Distributed Database Management

# Module 05 – Estimating Cloud Computing Costs

Jason Kendall – Professor Grinberg



In the midst of a technological revolution, cloud computing has become a frontrunner amongst a host of technologies that are rapidly changing the way we live, communicate, and do business. Cloud computing has allowed small businesses to compete with large and well-established commercial companies. This has also helped to reduce the cost of business for many industries. Take a look at the financial industry in the United States, it now looks remarkably similar to the tech industry. Cloud computing has no doubt supported this massive shift for the tech industry.

When it comes to cloud-based computing there is a major player that stands out amongst the others. Microsoft Azure was one of the very first to champion and actually spearhead the concepts that support cloud computing by using this system to its advantage in tech operations and data management. In particular, the data management aspect of cloud computing is what makes it stand out in my mind. Companies are moving sales online and with this shift, massive amounts of data from each transaction are being produced. That data can be saved and then analytics can be run to help build key business insights.

Microsoft saw the potential of cloud computing and began to develop its own database systems to run in the cloud. Below is the cost analysis of Microsoft Azure’s cloud system. This estimate runs a virtual machine with specific operating standards and usage specifications. Azure’s App Services are included which specifically allow the deployment of mobile applications that utilize a database backend like MongoDB or SQL server and a storage account. The usage specifications are similar and can be dialed into the specific needs of the company.

Below I’ve included the cost analysis for operating a system described above. This is the type of system a small company would need to run a VM, App Services, and Data Storage the SQL Server instance. The pricing breakdown can be changed, and requirements can be updated to fit the personal needs of the company.

A screenshot of a social media post

Description automatically generated

A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated

As you can see to support this type of technology stack, even with modest configurations, it would cost quite a bit of money or resources to a company. However, this is much cheaper and is far most cost efficient than buying and supporting on site hardware. Something that we also need to consider would be IT costs to manage this new cloud-based system.

The costs of employing a full-time professional development team necessary to deploy and support our system will be very high. To build and deploy our system we would need a complex and proficient team of professionals and this team would look something like:

3 employees - 20,000 / yr = 60,000  
4 employees - 35,000 / yr = 140,000  
2 employees - 50,000 / yr = 100,000  
1 owner - 80,000 / yr = 80,000

When we take into consideration the personnel, operations, and HR side of our company, the actual costs of our technology stack might pale in comparison. This, I believe illustrates how easy it would be for a startup to get started with the same types of technologies that are being used by larger corporations and organizations today. It is important to keep costs in mind when you are going to try and start a business or even change the type of technology that you use. For example, Microsoft needed to decide if it was a better to stick with the mainframe type system or move on to the cloud. Before they made the move, they needed to decide if it would be more cost effective and better in general.

**Resources**:

<https://azure.microsoft.com/en-us/overview/what-is-cloud-computing/>

<https://azure.microsoft.com/en-us/pricing/calculator/?&OCID=AID719825_SEM_WiNoXGGx&lnkd=Google_Azure_Brand&gclid=CjwKCAjw2cTmBRAVEiwA8YMgzfYIvncpnB3LxIN46ooDtbv-8DN0rBxqZLD7mjcRP3HVH7rTKwjCiBoCpj8QAvD_BwE>

<https://www.techrepublic.com/article/the-value-of-it-costbenefit-analysis-and-how-to-do-it-right/>

<https://www.infoworld.com/article/3268871/how-to-choose-the-right-type-of-database-for-your-enterprise.html>