



Cloud Cost Optimisation

A Primer

Daniel Maher

Engineer (Community Team) at Datadog

@phrawzty

Kerim Satirli

Sr. Developer Advocate at HashiCorp

@ksatirli

6 October 2021

Daniel Maher

Engineer (Community Team) at Datadog
he/him

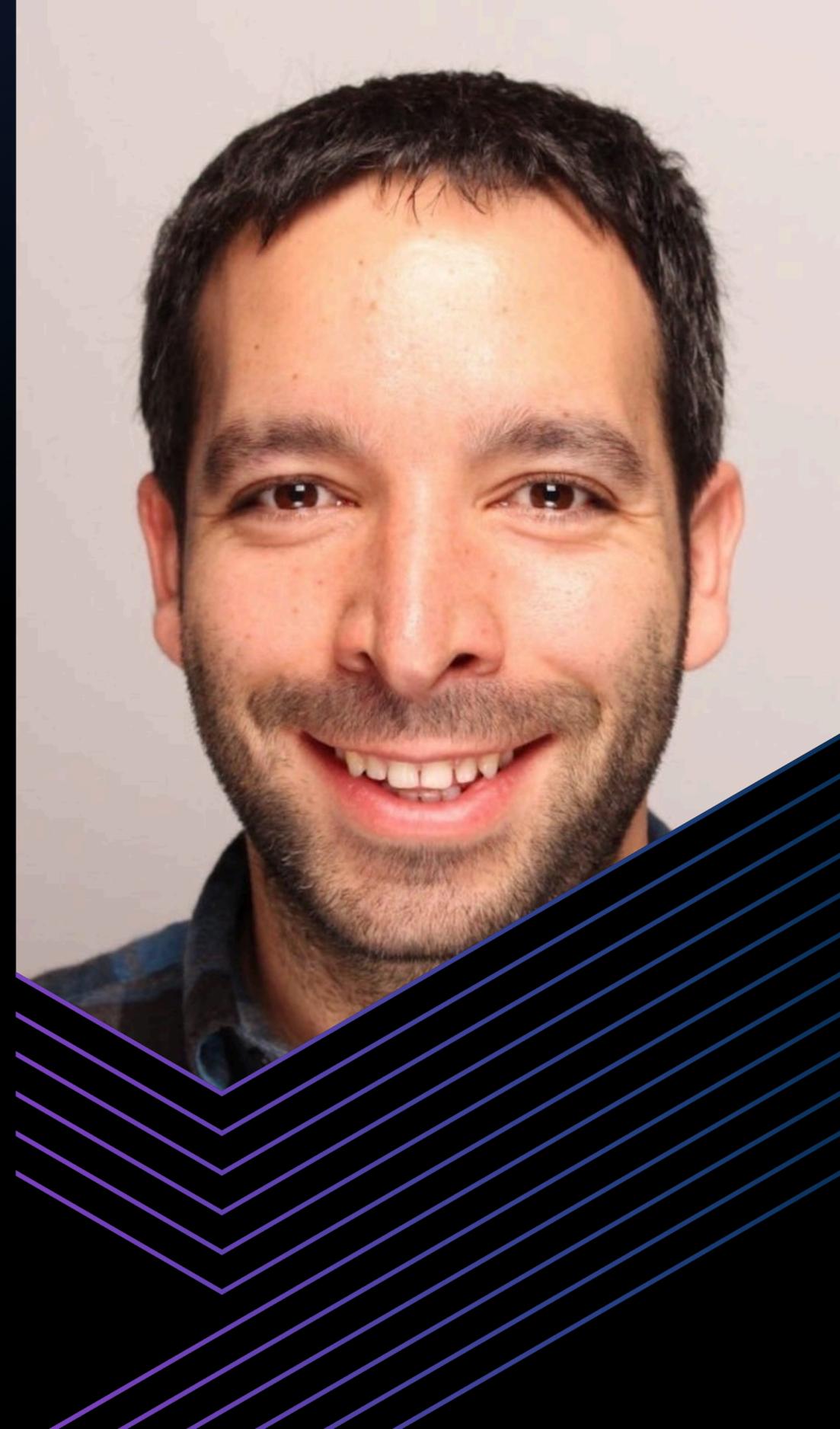
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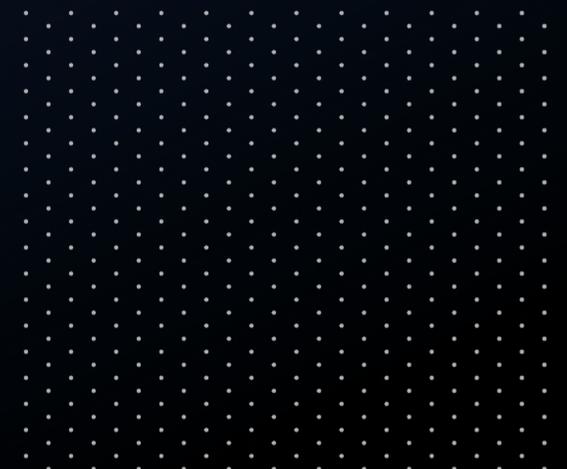
@ksatirli



01 Challenge

Let's talk about...

The Cloud



Cloud Market

	revenue (USD)	market share (%)	YoY growth (%)
Amazon Web Services	26,20	40.8	28.7
Microsoft Azure	12,69	19.7	59.2
Alibaba Cloud	6,12	9.5	52.8
Google Cloud Platform	3,93	6.1	202.8
Others	15,34	24	25.6

Source: gtr.it/3B9xxhE

Cloud Market

\$64B

Annual spend on public cloud

Cloud Market

\$64B

Annual spend on public cloud

41%

Annual growth of public cloud

Cloud Waste

\$64B

Annual spend on public cloud

\$17.6B

Annual public cloud waste

Cloud Waste

\$64B

Annual spend on public cloud

\$17.6B

Annual public cloud waste

20-30%

Spend attributed to cloud waste

Cloud Waste

“Between idle and over-provisioned resources alone, that’s \$17.6B in cloud spend that will be completely wasted this year. And the potential is even higher [...]

That’s a minimum of about **\$5M wasted *per day***, every day this year, that could be reallocated toward other areas of the business.”

Source: devops.com/the-cloud-is-booming-but-so-is-cloud-waste

\$11B

Annual public cloud waste

\$6.6B

Wasted from over-sized resources

Cloud Waste Side - Effects



Cloud Waste Side - Effects



Reduced Productivity

Wasted spend is correlated with **poor standardisation**, or worse yet: anti-patterns.

If there's no easy way for developers to re-use patterns, then everybody **re-invents the wheel**, over and over again.

Cloud Waste Side - Effects



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Risk

Lack of governance and oversight across the enterprise results in an **increased risk surface**.

Validated models are easier to reason about, which is part of a heightened security posture.

Cloud Waste Side - Effects



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Misallocation

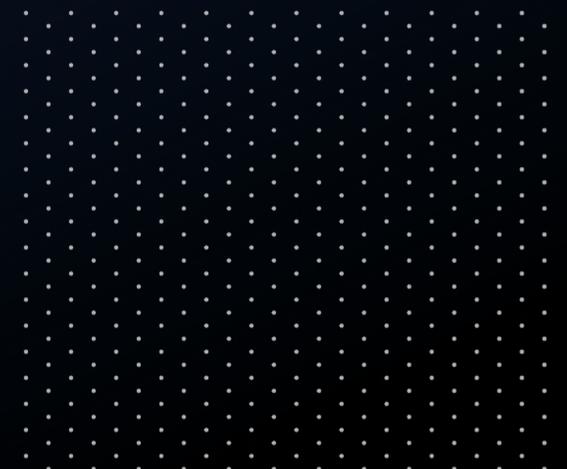
Literally: money that could - and should - be spent on other things.

Brass tacks: wasted cloud spend is basically a vampire that is **making your organisation weaker**.

02 Opportunity

Let's talk about...

Opportunity



Shift-left on Cloud Spend

Engineers as the new cloud financial controllers

Shift-left on Cloud Spend

Engineers as the new cloud financial controllers

- Availability of billing minutiae

Shift-left on Cloud Spend

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- Billing data is just that: **data**

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Shift-left on Cloud Spend

Engineers as the new cloud financial controllers

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- That can be **correlated** with deployments?

Shift-left on Cloud Spend

Engineers as the new cloud financial controllers

- Availability of billing minutiae
- Billing data is just that: **data**
- Programmatic access to that **data**
- Wait a minute... an API full of **metrics**?
- That can be **correlated** with deployments?
- This sounds like a job for **dashboards!**

Shift-left on Cloud Spend

...y tho?

Shift-left on Cloud Spend

...y tho?

- Get **involved** in product discussions

Shift-left on Cloud Spend

...y tho?

- Get **involved** in product discussions
- Bring **insight** to business decisions

Shift-left on Cloud Spend

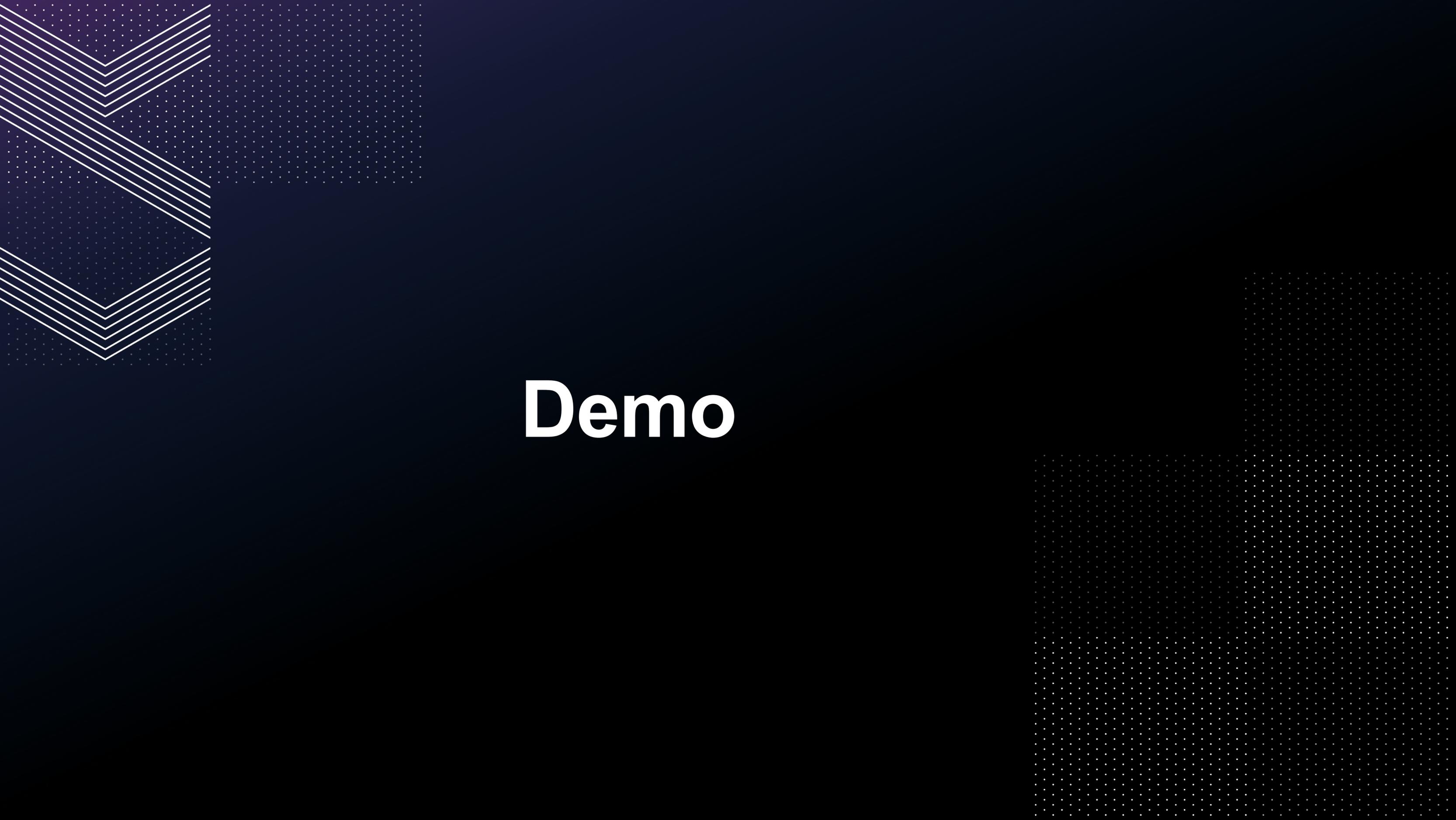
...y tho?

- Get **involved** in product discussions
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- Increase your capacity to generate **value**

Shift-left on Cloud Spend

...y tho?

- Get **involved** in product discussions
- Bring **insight** to business decisions
- Increase your capacity to generate **value**
- Level-up your **career**

The image features a dark blue background with decorative elements. In the top-left corner, there are several overlapping, nested white chevron shapes pointing downwards, set against a grid of small white dots. In the bottom-right corner, there is a large, dense grid of small white dots. The word "Demo" is centered in the middle of the page in a bold, white, sans-serif font.

Demo

app.terraform.io/app/ksatirli/workspaces/minimise-cloud-waste

ksatirli Workspaces Registry Usage Settings HashiCorp Cloud Platform

ksatirli / Workspaces / minimise-cloud-waste / Overview

minimise-cloud-waste

Minimising Cloud Waste with Terraform and Datadog.

Resources: 1 Terraform version: 1.0.8 Updated: 2 minutes ago

Overview Runs States Variables Settings

Unlocked Actions

Execution mode: Remote
Auto apply: On

Latest Run [View all runs](#)

Triggered via CLI Applied

ksatirli triggered a run 3 minutes ago via CLI

Policy checks	Estimated cost change	Plan & apply duration	Resources changed
Add	None	Less than a minute	+1 ~0 -0

[See details](#)

Resources 1 Outputs 2 Current as of the most recent state version.

Filter resources

NAME	PROVIDER	TYPE	MODULE	UPDATED ↓
aws_ec2_cost_optimise...	datadog/datadog	datadog_dash...	root	Oct 6 2021

1 - 1 of 1 resources.

Metrics (last 6 runs)

Average plan duration	< 1 min
Average apply duration	< 1 min
Total failed runs	5
Policy check failures	0

Tags (3)

Add a tag

costcontrol datadog dashboards

Run triggers

No source workspaces have been selected. [Adding run triggers](#) will allow runs to queue automatically in this workspace.

minimise-cloud-waste

Minimising Cloud Waste with Terraform and Datadog.

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Terraform version: 1.0.8
Updated: 2 minutes ago

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NAME ↓	TYPE	VALUE
url_cost_control_dashboard	string	"https://app.datadoghq.com/dashboard/e23-u9z-6b7/aws-ec2-cost-optimiser"
url_my_dashboards	string	"https://app.datadoghq.com/dashboard/lists/preset/4"

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Add a tag

costcontrol datadog dashboards

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AWS EC2 Cost Optimiser [HashiCorp / Datadog webinar]

1mo Past 1 Month

\$instance-type * \$team * \$app * \$service * \$offer-instance-type * \$offer_region * \$offer_operating_system * \$offer_pricing_model * \$offer_lease_contract *

Instances (*)



Spend

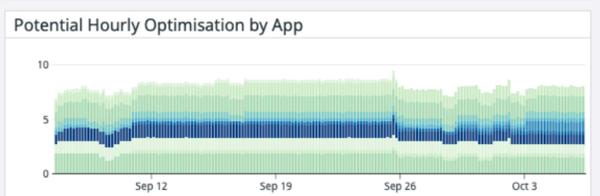
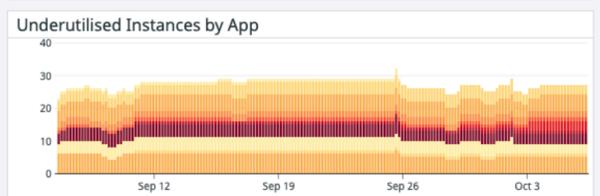
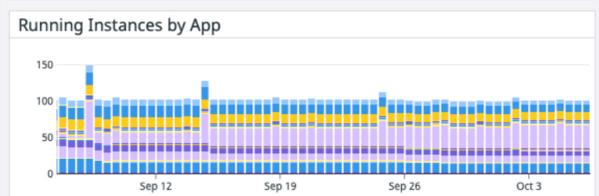
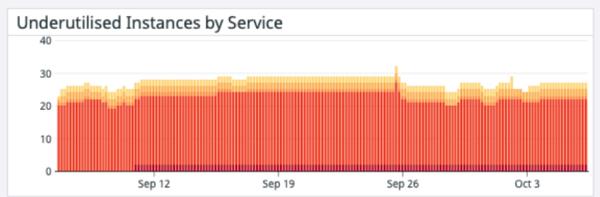
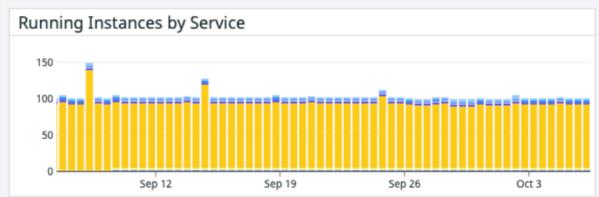
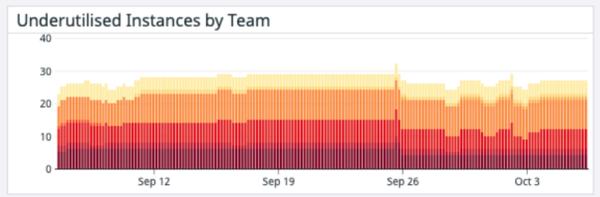
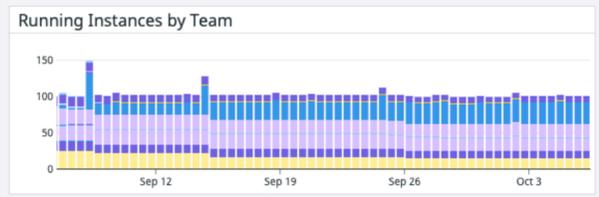
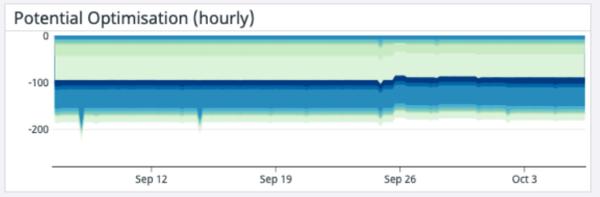
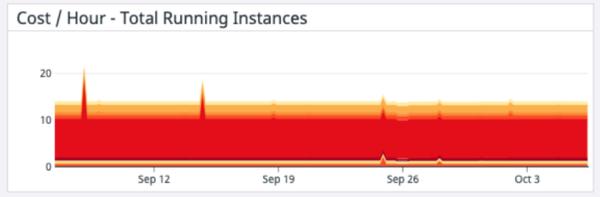
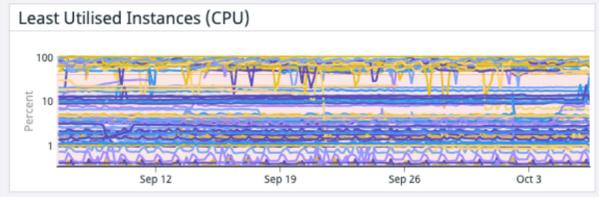
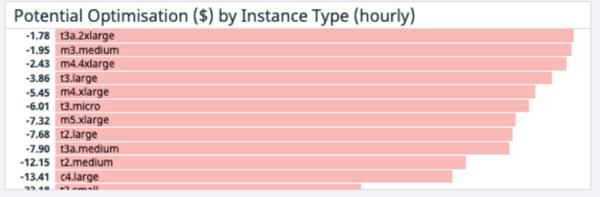
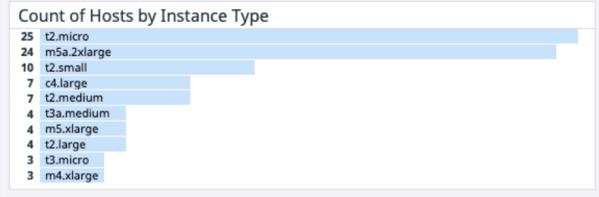


Potential Optimisation



Note:
Accelerated Compute instances (P2, P3, G2, G3, G4, F1, In1) are not included in underutilisation metrics. GPU instances (P2, P3, G2, G3, G4) require additional plugins via AWS CloudWatch or Datadog NVML.

Pricing metrics to not account for CPU Credits as applied to burstable (t2, t3, t3a) instances.





Thank You!

daniel.maher@datadoghq.com
kerim@hashicorp.com