



Cloud Optimizer: Improve visibility and optimize usage



The cloud is integral to business strategy

The pandemic has underscored the need for cloud as an indispensable component of enterprise business strategy in health care. COVID-19 monumentally accelerated the digital transformation agenda in health care, pushing health plans and providers deeper into cloud adoption.

Health care organizations are reassessing their IT infrastructure strategy due to market forces that include:

- Virtual care models
- Business resiliency
- Consumer engagement
- Competition from digitally native companies
- Overall cost management

Health care companies realize that cloud needs to be integral to their business and infrastructure strategy. Specifically, organizations are looking for ways to:

- Increase speed-to-market of new offerings
- Provide on-demand scalability
- Enable rapid experimentation
- Develop digitally native services
- Remain cost competitive

Before COVID-19, many early adopters of cloud in health care were stalled in their journey. They'd failed to realize the planned savings or were disenchanted by the unfulfilled promise of "lift and shift," which significantly fell short of expectations.



Am I **paying too much** to run applications in the cloud?

Is my cloud estate **running as efficiently** as it can?

Who are our **largest cloud consumers** within the organization and are they using cloud as efficiently as possible?

Can we **optimize the cloud spend** while moving more workloads to the cloud?

Cloud adoption savings are material

The vision

Optum also encountered these concerns on its journey for scaled cloud adoption. Today, “cloud first” has become the standard application development policy at Optum.

Like any large organization, Optum also had to learn, revise existing processes and adapt to support the transition to the cloud-first paradigm. Our approach rests on three critical enablers:

1. The right application in the right cloud model – all applications are not created equal for cloud deployment
2. Designing proper architecture and building applications with cloud-native engineering
3. Democratizing cloud utilization data with an unrelenting focus on transparent optimization

The Optum cloud team receives approximately 45 new applications for the development or migration to the public cloud every month. Our rigorous vetting process examines all aspects of application technology, architecture, security and usage patterns to determine the appropriate cloud model and associated services.

The cloud model could include a public cloud only or a hybrid cloud model. The services and architecture may include IaaS, PaaS, serverless and any other component that would increase resiliency, scalability and maintainability of the cloud estate at the optimal cost.

Some of the use cases with a deep and lasting impact on the total cost for the cloud and application resiliency include architectural characteristics such as:

- Reducing the number of Kubernetes clusters
- Using serverless in the place of containers
- Ephemeral non-production environments
- Managing lower-value cost drivers such as logging in non-production environments

However, optimizing cloud usage is a continuous monitoring and governance activity after applications enter production. And Optum® Cloud Optimizer can support that ongoing process.



The dashboard delivers complete end-to-end visibility into:

- How cloud services are provisioned
- Who is using them for what purposes
- Granular details surrounding cost



35%

more workload handled while keeping hosting and engineering cost flat

Introducing Optum Cloud Optimizer

The Optum Cloud Optimizer is a one-stop solution designed to manage, govern and optimize spend in the public cloud environment.

The Optum Cloud Optimizer democratizes cloud utilization and cost data. Collecting utilization data in five-minute intervals gathers fine-grained data to build fit-for-purpose cloud performance dashboards to proactively monitor and govern cloud utilization and cost.

Ultimately, the Optum Cloud Optimizer produces an aggregated viewpoint for organizations across the entire cloud estate. These include IT executives, architects and application leads who have fingertip access to all application details in their area.

Why Optum Cloud Optimizer?

The Optum cloud engineering team scanned the available products for cloud utilization monitoring and explored options available with the hyperscalers.

Optum did not find a product that could handle the complexities encountered when scaling up the cloud adoption. As a result, Optum decided to develop the Cloud Optimizer tool in close coordination with cloud hyperscalers. The tool includes AI-based optimization routines for 50 cloud services and is continuously enriched and enhanced with additional optimization algorithms.

Dashboard for the present and future

Cloud Optimizer shows what you're spending on cloud today and uncovers opportunities to right-size cloud usage for the long-term.

The detailed metrics bring light to underutilized cloud environments. The data provides a list of all cloud environments that have not been accessed in the past week, month and year. Let's say a developer spun up an AWS (Amazon Web Services) instance to build a web application and later took another job outside of your company. If they didn't de-provision the account and instance, you're left paying a bill for something that's not being used.

Cloud Optimizer can serve as the centralized dashboard for executives to stay on top of trends across environments. We can monitor when your users tend to access specific environments to gain insight. For example, the tool may find a cloud environment is typically accessed between the hours of 0600 and 1800 on core business days, but the environment is running 24/7. In this case, the Cloud Optimizer tool will make an informed recommendation to update the usage policy for those environments.

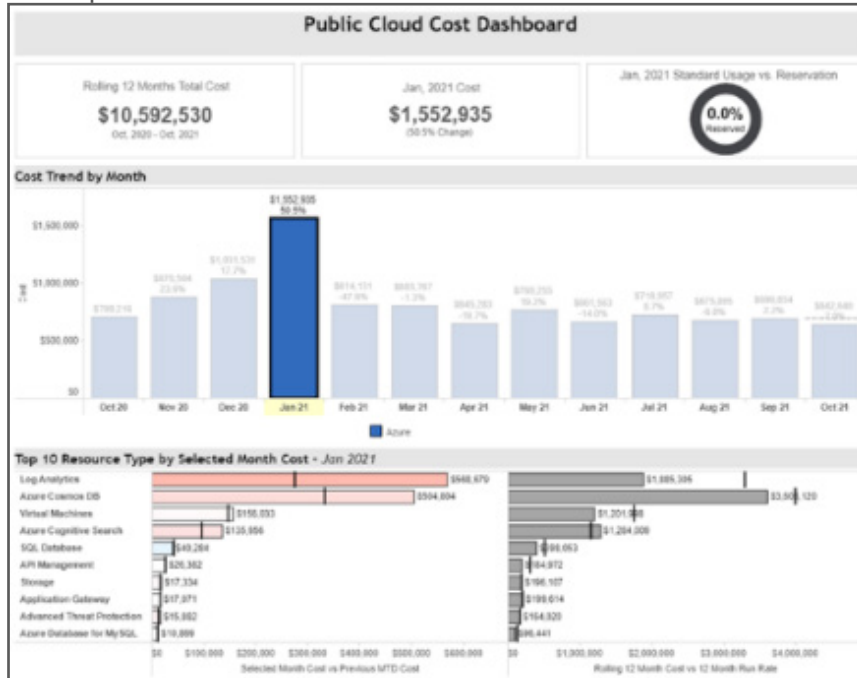
It would be your choice to accept and implement recommendations. Once we understand your current cloud footprint and consumption levels, the cost savings from implementing Optum Cloud Optimizer are significant.

Our experience shows that when managed correctly, cloud costs decrease year over year for the same application and workload.

Case example #1

One of our business lines is running a large central data API capability in Microsoft Azure.

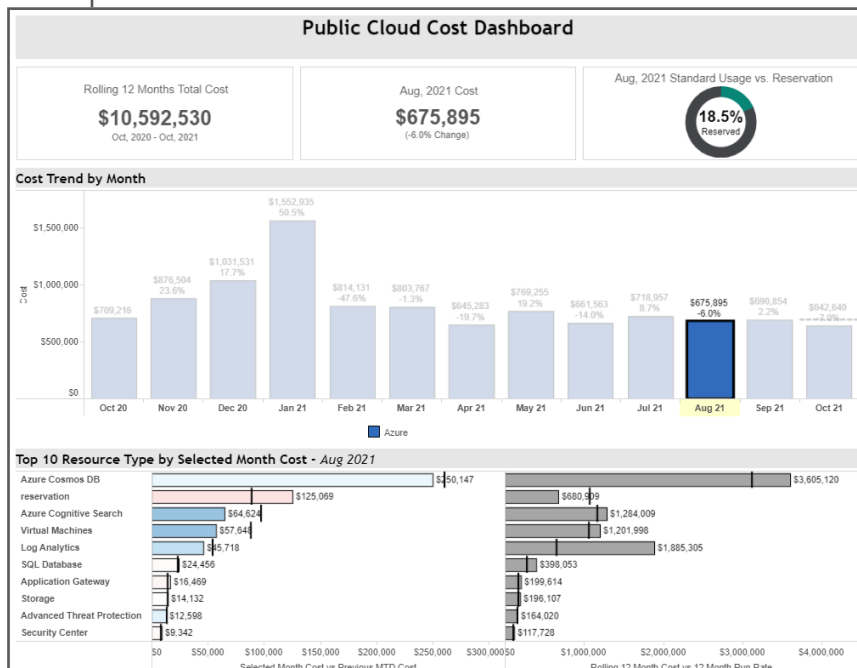
January 2021: Public cloud cost for the application



Insights from the Cloud Optimizer tool helped the team ascertain three major opportunities:

- Incorrect usage of cloud services like Log Analytics
- Optimize Azure Cosmos database for bursts
- Establish ephemeral non-production environments and turn things off over weekends and non-work hours

August 2021



56%

Monthly cost reduction

Digital transformation results:

The Cloud Optimizer reduced monthly costs by 56% from \$1.55M to \$676K

Case example #2

We operate a very large data lake in AWS.

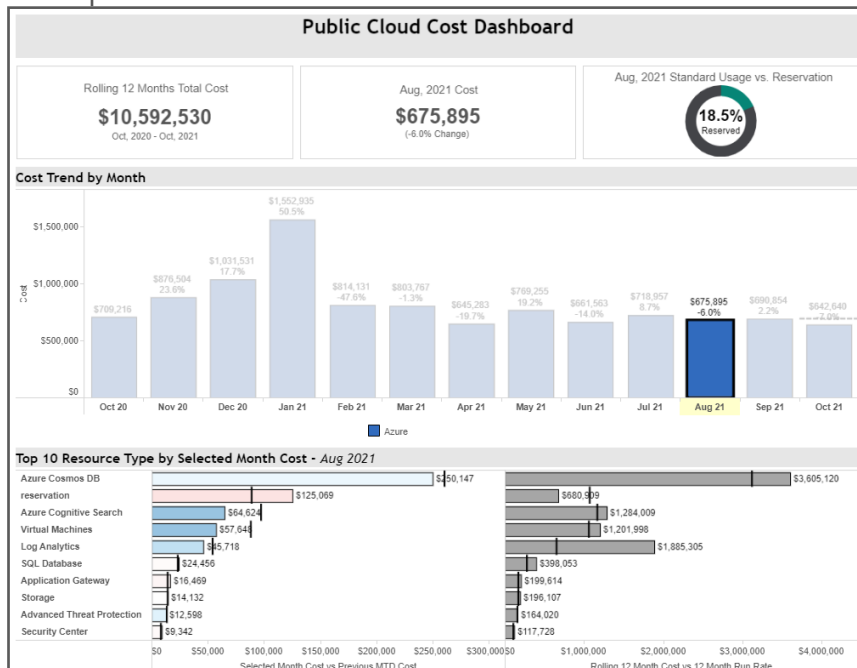
December 2020: Public cloud cost for the application



The Cloud Optimizer tool highlighted three critical areas for improvement:

- Right-sizing opportunities with EC2
- New DevOps tooling to auto-scale and manage Amazon Kinesis
- Identified and optimized overly partitioned data workflow

July 2020



70%

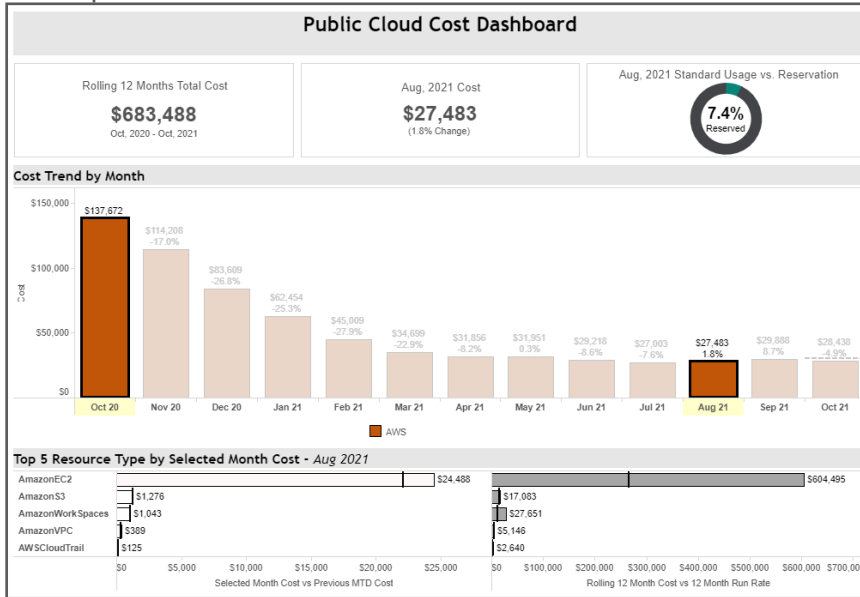
Monthly cost reduction

Cloud data modernization results: Reduce the monthly run rate from \$386K to \$112K – a savings of 70%

Case example #3

Our parent company had acquired a small business with an existing small legacy footprint in AWS.

●●● **October 2021 and August 2021:** Public cloud cost for the application



Based on the Cloud Optimizer tool's recommendation, the following changes were made in the application:

- Right-sized EC2
- Identified non-life-cycled backup process creating huge disk costs
- Identified and optimized overly partitioned data workflow



80%

Monthly cost reduction

M&A integration results:

Reduce the monthly run rate from \$137K to \$27K – a savings of 80%

We know cloud

Optum® Advisory Services can help your organization accelerate and optimize your cloud adoption journey.

We have the people, processes and technology to support your cloud journey – from strategic planning to cloud migration and optimization of cloud utilization after launch. Optum is the “cloud service provider“ of Microsoft Azure and runs one of the largest health care clouds. We have the maturity of experience required to run at enterprise scale.

While many organizations offer cloud migration and management services, Optum differentiates by sharing our tried and tested experience from our own cloud implementations, for the benefit of our clients.

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