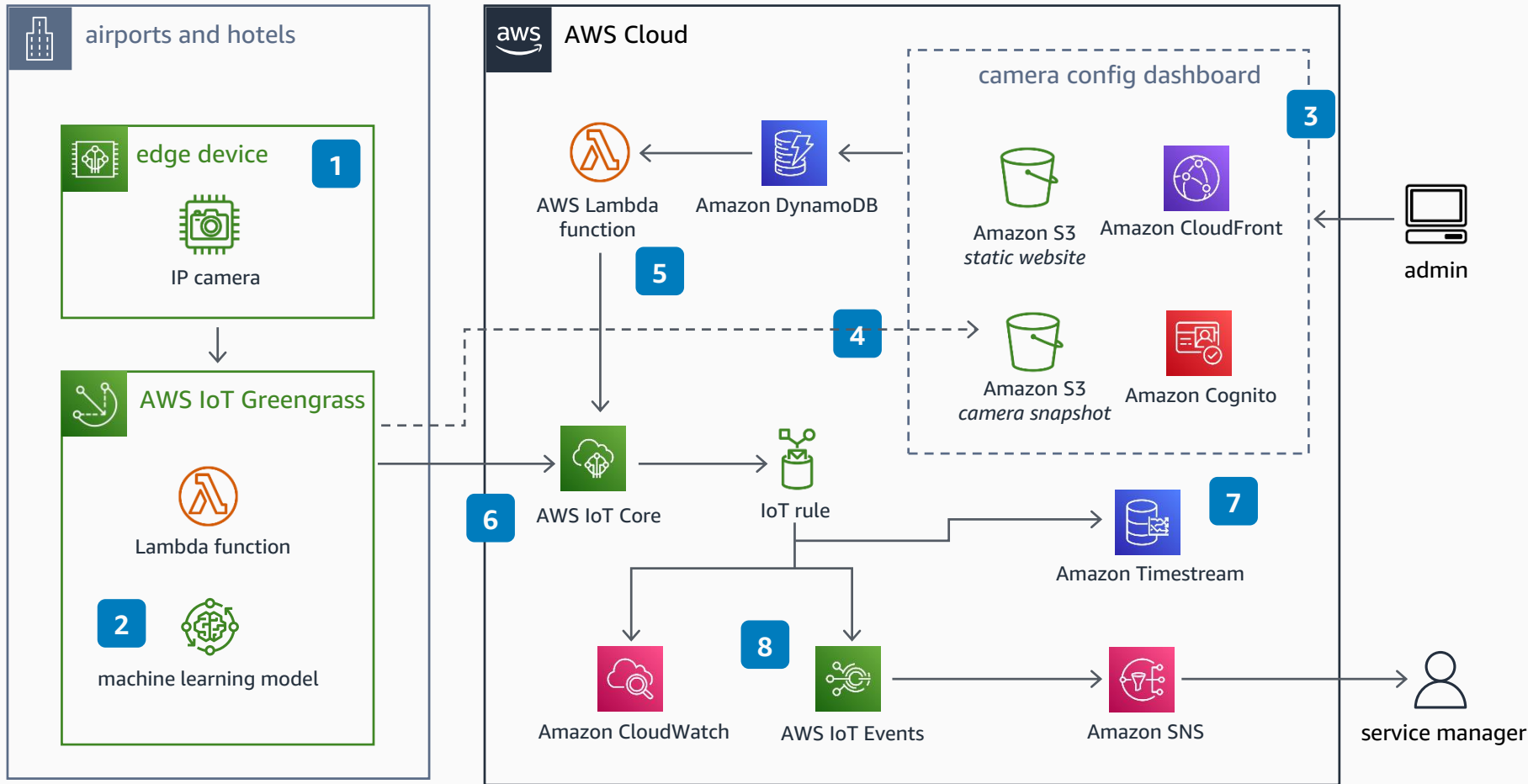


Guidance for Queue Depth Management

Airports and hotels improve customer experience using ML and IoT services.

Monitor the passenger and guest queues using cameras, use computer vision to measure queue depth, and provide alerts about bottlenecks and unreasonable queue depths to customer service managers, improving the traveler experience.



- 1 Cameras are placed in important airport or hotel areas to improve customer waiting times.
- 2 A machine learning model for human heads detection is deployed at the edge.
- 3 An admin authenticates by using **Amazon Cognito** into a private dashboard to configure cameras and queues. The dashboard is hosted as a static website using **Amazon Simple Storage Service (Amazon S3)** and **Amazon CloudFront**.
- 4 The admin can generate asynchronous screenshots from cameras and use the UI to highlight areas of interest and the queue threshold.
- 5 The camera configuration is stored in **Amazon DynamoDB** and thresholds are propagated into an **IoT rule**.
- 6 The edge device runs inference on the live video camera streams and only sends as many aggregated results in the cloud as the number of people in a queue at a specific time.
- 7 The inference output is stored in **Amazon Timestream** for future processing and forecasting.
- 8 When the queue threshold limit is met, an alert is sent into an **Amazon Simple Notification Service (Amazon SNS)** topic. Events are logged in **Amazon CloudWatch** for future analysis.

