AWS SERVERLESS ARCHITECTURE

CloudOps Autopilot

Serverless Incident Management Architecture

Architecture Overview

CloudOps Autopilot leverages AWS serverless services to deliver automated incident detection, processing, and notification—eliminating infrastructure management overhead while ensuring high availability.

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User Entry Point

User Browser

Engineers and operators access the system through any modern web browser. The dashboard provides real-time visibility into incidents, metrics, and system health.

S3 Static Website

The React-based dashboard is hosted on **Amazon S3** with Static Website Hosting enabled—delivering fast, cost-effective content delivery with built-in durability.

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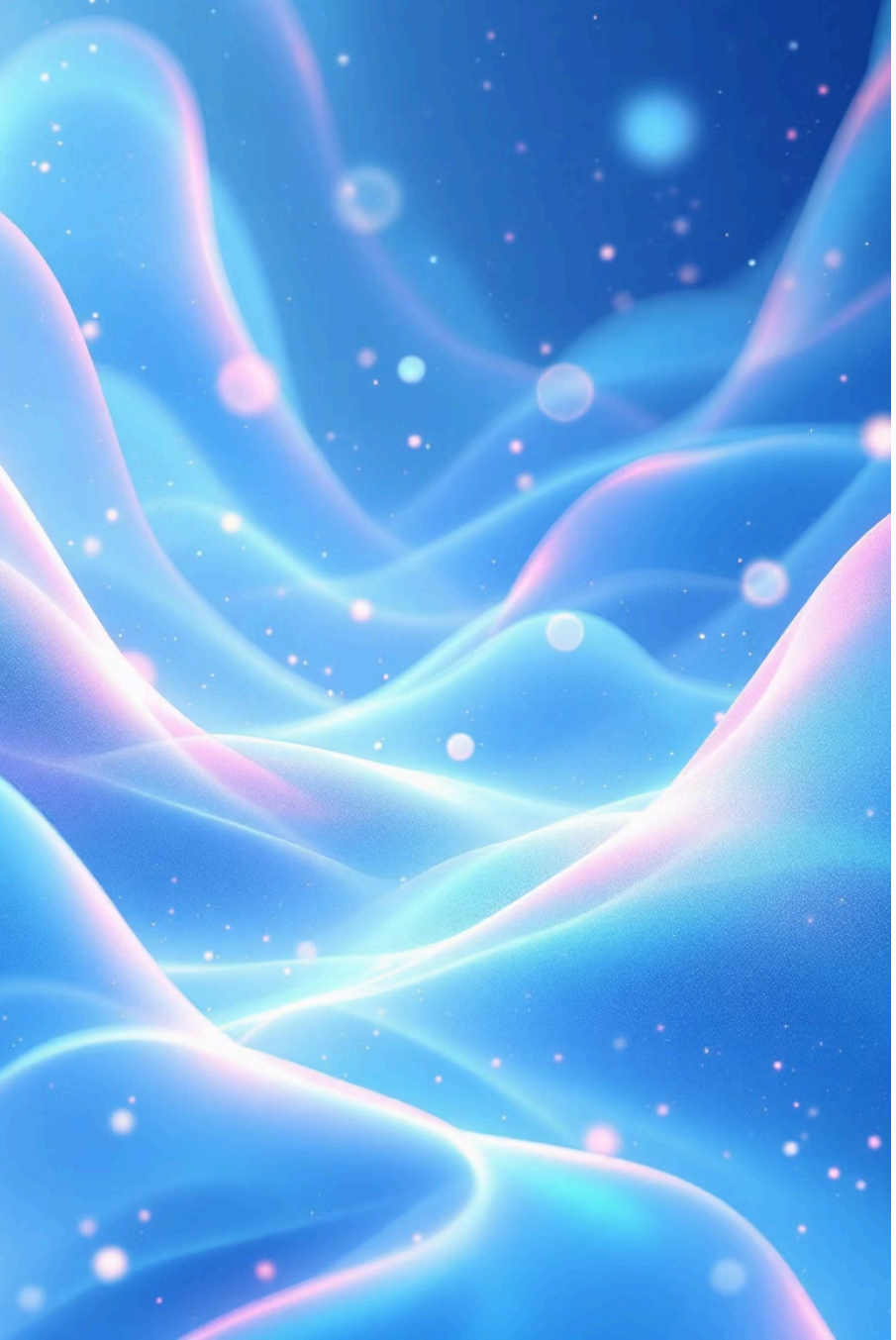

API Layer

Amazon API Gateway

RESTful endpoints with built-in throttling, authentication, and request validation

Secure Access

IAM-based authorization ensures only authenticated requests reach backend services

Scalability

Automatically scales to handle thousands of concurrent API requests

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Lambda Processing Core

AWS Lambda functions form the processing backbone, executing business logic without provisioning servers.

Incident Processing

Triages and categorizes incoming incidents by severity and type

Event Analysis

Correlates events to identify patterns and root causes

Data Formatting

Transforms data for storage and downstream notifications

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Data & Event Sources

Amazon DynamoDB

Single-digit millisecond latency for incident records, audit logs, and configuration data. Supports both key-value and document data models.

Amazon EventBridge

Captures system events from AWS services and custom applications, routing them to Lambda for processing.

Amazon CloudWatch

Provides comprehensive logs, metrics, and alarms. Lambda functions query CloudWatch for operational insights and anomaly detection.

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Notification System

Email Alerts

Detailed incident reports delivered to engineering teams

SMS Notifications

Critical alerts sent via text for immediate on-call response

Webhook Integration

Push notifications to Slack, PagerDuty, or custom endpoints

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Complete Data Flow

1
1. User Request
Browser → S3 Dashboard

2
2. API Call
Dashboard → API Gateway

3
3. Processing
API Gateway → Lambda

4
4. Data Operations
Lambda ↔️ DynamoDB

5
5. Notification
Lambda → SNS → Users

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Architecture Benefits

99.9%

Availability

Built-in AWS service SLAs

0

Servers

Fully serverless infrastructure

<100ms

Latency

Fast incident processing

∞

Scale

Auto-scaling on demand

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Next Steps

01

Deploy Infrastructure

Use CloudFormation or Terraform to provision the stack

02

Configure EventBridge Rules

Define event patterns for incident triggers

03

Set Up SNS Topics

Subscribe team members to notification channels

04

Test End-to-End

Validate the complete incident flow in staging

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