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IOT206-R

Managing connected vehicle data with AWS IoT and ML

Akash Bhatia (he/him)

Senior Solutions Architect
Amazon Web Services

Nitin Eusebius (he/him)

Senior Solutions Architect
Amazon Web Services

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Session goal

The amount of data produced during connected vehicle lifecycle necessitates effective data ingestion, storage, management, and utilization for use cases, such as machine learning (ML) and analytics

In this chalk talk, learn how services like AWS IoT Greengrass and Amazon SageMaker help with telemetry data ingestion and management, edge image and sensory predictions, device lifecycle and fleet management, software distribution, and over-the-air (OTA) updates

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Agenda

AWS Connected Vehicle Solution platform layers

Why we created this solution – vision

High-level solution

Solution architecture deep dive

Q&A

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Connected vehicle platform architectural layers

Cybersecurity protection

Applications layer
Business use cases, differentiation

Operations layer
Monitoring, customer support, deployment

Software abstraction layer
Containers, continuous integration and delivery (CI/CD)

Data abstraction layer
Model, select, collect

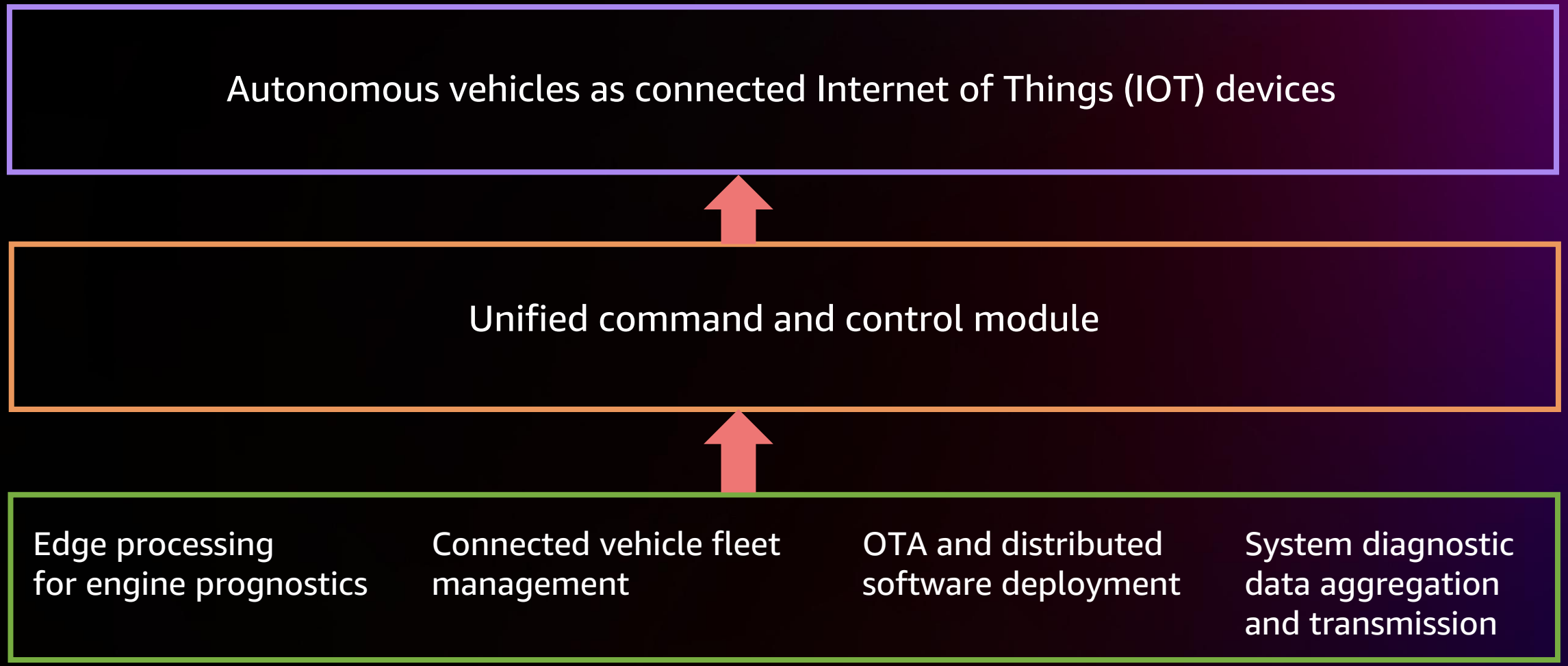
Connectivity layer
Secure connection from vehicle to cloud (MQTT, HTTPS)

Device layer
Hardware abstraction, operating system (OS), device onboarding and management



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Vision for the solution



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Connected vehicle data management solution

Components

Edge processing and IoT/ML on the connected vehicle

Communication and streaming module

Data and analytics pipeline on the backend/to cloud

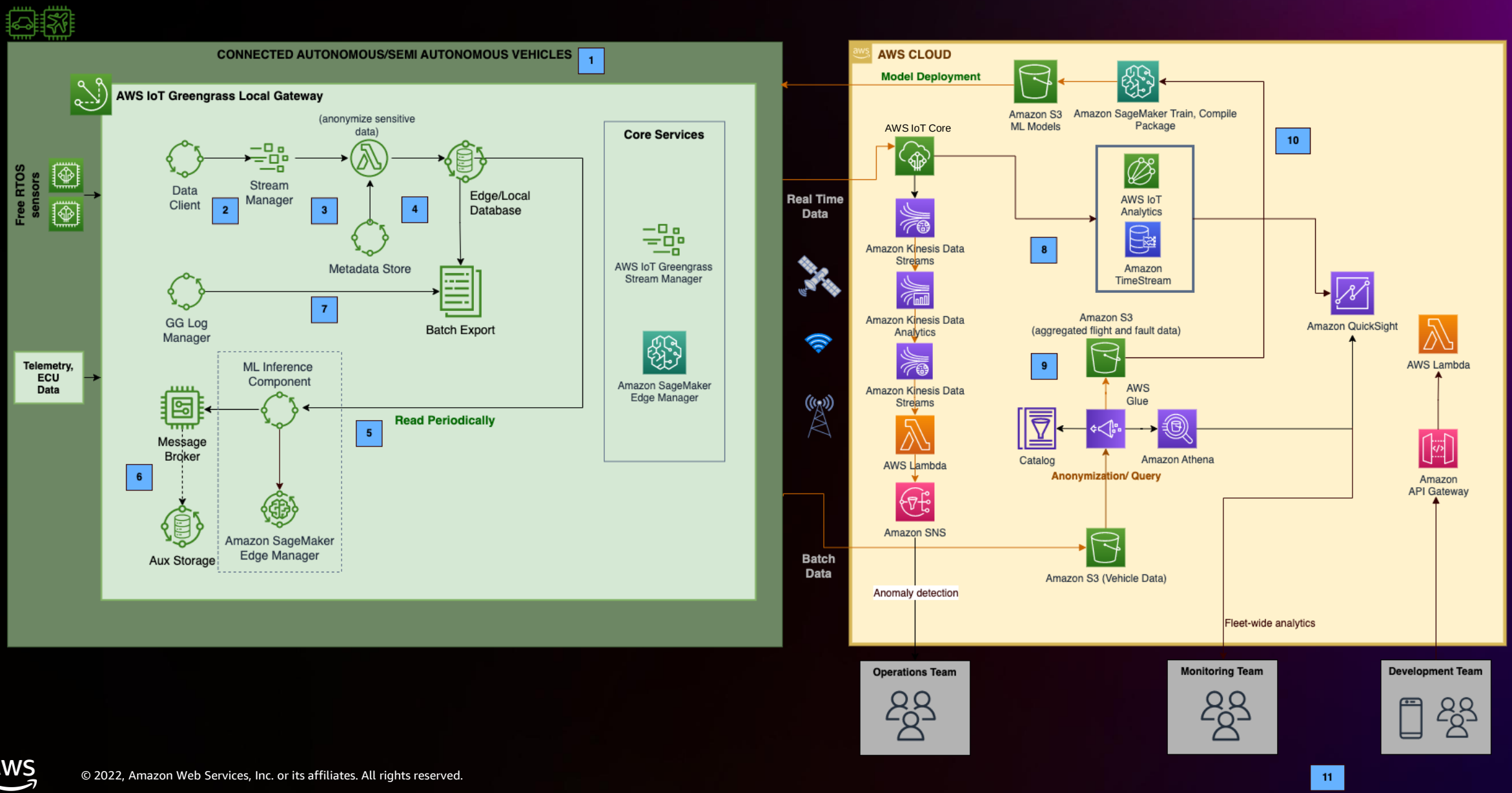
AWS services

1. IoT data collection and edge processing – **AWS IoT Greengrass**, AWS IoT SiteWise, **AWS IoT Core**, FreeRTOS, and AWS IoT Analytics
2. **Amazon Kinesis** to manage real-time data; **AWS Glue** – a managed extract, transform, load (ETL) platform – to take a variety of data types and preprocess them for input into analytics or ML tools
3. Data piped into **Amazon EMR**, running a variety of data analytics tools; **Amazon SageMaker** for ML
4. **Amazon QuickSight** to create meaningful dashboards through data visualization
5. **AWS Snow Family** operating on connected vehicle to capture and store data in AWS Regions lacking connectivity

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Solution architecture



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Narrative link

Topic: Managing connected vehicle data with AWS IoT and ML

Industry: IoT, connected vehicles, aerospace

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Thank you!

Akash Bhatia
bhatiaak@amazon.com

Nitin Eusebius
enitin@amazon.com



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