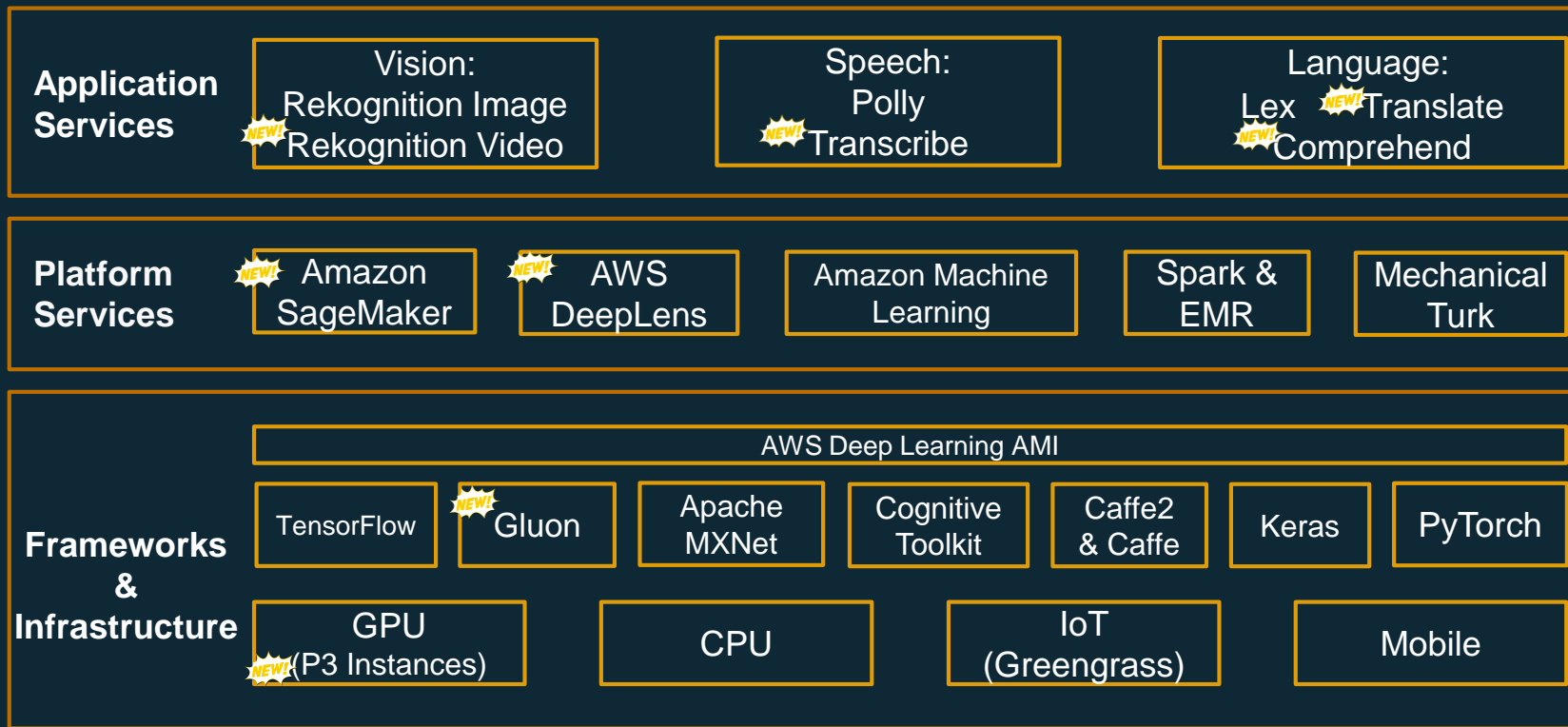


Amazon Comprehend

Fully Managed, Continuously Trained NLP Service

Nino Bice, Product Manager
Ben Snively, Service Architect

AWS ML Stack



Powerful language capabilities

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

Amazon Comprehend

A fully managed and continuously trained service that helps you extract insights from unstructured text

Amazon Comprehend



Sentiment



Entities



Key phrases



Languages



Topic modeling

Amazon Comprehend: Natural Language Processing

Amazon.com, Inc. is located in Seattle, WA and was founded July 5th, 1994 by Jeff Bezos. Our customers love buying everything from books to blenders at great prices

Named Entities

- Amazon.com: Organization
- Seattle, WA : Location
- July 5th, 1994: Date
- Jeff Bezos : Person

Keyphrases

- Our customers
- books
- blenders
- great prices

Sentiment

- Positive

Language

- English

Topic Modeling

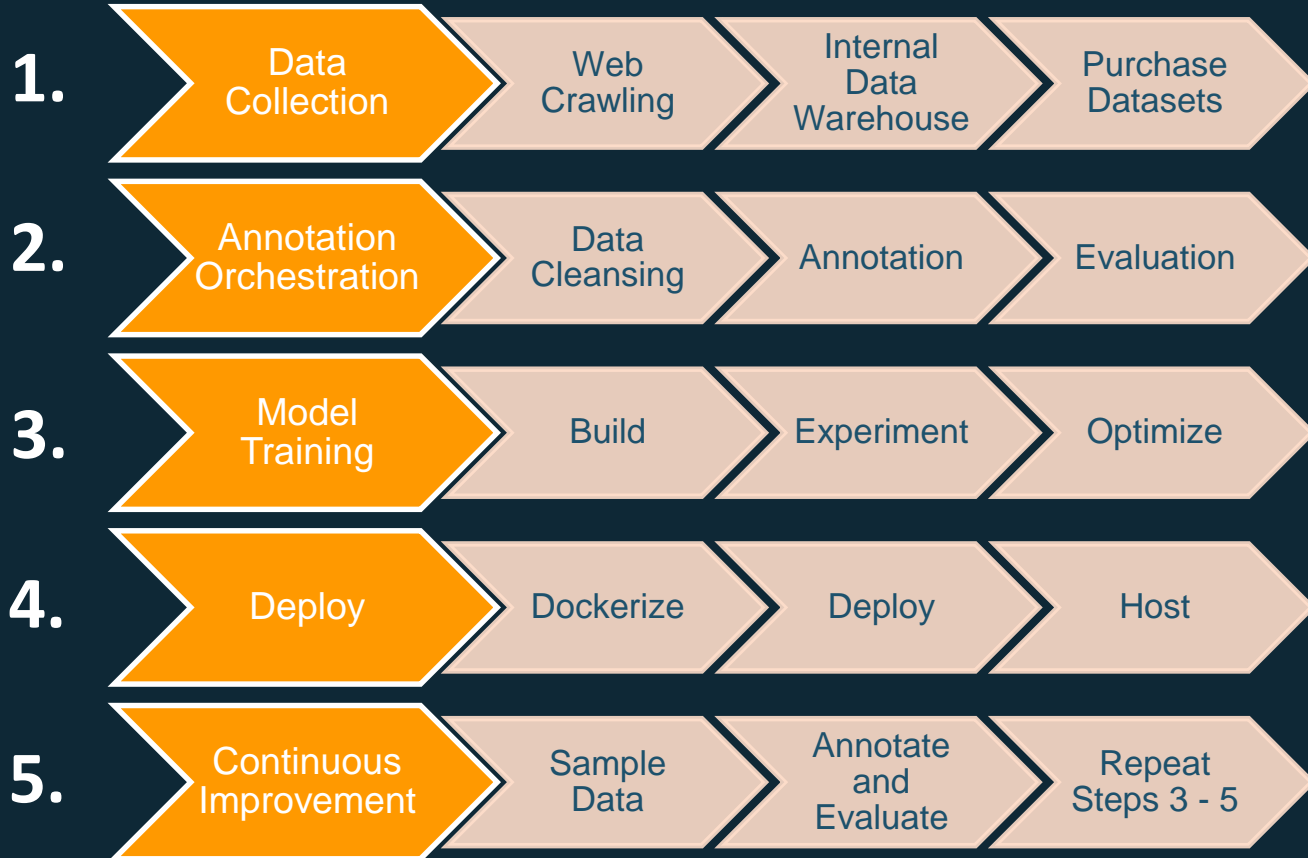
Keywords Topic Groups

Topic	Term	Weight
0	Washington	.89
1	Silicon Valley	.67
2	Roasting	.91

Document Relationship to Topics

Document	Topic	Proportion
Doc.txt	0	.89
Doc.txt	1	.67
Doc.txt	2	.91

Continuously Training



Comprehend Portal

AWS Text Analytics

Popular Text Analytics Use Cases

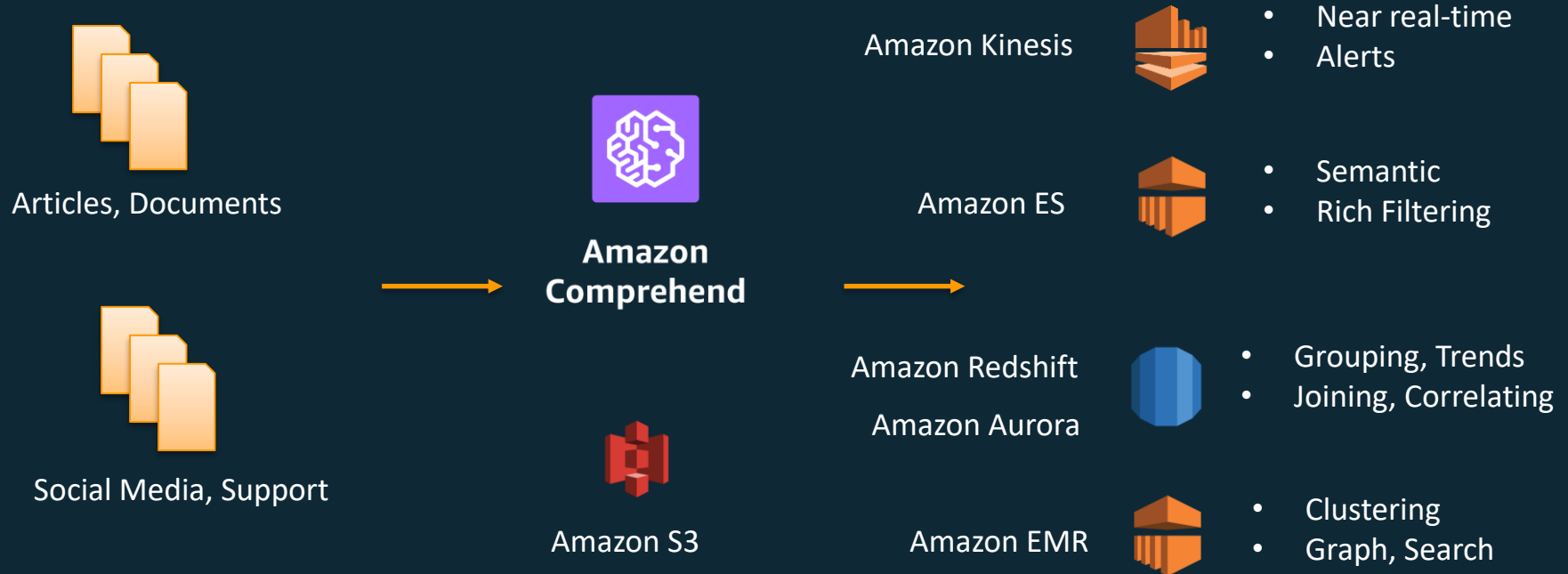
Content Personalization: Customers are using Comprehend NLP output to understand related documents based on entities, phrases or even topic similarities for trends analysis, to drive content personalization and recommendations

Semantic Search: Customers using Amazon Comprehend to index entities for boosting and ranking search results.

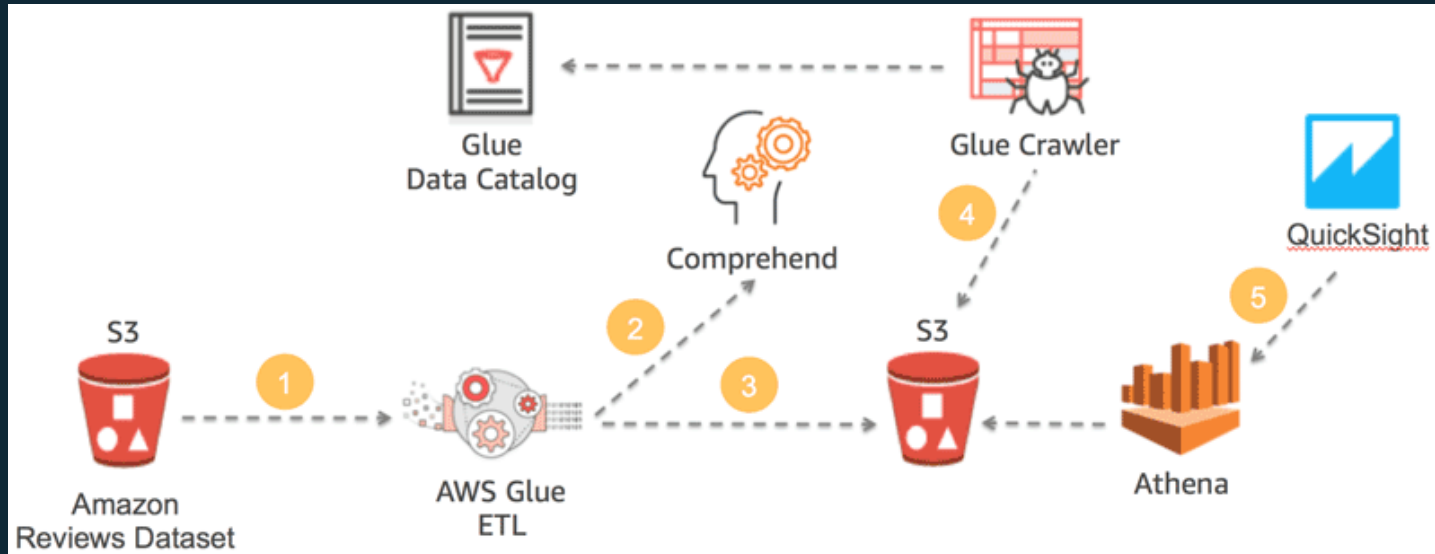
Intelligent data warehouse: Customers are using Amazon Comprehend to query unstructured data in relational databases, processing data within the data lake (S3) and then inserting it back into the data warehouse

Social Analytics: Customers are using Amazon Comprehend to ingest, process and analyze trends from entities and sentiment from social media posts across Twitter and Facebook.

AWS Text Analytics Workload



Comprehend and Glue



UDF to Call Comprehend

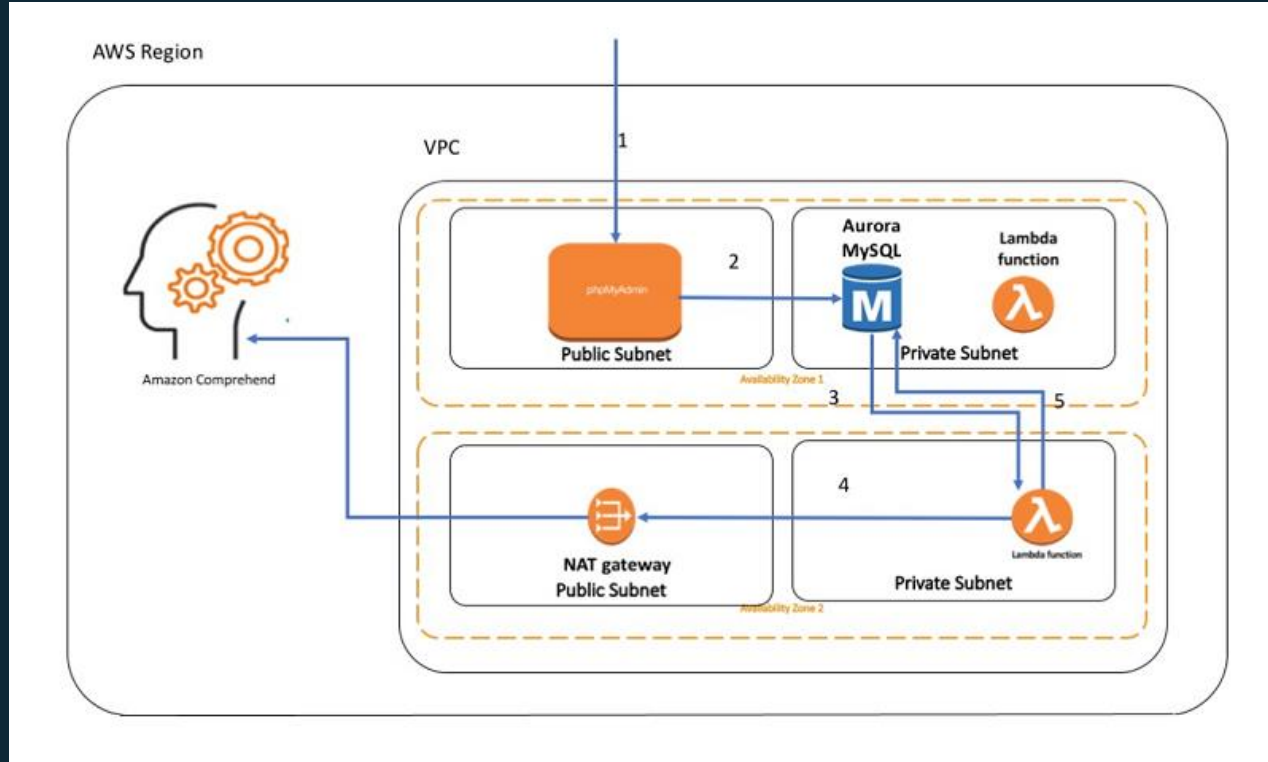
```
SentimentRow = Row("review_id", "sentiment")
def getBatchSentiment(input_list):
    arr = []
    bodies = [i[1] for i in input_list]
    client = boto3.client('comprehend', region_name='us-east-1')

    def callApi(text_list):
        response = client.batch_detect_sentiment(TextList = text_list, LanguageCode = 'en')
        return response

    for i in range(NUMBER_OF_BATCHES-1):
        text_list = bodies[COMPREHEND_BATCH_SIZE * i : COMPREHEND_BATCH_SIZE * (i+1)]
        #response = client.batch_detect_sentiment(TextList = text_list, LanguageCode = 'en')
        response = callApi(text_list)
        for r in response['ResultList']:
            idx = COMPREHEND_BATCH_SIZE * i + r['Index']
            arr.append(SentimentRow(input_list[idx][0], r['Sentiment']))

    return arr
```

Comprehend and RDS



Stored Procedure to Comprehend

```
DROP PROCEDURE IF EXISTS comprehend_demo.Aurora_To_Lambda;
DELIMITER ;;
CREATE PROCEDURE comprehend_demo.Aurora_To_Lambda (IN ReviewId NUMERIC, IN ReviewText TEXT) LANGUAGE SQL
BEGIN
    CALL mysql.lambda_async('COMPREHEND_LAMBDA_ARN',
        CONCAT('{ "ReviewId" : "', ReviewId,
            '" , "ReviewText" : "', ReviewText, '"}'))
    );
END
;;
DELIMITER ;
```


Demo: Comprehend and RDS

Comprehend and Elasticsearch

Comprehend and SageMaker

