

Leveraging Azure And AWS Advisor Scores for Improved Cloud Governance and Cost Management

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Abstract:

Cloud governance and cost management become major concerns when shifting to cloud environments [Figure 1] Because cloud resources are dynamic, frameworks for evaluation and optimization that need the least amount of financial outlay are required. In this sense, cloud resource management has been made easier by built-in tools like Advisor scores, which present a list of recommendations for improved usage, on platforms like AWS and Azure. The finest practices in the areas of security, performance, dependability, and cost efficiency are highlighted by these scores. Furthermore, if a company utilizes these ratings consistently, it can discover opportunities for significant cost savings in addition to improving governance, policy, and regulatory compliance. This paper explores how Azure and AWS Advisor ratings may be used as useful tools to improve cloud governance and simplify cost management. By doing this, it aims to offer a critical perspective on how these technologies could change how organizations optimize their use of cloud resources. These ratings, when combined with governance frameworks, will encourage enterprises to manage cloud resources more proactively and methodically [12]. The organization will maintain compliance with industry standards thanks to this systematic examination, which will lead to unmatched security and dependability as well as cost control. Eventually, the company will be able to safely use AWS and Azure advisor scores to optimize cloud operations, maintaining the cloud's reliability, security, and efficiency while keeping it in line with strategic goals

Key words: Serverless Computing, Function as a Service (FaaS), Event-driven Architecture, Serverless Architecture, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Cold Start Latency, Serverless AI Applications, Scalability, Serverless Framework.

1. Introduction

Organizations need to implement comprehensive cloud governance to securely and effectively manage their cloud environments. Utilizing Azure and AWS advisor scores will, in most cases, aid in the implementation of effective cloud governance and offer useful information that will make it easier for enterprises to take the necessary action. Azure Advisor and AWS Trusted Advisor aids the company with cloud resources optimization by delivering best practice advice in different areas like cost optimization, security, performance operational, among many more [8]. These technologies assess cloud environments on a regular basis and provide ratings based on how closely they follow to best practices, allowing a company to see areas for improvement and implement remedial measures. Advisor scores are calculated by comparing the Azure resources' optimization posture to the best practices that are described in the

Azure Well-Architected Framework.



Figure 1: Components of a Cloud Governance Framework [3].

The five pillars of the framework are operational excellence, cost optimization, performance efficiency, security, and dependability. A company may improve overall governance by keeping an eye on these posture scores and making sure that any Azure installations it does comply with industry standards and best practices. In a similar vein, AWS Trusted Advisor offers suggestions accompanied by a comprehensive series of audits to maximize an enterprise's AWS setup and AWS Control Tower [Figure 2]. Crucial elements such as fault tolerance, cost control, security, and service limitations would all be subject to checks. These scores highlight potential issues as well as rank possible courses of action according to their practicality and impact. This methodical methodology guarantees ongoing security, optimization, and alignment of the cloud environment with business objectives for enhanced cloud governance and operational effectiveness.

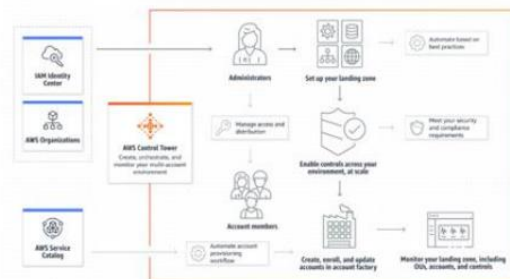


Figure 2: AWS Control Tower [3].

2. Scope

This study focuses on how utilizing the scores of Azure and AWS Advisors influences cloud governance and cost management. This includes in-depth scrutiny on how Azure Advisor and AWS Trusted Advisor provide actionable insights and expert recommendations through Cloud Environments to optimize them. Such research will be based on the establishment of mechanisms that are aimed at increasing effectiveness in terms of security, performance, operational excellence, and cost-efficient means.

The major objectives are to confirm compliance with best practices, pinpoint areas for improvement, and eventually assess the outcomes of implementing the advisors' own recommendations. Comparison of the performance of the company with and without the usage of these technologies on a number of metrics, such as cost savings, security incidents, and other improvements. Data will be gathered through surveys, interviews, and case studies from companies across a range of industries.

The goal of this study is to show how businesses may accomplish secure, economical, and productive cloud operations by incorporating the Advisor scores of AWS and Azure into cloud governance frameworks. The study's findings will be very helpful in assisting IT managers and decision makers in comprehending the reasoning for the use of these tools in order to improve cloud governance

and cost management, which will lead to improved resource utilization and increased organizational performance.

3. Problem Statement

Azure and advisor are cloud computing platforms that foster innovation and scale business operations. However, the management and optimization of such a complex cloud environment is not devoid of challenges. AWS advisor scores are services that analyze the cloud for better recommendations in improving the cloud environment.

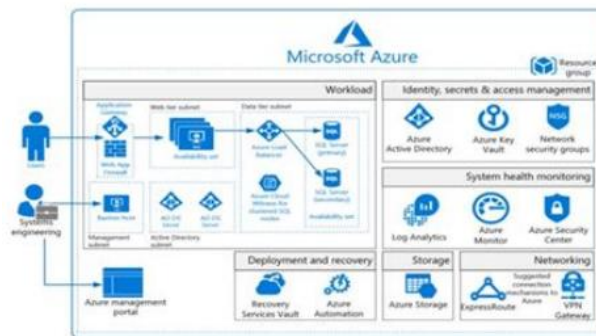


Figure 3: Sample Azure Blueprint [3].

Companies sometimes struggle to control the prices of their AWS and Azure advisors [12]. With over thirty percent of cloud capabilities going unused, businesses are struggling with a problem some have dubbed "cloud waste." particularly established businesses undergoing cloud transition, which cannot be compared to start-ups or new businesses starting from zero [9]. AWS advisor and Azure are not effectively used by businesses because cloud governance regulations are absent. That is, failing to implement appropriate rules, such as cost management and access controls, which are essential for carrying out a cloud plan. A further difficulty is making a bad choice of pricing strategy. Put another way, choosing a pricey subscription and not using the services included in it is known as "cloud waste" [1]. Certain firms keep redundant, out-of-date databases and antiquated systems that aren't in operation. The final difficulty is a lack of adaptability. Certain clients want to transfer their current infrastructure in its entirety to the cloud, which results in extra expenses. For example, in the absence of a partner, they are unsure of the services available, potential sources of advantages, and more, such as which pricing plans would be more appropriate.

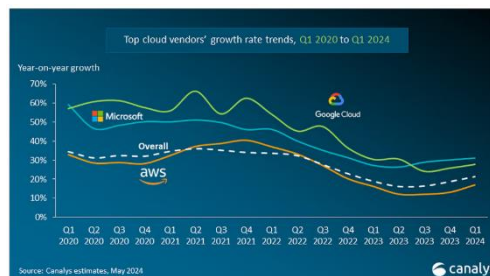


Figure 5: AWS vs. Azure: Market Share [4].

Both Azure and AWS advisor scores provide best-practice recommendations for workloads. These suggestions are tailored and practical to assist businesses in optimizing Azure deployments and easing burden situations. Second, by adhering to best practices, they assist the business in proactively avoiding the most frequent difficulties. One of Advisor's primary features, Advisor score, may assist businesses in meeting these needs extremely successfully and economically. Essentially, one must be aware of one's

current workload optimization stage in order to fully benefit from Azure. Businesses need to understand which resources or services are being used effectively. In order to optimize the result, they also need to know how to rank the order of actions according to suggestions. Monitoring and reporting on the many actions made during this optimization journey is equally crucial. With the new gamification experience, all of these are simply accomplished through the Advisor score.

4. Literature Review

Azure and AWS advisor score, as a customized cloud architecture, assists in tracking resource settings and use data to identify consistent departures from recommended practices [7]. The findings of the examination are then added together to get a single score. Because this is a score, the company will be able to ascertain immediately whether or not they are making the right steps toward creating trustworthy, secure, and reasonably priced products. The total score and detailed information about each of the five category scores make up the score [Figure 6]. Each of the five categories of Advisor scores uniquely represents one factor. Companies may see both the category score and the overall score, which helps them track their development over time by showing trends on a daily, weekly, and monthly basis. In order to help achieve business goals, they might also set benchmarks.



Figure 6: The AWS five category scores [5].

Advisor and Azure subscription component [Figure 7] the advisor's total score as well as a breakdown of the advisor's areas shown in percentages. When a resource has a perfect score in any area, it indicates that the advisor's best practice suggestions are followed by every resource that was evaluated. Conversely, a score of 0% indicates that none of the resources evaluated by the advisor take its advice into consideration. Seamlessly employing these granular ratings allows the organization to perform the following. When determining the baseline performance of an organization's workload or subscription, the score plays a crucial role in setting priorities. The organization can also study past trends. Category grading for each tip helps comprehend which of these fantastic recommendations is going to most considerably boost the score. This illustrates the weight of a suggestion as well as how simple it should be to execute. These elements support ensuring that the business can maximize value throughout time. They support prioritizing as well.

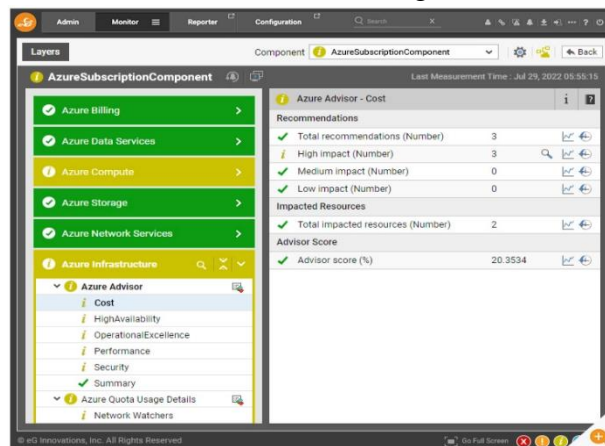


Figure 7: Azure subscription component [7].

The organization may prioritize the remediation actions by category thanks to the category score impact for each recommendation. Users may improve each category score by the percentage point in the Potential score increase column by visiting the Advisor score page in the Azure portal, which clearly displays how much each suggestion adds to the category score. This number indicates the recommendation's weight within the category as well as the task's expected level of implementation simplicity [6]. Thus helps the company move forward as quickly as possible by concentrating efforts on the recommendations that have the greatest impact on the score. The administration has the option to delay or reject Advisor recommendations that do not apply to a specific resource. These recommendations are not included in the score calculation starting with the next refresh.

The score displays the overall score in percent as well as the category scores. When a resource receives a 100% in any category, it indicates that the advisor has evaluated it and that it adheres to the best practices [1]. Conversely, a score of 0% indicates that, in the opinion of the advisor, none of the resources adhere to their suggestions. The maximum score for each category is 100. The sum of the scores for each available category divided by the total of the maximum possible score from all eligible categories yields the overall score. In most cases, this entails totaling the five Advisor ratings for every category and dividing the result by 500 [13]. But the scores for each area are only determined when the business makes use of an advisor-assessed resource. The average of the combined category ratings determines the overall score in the event that several subscriptions are chosen. A subscription's individual score and subscription-based consumption weight are used to generate each category's score. The final score is calculated by dividing the sum of the overall highest possible scores by the total aggregated category scores.

- Single subscription score: This example is the simple mean of all Advisor category scores for your subscription. If the Advisor category scores are Cost = 73, Reliability = 85, Operational excellence = 77, and Performance = 100, the Advisor score would be $(73 + 85 + 77 + 100)/(4 \times 100) = 0.84$ or 84%.

Figure 7: Advisor score calculation example [1].

Effective cloud governance requires an organization to correctly and securely manage its cloud environments. These useful tips and insights might help with cloud governance using the Azure and AWS advisor scores. AWS Trusted Advisor and Azure Advisor recommend best practices in a number of areas, including as performance, security, cost effectiveness, and operational excellence. These systems have been continuously monitoring cloud environments and rating them according to how effectively they follow best practices. This has aided businesses in determining where they need to improve and what to do next.

5. Solution

Azure and AWS advisor scores gives information about how well workloads adhere to best practices and ranks the suggestions based on how much they will affect deployment optimization. “It gathers data from a variety of Azure services, including Azure App Service, Azure Cost Management, Azure SQL DB Advisor, and Azure Security Center” [2, para. 4]. As a focal point, the scores compile, evaluate, and summarize the best suggestions—those that are most important for improving the Azure infrastructure. Microsoft Azure Advisor [Figure 8] provides a 'centralized dashboard' that monitors and contrasts progress with ideal attainment. The score only shows how closely Azure deployments follow the advice provided by the service. It is a metric that represents the overall health and compliance of the organizational environment as compared to with industry standards. Companies should follow Azure Advisor's recommendations immediately, but they can also ignore or postpone them. Nonetheless, the Advisor may

be set up to target resource groups and subscriptions to get suggestions.

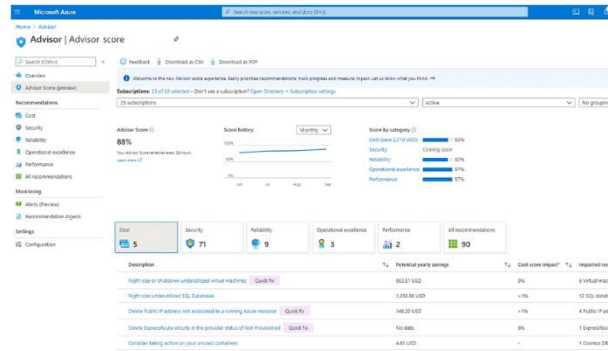


Figure 8: Microsoft Azure [2].

Scores will be very important for cloud governance and cost control on both Azure and AWS. By incorporating the scores into governance frameworks, organizations may utilize the scores proactively to find and address issues and make the most effective use of resources while maintaining security when utilizing cloud services. Advisor recommendations [Figure 9] and AWS best practices are two examples of industry standards and frameworks that these advisor scores aid in establishing compliance with. It offers for the systematic assessment of cloud installations for their robustness, security, and cost management, ultimately leading to enhanced overall governance. Organizations may prioritize activities based on their effect and simplicity of execution, track their progress over time, and establish benchmarks. It also enables enterprises to create a culture of operational excellence and continuous development by consistently monitoring the suggestions from the Azure and AWS advisor score. This will guarantee a strong, safe, and compliant.

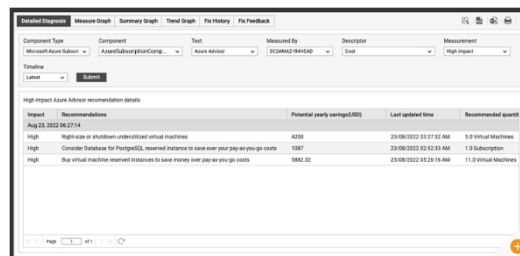


Figure 9: Advisor recommendations [7].

6. Impact

With the organized approach to application reliability improvement provided by Azure and AWS advisor ratings, organizations can be sure that their services will remain up and running [14]. Personalized suggestions are displayed on the Advisor dashboard under the Reliability tab. To evaluate the resilience of the apps, companies must plan for possible risks and identify areas for improvement [2]. The Azure Reliability Workbook will guide practitioners through a series of filters to scope suggestions to certain environments or apps, including Subscription, Resource Group, and Tags. When delving deeper into Azure service best practices, they may choose to display service SLAs or get useful advice on how to make deployments more reliable.

Azure resource security becomes more efficient with the support of AWS and Azure advisor ratings. They monitoring the whole life-cycle [Figure 10]. This fully explains the adage "offense is the best defense." It improves threat prevention, detection, and response capabilities by providing a consolidated picture of security recommendations across all resources. Defender for Cloud performs routine security status

assessments of resources to find any weaknesses and offers practical advice on strengthening security posture. There are suggestions given to help with configuring the required security measures for the Azure environment. Azure Advisor scores drive operational excellence in making strategic recommendations to orchestrate seamless Azure operations. It guides the company on everything, from creating Azure Service Health alerts to receive notifications in real time when issues occur, to designing the storage accounts.

7. Uses

“Azure and Advisor scores provides proactive, actionable, best-practice recommendations to improve the cost, security, performance, reliability, and operational excellence of cloud resources. These personalized recommendations help to control the overall cloud spend on Azure environment. Companies can access Azure Advisor through the Azure portal, Azure CLI, or the Advisor API” [2, para. 6]. Azure and Advisor scores are essential instruments for effective Azure cost optimization [Figure 11]. They help keeps an eye on resources constantly and indicates ways to make better use of them, much like a watchman. Underutilization and fully idle resources are identified, and suggestions that might drastically lower Azure costs without sacrificing performance are made [11].

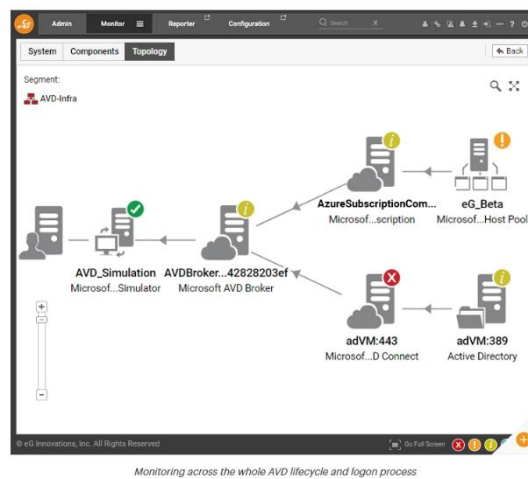


Figure 10: Monitoring the whole life-cycle [7].

By utilizing these insights, the scores assist organizations in maximizing the cloud spending while maintaining service quality, allowing them to get the most out of the investment. This makes it an extremely beneficial tool for businesses looking to control their cloud expenses. With the help of Azure Advisor's recommendations, organizations may further utilize Azure Cost Management capabilities to gain a better grasp of expenditure trends and identify further areas for savings [10].



Figure 11: Azure [2].

Azure and AWS advisor scores are essential for companies that want to maximize the efficiency of their

cloud infrastructure. The obstacles that might reduce the effectiveness of the application are highlighted by the analysis of organizational resources. This offers doable suggestions such as improving application code, setting up auto-scaling, and appropriately sizing the resources. These suggestions make sure that the Azure environment performs better overall, enabling apps to function as intended. Companies can use Azure Monitor to provide continuous monitoring of application performance and resource use. This should enhance responsiveness and handling capacity multifold to provide end users with a smooth experience. Microsoft Azure says that additional cloud regions are now available in Europe. but innovation is not the only thing the cloud offers [10]. It has to do with data storage security and compliance, keeping in mind the steadily rising number of cyberattacks and unstable geopolitical conditions. The following significant news will be welcomed by people that value data security and depend on nearshoring-like services: Azure has opened up yet another European region. Microsoft announced in April 2023 that Poland will become the first trustworthy cloud area in Central and Eastern Europe. The new Poland cloud area, according to the corporation, gives businesses a chance to better secure their vital digital assets and comply with EU GDPR regulations.[1].

8. Conclusion

Azure and AWS advisor scores improve cloud governance. Organizations will be driven to optimize their separate cloud environments across key emphasis areas, including cost, security, performance, and operational excellence, by these sorts of ongoing actionable information from both sets of technologies. By incorporating them into the governance structure, it will enable bringing proactive enhancements that may make sure that their cloud resources are employed efficiently and safely. An organized method for assessing cloud deployments in comparison to industry best practices is offered by the Azure Advisor and AWS Trusted Advisor ratings. Both are crucial for carrying out methodical assessments that assist a company in complying with the Azure Well-Architected Framework and AWS best practices for dependability, security, and cost optimization. With the use of these tools, companies may assess the commercial effect of activities in relation to their viability and foster a culture of continuous improvement aimed at achieving operational excellence. This ultimately results in a business having great control and efficiency over the management of its cloud operations thanks to a cloud governance framework that is established utilizing advisor scores from Azure and AWS. While lowering hazards, this proactive method also guarantees improved resource efficiency and cost savings. Any firm can set itself up for success in the digital age by adhering to these best practices and ensuring that their cloud environments are not just robust and safe but also in line with their strategic goals.

References

1. Inetum. "Azure Cost Management 101. How to optimize cloud costs?," *Nearshore Software Development Company - IT Outsourcing Services*, Jun. 15, 2023. <https://www.nearshore-it.eu/technologies/azure-cost-management-101-how-to-optimize-cloud-costs/>
2. H. Ravindran, "How to Use Azure Advisor to Optimize Your Cloud Performance," *Economize Cloud*, Jun. 11, 2024. <https://blog.economize.cloud/azure-advisor/>.
3. L. Korada, V. Sikha, E. Young. "Importance of Cloud Governance Framework for Robust Digital Transformation and IT Management at Scale" *Research Gate*, August, 2022. <file:///C:/Users/Denno/Downloads/JSAER2022-9-8-151-159.pdf>
4. Project-Pro. "AWS vs Azure-Who is the big winner in the cloud war?," *ProjectPro*. July, 11, 2024.

<https://www.projectpro.io/article/aws-vs-azure-who-is-the-big-winner-in-the-cloud-war/401>

5. J. Bonso, “AWS Trusted Advisor,” *Tutorials Dojo*, Dec. 19, 2018. <https://tutorialsddojo.com/aws-trusted-advisor/>
6. B. Qolomany *et al.*, “Leveraging Machine Learning and Big Data for Smart Buildings: A Comprehensive Survey,” *IEEE Access*, vol. 7, pp. 90316–90356, 2019, doi: <https://doi.org/10.1109/access.2019.2926642>.
7. B. Sundaram, “Azure Advisor Integration | eG Innovations,” *eG Innovations*, Aug. 23, 2022. <https://www.eginnovations.com/blog/what-is-azure-advisor/>
8. M. Gupta, M. Abdelsalam, S. Khorsandroo, and S. Mittal, “Security and Privacy in Smart Farming: Challenges and Opportunities,” *IEEE Access*, vol. 8, pp. 1–1, August, 1, 2020, doi: <https://doi.org/10.1109/access.2020.2975142>.
9. C. K. R and Dr. Bhuvana. J, “A Comparative Analysis of AWS and Azure in the Context of Blockchain Technology,” *International Journal of Research Publication and Reviews*, vol. 5, no. 3, pp. 4367–4372, Mar. 2024, doi: <https://doi.org/10.55248/gengpi.5.0324.07112>.
10. Arya Putra Kurniawan *et al.*, “Performance Evaluation for Deploying Dockerized Web Application on AWS, GCP, and Azure,” Apr. 2023, doi: <https://doi.org/10.1109/iccect57938.2023.10140775>.
11. M. Gupta, M. Abdelsalam, S. Khorsandroo, and S. Mittal, “Security and Privacy in Smart Farming: Challenges and Opportunities,” *IEEE Access*, vol. 8, pp. 1–1, 2020, doi: <https://doi.org/10.1109/access.2020.2975142>.
12. V. Marinakis *et al.*, “From big data to smart energy services: An application for intelligent energy management,” *Future Generation Computer Systems*, vol. 110, pp. 572–586, Sep. 2020, doi: <https://doi.org/10.1016/j.future.2018.04.062>.
13. M. M. Hosseini, M. Zargoush, F. Alemi, and R. E. Kheirbek, “Leveraging machine learning and big data for optimizing medication prescriptions in complex diseases: a case study in diabetes management,” *Journal of Big Data*, vol. 7, no. 1, Apr. 2020, doi: <https://doi.org/10.1186/s40537-020-00302-z>.
14. I. Saeed, S. Baras, and H. Hajjdiab, “Security and Privacy of AWS S3 and Azure Blob Storage Services,” *IEEE Xplore*, Feb. 01, 2019. <https://ieeexplore.ieee.org/abstract/document/8821735/>.