OPTION #1: International Cloud Operations

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A Fortune 500 company, wishes to migrate their services and data to the cloud. They have asked me to evaluate three cloud options and provide a recommendation on a vendor based on strengths and weaknesses discussed. Microsoft Azure, Amazon Web Services, and Google Cloud are the three cloud vendors that will be discussed. Each cloud service has their own strengths and weaknesses that will be evaluated.

Microsoft Azure

Microsoft Azure is a suite of cloud services that helps businesses store and manage their data. Microsoft Azure has an abundance of strengths whether that be high availability, scalability, or security. Azure achieves its high availability through the use of redundancy. Azure has multiple cloud data centers across the globe that will allow businesses to access their data in the event one data center needs to be taken down for maintenance. All services will be moved to another data center in the event that the primary data center needs to be disabled for any reason. Gaille (2015) states that uptime is guaranteed to be around 99.5%. Any downtime results to around four and a half hours per year.

Azure provides excellent scalability through simple provisioning of resources. If a business experiences a spike in demand that requires rapid scalability of resources, it can be done in minutes through Azure. Resources do not need to be paid for prior to provisioning; resources will be charged at the end of the month when the subscription automatically renews.

Azure provides many security features that ensure data security. Some of which are Microsoft Sentinel, Defender for the cloud, and Azure Monitor. Microsoft Sentinel

provides security information and event management. Essentially, it provides security analytics and threat intelligence bundled into one solution for attack detection, threat visibility, and threat response. Defender for the cloud is basically Windows Defender on a computer; it notifies the business of threats that may go unnoticed such as viruses and malware. Azure monitor provides the business with security-related logs that can be scanned for any anomalies that may present a security risk.

Microsoft Azure, however, has some weaknesses that need to be addressed. If a business, like a Fortune 500 company, is moving from an on-premise hosting to the cloud, the same amount of computing power may not be guaranteed with a standard subscription (Gaille, 2018). Additional computing power may need to be purchased to match or improve the computing power in an on-premise server. In order to utilize Microsoft Azure's services, Microsoft Azure needs to be the only cloud platform used; additional cloud vendors cannot be used. This can become a problem because if Azure somehow fails to fulfill their contractual obligations, there will not be another cloud service to use as a backup.

Amazon Web Services (AWS)

Amazon Web Services is another popular cloud computing platform that helps organizations build applications over the cloud. It offers a variety of strengths such as flexibility, security, reliability and elasticity. AWS is an incredibly flexible platform that allows use of virtualization of operating systems and web applications. AWS EC2 is a service in AWS that allows users to build virtual computing environments in order to set up a preferred operation system or application (Naveen, 2022). It also allows testing of applications that developers are working on. AWS also provides security in the forms of

data protection, identity and access management, infrastructure protection, threat detection and continuous monitoring, and compliance and privacy. AWS upholds its reputation of reliability by continuing to improve upon data security. Services such as Amazon DynamoDB and Amazon S3 store data in three availability zones so that if two zones fail, data will still be intact (Naveen, 2022). AWS provides rapid elasticity through the use of AWS Auto Scaling Service (Naveen, 2022). It increases the amount of resources in order to meet resource demand spikes within minutes. Once those resources are no longer needed, resources can be scaled down just as fast.

AWS has a couple of weaknesses that must be addressed. The AWS EC2 service has some limitations that can impact performance. There are default resource limits that can vary by region. Only a certain number of instances can be launched per region (Naveen, 2022). Organizations can request an increase in limit, but can be cumbersome depending on how fast the response is. There are a couple of security limitations that are related to the EC2 service. EC2 classic only gives a maximum of five hundred security groups and each security group has a maximum of one hundred permissions (Mahajan, 2022).

Google Cloud

Google Cloud is the last popular cloud vendor that will be discussed. Google Cloud offers a lot of strengths such as reliability, SSL certificates, file storage, and resource isolation. Google Cloud achieves reliability through the use of scheduled maintenance. Instead of a server automatically shutting down which stops services, a server maintenance can be scheduled when operations are passively halted such as the weekends (Vadim, 2022). Google Cloud also achieves security through the use of

SSL certificates. Whereas other cloud vendors must issue and install SSL certificates manually. Google Cloud can automatically install and renew SSL certificates. Files are stored securely through the use of “buckets”. In Google Cloud, files can be put in “buckets” which can be public or secured. Google Cloud provides excellent resource isolation. For example, a VM can be used as a web server and resources are provisioned towards that web server. Another VM instance can run a website. VM instances can be individually monitored so problems can be found quickly and which instances need to be upgraded (Vadim, 2022).

Google Cloud has one crucial disadvantage in its support. Google Cloud’s support is not free. If a user runs into a problem with Google Cloud and needs to escalate it to support, they will have to pay a fee. However, Google Cloud provides extensive documentation that can allow the user to troubleshoot the issue themselves. If the user is not experienced enough with Google Cloud, the documentation may not help and they will still have to pay for support in order to solve the problem.

Which Cloud Vendor to Use

Every cloud vendor has different uses and which cloud vendor an organization chooses needs to match the operations the organization performs. If an organization is looking for a cloud platform to move data, services, and applications from an on-premise data center to the cloud, an IaaS cloud would be the best option. If an organization is looking to utilize the cloud to develop and test new applications, a PaaS would be the best option. If an organization is just looking for document creation, synchronization, website analytics, etc. a SaaS would be the best option. In the case of our company, since they are looking to move their data, services, and applications to

the cloud, an IaaS would be the best option for a Fortune 500 company with a global workforce. Microsoft Azure will be the recommended IaaS cloud provider. Microsoft Azure is by far the most versatile cloud provider in that SaaS features such as Office 365 can be integrated into Azure. In addition, the many strengths associated with Azure that were discussed earlier makes this cloud vendor the best out of the three vendors discussed.

Conclusion

Cloud vendors allow organizations to move their services, data, and applications over to the cloud so they can pay less for more performance. However, every cloud vendor is different and the organization has to choose an option that best suits their operations. In the case of a Fortune 500 with a global reach, Microsoft Azure will be the best option for a cloud vendor because they wish to move their infrastructure over to the cloud. Microsoft Azure provides the most strengths that will benefit our company. Office 365 also integrates with Microsoft Azure so there are SaaS components along with IaaS components.

References

Gaille, B. (2018, October 4). *15 Microsoft Azure Advantages and Disadvantages*. BrandonGaille.com. Retrieved October 20, 2022, from https://brandongaille.com/15-microsoft-azure-advantages-and-disadvantages/

Mahajan, R. (2022, July 16). *What are the disadvantages of the AWS cloud?* SyncCore Cloud Blog. Retrieved October 21, 2022, from https://blog.synccore.io/what-are-the-disadvantages-of-the-aws-cloud/

Naveen. (2022, May 6). *Top 7 Benefits of AWS - Advantages and Disadvantages of Amazon Web Services*. Intellipaat Blog. Retrieved October 21, 2022, from https://intellipaat.com/blog/aws-benefits-and-drawbacks/

Vadim, G. (2022, September 2). *Google Cloud Platform Advantages and Disadvantages [2021]*. Goodmind.io Blog. Retrieved October 21, 2022, from https://goodmind.io/blog/google-cloud-advantages-and-disadvantages/