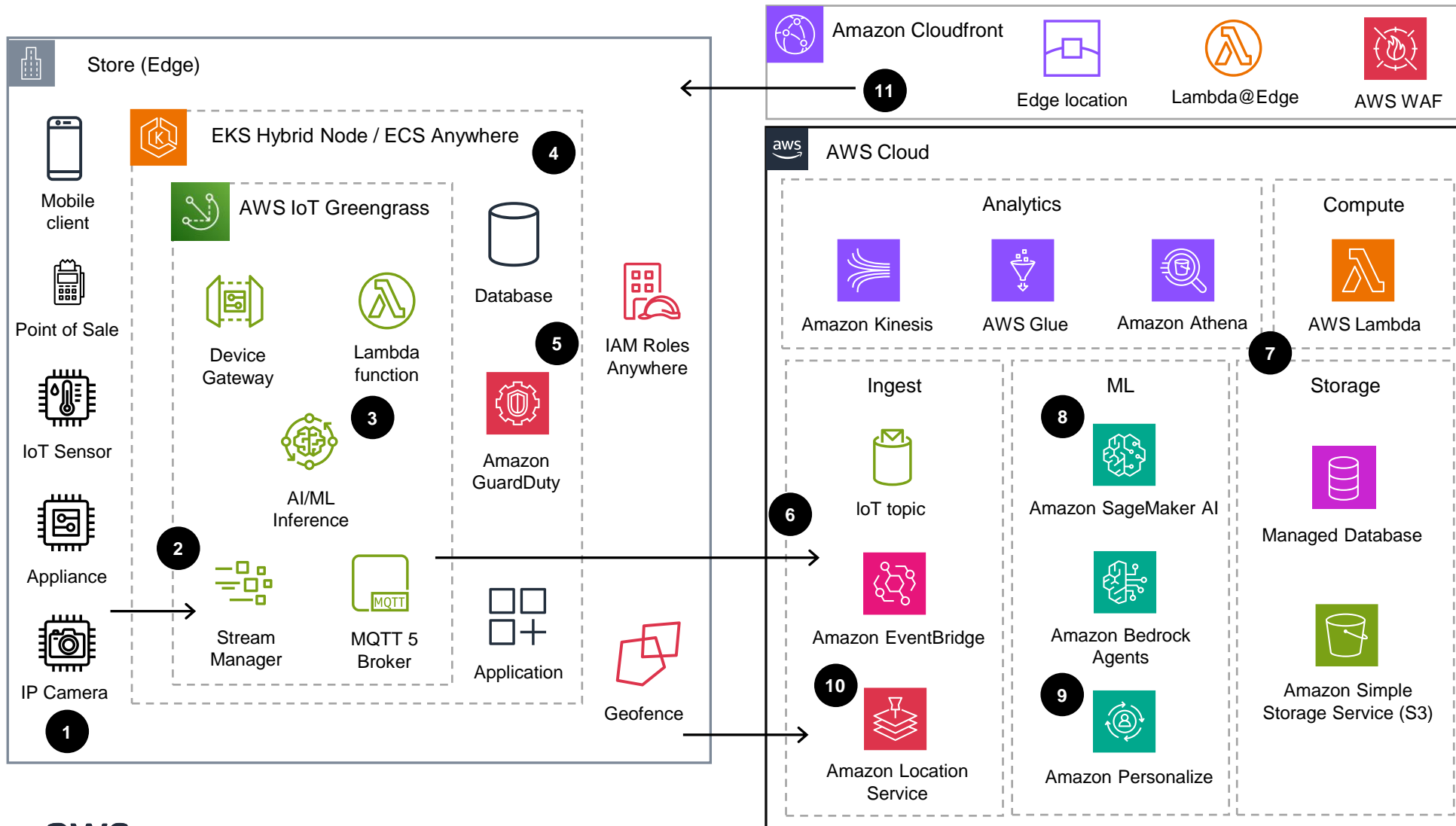


Guidance for Edge Computing in Retail on AWS

This architecture diagram shows how retailers can deploy edge computing to collect in-store data, run applications and ML inference locally for immediate insights, while connecting to cloud services for advanced analytics and personalized experiences.



- 1 IoT sensors, IP cameras, point-of-sale systems, mobile clients, and appliances collect raw data in-store
- 2 **AWS IoT Greengrass** streams data via Device Gateway and Stream Manager
- 3 Data is initially processed by edge components using **Lambda function** and AI/ML Inference for quick analysis
- 4 **Amazon EKS Hybrid Node/Amazon ECS Anywhere** runs Applications & Databases that support Point of Sale and Retail Applications
- 5 **Amazon GuardDuty** provides threat detection at the edge
- 6 App data, logs, and metrics are sent to **Amazon Kinesis, Amazon EventBridge,** or IoT Topic via MQTT, HTTP, or WebRTC protocols
- 7 Data is stored in **Amazon Kinesis, Amazon S3** or managed database where transformation is conducted with **AWS Glue** or **AWS Lambda**. Store Analytics surfaced using **Amazon Athena**.
- 8 Machine Learning is conducted and edge models optimized using **Amazon SageMaker AI**
- 9 **Amazon Bedrock Agents & Amazon Personalize** optimize customer journeys and personalized recommendations
- 10 **Amazon Location Service** kicks off business logic when customer enters/exits store Geofence
- 11 Content is updated and distributed globally with **Amazon Cloudfront** to closest Edge location. **Lambda@Edge** allows auth logic to be added & **AWS WAF** provides protection from exploits