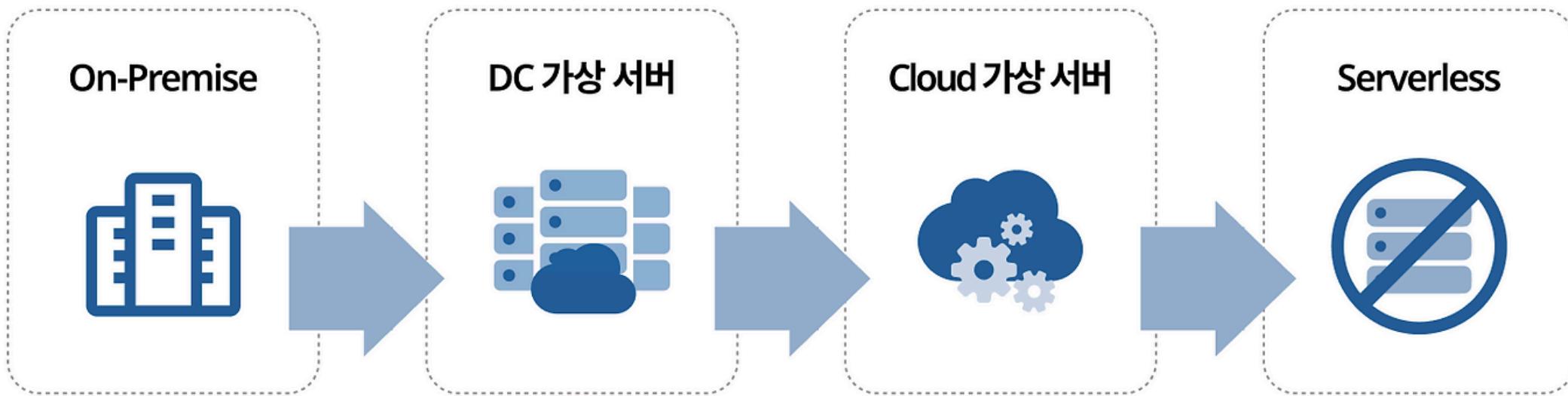


AWS Lambda

- Lambda는 AWS가 제공하는 서버리스 FaaS 솔루션으로, 함수의 인스턴스를 실행하여 이벤트를 처리합니다.
- [AWS Lambda 요금](#)

서비스란?

- 서비스 컴퓨팅이란 서버의 설정과 관리 없이 백엔드 서비스를 운영할 수 있게 해주는 클라우드 컴퓨팅 실행 모델입니다.
- 사용자는 코드 작성에만 집중하고, 나머지 인프라 관리는 AWS가 담당하게 됩니다.
- 이는 개발자가 인프라에 대한 고민 없이, 더 빠르고 효율적으로 애플리케이션을 개발하고 배포할 수 있게 해줍니다.

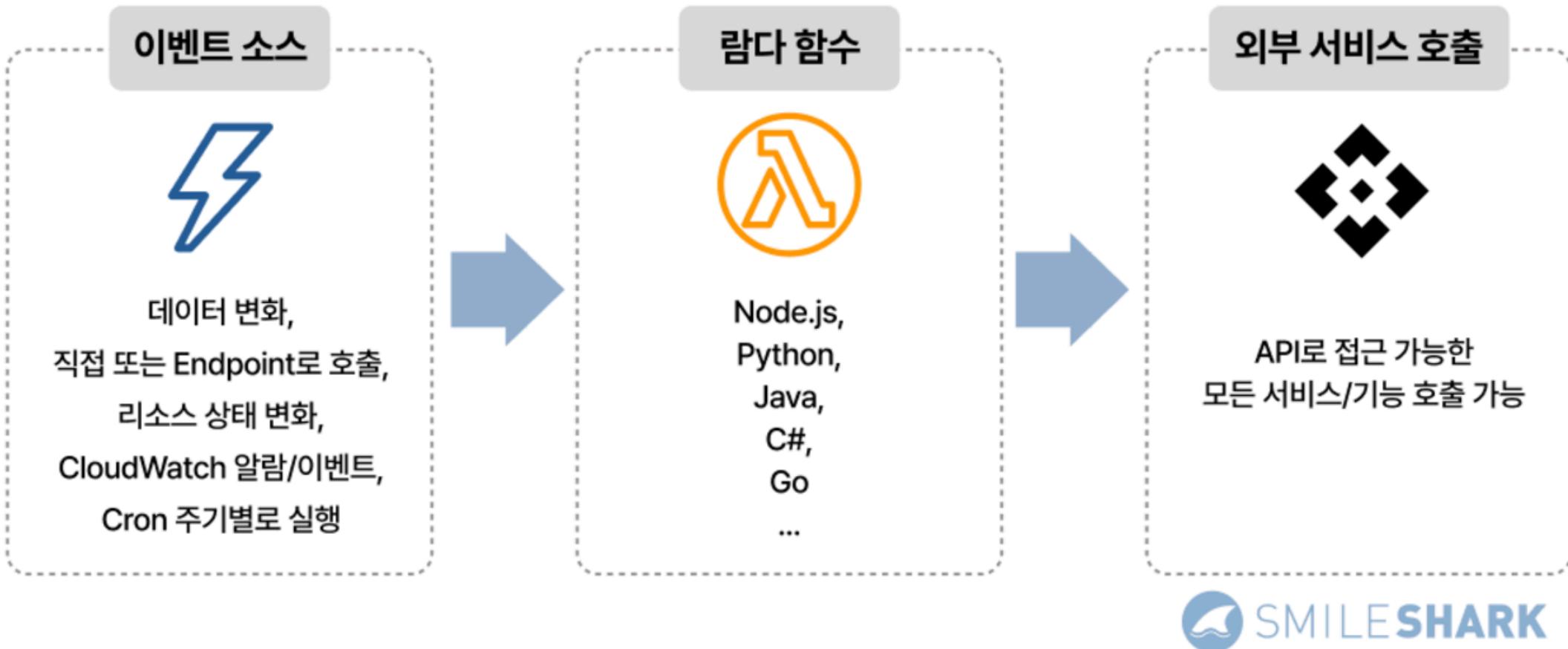


FaaS란?

- FaaS(Function-as-a-Service)는 개발자가 자체 인프라를 유지관리할 필요 없이 애플리케이션 패키지를 기능으로 빌드, 실행, 관리할 수 있게 해주는 일종의 클라우드 컴퓨팅 서비스입니다.
- FaaS 기능에는 특히 상태 및 실행 기간과 관련하여 상당한 아키텍처 제한이 있습니다.

On Premises	IaaS	PaaS	FaaS	SaaS
Function	Function	Function	Function	Function
Application	Application	Application	Application	Application
Runtime	Runtime	Runtime	Runtime	Runtime
Container	Container	Container	Container	Container
Operating system				
Virtualization	Virtualization	Virtualization	Virtualization	Virtualization
Networking	Networking	Networking	Networking	Networking
Hardware	Hardware	Hardware	Hardware	Hardware

AWS Lambda의 작동 원리



SMILE SHARK

람다 함수

- 함수는 Lambda에서 코드를 실행하기 위해 호출할 수 있는 리소스입니다.
- 함수에는 함수에 전달하는 이벤트 또는 다른 AWS서비스에서 보낸 이벤트를 처리하는 코드가 포함되어 있습니다.

이벤트 트리거(이벤트 소스)

- AWS Lambda는 이벤트를 처리하기 위해 함수 인스턴스를 실행합니다. 함수는 Lambda API를 사용하여 직접 호출할 수 있으며 AWS 서비스 및 리소스를 설정하여 함수를 호출할 수도 있습니다.
- AWS Lambda 함수는 HTTP 요청, 데이터 상태 번역, 파일 업로드 등 다양한 이벤트에 의해 트리거 됩니다.

람다의 작동 방식

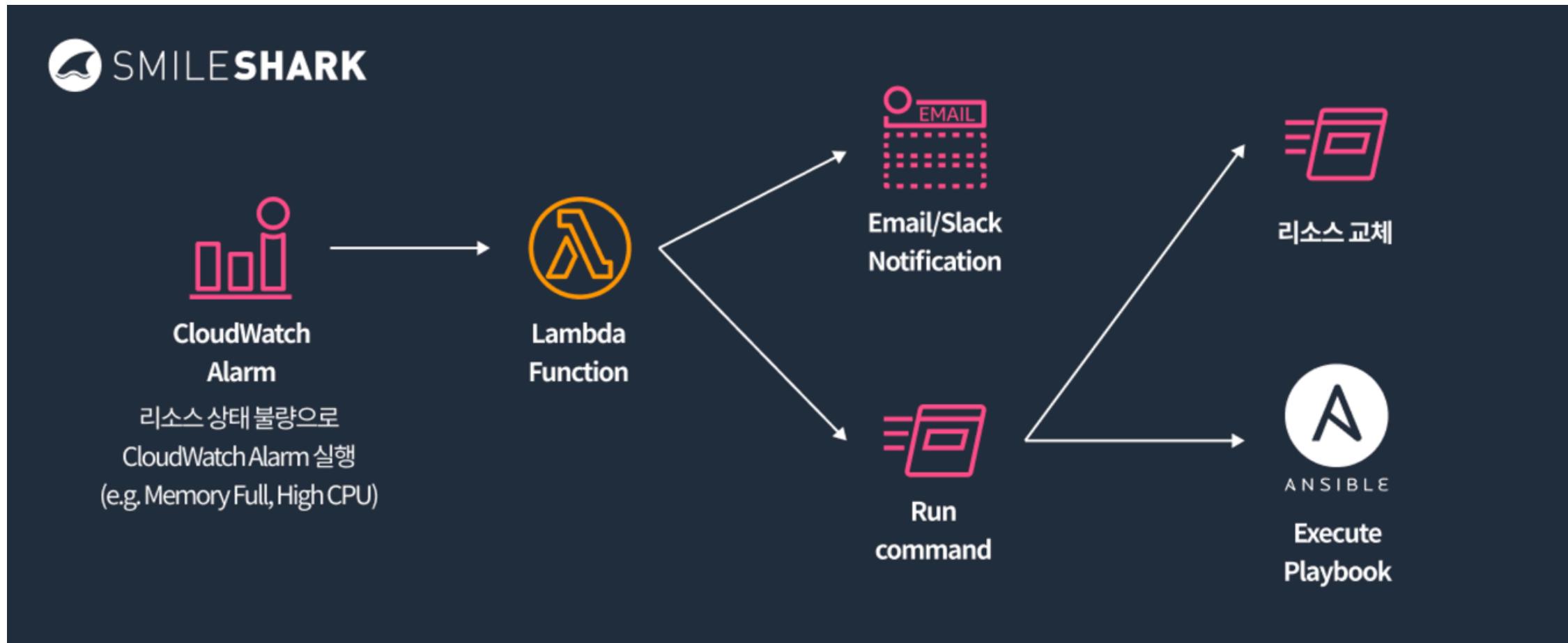
1. 먼저 함수를 생성하고, 해당 함수를 사용되는 프로그래밍 언어와 같은 기본 정보를 서비스에 추가합니다.
2. 그런 다음 람다 편집기에서 코드를 작성하거나 소스 코드를 zip 파일로 업로드합니다.
3. 람다 코드가 업로드되면 서비스가 모든 용량 확장, 패치 및 인프라 관리를 처리합니다.

AWS Lambda와 EC2의 차이점

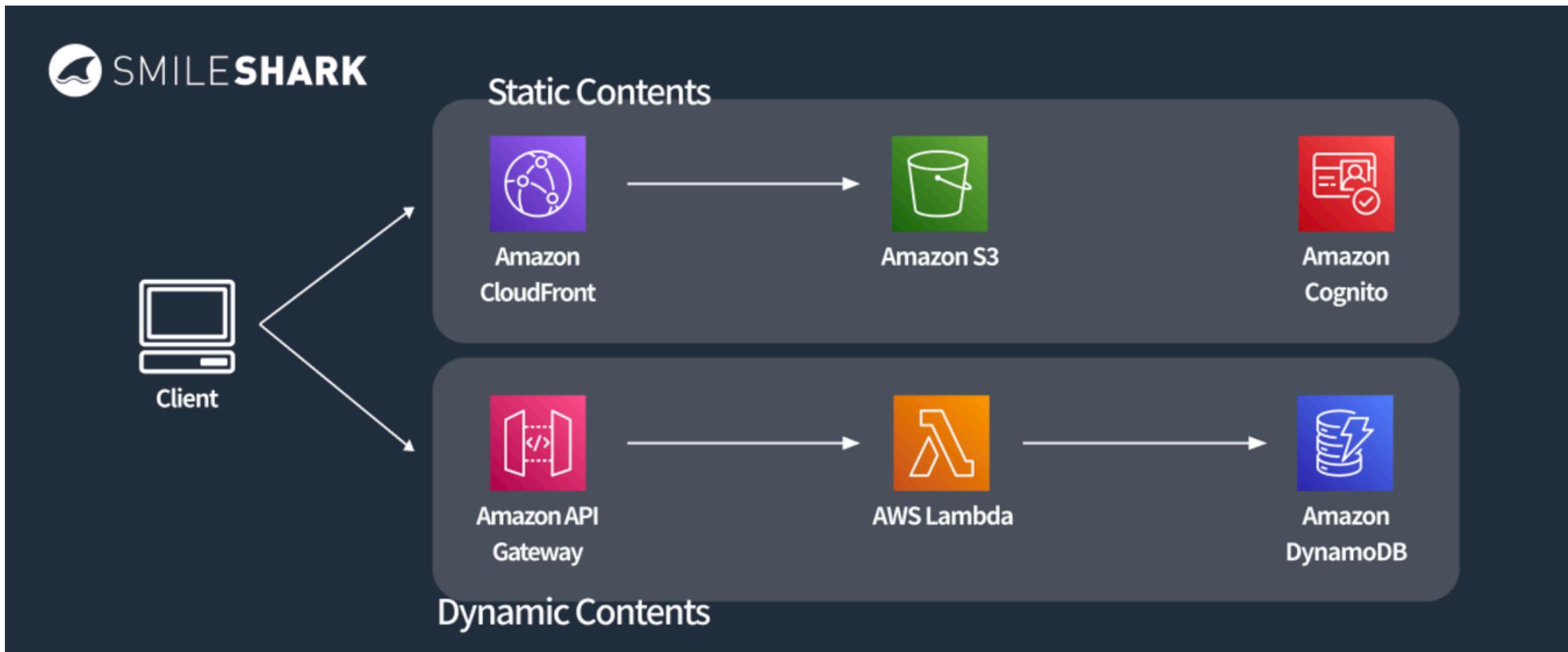
AWS Lambda	AWS EC2
백엔드 코드를 실행하고 실행하기 위한 원격 플랫폼을 갖춘 PaaS(Platform as a Service)	가상화된 컴퓨팅 리소스를 제공하는 IaaS(Infrastructure as a Service)
컴퓨팅 인스턴스에 로그인하고 맞춤형 운영체제 또는 언어 런타임을 선택할 수 있는 유연성이 없습니다	다양한 인스턴스, 맞춤형 운영 체제, 네트워크 및 보안 패치 등을 선택할 수 있는 유연성을 갖추고 있습니다
코드를 실행할 환경을 선택하고 코드를 AWS Lambda에 푸시합니다	처음에는 OS를 선택하고 필요한 모든 소프트웨어를 설치한 다음 코드를 EC2에 푸시해야 합니다
일부 언어에 대한 환경 제한이 있음	환경 제한 없음

AWS Lambda의 사용 사례

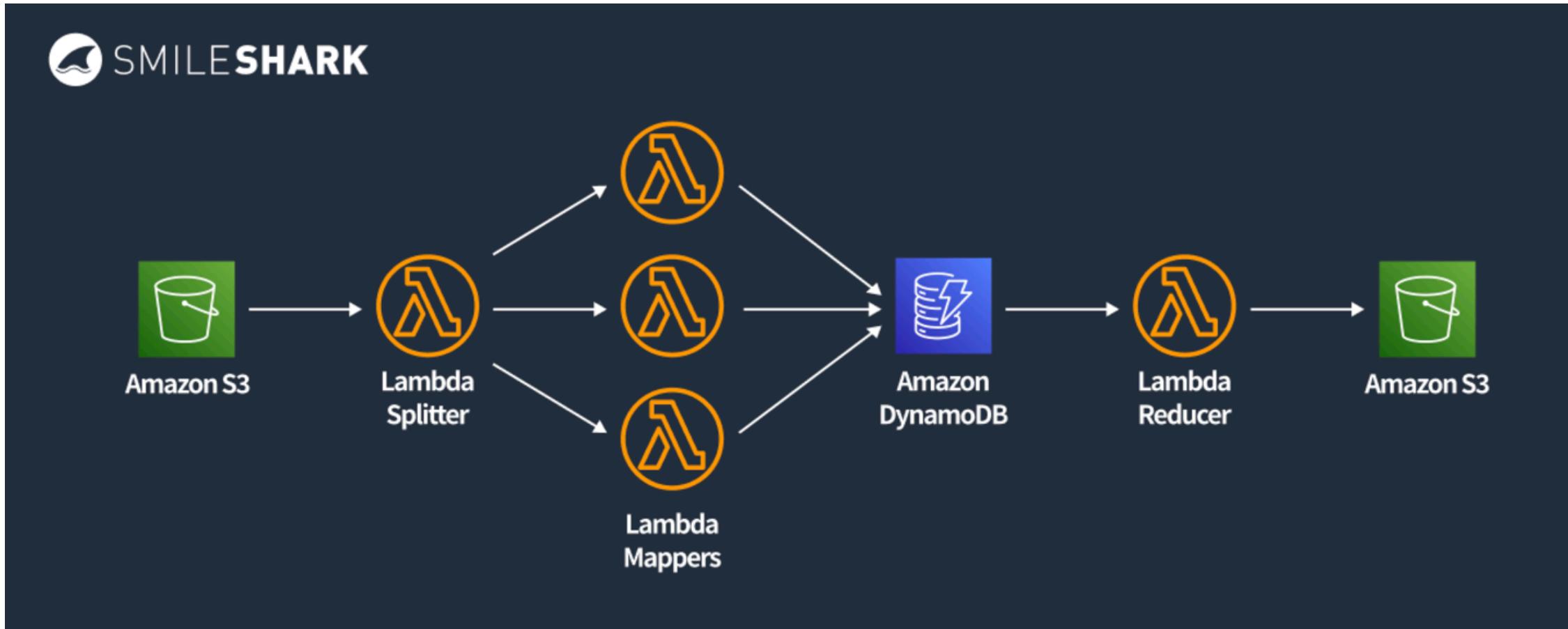
시스템 운영 자동화



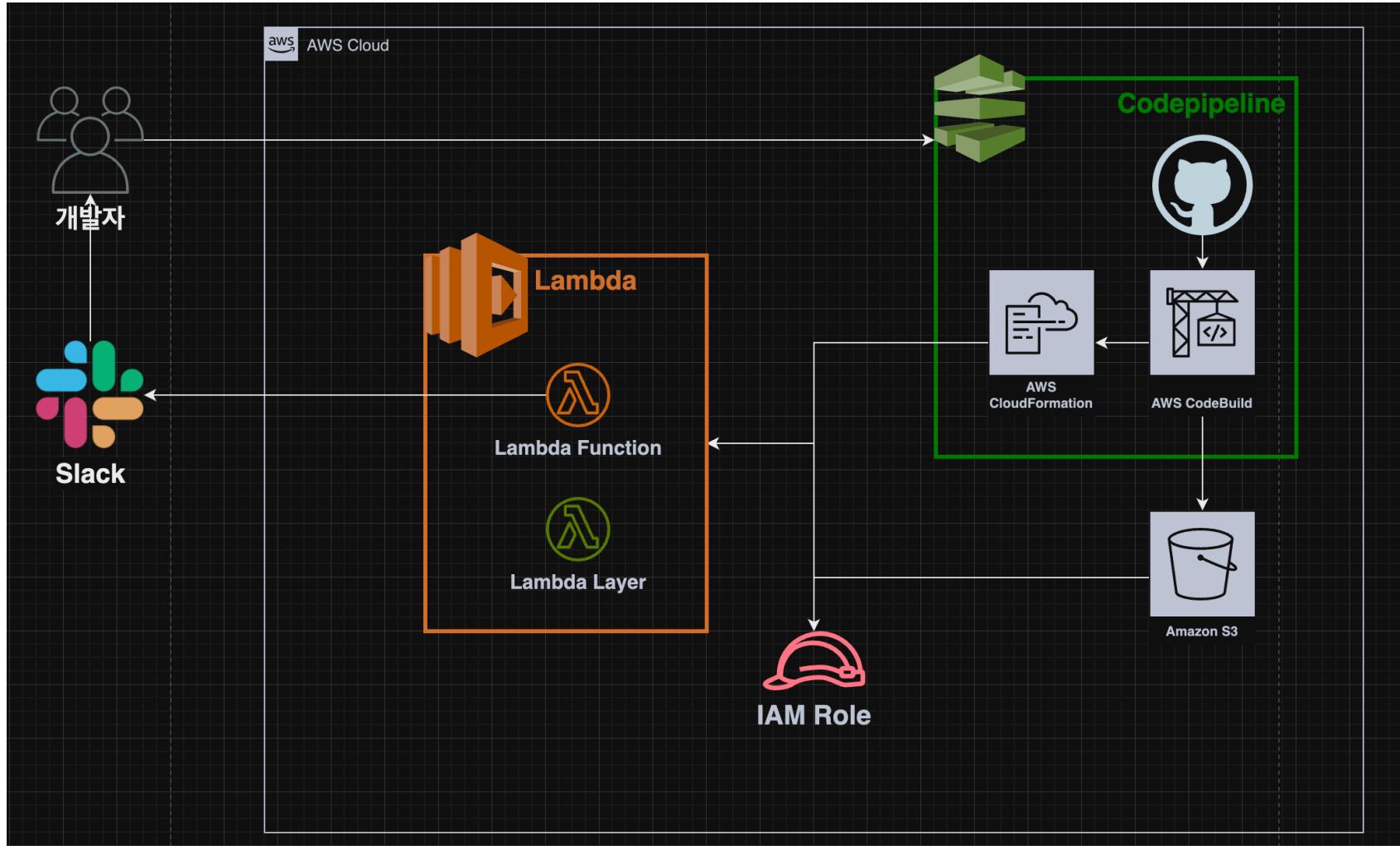
웹 애플리케이션



Serverless Batch Processing



aws codepipeline



CodeBuild

단계1: CodeBuild 생성

The screenshot shows the AWS Management Console with the developer tools sidebar open. The sidebar has a dark theme and lists various services under 'Developer Tools'. The 'CodeBuild' section is expanded, and the 'Build projects' item is highlighted with a red arrow. The main content area shows the 'Build projects' page for the 'CodeBuild' service. The page title is 'Build projects' with an 'Info' link. It includes buttons for 'Actions', 'Create trigger', 'View details', 'Start build', and 'Create'. A search bar and a 'Your projects' dropdown are also present. Two build projects are listed:

Name	Source provider	Repository	Latest build status	Description	Last Modified
slack-lambda-build	GitHub	good593/course_aw_s [1]	Succeeded	-	1 hour ago
investment-crypto	GitHub	good593/Investmen_t_crypto [2]	-	-	2 days ago

단계2: CodeBuild Role 권한 추가

The screenshot shows the AWS IAM Roles management interface. On the left, a sidebar lists 'Identity and Access Management (IAM)' under 'Access management'. A red arrow points from the 'Identity and Access Management (IAM)' header to the 'Roles' link in the sidebar. Another red arrow points to the 'Roles' link itself. A third red arrow points to the 'codebuild-slack-lambda-build-service-role' row in the main table.

Identity and Access Management (IAM)

Roles (8) Info

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

<input type="checkbox"/> Role name	▲ Trusted entities	Last activity
AWSCodePipelineServiceRole-ap-northeast-2-investment-crypto-pip	AWS Service: codepipeline	Yesterday
AWSServiceRoleForCostOptimizationHub	AWS Service: cost-optimization-hub	20 hours ago
AWSServiceRoleForSupport	AWS Service: support (Service-Linked)	-
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked)	-
codebuild-investment-crypto-service-role	AWS Service: codebuild	Yesterday
codebuild-slack-lambda-build-service-role	AWS Service: codebuild	1 hour ago

Identity and Access Management (IAM) < codebuild-slack-lambda-build-service-role [Info](#) [Delete](#) [Edit](#)

Summary

Creation date
December 04, 2024, 12:10 (UTC+09:00)

Last activity
 1 hour ago

ARN
 arn:aws:iam::426653742146:role/service-role/codebuild-slack-lambda-build-service-role

Maximum session duration
1 hour

Permissions [Trust relationships](#) [Tags](#) [Last Accessed](#) [Revoke sessions](#)

Permissions policies (3) [Info](#)

You can attach up to 10 managed policies.

Filter by Type [All types](#)

<input type="checkbox"/>	Policy name	Type	Attached entities
<input type="checkbox"/>	AmazonS3FullAccess	AWS managed	4
<input type="checkbox"/>	CodeBuildBasePolicy-slack-lambda-build-ap-no...	Customer managed	1
<input type="checkbox"/>	CodeBuildCodeConnectionsSourceCredentialsP...	Customer managed	1

[C](#) [Simulate](#) [Remove](#) [Add permissions ▾](#)

Search All types Page: 1 of 1

AmazonS3FullAccess

단계3: CodeBuild 실행

The screenshot shows the AWS CodeBuild console interface. On the left, there's a sidebar with 'Developer Tools' and 'CodeBuild' sections. Under 'Build • CodeBuild', the 'Build projects' option is selected. The main area displays a table of build projects. The columns are labeled: Name, Source provider, Repository, Latest build status, Description, and Last Modified. The first project listed is 'slack-lambda-build', which has a GitHub source provider, repository 'good593/course_aw_s', a succeeded status, and was last modified 2 hours ago. The second project listed is 'investment-crypto', also with GitHub source provider and repository 'good593/Investmen_t_crypto', but it hasn't been built yet. The toolbar at the top right includes buttons for 'Actions', 'Create trigger', 'View details', 'Start build' (which is highlighted in orange), and 'Create project'. A red arrow points from the 'Name' column header to the 'slack-lambda-build' row. Another red arrow points from the 'Start now' button in the toolbar to the 'Start build' button.

Name	Source provider	Repository	Latest build status	Description	Last Modified
slack-lambda-build	GitHub	good593/course_aw_s	Succeeded	-	2 hours ago
investment-crypto	GitHub	good593/Investmen_t_crypto	-	-	2 days ago

CodePipeline

단계1: CodePipeline 생성 및 실행

The screenshot shows the AWS CodePipeline console interface. On the left, a sidebar titled 'Developer Tools' has 'CodePipeline' expanded, with 'Pipelines' highlighted and a red arrow pointing to it. The main area shows the 'Pipelines' page with a single pipeline listed:

Name	Latest execution status	Latest source revisions	Latest execution started	Most recent executions
investment-crypto-pipeline	Succeeded	Source - 01180048 일 부수정	1 day ago	✓ ✗ ✗ ✗ ✗ View details

At the top right of the main area, there is a yellow button labeled 'Create pipeline' with a red arrow pointing to it.

Step 1
[Choose creation option](#)

Step 2
Choose pipeline settings

Step 3
Add source stage

Step 4
Add build stage

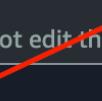
Step 5
Add deploy stage

Step 6
Review

Choose pipeline settings Info

Step 2 of 6

Pipeline settings

Pipeline name
Enter the pipeline name. You cannot edit the pipeline name after it is created.
 

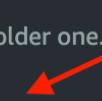
No more than 100 characters

Pipeline type

i You can no longer create V1 pipelines through the console. We recommend you use the V2 pipeline type with improved release safety, pipeline triggers, parameterized pipelines, and a new billing model.

Execution mode
Choose the execution mode for your pipeline. This determines how the pipeline is run.

Superseded
A more recent execution can overtake an older one. *This is the default.*

Queued (Pipeline type V2 required) 
Executions are processed one by one in the order that they are queued.

Step 1

[Choose creation option](#)

Step 2

[Choose pipeline settings](#)

Step 3

Add source stage

Step 4

[Add build stage](#)

Step 5

[Add deploy stage](#)

Step 6

[Review](#)

Add source stage Info

Step 3 of 6

Source

Source provider
This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

GitHub (via GitHub App)

Connection
Choose an existing connection that you have already configured, or create a new one and then return to this task.

or **Connect to GitHub**

Repository name
Choose a repository in your GitHub account.

You can type or paste the group path to any project that the provided credentials can access. Use the format 'group/subgroup/project'.

Step 1
[Choose creation option](#)

Step 2
[Choose pipeline settings](#)

Step 3
[Add source stage](#)

Step 4
Add build stage

Step 5
[Add deploy stage](#)

Step 6
Review

Add build stage Info

Step 4 of 6

Build - optional

Build provider
Choose the tool you want to use to run build commands and specify artifacts for your build action.

Commands

Other build providers

AWS CodeBuild

Project name
Choose a build project that you have already created in the AWS CodeBuild console. Or create a build project in the AWS CodeBuild console and then return to this task.

slack-lambda-build

X or [Create project](#)

Environment variables - optional
Choose the key, value, and type for your CodeBuild environment variables. In the value field, you can reference variables generated by CodePipeline. [Learn more](#)

Step 1
[Choose creation option](#)

Step 2
[Choose pipeline settings](#)

Step 3
[Add source stage](#)

Step 4
[Add build stage](#)

Step 5
[Add deploy stage](#)

Step 6
[Review](#)

Add deploy stage Info

Step 5 of 6

Deploy - optional

Deploy provider
Choose how you deploy to instances. Choose the provider, and then provide the configuration details for that provider.

AWS CloudFormation

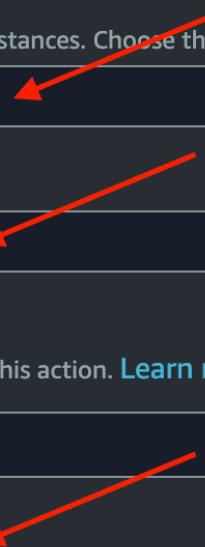
Region

Asia Pacific (Seoul)

Input artifacts
Choose an input artifact for this action. [Learn more](#)

BuildArtifact X
Defined by: Build

No more than 100 characters



Action mode

When you update an existing stack, the update is permanent. When you use a change set, the result provides a diff of the updated stack and the original stack before you choose to execute the change.

Create or update a stack 

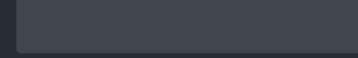
Stack name
If you are updating an existing stack, choose the stack name.
  

Template
Specify the template you uploaded to your source location.

Artifact name	File name	Template file path
BuildArtifact 	outputtemplate.yml 	BuildArtifact::outputter

Template configuration - optional
Specify the configuration file you uploaded to your source location.

Use configuration file

Artifact name	File name	Template configuration file path
		

Capabilities - optional
Specify whether you want to allow AWS CloudFormation to create IAM resources on your behalf.

CAPABILITY_IAM 
 CAPABILITY_NAMED_IAM 
 CAPABILITY_AUTO_EXPAND 

Role name
 

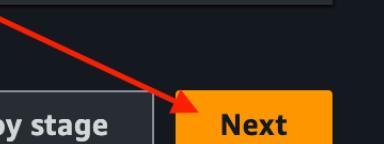
Output file name

File generated by this action

► Advanced

Configure automatic rollback on stage failure
 Enable automatic retry on stage failure

Cancel **Previous** **Skip deploy stage** **Next**



단계2: CodePipeline 실행 결과 확인

The screenshot shows the AWS CodePipeline console interface. On the left, there is a sidebar with the following navigation:

- Developer Tools
- CodePipeline** (highlighted with a red arrow)
- Source • CodeCommit
- Build • CodeBuild
- Deploy • CodeDeploy
- Pipeline • CodePipeline
 - Getting started
 - Pipelines** (highlighted with a red arrow)
 - History
 - Settings
- Settings

The main content area displays the pipeline details for "slack-lambda-pipeline". The breadcrumb navigation shows: Developer Tools > CodePipeline > Pipelines > slack-lambda-pipeline.

The pipeline summary includes:

- Pipeline type: V2
- Execution mode: QUEUED
- Execution ID: af316aba-54ff-4052-8865-270f3b450065

The execution history section shows the following step details:

Step	Status	Last Run
Source	Succeeded	GitHub (via GitHub App) - 2 minutes ago
baec0e1c	Succeeded	

A "View details" button is located at the bottom of this section. To the right, there is a vertical column of three green checkmark icons, each with a red arrow pointing towards it, indicating successful steps.

단계3: Cloudformation 실행 결과 확인

The screenshot shows the AWS CloudFormation Stacks page. The navigation bar at the top includes links for IAM, EC2, VPC, S3, EMR, Elastic Container Service, CodePipeline, and RDS. The CloudFormation icon is highlighted with a red arrow. The main content area displays a table titled "Stacks (1)". The table has columns for Stack name, Status, Created time, and Description. One row is shown, corresponding to a stack named "slack-lambda-stack". The status is "CREATE_COMPLETE" (indicated by a green checkmark icon), and the created time is "2024-12-04 14:30:42 UTC+0900". The description is "SNS Slack Lambda Sample T https://docs.aws.amazon.co mation/latest/UserGuide/AW". The left sidebar lists "CloudFormation", "StackSets", "Exports", "Infrastructure Composer", and "IaC generator". The "Stacks" link in the sidebar is also highlighted with a red arrow.

Stack name	Status	Created time	Description
slack-lambda-stack	CREATE_COMPLETE	2024-12-04 14:30:42 UTC+0900	SNS Slack Lambda Sample T https://docs.aws.amazon.co mation/latest/UserGuide/AW

The screenshot shows the AWS CloudFormation console interface. On the left, there's a sidebar titled "Stacks (1)" with a single item: "slack-lambda-stack". A red arrow points from the "Events" link in the sidebar to the "Events - updated" tab in the main content area. The main content area has tabs for "Stack info", "Events - updated" (which is selected and highlighted in blue), "Resources", "Outputs", "Parameters", "Template", "Change sets", and "Git sync". Below these tabs, there are two buttons: "Table view" (which is highlighted in blue) and "Timeline view - new". The main content area displays a table titled "Events (30)". The table has columns: "Timestamp", "Logical ID", "Status", "Detailed status", and "Status reason". There are three rows of data:

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-04 14:31:24 UTC+0900	slack-lambda-stack	CREATE_COMPLETE	-	-
2024-12-04 14:31:23 UTC+0900	LambdaPolicy	CREATE_COMPLETE	-	-
2024-12-04 14:31:19 UTC+0900	AlarmLambdaAliaslatest	CREATE_COMPLETE	-	-

단계4: IAM 실행 결과 확인

The screenshot shows the AWS IAM service interface. On the left sidebar, under 'Access management', the 'Roles' option is selected, indicated by a red arrow. In the main content area, the 'Roles (10)' section is displayed. A search bar at the top shows the query 'DEV'. Below it, a table lists roles. One role, 'lambda-DEV-sns-slack-role', is highlighted with a red arrow and has its link underlined. The table columns include 'Role name', 'Trusted entities', and 'Last activity'. The 'Trusted entities' column for this role shows 'AWS Service: lambda'. At the bottom, there are sections for 'Roles Anywhere' and 'Temporary credentials'.

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

User groups

Users

Roles (selected)

Policies

Identity providers

Account settings

Search DEV

1 match

Role name	Trusted entities	Last activity
lambda-DEV-sns-slack-role (highlighted)	AWS Service: lambda	-

Roles Anywhere Info

Authenticate your non AWS workloads and securely provide access to AWS services.

X.509 Standard

Use your own existing PKI infrastructure or use [AWS Certificate Manager](#).

Temporary credentials

Use temporary credentials with ease and security.

Identity and Access Management (IAM) <

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles**
- Policies
- Identity providers
- Account settings
- Root access management New

Access reports

- Access Analyzer
- External access
- Unused access
- Analyizer settings

lambda-DEV-sns-slack-role Info

Summary

Creation date
December 04, 2024, 14:30 (UTC+09:00)

Last activity
-

ARN
`arn:aws:iam::426653742146:role/lambda-DEV-sns-slack-role`

Maximum session duration
1 hour

Permissions

Trust relationships Tags Last Accessed Revoke sessions

Permissions policies (1) Info

You can attach up to 10 managed policies.

Filter by Type
All types ▾

Policy name	Type	Attached entities
lambda-DEV-sns-slack-policy	Customer inline	0

Search

Simulate  Remove 



단계5: Lambda 실행 결과 확인

The screenshot shows the AWS Lambda console interface. On the left, there's a sidebar with a navigation menu:

- Lambda
- Dashboard
- Applications
- Functions** (highlighted with a red arrow)
- Additional resources
- Code signing configurations
- Event source mappings

The main area is titled "Functions (2)" and displays a table of functions:

<input type="checkbox"/>	Function name	Description	Package type	Runtime
<input type="checkbox"/>	DEV-sns-slack-test-lambda	-	Zip	Python 3.11
<input type="checkbox"/>	DEV-sns-slack-alarm-lambda	-	Zip	Python 3.11

A red arrow points from the "Functions" link in the sidebar to the "Functions" link in the main header. Another red arrow points from the "Description" column header to the "-" entries under the "Description" column for both functions.

The screenshot shows the AWS Lambda console interface. The top navigation bar includes links for IAM, EC2, VPC, S3, EMR, Elastic Container Service, CodePipeline, and RDS. Below the navigation bar, the left sidebar shows navigation links: Lambda (selected), Dashboard, Applications, Functions, Additional resources (Code signing configurations, Event source mappings, Layers selected), and Replicas. The main content area is titled "Layers (2)" and contains a table with two rows. The table columns are Name, Version, Description, and Compatible runtimes. A search bar at the top of the table says "Filter by attributes or search by keyword".

Name	Version	Description	Compatible runtimes
DEV-sns-slack-shared-layer	1	Provides the base backend shared library and dependencies	python3.11
investment-crypto-shared-layer	9	Provides the base backend shared library and dependencies	python3.11

aws lambda 테스트

단계1: lambda 선택

The screenshot shows the AWS Lambda console interface. On the left, there's a sidebar with navigation links: Dashboard, Applications, Functions (which is highlighted with a red arrow), and Additional resources (which also has a red arrow pointing to it). The main area is titled "Functions (1/2)" and displays two Lambda functions in a table:

Function name	Description	Package type	Runtime	Last modified
DEV-sns-slack-test-lambda <input checked="" type="checkbox"/>	-	Zip	Python 3.11	18 min
DEV-sns-slack-alarm-lambda <input type="checkbox"/>	-	Zip	Python 3.11	18 min

A red arrow points to the first function, "DEV-sns-slack-test-lambda".

단계2: Test 실행

Lambda > Functions > DEV-sns-slack-test-lambda

DEV-sns-slack-test-lambda

Function overview Info

Diagram **Template**

Layers (1)

+ Add trigger

+ Add destination

Related functions: Select a function ▾

Description
-

Last modified
20 minutes ago

Function ARN
arn:aws:lambda:ap-northeast-2:426653742146:function:DEV-sns-slack-test-lambda

Application
slack-lambda-stack

Function URL Info

Code **Test** **Monitor** **Configuration** **Aliases** **Versions**

Test event Info

To invoke your function without saving an event, configure the JSON event, then choose Test.

Test event action

Create new event 

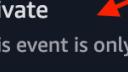
Edit saved event

Event name

MyTestEvent 

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

Private 

This event is only available in the Lambda console and to the event creator. You can configure a total of 10. [Learn more](#) 

Shareable

This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#) 

Template - optional

hello-world 

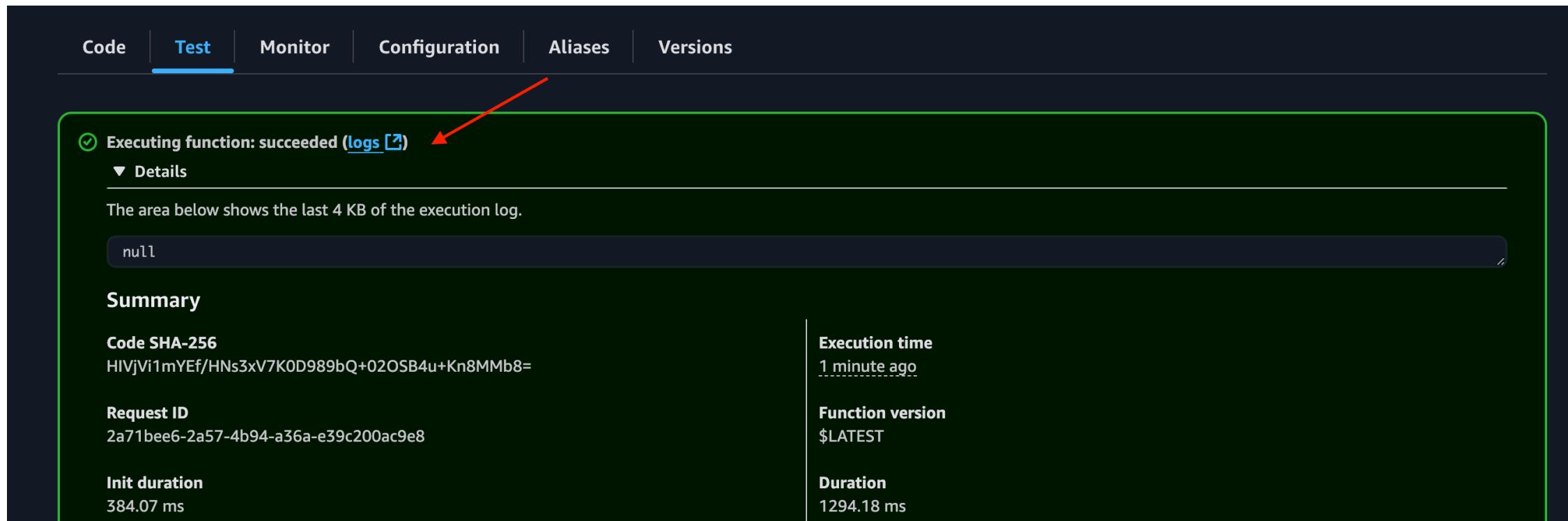
Event JSON

```
1 {  
2   "service_type": "DEV",  
3   "slack_channel": "ALARM"  
4 }
```

Format JSON 

CloudWatch Logs Live Tail  

단계3: Test 결과 확인



The screenshot shows the AWS Lambda Test interface. The top navigation bar includes tabs for Code, Test (which is selected and highlighted in blue), Monitor, Configuration, Aliases, and Versions. The main content area displays a success message: "Executing function: succeeded (logs [2])". A red arrow points from the text "logs [2]" to the "Logs" link in the message. Below this, a "Details" section is expanded, stating "The area below shows the last 4 KB of the execution log." A code editor window displays the word "null". The "Summary" section provides the following details:

Code SHA-256	Execution time
HIVjVi1mYEf/HNs3xV7K0D989bQ+02OSB4u+Kn8MMb8=	1 minute ago
Request ID	Function version
2a71bee6-2a57-4b94-a36a-e39c200ac9e8	\$LATEST
Init duration	Duration
384.07 ms	1294.18 ms

The screenshot shows a Slack workspace interface. On the left, there's a sidebar with various icons and a list of channels. A red arrow points to the '# 알람' channel, which is highlighted with a purple background. Below the sidebar, the main workspace shows the '# 알람' channel. The channel header includes a message icon, a plus sign, and a canvas addition button. It also features a date filter set to '어제'. The channel has two messages:

- A message from '아라아빠' at 8:45 AM, stating '#알람에 참여했습니다. 또한 aws-slackbot 님이 참여했습니다.'
- A message from 'aws-slackbot' at 3:40 PM, stating 'DEV' and '개발용입니다.'

At the bottom of the workspace, there are navigation icons for back, forward, and search.

(옵션) Cloudformation으로 생성된 모든 리소스 삭제

The screenshot shows the AWS CloudFormation console interface. The left sidebar has links for CloudFormation, Stacks, Drifts, StackSets, Exports, Infrastructure Composer, and IaC generator. The main area displays a table titled 'Stacks (1)' with one row. The row details a stack named 'slack-lambda-stack' with a status of 'UPDATE_COMPLETE', created on 2024-12-04 at 14:30:42 UTC+0900. The stack is associated with SNS Slack Lambda Sample T and a URL. The top navigation bar includes a search bar, a [Option+S] keyhint, and various AWS service icons like IAM, EC2, VPC, S3, EMR, Elastic Container Service, CodePipeline, and RDS. The top right corner shows account information for Seoul.

Stack name	Status	Created time	Description
slack-lambda-stack	UPDATE_COMPLETE	2024-12-04 14:30:42 UTC+0900	SNS Slack Lambda Sample T https://docs.aws.amazon.co mation/latest/UserGuide/AW

aws | [Option+S] | Search | IAM | EC2 | VPC | S3 | EMR | Elastic Container Service | CodePipeline | RDS | Seoul | CloudFormation > Stacks

CloudFormation

Stacks (1)

Stack name	Status	Created time	Description
slack-lambda-stack	DELETE_IN_PROGRESS	2024-12-04 14:30:42 UTC+0900	SNS Slack Lambda Sample Te https://docs.aws.amazon.com mation/latest/UserGuide/AW

Stack details | Drifts | StackSets | Exports | Infrastructure Composer