Automate for Efficiency with Amazon AI Language Services

Special guest: VideoPeel

Niranjan Hira – AWS Solutions Architect

August-2018

What’s this about?

- About the services
- Demo – analyzing customer reviews
- Voice of the customer – VideoPeel
- Q&A

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The Amazon machine learning stack

APPLICATION SERVICES

AMAZON REKOGNITION

AMAZON REKOGNITION VIDEO

AMAZON POLLY

AMAZON TRANSCRIBE

AMAZON TRANSLATE

AMAZON COMPREHEND

AMAZON LEX

PLATFORMS

AMAZON SAGEMAKER

AMAZON MECHANICAL TURK

FRAMEWORKS / INTERFACES

Caffe2 | Microsoft CNTK | mxnet | PYTORCH | TensorFlow | KERAS | GLUON

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The language services

Amazon Transcribe	Automatic conversion of speech into accurate, grammatically correct text
Amazon Translate	Natural and fluent language translation
Amazon Polly	Turn text into lifelike speech using deep learning
Amazon Comprehend	Discover insights and relationships in text
Amazon Lex	Conversational interfaces for text-based and voice-based applications

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Common use cases

Voice of Customer Applications

Knowledge Management

Education

Customer Service/
Call Centers

Semantic Search

Accessibility

Enterprise
Digital Assistant

Captioning Workflows

Information Bots

Content Personalization

Content Localization

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Amazon Translate

Amazon Translate delivers fast, high-quality, and affordable language translation

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Amazon Translate

Arabic
Simplified Chinese
French
German
Spanish
Portuguese

Japanese
Traditional Chinese
Italian
Russian
Turkish
Czech

Coming next: Danish, Dutch, Finnish, Hebrew, Polish, and Swedish

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Use for high-volume and time-sensitive content

Machine translation

- User-authored content
- Text analytics
- Real-time communication
- Content discovery

Post-edited machine translation

- Legal documents
- Healthcare
- Marketing copy

Share of worldwide digital content

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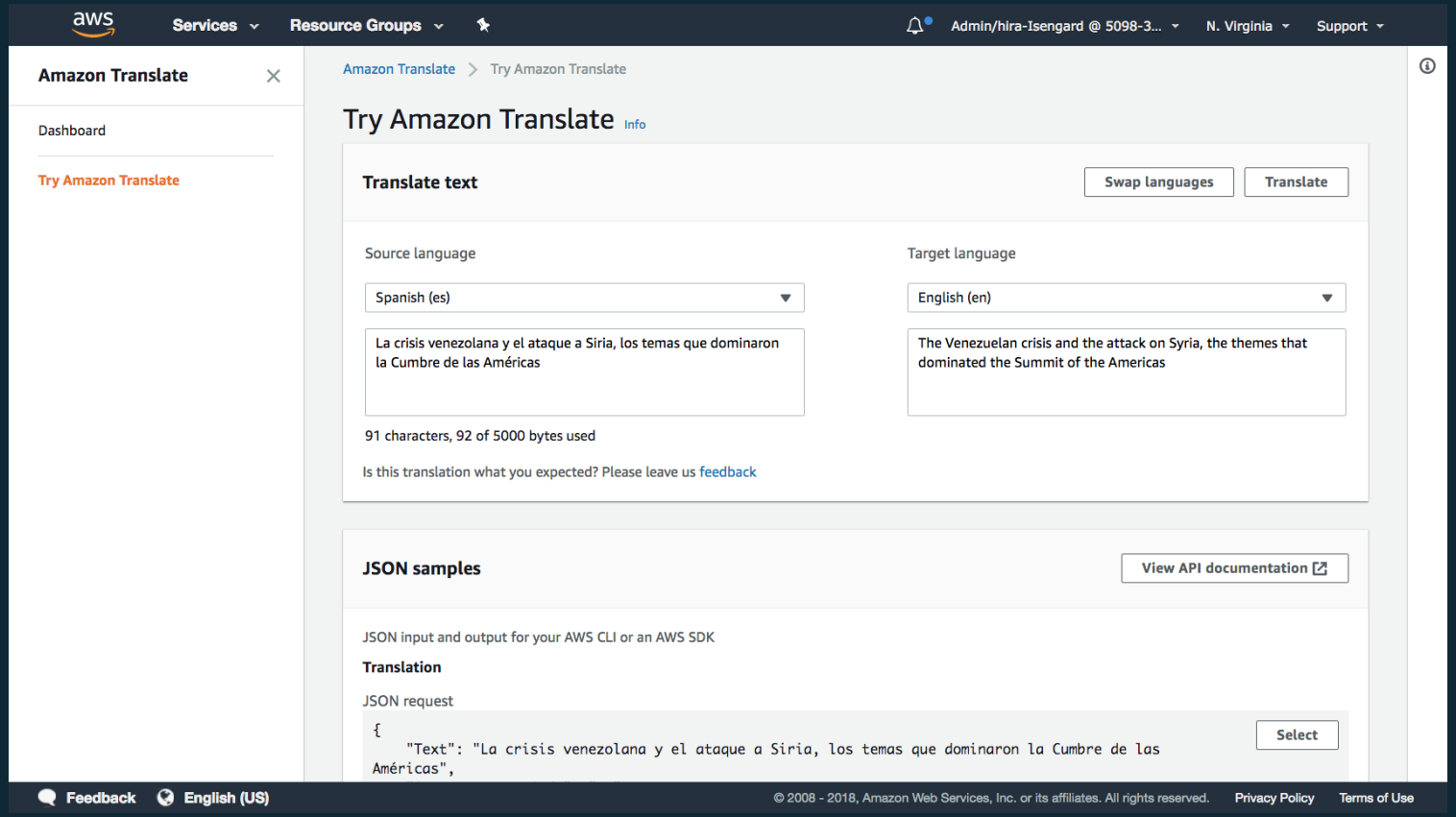
Amazon Translate – Console



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Amazon Translate – Command line

```
aws translate translate-text --cli-input-json '
{
    "Text": "La crisis venezolana y el ataque a Siria, los
             temas que dominaron la Cumbre de las Américas",
    "SourceLanguageCode": "auto",
    "TargetLanguageCode": "en"
}'
```

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Amazon Transcribe

A fully managed and continuously trained automatic speech recognition (ASR) service that generates accurate transcripts for audio and video files

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Amazon Transcribe – automatic speech recognition

Detect multiple speakers

Custom vocabulary

Support for both regular and telephony audio

Amazon S3 integration

Time stamps and confidence scores

Punctuation

English and Spanish with more to come

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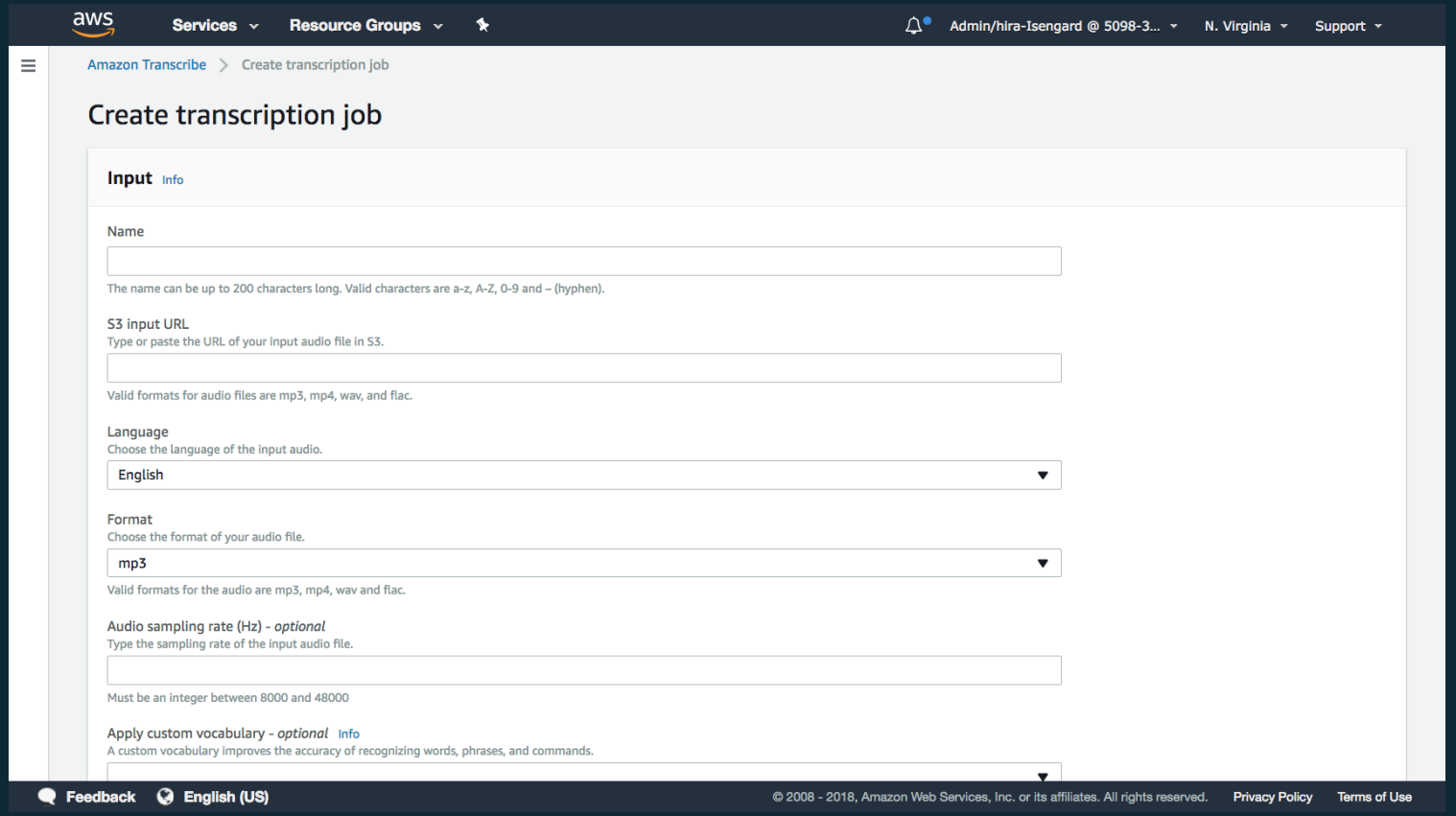
Amazon Transcribe – Console



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Amazon Transcribe – Command line

```
aws transcribe start-transcription-job --cli-input-json '
{
    "TranscriptionJobName": "demo-job-97",
    "LanguageCode": "en-US",
    "MediaFormat": "mp4",
    "Media": {
        "MediaFileUri": "s3://mast-mast-3/mypath/myfile.mp4"
    }
}'
```

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Amazon Comprehend

A fully managed and continuously trained natural language processing (NLP) service that helps you extract insights from unstructured text

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Amazon Comprehend

Sentiment

Entities

Keyphrases

Languages

Topic modeling

Syntax

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Syntax detection

```
aws comprehend detect-syntax --language-code 'en' --text 'I love cloud!'
{
    "SyntaxTokens": [
        {
            "TokenId": 1,
            "Text": "I",
            "BeginOffset": 0,
            "EndOffset": 1,
            "PartOfSpeech": {
                "Tag": "PRON",
                "Score": 0.9999802112579346
            }
        },
...
```

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Supported parts of speech

ADJ – Adjective

ADP – Adposition

ADV – Adverb

AUX – Auxiliary

CCONJ – Coordinating Conjunction

DET – Determiner

INTJ - Interjection

NOUN - Noun

NUM – Numeral

O – Other

PART – Particle

PRON – Pronoun

PROPN – Proper Noun

PUNCT – Punctuation

SCONJ – Subordinating Conjunction

SYM – Symbol

VERB – Verb

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Analyzing user reviews

As a product owner, I want to …

- get the results of my experiment (did it work?)
- learn what customers loved/hated
- find what else impacts my customers' experience
- discover new ways to help my customer

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Analyzing user reviews

As a potential customer, I want to …

- learn about the offering (features)
- confirm what matters to me
- learn from others' experiences & opinions

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Not all reviews are created equal

- Perspective (noob? expert?)
- Review length and coverage
- Grammar and typographical errors
- Writing style - conviction, expression, sarcasm, double negatives
    - Opinions Vs. observations
    - Explicit (“service was slow”) Vs. implicit (“the server took 30 minutes to bring me a glass of water”)

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Sentiment analysis using POS tags – demo

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Generating subtitles for video

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Amazon Translate

```
Translate.translateText({
    "Text": 'Hello world',
    "SourceLanguageCode": 'en',
    "TargetLanguageCode": 'es'
    }, function(err, data) { ... });
```

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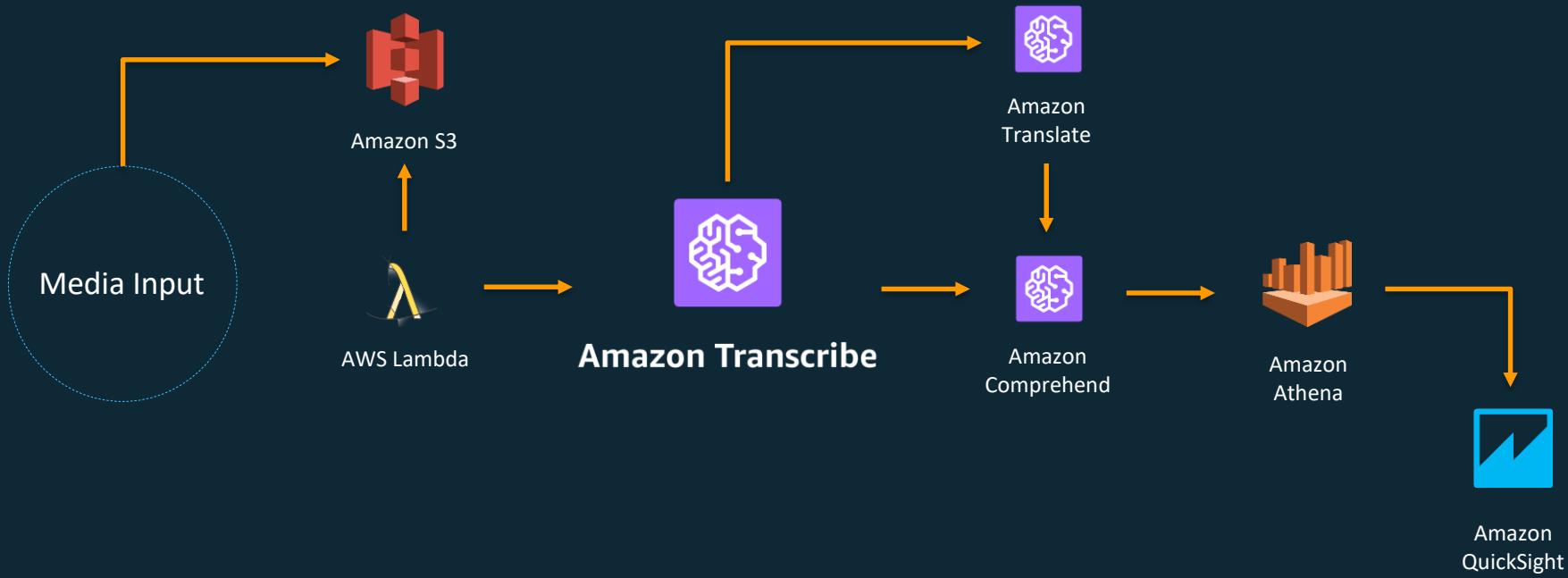
Typical pipeline



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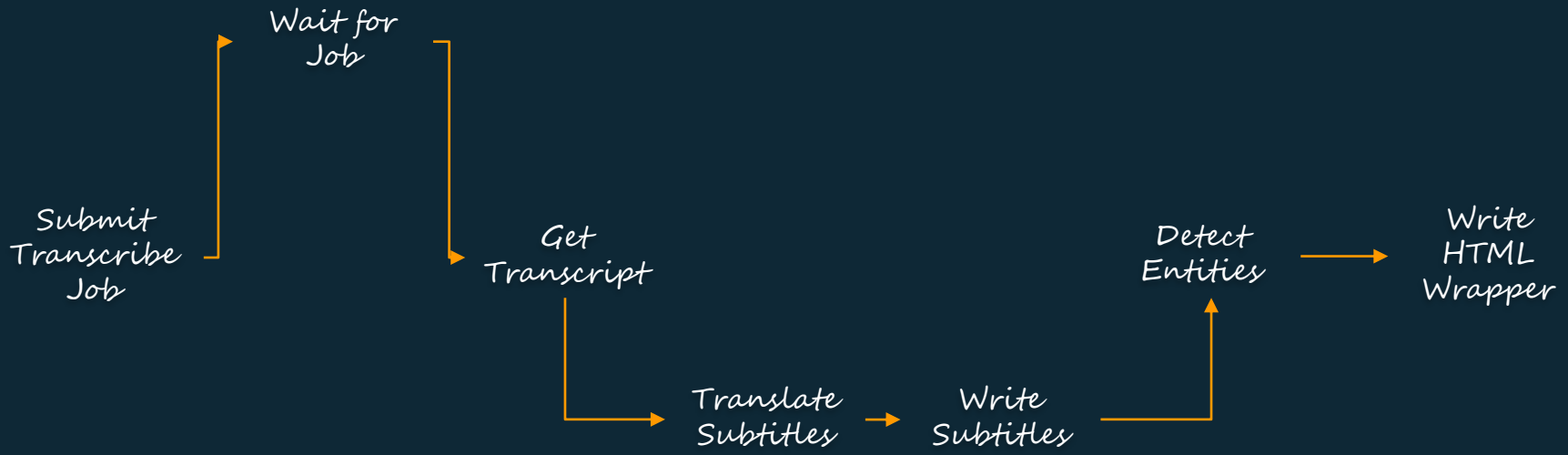
Generating video subtitles



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Patrick Tedjamulia

Co-founder & CEO

Ben Cobb

Co-founder & CTO

VIDEOPeel

The Video Testimonial Platform
for Conversions & Consumer Insights

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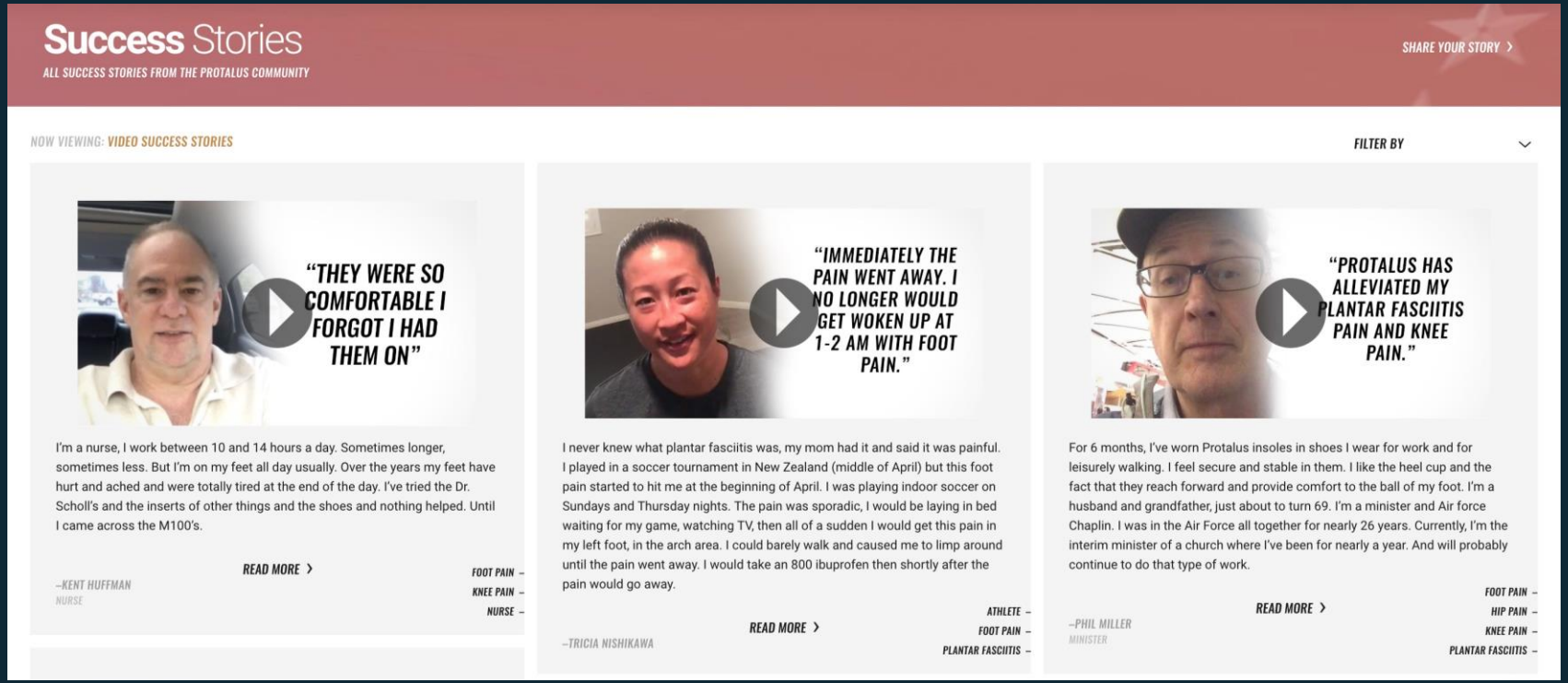
VideoPeel automates the collection of video testimonials to drive business results and better understand your customer.



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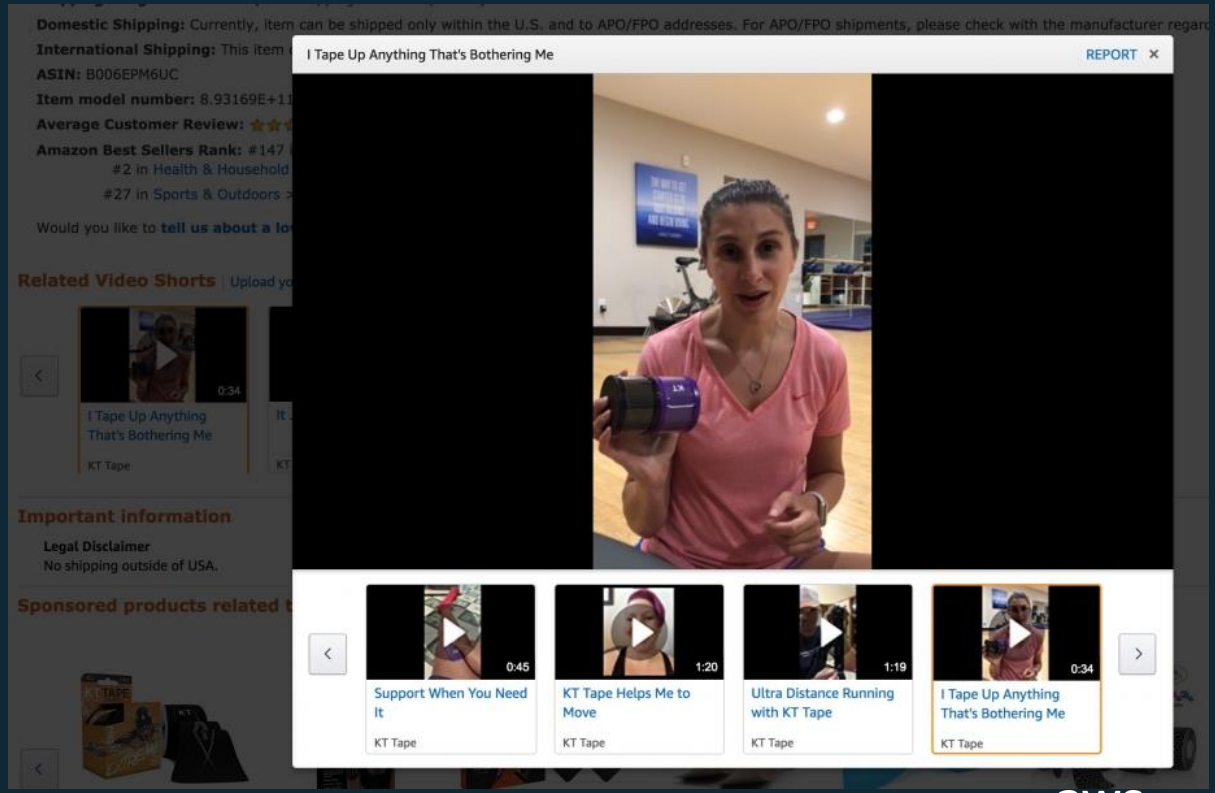
VideoPeel edits each video for use in websites, emails, Facebook & Instagram ads, Amazon, Indiegogo, SEO, etc.



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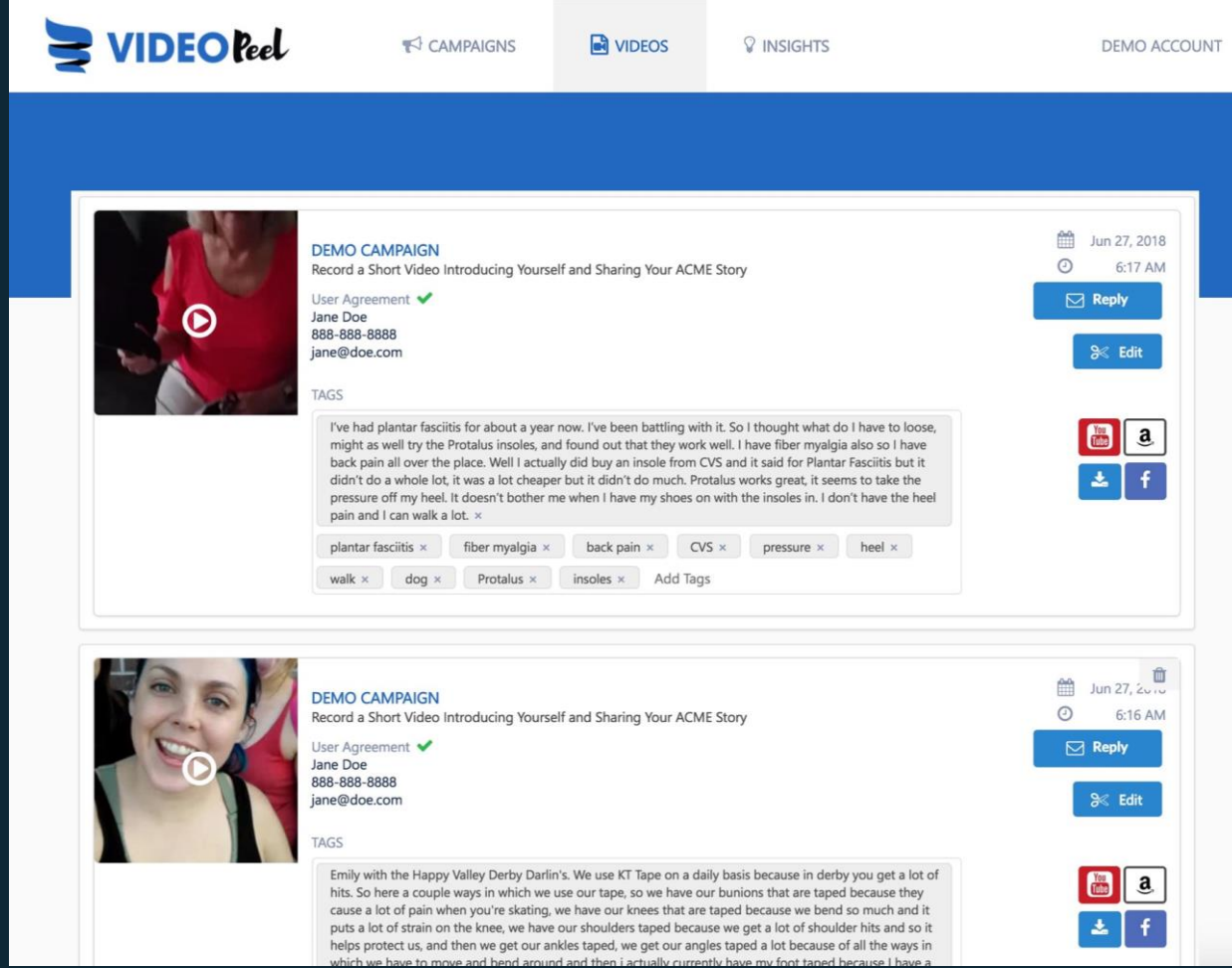
VideoPeel's key challenge was to process and analyze thousands of videos to provide clients with actionable insights on who to target and what to message in their campaigns.



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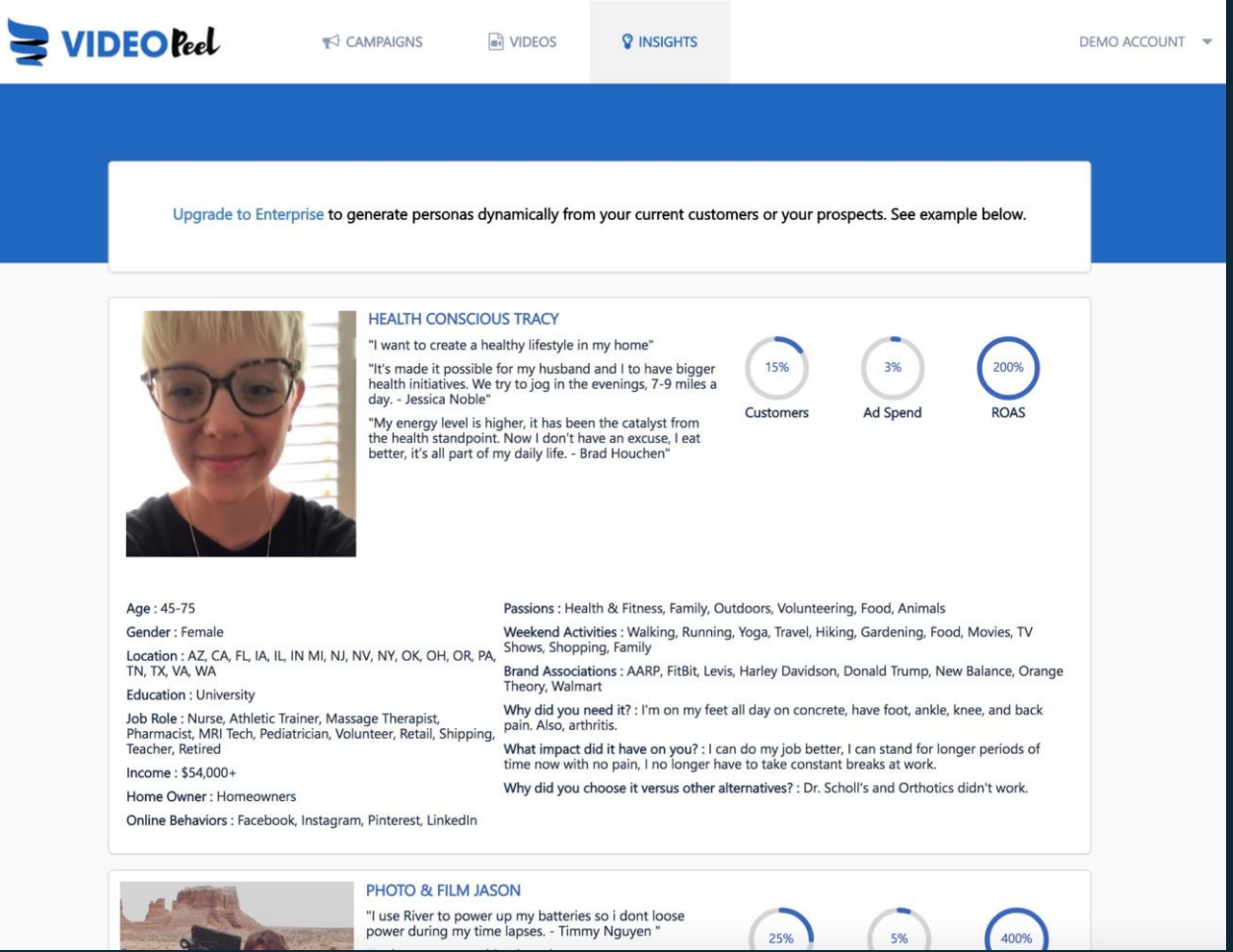

VideoPeel AI and Machine Learning technologies integrate with Amazon Transcribe, Comprehend, and Rekognition to quickly transcribe each video and audio to create rich profiles we can cluster to generate dynamic consumer personas and insights.

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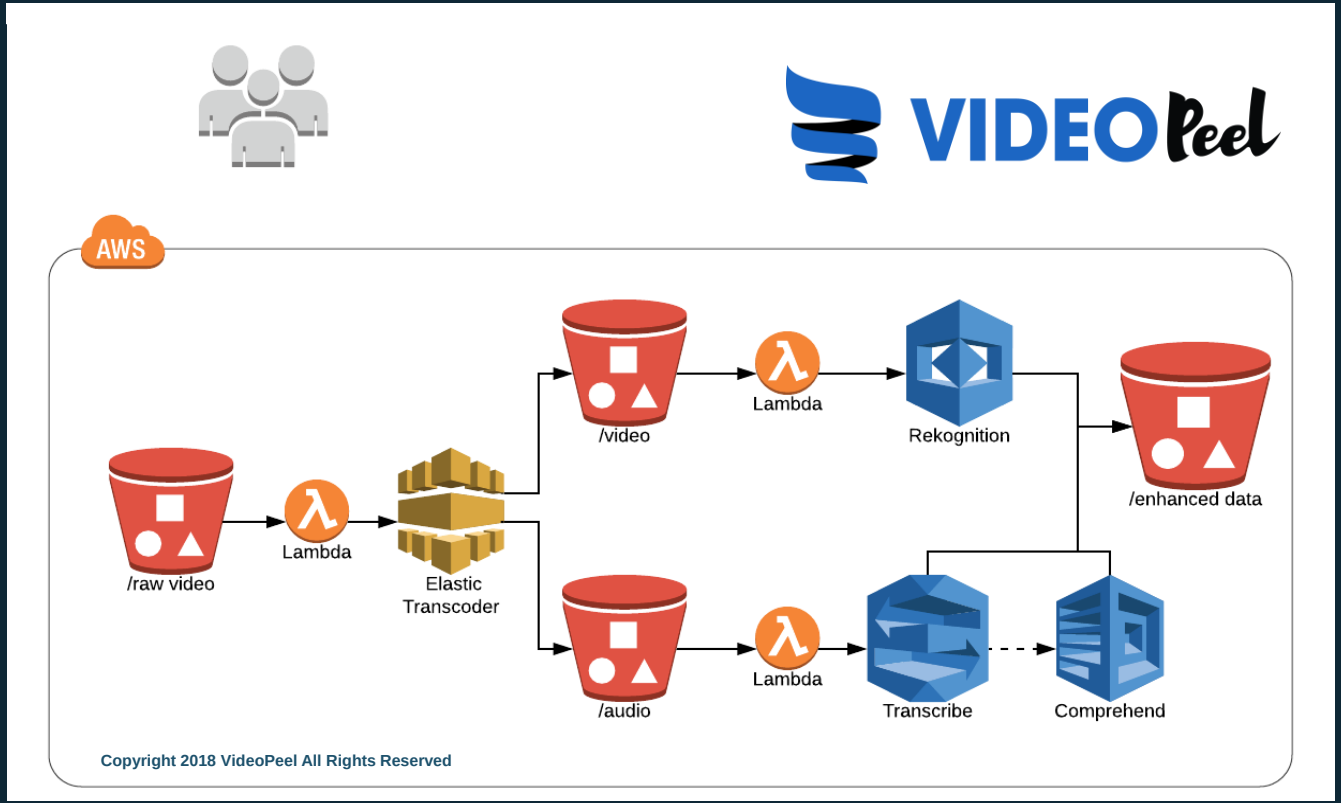
VideoPeel architecture - integration with Amazon Transcribe, Comprehend and Rekognition



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Now what?

- Use Amazon Transcribe and Amazon Translate for media and big data workflows
    - Consider services like AWS Glue, Amazon CloudWatch Events, and AWS Lambda for scalability
- Try Amazon Comprehend for analyzing user generated content
- Watch for new patterns on the AWS ML Blog
    - https://aws.amazon.com/blogs/machine-learning/
- Tell us how we can improve these services

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Thank you!

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