

What's new in AWS Serverless

2024



Anton Aleksandrov
Principal Solutions Architect
AWS Serverless and Event-Driven Architectures

Serverless Digital Learning Badges - get yours NOW!

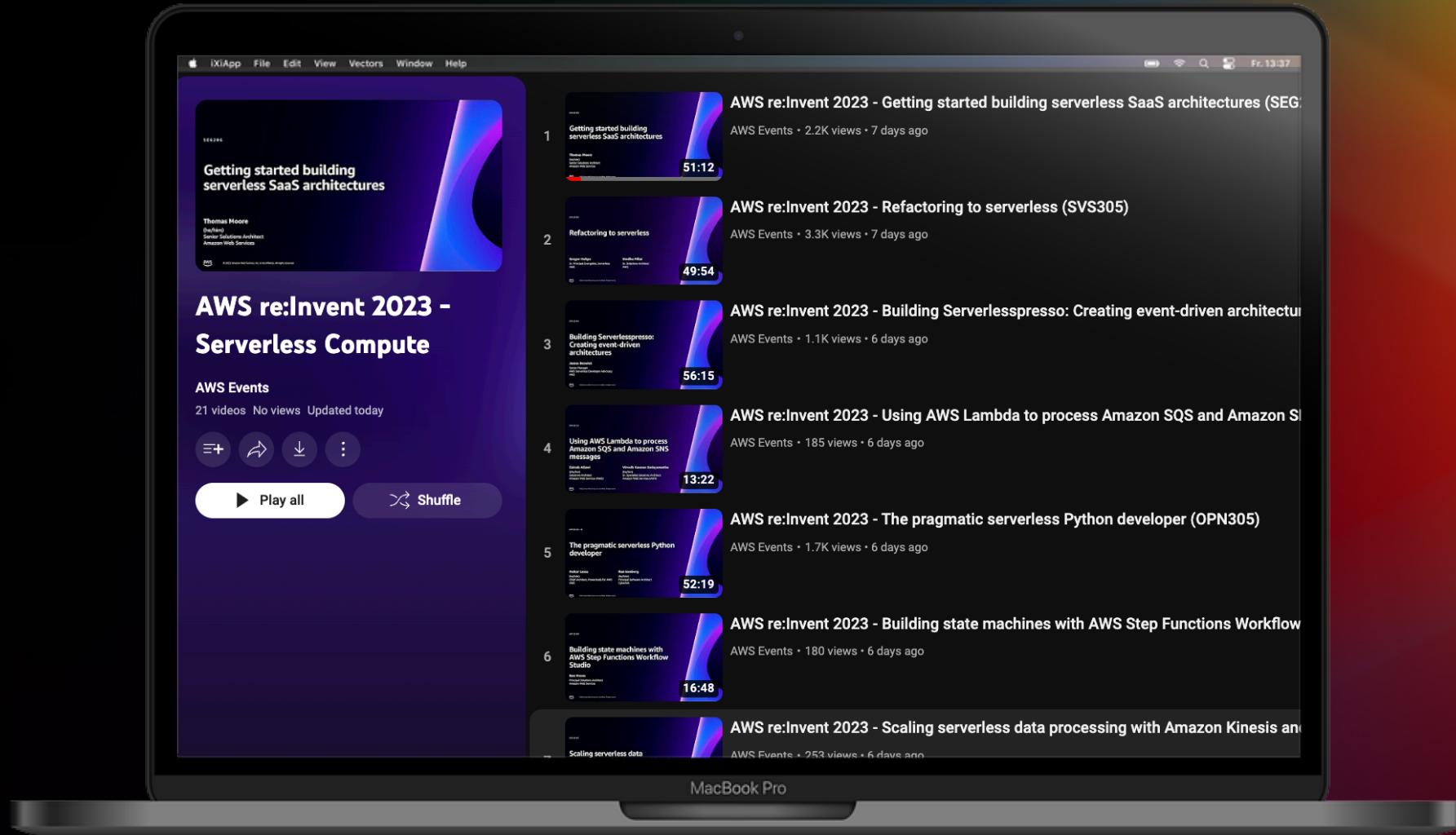


https://explore.skillbuilder.aws/learn/public/learning_plan/view/92/serverless-learning-plan
https://explore.skillbuilder.aws/learn/public/learning_plan/view/1927/events-and-workflows-knowledge-badge-readiness-path



© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS re:Invent 2023 – Serverless Compute Playlist



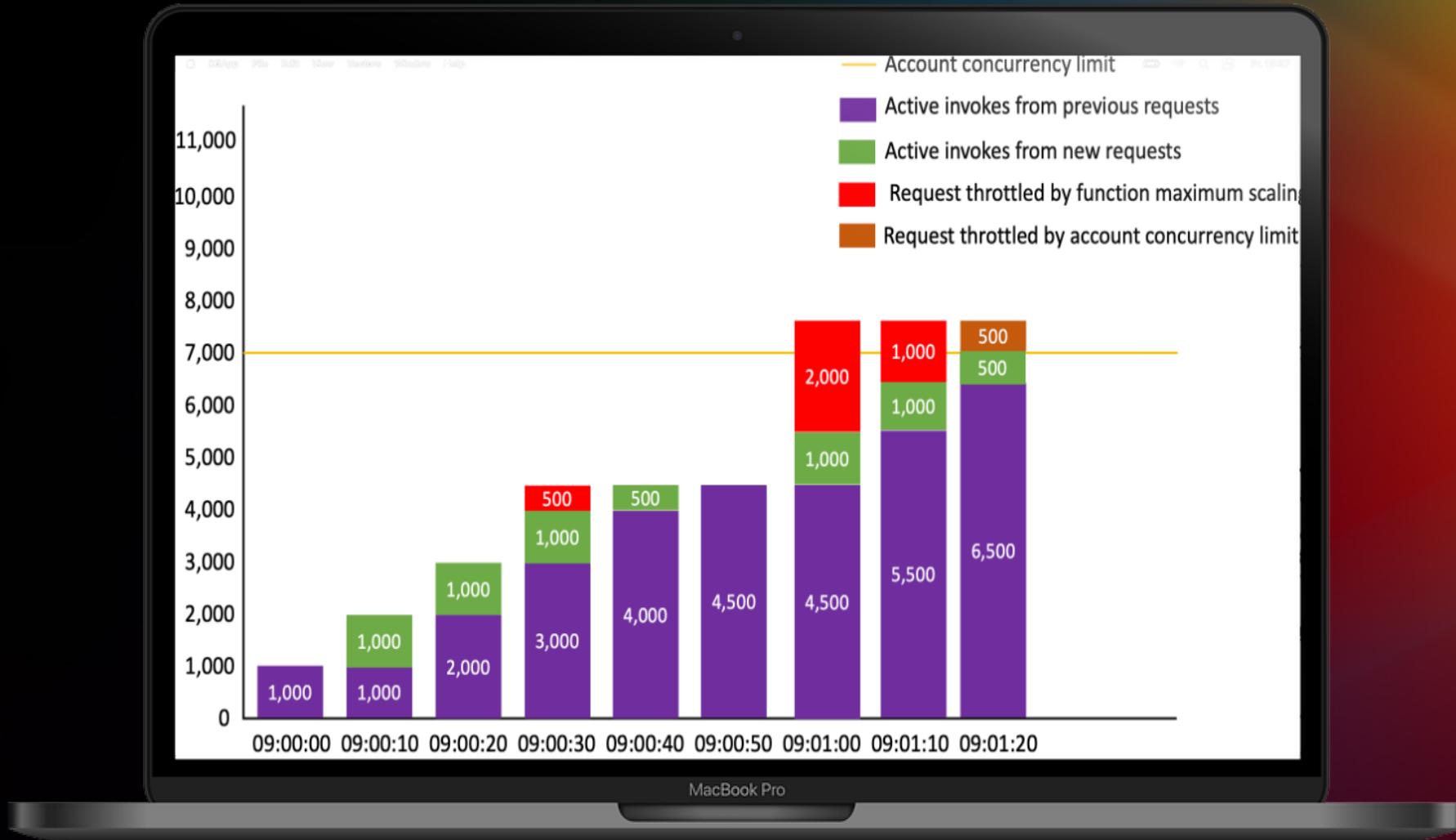
https://www.youtube.com/playlist?list=PL2yQDdvlhXf_rloSt34Uh37PBzTti6aFc





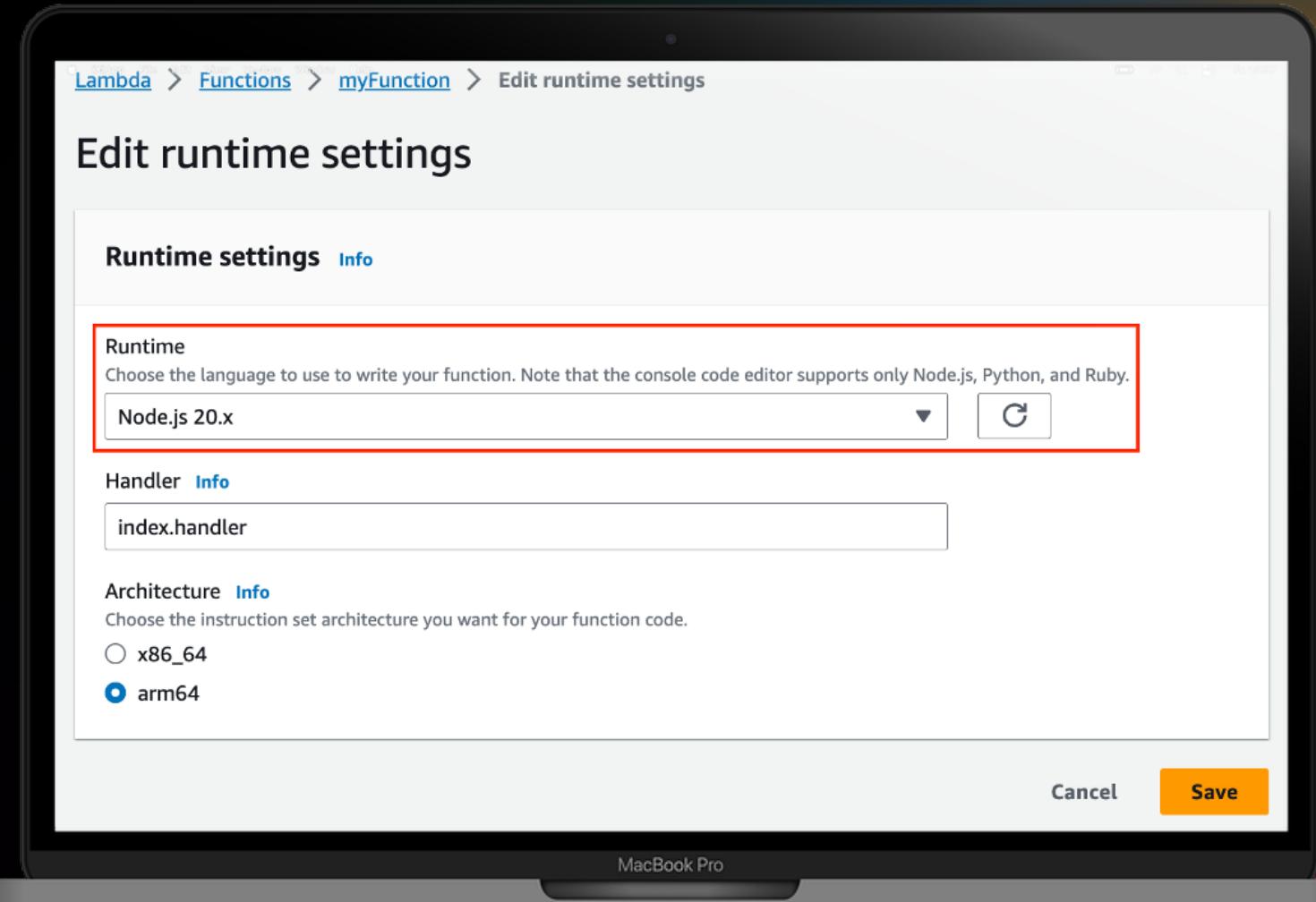
AWS Lambda

Lambda functions scale up to 12 times faster



<https://aws.amazon.com/blogs/aws/aws-lambda-functions-now-scale-12-times-faster-when-handling-high-volume-requests/>

New Lambda runtimes



Node.js 20



Python 3.12



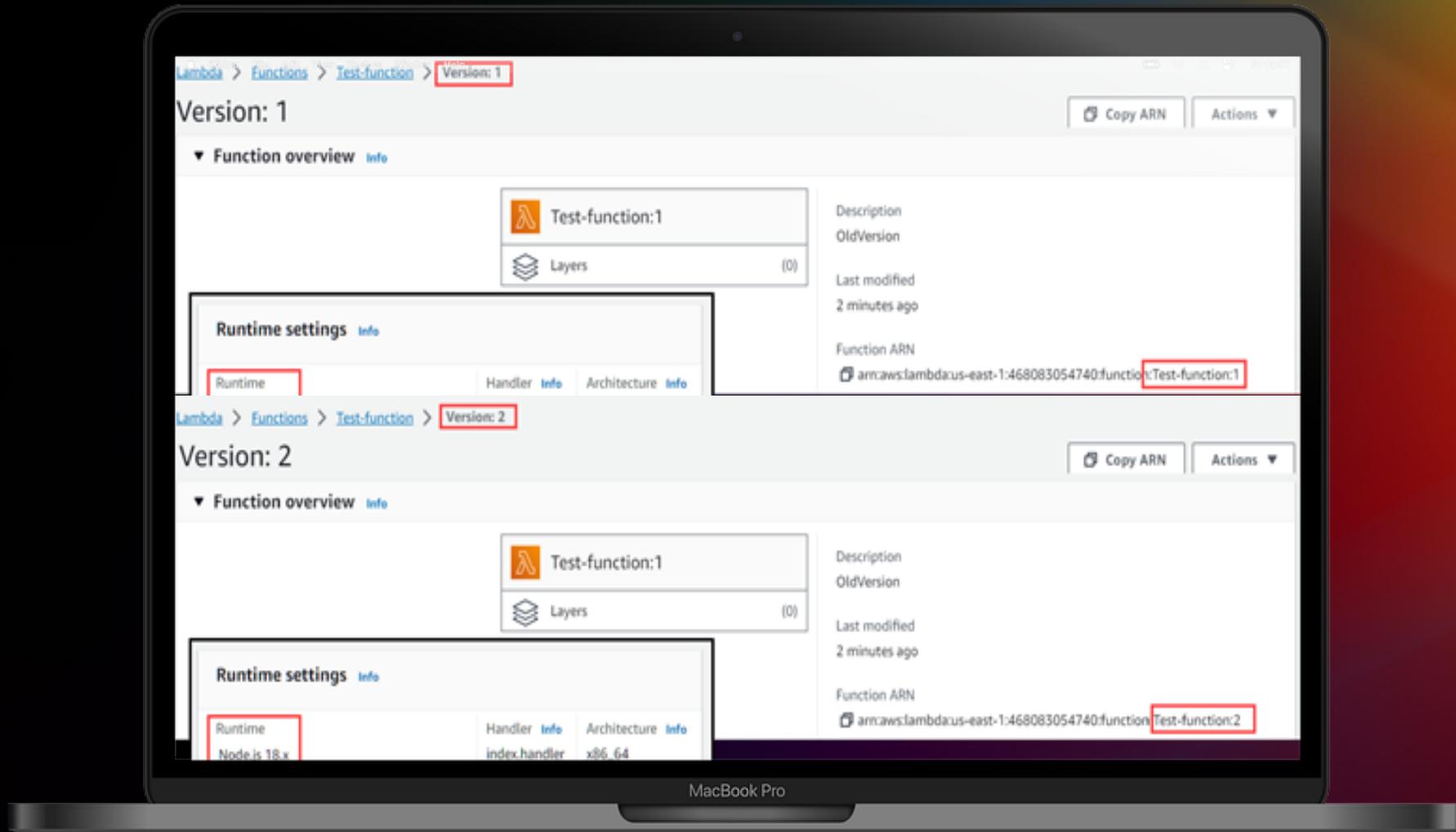
Java 21



Amazon Linux 2023



Managing Lambda runtime upgrades

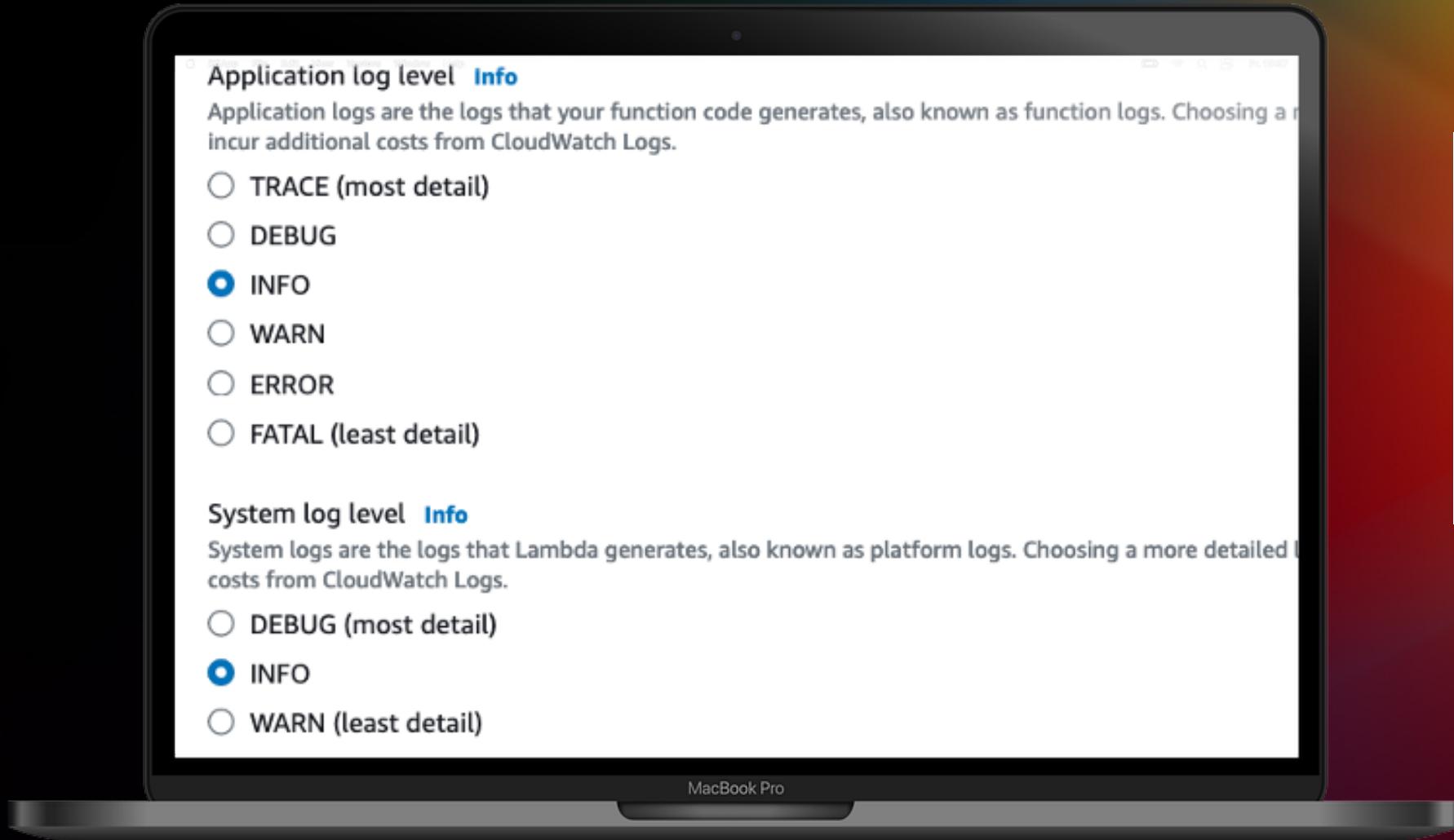


<https://aws.amazon.com/blogs/compute/managing-aws-lambda-runtime-upgrades/>



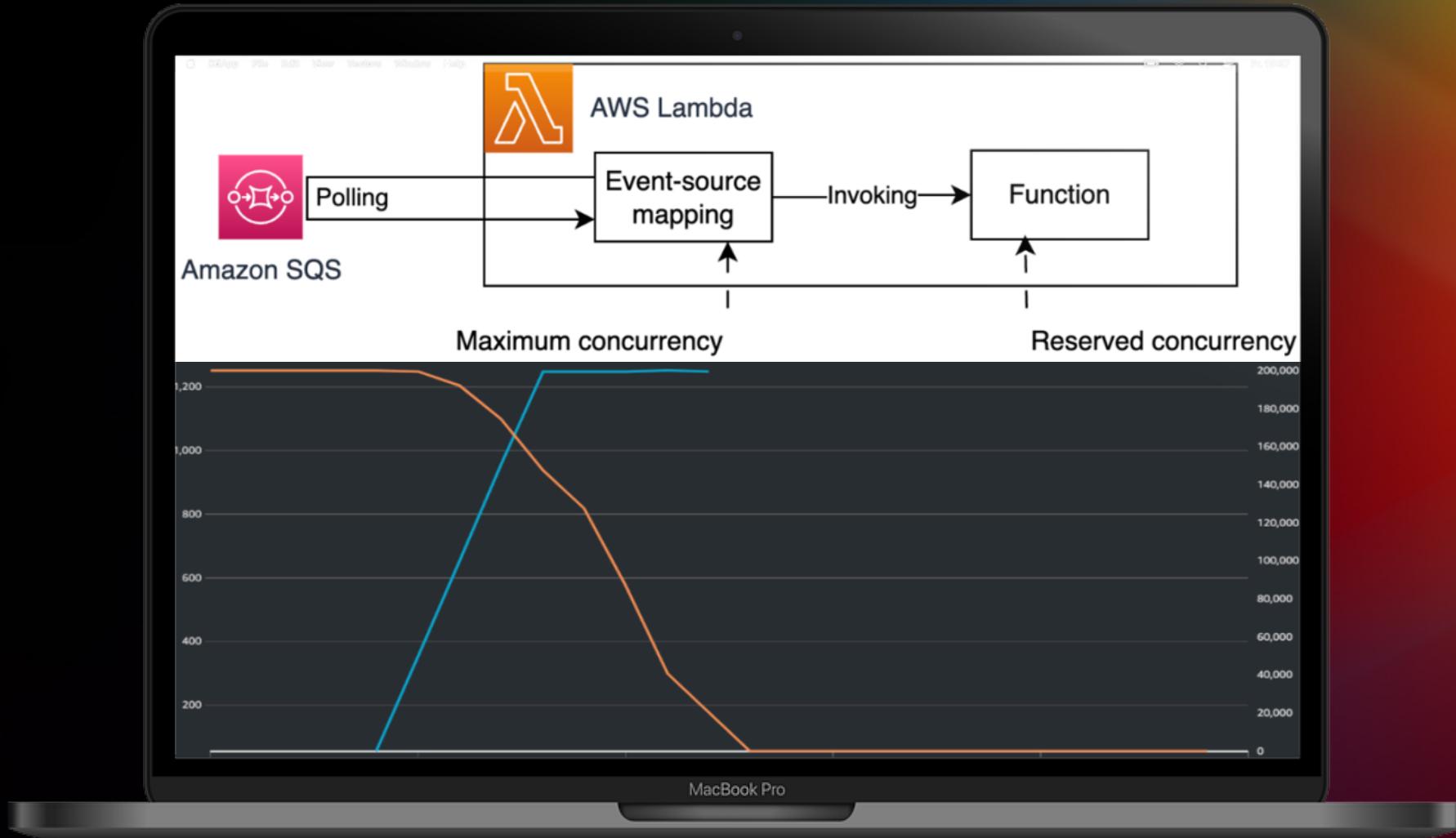
© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Lambda advanced logging controls



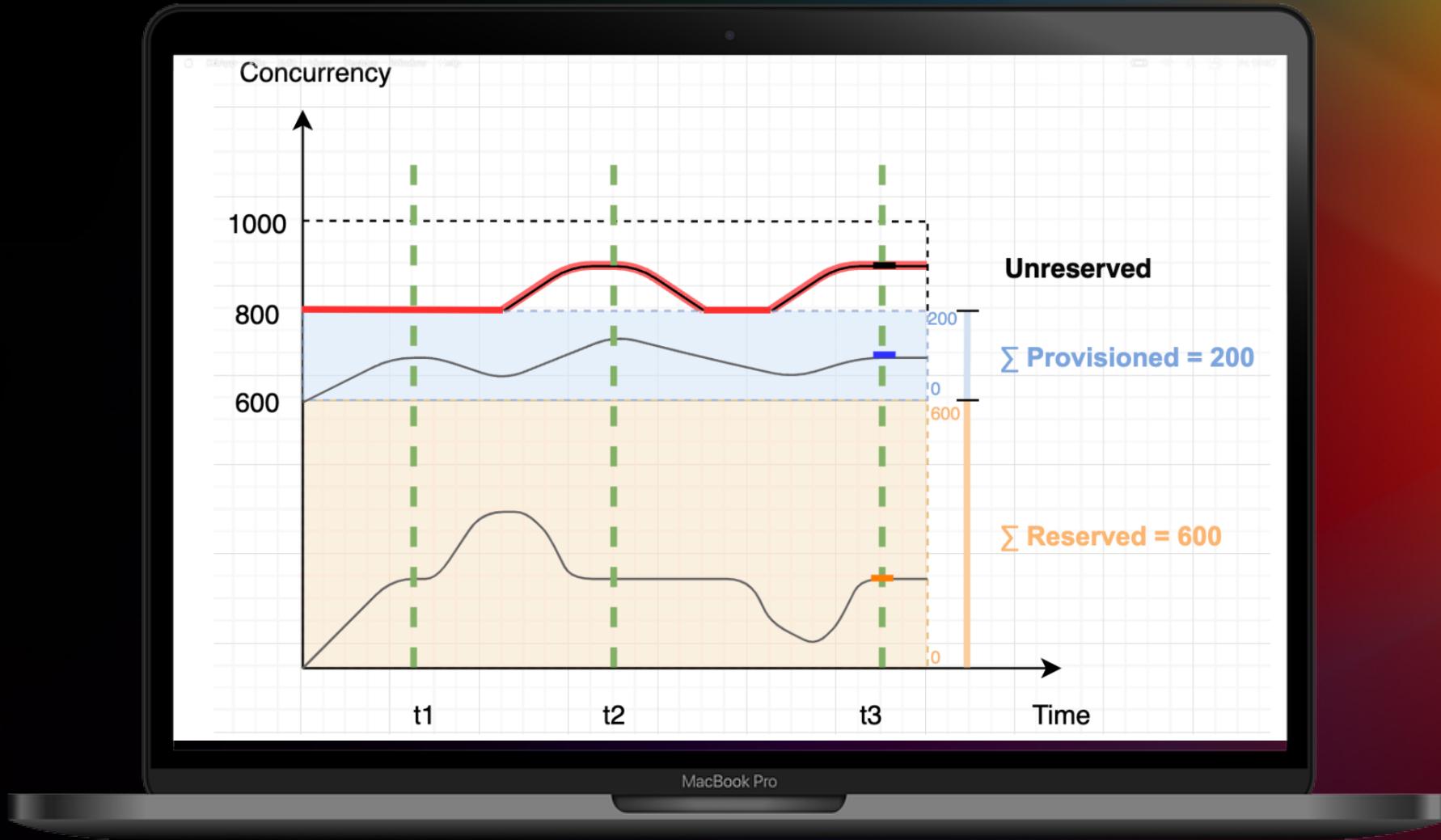
<https://aws.amazon.com/blogs/compute/introducing-advanced-logging-controls-for-aws-lambda-functions/>

Faster Lambda polling scale-up for SQS event source



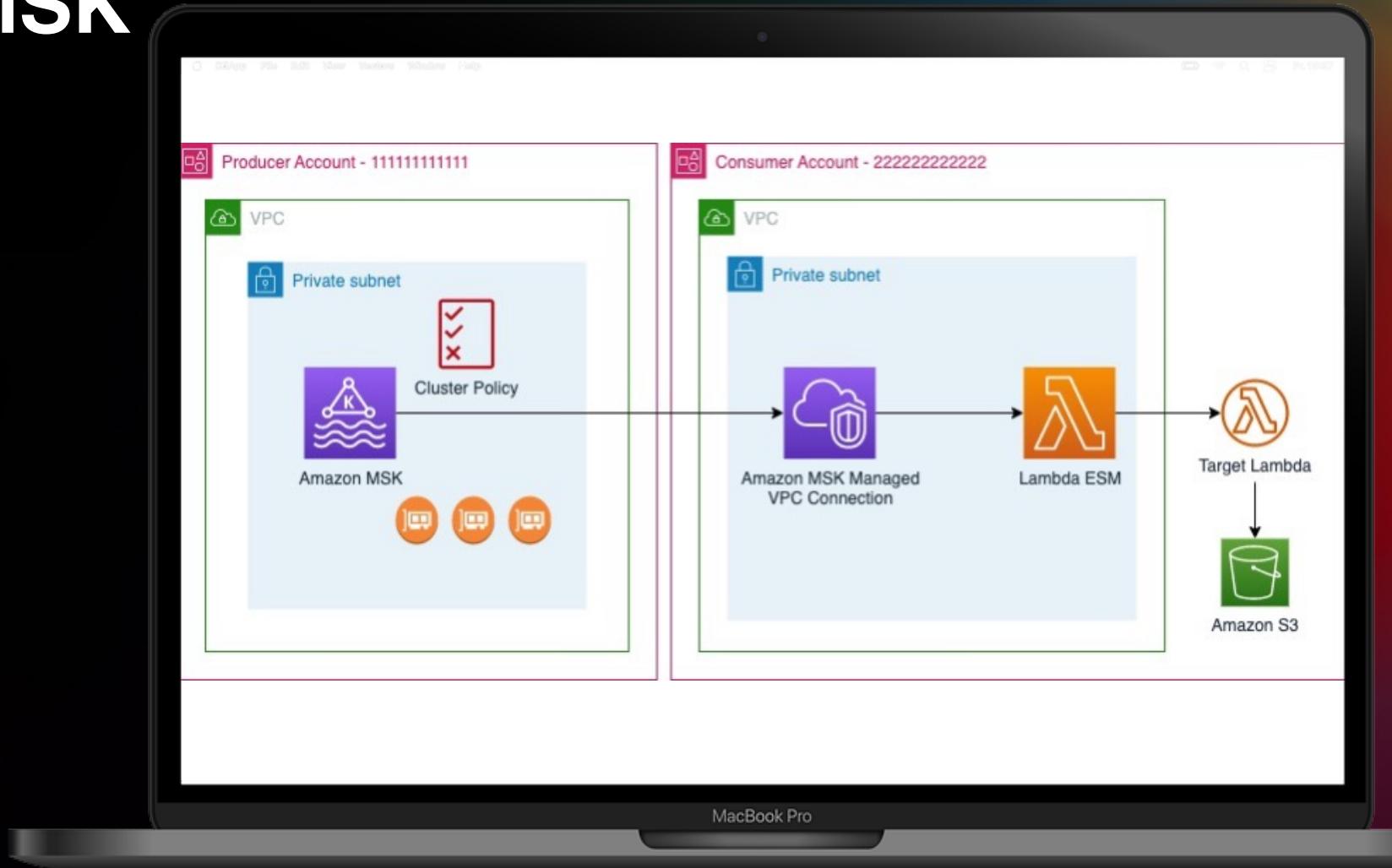
<https://aws.amazon.com/blogs/compute/introducing-faster-polling-scale-up-for-aws-lambda-functions-configured-with-amazon-sqs/>

Improved concurrency quota monitoring



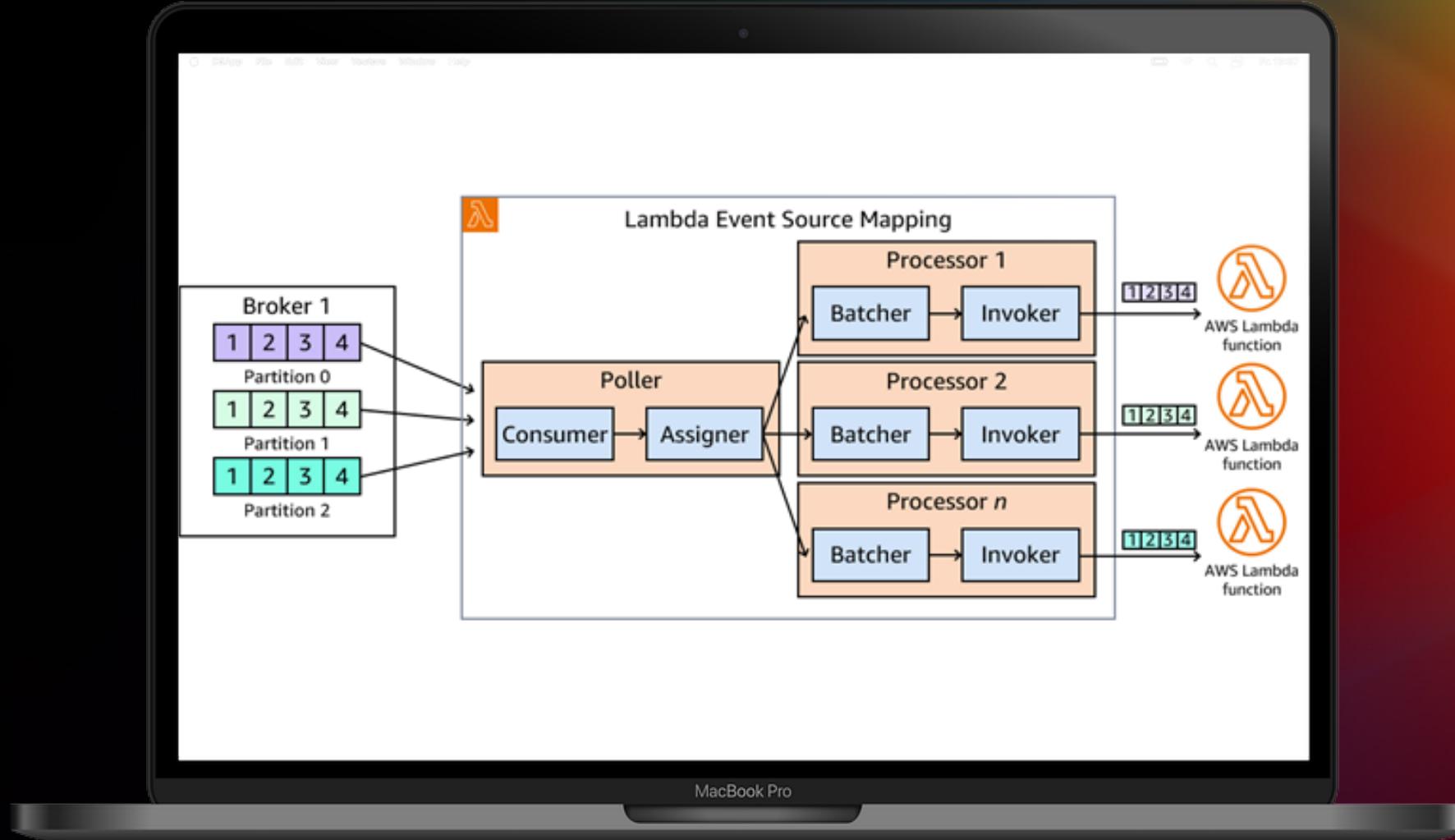
<https://aws.amazon.com/about-aws/whats-new/2023/12/aws-lambda-concurrency-metric-quota-monitoring/>

Triggering Lambda functions cross-account with MSK



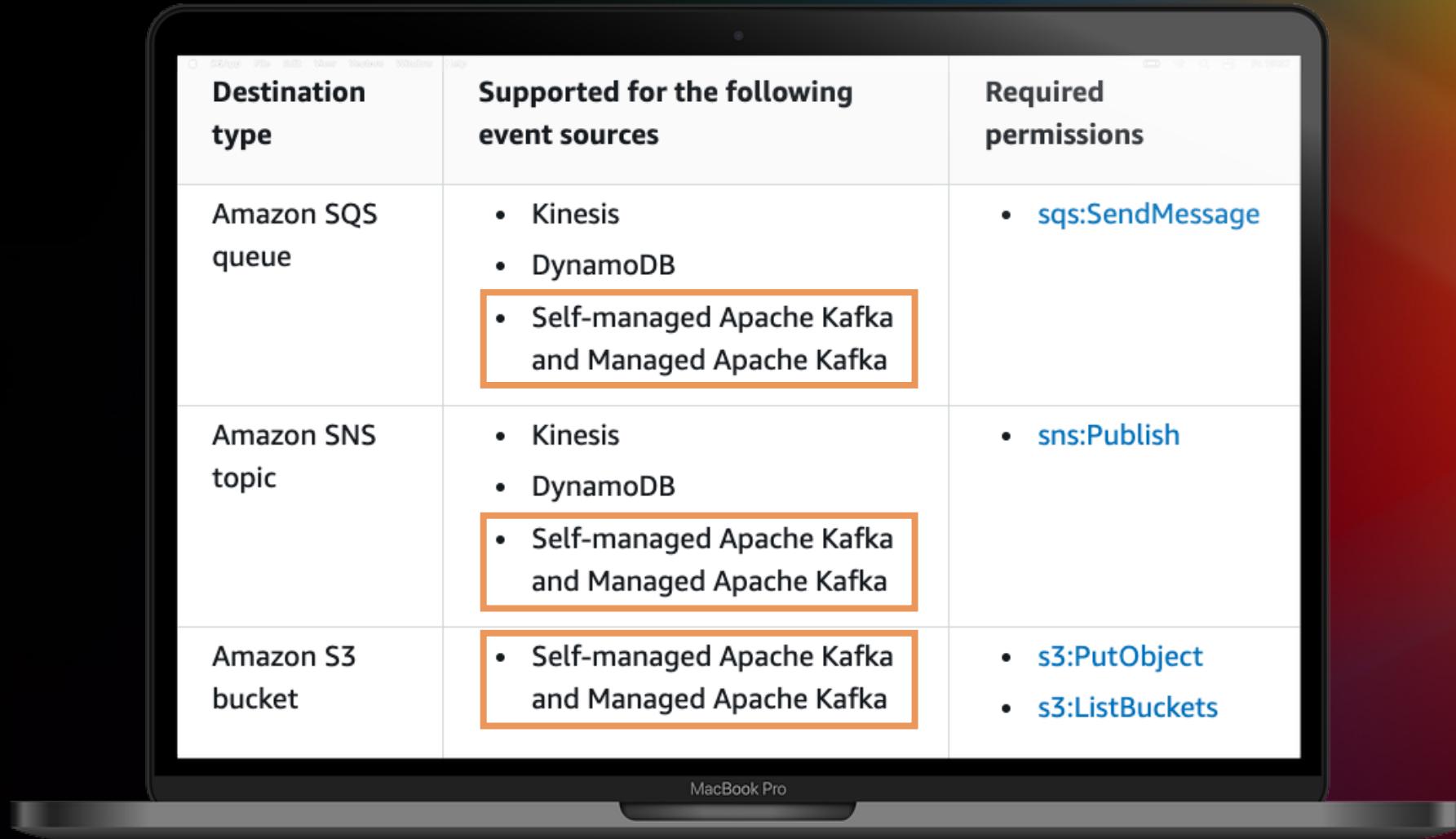
<https://aws.amazon.com/blogs/compute/triggering-aws-lambda-function-from-a-cross-account-amazon-managed-streaming-for-apache-kafka/>

Lambda scaling improvements for Kafka event source



<https://aws.amazon.com/blogs/compute/scaling-improvements-when-processing-apache-kafka-with-aws-lambda/>

Failed event destinations for Kafka event-sources

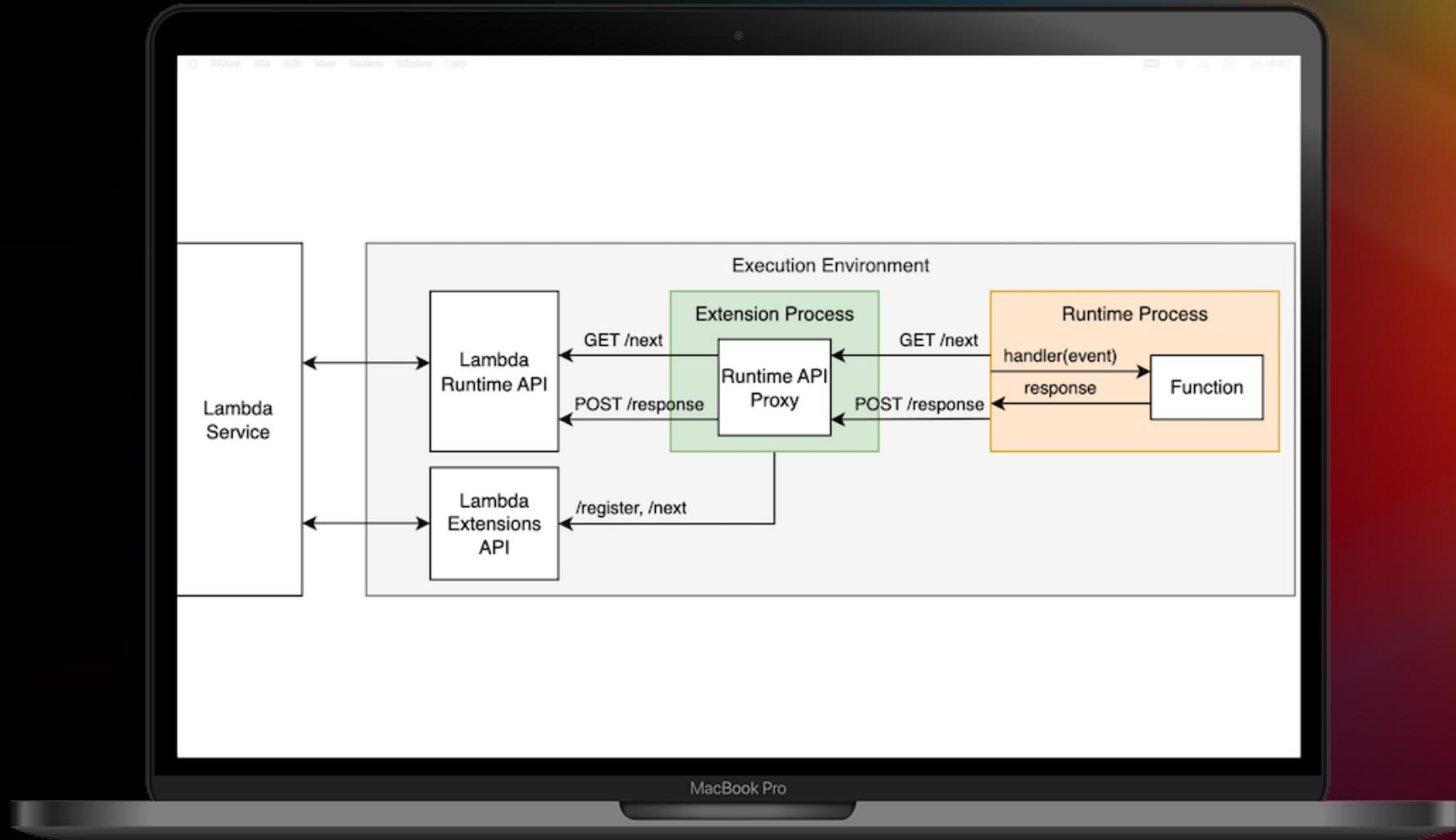


Destination type	Supported for the following event sources	Required permissions
Amazon SQS queue	<ul style="list-style-type: none">• Kinesis• DynamoDB• Self-managed Apache Kafka and Managed Apache Kafka	<ul style="list-style-type: none">• <code>sqs:SendMessage</code>
Amazon SNS topic	<ul style="list-style-type: none">• Kinesis• DynamoDB• Self-managed Apache Kafka and Managed Apache Kafka	<ul style="list-style-type: none">• <code>sns:Publish</code>
Amazon S3 bucket	<ul style="list-style-type: none">• Self-managed Apache Kafka and Managed Apache Kafka	<ul style="list-style-type: none">• <code>s3:PutObject</code>• <code>s3>ListBuckets</code>



<https://aws.amazon.com/about-aws/whats-new/2023/11/aws-lambda-failed-event-destinations-kafka-event-source-mappings/>

Enhancing security with Lambda Runtime API proxy

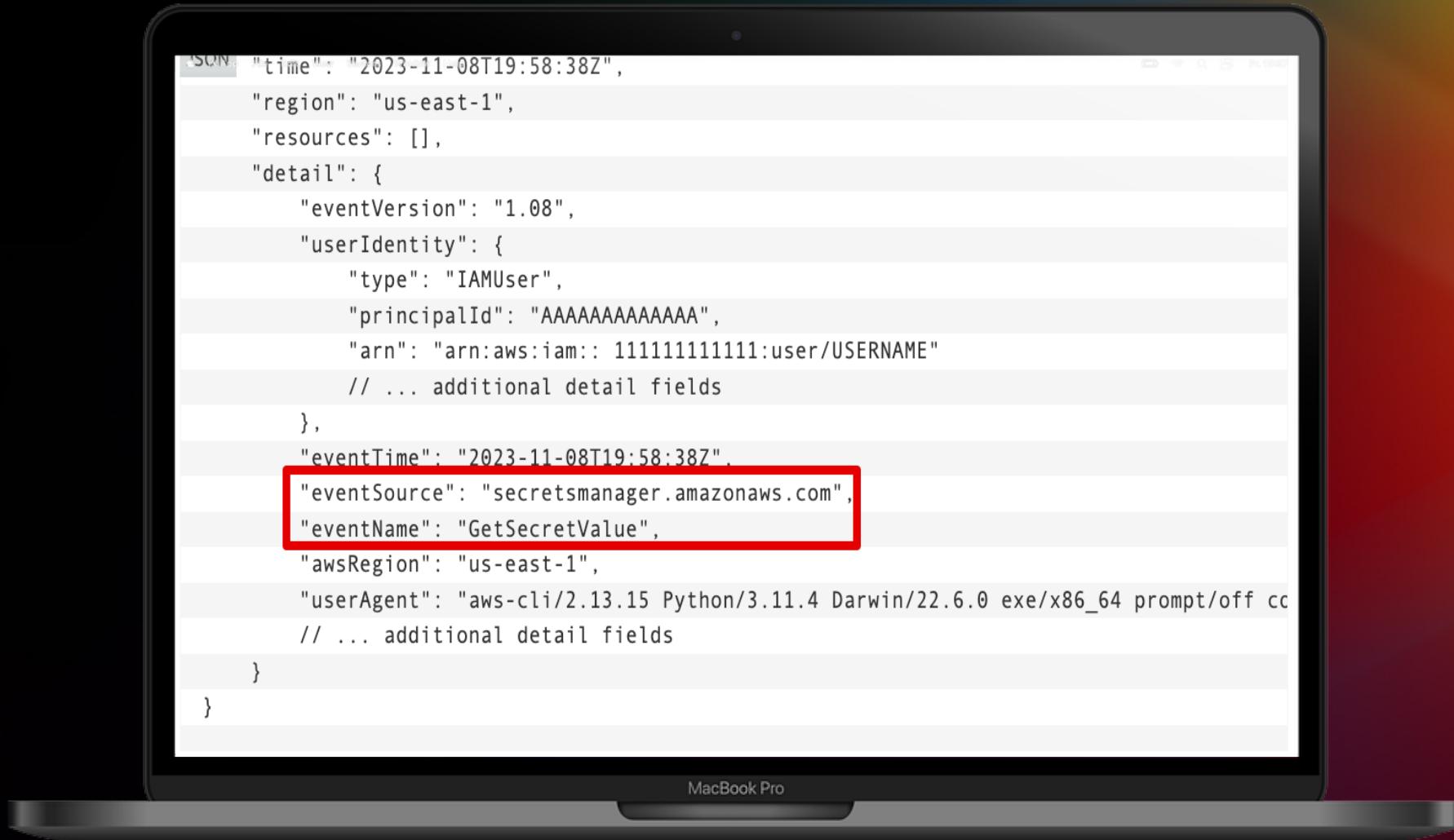


<https://aws.amazon.com/blogs/compute/enhancing-runtime-security-and-governance-with-the-aws-lambda-runtime-api-proxy-extension/>



Amazon EventBridge

Read-only management events in EventBridge

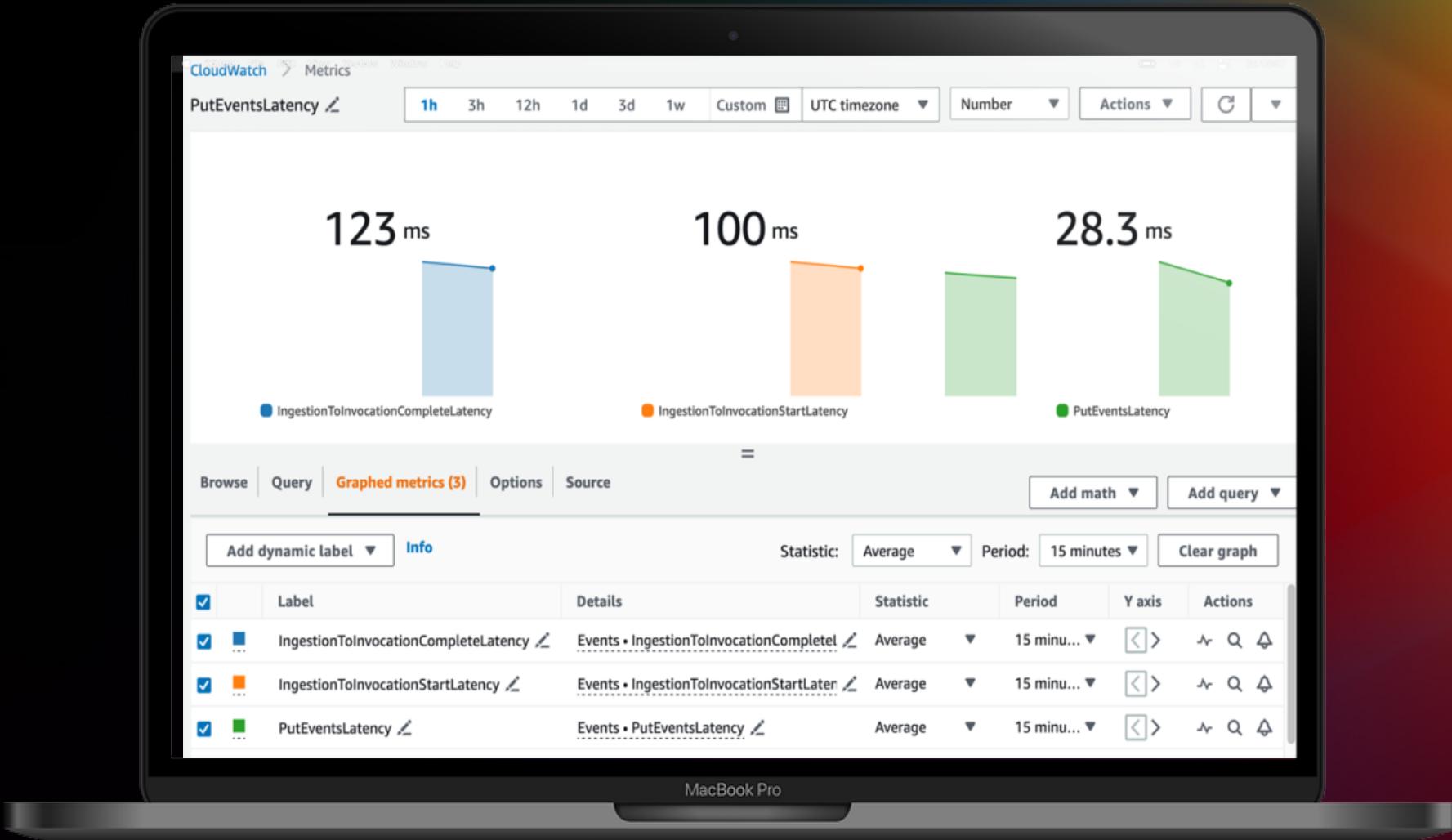


<https://aws.amazon.com/blogs/compute/introducing-support-for-read-only-management-events-in-amazon-eventbridge/>



© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

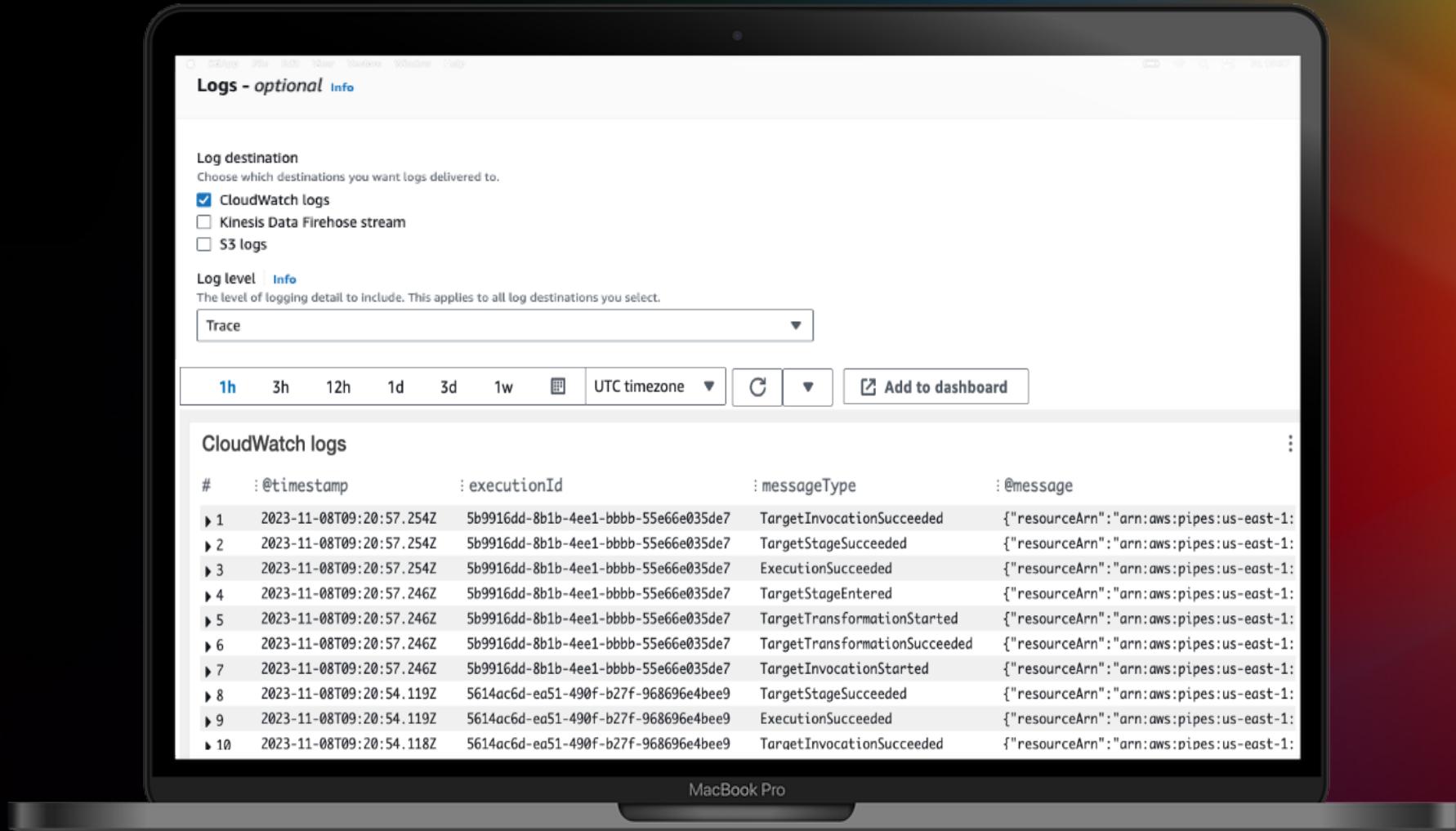
Enhanced EventBridge metrics



<https://aws.amazon.com/blogs/compute/enhanced-amazon-cloudwatch-metrics-for-amazon-eventbridge/>



Logging support for EventBridge Pipes



<https://aws.amazon.com/blogs/compute/introducing-logging-support-for-amazon-eventbridge-pipes/>



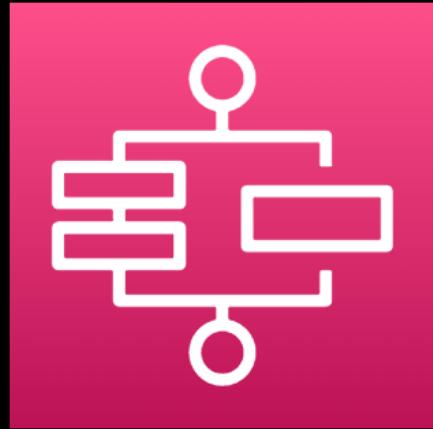
© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Wildcard pattern event filtering with EventBridge



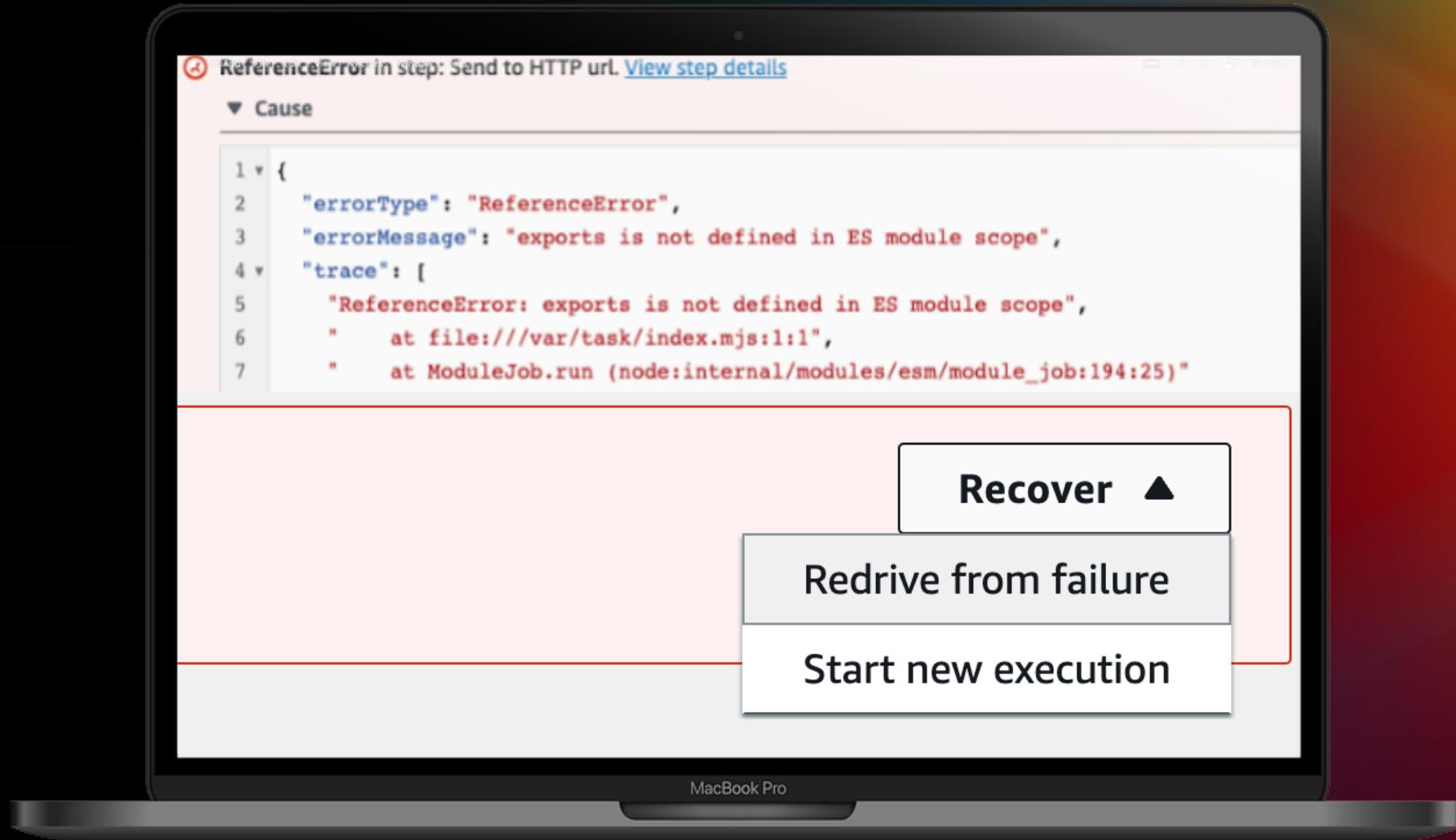
<https://aws.amazon.com/blogs/compute/filtering-events-in-amazon-eventbridge-with-wildcard-pattern-matching/>





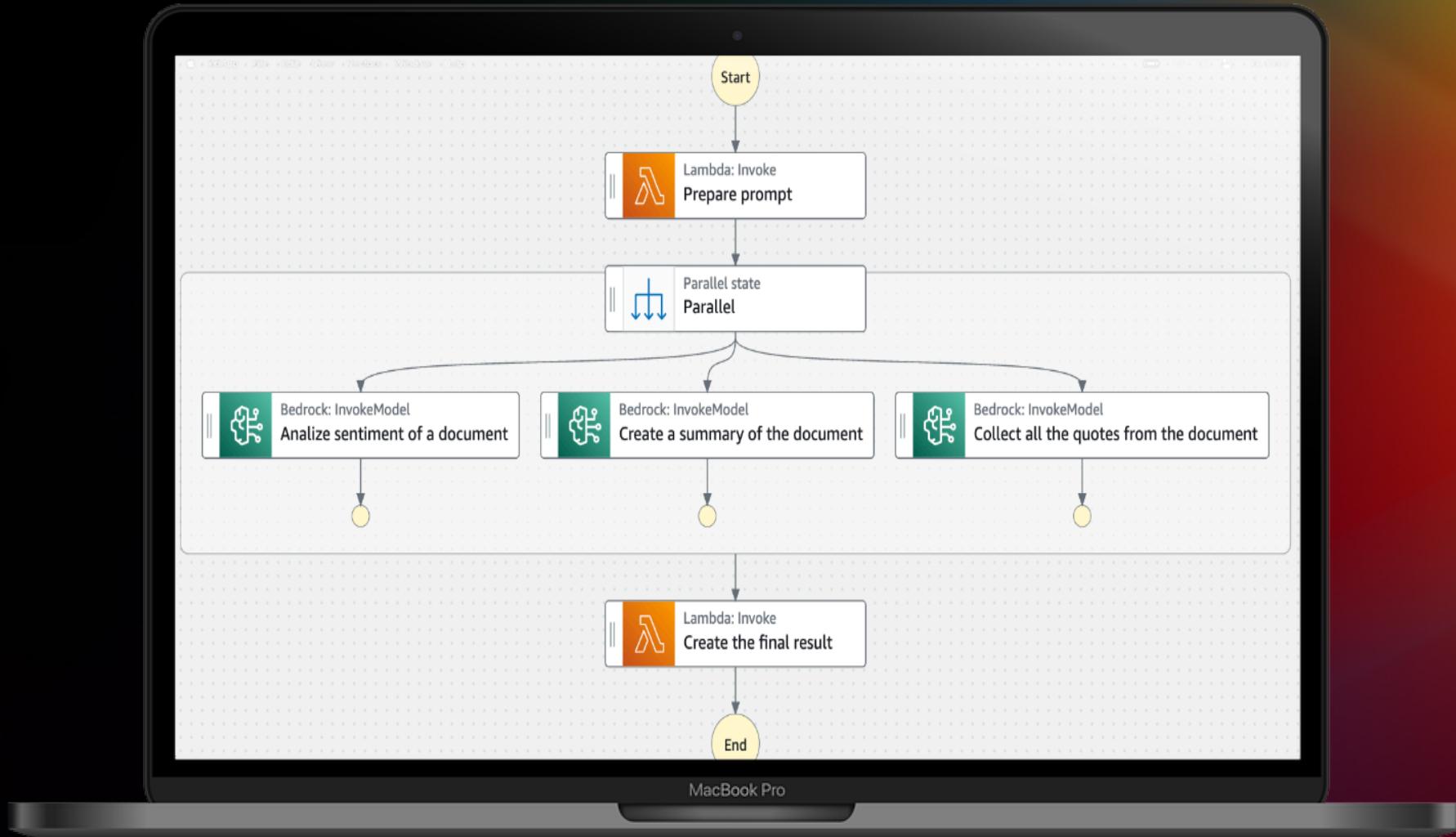
AWS Step Functions

Restart Step Functions workflows from a failed state



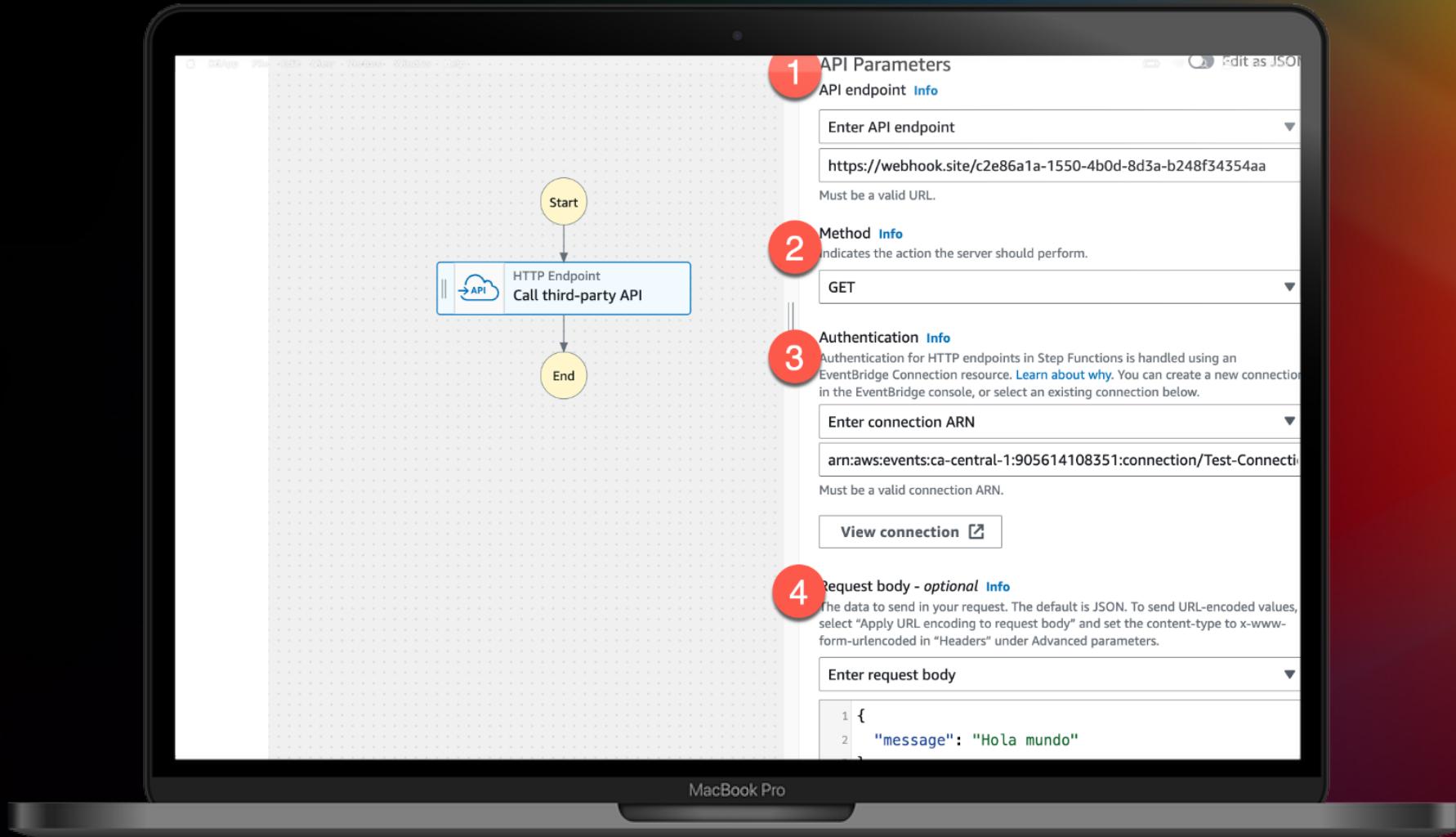
<https://aws.amazon.com/blogs/compute/introducing-aws-step-functions-redrive-a-new-way-to-restart-workflows/>

Step Functions and Amazon Bedrock optimized integration



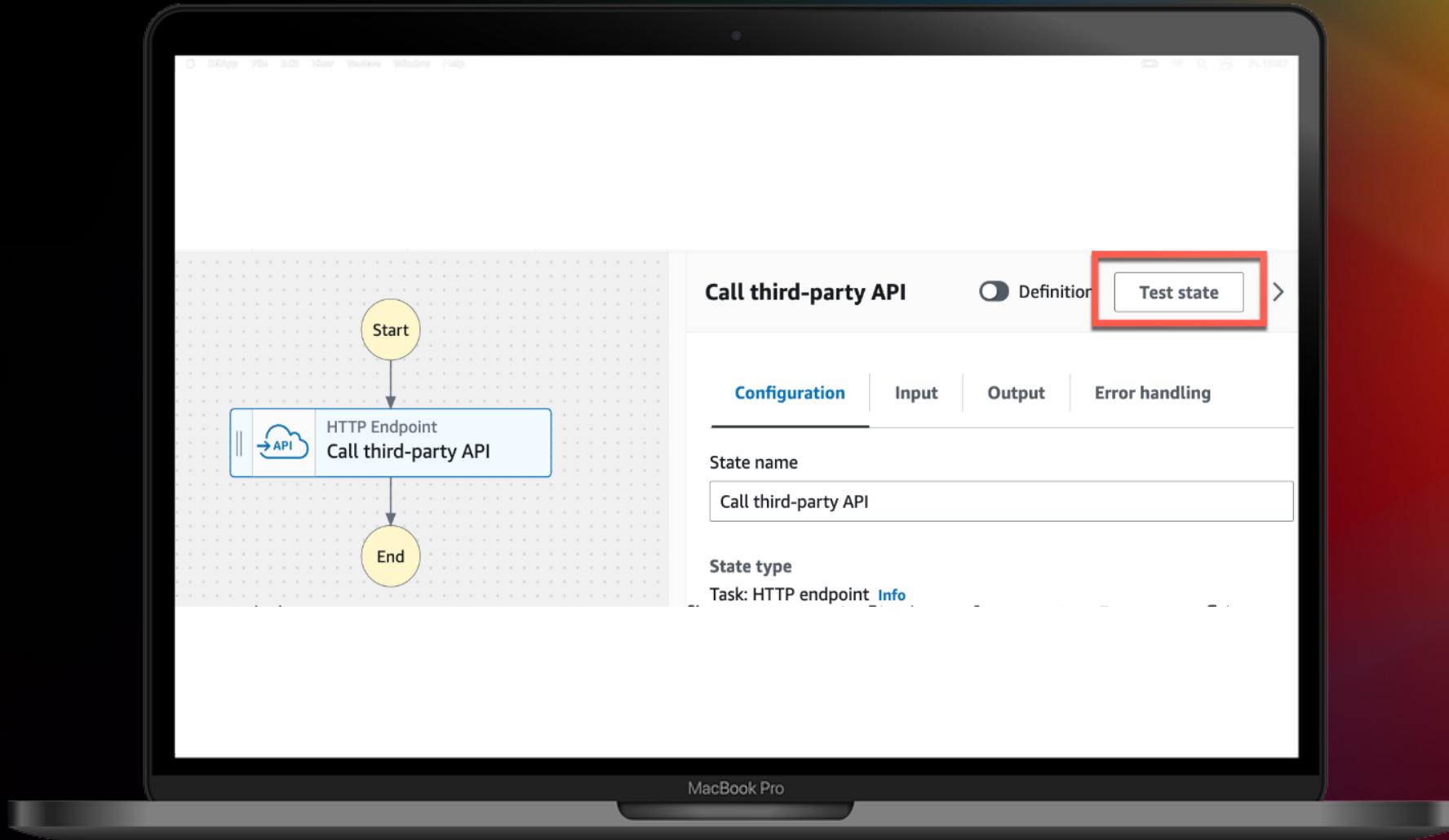
<https://aws.amazon.com/blogs/aws/build-generative-ai-apps-using-aws-step-functions-and-amazon-bedrock/>
<https://github.com/aws-samples/aws-stepfunctions-examples/tree/main/usecases/genai-prompt-chaining-hitl>

Step Functions external HTTPS endpoints support



<https://aws.amazon.com/blogs/aws/external-endpoints-and-testing-of-task-states-now-available-in-aws-step-functions/>
<https://github.com/aws-samples/aws-stepfunctions-examples/tree/main/usecases/genai-prompt-chaining-hitl>

Step Functions task state testing



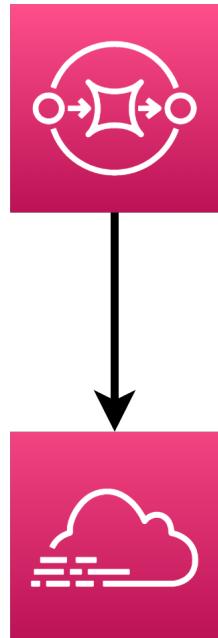
<https://aws.amazon.com/blogs/aws/external-endpoints-and-testing-of-task-states-now-available-in-aws-step-functions/>



Amazon SQS

Logging SQS data events to CloudTrail

- ChangeMessageVisibility
- ChangeMessageVisibilityBatch
- DeleteMessage
- DeleteMessageBatch
- ReceiveMessage
- SendMessage
- SendMessageBatch



MacBook Pro

<https://aws.amazon.com/about-aws/whats-new/2023/11/amazon-sqs-support-logging-data-events-aws-cloudtrail/>

Amazon SQS JSON protocol

```
POST / HTTP/1.1
Host: sqs.us-west-2.amazonaws.com
X-Amz-Target: AmazonSQS.CreateQueue
X-Amz-Date: <Date>
Content-Type: application/x-amz-json-1.0
Authorization: <AuthParams>
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
{
    "QueueName": "MyQueue",
    "Attributes": {
        "VisibilityTimeout": "40"
    },
    "tags": {
        "QueueType": "Production"
    }
}
```



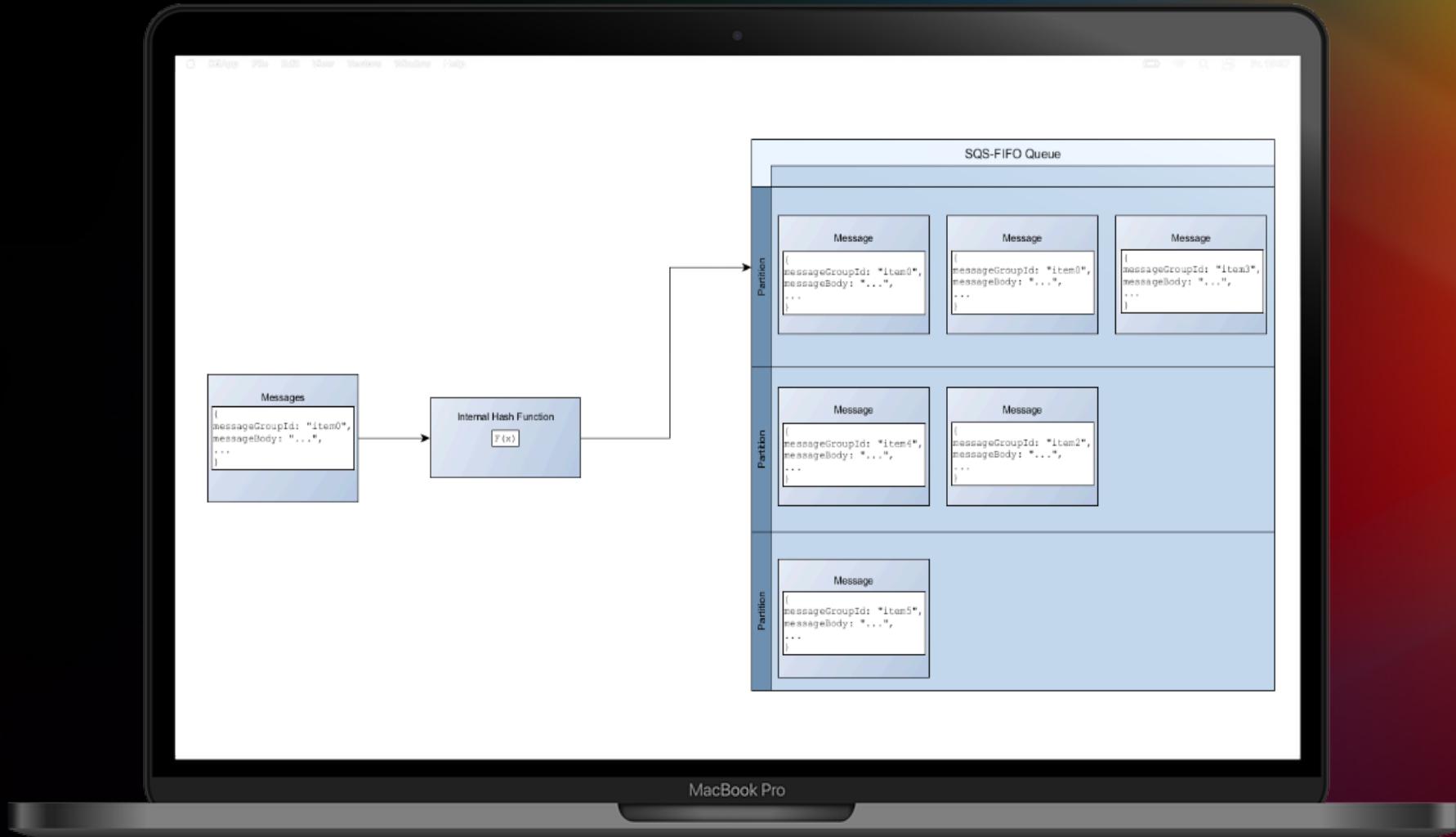
MacBook Pro

<https://aws.amazon.com/about-aws/whats-new/2023/11/amazon-sqs-support-json-protocol/>



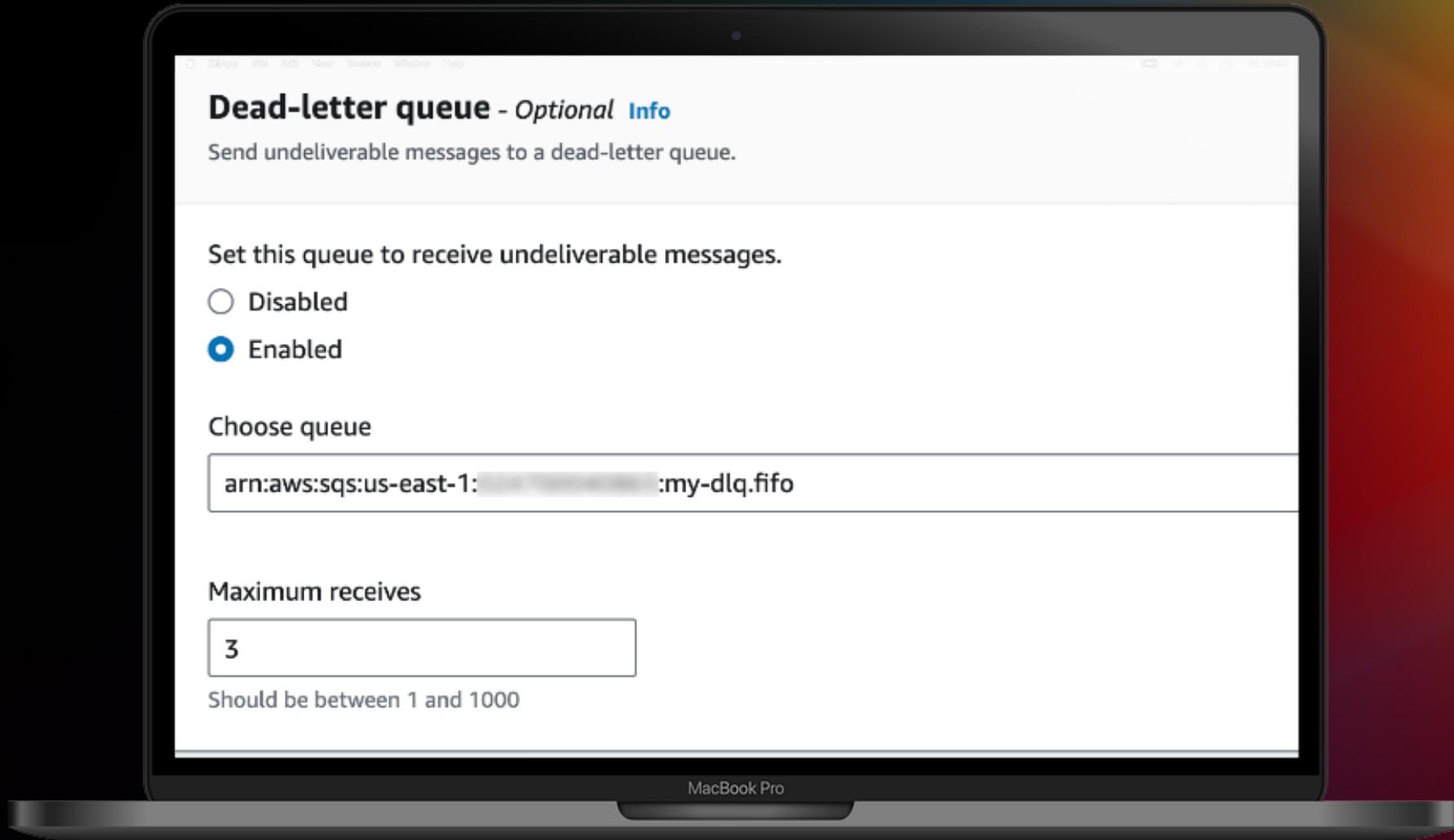
© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

SQS FIFO queues throughput increase up to 70K TPS

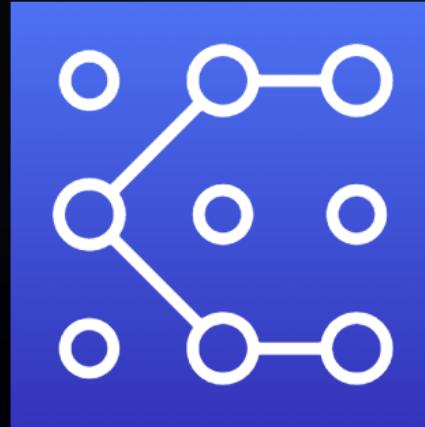


<https://aws.amazon.com/blogs/aws/announcing-throughput-increase-and-dead-letter-queue-redrive-support-for-amazon-sqs-fifo-queues/>

SQS DLQ redrive support for FIFO queues

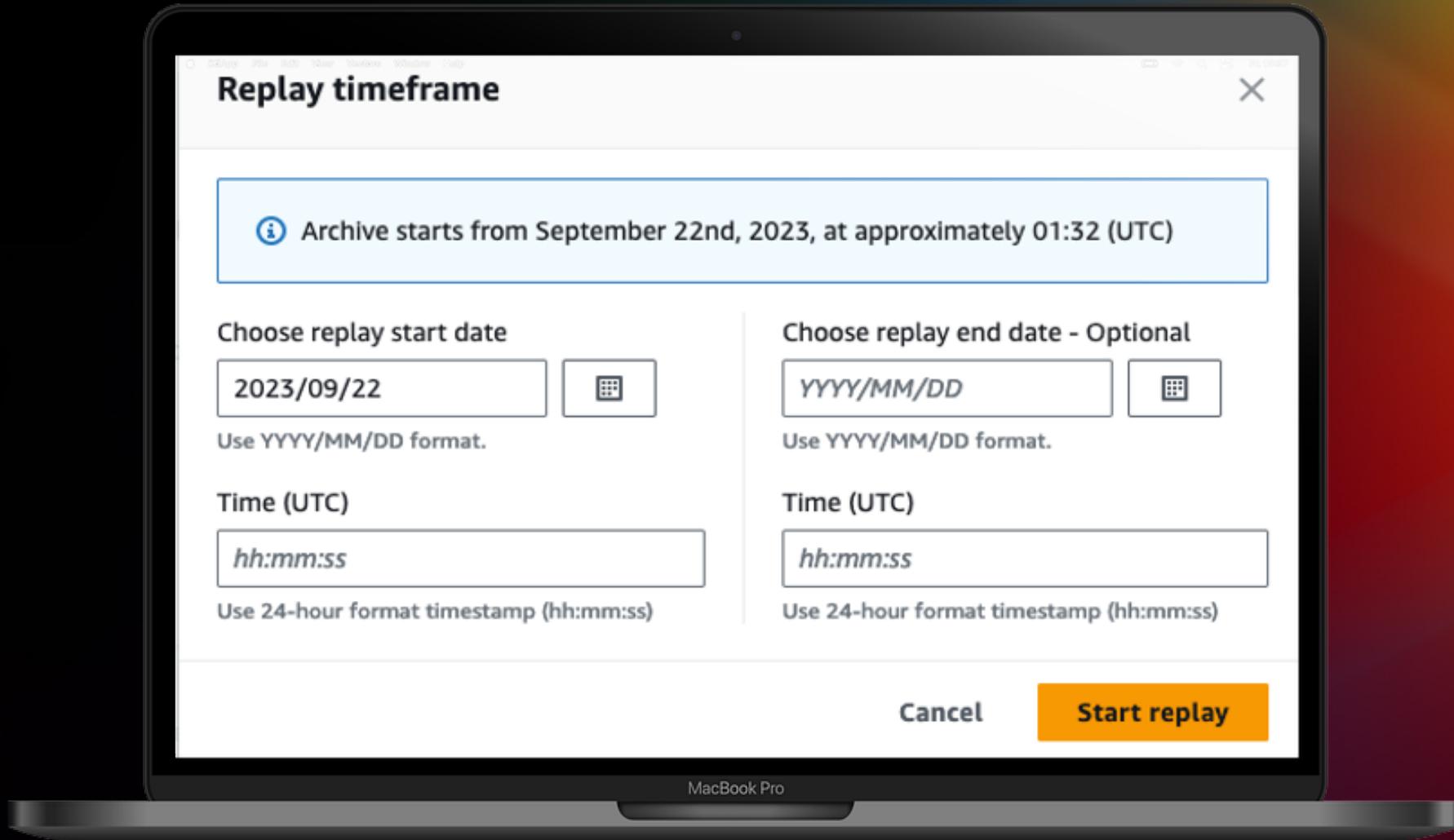


<https://aws.amazon.com/blogs/aws/announcing-throughput-increase-and-dead-letter-queue-redrive-support-for-amazon-sqs-fifo-queues/>



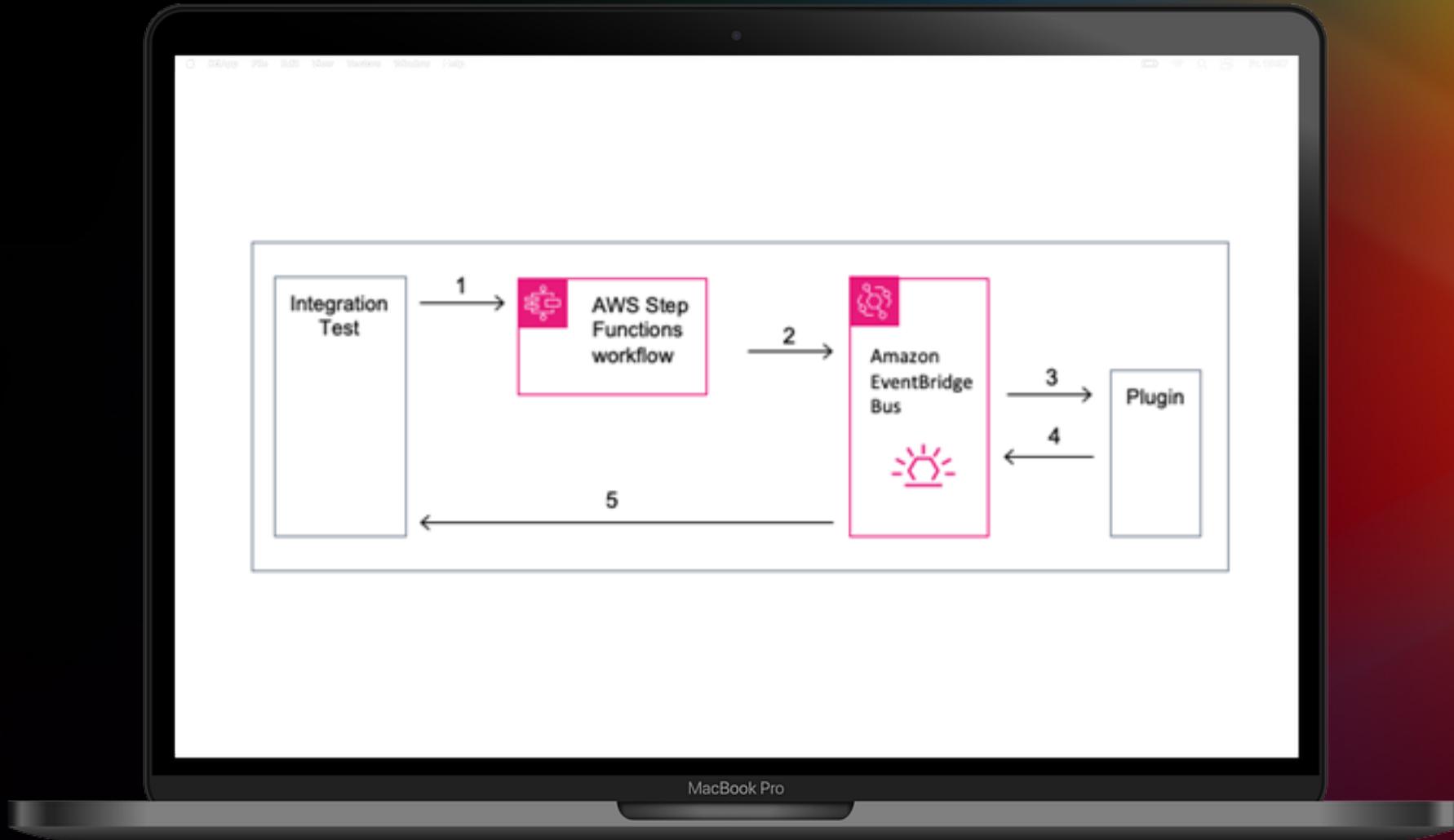
More capabilities

Archiving and replaying messages with SNS FIFO



<https://aws.amazon.com/blogs/compute/archiving-and-replaying-messages-with-amazon-sns-fifo/>

AWS Integrated Application Test Kit

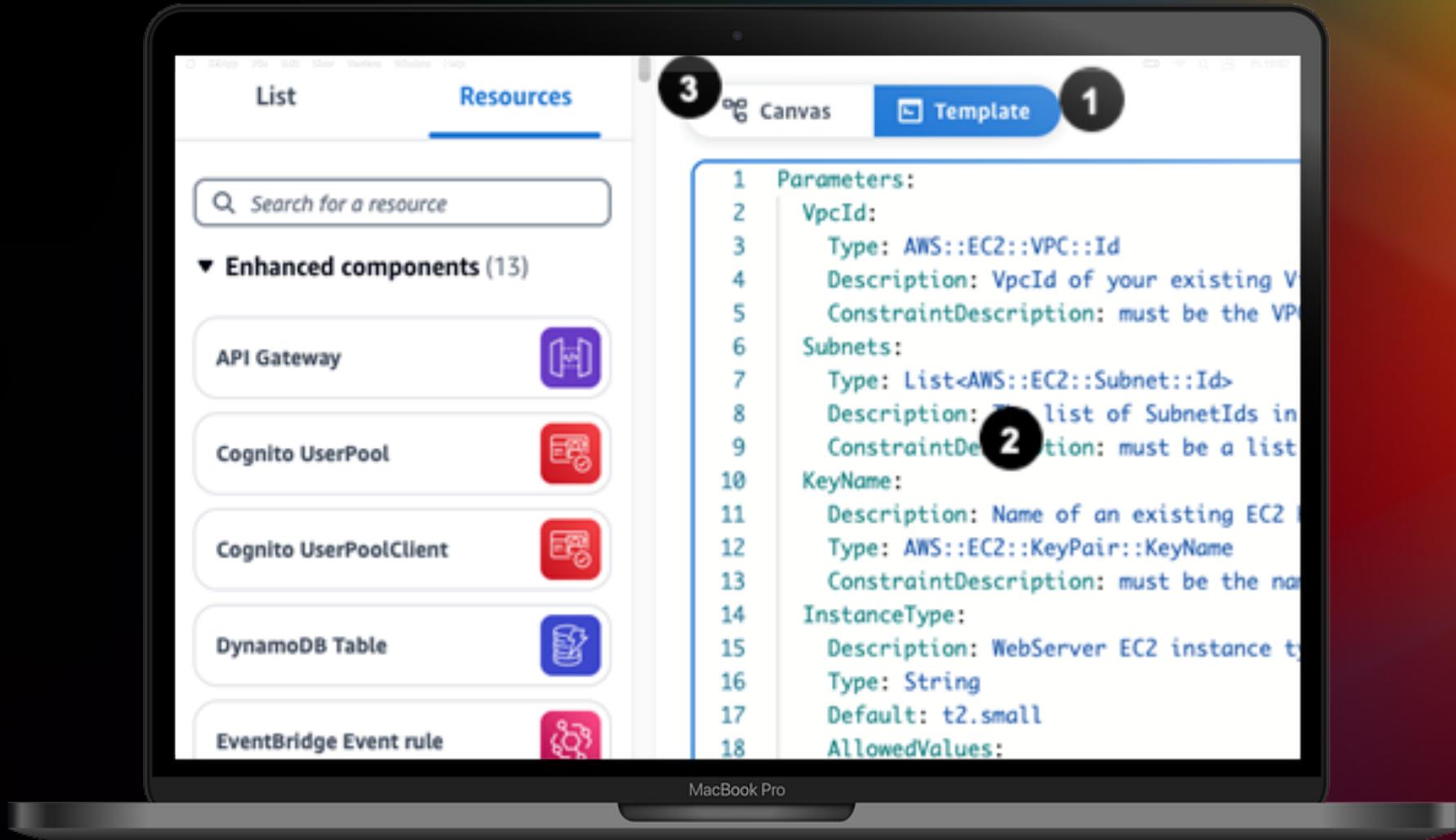


<https://aws.amazon.com/blogs/compute/aws-integrated-application-test-kit/>



© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

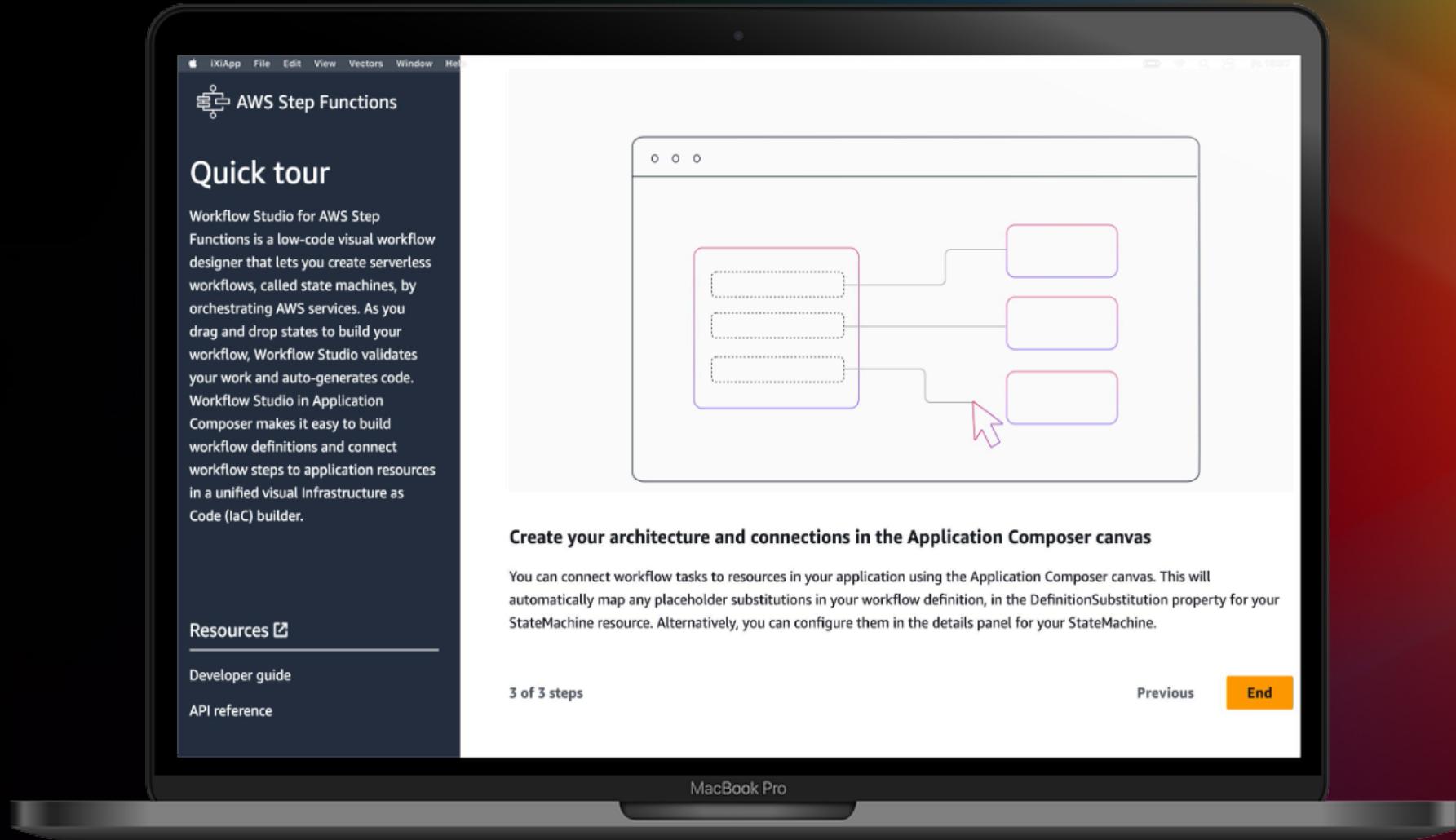
Visually designing applications with App Composer



<https://aws.amazon.com/blogs/compute/visually-design-your-application-with-aws-application-composer/>



Step Functions Workflow Studio in App Composer



<https://aws.amazon.com/blogs/aws/aws-step-functions-workflow-studio-is-now-available-in-aws-application-composer/>



© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

SAM support for Terraform

```
module "lambda_function_responder" {
  source      = "terraform-aws-modules/lambda/aws"
  version     = "~> 6.0"
  timeout     = 300
  source_path = "${path.module}/src/responder/"
  function_name = "responder"
  handler      = "app.open_handler"
  runtime      = "python3.9"
  create_sam_metadata = true
  publish      = true
  allowed_triggers = {
    APIGatewayAny = {
      s
      s
      s
    }
  }
}
```

Bash

```
 sam local invoke --hook-name terraform
```



<https://aws.amazon.com/blogs/compute/aws-sam-support-for-hashicorp-terraform-now-generally-available/>



© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless Digital Learning Badges - get yours NOW!

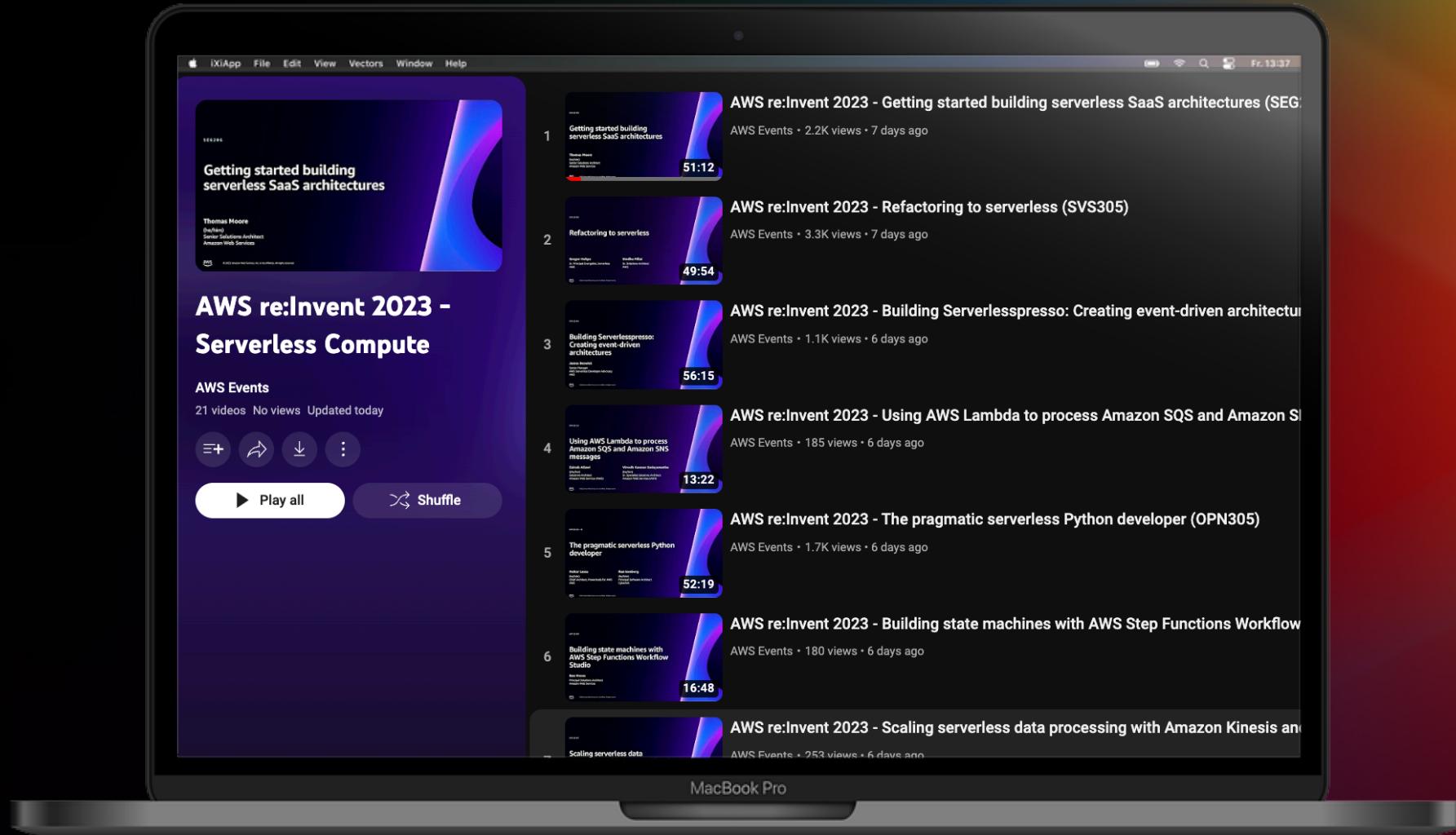


https://explore.skillbuilder.aws/learn/public/learning_plan/view/92/serverless-learning-plan
https://explore.skillbuilder.aws/learn/public/learning_plan/view/1927/events-and-workflows-knowledge-badge-readiness-path



© 2023, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS re:Invent 2023 – Serverless Compute Playlist



https://www.youtube.com/playlist?list=PL2yQDdvlhXf_rloSt34Uh37PBzTti6aFc



Thank you!



Anton Aleksandrov

Principal Solutions Architect
AWS Serverless and Event-Driven
Architectures