AWS re:Invent

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ENT216

Unit metrics in practice

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Business Development Manager
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Agenda

- Defining a unit metric
- Setting baseline expectations
- Creating a common framework across finance & engineering
- Moving from unit metric theory to practice



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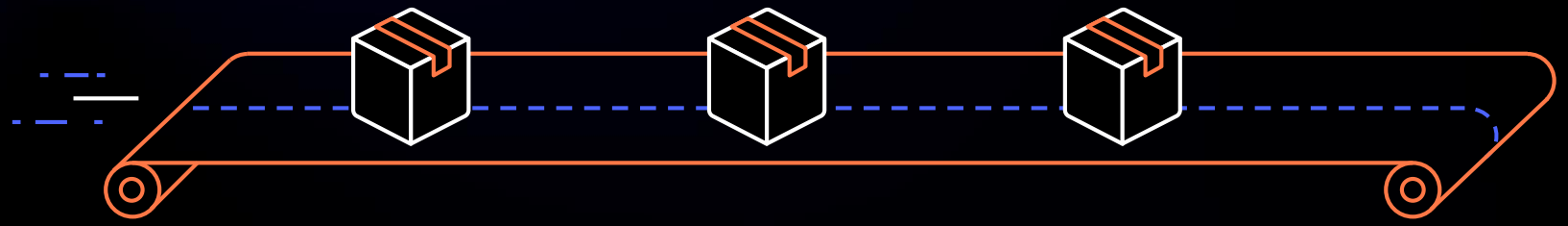
Defining a unit metric

Linking costs to business outcomes

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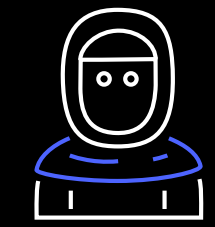
Unit metric

LINKING COSTS TO RESOURCE DEMAND

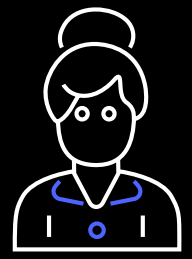


$$\frac{\text{AWS spend \$}}{\text{Units of demand}} = \text{incremental unit cost}$$

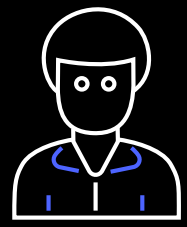
$$\frac{\text{AWS resource usage}}{\text{Units of demand}} = \text{incremental unit consumption}$$



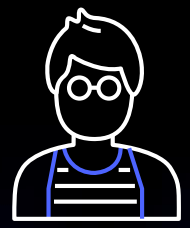
Product owner



Engineer



Finance team member



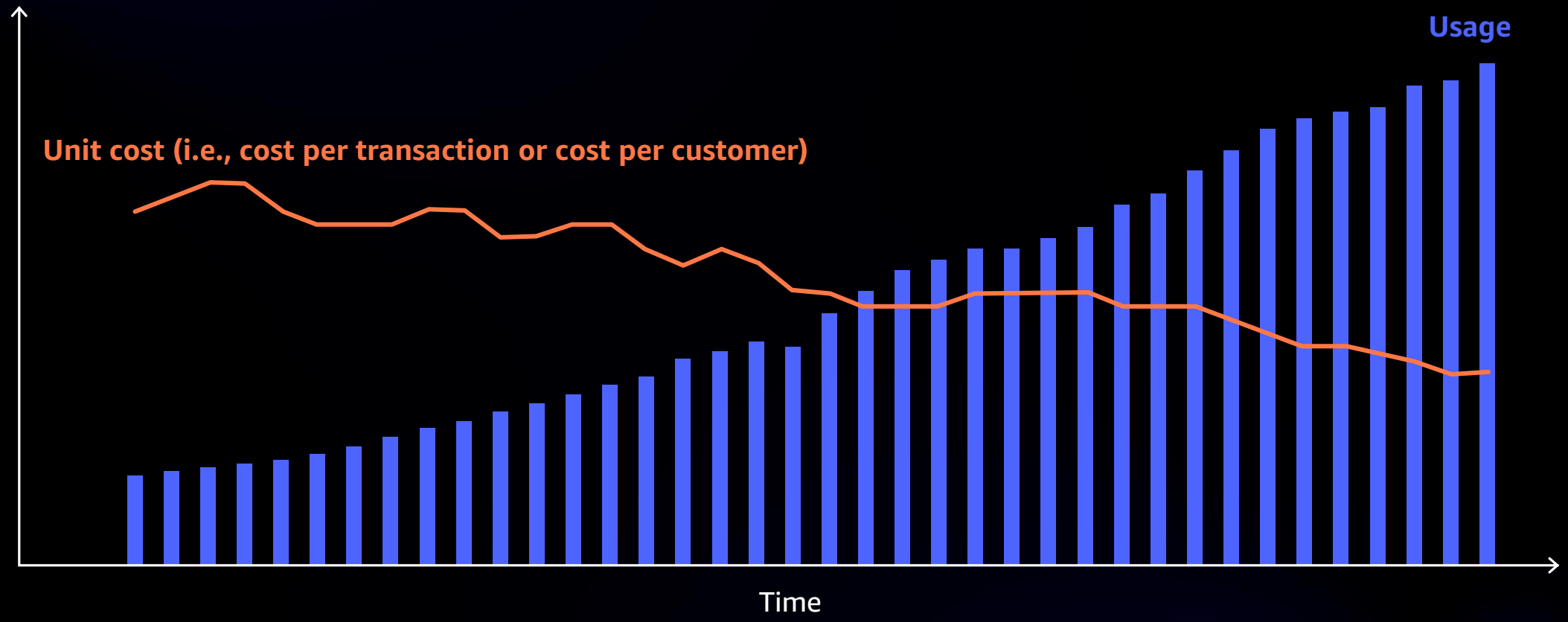
IT professional

aws

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What success looks like

USING UNIT METRICS TO BETTER UNDERSTAND COST TRENDS



Scenario:

- Increasing cloud spend as your business grows [usage]
- Decreasing unit costs as resource management and fixed costs per unit improve [unit cost]

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Establishing a baseline

Aligning unit metrics to your organizational goals

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Establishing organizational baselines

CONSIDERATIONS WHEN ESTABLISHING YOUR BASELINE

Reporting period



Do your usage measurements align with your reporting periods for costs?

Usage over cost



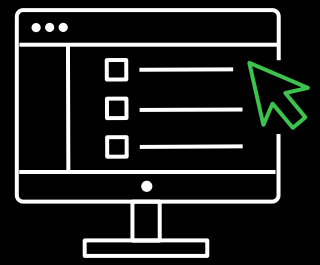
How will credits and discounts impact unit measurements?

Business case



Do your unit metrics contribute to your desired business outcomes?

Accountability

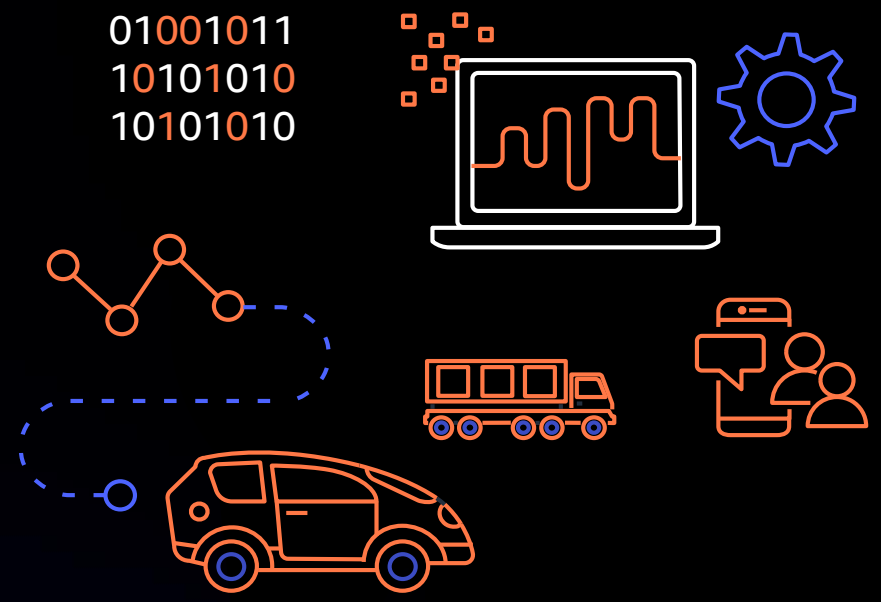


Who is responsible for measuring and reporting progress?

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What are the demand drivers for your *business*?

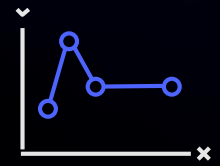
What are the demand drivers for your *service*?



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Unit metric benefits

MAKE DATA-DRIVEN FINANCIAL DECISIONS



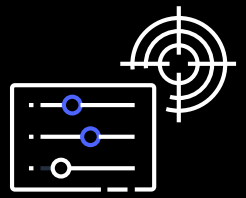
Engage in corrective actions earlier by identifying negative variation



Quantifies the financial and operational impact of architectural and code changes



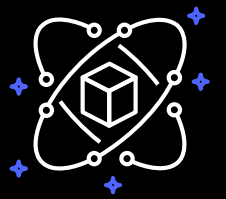
Enables identification of impactful cost drivers – sensitivity analysis



Progresses toward more accurate and agile driver-based forecasting



Identifies fixed operational costs from variable operational costs – improves your modeling



Promotes data-driven decision making

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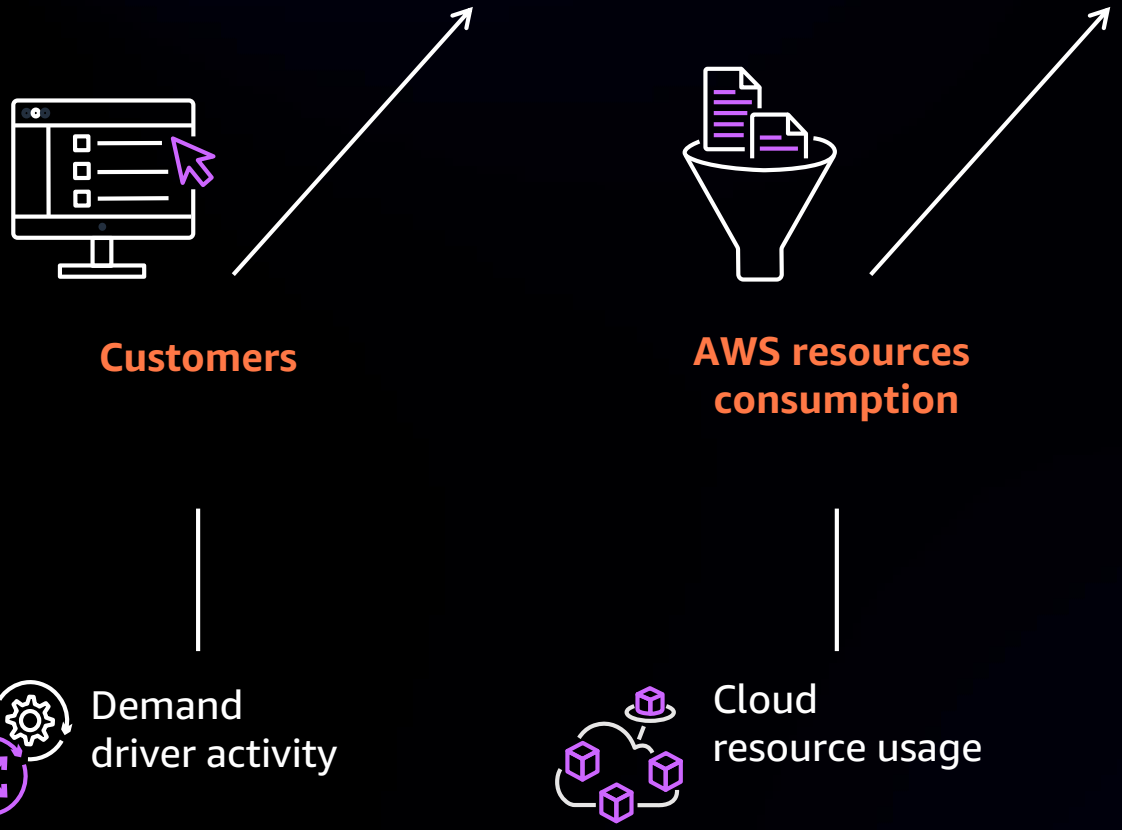
Aligning your organization

Aligning finance and engineering objectives with unit metrics

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Financial unit metrics

GIVING METRICS CONTEXT



Examples

AWS $/Active customer

Expense based

- Total AWS invoice $
- $/EC2 hour
- $/GB storage
- $/GB of data transfer
- $/AWS service consumption units

Unit metric based

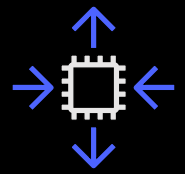
- Total AWS $/Active customer
- EC2 $/Active customer
- GB $ total storage/Active customer
- Data transfer $/Active customer
- Individual AWS services $/Active customer

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Engineering unit metrics

GIVING METRICS CONTEXT

AWS resources – in their respective units of consumption – can be used to quantify engineering efficiency when expressed with the units of demand as the denominator



EC2 hours

Active customer



GB storage

Active customer



AWS service unit of measure

Active customer

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Data-driven decision making

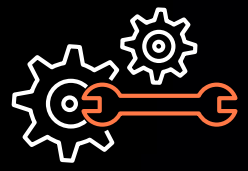


Financial metrics



Engineering metrics

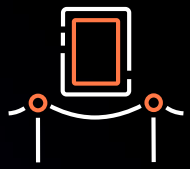
When is it okay to increase unit cost or unit resource consumption?



Fixing a bug



Implementing a regulatory requirement



Rolling out new features or products

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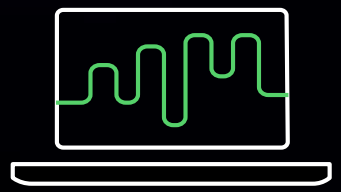
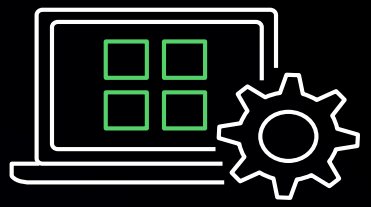
Increasing granularity

Start with a macro view, then refine

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Start with a macro view, then refine

UNDERSTANDING WHERE YOUR OPPPORTUNITIES FOR IMPROVEMENT ARE OVER TIME

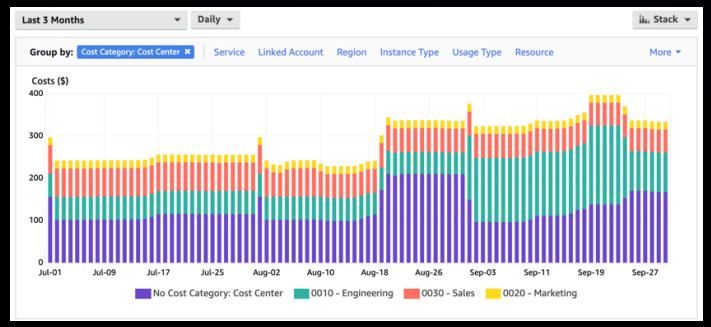
Aggregate costs	Cost per booking	Cost per search	Cost per API call
			
Overall bill	Infra. costs	Database costs	Compute costs
# active customers	# online bookings	# listing searches	# API calls

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Tools to get you started

CLOUD FINANCIAL MANAGEMENT SERVICES TO HELP YOU GET STARTED

AWS Cost Explorer



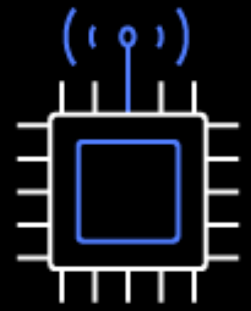
- ✓ Free console-based data visualization tool
- ✓ Graphs of AWS cost and usage
- ✓ Leverages cost and usage reports

Build Your Own



- ✓ Custom filtered views
- ✓ Multi-graph dashboards
- ✓ Optimization dashboards
- ✓ Customized KPIs

AWS Partner Network



- ✓ AWS Cloud Management Tools Competency Partners
- ✓ Preconfigured tools to support cloud financial management needs

aws

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Starting your journey

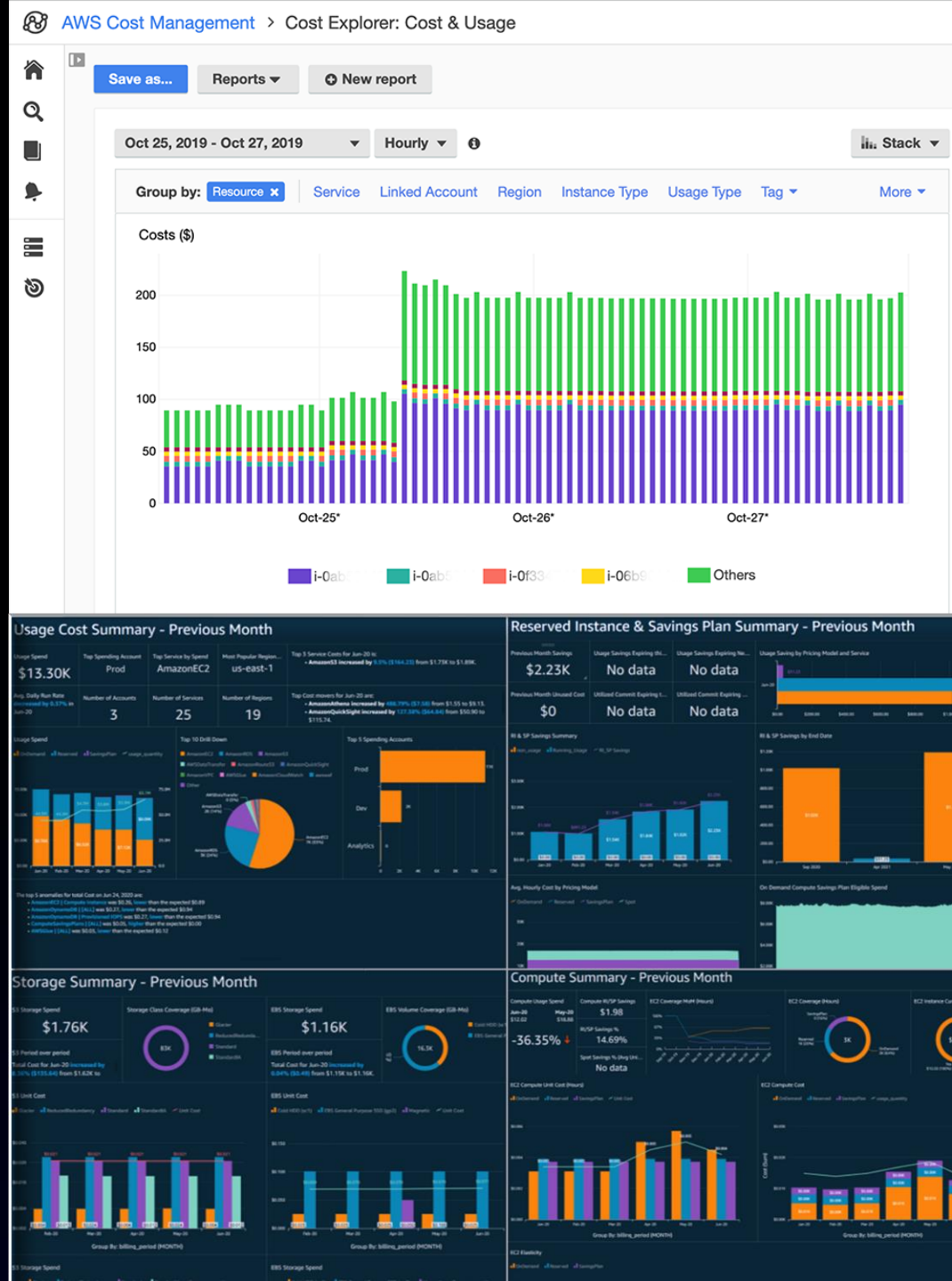
Moving from theory to practice

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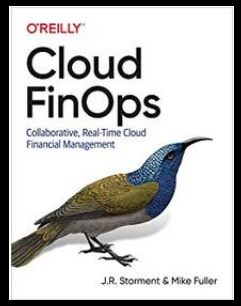
Final thoughts

PUTTING IT ALL TOGETHER

- If you're in engineering, partner with finance and vice versa
- Identify unit metric candidates and refine over time
- Graph the unit metrics against your historical cost
- Unit metrics will help you to predict your future costs more accurately
- Consider AWS native services like AWS Cost Explorer and AWS Cost and Usage Reports to get you started



Resources



AWS

Cloud Financial Management with AWS: https://aws.amazon.com/aws-cost-management/

Cost Optimization Pillar—AWS Well-Architected Framework: https://docs.aws.amazon.com/wellarchitected/latest/cost-optimization-pillar/welcome.html

Books

J.R. Storment & Mike Fuller. “Managing to Unit Economics: FinOps Nirvana.” *Cloud FinOps.* O'Reilly Media, 2019, pages 235–244. ISBN-10: 1492054623

Articles and blogs

CIO magazine: Do you know what your cloud use really costs?: https://www.cio.com/article/3394679/do-you-know-what-your-cloud-use-really-costs.html

AWS Cost Management Blog: https://aws.amazon.com/blogs/aws-cost-management/

One yardstick to rule them all: How gamifying marginal cost could be a game changer: https://aws.amazon.com/blogs/enterprise-strategy/one-yardstick-to-rule-them-all-how-gamifying-marginal-cost-could-be-a-game-changer/

AWS Cost Blog: What is a unit metric?: https://aws.amazon.com/blogs/aws-cost-management/what-is-a-unit-metric/

AWS Cost Blog: Selecting a unit metric to support your business: https://aws.amazon.com/blogs/aws-cost-management/selecting-a-unit-metric-to-support-your-business/

AWS Cost Blog: Unit metrics in practice - lessons learned: https://aws.amazon.com/blogs/aws-cost-management/unit-metrics-in-practice-lessons-learned/

AWS Cost Blog: How unit metrics help create alignment between business functions: https://aws.amazon.com/blogs/aws-cost-management/unit-metrics-help-create-alignment-between-business-functions/

The Keys to AWS Optimization - S1 E3 - Demystifying Unit Cost: https://www.youtube.com/watch?v=lfYnPgZQg0c

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Before you go

RESOURCES TO LEARN, CONNECT, AND ROLL UP YOUR SLEEVES

Connect!

AWS Cloud Financial Management (CFM) Peer Connect

aws.amazon.com/aws-cost-management/cfm-peer-connect/

CFM kiosk

Expo Hall

CFM blog

https://aws.amazon.com/blogs/aws-cloud-financial-management/

Learn!

Strategic IT planning and evaluation

[ENT214] Wed, Dec 1 @ 7pm

8 ways to control and manage AWS costs

[COP204] Fri, Dec 3 @ 8:30am

Quantify and maximize your cloud business value

[ENT213] Fri, Dec 3 @ 10:45am

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Thank you!

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