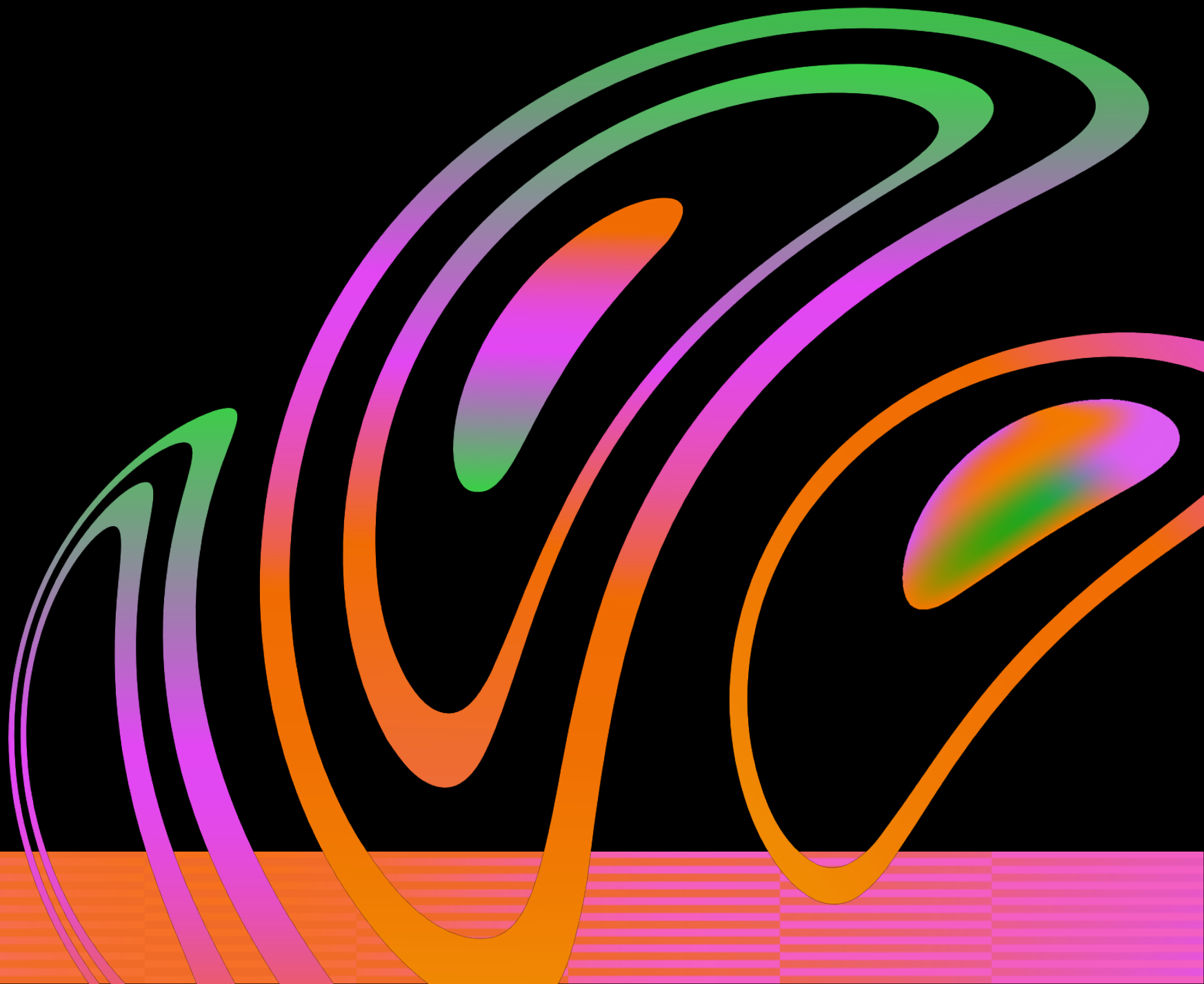


AWS
re:Invent



IOT301

Securing IoT devices and applying machine learning with AWS IoT

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Senior IoT Specialist,
Solutions Architect
AWS

Jey Jeyasingam

Chief Technology Officer
ERA Home Security

Preview

In this session, you will learn:

- 1/ Patterns for automating connected devices security and mitigating risks
- 2/ AWS simplifying the process of transforming products into more secure intelligent things
- 3/ How customers have built smart home security products using AWS IoT, including ERA Home Security systems

Agenda

Telemetry before machine learning

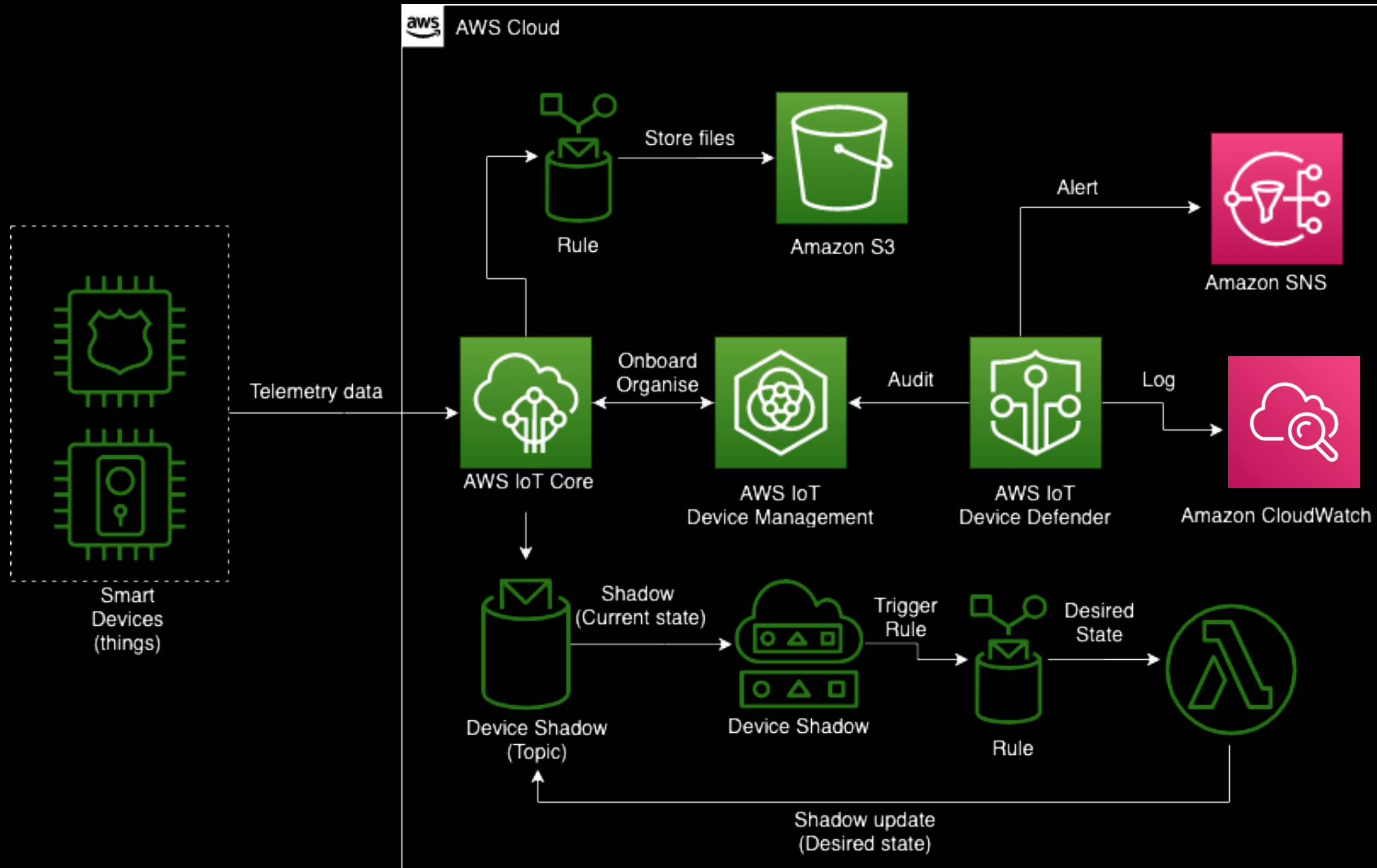
Devices audit with AWS machine learning

Automate and eliminate risk using
AWS IoT Device Defender ML Detect

Customer – ERA Home Security

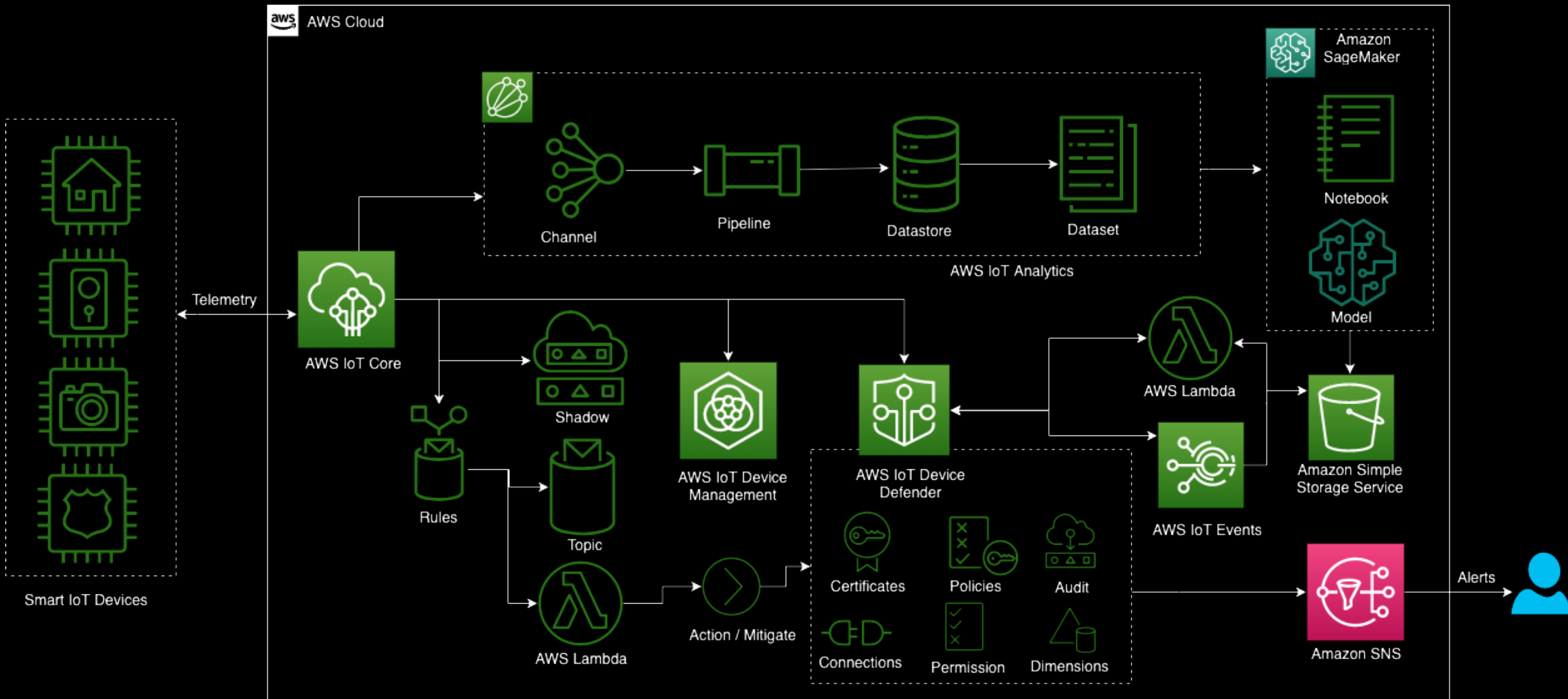
Conclusion

Telemetry before machine learning

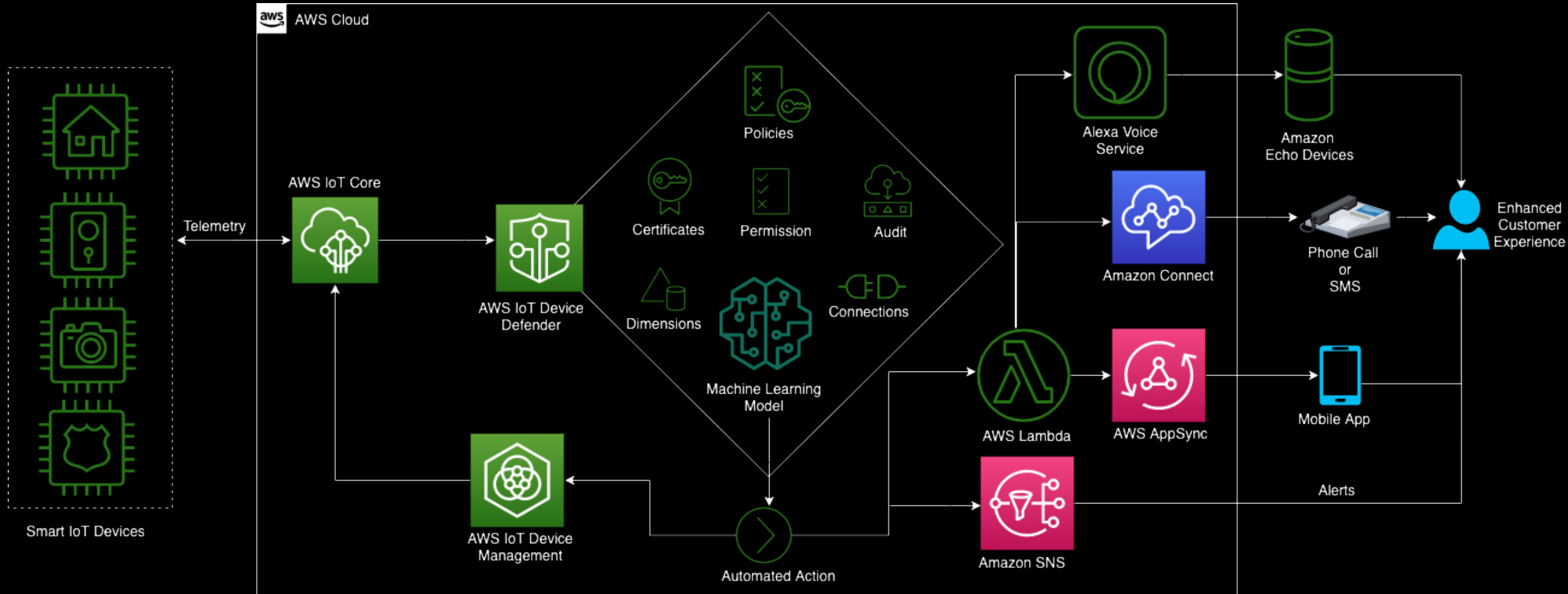


- Secure using AWS IoT Device Defender
- Store historic data in files for future usage
- Analyze states using Lambda

Defending devices with Amazon ML



Automate and eliminate risks

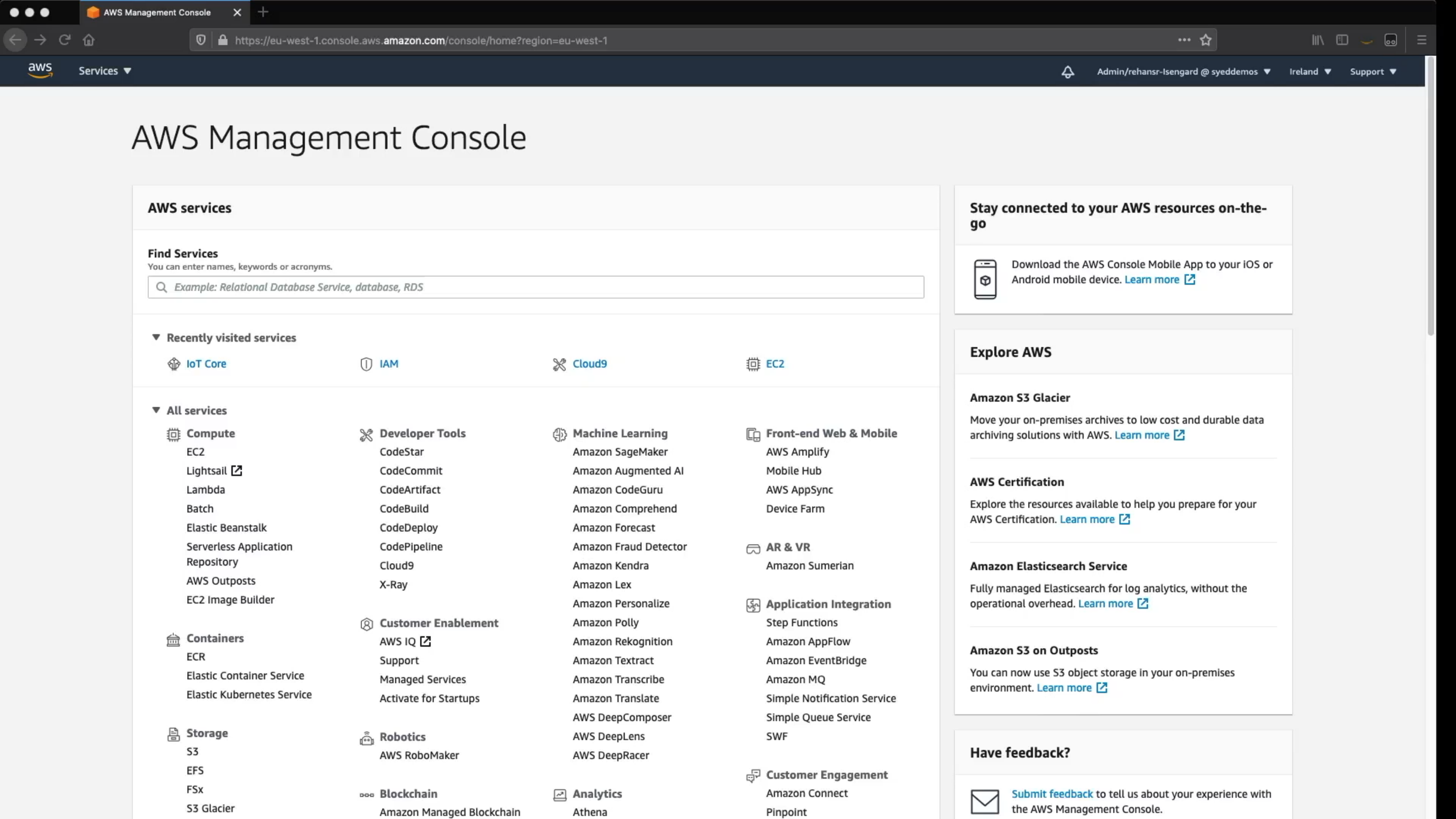


Get started quickly with AWS IoT Device Defender

- Easily enable ML Detect with AWS IoT Device Defender
- Machine learning applied autonomously
- Getting started with device monitoring quickly
- No prior device behavior knowledge necessary
- Adjusting to device data changes every 24 hrs
- Providing predefined mitigation actions

Walkthrough





AWS services

Find Services

You can enter names, keywords or acronyms.

🔍 Example: Relational Database Service, database, RDS

Recently visited services

📶 IoT Core

🛡️ IAM

✂️ Cloud9

💻 EC2

All services

🖥️ Compute

EC2
Lightsail [🔗](#)
Lambda
Batch
Elastic Beanstalk
Serverless Application Repository
AWS Outposts
EC2 Image Builder

🏠 Containers

ECR
Elastic Container Service
Elastic Kubernetes Service

💾 Storage

S3
EFS
FSx
S3 Glacier

✂️ Developer Tools

CodeStar
CodeCommit
CodeArtifact
CodeBuild
CodeDeploy
CodePipeline
Cloud9
X-Ray

🏠 Customer Enablement

AWS IQ [🔗](#)
Support
Managed Services
Activate for Startups

🤖 Robotics

AWS RoboMaker

🔗 Blockchain

Amazon Managed Blockchain

🧠 Machine Learning

Amazon SageMaker
Amazon Augmented AI
Amazon CodeGuru
Amazon Comprehend
Amazon Forecast
Amazon Fraud Detector
Amazon Kendra
Amazon Lex
Amazon Personalize
Amazon Polly
Amazon Rekognition
Amazon Textract
Amazon Transcribe
Amazon Translate
AWS DeepComposer
AWS DeepLens
AWS DeepRacer

📊 Analytics

Athena

📱 Front-end Web & Mobile

AWS Amplify
Mobile Hub
AWS AppSync
Device Farm

🕶️ AR & VR

Amazon Sumerian

🔗 Application Integration

Step Functions
Amazon AppFlow
Amazon EventBridge
Amazon MQ
Simple Notification Service
Simple Queue Service
SWF

💬 Customer Engagement

Amazon Connect
Pinpoint

Stay connected to your AWS resources on-the-go



Download the AWS Console Mobile App to your iOS or Android mobile device. [Learn more](#) [🔗](#)

Explore AWS

Amazon S3 Glacier

Move your on-premises archives to low cost and durable data archiving solutions with AWS. [Learn more](#) [🔗](#)

AWS Certification

Explore the resources available to help you prepare for your AWS Certification. [Learn more](#) [🔗](#)

Amazon Elasticsearch Service

Fully managed Elasticsearch for log analytics, without the operational overhead. [Learn more](#) [🔗](#)

Amazon S3 on Outposts

You can now use S3 object storage in your on-premises environment. [Learn more](#) [🔗](#)

Have feedback?



[Submit feedback](#) to tell us about your experience with the AWS Management Console.

Customer – ERA Home Security systems

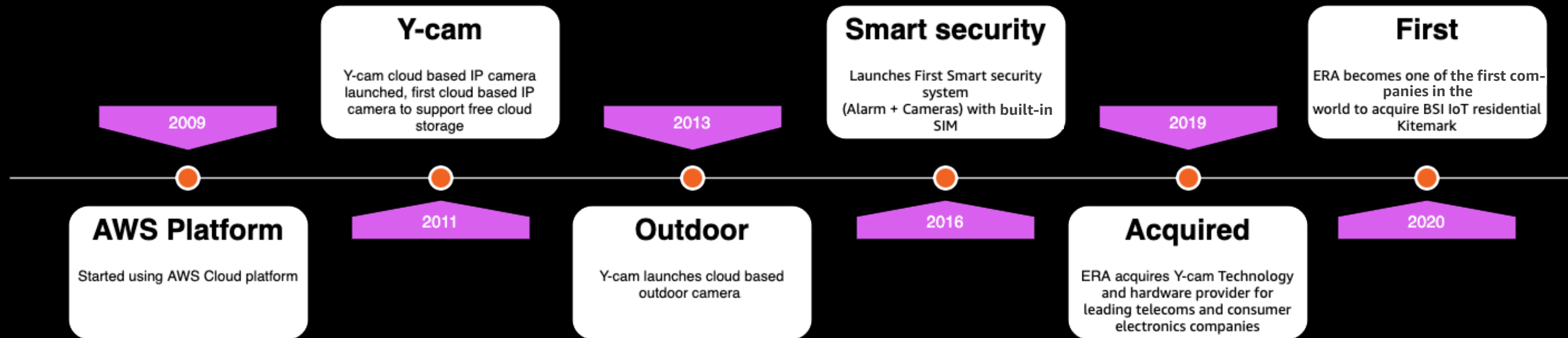
Company and the history



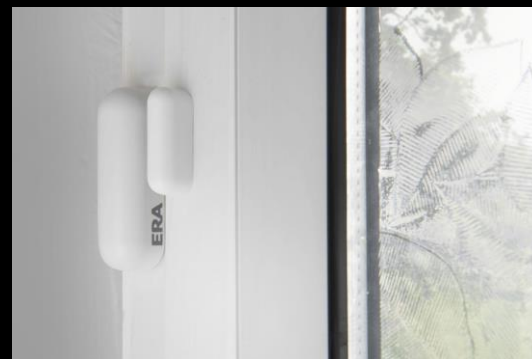
ERA has been at the heart of British lock making for 180 years

ERA

Our smart home journey



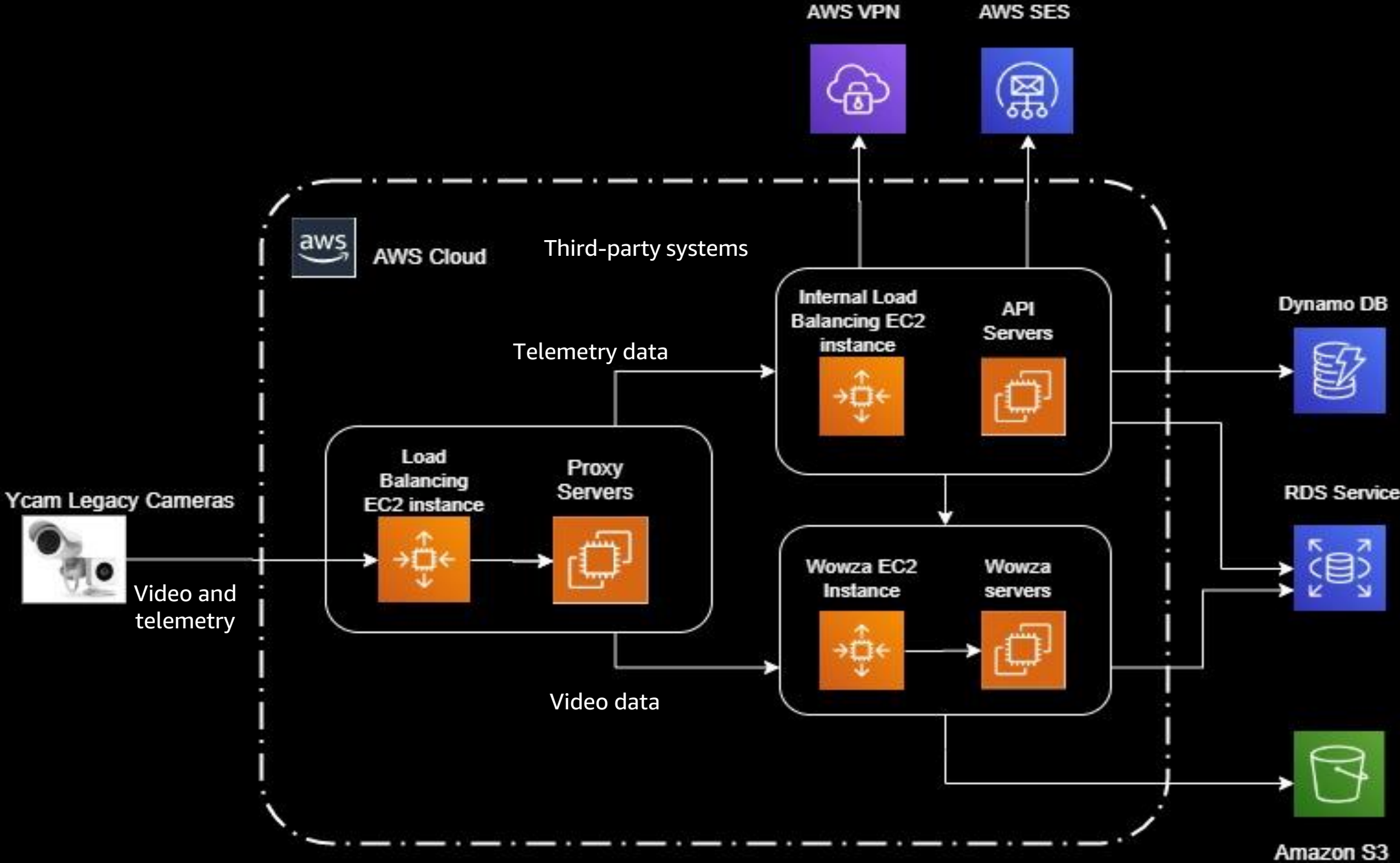
ERA Protect range of products



Legacy platform challenges

- Custom RTSP and HTTPS tunnels
- Load balancing IoT devices
- Firmware upgrade
- Supporting a strong SLA on uptime and performance using custom build ML models

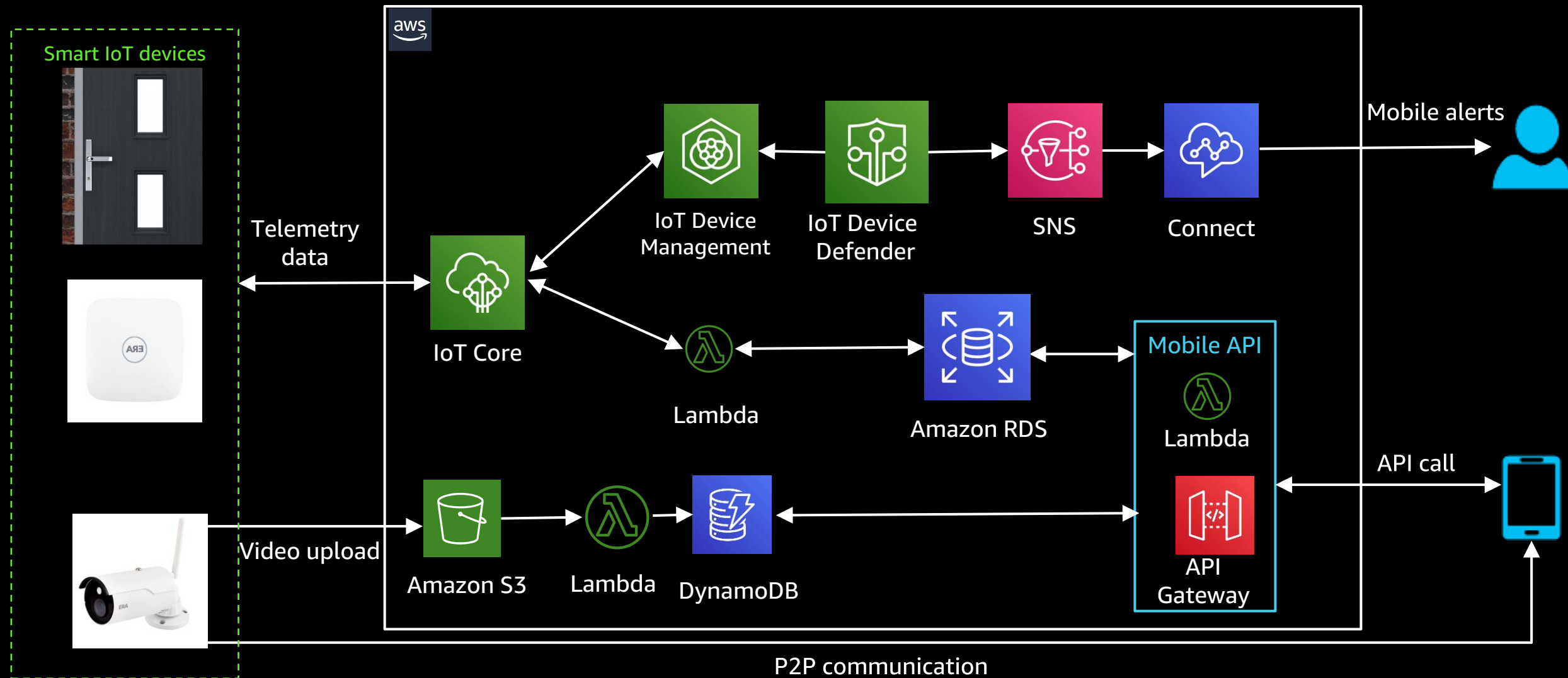
Cloud-native legacy IoT platform



Why we chose AWS IoT Core and ML Detect for the journey

- Started with AWS IoT Core in 2018
- **New** generation of **products** use **AWS IoT Core**, AWS IoT Events, AWS IoT Device Defender, and AWS IoT Device Management
- **No custom** tunnels or load balancers
- **Firmware** upgrade is much **easier** and **more reliable**
- **Replacing** our **own ML** with **AWS IoT Device Defender**
ML Detect for system alerts

Next generation – serverless, edge-based, IoT security-focused



What's next?

- FreeRTOS in our access solutions
- Device alerts using AWS IoT Device Defender ML Detect features
- ML Detect is the final piece of our journey to build a totally serverless and edge-based IoT system that supports sensor / video data

Conclusion

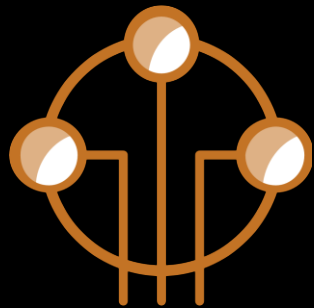
What's **next** for **you**?

See **other customer** stories

Get started with AWS IoT Device Defender
and its **ML Detect** feature

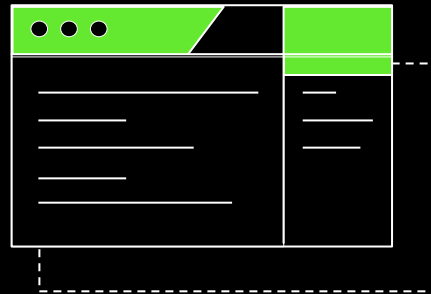
Learn more

**Learn more about
AWS IoT Device
Defender**



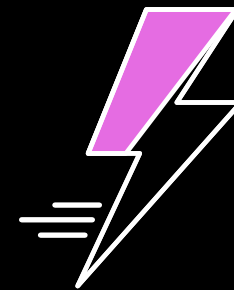
aws.amazon.com/iot

**Explore IoT resources,
including videos,
e-books, blog posts,
and more**



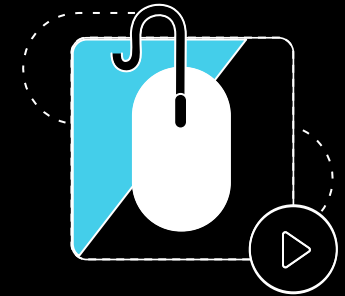
aws.amazon.com/iot/resources

**Get started with
AWS IoT solutions**



aws.amazon.com/iot/solutions

**Learn with AWS
Training & Certification**



aws.training

See more customer stories



Learn how Volkswagen Group is building the Industrial Cloud with AWS



Learn how iRobot easily handled a 20x traffic spike with AWS IoT



Learn how Bayer Crop Science drives innovation in precision agriculture using AWS IoT

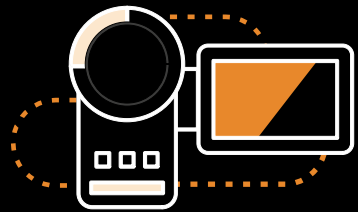


Learn how Woodside Energy uses AWS to power IoT and big data operations

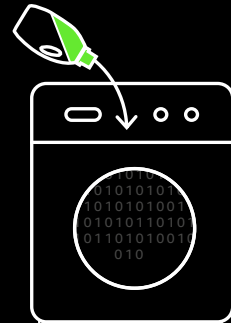
See customer stories at
aws.amazon.com/iot

Get started with AWS IoT solutions

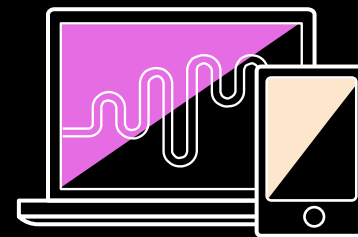
**AWS IoT Camera
Connector solution**



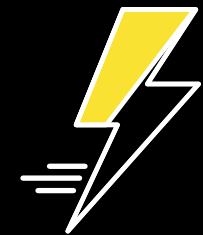
**AWS IoT smart
product solution**



**IoT Device
Simulator solution**



**OST Connected
Product Accelerator
on AWS**



Explore AWS IoT solutions at
aws.amazon.com/iot/solutions

Thank you!

Syed Ahmad Rehan

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<https://www.linkedin.com/in/jjeyaraj/>



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