Serverless Order Notification System

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Architecture Overview

1. Client sends order via **API Gateway** (HTTP POST)
2. Lambda processes and validates order
3. DynamoDB stores order metadata
4. SNS publishes notifications
5. Subscribers receive email/SMS alerts

Architecture Diagram

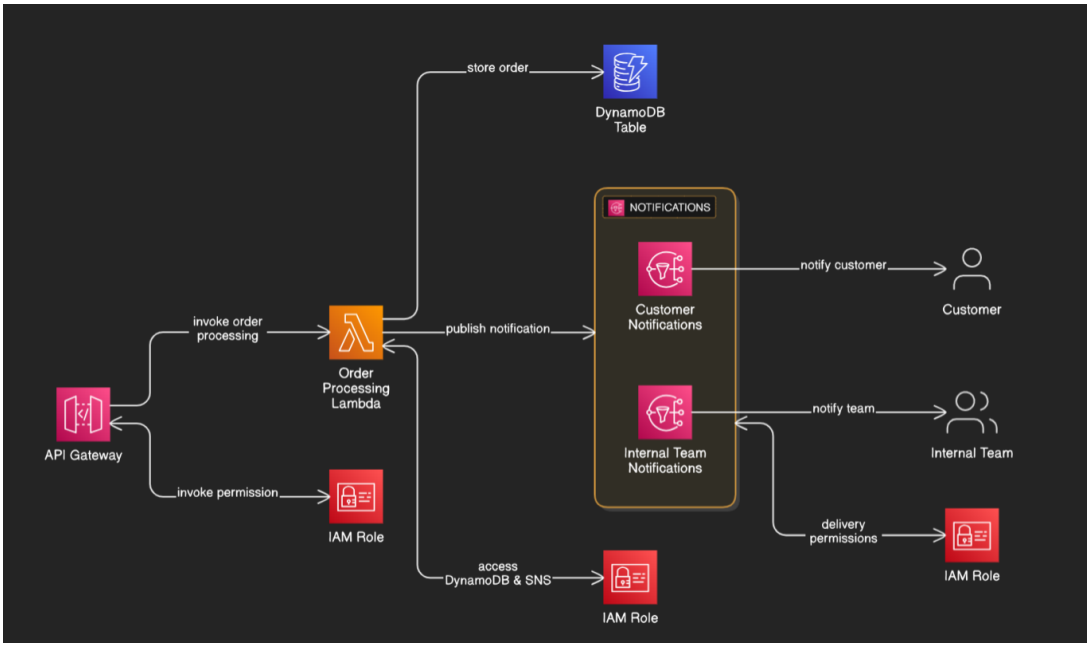

Figure 1: AWS Serverless Order Notification System

AWS Services Used

API Gateway	REST endpoint accepting HTTP POST requests
Lambda	Python 3.12 function for order processing
DynamoDB	`FileMetadata` table (PK: `FileName`)
SNS	`file-upload-notification` topic

Implementation Guide

1. DynamoDB Setup

- **Table Name:** `FileMetadata`
- **Primary Key:** `FileName` (String)
- No secondary indexes needed
- **Create table**

2. SNS Configuration

- **Go to AWS Console** → SNS → Topics → Create Topic
- **Topic Type:** `Standard`
- **Name:** `file-upload-notification`
- **Create the topic**

3. Subscribe to SNS Topic

- Select your created topic.
- **Create Subscription**
- **Subscription Protocol:** Email(or SMS)
- **Endpoint:** your email address (or phone number)
- **Create SUbscription**
- Check your email and confirm the subscription link.

4. Lambda Function Setup

- **Go to AWS Console** → Lambda → Create Function
- **Name:** `processFileUpload`
- Runtime: Python 3.12 or node.js
- **Execution role: Create or use existing role with these permissions:**
  - `DynamoDB (PutItem on OrdersTable)`
  - `SNS (Publish to OrderNotificationTopic)`
  - `CloudWatch Logs (for logging)`
  - **Create Function**

5. API Gatway Setup

- **Go to AWS Console** → API Gateway → Create API (REST or HTTP)
- Create a resource & method (POST)
- Integrate POST method with Lambda function processFileUpload
- Deploy the API and note the invoke URL.

6. ADD Trigger Setup

- **Go to Lambda** → Your function → Configuration → Triggers
- Add trigger → API Gateway → Select your API and POST method.

Testing Procedure

- Send test POST request:

```
{
  "body": "{\"customerName\": \"John Doe\",
  \"productName\": \"Wireless Mouse\"}"
}
```

- Verify:
  - You should get a response with orderId and success message.
  - Check DynamoDB if the order is saved.
  - Check your email or SMS for notification from SNS.
  - Check Lambda execution logs

Production Considerations

IAM	Least privilege permissions
Monitoring	CloudWatch alarms for errors
Logging	Full request/response logging