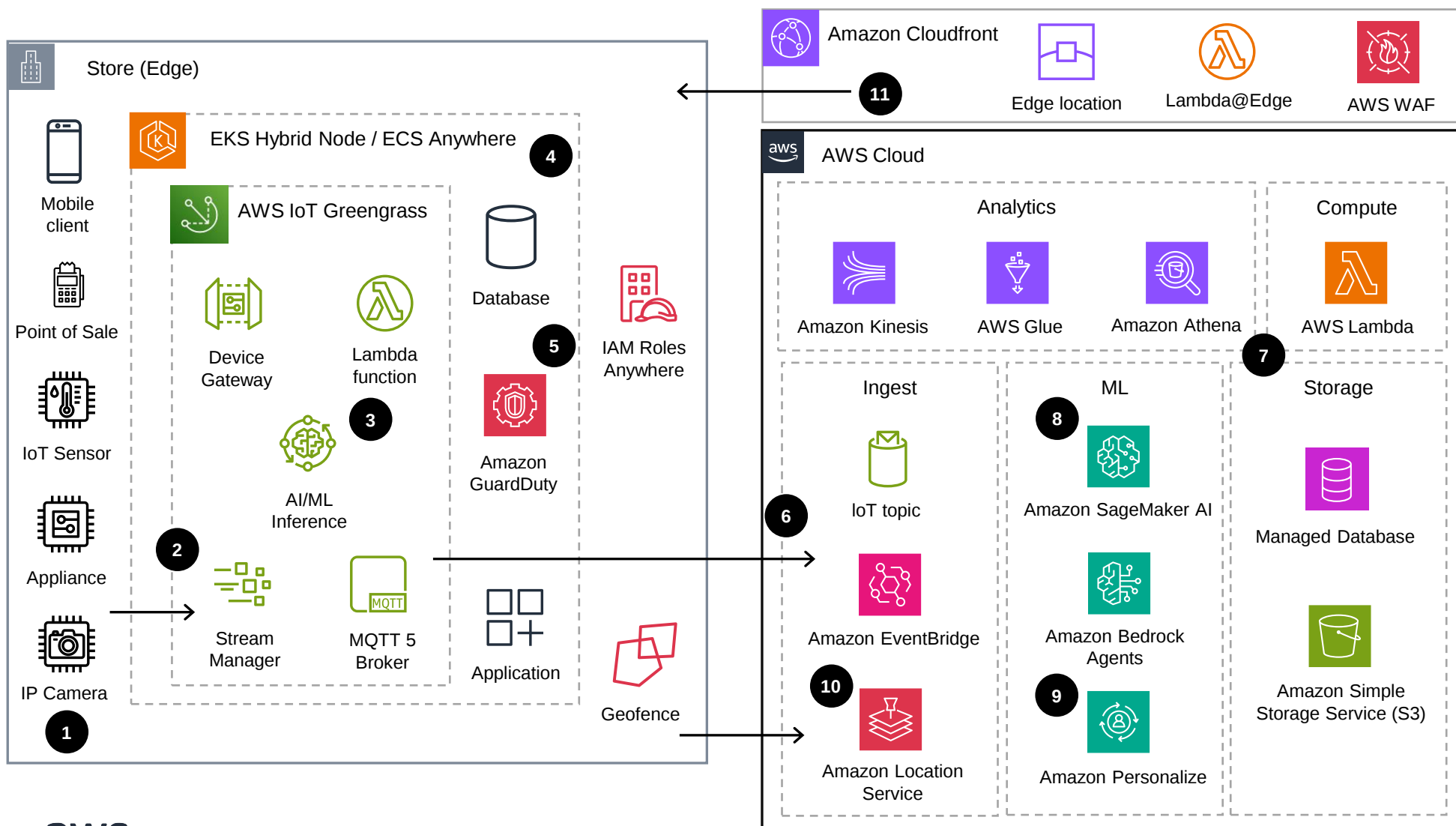


Guidance for Edge Computing in Retail on AWS

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

