**CLOUD MODEL**

**By**

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Given the following scenario, “you are running a small startup with a few Java/Python developers but no infrastructure administrators. You are also renting office space,” I believe the best possible cloud infrastructure for this scenario would be to utilize a Platform as a Service (PaaS) model. Because PaaS providers typically host the software and hardware necessary to maintain the cloud service running. Whereas, Software as a Service (SaaS) is an application that typically is used by a customer as an add on service, for example, Gmail, Google Maps and Workday. Infrastructure as a Service (IaaS) on the other hand offers virtual freedom to choose hardware, software, storage, and network. However, responsible for managing applications, data, runtime, middleware, and OSes could be too much to handle. Therefore, the consumer or in this case the startup company would greatly benefit from using a PaaS mode because they only need to worry about software development. One of the few risks with this model is the reliance on a constant internet connection if for any reason the office space were to suffer a sudden internet problem or power surge the startup would be forced to find another way to reconnect with the cloud. That can create huge time gaps in productivity. Although, the major risk when it comes to utilizing a PaaS model truly comes forward when the provider decides to stop providing support for specific development tools, change programming languages or ultimately decide to stop providing services in a specific location. However, expanding the company is relatively simple since talent could be brought on board and located in any part of the world; which can, in turn, provide working from home benefit and again saving the cost of hiring someone with the necessary hardware architecture capacity can withhold growth and expansion from the company. Therefore, given the information above, let us then do a quick assessment as to what could be the best potential build and cost with Microsoft Azure Cognitive Search. The image below shows the BASIC tier offers a $0.101/hour which is a relatively cheap and efficient way to get a startup working. Additionally, given the sensitivity of internet connection and overall outlook in a programming language used in the USA; it is, therefore, best to keep the region in the USA. Microsoft Azure Cognitive Search is kind enough not to change the prices in the USA.

A screenshot of a cell phone

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Given the following scenario, “you are working for a large company that has its own data center with IT staff and developers. This company now wants to use the cloud in addition to its data center,” I believe in this case the best cloud model would be an Infrastructure as a Service (IaaS) this due to the fact that accessing, monitoring, storage, networking, and networking services (i.e. firewalls, antivirus, etc) are control by the customer. In essence, the company is renting a computer online. You can customize it and virtually modifying to their liking and fortunately, a large company with its own IT and developer team has the necessary resources to create a tailor-made cloud service. As for Software as a Service (SaaS), it could potentially still be an option depending on what the virtual service is going to be used for; if the large company is looking to manage internal HR documents then there are services like Workday that could be a great benefit. However, for a scenario where the large company is looking to completely create/add a line of business, then something already tailored for a specific purpose is not beneficial. As for Platform as a Service (PaaS) while offering the capability to create applications from scratch and support them from virtually anywhere via the internet there are some drawbacks. For instance, it still locks the OS the cloud is running along with any middleware that is used to optimize the cloud service. Therefore, there could be safety and quality issues depending on the OS and network setting within that PaaS service. Additionally, a few of the biggest risks for IaaS come with its benefits. For example, having control of the OS and Network leaves the large company to update its OS; which if not taken seriously could potentially leave the large company vulnerable to hackers. In addition, if the large company is not technically keen then committing to an IaaS service could be more of a liability than a benefit. Take for example Capital One recent “hacks.” There was a security break whilst utilizing Amazons AWS, but in turn, Amazon clarifies that they were no responsibility for the said hack. The image below shows the overall financial benefits of using an IaaS model. For example, given that a large company would already have an idea of the level of commitment the cloud service will run for and the larger the commitment the greater the savings are. The image below, for example, highlights a 54% discount for on-Demands services. For further details regarding the prices AWS has an excellent break down in the following link:

https://aws.amazon.com/ec2/pricing/reserved-instances/pricing/

A screenshot of a social media post

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Lastly, given the following scenario “You own an online store and need infrastructure that can scale up or down based on seasons. For example, you want more VMs to process your orders during Thanksgiving, Christmas or other holidays” I believe hands the best cloud service option for this specific scenario is Software as a service (SaaS). At its core, SaaS is nothing more than cloud-based software that requires no installation on a local device but rather relies on a web connection or an Application programming interface (API). The consumer does not manage the underlying cloud infrastructure because the service is introducing as a subscription-based application service. For example, Gmail, SalesForce and Microsoft SharePoint are SaaS. The consumer is no longer worrying about keeping these virtual machines for a certain amount of time like (IaaS) or have a specific application run on a virtual machine for example (PaaS). Additionally, SaaS offers the capability to temperately expand for a short period of time like during the holidays. However, one of the few risks of using a SaaS is transparency and data security. For example, whilst visiting SalesForce website and inquiring about prices I came across the following message:

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<https://www.salesforce.com/products/commerce-cloud/b2b-ecommerce/pricing/?d=cta-body-promo-146>

In theory, a business has no idea what exactly they would be signing up to and price comparison can become unpredictable. Additionally, there is not a clear statement by SalesForce as to the location of their data centers; which can raise some security concerns. Nevertheless, this comes into a risk appetite of the company who is willing to deal with the SaaS provider.

Resources

<https://apprenda.com/library/paas/iaas-paas-saas-explained-compared/>

<https://searchcloudcomputing.techtarget.com/definition/Platform-as-a-Service-PaaS>

<https://dzone.com/articles/the-azure-paas-services-that-devs-love-and-why>

<https://azure.microsoft.com/en-us/pricing/details/cdn/>

<https://azure.microsoft.com/en-us/pricing/details/search/>

<https://www.cnet.com/news/amazon-tells-senators-it-isnt-to-blame-for-capital-one-breach/>

<https://www.ibm.com/cloud/learn/iaas-paas-saas>

<https://www.salesforce.com/company/news-press/press-releases/2019/12/salesforce-holiday/>

<https://www.salesforce.com/products/commerce-cloud/b2b-ecommerce/pricing/?d=cta-body-promo-146>