



# AWSOME DAY

ONLINE CONFERENCE

2025 | APJ



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**AWSOME DAY**  
ONLINE CONFERENCE

# Innovation with AWS

**Peter Vandaele**

Technical Trainer  
Amazon Web Services



# Internet of Things (IoT)

# What is the Internet of Things (IoT)?



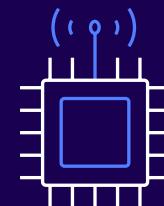
The Internet of Things (IoT) is where a system of integrated devices, such as appliances, watches, or features in a car, can be connected to various applications

These connections enable data to be transferred to and from devices in a bidirectional communication flow over a network

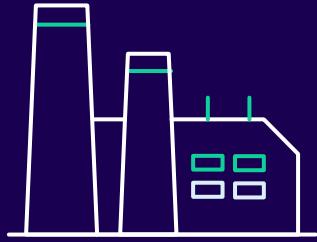
# Challenges of managing “things”

Managing IoT devices poses a number of challenges

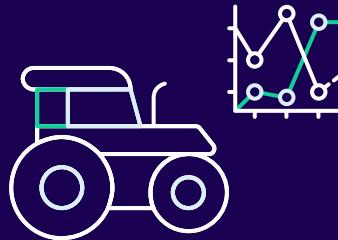
- Management and updates
  - Inconsistent or intermittent network connectivity
  - Remote devices that may not be physically accessible
  - Large fleets of devices in production
- Analytics
  - Low compute power, low-spec on-device resources
  - Devices may emit large quantities of streaming data



# What customers are doing with AWS IoT



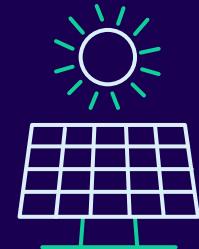
Improve the performance and productivity of industrial processes



Grow healthier crops with greater efficiencies



Remotely monitor patient health & wellness applications



Manage energy resources more efficiently



Track inventory levels and manage warehouse operations



Transform transportation with connected and autonomous vehicles



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

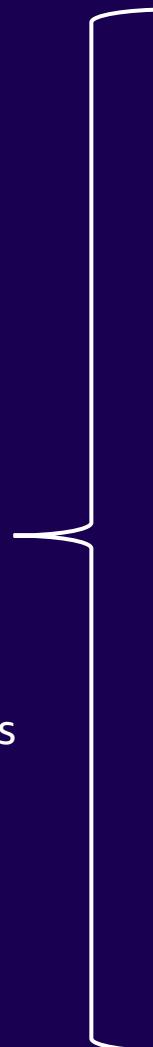


Enhance safety in the home, the office, and the factory floor

# AWS IoT core: Rapid development



**AWS IoT Core**  
Connect devices  
to the cloud



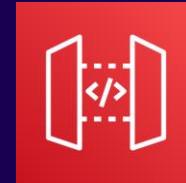
**AWS Lambda**  
Run code in  
response to events



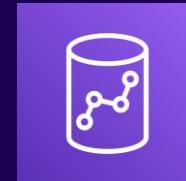
**Amazon DynamoDB**  
Predictable & scalable  
NoSQL data store



**Amazon Kinesis**  
Streaming  
analytics



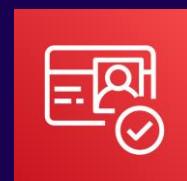
**Amazon API Gateway**  
Build, deploy, and  
manage APIs



**Amazon Redshift**  
Petabyte-scale  
data warehouse



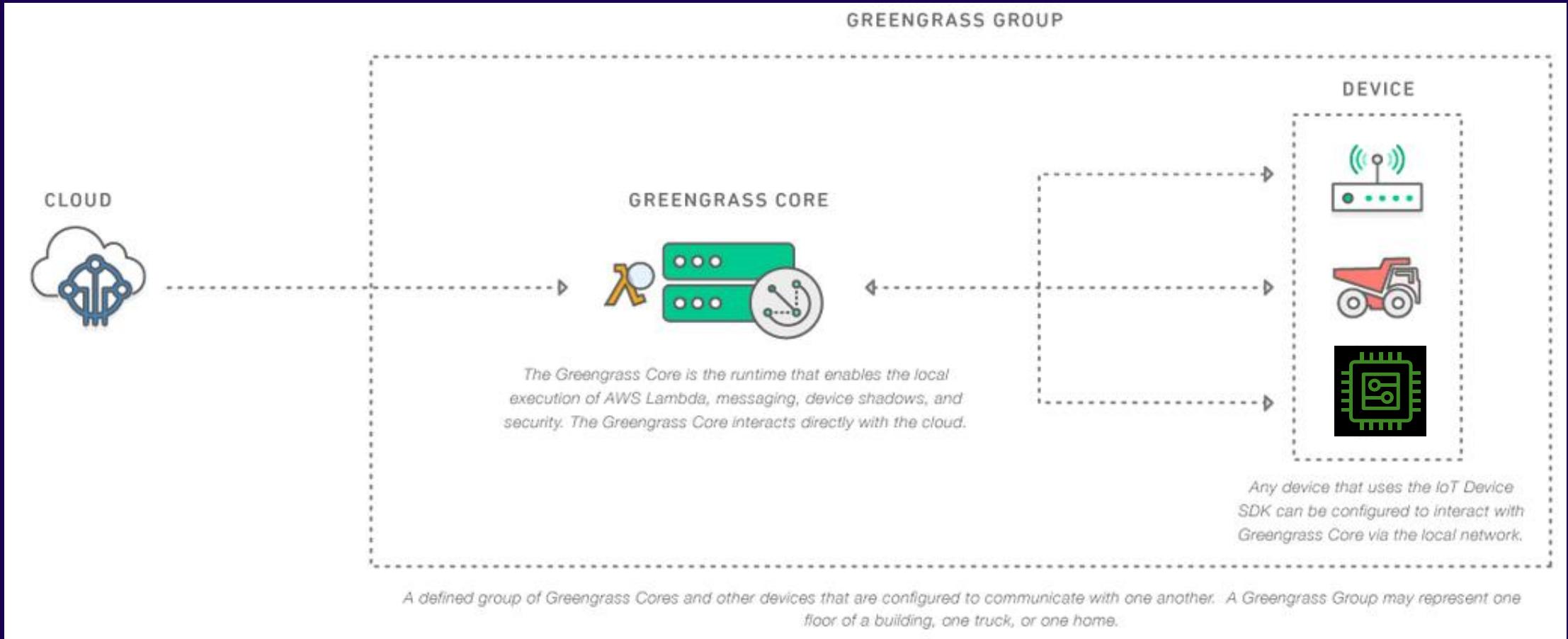
**Amazon SNS**  
Mobile push  
and notifications



**Amazon Cognito**  
User identity and data  
synchronization

. . . and more

# AWS IoT Greengrass





ST Engineering develops fleet management software (FMS) for robots as a service on AWS



## Problem

ST Engineering is a global technology, defense, and engineering group that serves customers in more than **100** countries.

To support its **robots as a service** business offerings, the company wanted to migrate its infrastructure to the cloud.

## Solution

ST Engineering turned to Amazon Web Services (AWS) to run its robotic FMS on the cloud. The company adopted several AWS services, such as **AWS IoT Greengrass**, an open-source edge runtime and cloud service for building, deploying, and managing device software.

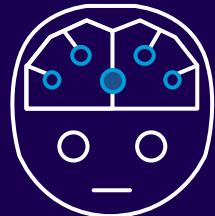
## Impact

ST Engineering can develop new capabilities for its robots and connect them to new and existing operations, helping the company to **scale and innovate more quickly**.

ST Engineering provides robotic fleets with connectivity to the cloud.

# Machine learning

# What is machine learning?



## Artificial intelligence (AI)

Any technique that allows computers to mimic human intelligence using logic, if-then statements, and machine learning



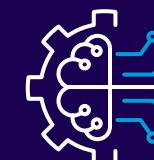
## Machine learning (ML)

A subset of AI that uses machines to search for patterns in data to build logic models automatically



## Deep learning (DL)

A subset of ML composed of deeply multi-layered neural networks that perform tasks like speech and image recognition



## Generative AI

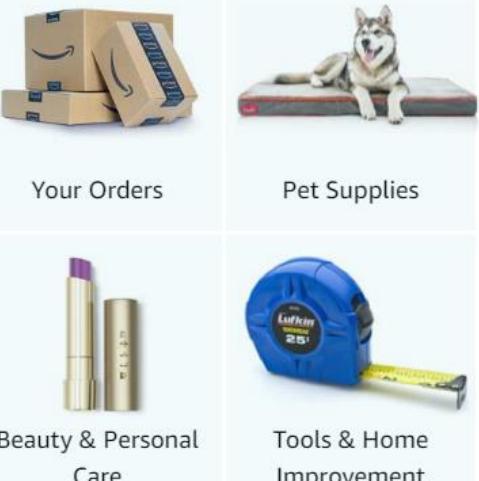
Powered by large models that are pretrained on vast corpora of data and commonly referred to as foundation models (FMs)

# **Demo: Gen AI application using PartyRock**



# Amazon's machine learning innovation

## Recommendations for you

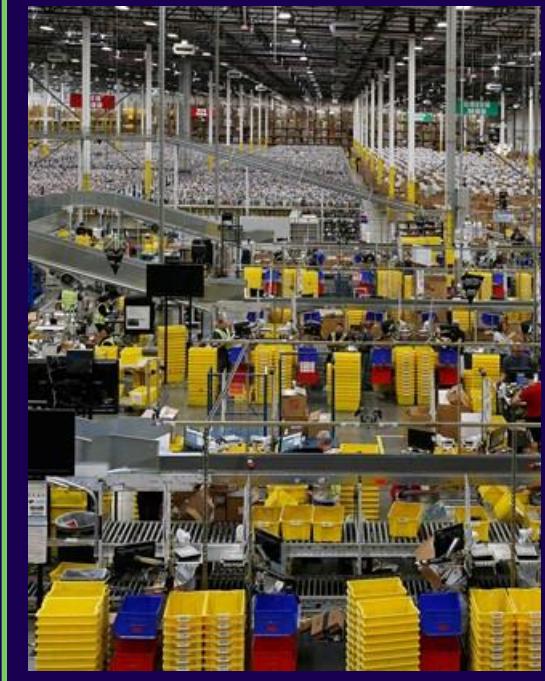


Your Orders

Pet Supplies

Beauty & Personal Care

Tools & Home Improvement



1.6 million packages every day



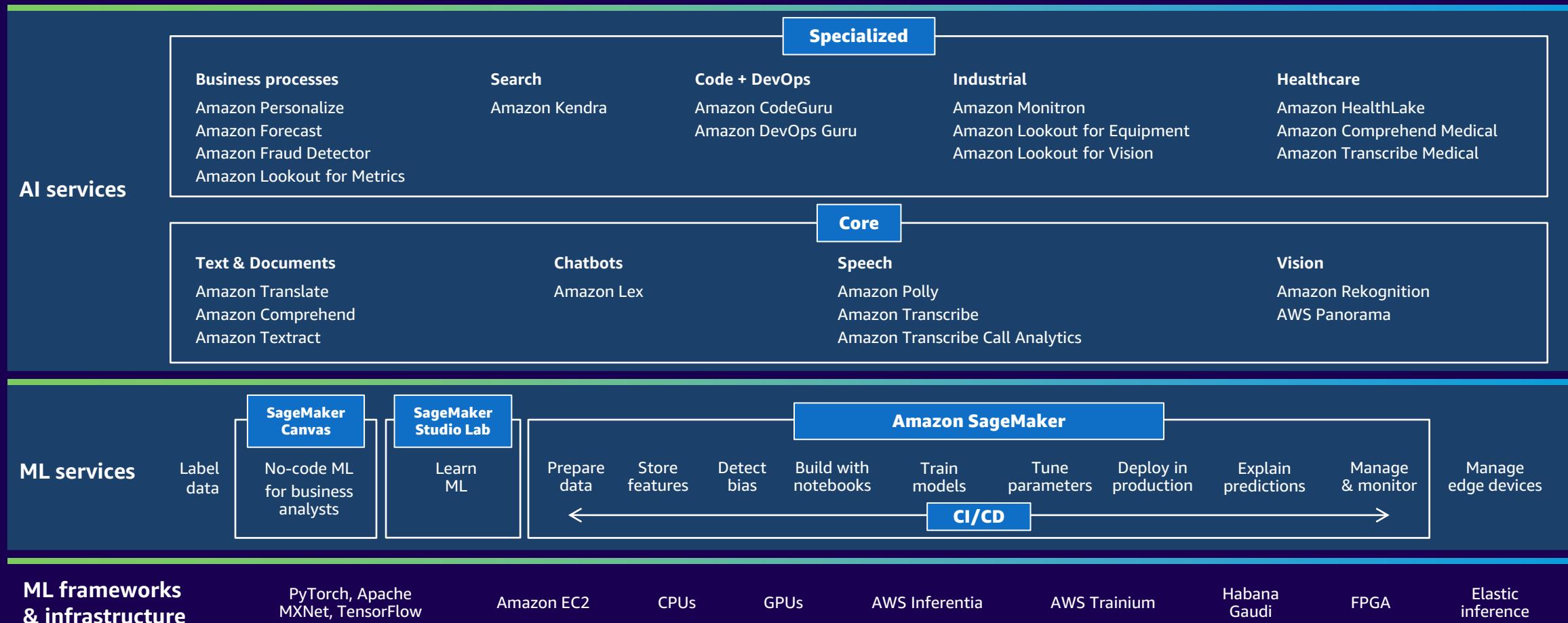
Billions of Alexa interactions each week



First Prime Air delivery on Dec. 7, 2016

# The AWS AI/ML stack

Broadest and most complete set of machine learning capabilities



# Amazon SageMaker overview



## Amazon SageMaker

### Prepare →

SageMaker Ground Truth  
SageMaker Data Wrangler  
SageMaker Processing  
SageMaker Feature Store

### Build →

SageMaker Studio notebooks  
Built-in and bring-your-own algorithms  
Local mode  
SageMaker Autopilot

### Train & tune →

One-click training  
SageMaker Experiments  
Automatic model tuning  
SageMaker Debugger  
Managed spot training

### Deploy & manage →

One-click deployment  
Kubernetes & Kubeflow integration  
Multi-model endpoints  
Model Monitor  
SageMaker Pipelines

### SageMaker Studio

Integrated development environment (IDE) for ML

# “Shift the fan experience into gear”



## Training Data

By sourcing historical data and using it to teach Amazon SageMaker complex machine learning algorithms, Formula 1 (F1) can predict race strategy outcomes with increasing accuracy for teams, cars, and drivers.

## Inferences with Amazon SageMaker

These models are then able to predict future scenarios using refreshed real-time data to deliver a rich and engaging fan experience as Grand Prix races unfold.

# **Handwritten text to audio using AWS Textract and Polly**



# Blockchain

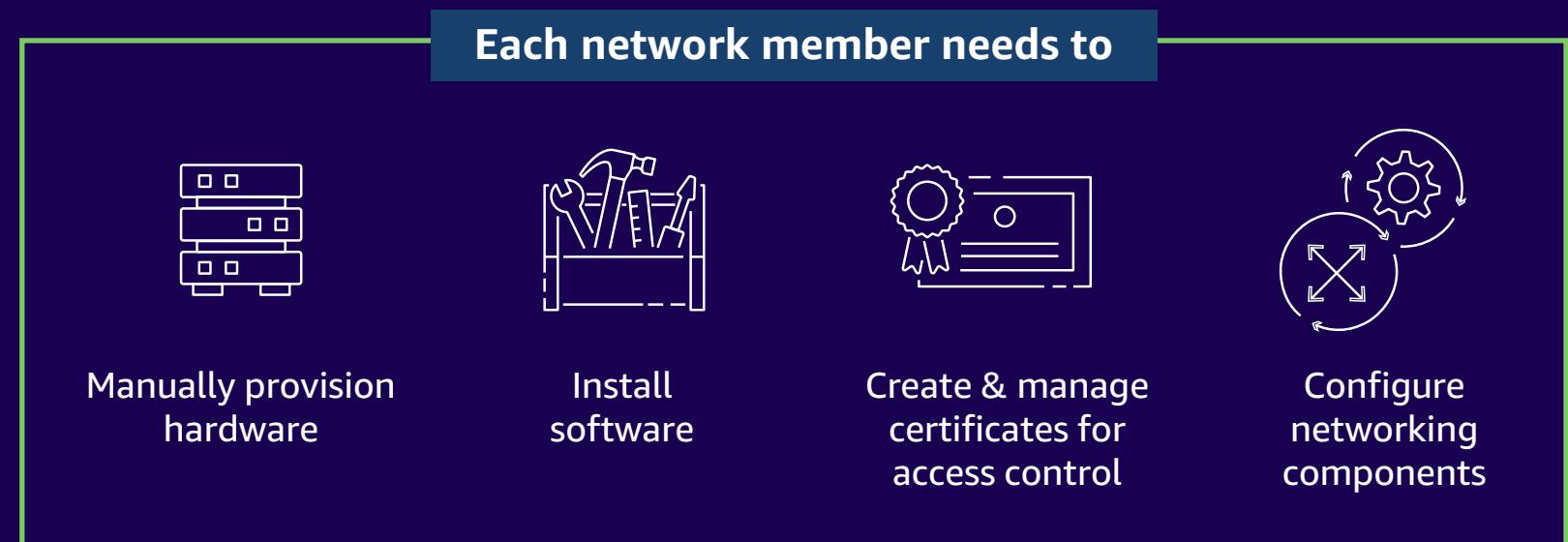


# What is blockchain?

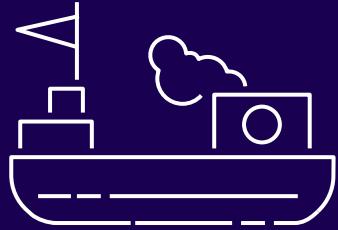


Blockchain makes it possible to build applications where multiple parties can execute transactions **without the need for a trusted, central authority**

Today, building a scalable blockchain network with existing technologies is complex to set up and hard to manage



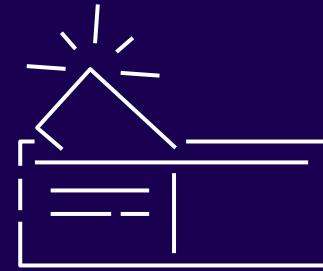
# Example use cases



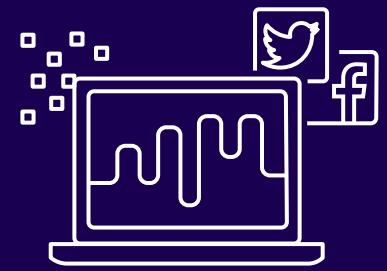
**Shipping**



**Supply chain  
management**



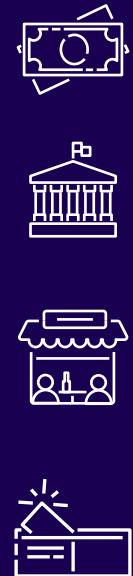
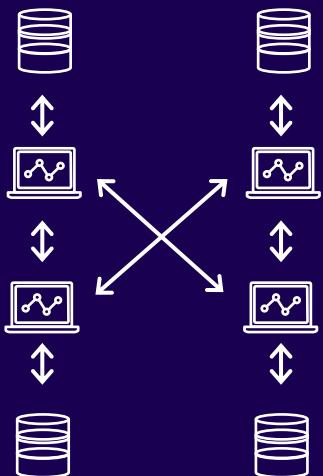
**Finance  
and banking**



**Digital  
advertising**

# Blockchain qualities

## Decentralized trust



**Financial institutions**  
Peer-to-peer payments

**Mortgage lenders**  
Process syndicated loans

**Supply chain**  
Transact with suppliers  
and distributors

**Retail**  
Streamline customer rewards

## Benefits

Transparency

Immutability

Auditability

Permissionless

Permissioned

Consortium

# AWS blockchain services

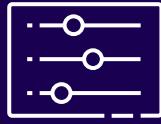


Amazon  
Managed  
Blockchain

Fully managed service that makes it easy to create and manage scalable blockchain networks using popular open-source frameworks

- Hyperledger Fabric
- Bitcoin
- Ethereum
- Polygon

# Amazon Managed Blockchain features



## Fully managed

Create a blockchain network in minutes



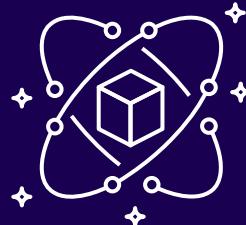
## Open-source variety

Support for multiple frameworks



## Decentralized

Democratically govern the network



## Reliable and scalable

Backed with Amazon QLDB technology



## Low cost

Only pay for resources used



## Integrated

With AWS services



Korean Air succeeded in managing the vaccine cold chain with Amazon Managed Blockchain



## Problem

After the development of the COVID-19 vaccine, transporting vaccines has been an expensive and complicated process because they are classified as special cargo and are particularly temperature sensitive.

According to the World Health Organization (WHO), **50%** of the world's vaccine shipments are **discarded** during storage and transportation because of mishandling and inappropriate equipment.

## Solution

Korean Air turned to **blockchain technology**, applying **Amazon Managed Blockchain** for improved traceability, transparency, and accuracy of cargo transportation.

## Impact

**Korean Air provided** transportation-related information in an accurate, timely, and reliable manner between related stakeholders to the **vaccine cold chain**.

# AWS Ground Station



# Common satellite data cloud processing use cases



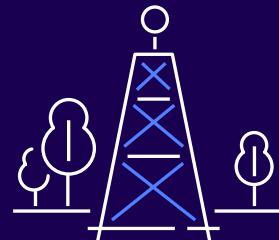
## Weather forecasting and agriculture

Commercial fruit producers can monitor crop health and water levels to ensure efficient use of limited resources



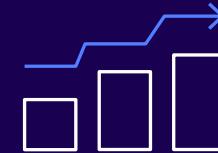
## Global shipping and anti-piracy

Use registries of ship placement, destination, and tracking to confirm accuracy of ship positioning, as well as be notified of any deviations from normal operations



## Earth observation and fire safety

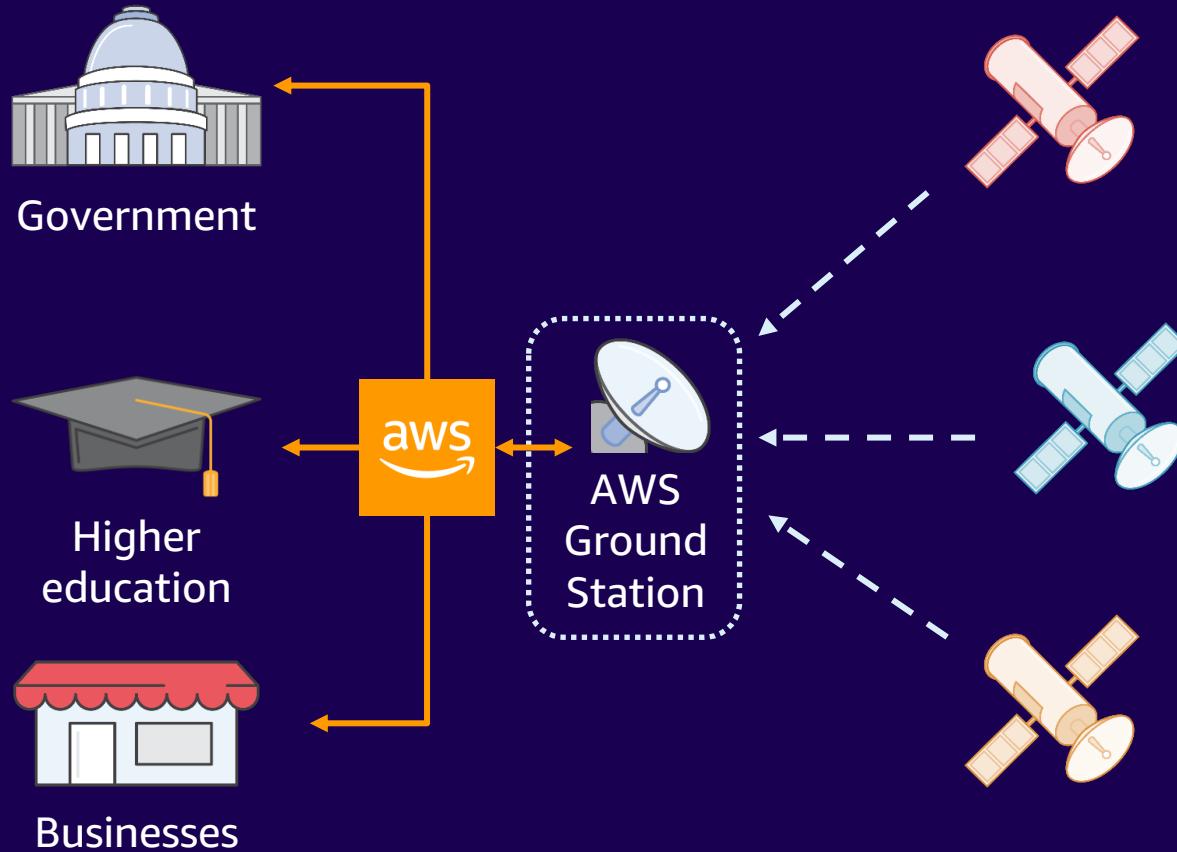
Use low-latency access to high-resolution heat mapped images of the earth to inform frontline fire commanders on safest, lowest heat entry points to fight fires



## Retail forecasting

4.8 million satellite images from 44 major US retailers confirms numbers of cars in parking lots and yields an informational advantage to forecasting accuracy

# What AWS Ground Station offers



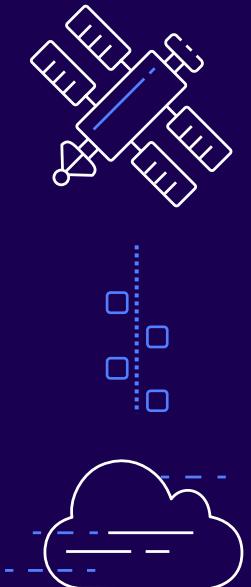
- Satellite ground support with no infrastructure commitments
- Pay-by-minute pricing
- Self-service scheduling
- Collocated ground stations and AWS data centers providing direct access to AWS resources and services
- Backhaul of base band data to customer Region of choice included in pricing
- Near-real-time data delivery

# AWS Ground Station: What is it?

**AWS Ground Station** is a fully managed service that you can use control satellite communications, process data, and scale operations without having to worry about building or managing your own ground station infrastructure

These facilities provide communications between the ground and the satellites in space

- Low-latency global fiber network
- Direct access to AWS services
- Fully managed service (no infrastructure commitments)
- Pay-as-you-go pricing
- No licensing requirements
- Scale satellite communications on demand when your business needs it



# Capella Space provides on-demand Earth observation data



## Data From Space In Minutes

By using AWS, Capella has improved the recency of satellite data by downlinking their raw satellite data to AWS Cloud through AWS Ground Station and making that data readily available to their customers within minutes.

<https://aws.amazon.com/blogs/publicsector/capella-uses-space-bring-you-closer-earth/>



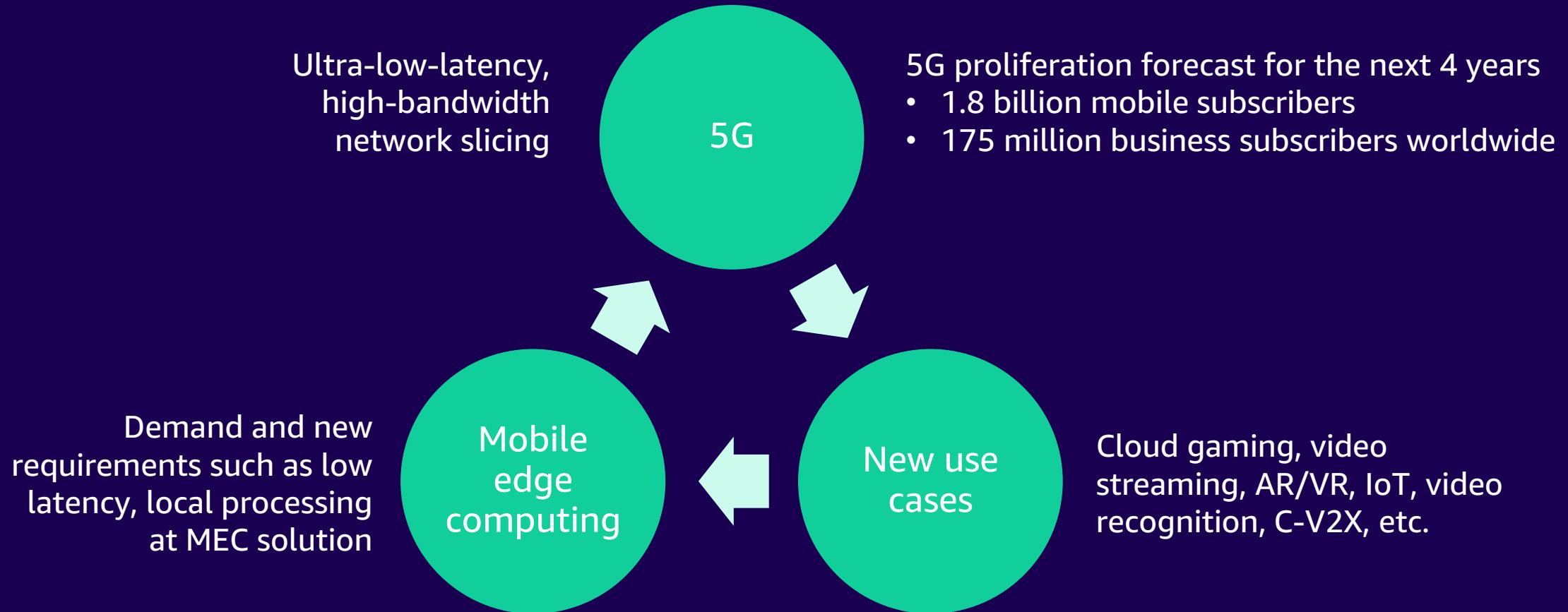
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# AWS Wavelength



# 5G and mobile edge computing

Mobile service delivery model that is consumer- and business-focused



# AWS Wavelength



AWS Wavelength combines the high bandwidth and ultra-low latency of 5G networks with AWS compute and storage services to help developers innovate and build a whole new class of applications

- AWS infrastructure and services in CSP 5G networks
- Ultra-low latency, local data processing
- Scalable capacity in CSP data center managed and supported by AWS

# AWS Wavelength: Built for the mobile edge

AWS services from inside the CSP mobile network



AWS compute and storage infrastructure embedded inside CSP mobile network



Single pane of management, across Wavelength Zone and AWS Regions



Access to services in the AWS Region



Develop applications once and deploy for use with 5G network globally



Failover from Wavelength Zone to AWS Region

# AWS Wavelength use cases

## Healthcare



AI/ML solution for processing and analyzing video, images, and data for real-time diagnosis

## Connected vehicles (C-V2X)



Real-time monitoring of data from sensors for road safety, secure connectivity, in-car telematics, and autonomous driving

## Smart factory



Accelerating the industrial edge with AI/ML, video recognition for software-defined manufacturing

# Woowa Brothers operate self-driving delivery robots with AWS Wavelength

WOOWABROS.

Woowa Brothers developed a self-driving delivery robot called Dilly Drive for indoor and outdoor use.

**"AWS Wavelength provides ultra-low latency**, which allows our robots to register surrounding information in near real time without delays. This helps us build a safer robot delivery service."

**Kim Yo-seop,**  
Head of Robot Business, Woowa Brothers



# Thank you for attending AWSome Day Online Conference

We hope you found it interesting! A kind reminder to **complete the survey**. Let us know what you thought of today's event and how we can improve the event experience for you in the future.

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# Test your knowledge

# Thank you!



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