AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

ENT214

Strategic IT planning and evaluation

David Lambert (he/him)
Senior Business Development Manager
Amazon Web Services

Jeremy Jackson (he/him)
Chief Technology Officer
ASG

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What we'll cover

- How IT strategic planning is changing
- Continuous IT planning and evaluation
- Lessons from ASG: Using economic metrics to plan for and evaluate IT spend



Let’s get going

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What we're hearing

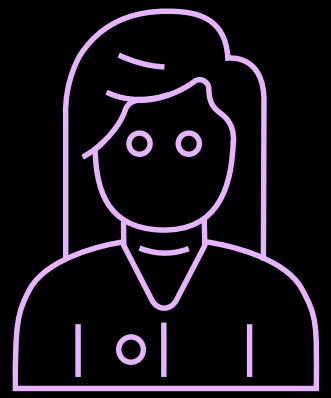
Will moving to the cloud be **economically beneficial?**

How can I **price out my migrations** or application builds on AWS?

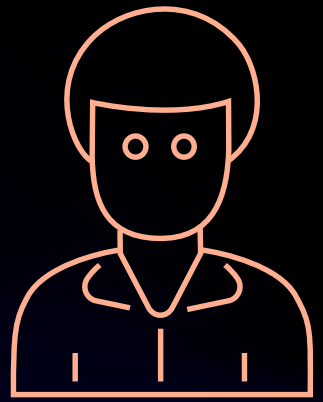
What tools are available **to help me forecast** my costs?

How do I **evaluate my IT investment** decisions?

What have other customers done to **plan and evaluate IT spend?**





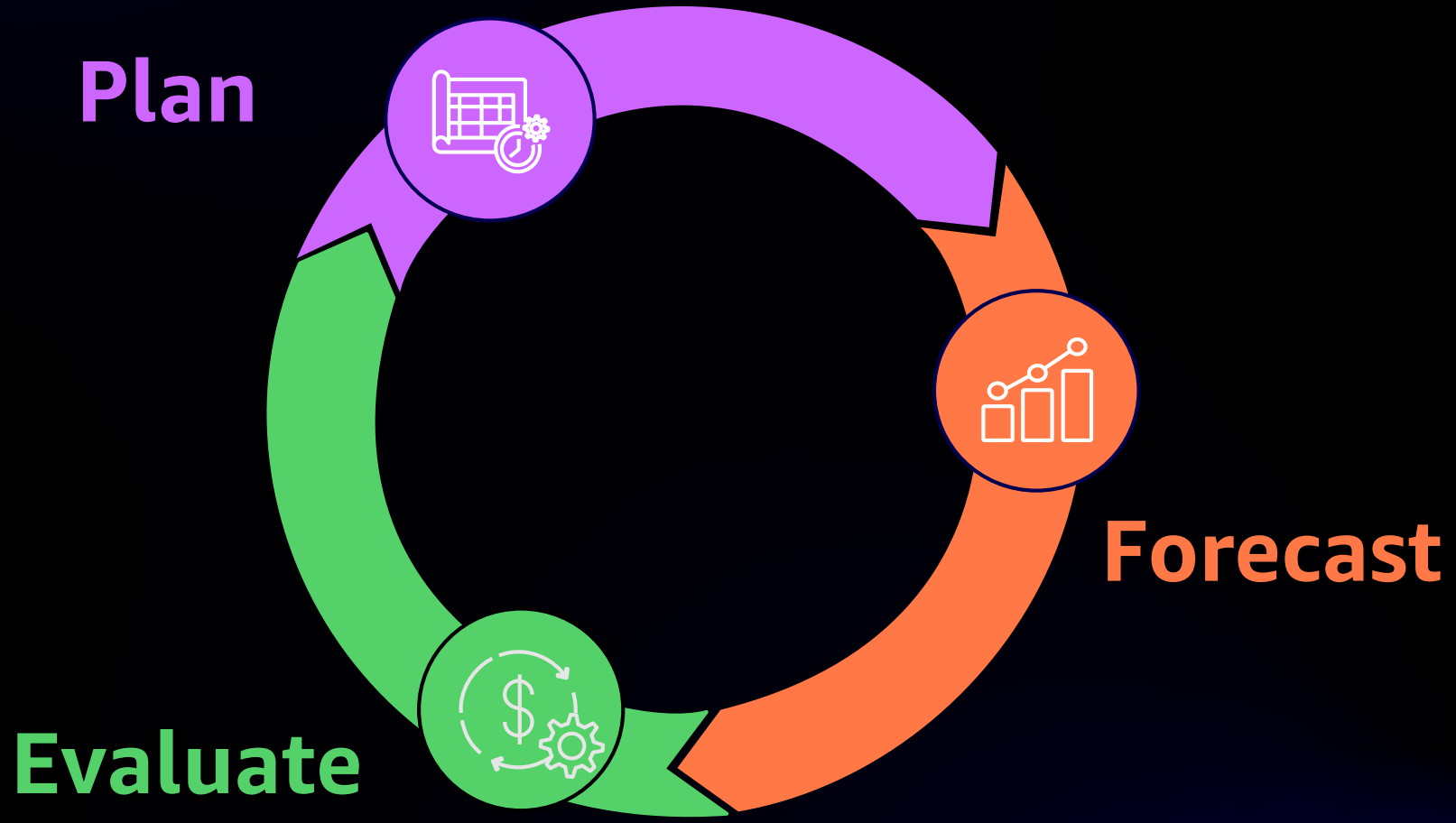


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The cycle of strategic IT planning

CONTINUAL PLANNING, FORECASTING, AND EVALUATION OF IT INVESTMENTS



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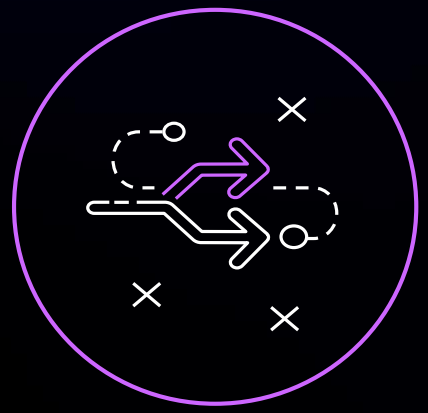
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Planning migrations and cloud-native applications



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Planning for different types of workloads



Migrating workloads



Cloud-native workloads

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Our process for planning migrations



Data gathering

Collect performance and licensing data with Migration Evaluator

Analysis

Create financial models based on data collected and customer feedback

Business case

Compare overall AWS spend to on-premises costs

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Migration Evaluator

BUILD A DATA-DRIVEN BUSINESS CASE FOR AWS



Accelerate decision-making for migration to AWS at no cost

- Discover compute and storage inventory without agents
- Determine the most cost-effective path to the cloud in hours
- Maximize Microsoft licenses for even bigger savings
- Make sound AWS planning and migration decisions
- Align stakeholders on the next step in their migration journey
- Get insights from AWS experts

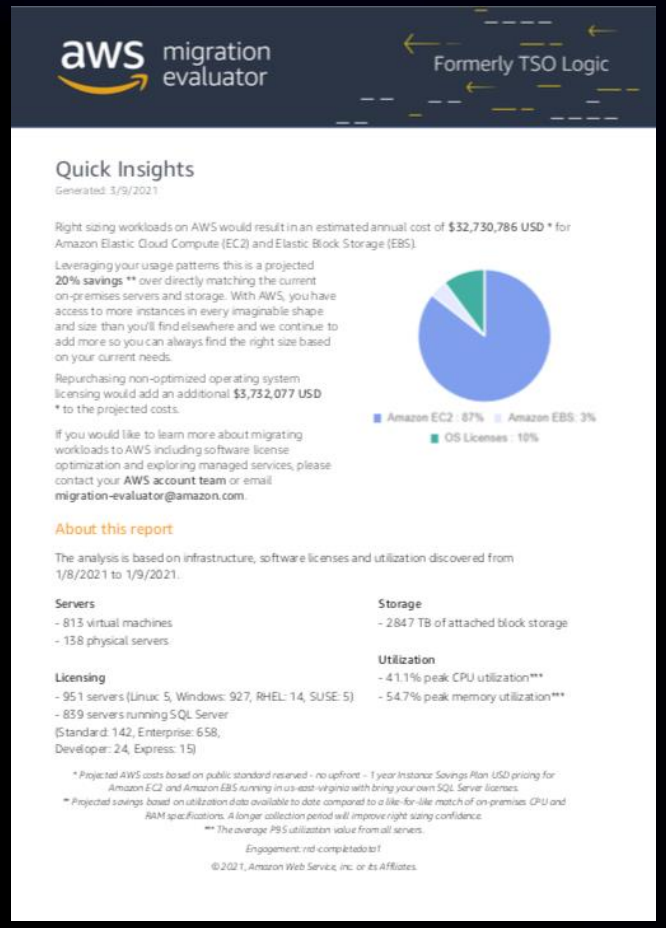
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Migration Evaluator: What it delivers

Quick insights



aws migration evaluator — Formerly TSO Logic

Quick Insights

Generated: 3/9/2021

Right sizing workloads on AWS would result in an estimated annual cost of **$32,730,786 USD** * for Amazon Elastic Cloud Compute (EC2) and Elastic Block Storage (EBS).

Leveraging your usage patterns this is a projected **20% savings** ** over directly matching the current on-premises servers and storage. With AWS, you have access to more instances in every imaginable shape and size than you'll find elsewhere and we continue to add more so you can always find the right size based on your current needs.

Repurchasing non-optimized operating system licensing would add an additional **$3,732,077 USD** * to the projected costs.

If you would like to learn more about migrating workloads to AWS including software license optimization and exploring managed services, please contact your **AWS account team** or email **migration-evaluator@amazon.com**.

Amazon EC2 : 87% Amazon EBS: 3% OS Licenses : 10%

About this report

The analysis is based on infrastructure, software licenses and utilization discovered from 1/8/2021 to 1/9/2021.

Servers
- 813 virtual machines
- 138 physical servers

Storage
- 2847 TB of attached block storage

Licensing
- 951 servers (Linux: 5, Windows: 927, RHEL: 14, SUSE: 5)
- 839 servers running SQL Server (Standard: 142, Enterprise: 658, Developer: 24, Express: 15)

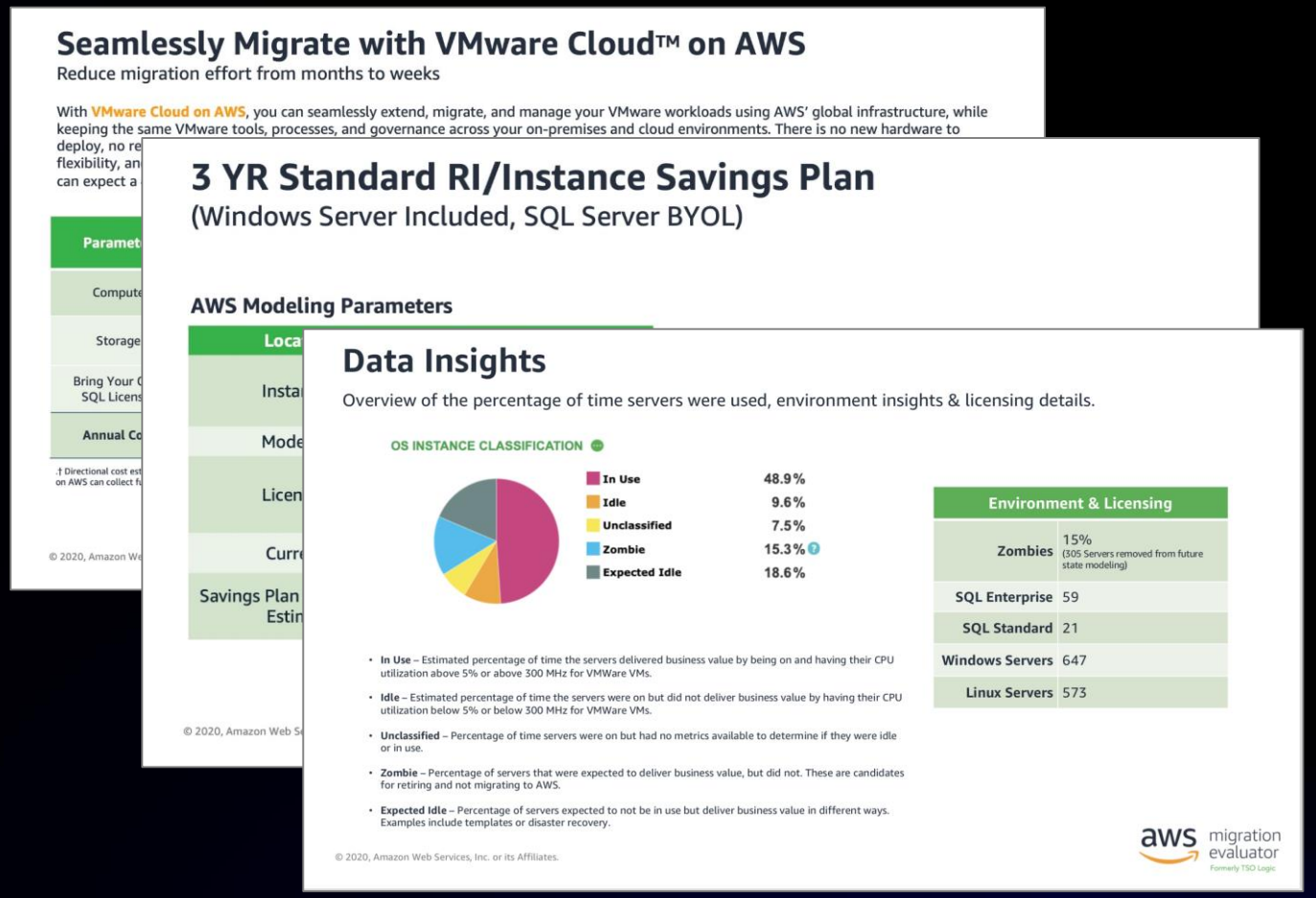
Utilization
- 41.1% peak CPU utilization***
- 54.7% peak memory utilization***

* Projected AWS costs based on public standard reserved - no upfront - 1 year Instance Savings Plan USD pricing for Amazon EC2 and Amazon EBS running in us-east-virginia with bring your own SQL Server licenses.
** Projected savings based on utilization data available to date compared to a like-for-like match of on-premises CPU and RAM specifications. A longer collection period will improve right sizing confidence.
*** The average P95 utilization value from all servers.

Engagement: mtl-completedata1

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Directional business case



Seamlessly Migrate with VMware Cloud™ on AWS

Reduce migration effort from months to weeks

With VMware Cloud on AWS, you can seamlessly extend, migrate, and manage your VMware workloads using AWS' global infrastructure, while keeping the same VMware tools, processes, and governance across your on-premises and cloud environments. There is no new hardware to deploy, no re… flexibility, an… can expect a …

Paramet…
Compute…
Storage…
Bring Your … SQL Licens…
Annual Co…

† Directional cost est… on AWS can collect f…

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3 YR Standard RI/Instance Savings Plan

(Windows Server Included, SQL Server BYOL)

AWS Modeling Parameters

Loca…
Insta…
Mode…
Licen…
Curr…
Savings Plan Estim…

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Data Insights

Overview of the percentage of time servers were used, environment insights & licensing details.

OS INSTANCE CLASSIFICATION

In Use	48.9%
Idle	9.6%
Unclassified	7.5%
Zombie	15.3%
Expected Idle	18.6%

Environment & Licensing	
Zombies	15% (305 Servers removed from future state modeling)
SQL Enterprise	59
SQL Standard	21
Windows Servers	647
Linux Servers	573

- **In Use** – Estimated percentage of time the servers delivered business value by being on and having their CPU utilization above 5% or above 300 MHz for VMWare VMs.
- **Idle** – Estimated percentage of time the servers were on but did not deliver business value by having their CPU utilization below 5% or below 300 MHz for VMWare VMs.
- **Unclassified** – Percentage of time servers were on but had no metrics available to determine if they were idle or in use.
- **Zombie** – Percentage of servers that were expected to deliver business value, but did not. These are candidates for retiring and not migrating to AWS.
- **Expected Idle** – Percentage of servers expected to not be in use but deliver business value in different ways. Examples include templates or disaster recovery.

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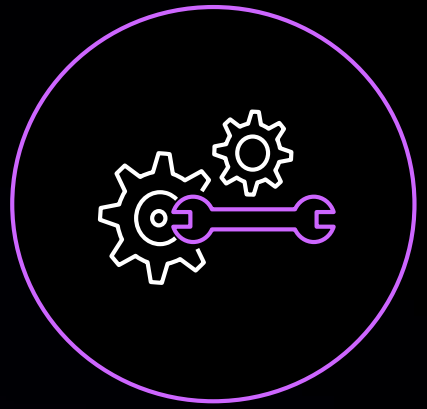
Planning for cloud-native workloads



Describe the technical solution



Map to AWS services



Select AWS resources



Build a high-level cost estimate (tools)

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AWS Pricing Calculator

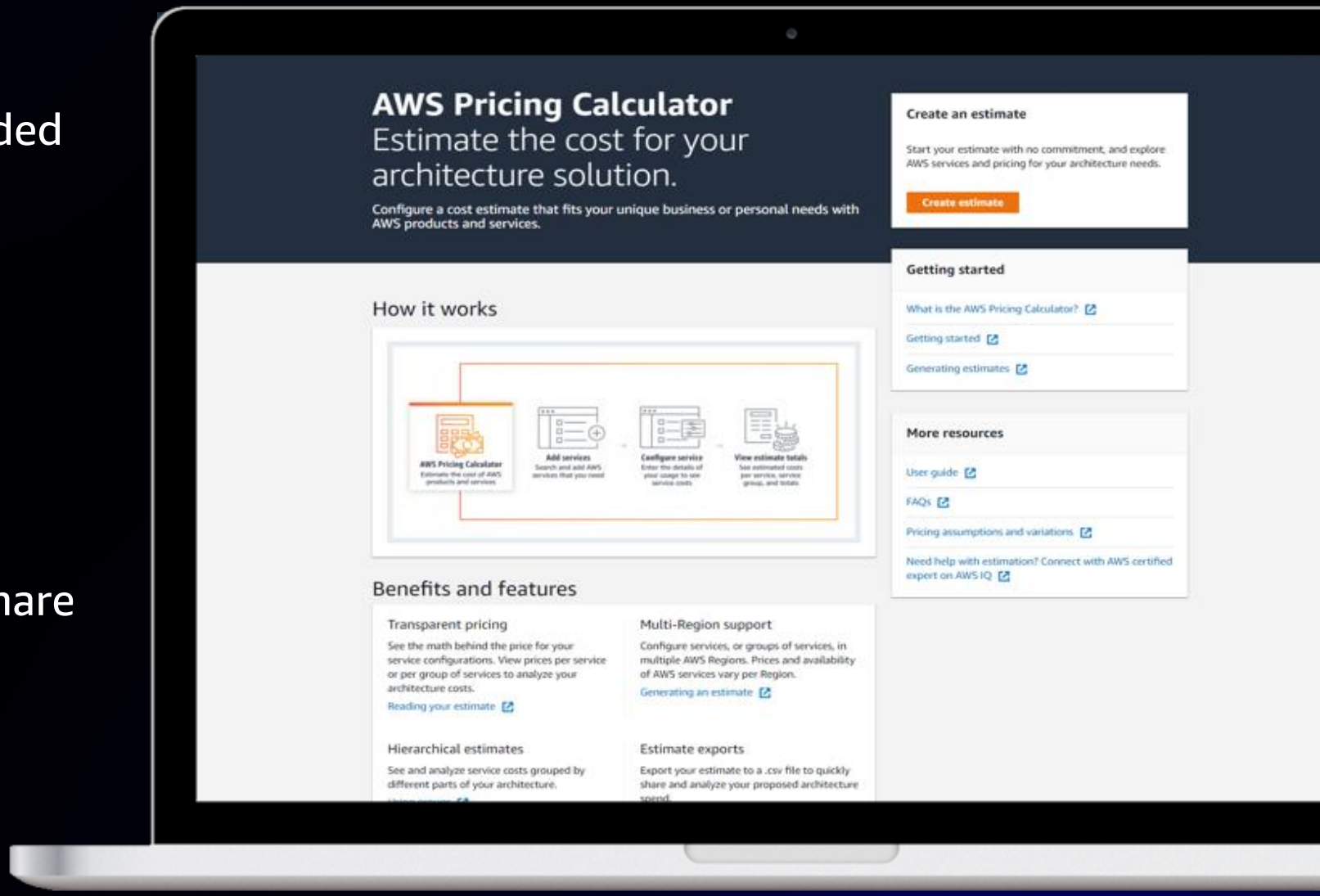
Service pricing pages

- ✓ Prebuilt examples with cost included
- ✓ Additional cost considerations

AWS Pricing Calculator

- ✓ 110+ support services (as of October 2021)
- ✓ Estimate AWS support costs
- ✓ Export to .csv
- ✓ Save estimate (three years) and share via public link

https://calculator.aws/



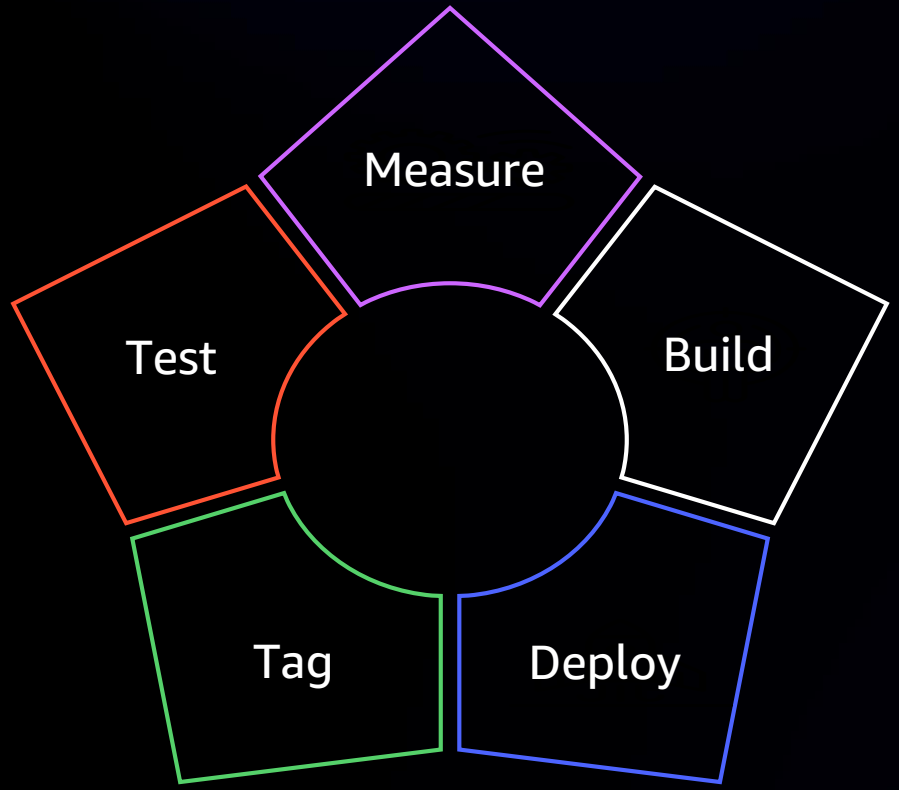
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Proof of concept and actual data

Proof of concept



AWS Cost Explorer



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Planning at ASG



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Planning with Migration Evaluator for SaaS

Challenge

Migrating large enterprise SaaS companies from on-premises to the cloud

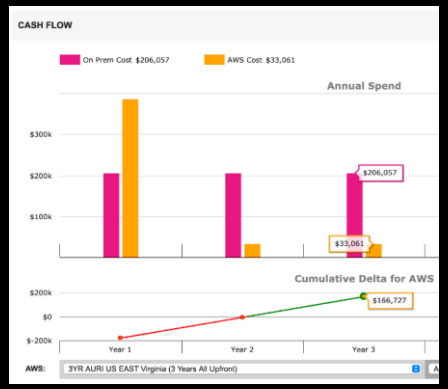
Solution

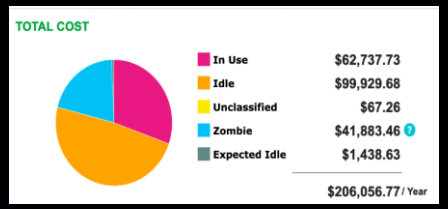
- Used Migration Evaluator over the period of a few months
- Identified like-for-like compute and storage costs
- Provided performance-based data on CPU and memory

Benefits

- Quick and easy
- Forecasted three different scenarios
  - Base case: Found opportunities to save with AWS Savings Plans
  - Better case: Identified zombie resources we could tune or turn off
  - Best case: Found compute that could be optimized and license savings

Outputs





"By leveraging Migration Evaluator, we were able to plan for and execute a multi-year cloud migration strategy."

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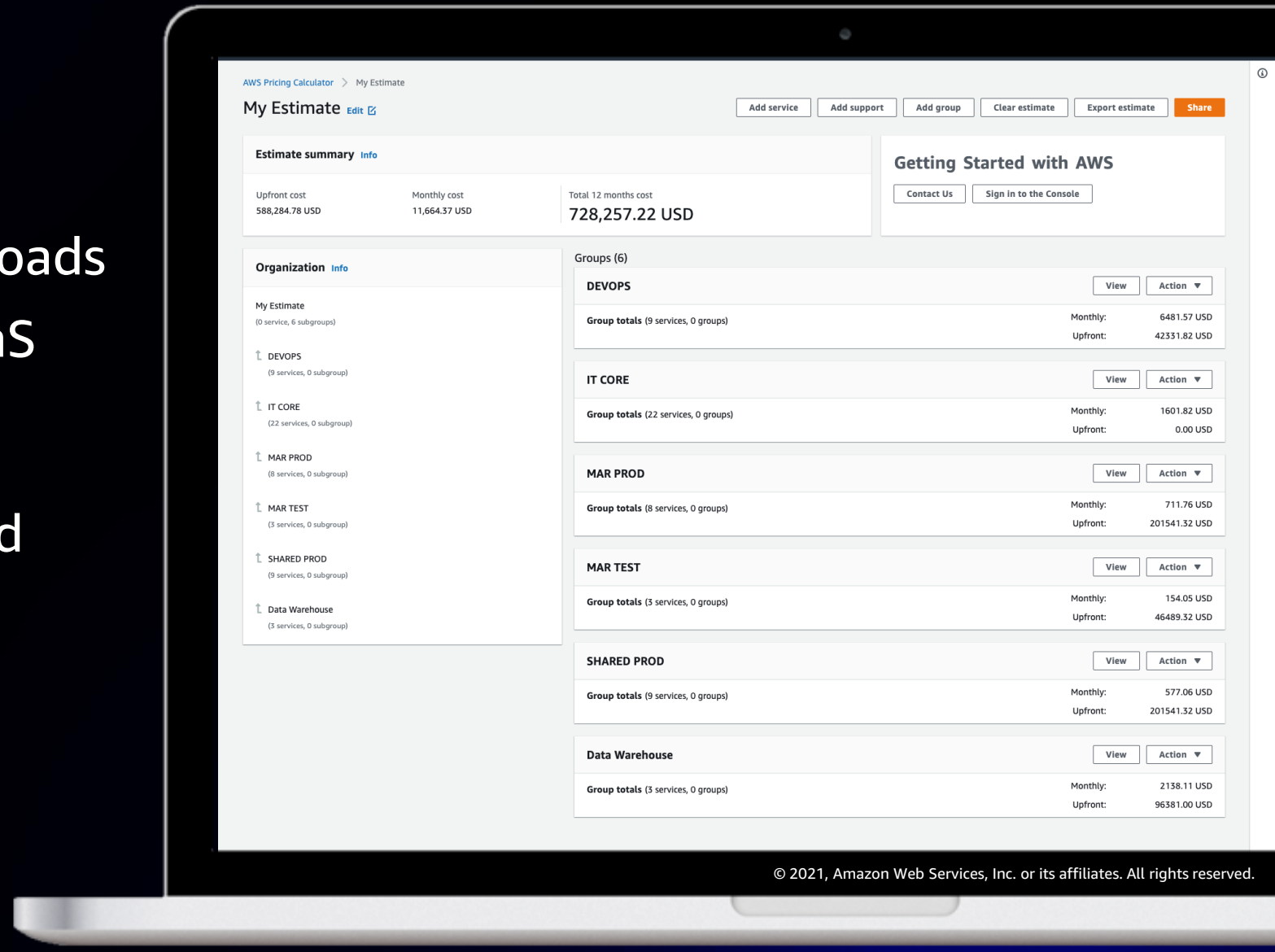
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Using the AWS Pricing Calculator

How we did it

- Thin slice approach
- Break out into different workloads
- Plan for additional IaaS to PaaS conversion in time
- Look for replacements of high-cost database servers and licensing costs



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Forecast

Using native AWS tools and processes to accurately forecast your AWS spend

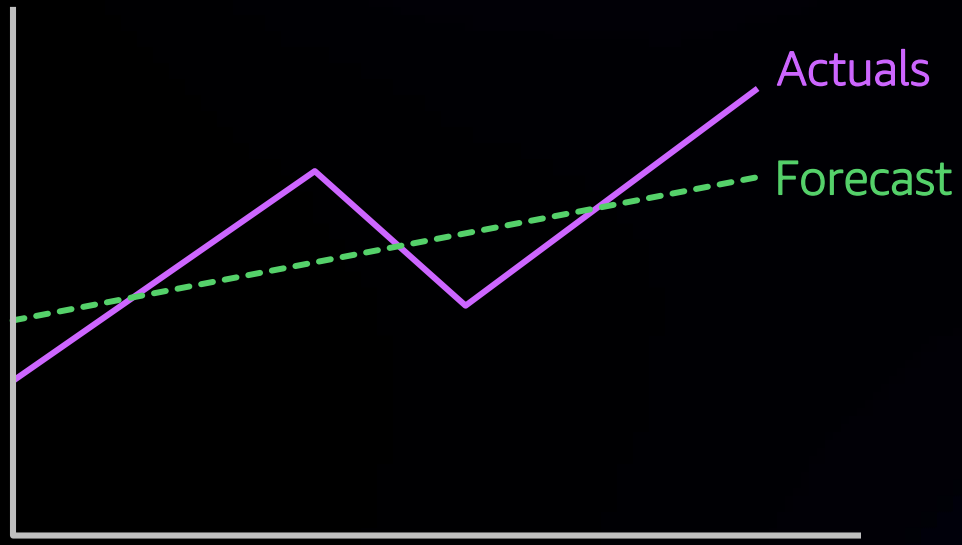


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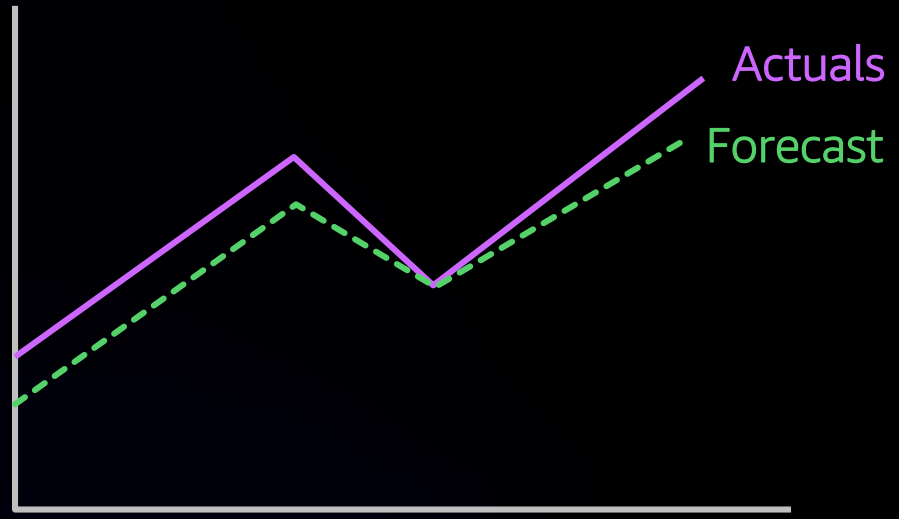
Forecasting AWS spend

THE SELECTION OF A FORECASTING METHODOLOGY IS A BALANCE OF COMPLEXITY AND ACCURACY

Trend-based



Driver-based



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Forecast

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Trend-based forecasting

USE AWS COST EXPLORER TO ASSIST IN DEVELOPING TREND-BASED FORECASTS

- Historical data drives forecast
- Add adjustments for increased accuracy
- Forecast by any AWS Cost Explorer filter value
- 80% prediction interval
- Daily or monthly forecasting (3-month/12-month)



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Forecast

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Expanding on driver-based forecasts

USE AWS COST AND USAGE DATA ALONG WITH UNIT METRICS TO CREATE A DRIVER-BASED FORECAST



AWS-provided

- ✓ Cost of AWS services
- ✓ Usage of services
- ✓ Cost-grouping mechanisms



Customer-provided

- ✓ Business levers
- ✓ Business-specific KPIs
- ✓ Optimizations
- ✓ Application of unit cost

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Forecasting at ASG



aws Forecast

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Forecasting acquisition costs

LEVERAGING THE AWS COST MANAGEMENT CONSOLE

Challenge

Our focus in private equity is to drive organic and inorganic growth through scale and M&A

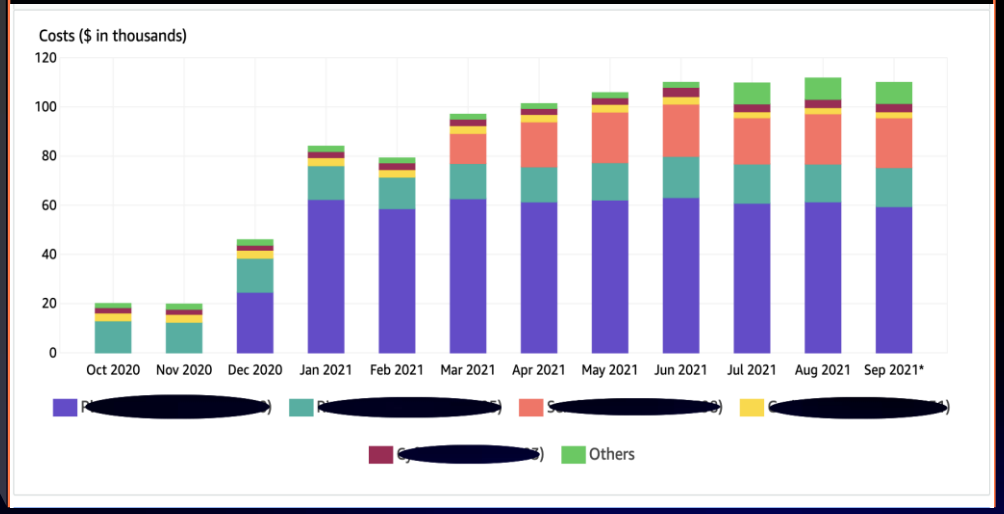
Solution

- We use AWS Organizations and a single-payer account to simplify billing
- We use AWS Enterprise Billing Console and AWS Trusted Advisor to identify when costs exceed the range of our deal models

Benefits

- Easy to orchestrate
- Focus on trend-based forecasts
- Once we hit a normalized run rate, we use AWS Trusted Advisor to identify savings opportunities

Output



"By forecasting costs ahead of time, we can accurately predict the hosting costs for our investments. Then we use AWS Trusted Advisor to keep them under control."

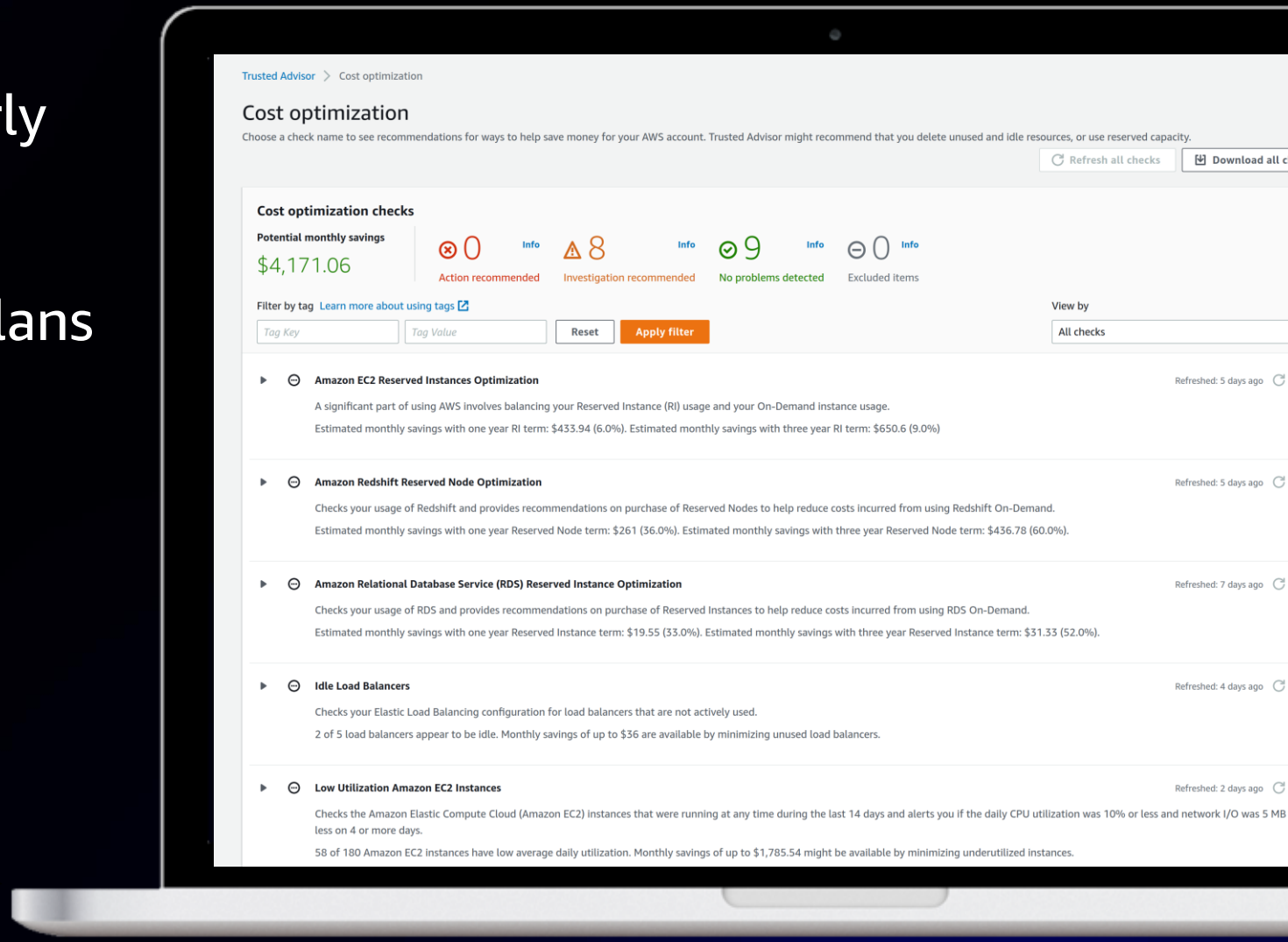
aws Forecast

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Forecasting at ASG

HOW WE'VE IMPROVED OUR FORECASTING PROCESS

- Run AWS Trusted Advisor quarterly
- Use threshold alerting
- Review and execute on Savings Plans and Reserved Instances



aws Forecast

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Evaluate

Evaluating IT investments and feeding the next planning cycle



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Evaluating your IT investments

EVALUATING YOUR INVESTMENTS STARTS WITH TRACKING AND VISUALIZING YOUR SPEND



Define key performance indicators (KPIs)

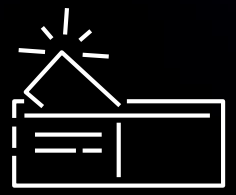


Select a cost reporting tool

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Evaluating your cloud spend through KPIs

PICK THE KPI THAT ALLOWS YOU TO EVALUATE YOUR IT INVESTMENT



Cost savings (TCO)

Infrastructure cost savings by migrating to AWS

(%) IT infrastructure spend as percentage of total IT spend

($) IT spend per employee

($) Budget vs. forecast

(%) IT spend as a percentage of revenue (bands)

(%) AWS spend as a percentage of total IT spend

(#) Number of VMs

(#) Number of physical servers

(%) Variance (budget to actual)

(%) Hosting COGS as a percentage of revenue

(%) R&D as a percentage of revenue

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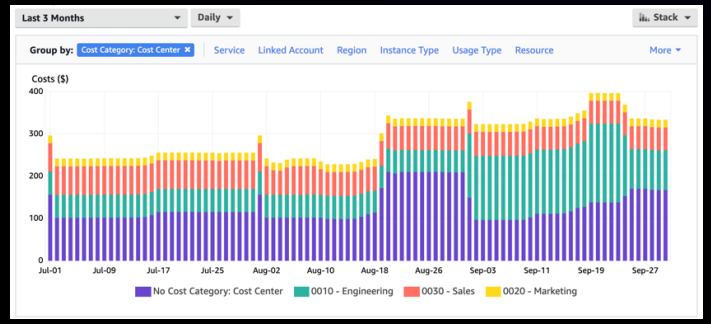
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Selecting a cost reporting tool

SELECT THE COST VISIBILITY TOOL THAT WORKS FOR YOU AND YOUR STAKEHOLDERS

AWS Cost Explorer



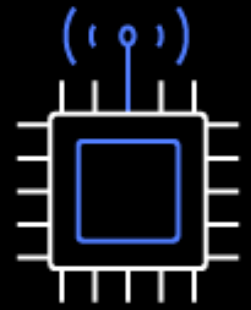
- ✓ Free console-based data visualization tool
- ✓ Graphs of your AWS cost and usage
- ✓ Consistent with cost and usage reports

Build your own



- ✓ Custom filtered views
- ✓ Multi-graph dashboards
- ✓ Optimization dashboards
- ✓ Customized KPIs
- ✓ Ongoing customization and maintenance

AWS Partner Network



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

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Evaluate

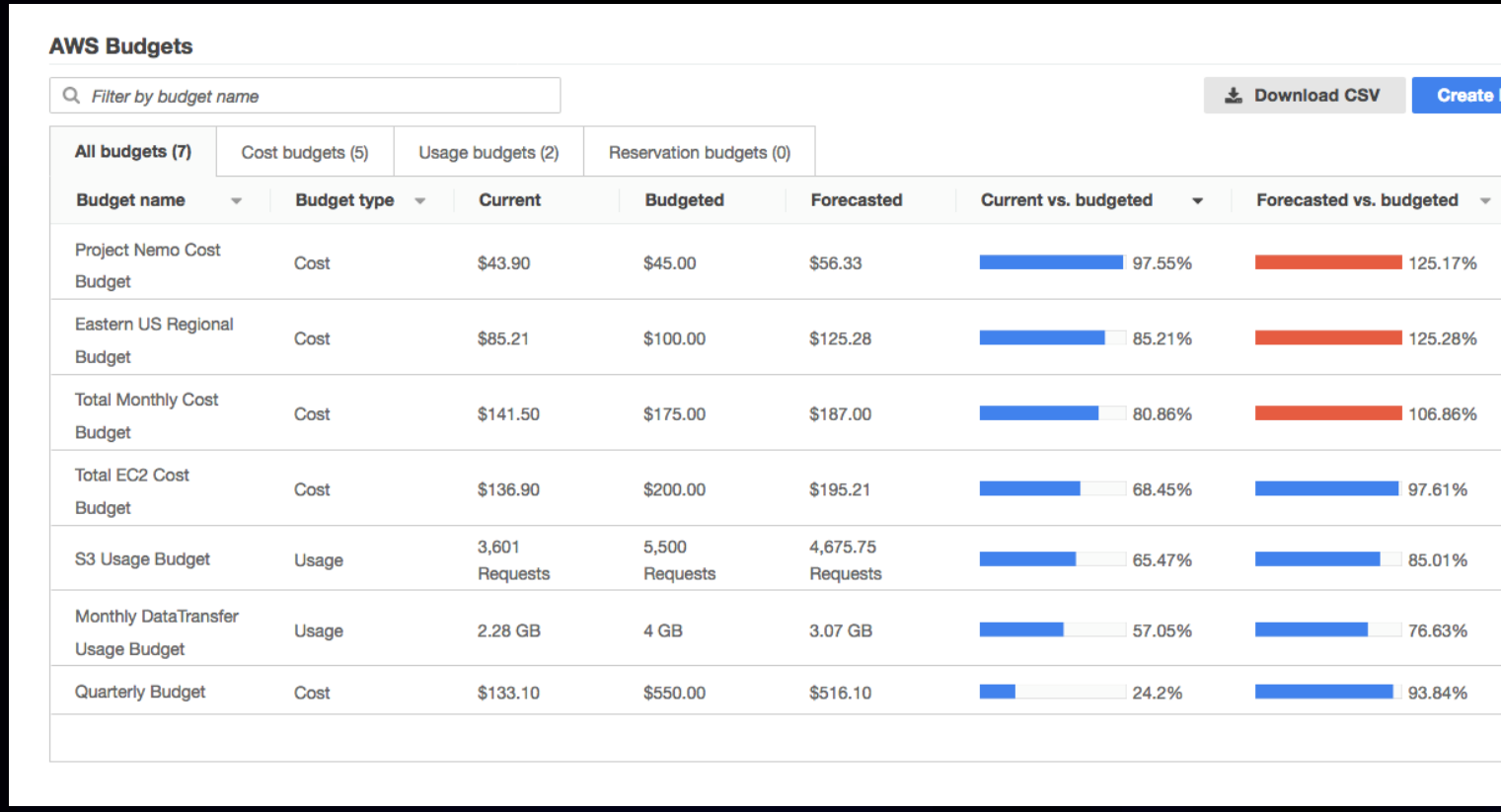
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Establishing control to achieve value

SET CUSTOM BUDGETS THAT ALERT YOU WHEN YOU EXCEED YOUR BUDGET THRESHOLD

AWS Budgets

- Create custom budgets to track your investments and projects
- Track with daily, monthly, quarterly, or annual granularity
- Receive cost and usage alerts



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Evaluate

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Evaluating at ASG



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How ASG evaluates investments

Challenge

SMBs often have low product and tech maturity with limited KPIs early on

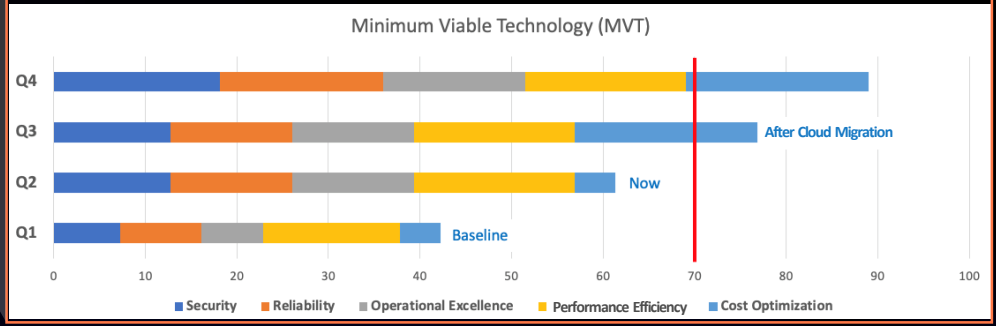
Solution

- We use the AWS Well-Architected Framework to set an industry standard
- It not only isolates cost savings, but security, reliability, performance, and operational efficiency as well
- We baseline companies as they join us and measure them annually to gauge improvement

Benefits

- Easy to measure and improve
- We can identify costs savings, which can incentivize other improvements
- By measuring improvements using an industry-standard benchmark, we make improvements objective, not subjective

Outputs



"We use the AWS Well-Architected Framework as a way to baseline and improve our operating companies."

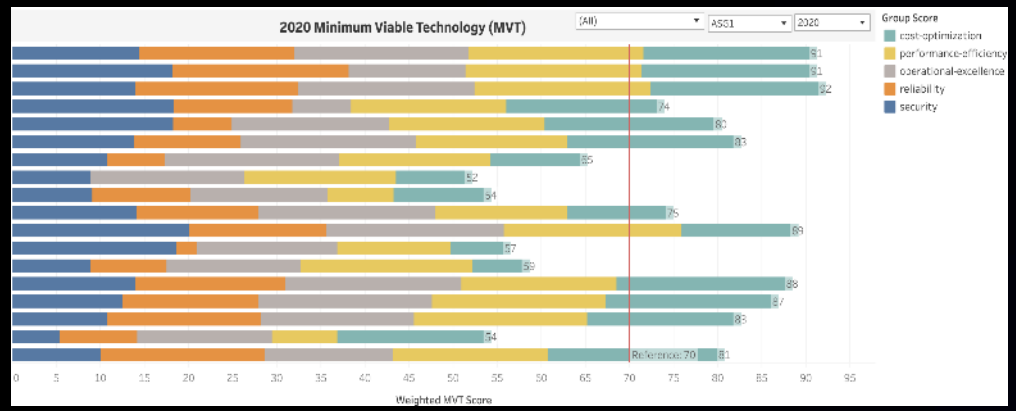
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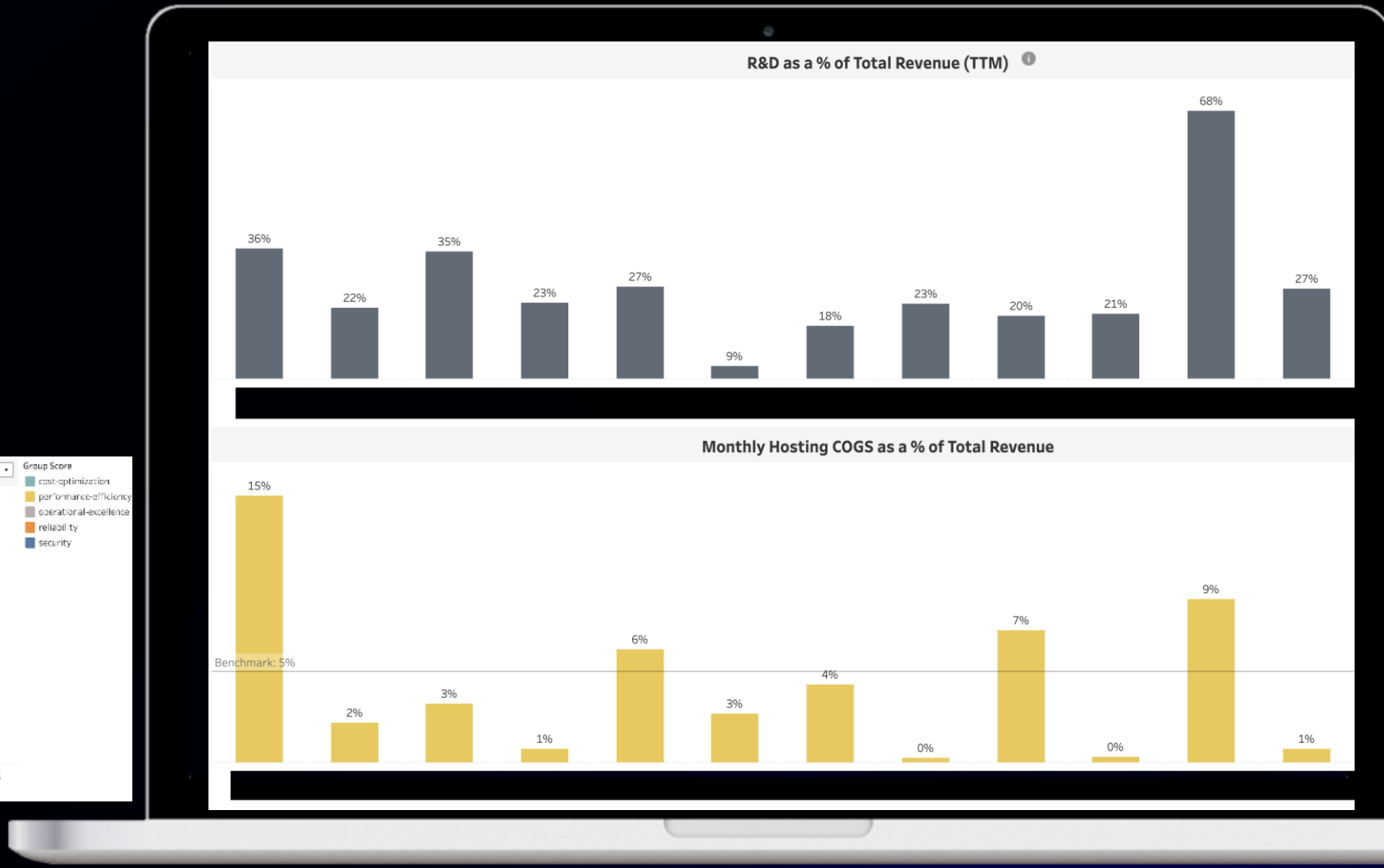
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Breaking down ROI

- Industry-standard R&D is 15–25% of revenue
- Hosting COGS is 3–7% of revenue
- Over the course of a two-year engagement, we achieved MVT, or 70% of cloud best practices implemented across our portfolio





Evaluate

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Before you go

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Before you go

RESOURCES TO CONNECT AND LEARN

Connect

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

8 ways to control and manage AWS costs

COP204

Quantify and maximize your cloud business value

ENT213

Improving cost visibility and allocation

COP202

Cost control and governance at scale

COP203

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Thank you!

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