



Architecture diagrams for retail

Guidance for Contextual Intelligence for Advertising



Guidance for Contextual Intelligence for Advertising: Architecture diagrams for retail

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Table of Contents

Contextual intelligence for advertising **i**

Architecture diagram 1

Further reading 2

Diagram history 2

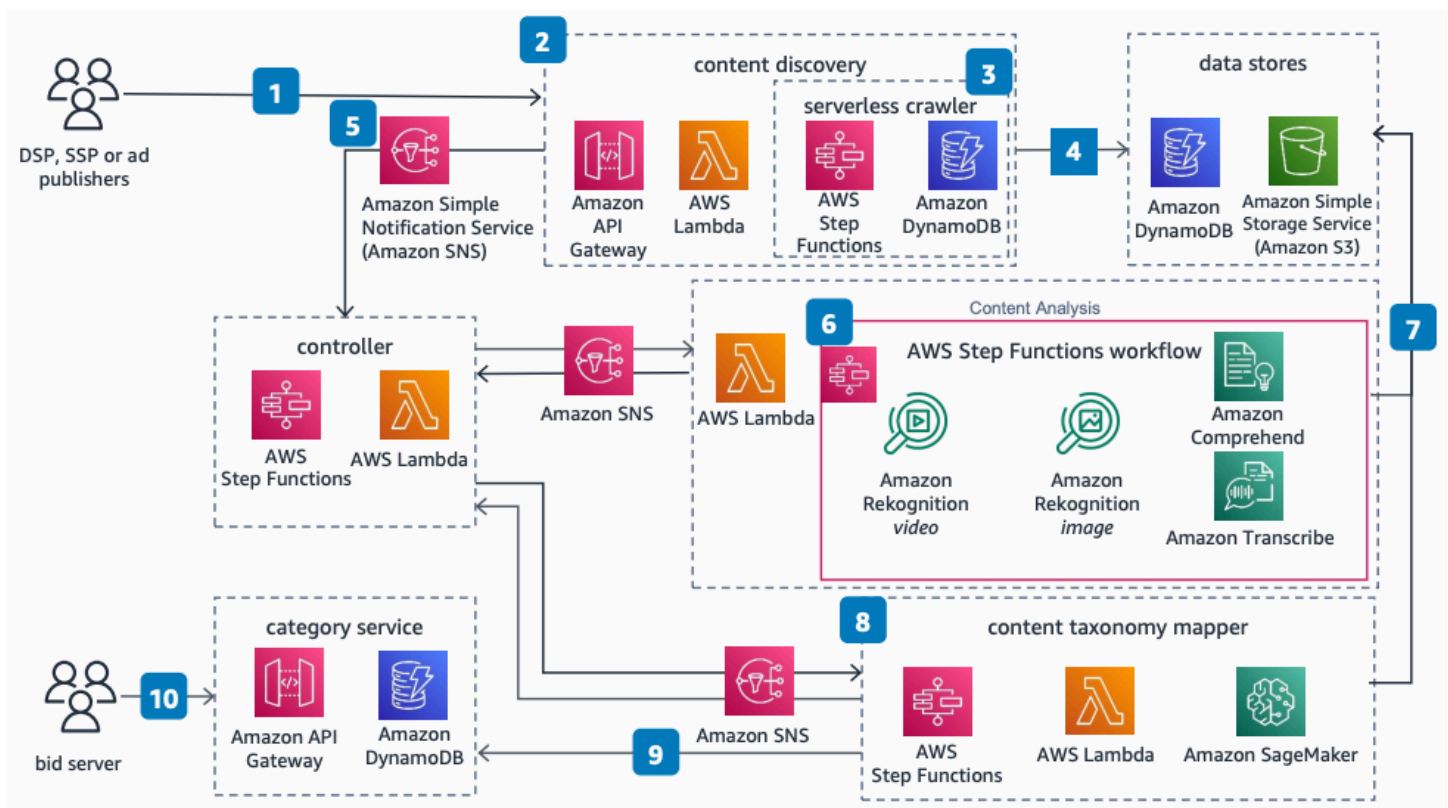
Guidance for Contextual Intelligence for Advertising

Publication date: April 6, 2022 ([Diagram history](#))

With this architecture, you can build a contextual advertising solution that uses machine learning to reach target audiences without third-party cookies. Contextual advertising reaches an audience based on the content that users consume. The solution uses an event-driven, serverless architecture that is scalable and cost-optimized.

This architecture helps demand-side platforms (DSPs), advertisement publishers, and supply-side platforms (SSPs) build a contextual intelligence solution. You use AWS AI and machine learning services to extract relevant metadata and map it to your own or an industry-standard taxonomy.

Architecture diagram



The following steps describe the architecture:

1. DSPs, SSPs, or ad publishers invoke an API on [Amazon API Gateway](#) to trigger content discovery. The API fetches text, images, audio, and video from the provided content.

2. The [serverless crawler](#) is built on [AWS Step Functions](#) to orchestrate exploration and download of content. [Amazon DynamoDB](#) stores ephemeral discovery data.
3. You can use a crawler or a content management system API to extract media types and store them in an [Amazon S3](#) bucket.
4. Amazon S3 stores content (text, image, video), with available metadata in Amazon DynamoDB for analysis.
5. A content discovery completion event starts controller orchestration built on AWS Step Functions, [AWS Lambda](#), and [Amazon SNS](#).
6. Amazon SNS events invoke AWS Lambda functions to start content analysis by using Amazon Comprehend, Amazon Rekognition, and Amazon Transcribe.
7. Amazon DynamoDB stores topics, sentiment, and object labels from the content analysis workflow.
8. The Contextual Intelligence Taxonomy Mapper (CITM) uses the [Bidirectional Encoder Representations from Transformers \(BERT\)](#) model deployed on [Amazon SageMaker AI](#). CITM maps metadata in Amazon DynamoDB to an industry-standard taxonomy such as the [IAB Content Taxonomy](#).
9. A AWS Lambda function gets the mapping and stores it in Amazon DynamoDB within the category service.
- 10 Bidding servers invoke an API built on Amazon API Gateway to fetch categories from Amazon DynamoDB. This informs programmatic advertising bids with low latency.

Further reading

For additional information, see the following resources:

- [AWS Architecture Icons](#)
- [AWS Architecture Center](#)
- [AWS Well-Architected](#)

Diagram history

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[Initial publication](#)

Reference architecture
diagram first published.

April 6, 2022

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