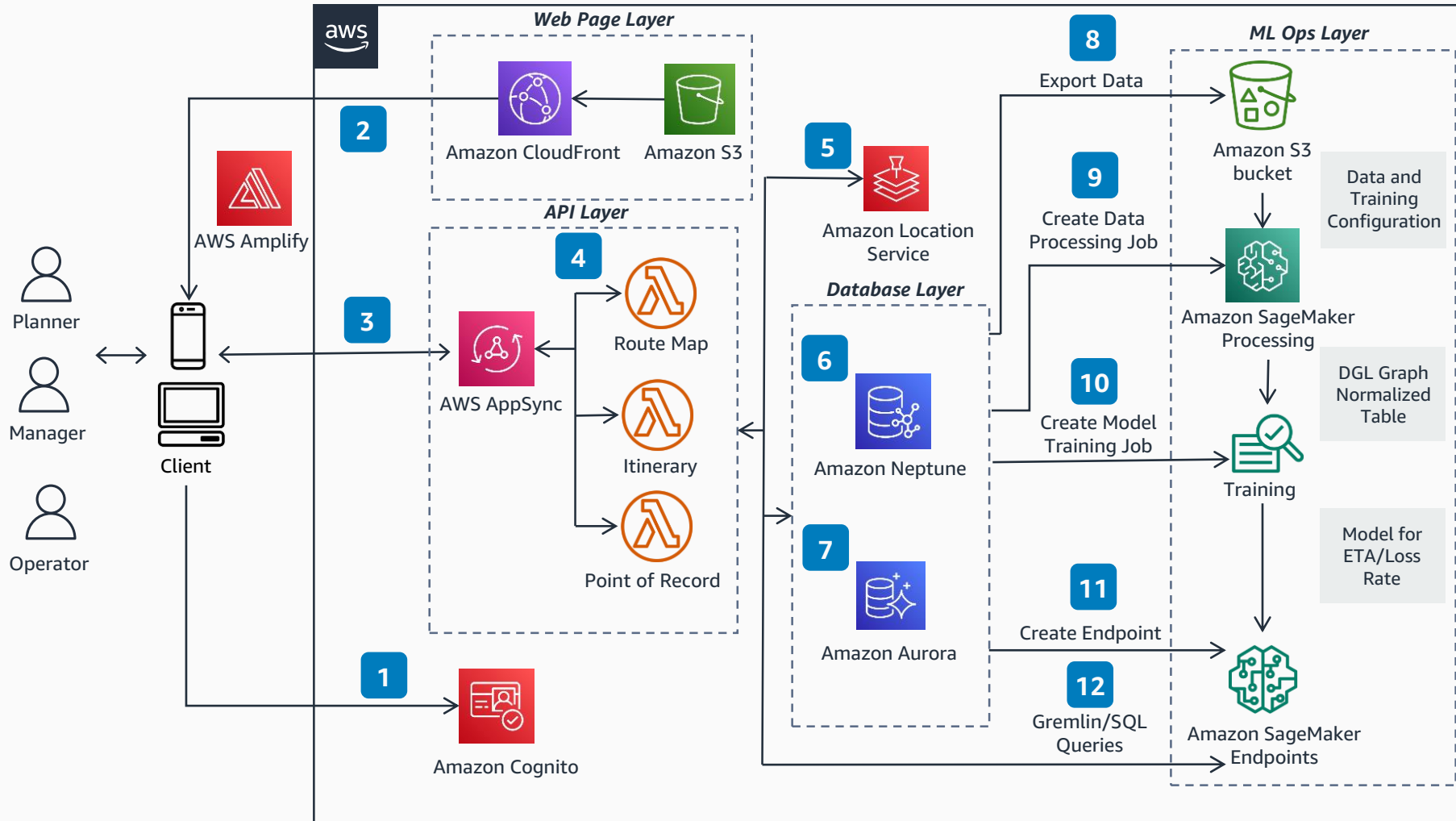


Guidance for On-Time In-Full Compliance on AWS

This ML-based architecture shows an OTIF planning and visibility system that visualizes and predicts the optimal path for delivering products within prescribed delivery windows and at the full quantities ordered by a retailer.



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AWS Reference Architecture

- 1 Users authenticate with their usernames and passwords, which **Amazon Cognito User Pools** manages.
- 2 **Amazon Simple Storage Service (Amazon S3)** and **Amazon CloudFront** serve single page application codes to clients.
- 3 Authenticated clients make API calls to **AWS AppSync**.
- 4 **AWS Lambda** functions serve the resolvers that provide the planner with a route map of supply chain diagram, the manager with a real-time tracking itinerary of the shipment, and the operator with the point of record interface.
- 5 **Amazon Location Service** provides maps and location points to visualize the supply chain node's geographical location.
- 6 **Amazon Neptune** stores the graph data of the supply chain so that each node is a location point. The connection between two nodes is known as an edge, and each edge represents the trip a shipment takes from one point to another.
- 7 **Amazon Aurora** stores the trip data, itinerary (the set of trips needed to complete the shipment), and the item master list.
- 8 Export data from **Neptune** and **Aurora** into **Amazon S3** in a CSV format.
- 9 The exported dataset is preprocessed to prepare it for model training.
- 10 Train the model to predict estimated time of arrival (ETA) and item loss rate on each trip.
- 11 Create an inference endpoint in **Amazon SageMaker**.
- 12 Query the estimated value to the endpoint.