

AI and Machine Learning on AWS

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AWS recognized as
a Cloud Leader for the
10th consecutive year

Gartner, Magic Quadrant for Cloud Infrastructure and Platform Services, Raj Bala, Bob Gill, Dennis Smith, David Wright, Kevin Ji, 1 September 2020 – Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. . The Gartner logo is a trademark and service mark of Gartner, Inc., and/or its affiliates, and is used herein with permission. All rights reserved.

Why customers choose AWS

Most experience

15

years helping millions of customers

Global reach & high availability

25

regions

Security & compliance

230+

security features

Customer obsession
& innovation

175+

service offerings

Improve TCO

77

price reductions since 2006

Machine learning

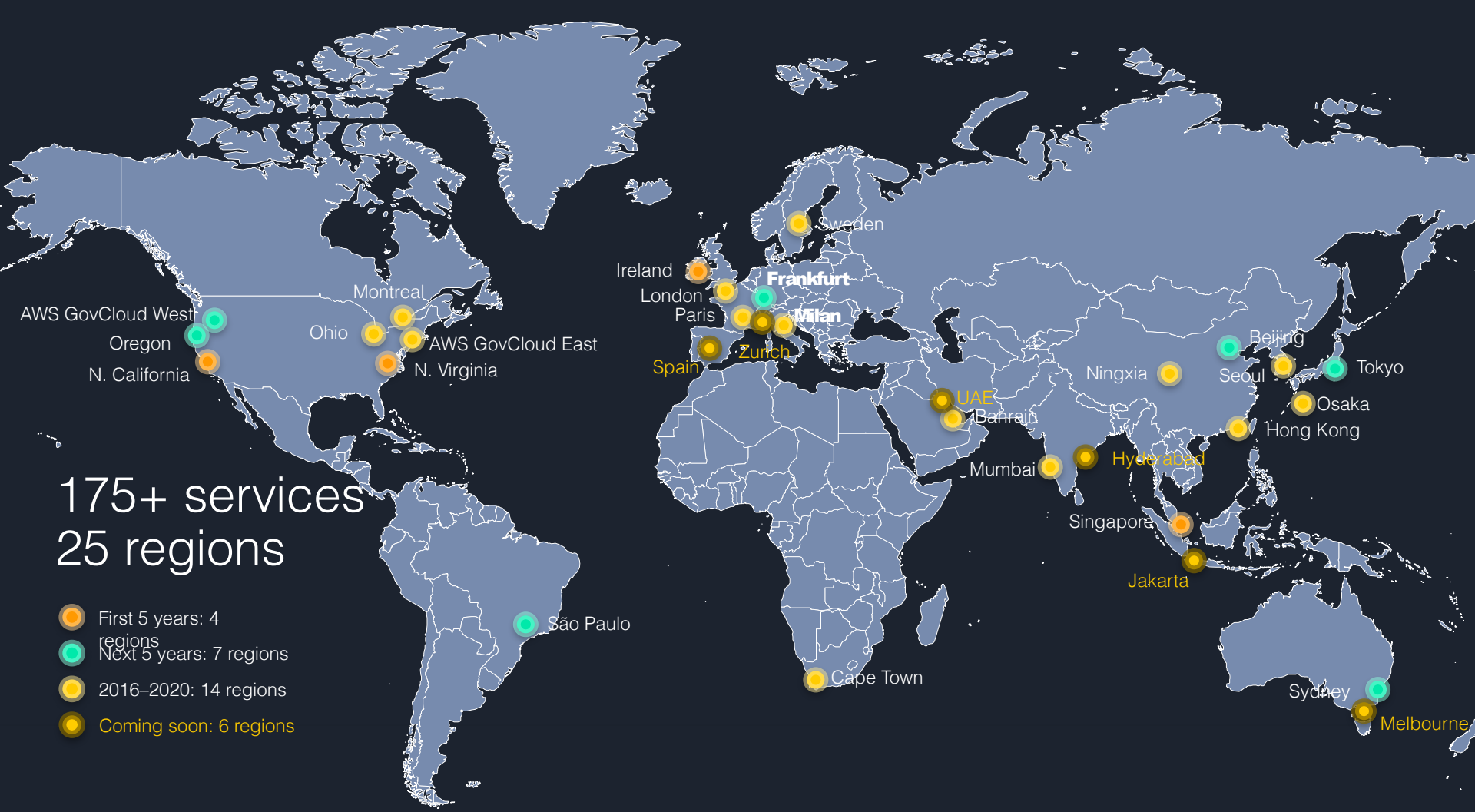
81%

of all deep learning is running on AWS

Ecosystem

4,500

software listings from 1,400 ISVs



The reach of ML is growing



INCREASED SPENDING

By 2024, global spending
on artificial intelligence
will reach \$110 billion

—IDC



FROM PILOTING TO OPERATIONALIZING

By the end of 2024, 75%
of enterprises will shift from
piloting to operationalizing AI

—Gartner

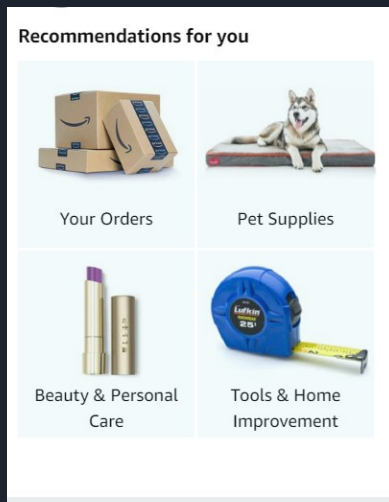


AI TRANSFORMATION

57% said that AI would
transform their organization
in the next three years

—Deloitte

Amazon's machine learning innovation at scale



4,000 products per
minute sold on
Amazon.com



1.6M packages
every day



Billions of Alexa
interactions
each week




First Prime Air
Delivery on
Dec. 7, 2016

Over 100,000 customers use AWS for AI and ML



<https://ml.aws>

Common use cases



Predictive Maintenance

Manufacturing,
Automotive, IoT




Demand Forecasting

Retail, Consumer
Goods, Manufacturing



Fraud Detection

Financial Services,
Online Retail



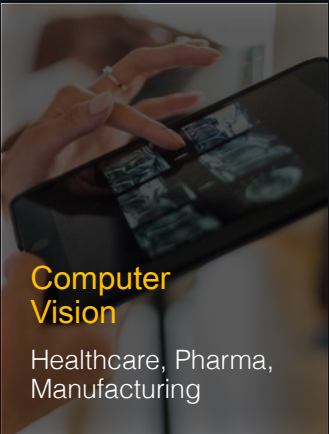
Credit Risk Prediction

Financial Services,
Retail



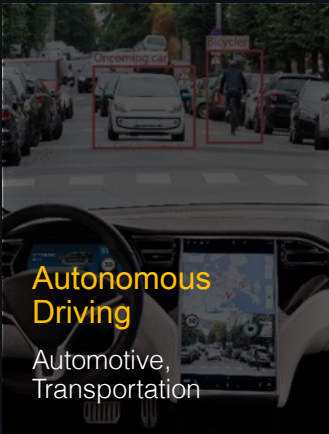
Extract and Analyze Data from Documents

Healthcare, Legal,
Media/Ent, Education



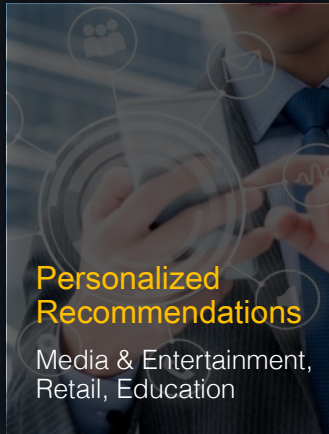
Computer Vision

Healthcare, Pharma,
Manufacturing



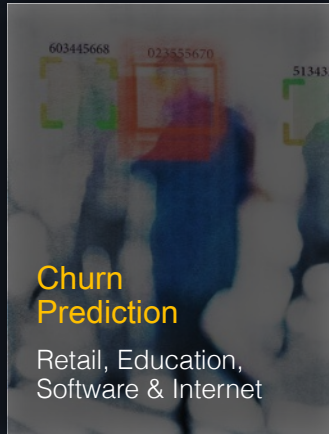
Autonomous Driving

Automotive,
Transportation



Personalized Recommendations

Media & Entertainment,
Retail, Education



Churn Prediction

Retail, Education,
Software & Internet

Coinbase uses Amazon SageMaker to fight fraud

coinbase

“ Machine learning helps us balance risks for Coinbase, with flexibility for customers where we want them to have the best experience possible.

”

Soups Ranjan
Director of Data Science
Coinbase



Company

Coinbase a digital wallet and exchange platform.

Over **20 million** merchants and consumers have traded **more than \$150 billion** in cryptocurrencies since its founding in 2012.



SageMaker

Coinbase uses SageMaker to develop machine learning algorithms for image analysis to defeat scammers.

Using SageMaker reduced the model training time from **20 hours to 10 minutes**.



Use Case

Use case: ID Authentication

Scammers often use the same photo for multiple IDs. A face-similarity algorithm can quickly extracts faces from uploaded IDs and compare it with faces across all other IDs to quickly detect the forgery.

Amazon uses Amazon SageMaker for Visual Bin Inspection



- New solution was developed in 12 weeks
- New models are now launched in 2 weeks instead of 3–6 months
- AWS spend has been reduced 40%
- Prediction latency has been cut in half

Company

Amazon Fulfillment Technologies (AFT) designs, develops, and operates fulfillment technology solutions for Amazon.

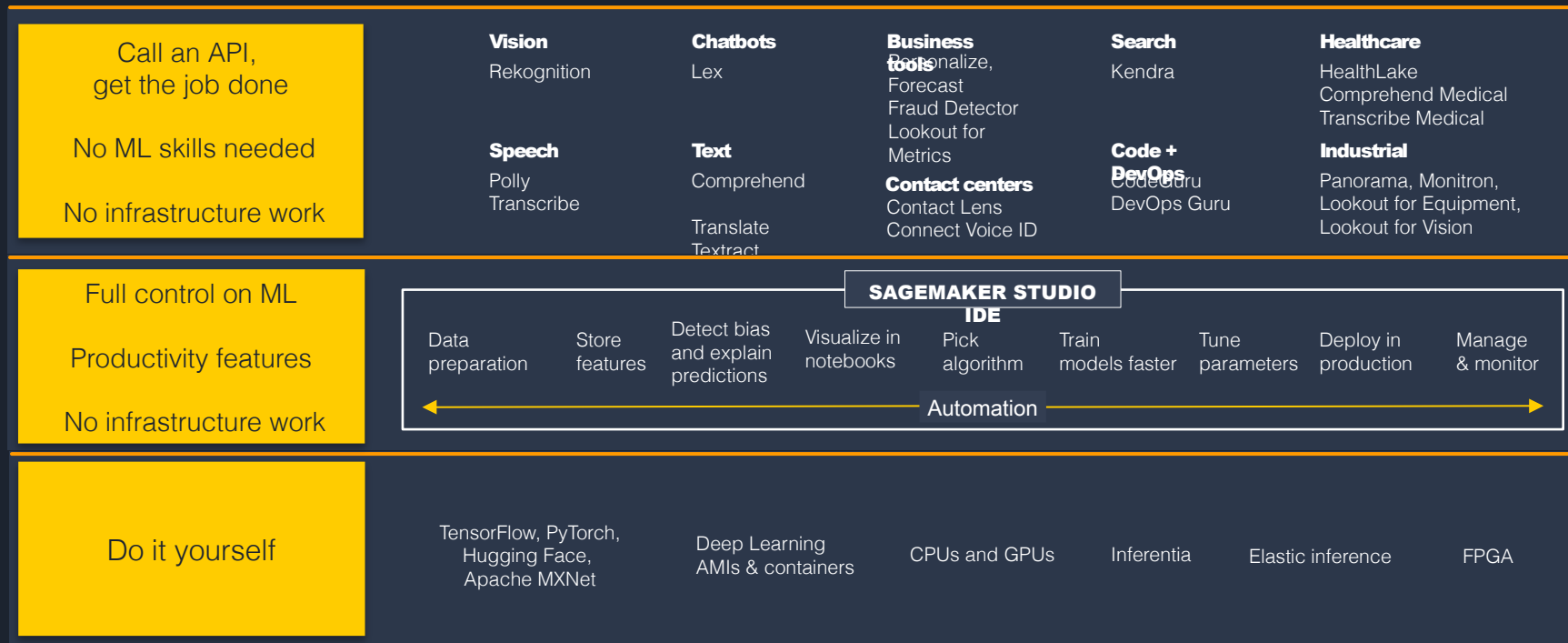
Use Case

AFT analyzes **millions of bin images every day** to monitor shipments, and identify missing or misplaced inventory.

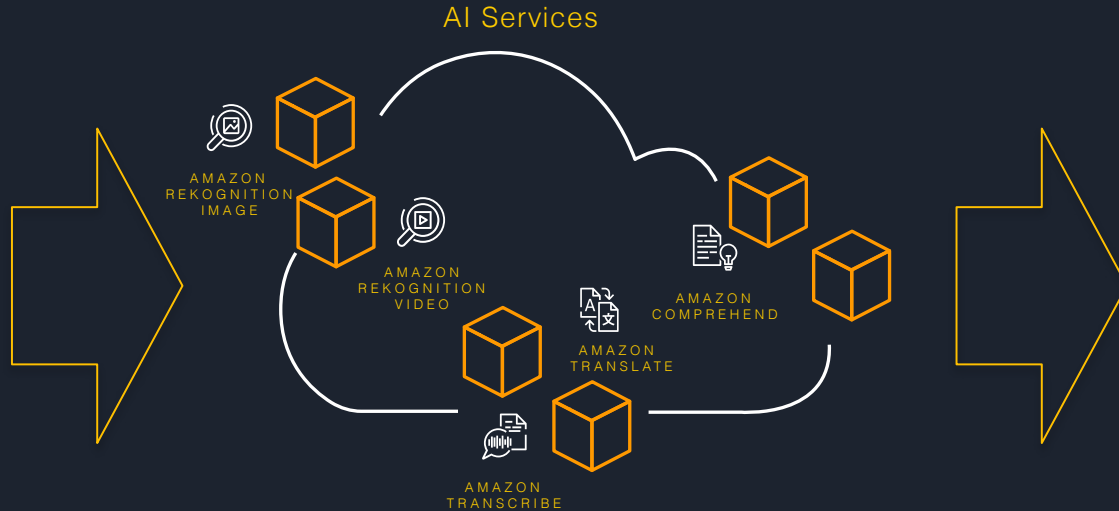
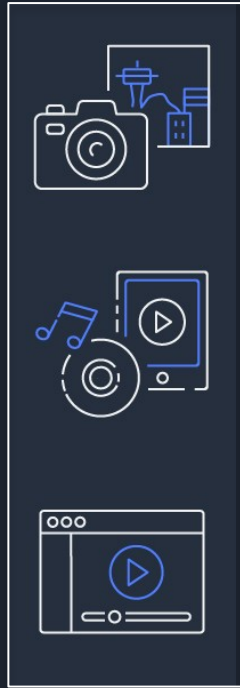
Outcome

AFT replaced their legacy solution with SageMaker. They now use to develop new algorithms, deploy them, and scale them, **replacing 1,000 EC2 CPU instances** with a single fully-managed, auto-scaled GPU endpoint.

The **AWS AI and ML stack**



Media Intelligence



Possible Outputs

Millisecond metatagging for audio, video, images

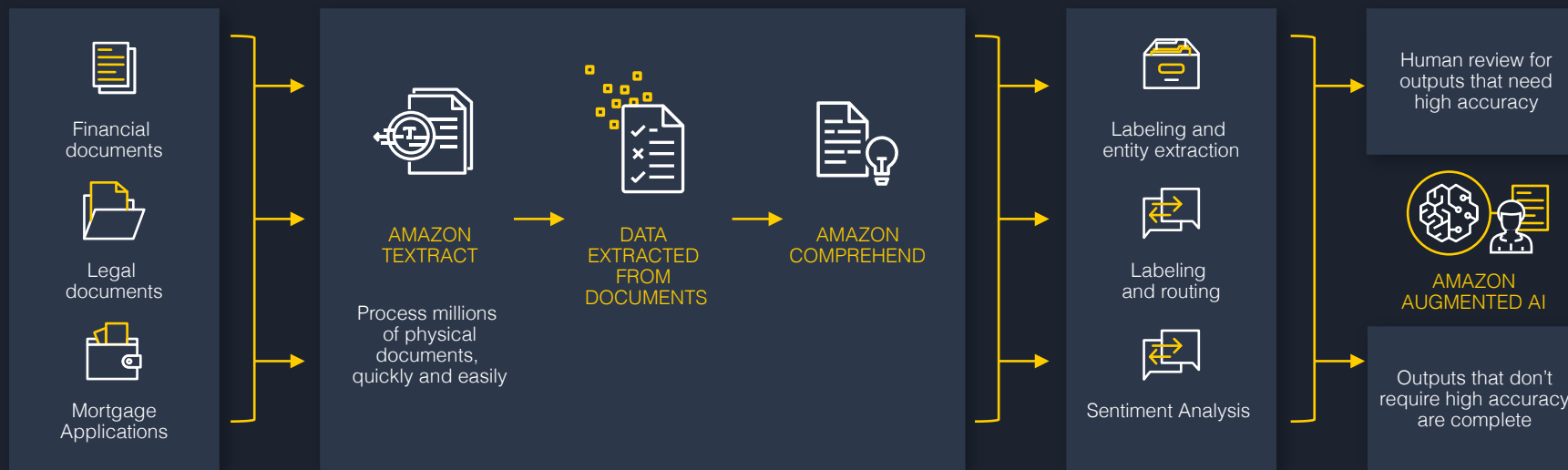
Topic modelling, entity extraction

Automated captions & translated subtitles

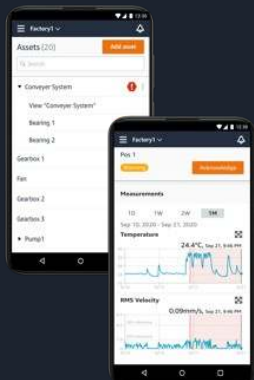
Scene and black frame detection

Custom vocabulary, face, and object libraries

Intelligent document processing



Predictive maintenance, all in one



Machine examples



Pumps



Fans



Compressors



Motors

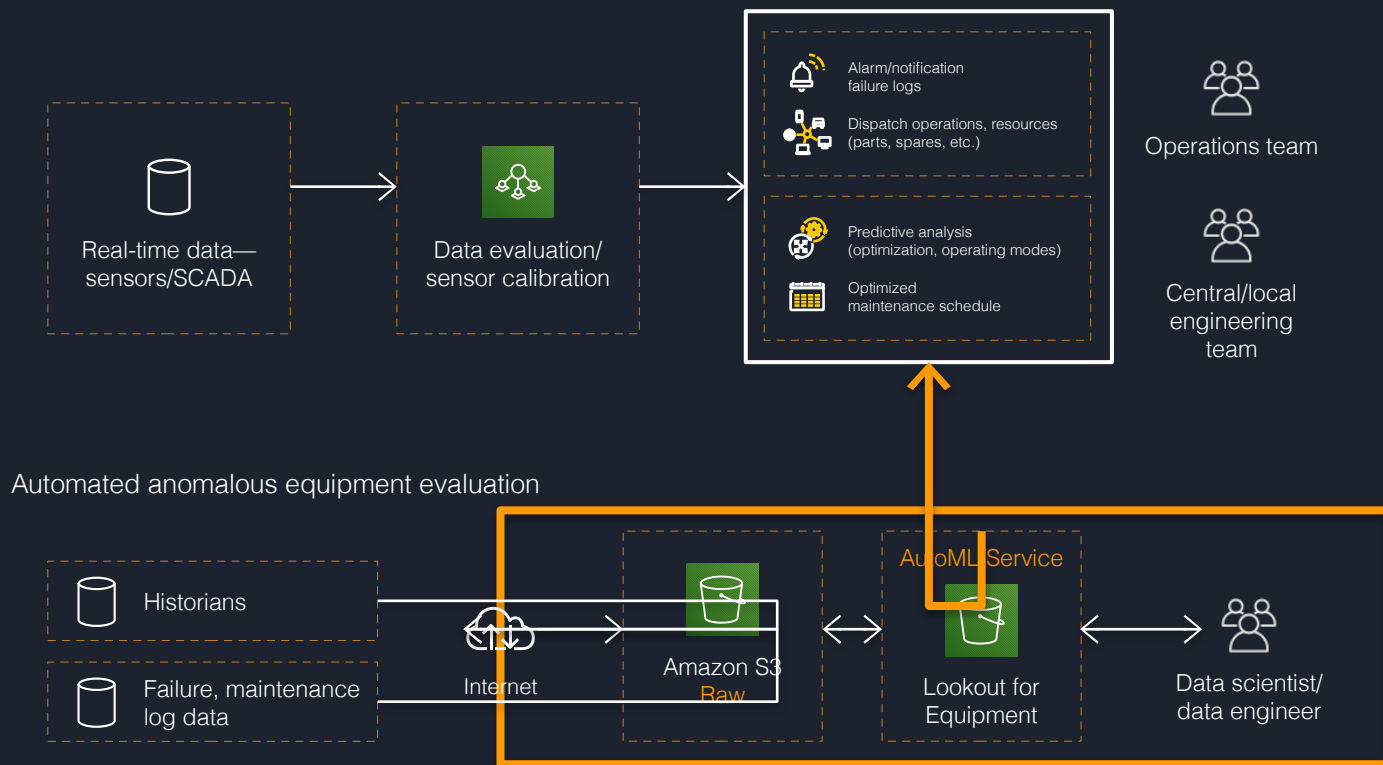


Gearboxes



Bearings

Predictive maintenance with your own sensors



5 Steps to Getting Started with AI and ML

1. What **business questions** are you trying to answer?
2. Which ones have the **highest ROI** for your business?
3. What **business metrics** will you use to measure success?
4. Availability of **data**? Maturity of **data platform**? Depth of **DS/ML skills**?
5. Find the right AWS services and start iterating!



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