

Cloud Services 2

Amazon Web Services





FinOps

aka Cost Monitoring Tools

Cloud is critical to every business but is a fundamentally different consumption model...



Decentralized

Engineers siloed from Finance (and Procurement) are empowered to commit the company to spend



Variable

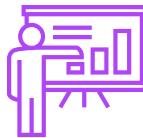
Variable cloud spend replacing data center/fixed cost spend, including numerous ways to optimize rates



Scalable

Instant access to a variety of resources enables innovation but often results in overprovisioning

Cloud FinOps is an evolving **cloud financial management** discipline and cultural practice that:



enables organizations to get maximum business value



by helping engineering, finance, and business teams



to collaborate on data-driven spending decisions

FinOps is not shorthand for “Financial Operations”. It is a portmanteau of “Finance” and “(Dev)Ops”, stressing the communications and collaboration between business and engineering teams.

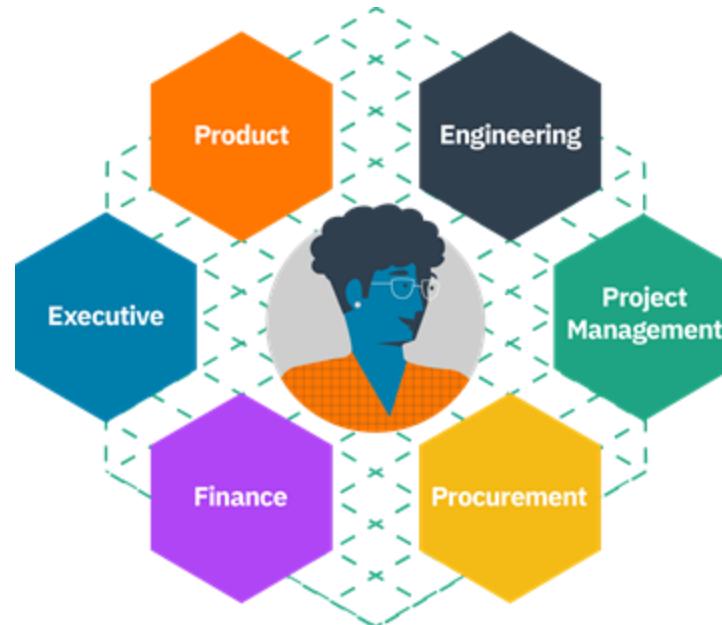
Who does FinOps?



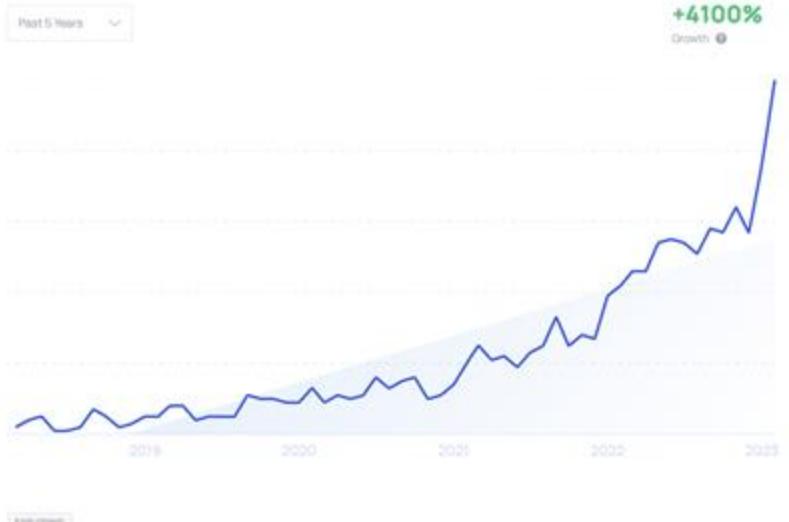
In the same way that everyone is responsible for security with a central team enabling best practices (at scale), many roles do FinOps with help from a central team.

“If I do my job properly I do not need to be in the room when Finance and DevOps teams meet. They are enabled by the work I have done to normalize the cloud bill, allocate and highlight key data points. When FinOps succeeds the business is using the data of FinOps to make better decisions on its own.

- Mike Fuller, CTO FinOps Foundation,
Former Head of FinOps at Atlassian

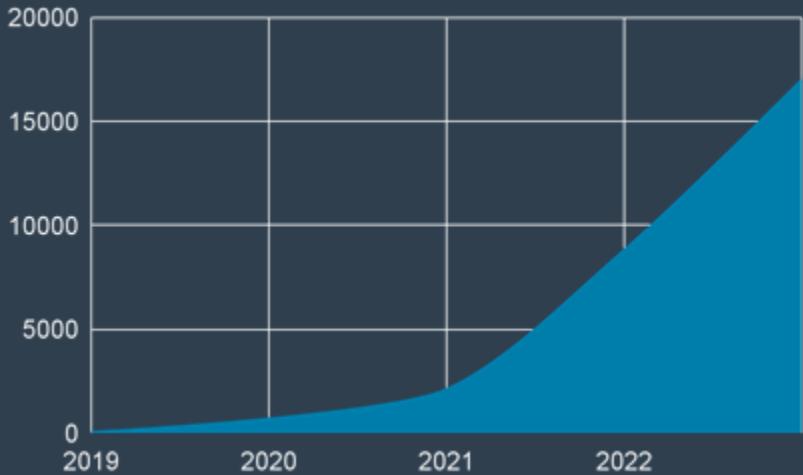


Search Growth



Searches & trending of “FinOps”

Career Growth



People listing “FinOps” as a skill

Team growth comes with cloud spend and complexity

(Figures are stated annual cloud spend, all data from the 2023 State of FinOps)

62%

of those who manage less than \$1M do not have a formal FinOps person or team

The responsibility in these situations falls into an existing role, of which 68% lived within Engineering, DevOps or IT

Average team sizes by amount of cloud spend

\$1-10M

\$10-100M

\$100M-500M

\$500M-\$1B+

2

4

7

10

Common Formulas for FinOps Tooling Stack



Respondents use
an average of

4.1

FinOps tools



97%

65%

26%

16%

Native Tool

(E.g. AWS Budgets, Azure Cost Management, GCP Intelligent Recommendations)

Managing Anomalies

Budget Management

Platform

(E.g. Cloud-*, Homegrown, Data Lake)

Forecasting

Managing Shared Cost

Measuring Unit Costs

Observability

(E.g. Datadog, New Relic)

Resource Utilization & Efficiency

Specialist Tool

(E.g. ProsperOps, Kubecost, Spot, Analytics Tools)

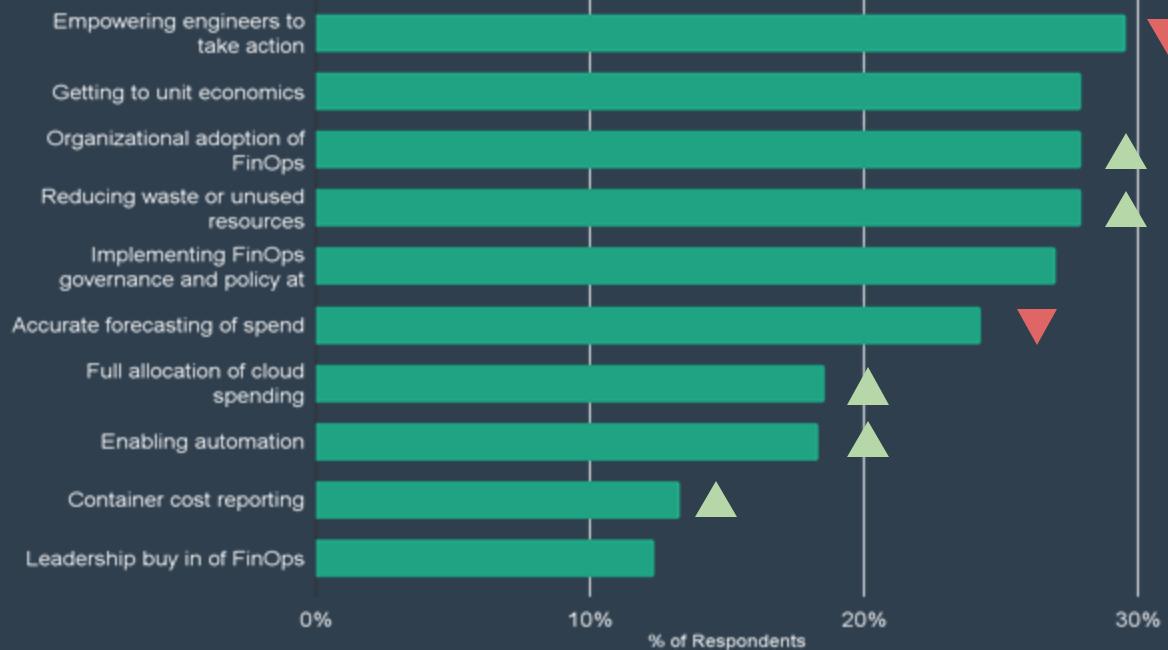
Managing Commitment Based Discounts

Workload Management & Automation

Chargeback & Finance Integration

Top Pain Points for FinOps Practitioners

(Arrows represent % directional change vs 2022, multi-select answers)



BY CLOUD SPEND

\$100M+

Implementing FinOps governance and policy at scale (38.7%)

\$10-100M

Getting to unit economics & Reducing waste or unused resources (both 33%)

\$0-10M

Organizational adoption of FinOps (36.8%)

- Empowering Engineers to take action stayed stable as top spot • Unit economics new option tied #2 spot with #3/4
- 30% growth Reducing waste came up considerably • 17% drop in forecasting • 15% increase in container cost challenge

FinOps Framework

Principles

- ▶ Teams need to collaborate
- ▶ Everyone takes ownership for their cloud usage
- ▶ A centralized team enables FinOps
- ▶ Reports should be accessible and timely
- ▶ Decisions are driven by business value of cloud
- ▶ Take advantage of the variable cost model of the cloud

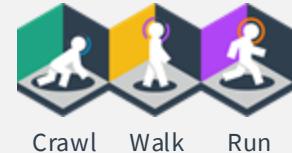
Definitions

FinOps is an evolving **cloud financial management discipline and cultural practice** that enables organizations to get **maximum business value** by helping engineering, finance & business teams to collaborate on data-driven spending decision

Personas



Maturity



Phases



Domains & Capabilities

Understanding Cloud Usage and Cost

Performance Tracking & Benchmarking

Real-Time Decision Making

Cloud Rate Optimization

Cloud Usage Optimization

Organizational Alignment

Tools in AWS to monitor spending & budgets



AWS Cost and
Usage Report

AWS billing dashboard

- View the overall status of your costs and usage.
- Access your monthly bill.



AWS Cost Explorer

AWS Cost Explorer

- Visualize, understand, and manage your AWS costs and usage over time.
- Forecast future costs and usage.



AWS Budgets

AWS Budgets

- Set custom cost and usage budgets.
- Receive alerts you when your costs or usage exceed them.



Amazon
CloudWatch

Amazon CloudWatch

- Monitor your usage charges.
- Receive an alert when they reach a specified threshold.

AWS billing dashboard

Billing & Cost Management Dashboard

Spend Summary **Cost Explorer**

Welcome to the AWS Account Billing console. Your last month, month-to-date, and month-end forecasted costs appear below.

Current month-to-date balance for April 2017

\$7,453.41

Month-to-Date Spend by Service **Bill Details**

The chart below shows the proportion of costs spent for each service you use.



Service	Cost
EC2	\$3,700.71
RDS	\$1,876.35
ElastiCache	\$938.18
DynamoDB	\$625.44
Other Services	\$312.57
Tax	\$0.16
Total	\$7,453.41

Alerts & Notifications

AWS Budgets



The screenshot shows the AWS Budgets console interface. At the top, there are two summary boxes: "Current vs. budgeted" (1.58%, Current \$7.92, Budgeted amount \$500) and "Forecasted vs. budgeted" (10.67%, Forecasted \$53.33, Budgeted amount \$500). Below these is a large chart area with a brown overlay. The chart displays "Alerts" (Alert 1: Actual costs exceed 80% (\$400), 1 contact) and "Budget details" (Actual vs. Budgeted costs from Dec 2017 to Nov 2018). A red callout points to the "Alerts" section. To the right is a sidebar titled "Alerts" containing the same alert message. Further down is the "Budget details" section with a table:

Date	Actual	Budgeted	Budget Variance (\$)	Budget Variance (%)
Dec 2018 (MTD)	7.92	500.00	492.08	98.42% under budget
Nov 2018	39.83	-	-	-
Oct 2018	40.66	-	-	-
Sep 2018	34.55	-	-	-

At the bottom, there are navigation links for "Feedback", "English (US)", "Amazon S3 Usage Budget", and legal notices.

Amazon CloudWatch billing alarms



Generate an alert when estimated charges exceed a specified threshold

Enabled in the AWS Management Console

Must be created in the us-east-1 Region

Central storage for all billing metrics

Based on metrics that includes total and service-specific charges

Send email notifications through an Amazon Simple Notification Service (Amazon SNS) topic

Amazon CloudWatch
billing alarm

Designing for cost reduction

Set custom cost and usage **budgets**.



AWS Budgets

Right-size instances.

Consider using T2 or T3 instance types.

Consider purchasing **Reserved** Instances or using **Spot** Instances.

Consider using the **serverless** compute model.



AWS Lambda

Use **managed services** to reduce cost of ownership.



Amazon RDS



Amazon
DynamoDB

Use **AWS Trusted Advisor** to get real-time cost optimization guidance.

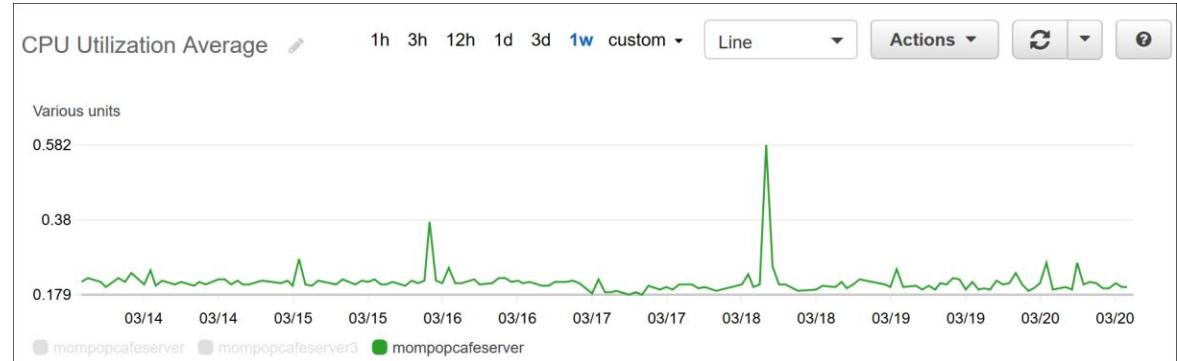


AWS Trusted Advisor

Finding and eliminating waste

Locate and eliminate waste by:

- Using **Amazon CloudWatch** metrics to find long-running idle instances.
 - Sometimes, unneeded resources are kept running.
- Using **AWS Cost Explorer** to find the costs associated with entire projects or initiatives.



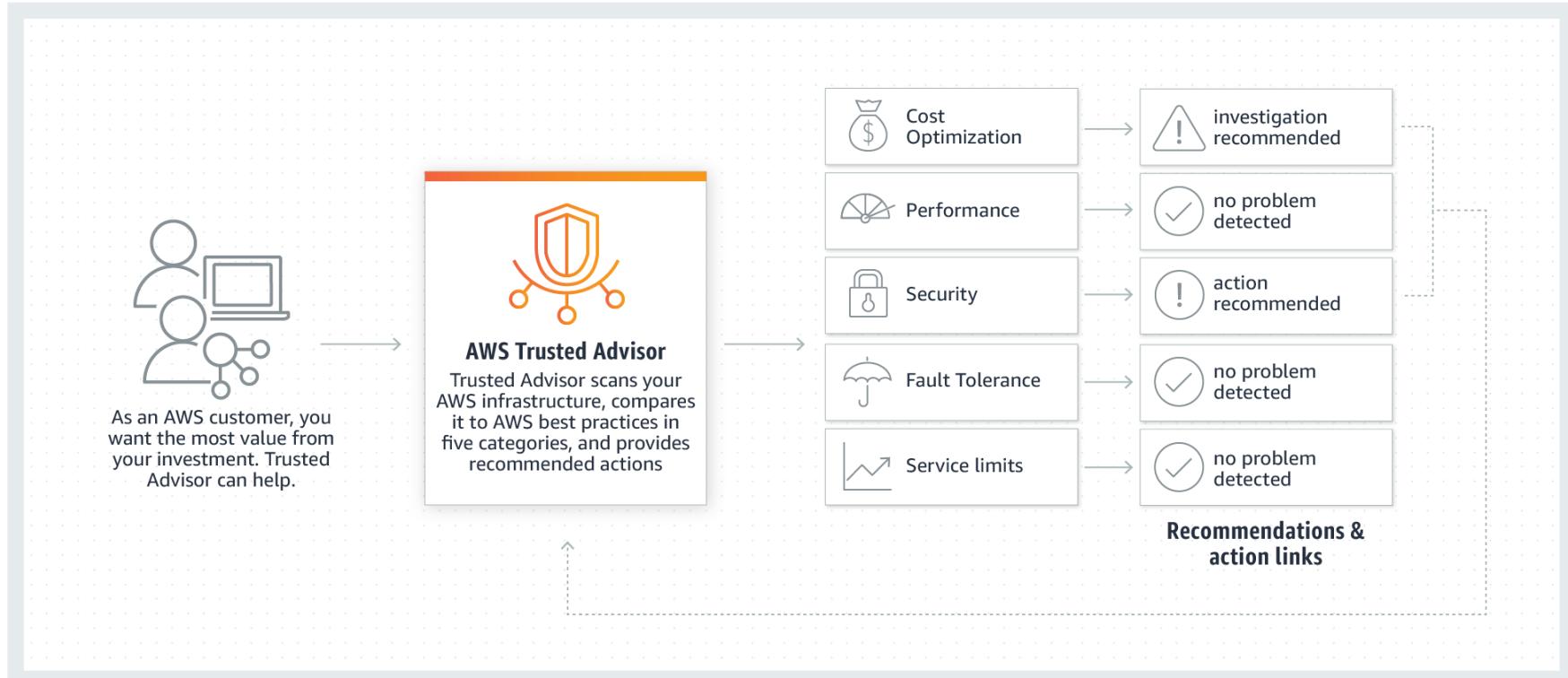
Using a stopinator script

Use a ***stopinator*** script:

- Turn on and turn off selected AWS resources
- Is a best practice to reduce cost
- For instance: <https://dev.to/aws/simple-ec2-stopinator-in-lambda-5goj>
`stopinator stop [tags]`



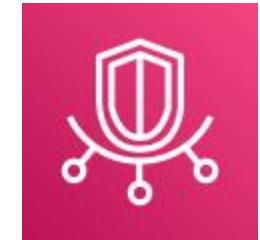
What is AWS Trusted Advisor?



AWS Trusted Advisor features

AWS Trusted Advisor features:

- Sample cost optimization checks –
 - Idle resources (Amazon EC2 instances, Amazon RDS instances)
 - Underused load balancers and volumes
 - Unused Elastic IP addresses
- Use cost-optimization checks to achieve a base level of cost savings
- Core checks and recommendations available to all customers
- Additional checks and recommendations available with Business or Enterprise support plans



AWS Trusted Advisor

AWS Trusted Advisor recommendation card



Underutilized Amazon EBS Volumes

Checks Amazon Elastic Block Store (Amazon EBS) volume configurations and warns when volumes appear to be underused.

4 of 7 EBS volumes appear to be underutilized. Monthly savings of up to \$1530.20 are available by minimizing underused EBS volumes.

Extra leermaterialen & labs



- [Make Cost-Optimized Decisions on AWS \(90min\)](#)
- [Managing Microsoft Azure Subscriptions \(180min\)](#)

