

The background features a dark blue gradient with large, overlapping, semi-transparent shapes in shades of purple, pink, and orange, creating a dynamic, abstract design.

AWS re:Invent

NOV. 27 – DEC. 1, 2023 | LAS VEGAS, NV

MAE-301

Build a complete livestreaming workflow using automated deployments

Jamie Mullan

Media Edge Specialist

Raphaël Goldwaser

Sr. Media Edge Specialist

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Media Streaming and Edge
Prototyping Architect



Workshop agenda



Introduction, session goals, and workshop format



Hands-on workshop: Task 1 – Basic live streaming



Progress check



Hands-on workshop: Task 2 – Adding dynamic ad insertion



Progress check



Hands-on workshop: Task 3 – Adding token authorization



Round up and next steps

Our team today

Jamie




jamiepm@

Raphaël



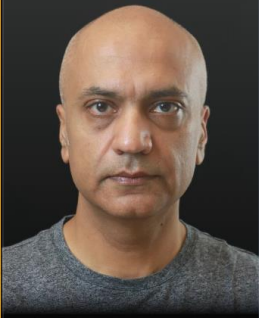
rgoldwas@

Corneliu



ccroito@

Kiran




patelkir@

Julian



julibo@

Maheshwaran



mheshwg@

Loïc



fourloic@

Workshop introduction



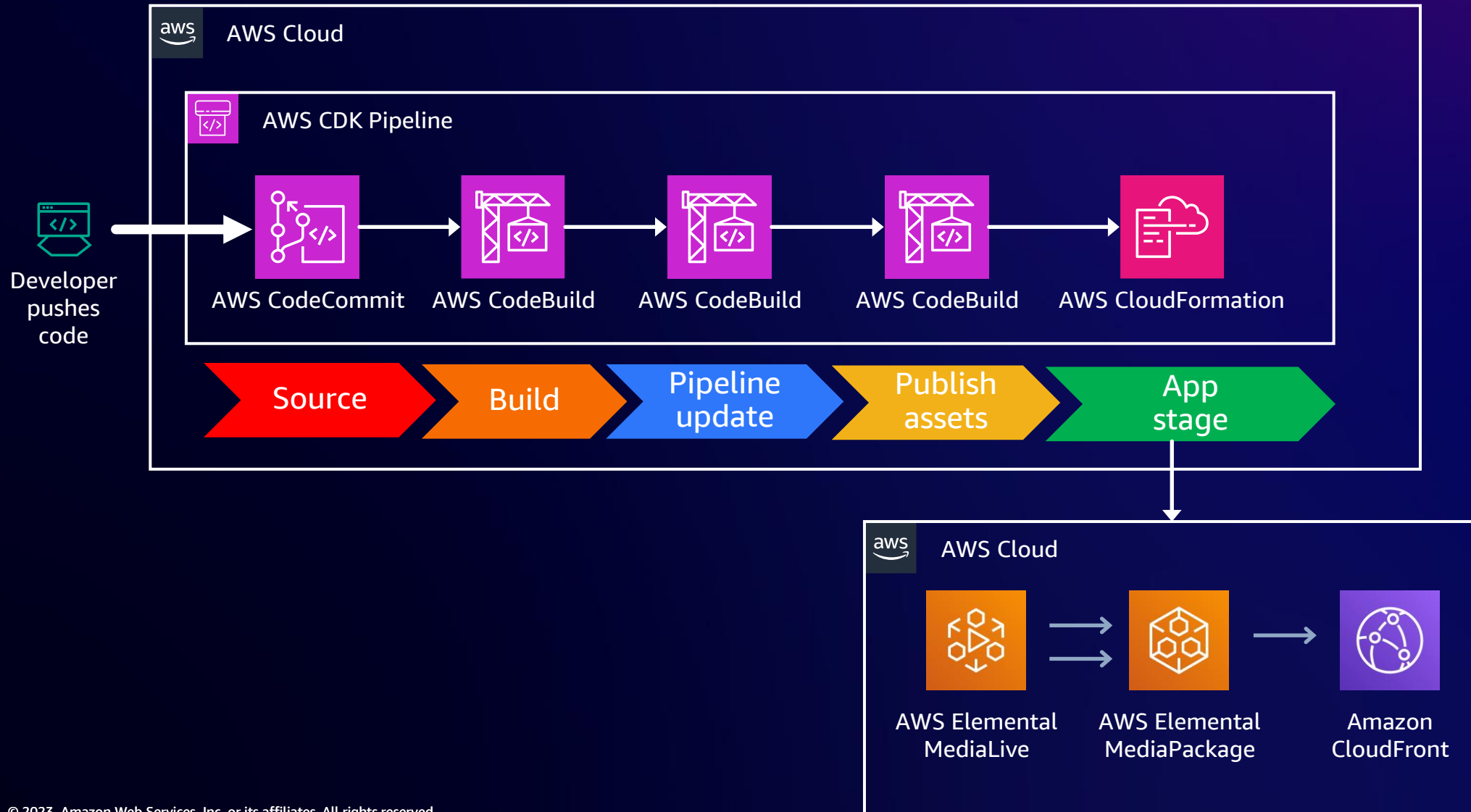
Session goals (Tasks 1 to 3)

- Learn how to use AWS DevOps tools for video infrastructure using AWS media services
 - Learn how to build and deploy a continuous delivery (CD) pipeline
 - Deploy code changes using AWS CodePipeline
-
1. Build a live streaming workflow
 2. Add dynamic ad insertion (DAI)/server side ad insertion (SSAI)
 3. Add tokenized authorization (Secure Media Delivery at the Edge on AWS)

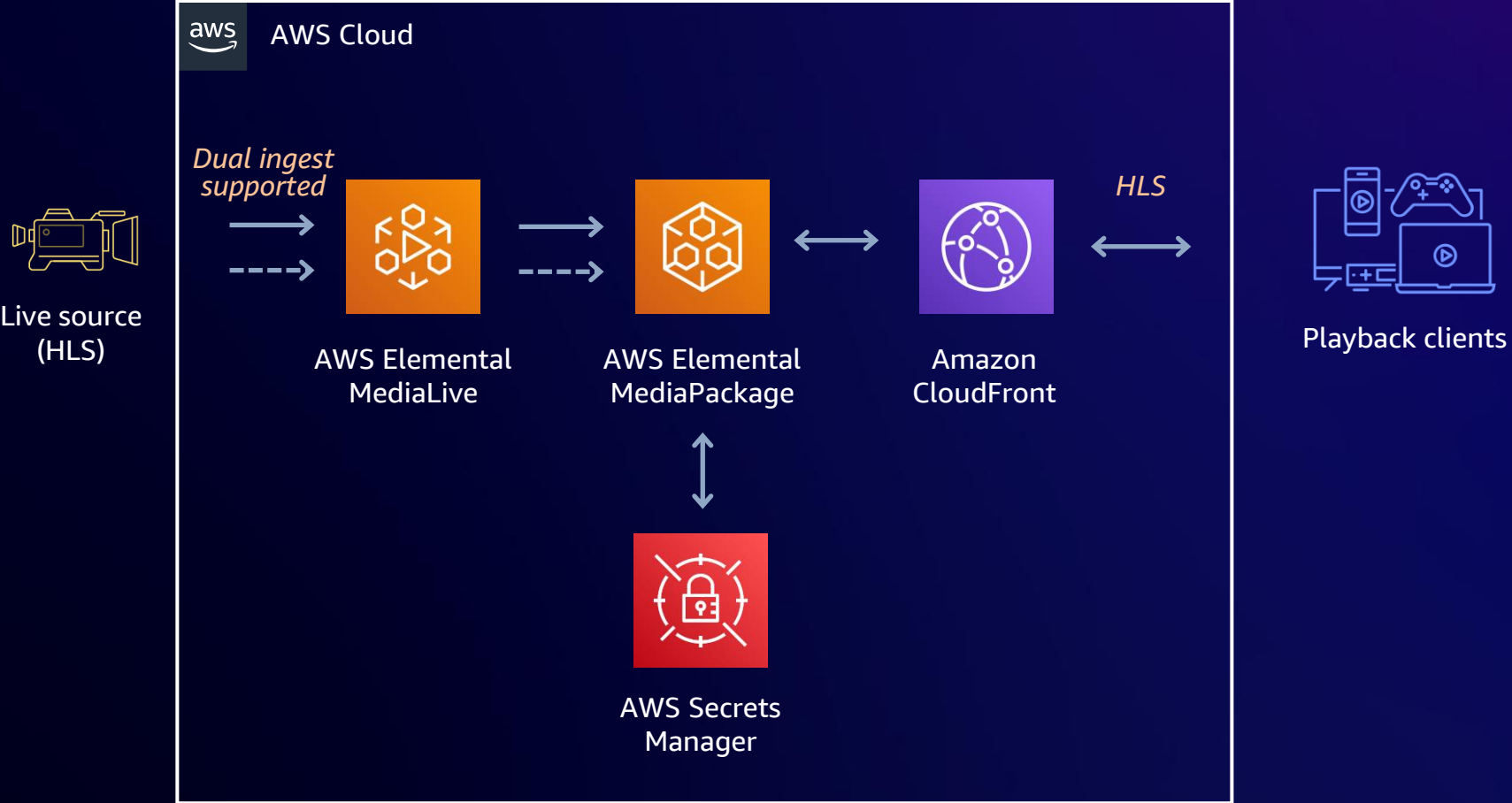
Session goals (optional)

1. Implement session revocation
 - With AWS WAF
2. Add live-to-VOD
 - With AWS Elemental MediaPackage harvesting
3. Add common media client data (CMCD)
 - With log delivery to Amazon Simple Storage Service (Amazon S3)

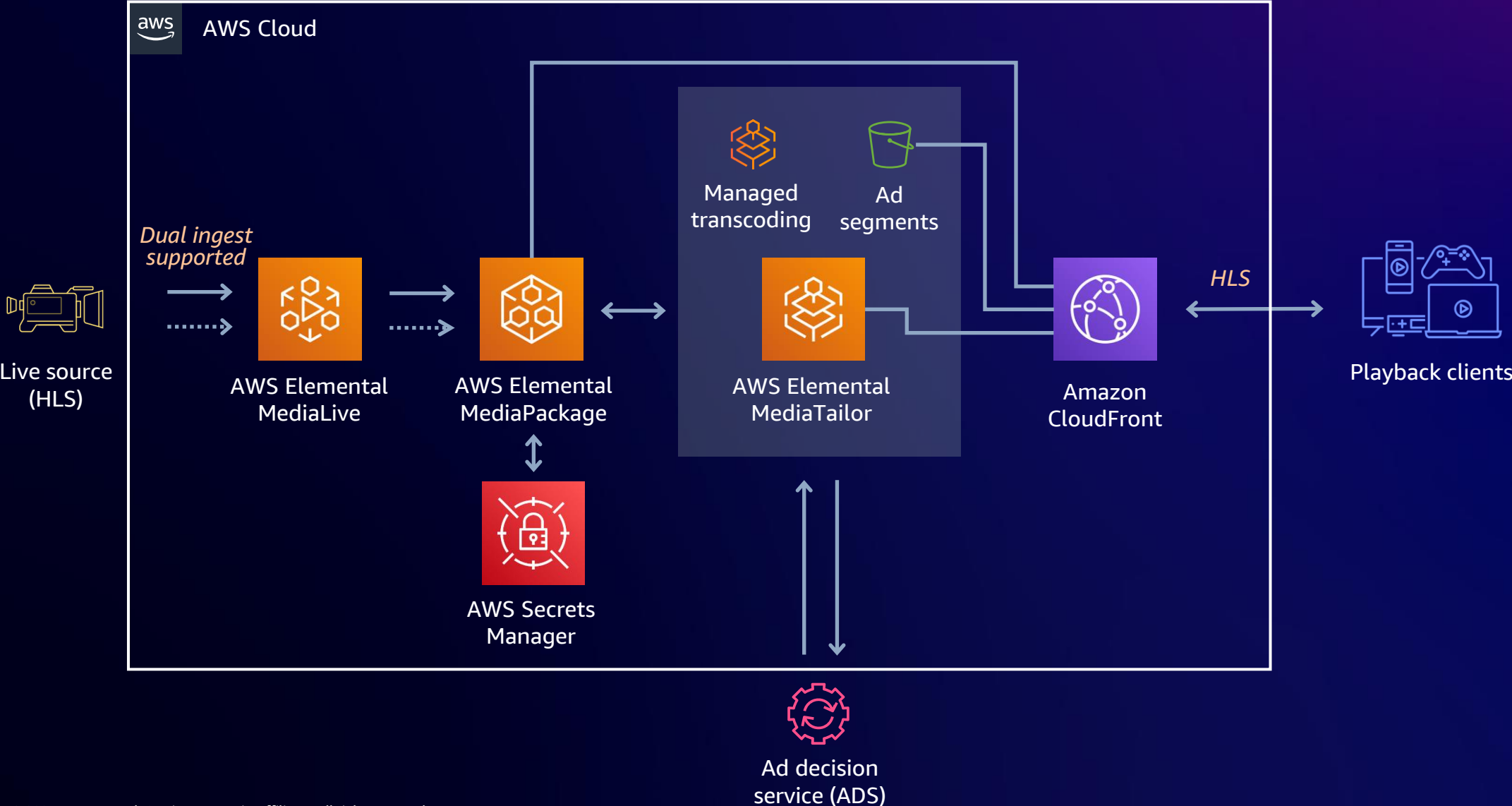
Pipeline architecture



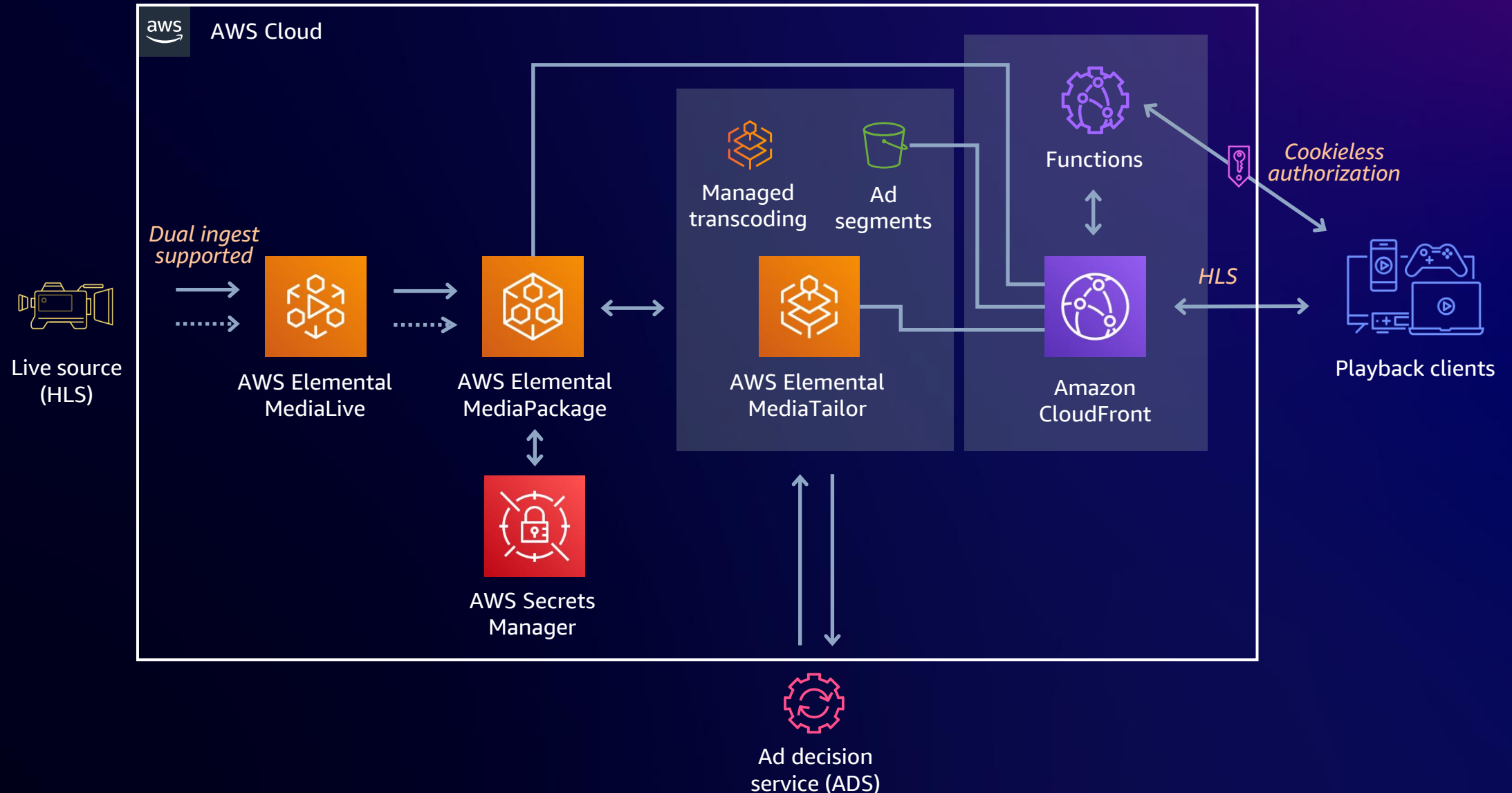
Steps to building a channel (Task 1)



Steps to adding SSAI to a channel (Task 2)



Steps to adding tokenization to CDN (Task 3)



Workshop Tips

- Deployment times
 - AWS CodeBuild initialization
 - Amazon CloudFront behavior updates
- “Catch-up” commands / Quick Deployments
- Optional advanced topics
- We’re here to help!

Estimated workshop timing

Module	Timing estimate
Getting started and bootstrapping the app	25 mins
Task 1: Deploying a basic live streaming workflow	25 mins
Task 2: Adding dynamic ad insertion to the live streaming workflow	20 mins
Task 3: Adding token authorization to the live streaming workflow	25 mins
Optional: Session revocation	25 mins
Optional: Live-to-VOD: Harvesting VOD	25 mins
Optional: Adding CMCD infrastructure	15 mins

Getting started with this workshop



You have access to an AWS account with any optional pre-provisioned infrastructure and IAM policies needed to complete this workshop.



The AWS account is only available for the duration of this workshop. **You will lose access to the account once the workshop is complete.**

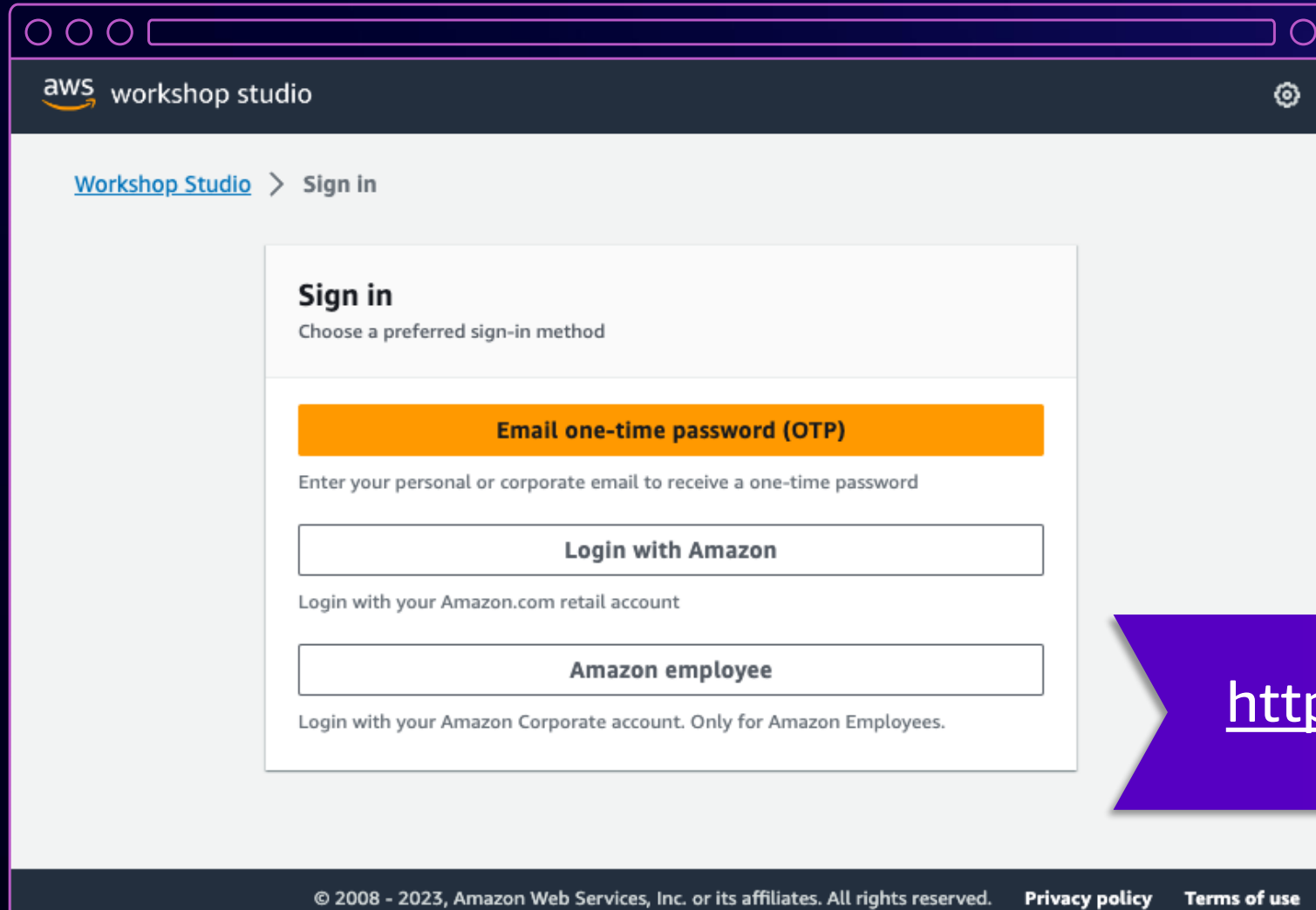


Any optional pre-provisioned infrastructure is deployed to a specific AWS Region. Make sure that you are working in this Region; other Regions are blocked.



Review the terms and conditions of the event. **Do not upload any personal or confidential information to the account.**

Step 1: Sign in using your preferred method



aws workshop studio

[Workshop Studio](#) > Sign in

Sign in

Choose a preferred sign-in method

Email one-time password (OTP)

Enter your personal or corporate email to receive a one-time password

Login with Amazon

Login with your Amazon.com retail account

Amazon employee

Login with your Amazon Corporate account. Only for Amazon Employees.

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<https://catalog.workshops.aws/join>

Step 2: Enter the event access code

aws workshop studio

Workshop Studio > Join event

Step 1
Enter event access code

Step 2
Review and join

Enter event access code

Event access code

Event access code
A 12 digit code that was given to you for this event

abcd-012345-ef

Cancel **Next**

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Each session has a unique code

Step 3: Review terms and join event

The screenshot shows the 'Review and join' page in the AWS Workshop Studio interface. The page is divided into several sections:

- Event details:** A table with the following information:

Name	Start time	Duration	Level
reinvent 2023 Workshop	8/28/2023 10:59 AM	12 hours	100
- Description:** Workshop at re:Invent 2023
- Terms and Conditions:** A section with a heading 'Terms and Conditions' and a sub-heading 'Read and accept before joining the event'. It contains a list of 11 terms and conditions, followed by a checkbox labeled 'I agree with the Terms and Conditions' which is checked.
- Navigation:** At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Join event'.



Step 4: Get started with the workshop

The screenshot shows the AWS Workshop Studio interface for the 're:Invent 2023 Workshop'. The page is titled 're:Invent 2023 Workshop' and includes a navigation sidebar on the left. The main content area displays 'Event information' and 'Workshop' details. A red box highlights the 'Get started >' button in the 'Workshop' section.

Event information

Start time	Duration	Accessible regions
8/28/2023 10:06 AM	12 hours	us-east-1

Description
Workshop at re:Invent 2023

Workshop

Title	Complexity level	AWS services	Topics
General Immersion Day	100	Amazon EC2 Auto Scaling, Amazon Simple Storage Service (Amazon S3), Amazon Elastic File System (Amazon EFS)	Compute, Databases, Networking & Content Delivery, Storage

Description
The content contained in the module is considered foundational, 100 level labs covering AWS core services.

Event Outputs (0)



The screenshot shows the AWS Workshop Studio interface for the 'AWS General Immersion Day' workshop. The page is titled 'AWS General Immersion Day' and includes a navigation sidebar on the left. The main content area displays a large circular graphic with a gear and the text 'AWS Immersion Days'. Below the graphic, there is a description of the workshop and a 'Next' button.

AWS General Immersion Day

AWS General Immersion Day

In this General Immersion Day workshop, through a mix of service explanation and hands-on labs led by AWS, you will learn about AWS foundational services as well as key concepts for AWS security measures and architecture best practices.

The hands-on labs are largely divided into **basic and advanced modules**.

In basic modules, you can learn various features of each AWS foundational service. In advanced modules, you can learn how to connect each service organically to create architecture like 3-tier web application.

[Previous](#) [Next](#)

Step 5: Access AWS account

re:Invent 2023 Workshop

Event dashboard > AWS General Immersion Day

AWS General Immersion Day

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Previous Next



Services Search [Option+S] N. Virginia

Console Home info

Reset to default layout + Add widgets

Recently visited info

- CloudWatch
- Service Quotas
- AWS Organizations
- Athena
- CloudFormation
- AWS Health Dashboard
- Resource Groups & Tag Editor
- Amazon EventBridge
- AWS Cost Explorer
- S3
- EC2
- Lambda
- CodeCommit
- Amazon Redshift

View all services

Welcome to AWS

- Getting started with AWS
- Training and certification
- What's new with AWS?

AWS Health info

Open issues: 0 (Past 7 days)

Scheduled changes: 0 (Upcoming and past 7 days)

Other notifications: 0 (Past 7 days)

Cost and usage info

Current month costs: \$0.00

Forecasted month end costs: -

Last month costs: \$0.00

Top costs for current month

No top cost breakdowns. Cost breakdowns show when you use services.

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Access the AWS Management Console or generate AWS CLI credentials as needed

Event access code

63e3-06c1c5-dd



Infrastructure as code (IaC) introduction

Abstractions

AWS Cloud Development Kit
(AWS CDK)

Generators

AWS GoFormation

Declarative

AWS CloudFormation

Scripted

`#!/bin/bash`

Manual

Wikis, playbooks, Ask-Bob-he-knows

AWS Cloud Development Kit (AWS CDK)



Familiar
Your language
Just classes and methods



Tool Support
Autocomplete
Inline documentation



Abstraction
Sane defaults
Reusable classes

```
class UrlShortener extends Stack {
  constructor(scope: App, id: string, props?: UrlShortenerProps) {
    super(scope, id, props);

    const vpc = new ec2.Vpc(this, 'vpc', { maxAzs: 2 });
    const cluster = new ecs.Cluster(this, 'cluster', { vpc: vpc });
    const service = new patterns.NetworkLoadBalancedFargateService(this, 'sample-app', {
      cluster,
      taskImageOptions: {
        image: ecs.ContainerImage.fromAsset('ping'),
      },
      domain
    });
  }
}

// Setup AutoScaling policy
const scaling = service.service.autoScaleTask
scaling.scaleOnCpuUtilization('CpuScaling',
  targetUtilizationPercent: 50,
  scaleInCooldown: Duration.seconds(60),
  scaleOutCooldown: Duration.seconds(60)
});
```

domainName	(property) patterns.NetworkLoadBalancedServiceBaseProps.domainName?: string undefined
domainZone	The domain name for the service, e.g. "api.example.com."
	@default
	- No domain name.



Java



Construct levels

L3+

Purpose-built constructs

Opinionated abstractions

L2

AWS constructs

High level service constructs

L1

CloudFormation resources

Automatically generated

Why do we want IaC and CDK?



Faster deployment



Better developer
feedback



Documentation
and auditing



Deployment
reproducibility



Shared abstractions

Workshop time!



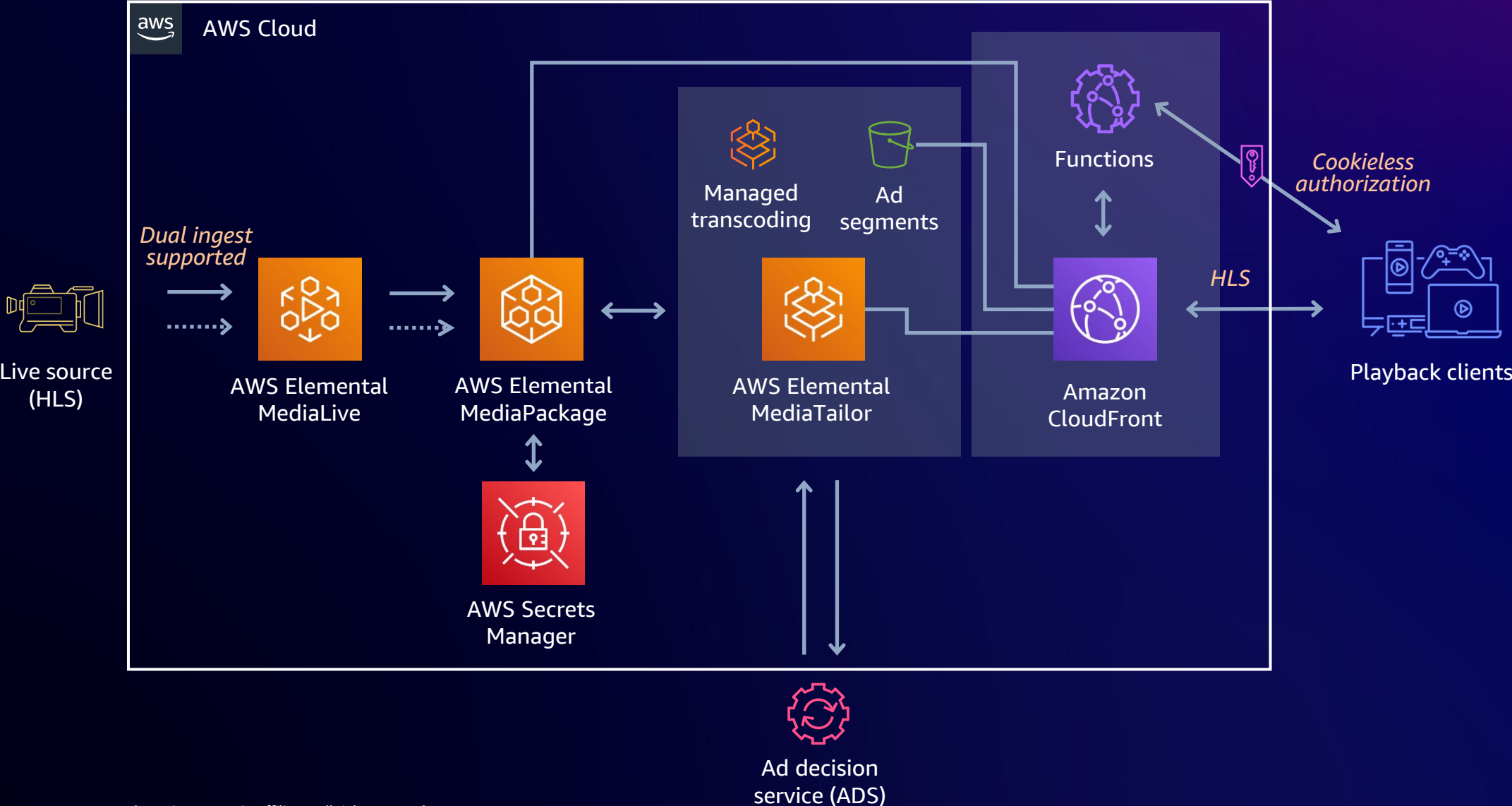
Task 2 – Progress check



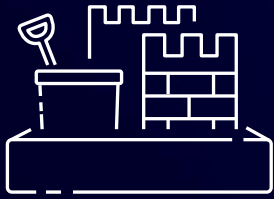
Wrap-up



Workshop: Core architecture



What's next?



More environments



Manual validations
with notifications



CDK testing



CI process



Contribution



Developing abstractions

Next steps

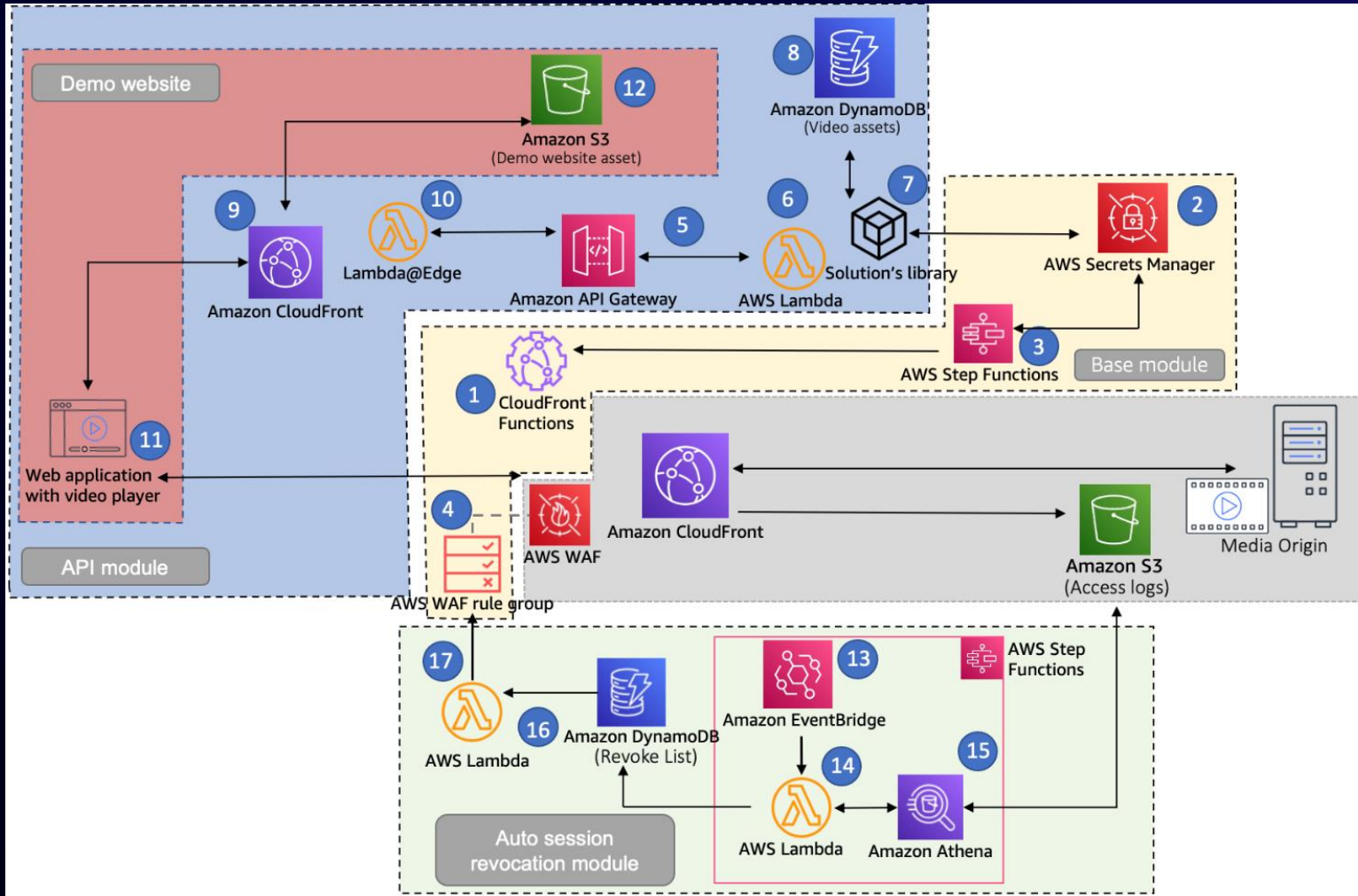
AWS CDK MEDIA SERVICES REFERENCE ARCHITECTURES

- SSAI (HLS, CMAF, and DASH)
- Live-to-VOD
- Sustainable MediaLive outputs
- Audio-only with MediaPackage
- MediaLive input and output monitoring
- Live CloudWatch monitoring
- Private MediaLive outputs (via VPC)
- Live encoding loop



Next steps

SECURE MEDIA DELIVERY AT THE EDGE ON AWS



Thank you!

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Corneliu Croitoru

ccroito@amazon.fr



Please complete the session survey in the mobile app