AWS re:Invent

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SEC304

Machine-to-machine authentication on AWS

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Agenda

Introductions

Builders’ session?

Problem statement

Authentication methods

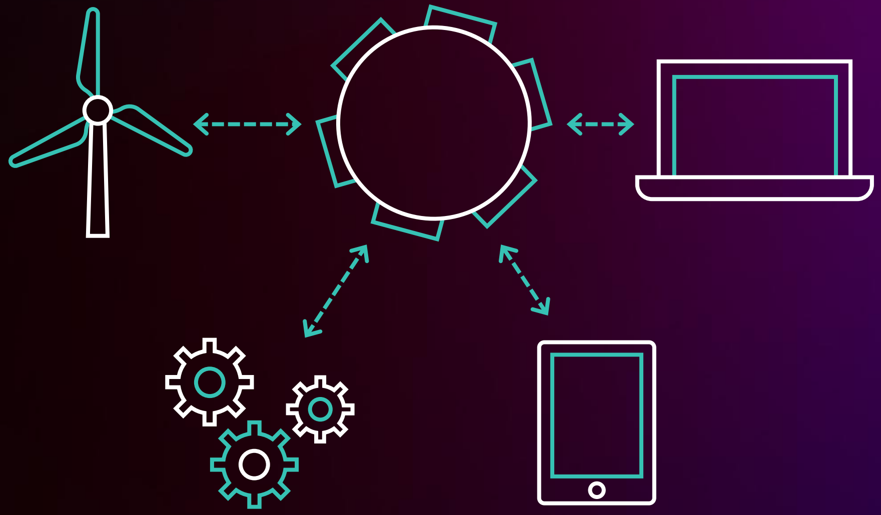
Let’s build!

What is a builders’ session?

- One-hour small-group sessions
- Build & experiment together!
- Ask AWS experts

Problem

- Machine-to-machine is hard
- Long-term credentials are risky
- Short-term credentials for the win



Why choose tokens instead of passwords?

1

Tokens are short-lived

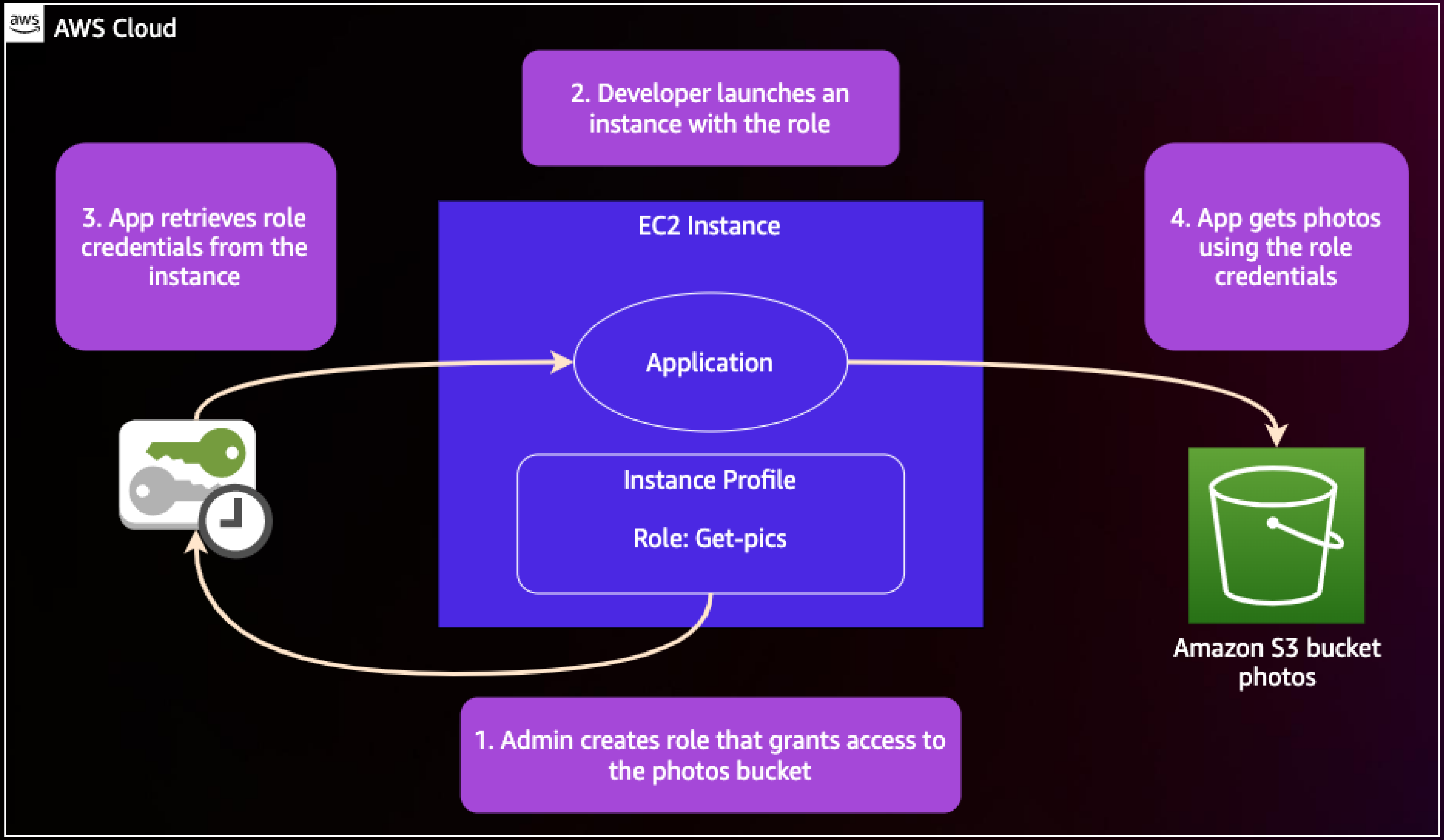
Tokens allow for granting temporary access repeatedly

2

Tokens allow for granting granular access to specific system components

Instead of a common password, tokens allow for implementing the least-privilege principle on each system component

Solution: Amazon EC2 instance profiles



AWS Cloud

2. Developer launches an instance with the role

3. App retrieves role credentials from the instance

EC2 Instance

Application

Instance Profile

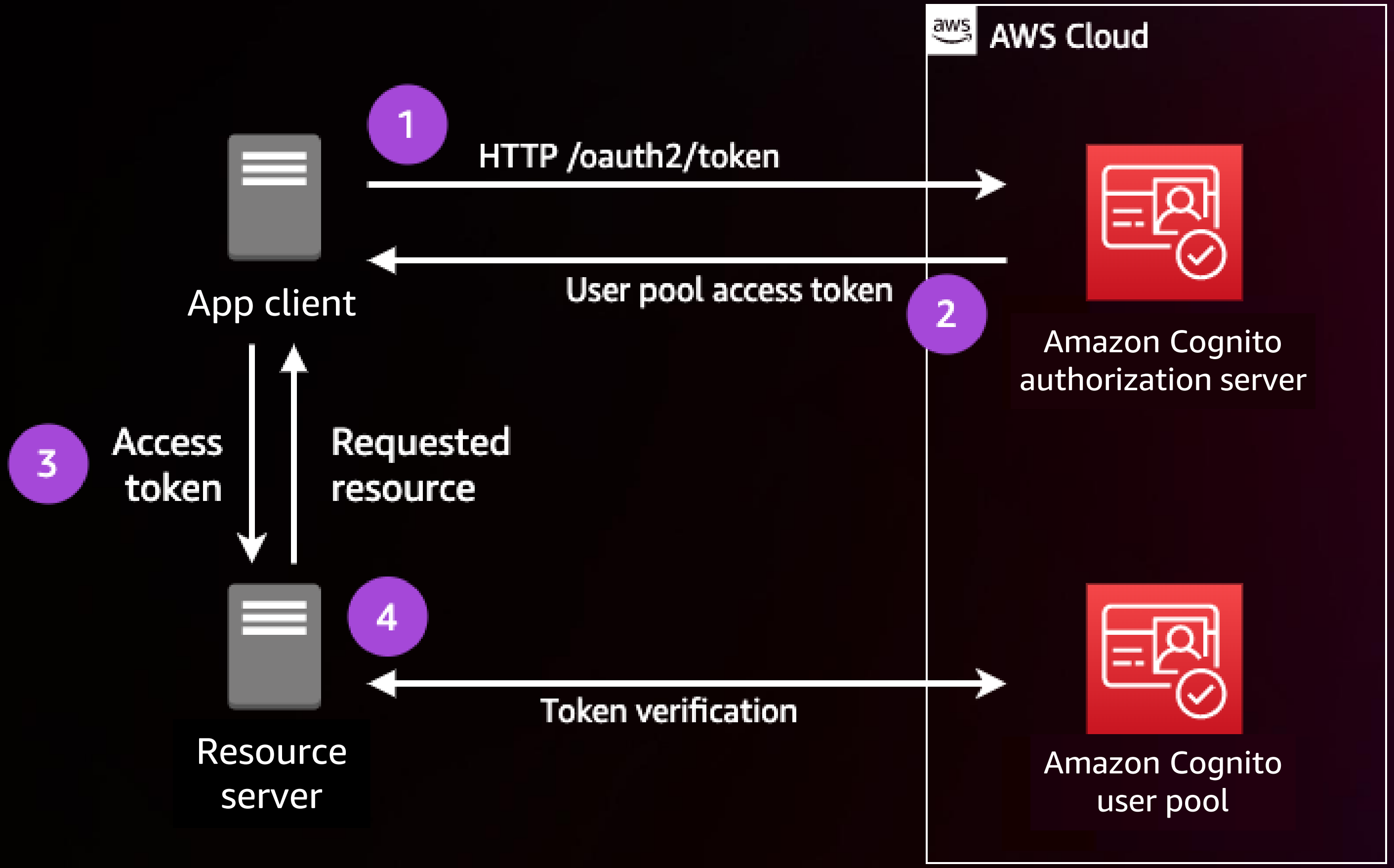
Role: Get-pics

4. App gets photos using the role credentials

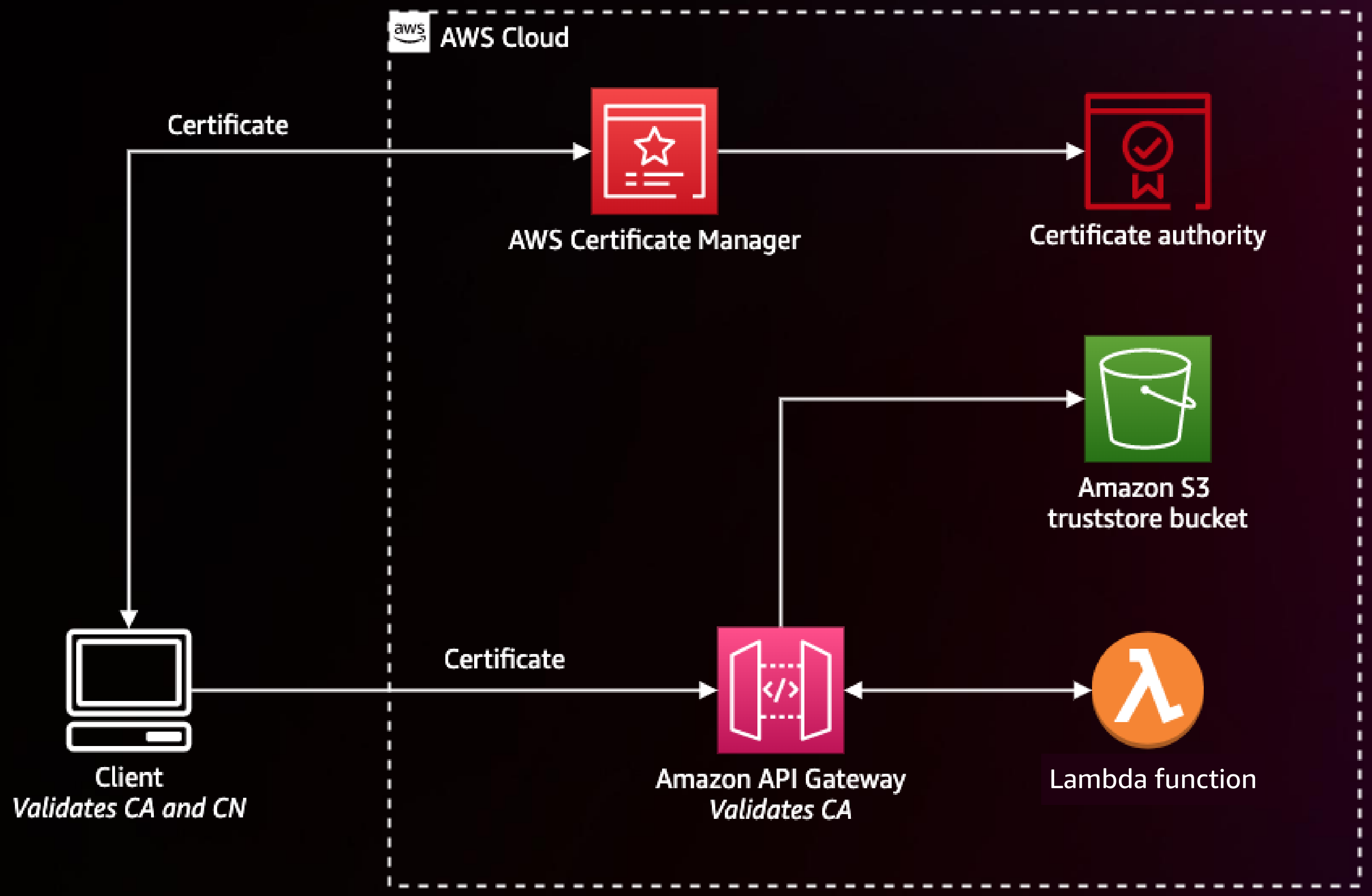
Amazon S3 bucket photos

1. Admin creates role that grants access to the photos bucket

Solution: Amazon Cognito client credentials

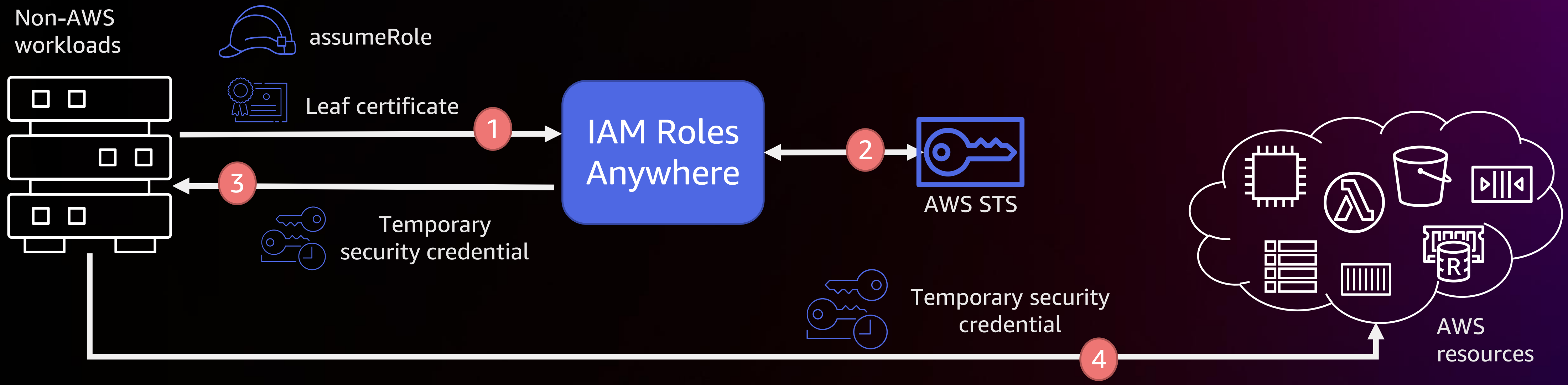


Solution: Mutual TLS (mTLS)



Solution: IAM Roles Anywhere

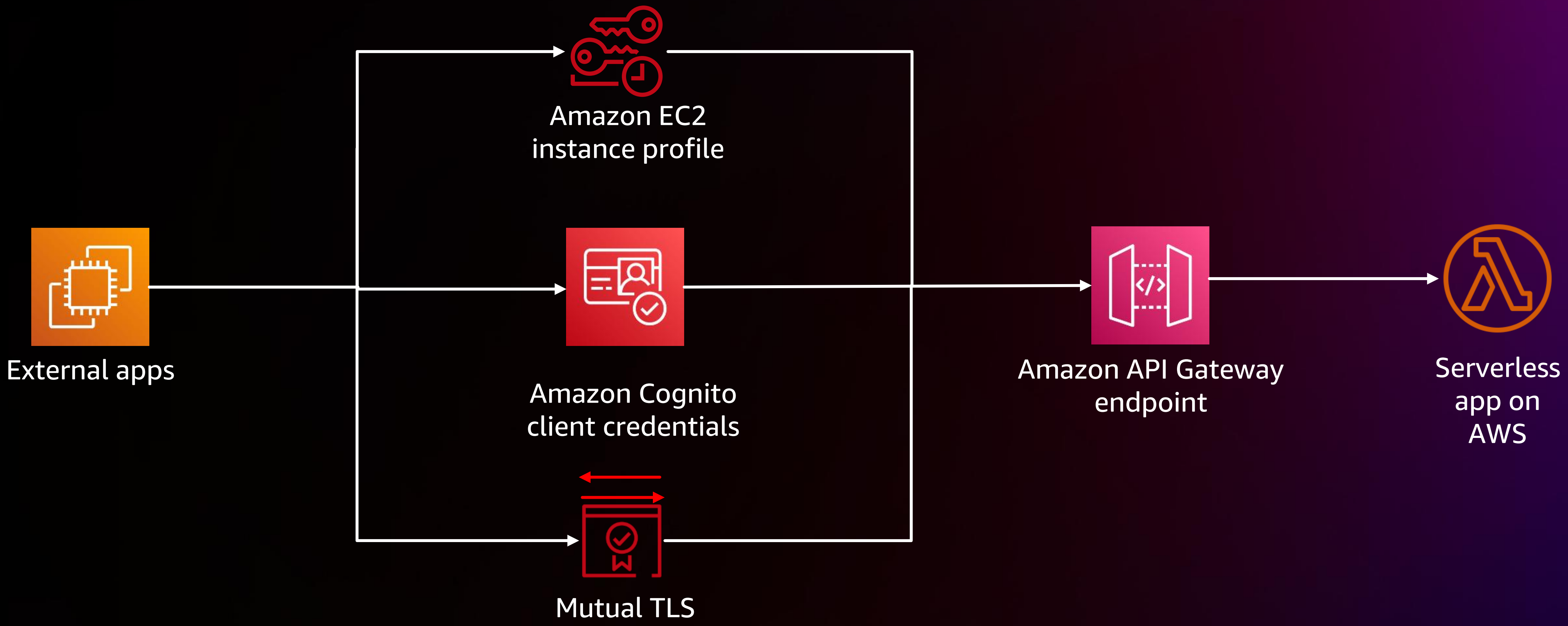
* hands-on not included in this builders' session



Solutions in comparison

Method	Pros	Cons
API key	• Quick, simple, and easy	• Sends credentials on each request • Long-lived
Instance profile	• Transparent • Credentials are stored in-memory • Short-lived	• Applicable only in AWS authentication
Client credentials	• Short-lived (communicates long-lived credentials only with Amazon Cognito)	• Requires an oAuth server (like Amazon Cognito) between apps
mTLS	• Verifies both ends of communication • No credentials are transferred	• Complicated setup: PKI management on both ends
IAM Roles Anywhere	• Short-lived • No credentials are transferred	• Requires PKI management

Workshop architecture



Let’s build!

Event link:
https://catalog.us-east-1.prod.workshops.aws/join

Access code: 1234567890QWERTYUIOP

Thank you!

Please complete the session survey in the **mobile app**