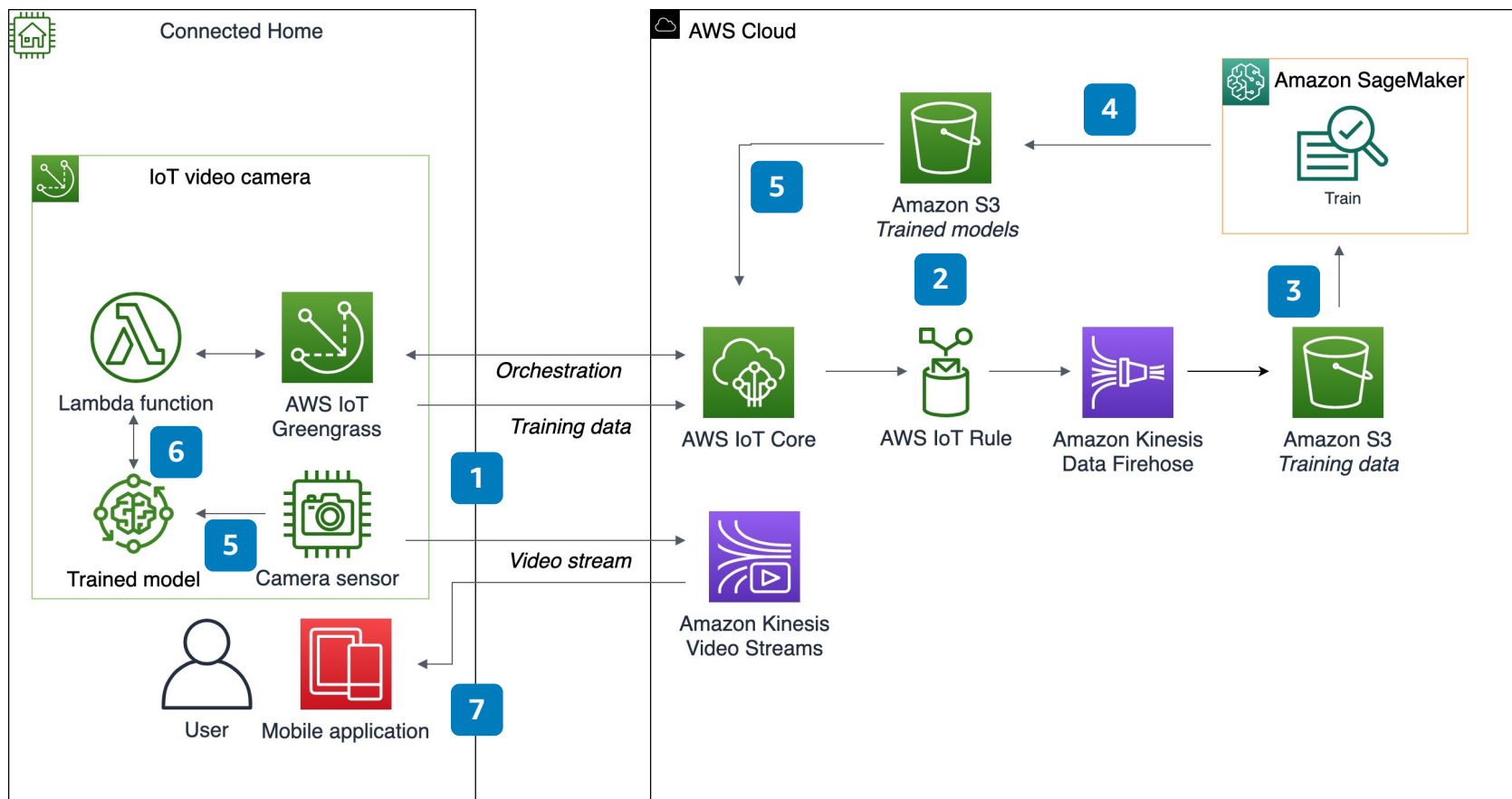# Connected Home – Machine Learning at the Edge

IoT Machine Learning on Home Devices

1 An IoT video camera running **AWS IoT Greengrass** publishes training data to **AWS IoT Core**.

2 An **IoT Rule** that is listening for camera data forwards messages to **Amazon Kinesis Data Firehose** for storage in **Amazon S3**.

3 **Amazon SageMaker** is used to train, optimize, and build machine learning (ML) models that can use less than a tenth of the memory footprint found in resource-constrained devices like cameras.

4 **Amazon SageMaker** outputs trained models to **Amazon S3** for delivery to the IoT video camera.

5 **AWS IoT Greengrass** cloud service is used to orchestrate deployments of software to the target IoT video camera, including trained models, and application logic such as an **AWS Lambda** function or Docker container.

6 A **Lambda** function running locally on the IoT video camera performs inference using the latest version of the trained ML model.

7 The homeowner can use mobile applications to view the camera's video stream via **Amazon Kinesis Video Streams**.

AWS Reference Architecture