

# **Cloud Service Providers**

# Google

- Google is one among the leading cloud providers that offer secure storage of user's data.
- It provides cloud platform, app engine, cloud print, cloud connect, and many more features that are scalable, reliable, as well as secure.
- Google offers many of these services for free or at a minimum cost making it user friendly

# Cloud Platform

- Google Cloud Platform enables developers to build, test, and deploy applications on Google's highly scalable and reliable infrastructure.
- Google has one of the largest and most advanced networks across the globe. Software infrastructures such as MapReduce, BigTable, and Dremel are the innovations for industrial development.
- Google Cloud Platform includes virtual machines, block storage, NoSQL datastore, and big data analytics.
- It provides a range of storage services that allow easy maintenance and quick access of user's data.
- The cloud platform offers a fully managed platform as well as flexible virtual machines allowing the user to choose as per the requirements.
- Google also provides easy integration of user's application within the cloud platform.
- Applications hosted on the cloud platform can automatically scale up to handle the most demanding workloads and scale down when traffic subsides.
- Managed services such as App Engine or Cloud Datastore provide autoscaling that enables application to grow with the users. The user has to pay only for what he or she uses

# Cloud Storage

- Google Cloud Storage is a RESTful online file storage web service for storing and accessing one's data on Google's infrastructure.
- Representational state transfer (REST) is an architectural style consisting of a coordinated set of architectural constraints applied to components, connectors, and data elements within a distributed system.
- The service combines the performance and scalability of Google's cloud with advanced security and sharing capabilities. Google Cloud Storage is safe and secure.
- Data are protected through redundant storage at multiple physical locations.
- The following are the few tools for Google Cloud Storage:
- *Google Developers Console* is a web application where one can perform simple storage management tasks on the Google Cloud Storage system.
- *gsutil* is a Python application that lets the user access Google Cloud Storage from the command line.

# Google Cloud Connect

- is a feature provided by Google Cloud by integrating cloud and the application programming interface (API) for Microsoft Office.
- After installing a plug-in for the Microsoft Office suite of programs, one can save files to the cloud. The cloud copy of the file becomes the master document that everyone uses.
- Google Cloud Connect assigns each file a unique URL that can be shared to let others view the document.
- If changes are made to the document, those changes will show up for everyone else viewing it. When multiple people make changes to the same section of a document, Cloud Connect gives chance to the user to choose which set of changes to keep.
- When the user uploads a document to Google Cloud Connect, the service inserts some metadata into the file.
- Metadata is information about other information. In this case, the metadata identifies the file so that changes will track across all copies.
- The back end is similar to the Google File System and relies on the Google Docs infrastructure. As the documents sync to the master file, Google Cloud Connect sends the updated data out to all downloaded copies of the document using the metadata to guide updates to the right files.

# Google Cloud Print

- is a service that extends the printer's function to any device that can connect to the Internet.
- To use Google Cloud Print, the user needs to have a free Google profile, an app, a program, or a website that incorporates the Google Cloud Print feature, a cloud-ready printer or printer connected to a computer logged on to the Internet
- When Google Cloud Print is used through an app or website, the print request goes through the Google servers The printer can be shared with other people for receiving documents through Google Cloud Print.
- Because most printers are not cloud ready, most Google Cloud Print users will need to have a computer act as a liaison. Google Cloud Print is an extension built into the Google Chrome Browser, but it should be enabled explicitly.
- Once enabled, the service activates a small piece of code called a connector. The connector's job is to interface between the printer and the outside world. The connector uses the user's computer printer software to send commands to the printer

# Google App Engine

- lets the user run web applications on Google's infrastructure. App Engine applications are easy to build, easy to maintain, and easy to scale as traffic and data storage needs grow.
- With App Engine, there are no servers to maintain: Just upload the application, and it is ready to serve users. Google App Engine supports apps written in several programming languages.
- With App Engine's Java runtime environment, one can build one's app using standard Java technologies, including the JVM, the Java servlets, and the Java programming language—or any other language.
- App Engine also features a Python runtime environment, which includes a fast Python interpreter and the Python standard library.
- App Engine also features a PHP runtime, with native support for Google Cloud SQL and Google Cloud Storage that works just like using a local MySQL instance and doing local file writes

# Amazon Web Services

- Amazon Web Services (AWS) is a collection of remote computing services (also called web services) that together make up a cloud computing platform, offered over the Internet by Amazon.com.
- The most central and well known of these services are Amazon Elastic Compute Cloud (Amazon EC2), Amazon Simple Queue Service (Amazon SQS), and Amazon S3. Amazon EC2 is a computing service, whereas Amazon SQS and Amazon S3 are support services.



# Amazon Elastic Compute Cloud

- Amazon EC2 is an IaaS offered by AWS and is the leading provider of IaaS in the current market. Powered by a huge infrastructure that the company has built to run its retail business, Amazon EC2 provides a true virtual computing environment.
- By providing a variety of virtual machine or instance types, operating systems, and software packages to choose from, Amazon EC2 enables the user to instantiate virtual machines of his choice through a web service interface.
- The user can change the capacity and characteristics of the virtual machine by using the web service interfaces, hence named *elastic*. Computing capacity is provided in the form of virtual machines or server instances by booting Amazon Machine Images (AMI), which can be instantiated by the user.
- An AMI contains all the necessary information needed to create an instance. The primary Graphical User Interface (GUI) interface is the AWS Management Console (point and click) and a web service API that supports both Simple Object Access Protocol and Query Requests.
- The API provides programming libraries and resources for Java, PHP, Python, Ruby, Windows, and .Net. The infrastructure is virtualized by using Xen hypervisor,

# Amazon Simple Storage Service

- Amazon Simple Storage Service known as Amazon S3, is the storage for the Internet.
- It is designed to make web-scale computing easier for developers. Amazon S3 provides a simple web service interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web.
- It gives any developer access to the same highly scalable, reliable, secure, fast, inexpensive infrastructure that Amazon uses to run its own global network of websites.
- The service aims to maximize benefits of scale and to pass those benefits on to developers. Amazon S3 is a highly scalable, reliable, inexpensive, fast, and also easy to use service that meets design requirements and expectations.
- Amazon S3 provides a highly durable and available store for a variety of content, ranging from web applications to media files. It allows users to offload storage where one can take advantage of scalability and pay-as-you-go pricing.

# Amazon Simple Queue Service

- Amazon SQS. It is a fast, reliable, scalable, fully managed message queuing service. SQS makes it simple and cost effective to decouple the components of a cloud application.
- SQS can be used to transmit any volume of data, at any level of throughput, without losing messages or requiring other services to be always available.
- Amazon SQS offers various features like allowing multiple readers and writers at the same time, providing access control facilities, guaranteeing high availability of sending, and retrieving messages due to redundant infrastructure.
- It also gives provision for having variable length messages as well as configurable settings for each queue.

# Microsoft

- Cloud computing provides a new way of looking at IT at Microsoft called Microsoft IT (MSIT).
- Cloud computing is now the preferred and default environment for new and migrated applications at Microsoft.
- MSIT has developed a methodology and a set of the best practices for analyzing their current application portfolio for possible candidates to migrate to cloud computing.
- This analysis enables MSIT to select the ideal cloud computing–based environment for each application.
- MSIT has captured these best practices and documented them for other Microsoft customers who wish to migrate their organizations to cloud computing

# Windows Azure

- Windows Azure Cloud Services (web and worker roles/PaaS) allow developers to easily deploy and manage application services. It delegates the management of underlying role instances and operating system to the Windows Azure platform.
- The Migration Assessment Tool (MAT) for Windows Azure encapsulates all the information to be aware of before attempting the application migration to Windows Azure.
- Based on the response to a series of simple binary questions, the tool generates a report that outlines the amount of development effort involved to migrate the application, or the architecture considerations for a new application.
- The Windows Azure Pricing Calculator analyzes an application's potential public cloud requirements against the cost of the application's existing infrastructure.

# Microsoft Assessment and Planning Toolkit

- The Microsoft Assessment and Planning Toolkit (MAP) is an agentless, automated, multiproduct planning and assessment tool for cloud migration.
- MAP provides detailed readiness assessment reports, executive proposals, and hardware and software information.
- It also provides recommendations to help organizations accelerate the application migration process for both private and public cloud planning assessments.
- MAP analyzes server utilization data for server virtualization and also server consolidation with Hypervisor

# SharePoint

- Microsoft offers its own online collaboration tool called SharePoint.
- Microsoft SharePoint is a web application platform that comprises a multipurpose set of web technologies backed by a common technical infrastructure.
- By default, SharePoint has a Microsoft Office–like interface, and it is closely integrated with the Office suite. The web tools are designed to be usable by nontechnical users.
- SharePoint can be used to provide intranet portals, document and file management, collaboration, social networks, extranets, websites, enterprise search, and business intelligence.
- It also has system integration, process integration, and workflow automation capabilities.
- Unlike Google Cloud Connect, Microsoft SharePoint is not a free tool.
- But it has additional features that cannot be matched by Google or any other companies.