Amazon Web Services

For Government, Education, and Nonprofit Organizations

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What Is (True) Cloud Computing?

The on-demand delivery of IT resources over public or private networks with zero up-front costs, no long-term contracts, and pay-as-you-go pricing

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Amazon.com…
?
… AWS: the leader in utility (aka cloud) computing

Why Are Entities Adopting Cloud Computing?

Seven main benefits experienced by entities

1. It replaces up-front capital expense with low variable cost
2. It offers lower total costs than companies can achieve themselves
3. It provides pricing-model choice to support variable and stable workloads
4. It drives down IT labor costs, both up-front and ongoing
5. It offers premium security capabilities at non-premium prices
6. It supports highly available workloads (as well as DR/COOP) for a fraction of the cost
7. Agility and speed of innovation: *programmable infrastructure revolutionizes IT*

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Why Does the Cloud Matter in Public Sector?

Pave the Way for Innovation

It offers:

- Disruptive innovation
- Agility
- Twenty-first century capability
- New skills
- Cost savings

Make the World a Better Place

It enables:

- World-changing projects
- Economic development
- Citizen services and engagement
- Research and education

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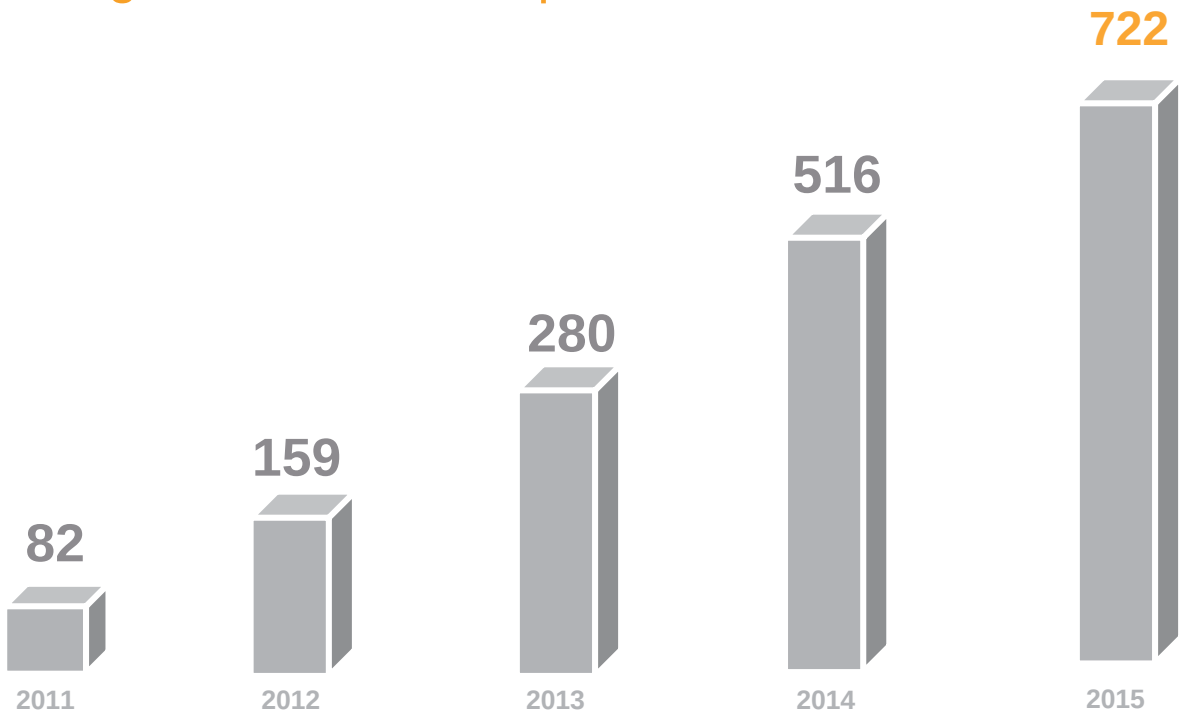
Rapid Pace of Innovation

Since 2011, AWS has launched 1,677 new services and major features, totaling 1,850 since inception in 2006.



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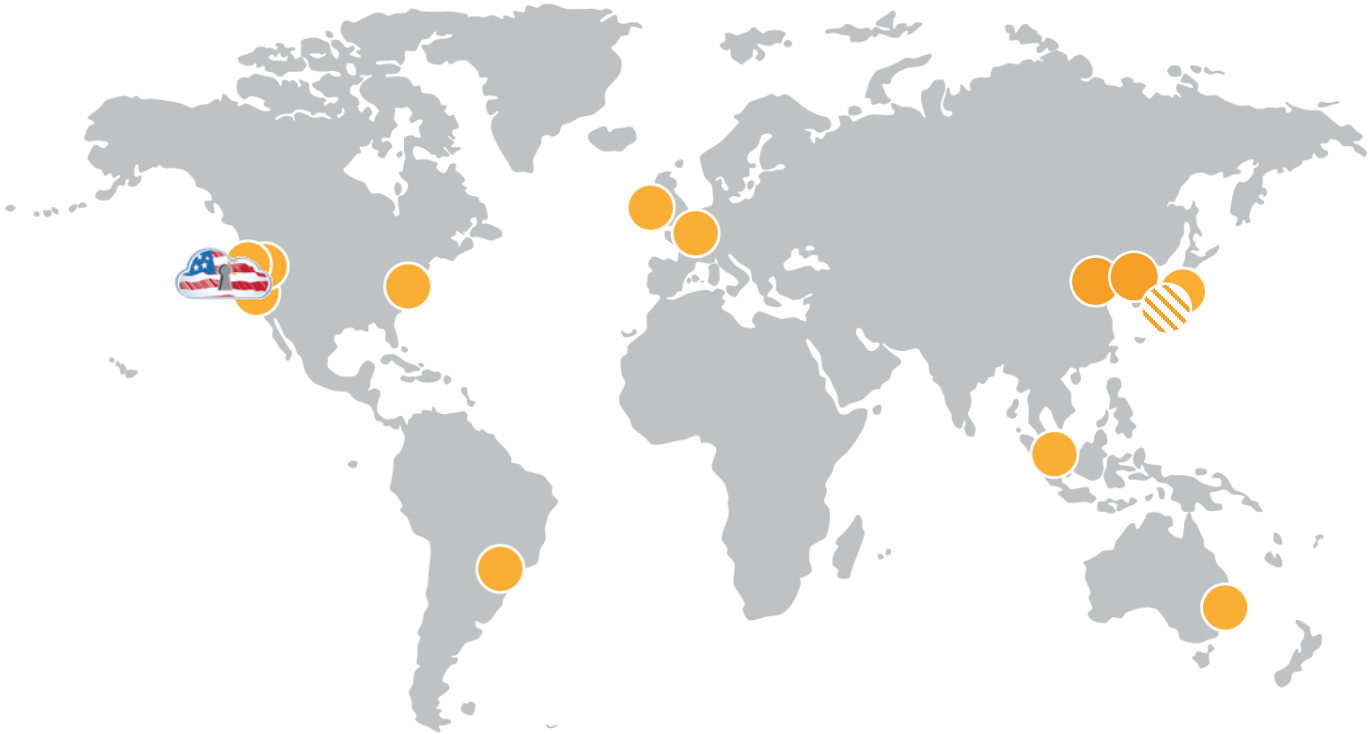
AWS Global Infrastructure

12
Regions

30
Availability Zones

53
Edge Locations



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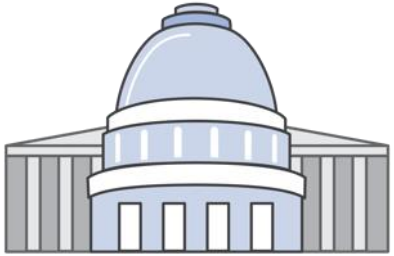
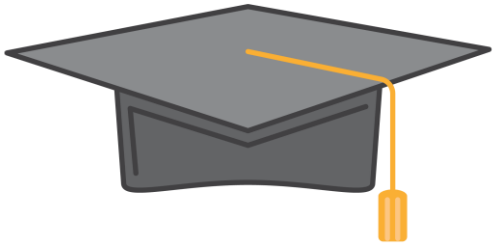
AWS in the Public Sector



2,000+

government agencies



5,000+

educational institutions

17,500+

nonprofit organizations

~100% Growth Every Year

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Government Agencies and Educational Institutions Use AWS Worldwide

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AWS is Leader and Visionary

Gartner Magic Quadrant for Cloud Infrastructure as a Service, Worldwide

Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide

Source: Gartner (May 2015)

Source: Gartner (May 2015)

Gartner "Magic Quadrant for Cloud Infrastructure as a Service, Worldwide," Lydia Leong, Douglas Toombs, Bob Gill, May 18, 2015. This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available at http://aws.amazon.com/resources/analyst-reports/. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

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AWS is Architected for Government Security Requirements

Certifications and accreditations for workloads that matter – Compliant Solutions

AWS CloudTrail and AWS Config – Call logging and configuration management for governance and compliance

- Log, review, alarm on all user actions
- Browse-and-query database of current and previous state of cloud resources

Build everything on a constantly improving security baseline

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AWS Foundation Services

- Compute
- Storage
- Database
- Networking

AWS Global Infrastructure

- Availability Zones
- Regions
- Edge Locations

AWS is responsible for the security **OF** the Cloud

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Economies of Scale Apply to Security and Compliance

There is nothing better for the entire customer community than an exacting subset of customers.

The stringent demands of a few…

NASDAQ

Cal GOLDEN BEARS

Set a higher standard for everyone

Tough scrutiny, market-leading capabilities, constant improvements, and a world-class AWS security team benefit the whole client community.

Everyone's Systems and Applications

NASDAQ REQUIREMENTS

Cal GOLDEN BEARS REQUIREMENTS

REQUIREMENTS

Amazon Web Services Security Infrastructure

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Increased Agility

Increased agility → Innovation has become the #1 reason Entities use the AWS cloud.

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INCREASE INNOVATION

Lower the cost of experimentation

AWS Fosters a Culture of Innovation: Experiment Often and Fail Without Risk

With on-premises operations:

- Experimenting is infrequent
- Failure is expensive
- Innovation is diminished

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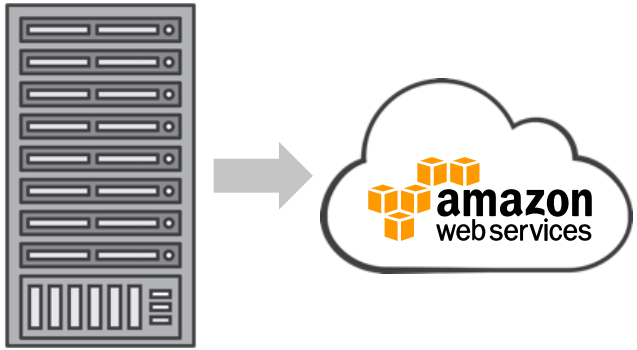
- Experiment often
- Fail quickly at a low cost
- Innovation increases

Government Use Cases on AWS

- Development and testing
- Enterprise applications
- Big data and high-performance computing (HPC)
- Storage, backup, and archiving
- Disaster recovery
- Web, mobile, and social apps
- Virtual desktops
- Data center migrations
- Smart Cities



SMART CITIES

City on a Cloud Innovation Challenge 2016

The Innovation Challenge is open from March 12 - May 13

AWS helps local and regional governments innovate by simplifying IT workloads that governments struggle with and depend on every day, such as Geographical Information Systems (GIS), Content Management Systems (CMS), Open Data portals, and more. All of these applications run on AWS and make it easier for governments to deliver services to their citizens.

Through our City on a Cloud Innovation Challenge, we recognize local and regional governments as hubs of innovation in three categories: Best Practices, Partners in Innovation, and Dream Big. Winners will receive AWS promotional credits to start or continue their projects.

Visit:
http://aws.amazon.com/stateandlocal/cityonacloud/

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City Planning

Cities are using cloud-based tools for permitting, planing and historic preservation. Learn about San Francisco's City Planning efforts.

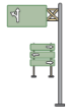
Sanitation

GIS technology has revolutionized many aspects of city life - including sanitation. Learn how Jerusalem is using Clean City to track and manage garbage collection and give citizens greater control over collection of waste.

Air Transportation

Transit hubs can be an asset or a hindrance to those trying to reach their destination. Learn how London City Airport has employed an Internet of Things approach to help travelers be more efficient and productive.

Open Data



The most basic function of a local government is to communicate to the public about the area. Learn how Santa Clarita is realizing savings from moving their website infrastructure from on premises to the cloud.

Parks

Urban areas value green spaces for recreation, public health and aesthetics. Learn about the Open Tree Map application being used by many cities and towns.

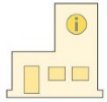
Voting

There is nothing more central to civic life than the opportunity to express your opinion and elect your leaders. Cloud technology is making the voting process more efficient and reliable. Learn how Rhode Island is deploying cloud-based voting systems to move democracy forward.

Utility Monitoring

Utilities are a core piece of the critical infrastructure of a city. Learn how the City of Houston, Texas, deployed a cloud-based water monitoring application that helped to reduce water usage and cut down on billing complaints.

Public Websites



Healthcare is becoming increasingly dependent on data. As the government becomes more involved in the healthcare marketplace, adoption of technology to drive efficieny and effectiveness is accelerating. Learn how Michigan Health Connect is addressing these challenges.

Street Maintenance

Whether in the wake of a major storm or simply for routine maintenace, cloud-based applications can help direct street maintenance efforts. Learn how New York City Transit dealt with the aftermath of Hurricane Sandy.

Disaster Preparedness

The cloud offers a compelling alternative to backup on premises data centers for disaster recovery. Learn how the City of Asheville, NC is implementing disaster recovery.

Public Safety and Policing

Police departments need to focus their resources in the right place at the right time. Through data analytics, HunchLab helps police departments anticipate crime patterns and focus resources where they are needed most.

Healthcare

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Route Planning

Visitors and commuters alike need up-to-date information to help them plan their journeys in major cities. Learn how Transport for London used cloud technology to speed travelers from point A to point B.

Job Creation

Government entities are increasingly opening their data to citizens, businesses and other governments to improve the flow of information and the basis for innovation. Learn about Sabae City, Japan's "Data City Initiative."

Sensor Monitoring

At the heart of the Internet of Things is sensor monitoring. Enabled by the AWS platform, the data can be transferred and processed with ease and efficiency.

Archives

Vast amounts of data require a new approach. Learn how cities are digitizing and storing their records - and making them more available to their citizens. Read about Dorset History Centre in Southwest England.

AWS City Usage Scenarios

Real-time Streaming Data

Collect and process big data in real-time with Amazon Kinesis Services. Load massive streams, analyze them with SQL or build your own custom applications.

Data Warehousing

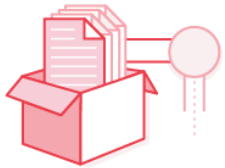
Query & analyze large datasets for less than $1,000 per TB per year with Amazon Redshift, a fast, fully managed, petabyte-scale data warehouse.

Hadoop & Big Data Analytics

Easily provision and dynamically scale a Hadoop cluster with Amazon EMR, a managed Hadoop framework. Create and run managed Apache Spark clusters.

Machine Learning

Create powerful predictive models & machine learning applications without the need to learn complex algorithms, using Amazon Machine Learning.



Data Storage

With trillions of objects stored across 11 regions worldwide, Amazon S3 provides a highly reliable, secure, scalable store for all your data, big or small.

Relational Databases

Easily set up, operate, and scale relational databases in the cloud with Amazon RDS. Choose from MySQL, MariaDB, Oracle, Microsoft SQL Server, PostgreSQL or Amazon RDS for Aurora.

NoSQL Databases

Deliver consistent, single-digit millisecond latency at any scale with Amazon DynamoDB - a managed NoSQL database for unstructured data and low latency applications.

Elasticsearch Analytics

Easily configure, scale, and operate Elasticsearch clusters, for powerful search, log analysis, and data visualization with Amazon Elasticsearch Service.

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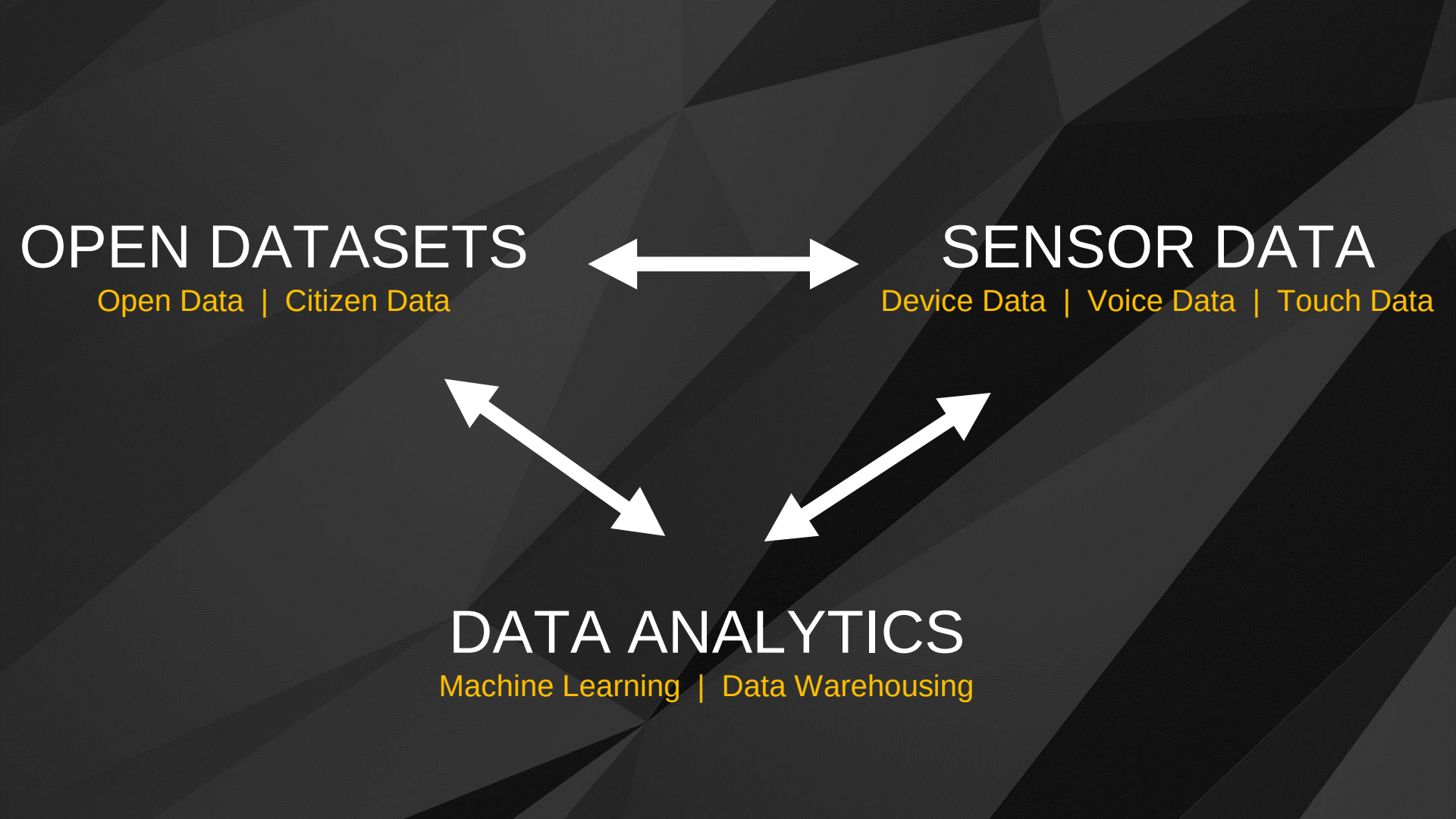

OPEN DATASETS
Open Data | Citizen Data
SENSOR DATA
Device Data | Voice Data | Touch Data
DATA ANALYTICS
Machine Learning | Data Warehousing

WHAT IS OPEN DATA?

Open data is data that can be used by anyone for any purpose for free.

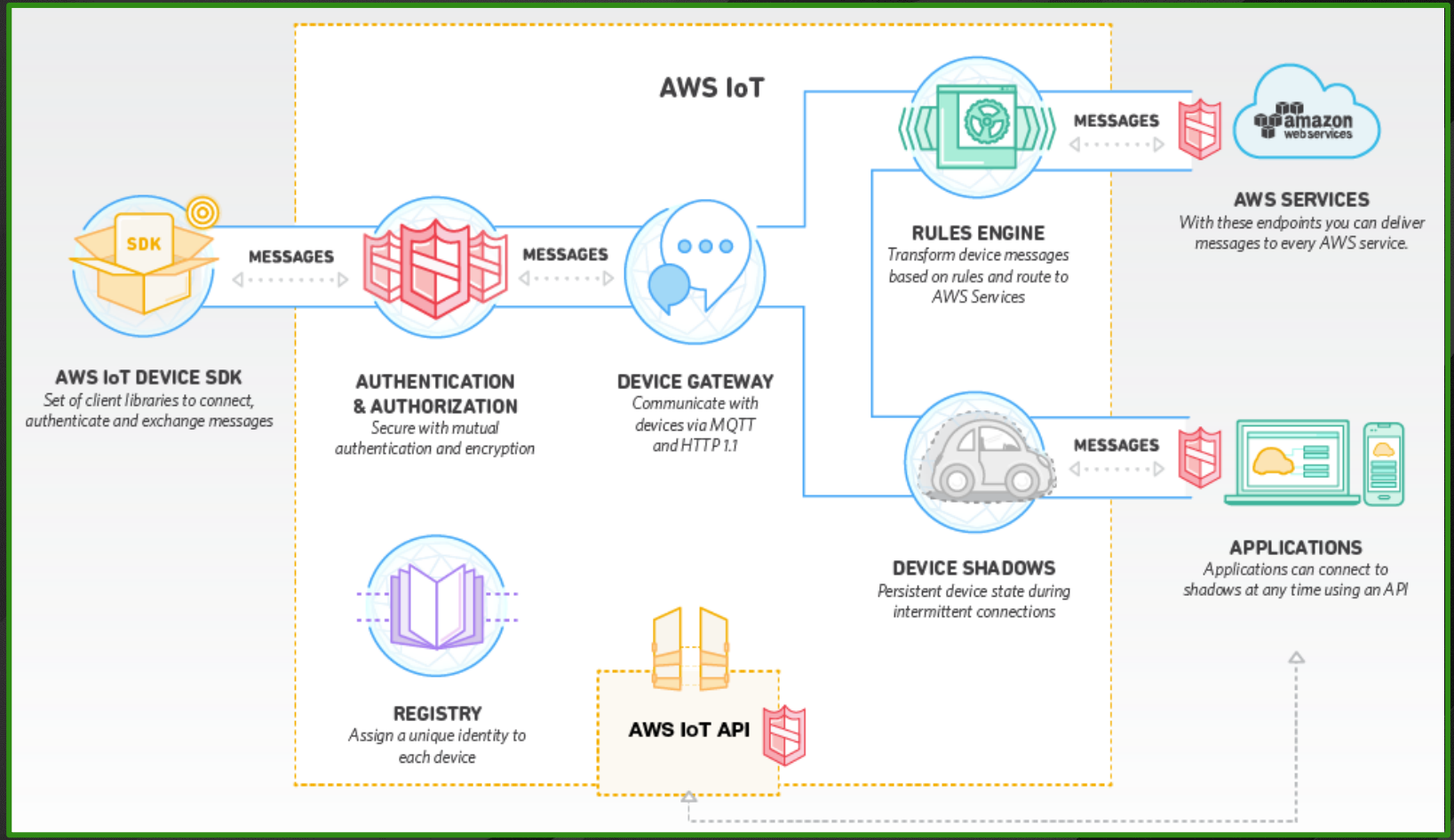
Many of our customers, such as Esri, the Weather Company, and the Climate Corporation, rely on quality open data as much as they rely on our computing, storage, and other web services.

SENSOR DATA

AWS IoT

Easily and securely connect devices to the cloud.

Reliably scale to billions of devices and trillions of messages.


AWS IoT
SDK
MESSAGES
MESSAGES
MESSAGES
MESSAGES
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AWS IoT DEVICE SDK
Set of client libraries to connect, authenticate and exchange messages
AUTHENTICATION & AUTHORIZATION
Secure with mutual authentication and encryption
DEVICE GATEWAY
Communicate with devices via MQTT and HTTP 1.1
RULES ENGINE
Transform device messages based on rules and route to AWS Services
AWS SERVICES
With these endpoints you can deliver messages to every AWS service.
DEVICE SHADOWS
Persistent device state during intermittent connections
APPLICATIONS
Applications can connect to shadows at any time using an API
REGISTRY
Assign a unique identity to each device
AWS IoT API

DATA ANALYTICS

FULLY LOADED FOR BIG DATA

Sources of Truth

Amazon S3
Amazon EFS
Amazon Redshift

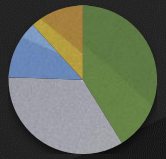
Real time

Amazon Kinesis

High Performance Databases

Amazon DynamoDB
Amazon Aurora

Analysis Platforms

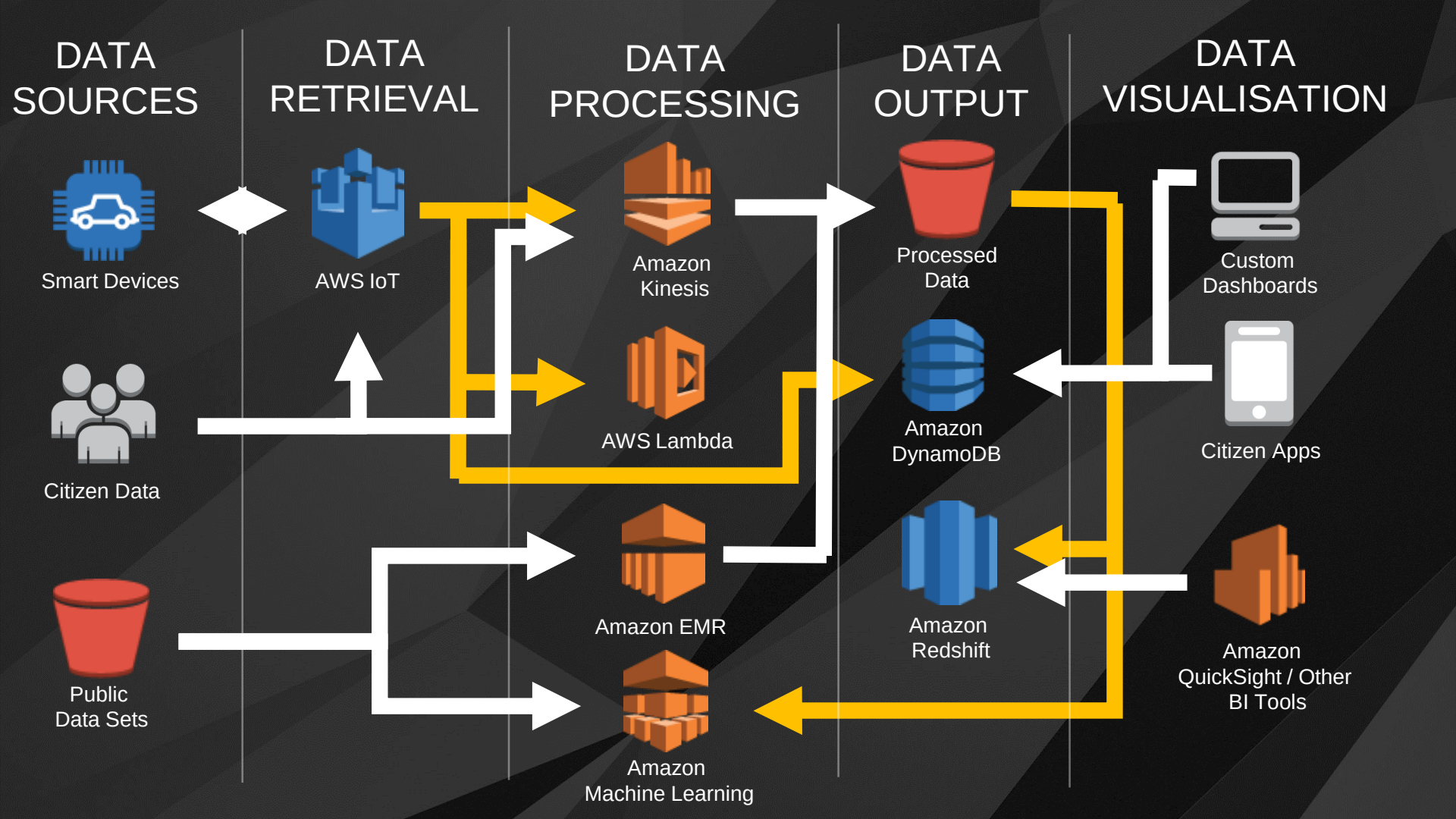


Amazon EMR

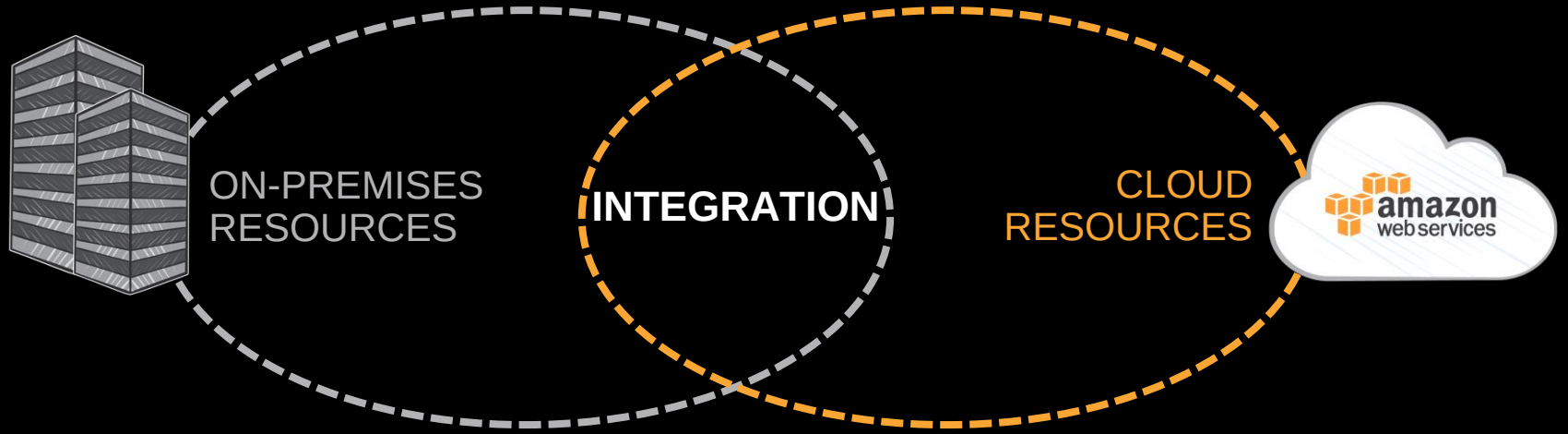
Predictive Analytics

Amazon Machine Learning

PUTTING IT TOGETHER


DATA SOURCES
DATA RETRIEVAL
DATA PROCESSING
DATA OUTPUT
DATA VISUALISATION
Smart Devices
AWS IoT
Amazon Kinesis
Processed Data
Custom Dashboards
Citizen Data
AWS Lambda
Amazon DynamoDB
Citizen Apps
Amazon EMR
Amazon Redshift
Public Data Sets
Amazon QuickSight / Other BI Tools
Amazon Machine Learning

INTEGRATION


ON-PREMISES
RESOURCES
INTEGRATION
CLOUD
RESOURCES
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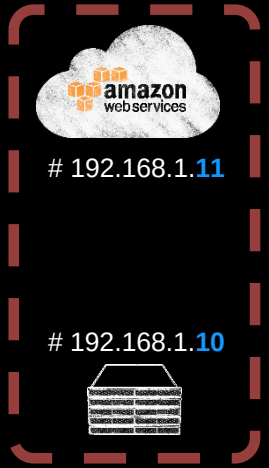
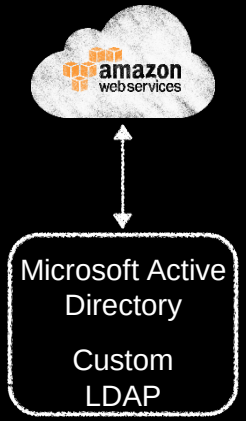
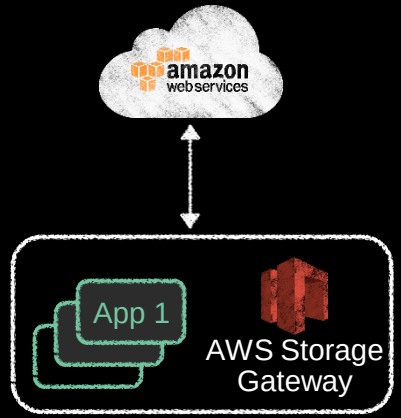
Integrated networking



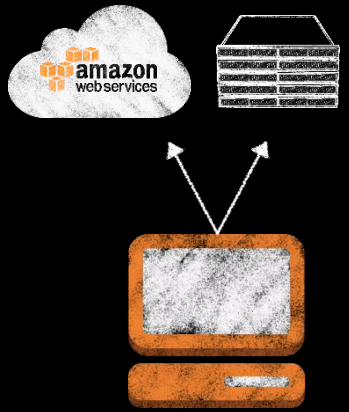
Integrated access control



Integrated cloud backups



Single pane of glass



ELASTIC CAPACITY
+ NO CAPEX
+ PAY AS YOU GO
+ AVAILABLE ON-DEMAND

= NO RISKS

Demostración

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Q&A

Gracias

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