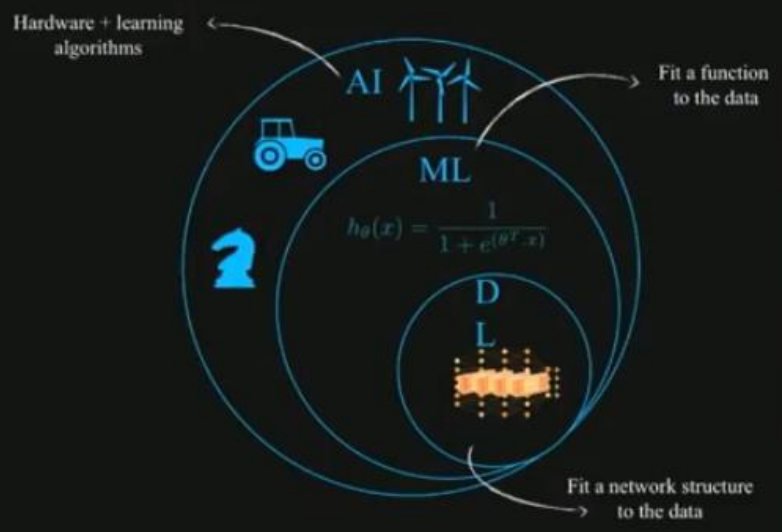
Financial services companies are using machine learning to reduce fraud, streamline processes, and improve their bottom line. AWS provides tools that help them easily use AI tools like MXNet and Tensor Flow to perform predictive analytics, clustering, and more advanced data analyses. In this session, hear how IHS Markit has used machine learning on AWS to help global banking institutions manage their commodities portfolios. Learn how Amazon Machine Learning can take the hassle out of AI.

Artificial intelligence

A system or service
that can perform
tasks that usually require
human intelligence



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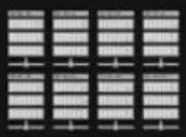
aws

The challenge:

Scale



Data

PBs and EBs of existing data

Aggressive migration

Training

Tons of GPUs

Elastic capacity

Pre-built images

Prediction

Tons of GPUs and CPUs

Serverless

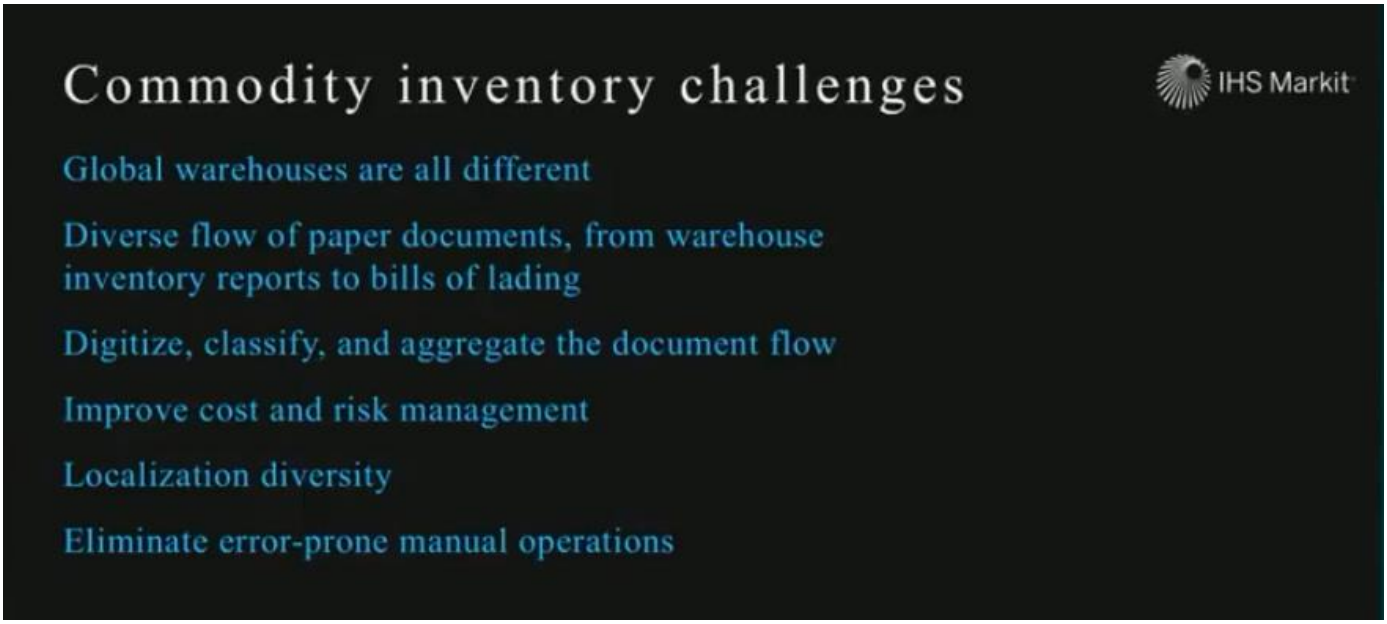
At the edge,
on IoT devices

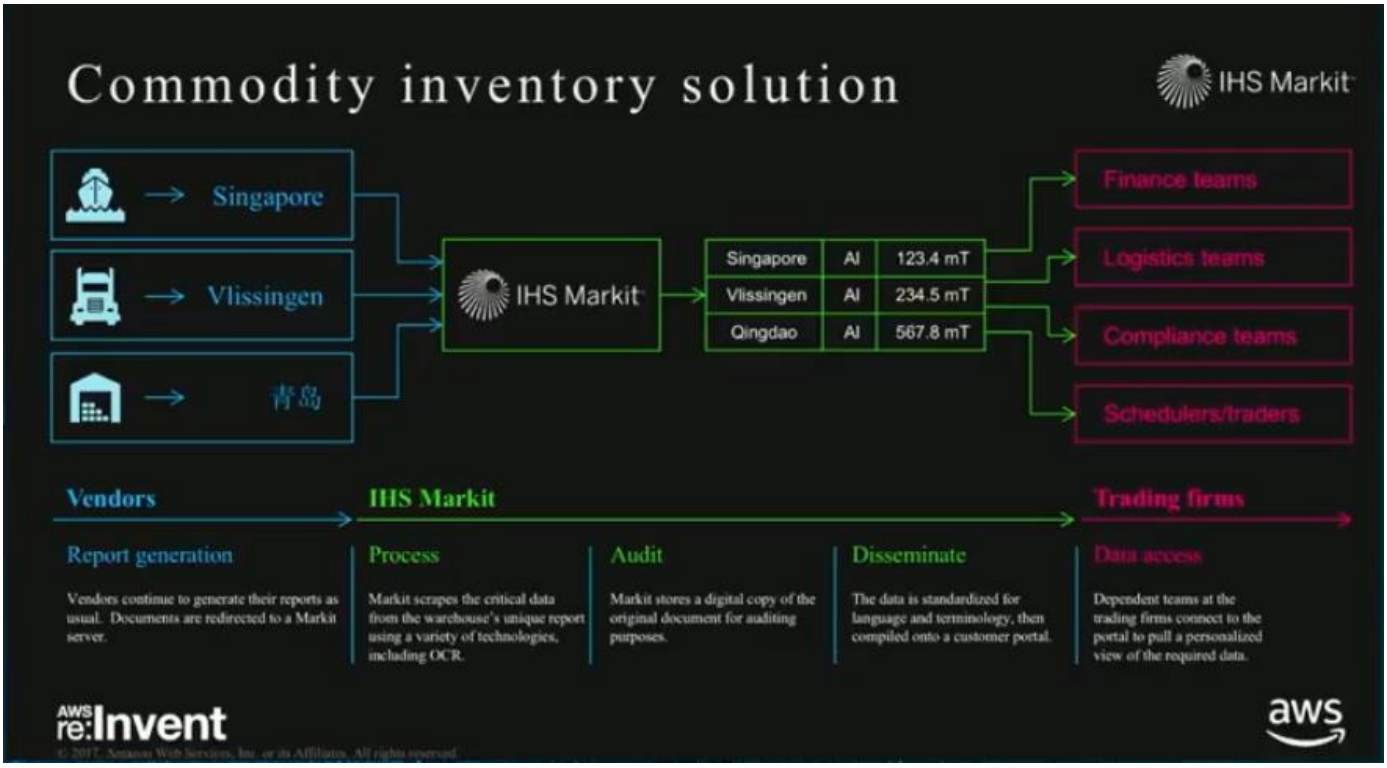
Financial services use cases

Business group	Use case	ML models	AWS tools
Asset management	Equity ratings Portfolio management Portfolio optimization	Machine learning (clustering, SVM, logistic regression, Gaussian processes) Deep learning (embedding, matrix factorization, LSTM, conversational UI) Graphical models	Amazon Machine Learning Deep Learning MXNet SparkML on Amazon EMR TensorFlow
Banking	Credit card/lending fraud Customer onboarding Digital banking		
Compliance	Anti-money laundering, Counter-terrorism financing Due diligence		
Security	Cyber-attack detection Data leak detection Virus detection		

AWS has become the center of gravity for AI

Case study: Commodity Tracker



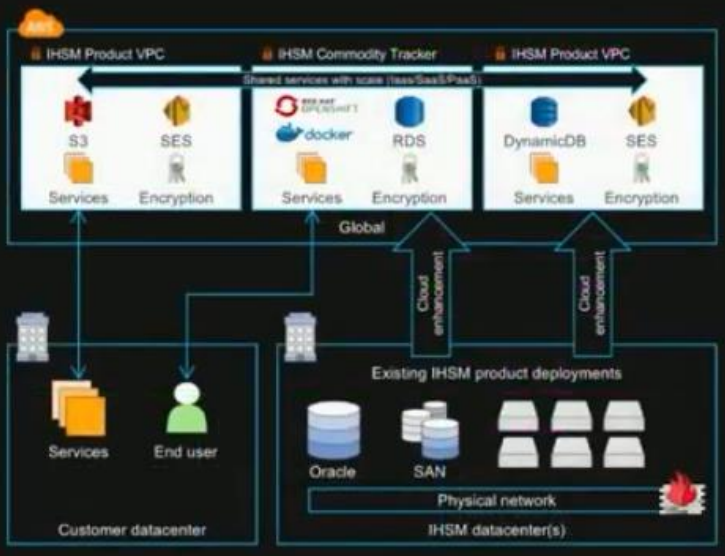


Commodity Tracker app is used to collect, scan, analyze the documents, digitize all the paper data in a structured way for all the different locales, and then provide a service out to our customer in terms of aggregation and commissioning.

IHS Markit—cloud strategy

IHS Markit

- Cloud-first strategy
- Cloud native vs. lift and shift
- Time-to-market focus
- Investment upfront
- Refreshing the estate
- Financial transparency
- A DevOps world
- Global scale
- Cost-savings in the end



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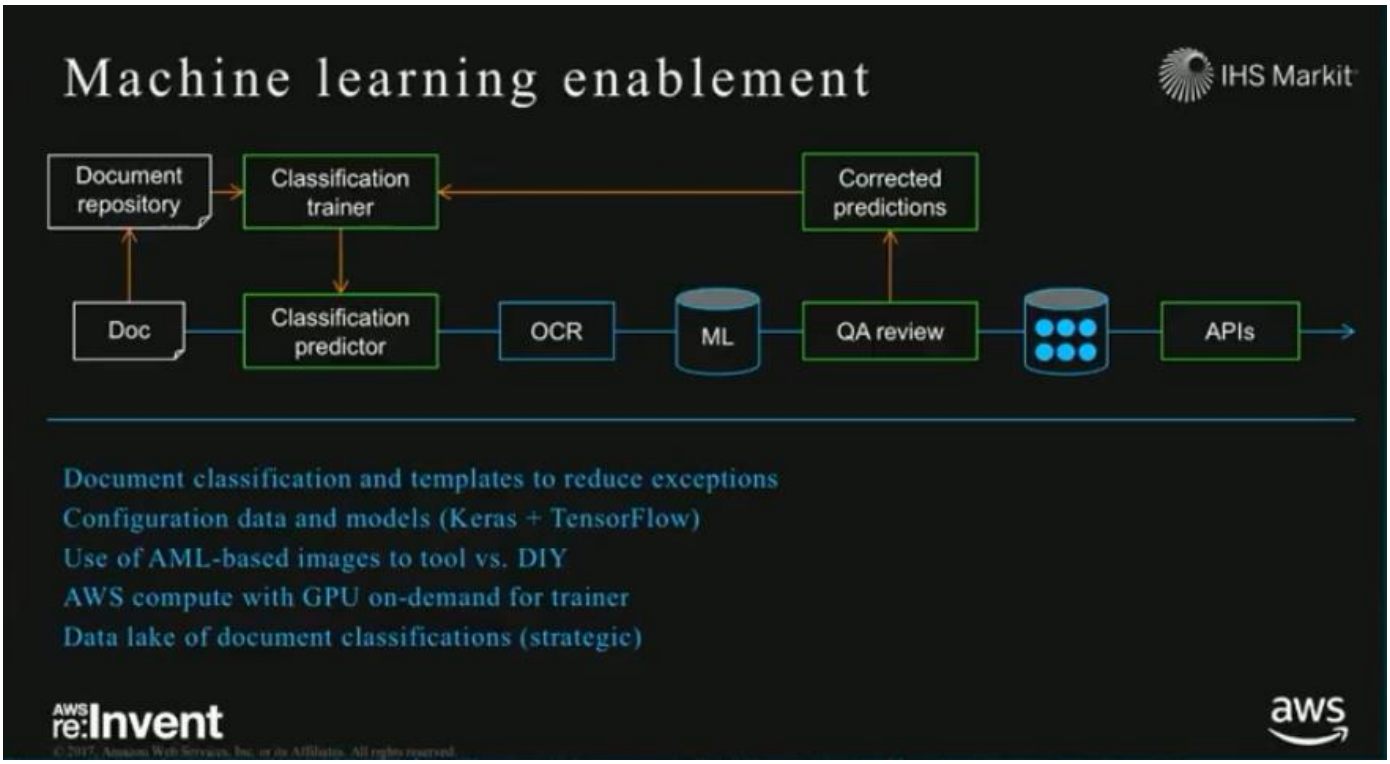
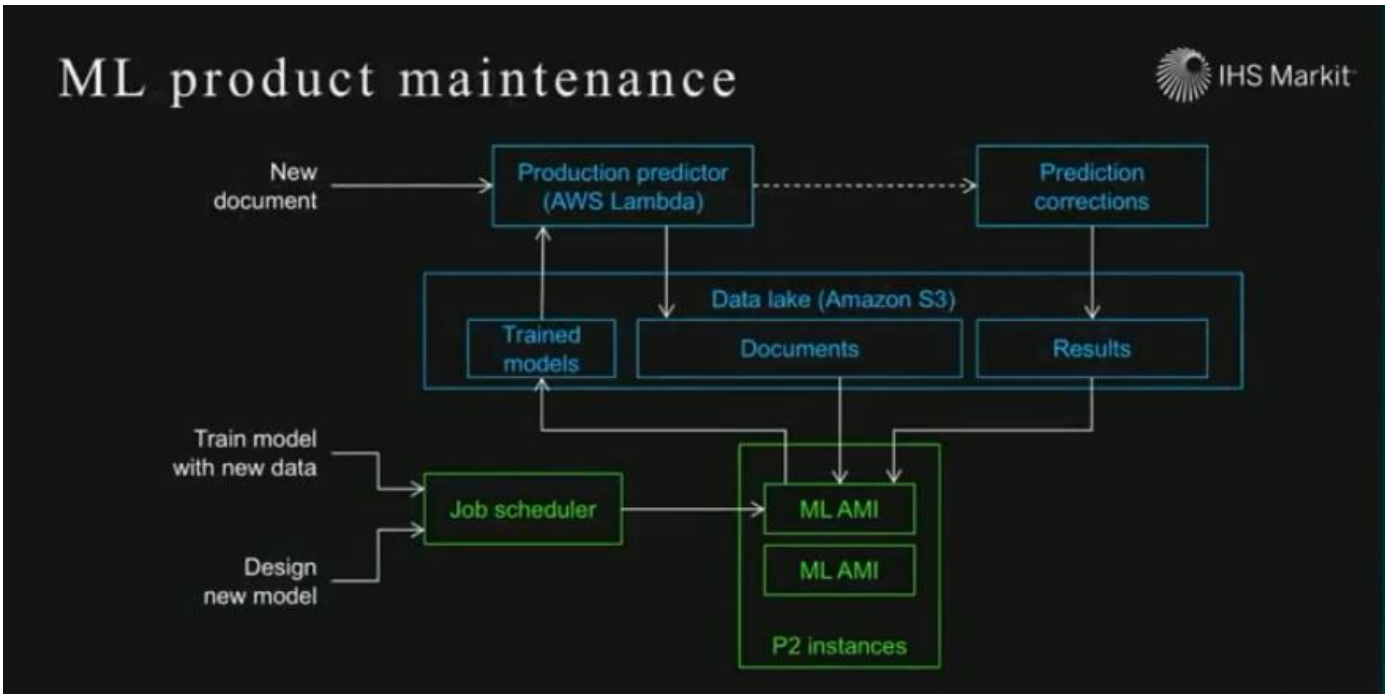
Architecture approach

IHS Markit

- Microservices design approach
- PaaS supporting orchestration and discovery
- OCR, classification, and analysis documents
- Cloud enablement with some lock-in
- API-driven
- Modern UI, SSO, preferences, notifications
- SDLC-Agile, CI/CD, high velocity of change
- Highly available (multi-AZ/global)



Commodity Tracker takes documents as paper and run them through a machine-enabled document classification system that does a preliminary OCR scan run of the documents like inventory receipts/bills of ladens, commodity description document, etc. We simply classify what a scanned document is in this first step. We simply run this document through a Classification Predictor that we also have to train continuously using a trained model of all the different documents that we can possibly scan. We create a model that we can then use in our predictor system to further classify newly scanned documents. Further downstream, we have another moder and predictor that digitizes an already scanned record document depending on the document's classification like 'Bill of Laden', this will get a 'Bill of Laden' ML model applied to it to extract the details of the document into a suitable format using the correct template.



We are feeding the documents and all the trained models into the Data lake.

Commodity tracker benefits

IHS Markit

80%
of docs STP

Focus human effort on the exceptions

60%
improvement in timeliness

Reduce risk by cutting the lag between data collection and use

50%
increase in efficiency

Empower teams to focus energy on value-creation activities

AWS re:Invent

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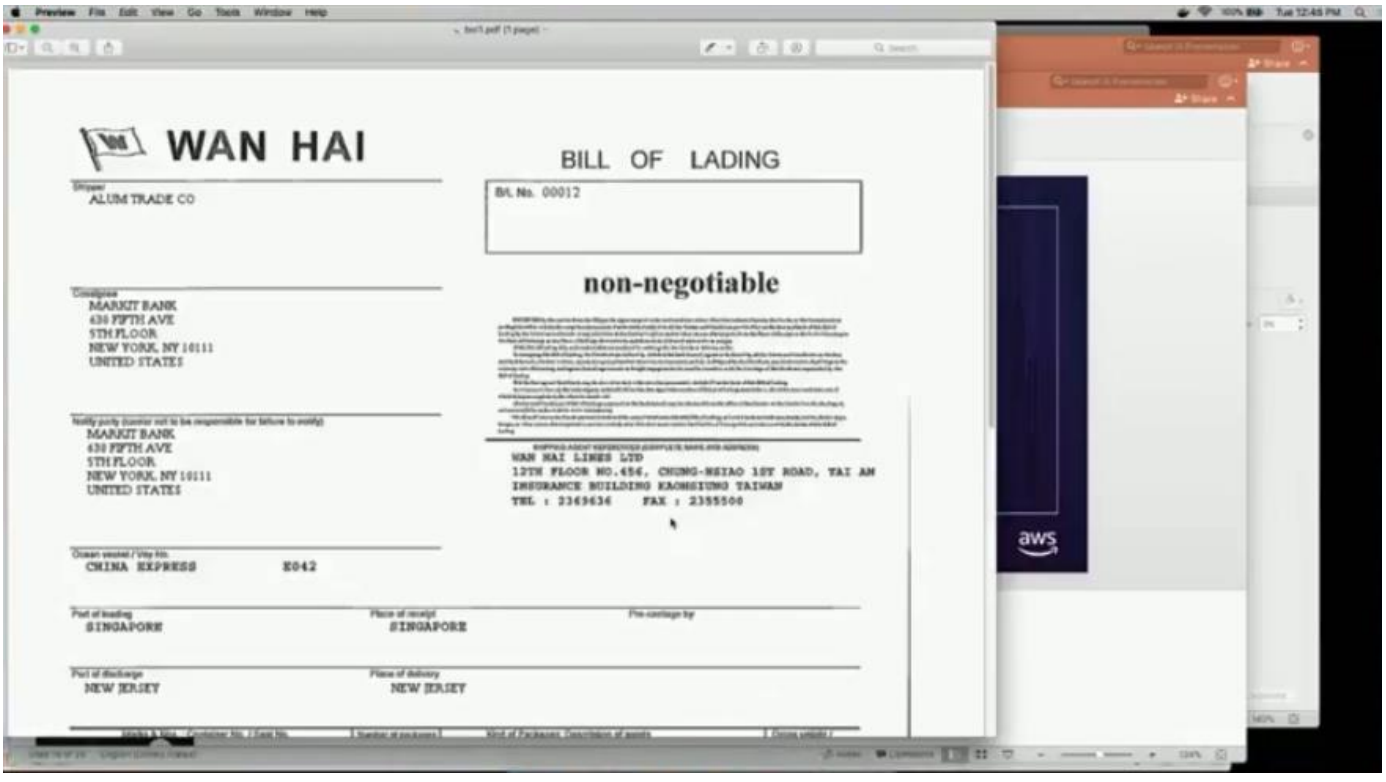
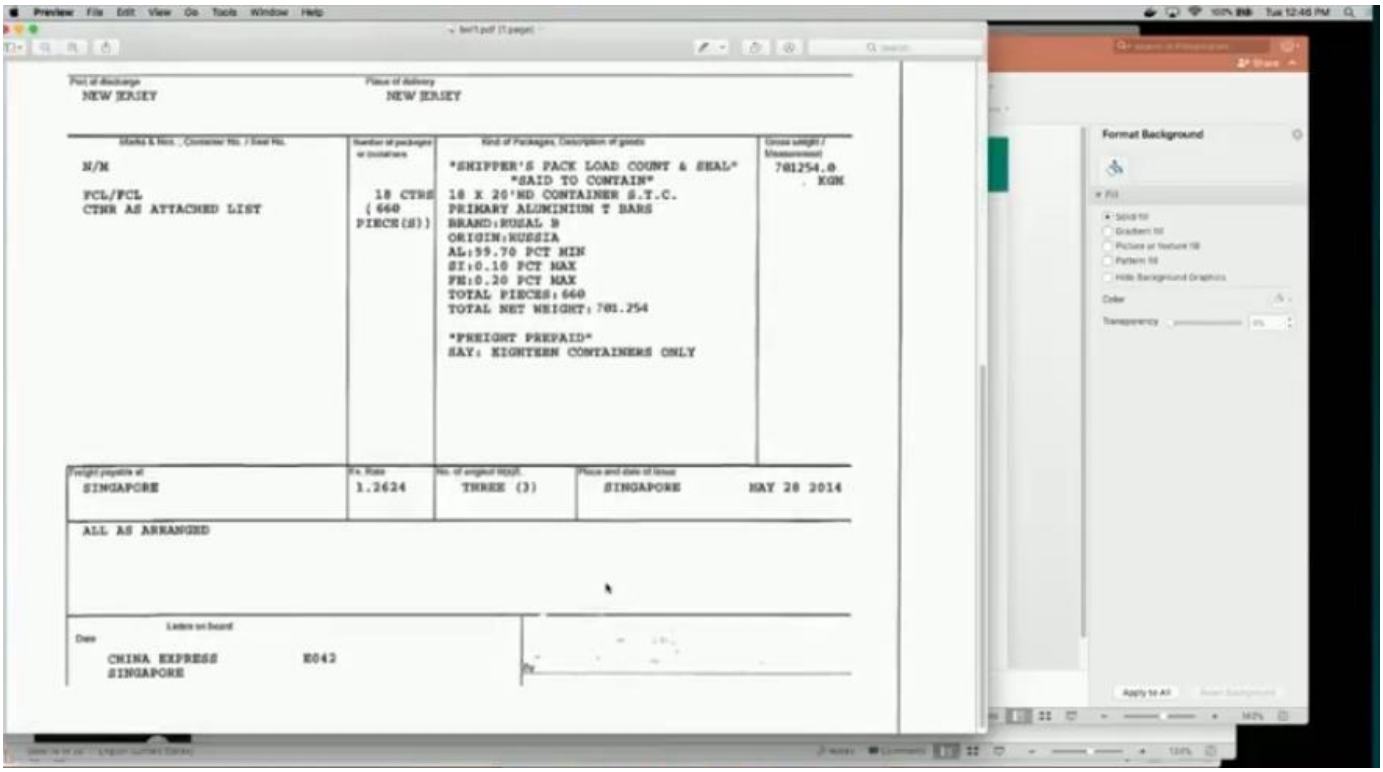
A Quick Demo





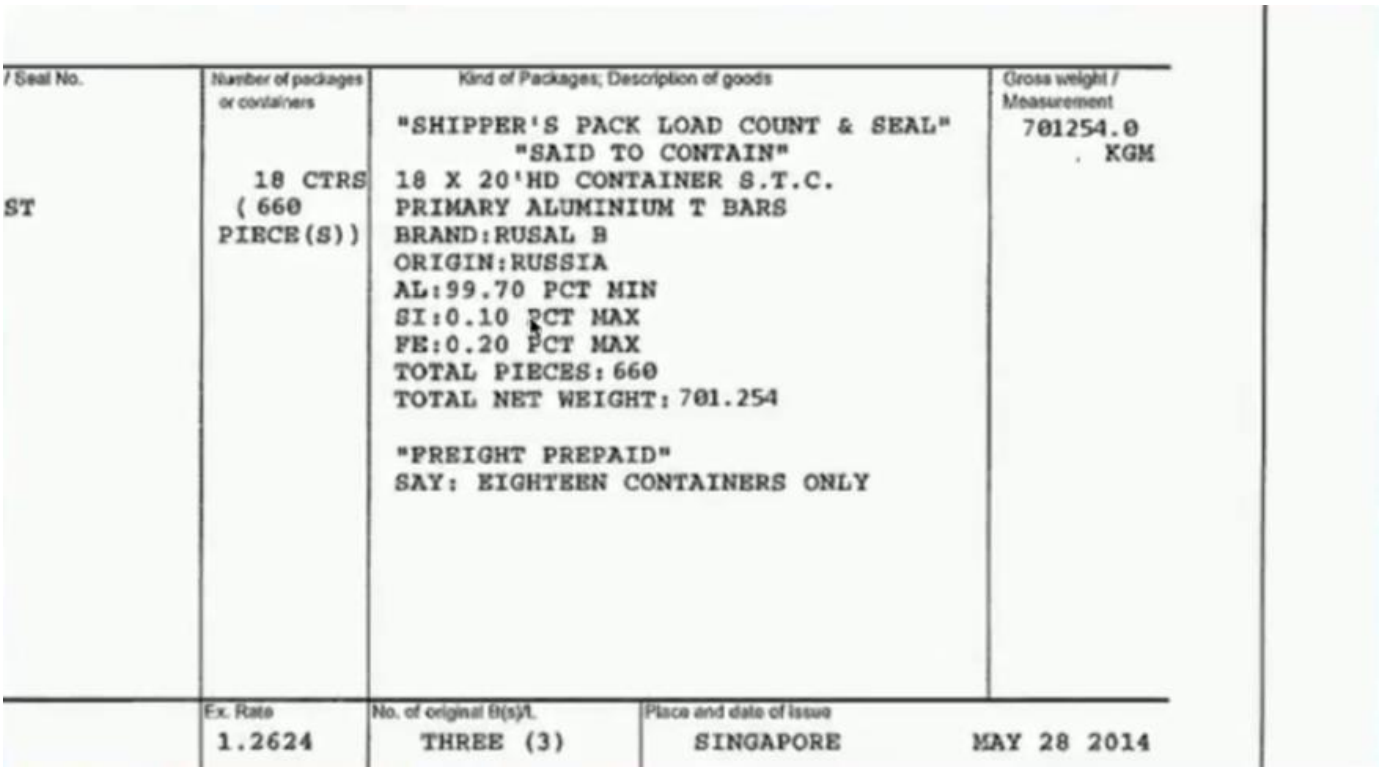
Port of discharge: NEW JERSEY
Place of delivery: NEW JERSEY

Marks & Nos. / Container No. / Seal No.	Number of packages or containers	Kind of Packages; Description of goods	Gross weight / Measurement
N/M FCL/FCL CTNR AS ATTACHED LIST	18 CTRS (660 PIECE(S))	"SHIPPER'S PACK LOAD COUNT & SEAL" "SAID TO CONTAIN" 18 X 20'HD CONTAINER S.T.C. PRIMARY ALUMINIUM T BARS BRAND:RUSAL B ORIGIN:RUSSIA AL:99.70 PCT MIN SI:0.10 PCT MAX FE:0.20 PCT MAX TOTAL PIECES: 660 TOTAL NET WEIGHT: 701.254 "FREIGHT PREPAID" SAY: EIGHTEEN CONTAINERS ONLY	701254.0 . KGM

Freight payable at	Ex. Rate	No. of original B(s)/L	Place and date of issue	
SINGAPORE	1.2624	THREE (3)	SINGAPORE	MAY 28 2014

ALL AS ARRANGED

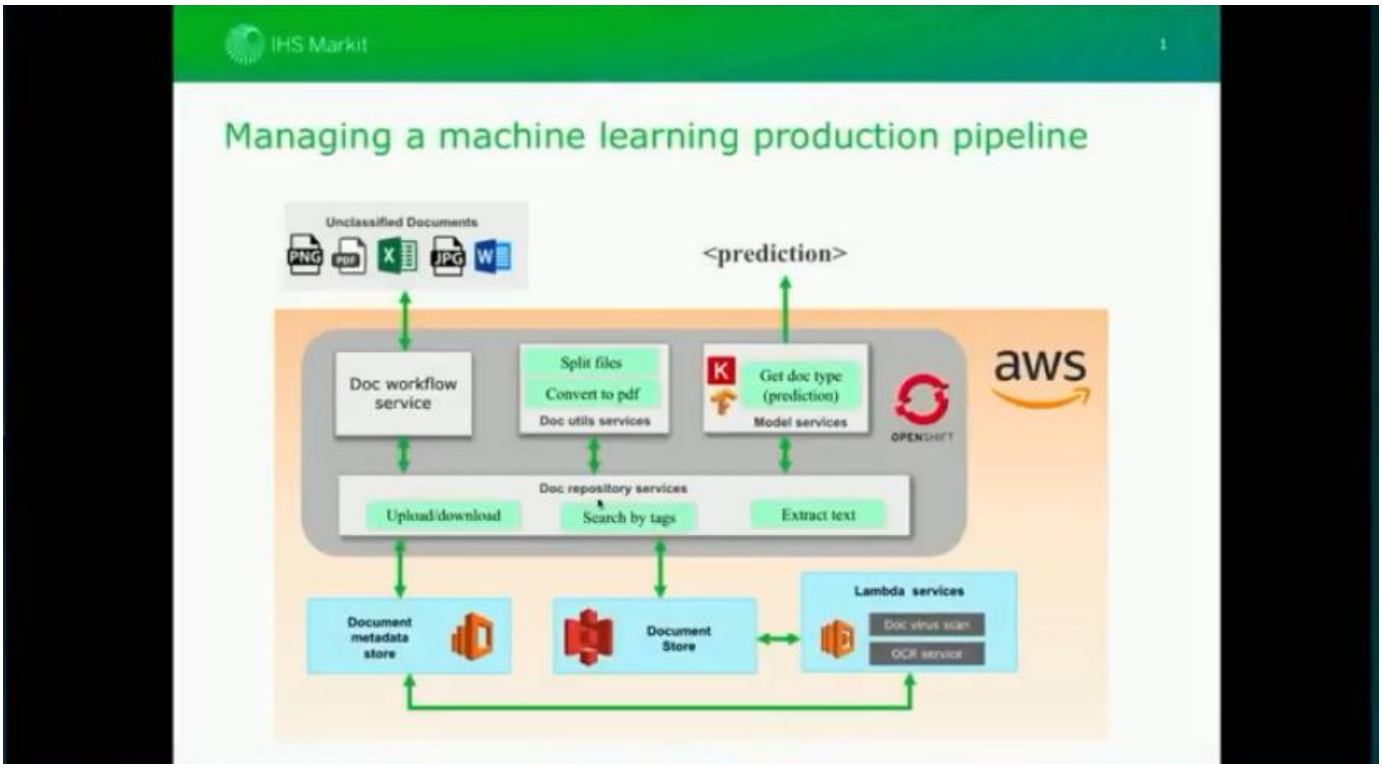
Laden on board
Date
CHINA EXPRESS E043
SINGAPORE
By



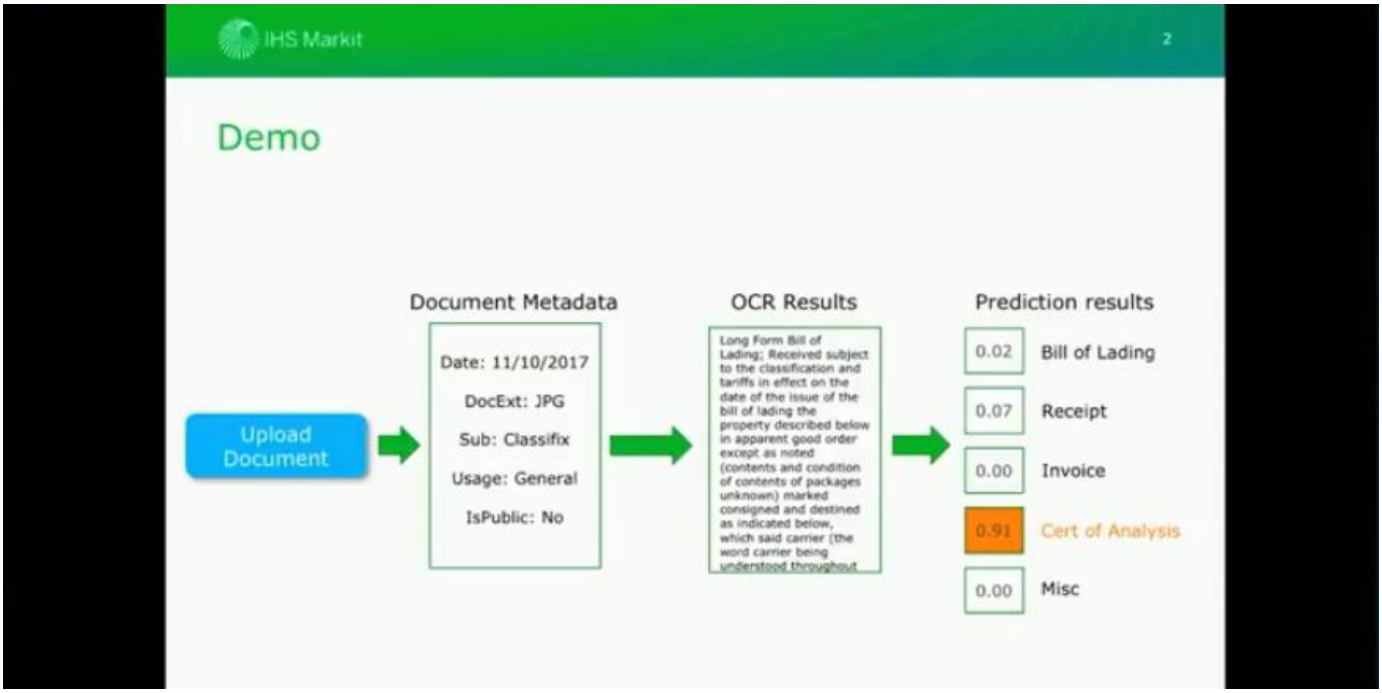
/ Seal No.	Number of packages or containers	Kind of Packages; Description of goods	Gross weight / Measurement
ST	18 CTRS (660 PIECE(S))	"SHIPPER'S PACK LOAD COUNT & SEAL" "SAID TO CONTAIN" 18 X 20'HD CONTAINER S.T.C. PRIMARY ALUMINIUM T BARS BRAND:RUSAL B ORIGIN:RUSSIA AL:99.70 PCT MIN SI:0.10 PCT MAX FE:0.20 PCT MAX TOTAL PIECES: 660 TOTAL NET WEIGHT: 701.254 "FREIGHT PREPAID" SAY: EIGHTEEN CONTAINERS ONLY	701254.0 . KGM

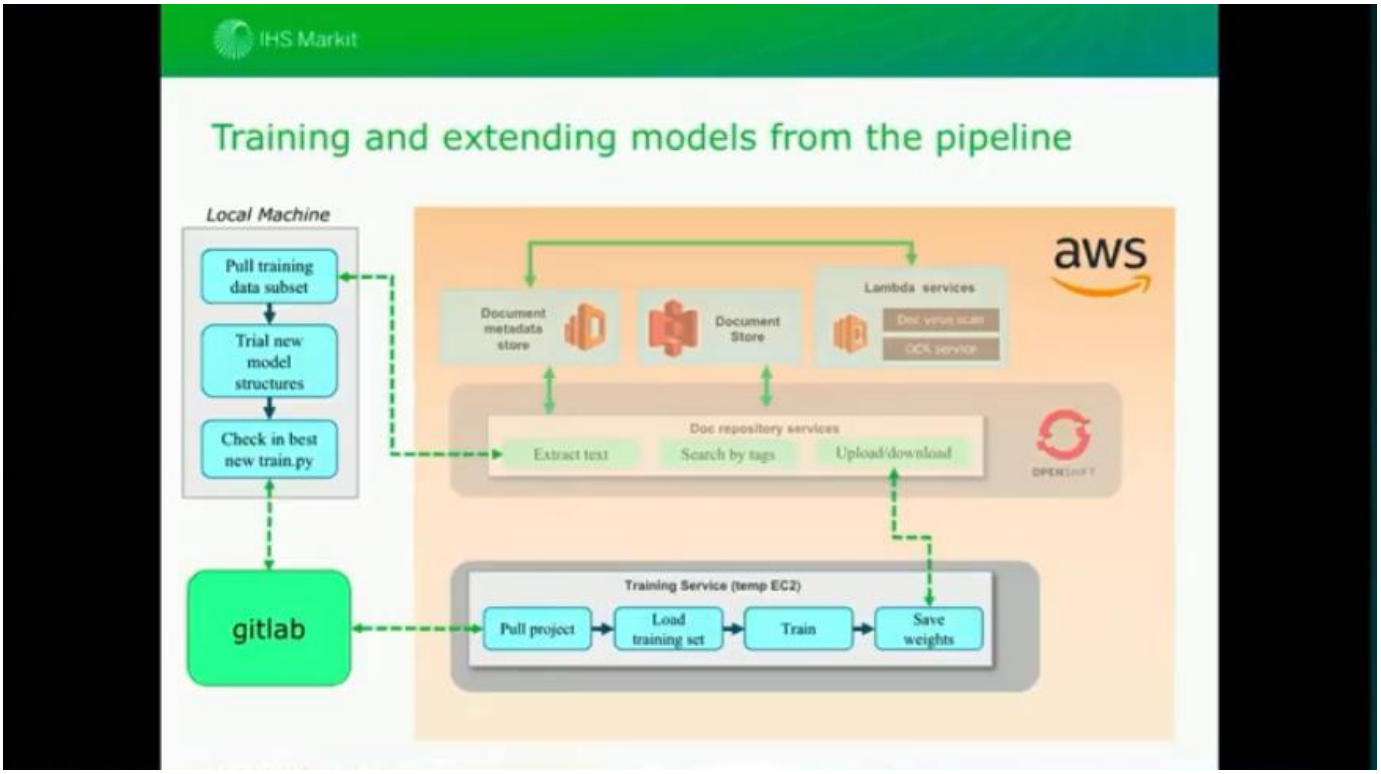
Ex. Rate	No. of original B(s)/L	Place and date of issue	
1.2624	THREE (3)	SINGAPORE	MAY 28 2014

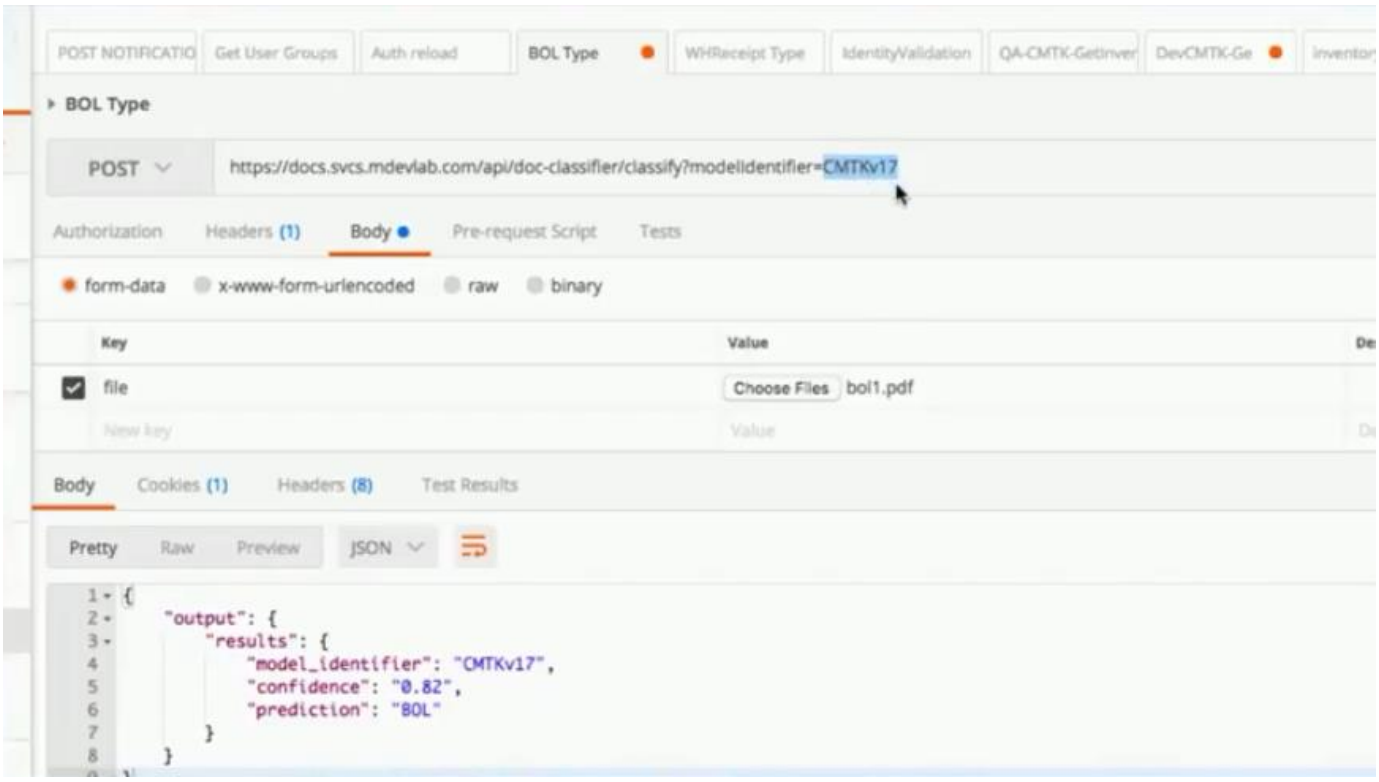
The system scans this document and digitizes it as records in the database.



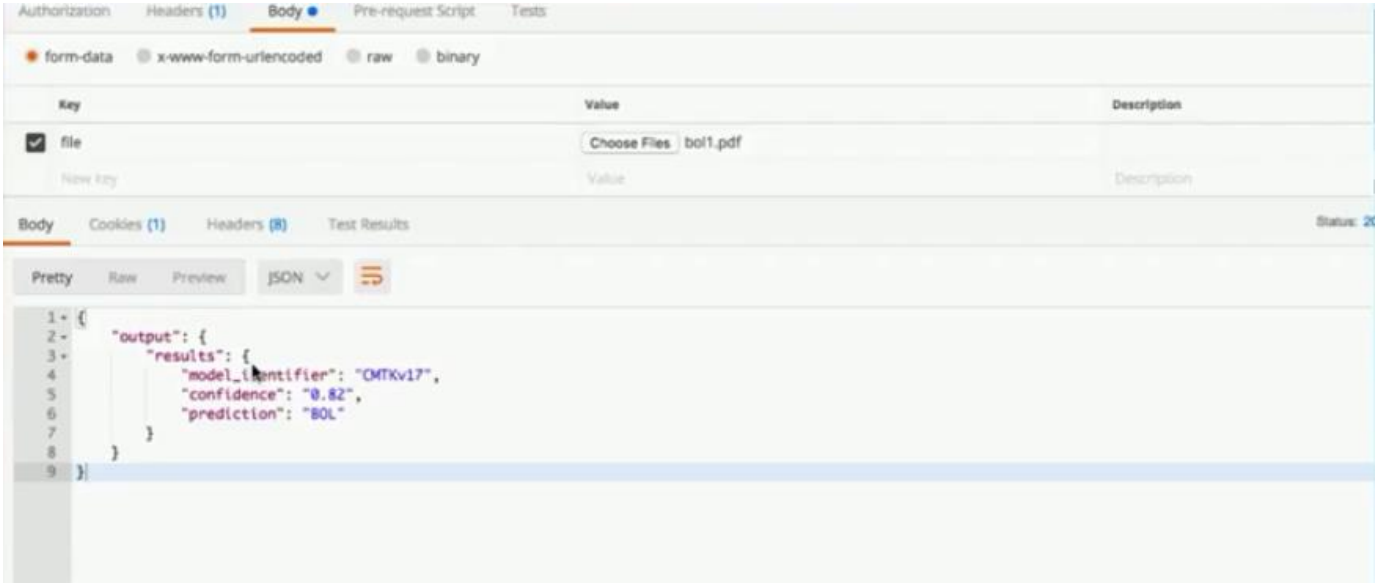
This is the Document Classification application/sub-system that we run as a set of microservices.



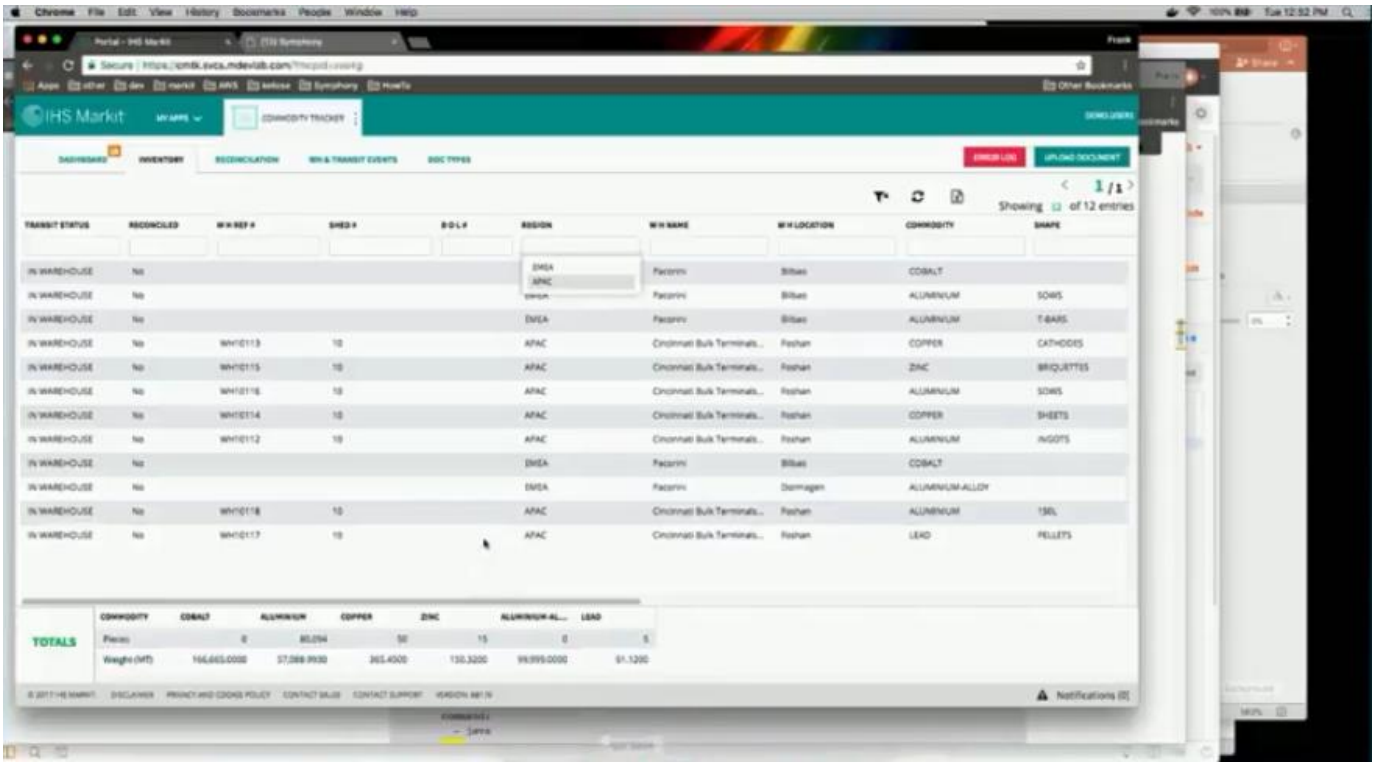




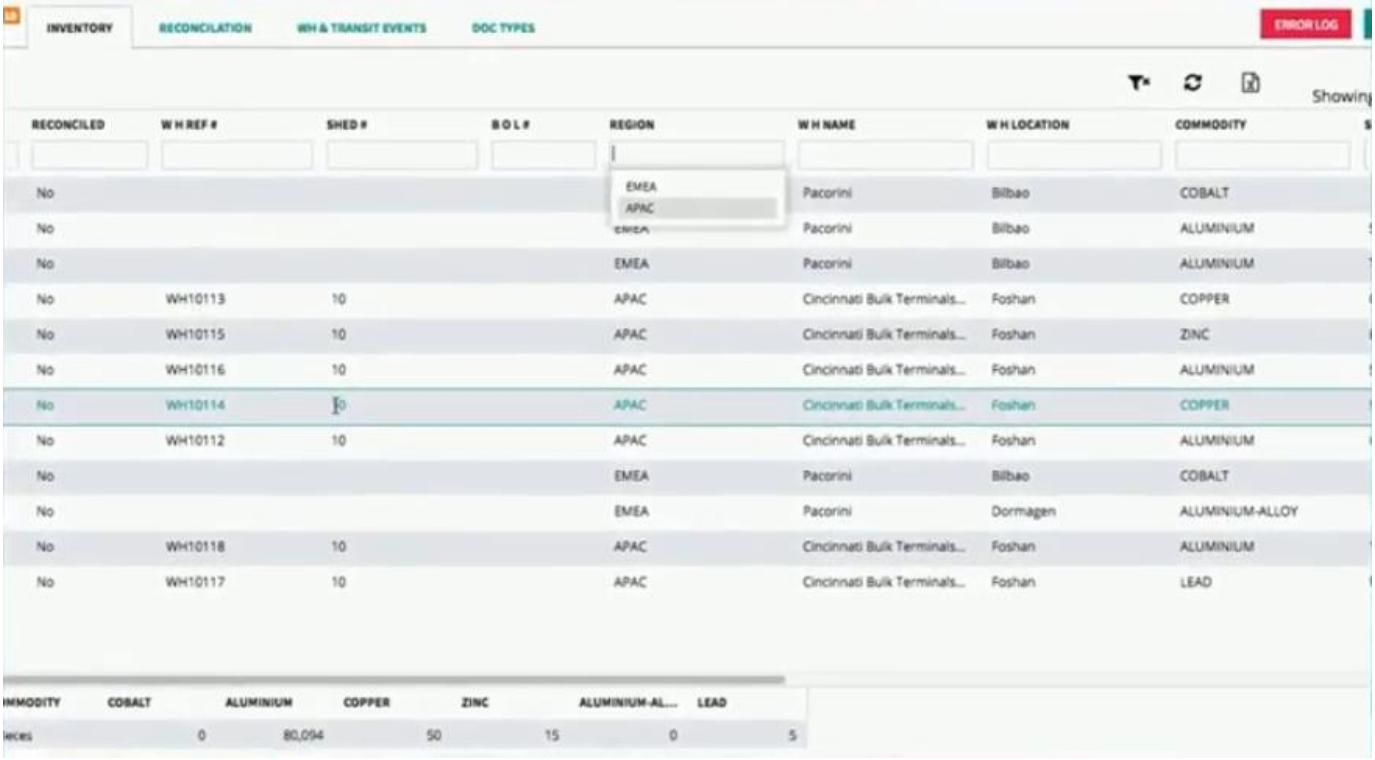
We are using the CMTKv17 model for this classification task and pass it the bol1.pdf document to scan and digitize with the earlier microservices processes



We then get the classification/prediction process. The CMTKv17 model predictor returns a result is 82% accuracy that the document we jut scanned is a bill of lading BOL. We then take this result and send it downstream to be further processed and into the database for storage.



This is the commodity tracker product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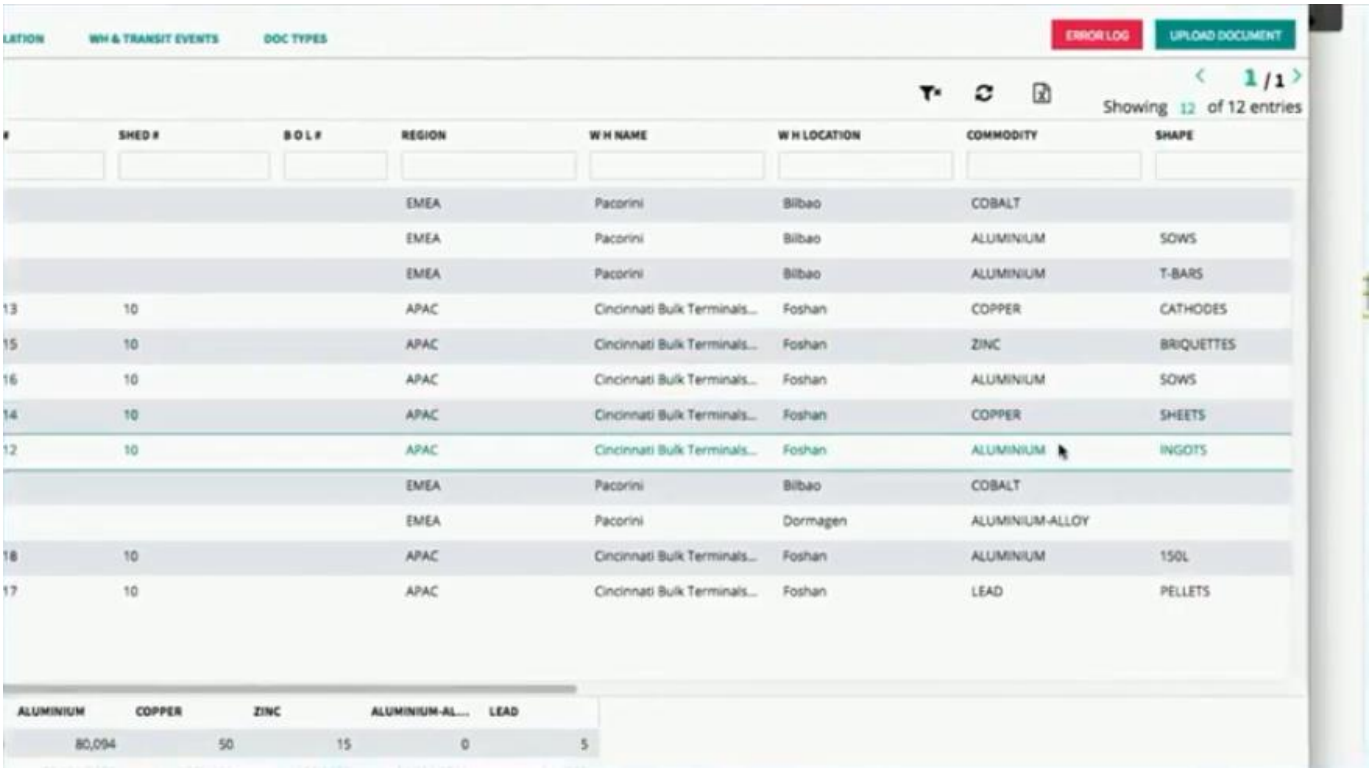
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EHOUSE	No	WH10115	10	APAC	Cincinnati Bulk Terminals...	Foshan
EHOUSE	No	WH10116	10	APAC	Cincinnati Bulk Terminals...	Foshan
EHOUSE	No	WH10114	10	APAC	Cincinnati Bulk Terminals...	Foshan
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EHOUSE	No	WH10117	10	APAC	Cincinnati Bulk Terminals...	Foshan

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HS MARKIT. DISCLAIMER PRIVACY AND COOKIE POLICY CONTACT SALES CONTACT SUPPORT VERSION: 88176

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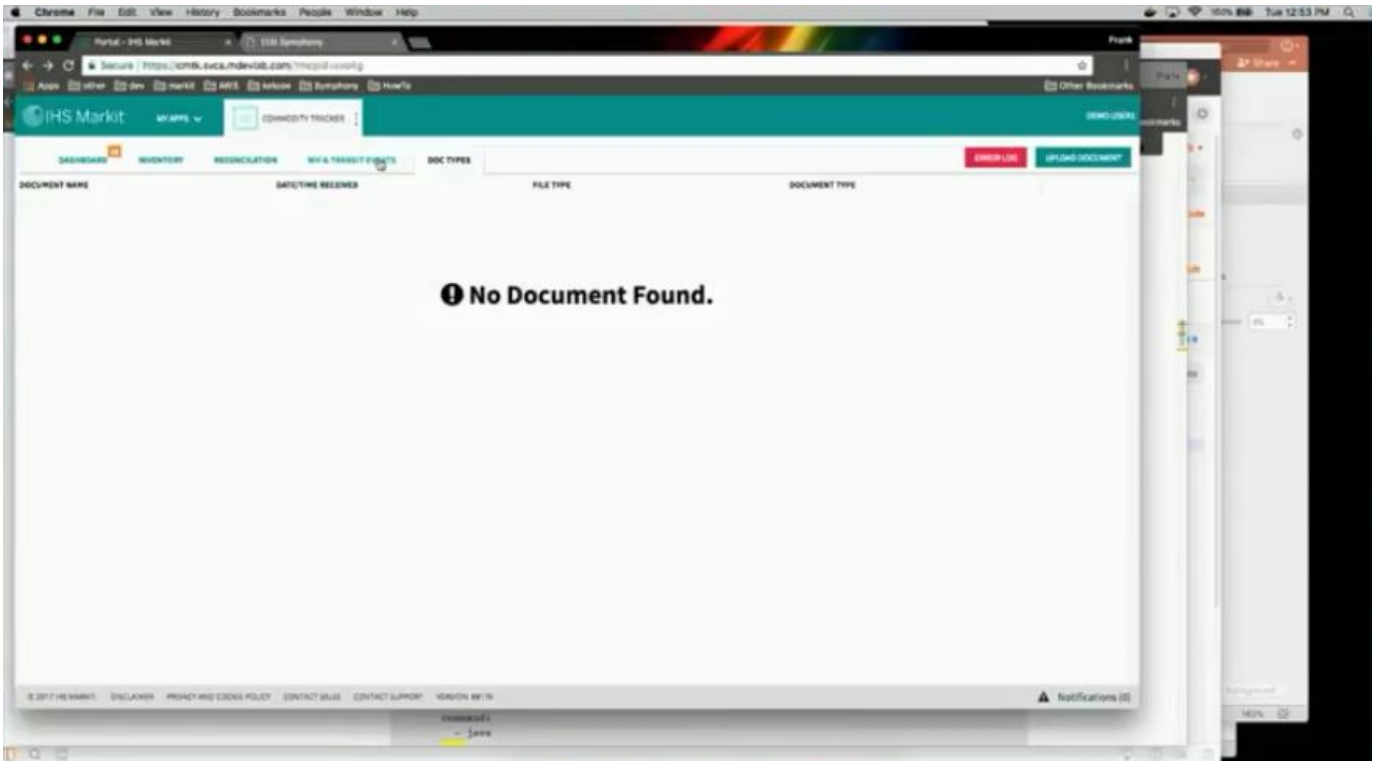
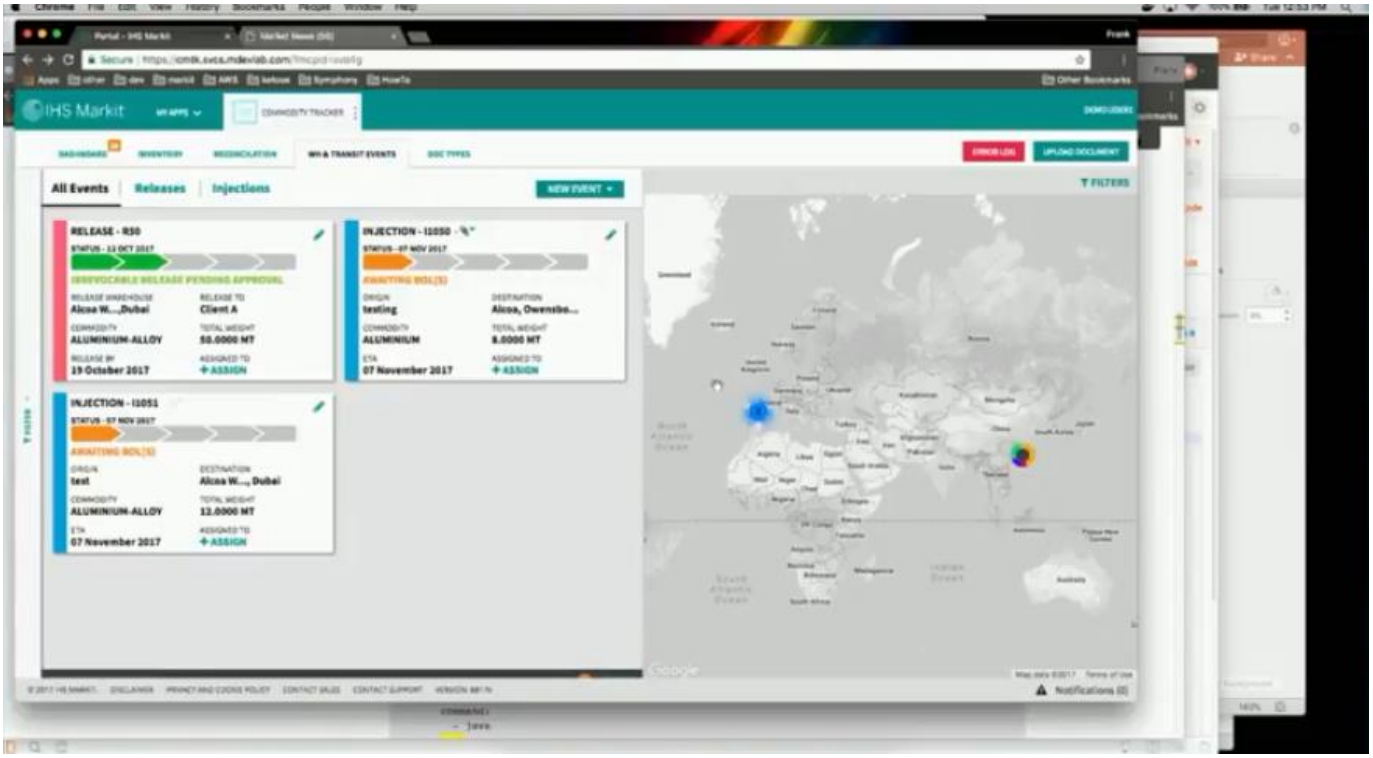
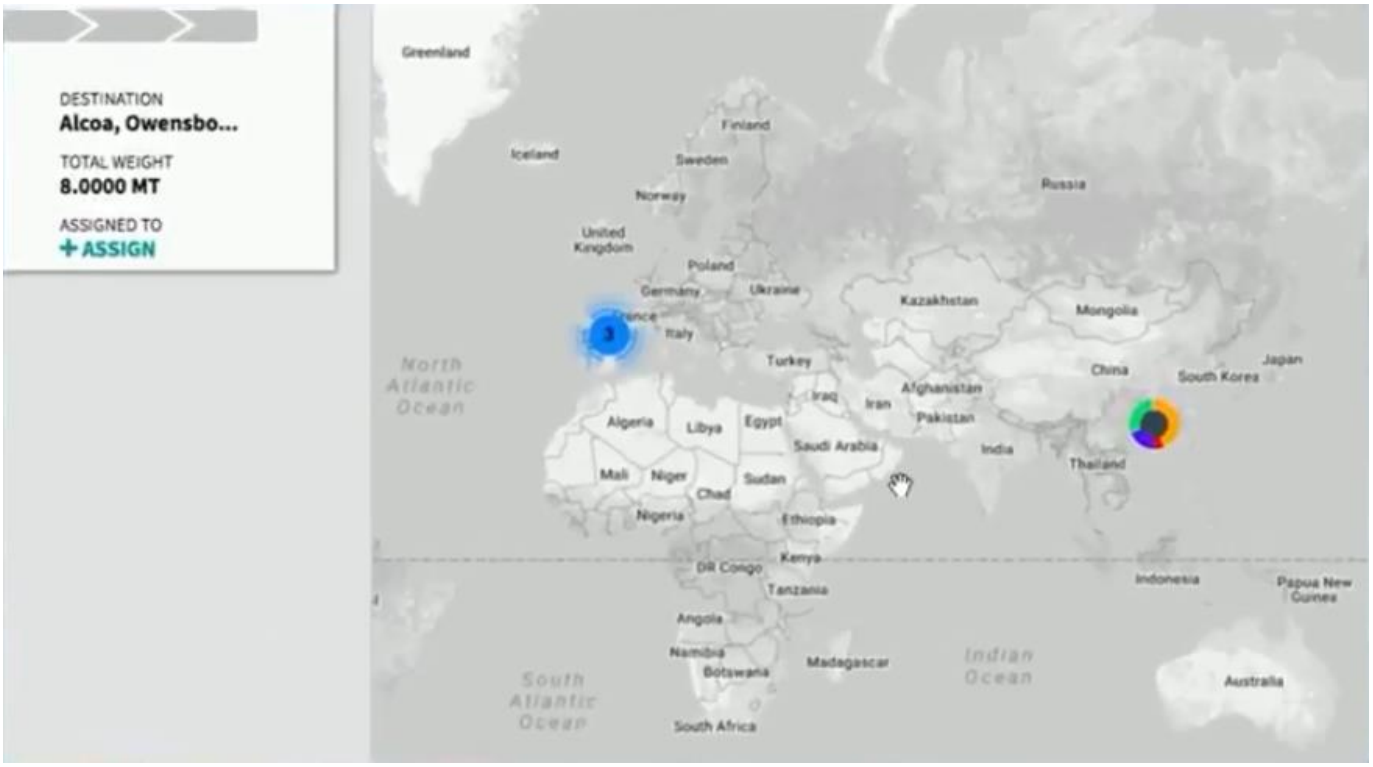




We can now search for the data of how much physical commodities we have in various warehouse locations worldwide based of real time information including the result of the new document we just scanned in.

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Map data ©2017 GeoBasis-DE/BKG (©2009), Google, Inst. Geogr. Nacional, Mapa GISrael, ORION-ME
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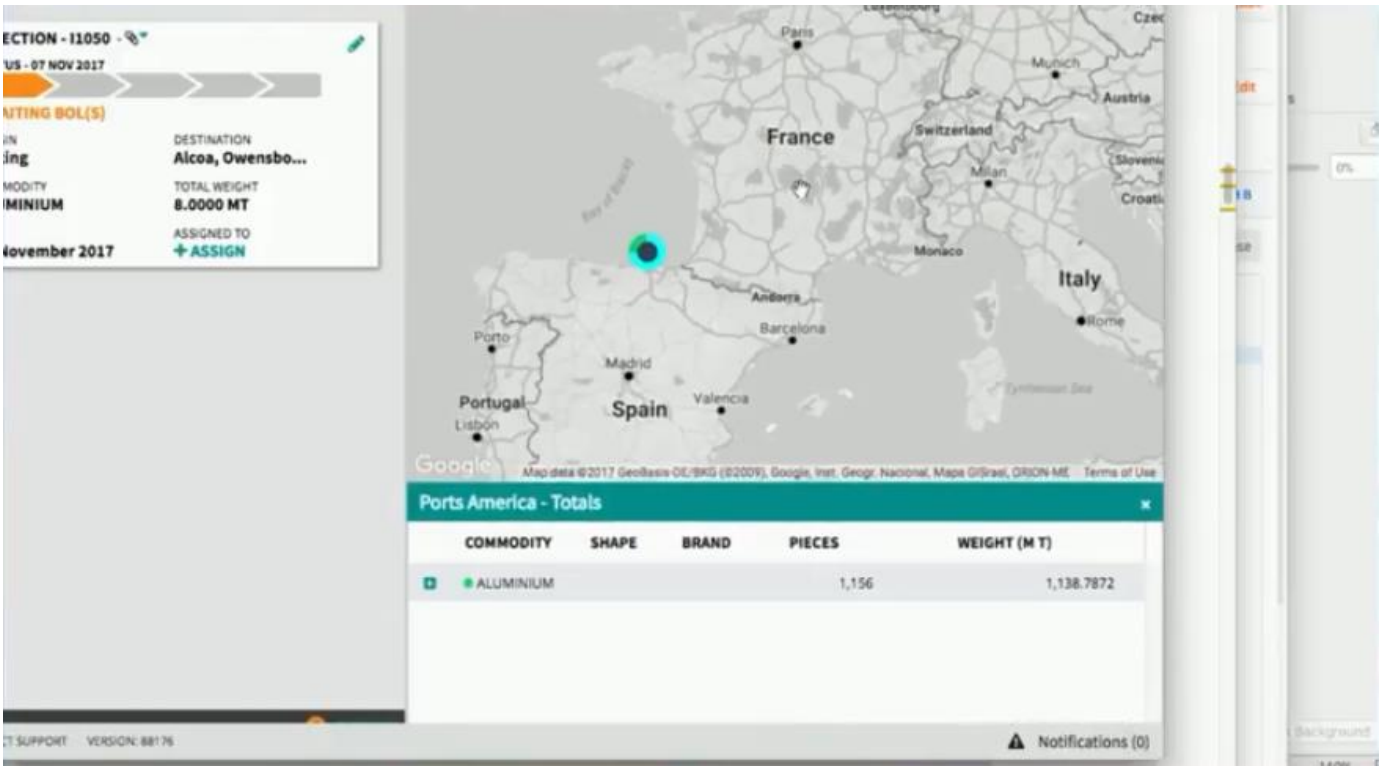
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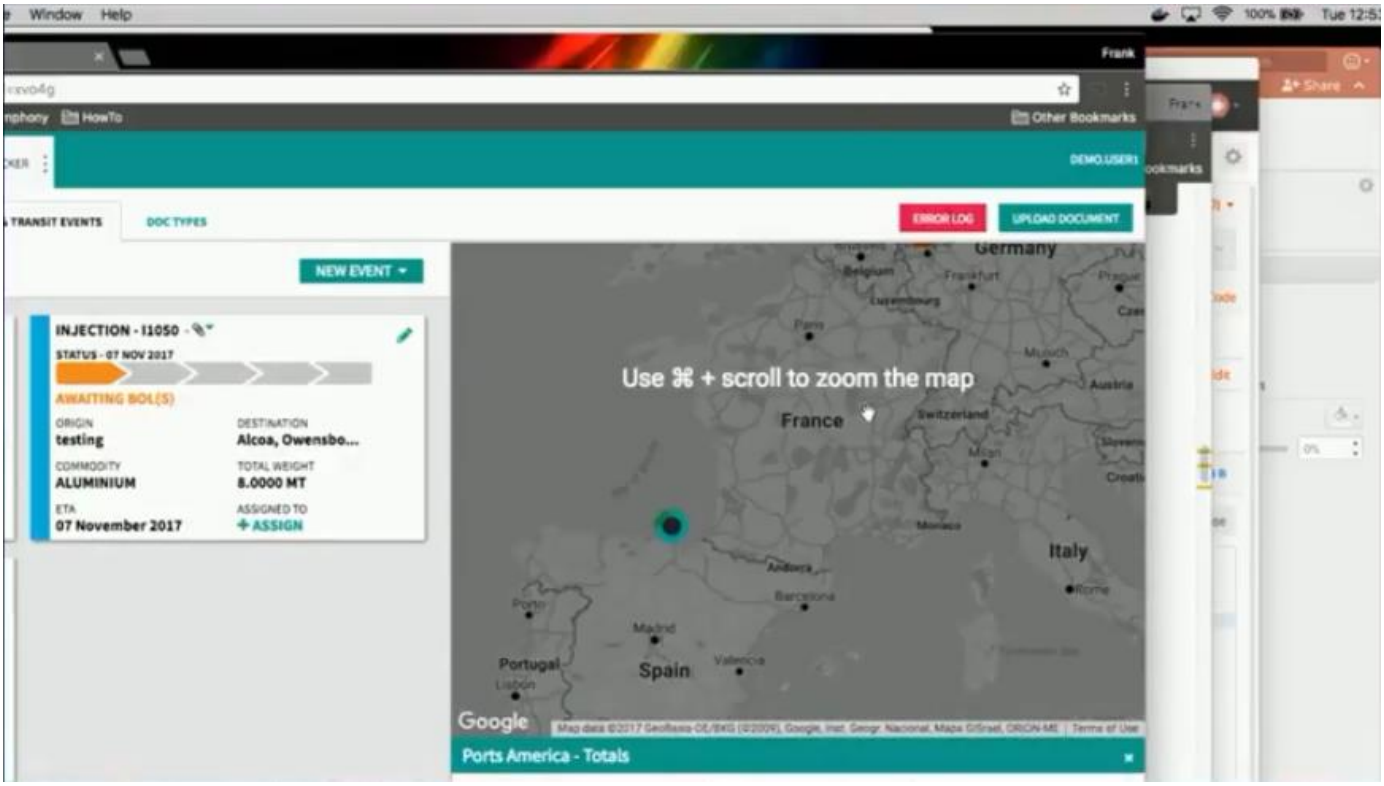
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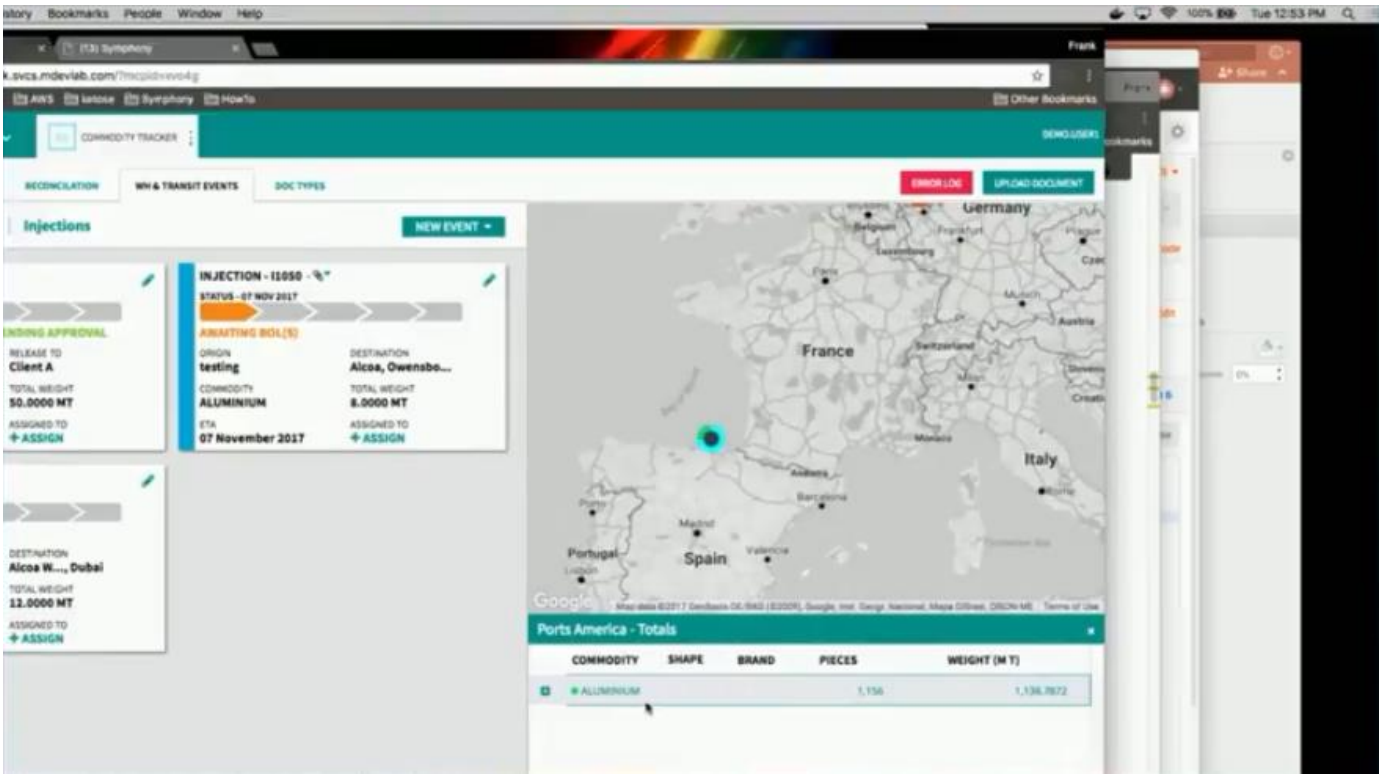
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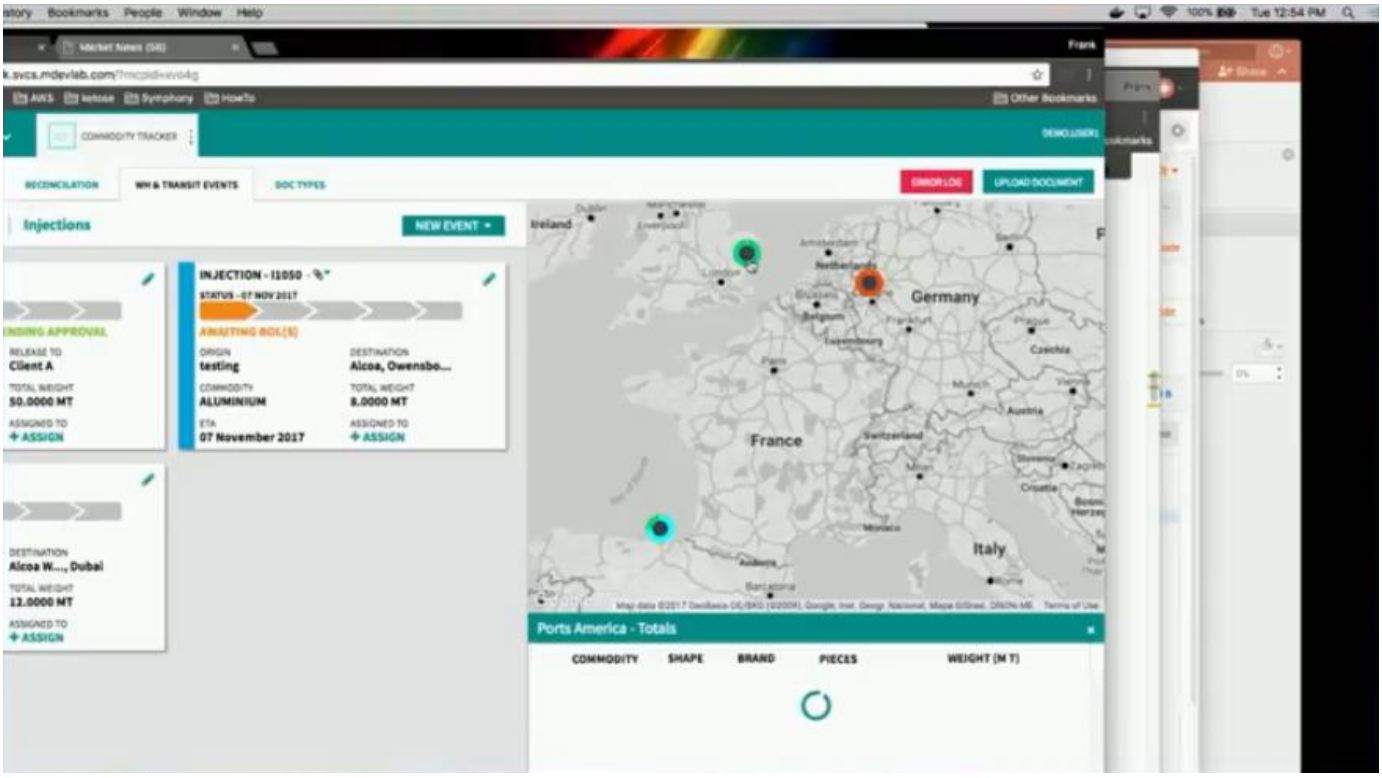
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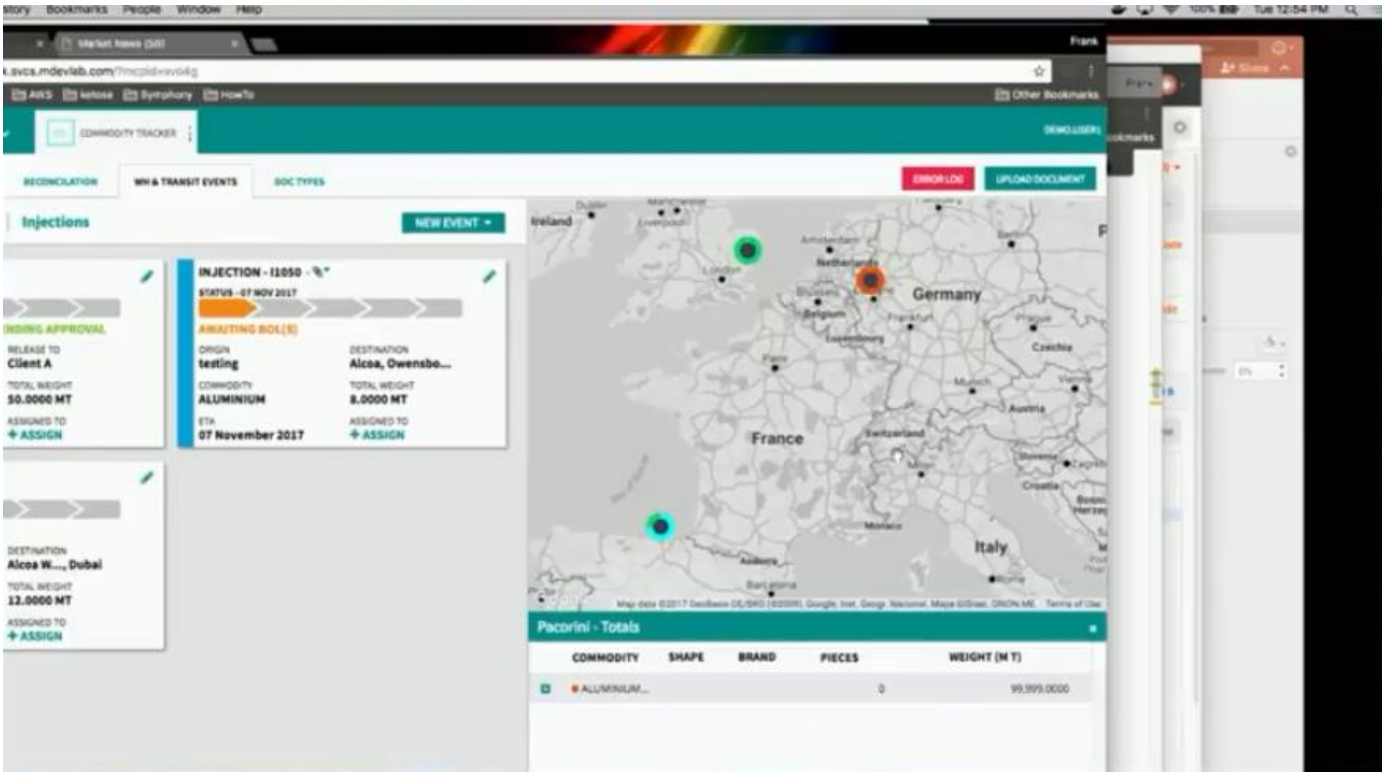
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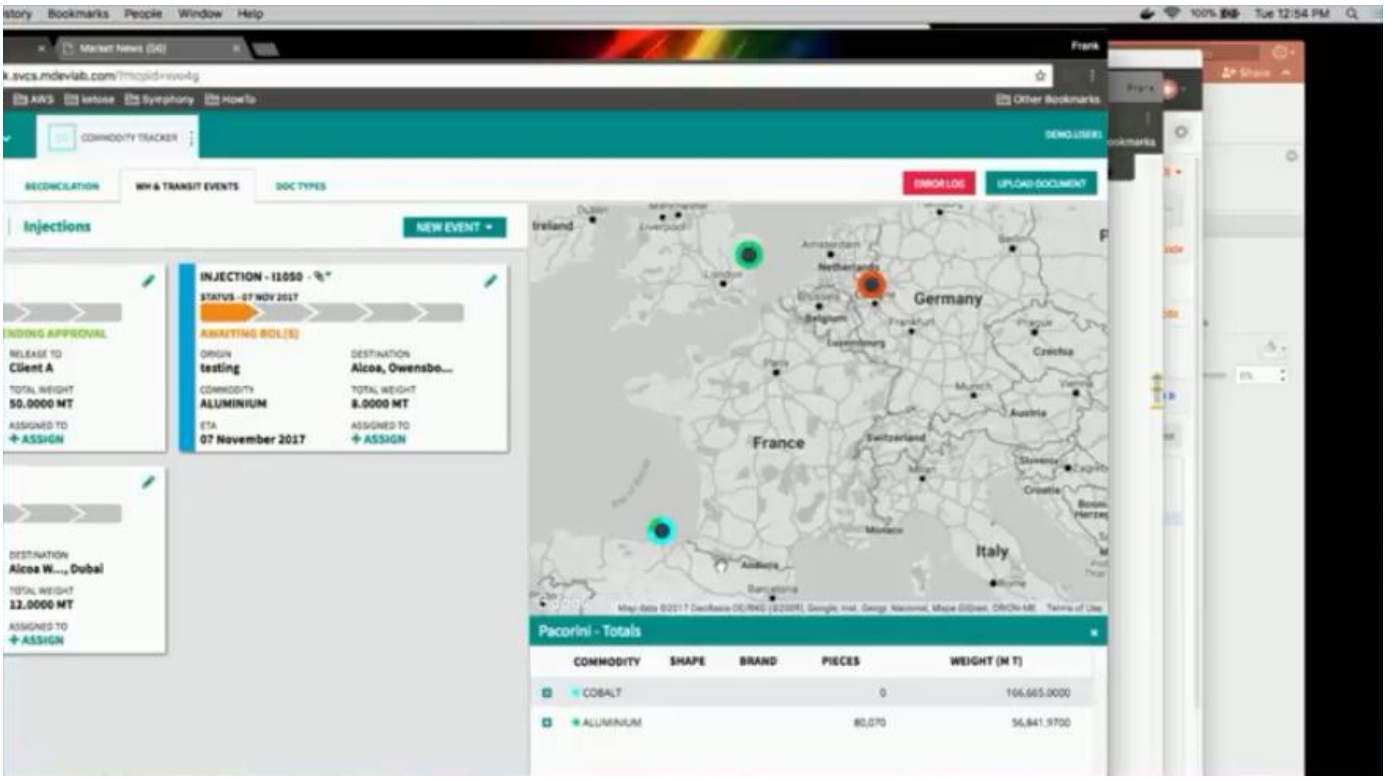
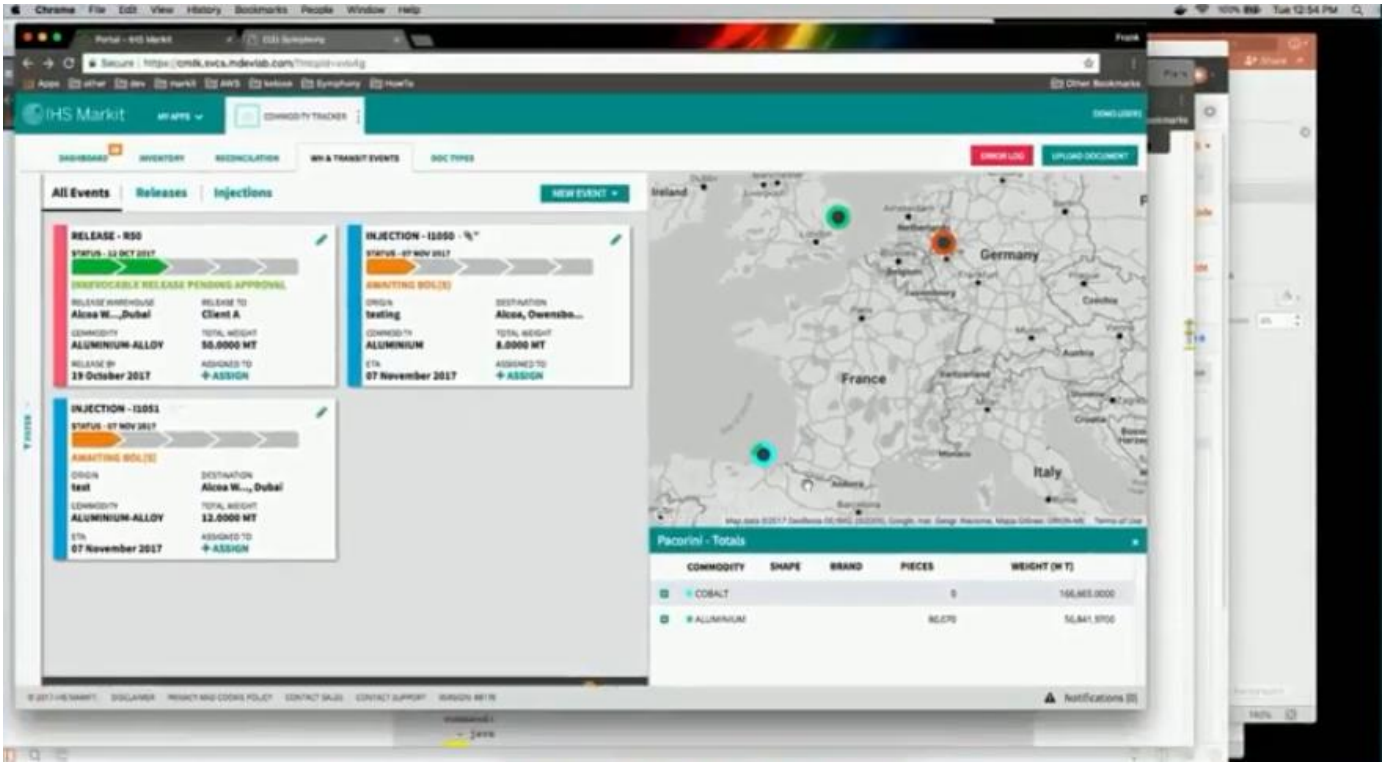
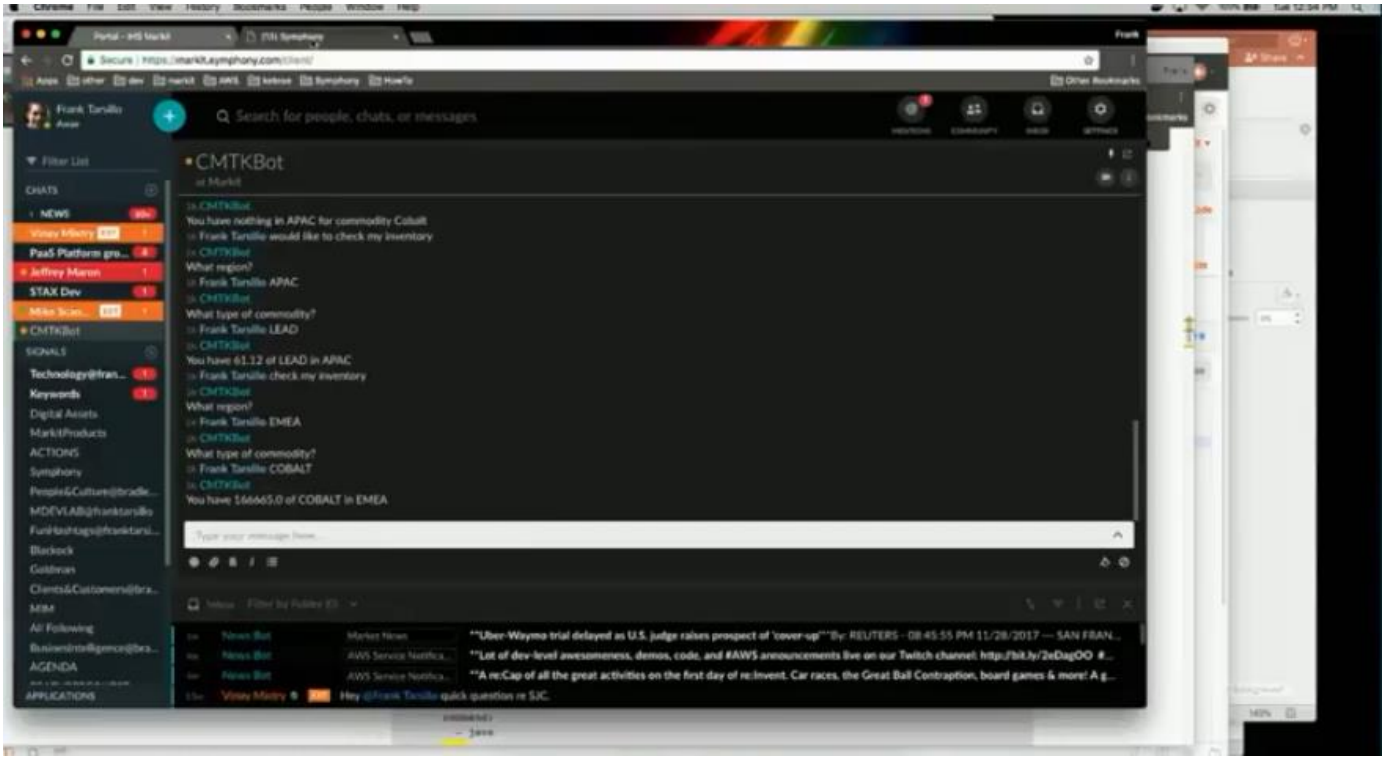
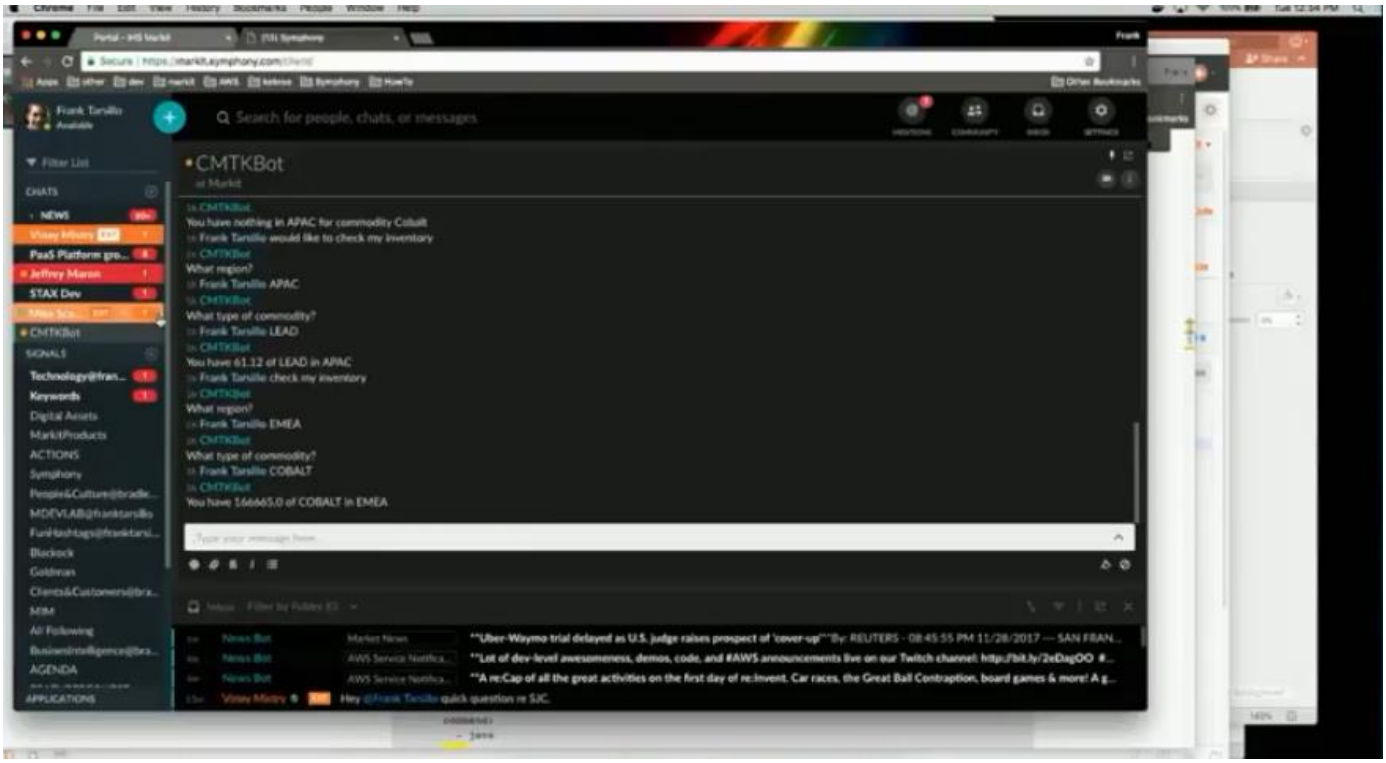
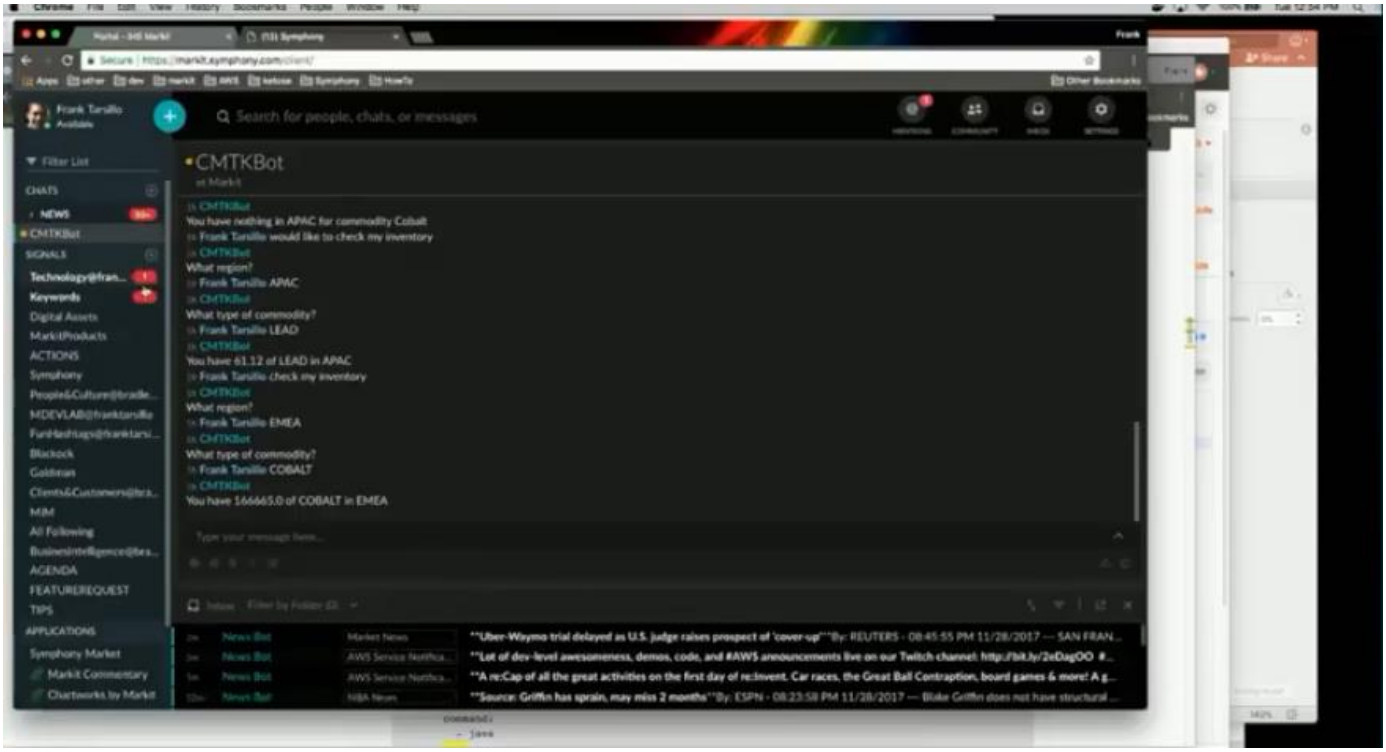

COMMODITY TRACKER
RECONCILIATION
WH & TRANSIT EVENTS
DOC TYPES
ERROR LOG
UPLOAD DOCUMENT
Injections
NEW EVENT
INJECTION - I1050
STATUS - 07 NOV 2017
AWAITING BOL(S)
ORIGIN
testing
DESTINATION
Alcoa, Owensbo...
COMMODITY
ALUMINIUM
TOTAL WEIGHT
8.0000 MT
ETA
07 November 2017
ASSIGNED TO
+ ASSIGN
RELEASE TO
Client A
TOTAL WEIGHT
50.0000 MT
DESTINATION
Alcoa W..., Dubai
12.0000 MT
Ireland
Germany
France
Italy
Pacorini - Totals
COMMODITY
SHAPE
BRAND
PIECES
WEIGHT (M T)
COBALT
0
166,665.0000
ALUMINIUM
80,070
56,841.9700

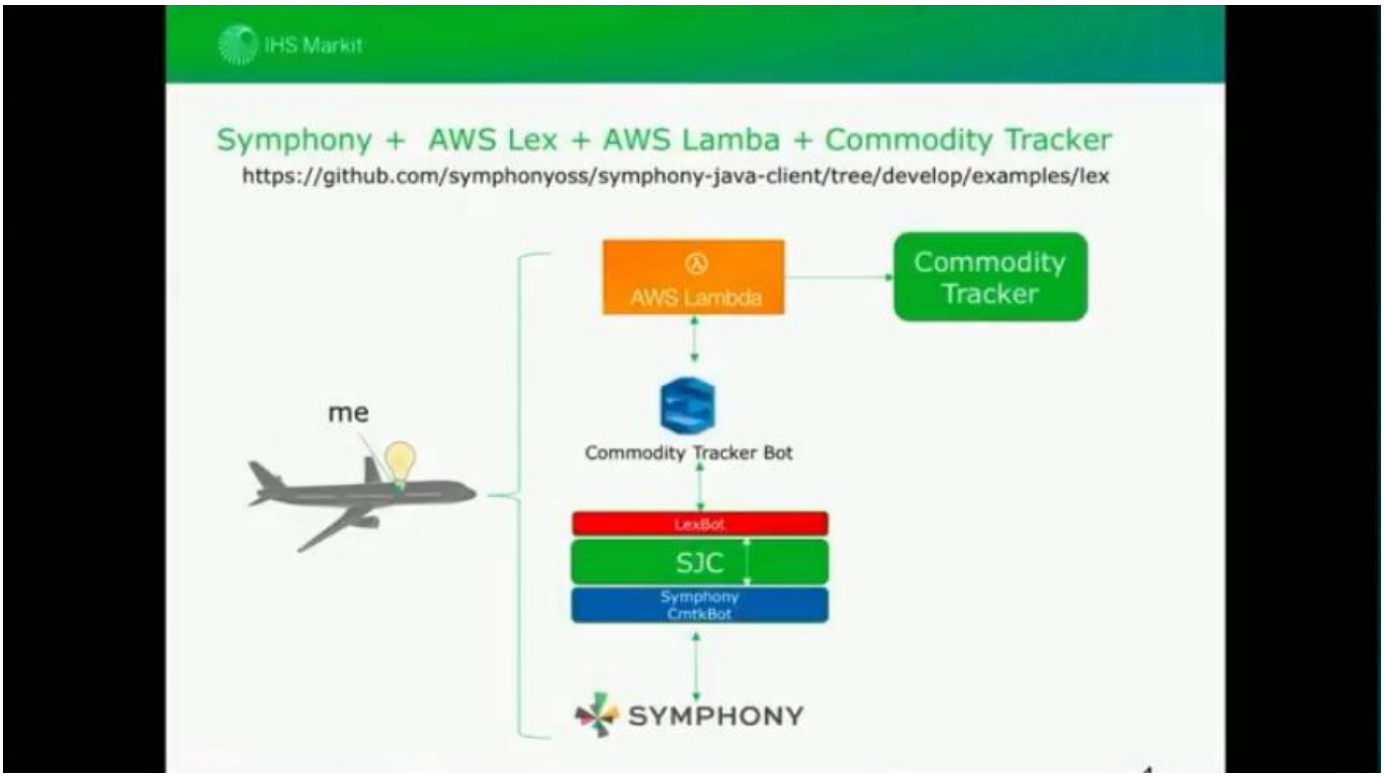

IHS Markit
All Events
Releases
Injections
RELEASE - R50
INJECTION - I1050 - *
INJECTION - I1051
Ireland
Germany
France
Italy
Pacorini - Totals
COMMODITY
SHAPE
BRAND
PIECES
WEIGHT (M T)
COBALT
ALUMINIUM


CMTKBot
You have nothing in APAC for commodity Cobalt
Frank Tarsillo would like to check my inventory
What region?
Frank Tarsillo APAC
What type of commodity?
Frank Tarsillo LEAD
You have 61.12 of LEAD in APAC
Frank Tarsillo check my inventory
What region?
Frank Tarsillo EMEA
What type of commodity?
Frank Tarsillo COBALT
You have 166665.0 of COBALT in EMEA

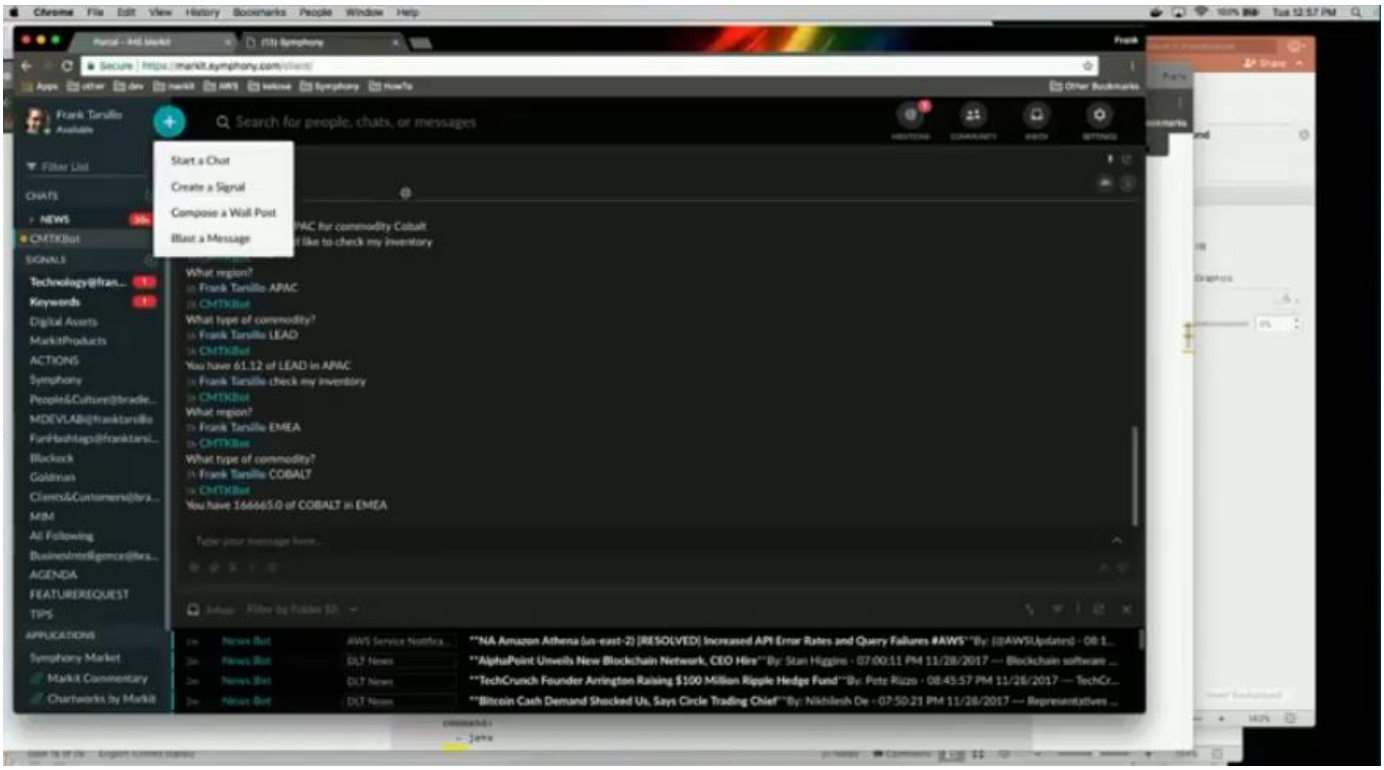




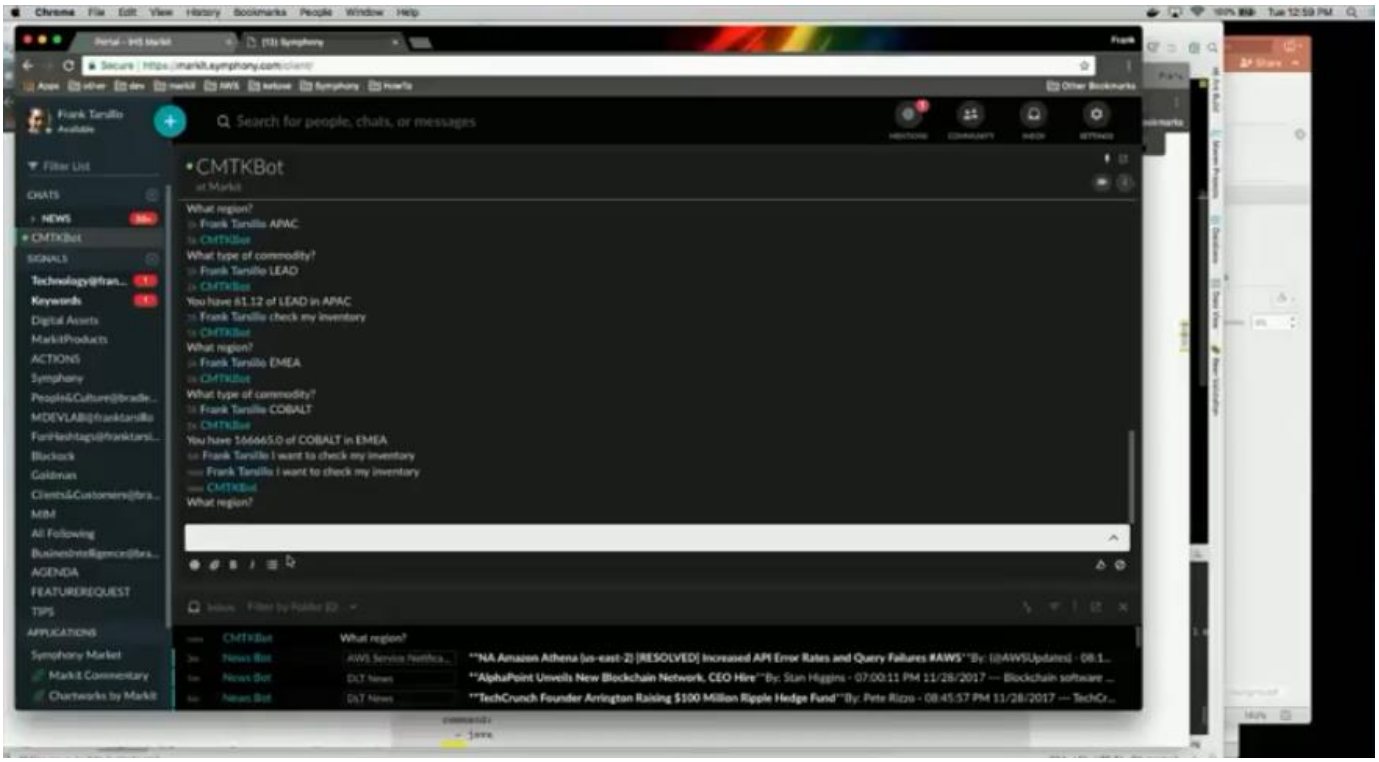
Symphony is a new collaboration network being assembled by all the major financial institutions for providing instant messaging between different parties.

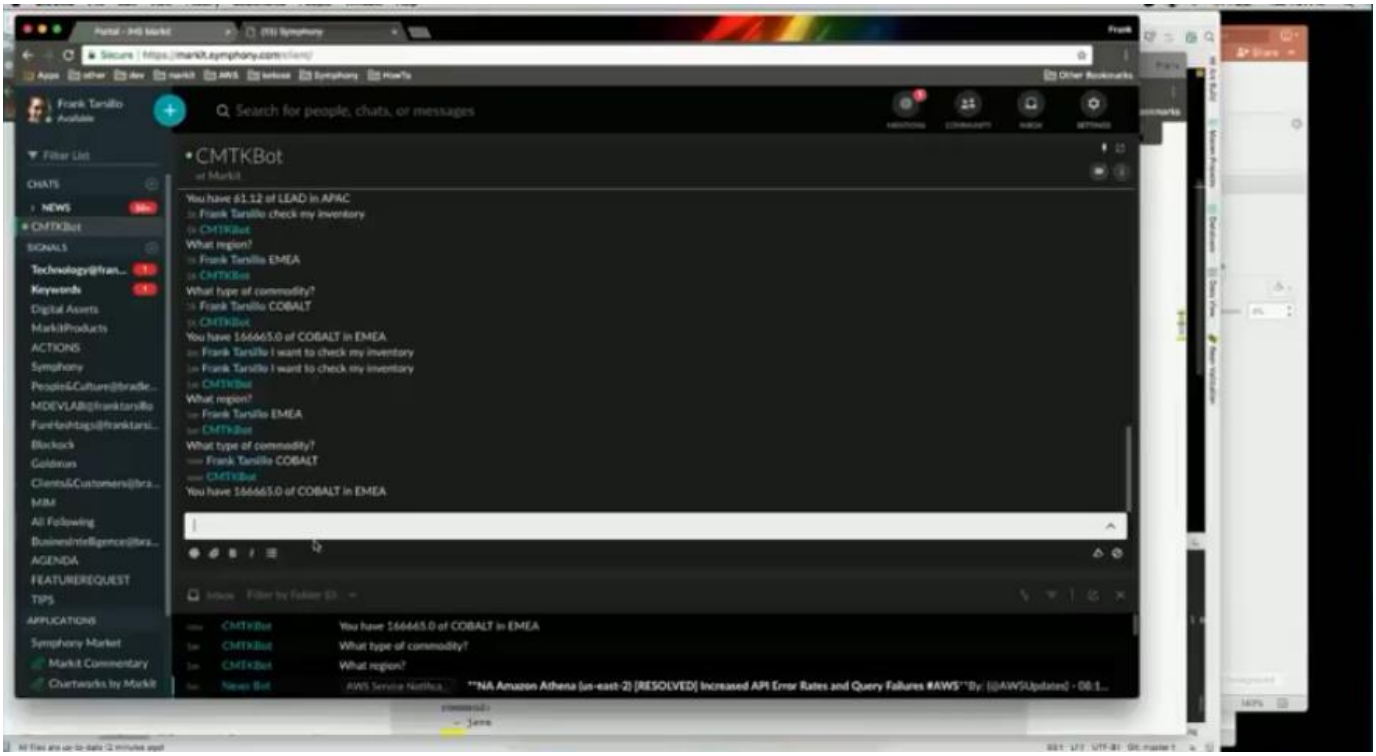


I started to create a bot that makes a bot that can serve real time data using lambda functions and Amazon Lex with its NLP features. The lambda functions can go into Commodity Tracker and pull out needed information that can then be relayed to Lex for the bot.



A trader can simply interact and talk to the bot for real time information when trying to make a commodities deal. These are traders just in Symphony all day long and the ability to chat with a Bot using Lex and Lambda is critical.


CMTKBot
What region?
Frank Tarsillo APAC
What type of commodity?
Frank Tarsillo LEAD
You have 61.12 of LEAD in APAC
Frank Tarsillo check my inventory
What region?
Frank Tarsillo EMEA
What type of commodity?
Frank Tarsillo COBALT
You have 166665.0 of COBALT in EMEA
Frank Tarsillo I want to check my inventory
Frank Tarsillo I want to check my inventory
What region?
NA Amazon Athena (us-east-2) [RESOLVED] Increased API Error Rates and Query Failures #AWS
AlphaPoint Unveils New Blockchain Network, CEO Hire
TechCrunch Founder Arrington Raising $100 Million Ripple Hedge Fund


CMTKBot
You have 61.12 of LEAD in APAC
Frank Tarsillo check my inventory
What region?
Frank Tarsillo EMEA
What type of commodity?
Frank Tarsillo COBALT
You have 166665.0 of COBALT in EMEA
Frank Tarsillo I want to check my inventory
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What region?
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What type of commodity?
Frank Tarsillo COBALT
You have 166665.0 of COBALT in EMEA
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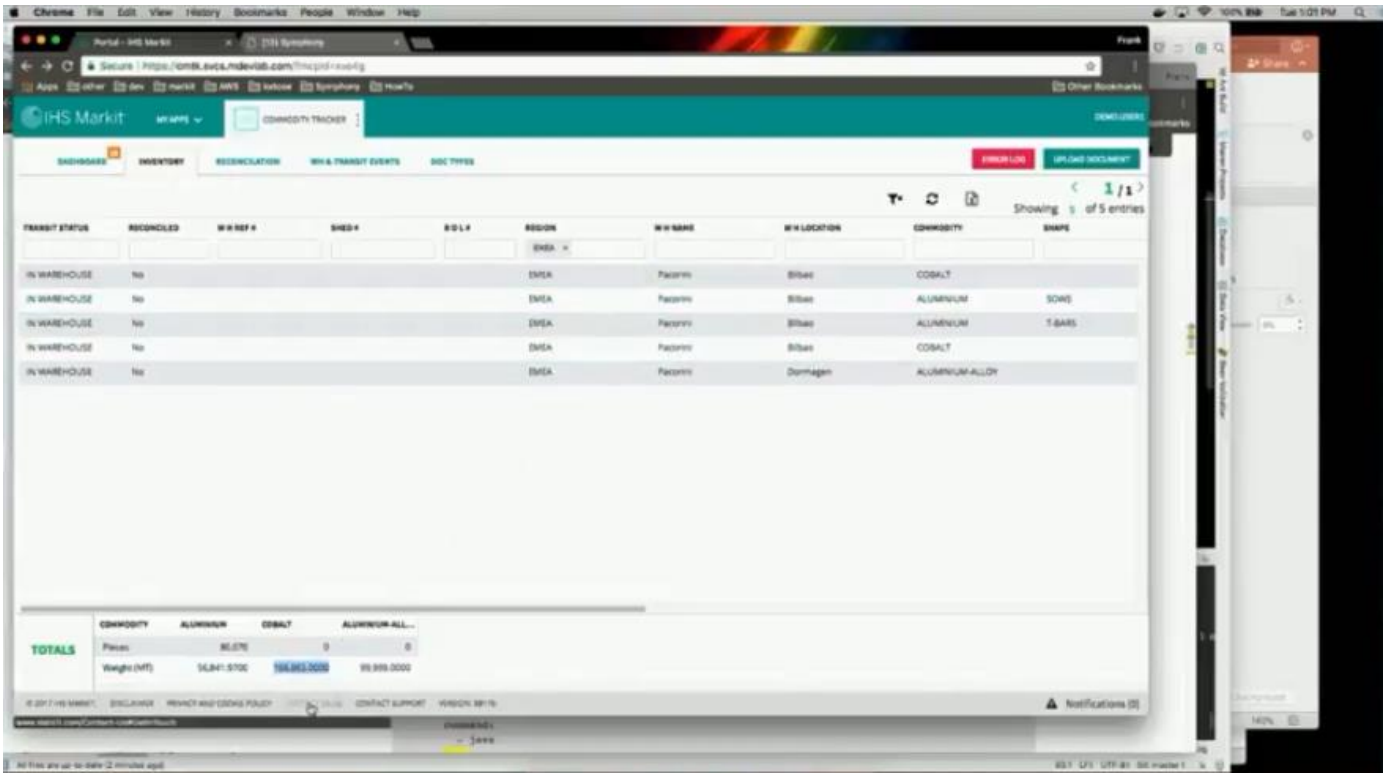
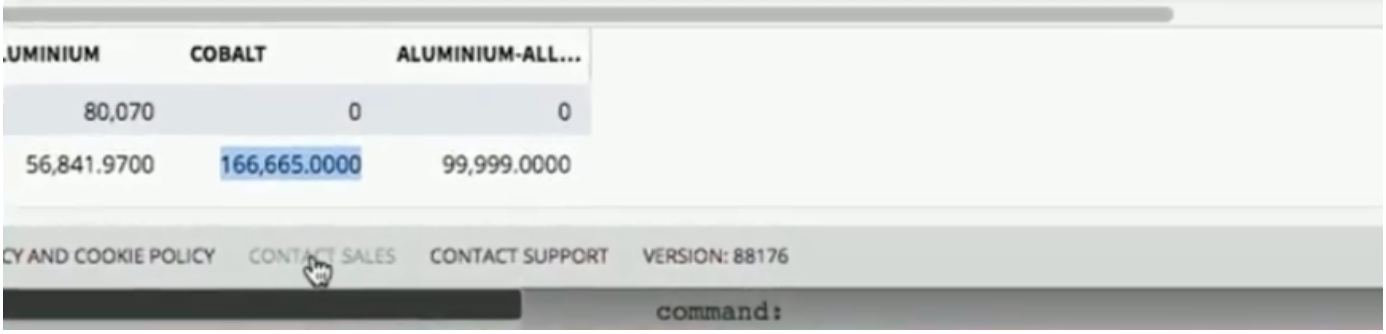
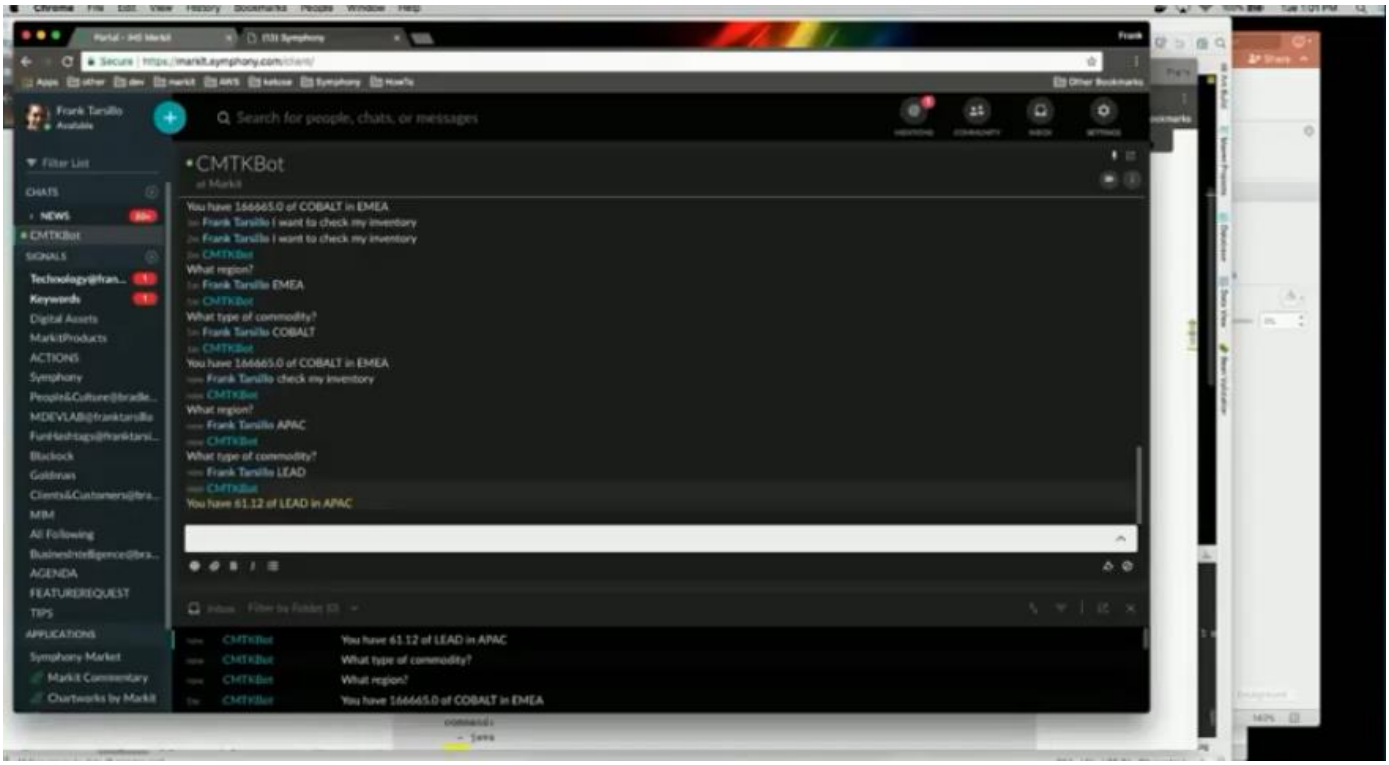
What type of commodity?
What region?
NA Amazon Athena (us-east-2) [RESOLVED] Increased API Error Rates and Query Failures #AWS


IHS Markit
COMMODITY TRACKER
DASHBOARD
INVENTORY
RECONCILIATION
ERROR LOG
UPLOAD DOCUMENT
TRANSIT STATUS
RECONCILED
REGION
COMMODITY
SHAPE
IN WAREHOUSE
No
EMEA
Facormi
Bilbao
COBALT
ALUMINIUM
SOWS
T-BARS
Dormagen
ALUMINIUM-ALLOY
Showing 1 of 5 entries
TOTALS
COMMODITY
ALUMINIUM
COBALT
ALUMINIUM-ALL...
Pieces
80,070
0
0
Weight (MT)
56,841.9700
166,665.0000
99,999.0000
Notifications (0)


UMINIUM
COBALT
ALUMINIUM-ALL...
80,070
0
0
56,841.9700
166,665.0000
99,999.0000
CY AND COOKIE POLICY
CONTACT SALES
CONTACT SUPPORT
VERSION: 88176
command:



Getting started with ML

AWS AI:

Democratized artificial intelligence

Services	Amazon Lex (language)	Amazon Polly (speech)		Amazon Rekognition (vision)
Platforms	Amazon ML	Spark & EMR	Kinesis	Batch	ECS
Frameworks	AWS Deep Learning AMI				
	Apache MXNet	Tensor Flow	Gluon	Caffe2 & Caffe	Theano	Keras	Cognitive toolkit	Torch
Infrastructure	GPU	CPU	IoT	Mobile

aws re:Invent

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aws

Amazon Machine Learning (Amazon ML)

Easy-to-use, managed machine learning service built for developers

Robust, powerful machine-learning technology based on Amazon's internal systems

Create models using your data that is already stored in the AWS cloud

Deploy models to production in seconds

AWS re:Invent

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aws

Fully managed model and prediction services

End-to-end service with no servers to provision and manage

One-click production model deployment

Programmatically query model metadata to enable automatic retraining workflows

Monitor prediction usage patterns with Amazon CloudWatch metrics

AWS re:Invent

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aws

Easy to use and developer-friendly

Use the intuitive, powerful service console to build and explore your initial models

Data retrieval

Model training, quality evaluation, fine-tuning

Deployment and management

Automate model lifecycle with fully featured APIs and SDKs

Java, Python, .NET, JavaScript, Ruby, PHP

Easily create smart iOS and Android applications with AWS Mobile SDK

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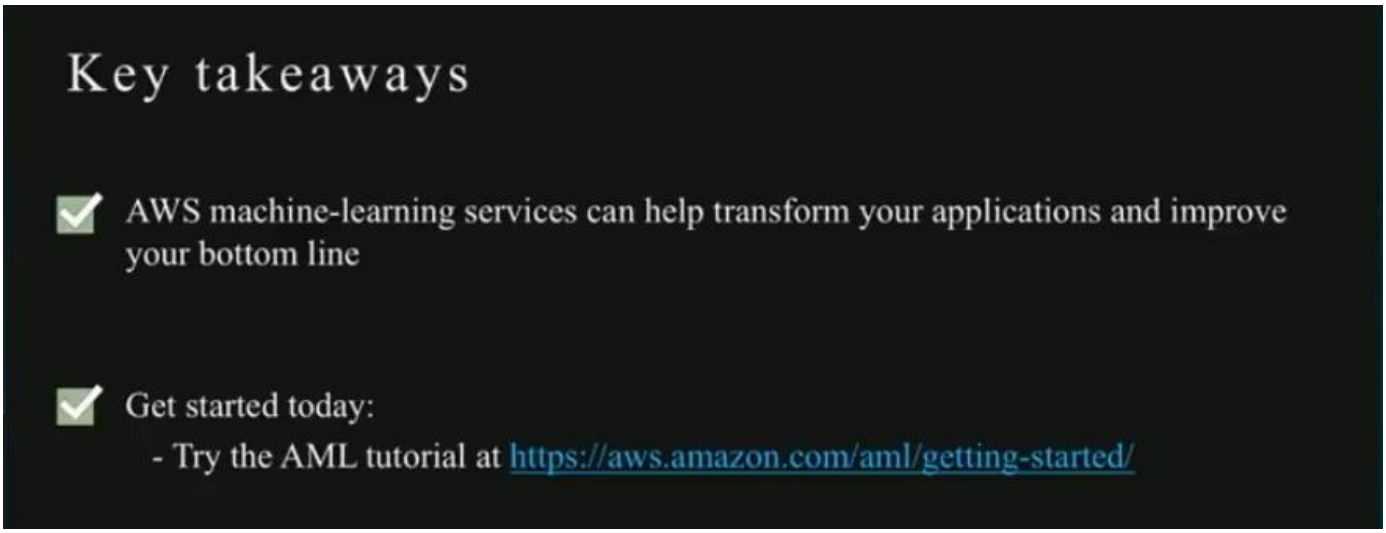
Integrated with the AWS data ecosystem

Access data that is stored in Amazon S3, Amazon Redshift, or MySQL databases in Amazon RDS

Output predictions to Amazon S3 for easy integration with your data flows

Use AWS Identity and Access Management (IAM) for fine-grained data access permission policies

Key takeaways



https://aws.amazon.com/aml/getting-started/