# IoT: it's all about Data!

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@julsimon

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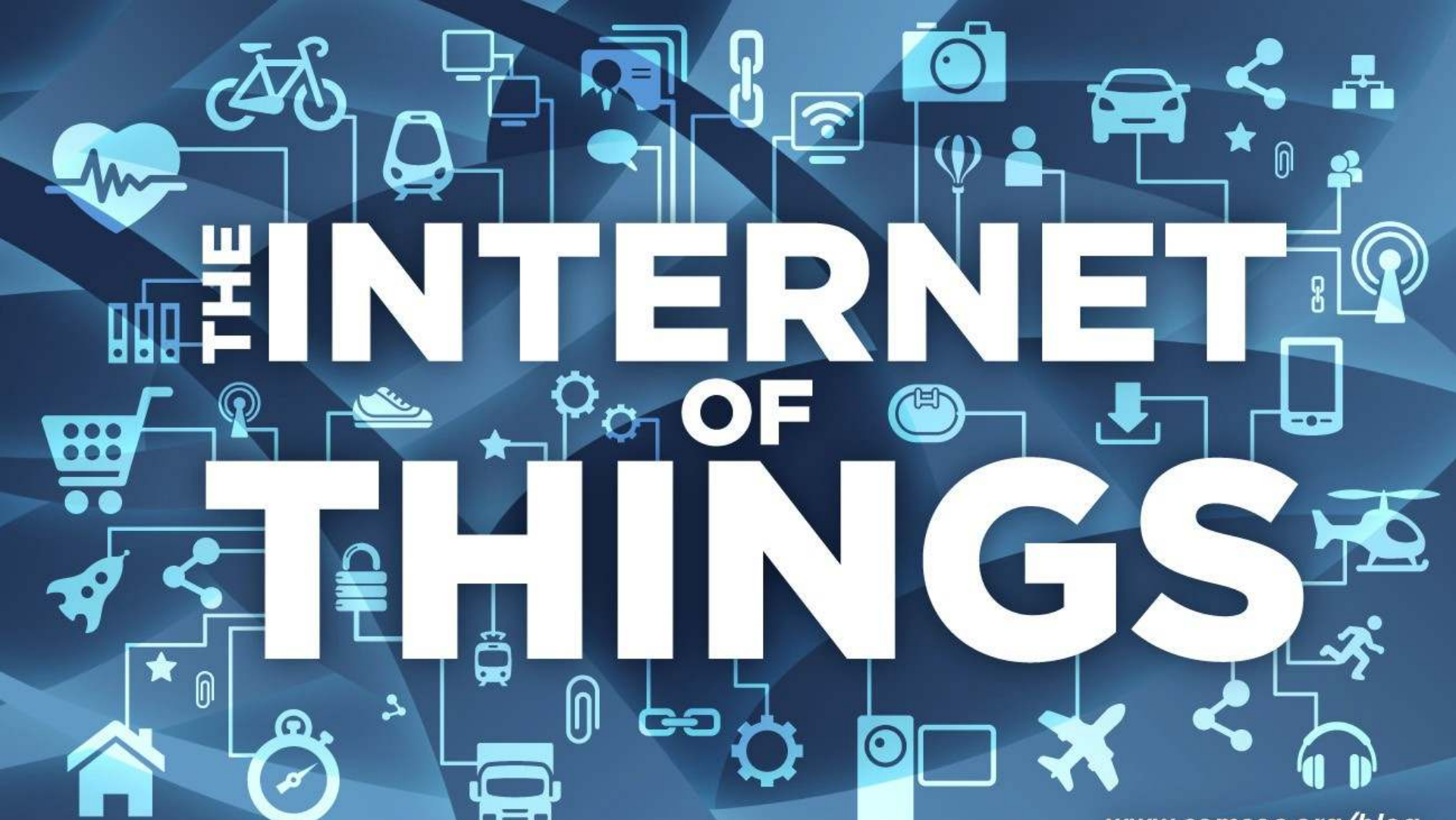
THE INTERNET OF THINGS

# Super exciting, but there's a bit of work, isn't it?

Connecting devices…

Securing data in-transit and at-rest…

Storing and processing data…

IoT without the Cloud…

And are there real-life projects out there?

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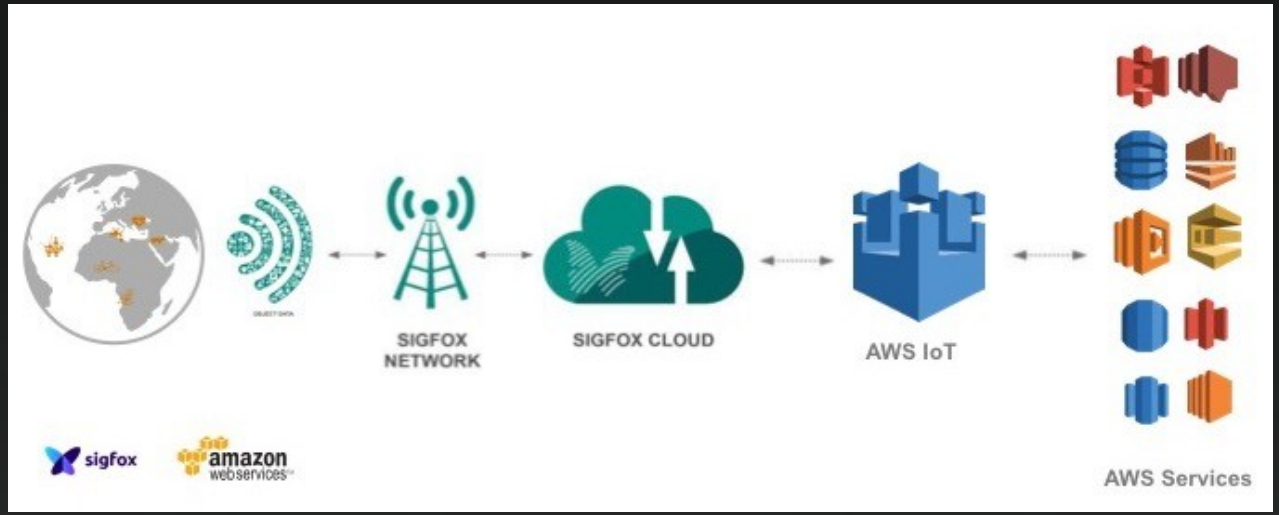
# No IP? No problem!




https://aws.amazon.com/blogs/iot/connect-your-devices-to-aws-iot-using-the-sigfox-network/

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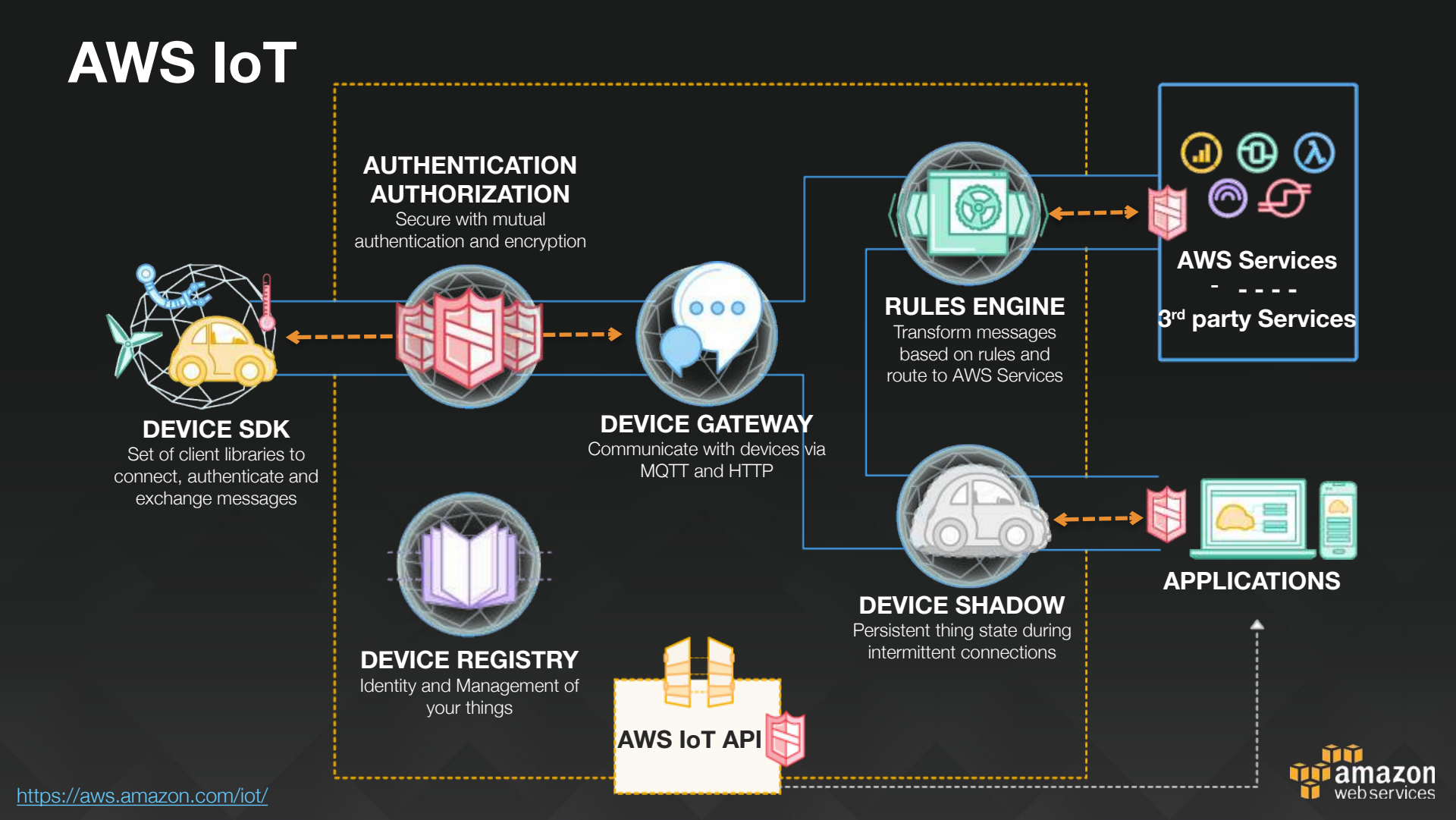
# AWS IoT




https://aws.amazon.com/iot/

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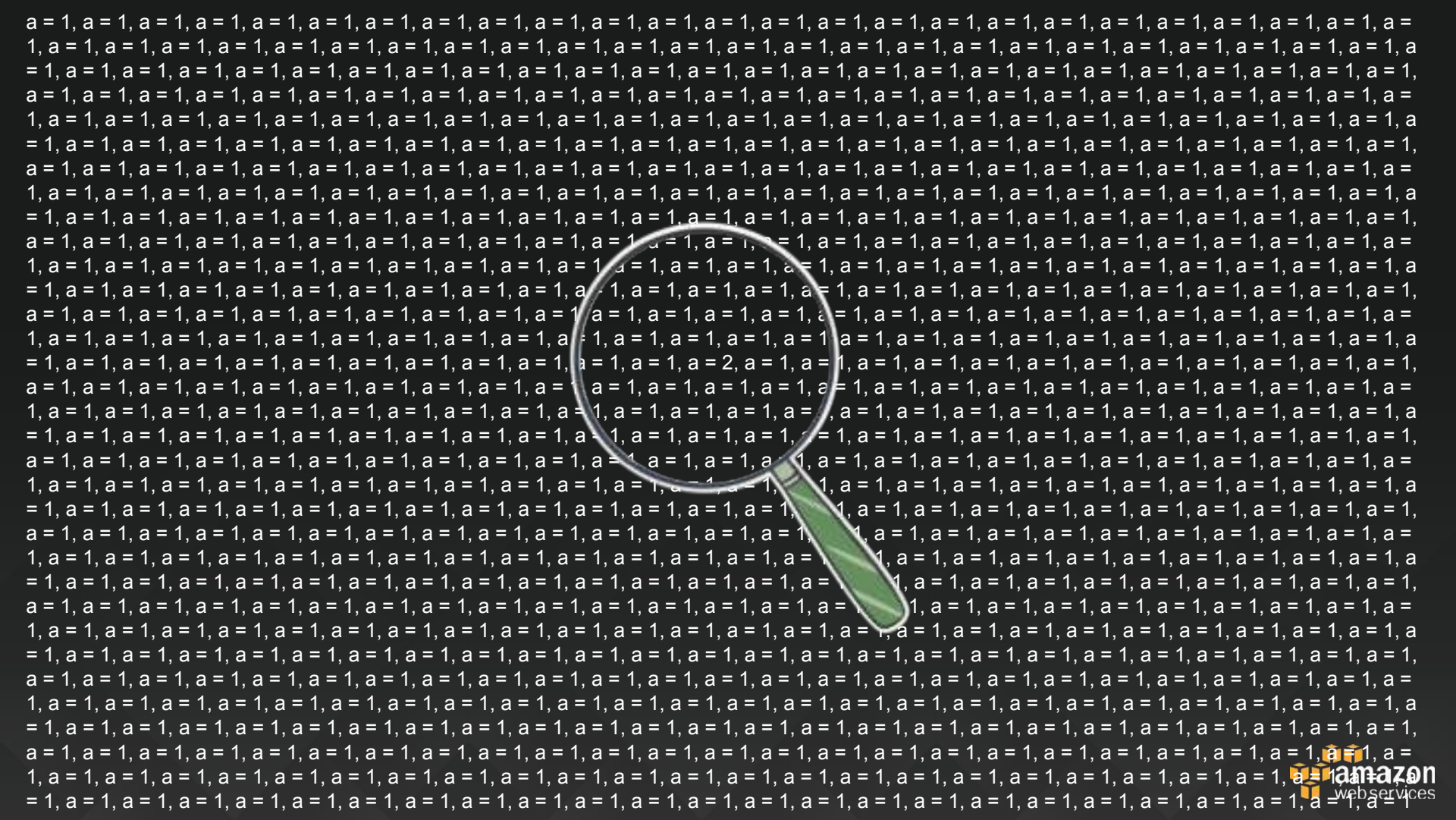
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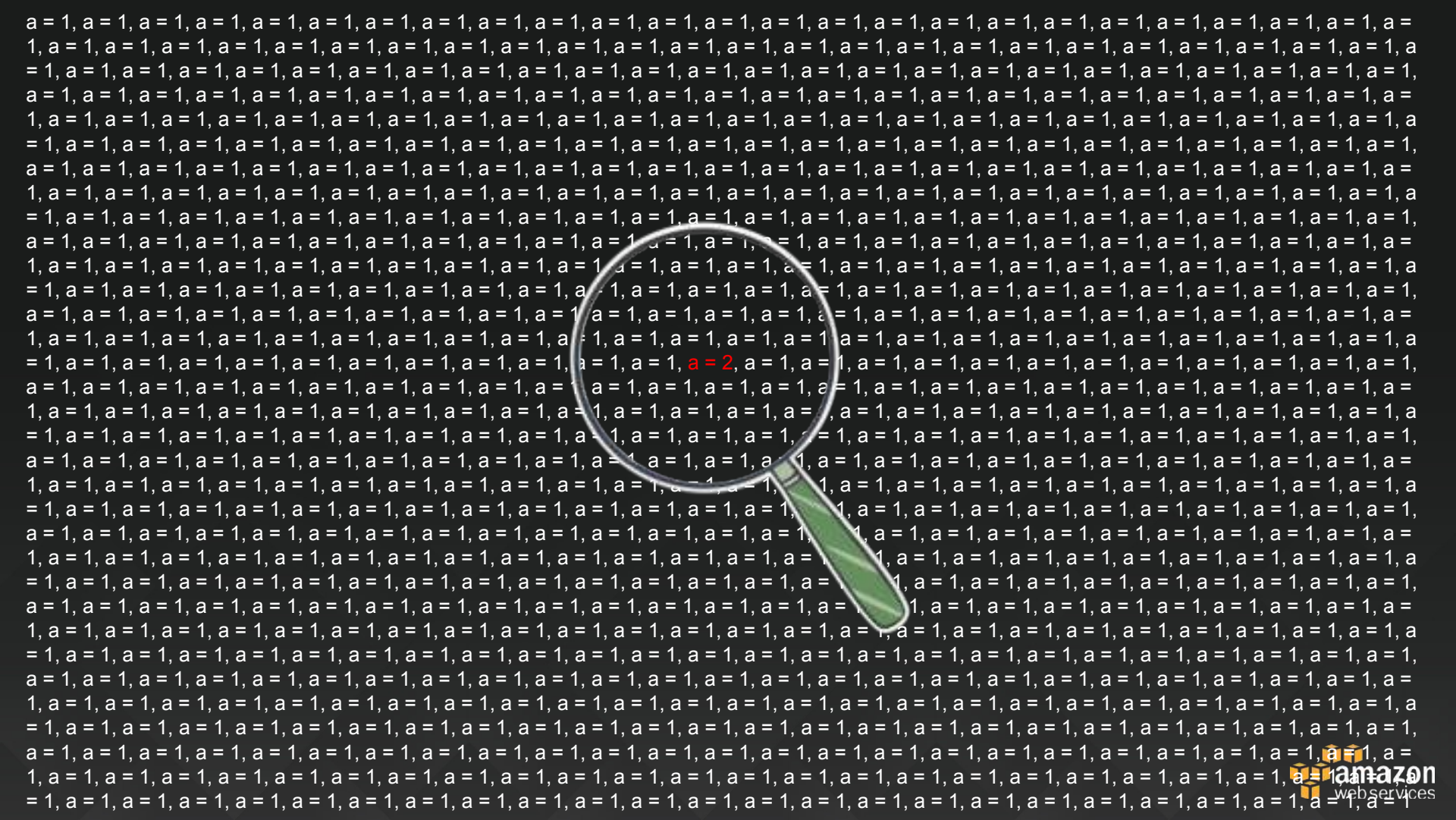
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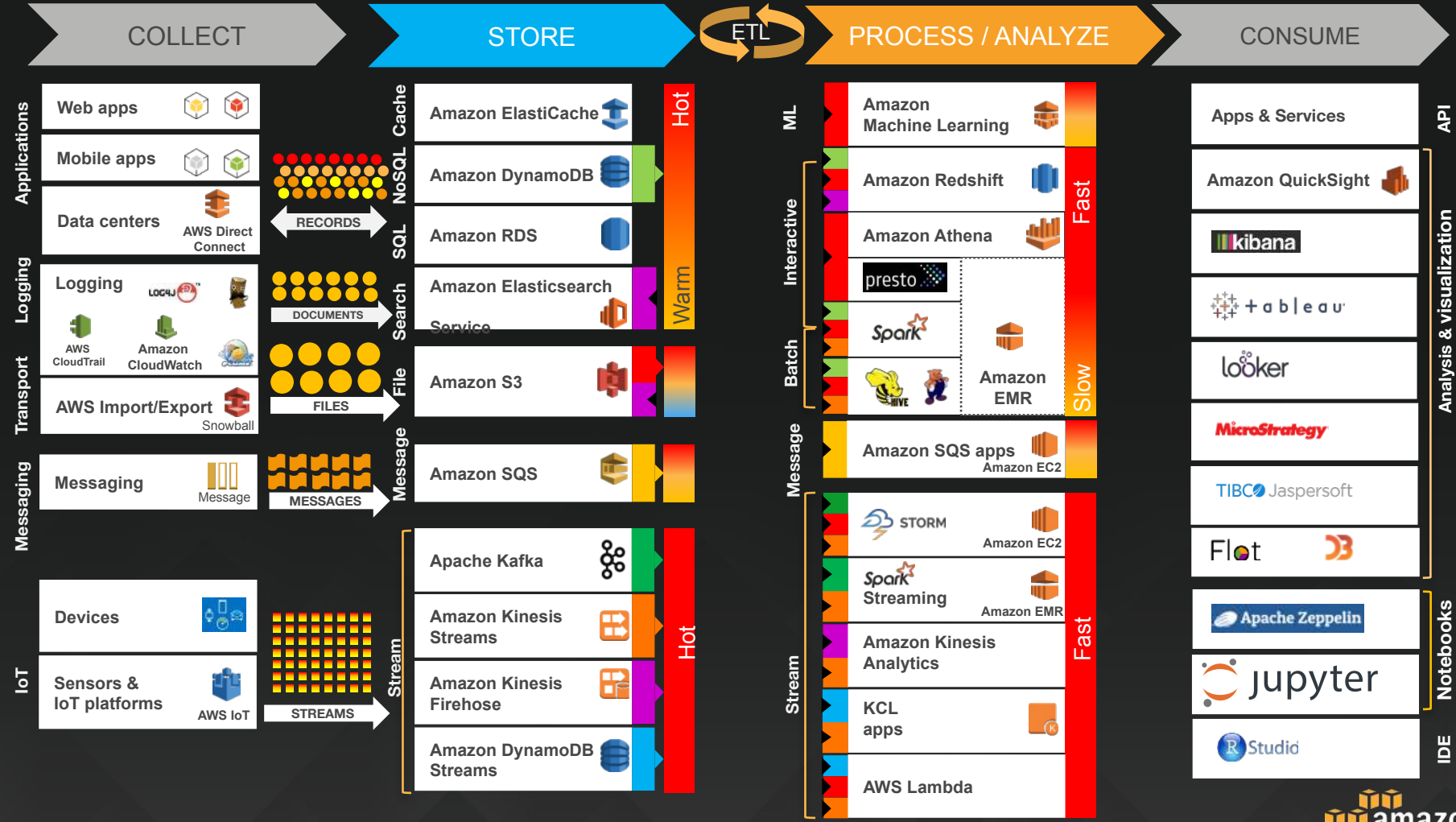
COLLECT
STORE
ETL
PROCESS / ANALYZE
CONSUME
Applications
Web apps
Mobile apps
Data centers
AWS Direct Connect
Logging
Logging
AWS CloudTrail
Amazon CloudWatch
Transport
AWS Import/Export
Snowball
Messaging
Messaging
Message
IoT
Devices
Sensors & IoT platforms
AWS IoT
RECORDS
DOCUMENTS
FILES
MESSAGES
STREAMS
Cache
Amazon ElastiCache
NoSQL
Amazon DynamoDB
SQL
Amazon RDS
Search
Amazon Elasticsearch Service
File
Amazon S3
Message
Amazon SQS
Stream
Apache Kafka
Amazon Kinesis Streams
Amazon Kinesis Firehose
Amazon DynamoDB Streams
Hot
Warm
Hot
ML
Amazon Machine Learning
Interactive
Amazon Redshift
Amazon Athena
presto
Batch
Spark
HIVE
Amazon EMR
Fast
Slow
Message
Amazon SQS apps
Amazon EC2
Stream
STORM
Amazon EC2
Spark Streaming
Amazon EMR
Amazon Kinesis Analytics
KCL apps
AWS Lambda
Fast
API
Apps & Services
Analysis & visualization
Amazon QuickSight
kibana
+ableau
looker
MicroStrategy
TIBCO Jaspersoft
Flot
Notebooks
Apache Zeppelin
jupyter
IDE
RStudio
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# Selected compliance standards

https://aws.amazon.com/compliance/

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JOHN DEERE

Streaming, analysis, storage and visualization of data coming from 200,000 farming machines

Precision agriculture and yield optimization for farmers

New business model for John Deere

https://www.youtube.com/watch?v=uq4kQPsM4cQ

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"Car as a Sensor"

Collect sensor data
from BMW 7 Series cars
to give drivers dynamically
updated map information

100,000 vehicles by 2018

Service launched
in 6 months

https://aws.amazon.com/solutions/case-studies/bmw/

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iRobot

Connected Roomba launched in 2015

More than 45 million square meters mapped

Discovery and interaction with Smart Home devices

https://aws.amazon.com/solutions/case-studies/irobot/

AWS re:Invent 2016: Serverless IoT Back Ends (IOT401) https://www.youtube.com/watch?v=gKMaf5E-z7Q

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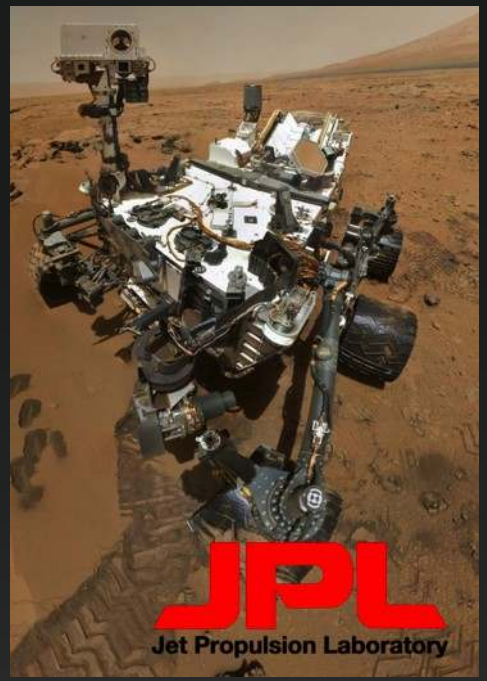
# AWS Greengrass: IoT applications at the Edge




AWS re:Invent 2016: NEW LAUNCH! Introducing AWS Snowball Edge (STG214) https://www.youtube.com/watch?v=z8-DeSuKf9I
AWS re:Invent 2016: NEW LAUNCH! Introducing AWS Greengrass (IOT201) https://www.youtube.com/watch?v=XQQjX8GTEko
AWS re:Invent 2016: Building IoT Solutions for Exploring the Final Frontier (IOT304) https://www.youtube.com/watch?v=ICPordWs0t8

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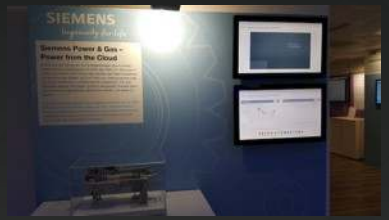
# More IoT applications

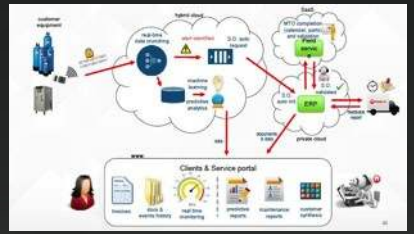
## Thermomix
Consumer equipment

## Soitec
Semiconductors

## SPS
Motors




## Siemens Power & Gas
Energy production



## Veolia Water
Water systems

## Z#bre
Home Assistance

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# Deep Learning at the Edge

A Rasperry Pi is powerful enough to store and run a pre-trained Deep Learning model

No connection to the cloud is needed

Imagine what you could do with this!

mxnet

http://mxnet.io/
http://www.allthingsdistributed.com/2016/11/mxnet-default-framework-deep-learning-aws.html

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# Marc Benioff, CEO Salesforce

*"There is no public cloud infrastructure provider that is more sophisticated or has more robust enterprise capabilities for supporting the needs of our growing global customer base."*

The Salesforce IoT Cloud runs on AWS

AWS re:Invent 2016: Delighting Customers Through Device Data with Salesforce and AWS IoT (BDA205) https://www.youtube.com/watch?v=Uk-6hG-0yXI

# Going further

Whitepaper: “Core Tenets of IoT” https://d0.awsstatic.com/whitepapers/core-tenets-of-iot1.pdf

Whitepaper: “Big Data Analytics Options on AWS” http://d0.awsstatic.com/whitepapers/Big_Data_Analytics_Options_on_AWS.pdf

Learn more about AWS IoT https://aws.amazon.com/iot/

Learn about the AWS Free Tier https://aws.amazon.com/free/

Get started! https://aws.amazon.com/getting-started/

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# Thank you!

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