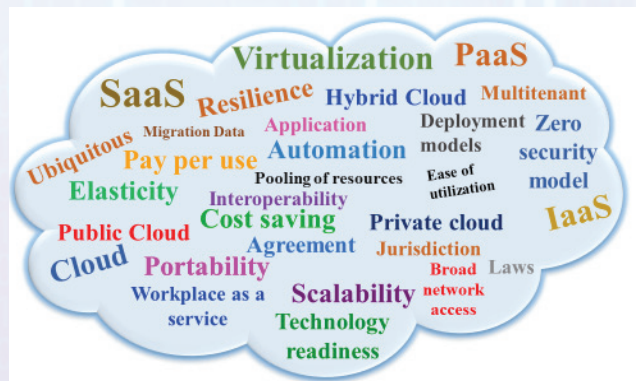


A B C D... of Cloud Computing

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THERE'S a lot to get to grips with when it comes to cloud computing. We have heard plenty in recent years about the revolutionary impact of the cloud, and it has certainly changed the way IT functions around the world. It has become a *de facto* platform for hosting applications, data storage, and other IT requirements of any organization. More and more firms, private entities, government, public sector companies, and corporates are moving to the cloud.

The cloud affinity is unprecedented and can be attributed to the fact that it is cheaper, better, and faster than the traditional IT model. But despite all these stories regarding digital transformations by leveraging it, cloud awareness among the mass population is still limited. So, here's a look at cloud computing with respect to its characteristics, deployment models, various service offerings, and terminologies presented in alphabetical sequence.



Automation: Everything, from configuration to maintenance and monitoring, is automated in cloud. Cloud infrastructure requires minimum human interaction. By leveraging the specialized software tools, the manual process associated with its management and operation is automated in the cloud.

Broad network access: The cloud user can access the cloud from any location just with a device and an internet connection. Cloud provides this as the ability of network infrastructure to connect with a wide variety of devices, including thin and thick clients, such as mobile phones, laptops, workstations, and tablets, to enable seamless access to computing resources across these diverse platforms.

Cost savings: As cloud limits the over-provisioning of resources, it brings down the cost effectively. Further there is no upfront cost, less deployment of manpower, lower maintenance cost which makes it economical and cheaper than traditional IT model.

Deployment model: The cloud deployment model identifies the specific type of cloud environment based on ownership, scale, and access, as well as the cloud's nature and purpose. The location of the servers you're utilizing and who controls them are defined by a cloud deployment model. Cloud primarily offers five types of deployment models namely public cloud, private cloud, community cloud, hybrid cloud and multi cloud.

Elasticity: It is the characteristic of the cloud to increase or decrease the compute, memory, and storage resources to adapt to the dynamic needs of an organization. Elasticity provides the additional infrastructure to handle the increased demand volume and then shrinks back to a lower capacity during periods of low demand. This feature allows for additional sudden and unanticipated workloads if needed without impacting performance or availability.

Faster implementation: Cloud computing offers faster implementation and deployment of solutions compared to the traditional IT delivery models. A cloud-based service can meet the organization's IT demand instantly, by provision of the resources online. This reduces the provisioning time thereby leading to faster implementation and increased organization efficiency.

Geographically diverse: Cloud enables users to work remotely or from any geographically diversified location on the planet. Users will be able to access the data and applications through any digital devices.

High availability: The high availability of cloud permits the computing infrastructure to continue functioning, even when there are manmade/natural disasters or component failures. Highly available systems guarantee a certain percentage of availability. The basic elements of high availability are redundancy, monitoring, and failover — fundamental to any cloud service.

Interoperability: Cloud interoperability refers to the ability of the systems to work efficiently and collaborate effectively across different cloud platforms. The interoperability can be categorized under data, infrastructure, platform, and application.

Jurisdiction: Cloud jurisdiction is very crucial as every country has its own sovereign laws and there are rules that apply to that particular country. Different jurisdictions lead to

different laws that may lead to conflicts as the laws of other countries are not harmonized and may lead to complexity in the cloud storage.

Kubernetes: It is an open-source container management technology to manage containerized applications in different kinds of environments such as physical, virtual, and cloud infrastructure. Kubernetes has the capability of automated deployment, application scalability, and operations of application containers across clusters.

Location of data: The data location is crucial as the data stored in the cloud may contain confidential, sensitive, and personal information that requires proper safeguards to prevent disclosure, compromise, or misuse. Therefore, the data located within the servers located within the geographical territory of the country brings in trust for cloud usage.

Multitenant: Multi-tenancy is a fundamental feature of cloud architecture that allows a single program instance to serve several user groups. The benefits of multi-tenancy are the better use of shared resources and lowered cost of the cloud.

NIST cloud reference model: The National Institute of Standards and Technology is responsible for publishing the computer standards and guidance. The NIST definition lists five essential characteristics of cloud computing, three “service models” and four “deployment models”.

On-demand self-service: It is based on a self-service model where users can manage their services. The users can monitor their consumption and can select the tools and resources they require right away from the cloud portal.

Pay as you go: The cloud users are charged basis the resource utilization and are billed as per the cloud utility consumed. This model is called the pay-as-you-go model. This is useful for both users and for the service provider, as users can monitor their consumption and the service providers can manage their resources efficiently.

Pooling of resources: Computing resources (like networks, servers, and storage) that serve individual users can be securely pooled which makes it appear like a large computing infrastructure. This is achieved by implementing a multiple-tenant model.

Quality of service: As the name suggests quality of service is the measurement of the overall performance of the cloud services. It refers to the allocation of resources to the applications to guarantee service based on performance, availability, and reliability.

Resilience: Resilience is the ability of the service to quickly recover from any disruption. A cloud’s resilience is measured

by how fast its servers, databases, and network system restart and recover from any kind of disruption in services.

Scalability: Scalability is the ability of the system to handle the increased amount of workload by adding resources to the system. When organizations require higher capacity, performance, storage, memory, and capabilities, more servers can be added in their original cloud infrastructure to meet the increased IT demands of the organization.

Technology readiness: Cloud computing always has the technological readiness with respect to meeting future challenges like scalability, elasticity, and patch management to address the security gaps, and incorporating innovative solutions.

Ubiquitous: Ubiquitous access is the ability of a cloud service to be widely accessible. Cloud provides “universal access,” i.e. access to all IT services, regardless of geographical location. Establishing ubiquitous access for a cloud service can require support for a range of devices, transport protocols, interfaces, and security technologies.

Virtualization: Clouds are built on the virtualization of servers, storage, and networks. Virtualized resources are software-based representations of physical resources such as servers or storage. It does this by assigning a logical name to physical storage and providing a pointer to that physical resource on demand.

Workplace as service: WaaS is a form of virtualized desktop that provides a virtual workspace for the users. Users can access the organization’s applications and data via this platform anywhere at any time using any device.

XaaS: In cloud, XaaS is anything as a service. Anything could be infrastructure as a service, platform as a service, software as a service or future unknown cloud-based service.

YaaS: YaaS is a cloud business service marketplace, where business services are registered. YaaS consists of modern architecture and uses cutting-edge technology where the business services are registered that can be built, and called to run the applications.

Zero trust model: Zero trust is a model in the cloud wherein all assets in an IT operating environment are considered untrusted by default. Zero Trust is a security model having the central philosophy that data accessibility should not be solely made based on the network location. It requires users and systems to strongly prove their identities and trustworthiness.

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