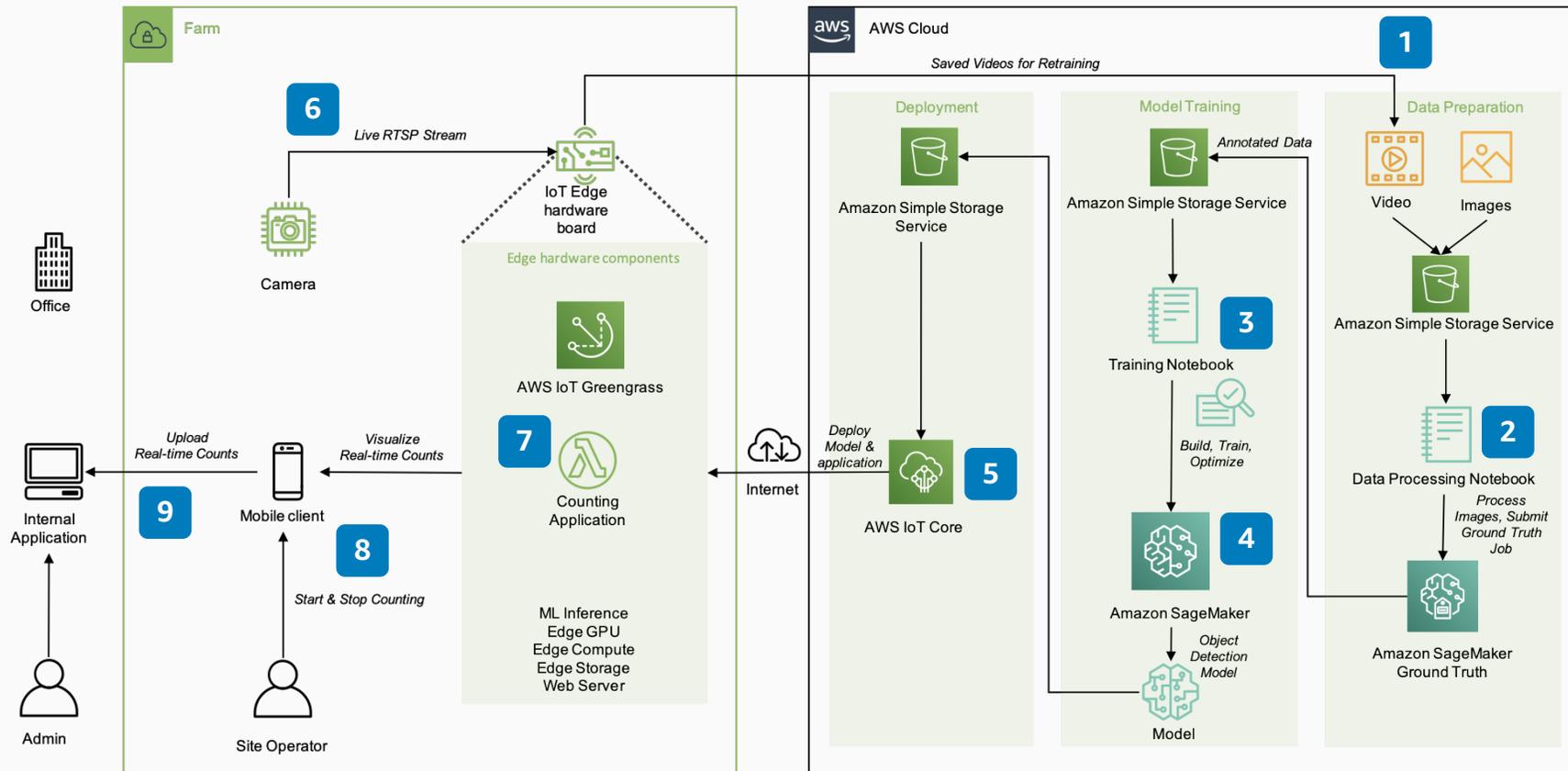


Livestock Counting at the Edge

Build a real-time, automated counting application for livestock

Use Amazon SageMaker and AWS IoT Greengrass to build and deploy a livestock counting application at the edge.



- 1 Upload videos and images to **Amazon S3** to train the livestock detection model.
- 2 Use **Amazon SageMaker Notebooks** to process these videos and create a labelling job using **Amazon SageMaker Ground Truth**.
- 3 Split the annotated dataset into training and validation sets, and use **Amazon SageMaker** distributed training for livestock detection.
- 4 Use **Amazon SageMaker Neo** to optimize the livestock detection model for specific target devices like NVIDIA Jetson Nano, TX2, Xavier, **AWS DeepLens**, or Raspberry Pi.
- 5 Deploy the machine learning model and **counting application AWS Lambda function** to the edge device using **AWS IoT Greengrass**.
- 6 Consume live video streams from a **camera** at the farm using RTSP via CSI or through USB connected to the edge hardware.
- 7 Run **ML Inference** on the video frames from **Step 6** and pass the bounding box outputs to the **counting application Lambda function**.
- 8 Connect to the web server running on edge devices and control when to start/stop counting through a mobile application.
- 9 Submit real-time counts to an inventory management system.

