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

AIM336

# Improve supply chain operations with computer vision at the edge

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# Agenda

Supply chain management challenges

How edge CV solves for SCM challenges

Edge CV services from AWS

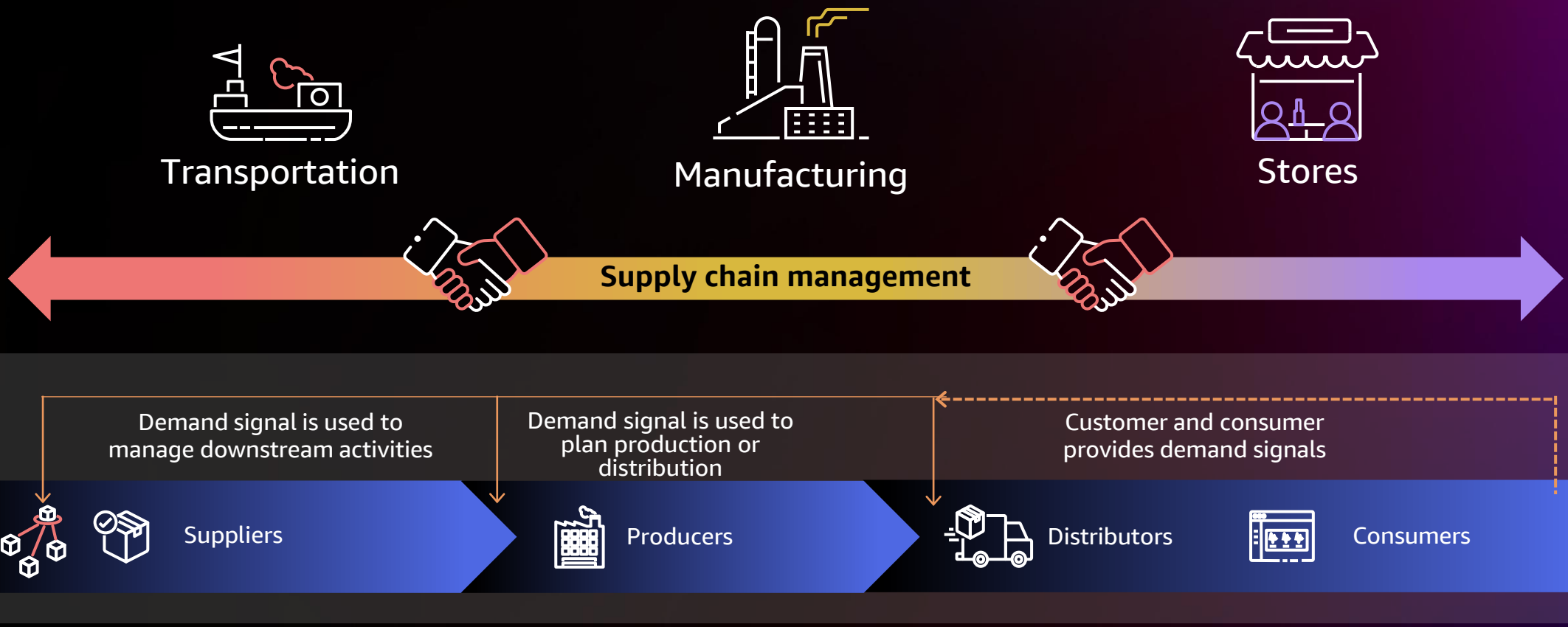
Customer testimonials

Demo, Q&A, Whiteboard

Resources

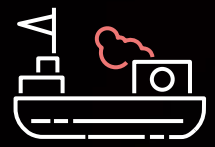
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# Supply chain management

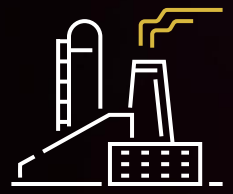



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# Supply chain management challenges



Transportation



Manufacturing



Stores





**Supply chain management**



Improved space utilization



Reduced freight spend



Improved inventory throughput



Increased labor productivity



Reduced fulfillment costs

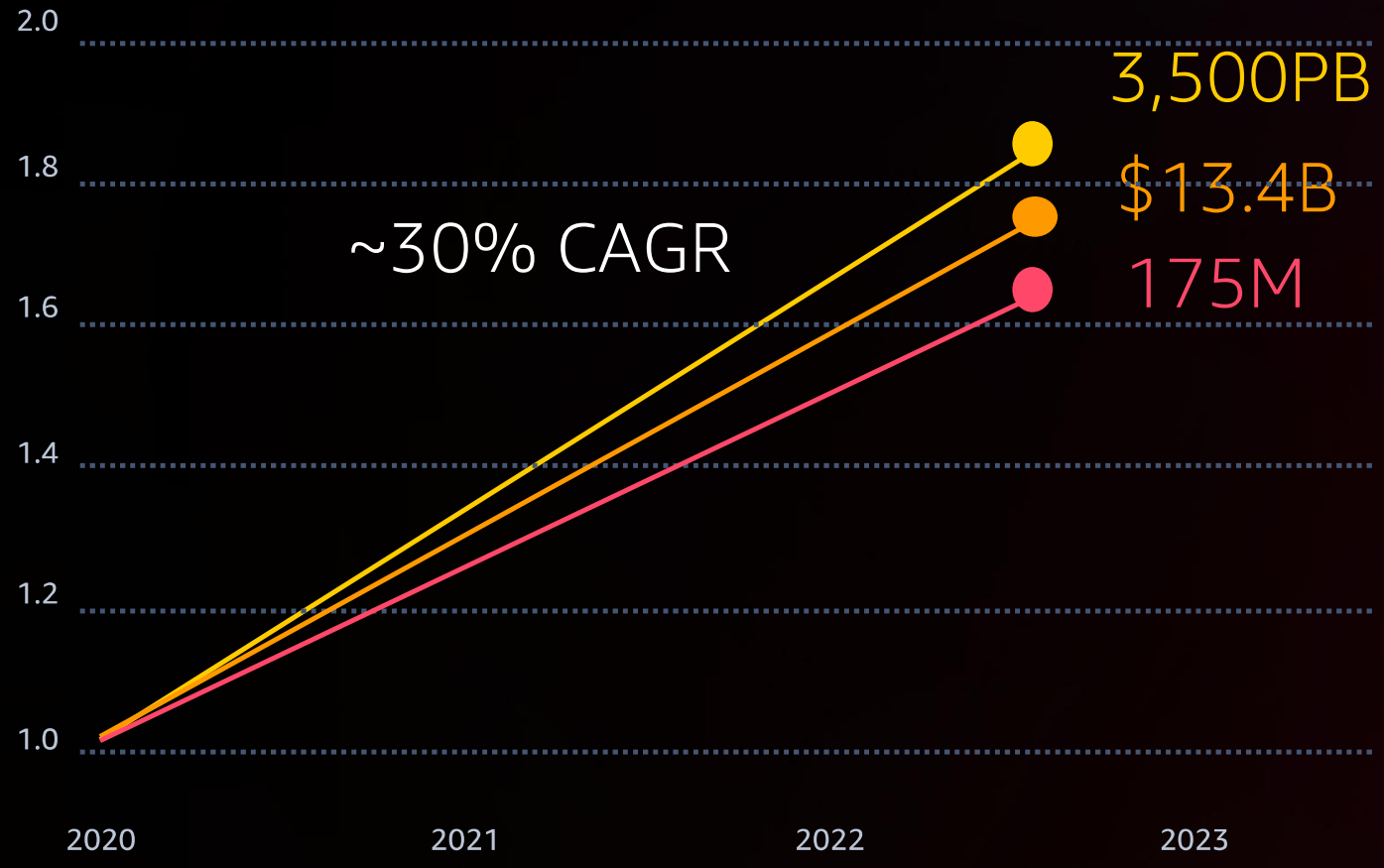


Improved stock accuracy

aws

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# Visual data from IP cameras is doubling every 2.5 years




3,500PB Daily data from IP cameras

$13.4B Video analytics market

175M Enterprise IP cameras

However, **98%** of recorded footage is **never analyzed**

*Source: Market Research Future: Global Surveillance Storage Market, and Global Market Insights: IP Camera Market Report*

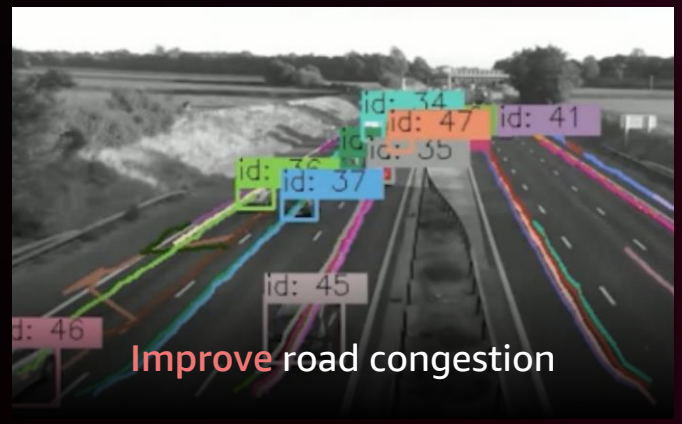
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Transportation

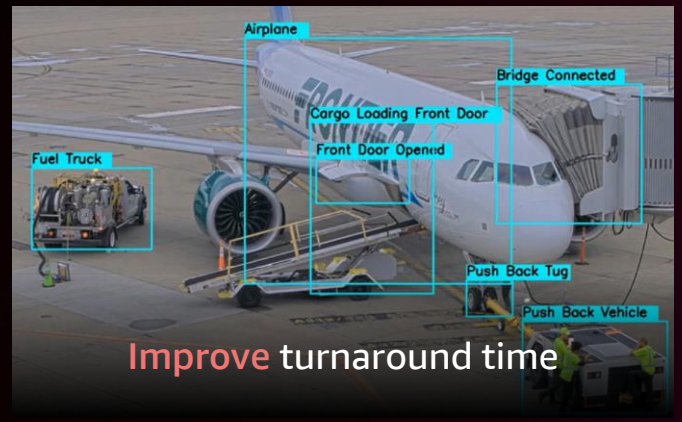
# Computer vision enables new capabilities in supply chain management

Real-time analysis of visual data can yield new operational insights that improve decision-making and automate business processes













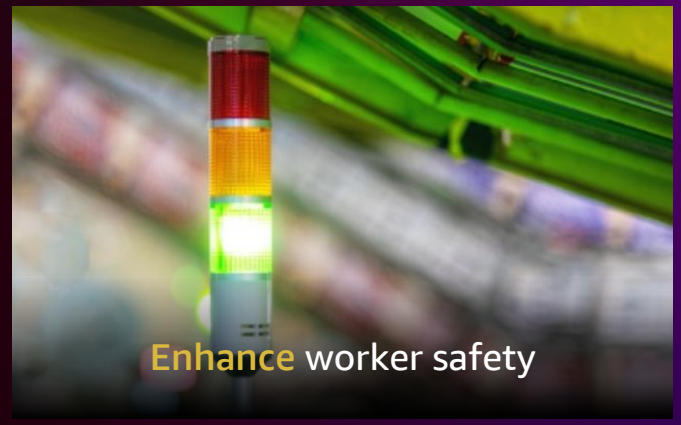
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Manufacturing

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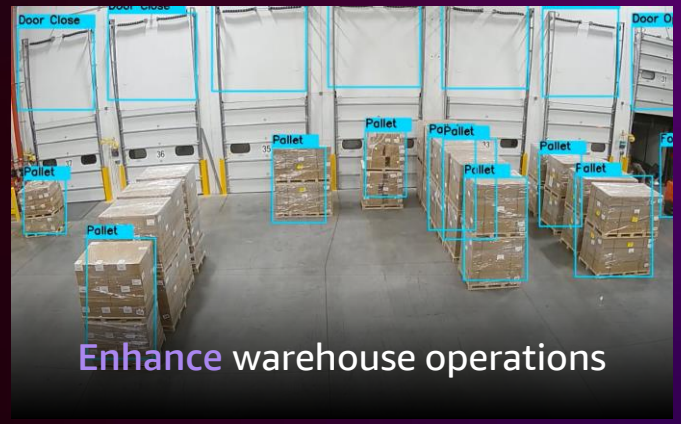

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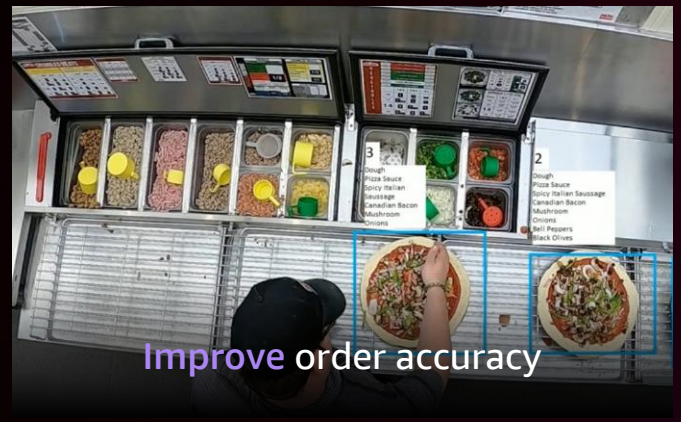
Stores

# Computer vision enables new capabilities in supply chain management

Real-time analysis of visual data can yield new operational insights that improve decision-making and automate business processes







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# Customers need edge CV for real-time insights



Low latency for real-time insights



Bandwidth constraints limit what video is sent to the cloud

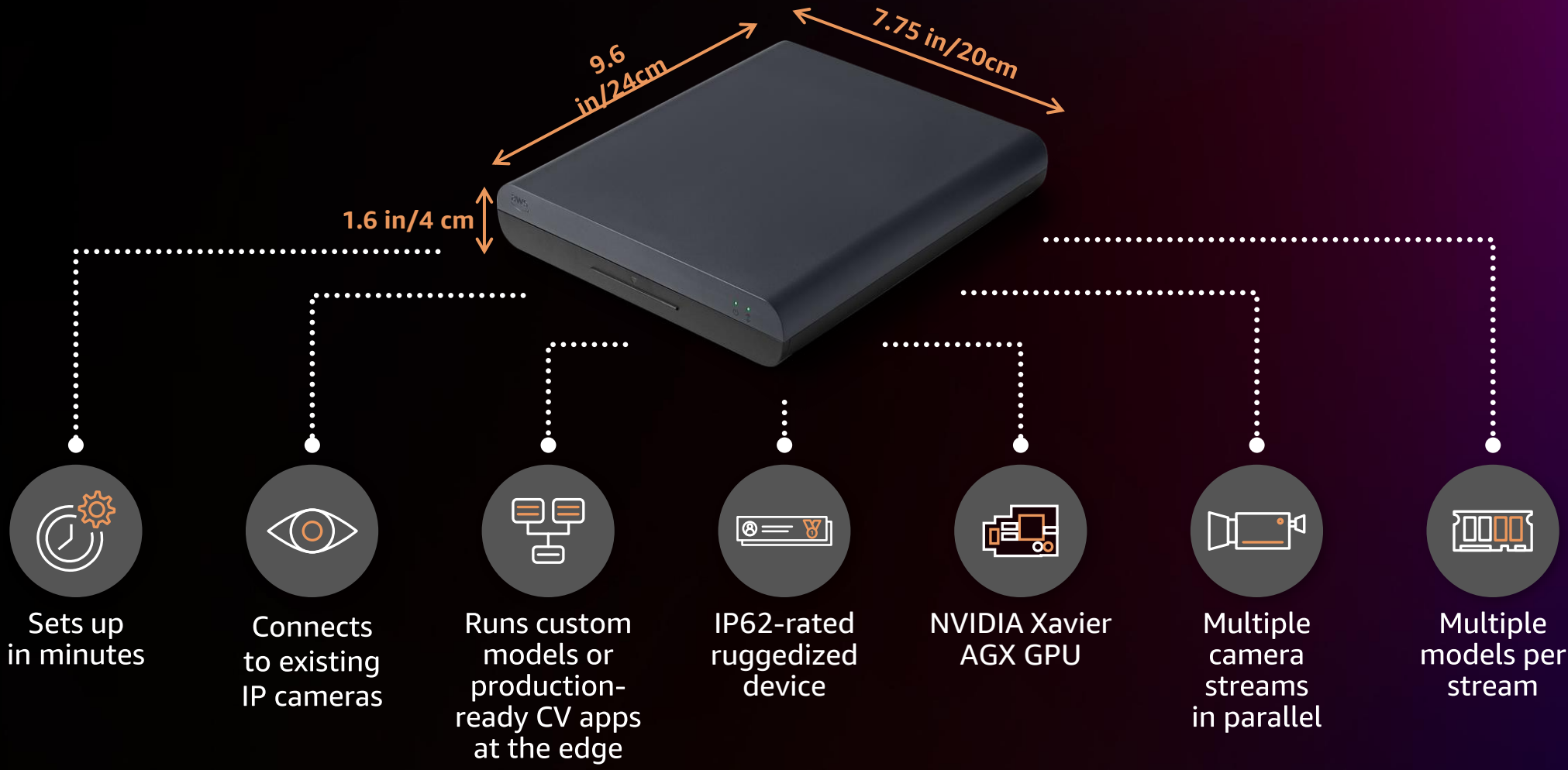


On-premises data processing requirements

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# AWS Panorama Appliance




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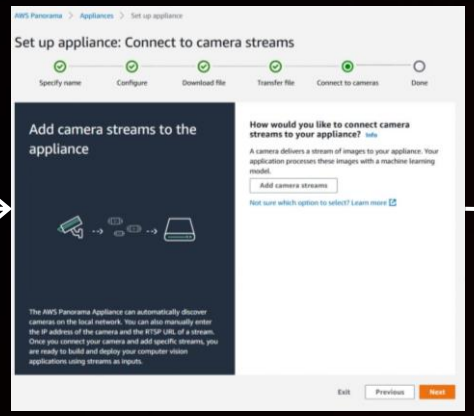
# AWS Panorama improves operations by adding computer vision to your existing IP cameras

## ML model



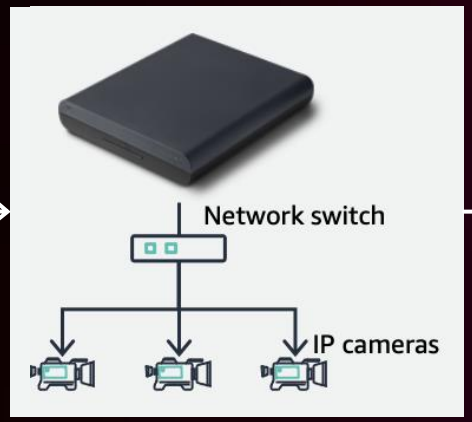
Build on Amazon SageMaker, bring your own model, or buy a pre-built third-party model

## AWS Panorama service




Import model, build and deploy app/business logic, and manage camera streams

## AWS Panorama Appliance




Connect to LAN, ingest camera feeds, run CV apps on feeds, and publish inference results

## Improve operations

Real-time analytics in cloud

Real time action on-premise

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# 3 sources for edge CV models on AWS Panorama

## Build

### Custom models

Train custom models anywhere with support for major ML frameworks and neural network architectures

## Buy

### ISV models and apps

Retail analytics

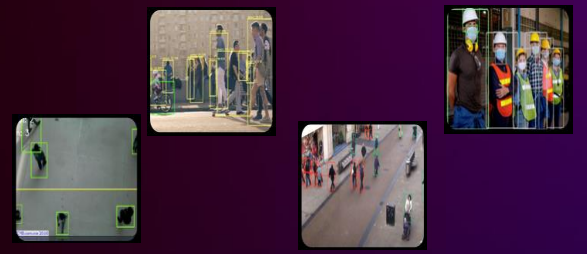
Defect detection

Yard management

Smart cities

## Try

### AWS Panorama sample on GitHub





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# Deploying edge CV solutions is challenging



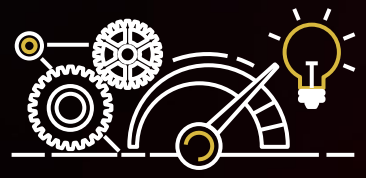
## Business

Address their business value

Match their pace of innovation

Remove data silos

Lack of ML talent



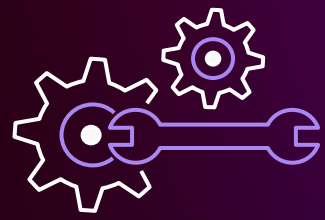
## Operational

Secure systems

High operational reliability

Resilient architecture

Integrate with current systems



## Maintenance

Complex procurement

Significant upgrade overhead

Application downtime

Meeting support SLAs

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# AWS Panorama partners support edge CV value chain

## App and solution builders

Develop CV applications and fully integrated solutions that address vertical/horizontal use cases

Bigmate
Deloitte.
PILOT.AI
Provectus
TaskWatch
TensorIoT

## Panorama device OEMs

Offer an array of third-party AWS Panorama devices based on the Panorama SDK that run CV apps on-premises

AXIS COMMUNICATIONS
Lenovo
NVIDIA

## Hardware systems integrators

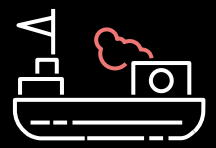
Provide consultation on camera selection and manage device deployment

convergint
STANLEY Security

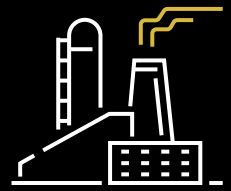
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*This is not a complete list. To view all AWS Partners for this category, visit AWS Partner Solutions Find*
*This list of partners is current as of November, 6, 2022.*

# Customers deploying edge CV across industries



Transportation



Manufacturing



Stores

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PHILLIPS
66
OnCue
3.69 9/10
4.79 9/10
3.29 9/10
VISIT OUR
DRIVE THRU
DISCOUNT TIRE
PHILLIPS
66
PHILLIPS
66
OnCue

# Customer order accuracy: Product assembly in manufacturing lines

Workflow of the demo

1. Training
2. Inference
3. Dashboard
4. Analytics

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# Customer order accuracy: Product assembly in manufacturing lines

In manufacturing, industrial, and process automation, customers lack real-time visibility into errors that occur during assembly of parts, resulting in expensive reprocessing, scraps, and product delays

Customers want to:

- ✓ Optimize the assembly process
- ✓ Improve customer satisfaction on the orders
- ✓ Avoid costs due to catching the issue much later in their production line
- ✓ Indication to fix immediately saving time and money
- ✓ Training new employees
- ✓ Introducing new products
- ✓ Tracking products that are difficult to assemble

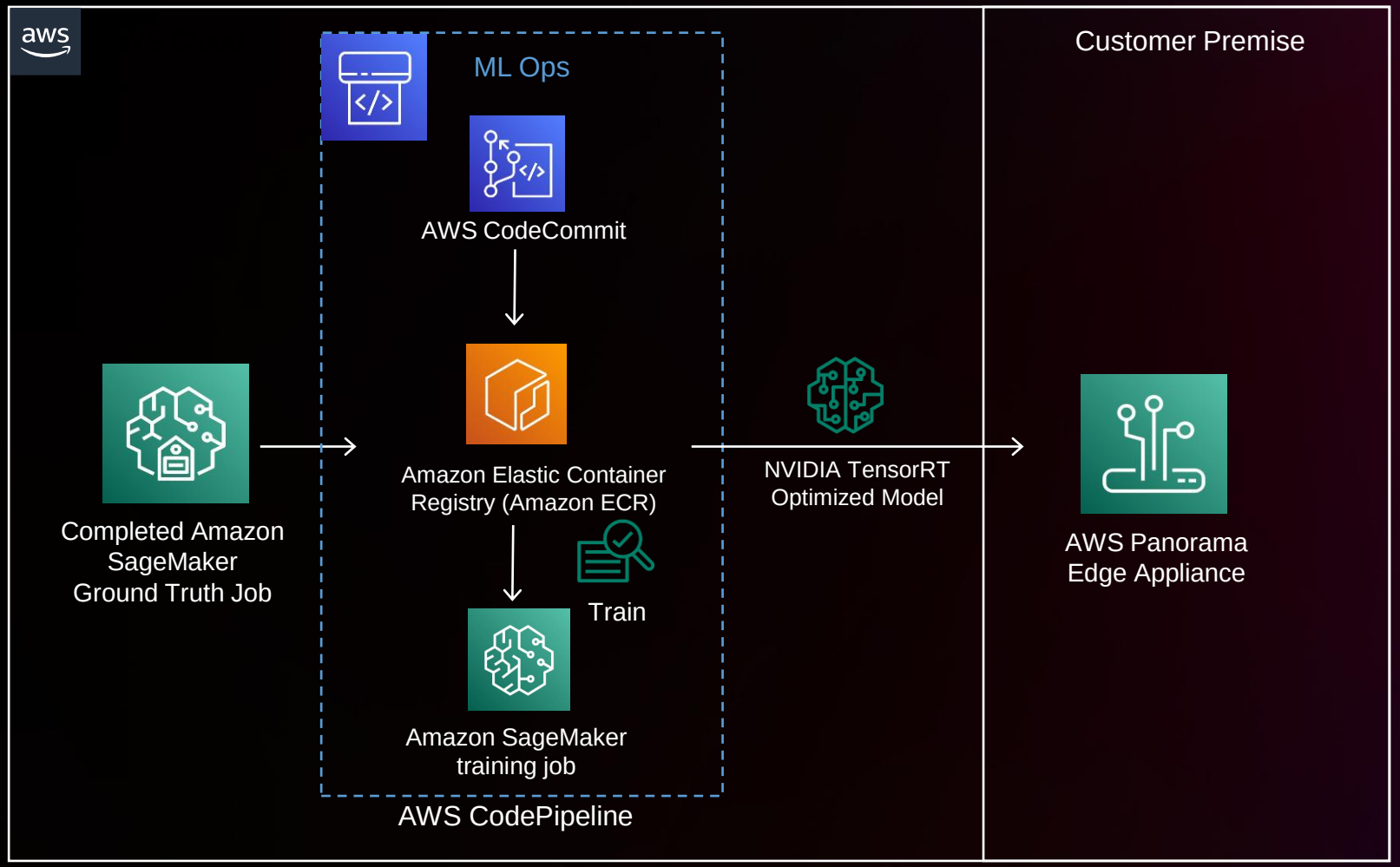
We solve this by:

Comparing order spec versus the product assembly
Alerting in real time
Gathering analytics

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# AutoCV training workflow

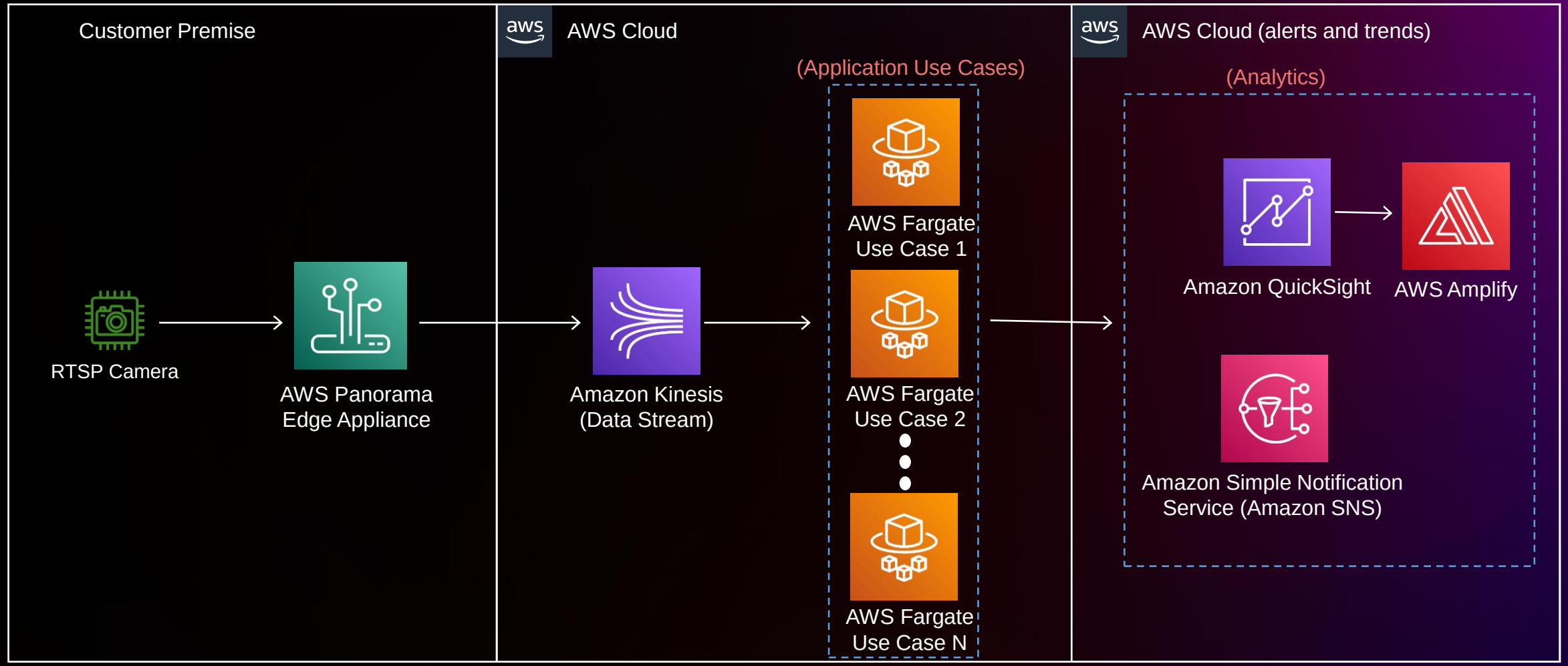
Low/no code computer vision model training




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# Inferencing Workflow

AWS Panorama




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# Resources

AWS Panorama webpage
Overview of the AWS Panorama service

AWS Panorama resources
Documentation, Blogs, Videos

AWS Panorama Partners
AWS Panorama Partners

AWS Panorama FAQ
Frequently Asked Questions about AWS Panorama

AWS Panorama customers
Sample of some AWS Panorama customers and use cases

AWS Panorama features
Overview of AWS Panorama product features

AWS Panorama pricing
Details of AWS Panorama pricing



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# Experience AWS Panorama live @ re:Invent

## Industrial Demo @ Caesar's Forum

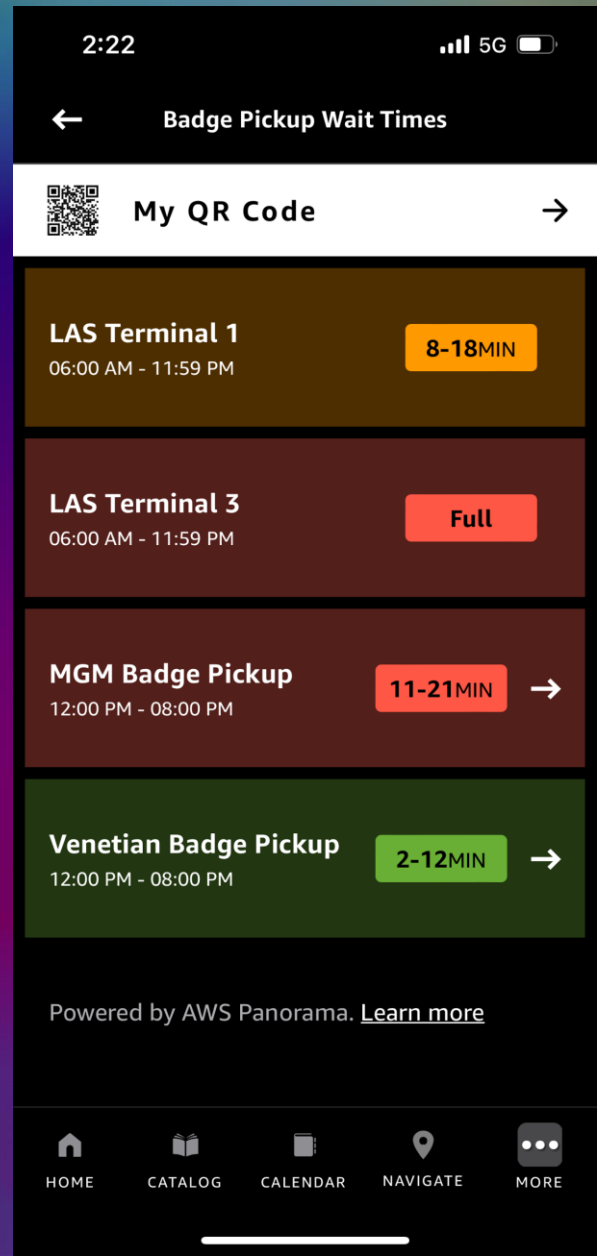
Detect text, count containers, and map zones real time to increase transportation & logistics efficiency

Detect defects in a production line and alert real time to improve production throughput

## Wait time alerts @ re:invent registration lines

Detect queue length and measure registration processing time to inform attendees of average wait time






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# Q&A/Whiteboard

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# Thank you!



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

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