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STG313

Reduce TCO for your Linux file-based applications

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Reduce TCO for your Linux file-based applications

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Abstract

Managing on-premises legacy NAS storage arrays brings complexity and high sunk costs. Amazon Elastic File System (Amazon EFS) is a cloud-native, scalable, elastic NFS file system for Linux workloads for use with Amazon Elastic Compute Cloud (Amazon EC2), AWS containers, and serverless, as well as on-premises deployments.

In this session, learn about the latest features to optimize costs with your Linux file-based applications

We also discuss cost-saving scenarios for files accessed less frequently

Agenda

- Challenges with legacy NFS storage
- Overview of Amazon EFS
- Amazon EFS total cost of ownership (TCO) at a glance
- Customer examples
- Strategies for reducing your workload TCO on Amazon EFS
- Amazon EFS cost management tools
- Summary

Challenges with legacy NFS storage



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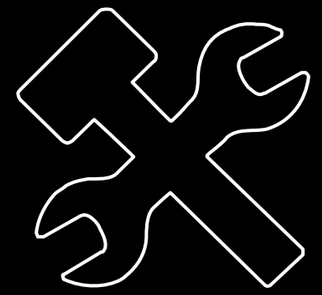
Storage challenges with legacy NFS

On-premises data centers



- Time and resources to acquire, deploy, and manage infrastructure
- Facilities and contracts
- Capacity provisioning and management
- Design for additional backup and disaster recovery

Self-managed in cloud



- Requires close monitoring and capacity management
- Higher TCO relative to fully managed AWS services
- Need to design for high availability (HA) and scale
- Security and compliance management overhead

Overview of Amazon EFS



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Amazon Elastic File System (Amazon EFS)



Amazon EFS
is a fully managed file system that is . . .







What is Amazon EFS?

Simple, scalable, fully managed, highly durable, and available shared file system for AWS compute

SIMPLE AND HIGHLY RELIABLE



Elastic

Pay only for capacity used

Performance built-in, scales with capacity



3-AZ durable and all-AZ available

Designed for 11 9s of durability

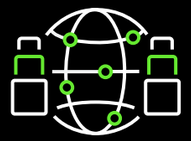
99.99% availability SLA

SERVERLESS SHARED STORAGE



Serverless and scalable

No provisioning, scale capacity, connections, and IOPS



Concurrent access for 10,000s of connections

EC2 Instances, containers, and Lambda invocations

PERFORMANT AND COST OPTIMIZED



Performant

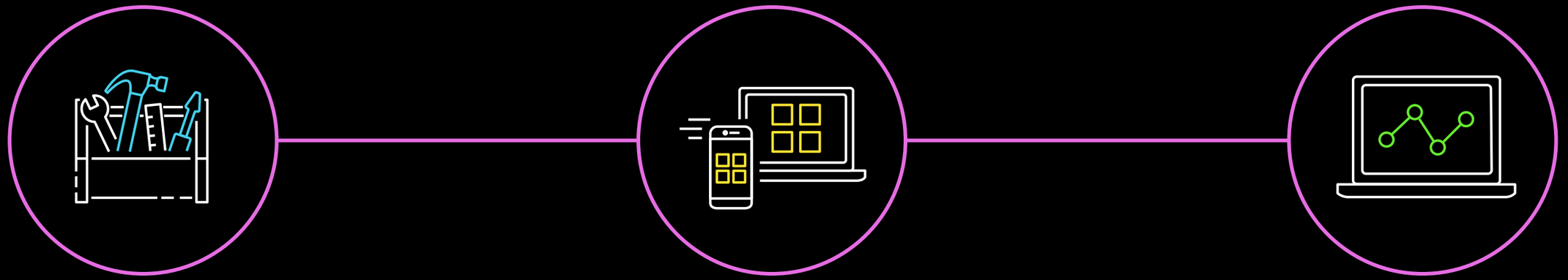
10s of GB/s of and 500,000+ IOPS



Two storage classes

Lifecycle-based cost optimization

Use cases for Amazon EFS



Home directories

Container storage

Application test / dev
(Jenkins, JIRA, Git)

Lift and shift enterprise apps

Web serving (nginx)

Content management
(Wordpress, Drupal)

Database backups

Analytics

Media workflows

Metadata-intensive jobs

Scale-out jobs

Low latency and serial I/O

High throughput and parallel I/O

Amazon EFS
TCO at a glance



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Amazon EFS total cost of ownership (TCO)

Amazon EFS

Standard storage class (100 GB x $0.30/GB-month)	$30 per month
Infrequent Access storage class (400 GB x $0.025/GB-month)	$10 per month
Infrequent Access data access (400 GB x 1 x $0.01/GB)	$4 per month
Data protection (100 GB (warm) x $0.05 + 400 GB (cold) x $0.01)	$9 per month
TOTAL	**$53 per month**

Self-managed NFS

(provisioning 600 GB of Amazon EBS at ~85% utilization)

Storage (2x 120 GB EBS gp2 volumes) + snapshots	$36 per month
Storage (2x 480 GB EBS sc1 volumes) + snapshots	$72 per month
Compute (2x m5.xlarge Reserved Instances)	$206 per month
Inter-AZ data transfer costs (est.)	$130 per month
TOTAL	**$444 per month**

Example for a **500 GB** data set

Amazon EFS is **~90%** less than self-managed NFS solutions

Customer examples



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T-Mobile realized up to 70% in cost savings with Amazon EFS

Challenge

T-Mobile needed to modernize its IT infrastructure to support a company-wide customer experience improvement initiative. On-premises facilities required constant management and provisioning storage took weeks, resulting in a lack of flexibility for application deployment teams.

Solution

The company chose Amazon EFS for its ability to easily and quickly create elastic storage for NFS workloads required by legacy and container-based applications. Amazon EFS allowed the company to deploy new, modern versions of its legacy applications based on microservices architectures.

Benefits

- Realized 40-70% in savings
- Increased speed-to-market customer experience initiative by up to 15%
- Increased flexibility in developing applications with on-demand storage needs
- Reduced the complexities of managing file servers, allowing developers to integrate applications seamlessly

> "Amazon EFS reduces the costs and time we spend addressing storage. It scales seamlessly no matter how many applications it's applied to."

Amreth Chandrasehar
Senior enterprise architect, T-Mobile US, Inc.

Company: T-Mobile US, Inc.
Industry: Software & Internet
Country: United States
Employees: 10,001+
Website: www.t-mobile.com

About T-Mobile

Based in Bellevue, Washington, T-Mobile US provides services through its subsidiaries and operates its flagship brands, T-Mobile and Metro by T-Mobile. T-Mobile is the third largest wireless carrier in the United States with 84.2 million customers as of 2019. With annual revenues exceeding $40 billion, T-Mobile is regularly named as one of America's best wireless carriers.

SiriusXM reduces TCO with Amazon EFS

Challenge

SiriusXM relied on a local file server to integrate and launch a new partner streaming device in 90 days with minimal changes. They would not meet the timeline with a DIY NFS.

Solution

The company used Amazon EFS, a managed file server, that only took 2 hours to deploy instead of 90 days. By combining EFS and Amazon EC2, they were improved their scalability and agility.

Benefits

- Reduced the total cost of ownership (TCO) using EFS
- Sped time to launch, reducing 90 days to 2 hours
- Seamless integration between partner application and existing AWS services

> "Good, fast, and cheap. We picked two and got all three with EFS. It gave us the agility to deliver a new product on schedule, eliminated scale and performance concerns, and operates below our OPEX expectations."

Chris DeAcosta
Sr. director software engineering, SiriusXM

SiriusXM
Satellite Radio

Company: SiriusXM
Industry: Media & Entertainment
Country: United States
Employees: 2,300+
Website: www.siriusxm.com

About SiriusXM

SiriusXM is an American broadcasting company that provides satellite radio and online radio services operating in the United States

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Strategies for reducing your workload TCO on EFS



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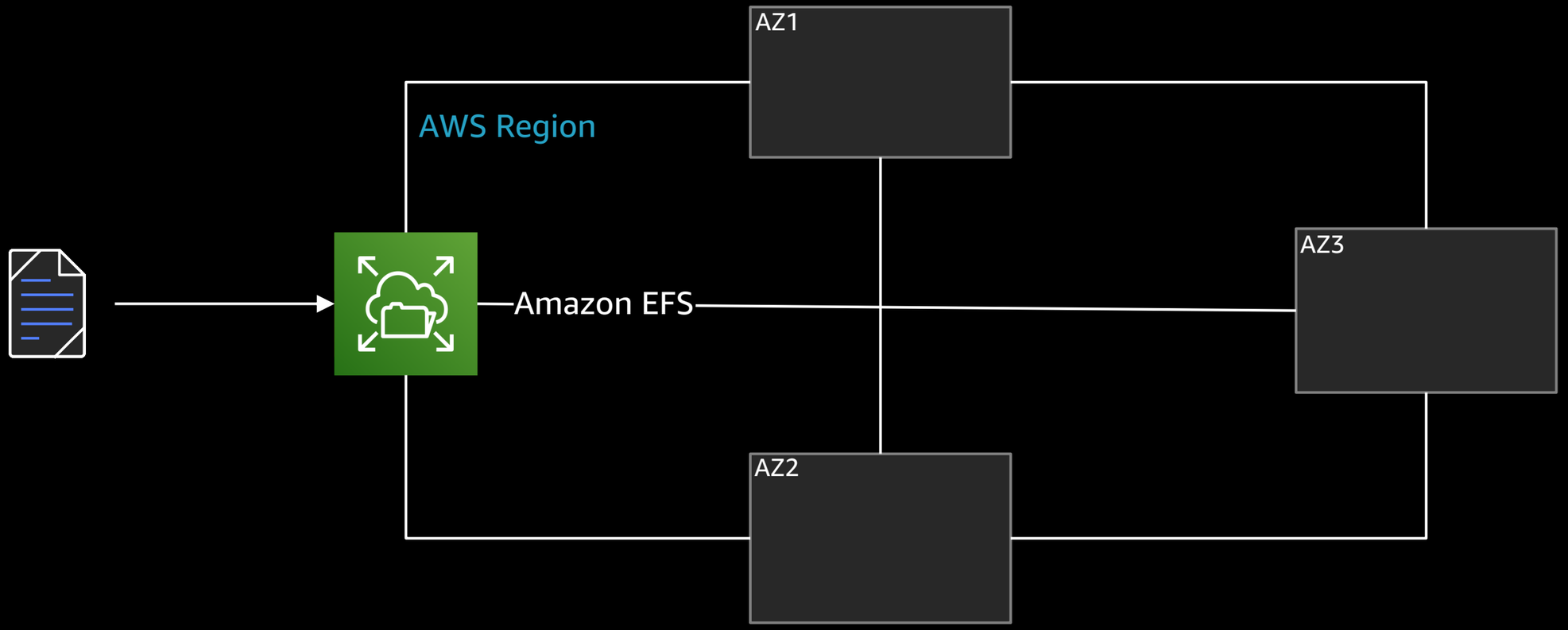
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Highly integrated with multiple AWS services

Amazon EFS provides shared persistent storage to build stateful applications across all AWS computing platforms

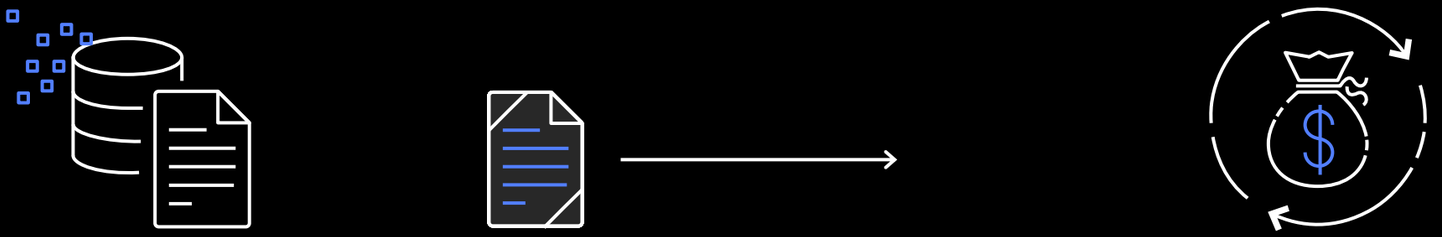


Regional service optimized for multi-AZ access



Create an EFS mount target in each AZ that contains your application to optimize networking costs and performance

Policy-based storage lifecycle management



Standard storage class

General-purpose file storage
$0.30/GB-month*

Infrequent Access storage class

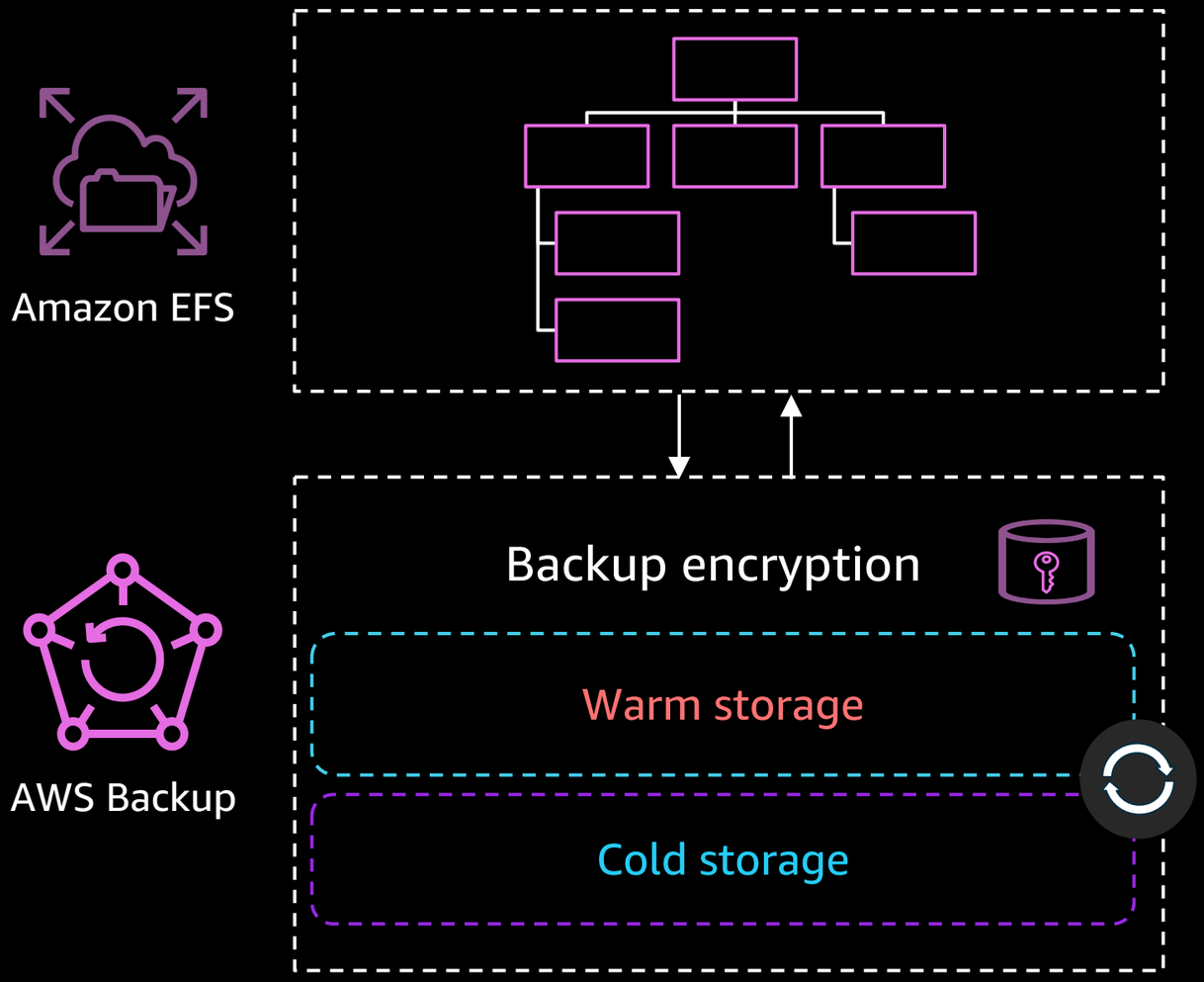
Cost optimized for files not accessed every day
$0.025/GB-month* for storage
$0.01/GB* for access

Pay-as-you-go, effective storage cost of
$0.08/GB-month*

Cost optimized

* Pricing in the US East (N. Virginia) Region
Assumes 80% of the files are infrequently accessed

AWS Backup optimized for Amazon EFS



- EFS file systems can be backed up and restored using AWS Backup
- AWS Backup offers two classes of service backup storage with the ability to lifecycle to cold storage
- Restore individual files and directories

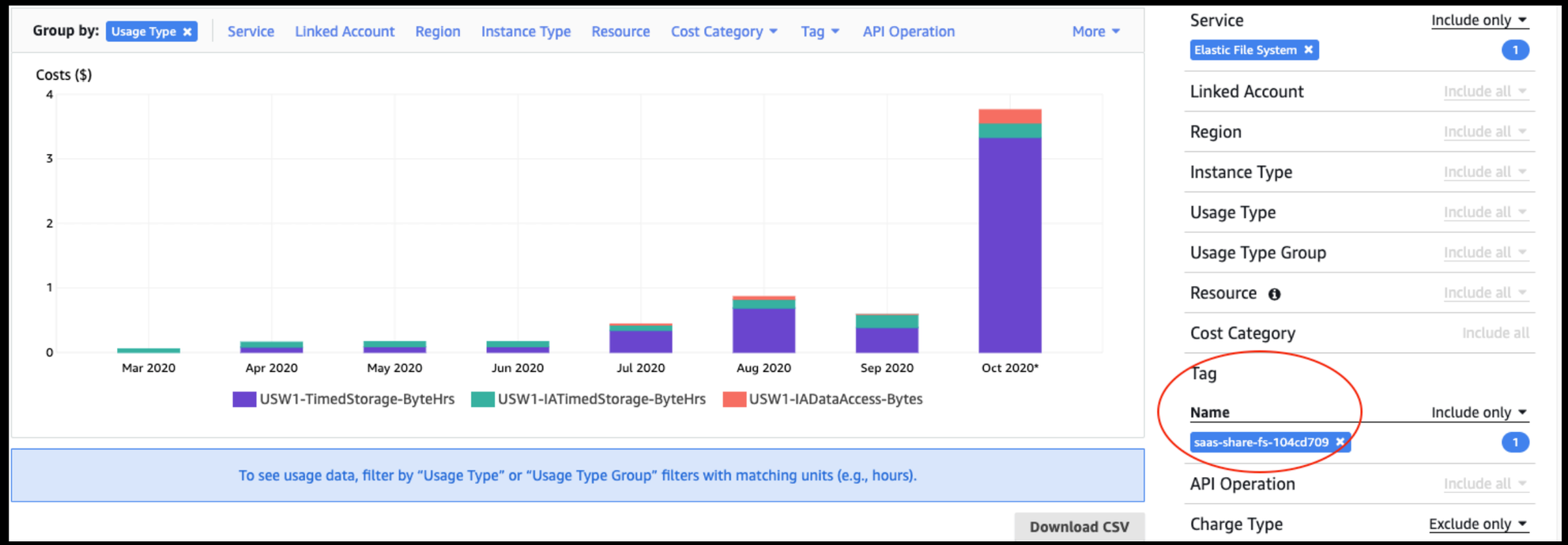
Amazon EFS cost management tools



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AWS Cost Explorer: Understanding your Amazon EFS usage and spend



Turn on cost allocation tags, and track usage and spend for Amazon EFS resources in Cost Explorer and the AWS Cost and Usage Report (CUR)

AWS Budgets: Manage your Amazon EFS costs



Create and Manage Budgets

Set custom cost and usage budgets to more easily manage your AWS spend. Monitor your budget status from the Budgets Dashboard.



Refine your budget using filters

Track your cost or usage across multiple dimensions by adding filters related to Service, Linked Account(s), Availability Zone, and more.



Add notifications to your budget

AWS Budgets is integrated with Amazon EFS to create custom budgets based on your EFS costs and usage and set alerts

Summary

Strategies to lower your workload TCO on Amazon EFS

- Shared storage to build stateful applications across all AWS computing platforms
- Enable Amazon EFS lifecycle management to lower your costs
- Create EFS mount targets in each AZ
- Transition EFS backups to cost-optimized cold storage tier

Resources

What’s new in Amazon EFS: https://a.co/etDoRHz

AWS blog posts on Amazon EFS: https://a.co/3srrMVf

Amazon EFS customer stories: https://a.co/f41oG1z

Amazon EFS sessions

STG213	What’s new with Amazon EFS
STG311	Optimizing Amazon EFS for cost and performance, using best practices
STG307	Deep dive on Amazon EFS
STG310	Modernize your applications with AWS Lambda and Amazon EFS
STG312	Modernize your applications with containers using Amazon EFS
STG306	Security best practices with Amazon EFS
STG313	Reduce TCO for your Linux file-based applications
STG314	Amazon EFS performance best practices for Linux workloads

Thank you!



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