Distributed Database Management

# Module 02 Activity



With the advent of cloud-based computing, technology is changing even faster than it has in the past. Now, through networking and the cloud, everything is connected, and things happen much faster. This includes the connection of databases through networks, which form distributed systems. Picking the right deployment service is critical to application development as well as distributed database system deployment as they each have their own strengths and weaknesses.

AWS - Amazon Web Services was one of the true pioneers of cloud-based computing and presents unmatched capabilities. A drawback is that AWS primarily focuses on a public cloud.

Azure - Microsoft Azure is a close competitor to AWS. The fact that Azure is backed by Microsoft says about everything you need to know about the service. It is dependable and can work well with other software and database applications.

GCP - Google Cloud Platform is the underdog of the three but is extremely well funded. Because Google entered the cloud market later than the other two dominant companies, means it does not retain the enterprise level contract the other two services offer. Although GCP may be lacking in some areas, it is technologically savvy and provides industry leading tools to users/developers.

Load balancing is a critical component of any cloud-based service designed to handle a distributed database. One of the main benefits of cloud solutions used to support these types of databases is the fact that resources are shared, and you only have to pay for what you use. Well, load balancing makes this happen. When one user or system is consuming resources from a target location, and another user logs on to use the same resources, the load must be shared through complicated networking algorithms and programs designed to balance the load on the cloud network and its resources. This helps the database maintain accuracy when being used by multiple people in multiple locations.



This image displays a distributed system that is located in the clould. Here, the load balancers implemented in the cloud help to support the networked databases by ensuring there is an even load on each server or node on the network. Without load balancing, distributed systems would have a hard time doing everything they need to do.

Essentially, the cloud makes all of this possible by bringing resources together and sharing them. Instead of one company having a certain version of software and another smaller company having an older version of that software, distributed systems and databases can ensure that everyone gets to use the current technology if they need it. The also don’t have to purchase expensive server systems to maintain the compute and data storage resources that they don’t use. They can simply purchase what they use and only pay for that through the cloud. This concepts brings top of the line compute and database/storage power to the average small business or startup, something completely out of reach just a few years ago!

**Resources:**

<https://aip.scitation.org/doi/pdf/10.1063/1.3526188>

<https://www.datamation.com/cloud-computing/aws-vs-azure-vs-google-cloud-comparison.html>

<https://www.dezyre.com/article/cloud-computing-vs-distributed-computing/94>