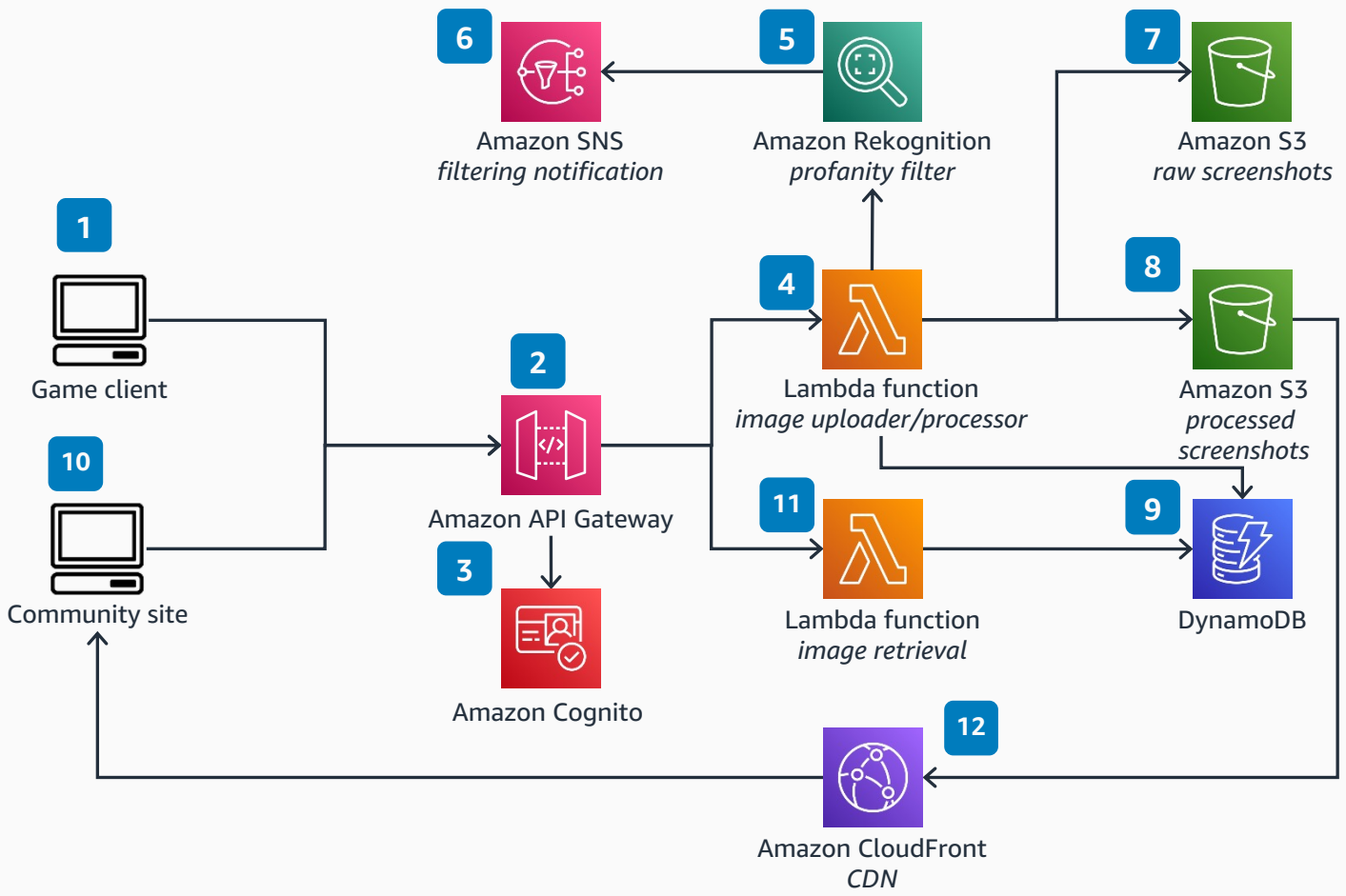
Serverless In-Game Screenshot Processor Pipeline for Game Studios

Build a serverless image processing pipeline for your games that receives players' in-game screenshots, checks them for profanity, performs transformation, and stores them in the cloud. The processed images can be retrieved for the players' gallery by the game client and the community site.



1. Players take screenshots in-game, which invokes an API to upload those screenshots. The game client needs to send player metadata to the application program interface (API).
2. An **Amazon API Gateway** instance hosts the REST API for the image uploader and processor function.
3. It is recommended to use an authentication method such as **Amazon Cognito** to authenticate all requests processed by **API Gateway**.

   API Gateway also supports custom authorization using an **AWS Lambda** function to perform the authentication with an external identity provider.
4. An **AWS Lambda** function is invoked by the **API Gateway** to receive the image and pre-process it.
5. As part of pre-processing, the image is sent to the **Amazon Rekognition** *DetectModerationLabels* API.
6. You can send a notification for the result of the filtering process to your user through **Amazon Simple Notification Service (Amazon SNS)**.
7. Optionally, the raw image can be stored in an **Amazon Simple Storage Service (Amazon S3)** bucket.
8. The image processor **Lambda** function can perform transformations/resizing of the image and add watermarks. The processed image is uploaded to an **S3** bucket meant for processed screenshots.
9. The image processor **Lambda** function extracts the associated in-game metadata (such as player ID, timestamp, and in-game location) in the request object. The metadata is then stored in **Amazon DynamoDB**. The image's associated **S3** key is also included in the same **DynamoDB** item. This step completes the image processing portion of this pipeline.
10. The community site and game client might want to retrieve the stored screenshots to present the gallery of images to players by retrieving the URLs stored in **DynamoDB**. To retrieve the image, the client or community site initiates a request using **API Gateway**.
11. The retrieval request invokes the image retrieval **Lambda** function, which gets the associated item from **DynamoDB**, which contains the **S3** key for the image. Optionally, you can use **DynamoDB Accelerator** to cache your read requests.
12. The game client and community site requests the image from **Amazon CloudFront** content delivery network (CDN) fronting the **S3** bucket to serve the screenshots.

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AWS Reference Architecture