UNIVERSITY OF LIVERPOOL

Cloud-Computing

Deployment models

Now let's discuss the first deployment model which is the public cloud. public cloud is the most important type of cloud computing deployment model. In public cloud infrastructure, we have servers and storage that are owned and operated by third-party cloud service providers and these services are being delivered over the Internet. It is interesting to know that some public cloud computing resources are available for free while customers may pay for other resources through subscription or pay using pricing models. The public cloud allows users to share resources while maintaining the privacy of each user's data. In this architecture, the services are completely virtualised providing an environment we shared resources are leveraged as needed on the public cloud architecture.

It can access a service or an application on any connected device almost anywhere around the globe. With public cloud computing, all hardware software and other supporting infrastructures are owned and managed by cloud providers such as Amazon Web Services, Microsoft Azure, and Google cloud platform. Now let's talk about some of the advantages of using public clouds, which are given as follows: number one is public cloud has lower cost, in this type of a system there is no need to purchase hardware or software because we only pay for the service we use. Next, there is no maintenance because our service providers provide the maintenance. Scalability is on demand and we can upgrade and downgrade systems to meet our business needs these systems are highly reliable because a huge amount of servers forming a network are ensured against any form of failure.

Next, we will discuss the private cloud, also known as the internal or cooperate cloud. Private cloud provides computing services to be operated in the internal network within the organisation and selected users can use it instead of the public. Private cloud providers provide a high level of security and privacy today by installing firewalls and ensuring security on sensitive data, which is not accessible to any third-party providers. We have great examples of private clouds such as HP data centre, Microsoft, and Elestra-private cloud. In the private cloud, the services and infrastructures are always maintained on a private network and the hardware and software are dedicated solely to one organisation there are a couple of advantages of using the private cloud because it gives us more flexibility to our organisation. We can scale up and down the

resources in a cloud environment to meet specific business needs; second, we have more control over other resources because they are not shared with others, so a high level of control and privacy are also possible in private clouds; last, there are more scalable an offer more scalability as compared to the on-premises infrastructure.

A hybrid cloud is a combination of public and private clouds the main aim to combine this cloud both public and private is to create a unified automated and well-managed computing environment. In a hybrid cloud, noncritical activities are performed by the public cloud and critical activities are performed by the private cloud. Mainly a hybrid cloud is used for different applications such as finances healthcare, payroll, and resources management, within universities and organisations. The best hybrid cloud provider companies are Amazon Microsoft Google, and Cisco.

We have some advantages of using a hybrid cloud. The first advantage is control because our organisation can maintain a private infrastructure for sensitive assets or workloads that require low latency, and we can access them fast. In terms of flexibility, we can take advantage of additional resources in the public cloud when we need them. In terms of cost-effectiveness, we can scale the public cloud we are only required to pay for extra computing power only when we required it. And, the last advantage is transitioning is not a challenge anymore because we can migrate gradually phasing in workload over time. However, there are a few disadvantages of hybrid cloud such as 1) networking issues because we have to manage both public and private clouds together infrastructure; 2) compatibility occasionally becomes a challenge because a private cloud controls the company and a public cloud does not so there is a possibility that they are running in a separate stack.