

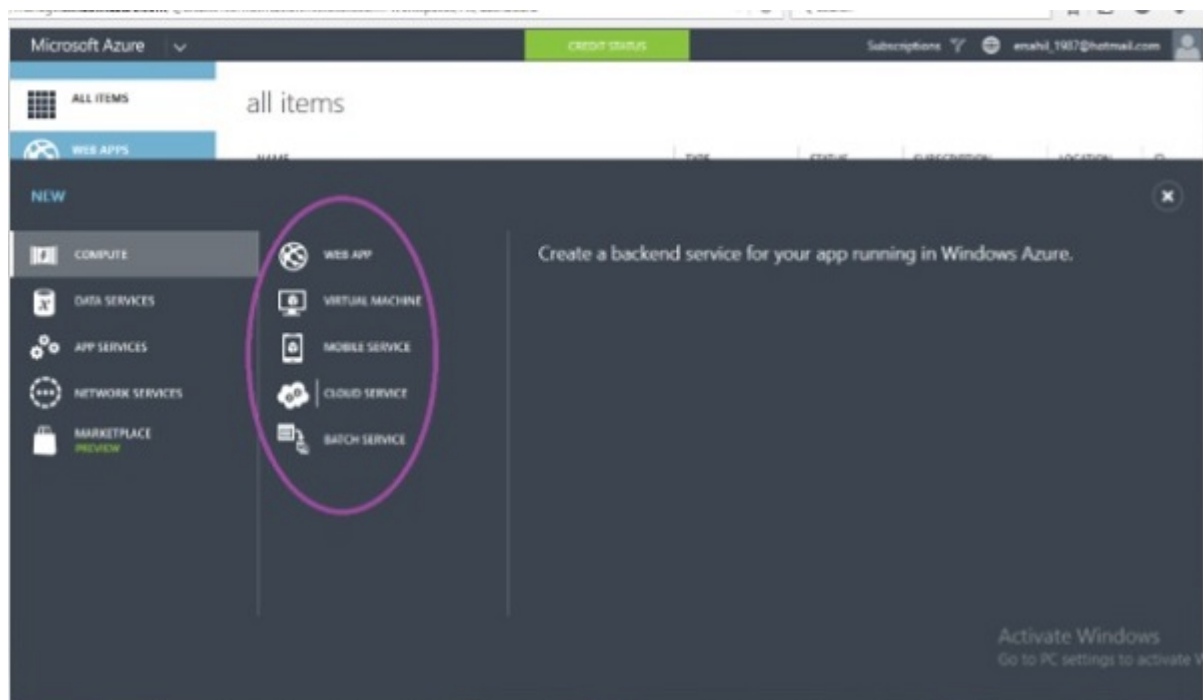
Microsoft Azure - Components



Categorizing the services would help you understand Azure better. These categories are termed as Components in this tutorial. The Individual components are explained with detailed pictures in subsequent chapters.

Compute / Execution Models

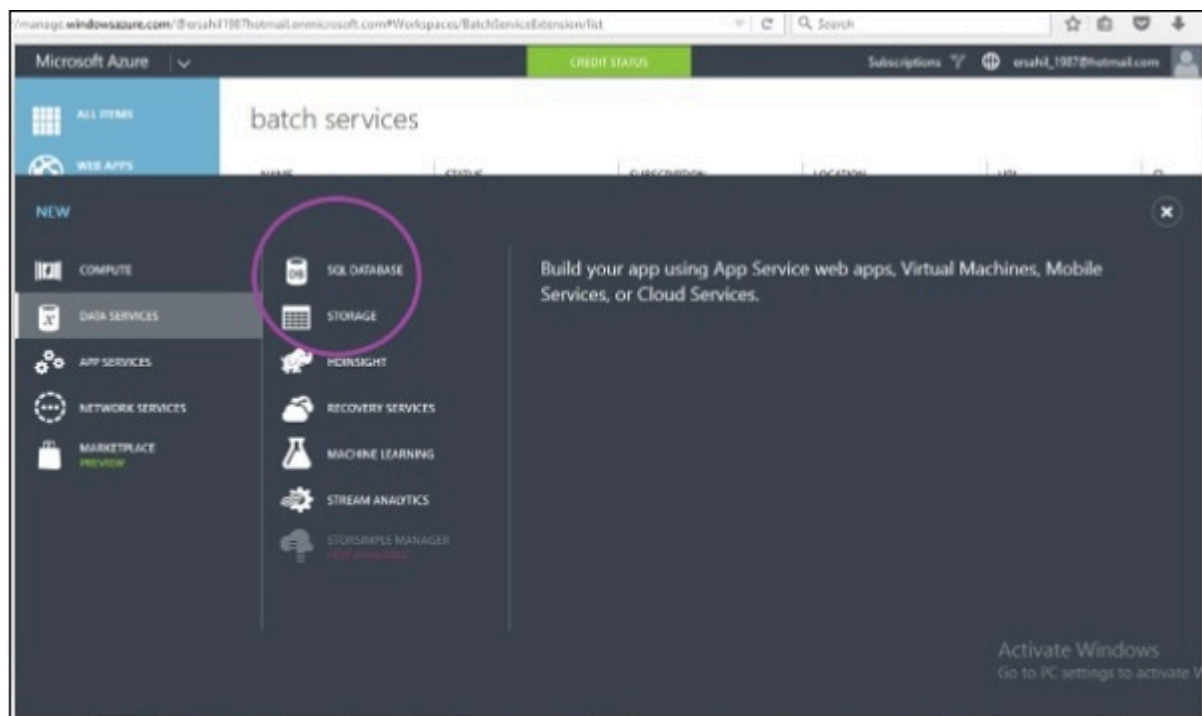
This is the interface for executing the application, which is one of the basic functions of Azure.



As seen in the above image, there are different models such as Web App, Virtual Machine, Mobile Service, Cloud Service, and Batch Service. These models can be used either separately or in combination as per the requirement.

Data Management

Data management can be done by using SQL server Database component or the simple data storage module offered by Windows Azure. SQL server database can be used for relational database. The storage module can store unrelated tables (without foreign key or any relation) and blobs. Blobs include binary data in the form of images, audio, video, and text files.

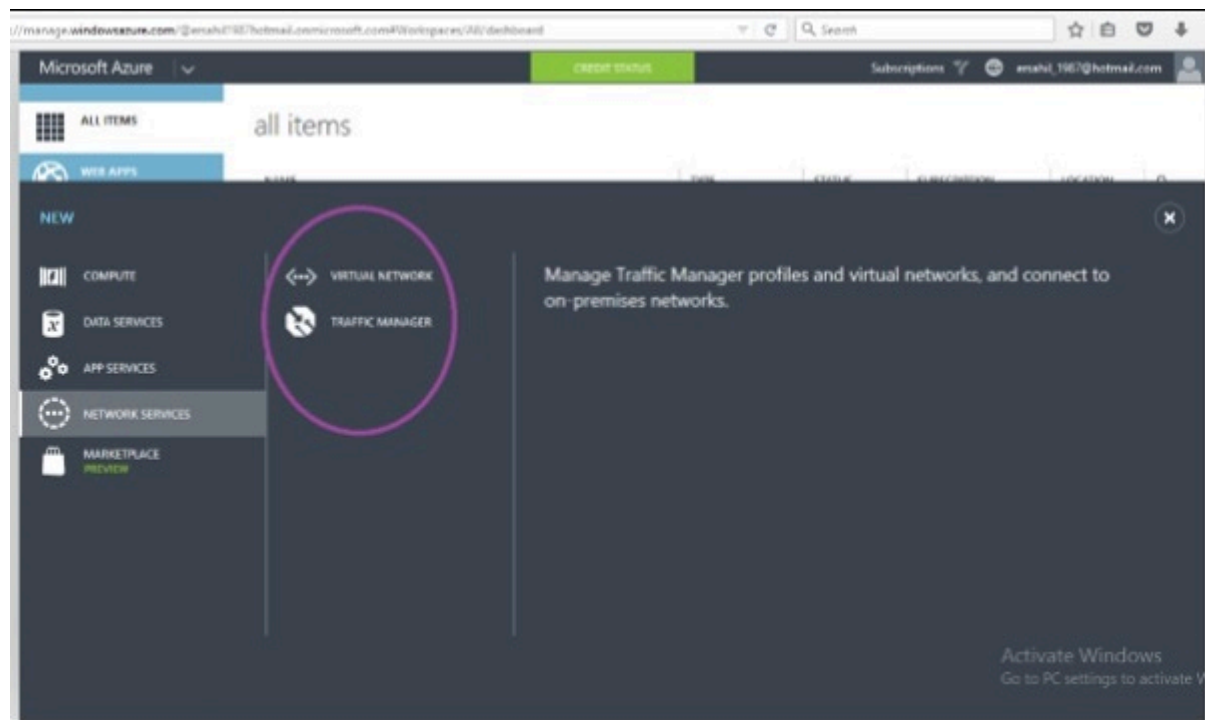


Networking

Azure traffic manager routes the requests of a user intelligently to an available datacenter. The process involves finding the nearest datacenter to the user who makes the request for web application, and if the nearest datacenter is not available due to various reasons, the traffic manager deviates the request to another datacenter. However, rules are set by the owner of the application as to how a traffic manager should behave.

The virtual network is another feature that is part of networking in services offered by Windows Azure. The virtual network allows a network between local machines at your premise and virtual machine in Azure Datacenter. IPs to virtual machines can be assigned in a way that makes them appear to be residing in your own premise. The virtual network is set up using a Virtual Private Network (VPN) device.

The following image shows how these two features actually look in Azure portal.



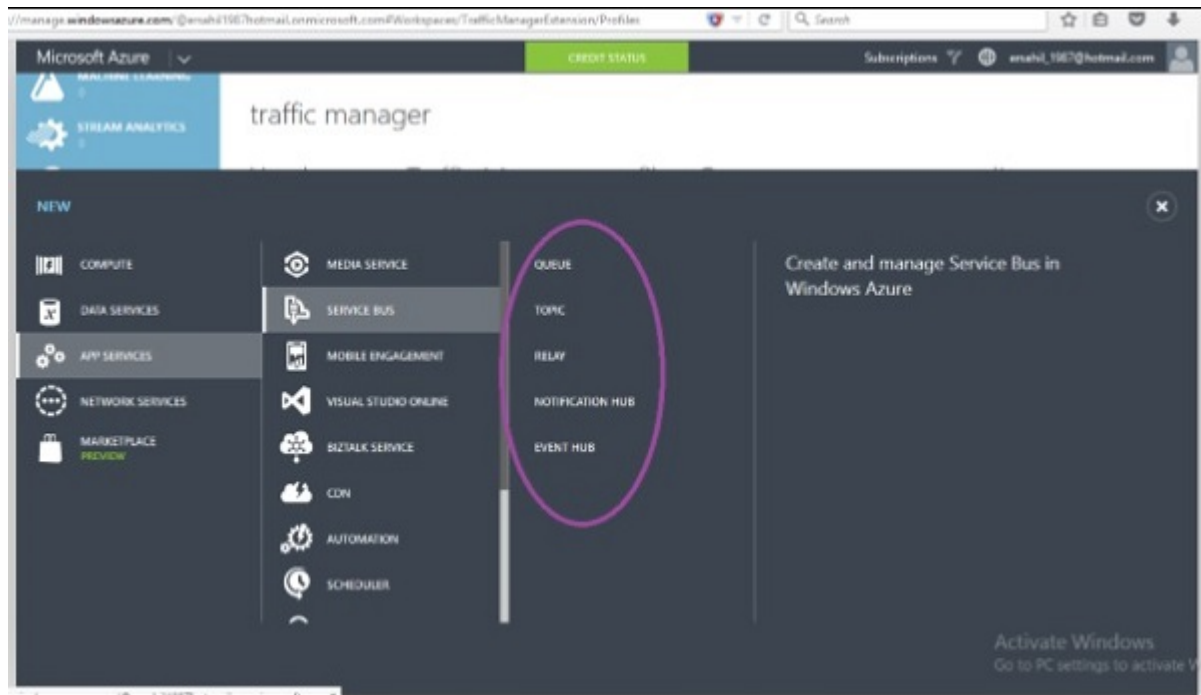
Big Data and Big Compute

The large amount of data can be stored and managed using Windows Azure. Azure offers HDInsight which is Hadoop-based service. Organizations often need to manage large amount of data which is necessarily not relational database management. Hadoop is a prominent technology used these days. Thus, Azure offers Hadoop service on their platform for clients.

The term Big Compute refers to high performing computations. This is achieved by executing code on many machines at the same time.

Messaging

Windows Azure offers two options for handling the interactions between two apps. One falls under storage component of the service and is called '**Message Queues**'. The other one comes under the app service and is called '**Service Bus**'. The messages can be sent to initiate communication among different components of an application or among different applications using these two options.

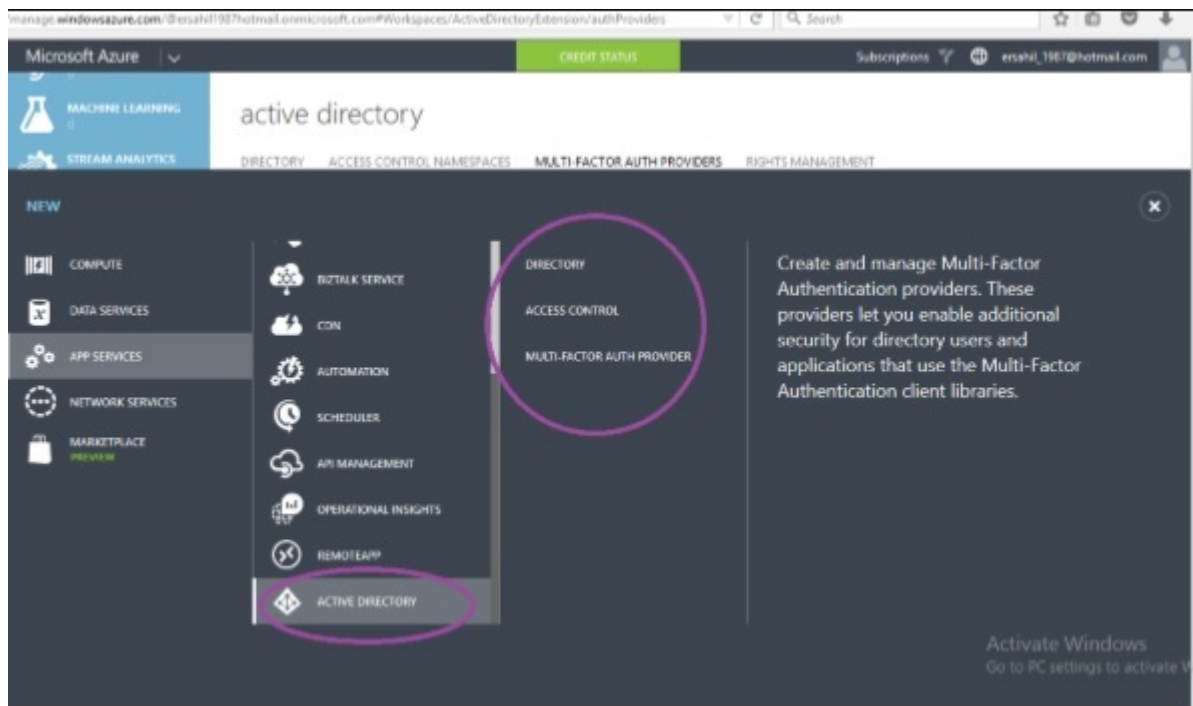


Caching

Microsoft Azure offers two kinds of caching which are in-memory Caching and Content Delivery Network (CDN) for caching frequently accessed data and improves the application performance. CDN is used to cache the blob data that will be accessed faster by users around the world.

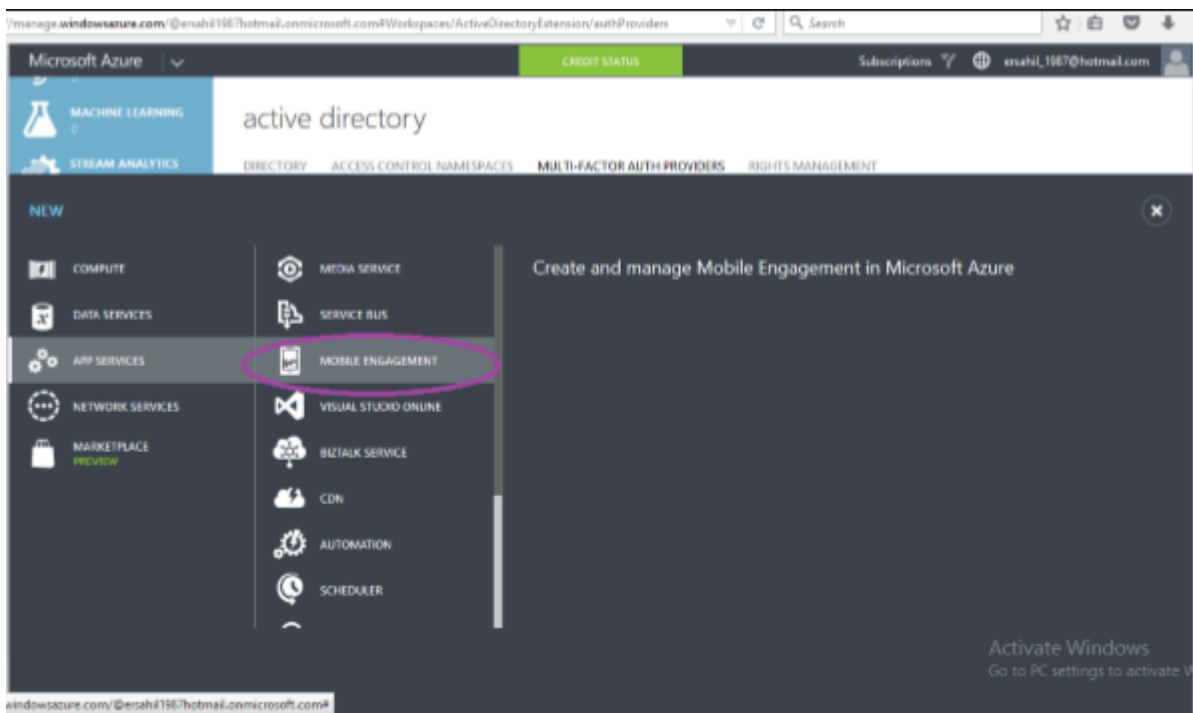
Identity and Access

This component is about management of users, authentication and authorization. Active directory stores the information of users accessing the application and also the organizations information. It can synchronize with the related information on local machines residing on premises. Multifactor Access (MFA) service is built to address the security concerns such as only the right user can access the application.



Mobile Service

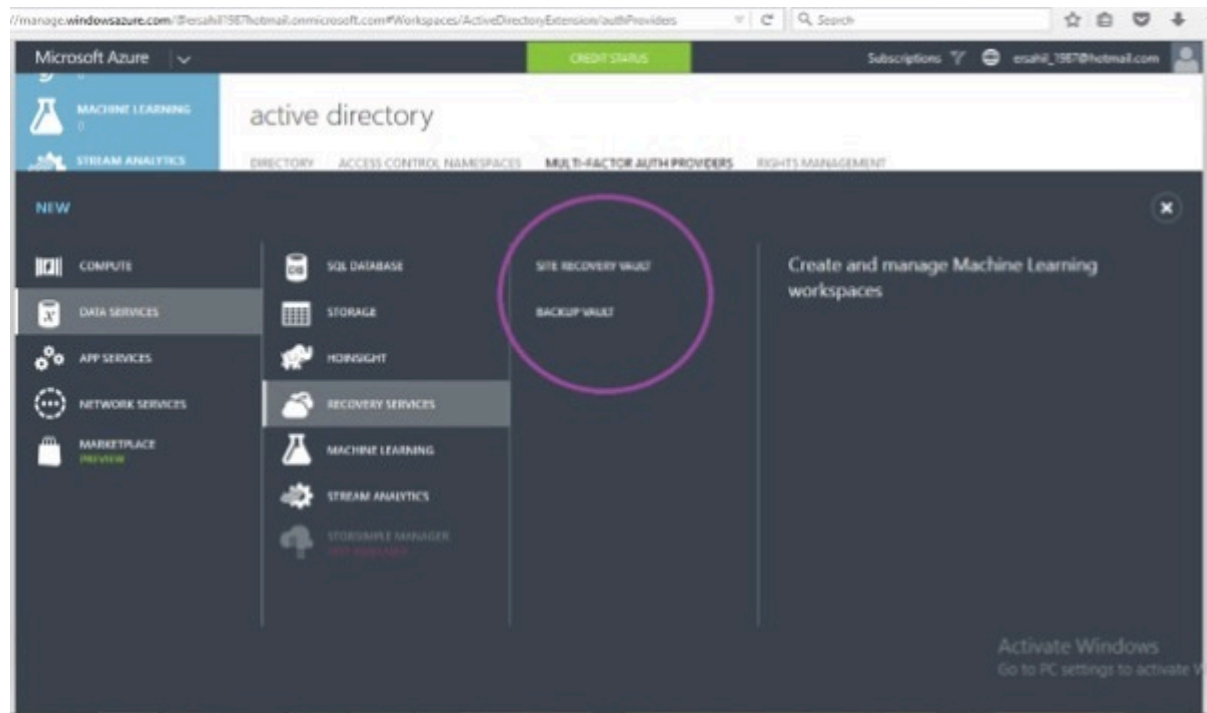
Windows Azure offers a very easy platform to develop mobile application. You can simply start using mobile development tools after logging into your account. You don't have to write big custom codes for the mobile application if you use this service. The push notifications can be sent, data can be stored and users can be authenticated in very less time.



Backup

The site recovery service replicates the data at secondary location as well as automates the process of recovery of data in case of data outage. Similarly Azure backup can be

used to backing up the on premise data in clouds. Data is stored in encrypted mode in both the cases. Windows Azure offers a very effective and reliable backup service to clients and ensures they don't face inconvenience in case of hardware failures.



Media

This service addresses multiple concerns related to uploading media and making it available to end users easily. Users can manage tasks related to the media like encoding, ad insertion, streaming, etc. easily.

Commerce

Windows Azure offers the opportunity to users to buy or sell applications and data through their platform. The applications are put in the marketplace or Azure store from where they can be accessed and bought by other users.

Software Development Kit (SDK)

Azure applications can be produced by the developers in various programming languages. Microsoft currently provides language-specific SDKs for Java, .NET, PHP, Node.js, Ruby, and Python. There is also a general Windows Azure SDK that supports language, such as C++.

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