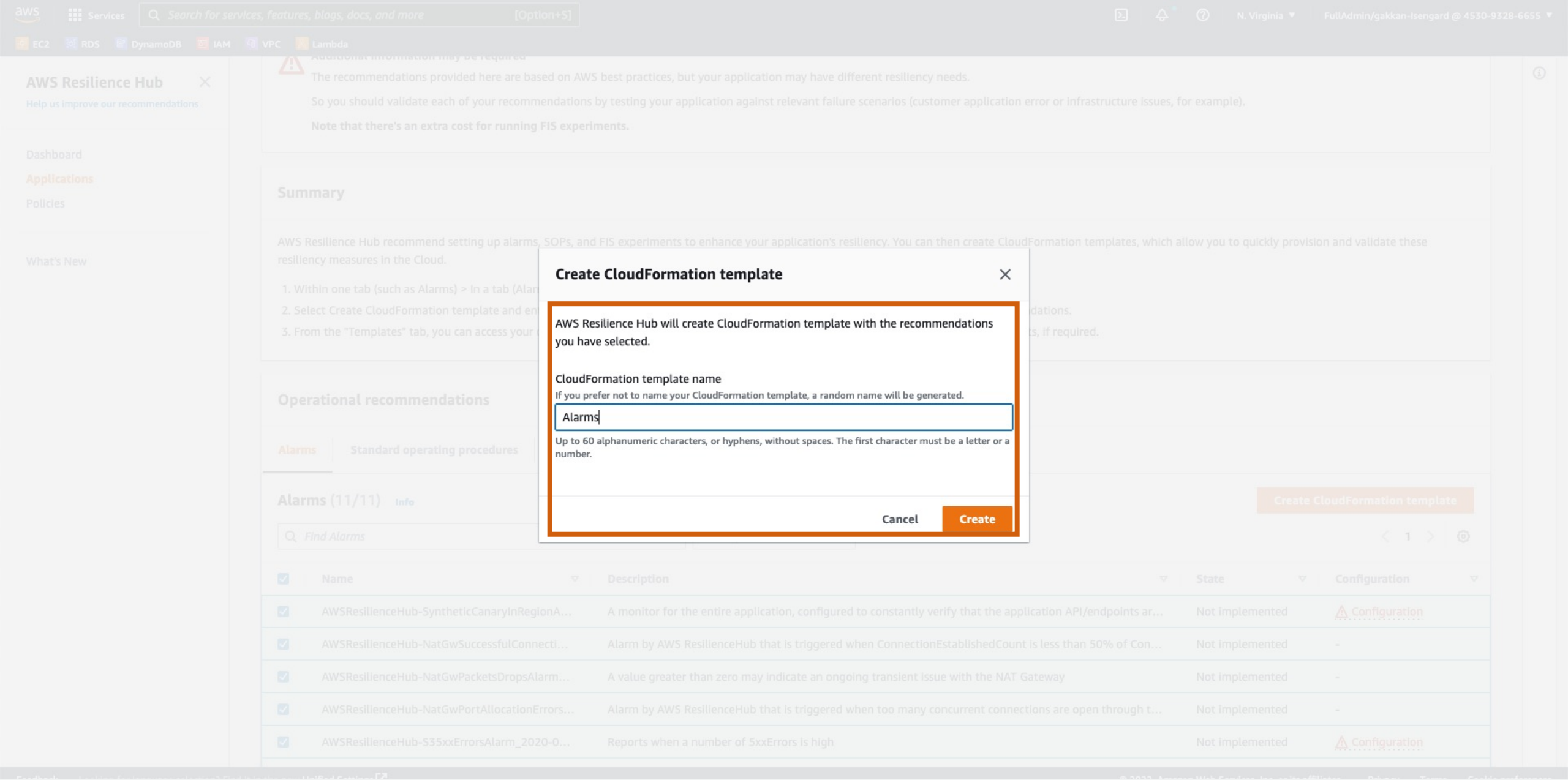
Alarms | Standard operating procedures | Fault injection experiment templates | Templates

Alarms (11/11) Info

Create CloudFormation template

Find Alarms | Not implemented | 1

Name	Description	State	Configuration
AWSResilienceHub-SyntheticCanaryInRegionA...	A monitor for the entire application, configured to constantly verify that the application API/endpoints ar...	Not implemented	Configuration
AWSResilienceHub-NatGwSuccessfulConnecti...	Alarm by AWS ResilienceHub that is triggered when ConnectionEstablishedCount is less than 50% of Con...	Not implemented	-
AWSResilienceHub-NatGwPacketsDropsAlarm...	A value greater than zero may indicate an ongoing transient issue with the NAT Gateway	Not implemented	-
AWSResilienceHub-NatGwPortAllocationErrors...	Alarm by AWS ResilienceHub that is triggered when too many concurrent connections are open through t...	Not implemented	-
AWSResilienceHub-S35xxErrorsAlarm_2020-0...	Reports when a number of 5xxErrors is high	Not implemented	Configuration
AWSResilienceHub-S34xxErrorsAlarm_2020-0...	Reports when the number of 4xxErrors is high	Not implemented	Configuration
AWSResilienceHub-S3TotalRequestLatencyAla...	Reports when a number of TotalRequestLatency is is high	Not implemented	Configuration
AWSResilienceHub-RDSInstanceOverUtilizedC...	Reports when database used CPU is high	Not implemented	-
AWSResilienceHub-RDSInstanceConnectionSpi...	Reports when database connection count is anomalous	Not implemented	-
AWSResilienceHub-RDSInstanceLowMemoryAl...	Reports when database free memory is low	Not implemented	-
AWSResilienceHub-RDSInstanceLowStorageAl...	Reports when database free storage is low	Not implemented	-



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The recommendations provided here are based on AWS best practices, but your application may have different resiliency needs.

So you should validate each of your recommendations by testing your application against relevant failure scenarios (customer application error or infrastructure issues, for example).

Note that there's an extra cost for running FIS experiments.

Summary

AWS Resilience Hub recommend setting up alarms, SOPs, and FIS experiments to enhance your application's resiliency. You can then create CloudFormation templates, which allow you to quickly provision and validate these resiliency measures in the Cloud.

1. Within one tab (such as Alarms) > In a tab (Alarms, for example), select recommendations you would like to set up.
2. Select Create CloudFormation template and enter a name. AWS Resilience Hub will create a template for you based on the selected recommendations.
3. From the "Templates" tab, you can access your created templates through an S3 URL. Repeat steps 1-2 for SOPs and fault injection experiments, if required.

Operational recommendations

Alarms | Standard operating procedures | Fault injection experiment templates | Templates

SOPs (2) Info

Create CloudFormation template

Find SOPs | Not implemented | 1

Name	Description	State	Configuration
AWSResilienceHub-RestoreS3ObjectTo...	Used to restore an S3 object into previous version	Not implemented	-
AWSResilienceHub-RestoreFromRdsBa...	SOP by AWS ResilienceHub to restore an RDS DB from backup	Not implemented	-

Create CloudFormation template

AWS Resilience Hub will create CloudFormation template with the recommendations you have selected.

CloudFormation template name

If you prefer not to name your CloudFormation template, a random name will be generated.

SOPS

Up to 60 alphanumeric characters, or hyphens, without spaces. The first character must be a letter or a number.

Cancel | Create

Additional information may be required

The recommendations provided here are based on AWS best practices, but your application may have different resiliency needs.

So you should validate each of your recommendations by testing your application against relevant failure scenarios (customer application error or infrastructure issues, for example).

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Summary

AWS Resilience Hub recommend setting up alarms, SOPs, and FIS experiments to enhance your application's resiliency. You can then create CloudFormation templates, which allow you to quickly provision and validate these resiliency measures in the Cloud.

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Operational recommendations

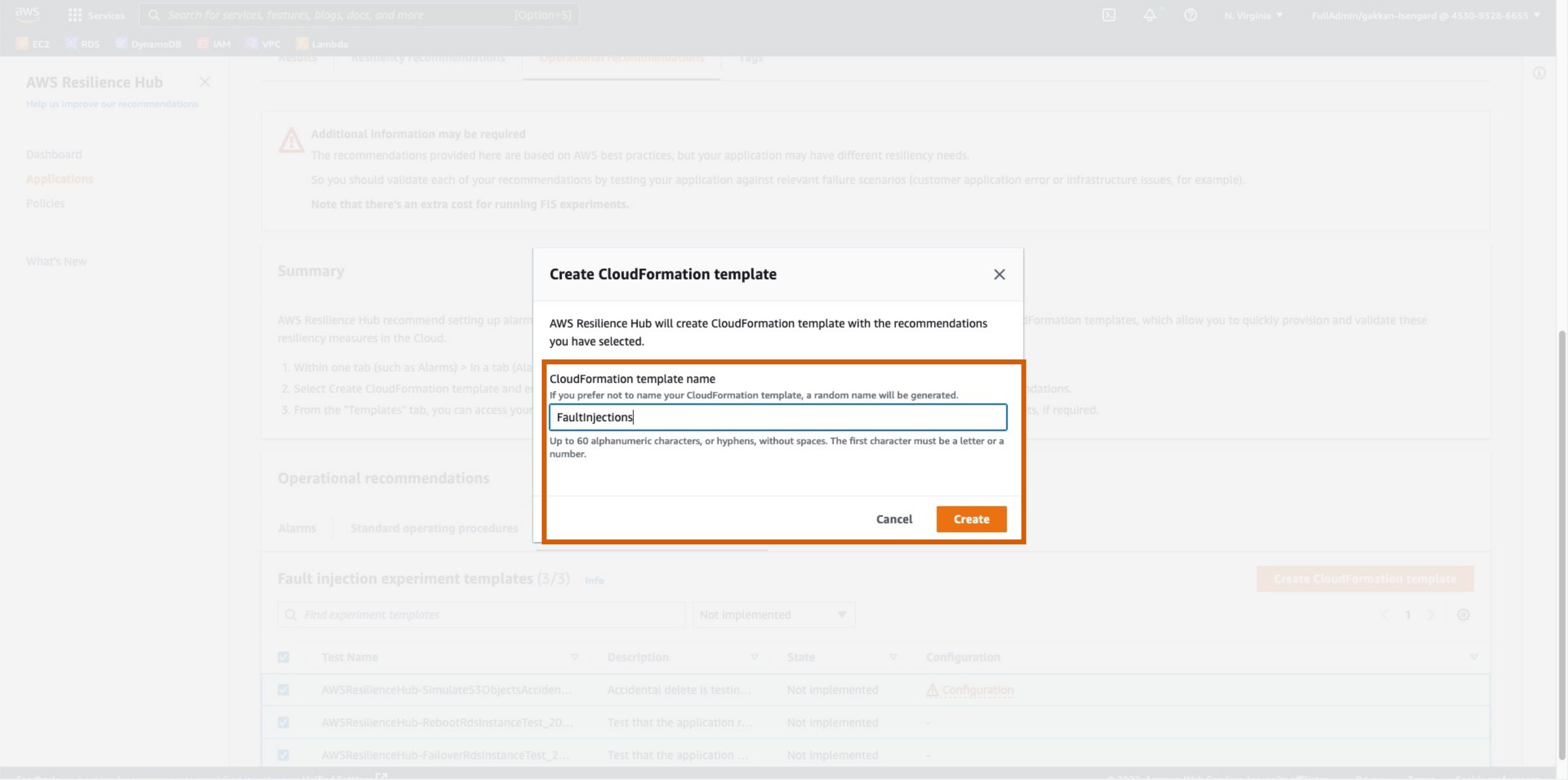
Alarms | Standard operating procedures | Fault injection experiment templates | Templates

Fault injection experiment templates (3) Info

Create CloudFormation template

Find experiment templates | Not implemented | 1

Test Name	Description	State	Configuration
AWSResilienceHub-SimulateS3ObjectsAcciden...	Accidental delete is testin...	Not implemented	Configuration
AWSResilienceHub-RebootRdsInstanceTest_20...	Test that the application r...	Not implemented	-
AWSResilienceHub-FailoverRdsInstanceTest_2...	Test that the application ...	Not implemented	-



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AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

Additional information may be required

The recommendations provided here are based on AWS best practices, but your application may have different resiliency needs.

So you should validate each of your recommendations by testing your application against relevant failure scenarios (customer application error or infrastructure issues, for example).

Note that there's an extra cost for running FIS experiments.

Summary

AWS Resilience Hub recommend setting up alarms, SOPs, and FIS experiments to enhance your application's resiliency. You can then create CloudFormation templates, which allow you to quickly provision and validate these resiliency measures in the Cloud.

1. Within one tab (such as Alarms) > In a tab (Alarms, for example), select recommendations you would like to set up.
2. Select Create CloudFormation template and enter a name. AWS Resilience Hub will create a template for you based on the selected recommendations.
3. From the "Templates" tab, you can access your created templates through an S3 URL. Repeat steps 1-2 for SOPs and fault injection experiments, if required.

Operational recommendations

Alarms | Standard operating procedures | Fault injection experiment templates | Templates

Templates (3)

Find templates

1

Name	Status	Type	Format	ARN
Alarms	Success	Alarm	CfnJson	arn:aws:resiliencehub:us-east-1:453093286655:recommendation-template/597fc463-ab44-4bdd-b...
SOPS	Success	Sop	CfnJson	arn:aws:resiliencehub:us-east-1:453093286655:recommendation-template/2add9705-1d0c-4a19-b...
FaultInjections	Success	Test	CfnJson	arn:aws:resiliencehub:us-east-1:453093286655:recommendation-template/dcc8c78b-0fed-42b6-a5...

DemoApplication/

Copy S3 URI

Objects | Properties

Objects (3)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

Copy S3 URI | Copy URL | Download | Open | Delete | Actions | Create folder | Upload

Find objects by prefix

1

Name	Type	Last modified	Size	Storage class
Alarms/	Folder	-	-	-
FaultInjections/	Folder	-	-	-
SOPS/	Folder	-	-	-

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CloudFormation > Stacks > DemoApplication-FaultInjections

Stacks (4)

Filter by stack name

Active

View nested

1

DemoApplication-FaultInjections
2022-09-21 17:33:18 UTC+0100
CREATE_IN_PROGRESS

DemoApplication-Sops
2022-09-21 17:32:31 UTC+0100
CREATE_COMPLETE

DemoApplication-Alarms
2022-09-21 17:32:09 UTC+0100
CREATE_COMPLETE

DemoApplication
2022-09-21 16:47:18 UTC+0100
UPDATE_COMPLETE

DemoApplication-FaultInjections

Delete | Update | Stack actions | Create stack

Stack info | Events | Resources | Outputs | Parameters | Template | Change sets

Events (1)

Search events

Timestamp	Logical ID	Status	Status reason
2022-09-21 17:33:18 UTC+0100	DemoApplication-FaultInjections	CREATE_IN_PROGRESS	User Initiated

DemoApplication

Policy met Info

Actions

Workflow

1. Publish application
Publish your application and its resources
Republish

2. Assess resiliency
Run an assessment to receive recommendations to improve resiliency
Reassess

3. Set up recommendations
Set up recommended alarms, SOPs, and FIS experiments
Set up again

4. Run experiments
Run experiments on a regular basis to validate resiliency posture
Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Details

Application resiliency score over time- *New* Info

This score reflects how closely the application follows our recommendations for meeting the application's resiliency policy, alarms, SOPs, and experiments

View metrics in CloudWatch

Resiliency score %

100

80

60

Testing Resilience using Fault Injection Simulator

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AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
- Policies

What's New

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Policy met Info

Actions

Workflow

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Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Experiment templates | Experiments

Experiment templates (3) Info

Start experiment

Find experiment templates

1

Experiment template ID	Description	Creation time	Last update time
EXT2MqMZfceRFaGPa	Runs AWSResilienceHub-SimulateS3ObjectsAccidentalDeleteTest_2020-04-01 for...	September 21, 2022 at 5:33 PM	September 21, 2022 at 5:33 PM
EXT3xBkKbjMRKgFA	Runs AWSResilienceHub-RebootRdsInstanceTest_2020-04-01 for resource demoa...	September 21, 2022 at 5:33 PM	September 21, 2022 at 5:33 PM
EXTDNnSUWwSNLVq2Q	Runs AWSResilienceHub-FailoverRdsInstanceTest_2020-04-01 for resource demo...	September 21, 2022 at 5:33 PM	September 21, 2022 at 5:33 PM

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AWS Resilience Hub

Help us improve our recommendations

- Dashboard
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What's New

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Policy met Info

Actions

Workflow

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Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Experiment templates | Experiments

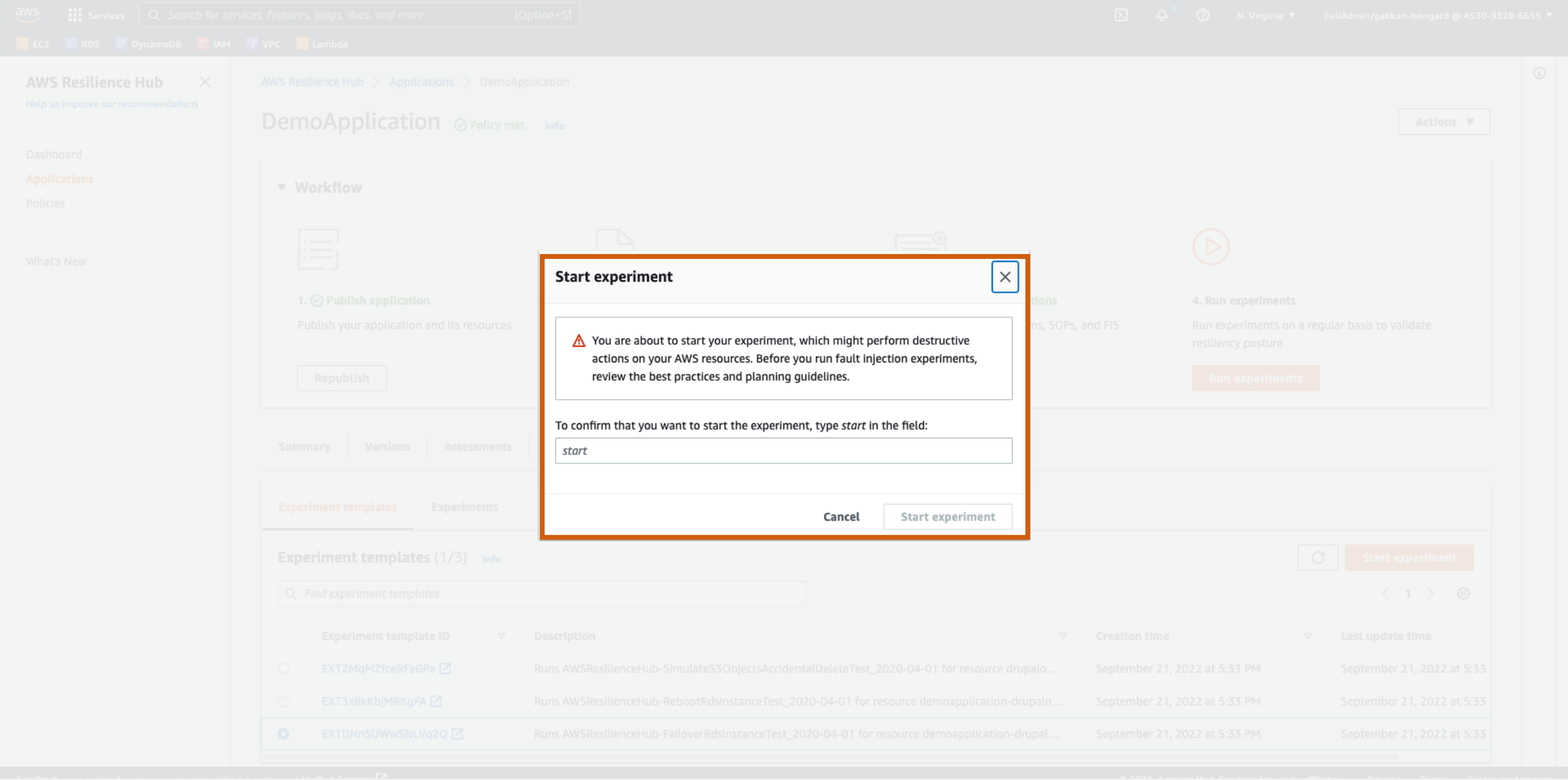
Experiment templates (1/3) Info

Start experiment

Find experiment templates

1

Experiment template ID	Description	Creation time	Last update time
EXT2MqMZfceRFaGPa	Runs AWSResilienceHub-SimulateS3ObjectsAccidentalDeleteTest_2020-04-01 for resource drupalo...	September 21, 2022 at 5:33 PM	September 21, 2022 at 5:33
[illegible]	[illegible]	[illegible]	[illegible]
EXTDNnSUWwSNLVq2Q	Runs AWSResilienceHub-FailoverRdsInstanceTest_2020-04-01 for resource demoapplication-drupal...	September 21, 2022 at 5:33 PM	September 21, 2022 at 5:33



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AWS Resilience Hub

Help us improve our recommendations

- Dashboard
- Applications
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What's New

AWS Resilience Hub > Applications > DemoApplication

DemoApplication

Policy met Info

Actions

Workflow

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Publish your application and its resources
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Run experiments

Summary | Versions | Assessments | Alarms | SOPs | Fault injection experiments | Tags

Experiment templates | Experiments

Experiments (2) Info

List of active AWS Fault Injection Simulator experiments

Stop experiment

Find experiments

1

Experiment ID	Experiment template ID	State
EXPtDtQnHZAyrdZX7G	EXTDNnSUWwSNLVq2Q	Completed
EXPUhBvbFqi1qqEuUE	EXTDNnSUWwSNLVq2Q	Failed

EXPtDtQnHZAyrdZX7G

Info Last updated on September 21, 2022, 17:41:53 (UTC+01:00)

Refresh Actions

The experiment has reached a terminal state. Please use "Refresh" button to refresh the page.

Details

Experiment ID	Start time	State	Experiment template ID
EXPtDtQnHZAyrdZX7G	September 21, 2022, 17:37:14 (UTC+01:00)	Completed	EXTDNnSUWwSNLVq2Q
Creation time	**End time**	**IAM role**	**Stop conditions**
September 21, 2022, 17:37:13 (UTC+01:00)	September 21, 2022, 17:40:11 (UTC+01:00)	DemoApplication-FaultInjections-FisExecutionRole-1LW6TF3QZ76ZX	AWSResilienceHub-S35xxErrorsAlarm-2020-04-01_DemoApplication_drupalonefs-loadbalancer-logs-453093286655-us-east-1

Actions | Targets | Tags | Timeline | Stop conditions

Timeline (action start time and end time used)

A timeline using the received startTime and endTime for the actions making up the experiment.

Refresh

RunSsmDocument/aws:ssm:start-automation-execution

Completed

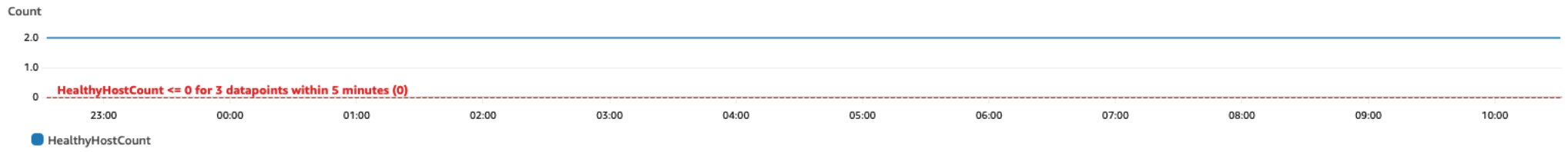
Start after: The beginning of the experiment

RunSsmDocu.../aws:ssm:start-automation-execution 2.4116 mins

CloudWatch > Metrics

AWSResilienceHub-ApplicationLoadBalancerHealthyHostCountAlarm-2020-04-01_DemoApplication_d...

1h 3h 12h 1d 3d 1w Custom | Line | Actions | Queries | Help



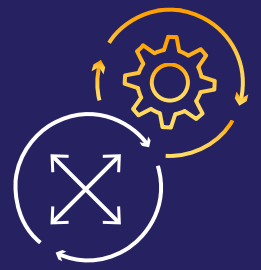
Browse | Query | Graphed metrics (1) | Options | Source | Add math | Add query

Add dynamic label | Info | Statistic: Maximum | Period: 1 minute | Clear graph

Label	Details	Statistic	Period	Y axis	Actions
HealthyHostCount	ApplicationELB • HealthyHostCount • TargetG	Maximum	1 minute		

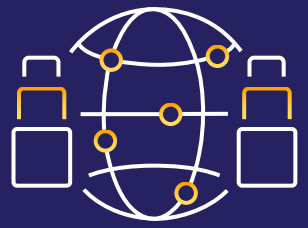
AWS Programs

AWS Well-Architected



Operational Excellence

Security



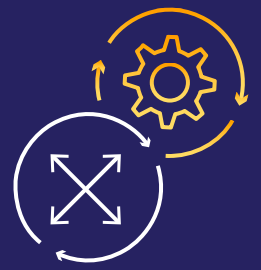
Reliability

Performance Efficiency

Cost Optimization

Sustainability

AWS Well-Architected



Operational Excellence

Reliability

REL 11. How do you design your workload to withstand component failures? Info

Workloads with a requirement for high availability and low mean time to recovery (MTTR) must be architected for resiliency.

Question does not apply to this workload Info

Select from the following

- [x] Monitor all components of the workload to detect failures Info
- [x] Fail over to healthy resources Info
- [x] Automate healing on all layers Info
- [x] Use static stability to prevent bimodal behavior Info
- [x] Send notifications when events impact availability Info

Summary

- Resilience and Shared Responsibility Model
- The mental model for Resilience
  - High Availability
  - Disaster Recovery
  - Continous improvement
- AWS services and programs for Resilience

Thank you!