AWS re:Invent

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COM203

Enable continuous delivery and resiliency for a static website

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Infor

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Quick intro

Bhuvaneswari Subramani (Bhuvana)

Director, Engineering Operations, Infor

AWS Hero since 2019

Organizer, AWS User Group Bengaluru

Leading cloud computing, DevOps, and Performance QA


/bhuvanas


@installjournal


https://bhuvana.pro





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Agenda

Traditional static website hosting

Source control management

Continuous integration and continuous delivery

Enable resiliency

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Traditional static website hosting

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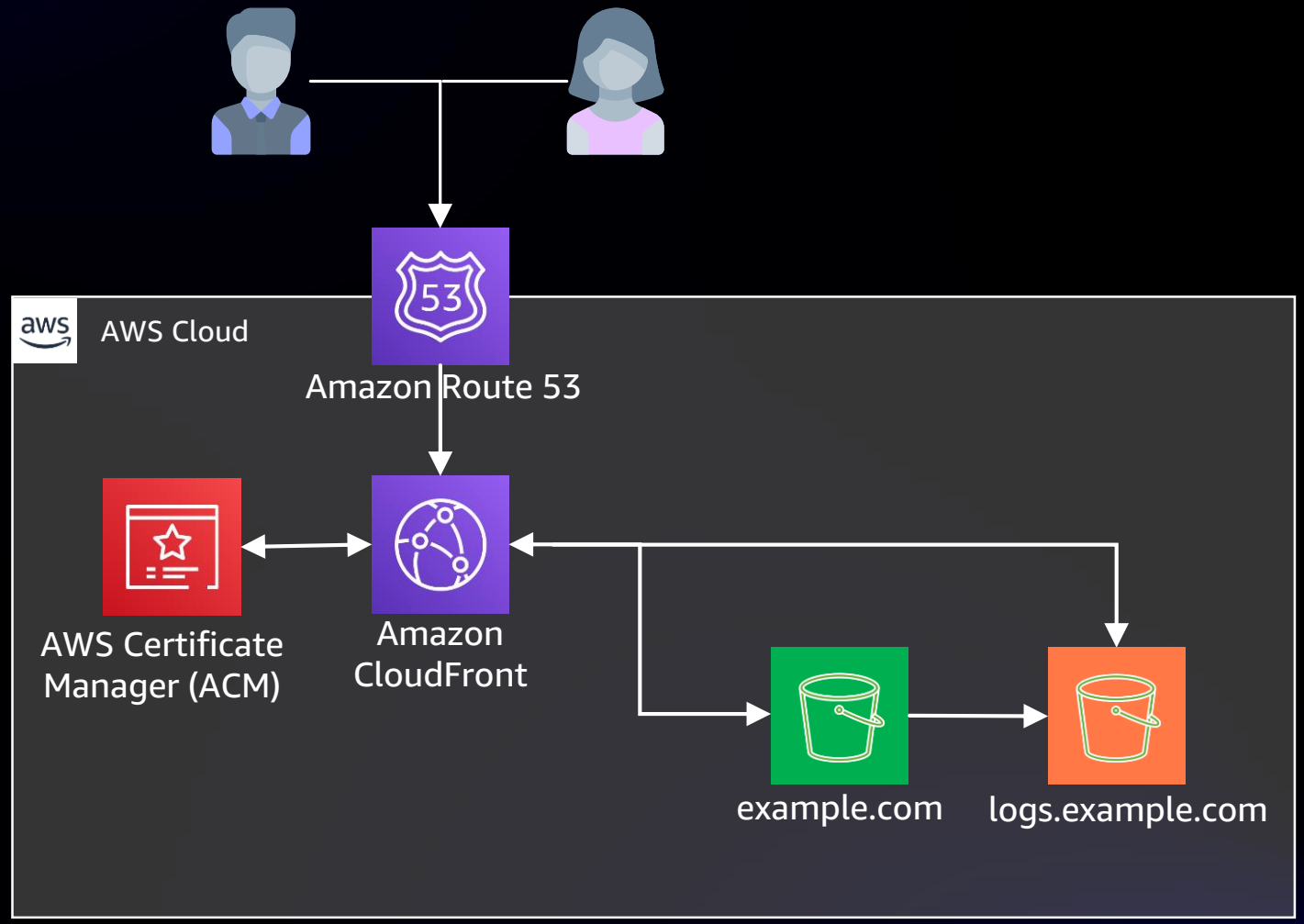
“Everything fails all the time.”

Dr. Werner Vogels

VP and CTO, Amazon

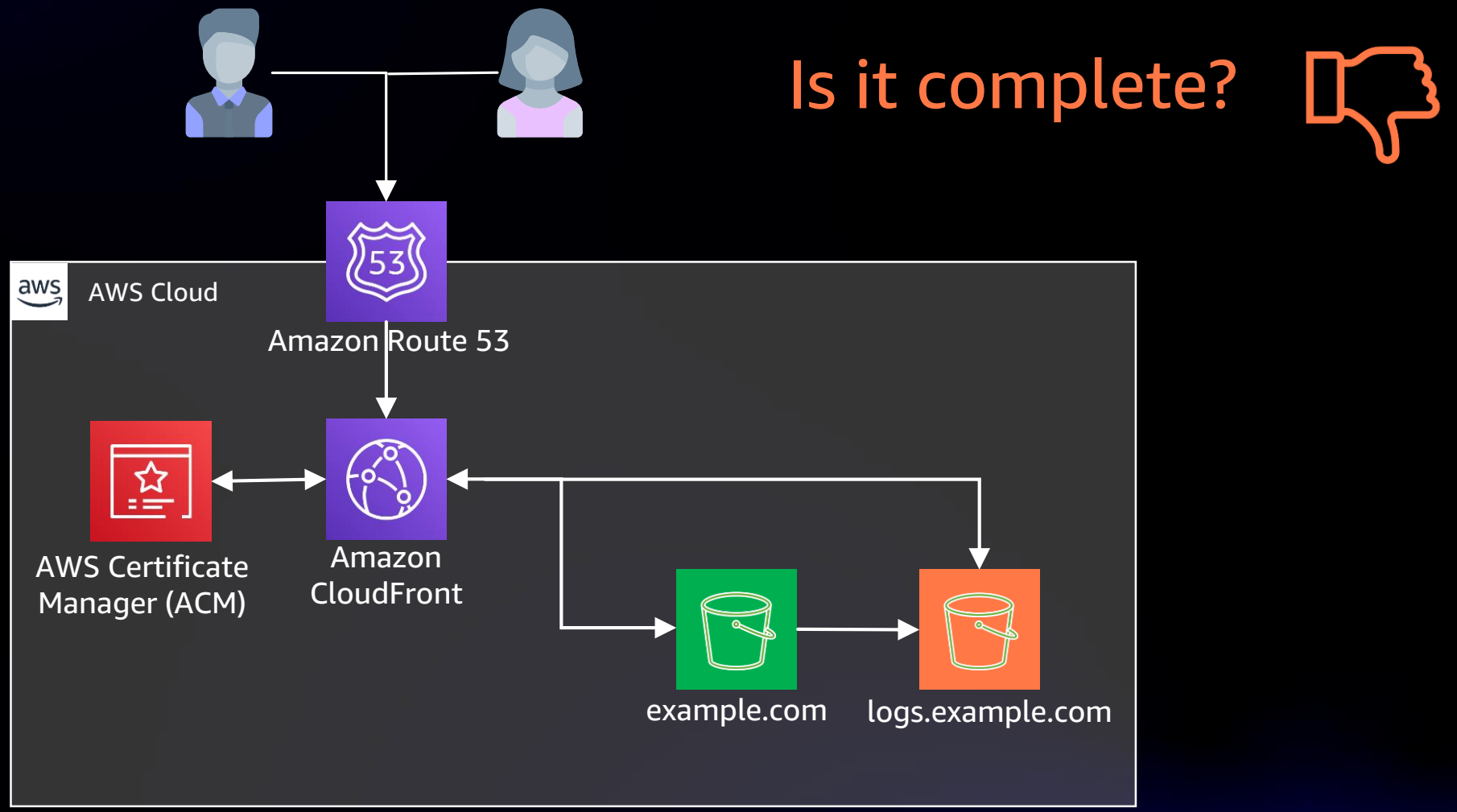
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Traditional static website architecture



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Traditional static website architecture



Is it complete?

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Challenges



- Repository for static website code
- Traceability for code changes
- Sharing environment for staging and prod
- No CI/CD
- Disaster recovery
- Resilient for regional failure

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Opportunities for automation



Source control management (SCM)



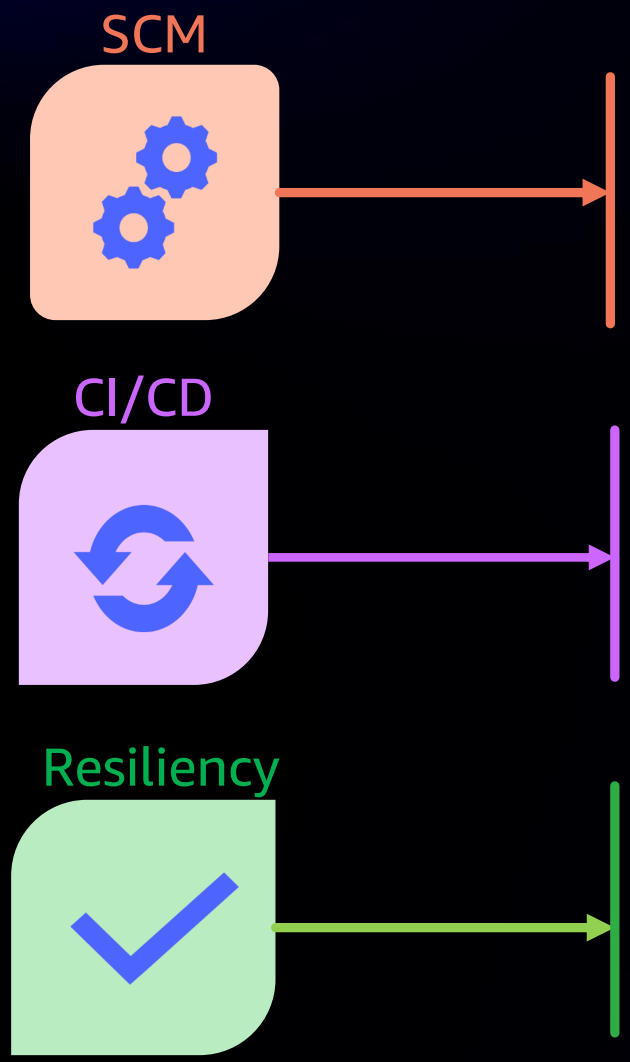
Continuous integration and continuous delivery (CI/CD)



Resiliency

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How automation can tackle the challenges



- Repository for static website code
- Traceability for code changes

- Sharing environment for staging and prod
- No CI/CD

- Disaster recovery
- Resilient for regional failure

aws

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Source control management

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Source actions for AWS CodePipeline



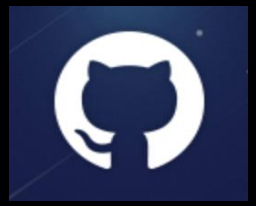
AWS CodeCommit



Bitbucket Cloud



GitHub



GitHub Enterprise

Code management

- Check in source code
- Peer-review new code
- Version control

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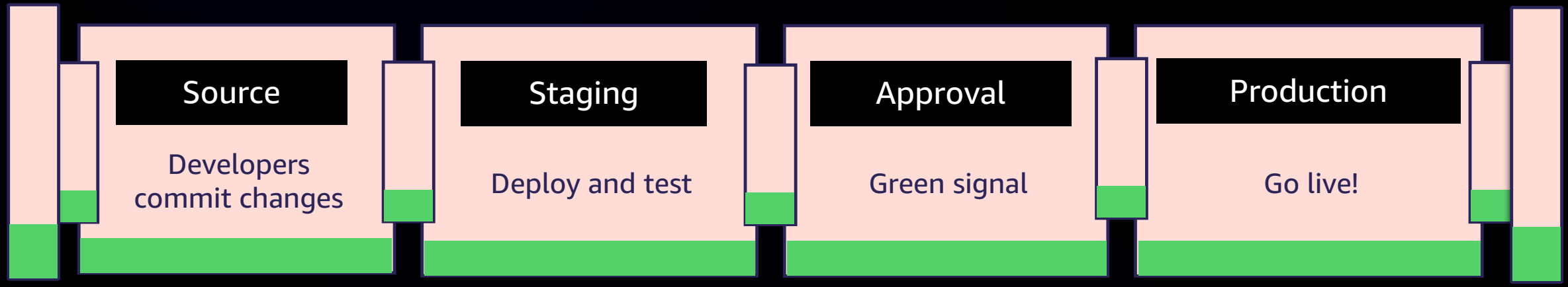


Continuous integration and continuous delivery

aws

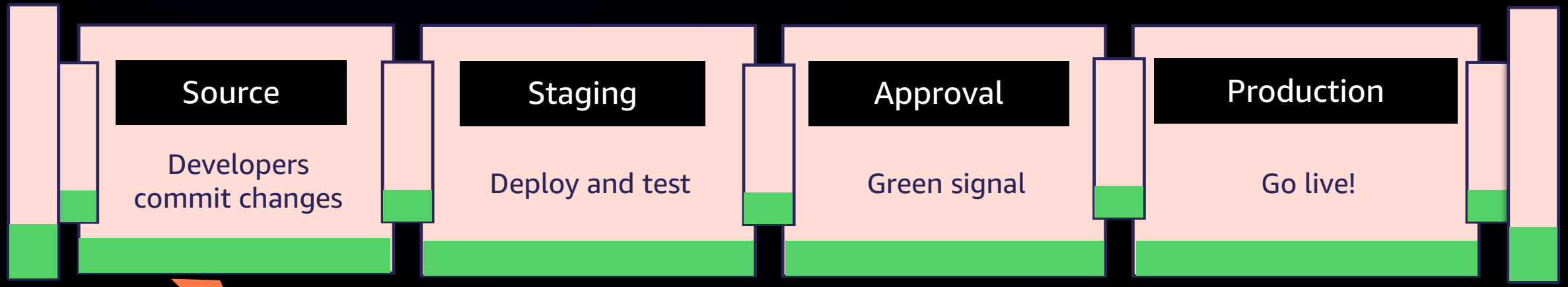
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Continuous delivery stages



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Continuous integration



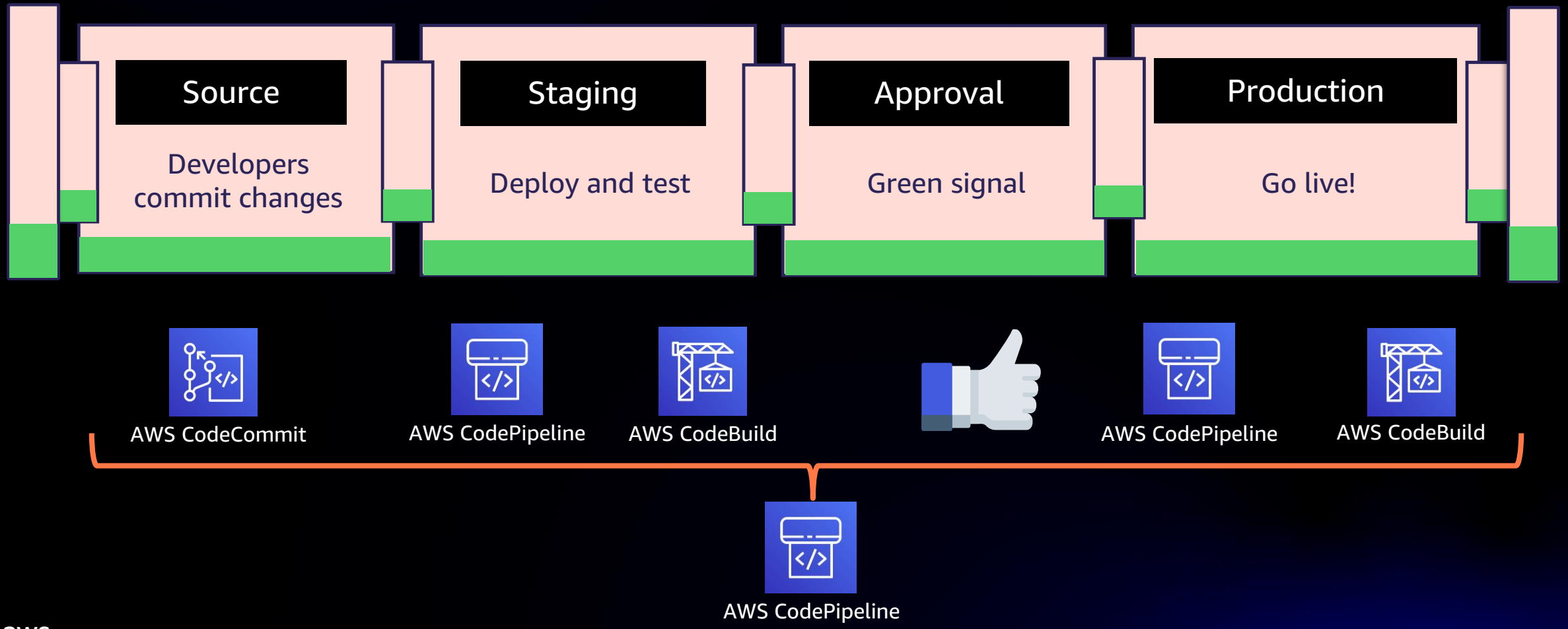
Change detection options - *optional*

☑ Start the pipeline on source code change

Automatically starts your pipeline when a change occurs in the source code. If turned off, your pipeline only runs if you start it manually or on a schedule.

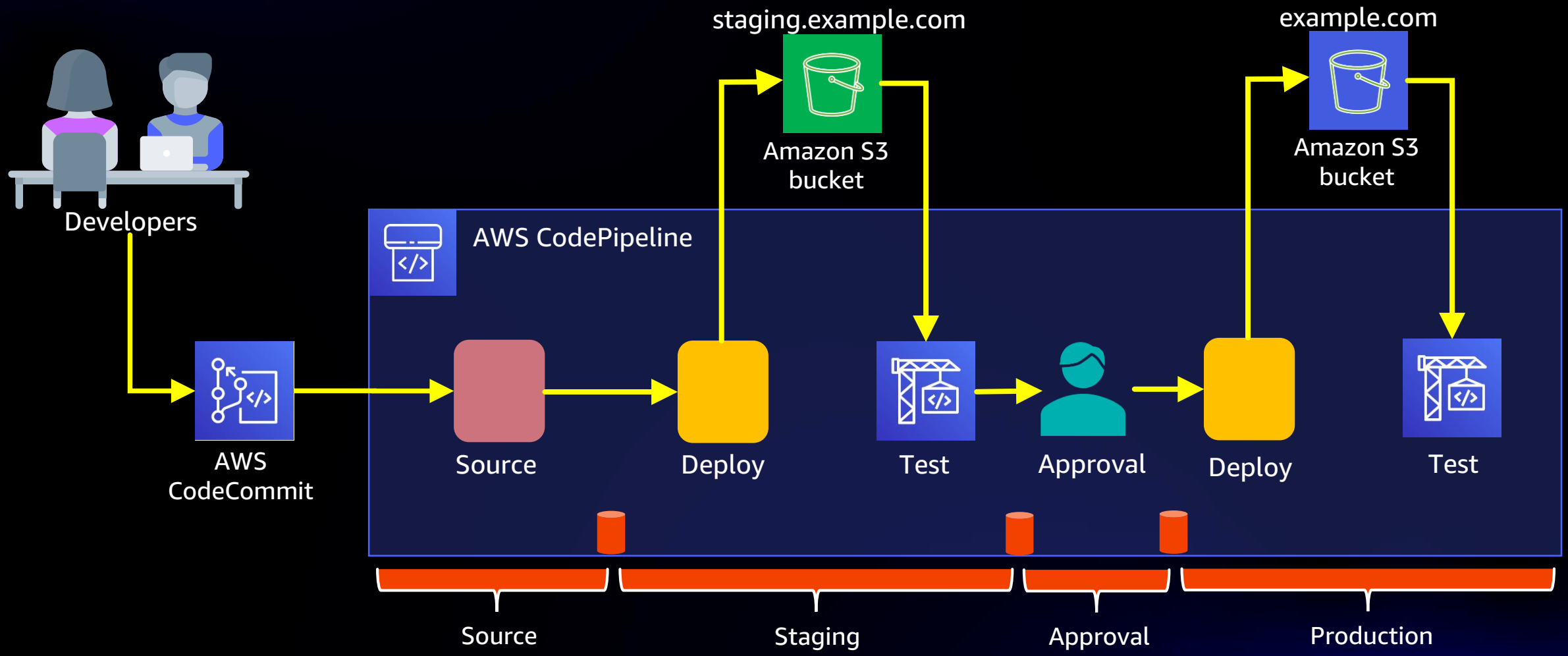
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Continuous delivery with AWS DevTools



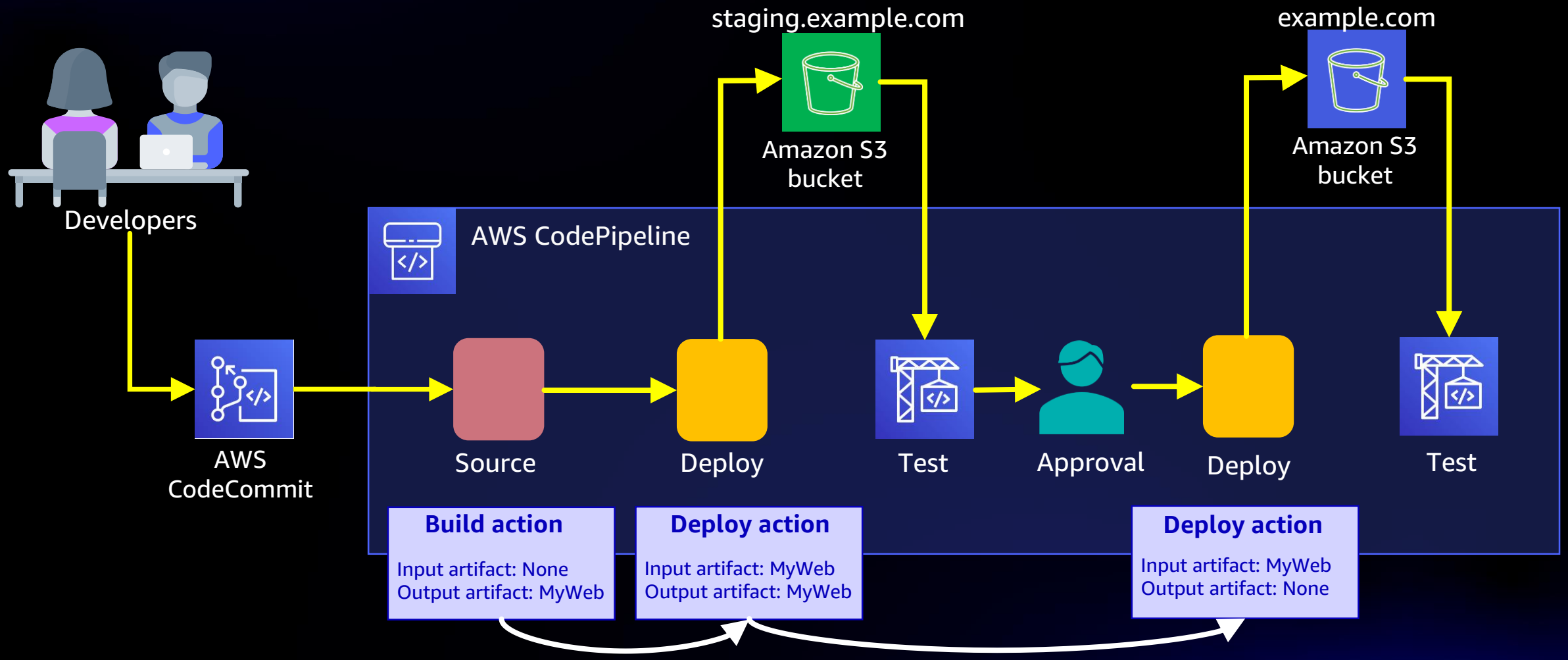
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Continuous delivery AWS architecture



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Continuous delivery AWS architecture



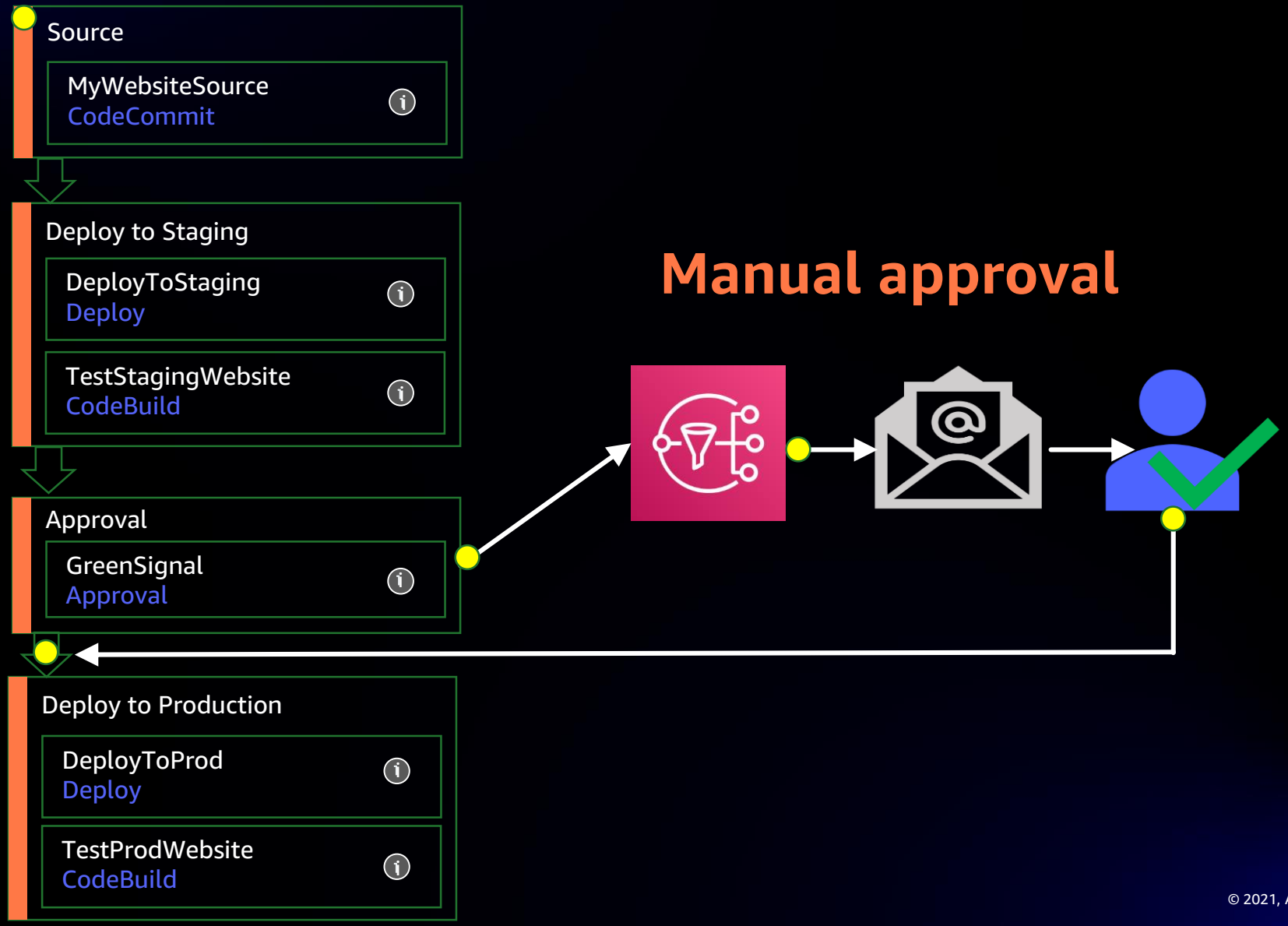
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Visualize the pipeline execution



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Visualize the pipeline execution



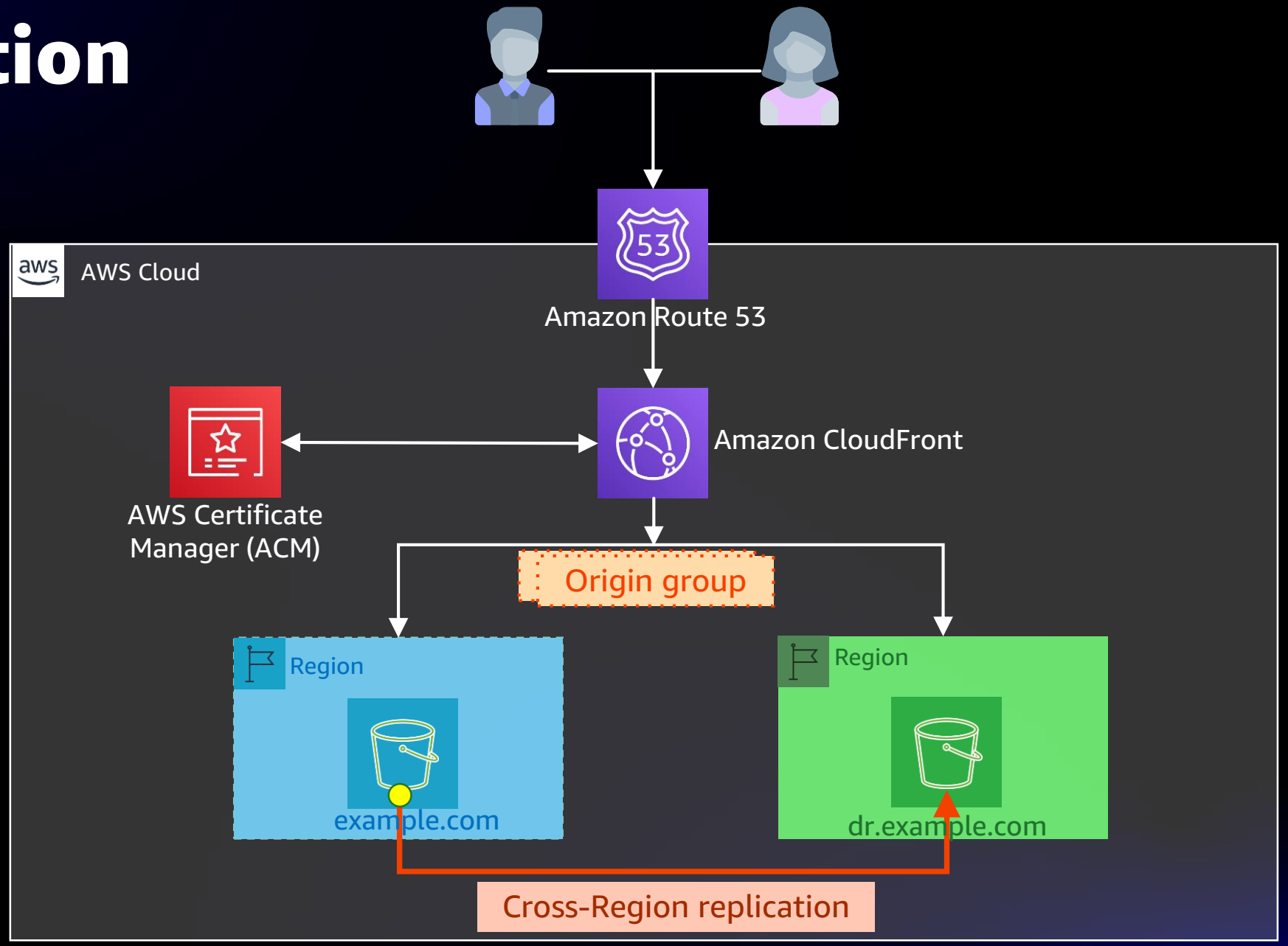
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Enable resiliency



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Replication

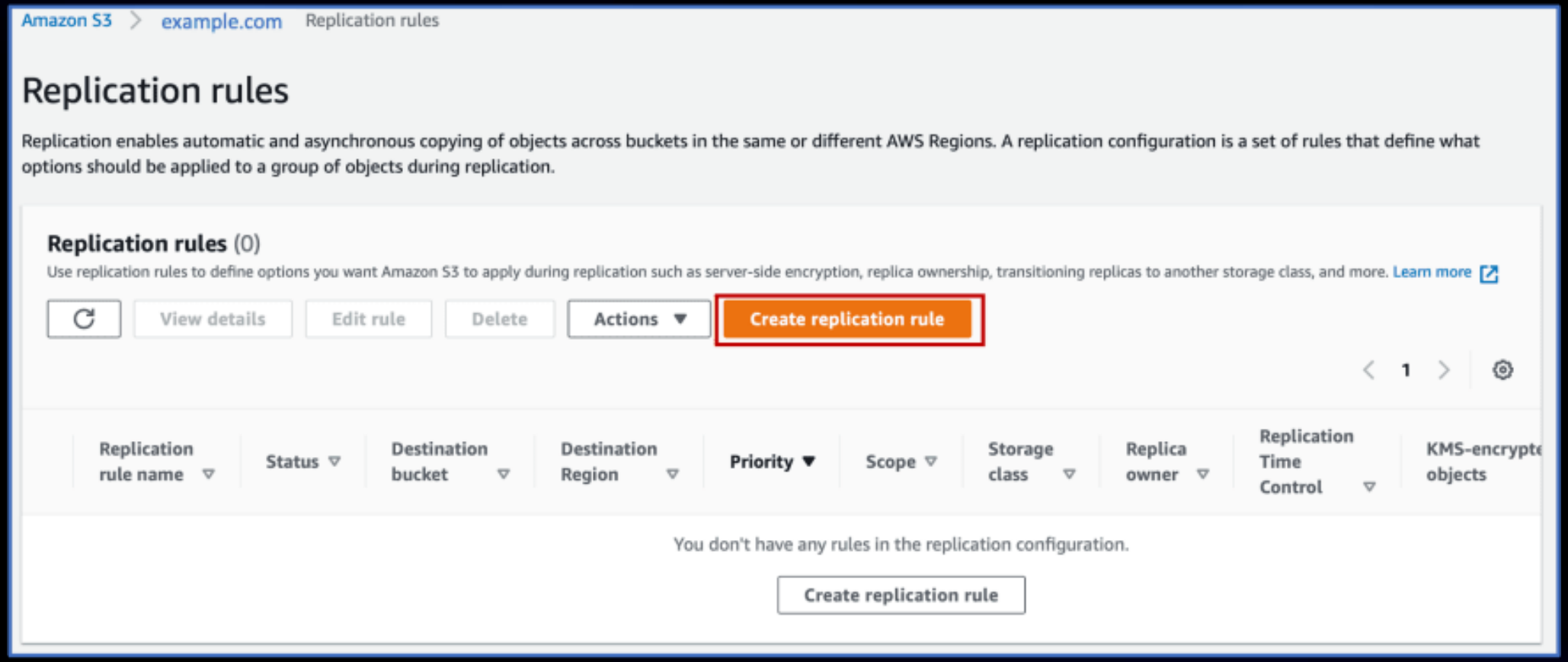


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Set up replication from example.com to dr.example.com

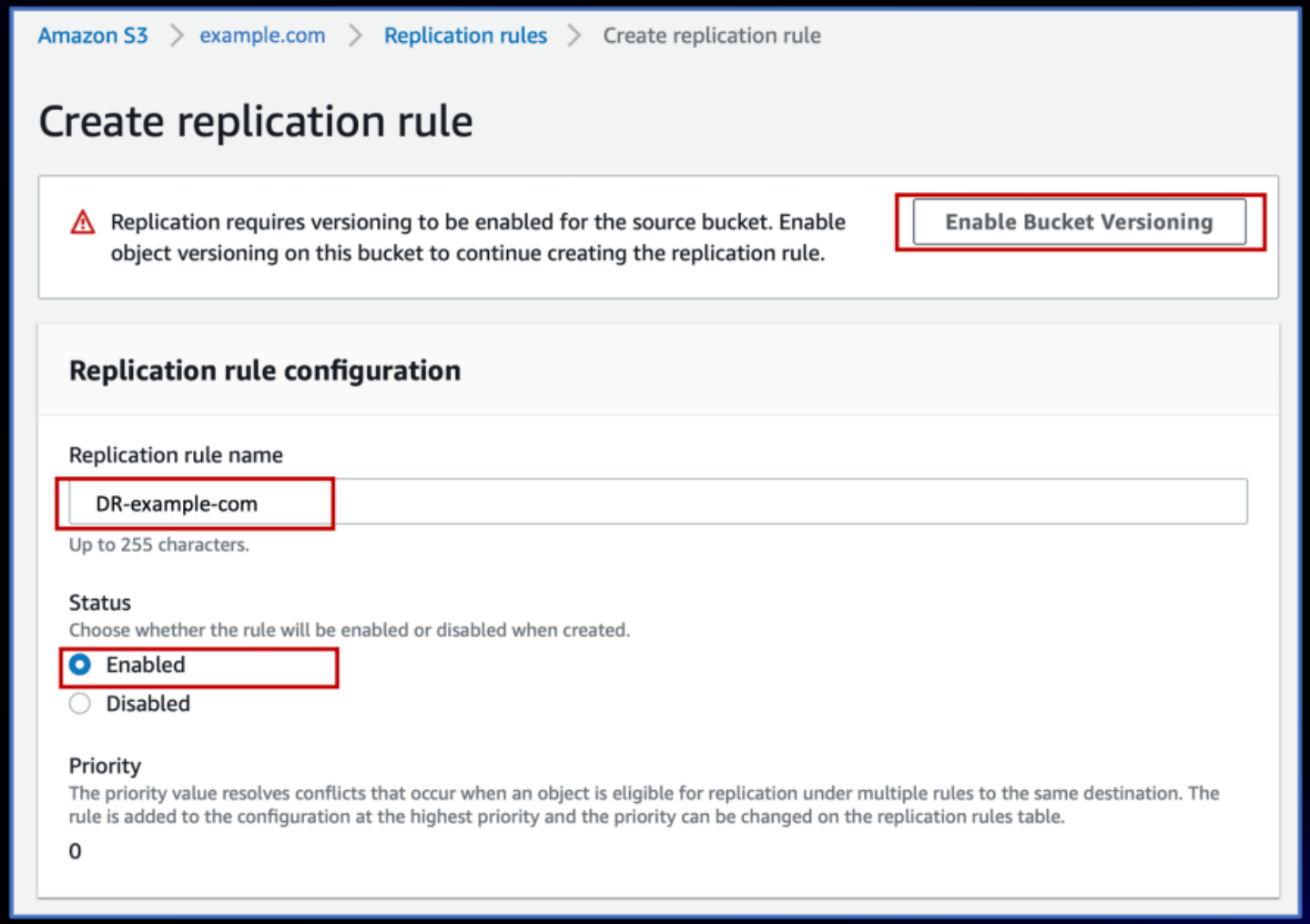
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Create replication rule → Enable bucket versioning → Source bucket → Destination bucket → Save & ready



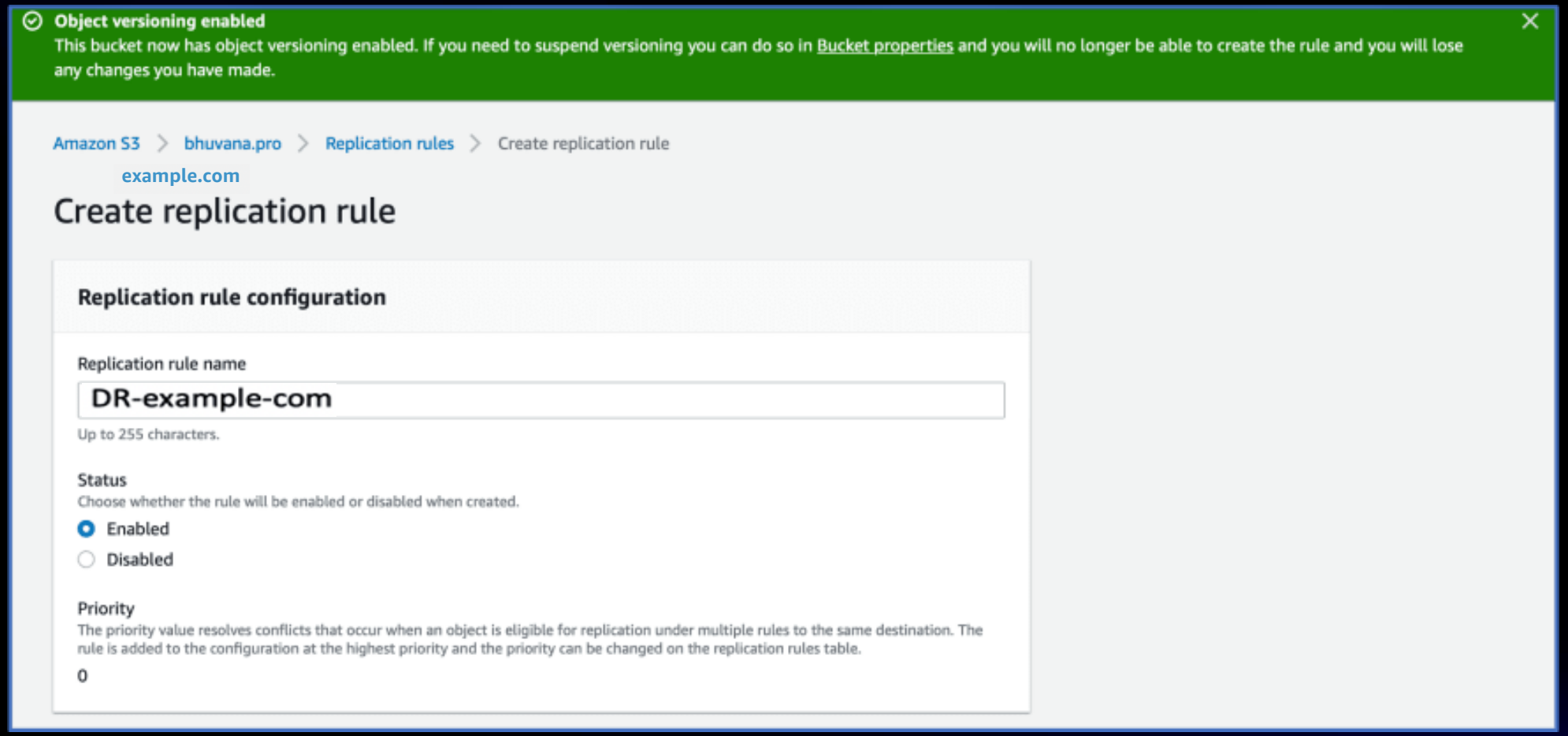
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Create replication rule → **Enable bucket versioning** → Source bucket → Destination bucket → Save & ready



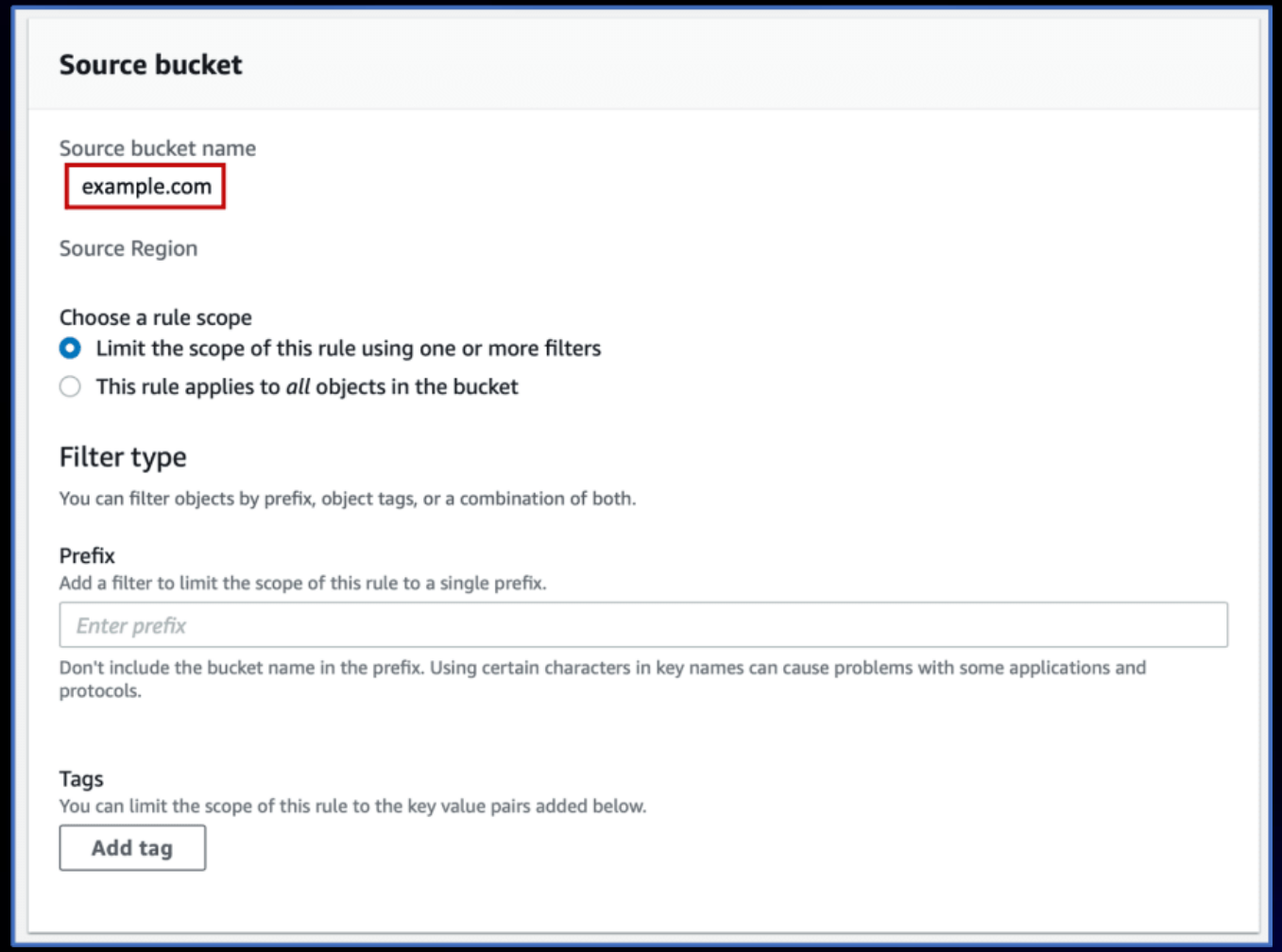
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Create replication rule → **Enable bucket versioning** → Source bucket → Destination bucket → Save & ready



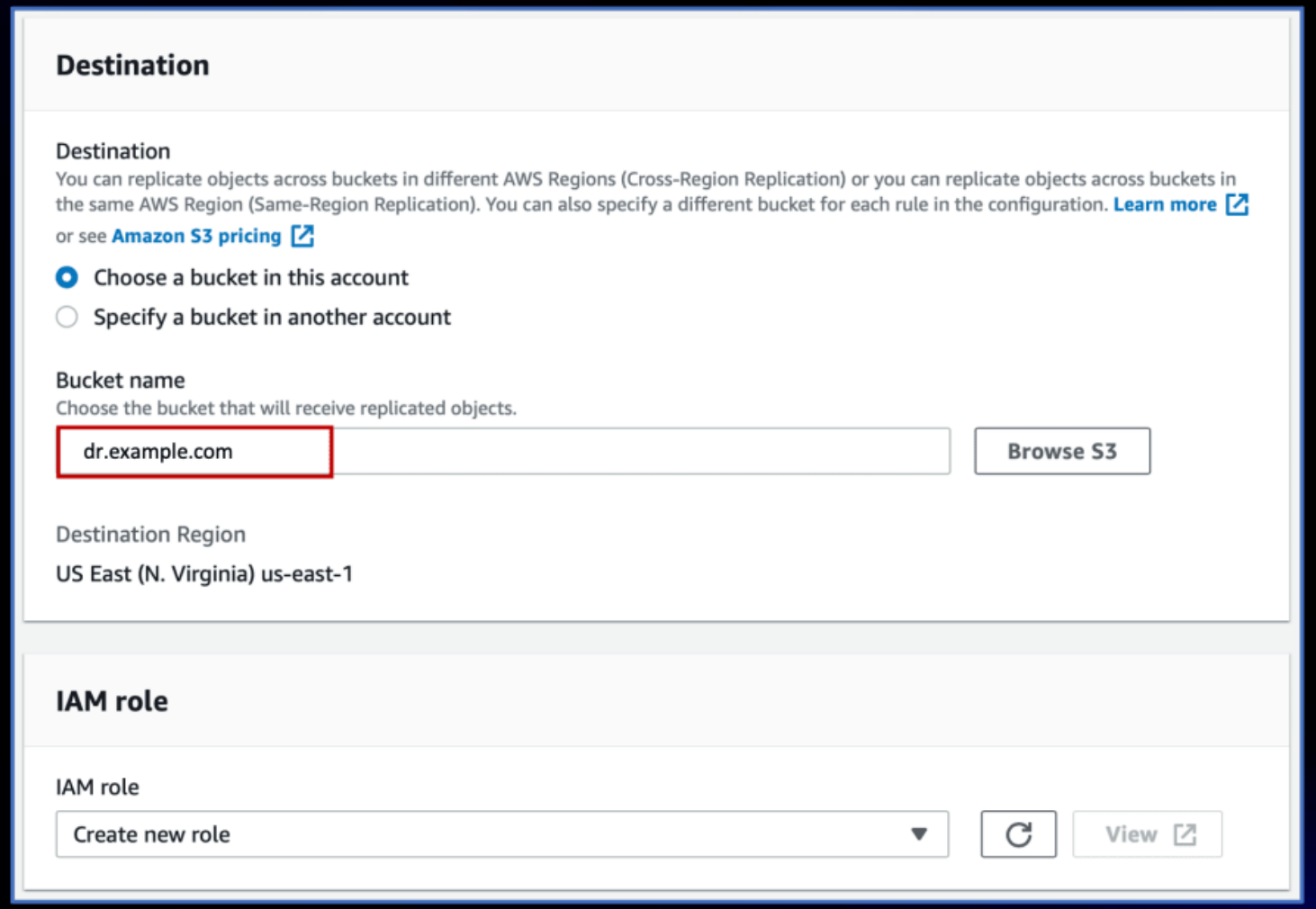
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Create replication rule → Enable bucket versioning → **Source bucket** → Destination bucket → Save & ready



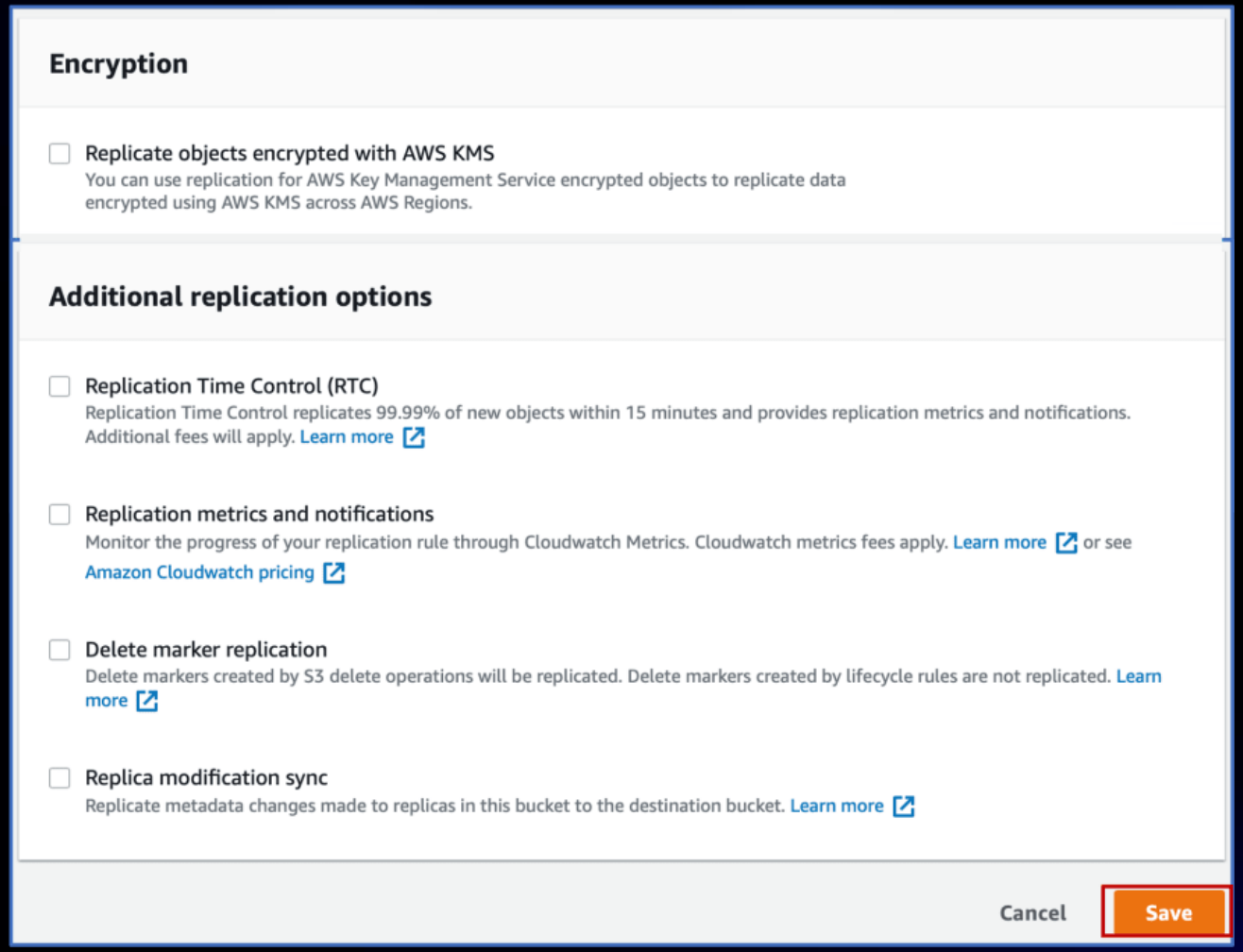
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Create replication rule → Enable bucket versioning → Source bucket → **Destination bucket** → Save & ready



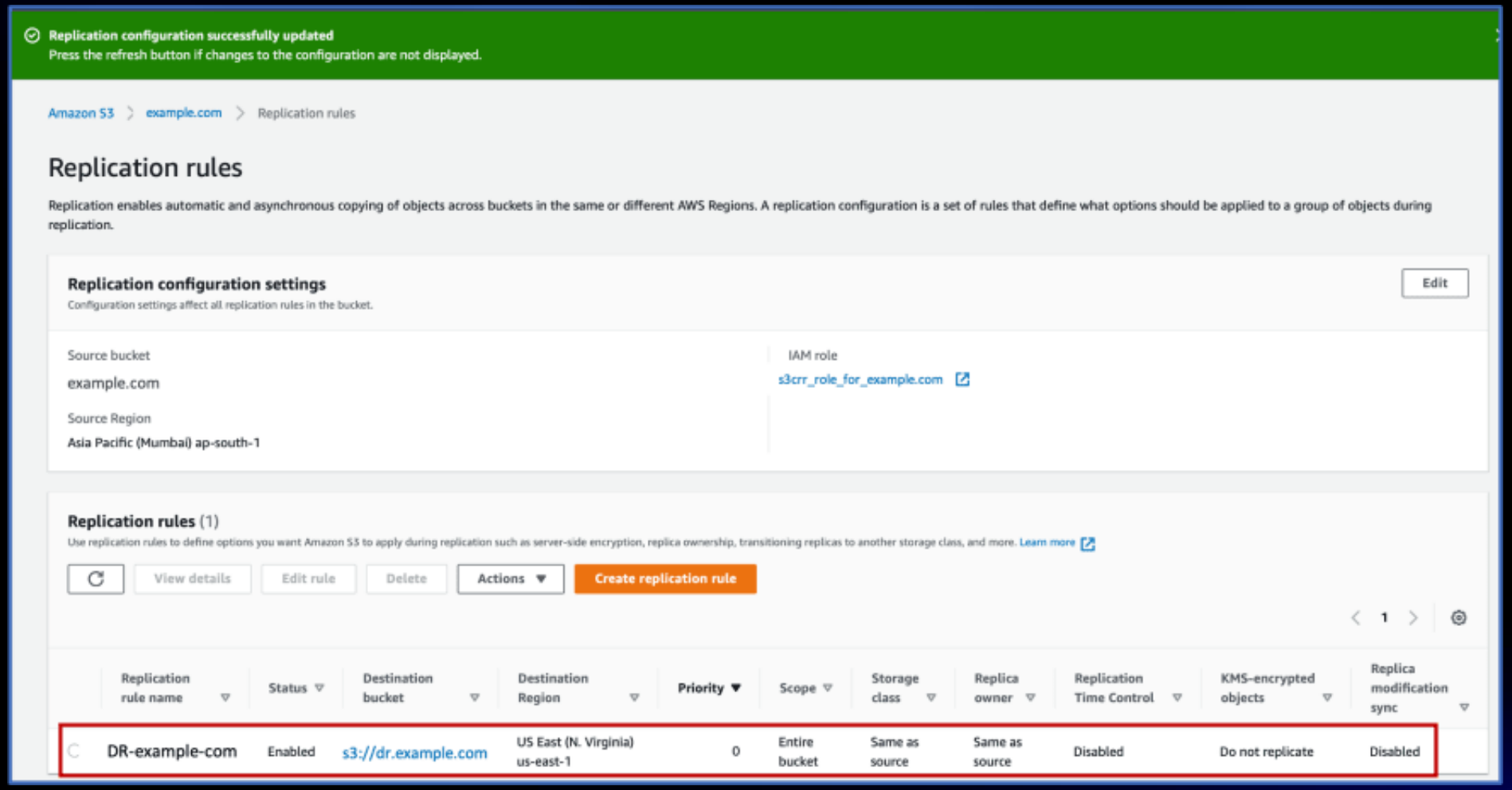
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Create replication rule → Enable bucket versioning → Source bucket → Destination bucket → Save & ready



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Create replication rule → Enable bucket versioning → Source bucket → Destination bucket → Save & ready

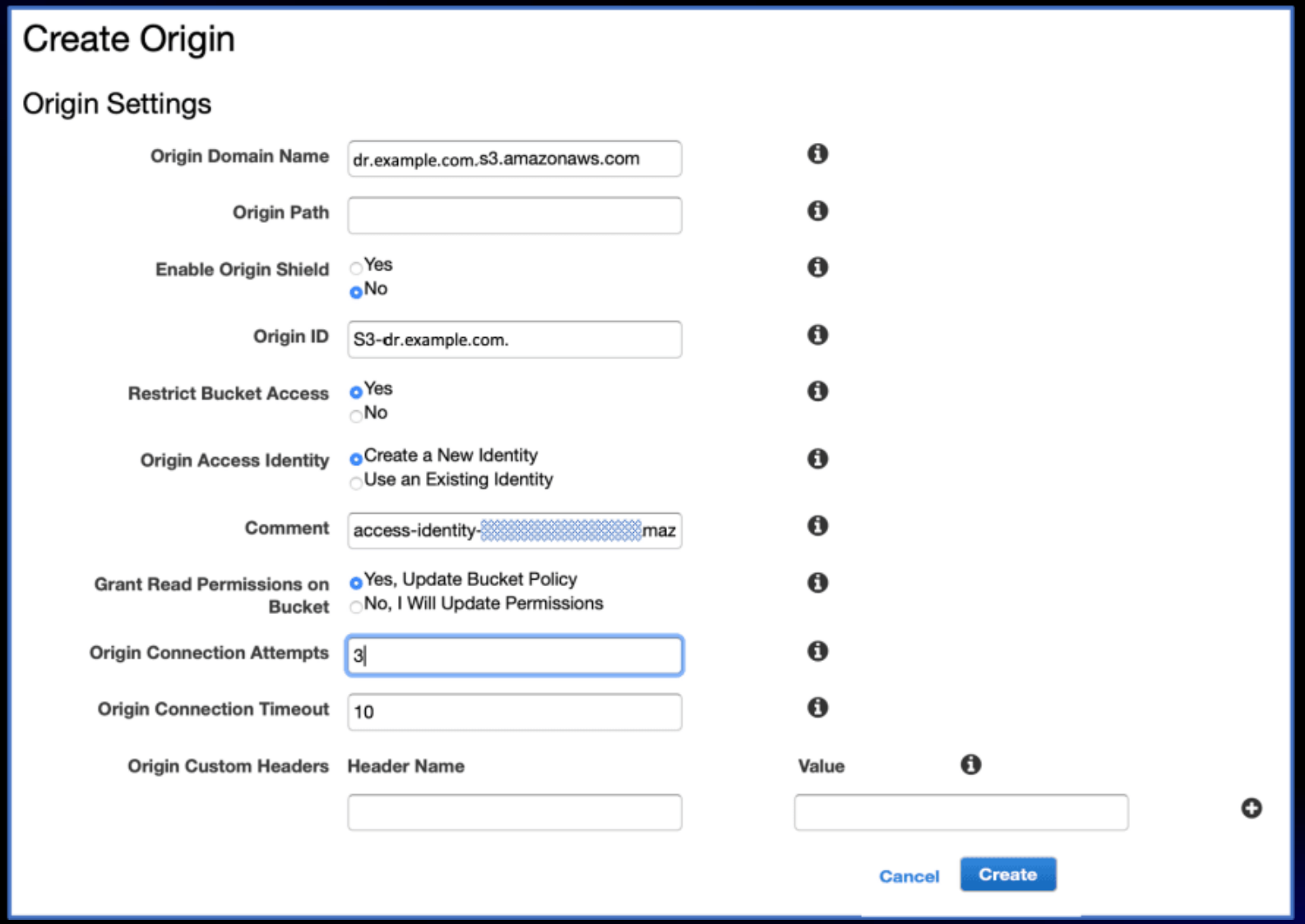


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Create origin group

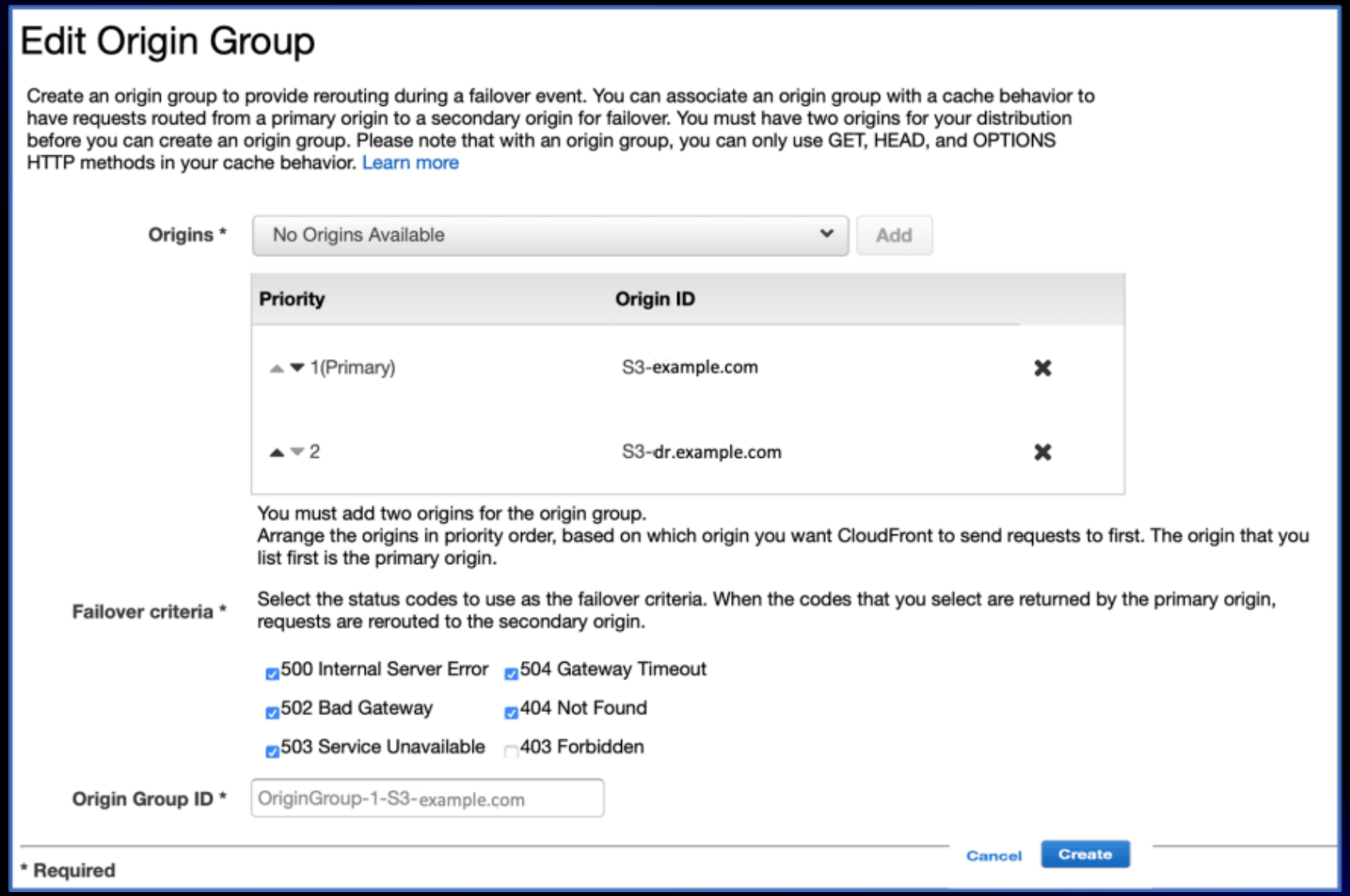
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Create origin for disaster recovery



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Create origin group



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Time to test for resiliency

- Update the S3 bucket policy (example.com) where you hosted static website to deny for Amazon CloudFront

- Watch Amazon CloudFront distribution as it redirects the request to the disaster recovery S3 bucket (dr.example.com)

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Time to test for resiliency – In action

Change the bucket policy for the source bucket (example.com)

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "CloudFrontReadGetObject",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::cloudfront:user/CloudFront Origin Access Identity XXXXXXXXXXXX"
            },
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::example.com/*"
        }
    ]
}
```


aws

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Time to test for resiliency – In action

Yay!! Still works

Change the bucket policy for the source bucket (example.com)



```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "CloudFrontReadGetObject",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::cloudfront:user/CloudFront Origin Access Identity XXXXXXXXXXXX"
            },
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::example.com/*"
        }
    ]
}
```

Deny

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Time to test for resiliency – In action

Change the bucket policy for both source and destination bucket (example.com and dr.example.com)

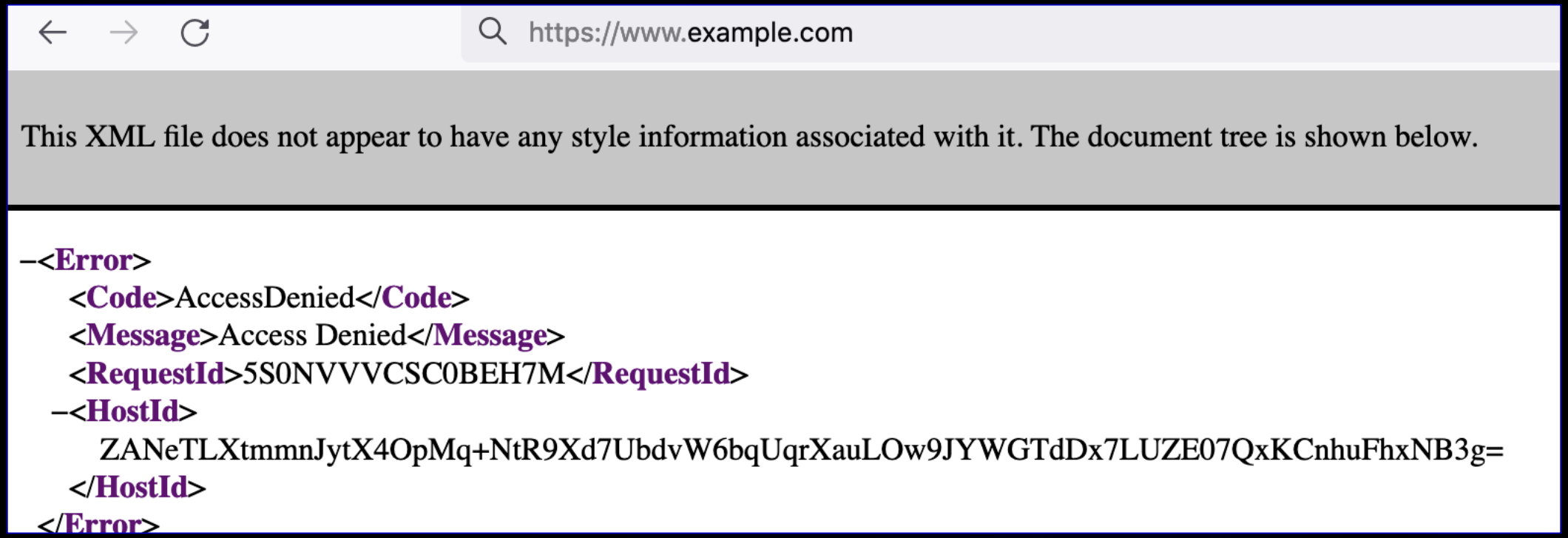
```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "CloudFrontReadGetObject",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::cloudfront:user/CloudFront Origin Access Identity XXXXXXXXXXXX"
            },
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::example.com/*"
        }
    ]
}
```



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Time to test for resiliency – In action

Uh-oh! It breaks



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Resources

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Additional resources

My blog featured in AWS Heroes Content Library:

CI/CD for a static website hosted on Amazon S3
https://go.aws/3b9xkQk

Related dev.to blogs written by me:

- Self-hosting secured static web site using S3, Route 53, ACM, CloudFront
  https://bit.ly/3b6evgR
- CI/CD for a static website hosted on Amazon S3
  https://bit.ly/3GlSN6D
- Enabling resiliency for a static website hosted on AWS Cloud
  https://bit.ly/3jzTRue

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Thank you!

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