Stratus10
CLOUD COMPUTING SERVICES

GUIDE

Pros and Cons of AWS Native Tools in Managing Cloud Costs

aws

PARTNER
Advanced Tier
Services

INTRODUCTION

Managing AWS costs is one of the most challenging aspects of running cloud infrastructure. For IT and cloud managers, effective cost optimization hinges on having timely access to the right data. But with limited time and overwhelming volumes of information, it's easy to get lost in the noise. Knowing which AWS spend data matters, and where to find it, is critical for staying in control—and staying sane.

In this guide, we break down the strengths and shortcomings of AWS-native cost management tools. You'll learn when these tools are your best ally, when they fall short, and how to make the most of them. We'll also explore practical tips, shortcuts, and alternative data sources to help you get a clearer picture of your AWS environment and spend.

If you're considering a third-party provider for cloud cost control, this guide will help you understand what you need to consider in a SaaS tool to ensure you maximize your cost savings.

Why and when you should use AWS tools to manage your cloud costs

There are obvious, no-brainer benefits to using AWS native tools. In fact, everyone on AWS should use them, or at least start with them. AWS native tools are:

- Free or low cost
- Built in
- Scalable
- Detailed, providing granular breakdowns by service, tag, or account
- Real-time, which is especially useful for setting budget alerts
- Predictive, giving you spend forecasts

Understanding how AWS native tools work and which data they provide is an essential step in trying to make sense of your infrastructure's performance and costs. However, AWS pros and cons become evident as your infrastructure grows, often making native tools less effective for large-scale environments.

For effective cloud cost management, you need a deep understanding of each of the available AWS-native tools, their core functions, strengths, limitations, and usage pricing.

AWS Cost Tools

When AWS native tools become more cumbersome than useful

For smaller, straightforward cloud environments (i.e. a handful of accounts), AWS native tools are quite sufficient. Great, in fact, for all the reasons listed above. However, as companies and their infrastructures scale, clearer insight into cloud usage and spend becomes a growing priority (this is where FinOps comes in). These are some signals that may mean your company needs third-party tools for cost optimization with AWS:

- You have multiple AWS accounts or Organizations
- You require additional or custom reporting
- Your organization or infrastructure includes complex structures
- You leverage several AWS services
- You don't have the time or resources to properly configure and maintain the AWS tools
- You're frustrated or confused about how to find the right, aggregated data (it's not you, it's them–really!)

If you can identify with any of these points, you're likely already aware of some AWS pros and cons. It's important to understand which AWS native tools you can rely on for what, and how to address the gaps in your data and reporting.

Why everyone struggles with cloud cost management

No cloud engineer or IT leader stands alone in the struggle to make sense of their cloud spend across accounts using AWS native tools. Unless you're a full-time, seasoned expert on configuring and maintaining AWS' suite of cost management tools, you're facing numerous challenges inherent to cloud computing.

- **Complex billing structures**: AWS's billing is intricate, complex, and frankly, confusing.
- **Limited cost visibility**: You're overwhelmed with data yet lacking detailed insights into cost allocation, making it hard to pinpoint where savings can be made.
- **Time-consuming analysis**: You spend excessive time manually analyzing data, clicking to different screens/accounts, to try to understand cost drivers and usage patterns.
- **Difficulty in setting budgets and alerts**: You need to know how to properly configure and manage budgets across multiple accounts and services. Even so, the process is quite cumbersome.
- **Inadequate resource optimization**: AWS tools don't provide sufficient recommendations for resource rightsizing, reservations, and optimization.
- **Insufficient security insights**: AWS coverage includes CIS and the Well-Architected Framework, but lacks a comprehensive view of security postures and compliance. Access to well-architected checks come with a price tag, usually in the form of Business Support and Trusted Advisor.

Knowing what you can–and can't–expect from AWS cost tooling could help set expectations on what you're able to accomplish with them.

PROS & CONS PRICING OF AWS COST MANAGEMENT TOOLS

In this section we'll cover the AWS tools you can use to manage, monitor, and optimize your costs.

It's worth noting that these tools are all seamlessly integrated into your AWS environment, and most are free or low cost; however, to use some of the advanced features requires subscribing to AWS Business or Enterprise Support. Specifics are noted under each tool.
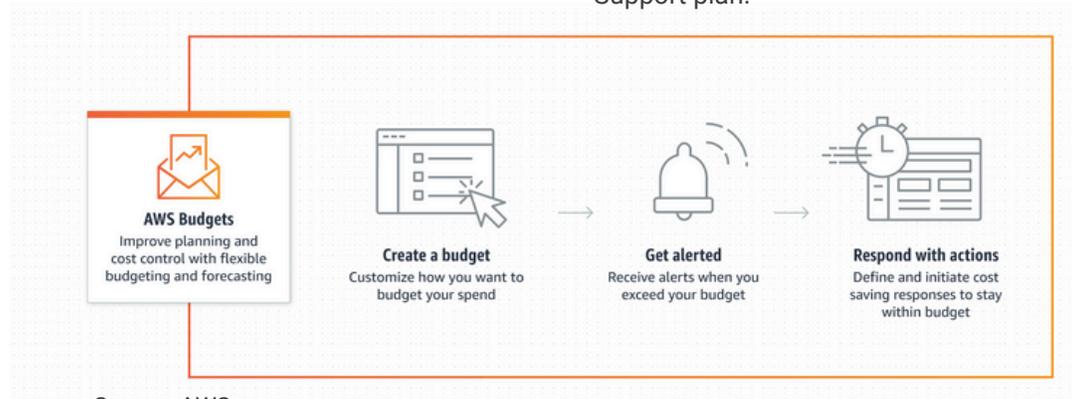
1. AWS Budgets

AWS Budgets allows users to set custom cost and usage budgets, providing alerts when thresholds are exceeded.

STRENGTHS
- **Cost monitoring**: Track expenditures in real-time and receive alerts when limits are exceeded.
- **Granular control**: Highly customizable with the ability to track against actual usage.

LIMITATIONS
- **Complex setup**: Especially for large-scale environments with multiple accounts and services.
- **Specialized skills required**: You need a deep understanding of AWS billing and usage patterns to set effective budgets.
- **Manual**: Significant manual effort is needed to configure and maintain Budgets.
- **Cost**: Free to use, but advanced features and integration with AWS Organizations requires a Business or Enterprise Support plan.

AWS Budgets
Improve planning and cost control with flexible budgeting and forecasting

Create a budget
Customize how you want to budget your spend

Get alerted
Receive alerts when you exceed your budget

Respond with actions
Define and initiate cost saving responses to stay within budget
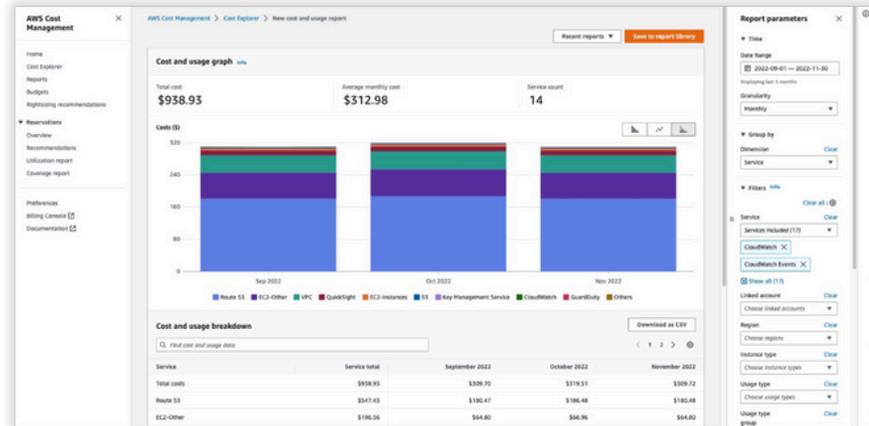
Source: AWS

2.
AWS Cost Explorer

AWS Cost Explorer provides detailed insights into your AWS costs and usage over time.

STRENGTHS

- **Historical data analysis**: Provides insights into historical usage and costs, enabling trend analysis and identification of cost drivers.
- **User-friendly**: Easy-to-use interface helps visualize trends, identify cost drivers, and create forecasts based on historical data.

LIMITATIONS

- **Limited historical data**: Lacks granularity in reporting, making long-term trend analysis challenging. Data is stored up to 12 months, which may not be sufficient for long-term planning.
- **Skill requirement**: Requires familiarity with AWS billing concepts to fully leverage its capabilities.
- **Manual**: Significant manual effort is needed to configure and maintain.

Source: AWS

3.
AWS Billing Console

Your centralized dashboard for viewing and managing bills, payment methods, and billing details.

STRENGTHS

- **Solid overview**: Easy to navigate and use, providing a clear overview of your AWS costs, including credits, taxes, and downloadable invoices.

LIMITATIONS

- **Primary function**: Designed for billing management rather than detailed cost optimization.
- **Limited analysis**: Lacks detailed analysis, cost breakdowns, and forecasting capabilities.

Source: AWS

4.
AWS Cost & Usage Reports (CUR)

The AWS Cost and Usage Reports (CUR) provide detailed billing information, enabling granular analysis of costs and usage. These are the comprehensive insights you need to keep your cloud costs in check and optimize every dollar spent.

Depending on your personal tolerance level for large amounts of data, the AWS CUR can either be the holy grail of cost tracking or your data overload nightmare. Regardless, let's break down the CUR's pros and cons here as objectively as possible.

STRENGTHS

- **Comprehensive**: Offers extensive data that can be used to understand cost trends and optimize spending. (The CUR is usually a critical data source used in third party tools.)
- **Customizable**: You can customize the reports to fit your specific needs. Types of valuable reports include:
  - Tracking reservation usage for better financial planning
  - Allocating costs by department, project, or team
  - Identifying underutilized resources that can be rightsized or terminated
- **Exportable**: Export the CUR as a CSV or Parquet to manipulate your data or integrate into other tools.

LIMITATIONS

- **Complexity**: The sheer volume of data in CUR can be overwhelming, requiring specialized knowledge to interpret and use effectively. Unless you're a whiz in analytics or have BI support, the CUR alone isn't intuitive.
- **Integration challenges**: Integrating with third-party tools or internal systems can be difficult and require custom development efforts. You need to utilize QuickSight, Excel, third-party BI tools, or your financial/BI team to analyze the data.
- **Delayed reporting**: Reporting has an approximate time delay of 24 hours, which means you can't rely on the CUR for real-time cost monitoring and management.

5.
AWS Cost Anomaly Detection

COST
While Cost Anomaly Detection is a free tool, usage costs can add up if you get very granular with the data you want to track. In some cases, this tool alone (or combined with CloudWatch) will end up costing more than a third party tool.

AWS Cost Anomaly Detection uses machine learning to continuously monitor your spending, detect unusual patterns, and provide root cause analysis. This is a valuable tool to prevent runway costs.
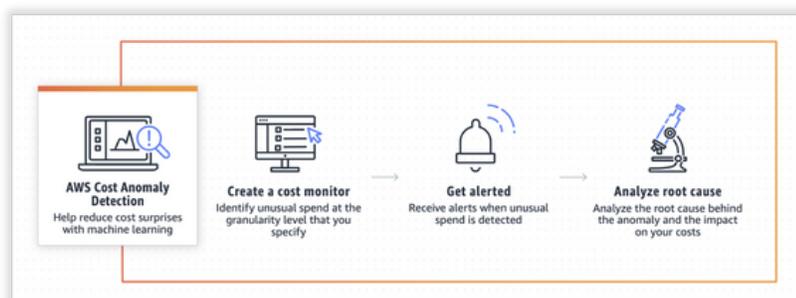
STRENGTHS

- **Proactive monitoring**: Identify anomalies (such as spikes or drops in cost) early with alerts, allowing for prompt investigation and action.
- **Source identification**: Pinpoint the root cause (account, service, region, usage type) and quickly take action.
- **Time series data**: View the anomaly in Cost Explorer as a graph of the spending pattern, providing context around when the anomaly occurred and its impact over time.

LIMITATIONS

- **Complex setup**: Initial configuration can be complicated, requiring a deep understanding of your cost drivers and how to set effective thresholds.
- **Limited context**: While it can identify anomalies in cost, the service does not map these costs to unit costs (e.g., cost per transaction), which can limit actionable insights for certain use cases.
- **False positives**: Known to generate false positives, this tools requires manual review to confirm whether the anomalies are legitimate issues or not.

AWS Cost Anomaly Detection
Help reduce cost surprises with machine learning

Create a cost monitor
Identify unusual spend at the granularity level that you specify

Get alerted
Receive alerts when unusual spend is detected

Analyze root cause
Analyze the root cause behind the anomaly and the impact on your costs

Source: AWS

5

6.
AWS Trusted Advisor

COST
Basic checks are free, but to get the full range of 200+ checks and advanced features, you need AWS Business Support.

AWS Trusted Advisor Priority, which offers enhanced recommendations and insights, is only available with AWS Enterprise Support.

AWS Trusted Advisor is the Swiss army knife of AWS tools with checks across five categories: cost optimization, security, fault tolerance, performance, and service limits.

The caveat with Trusted Advisor is that you need to have AWS Business Support to get these checks. If you use Trust Advisor's free tier or Enterprise Support, the features you get vary widely.

STRENGTHS
- **Broad checks**: Scans your entire AWS environment checking for various optimization areas.
- **Recommendations**: Offers real-time recommendations to optimize your AWS resources.

LIMITATIONS
- **Basic suggestions**: Recommendations are often generic and not tailored to your specific business needs or workloads.
- **Limited security insights**: Checks are limited and may not meet your compliance requirements or advanced security threats.
- **Requires AWS Support**: The features you really want come with Enterprise Support. Free Tier checks only basic essentials.

Here's the breakdown of tiers and accompanying features:
- **Free Tier**: Basic security and best practices on service limits, IAM use, MFA on root account, and S3 permissions.
- **With Business Support**: Access to all Trusted Advisor checks in the 5 categories listed above (cost optimization, security, fault tolerance, performance, and service limits).
- **Priority Level (Enterprise Support)**: Prioritized recommendations to address the most critical issues, dedicated TAM, proactive support to identify and prevent issues.
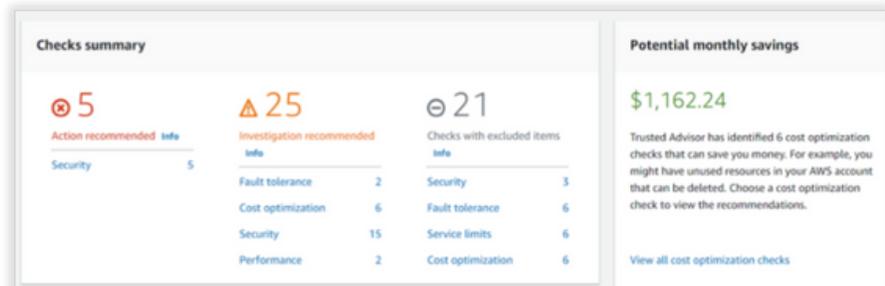
Source: AWS

7.
Amazon CloudWatch

COST
CloudWatch is free to access, but you're charged for usage. Similar to Cost Anomaly Detection, granular tracking in CloudWatch can add significant cost to your bill, potentially even more than a third party tool.

The watchdog and workhorse behind many AWS services, CloudWatch is a powerful and versatile tool to monitor all your resources and applications in real-time.

STRENGTHS
- **Real-time monitoring**: Collect and track metrics, monitor log files, and set alarms, giving you an overall view of the operational health of your AWS infrastructure.
- **Anomaly detection**: Configure CloudWatch to trigger alarms based on defined thresholds, helping you identify cost anomalies right away.

LIMITATIONS
- **Detailed configuration**: CloudWatch starts as a blank slate, requiring you to to set up your own alerts. This can be enormously time-consuming for even the most experienced AWS users, and requires regular updating and maintenance.
- **Cost accumulation**: CloudWatch pricing is based on usage, including the number of metrics, dashboards, and alarms. If you use numerous alarms, dashboards, and metrics, costs add up with extensive usage.

8.
AWS Compute Optimizer

AWS Compute Optimizer analyzes your AWS resources - specifically EC2 instances, auto scaling groups, EBS volumes, Lambda functions, and RDS - and provides rightsizing recommendations to improve cost efficiency and performance. It uses machine learning to offer actionable insights, helping you select optimal resource configurations based on utilization metrics and historical performance data.
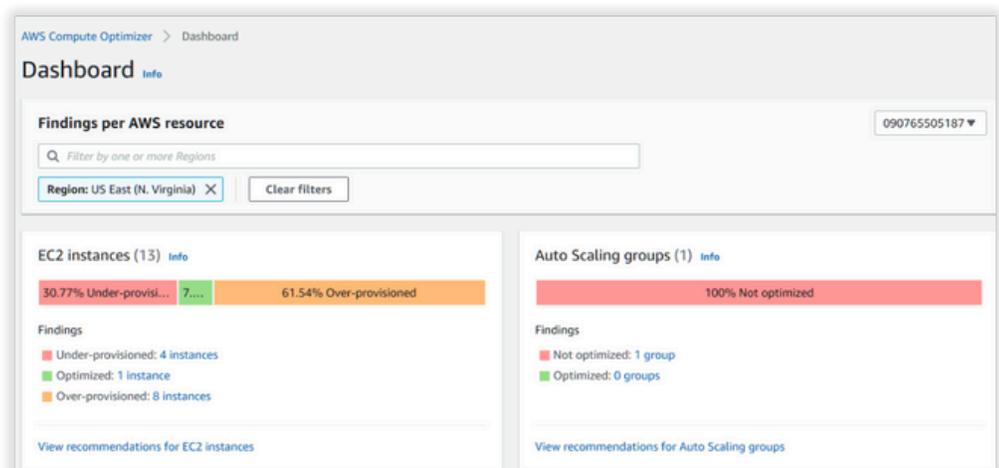
Compute Optimizer uses metrics such as CPU utilization, disk reads and writes, network utilization, and throughput to understand your virtual servers' performance behavior with CPU, disk, and network.

STRENGTHS

- **Free cost and performance recommendations**: The free tier is a quick way to gain insights on rightsizing resources, improving efficiency, and reducing unnecessary AWS costs.
- **Easy to use**: The service is straightforward and integrates seamlessly with select AWS services, including Cost Optimization Hub, which automatically presents findings from Compute Optimizer.
- **Machine learning insights**: ML analysis of usage patterns delivers actionable insights to help you finetune resources without manual intervention.
- **RDS added in 2024**: You get RDS instance and storage recommendations for Amazon Relational Database Service (RDS) MySQL and PostgreSQL databases, which helps you detect idle RDS instances and identify the optimal instance types and provisioned IOPS settings.

LIMITATIONS

- **Limited scope**: Only EC2, EBS, auto scaling groups, Lambda, and RDS are included in Cost Optimizer's recommendations.
- **14-day lookback**: The free base plan uses a lookback period of 14 days. You can opt in to an enhanced (paid) version with a lookback period of 93 days for more accurate recommendations.
- **Memory data requires extra setup**: While CPU utilization is captured automatically, collecting memory utilization metrics requires installing the CloudWatch agent on your Amazon EC2 instances or leveraging a 3rd party Application Performance Monitoring (APM) solution. Memory utilization provides a critical dataset because without it, Cost Optimizer will only recommend the same or larger memory capacity, which is safe for maintaining performance but can leave significant cost savings on the table.
- **Doesn't consider workloads**: While automatic recommendations are useful for baseline scanning, Compute Optimizer doesn't understand the workload that is running on those resources. Human review is needed to decision-making and implementation.

Source: AWS

Getting Started: Which essential AWS cost tools I should be using?

You might be wondering: do I need to use all these AWS tools? The short answer is: yes, if you're committed to cost optimization.

If your AWS spend has a stable history, you can probably get away with just AWS Cost Explorer and AWS Budgets, but adding in AWS Cost Anomaly Detection and AWS Trusted Advisor is highly recommended to avoid surprises.

If you urgently need to configure cost measures, here are some great tutorials to get you started:

- AWS Cost Explorer
- AWS Budgets
- AWS Cost Anomaly Detection
- AWS Trusted Advisor

Of course, our team of engineers stands ready to help you reduce your cloud spend today. Get in touch for a free cost optimization assessment.

SIMPLIFY AWS COST MANAGEMENT WITH KALOS BY STRATUS10

Lower your AWS bill while saving signficant time and effort with:

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- Advanced filters and drilldowns
- Compliance analysis for 15 frameworks
- Optimization solutions from AI trained on your infrastructure
- Expert consulting from Stratus10
- Onboarding in minutes
- Budget-friendly pricing

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"Solid tool for monitoring our AWS accounts. Easier to use than our previous solutions. Reports on spending are detailed allowing quick scans to see what has changed month to month."

Vinod L., CEO
Learning Upgrade

Make cloud management faster, easier, and more effective with an all-in-one solution for AWS cost, security, and performance reporting and optimization.
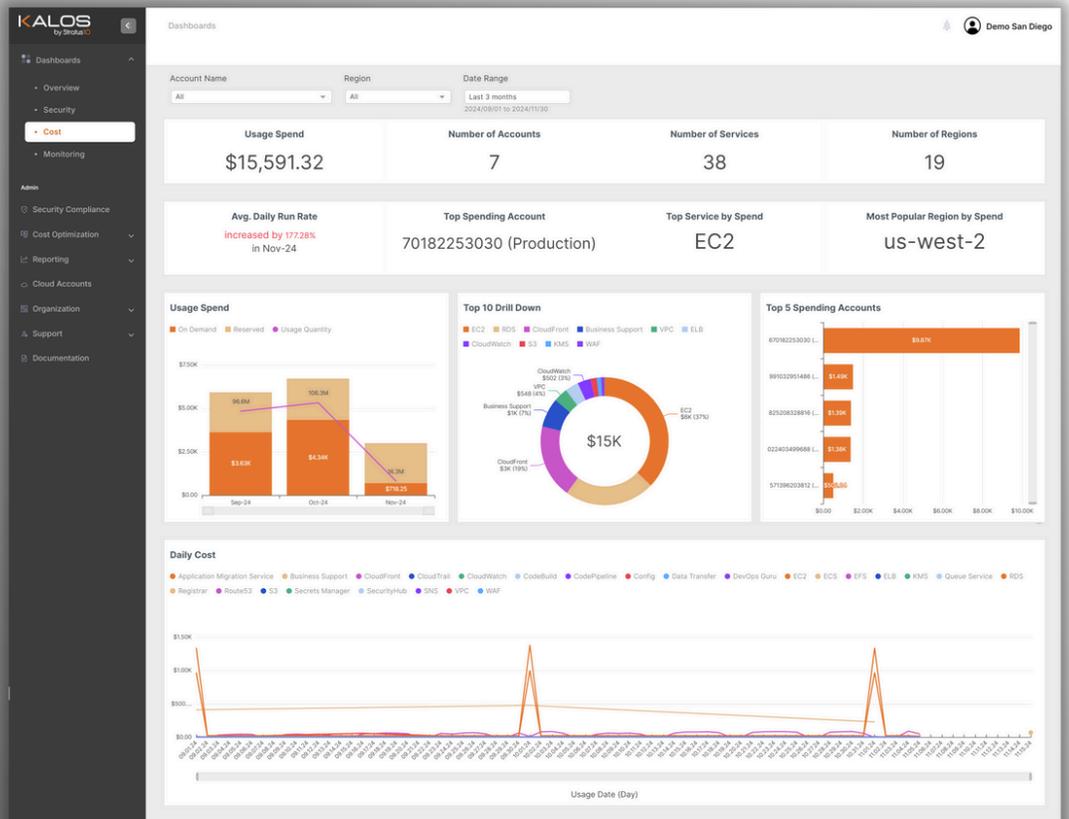
ABOUT STRATUS10

As an AWS Partner, resller, and systems integrator, we created Kalos to help infrastructure engineers and leaders streamline their cloud operations through powerful data aggregation, visualization, and deep AI insights on their cloud environment.

If you're looking for a way to simplify cloud management, make informed infrastructure decisions, and successfully optimize your environment, we invite you to connect with our team for a free consultation and demo.

CONCLUSION

While AWS-native tools offer comprehensive cost management capabilities, they require a significant lift to get them up and running properly plus dedicated resources to maintain and optimize them. AWS tools also sometimes fall short in providing the detailed insights and advanced functionalities needed for effective AWS cost, security, and performance management, which ultimately all affect total spend.

For teams with the in-house resources, investing in configuring and regularly monitoring the full suite of cost tools is an excellent way to manage spend. Fortunately, as teams establish more mature policies and procedures around cost management, the effort required to control costs lessens over time (but will forever remain essential maintenance) as spend evens out and becomes more predictable.

Kalos by Stratus10 bridges the gaps in AWS cost tooling and simplifies AWS management, so you gain control over cloud spend without having to dedicate additional in-house resources. With Kalos and Stratus10, you achieve cost optimization, enhanced security, and improved performance, ultimately driving greater value from your AWS investments.

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