STEP ON IT!

Rapid Event-Based AWS Cost Control

With Step Functions

Damien Jones (he/him)

AWS Consultant @ Steamhaus

2025-09-25 AWS Community Day Summit

aws

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aws

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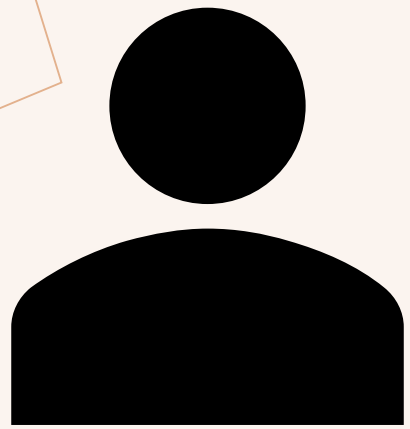
aws

AWS ACCOUNT BILLS



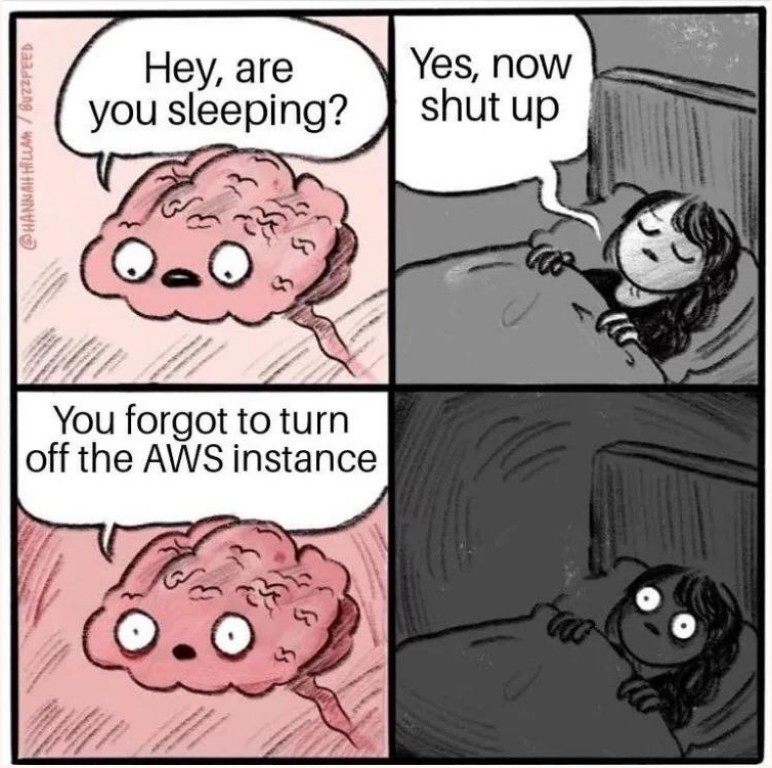
CLIENT

Steamhaus

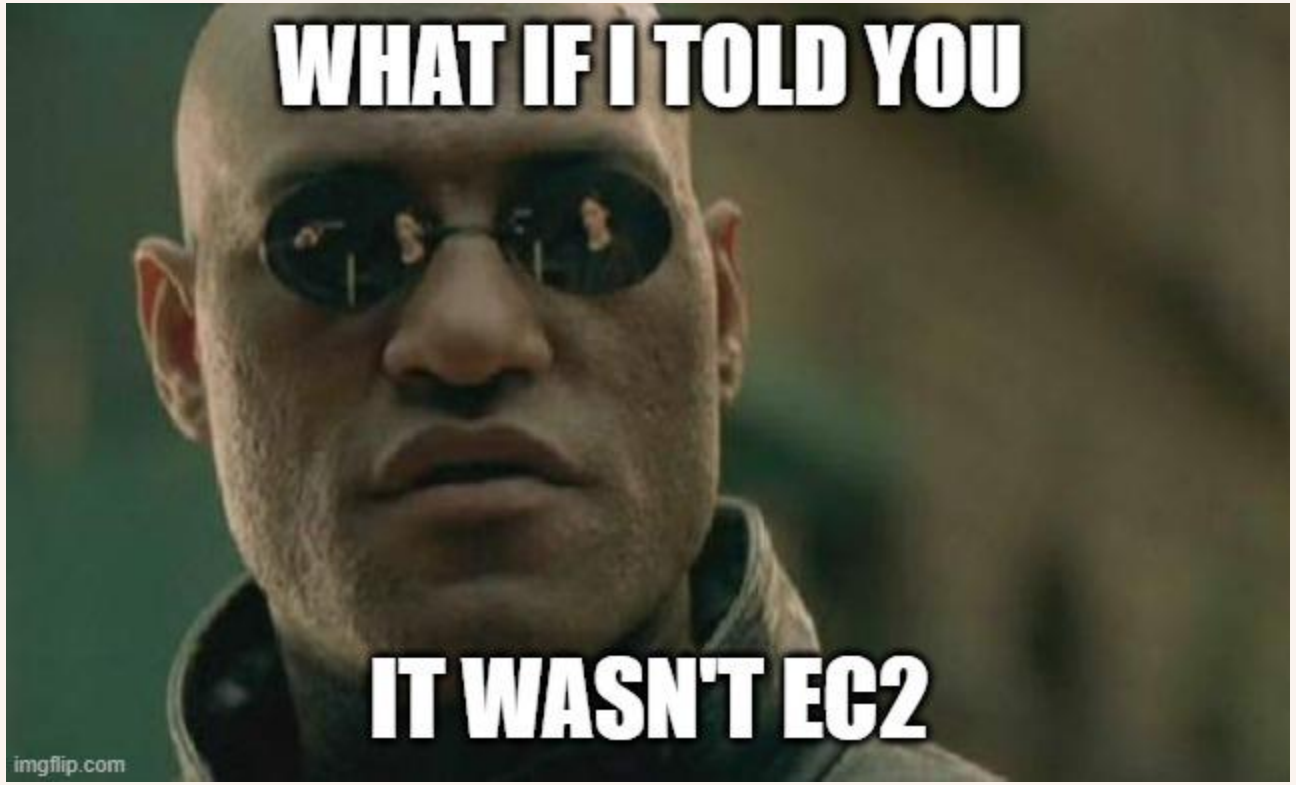
EMPLOYER

MINE!

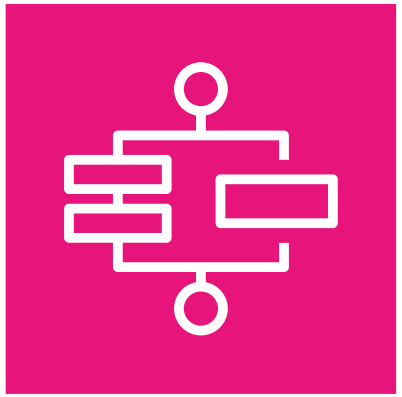
LOL ROFL LMAO ETC



NOPE



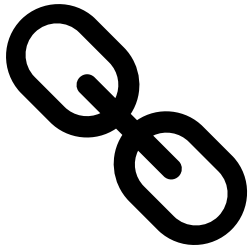
AWS STEP FUNCTIONS



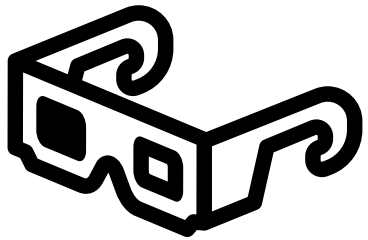
STEP FUNCTION FEATURES

ORCHESTRATOR

INTEGRATOR

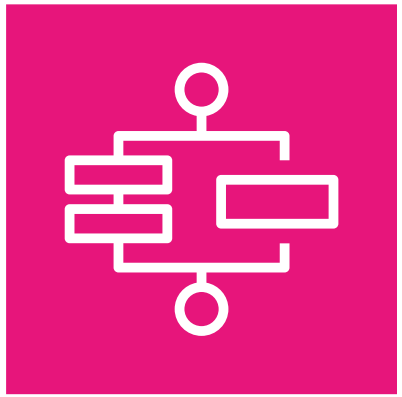


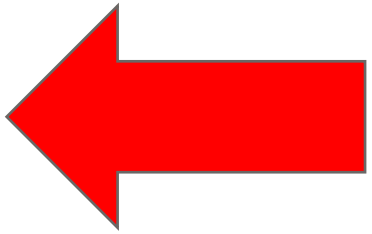
OBSERVER



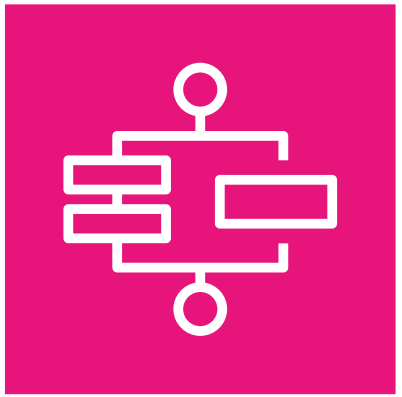
AWS STEP FUNCTIONS

STANDARD





EXPRESS



BUT FIRST

Hi.

Steamhaus

AWS Consultant

Steamhaus UK

Content Creator

amazonwebshark.com

AWS USER GROUP LANCASHIRE EST 2025

AWS User Group Leader

Lancashire UK

AWS community builders

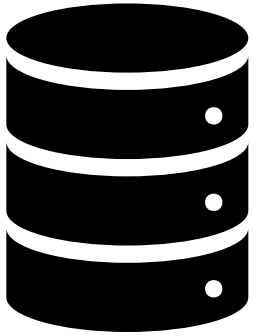
AWS Community Builder

Data Category

DATA INGESTION PIPELINE

DATA INGESTOR

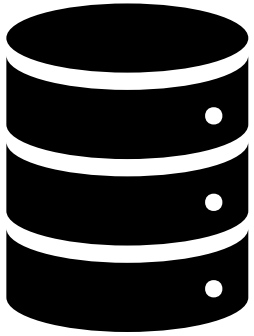
SOURCE



TARGET

DATA INGESTOR

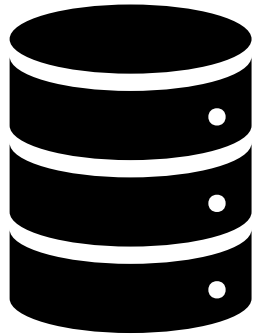
SOURCE



DATA INGESTOR

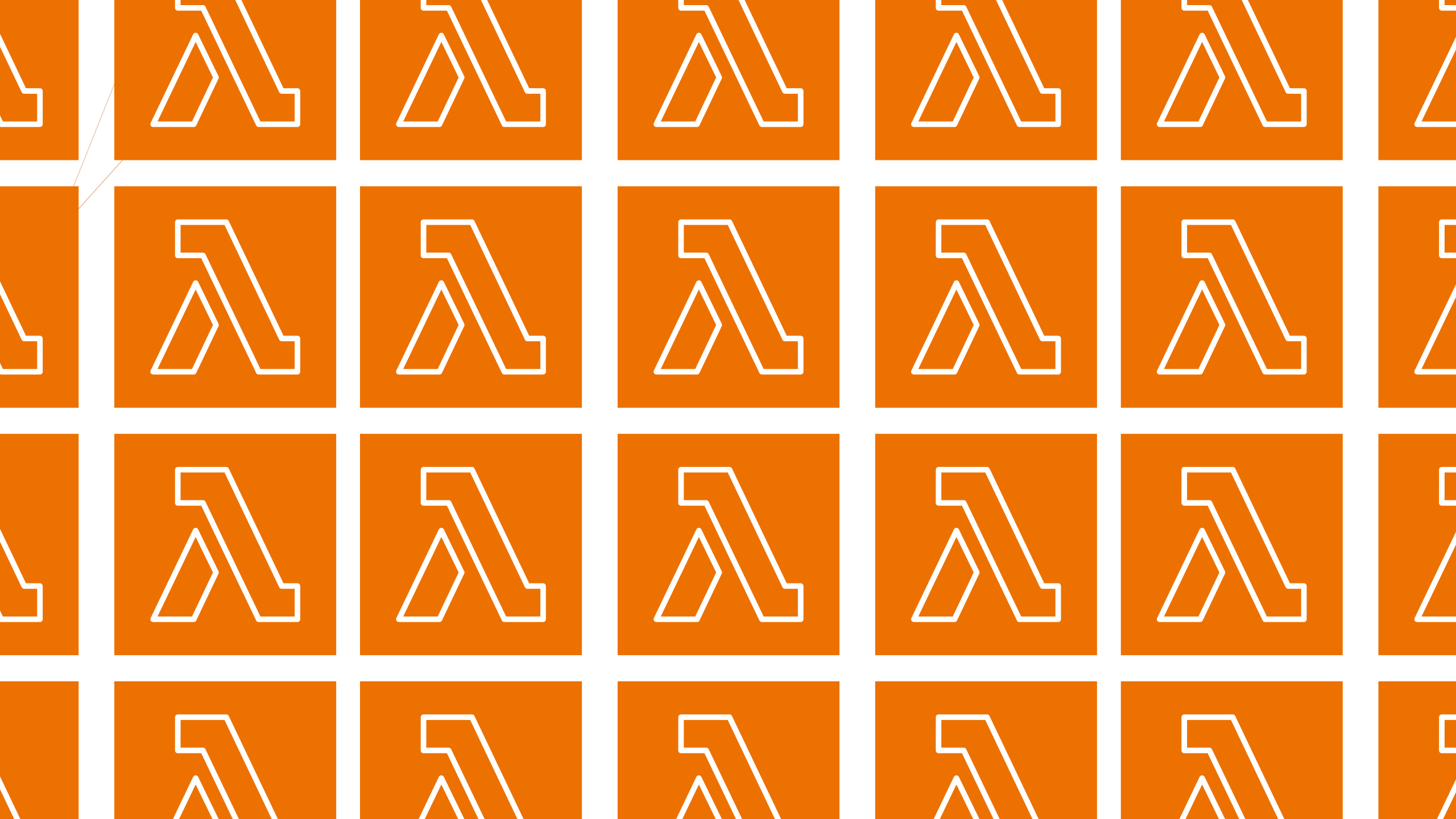
TARGET

AWS LAMBDA FUNCTION



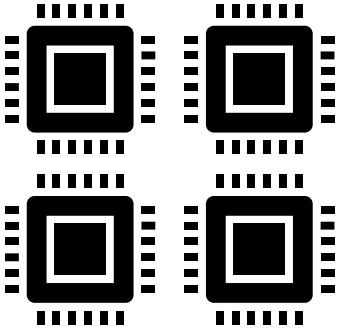
API / DATABASE

AMAZON S3 BUCKET



ISSUES

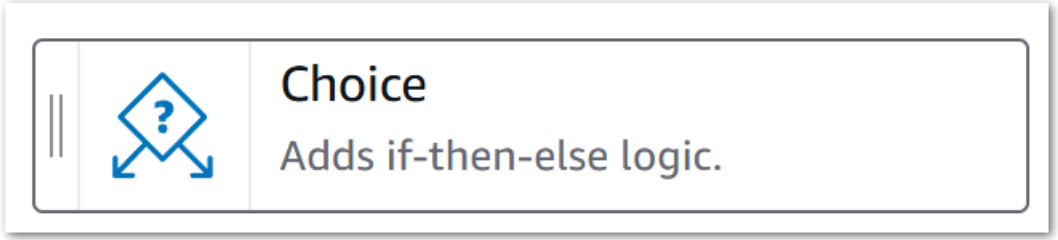
PROCESS DUPLICATION



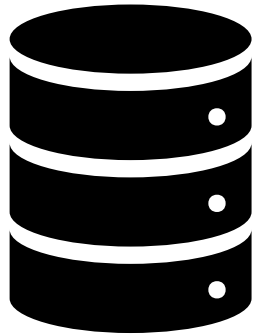
COMPUTE & STORAGE COSTS

DATA SOURCE ISSUES

STEP FUNCTION CHOICE STATE

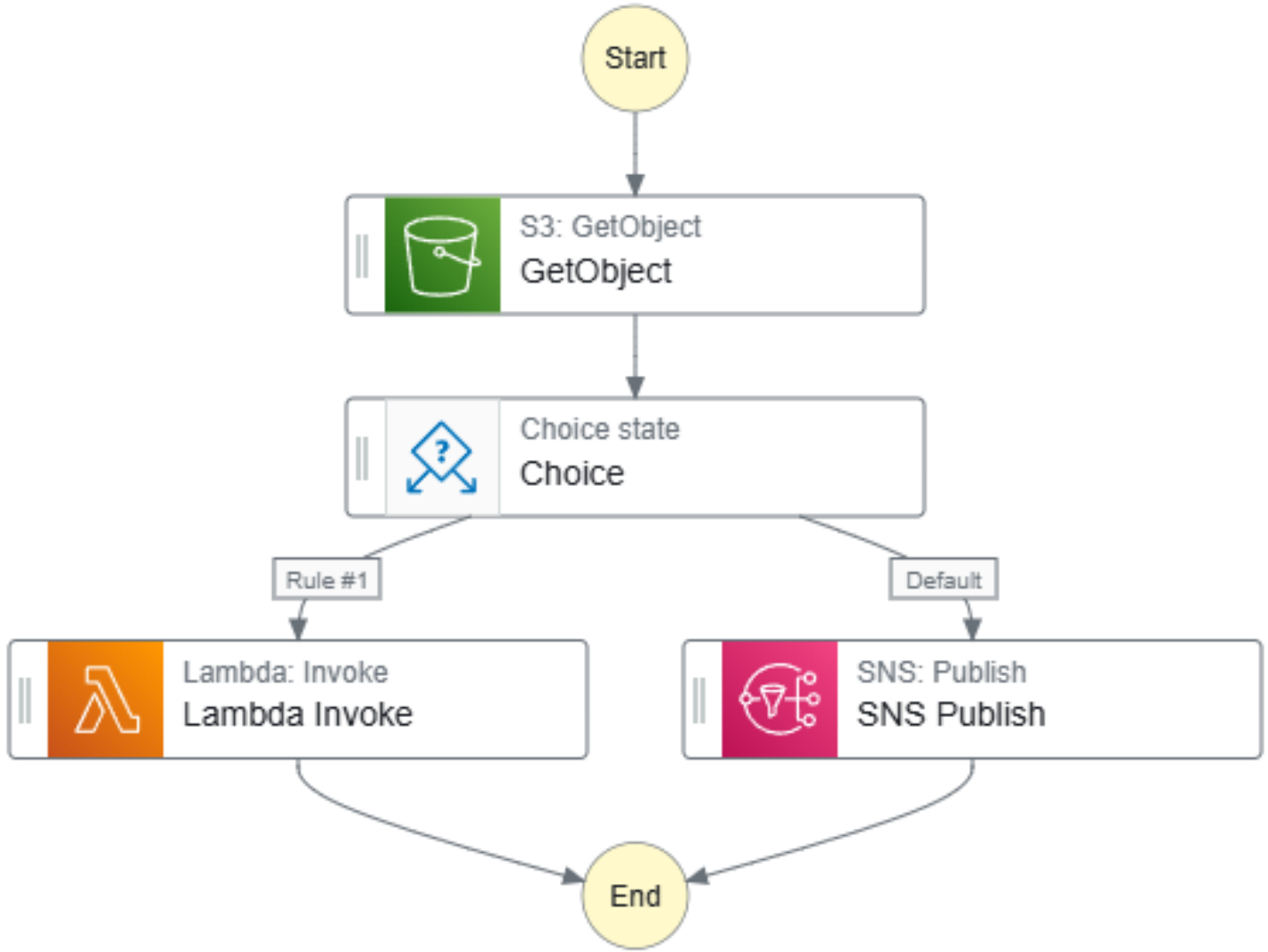


AWS LAMBDA FUNCTION

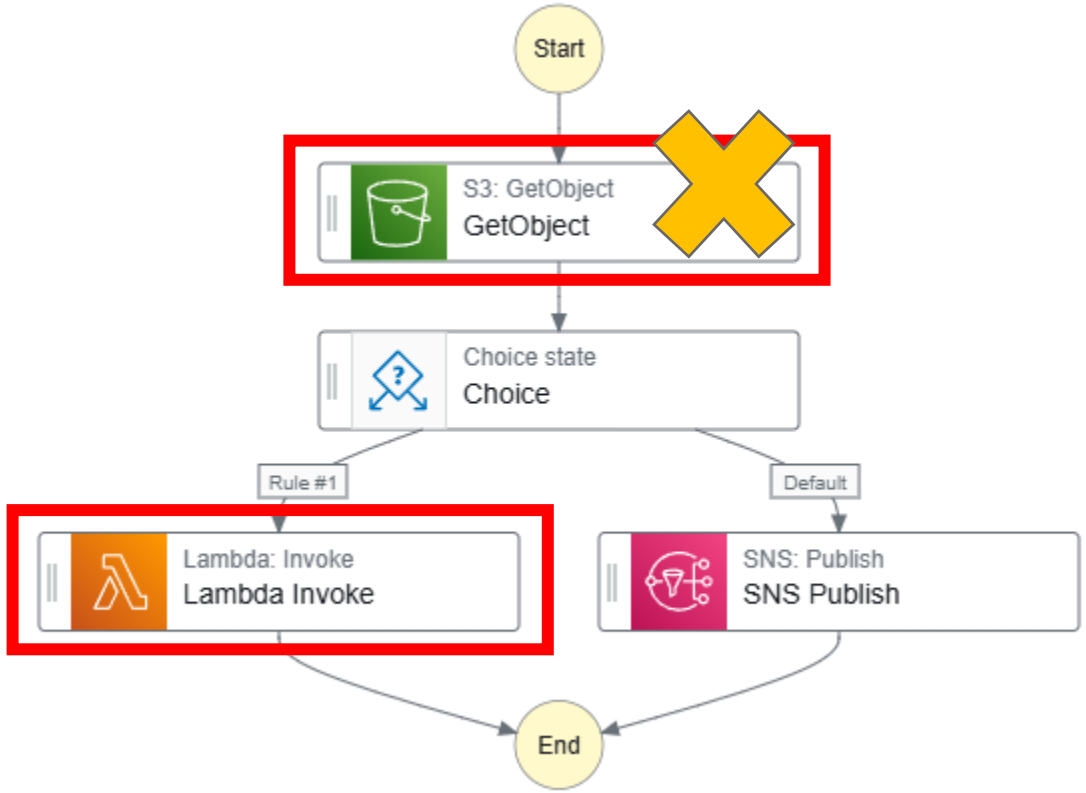


API / DATABASE

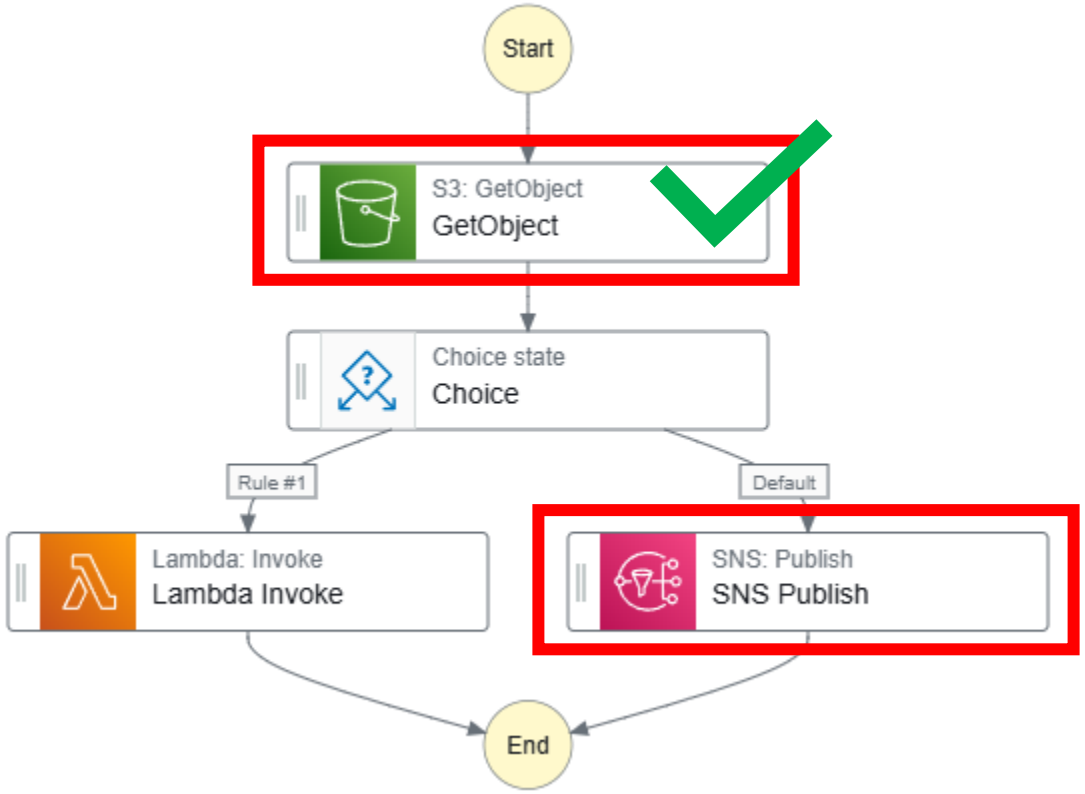
AMAZON S3 BUCKET


Start
S3: GetObject
GetObject
Choice state
Choice
Rule #1
Default
Lambda: Invoke
Lambda Invoke
SNS: Publish
SNS Publish
End

NO S3 DATA FOUND = CALL API

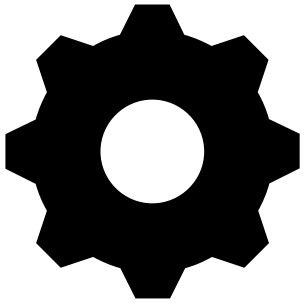


S3 DATA FOUND = NOTIFY USER

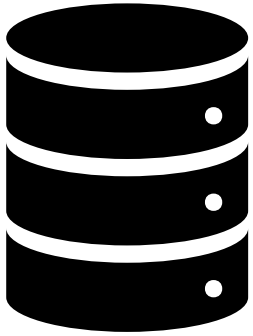


SAVES MONEY ON...

COMPUTE



STORAGE

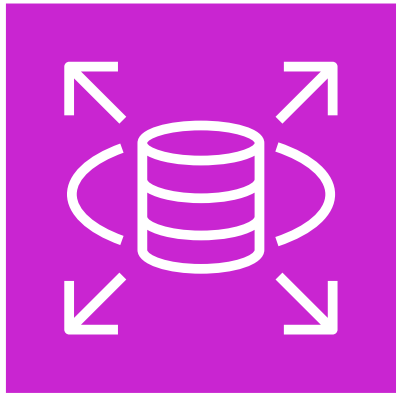


DATA SOURCE

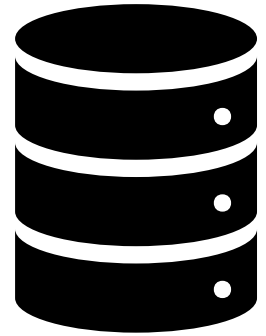
ALSO WORKS WITH...

DYNAMODB

RDS



NON-AWS DATABASES



JOB CHAIN

AMAZON ECS

TASK

OVERNIGHT PROCESS CHAIN

A

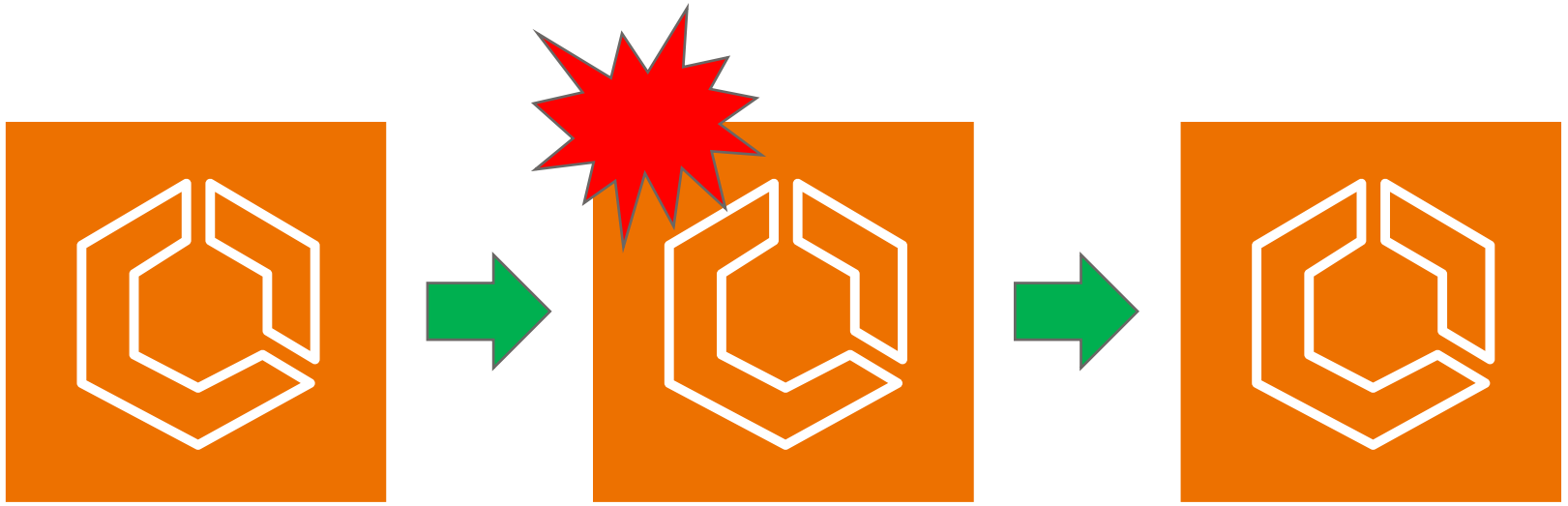
B

C

SEQUENTIAL CALLS

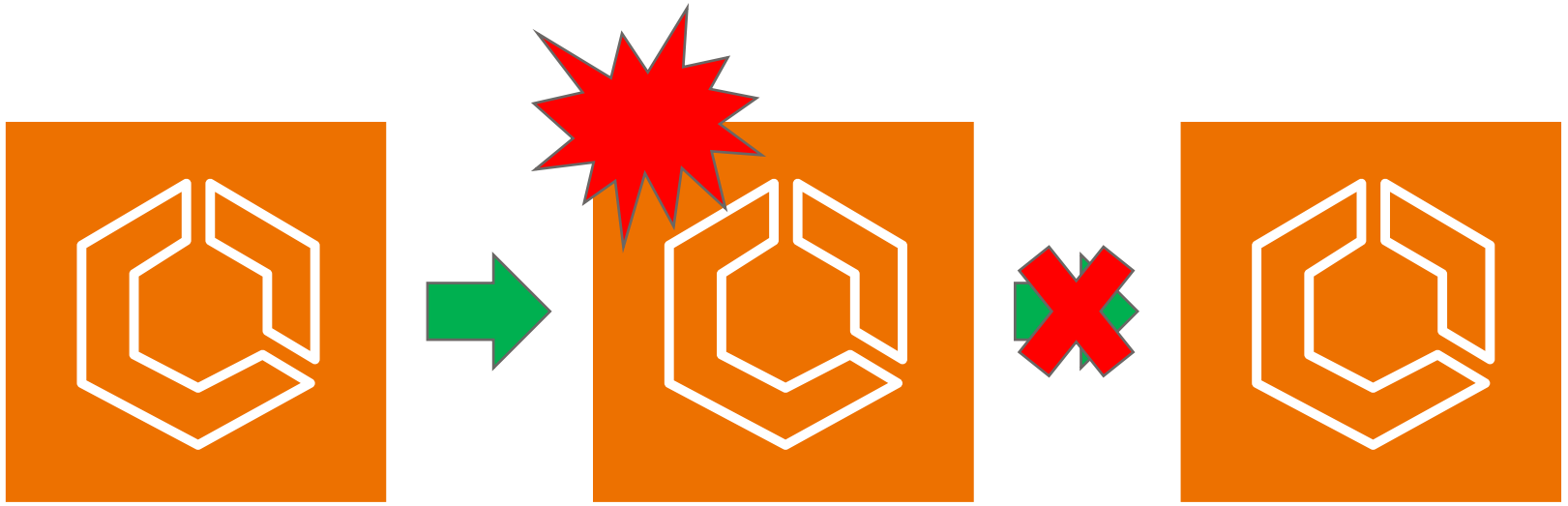
A B C

UH OH



A B C

DOUBLE UH OH



A B C

FAILURE ON B

ON CALL TRIGGERED

TASK C NEVER STARTS

DOWNSTREAM IMPACT

COST IMPACT

ON CALL PAYMENTS

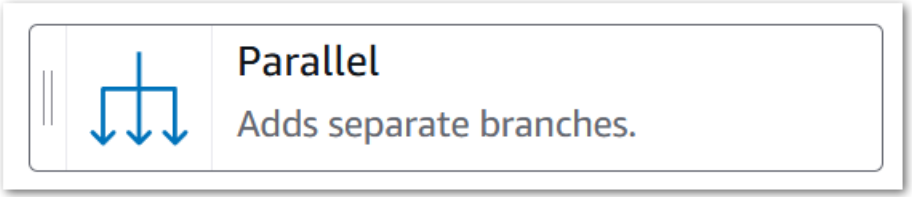
BUSINESS DISRUPTION

CUSTOMER DETRIMENT

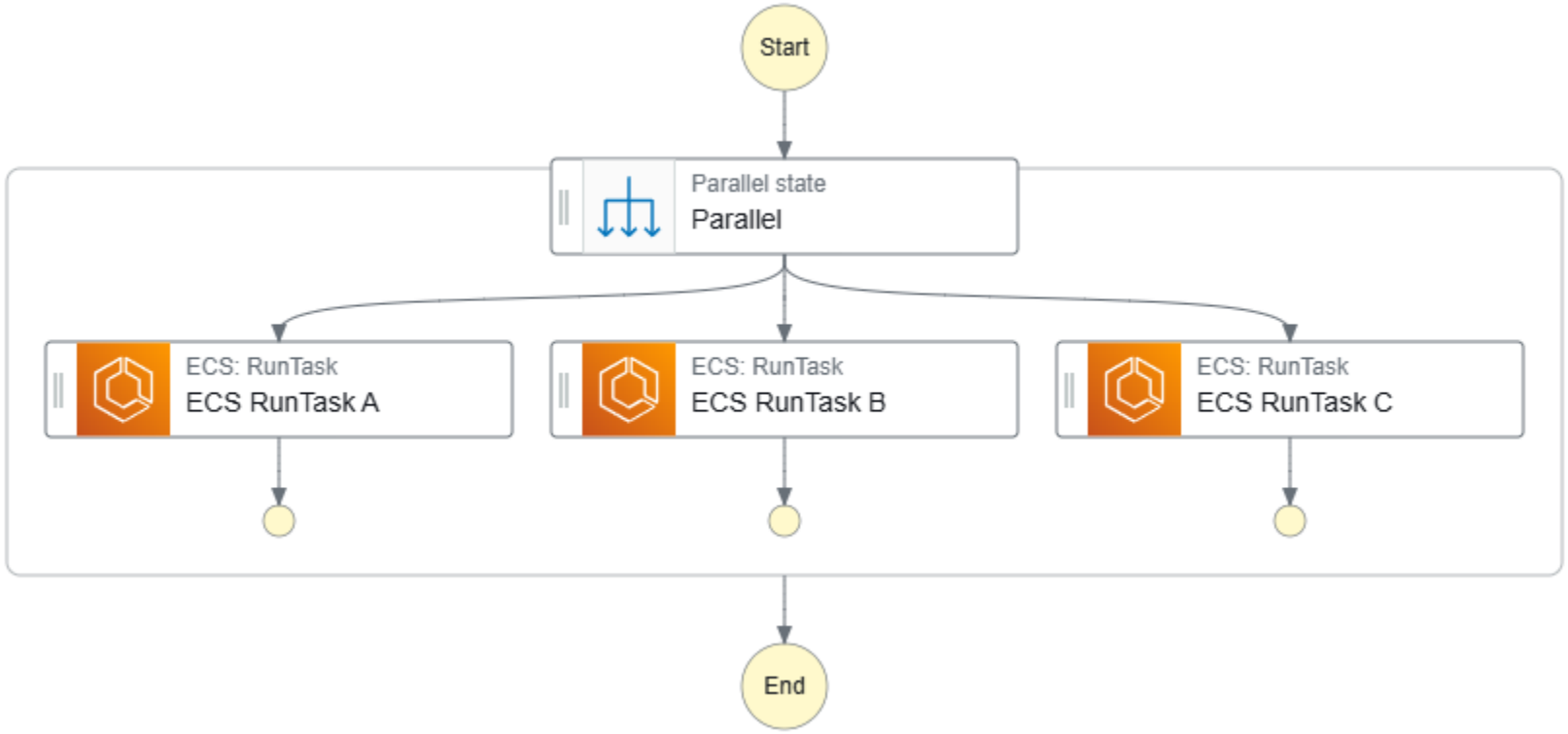
SEQUENTIAL CALLS

A B C

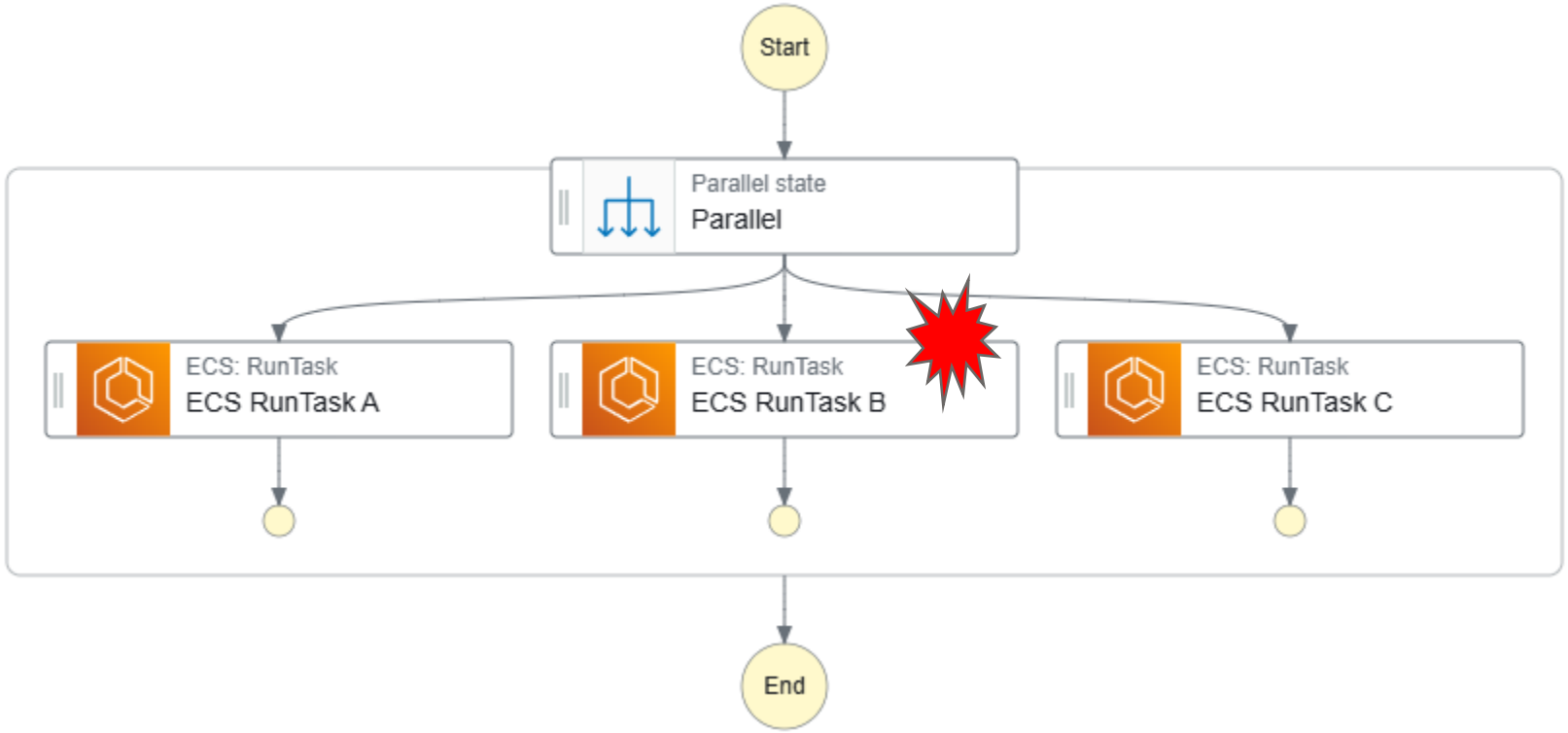
STEP FUNCTION PARALLEL STATE



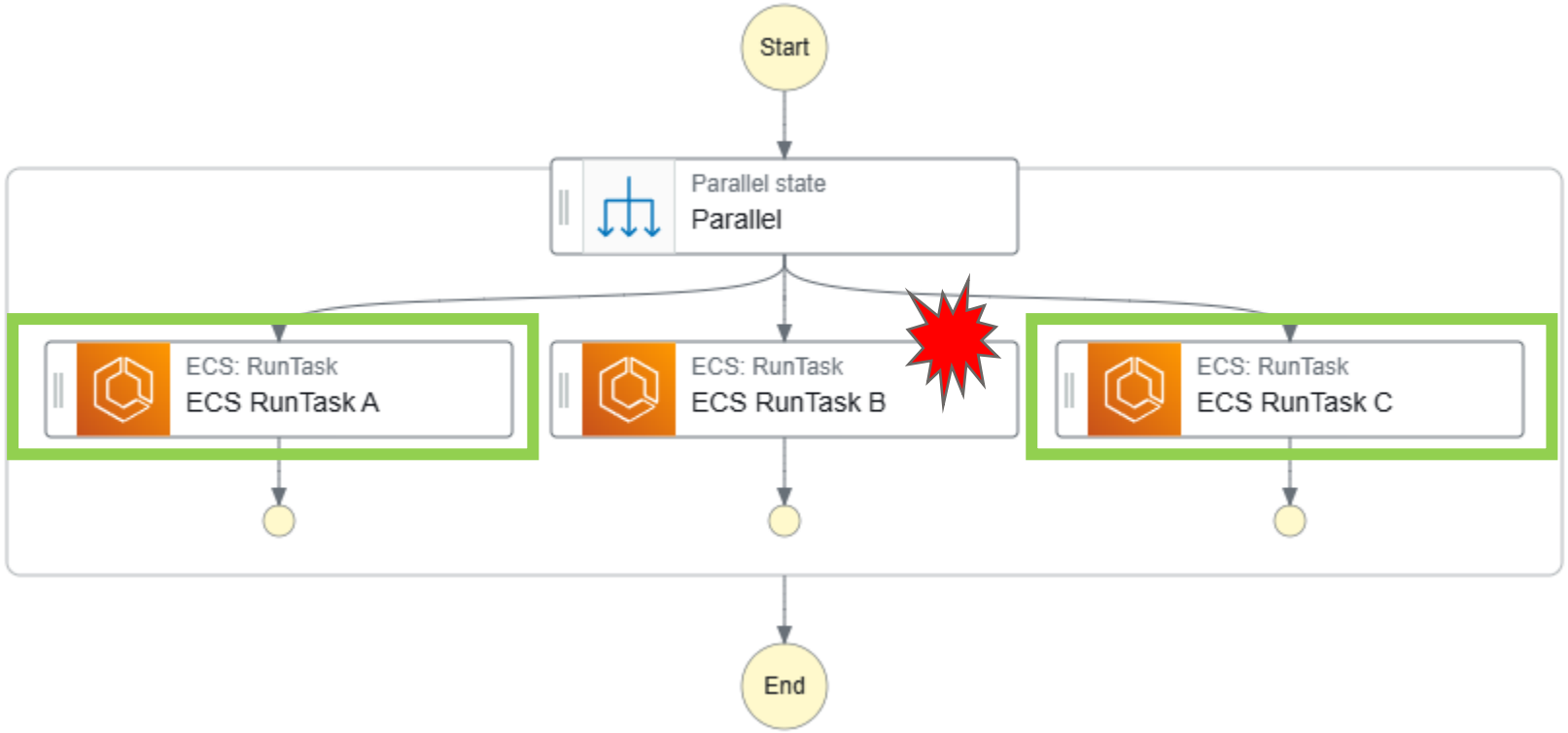
STEP FUNCTION PARALLEL WORKFLOW



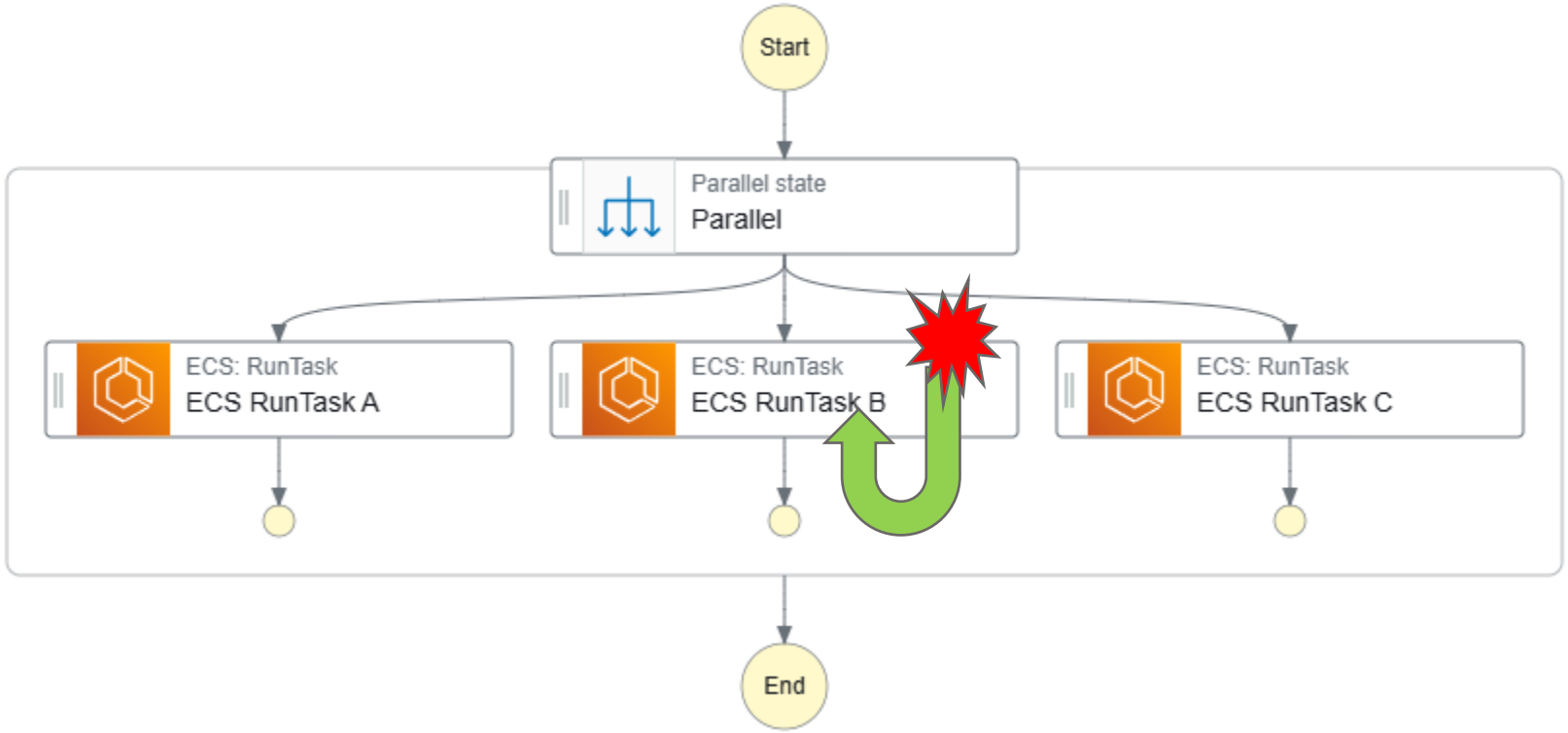
ISSUE ON B


Start
Parallel state
Parallel
ECS: RunTask
ECS RunTask A
ECS: RunTask
ECS RunTask B
ECS: RunTask
ECS RunTask C
End

ISSUE ON B

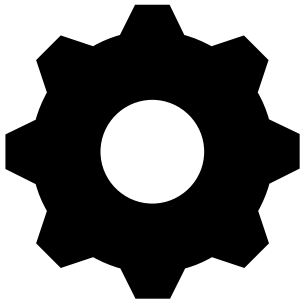

Start
Parallel state
Parallel
ECS: RunTask
ECS RunTask A
ECS: RunTask
ECS RunTask B
ECS: RunTask
ECS RunTask C
End

TRY-CATCH LOGIC



SAVES MONEY ON...

COMPUTE



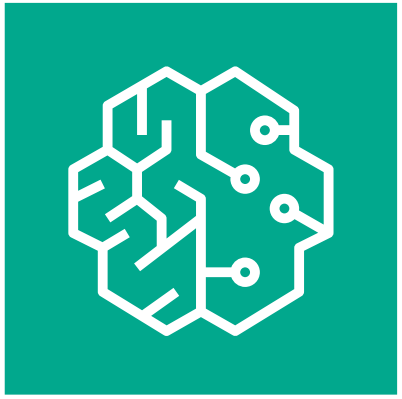
INCIDENT MANAGEMENT

BUSINESS CONTINUITY

STOPPING ABANDONED JOBS

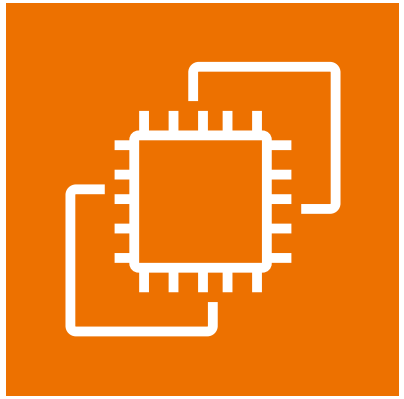
WORKS WITH...

AMAZON SAGEMAKER



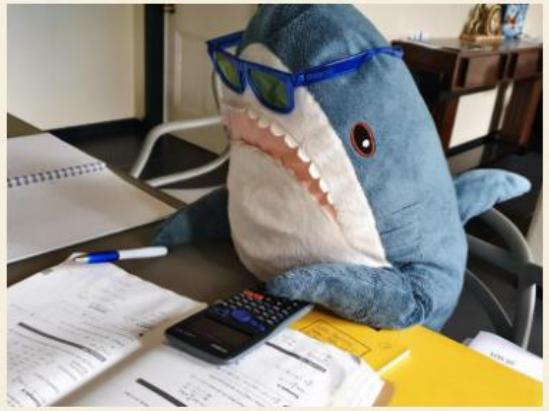
AWS GLUE

AMAZON EC2



Gold Layer PySpark ETL With AWS Glue Studio

November 15, 2024



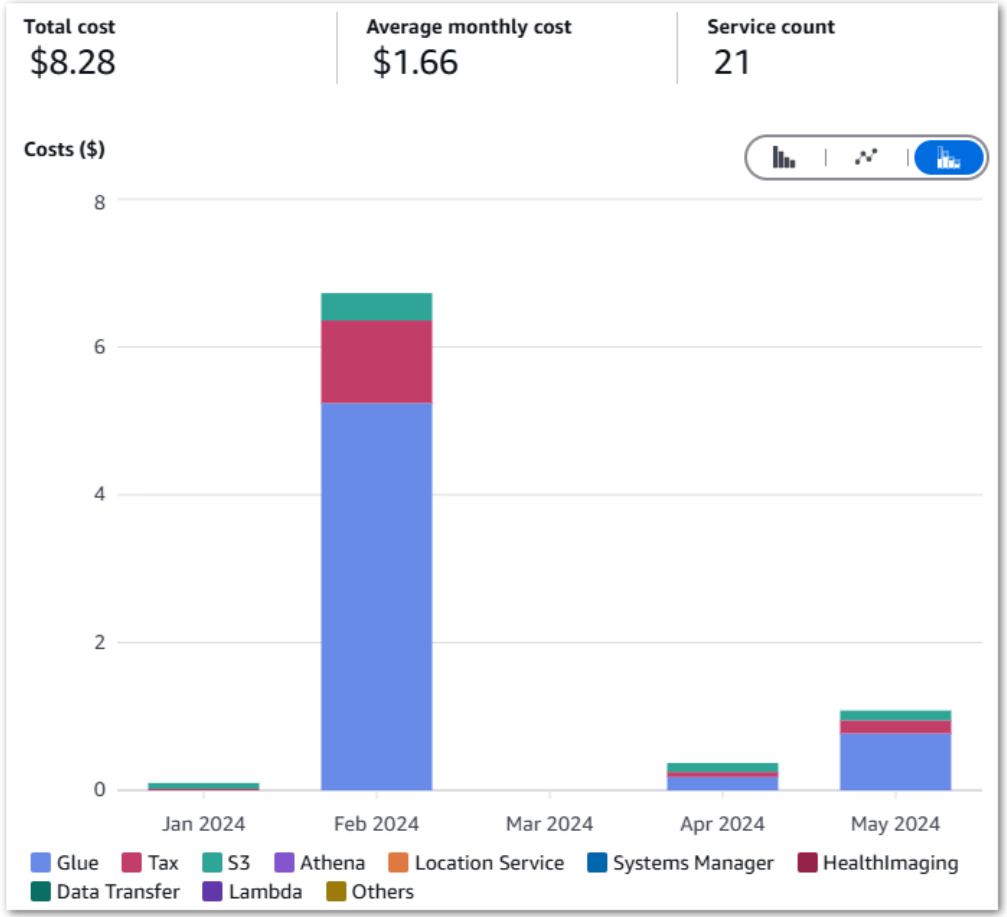
Bespoke Veracity Checks With AWS Glue Data Quality

September 2, 2024

Silver Layer Python ETL With The AWS Glue ETL Job Script Editor

August 12, 2024

COSTS: 2024 H1



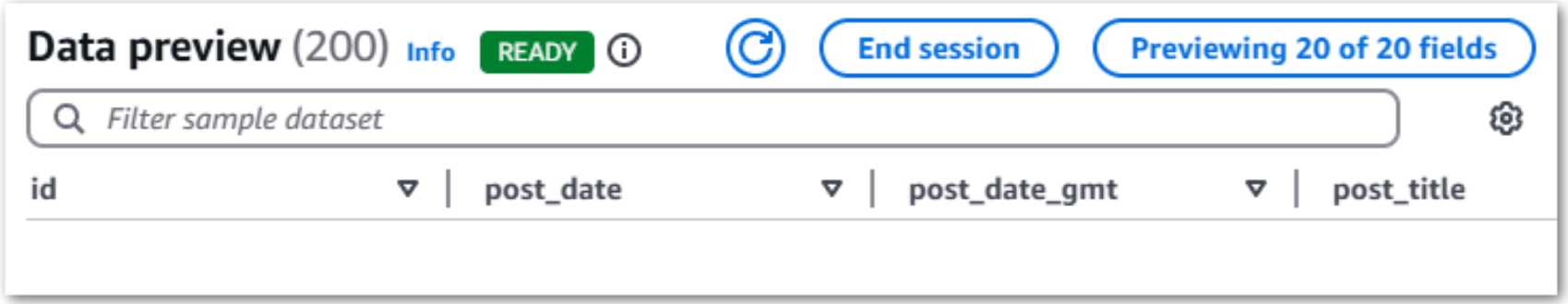
COSTS: 2024 JUNE

COST & USAGE: API OPERATION

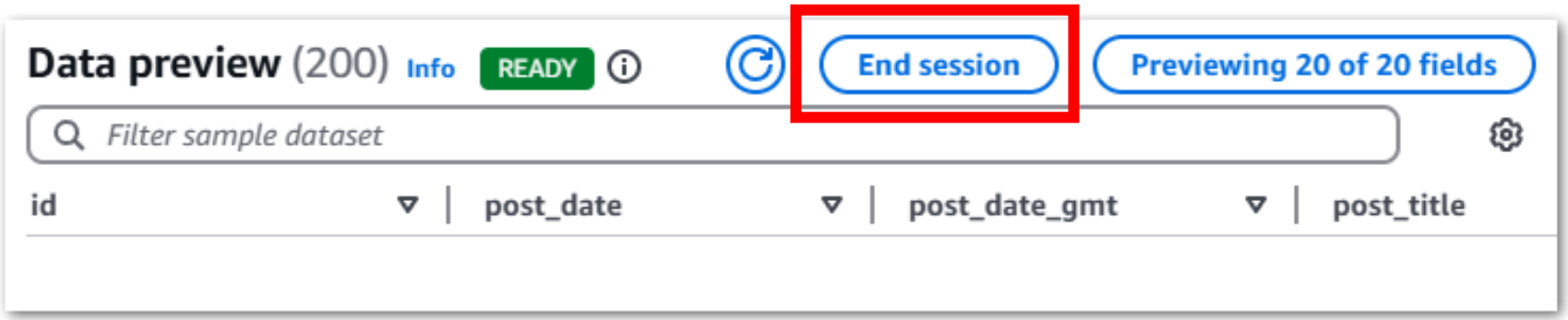
COST: API OPERATION – GLUE INTERACTIVE SESSION

COST DRIVER #1: OPEN SESSIONS

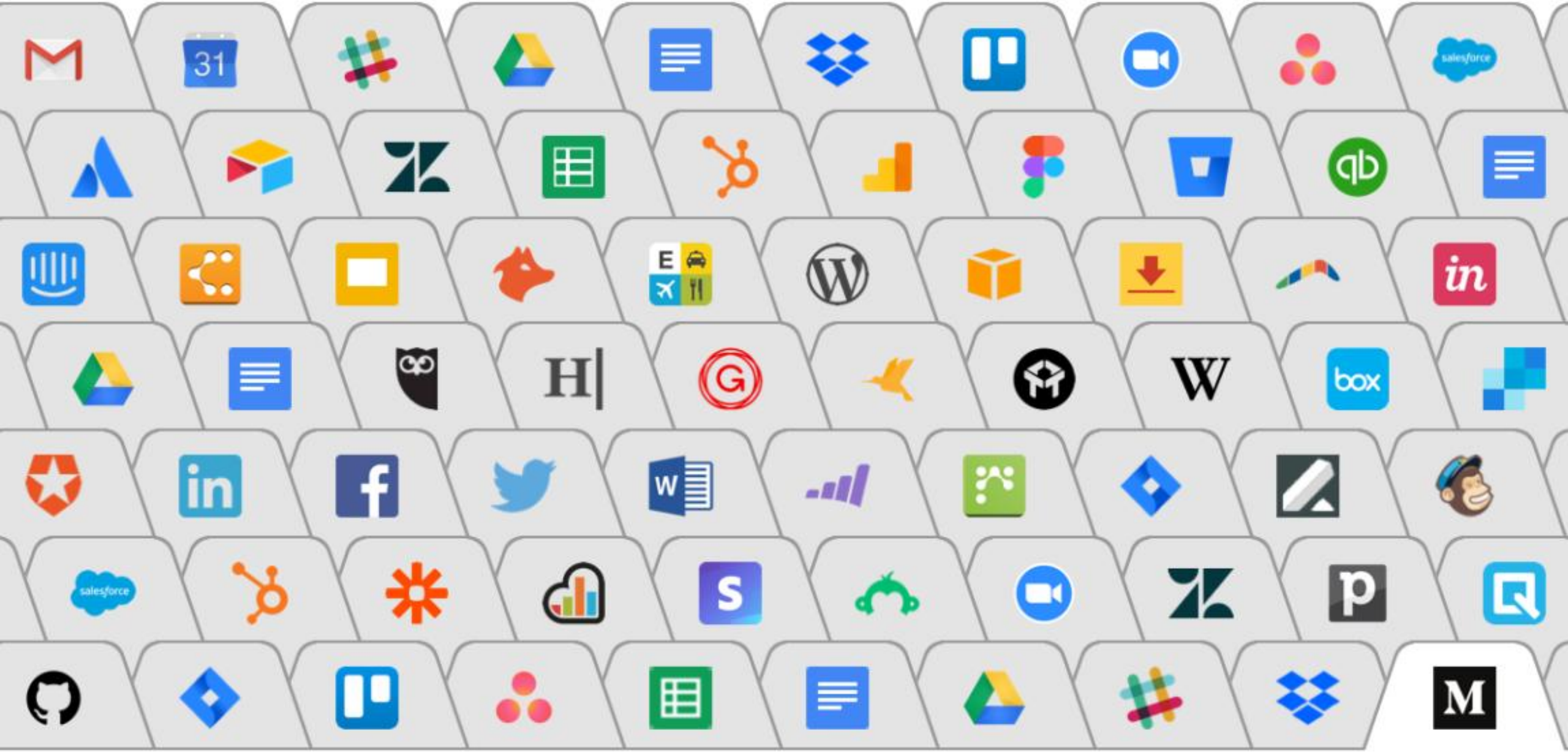
COST DRIVER: ACTIVE SESSION



COST DRIVER: ACTIVE SESSION

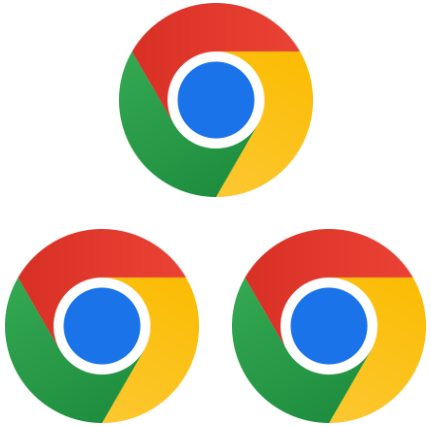


COST DRIVER #2: MULTIPLE SESSIONS

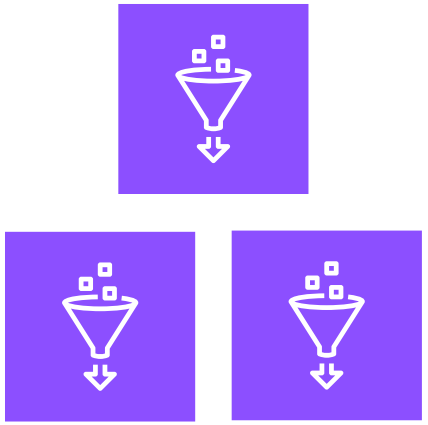

31
salesforce
in
box
salesforce

COST DRIVER: MULTIPLE SESSIONS

MANY TABS



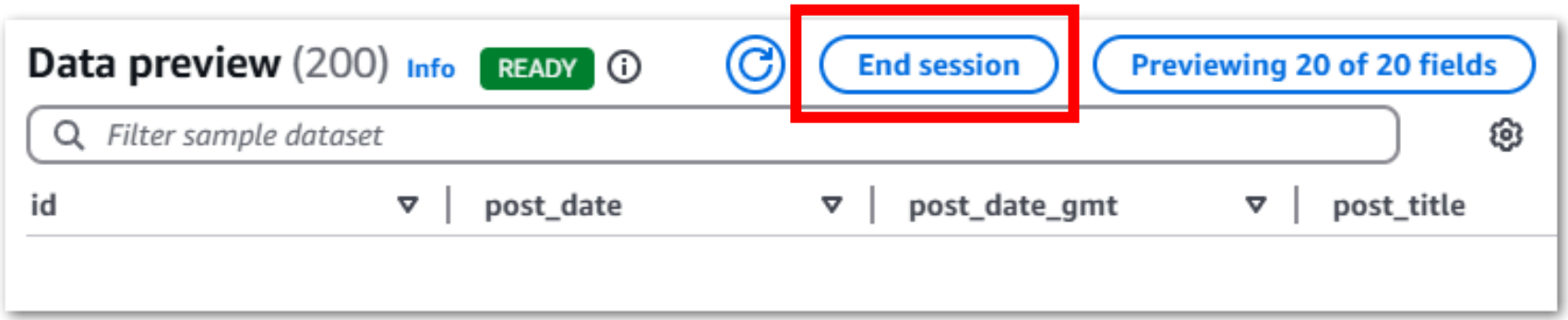
MANY SESSIONS



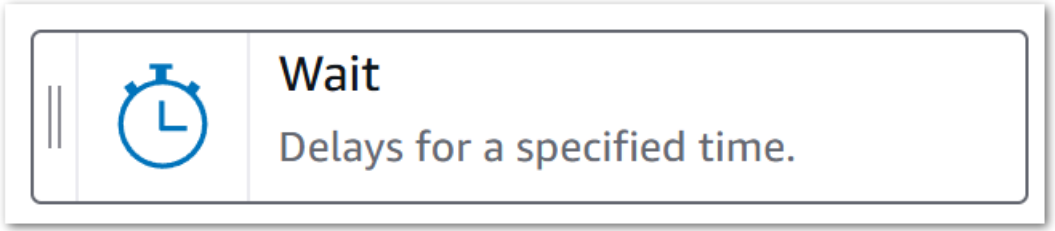
MANY BILLABLE RESOURCES!

THE CAUSE

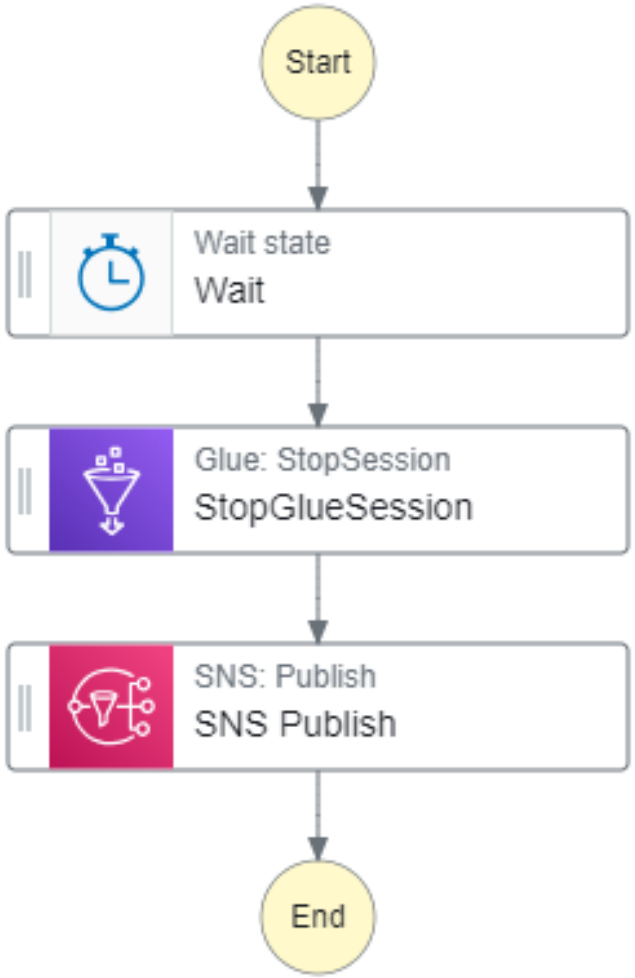
COST DRIVER: ACTIVE SESSION

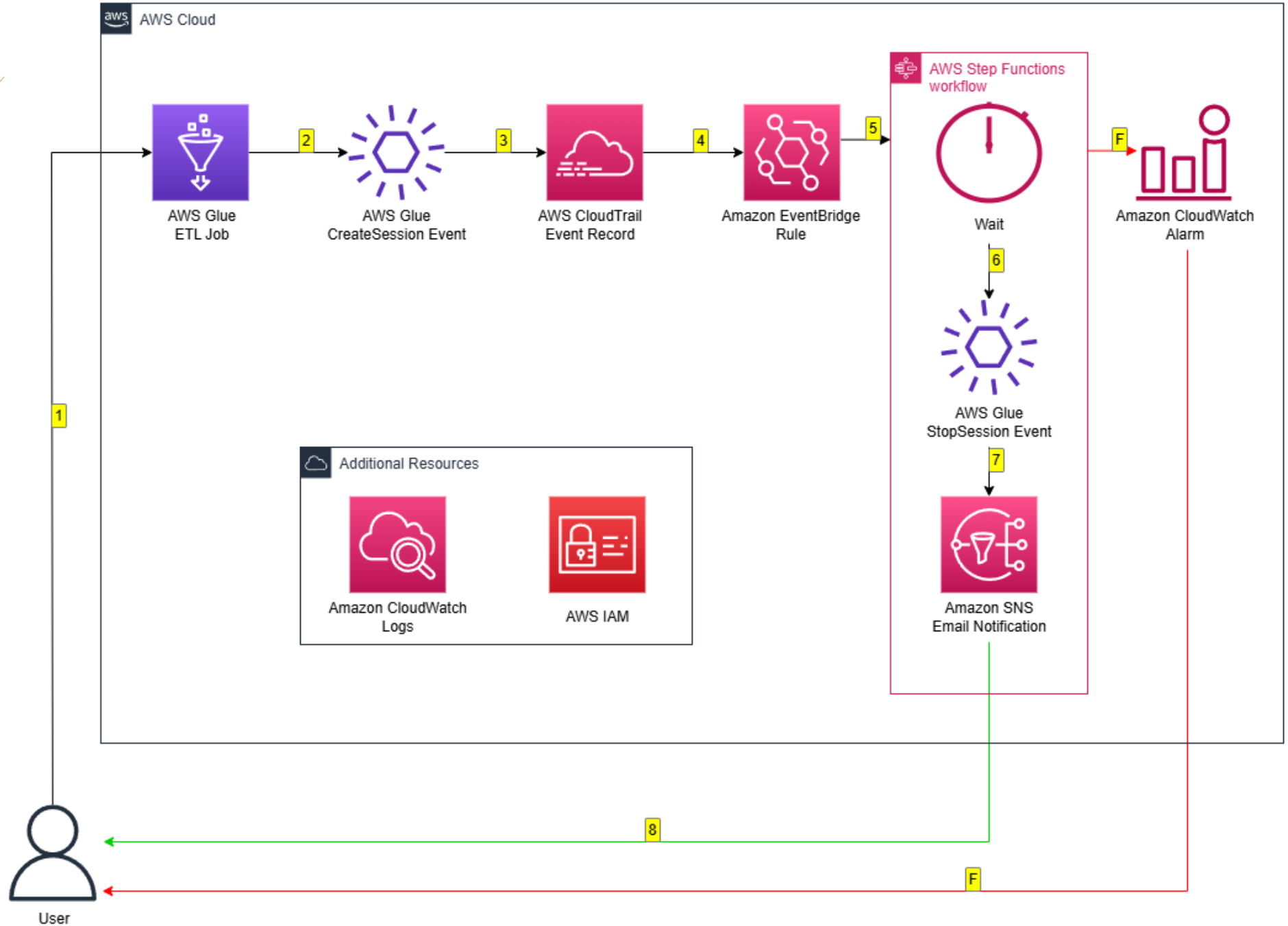


STEP FUNCTION WAIT STATE



STEP FUNCTIONS WORKFLOW




AWS Cloud
AWS Step Functions workflow
AWS Glue ETL Job
AWS Glue CreateSession Event
AWS CloudTrail Event Record
Amazon EventBridge Rule
Wait
Amazon CloudWatch Alarm
AWS Glue StopSession Event
Amazon SNS Email Notification
Additional Resources
Amazon CloudWatch Logs
AWS IAM
User
1
2
3
4
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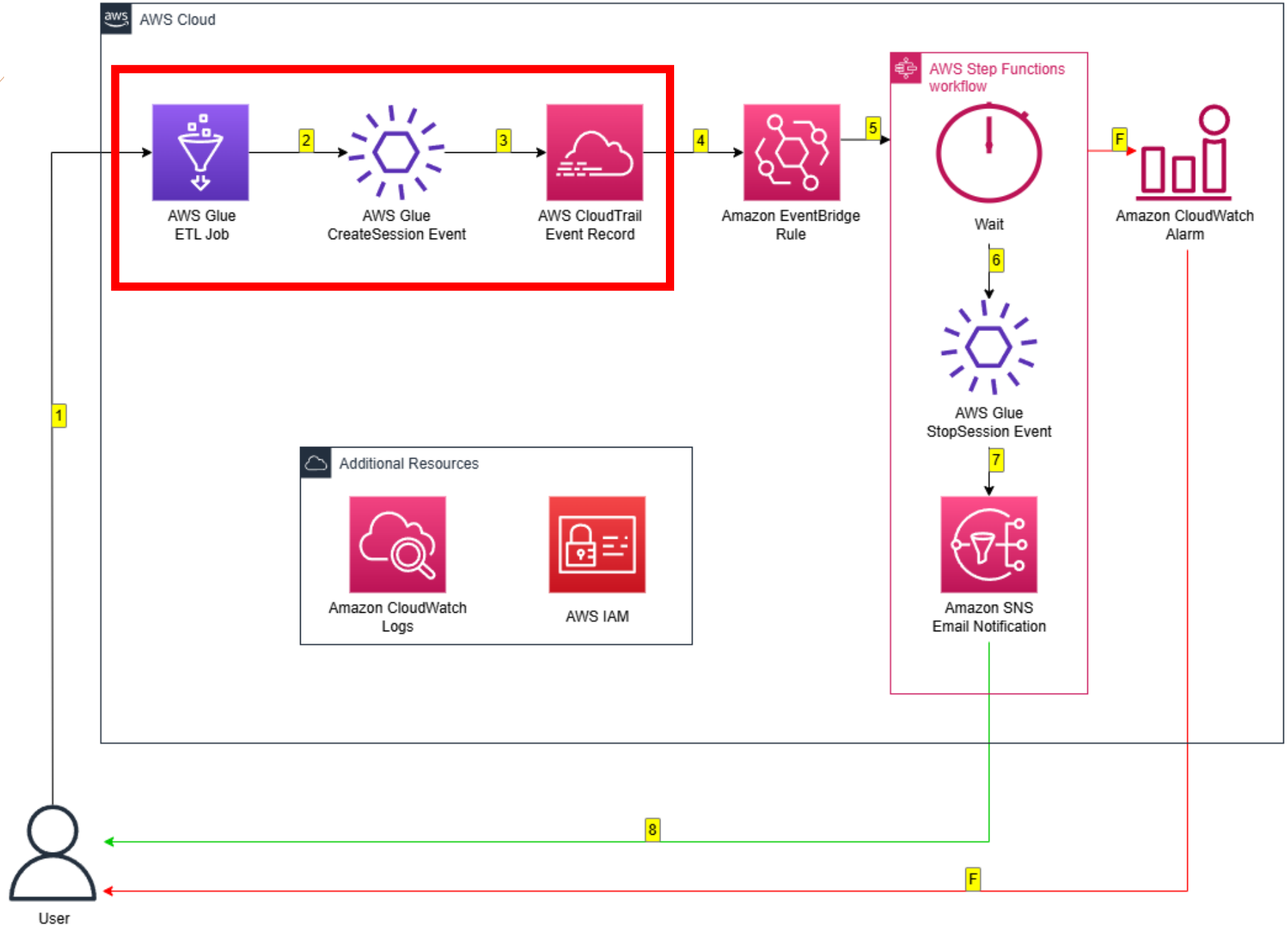
F


AWS Cloud
AWS Glue
ETL Job
2
AWS Glue
CreateSession Event
3
AWS CloudTrail
Event Record
4
Amazon EventBridge
Rule
5
AWS Step Functions
workflow
Wait
6
AWS Glue
StopSession Event
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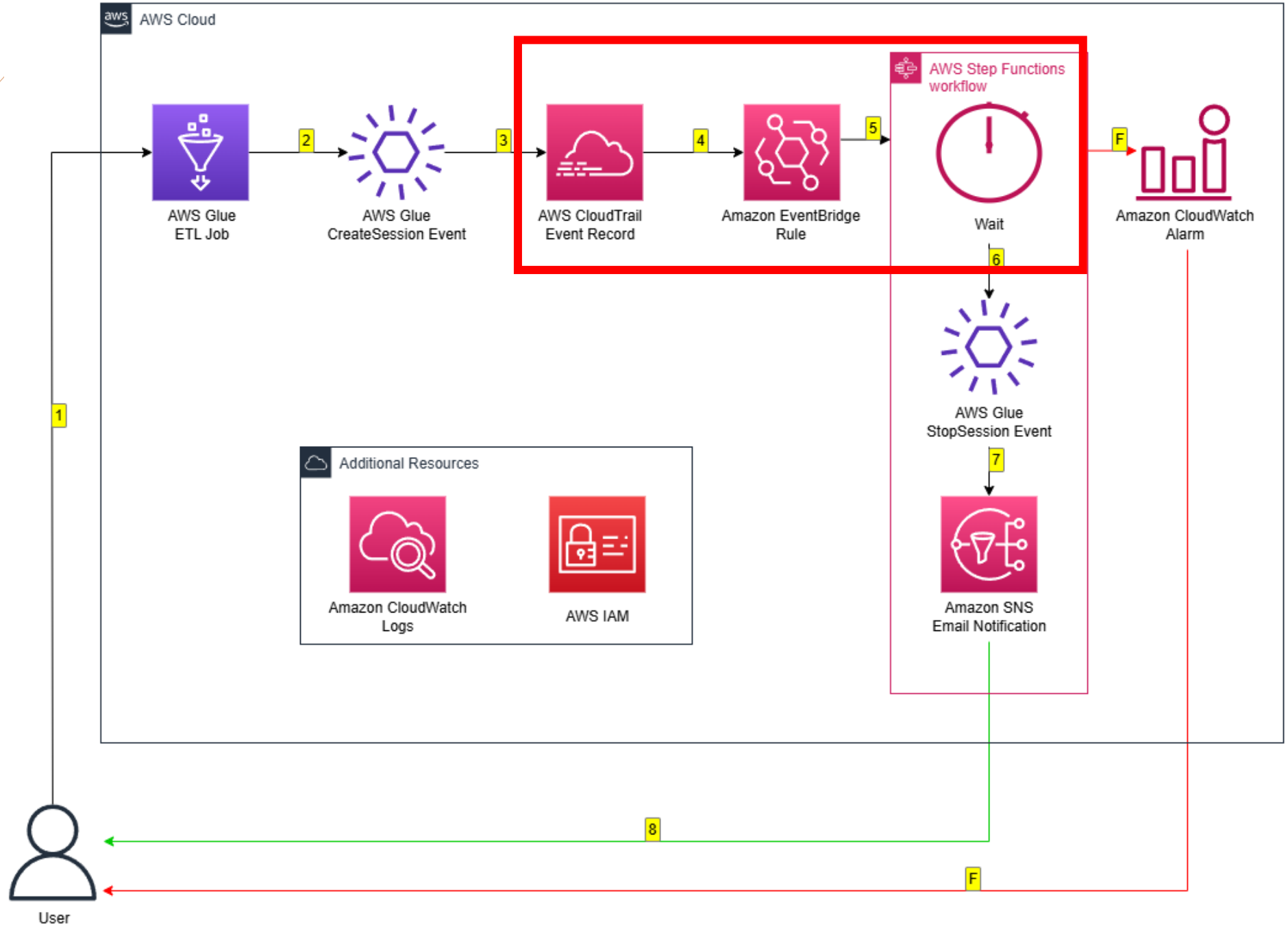
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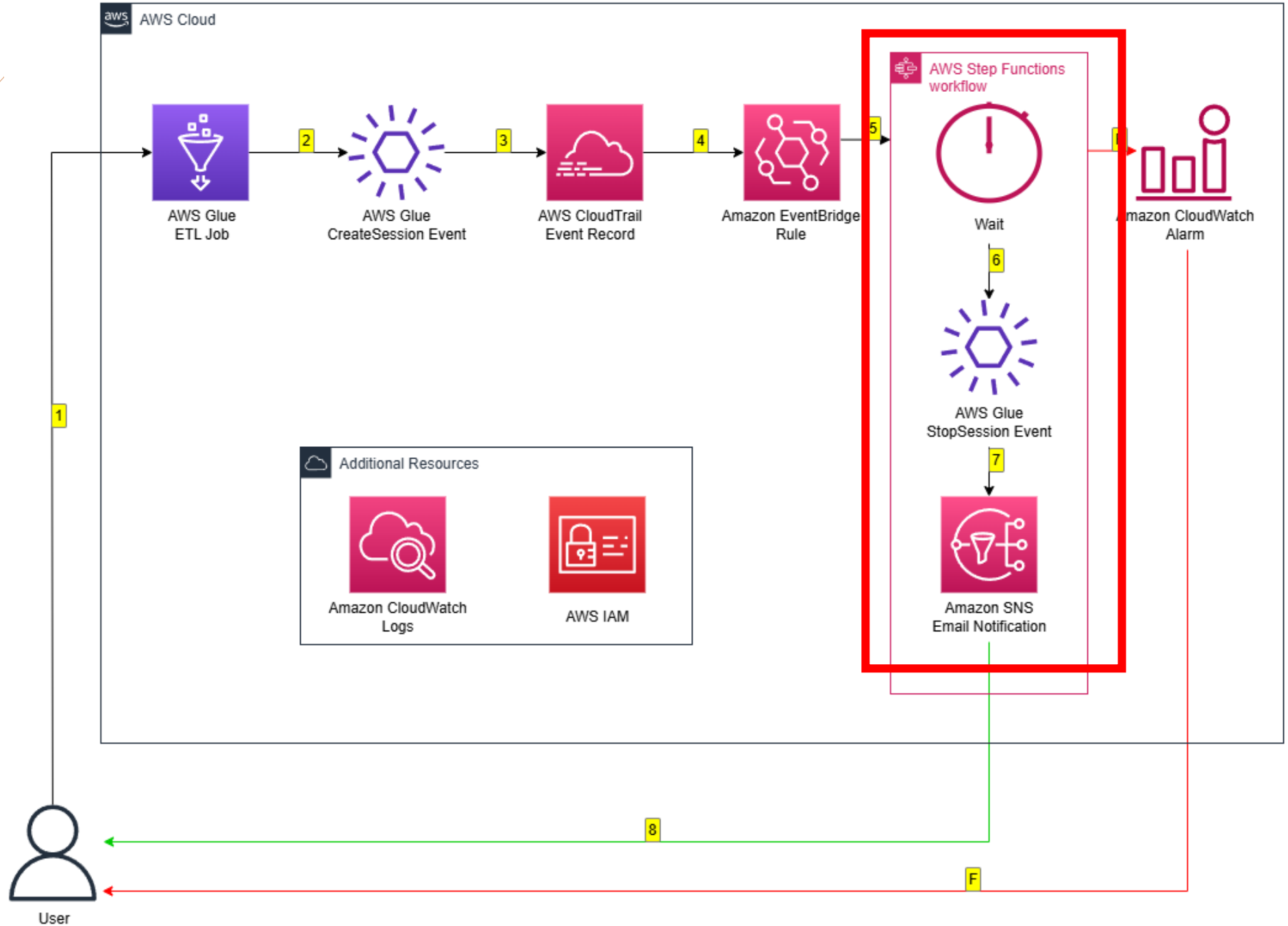
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AWS CloudTrail Event Record
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Wait
Amazon CloudWatch Alarm
AWS Glue StopSession Event
Amazon SNS Email Notification
Additional Resources
Amazon CloudWatch Logs
AWS IAM
User
1
2
3
4
5
6
7
8
F

STEP FUNCTION DEMO

Step Functions
State machines
Activities
Developer resources
Online learning workshop
Local Development
Data flow simulator
Feature spotlight
Documentation
Join our feedback panel

GlueSession-WaitAndStop

Edit | Actions | Start execution

Details

Arn
arn:aws:states:eu-west-1:973122011240:stateMachine:GlueSession-WaitAndStop

IAM role ARN
arn:aws:iam::973122011240:role/service-role/StepFunctions-GlueSession-WaitAndStop-role-b8l7sy5xc

Type
Standard

Status
Active

Creation date
Jun 5, 2024, 19:31:49 (UTC+01:00)

X-Ray tracing
Disabled

Executions | Monitoring | Logging | Definition | Aliases | Versions | Tags

Executions (0/0)

View details | Stop execution | Redrive | Start execution

Filter executions by property or value | All | Last 15 months | Local timezone | 0 matches | 1

Name	Status	Start Time (local)	End Time (local)	Duration Info	Version	Alias

No executions
Start execution

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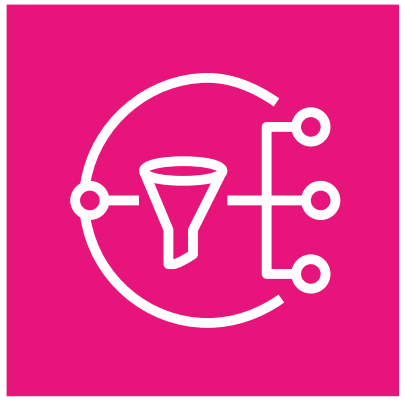
GLUE INTERACTIVE SESSIONS 2024 H2

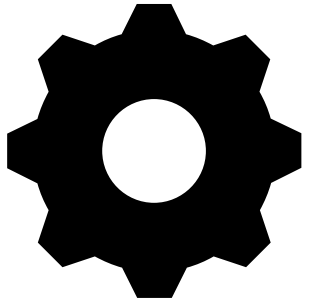
OTHER USES:
PERFORM OTHER ACTIONS

EMAIL & SLACK NOTIFICATIONS

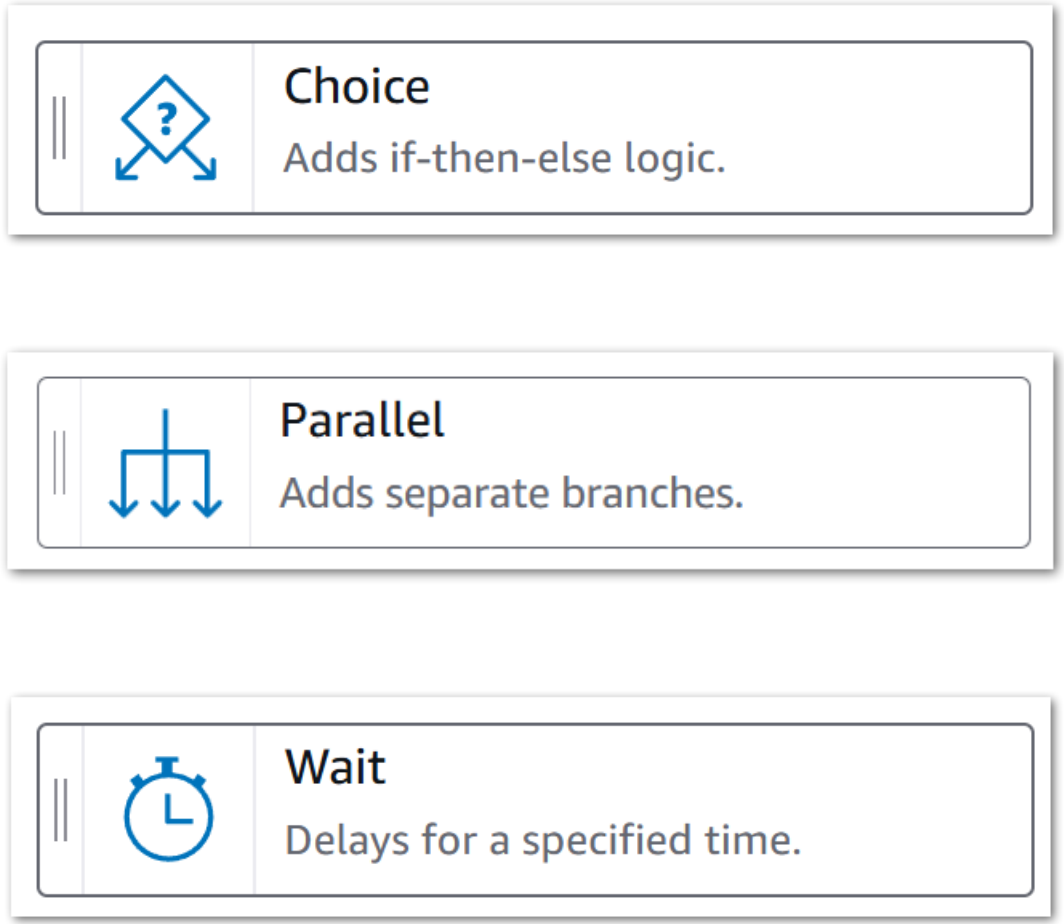


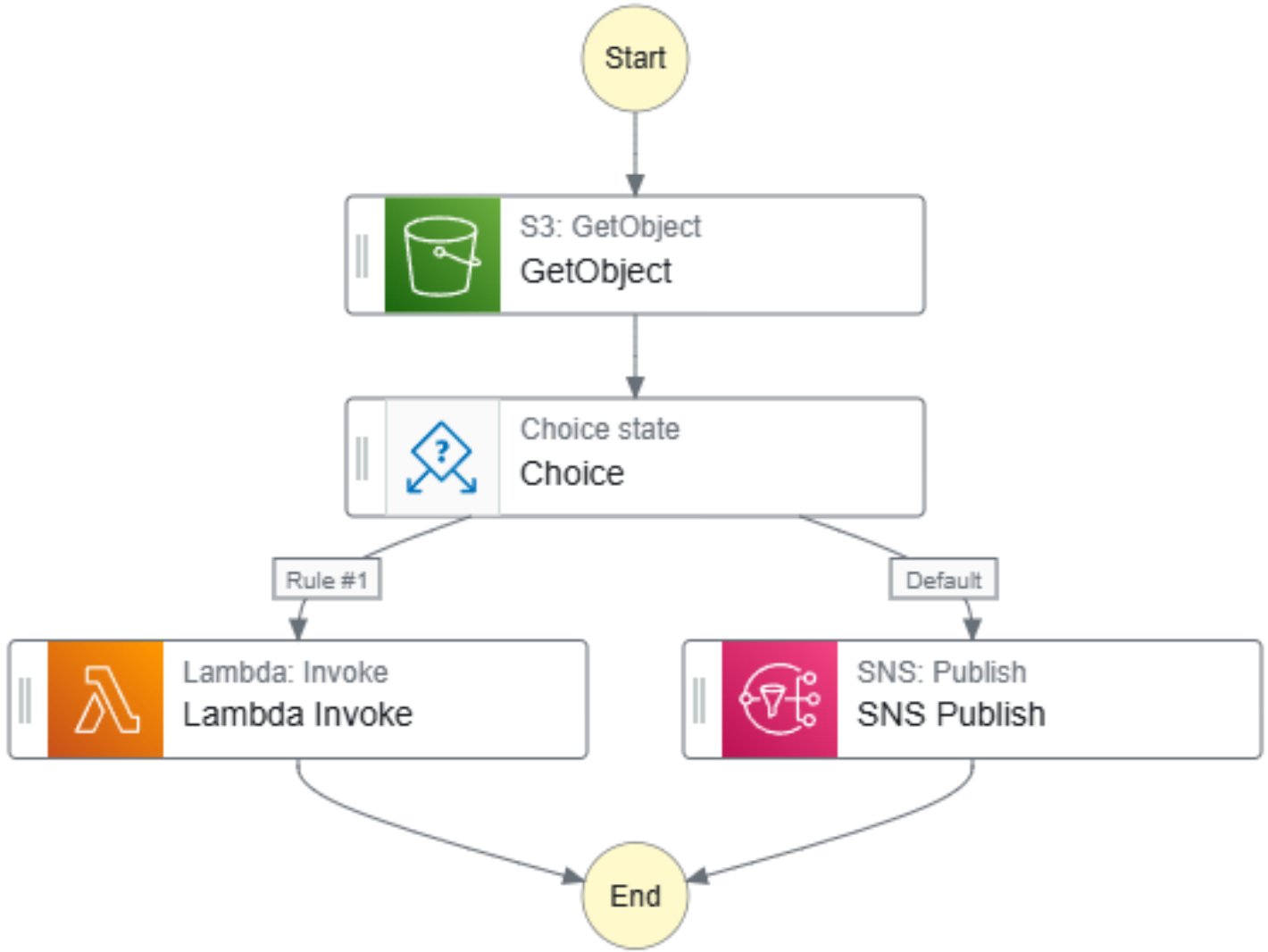
BESPOKE LOGGING

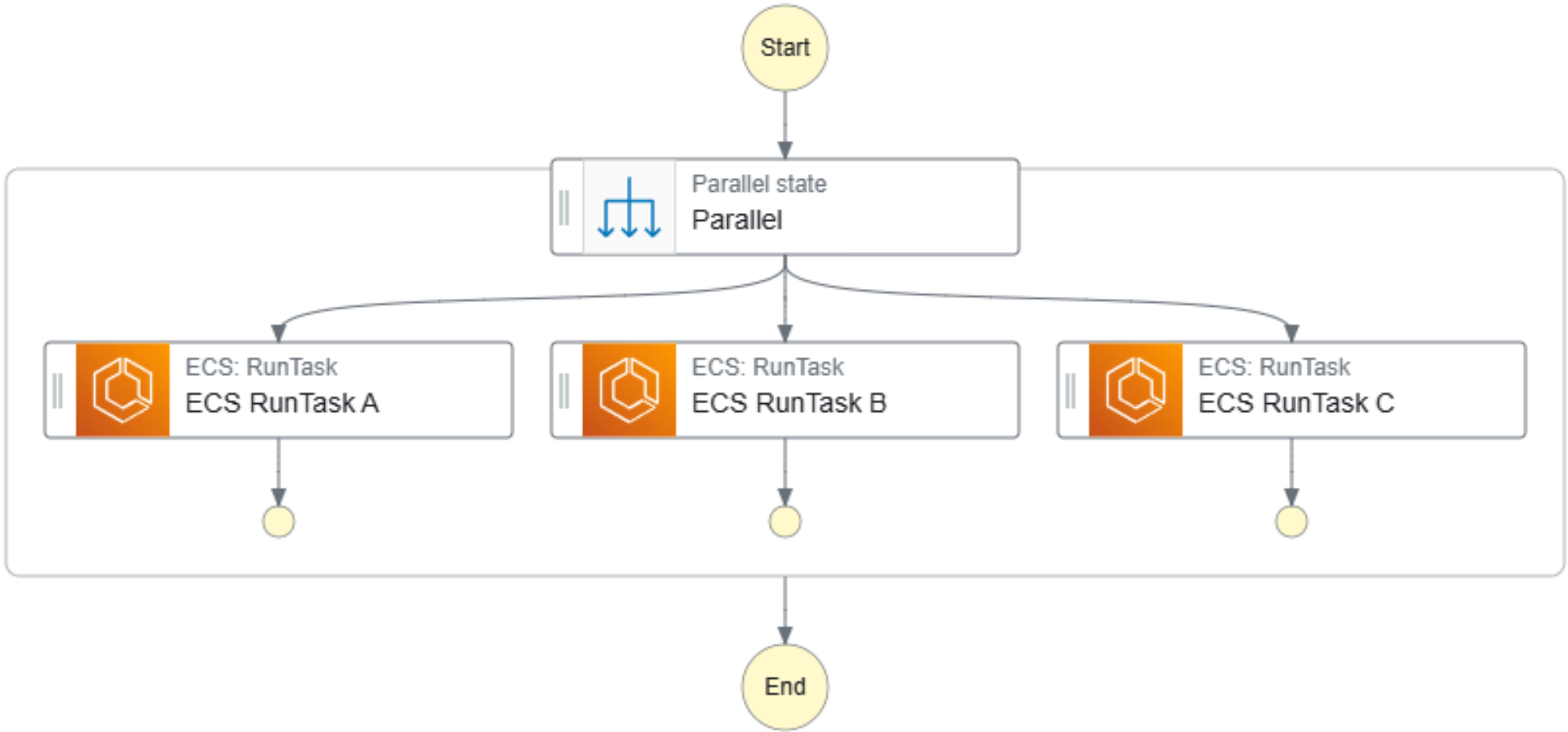
TRIGGER SEPARATE WORKFLOW

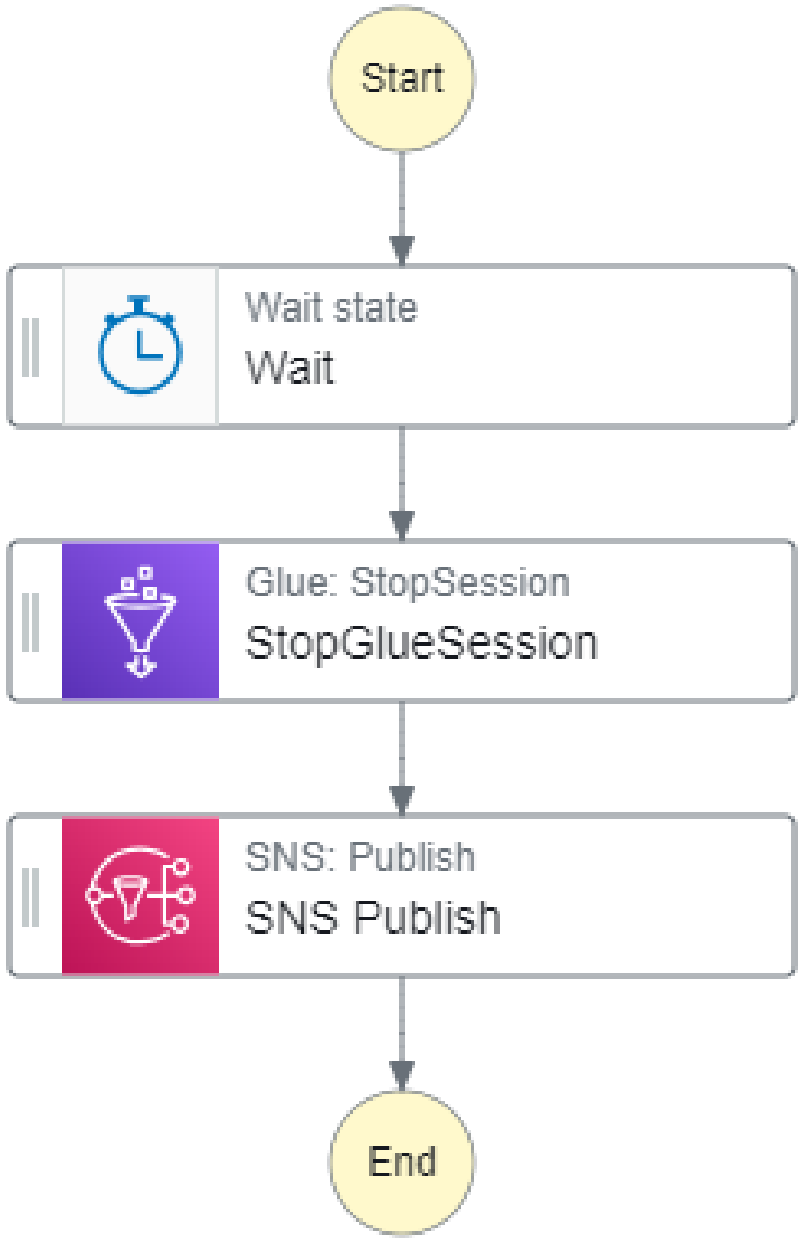


SUMMARY


Choice
Adds if-then-else logic.
Parallel
Adds separate branches.
Wait
Delays for a specified time.


Start
S3: GetObject
GetObject
Choice state
Choice
Rule #1
Default
Lambda: Invoke
Lambda Invoke
SNS: Publish
SNS Publish
End


Start
Parallel state
Parallel
ECS: RunTask
ECS RunTask A
ECS: RunTask
ECS RunTask B
ECS: RunTask
ECS RunTask C
End


Start
Wait state
Wait
Glue: StopSession
StopGlueSession
SNS: Publish
SNS Publish
End

THANK YOU

Me & Session Resources

UG Lancashire