Technology Stack

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Details of Technology Stack [2/3]

Analytics and ML

• Data Analytics
- Advanced PI approach to evaluate competitors for the electronic market, that produces more accurate predictions for newest market products
- Rank-based replenishment system allowing efficient optimization of product distribution
- Prediction insights and forecast quality control based on Country, Location, Brand and Product Level dimension

•Data Processing for Machine Learning:
- Semi-automated data cleaning processes and auto-outlier detection for receiving better data quality
- Fetching and aggregating real-time external data streaming from different sources to our data warehouse for anomaly explanation
- Monitoring data quality pipelines notifying about alerts in incoming data, allowing us to reduce the time for resolving problems with data sources

Details of Technology Stack [1/3]

Architecture and System Design

• **Greenfield Cloud-native Software Platform**
- has given us a head start to create state-of-the-art solutions without constraints of existing systems or infrastructure
• API-driven, asynchronous and composable architecture
- provides flexibility and scalability across regions and product categories with tech-agnostic microservices communicating in event-driven manner
- e.g. Integrating with Locus for some locations, making Online Payment available to some dealers, etc.

User-facing Apps

GraphQL API for user-facing apps
- provides a simple but robust, handling ~3 million requests in last month, aggregation layer to create information-rich user interfaces.
Modular Web-based Operations Portal
- giving our Ops Teams and Suppliers the ability to interact with the Platform
Native Mobile Apps
- providing performant and platform-native user interactions, while taking advantage of platform-specific capabilities

Infrastructure and processes

•**Observability for Reliability and Performance**
- DevOps tools like performance alerts, Dynatrace provides transaction-level visibility on how systems are performing

Analytics and ML

Forecasting and demand planning accuracy is one key aspect of an efficient and predictive supply chain that strategically balances customer expectations for high service levels with cost, quality, sustainability, resilience, and agility and demand planning system is on modern day AI/ML stack powered by:

• **MLOps**
- Automated ML and data integration pipelines that allow us to reduce errors during forecast deployment significantly
- "Canary" deployment process for better risk management while deploying new advanced models to production
- Developed infrastructure for backtracking and onboarding new ML models allowing us rapidly conduct experiments and test hypothesis

• **Machine Learning**
- Demand forecast pipelines with active learning, allowing us to keep our finger on the demand pulse and keep the forecast flexible
- Baseline, boosting, and deep learning models in production to level out and identify occurring changes
- Feature importance analysis for better understanding the impact of various factors influencing demand forecast, decreasing the ML algorithms bias

Details of Technology Stack [3/3]

Backend Technologies	Web Portal	Mobile Application	DevOps / SRE
Amazon Cloudfront	ReactJS (CRA)	XCode	Server EC2
AWS Elastic Search	Redux	Android Studio	Cloud Front
EC2	React Router Dom	Swift 5.0	Cognito
Amplify	Styled Components	Java 11	AWS Private Links
SES	Material UI	XCTest	Cloud Mapping
AWS Pods and Clusters	GraphQL	Firebase App	Service Discovering
PM2	EsLint		VPC
MongoDB	Jest and Enzyme		MongoDB
BitBucket	Testing Library		Secrets Manager
Java 8	Webpack		Amazon SES
NodeJS	Nginx		
Swagger	Production Server		
	CSR (lient Site Rendering)		