CLOUD COMPUTING
ASSIGNMENT 2

- ASHISH KUMAR
- 2K18/SE/041

Ques:- What type of cloud deployment model will suit these applications?

1. **Central government : Private Cloud Deployment Model**
   A private cloud is an environment specifically dedicated to a single user within the user's firewall. It grants access to only authorized users, giving companies more central control over security factors and data. This deployment is usually single-tenant, which means the platform isn't shared. However, it can have multiple tenants per department within the company. It also provides on-demand data availability, securing reliability, and aid for mission critical workloads. Governments and scientific laboratories mostly incorporate a private cloud.

   Private cloud: possible customer scenario of central government
   a) In a scenario where a country's central government has thousands of servers for their ministries' infrastructure, they might be looking for a secure cloud model. The central government can choose a private cloud to secure and centralize their infrastructure and host several government applications such as payroll, personnel management, back-office systems, and accounting.
   b) Problem to address: The central government's private cloud possibly decreases energy consumption, frees up IT resources, and makes the environment cost-effective.
   c) Requirements and capabilities: The telecom company could build the entire cloud infrastructure on a private network. Security and privacy were of utmost priority; hence, they can choose the private cloud-deployment model as there are several sensitive information and confidential data on a government's server.
   d) Portability concerns: Portability concerns: If the government has no intention of moving its applications and data-storage; they could look for a secure private cloud to host its official applications.

2. **E-Commerce Application : Public Cloud Deployment Model**
   The public cloud is an ideal deployment model for companies whose business demands quick access without incurring massive setup costs upfront. It's open and available to all types and sizes of businesses and is extremely beneficial due to its unique feature that

securely transfers data online. It's more cost-effective than the private cloud-deployment model since its services are more commoditized.

There are various leading names such as Amazon Web Services, Google Cloud, Microsoft Azure, Alibaba Cloud, and IBM that provide this service. Public cloud services are especially beneficial for workload in the short term like for an event or initial phase for a start-up just as long as it requires. Public cloud is ideally used by businesses that need services like on-demand scaling, social networking, CRM, and storage.

Public cloud: prospective customer scenario for eCommerce applications with dynamic resource requirements

a) Say an e-Commerce application that runs an online store encounters a seasonal spike in traffic and sales during the festival seasons. However, due to the limited resources, they don't want to limit their customer service and shopping experience for their buyers. So they opted for a public cloud model to address limitations.

b) Solving problems: With the public cloud, they now get features such as robust operations with in-house infrastructure cost, scalable performance when needed, and a pay-as-you-go payment structure keeping their finances in check.

c) Requirements and capabilities: It's quite possible that they might encounter higher festive season traffic. They were looking to resolve it with the public cloud as a solution for the peak loads with scalability capabilities, which might justify and perfectly fit the requirement.

d) Portability concerns: With the public cloud, the application's portability is not a concern at all. If the company decides to migrate to a different cloud model, they can transfer to VM seamlessly without affecting the overall response time or performance of the e-store.

3. **Payroll Processing : Community Cloud Deployment Model**

   This model is shared among many companies/tenants operating within the same domain like banking, government, education institutions, etc. Access to a community cloud is limited to the members of that specific community. In other words, a group of several companies shares a multi-tenant setup where they have some privacy, security, and performance limitations and concerns. Businesses use this for joint ventures and research firms that require a centralized cloud computing system. For governments, it's known as Government Cloud and is embraced by many countries.

Community cloud: prospective customer scenario for a large organization payroll processing

a) Suppose there is a large organization that has two dedicated servers for payroll processing, which became a complicated and time-consuming process over the years. Now they are considering simplifying it, so they decide to migrate it to a cloud model. Their existing payroll-system architecture was a distributed application. So currently, to manage employee data and utilize cloud-database service from SQL database, they have to retrieve data from cloud storage. In order to simplify their payroll app and make this process faster, they want to deploy their app to four different Virtual machines to run simultaneously. Here, the community cloud deployment model is best suited, according to their organization's requirements.

b) Solving problems: The overall payroll processing time was delaying their operations and created many time-consuming bottlenecks. This community cloud model could resolve this and transform it into a flexible, faster, and cost-effective solution.

c) Requirements and capabilities: In this scenario, the cloud services could utilize VMs cloud storage like IaaS. To opt for a community cloud model, they don't want to modify the existing payroll app, and are considering deploying it to VMs instead. Furthermore, to avoid conflicts with data structures, the database can also be migrated to the cloud.

d) Portable concerns: If the organization wants to migrate again, they can do so according to their cloud storage provider's services and technical capabilities.