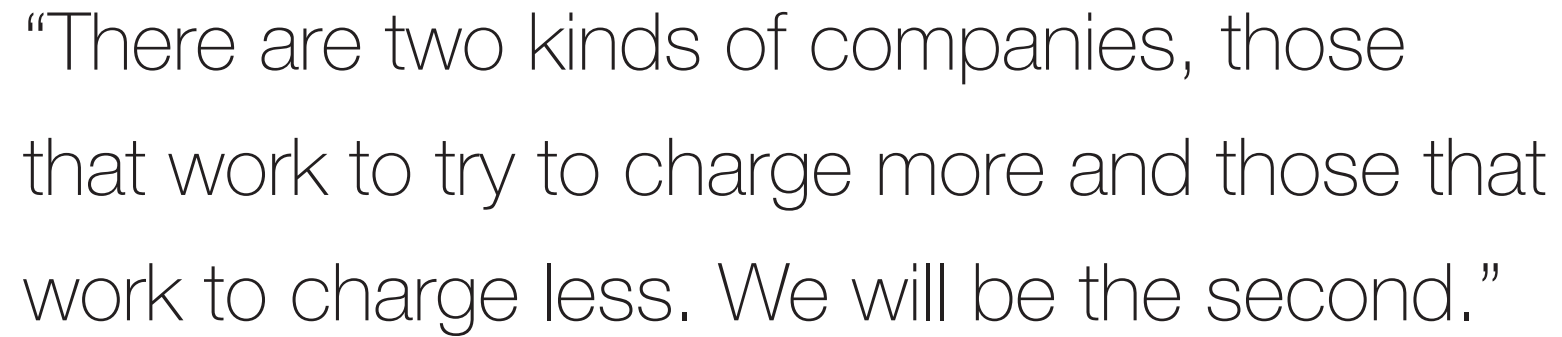


Amazon Web Services Planning Guide for Chief Financial Officers



“There are two kinds of companies, those that work to try to charge more and those that work to charge less. We will be the second.”

- Jeff Bezos, Founder and CEO, Amazon.com

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INTRODUCTION

The following insights should be used as a resource for Chief Financial Officers (CFOs) as they lead or support their organization through a cloud adoption journey.

It is designed to provide an overview of cloud adoption drivers, costs, risks, and benefits, as well as raise important questions about staffing and technology decisions that are critical to success. It is also intended to help inform business cases, while surfacing measurements and indicators specific to cloud environments that impact the bottom line.

The foundational guidance provided is a collection of insights captured and distilled from direct conversations and engagements between Amazon Web Services (AWS) and customer CFOs representing an extensive range of industries.

PART I

Overview

The CFO's role is changing – and while the CFO shouldn't have to be an expert on technology, she or he should know how to evaluate the financial impact of leveraging the cloud to launch new applications, marketing campaigns, and storage solutions.

■ **There are numerous** tools available to the CFO's organization, including tracking, detailed reporting and analysis, and forecasting to enable the CFO to drive better business decisions and reduce costs.

As the rate of IT innovation continues to increase, executive teams are looking to the CFO to provide the strategic information and direction they need to chart the proper course for their organization's cloud adoption. This is an added responsibility for many CFOs, who are now charged with making financial decisions that have technological implications.

CFOs are finding that they need to both drive and demonstrate the value of migrating to the cloud, while optimizing the legacy IT infrastructure in on-premises and colocation data centers.

The well-informed CFO, working in conjunction with the Chief Information Officer (CIO), Chief Technology Officer (CTO), IT Director, and other departments in their organization, can influence decisions and trade-offs that impact where the organization can feasibly exit some of their costs.

AMAZON WEB SERVICES

In 2006, AWS began offering IT infrastructure as a service (IaaS) -- now commonly known as cloud computing.

One of the key benefits of cloud computing is the opportunity to replace up-front capital infrastructure expenses with low variable costs that scale and evolve with the business.

With the AWS Cloud, businesses no longer need to plan for and procure servers, licenses, and other IT infrastructure weeks or months in advance.

Instead, enterprises are able to rapidly retire existing technical debt without taking on new, soon to be outdated infrastructure debt.

Operating in the cloud, they can virtually spin up hundreds or thousands of customized instances on servers within minutes and deliver results faster, using tools that secure, optimize, automate, and simplify the process.

Today, AWS provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world.

With data center locations in the U.S., Europe, Brazil, Singapore, Japan, and Australia, customers across all industries are taking advantage of the benefits of the AWS Cloud.

PART II

Adoption drivers for migrating to the AWS Cloud

Across every industry, enterprise-scale organizations choose AWS to meet their strategic business and financial demands, with some notable trends driving this selection.

ADOPTION DRIVERS

1 GLOBAL EXPANSION

AWS opens opportunities to rapidly expand into new regions enabling a number of competitive advantages, including being methodical about reducing tax exposure and human resources (HR) risks, and avoiding the excessive costs and barriers associated with on-premises IT environments.

[Philips](#), a Dutch-based company, illustrated these advantages through their Healthcare Informatics Solutions and Services division by building the Philips HealthSuite digital platform on AWS. The HealthSuite digital platform stores 15 petabytes of patient data gathered from approximately 390 million medical records, imaging studies, and patient inputs. This provides crucial and actionable medical information that healthcare providers use when caring for their patients.

The decision to run HealthSuite on AWS provided Philips the reliability and performance they need for high availability, to protect patient data, as well as the scalability to consistently expand its global digital platform at the rate of one petabyte per month.

2 MERGERS AND ACQUISITIONS (OR DIVESTITURES)

Historically, M&A and divestitures inhibit the speed of integration, or the ability to separate financially. These barriers can keep a company from following through on a deal, or result in a net loss on an otherwise profitable endeavor. AWS helps simplify the complexity of these transactions, while accelerating the process.

[Hess Corporation](#) decided to streamline its business to focus on energy exploration and production, and in March 2013, announced they would divest downstream businesses, including retail, energy marketing, and terminals. To separate business systems and data, the Hess IT team began working in July 2013, to have the new production environment running in six months. Hess wanted the new owner to take over the infrastructure seamlessly without a continuous support agreement that would require them to provide technical assistance.

They started using AWS as their production environment for Energy Marketing in January 2014, and transitioned this to the buyer in February. Using AWS, Hess handed off the infrastructure, without a support agreement, in a 30-minute meeting.

3 BUSINESS AGILITY

The ability to provision IT resources quickly and easily from one geographic region to another, and to expand/contract, as needed, allows companies to easily keep pace with evolving business demands. An analytics company based in Hong Kong, [Cenique](#), is one such example.

Cenique relies on AWS for real-time big data analytics, providing dynamic in-store advertising and audience measurement. Taking advantage of the flexibility and agility of AWS, Cenique entered the Asian market in an impressive six weeks instead of the typical six months. This success was highlighted by their ability to begin operations in Japan by cloning their U.S.-based environment and redeploying it in Tokyo.

1

MINIMIZING COSTS AND RISKS ASSOCIATED WITH GLOBAL EXPANSION

There are significant upfront costs and risks associated with extending an organization's on-premises IT environment into new geographic regions. The AWS Cloud reduces costs and risks, and offers time and resource efficiencies, enabling the swift entrance or exit of regions. Here are a few examples:

■ Real Estate and Tax Exposure

Expansion into a new region requires an IT facility in or near the local market.

Using traditional on-premises IT means entering a long-term lease or owning a specific facility, which can subject businesses to significant start-up expenses and tax exposure in that region.

In one example, a local inhabitant's tax is assessed on any company that owns real estate or leases a facility within their jurisdiction; whereas, if the company avoided establishing a physical presence, they would not be subject to such a tax.

■ Talent Acquisition

Deploying an on-premises IT environment in a new region often requires recruiting local talent, or paying expatriate resources to relocate, which can cost up to three times local salary. Regional labor laws come into play, which organizations may not be prepared for.

An example of this can be seen in certain markets where a business would be required to pay a year's worth of severance to an employee who had to be let go after six months of work. Similarly, employer mandated benefits vary by country and can be costly to manage.

In contrast, AWS runs its IT presence regionally, managing within local labor laws, shielding our customers from these complexities, which enables them to focus on their primary business objectives.

■ Operations Investment

Market expansion in a new region means additional costs for your organization to set up payroll, HR, and tax systems.

Limited on-premises IT resources can easily be overburdened, and at times, new regions require outsourced labor to support a physical presence.

Deploying on AWS often simplifies the process of expanding into a new market, without requiring additional payroll, HR, and tax costs. It enables existing staff to quickly leverage AWS services without the burden of set up and maintenance.

With AWS, business systems and operations are streamlined, reducing, or eliminating, unnecessary upfront expenditures.

2

ACCELERATING AND EASING MERGERS & ACQUISITIONS, AND DIVESTITURES

When evaluating M&A or divestiture, you will find that a traditional on-premises environment imposes costly transition time, and introduces unnecessary risks to these transactions. AWS relieves these costs and risks by accelerating time to integrate or separate completely, in addition to offering new ways to maximize value.

■ Integration Value

As IT typically has the highest cost of execution in an organization, it can be difficult to estimate the resulting one-time costs when engaging in an M&A event.

The need to be accurate can drive additional budget review cycles with leadership and other organizations impacted by swings in forecasts, stalling momentum, or even resulting in the project being placed on hold.

Maintaining focus on key components, such as capital expense (cap-ex) and operating expense (op-ex), hardware, software, and labor can help minimize expense reclassifications.

AWS helps streamline business operations by providing services that offer detailed information quickly, and without having to wait for a data center consolidation.

■ Consolidation

The complexity of merging two large businesses is often compounded with the challenge of consolidating IT systems.

Traditional on-premises IT environments are inflexible by today's standards, taking months or years for data center consolidation, location considerations, and hardware and software licensing decisions.

With AWS, organizations can move quickly to re-host critical business data and applications in the cloud, while exiting on-premises costs on an extended time schedule if they choose, without impacting business results.

■ Separation Exposure

Quick and effective separation from a line of business is the primary financial goal of a divestiture. An on-premises IT environment, with its physical infrastructure and contracts, precludes quick transition often resulting in a buyer requirement for a transition service agreement from the seller.

The seller is burdened with providing IT support, often to a competitor, reducing the total value of the deal. The buyer faces constraints on their ability to integrate IT into their business, and the need to pay the seller to manage their IT for some period. With AWS, organizations can reduce or even eliminate the need for a transition service agreement by moving data and applications to the cloud.

Hess Corporation streamlined its business by divesting the segments it sold to a new owner. The segments marked for divestiture were migrated to AWS, allowing the deal to be accelerated and consummated in a short meeting. This allowed Hess to complete the deal with no lingering commitments.

3

DELIVERING BUSINESS AGILITY

Many organizations find that the long-term fixed costs for an on-premises IT environment inhibit their responsiveness to changing business demands. With AWS, customers have flexible pricing and consumption options to balance the costs and risks associated with new business requirements and opportunities, enabling them to exit costs more quickly.

■ Long-term Investments

Purchased or leased corporate real estate and IT hardware contracts lock organizations into a specific location and infrastructure, often for at least 3-5 years.

During this time the market will change, and the choice to be locked into a fixed location and infrastructure may affect the company's ability to adapt and compete.

Leveraging the AWS global footprint provides immediate flexibility and agility for organizations, making it easy to move applications and data from one geographic location to another, and expand or reduce consumption on demand over time.

■ Fixed vs. Flexible Capacity

The risks that customer demand might outstrip on-premises IT resources can present immediate and potentially lasting revenue implications.

Organizations with on-premises IT environments mitigate surge capacity risks by buying for peak consumption and carrying the costs of unused capacity.

With AWS, there is no need to buy excess compute resources to cover peak usage. Customers acquire and reserve capacity just for those applications they know will be running constantly, and use on-demand resources for variable consumption.

■ Overhead Costs

Overhead infrastructure costs add up quickly for on-premises IT environments.

These include the power to run and cool large-scale computing systems, other facilities overhead, software licenses, upgrades and renewals, and associated support contracts. It's common for organizations to assume that their op-ex will rise when they replace their on-premises IT infrastructure with the AWS Cloud.

Our customers find that AWS not only simplifies and replaces long-term investments, such as software licensing and hardware purchases, but also reduces ongoing overhead costs, such as those associated with operating an on-premises data center.

PART III

Building a case for AWS migration

Comparing the costs of migrating to the cloud with an on-premises environment.

■ **Migration involves moving** a meaningful portion of your organization’s existing IT assets to the cloud. This might consist of a data center, a collection of data centers, a business unit, or some other

portfolio of systems that is larger than a single application. Our discussions with CFOs about IT migration most often center on how to calculate the net financial impact of moving to the AWS Cloud.

A BALANCED COST COMPARISON

Evaluating the costs, benefits, and risks of migrating an on-premises IT environment to AWS requires a balanced comparison.

We recommend starting with the current state of operating costs to evaluate the total spend for the on-premises IT environment, and comparing this to the projected total cost of the AWS target state.

Customers tend to think of their IT costs in terms of servers and data storage hardware. However, with a thorough look at the associated administrative costs of operating these facilities, they often discover that it is more meaningful to compare their AWS cost to the total cost and actual usage of their on-premises IT environment.

On average, we find an approximate 30% cost savings, with 10% margin of error, across a broad cross-section of enterprise-class organizations.

Once customers optimize their applications on AWS, the total cost savings can be up to the 60% – 70% range.

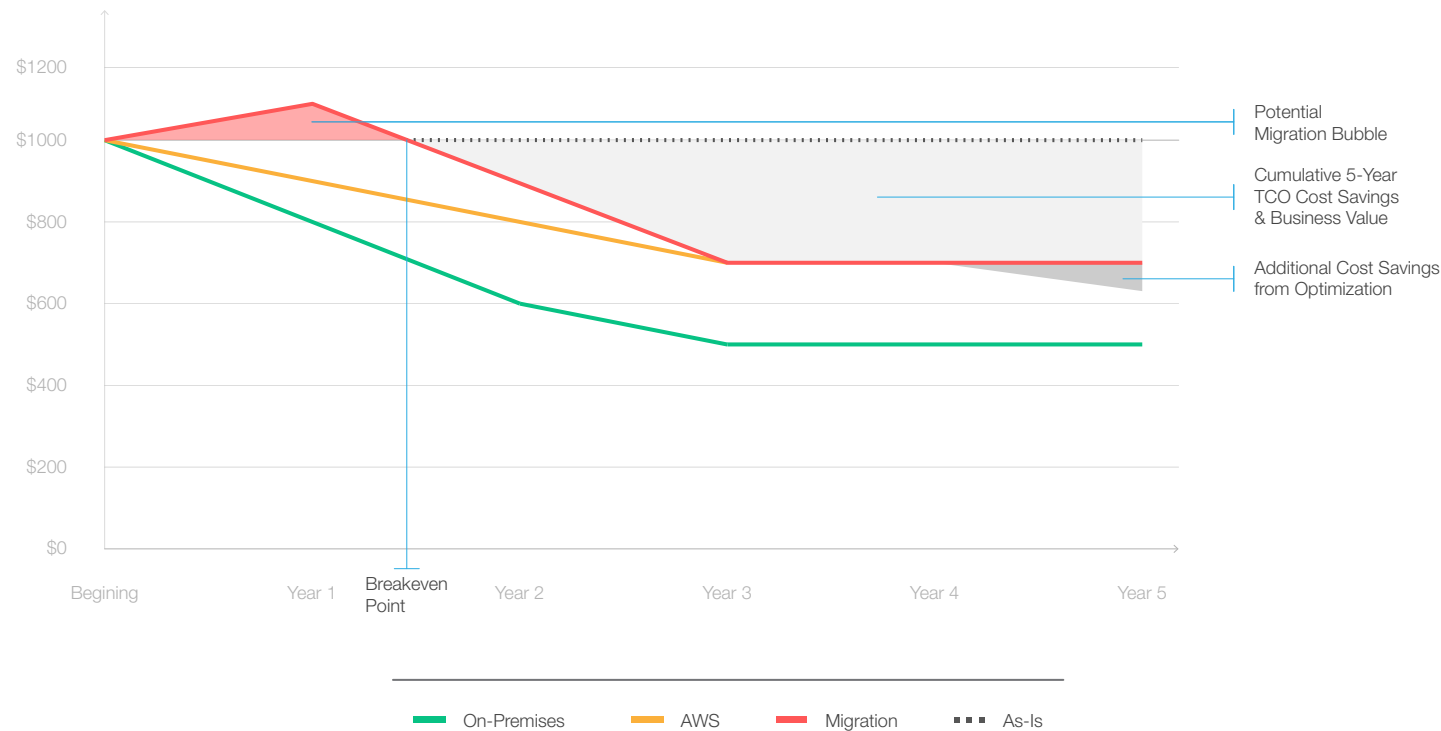
Sample comparison of migration cost:



EXAMPLE

5-YEAR FORECASTED TCO & MIGRATION COSTS

The following chart is a cumulative cost curve representing an example that considers a three-year migration with 50% of on-premises costs and an ideal 18-month breakeven point. This chart illustrates that exiting costs, in parallel with completing an IT portfolio move to the cloud, is the most cost-effective migration approach.



In this example, the beginning-point on the graph represents the current cost of on-premises IT. The horizontal grey dotted line represents the associated costs assuming the organization did nothing and continued with their on-premises IT model, holding growth constant, through year 5.

As migration begins, the green line represents on-premises IT costs. This line drops to 50% of total on-premises cost in year 3, and levels out beyond this point. The orange line represents AWS cost, which is incremental to on-premises IT costs.

The red line represents the cost of change, which refers to costs of migration tools, labor, training, costs of running dual environments, and costs associated with write-offs of existing undepreciated hardware, etc., over a defined period.

(continued on next page)

EXAMPLE: 5-YEAR FORECASTED TCO & MIGRATION COSTS (CONT.)

In this example, these costs extend across three years, but this timeline could be accelerated or lengthened depending on the complexity of the migration and financial factors.

The area where the migration costs exceed the on-premises costs in the earlier stages of migration is referred to as the “migration bubble” – and this is precisely what customers aim to avoid.

AWS has invested in programs like the [AWS Migration Acceleration Program](#) (MAP) to help customers reduce or eliminate the migration bubble, making a financially viable migration throughout each step of the journey.

The area between the do-nothing line, and the dropping AWS cost line, represents cumulative cost savings and business value gains realized through optimization once on AWS.

The shape of the migration cost curve and migration bubble makes a big difference in the total cost curve, because it is cumulative.

Dropping costs more sharply at the beginning and then tapering off toward the end illustrates why it is important to recognize early cost savings as much as possible.

■ Opportunities and Challenges to Exit On-Premises Costs

There are both opportunities and challenges associated with retiring technical debt.

Opportunities to exit costs may include a data center or colocation lease expiring, a costly refresh cycle, the need to restructure business continuity and disaster recovery capabilities, as well as legal or regulatory requirements involving changes to data management and processing.

Challenges often involve timing considerations, such as waiting to depreciate all the existing hardware until the end of the migration, or the inability to exit a portion of data center costs until specific applications are moved, meaning these would be fixed costs throughout the entire migration.

These practical challenges may be compounded by staff perceptions of the magnitude of change involved in migrating many legacy applications, and may involve fear of change.

THE CFO INFLUENCE ON TRADE-OFFS

Managing necessary trade-offs commonly relies on the IT organization to lead the decision-making process. These trade-offs can include such examples as how costs can be exited sufficiently, or how to properly weigh the benefits of adopting the latest technology versus the total expenditure to do so. Recognizing cloud migration as the corporate-wide business initiative that it is, requires both the CFO and CIO to reconcile competing interests and drive decisions toward the best business outcome.

■ Questions to Ask

A financial executive should understand what trade-offs they are making when presented with timelines and portfolio migration sequences, especially those that may impact financial targets.

IT terminology and system dependency discussions can obscure relevant business considerations. Business questions from CFOs can help clearly assess tradeoffs and risk.

Many IT departments have not conducted a migration before, and financial executives can help guide these teams to question their assumptions and meet financial timelines that will help them effectively exit costs.

Common questions that a CFO should ask include:

- **What do we have to move to exit some of our costs?**

If it does not make sense to move everything, how do we downsize our footprint so we're exiting a significant portion of those costs?

- **What are the options to downsize and relocate facilities?**

If we downsize 80%, there is no need to have the same size data center to manage only 20% of the infrastructure, which could be handled by downsizing to a colocation facility, and repurposing owned space.

- **Why will a specific portfolio set take longer than 18 months to migrate?**

In some cases, reaching out to partners can provide a broader perspective about how a proposed timeline could be reduced.

PART IV

The Impact Of Effective Cost And Risk Management

A significant part of the value customers gain with AWS is the ability to exit costs and update processes to be faster and less expensive.

■ **Although every organization** has its own unique blend of constraints, market pressures, culture, and politics, we consistently discuss a variety of topics with our customers.

Examining these topics provides insights on how to evaluate an organization's costs to move, clearly define the end state run-rate, and enact governance to create the right incentives and control costs.

OPERATING EXPENSE IMPACT

A common misconception is that operating in the cloud simply replaces hardware. However, purchasing compute or storage on AWS is much more than simply replacing a rack.

With an Amazon Elastic Compute Cloud (Amazon EC2) instance, for example, a customer has not only the compute capacity of a server, but also the power and cooling required to run it, the labor required to maintain it, the operating system, the facility and all of its associated costs.

Likewise, many customers ask the question:

Does moving to the cloud cause op-ex to rise?

When an organization migrates their IT environment to the AWS Cloud, AWS is not just replacing cap-ex, but also a significant amount of op-ex.

To accurately assess current costs, it is important to consider all current op-ex costs that go into managing the organization's IT infrastructure, including facilities, overhead, and non-capitalized maintenance.

Customers frequently find that capital expenditures comprise just a fraction, often only 20-30%, of their total IT infrastructure costs.

Overhead and maintenance, labor, taxes, and other costs add up considerably. For this reason, we often observe a decrease in both cap-ex and op-ex for customers who migrate to the AWS Cloud.

ROI IMPACT OF TIMING AND SEQUENCE

Generally, the faster an organization completes a migration, the higher the ROI, presuming the organization can exit costs around the same timeline.

For some, this means prioritizing IT portfolio component migration for high-cost savings.

For others, it means generating a quick win with significant overall business value, even if it is outside of the infrastructure cost.

The key for success lies in the ability to balance the technical and financial requirements so they are timed with the migration, and exit costs meet financial targets.

EXAMPLE

CASH FLOW IN A 1-YEAR MIGRATION

To illustrate the ROI impact of timing and sequence, consider cash flow in a one-year migration.

The financial requirement in this example is to assess costs in each quarter, and manage associated cash flow to keep metrics at an appropriate level throughout the one-year migration.

For example, if the goal is to reduce the cost impact of migration in Q1, the migration priority could be assigned first to applications where there is a significant cost-reduction, or a higher business value.

This could be accomplished by targeting those parts of the IT portfolio that have a low cost of migration, or parts of the portfolio that will have lower costs when run on AWS. This initiative may include the need to build new applications on AWS.

Sample comparison of migration cost:



CHANGE MANAGEMENT AND GOVERNANCE

The flexibility and scalability of cloud computing means that organizations need to manage change by reviewing and modifying their existing processes. This important step toward cloud adoption helps ensure that costs and risks are predictable and under control, while allowing governance to add the right incentives. AWS proactively supports customers in achieving both.

The ability to predict costs and leverage advantages in cloud computing is based on making changes to organizational processes.

For instance, an organization that uses the AWS Cloud for faster time-to-market in their expansion from the U.S. to Dublin needs to revise their planning practices.

This involves designing the timeline, milestones, and execution based on cloud computing capabilities.

There are many advantages to gain from migrating to the cloud, yet each opportunity requires that processes be revised across an entire organization to optimize impact.

[Cost Explorer](#) is a standard, integrated toolset available to AWS customers.

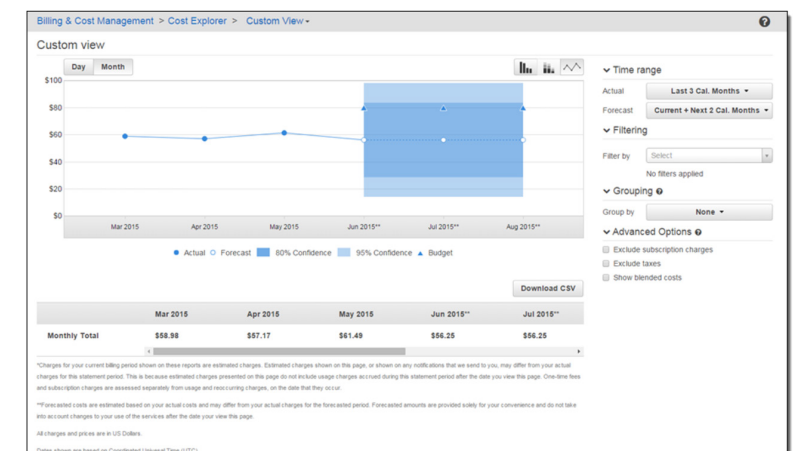
The toolset is simple to use and runs in a browser.

Designed for financial managers, customers can use Cost Explorer to visualize, understand, and manage AWS spending in their organization.

This provides pre-configured views and tailoring options, with capabilities to set and monitor budgets for the organization's AWS costs.

Email notifications can be triggered if actual costs exceed, or are forecast to exceed, budget costs.

Cost Explorer example:



Cost Explorer forecast, budget, and confidence level by month

CONCLUSION

Migrating an IT environment to AWS presents opportunities to reduce or eliminate costs, accelerate time to market, and drive additional revenue, freeing up resources to innovate and focus on core business.

Business and financial drivers such as global expansion and market conditions, as well as hardware upgrades and lease expiry, often serve as the basis to drive organizations to migration. Proactively managing IT migration from the financial perspective presents opportunities for CFOs to shed light on the true costs, limitations, and risks of being left behind with a fully on-premises environment.

Customer expectations and the need to remain competitive require the development of new skills, processes, and tools to be more responsive, agile, and innovative.

Moving to the AWS Cloud will help organizations foster a transformative environment and commitment to a modern operating model.

For more information, visit: <https://aws.amazon.com/enterprise>