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A Guide to Cloud Economics

How to drive and adopt cost management best practices on Amazon Web Services

Introduction

As increasing numbers of companies embrace digital transformation and move to the cloud, strategies around creating greater visibility on that journey are front and center. Cost containment and economy of scale are now critical to staying competitive and remaining in business. To embrace this mindset, organizations must shift to new business practices and a comprehensive set of cloud tools that yield higher returns on investment. In this whitepaper, DevOps Institute Ambassador, Sean Davis explains why cost visibility and cloud economics are critical to success in today's dynamic and ever-changing marketplace. He also provides a set of best practices, strategies, and recommended tools to help your organization rightsize its approach to cost optimization in the cloud.

Building on Davis's perspective, AWS Marketplace will share how you can specifically apply this process to your AWS environment. You will be introduced to relevant AWS services that can enhance your cloud cost management and optimization strategy. Finally, Apptio Cloudability will be featured as an available option for strengthening your cost containment in AWS.

About the Author

Sean Davis is a DevOps Institute Ambassador, flagship instructor, a board member for several technology advisory boards, brand ambassador for YouExec, and DevSecOps Advisor for Transunion. Before Transunion, Sean was the Chief Transformation Evangelist for Equifax. He focuses on creating opportunities between the market, customers, consumers, technology, and security teams to deliver exceptional experiences and exponential talent and market growth. He coaches technical groups and individuals to exceed their expectations and build secure, durable, and scalable business cultures and products. His primary areas of expertise are business transformation, technical leadership, Dev(Sec)Ops, Agile, and performance coaching.

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Driving Cost Management and Optimization – Cloud Economics

Discover how to reduce complexity and maximize savings on your AWS cloud cost management journey.

Why Cost Management and Optimization?

Since before the dawn of the cloud, organizations have been trying to make the journey to the cloud more seamless and cost effective. Businesses have discovered the need for greater visibility and control on that very journey. With an increased drive to meet market demand and attain a competitive edge, it's more important than ever that your organization rationalizes return on investment (ROI) and has a solid grasp on cost attribution throughout the entire business supply chain. A study by Gartner shows that the projected worldwide IT spend for 2020 will total 3.4 trillion dollars, an 8% decline from last year due to COVID. Because of this shift, CIO's are moving into emergency cost optimization mode. They are focused on reduced spending and prioritizing investments in operations that keep the business running. Cost management and optimization are of paramount importance considering the global pandemic and its setbacks across every industry. Cost containment and economy of scale are now quickly becoming table stakes to stay competitive and remain in business. Businesses are relentlessly eliminating massive uncontrolled spending, unmanaged tenants, underutilized resources, and attributing them to the largest spend siphons.

Cloud service providers (CSPs) have continually refined services, practices, and partnerships based on 1,000's of companies doing business in the cloud. The cost management lifecycle has significantly improved based on the lessons learned from customer usage patterns and feedback. Creating increased control and visibility is only the beginning. Organizations can now establish solid business practices and tooling that yield higher returns on investment by leveraging the entire cost management ecosystem.

Building cost-containment strategies start with laying a firm foundation through the establishment of guiding principles. Then building on that foundation, you should implement the four core pillars of cost management: cost awareness, cost-effective resources, continuous learning and optimization, and matching supply to demand. Unify those pillars with techniques and practices that mirror the organization's approach and process. Finally, by focusing on cost management and visibility tooling, you cover and protect your organizational investments and initiatives.

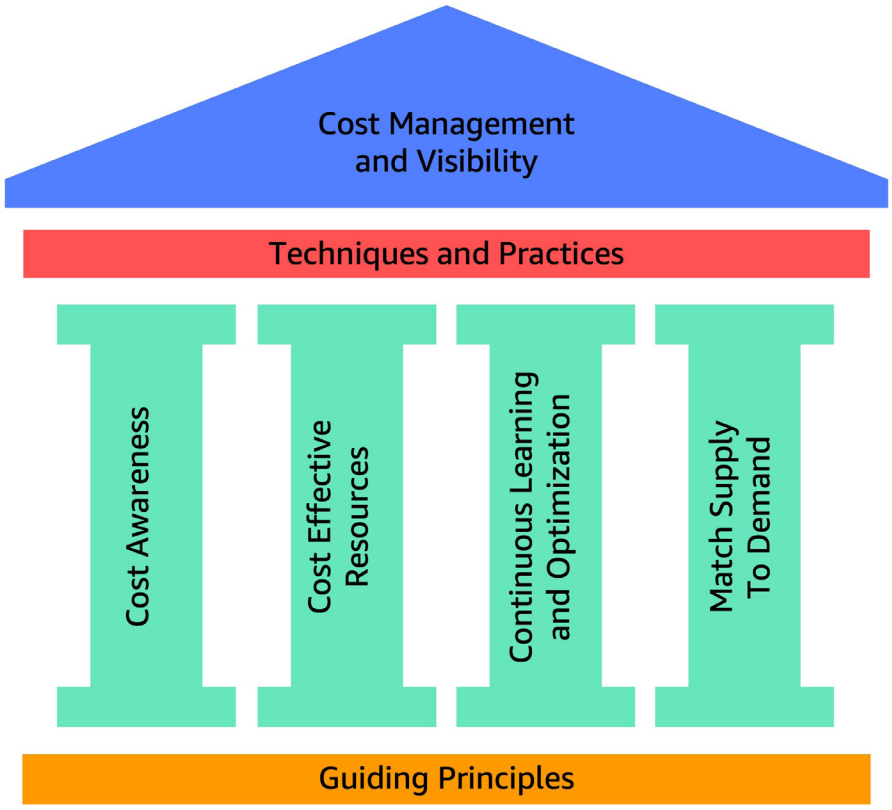

Figure 1 - Cost Containment Principles and Pillars

From Chaos to Evolution, Managing Your Cloud Costing Model

Each organization's cost control maturities are varied, and the value we receive from those maturities often grows as we reach higher levels, as shown above. Just as cloud cost optimization is always in a constant state of refinement, so is sustainment. It is imperative to consider the current state of affairs in your organization and recognize the challenges that lead to poor cost containment practices. Each of the phases defines progressive milestones you experience in your journey that will lend insight into areas that can be improved and the challenges that lay before you. Your organization will likely find themselves in one (or more) of these stages.

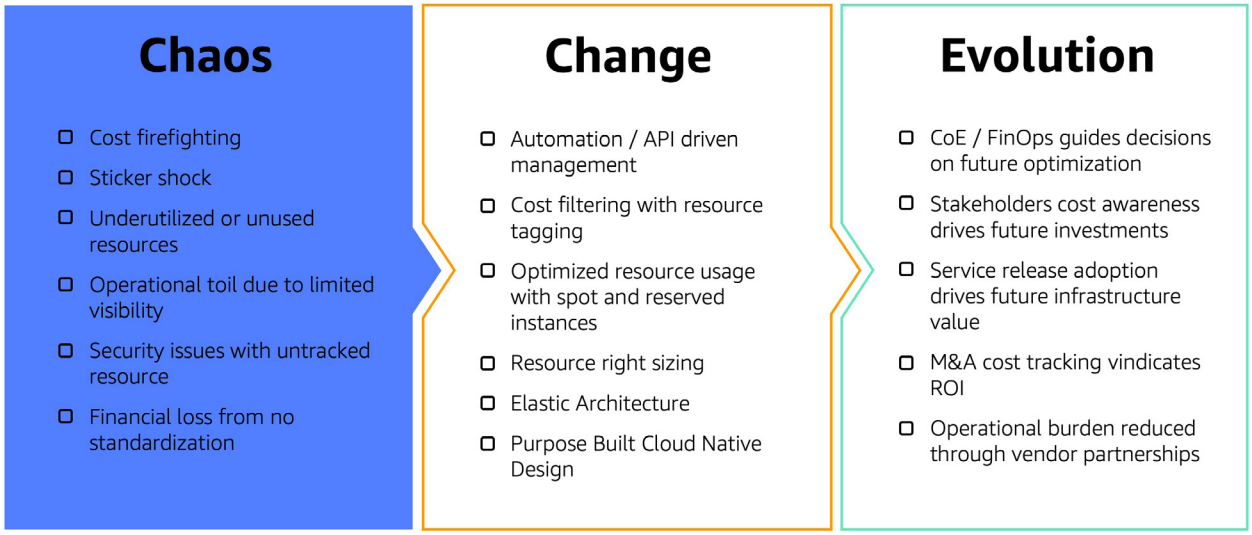

Figure 2 - Chaos to evolution, managing your cloud costing model

Phase 1: Chaos

The lowest cost maturity, Chaos, occurs most often in organizations with minimal to low-cost visibility or governance. These environments suffer from poor cost control, little to no management of resources, and have limited resource visibility. They will experience a more significant operational burden, higher security risk levels, and frequent financial discourse. Outlined below are some of the key identifiers of chaotic environments and the damage they can cause:

Cost Firefighting

A lack of cost visibility increases your organization's propensity to fall victim to a concept called cost firefighting. Cost firefighting attempts to counter the absence of cost attribution or awareness by constantly adjusting or borrowing from other budgets or "buckets" to accommodate these costs. These challenges are easily identified by analyzing cost projections and operating budgets and assessing persistent deficits or erratic spending fluctuations. This type of Chaos can cause significant drops in innovation and undue operational stress from compensation for everything from poor architectural design to untracked resources.

Sticker Shock

Chaotic organizations will frequently experience sticker shock of new and ongoing cloud initiatives due to the lack of forecasting capabilities, improperly sized or underutilized resources not being reclaimed, and a lack of cost justification. Identifying these challenges requires the use of cost budgeting and appropriate resource identification, allocation, and tracking. Sticker shock will erode trust between your technology teams and other business units, cause poor product performance, and reduce the available budget for current and future initiatives.

Operational Toil

Operational toil is resultant from inefficient operational execution based on limited visibility, understanding, and standardization of governance in cost containment practices. Toil is identified by evaluating supply and demand matching efficiency, cost telemetry gaps, and incomplete cost value streams. The result from chaos in this area is decreased resource lifecycle velocity, lower mean time to recovery, and inconsistent service operation and support.

Increased Security Risk

Security risks occur from an absence of cost reporting and tracking, unmanaged environments, improperly sized resources, and lack of cost management practices. You can quickly identify security risks by leveraging essential activities such as resource tagging, right-sizing compute, and deleting unused resources to improve security posture.

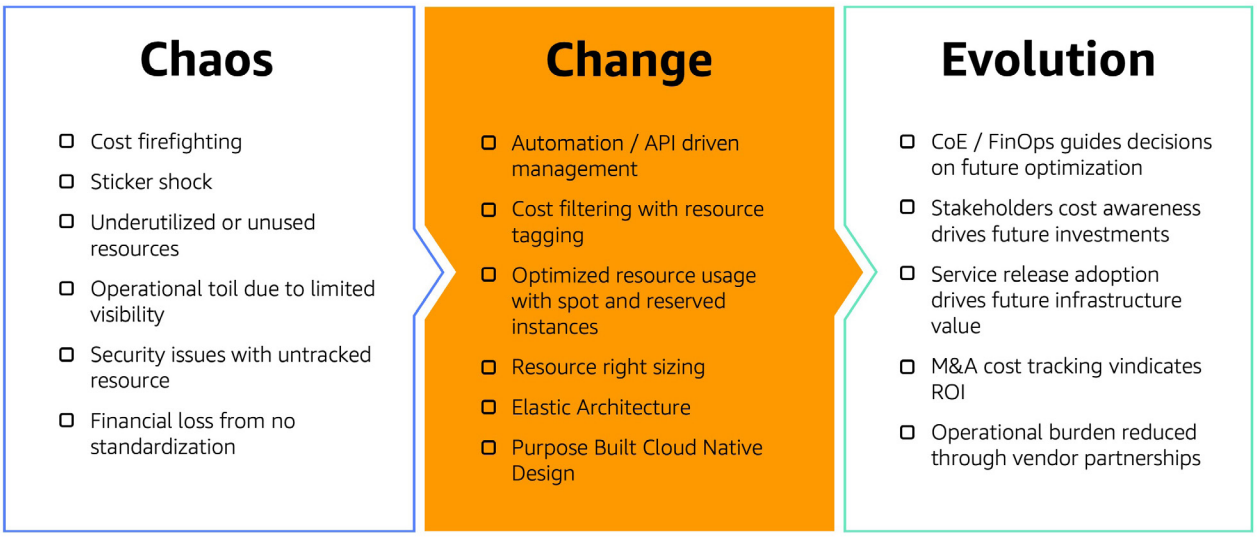

Figure 3 - Chaos to evolution, managing your cloud costing model

Phase 2: Change

Moving into the next stage, Change, your organization refines its cost containment practices and expands into more concrete concepts that build on current practices. Driving change within cost management will always begin in one area of the business and radiate to others creating connective tissue as more of the organization adopts these areas. Knowing the current state of your organization and teams help pinpoint the maturity and appropriate use of the following concepts:

Automation

When approaching automation, you should start by manually identifying the steps required to achieve the desired cost control and then defining the triggers needed to inform who, what, and finally, the action to be taken. Leveraging an application programming interface (API), your organization can automate cost management optimization and recommend pricing to match workload demand. You can also link these API's to a costing tool such as Amazon Web Services (AWS) Cost Explorer for enhanced alerting and management.

Cost Filtering
Maximize your cost tracking, visibility, and cost attribution, spanning the entire value chain by paying particular attention to the cost allocation tagging. Tagging helps ensure proper organization and resource identification. Tagging and tagging enforcement will drive additional value by enabling your organization to report on specific resources based on your organization's criteria.

Optimized Resource Management
You must define guardrails around who and what to do with your resources. Start by setting resource controls that will help your organization govern who can deploy them. Your organization should also define how you will identify, monitor, and categorize them to ensure proper visibility. You will find AWS Service Catalog, AWS IAM, and AWS Organizations as valuable tools that will assist you in implementing policy-based governance. Resource scheduling is also quite effective at minimizing spending for idle resources.

Architectural Elasticity and Tiering
Planning for demand by applying scaling policies and elastic services will deliver more resilient and reliable architecture. AWS Elastic Load Balancing can dynamically handle differences in traffic demand. While data tiering through services such as AWS S3 Intelligent Tiering can help control costs concerning data access frequency.

Purpose-Built Cloud Design
Purpose-built architecture can mitigate unexpected resource costs by leveraging native cloud services. Utilizing spot and reserved instances can yield further savings for resource optimization efforts. You can also leverage cost inspection tooling such as AWS Cost Explorer to stay up to date on your cost optimization opportunities and resource deployment costs. Using cloud-native services will yield "most excellent" savings.

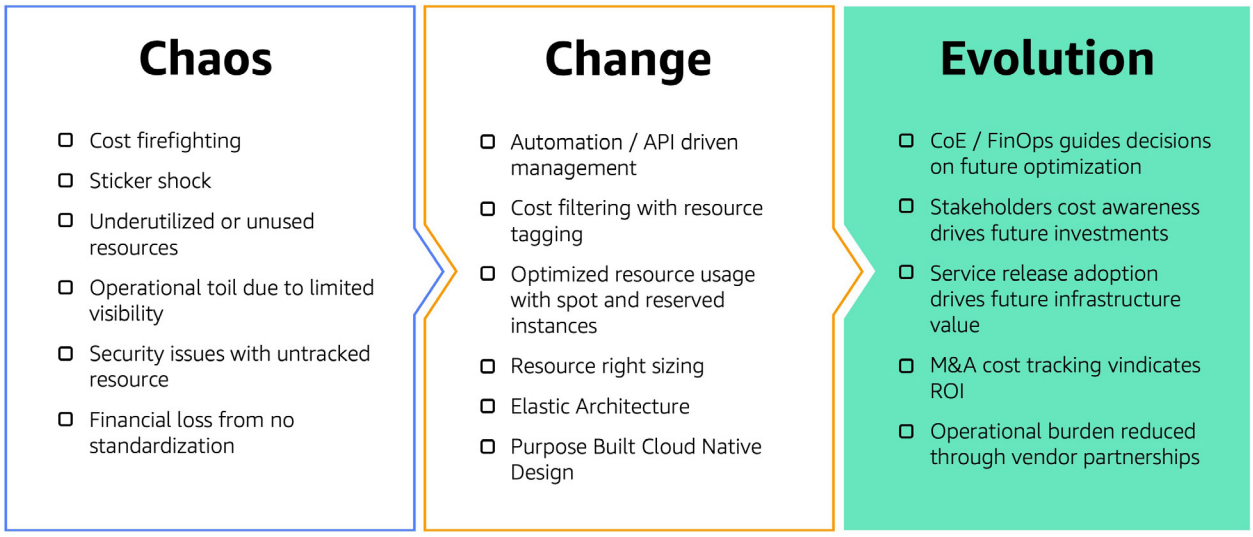

Figure 4 - Chaos to evolution, managing your cloud costing model

Phase 3: Evolution

In the last stage, Evolution, your organization focuses on creating long term self-improving and self-sustaining practices. These practices solidify a cost-conscious culture of continuous improvements that assess, optimize, and adjust to the organization's needs dynamically. You recognize that today pays for tomorrow and are adept at utilizing your insights to reinvest your savings. You identify and attribute expenses through practices and programs such as:

Service Release Adoption
Leveraging a cloud adoption framework accelerates cost savings by measuring resource usage and optimizing against the latest services to consolidate costs. Balancing service adoption against resource lifecycles ensures you keep a resilient and scalable service portfolio that is easily manageable, reliable, and cost-effective.

Merger and Acquisition Cost Tracking
Merger and Acquisition (M&A) cost tracking vindicates return on investment for your organization. When your organization makes acquisitions, cost tracking is critical to draw the parallels between products and investments. The key is to focus on tracking and identifying costs associated with control, scale, and integration with current or future products. Drawing these lines will tie value to the business owners and products that support them before integrating them into your organization's primary product portfolio.

Vendor Partnerships
Partnerships through managed service providers deliver larger economies of scale through delegation of operational and engineering efforts. Partnerships insulate your organization from overspending by leveraging years of experience to manage workload migration, optimization, and decommission.

Center of Excellence

FinOps helps the business guide decisions on future optimization through continuous improvement practices. A Center of Excellence (CoE) provides your organization with cost optimization for implementing cloud technology at scale through targeted and intentional organizational change management. It transforms the organization by driving company culture into every facet of your cost management operating model.

Cost Assurance

Cost assurance drives current and future cloud investments and provides showback and chargeback visibility. Cost assurance shifts the emphasis from a cost center mentality to a shared responsibility model by moving the focus from spending to transparency and data-driven decision making.

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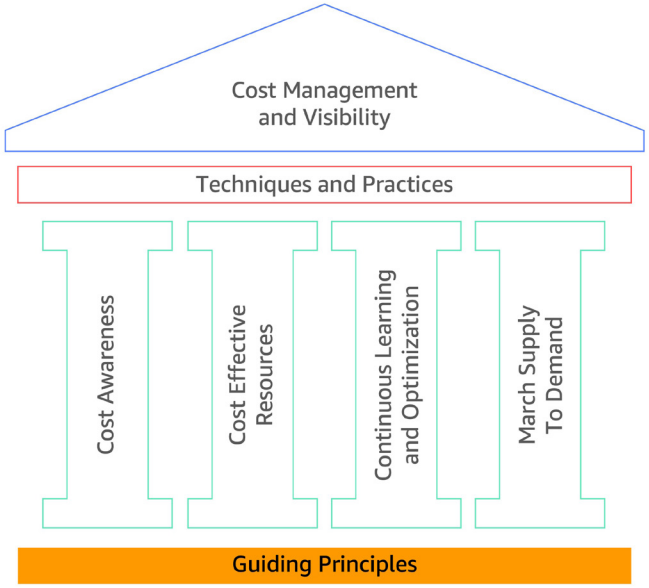
Cost Containment Principles and Pillars

DevOps plays a critical role in leveraging cost management and optimization through automation and continuous improvement practices. Culture is the first component you should leverage in your cost management strategy. For organizations moving to the cloud, already in the cloud, or looking to optimize their cloud usage, a significant differentiating factor will be cost containment maturity. This maturity will dictate how effective your organization can identify and mitigate cloud cost inflation. Using the guiding principles and four core pillars described below will help you establish a baseline and begin your cloud journey to cost recovery. Guiding principles will help you build the spirit of your organization's cost containment initiatives. The four cost pillars will focus those principles into actionable and data-driven decisions guiding your organization in applying those principles at scale.

Guiding Principles



Guiding principles govern your organization's decisions concerning cost optimization; they serve as the bedrock of understanding and universal tenants of the value you intend to deliver regardless of the goals, strategies, or role to which you align. It's crucial for those just beginning to note that this area will take the most time to implement and propagate throughout your organization.

Before you begin, it's essential to understand the difference between cost-cutting and cost management and its impact on value. The goal of utilizing the cloud is to cut costs and increase organizational fitness and increase overall value. If we look at fitness concerning self-health, the goal is to become more fit, but most people tend to focus on losing weight. Unfortunately, just losing weight is just like cutting costs; it's a poor overall fitness indicator. So, in cost containment, you're not just trying to cut costs, but more appropriately identify waste and maximize value, which strengthens the organization overall. With this in mind, let's look at how guiding principles can build organizational fitness as it pertains to a cost management strategy.

Adopt Consumption Mindset

A consumption mindset focuses on shifting your organization's approach from focusing on individual team workloads to managing usage based on business requirements. This approach ensures your organizational environments are tuned for maximum value using resource scheduling, spot and reserved instances, or cloud-native just in time services.

Attribute Expense

Expense attribution employs approaches such as tagging and tracing costs to business revenue and resource owners to increase return on investment visibility. Tracking costs increases business agility by attributing business and organizational costs to drive on-demand capacity insights down to the individual and product levels.

Leverage Partnerships

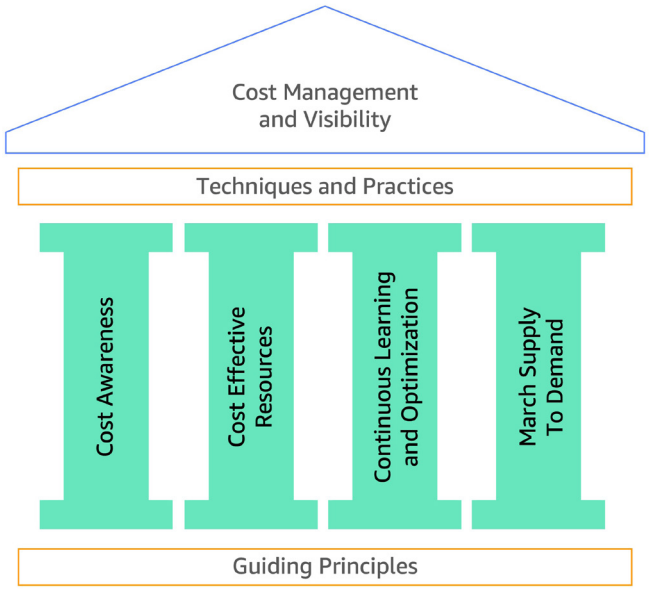
Reduce operational burden through partnerships by reallocating lower innovation workloads from your organization's teams, freeing them up to drive more innovation initiatives. As your business scales, partners provide point solutions that scale with your business and provide in-depth insights and optimized value in specific areas. These partnerships offer more diverse perspectives and optimized time to value leveraging best practices learned from past interactions.

Measure Efficiency

Measuring outcome and delivery costs assist in a lower unit cost of products or services provided to the customer. Workload output matching to costs associated with delivering it provides vital visibility into how your organization can optimize future workloads and architectures.

Core Pillars

Core pillars will guide you in executing on the areas of cost optimization within your organization. Each area focuses on specific domains of consideration that drive value for both strategic and tactical initiatives. These pillars represent the strategies and tactics your organization can employ to build a more cost-conscious culture. Essential understandings should be captured and disseminated throughout the organization as tools to help establish standardized approaches. Becoming a learning organization and developing feedback loops are also important to create the appropriate basis for cost awareness and proper resource forecasting. These pillars establish continuous approaches focused on cost telemetry, which helps inform your organization of the scale of investment required. Let's dive deeper into these core pillars.



Cost Awareness

Cost awareness builds a cost-conscious culture by providing increased visibility, clearer governance, cost attribution, resource identification, and lifecycle tracking. Greater awareness leads to tighter controls, increased security, cost savings, and end-to-end cost containment.

Cost-Effective Resources

Focus on right-sizing, reserved instances, optimized data transfers, and geographical considerations are essential to cost savings. Well architected workloads use a mix of managed services and flexible, cost-effective resources to minimize data transfers, maximize compute usage, and optimize storage via tiering.

Continuous Learning and Optimization

Education is the most critical component in empowering employees and building a cost-conscious business culture. You don't know what you don't know. Teaching them how to leverage data-driven analytics can rapidly scale and optimize any cloud journey and deliver business value. However, learning organizations can gain a competitive advantage by connecting human telemetry to cost containment approaches.

Match Supply and Demand

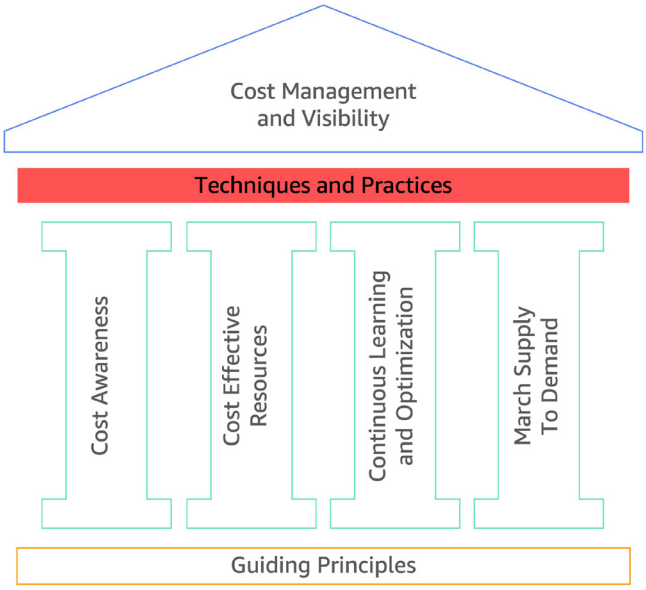
Matching supply and demand allows your organization to scale based on workload demands and optimizing cloud costs. Metrics, automation, and usage patterns are critical pieces in this puzzle to ensure overhead doesn't become a high cost. Leveraging elastic load balancing, auto scalability, queueing, spot and reserved instances, and optimized native services are just a few ways to realize savings.

Cost Optimization Techniques and Practices

Organizations have recognized that on-premises design can be wasteful and fraught with hidden costs and complex support requirements. They reduce competitive advantage, overburden operations due to heavy maintenance demands, and add unnecessary complexity to value delivery. Businesses also recognize solving these issues requires more than just moving to the cloud. They must have concrete practices and techniques to support a continuous improvement of design, planning, and collaboration to drive cost savings. This approach requires your organization to make long-term considerations in cultural changes, process refinement, and technology selection. This investment pays off by monitoring and tuning your organization's needs over a while to drive a higher return on investment. Let's explore how techniques and practices can raise the maturity of your organization's cost optimization strategy.

Techniques

These techniques will direct and guide your organization into areas that can help create multiplicative value in your cost management journey. They serve as a long-term solution to maximize your cost-containment efforts and span all areas of the business. When combined, each domain will collectively build a greater overall maturity and amplify other areas of your business. Ensure you are building sustainability into these areas as you go. You will find the most success when using these techniques, continuously monitoring them, and adjusting to the appropriate business practices.



Cloud-Native Design

Cloud-native design requires a retooling to your on-premises approach when designing new solutions. By architecting solutions purposefully and based on cloud-native services, your organization will realize less complexity and more scalability. Specifically, cloud-native design leveraging Platform as a Service (PaaS) or Software as a Service (SaaS) will eliminate some or most of the need for patching and infrastructure management operational burden.

Continuous Telemetry

Continuous measurement of resource and cost telemetry is critical in preventing unexpected costs, establishing new usage patterns, and forecasting future investments. By leveraging cost alerting, recommendations, and proper resource sizing based on telemetry, your organization can proactively manage and forecast costs more effectively. Knowing your baseline running state and planning for an appropriate scale through telemetry will allow your organization to decrease waste more efficiently.

Bridge Business Silos

Cultural impacts can have a significant effect on your cost management efforts. Ensuring that all business units are involved in conversations relevant to upstream or downstream impacts is paramount. Communicating challenges and opportunities more clearly across all lines of business will raise cost awareness and agility. Leveraging role-based access to costing tools will empower your organization to collaborate and appropriately delegate cost responsibility.

Cost Value Streams

Creating cost value streams will help you visualize your normal running states, focus on the most considerable areas of opportunity, and provide a roadmap to increasing your customers' value. Value streams will help identify inefficiencies in forecasts and provide critical feedback loops for your long-term practices to optimize costs further. By visualizing the end to end needs of your products, your organization gains valuable insights into gaps and opportunities to reduce spend.

Practices

The practices discussed here assist the business in implementing cost management in a scalable and sustainable way. They are the long-term building blocks that drive lower product unit costs, ease of resource management scale, and an overall healthier operational efficiency between business areas. These practices coalesce telemetry, approaches, and standards into a workable model that drives your organization's continuous improvement functions. By leveraging these practices, your organization establishes guidance and governance that drives the impactful delivery of value through an iterative approach.

Center of Excellence

Establish or refine your cloud Center of Excellence (CoE) to continuously improve your cloud investments' unit economics. Empowering success through best practices, factual research, and continuous improvement processes for your organization can help accelerate your cost management and optimization strategies. A Center of Excellence is often most valuable in uncovering hidden inefficiencies and optimizing them for use across all business lines.

Cloud Financial Management

Cloud Financial Management (CFM), also known as FinOps or Cloud Cost Management (CCM), is a function that helps align and develop financial goals. They will drive a cost-conscious culture, establish guardrails to meet financial targets, and gain greater business efficiencies. By showback and chargeback of the line of business costs to owners, validating cloud invoices, and managing budgets through alerting your organization can attain greater cost control.

Codify Planning and Execution

Codifying planning and execution functions provide your business with organization-wide visibility into the data-driven decisions that are driving investment. Visibility drives optimization. Leveraging standardized spending forecasts and organization-wide asset visibility together will enable your organization to provide stakeholders the information they need to make educated decisions about investments in current and emerging technologies.

Community of Practice

A Community of Practice (CoP) assists in assembling groups of people in your organization who share a passion for cost management into a working business function. They deliver iterative feedback loops and continuous learning practices directly into teams, providing employees a vital learning environment to grow their understanding of cost management and optimization.

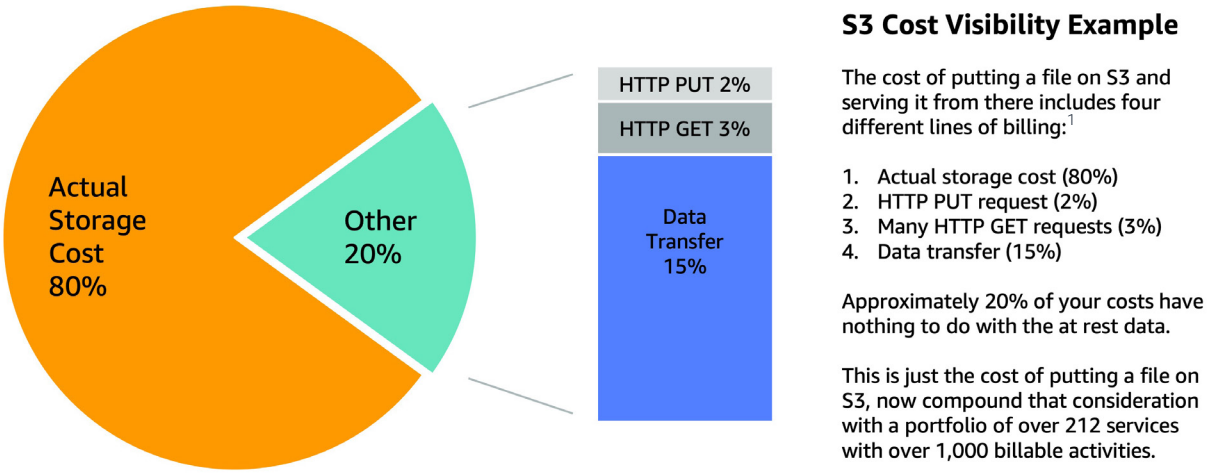
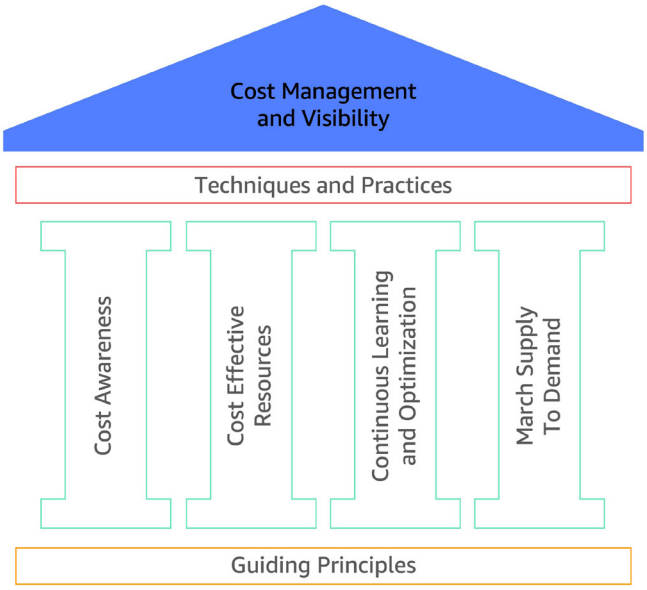


Figure 5 - Cost Visibility and Management

As seen above, sometimes costs are hidden even in the simplest of services. The tools outlined in this area will help drastically increase your cost insight and help your organization achieve greater control over resource sizing, usage, and forecasting. They will inform you of your organization's past, current, scaled, and projected states. Leveraging automation and tools, your organization can derive value from uncovering and eliminating hidden costs.

[1] https://medium.com/teads-engineering/real-life-aws-cost-optimization-strategy-at-teads-135268b0860f

Cost Visibility



These tools will help drastically increase your cost visibility posture and help you achieve greater control over resource sizing, usage, cost projection, and recommendations. They inform you of your past, current, scaled, and projected states. These Amazon Web Services (AWS) tools provide alerting, guidance, visibility, and right-sizing capabilities. These four tools target eight of the ten most essential capabilities of the cloud costing lifecycle.

AWS Budgets

The AWS Budgets tool bolsters your organization's forecasting and budgeting capabilities. Custom dashboarding enables you to manage budgets through custom alerts based on resource cost or usage. AWS Budgets help keep spending in check with a custom budget threshold and auto alert notifications. AWS Budgets can manually or programmatically create budget alerts that trigger against spend, forecasted usage, or percentage accrual. This tool supports your organization by providing more proactive methods to respond to changing budgets, unpredictable service costs, or usage and traffic anomalies.

AWS Cost Explorer

AWS Cost Explorer is used to harness forecasting, reporting, right-sizing, and inspection capabilities. Providing drill down into granular and time-based details empowers your organization by raising awareness and accountability of your cloud spend. Dashboards keep the business abreast of resource deployment, identify cost optimization opportunities, and leverage data exploration and aggregation to provide potent insights into cost trends and pitfalls.

AWS Compute Optimizer

AWS Compute Optimizer facilitates right-sizing capabilities and helps align your service allocation size to your actual workload demand. Using machine learning to assess historical metrics, your organization can optimize compute instances and scaling groups on demand. By analyzing the what-if recommendations, your organization can leverage insights trained by years of AWS service usage and workload patterns.

AWS Trusted Advisor

AWS Trusted Advisor provides elasticity capabilities by scaling and scheduling your services based on your expected utilization pattern and needs. Your organization can leverage real-time guidance for provisioning and run on-demand health checks alerting you to drift in your environments. It can also assist in locating overutilized resources, enabling missing security features, and examining permissions, all tracked and logged for change control.

Cost Management

These tools will facilitate cost management and control in your organization by applying specific service or platform features. These tools lay the foundation for the technical management of resources. These tools will enable your organization to identify, track, scale, tier, and govern new and existing cloud tenants and assets. Enabling your organization to analyze and attribute expenditures, increasing tenant security, and optimizing workloads.

AWS Auto Scaling
AWS Auto Scaling monitors applications and automatically adjusts capacity through scaling plans on your resources to provide reliable and predictable performance at the lowest cost possible. Instead of manual efforts, machine learning technology manages predictive scaling based on traffic. By providing the ability to track scaling trends, your organization can make educated decisions based on cost, performance, or both.

AWS Control Tower
Easily set up and govern new, secure, multi-account AWS environments with best practices already built based on data from AWS enterprise customers' experiences. Best practices blueprints allow you to define how you want to secure your tenant. Your organization can identify rules, enforce policies, and detect violations quickly using dashboards and top-level summaries, resulting in faster identification and remediation. Account factories will help automate the provision workflows so everything is ready in the push of a few buttons.

AWS Cost Allocation Tags
Metadata labels to help you manage, identify, organize, search for, and filter resources. Your organization can create tags to categorize resources by purpose, owner, environment, or other criteria. Making them available to cost management services such as Cost Explorer helps track and report on cost allocation. Finally, showback and chargeback initiatives can tie internal owners to your organization's cloud bills and reconcile sprawling costs.

Amazon S3 Intelligent Tiering
Optimize your storage automatically based on data access patterns without performance impacts or operational overhead by moving data between tiers of access. Tiering provides valuable insight to your organization when encountering unknown or unpredictable storage needs for new products or services.

Quick Win Exercises

Tomorrow is paid for by today. Some quick wins outlined below will help kickstart your organization's cost-containment strategy. Easy concepts and simple approaches that provide immediate value to your organization are broken down by pillars. Each pillar will yield a different perspective on value, combined they can be a powerful confluence that fortifies your cost management initiatives. To increase cost management maturity, you can execute the exercises below individually or collectively. Your organization may find some of these efforts yield results quicker than others based on your environment's complexity and size.

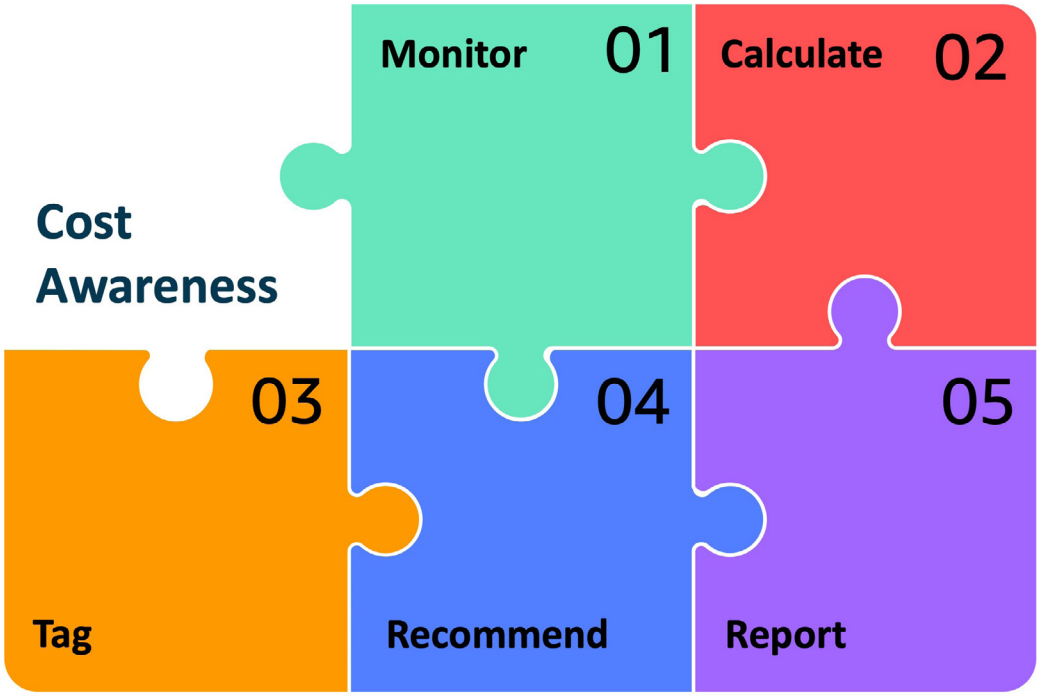


Figure 6 - Cost Awareness

Cost Awareness

These exercises aim to gain greater visibility, increase awareness of your resources' footprint, and get you familiar with tools that can provide cross-functional value.

1. Ensure you are monitoring CPU utilization, data transfer, and disk usage activity using CloudWatch.
2. Leverage Amazon monthly calculator to calculate your projected data transfer costs of new architectures and services.
3. Tag all resources based on company cost delineators such as cost center, program, portfolio, product, team, business unit, and owner.
4. Explore the Cost Explorer tool and apply recommendations where it makes sense.
5. Create financial dashboards and billing reports for stakeholders based on needs.

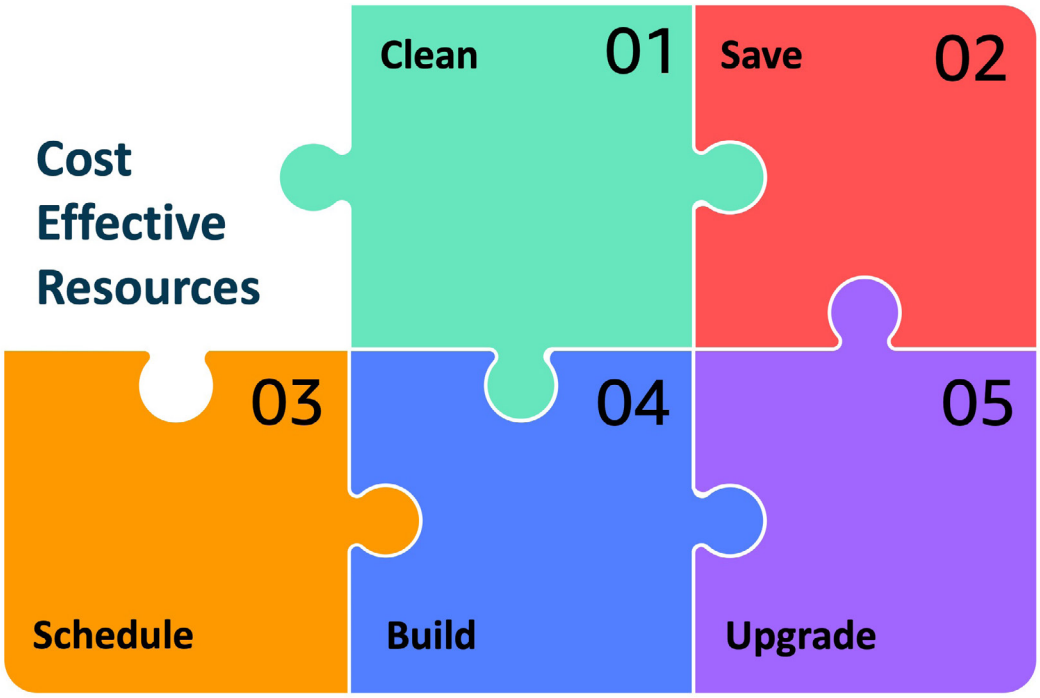


Figure 7 - Cost-Effectie Resources

Cost-Effective Resources
These exercises aim to reduce costs due to resource waste caused by antiquated design or idle, improperly sized, and orphaned resources.

1. Identify and terminate idle or unused resources.
2. Use Cost Explorer to identify opportunities to leverage reserved or spot instances where applicable.
3. Setup AWS Instance Scheduler scheduling based on business availability needs for PoC, Dev, and anywhere instances are idle for recurring periods.
4. Watch for new AWS instance releases and upgrade hardware to the latest generation for greater compute optimization.
5. Approach new architecture design with a cloud-native and pay for what you use mindset.

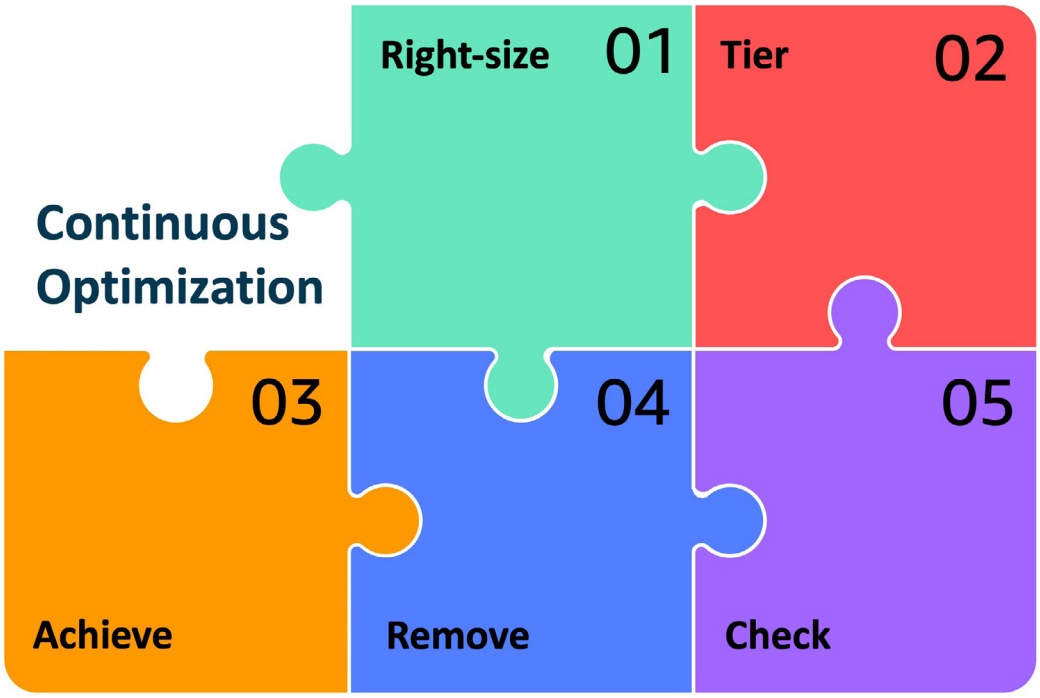


Figure 8 - Continuous Optimization

Continuous Optimization
These exercises aim to optimize current resources based on their usage patterns, demand, and connectivity to other services.

1. Check out AWS Trusted Advisor and right-size your resources based on usage.
2. Utilize S3 Intelligent Storage Tiering to move infrequently accessed data to cheaper cost tiers.
3. Identify unused data and archive the data off to S3 Glacier or S3 Deep Archive.
4. Remove unattached EBS volumes, snapshots, and detached elastic IP's.
5. Use AWS Trusted Advisor to check and delete unused load balancers.

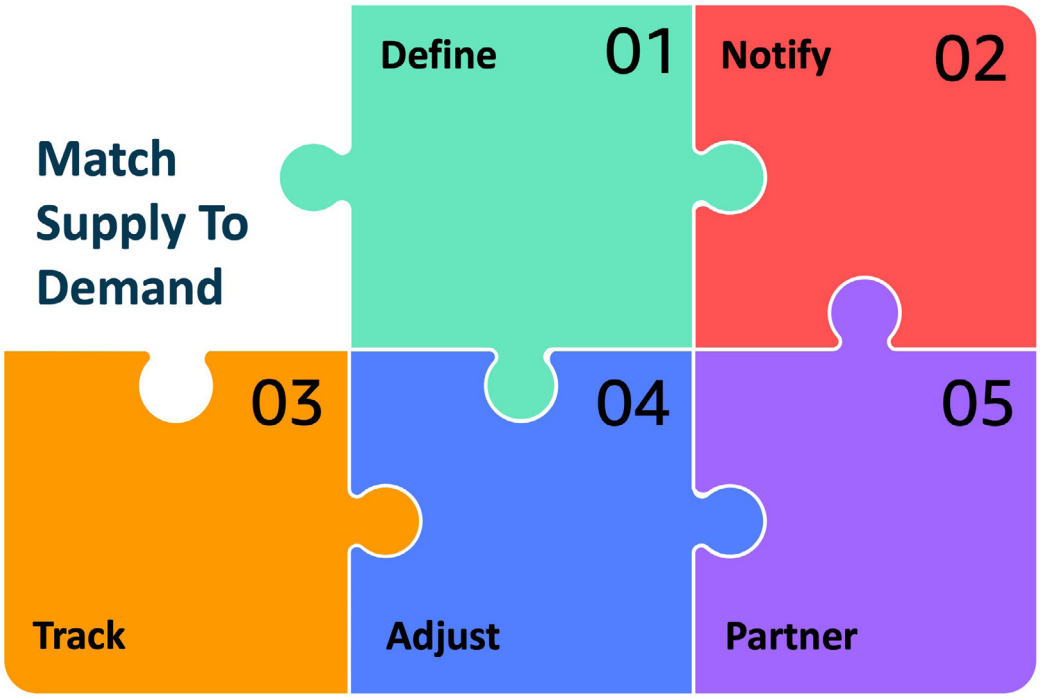


Figure 9 - Match Supply to Demand

Match Supply to Demand
These exercises aim to manage resources based on baselines and alerts that dynamically adjust and drive future forecasts based on workload demands.

1. Use CloudWatch and Cost Explorer to learn your normal running states.
2. Set AWS Budgets notifications for resource usage over 70%.
3. Track your consumption journey in Cost Explorer and learn from it, forecast with it, and model future states using it.
4. Leverage AWS Cost Explorer to track unit cost and implement showback and chargeback based on resource tags.
5. Leverage AWS Marketplace for best of breed curated partner solutions to control more sophisticated costing needs.

Conclusion

This article lays out the steps your organization can take to adopt and drive a robust cost management and optimization maturity strategy. It outlines why cost techniques and practices partnered with a solid foundation of guiding principles and a comprehensive set of cloud tools are critical in solving cloud cost management at scale. Finally, it drives home the value realization by explaining how this approach can set the stage for a long-term cost containment journey and leveraging practical exercises to kickstart your journey from technology to finance and everything in between. Let's examine two different companies in entirely different industries, Square Enix and A Cloud Guru, for a reference point to what are the real-world results for these practices.

Based on the unpredictability of a load of anywhere between 200 to 6,000 images per minute processing requirements, Square Enix decided to adopt cost management and optimization strategy focused on cloud-native design. By leveraging cloud-native AWS services, they reduced image processing time for their in-game screenshots from 4 hours to less than 10 seconds. This significantly boosted customer satisfaction of a prominent and growing user base. Ultimately, they realized a 95% reduction in service costs and a 144,000% reduction in thumbnail and copyright watermarking processing times through AWS Lambda services in comparison to on-premises infrastructure for their game Dragon Quest X.[2]

Based on pay only for what you use mindset, A Cloud Guru built their company solely on a cloud-native serverless design. They created a fully functional learning management system and launched the world's first serverless startup in less than four weeks. Two years after they opened their virtual doors, its entire serverless web platform presence still cost less than $1,000/ mo and had trained over 250,000 customers in 160 countries. An additional two years later, they acquired Linux Academy and their cloud playground technology bringing the A Cloud Guru customer base to over 2 million, and a $3M cloud spend bill. Using a combination of traditional reserved instances to cover their platform costs and savings plans for the resources their learners create, they've been able to get their reserved instance mix up to about 80% of their total EC2 spend. This KPI alone should reduce their EC2 bill by about 30% over the next 12 months at no impact to their users! That equates to just under $1M in compute resource savings.

[2] https://aws.amazon.com/solutions/case-studies/square-enix/

Implementing Cloud Cost Management on AWS

Managing on-premises infrastructure has been likened to an iceberg, where most of the resource costs remain hidden below the surface. No one likes surprises, which is why it's important to maintain cost visibility at all times – to keep agile, flexible, and ahead of your competition. Achieving a cost containment state-of-mind requires a new approach to managing infrastructure. It starts with people and process joining forces to drive desired outcomes, such as lowering total cost of ownership (TCO) of your software procurement. It then extends to reducing license spend and increasing reserved instance coverage.

This strategic mind shift begins with adopting a cost containment strategy that facilitates the AWS Well-Architected Framework (WAF) approach to cost optimization. WAF advocates a consumption model that consumes only what teams need to meet their business goals. AWS Marketplace offers a wide network of solutions, tools, and best practices that attribute costs back to business units and product owners – for better ROI. By keeping developers, architects, and product management accountable, organizations gain optimal deployments that are aligned with cost rightsizing, better TCO, and higher reserved instances coverage.

Apptio Cloudability is a solution that can fit seamlessly into your organization's cloud cost management strategy. Robust allocation, visualization, and optimization tools enable Apptio to translate cloud spend into real business value. For example, with Apptio Cloudability you can track all your Amazon EC2 and S3 instances and gain full transparency on cloud spend. Easy-to-understand daily, weekly, or monthly reports track your budget as well as your predicted spend for the month.

aws marketplace

How customers are leveraging solutions in AWS Marketplace to simplify their cloud cost management

The old days of heavy capital expenses for racks and servers combined with long term licensing are gone. Teams can now pivot their entire infrastructure as fast as they can architect and deploy it. AWS Marketplace offers a full range of cost management solutions that enable organizations to embrace this epic shift. For example, Apptio Cloudability enables business teams to adopt cost visibility, lower TCO, and rightsize spending to better communicate their business value. Some of the many ways AWS Marketplace helps customers enhance their cloud cost management strategy are:

Flexible pricing and payment options: Simplified contracting, speed procurement, and flexible pricing options including a free trial, hourly, monthly, annual, and multi-year contracts; along with a custom payment scheduler.

Lower TCO: AWS Marketplace provides multiple features that enable procurement teams to reduce their sourcing cycles and continuously improve to create a truly optimized software procurement lifecycle.

Speed and governance: Quickly deploy pre-configured software; launch directly from AWS Marketplace and run instantly to reduce your purchase cycle.

Robust Enterprise security: Gain the peace of mind knowing all verified software offerings in AWS Marketplace are continuously scanned to detect and prevent viruses and other vulnerabilities.

Simplified AWS billing: Consolidate AWS billing and cost analysis using AWS Cost Explorer and subscription management; ensure purchases in AWS Marketplace qualify against your EDP commitment.

Learn more about AWS Marketplace

Why use AWS Marketplace?

AWS Marketplace simplifies software licensing and procurement by offering thousands of software listings from popular categories like Security, Networking, Storage, Business Intelligence, Machine Learning, Database, and DevOps. Organizations can choose from the many independent software vendors in AWS Marketplace to assemble their ideal cost management and optimization framework in the cloud.

Get started with Apptio Cloudability

Learn more about Apptio Cloudability on AWS Marketplace

Learn more about cost optimization from A Cloud Guru

Read more about the cost optimization pillar of the Well-Architected Framework