

# State of Modern Applications in AWS Report



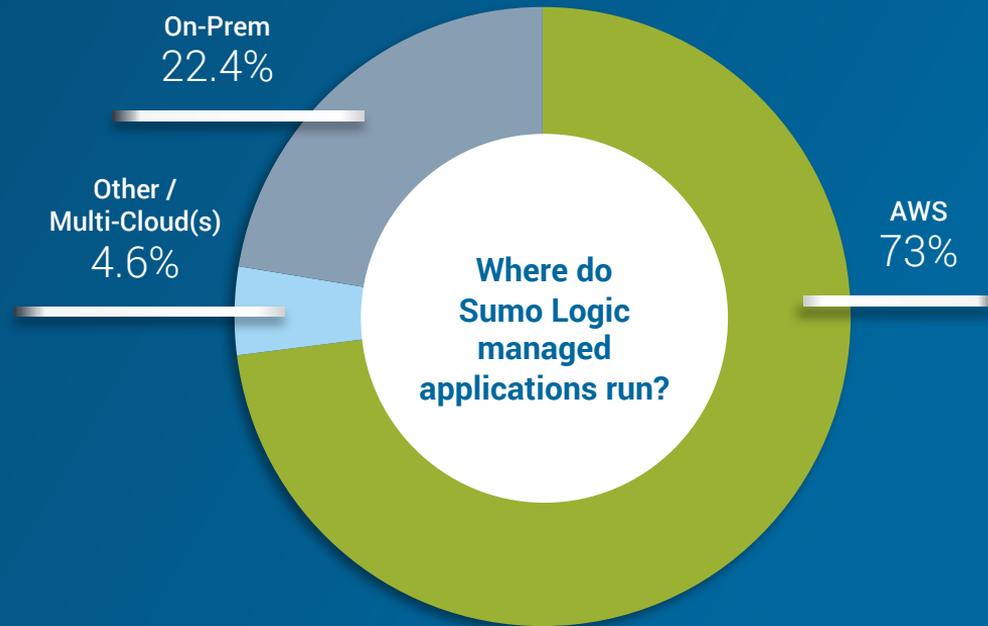
# Introduction – The Rise of Modern Applications

- Today, every company seeks to become a digital business. To support shifting market and customer needs, enterprises are striving to deliver new digital products and services that provide engaging, highly scalable, always-on customer experiences.
- Most customer-facing digital services are built on custom “**modern applications**” – an application stack with new tiers, new technologies and typically running on cloud platform like **Amazon Web Services (AWS)**, to deliver fast time-to-value and incredible scale.
- The goal of this report is to provide **data-driven insights and best practices** by analyzing technology adoption among Sumo Logic customers, who run massive mission-critical modern applications on AWS. Cloud architects, IT Operations & DevOps should leverage the learnings from these leading-edge companies to build, manage and operate their own modern applications effectively.



# Data Methodology and Assumptions

- Sumo Logic manages a large set of customers (1000+) running applications on AWS. This report is compiled from data generated from the apps and infrastructure managed by Sumo Logic. All customer specific data is anonymized.
- Customers use Sumo Logic to manage applications and infrastructures in production environments. Hence, this report provides a snapshot of the “production” application state.
- If an app, infrastructure or service is not identified by Sumo Logic, this report assumes that it is not used in production environments (however, the application or infrastructure may be used in non-production use case).
- The Sumo Logic analytics service runs on AWS. The experience and expertise of running this mission critical and massive service is also leveraged in this report.



# Key Takeaways

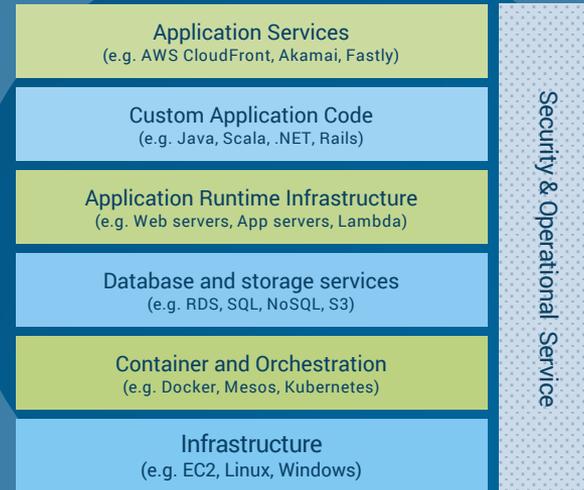
1. IaaS platform adoption highlights dramatic difference in usage of Operating Systems.
2. Rate of adoption of new technology is unprecedented.
  - Docker and Lambda usage in production is approximately 15%.
3. Legacy vendors are being left behind.
  - More customers use NoSQL databases than traditional (RDBMS) databases.
  - NGINX has bigger market share than Apache and IIS for AWS based modern apps.
4. Cloud security paradox
  - Security is #1 priority, but only 50% are leveraging primary security audit for AWS (CloudTrail).

# The New Modern Application Stack (on AWS)

New Challenges for IT Architects

This report focuses on the new modern apps in Cloud/AWS and highlights:

- New tiers that make up the modern application stack.
- New technologies that are emerging as leaders within these tiers.
- New services that enable application operations and security management.



Modern App Management Services \*

# Dramatic Difference In OS Distribution Based On Infrastructure Choice

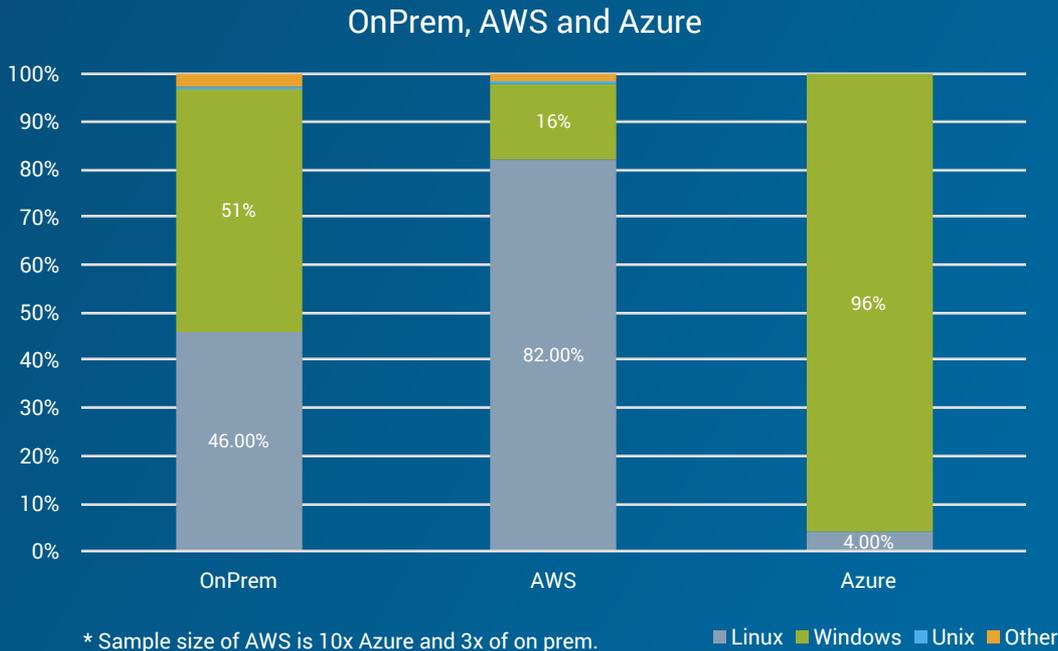


## Context

- Enterprises generally use Cloud services like AWS or Azure for its core IaaS offerings (i.e. host/server and OS).

## Findings

- AWS workloads are predominantly deployed on Linux while early Azure data shows dominance of Windows.
- The OS within cloud services is dramatically different from on-premise environments.



**If AWS continues to dominate as IaaS platform of choice, will it mean a shift in OS market share?**

# Docker Adoption is Gaining Steam in AWS

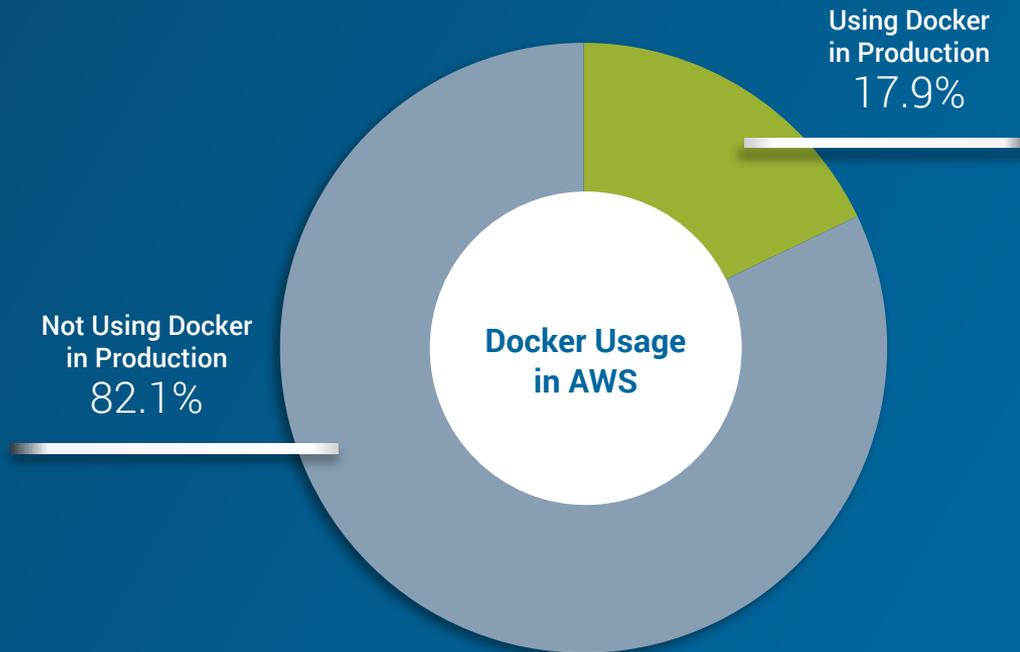


## Context

- Containers technologies like Docker enable DevOps teams to build, ship, and run distributed applications more efficiently.
- Docker is also an excellent infrastructure choice to build microservices.

## Findings

- Docker is a relatively new technology; yet almost 1 in 5 AWS users use Docker already.
- Significant adoption of Docker also implies growing use of microservices based applications.



**Containers are no longer an experimental technology; they are a critical foundational layer for future of modern applications.**

# NoSQL Leads RDBMS Database Adoption

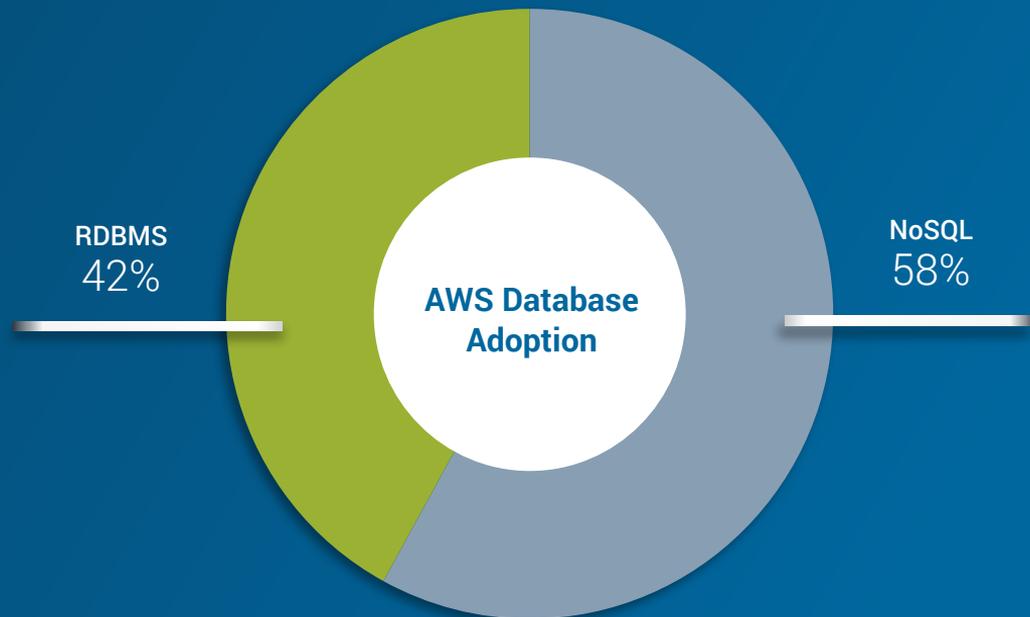


## Context

- Databases are at the core of many applications.
- Application architects have several database choices while migrating to AWS – Relational DB, NoSQL DB (including in-memory DB) etc.

## Findings

- The adoption of NoSQL database has overtaken traditional RDBMS databases in AWS environments.



**Cloud migration is providing the opportunity to make a optimal choice of back-end data stores and optimize for the right application use cases.**

# 2 of 3 Top Databases in AWS are NoSQL



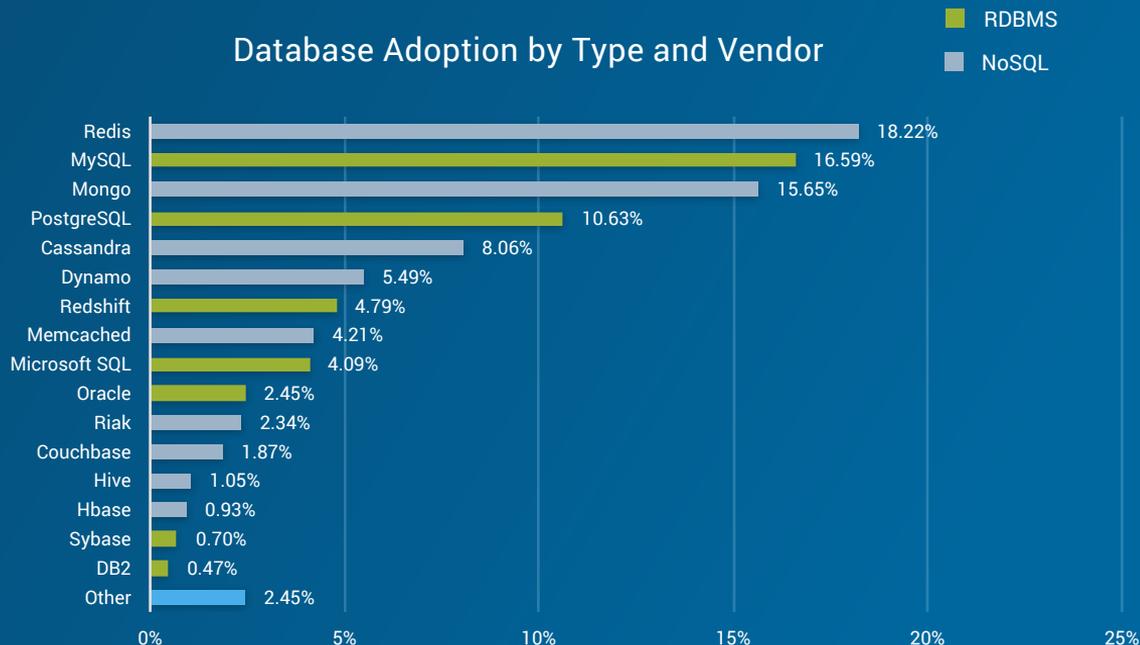
## Context

- Enterprises have many choices for database – open source, commercial, relational, NoSQL, in-memory, disk based etc.

## Findings

- Redis is the #1 Database in AWS.
- Redis, MySQL/RDS\* and MongoDB account for 50% of database adoption in AWS.
- Microsoft SQL and Oracle DB significantly lag in terms of usage in AWS.

\* MySQL is available in multiple forms in AWS (native or RDS source).



**Prioritize and evaluate Redis (in-memory), MySQL (Relational), or MongoDB (NoSQL) as you consider your DB choices.**

# Majority of AWS Customers Use S3!

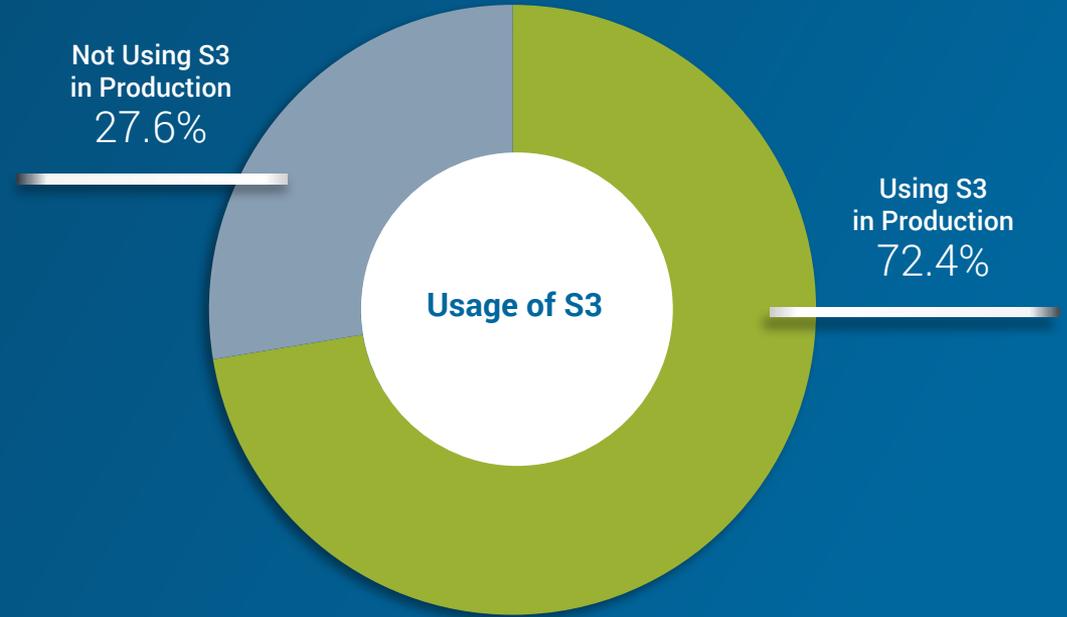


## Context

- S3 provides a highly scalable and safe storage system for AWS customers.

## Findings

- At Least 72% of AWS customers use S3.



**S3 provides a flexible, cost effective, scalable and reliable AWS-native storage back end to satisfy many application data storage use cases.**

# AWS Lambda Adoption is Rising!

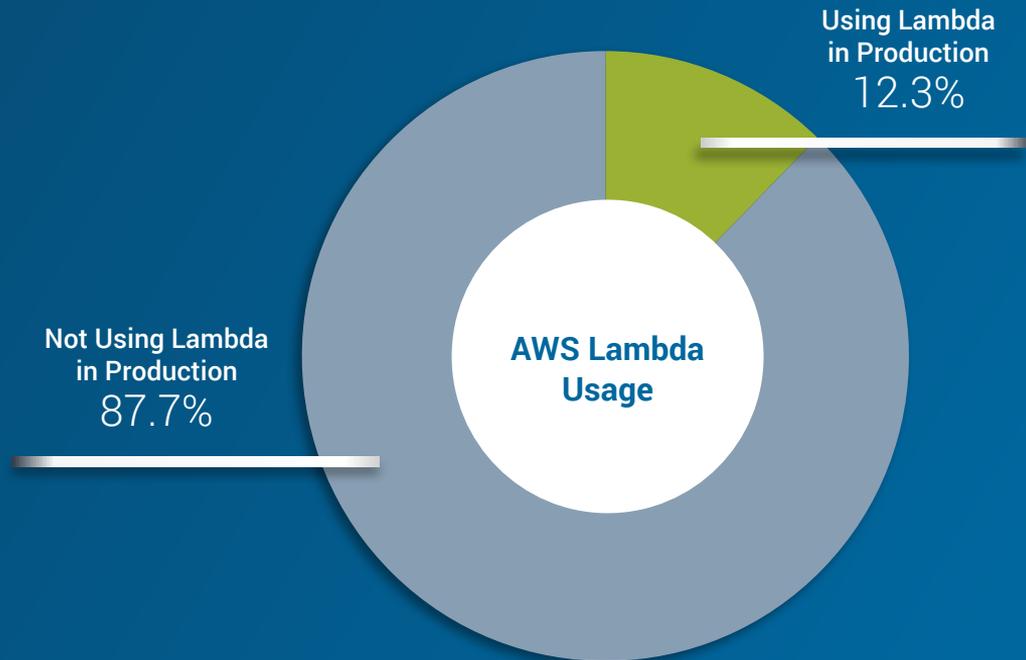


## Context

- AWS Lambda lets IT teams run code without requiring them to provision or manage server infrastructure.

## Findings

- 12 % of AWS customers use Lambda.
- Some of the initial use case for AWS Lambda is focused on cloud/DevOps deployment automation.



**Serverless computing is a real option for enabling modern applications.  
Experiment with AWS Lambda for application or deployment automation technology.**

# NGINX Stands Out as Webserver of Choice on AWS

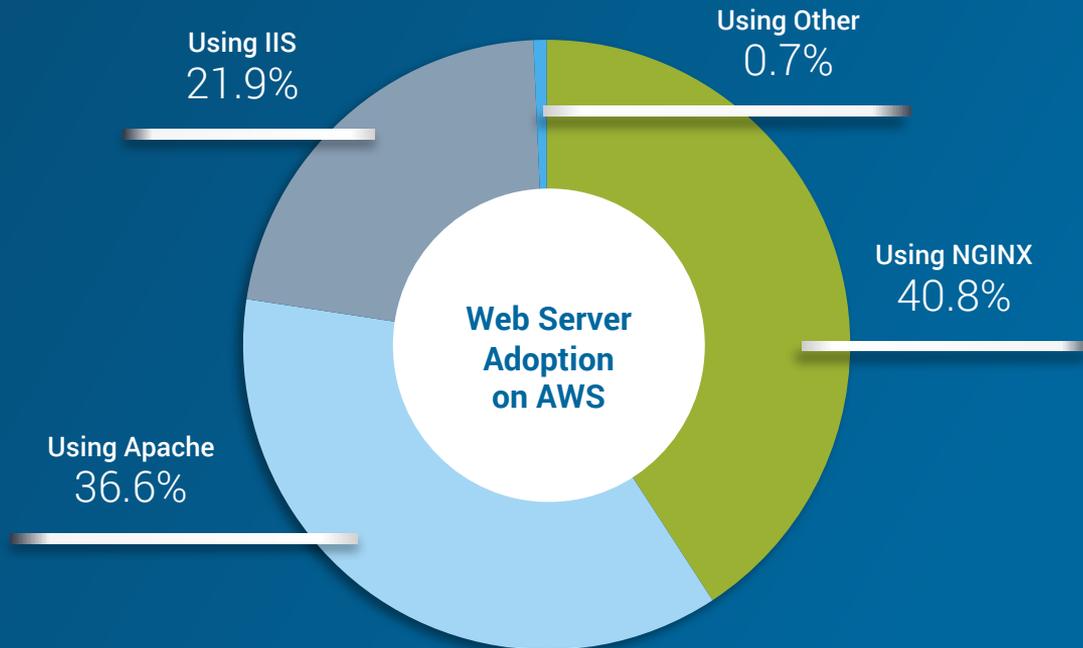


## Context

- Web servers are a foundational building block for modern applications.

## Finding

- NGINX is the leading AWS Web server with over 40% market share.
- Apache and Nginx are used in 3 out of 4 AWS based applications.



**Evaluate NGINX as your web server platform in case you are building or migrating web applications to AWS.**

# CloudFront is Leading CDN in AWS

Application Service (1)

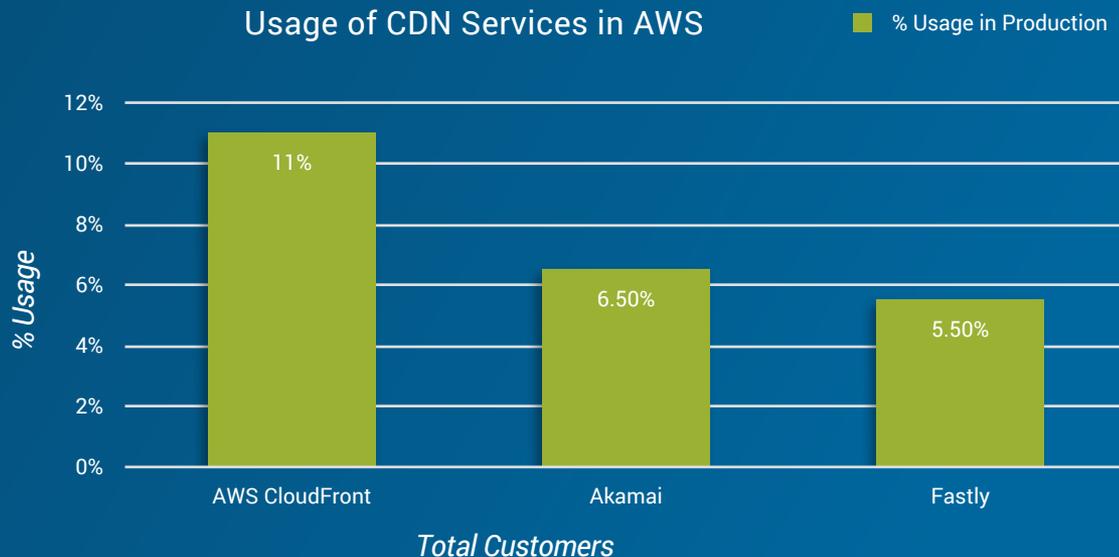


## Context

- Content Delivery network (CDN) are critical to deliver great application performance.
  - Amazon CloudFront is a AWS-native (CDN) service.
  - Akamai and Fastly provide 3<sup>rd</sup> party CDN services to AWS customers.

## Findings

- AWS-native CDN (CloudFront) has twice the adoption of global market leader (Akamai).
- Fastly, a relatively new CDN vendor is experiencing similar adoption as Akamai, the global leader.



**Consider cost, capabilities and global reach while evaluating your CDN choices to improve modern application delivery.**

# 50%+ of AWS Customers are Actively Using AWS CloudTrail Data to Improve Application Security



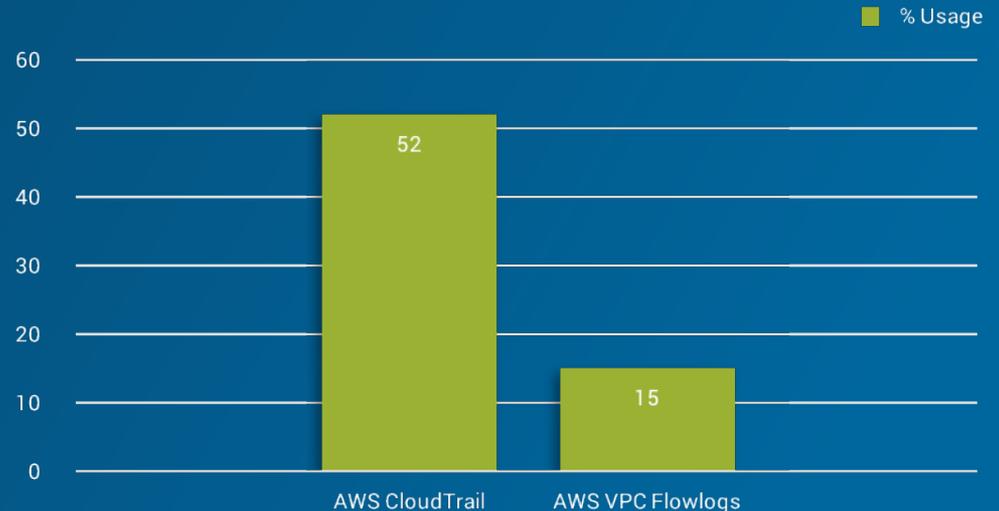
## Context

- Security is a top concern for any enterprise moving to public cloud.
- AWS offers several “native” application security services.
  - AWS CloudTrail provides a record trail of AWS calls for audit and reporting.
  - AWS VPC and VPC Flow Logs enables customers to create secure virtual private networks and audit network traffic to the these networks.

## Findings

- Almost 50% of AWS applications are not using the primary and mature AWS audit service (CloudTrail).
- To provide additional security, AWS customers should also implement virtual private networks and flow logs.

Usage of AWS Security Technologies and Data Feeds



**Use AWS CloudTrail to improve application and infrastructure security.**

# Who is Sumo Logic?

Leading Machine Data Analytics Service Built on AWS

1200+ Customers



"Sumo Logic's SaaS architecture and its underlying machine-learning capabilities demonstrated that we would obtain the fast time-to-value and scalability we need."



"Sumo Logic has allowed McGraw-Hill Education to move to AWS with confidence, enable real-time visibility across the entire stack, all at reduced TCO."



"With Sumo Logic, we can live troubleshoot with our customers and have been able to reduce performance issues by half."

Massive Service Scale on AWS

100 PB +  
Data analyzed daily

20 Million +  
Searches performed daily

300+ Trillion  
Records queried daily