Quick guide to Cost optimization with Aws Managed Services

Resources document

April 2022

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Abstract

This document has links related to the main cost optimization services from AWS, an overview of some services and also latest announcements.

General Links

[AWS Cloud Financial Management Guide](#)
[Cloud Financial Management with AWS](#)
[AWS Cost Management blogs](#)
[2021 Year-to-Date AWS Cloud Financial Management Updates Recap](#)
[Well architected cost optimization labs](#)
[AWS Ramp-Up Guide: Cost Management](#)
[AWS Cost optimization questions and best practices](#)
[Cost Optimization Pillar - AWS Well-Architected Framework](#)
[10 things you can do today to reduce AWS costs](#)
[What's New with Cloud Financial Management?](#)
[AWS Cost Optimization: Tools and Methods to Reduce Your Spend With Us (Video)](#)

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AMS overview

AWS Managed Services (AMS) helps you operate your AWS infrastructure more efficiently and securely. Leveraging AWS services and a growing library of automations, configurations, and run books, AMS can augment and optimize your operational capabilities in both new and existing AWS environments.

Links: [Product Page](#) | [Features](#) | [AMS User Guide](#) | [Best practices for tagging](#)

Preparing the account

It is very important that the account has all services required enabled so your cost reporting and tagging is done properly.

Links: [Account preparation](#) | [AMS suggested tags](#) | [Cost allocation tags](#) | [Tagging on AMS](#)

AWS Cost explorer

AWS Cost Explorer has an easy-to-use interface that lets you visualize, understand, and manage your AWS costs and usage over time.
It can also be used to define which resources are generating the highest spend so you can focus you cost optimization activities on those.

Links: [Product page](#) | [How can I use?](#) |

Cost Intelligence Dashboard

The Cost Intelligence Dashboard is a customizable and accessible dashboard to help create the foundation of your own cost management and optimization tool.

Links: Cost Intelligence Dashboard | Sample dashboard

AWS Budget

AWS Budgets allows you to set custom budgets to track your cost and usage from the simplest to the most complex use cases. With AWS Budgets, you can choose to be alerted by email or SNS notification when actual or forecasted cost and usage exceed your budget threshold, or when your actual RI and Savings Plans' utilization or coverage drops below your desired threshold and can define the action you want to take in your account when a budget exceeds its threshold using budget actions.

Links: Product page | How can I use? | AWS Budgets Actions | AWS Cost Anomaly Detection

AWS Trusted Advisor

AWS Trusted Advisors provides recommendations that help you follow AWS best practices. Trusted Advisor evaluates your account by using checks. These checks identify ways to optimize your AWS infrastructure, improve security and performance, reduce costs, and monitor service quotas. You can then follow the check recommendations to optimize your services and resources.

Links: Product page | Checks description | How to use?

AWS compute optimizer for rightsizing

AWS Compute Optimizer recommends optimal AWS resources for your workloads to reduce costs and improve performance by using machine learning to analyze historical utilization metrics.

Links: Product page | How to enable? | How to use? (Reinvent video) | Graviton2 release | Enhanced infrastructure metrics (New) | Graviton Migration Guidance (New)

Spend governance

You can use SCPs and tag policies to control/enforce tags on your accounts and also to avoid

Links: [SCP Examples](#) | [Tag policies release](#) | [How to use tag policies?](#) | [Automatically tag new AWS resources based on identity or role](#) | [Tag-tammer](#)

Other control mechanisms: [AWS Cost Anomaly Detection](#) | [AWS Identity and Access Management](#) | [AWS Organizations](#) | [AWS Control Tower](#) | [AWS Service Catalog](#)

AMS Resource Scheduler

AMS offers a modified version of instance scheduler to help you to stop Ec2 and RDS resources when not needed. You can use an opt-out strategy to increase results and also create policies to stop only resources so they are used only when needed.

Links: [AMS Resource Scheduler](#) | [AWS Instance Scheduler](#) |

Reduce Ec2 costs

Reduce cost by paying only for usage or by using more cost-effective architectures.

AWS Graviton-based instances are also available in popular managed AWS services such as Amazon Aurora, Amazon Relational Database Service (RDS), Amazon MemoryDB for Redis, Amazon ElastiCache, Amazon OpenSearch, Amazon EMR, AWS Lambda, and AWS Fargate.

Links: | [Graviton](#) | [Spot (Reinvent)](#) | [Graviton 3](#) | Graviton support on [RDS](#) / [Aurora](#) / [ElastiCache](#) / [Amazon Opensearch](#) / [Lambda](#) / [Fargate/Ecs](#) | Next Gen instances | Auto-scaling | Fargate | Lambda

EBS optimizations

There is the opportunity to use proper volume type, delete unattached volumes, deleting snapshots that are no longer required and archiving snapshots.

Links: [EBS](#) | [EBS volume types](#) | [Cost-optimization for EBS (Reinvent)](#) | [EBS Snapshots Archive](#) | [Recycling bin for EBS](#)

Reserved instances and Savings plan

RI ans SP are pricing models offering lower prices compared to On-Demand pricing in exchange for a specific usage commitment for 1 or 3 years.

Links: [Reserved instances](#) | [Savings plans](#) | [Deep dive Savings plans (Reinvent)](#)

S3 Storage Lens

Amazon S3 Storage Lens provides a single view of object storage usage and activity across your entire Amazon S3 storage. It includes drilldown options to generate insights at the organization, account, Region, bucket, or even prefix level.

Links: Product page | Introducing S3 Storage Lens | S3 Storage Lens demo | Storage Lens doc | 5 ways to reduce cost with Storage Lens | Reduce cost with Storage Lens (TechTalk)

S3 Storage Class Analysis

S3 Storage Class Analysis enables you to monitor access patterns across objects to help you decide when to transition data to the right storage class to optimize costs. You can then use this information to configure an S3 Lifecycle policy that makes the data transfer.

Links: Docs | Choosing storage class | S3 Glacier Instant Retrieval storage class

S3 Intelligent-Tiering

Amazon S3 Intelligent-Tiering (S3 Intelligent-Tiering) is the only cloud storage class that delivers automatic cost savings by moving objects between four access tiers when access patterns change.

Links: Overview | S3 Intelligent tiering (Reinvent) | EFS Intelligent-Tiering release | Archive Instant Access tier

Other optimizations
- Put static content on S3
- Use S3 select
- Pause Redshift

- Use Auto-scaling for DynamoDb (To automatically scale (in and out) your DynamoDB table)
- Use DynamoDb on-demand (This option allows you to pay-per-request for read and write requests so that you only pay for what you use, making it easy to balance costs and performance.)
- Amazon DynamoDB Standard Infrequent Access) table class helps you reduce your DynamoDB costs by up to 60% for tables that store data that is infrequently accessed
- Use Aurora serverless
- Serverless option for Amazon Redshift, Amazon MSK, and Amazon EMR
- Use Amazon Ec2 spot

- Enable multi-az, provisioned IOPS and match instance size from Prod to non-prod, only when doing load testing after that downsize resources on non-prod accounts.
- Use Gateway endpoints.
- Use opensource platforms.
- Use Amazon cloudfront
- Use Spot/Savings plan for EKS and ECS.
- Most of the time, workload on non-prod accounts does need to match 100% of the time the workload on prod, so you may consider disabling multi-AZ, provisioned IOPS and reducing ec2/rds size when not doing performance tests on non-prod.

Links: S3 Select | Pause/Resume Redshift | DynamoDb Auto-scaling | DynamoDb Standard-IA |Gateway Endpoints | Aurora Serverless | Amazon Cloudfront | Data transfer on AWS (Reinvent) | Serverless for Amazon Redshift, Amazon MSK and Amazon EMR | Cost optimization for Kubernetes | Cost optimization for Amazon ECS and AWS Fargate