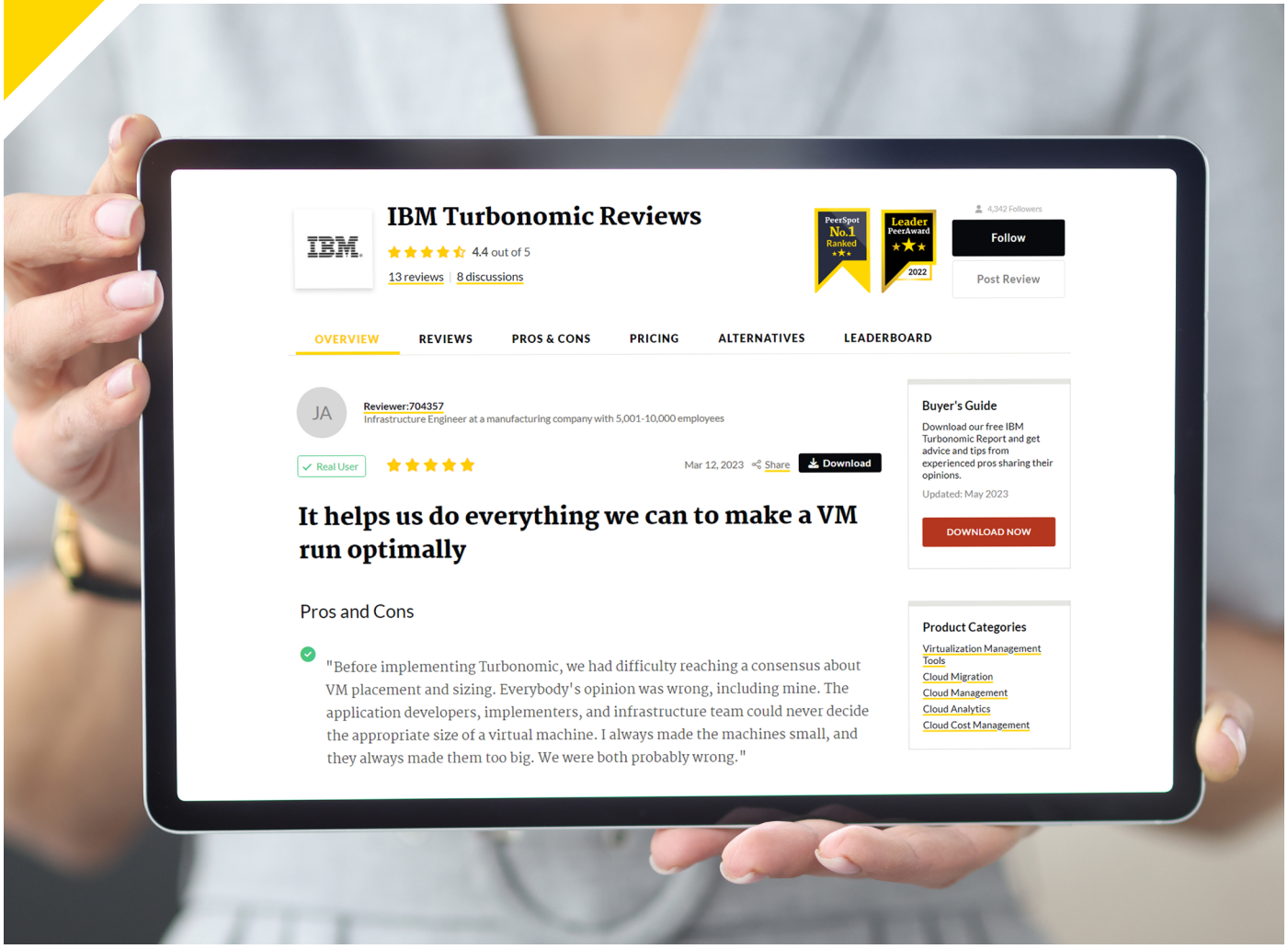
PeerPaper™ Report 2023

Based on real user reviews of IBM Turbonomic

Best Practices for Choosing a Cloud Optimization Solution



PeerSpot

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Introduction

One of the greatest lessons of the cloud era is that the economic advantages of the cloud come to those who make them happen. The cloud on its own does not deliver improvements in application performance or financial payoffs. In fact, the opposite can be true if cloud managers are not diligent. The problem is that manual processes for managing cloud complexity are impossible to perform at scale.

Automation is required to effectively guide cloud optimization processes. An emerging breed of AI-driven cloud optimization solution now offers such a capability. In this paper, PeerSpot members who use Turbonomic weigh in on best practices for selecting such a cloud optimization solution. In their view, the right solution will be one that puts the performance of the application first, leverages automation, supports Kubernetes, and increases IT productivity. A cloud automation solution should also help stakeholders from different areas of a business to come together to determine the best way to manage cloud costs, a discipline known as FinOps—derived from blending Finance and DevOps principles into one integrated practice.

Cloud Optimization Challenges

Optimizing cloud infrastructure requires a multi-faceted approach. Cloud managers have to stay on top of the complete application stack and make sure that each application is getting the compute, storage, and network resources it needs to perform as expected.

Optimization therefore relies on visibility, as well as an understanding of how cloud resources are related to one another. Dependencies between resources can make it challenging to provision applications so they get the resources they need to perform continuously.



Todd W.
Principal Engineer at a insurance company with 10,001+ employees

"It has automated a lot of things. We have saved 30 to 35 percent in human resource time and cost, which is pretty substantial. We don't have a big workforce here, so we have to use all the automation we can get."

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Supporting FinOps

FinOps is an evolving cloud cost optimization practice. Its goal is to address cloud waste using scientific processes. However FinOps is as much about culture as it is about finance or technology. According to the FinOps Foundation, "It's the way for teams to manage their cloud costs, where everyone takes ownership of their cloud usage supported by a central best-practices group. Cross-functional teams, including Engineering, Finance and Product, work together to enable faster product delivery, while at the same time gaining more financial control and predictability."

An ICT Infrastructure Team Cloud Engineer at a Japanese mining and metals company with over 10,000 employees shared how his team uses IBM Turbonomic for this purpose. He said, "We primarily use it as a cost reduction tool regarding our cloud spend in [Microsoft] Azure to identify opportunities where we can optimize our environments from a cost perspective, leveraging the utilization metrics to validate resources are right-sized correctly to avoid overprovisioning of public cloud workloads."

Best Practices for Selecting a Cloud Optimization Solution

Cloud optimization solutions enable cloud infrastructure managers to handle monitoring and resource management challenges. What makes for a good solution? According to PeerSpot members, the best practices for selecting a cloud optimization solution include looking for a solution that offers a focus on applications, along with continuous analysis of the full application stack. The solution must have strong automation capabilities, as well as support for Kubernetes and the ability to drive improvements in team productivity. Cloud cost reduction and FinOps support should be an ongoing goal facilitated by the solution.

Application Focus

Cloud applications are at the heart of cloud optimization, so a solution must provide infrastructure managers with metrics that directly correlate with application performance, utilization, and more. An Advisory System Engineer at an insurance company with over 1,000 employees spoke to this need, sharing that his team uses Turbonomic to show application metrics and estimate the impact of taking a suggested action. Figure 1 shows what this looks like.

Cloud Optimization

The Japanese mining company's ICT Infrastructure Team Cloud Engineer also commented on the value of application metrics. He said, "It shows you what that impact is from the financial aspect in a public cloud offering. So, it will show you if that action will end up costing you more money or saving you money. Then, it also will show you what that action will look like from a performance and resource utilization perspective. It will tell you, 'If you make the change, what that resource utilization consumption will look like from a percentage perspective, if you will be consuming more or less resources, and if you're going to have enough resource overhead for performance spikes.'"

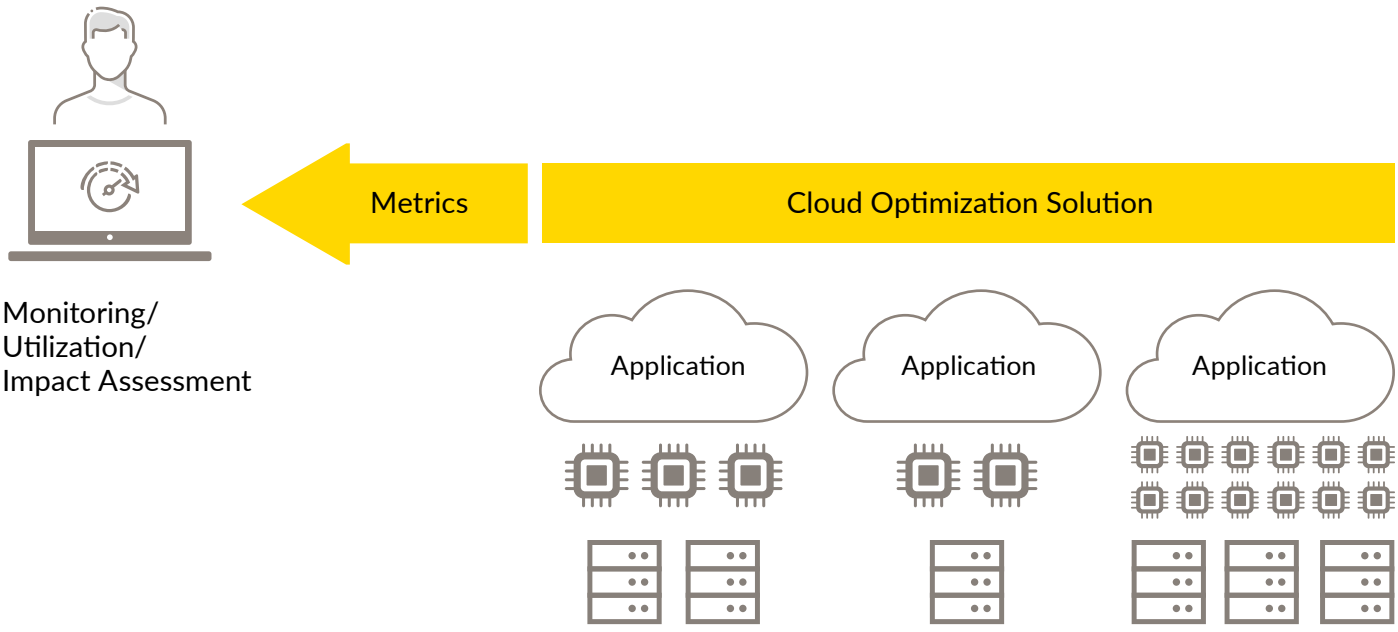


Figure 1 - A cloud optimization solution generates metrics that show resource utilization in cloud applications, enabling assessments of the impact of changing resource allocations.

According to this user, IBM Turbonomic identifies areas within their public cloud where they have storage that is not being used. He said IBM Turbonomic "provided us with insight into what that unused storage was so we could delete the unused storage and save on the recurring consumption cost."

This user then added, "It will give you the ability to forecast, but the utilization consumption's going to be in the future term. So, you can kind of gauge whether the action that you're taking now, e.g., how it's going to look and work for you in the long-term."

A Systems Engineer at a government agency with over 200 employees shared, "I saw improvements in application response times when I used it regularly to look at performance gains. We achieved an improvement of around 20 percent in heavy application performance by right-sizing VMs [virtual machines] and ensuring resources were appropriately assigned. We could see what consumed more IOPS and put it on the appropriate lens, where memory was not assigned properly. We could increase memory utilization or CPU."

A manufacturing company with more than 5,000 employees lets its external users consume applications as much as they want to get their work done. According to their Infrastructure Engineer, they transitioned to virtualization to get the benefits of fault tolerance and high availability because they used clustering. He said, "Now, instead of having available or unavailable applications, we have applications that perform better or worse. IBM Turbonomic helped us avoid having applications that slow down because we virtualized." IBM Turbonomic provides visibility into their application layer and underlying infrastructure.



Systems Engineer
at a government with
201-500 employees

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Matthew K.
Ict Infrastructure Team Cloud Engineer at a mining and metals company with 10,001+ employees

"Optimizing application performance is a continuous process that is beyond human scale. We see tremendous value in Turbonomic to help us close that gap as much as possible within our organization."

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Continuous Analysis

To be effective, a cloud optimization solution must analyze cloud resources and activities continuously. After all, the interplay between components of cloud infrastructure is ever-changing. As the insurance company AVP Global Hosting Operations put it, "In our organization, optimizing application performance is a continuous process that is beyond human scale. We would not be able to do the number of actions that Turbonomic takes on a daily, weekly, and monthly basis. It is humanly impossible with the little micro adjustments that it can make."

The Japanese mining company's ICT Infrastructure Team Cloud Engineer echoed this sentiment, saying, "In our organization, optimizing application performance is a continuous process that is beyond human scale. We see tremendous value in Turbonomic to help us close that gap as much as possible within our organization." A Principal Engineer at an insurance company with over 10,000 employees stated, "We use the solution's automation mode to continuously assure application performance by having the software manage resources in real-time."

Automation Capabilities

Monitoring and impact estimation are simply the beginning of cloud optimization. The solution must also help infrastructure managers make changes to resources, ideally through automation. Figure 2 captures the essence of this capability. As earlier reviews revealed, optimization is a process that goes beyond human capabilities. To this point, the insurance company Principal Engineer said, "Turbonomic has definitely helped to save human resource time and cost involved in monitoring and optimizing our estate. It has automated a lot of things. We have saved 30 to 35 percent in human resource time and cost, which is pretty substantial. We don't have a big workforce here, so we have to use all the automation we can get."

Automation

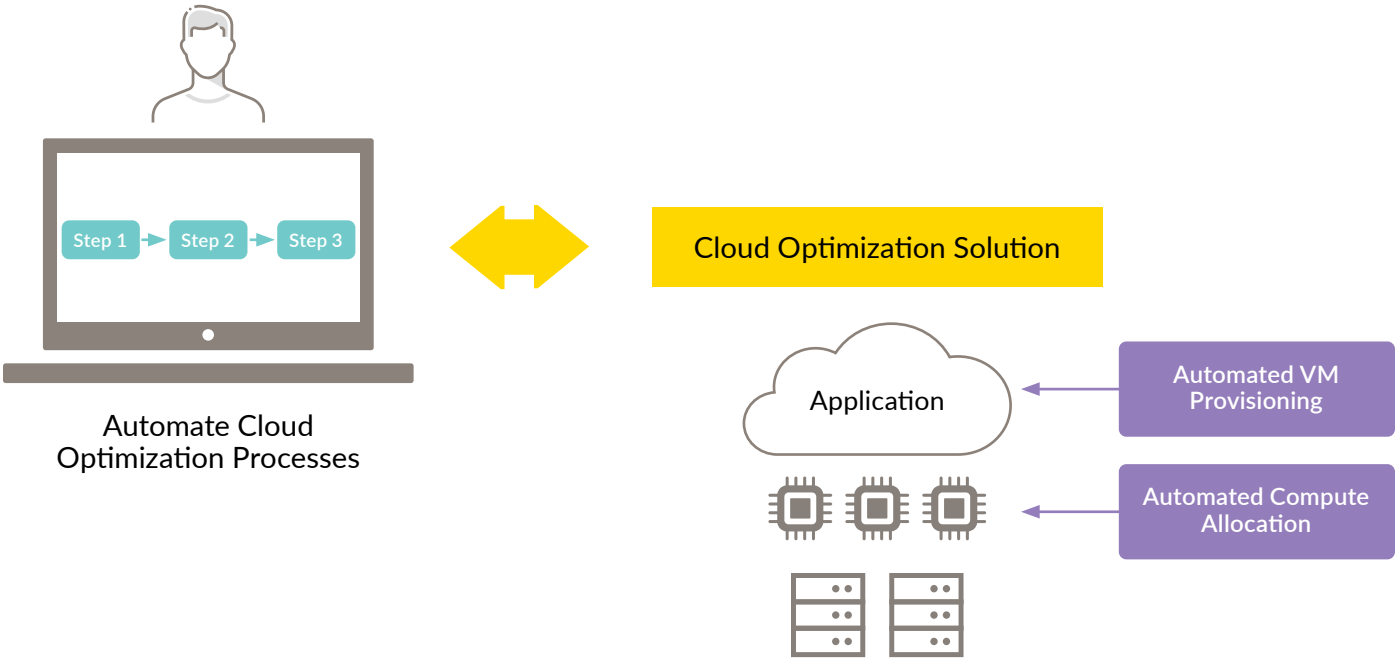


Figure 2 - A cloud optimization solution should enable automation of processes that change compute, memory, and storage in cloud applications.



Server Administrator
at a logistics company with
1,001-5,000 employees

"Turbonomic ensures we size the Azure instance correctly because we need to choose from a list of 10,000 sizes. We'll pay too much if we get the sizing wrong."

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"We have also discovered that Turbonomic can automatically suspend virtual machines that were on a schedule," commented a Server Administrator at a logistics company with over 1,000 employees. "For example, in the afternoons and the evenings when a VM wasn't going to be used, it could just be shut down, so that we wouldn't be charged eight to 10 hours of compute time, per machine, that wasn't going to be used at all during that time. That's been pretty useful."

The manufacturing company's Infrastructure Engineer praised IBM Turbonomic for its automation capabilities. He shared, "We have four hosts and 250 VMs, so we automated Turbonomic to load balance across multiple hosts and achieve the most efficient usage of resources. The objective is to make the machines run as well as they can."

He went on to offer a second use case, which involves sizing recommendations, "which we treat as gospel," as he put it. A third use case was replicating VMs into Azure using Zerto. He explained, "Turbonomic ensures we size the Azure instance correctly because we need to choose from a list of 10,000 sizes. We'll pay too much if we get the sizing wrong. It helps us do everything we can to make a VM run optimally in an automated fashion. It's essential to have an automated solution for handling placement and sizing."

Kubernetes Support

Cloud native applications are often built using containers, especially with the popular Kubernetes container orchestration system. For this reason, seeking a cloud optimization solution with Kubernetes support is a best practice. The Senior Cloud Engineer at O.C. Tanner put it this way: "Kubernetes integration is excellent. Turbonomic helps us right-size deployments and replica sets. They've come a long way since I started here. I've been working with the team that uses Kubernetes or develops the Kubernetes integration, and it's been fantastic."

This user went on to say, "We use it for right-sizing VMs in AWS [Amazon Web Services]. We're using it to improve performance efficiency in our Kubernetes containers and make sure the requests are in line with what they should be. If an application has way more memory allocated than it needs, Turbonomic helps us decide to scale that back." An Infrastructure Manager at an insurance company with more than 500 employees added, "One other useful feature in Turbonomic is the support for Kubernetes. Our developers are pushing hard for Kubernetes for containers this year. Knowing that it's supporting that is awesome."



Sam B.
Senior Cloud Engineer
at O.C. Tanner Co.

"Kubernetes integration is excellent. Turbonomic helps us right-size deployments and replica sets."

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Kubernetes Integration



Chris B.
Sr System Engineer at
Liquidity Services

"We used to have around 46 admins who could create virtual machines in Azure, and it was very difficult to manage them. It became exceedingly expensive, getting to a point where it received attention from the president of the company. Installing Turbonomic gave us sort of a governor over our cloud environment."

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Time Savings

Productivity and Organizational Impact

Ultimately, cloud optimization is not just about cloud technology. It's also about people and teams, both of which are limited resources in all IT departments. A best practice, therefore, is to seek a cloud optimization solution that contributes to greater productivity and benefits the organization overall. In this context, the Japanese mining company's ICT Infrastructure Team Cloud Engineer said, "The amount of tickets that we have had come in for performance issues has amounted to almost nothing in the calendar year. I don't know what we had before, but now in a calendar year, it is less than 10 to 12 tickets a year for a performance issue."

"If you just figure each action could take anywhere very conservatively from five to 10 minutes to act upon," said the insurance company AVP Global Hosting Operations. "Then, you multiply that out by thousands of actions every month, it is easily something where you could say, 'I am saving a couple of FTEs.'"

A Sr. System Engineer at Liquidity Services, a logistics company with over 1,000 employees, declared, "It helped reshape the organization. We used to have around 46 admins who could create virtual machines in Azure, and it was very difficult to manage them. It became exceedingly expensive, getting to a point where it received attention from the president of the company. Installing Turbonomic gave us sort of a governor over our cloud environment, where people started to really understand that everything you do has a cost. Now, we have like four or five admins."

Reductions in Cloud Costs and Supporting FinOps

A final best practice relates to cloud cost reduction and FinOps. Cloud optimization shouldn't necessarily involve cutting costs. A solution needs to enable this outcome. The insurance company Principal Engineer put the matter in perspective, commenting, "As money starts to get tight and budgets start to get really scrutinized, I think people are going to have to start looking at using Turbonomic to help optimize cloud operations to reduce cloud costs." Turbonomic makes this possible by automatically discovering any existing Reserved Instance (RI) or Saving Plan purchases, using this information in its automation engine to ensure that clients are always using those commitments as efficiently as possible—as opposed to using on-demand instances which cost more.

The Japanese mining company's ICT Infrastructure Team Cloud Engineer spoke to the ethos of FinOps when he said, "We primarily use it as a cost reduction tool regarding our cloud spend in Azure to identify opportunities where we can optimize our environments from a cost perspective, leveraging the utilization metrics to validate that resources are right-sized correctly to avoid overprovisioning of public cloud workloads."

Cost Savings



Matthew K.
Ict Infrastructure Team Cloud Engineer at a mining and metals company with 10,001+ employees

"We primarily use it as a cost reduction tool regarding our cloud spend in Azure to identify opportunities where we can optimize our environments from a cost perspective, leveraging the utilization metrics to validate that resources are right-sized correctly to avoid overprovisioning of public cloud workloads."

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Further to the idea of FinOps, this user went on to say, "We are able to have these internal discussions within the business based on the data that Turbonomic is providing. We are able to go back to the business and have a discussion with them based on the utilization of that VM over the course of a period of time for the data that we have, then have the justification and communication with the business to say, 'Yeah, it doesn't make sense to have this workload in the environment anymore. Let's delete it.' or, 'Yeah, it's something that isn't used at all. Let's go ahead and delete it.'" IBM Turbonomic has helped his company reduce their cloud costs by $94,000 in the last year.

At Liquidity Services, Turbonomic has helped optimize cloud operations and reduced their cloud costs significantly, according to their Sr. System Engineer. He quantified the benefit, saying, "Overall, we are at about 40 percent savings, and we spend about three million a year just in Azure."

In his case, savings came from reducing the size of the VMs and putting them into the right template for usage. He added, “People don’t realize that you don’t have to future-proof a virtual machine in Azure. You just need to build it for today. As the business or service grows, you can scale up or out. About 90 percent of all the costs that we’ve reduced has been from sizing machines appropriately.”

Other PeerSpot members were able to quantify their savings, as well. The insurance company Infrastructure Manager said, “When it comes to cloud costs, to VMs, the solution is saving us about $30,000 a month. It has also definitely reduced our IT-related expenditures by about $40,000 per month. And when it comes to the human resource time involved in monitoring and optimizing our estate, it saves us about 20 hours a week.”

Conclusion

The right cloud optimization solution will be one that lets cloud infrastructure managers ensure that each application is getting the resources it needs. The best practice is to work with a solution that provides visibility into application performance on a continuous basis. Automation is a “must have” function, as manual processes are deficient when it comes to optimizing cloud infrastructure. A further best practice is to select a solution that supports Kubernetes, given its pervasiveness in the cloud world. And, the solution needs to facilitate FinOps, enabling agreement amongst stakeholders about cuts in cloud costs and improvements in team productivity. As these qualities come together in a solution, according to PeerSpot members, it becomes possible to achieve effective optimization in the cloud.

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About IBM Turbonomic

IBM Turbonomic hybrid cloud cost optimization helps clients get maximum business value for every dollar invested in public, private, hybrid and multicloud. It is the only cost optimization that can transform cloud and IT operations because it can be automated without compromising performance and operationalized for continuous and lasting results. With Turbonomic, software (not people) makes app-aware cost optimization decisions that account for resource needs and dependencies across the full stack—app to platform to hardware, enabling IT leaders who want cost optimization that expedites elastic cloud model and "zero-touch" operations.

For more information, visit ibm.com/products/turbonomic