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| ROLL NO.: 31151 | SUBJECT: LP-II (Cloud Computing) |

**PROBLEM STATEMENT:** Case study on Microsoft azure to learn about Microsoft Azure is a cloud computing platform and infrastructure, created by Microsoft, for building, deploying and managing applications and services through a global network of Microsoft-managed data centers

**CASE STUDY**

**MICROSOFT AZURE**

**What is Microsoft Azure?**

Microsoft Azure is a platform that enables users to engage in agile cloud computing, and is designed for creating and managing apps through Microsoft’s data centers.  It is an online portal to access and manage resources and services provided by Microsoft.

The operating system was released commercially just a few years ago, on the 1st of February 2010 and was called the Windows Azure. It was designed to minimize any ongoing expenses and simplify any IT management processes, and has certainly made an impact on the market. It provides a variety of tools to excel in the IT performance.

**Benefits of Microsoft Azure?**

It is an open and flexible cloud platform that enables you to quickly build, deploy and manage applications across a global network of Microsoft-managed datacenters. You can build applications using any language, tool or framework. And you can integrate your public cloud applications with your existing IT environment.

Furthermore, Azure is incredibly flexible, and allows you to use multiple languages, frameworks, and tools to create the customized applications that you need. As a platform, it also allows you to scale applications up with unlimited servers and storage. Microsoft charges for Azure on a pay-as-you-go basis, meaning subscribers receive a bill each month that only charges them for the specific resources they have used.

Major benefits:

1. Speed of service:  Microsoft Azure’s definition of speed is something else entirely, but they do put an emphasis on placing data centers worldwide to give users the best chance of getting their data when they need it.
2. Enhanced flexibility: One of the key benefits of using Azure is the way it shines in the flexibility department with its simplified scalability. Accessing more resources requires only a simple click to upgrade service levels, and companies are free to reduce these higher service levels when they no longer need the extra storage, computing, or support.
3. Disaster recovery: Reduce the costs of deploying, monitoring, patching and scaling on-premises disaster recovery infrastructure, without the need to manage backup resources or build a secondary data center. Azure provides a platform for a zero-infrastructure solution, with flexible policies to optimize backup storage.
4. Security: Azure Security refers to security tools and capabilities available on Microsoft's Azure cloud platform. According to Microsoft, the tools for securing its cloud service encompasses “a wide variety of physical, infrastructure, and operational controls.”

**What does Microsoft Azure offer?**

It offers Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). It even offers server less computing, which means you can place your code and all your backend activities on Microsoft Azure's servers. It also supports many different [programming languages](https://en.wikipedia.org/wiki/Programming_language), tools, and frameworks, including both Microsoft-specific and third-party software and systems.

**How does Microsoft Azure work?**

Once customers subscribe to Azure, they have access to all the services included in the Azure portal. Subscribers can use these services to create cloud-based resources, such as virtual machines (VM) and databases.

In addition to the services that Microsoft offers through the Azure portal, several third-party vendors also make software directly available through Azure. The cost billed for third-party applications varies widely but may involve paying a subscription fee for the application, plus a usage fee for the infrastructure used to host the application.

**Microsoft Azure products and services:**

Microsoft sorts Azure cloud services into nearly two dozen categories. Few of them are mentioned below:

* Compute: These services enable a user to deploy and manage VMs, containers and batch jobs, as well as support remote application access.
* Mobile: These products help developers build cloud applications for mobile devices, providing notification services, support for back-end tasks, tools for building application program interfaces (APIs) and the ability to couple geospatial context with data.
* Web: These services support the development and deployment of web applications. They also offer features for search, content delivery, API management, notification and reporting.
* Storage: This category of services provides scalable cloud storage for structured and unstructured data. It also supports big data projects, persistent storage and archival storage.
* Analytics: These services provide distributed analytics and storage, as well as features for real-time analytics, big data analytics, data lakes, machine learning (ML), business intelligence (BI), internet of things (IoT) data streams and data warehousing.
* DevOps: This group provides project and collaboration tools, such as Azure DevOps -- formerly Visual Studio Team Services -- that facilitate DevOps software development processes. It also offers features for application diagnostics, DevOps tool integrations and test labs for build tests and experimentation.
* Security: These products provide capabilities to identify and respond to cloud security threats, as well as manage encryption keys and other sensitive assets.

**Privacy in Microsoft Azure:**

Data security concerns and regulatory compliance requirements make privacy a major issue for cloud subscribers. To address these worries, Microsoft has created the online Trust Centre, which provides detailed information about the company's security, privacy and compliance initiatives. According to the Trust Centre, Microsoft will only use customer data if it is necessary to providing the agreed upon services and it will never disclose customer data to government agencies unless it is required by law.

**Conclusion:**

Studied and understood Microsoft azure, cloud computing platform and various services it provides along with its benefits.