# The Transformative Power of AI/ML in Media with AWS

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Presenter Profile

- AWS Media thought leader

- **14 years** of industry experience

- Master degree in Telecom

- Multiple AWS certifications including **AI/ML specialty**

- AWS **Architecture Leader** for "GogoTV in-flight live service" to stream live "HEVC" content to airplanes

- In my free time, I like grafting and growing fruit trees

Abbas

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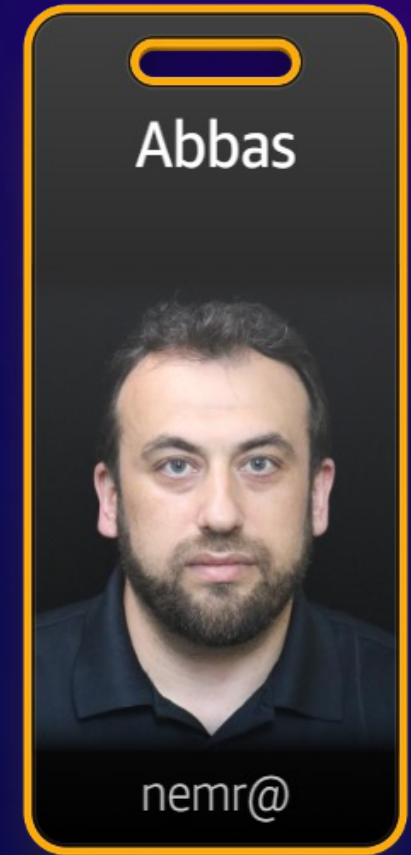
Sr. Solutions Architect

Agenda

- M&E Industry Challenges
- Why AI/ML in Media
- AI/ML on AWS
- What's Next?

Key Industry Trends and Challenges

Create New Customer Experiences

Scale Internal Processes

Realizing The Value Of Data

Respond to new business models

AI/ML Solutions and Use Cases

Create New Customer Experiences

Content personalization and recommendation

Fan engagement experiences

Automated highlights and clipping

Scale Internal Processes

Content localization

Metadata extraction and tagging

Moderation and compliance

Realizing The Value Of Data

Content personalization and recommendation

Shoppable Videos and Shoppable Ads

Respond to new business models

Generative AI: virtual assistants, semantic search, video summarizations, scene understanding, knowledge bases...

Media Analysis, Metadata Generation, and Tagging

By automating the creation of a rich metadata index, machine learning can help meet growing user requests.

NASCAR enhances metadata with **Amazon Rekognition**, **Amazon SageMaker**, and **Amazon Transcribe**, saving thousands of hours of manual search and serving up more relevant video to fans.

Increased Fan Engagement

The predictive powers of machine learning allow for new and unique ways to engage audiences, enabling fans to feel like they're inside the action.

During **Formula 1** races, 120 sensors on each car generate 3 giga bytes of data, and 1,500 data points are generated each second. Formula 1 uses **Amazon SageMaker** to help transform that data into insights that fascinate its 500 million global fans.

Improving the Customer Experience

Personalized content recommendations

- Deliver real-time, curated experiences

- Predict consumer actions and intent

- Keep customers engaged by delivering more of what they want

To remain competitive, today's M&E companies need to personalize content for all users, even those who are just signing up. With **Amazon SageMaker**, **iHeartMedia** analyzes registration information to create a personalized listening experience in real time, reducing churn and improving the user experience.
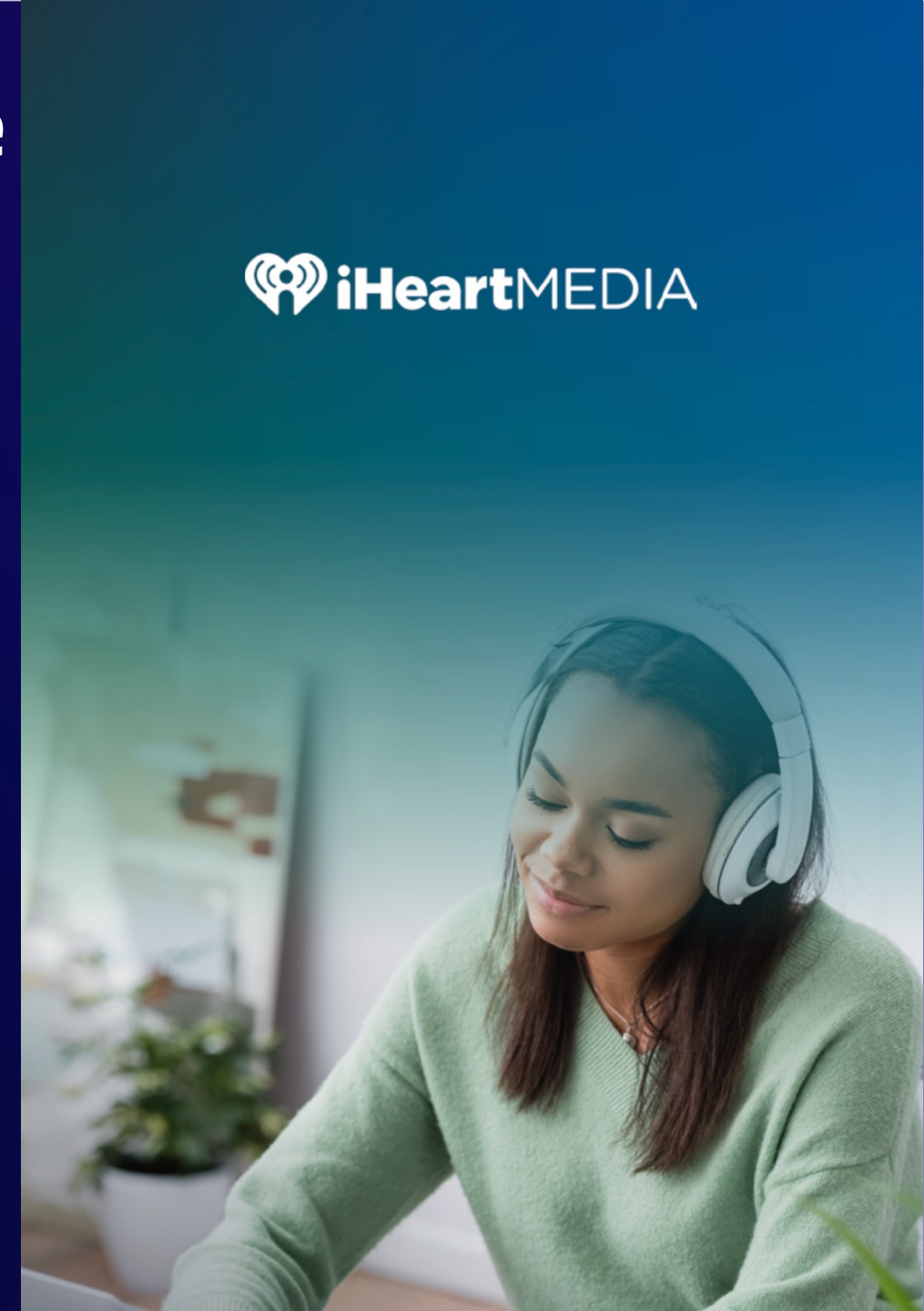
Scene Understanding

Machine learning helps identify actors, players, and animated characters. It can also detect specific activities (such as goals, fouls, car crashes, and battles)

- Automated Highlights

- Video semantic search

- Ad Insertion placement detection

Disney uses ML and deep learning on AWS to understand scenes in animated videos, enabling creators to quickly search content using natural language queries.

Media Subtitling and Localization

AI and ML can help automate the creation of subtitles, captions, transcriptions, and translation of content, reducing the number of person hours needed to complete these otherwise labor-intensive tasks.

SyncWords, an AI-powered service that provides automated captioning and translations, uses **Amazon Translate** to deliver real-time translation and multi-language subtitles to live broadcasting in 40 languages.

aws

Content Moderation, Compliance, and Quality Control

Machine learning allows for moderation of user-generated content at scale, enabling automatic detection and censoring of inappropriate content.

Amazon Rekognition gives **Flipboard** a robust moderation taxonomy to prevent unwanted content more efficiently, intercepting an average of 63,000 images daily with few false alarms.

The AWS ML Stack

Complete set of Machine Learning capabilities

AI SERVICES

VISION	SPEECH		TEXT			SEARCH	CHATBOTS	PERSONALIZATION	FORECASTING	FRAUD	DEVELOPMENT	CONTACT CENTERS
Amazon Rekognition	Amazon Polly	Amazon Transcribe *+Medical*	Amazon Comprehend *+Medical*	Amazon Translate	Amazon Textract	Amazon Kendra	Amazon Lex	Amazon Personalize	Amazon Forecast	Amazon Fraud Detector	Amazon CodeGuru	Contact Lens *For Amazon Connect*

ML SERVICES

Amazon SageMaker	Ground Truth	ML Marketplace	SageMaker Studio IDE								Neo	Augmented AI
			Built-in algorithms	Notebooks	Experiments	Model training & tuning	Debugger	Autopilot	Model hosting	Model Monitor		

ML FRAMEWORKS & INFRASTRUCTURE

TensorFlow   mxnet   GLUON   K Keras | Deep Learning AMIs & Containers | GPUs & CPUs | Elastic Inference | Inferentia Trainium | FPGA

PYTORCH   learn   HOROVOD   DeepGraphLibrary

Generative AI Stack

APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs

- Amazon Q Business
- Amazon Q Developer
- Amazon Q in QuickSight
- Amazon Q in Connect

TOOLS TO BUILD WITH LLMs AND OTHER FMs

Amazon Bedrock

Guardrails | Agents | Customization Capabilities

INFRASTRUCTURE FOR FM TRAINING AND INFERENCE

- GPUs
- Trainium
- Inferentia
- SageMaker
- UltraClusters
- EFA
- EC2 Capacity Blocks
- Nitro
- Neuron

AWS AI/ML Services for Media

Amazon Personalize

Create real-time personalized user experiences faster at scale

Amazon Rekognition

Automate your image and video analysis with machine learning

Amazon Transcribe

Easily add high-quality speech-to-text capabilities to your applications and workflows

Amazon Translate

Fluent and accurate machine translation

Amazon Bedrock

The easiest way to build and scale generative AI applications with foundation models

Amazon SageMaker

Build, train, and deploy ML models for any use case with fully managed infrastructure, tools, and workflows

**Amazon Comprehend**

Amazon Polly

Amazon Textract

PartyRock

AWS Media2Cloud Solution

- Migrate your digital assets to the cloud.

- Solution created with Well-Architected best practices in mind.

- On-click launch template.

- Advanced capabilities: Scene detection, Shoppable Videos…

Blog Post: AWS Media2Cloud helps Formula 1 migrate to the cloud and manage its growing asset library.
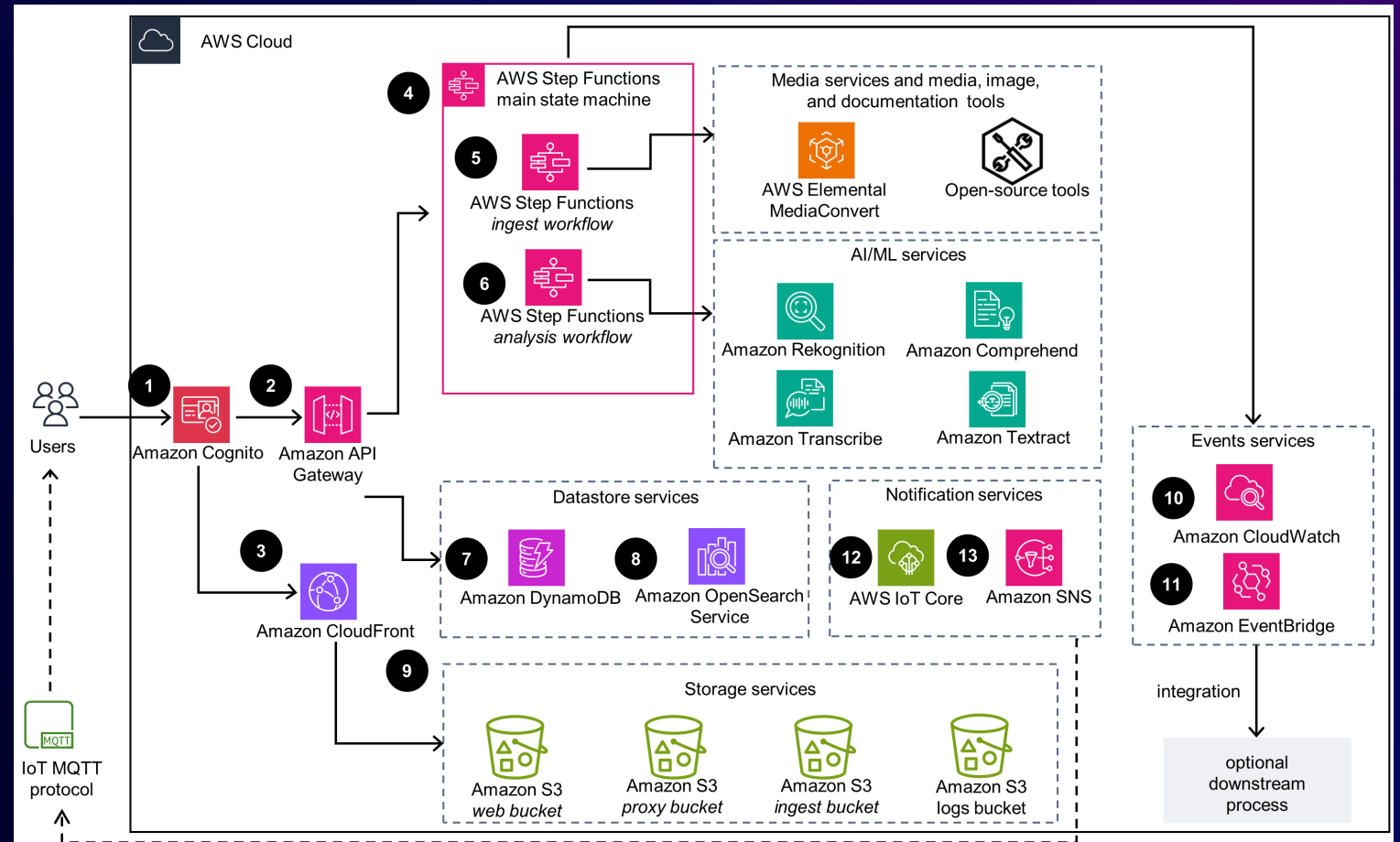
Purpose-built Solutions for M&E

Media2Cloud on AWS
Automated video asset ingestion and metadata tagging solution.

Content Localization on AWS
Create subtitles for your video-on-demand (VOD) content.

Media Insights on AWS
Development framework for applying machine learning services to media workflows.

AWS Media Intelligence homepage

PartyRock – Generative AI Playground

Learn generative AI fundamentals. No coding required.

https://partyrock.aws/

How to Get Started?

- Identify which use cases may be a fit for your business needs.

- Understand how AI/ML fits into your roadmap

- Determine whether you want to build or leverage a partner solution.

Additional Resources

Data Science & Analytics for Media
Explore AWS ML and Data Science solutions for M&E.

Generative AI on AWS
Learn how to start innovating and scaling with generative AI.

Generative AI Foundations on AWS
Technical deep dive course.

NAB SHOW 2024 demos homepage
Featured demos with reference architecture, description and video recording.

Thank you!

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