

# AWS re:Invent

NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

# Unlocking business value and operational benefits with IoT solutions

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LG CNS

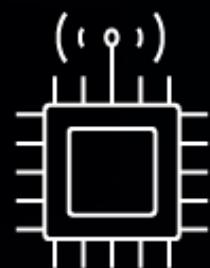


IoT technology is  
enabling transformation  
everywhere



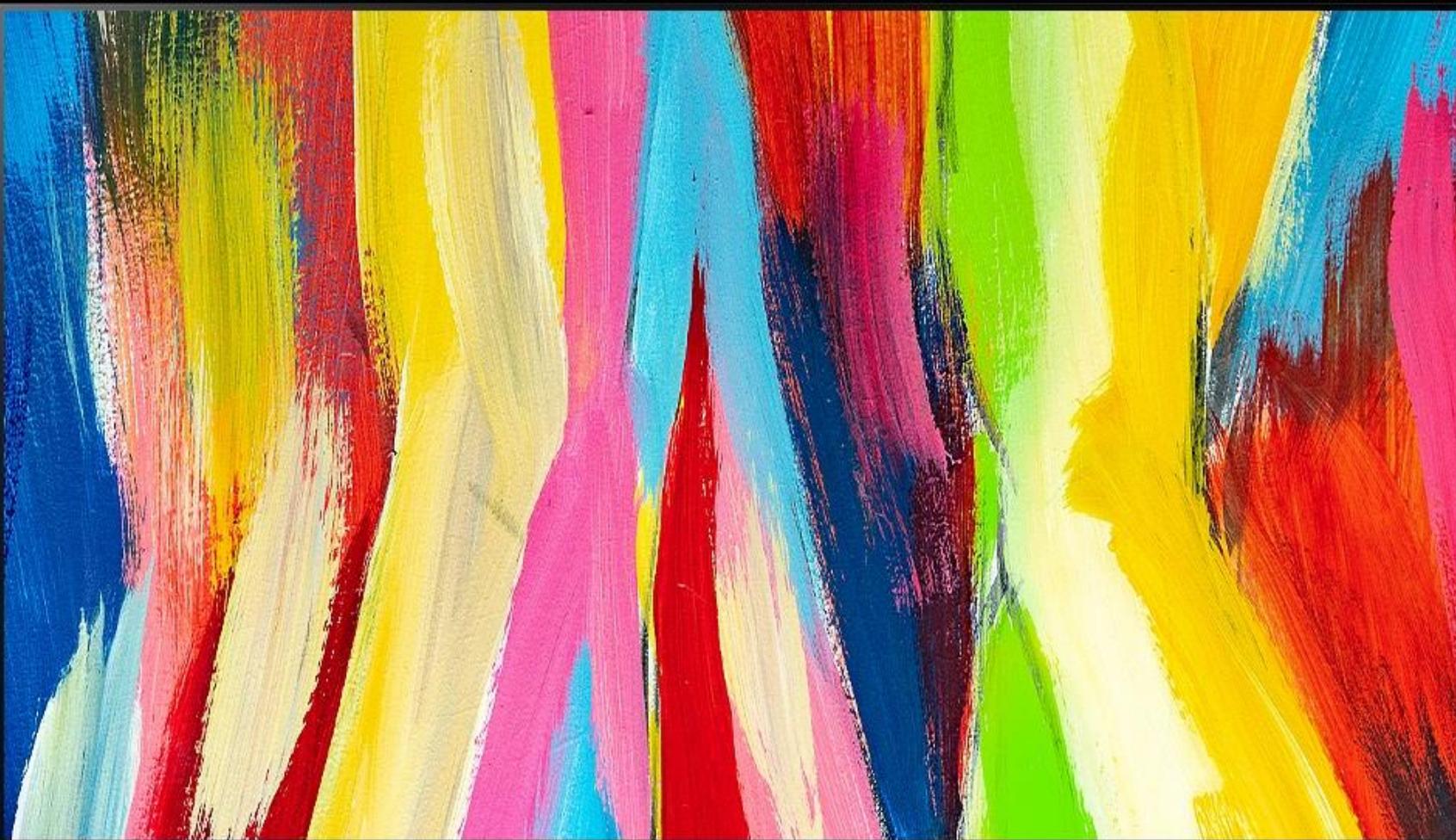
SMART  
DEVICES

14  
**billion**



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Source: IoT Analytics. State of IoT 2022, May 2022, <https://iot-analytics.com/number-connected-iot-devices/>



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aws

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LUCID



aws

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KONE

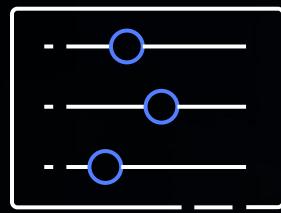


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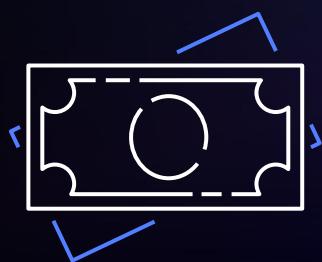


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**IoT is reinventing how we  
experience and engage  
with our environment**



**Reimagine  
customer  
experiences**



**Generate  
new value**



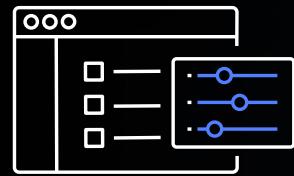
**Unlock better  
business  
decisions**



**Drive better  
performance  
and efficiencies**

# What holds others back?





**Can't address  
business problems**



**Challenging to adopt  
and manage**



**Not secure**



**It's too early to adopt**

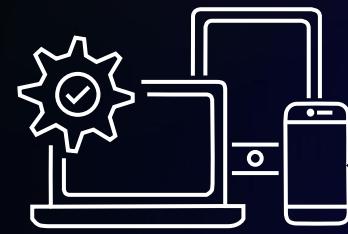
AWS delivers **solutions**  
to take the complexity  
out of IoT





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**Broad and deep set of  
partners, solutions,  
and services**



**Easy to manage,  
collect, scale, analyze,  
and act on data**



**Trusted security  
from the cloud  
to the edge**



**Support for  
continuous innovation**

# How we bridge the gap to support **customers**



## Foundational services

A broad and deep set of cloud services to help customers create custom IoT applications with the highest security, flexibility, and control



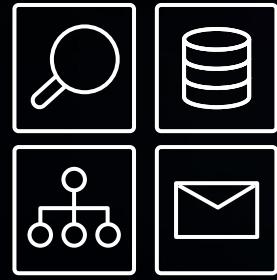
## Purpose-built IoT services

Services that accelerate and simplify the time to build secure, reliable, and scalable IoT applications for specific industries and use cases



## Vetted solutions

Ready-to-deploy code and configurations and customizable architectural guidance, built by AWS and AWS Partners



# Foundational services

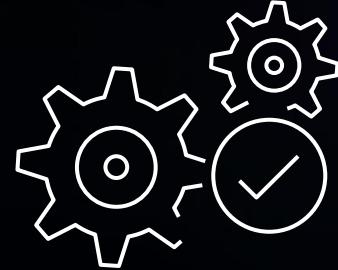
A broad and deep set of cloud services to help customers create custom IoT applications with the highest security, flexibility, and control



Transmit race data and video from racecars to broadcasters for live streaming and teams for real-time decision-making and analysis

Built a platform powered by AWS that captures terabytes of data from onboard cameras and racecar sensors

NASCAR now transmits real-time broadcast video and streaming data for driver insights, team insights, and race strategy and analytics



## Purpose-built IoT services

Services that accelerate and simplify the time to build secure, reliable, and scalable IoT applications for specific industries and use cases



## AWS IoT TwinMaker

Optimize operations by easily creating digital twins of real-world systems



## AWS IoT SiteWise

Collect, organize, and analyze data from industrial equipment at scale



## AWS IoT FleetWise

Collect, transform, and transfer vehicle data to the cloud in near real time



## AWS IoT RoboRunner

Build applications that help robot fleets work together seamlessly

Fully managed, secure, reliable, and scalable

Coca-Cola İçecek (CCI) was looking for a modern way to monitor and track assets to improve its operations

CCI built a robust digital advanced analytics solution for its production line sanitation process using AWS IoT SiteWise and AWS IoT Greengrass

With the new solution, CCI has improved process efficiency, saving 20% on energy and 9% on water annually

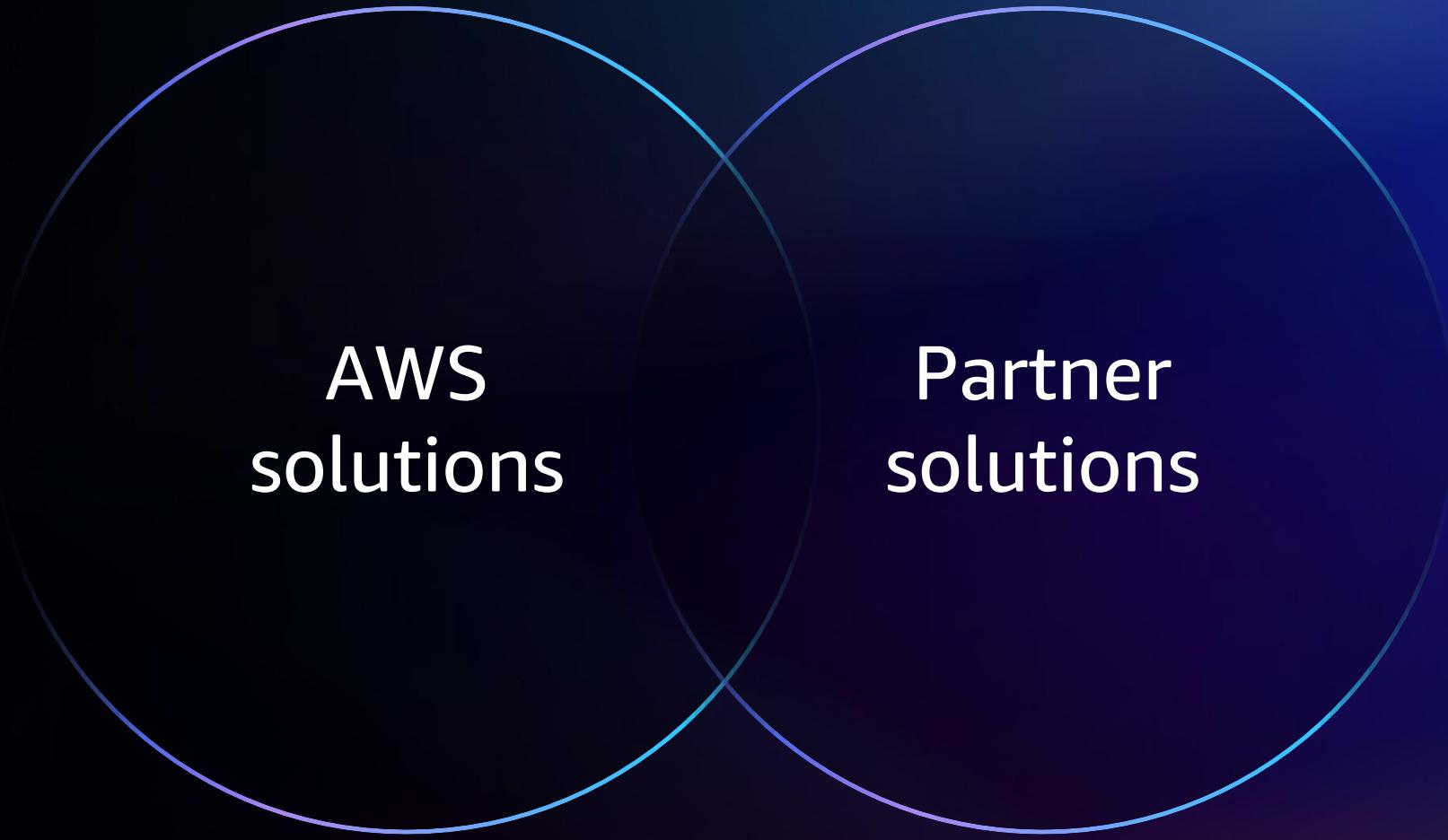
**But we go even further to  
simplify and innovate  
with AWS and  
AWS Partner solutions**





## Vetted solutions

Ready-to-deploy code and configurations and customizable architectural guidance, built by AWS and AWS Partners



A Venn diagram consisting of two overlapping circles. The left circle contains the text "AWS solutions". The right circle contains the text "Partner solutions". The intersection area where the circles overlap is highlighted with a light blue color.

AWS  
solutions

Partner  
solutions

# Delivering success with the growing IoT Partner Community



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Partners shown are examples and do not represent the entire AWS IoT Partner Community.

Chervon needed a solution to bring intelligence to the management and development of their power tools and outdoor power equipment

Worked with Thundersoft and AWS IoT to develop an integrated maintenance and operation service

Scalable solution that saves 70% on new feature development and can be reused for more products in 1 day, saving 90% in time





## Foundational services



## Purpose-built IoT services



## Vetted solutions

The innovation  
never stops





**35**

## AWS for IoT innovations

4 new purpose-built services, 22 new features and expansions, and 9 new APIs and integrations

Including features we're  
announcing **today**



# Security

**NEW**

# AWS IoT Device Defender integration with AWS Security Hub

Detect

AWS IoT  
Device Defender



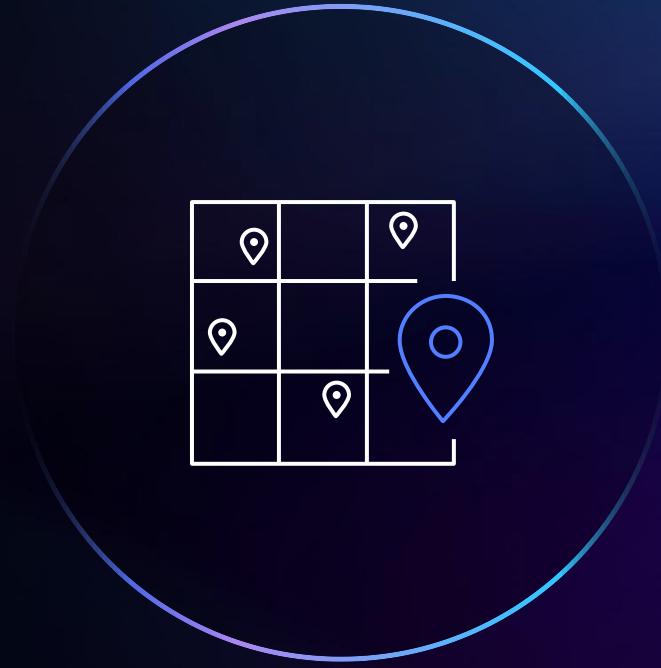
AWS  
Security Hub



Aggregate

Report

Take action



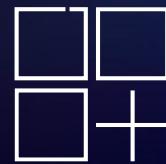
## Device location

**NEW**

## AWS IoT Core Device Location



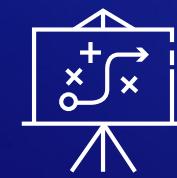
Simplified  
asset tracking



Low-power  
location apps

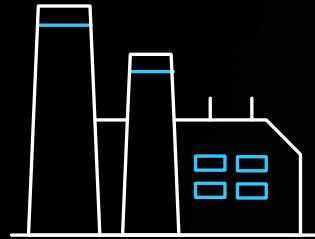


Single console  
experience

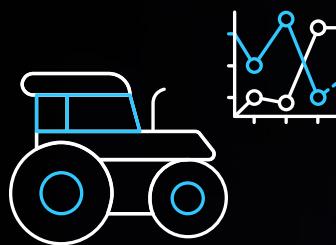


Easy integration  
with Amazon  
Location Service

**With these innovations,  
we are supporting  
many industries**



Improve the performance  
and productivity of  
industrial processes



Grow healthier crops with  
greater efficiencies



Remotely monitor patient  
health and wellness  
applications



Manage sustainable  
and energy resources  
more efficiently



Track inventory  
levels and manage  
warehouse operations



Transform transportation  
with connected and  
autonomous vehicles



Build smarter products and  
user experiences in homes,  
buildings, and cities



Enhance safety in  
the home, the office,  
and the factory floor

# **Transformation in industrial manufacturing**

# Manufacturing is a data-rich environment



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# Remote monitoring and control



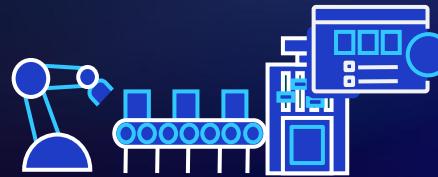
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# AWS IoT TwinMaker



## Using data from disparate sources

Use your existing IoT, video, and enterprise application data where it already lives – without needing to resync data or move it to another location



## Accurately model your built environment

Save time with an automatically generated knowledge graph that binds your data sources to virtual replicas of physical systems to accurately model real-world environments



## Create immersive 3D views into operations

Get an immersive 3D view of your systems and operations to optimize efficiency, increase production, and improve performance



JOHN DEERE

Growing the business with  
precision agriculture

Improving factory  
operations with digital twins



JOHN DEERE

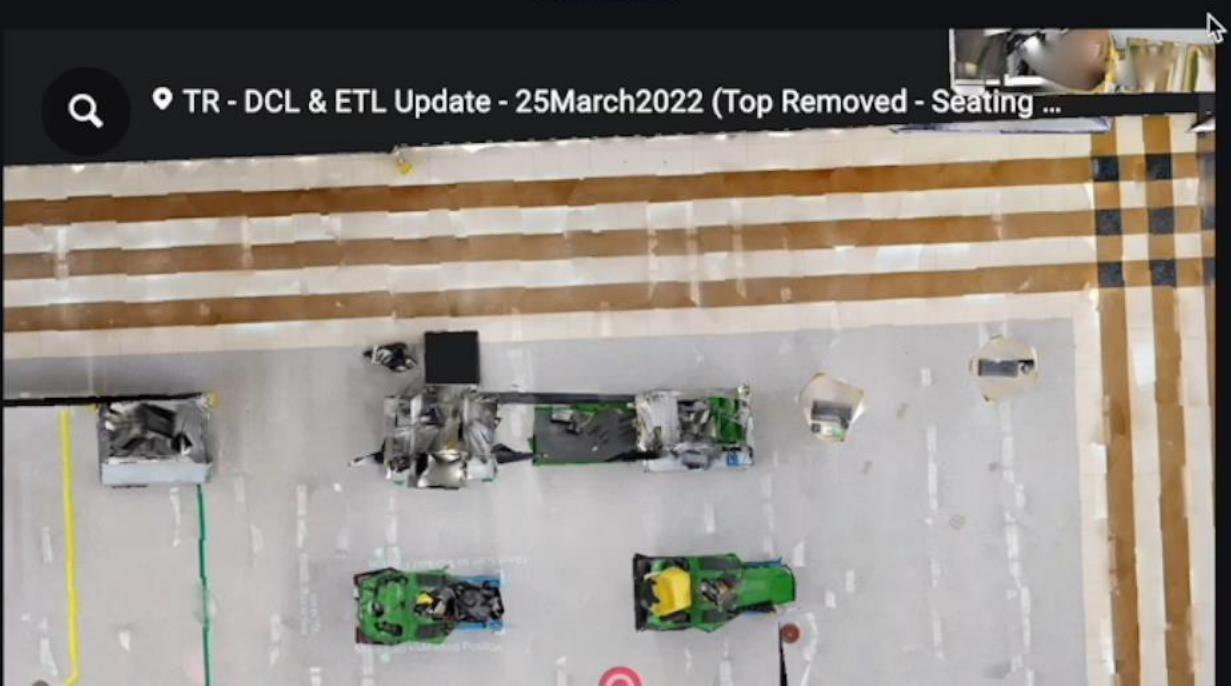
Growing the business with  
precision agriculture

Improving factory  
operations with digital twins

## John Deere Harvester Works

Alarm List					JDAAT Details				
alarmname	alarmid	entityid	entityname	status	orderid	workstationid	stepnumber	status	duration
Quality Review	108283	2132457	Station L201608	Open	560778	L201608	10	Waiting	
Part Alert	108278	2132452	Station L201804	Open	560778	L201608	9	Complete	
Part Alert	108300	2132983	Station L201702	Open	560778	L201608	8	Complete	
					560778	L201608	7	Complete	
					560778	L201608	6	Complete	
					560778	L201608	5	Complete	
					560778	L201608	4	Complete	

## Scene Viewer



## Operator Actions



Start Video Call



LIVE

View Camera Feed



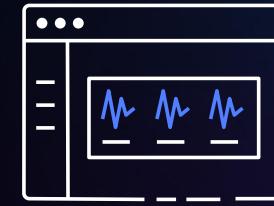
Submit Approval

**And there's one more thing**



**NEW**

# TwinMaker Knowledge Graph



## Contextualize data

Capture relationships between data points to contextualize semantic data across disparate sources



## Reduce time to resolution

Quickly query digital twins to gain insights into relationships between data points – allowing you to promptly perform functions like root cause analysis



## Drive informed decisions

Consume data across your entire workflow in one application to make informed decisions and anticipate where issues are likely to occur

# Industry transformation in automotive

# Industry transformation in automotive

# AWS Automotive



The Future



Faster



Together



SCANIA

BMW  
GROUP



VOLVO

HONDA  
The Power of Dreams



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# The journey to **software defined vehicles**



Better customer  
experiences



Vehicles that get  
better with time



New services &  
business models



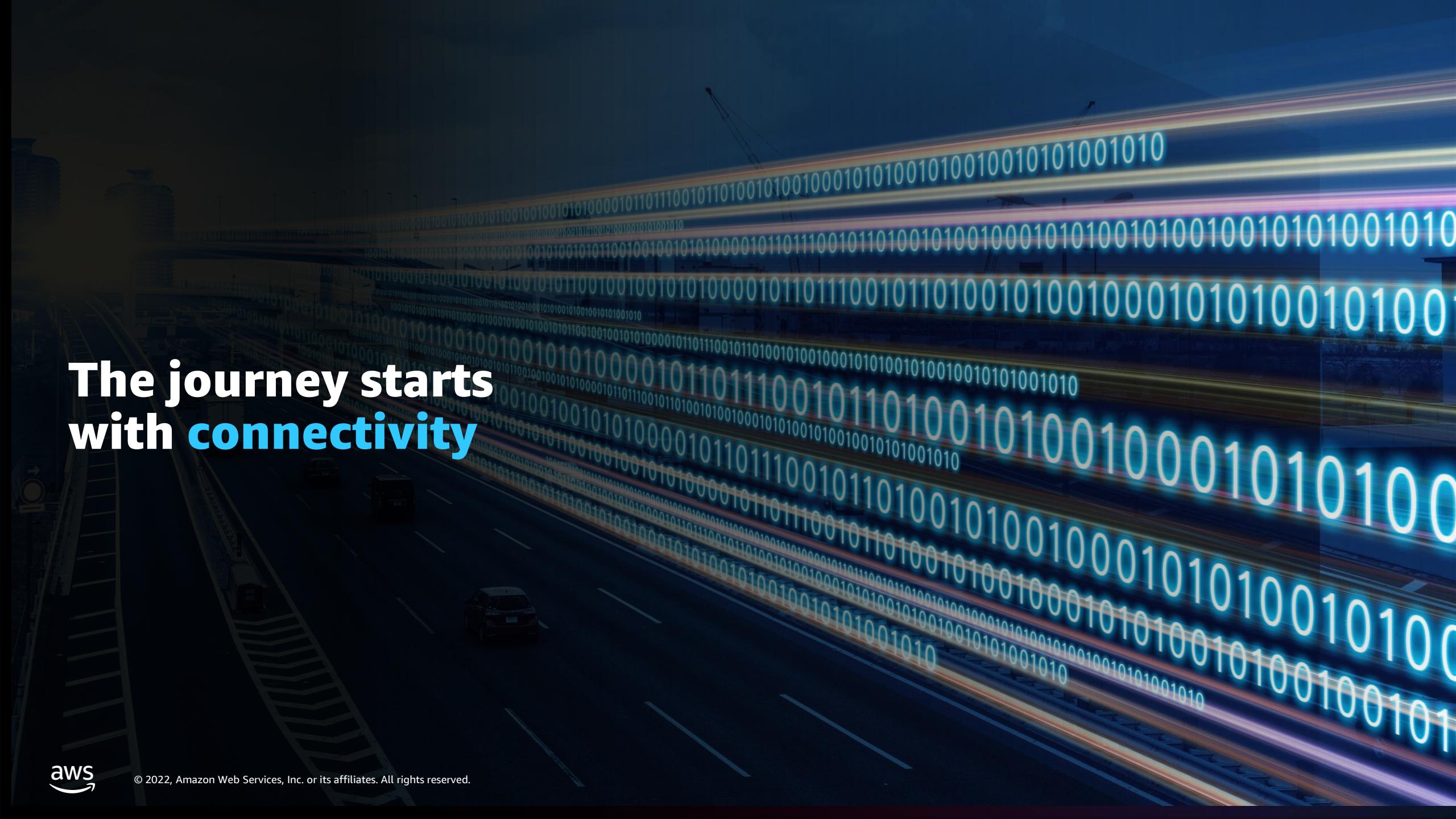
Data-driven  
discipline



Intelligent  
decision-making



Increased  
performance



The journey starts  
with **connectivity**



**NEW**

## Availability for IoT protocol MQTTv5



Ease of  
implementation



Improved error  
reporting



Improved  
security support



Next comes  
**data management**

**GA**

## AWS IoT FleetWise

End-to-end data management for connected vehicles



**Standardizes data formats**



**Protects proprietary information**



**Enables efficient “big data” collaboration**

# How LG is using IoT technology to **transform its business**





### Large OLED TV Panel/Rollable TV

Global No.1

And World's 1st

### Battery for EV

Global No.1

by contract size  
Excluding the Chinese market

### 5G Network

World's 1st

### Home Appliance

Global No. 1

### Automotive Telematics

Global No.1

### Smartphone Camera/ 3D Sensing Module

Global No.1

### ABS Plastics

Global No.1

### Cosmetics

Domestic 1st

### Life Sciences

Domestic 1st New Drugs  
U.S FDA Approval

### Home IoT

Domestic No. 1

### IT Service/Consulting

AI, big data, cloud, smart city,  
block chain, logistics IT

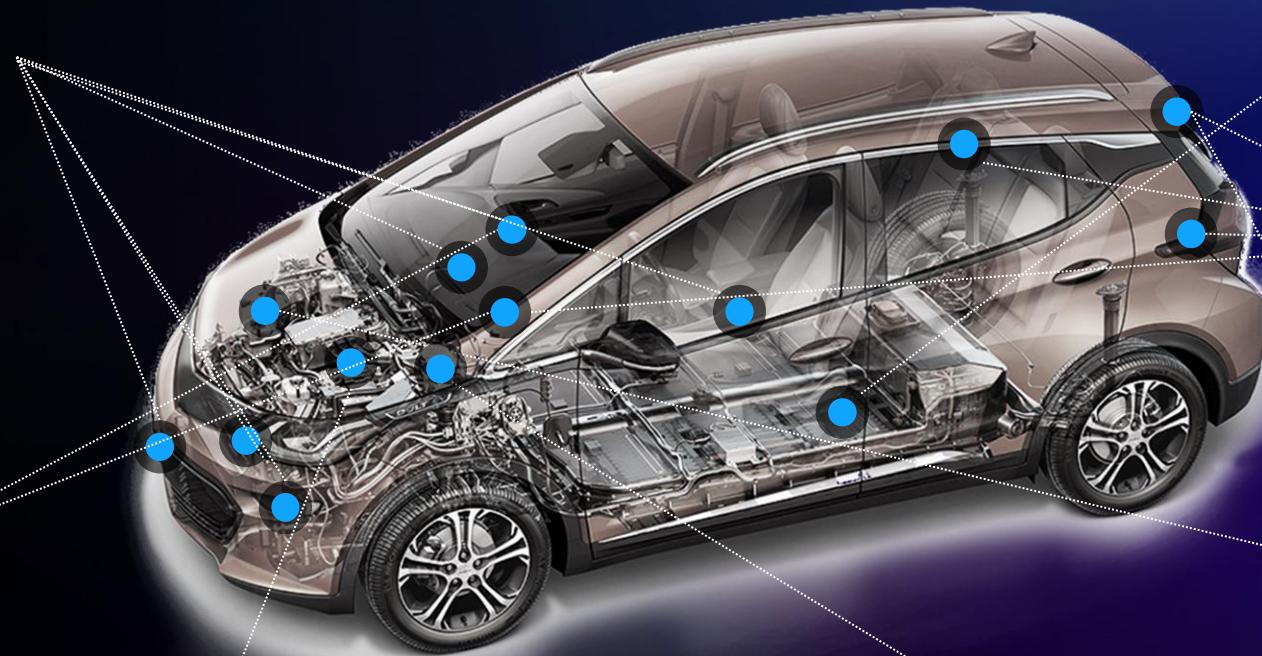


# LG Electronics

In-vehicle  
Infotainment,  
Telematics,  
E-powertrain,  
Head Lights,



Automotive Displays



Electric Vehicle Battery



Cathode Materials



EV Components, Sensors



Data Gathering/Analysis  
on Autonomous Driving



5G network technology



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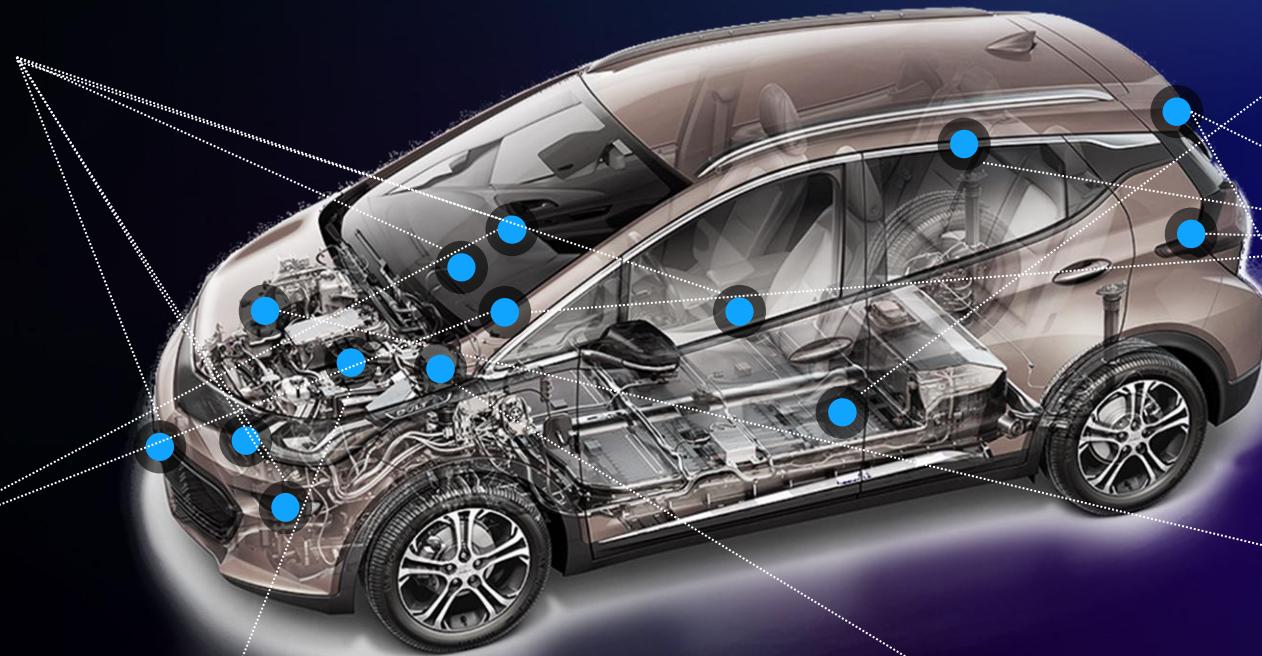


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In-vehicle  
Infotainment,  
Telematics,  
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Automotive Displays



Data Gathering/Analysis  
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5G network technology



**LG Energy Solution**

Electric Vehicle Battery



**LG Chem**

Cathode Materials

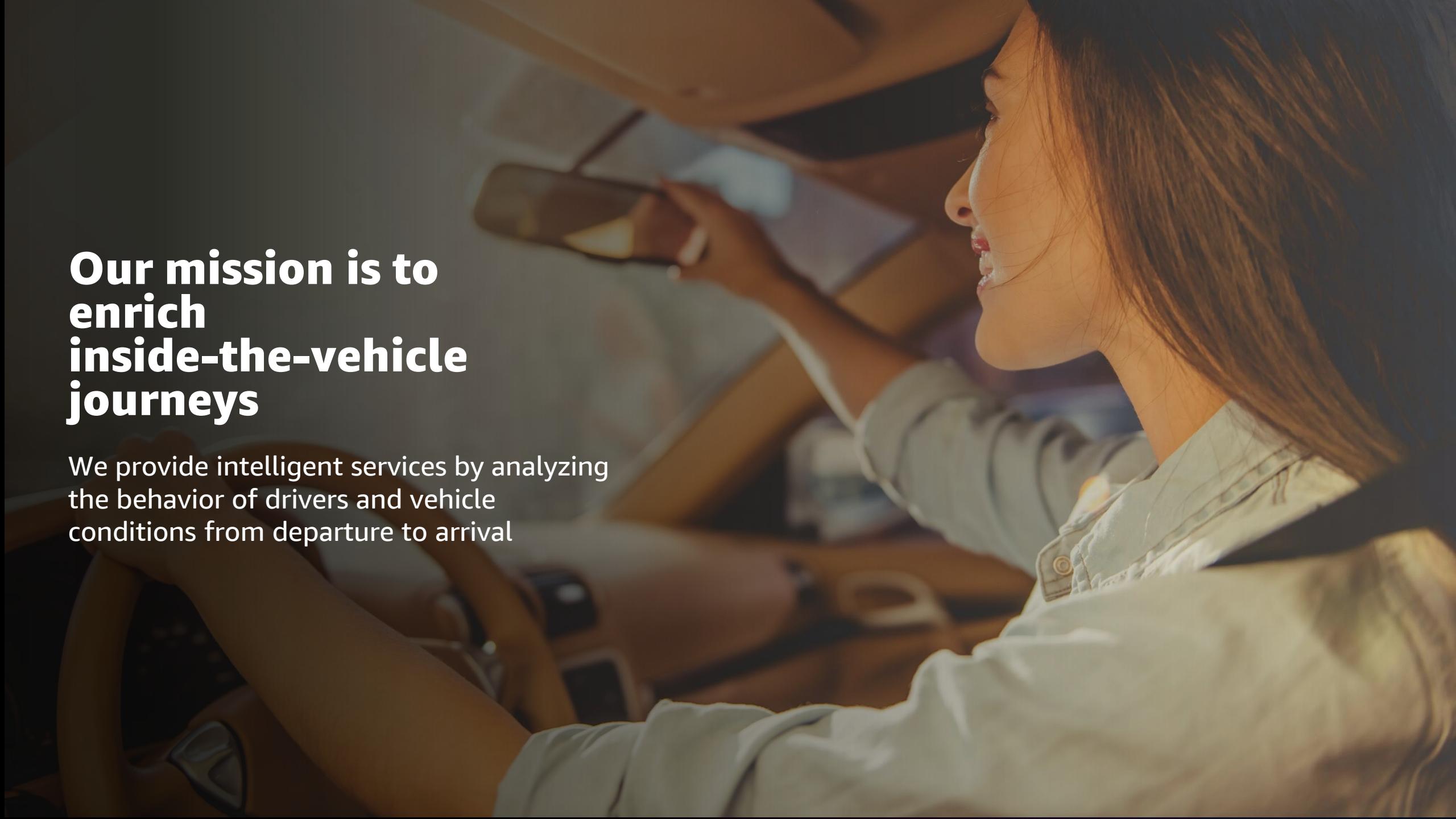


**LG Innotek**

EV Components, Sensors

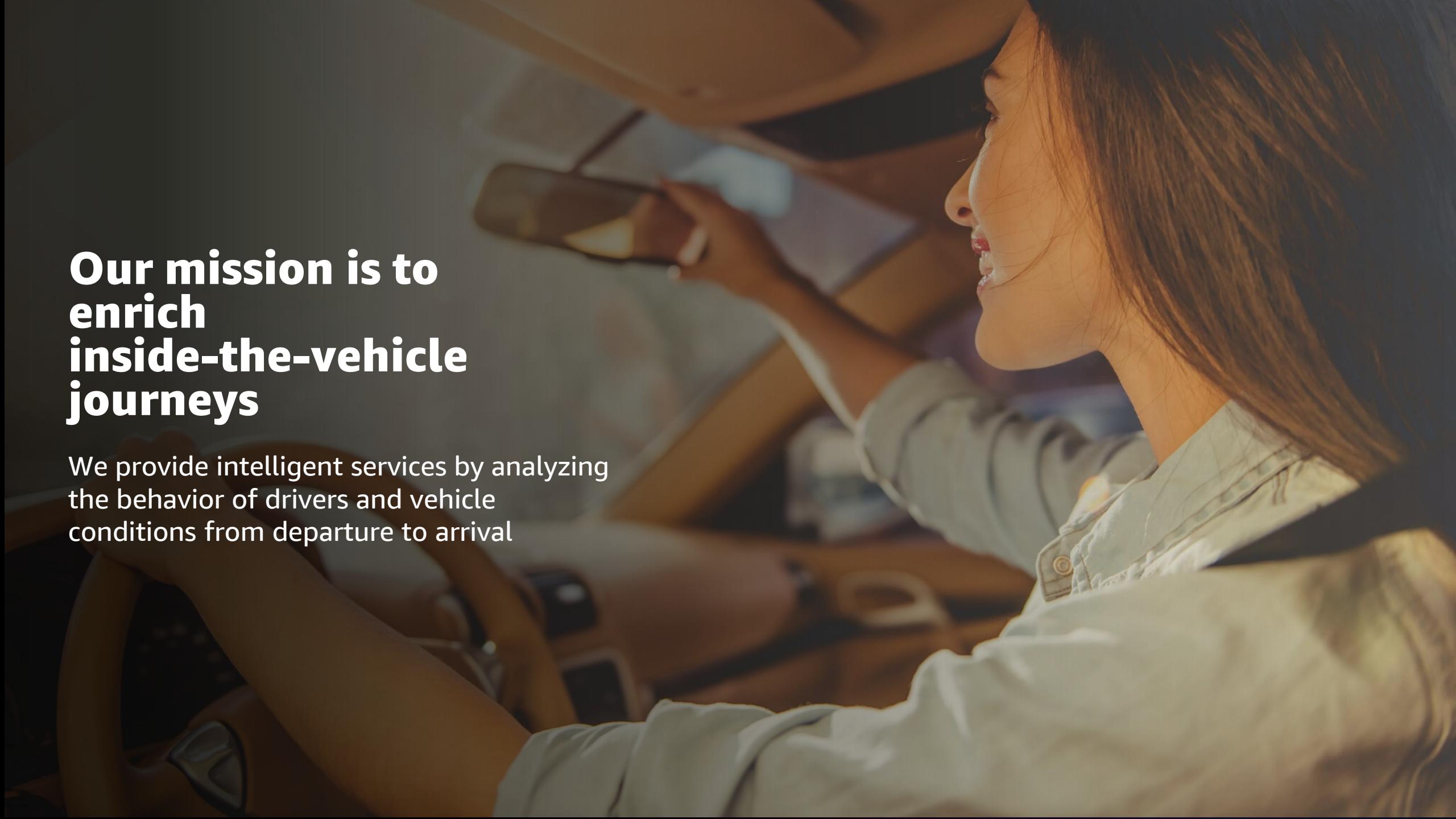


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A close-up, low-angle shot of a woman driving a car at night. She is smiling and looking towards the camera. Her hands are on the steering wheel. The interior of the car is visible, including the dashboard and a blue smartphone mounted on the center console. The background is dark, suggesting it's nighttime.

# **Our mission is to enrich inside-the-vehicle journeys**

We provide intelligent services by analyzing  
the behavior of drivers and vehicle  
conditions from departure to arrival

A close-up, low-angle shot of a woman driving a car at night. She is smiling and looking towards the camera. Her hands are on the steering wheel. The interior of the car is visible, including the dashboard and a blue smartphone mounted on the center console. The background is dark, suggesting it's nighttime.

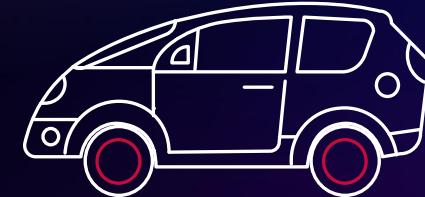
# **Our mission is to enrich inside-the-vehicle journeys**

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the behavior of drivers and vehicle  
conditions from departure to arrival

# LG Vehicle & Mobility Solutions (VMS)

Securely collects, processes, and analyzes data to provide enhanced experiences for customers

## VMS DATA PLATFORM



### Vehicle data

Speed, RPM, GPS, battery, in-cabin camera, diagnostic information



### External data

Weather, traffic information, home/workspace, and more

# How AWS IoT supports LG VMS



# Rapidly prototyping VMS using AWS IoT & data services



Securely collect, store, process, and analyze data with AWS services



## AWS IoT FleetWise



Collect high volumes of data from tens of thousands of vehicles



Standardize data across diverse vehicle makes and models



Analyze data in near real time, triggered by real-world events

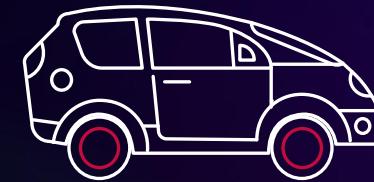
## Prototype VMS with LG prototype simulator

Uses real data from AWS IoT FleetWise to validate simulations for new safety and maintenance experiences

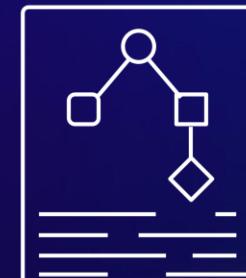
## VMS DATA PLATFORM



Real vehicle data from AWS IoT FleetWise



Virtual vehicle data from the simulator



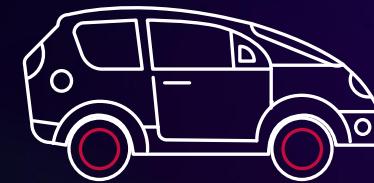
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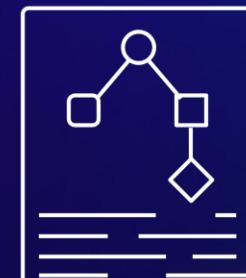
## VMS DATA PLATFORM



Real vehicle data from AWS IoT FleetWise



Virtual vehicle data from the simulator



**What's coming **next** from  
LG's automotive team?**



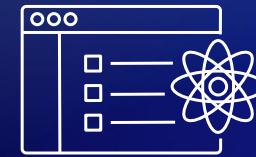
## Understand in-vehicle data

Fleet management  
and monitoring systems,  
data convergence service  
across industries



## Curate, transform, and analyze data

Safe driving scoring,  
analyze driving pattern, and  
residual value of vehicle



## Make predictions with machine learning

Electric vehicle battery  
health tracking, eco  
driving, and charge  
management



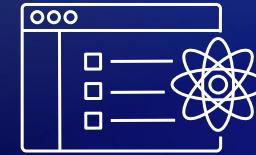
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management



**LG**

# The journey to **software-defined vehicles**

**IoT is reinventing the  
world around us**





**1**

## Be curious

Explore opportunities with IoT and how it can solve your business problems



**2**

## Innovate

Embrace how IoT technologies are changing how we work, live, and engage with the world



**3**

## Collaborate

Leverage the services, solutions, and support from AWS and AWS Partners



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# Thank you!



Please complete the session  
survey in the **mobile app**