Distributed System for Person Identification Using IoT, Edge, and Cloud Layers

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1 Introduction

In this project, we aim to identify whether a person is "known" or "unknown" using a distributed system. The system simulates 5 IoT devices, an edge layer, and a cloud. If a person is identified as unknown, it triggers an alarm on the corresponding IoT device.

2 System Architecture

Our system simulates IoT devices by loading videos from an S3 bucket. These devices are ECS containers capable of receiving messages and sending images. They forward images at defined intervals to an elastic load balancer (ELB), which distributes them evenly across two EC2 edge instances.

At the edge, the images are filtered and forwarded to the cloud layer, which consists of a Lambda service. This service communicates with AWS Rekognition to identify the person. If the person is identified as unknown, it sends a message via SNS to the corresponding IoT container to trigger an alarm.

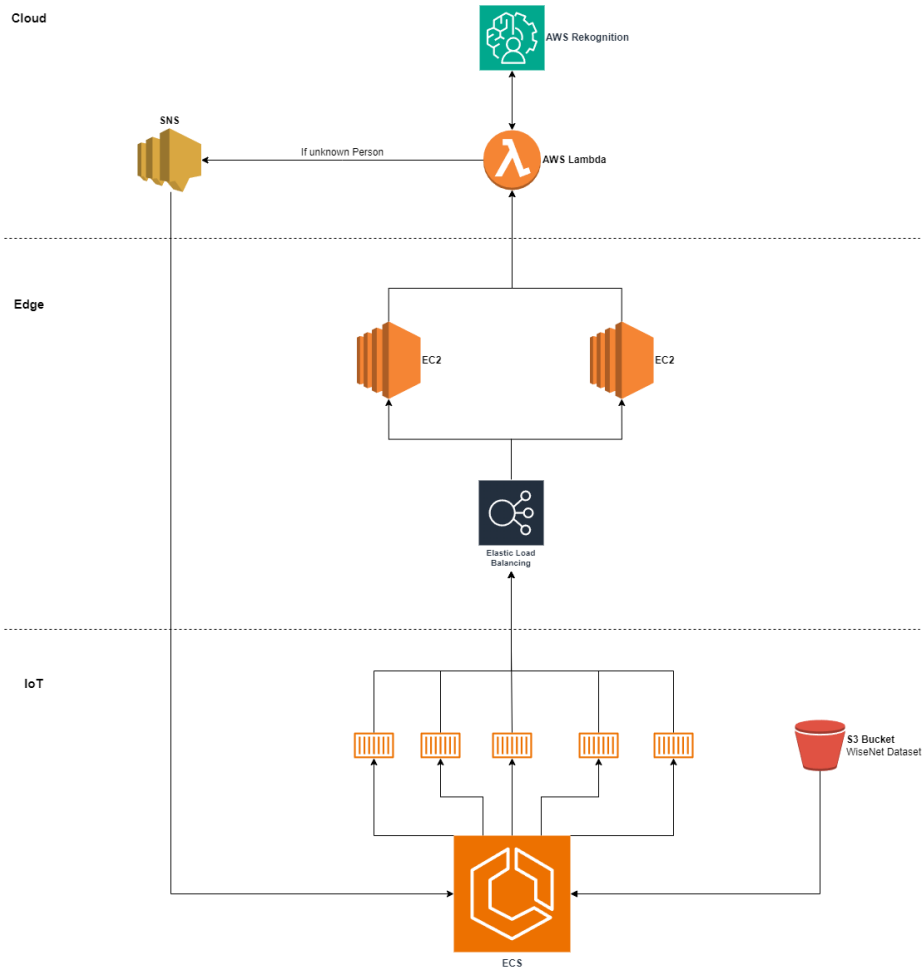

Figure 1: System architecture diagram.