STATE OF MODERN APPLICATIONS IN THE CLOUD

2017

sumologic®

Introduction — The Rise of Modern Applications

What is the Modern Application?

Today's leading enterprises are striving to deliver high performance, highly scalable and always-on digital services. These services are built on custom **"modern architectures"** – an application stack with new tiers, new technologies, microservices and typically running on cloud platforms like **Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform, etc.**

What does this report provide?

The goal of this report is to provide data-driven insights, best practices and trends by analyzing technology adoption among Sumo Logic customers who run massive mission-critical modern applications on cloud platforms like AWS, Azure, and Google Cloud.

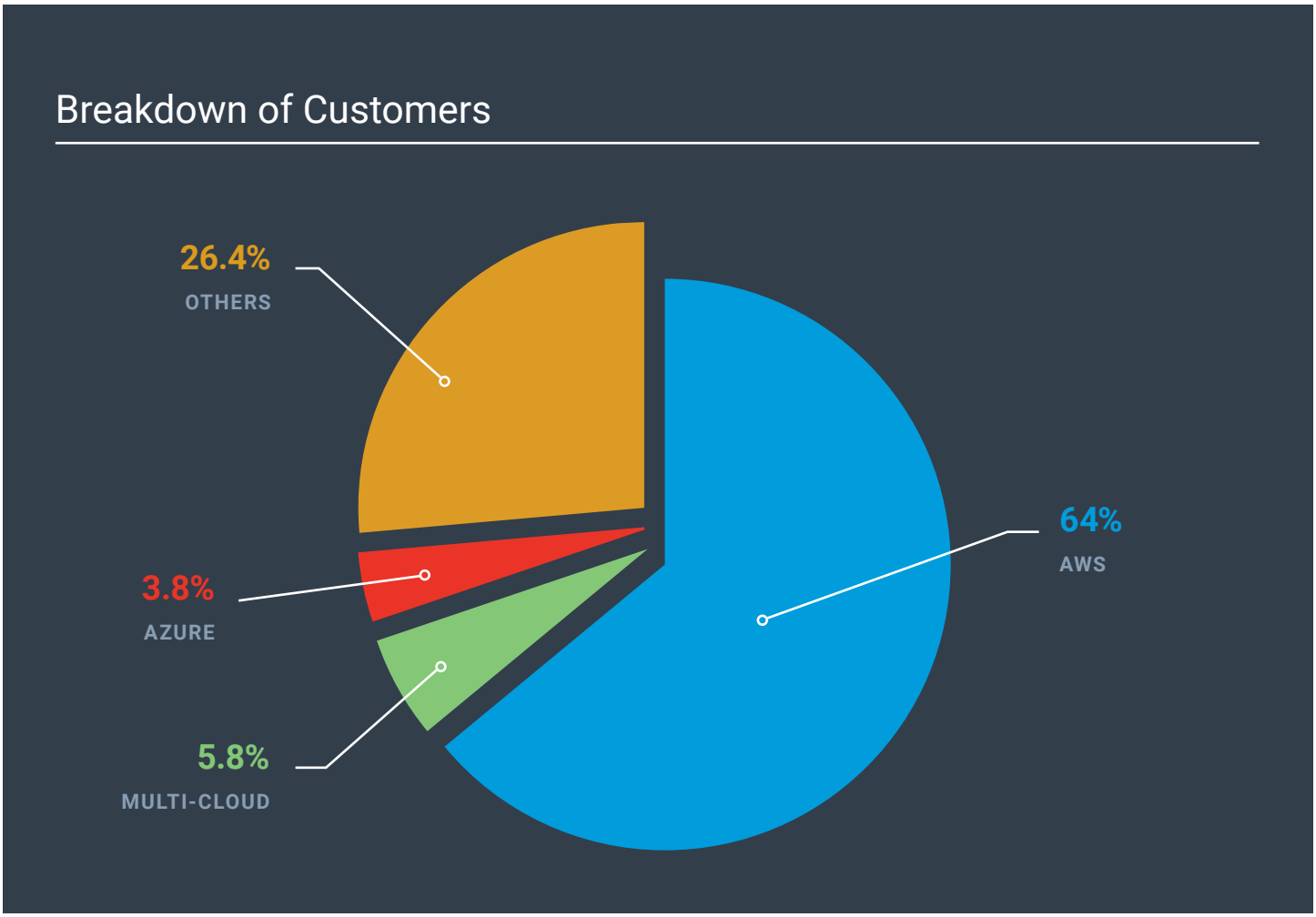
Who should read this report?

Cloud architects, Operations, DevOps and Security leaders and practitioners should leverage the learnings from this report to build, operate and secure modern applications effectively.

Data Methodology and Assumptions

- This data is derived from 1500+ Sumo Logic customers running applications on cloud platforms like AWS, Azure, Google Cloud, etc. All customer specific data is anonymized.
- Customers use Sumo Logic to manage production applications and underlying infrastructure. Hence, this report provides a snapshot of the production application state.
- 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.

This report assumes that an app or infrastructure is used in production if it appears as a source of data or is queried/analyzed by a paying customer.



Key Takeaways

1 Linux OS has become a real choice across all cloud platforms

Linux is the dominant OS in AWS (80%)

Linux is also growing dramatically in Azure from 4% (2016) → 12% (2017)

2 Containers and Serverless Functions growth is unprecedented

AWS Docker adoption has grown from 18% (2016) → 25% (2017)

AWS Lambda adoption has almost doubled from 12% (2016) → 23% (2017)

3 Legacy vendors are being left behind

More customers use NoSQL databases than traditional (RDBMS) databases

NGINX and Apache lead IIS web server in AWS; IIS leads in Azure

4 Cloud security paradox continues

Security is #1 priority for enterprises moving to the cloud

Yet only 50%+ of enterprises are leveraging the primary security audit for AWS (CloudTrail)

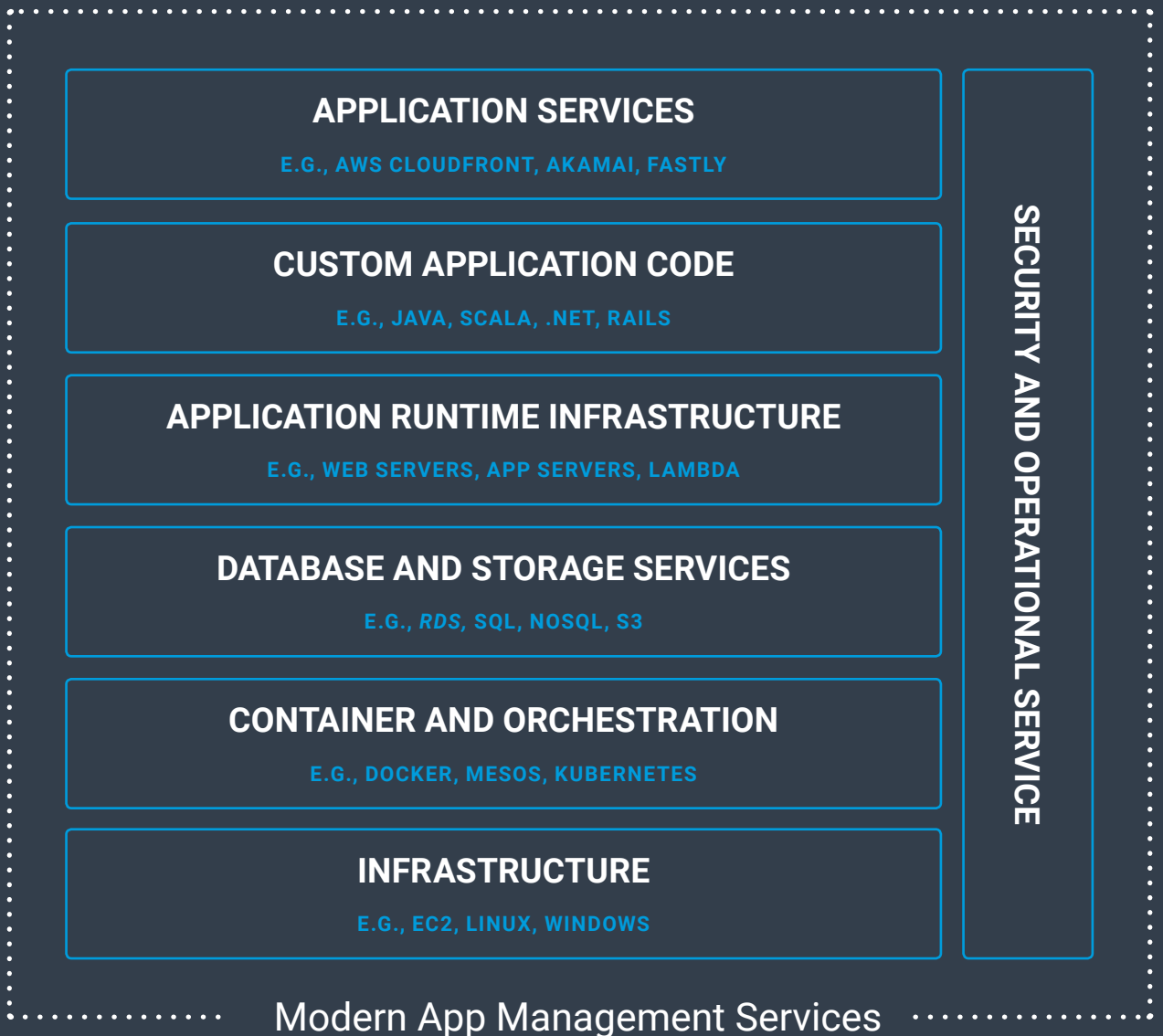
The Modern Application Stack

This report focuses on the new modern apps in the Cloud 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.



Dramatic Difference In OS Distribution Based on Cloud Choice

Context

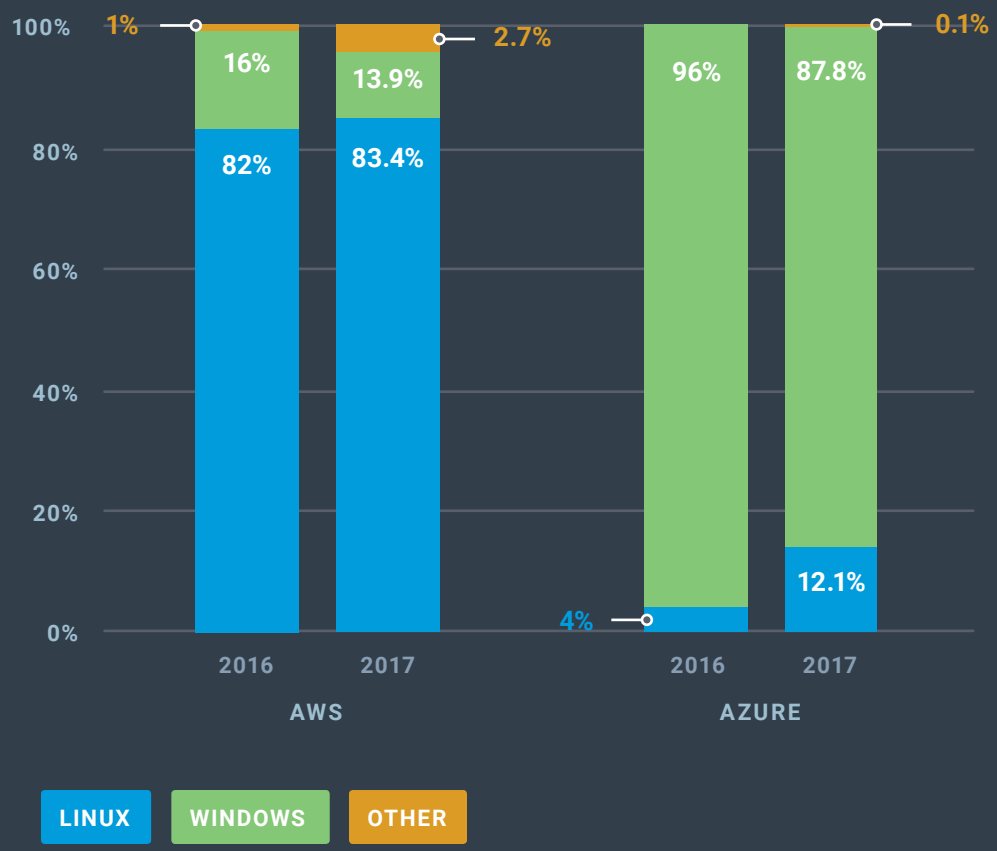
- Enterprises generally use Cloud services like AWS or Azure for its core IaaS offerings (i.e., host/server and OS).

Findings

- AWS workloads are predominantly deployed on Linux
- Azure workloads show growing adoption of Linux from 4% (2016) →12% (2017)

Linux OS has become a real choice across all Cloud platforms

AWS and Azure OS Adoption



Docker Adoption is Gaining Steam in AWS

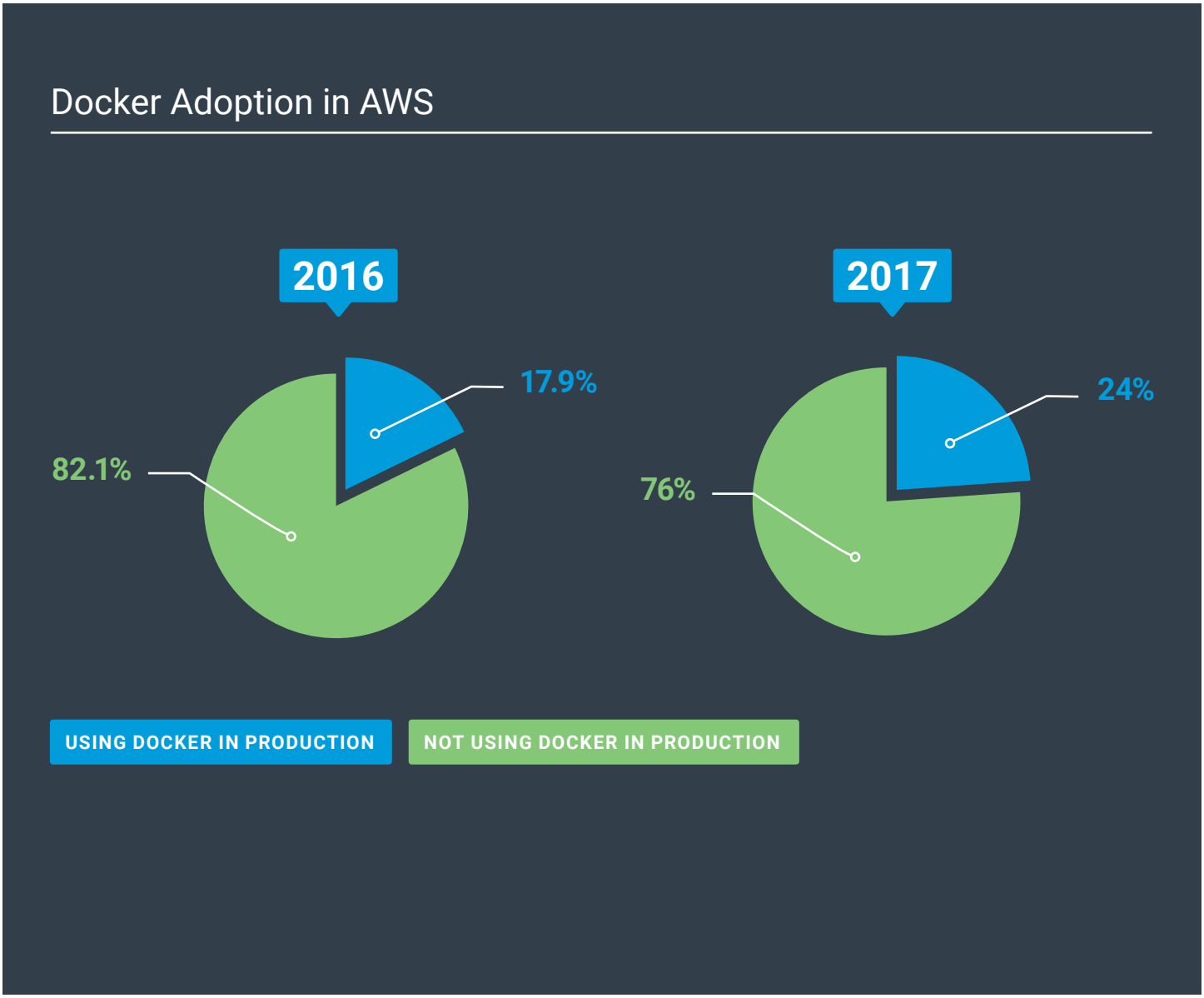
Context

- Container technology 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 we are seeing dramatic year over year growth for Docker (18% →24%)
- Significant adoption of Docker also implies growing use of microservices-based applications.

With 1 in 4 enterprises using Docker, it's clear that Docker is a critical foundational layer for modern applications.



NoSQL Leads RDBMS Database Adoption

Context

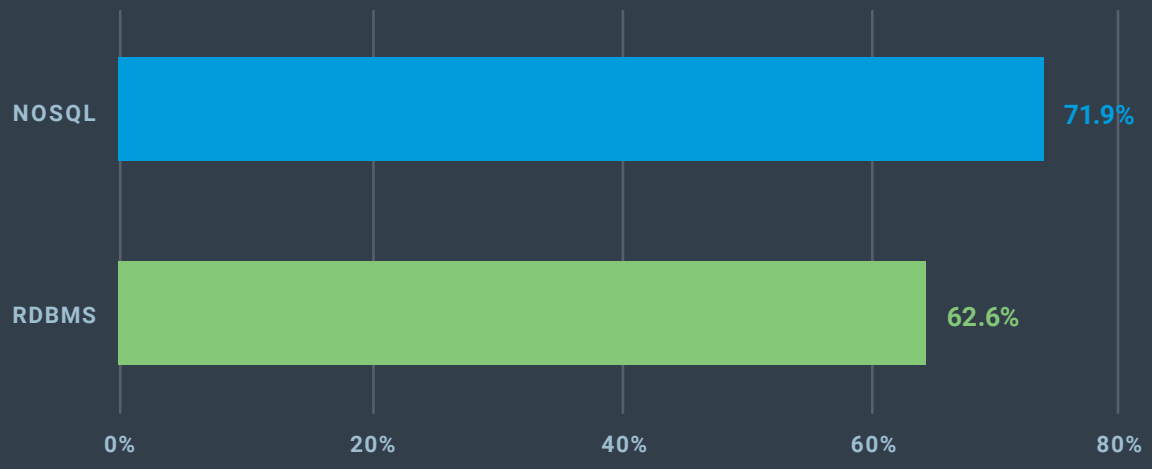
- Databases are at the core of many applications.
- Application architects have several database choices while migrating to cloud — Relational DB, NoSQL DB (including in-memory DB), etc.

Findings

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

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

Database Breakdown in AWS*



Some customers use both RDBMS and NoSQL databases

2 of 3 Top Databases in AWS are NoSQL

Context

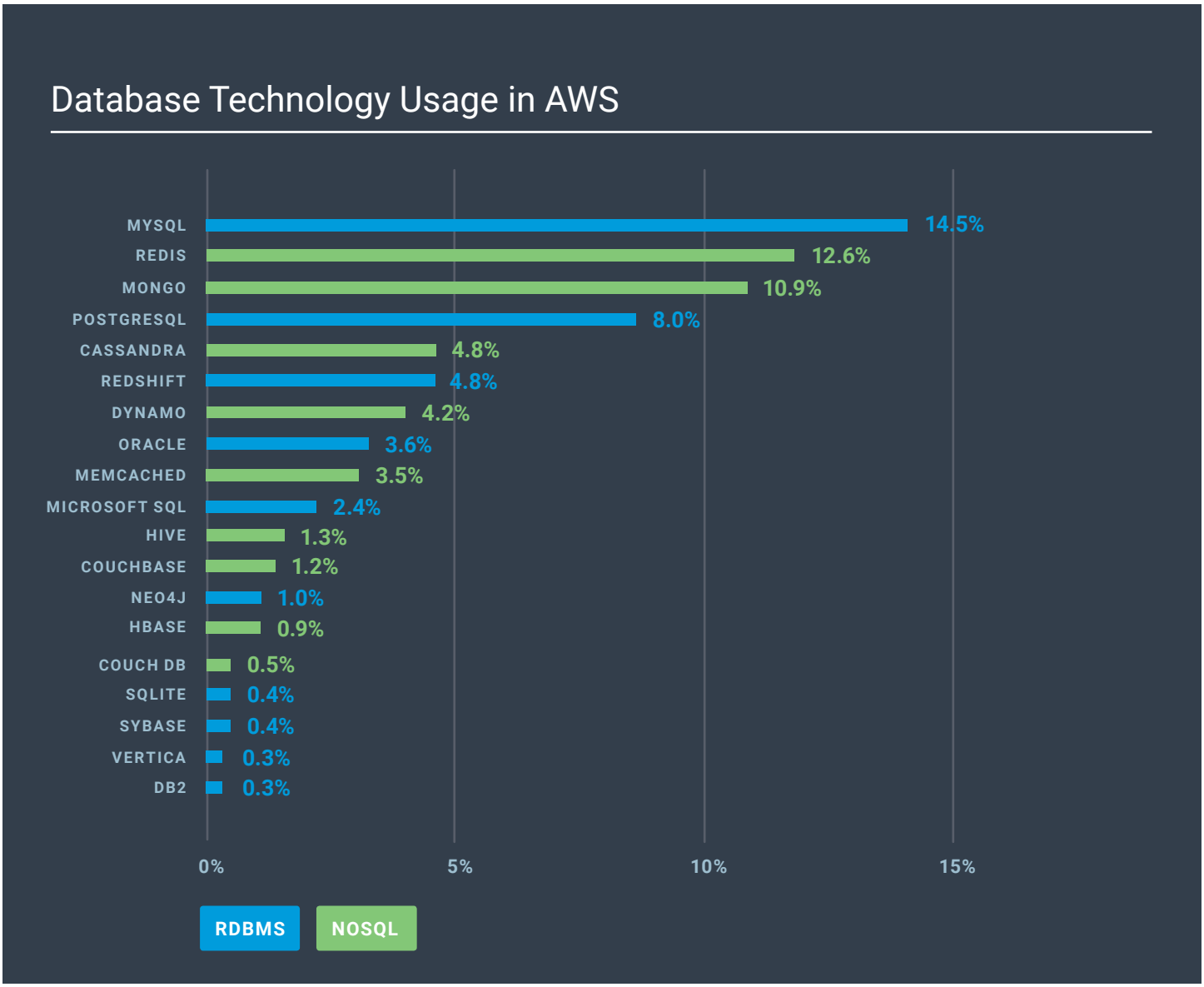
- Enterprises have many choices for database — open source, commercial, relational, NoSQL, in-memory, disk-based etc.

Findings

- MySQL is the #1 Database in AWS.
- MySQL, Redis and MongoDB account for 40% of database adoption in AWS.
- Microsoft SQL and Oracle DB significantly lag in terms of usage in AWS.

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

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



NGINX and Apache Stand Out as the Webserver of Choice on AWS

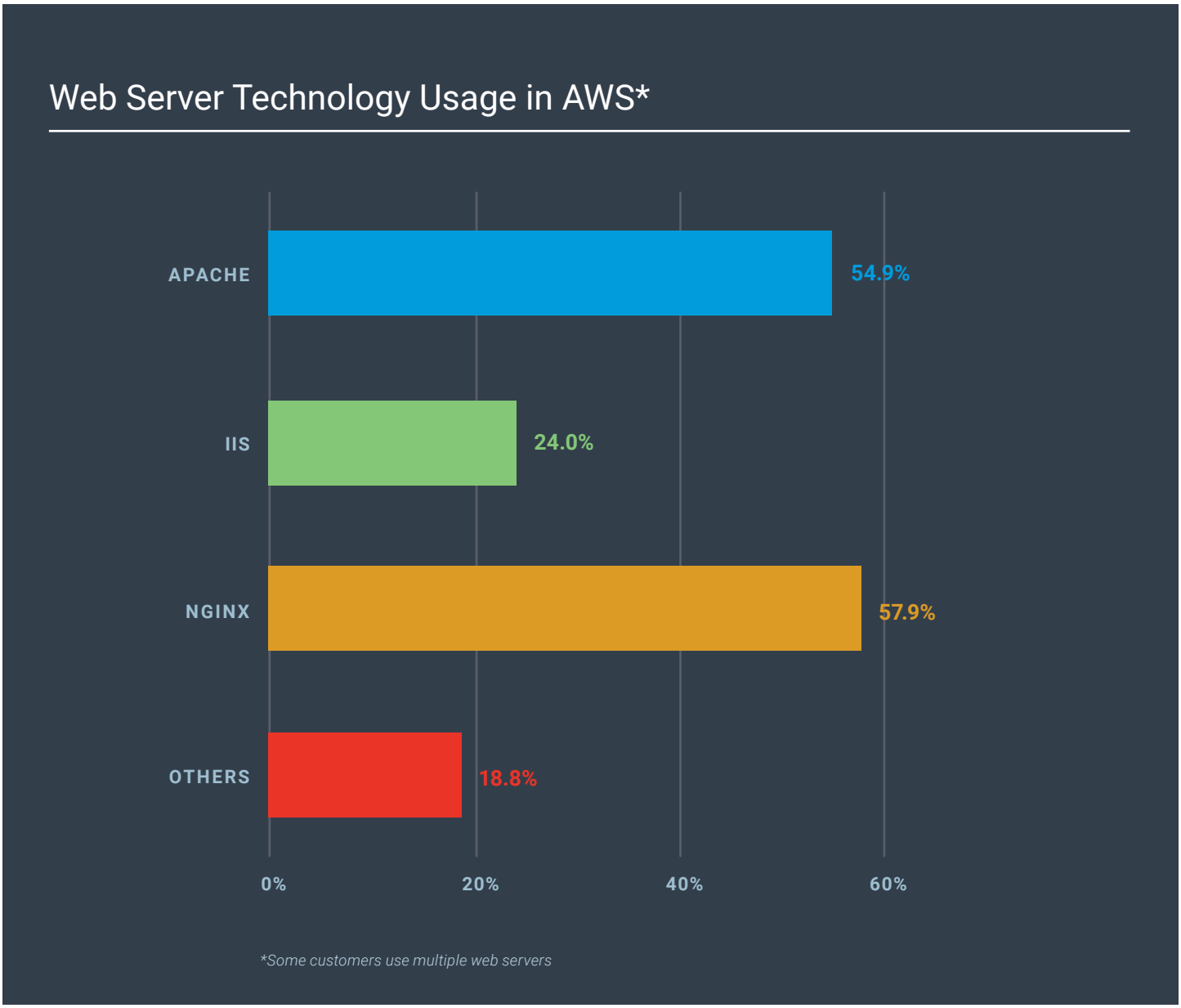
Context

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

Finding

- NGINX is the leading AWS Web server.
- Apache and NGINX are used in 3 out of 4 AWS based applications.

Evaluate NGINX and Apache as your web server platform when building or migrating applications to AWS.



IIS Stands Out as Webserver of Choice on Azure

Context

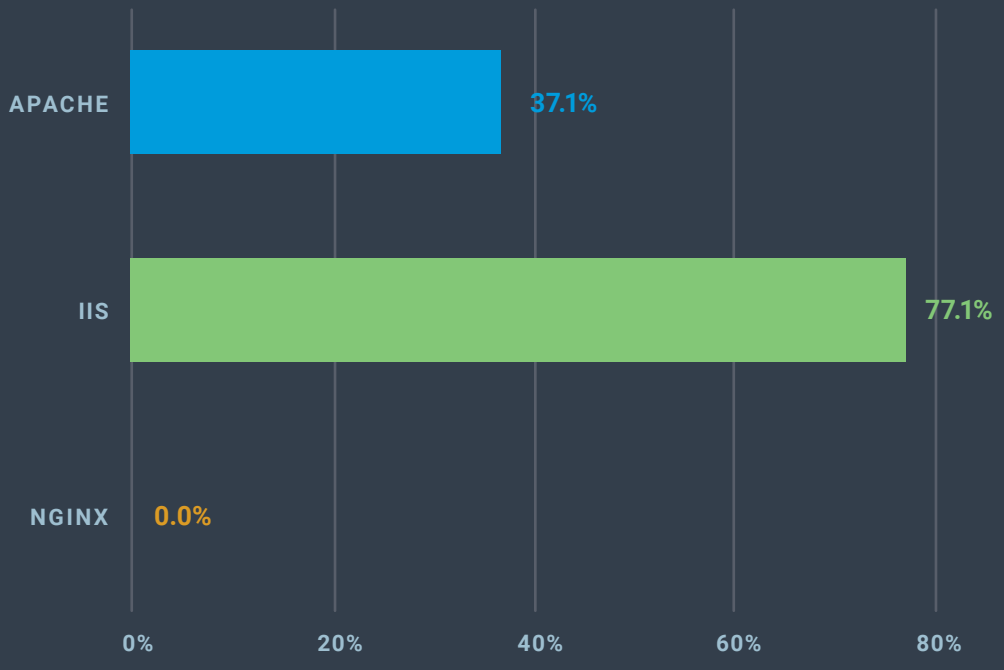
- Web servers are a foundational building block for modern applications.

Finding

- IIS is the leading Azure Web server.
- Apache is also used by many Azure customers; its surprising to note the very low adoption of NGINX in Azure.

Evaluate IIS and Apache as your web server platform when building or migrating applications to Azure.

Webserver Technology Usage in Azure*



Some customers use multiple web servers.

AWS Lambda Adoption is Rising!

Context

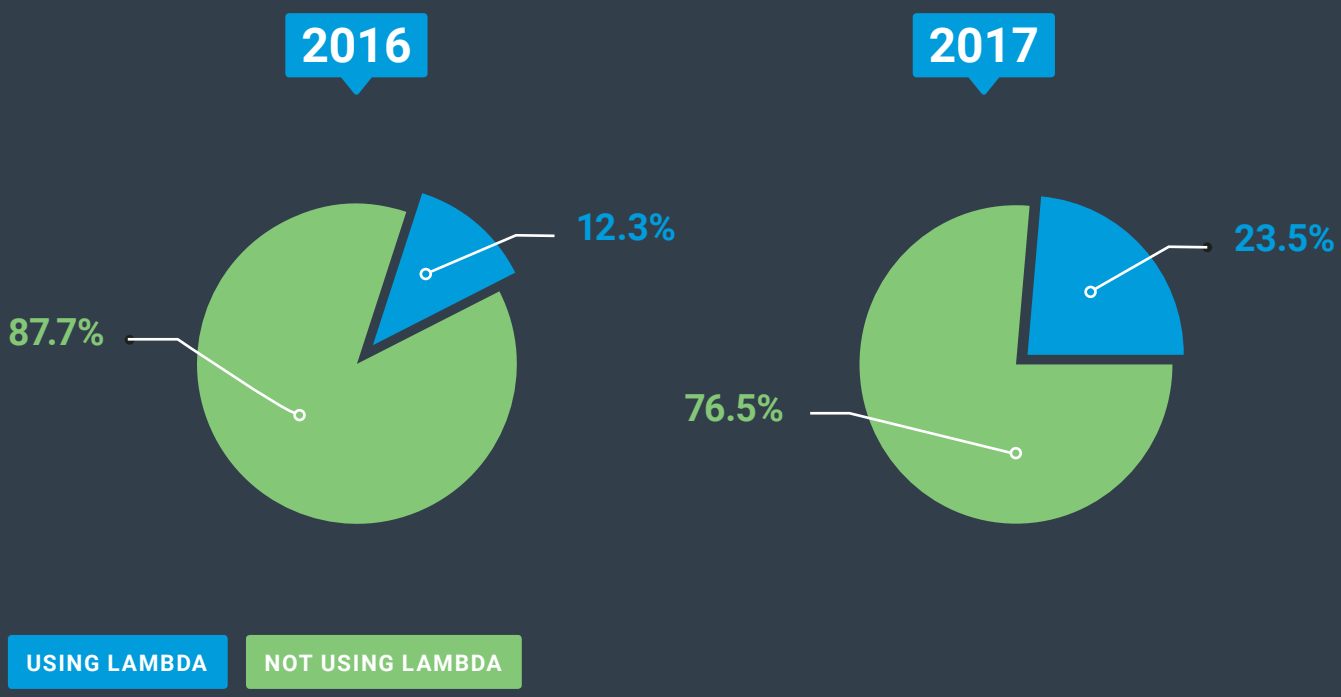
- AWS Lambda lets IT teams run code without requiring them to provision or manage server infrastructure.

Findings

- AWS Lambda adoption has grown dramatically from 2016 (12%) to 2017 (24%).
- Many of the initial use cases for AWS Lambda are focused on Cloud/DevOps deployment and automation.

Lambda usage for application or deployment automation technology should be considered for every production application.

Lambda Adoption in AWS



CloudFront is Leading CDN in AWS

Application Service

Context

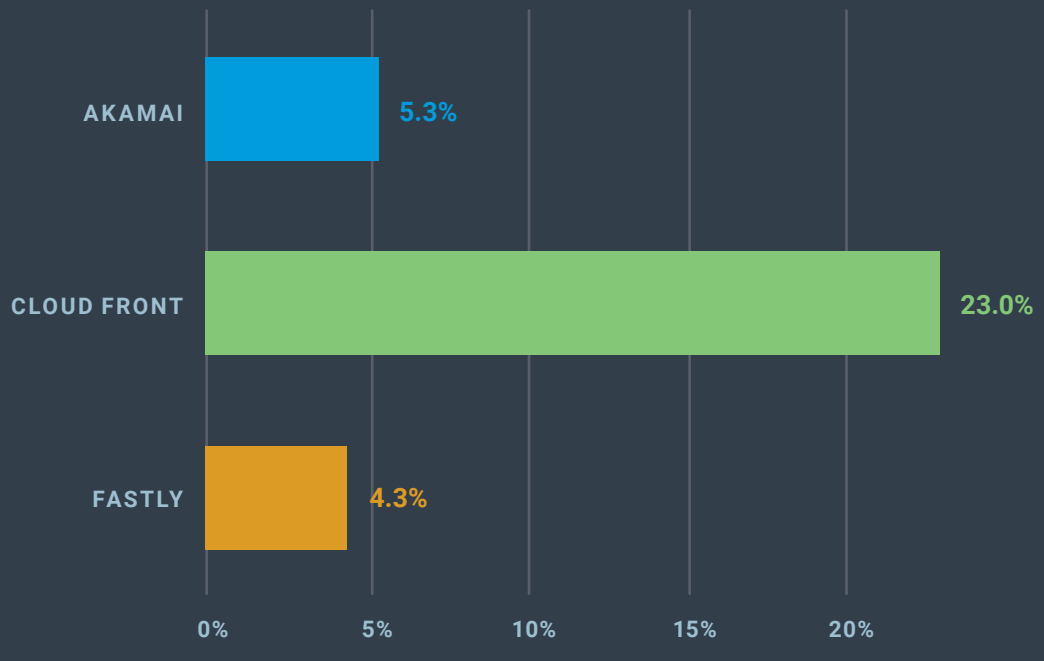
- Content Delivery Network (CDN) is critical to deliver great application performance.
  - Amazon CloudFront is an AWS-native (CDN) service.
  - Akamai and Fastly provide third-party CDN services to AWS customers.

Findings

- CDN usage has gone up dramatically from 2016 to 2017. As customer experience grows in importance, many enterprises are adopting CDNs to improve application and content performance.
- AWS-native CDN (CloudFront) is the clear leader in AWS.
- 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.

CDN Adoption in AWS



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

Context

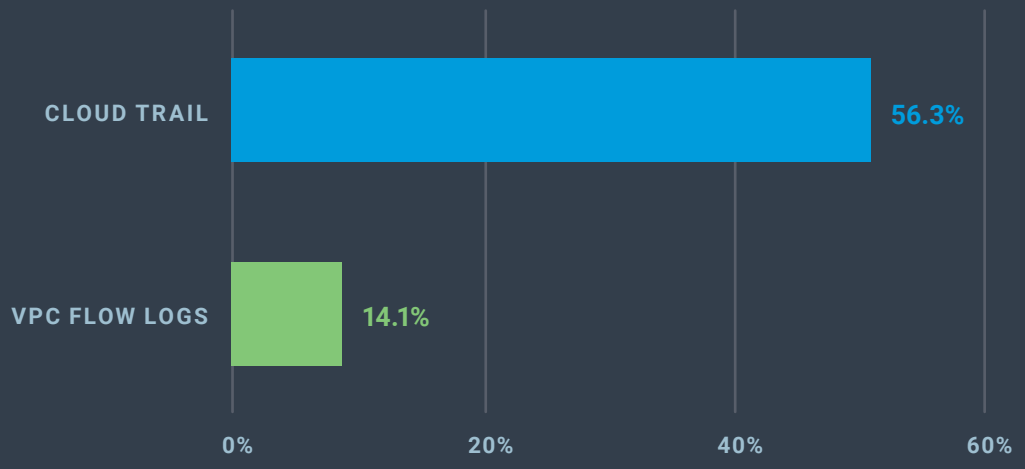
- Security is a top concern for any enterprise moving to public cloud.
- AWS offers several "native" application security services.
  - AWS CloudTrail provides a record trail of AWS calls for audit and reporting.
  - AWS VPC and VPC Flow Logs enable customers to create secure virtual private networks 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 analyze flow logs.

Use AWS CloudTrail to improve application and infrastructure security.

Security Services Adoption in AWS



Security Technology Landscape is Changing as Enterprises Move to the Cloud

Context

- Traditional security tools from legacy vendors may not effectively manage security in cloud environments

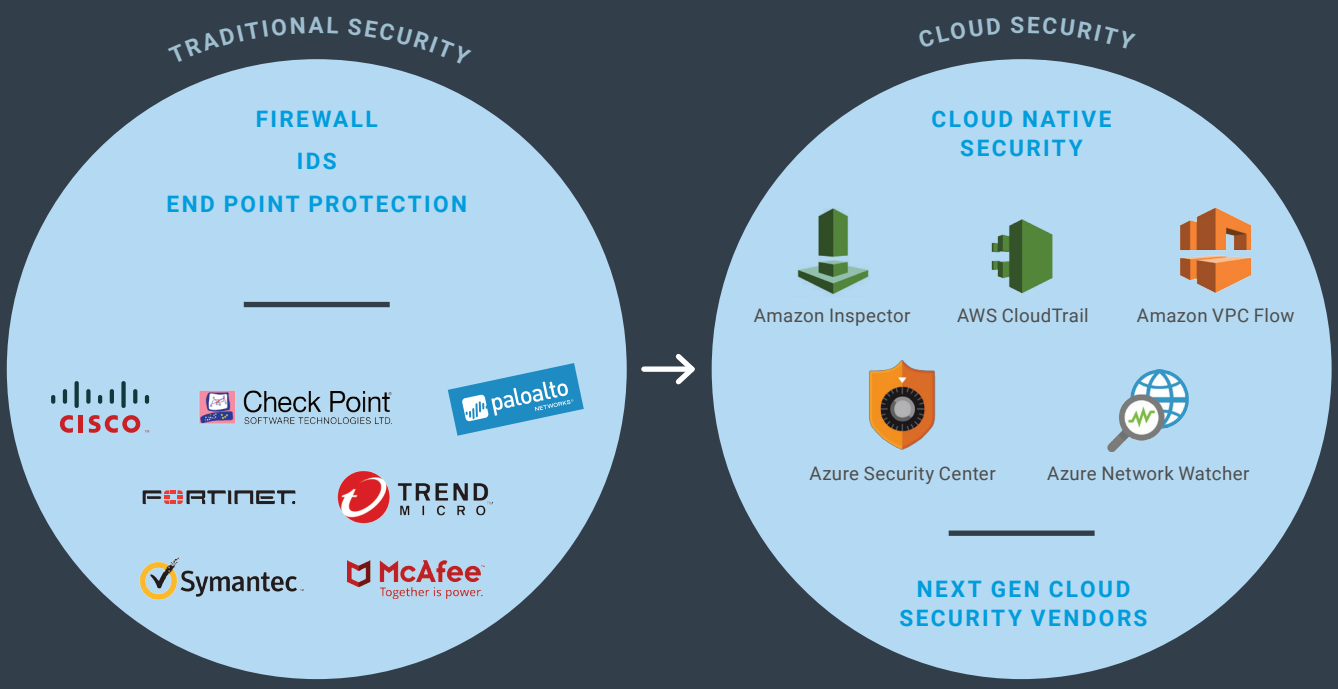
Findings

- Sumo Logic data shows that as enterprises adopt the cloud, few use legacy firewall and IDS solutions

Recommendations

- Start with cloud-native security services from AWS, Azure and Google to manage security of applications in these platforms
- Complement these solutions with next-gen cloud-first security solutions to accelerate threat identification and response

Changing Security Solution Landscape



About Sumo Logic

1500+

Enterprises rely on Sumo Logic to build, run and secure their modern applications

MASSIVE SCALE ON AWS

100 PB+
Data Analyzed Daily

30 Million+
Searches Performed Daily

400 Trillion+
Records Queried Daily

Sumo Logic is the leading cloud-native, machine data analytics platform delivering real-time continuous intelligence, from structured, semi-structured and unstructured data across the entire application lifecycle.

Learn more at www.sumologic.com

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