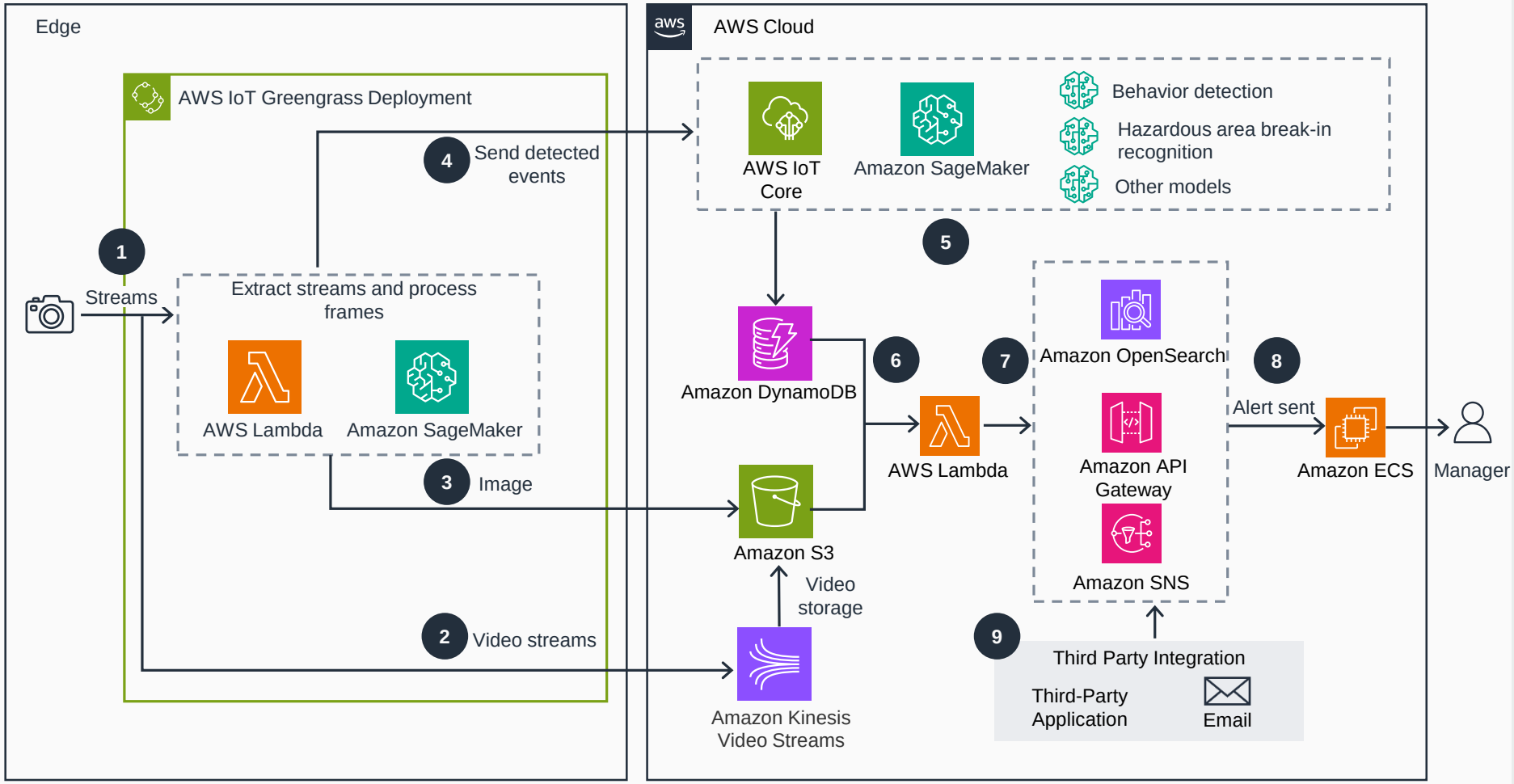
Guidance for Vision-Based Personal Protective Equipment Identification on AWS

This architecture diagram shows how to use AWS IoT Greengrass and Amazon SageMaker to set up a computer vision application that captures near real-time hazards in factories and provides notifications to the appropriate personnel.



1. Local cameras send streams to local devices that have **AWS IoT Greengrass** deployed, and streams are extracted into frames. Models in the device, built on **Amazon SageMaker**, process the frames. Video streams will also be sent to **Amazon Kinesis Video Streams** for video live, future playback, or search. **Kinesis Video Streams** later encodes videos to **Amazon Simple Storage Service (Amazon S3)**.
2. Local cameras send streams to **Kinesis Video Streams**.
3. After extraction, images are sent to **Amazon S3** for storage.
4. Detected events are sent to **AWS IoT Core**, where models built by **SageMaker** analyze the event sequences and provide results.
5. **AWS IoT Core** sends results to **Amazon DynamoDB**.
6. **AWS Lambda** functions routinely retrieve images and anomaly events from **DynamoDB** and **Amazon S3**. Third-party applications or emails can also retrieve events.
7. Once a violation is detected, **Amazon OpenSearch Service** and **Amazon API Gateway** map user data. **Amazon Simple Notification Service (Amazon SNS)** then automatically sends an alert notification.
8. Managers receive notifications through a website or web application hosted on **Amazon Elastic Container Service (Amazon ECS)**.
9. Third parties can be integrated with **OpenSearch Service**, **API Gateway**, or **Amazon SNS**.

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AWS Reference Architecture