

# A Comparative Study of Traditional Server and Azure Server

K. G. Kharade<sup>1\*</sup>, V. S. Kumbhar<sup>2</sup>, S. K. Kharade<sup>3</sup>

<sup>1,2</sup>Department of Computer Science, Shivaji University, Kolhapur

<sup>3</sup>Department of Mathematics, Shivaji University, Kolhapur

**Abstract** – The focus of this paper is to study the Microsoft Windows Azure technology and conventionally used servers. Conventional servers require more cost and exact requirements in advance but azure servers provide facility of dynamic modifications of the services. This concept is based on “pay only for what you use”. To offer this facility Microsoft has developed data centers for public cloud infrastructure, known as Microsoft Windows Azure. It is a service of cloud computing technique which gives a wide range of cloud service for computing, storing and networking on sharing basis which ultimately offer dynamic selection of services in minimum cost. This technology has become boon for small businesses to grow towards big business. This paper deals with a brief introduction about Microsoft Azure, its services and facilities.

**Keywords**— Block blobs, Cloud Computing, Microsoft Windows Azure, Page Blobs, Public Cloud.

## INTRODUCTION

Businesses of all sizes experience terrific cost and difficulty when expanding and modifying their applications. For an E-commerce business person initially he has to purchase hardware, software, license agreement and many more things. Later on if they want to expand or if there is need of expansion and they are not able to scale with the current infrastructure and their current data center, then they will need to go for higher qualified IT professional, higher hardware, higher s/w and their license, data center and bandwidth. In short, to scale their business they need to provide more financial services. One part is finance, but to increase their capability, they will need to invest more time. The actuality is that a lot of applications get circulated and grow difficult over time. Solution for all these problems is to pay as per your use only. No need to pay for software, hardware license, pay for IT professional only. Suppose initially if your business requires 100GB hard disk, 100GB bandwidth, 40% CPU usage, 40% CPU server time will be provided. For all this company/customer does not need to invest in hardware, software, etc. Later on if they want more hardware support, more bandwidth, etc. they just need to ask their provider for that configuration so for this client just need to increase monthly incremental cost and nothing else. In short, it is “pay per use” concept and the whole setup will be shared between various companies and total cost is:

Total Cost = Network + Hardware + Storage.

## WINDOWS AZURE

- Is a place to run your application
- Is a cloud computing platform
- Is a utility computing platform, so pay for what you use
- Provide developers with on demand compute and storage to host, scale and manage web application on the internet through Microsoft data centers

## MICROSOFT WINDOWS AZURE ARCHITECTURE

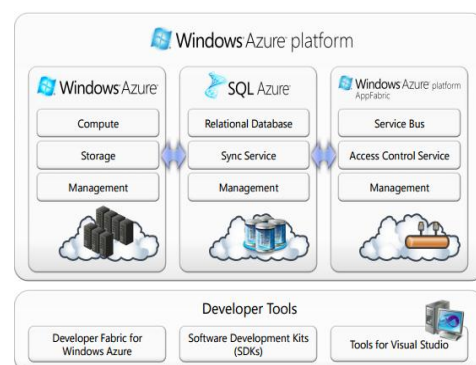


Figure 1: Microsoft Windows Azure Architecture

Windows Azure Architecture is made up of the following components:

- Windows Azure Compute: Microsoft Windows Azure compute runs applications on a Windows Server Foundation. We can create applications using languages supported by Microsoft Windows Azure. Developers can use their development tools and technologies like Windows Communication Foundation (WCF), ASP.NET etc. Windows Azure Compute consists of:
  - (1) Web Role: It is primarily used for running Web-Based applications. It also provides support for Microsoft IIS 7 and ASP.NET (including MVC 3). Applications can be created using both Microsoft technologies and non-Microsoft technologies.
  - (2) Worker Role: Web role takes the request from the application and forwards it to worker role for further processing. It is used mainly for carrying out background processing logic. These are designed to run a variety of code.
  - (3) VM Role: It is used to upload on-premises Windows Server applications, you want to execute on Windows Azure. The developer submits configuration information along with the application he wants to run on Windows Azure. This information tells the platform how many instances of each role to run. The Windows Azure fabric controller creates a VM for each instance, running the code for the appropriate role in each VM.

Windows Azure Storage: It consists of:

- (1) Blob: Blob stands for Binary Large Object. This is the simplest way of storing binary data. Data can be stored in two different ways as page blobs and block blobs. Blobs stores large quantity of unstructured data. Page Blobs can be large up to 1TB. For transferring large blobs they are further divided into blocks. Block blobs can store 200GB data per blob.
- (2) Tables: Table storage is non-relational, key-value-pair, storage for storing huge amounts of unstructured data. Table storage space can be used to accumulate elastic datasets, such as user information for web applications, address books, device information, and any other type of metadata. The Windows Azure Storage account can contain several numbers of tables, up to the maximum limit of the storage account.
- (3) Queues: Queue storage provides cloud messaging between application components. Windows Azure Queues enables the web role

instance to communicate with a worker role instance. A sender sends the message and a client receives it. A client usually after reading the message carries out the task and deletes the message. In Windows Azure service a message can remain in the queue for 7 days and later it gets deleted automatically, if it is not deleted by the client. There can be one sender and one receiver or one sender and many receivers or many senders and many receivers. Queue can contain a message, in any format, of up to 64 KB.

Microsoft SQL Azure: SQL Azure is Microsoft's cloud database service based on SQL Server database technology and built on Microsoft's Windows Azure cloud computing platform. It stores relational data and data is hosted and managed in Microsoft data centers. As per the business needs organizations can scale their database size up or down. SQL Azure uses the same TDS protocol for communication and supports most of the SQL Server feature set. SQL Azure databases can scale from 1GB to 150GB, and when you use SQL Azure Federations, the maximum size is practically limitless. In addition, SQL Azure includes related services that offer reporting (SQL Azure Reporting) and data synchronization with on-premises databases (SQL Azure Data Sync).

Windows Azure AppFabric: Azure AppFabric enable developers to establish connection between applications and services. Windows Azure AppFabric interconnects on-premises applications to Windows Azure applications, and even Windows Azure application to other applications within the cloud. It consists of two components:

- (1) Service Bus: It helps to connect different cloud services as well as "hybrid" services. It provides secure messaging and connectivity capabilities that enable building distributed and disconnected applications in the cloud as well as hybrid applications. Services that index on the Service Bus without any trouble can be discovered and used across any network topology.
- (2) Access Control: It helps to manage user level authorization and authentication service without any complex programming. It enables an easy way to provide identity and access control to web applications and services.

Content Delivery Network (CDN): Content delivery network offers developers a global way out for delivering high-bandwidth content. It is a group of computers which contain the same copy of data and are placed at various locations in a physical network which allows faster access to that data from any location within the network. Typical content in a CDN

includes media files, software, documents, streaming content and sometimes database queries.

Connect: Windows Azure Connect allows a Windows Azure application to access an on-premises database. It is similar to an on-demand virtual private network (VPN) connecting on-premises computers and Azure role instances.

## CONCLUSIONS

This paper provides an overview of Windows Azure as a cloud platform. It also illustrates the various tools that are supported by the platform. Microsoft Windows Azure deals with problems like transport the machine up and down at any time and generate users in a secure way with authenticated keys, which are very helpful for an organization that are willing to join AZURE Cloud.

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### Corresponding Author

**K. G. Kharade\***

Department of Computer Science, Shivaji University, Kolhapur

**E-Mail – [kabirkharade@gmail.com](mailto:kabirkharade@gmail.com)**