**Azure fundamental assignment 2**

1. **What is serverless computing?**

Serverless computing is a cloud computing execution model in which the cloud provider allocates machine resources on demand, taking care of the servers on behalf of their customers. "Serverless" is a misnomer in the sense that servers are still used by cloud service providers to execute code for developers. However, developers of serverless applications are not concerned with capacity planning, configuration, management, maintenance, fault tolerance, or scaling of containers, VMs, or physical servers. Serverless computing does not hold resources in volatile memory; computing is rather done in short bursts with the results persisted to storage. When an app is not in use, there are no computing resources allocated to the app. Pricing is based on the actual amount of resources consumed by an application. It can be a form of utility computing.

1. **Explain Azure subscriptions, management groups and resources.**

Azure management groups help you manage your Azure subscriptions by grouping them together. If your organization has many subscriptions, you might need a way to efficiently manage access, policies, and compliance for those subscriptions. Azure management groups provide a level of scope above subscriptions.

Azure subscriptions help you organize access to Azure resources and determine how resource usage is reported, billed, and paid for. Each subscription can have a different billing and payment setup, so you can have different subscriptions and plans by office, department, project, and so on.

Resource groups are containers that hold related resources for an Azure solution. A resource group includes those resources that you want to manage as a group. You decide which resources belong in a resource group based on what makes the most sense for your organization.

1. **Explain Azure regions, availability zones, and region pairs.**

**Azure Region** is a set of Datacenters that are connected through a dedicated low-latency network. There are regions of different sizes. A Region could be made up of just 1 dataceneter or multiple datacenters. The point is, an Azure Region is a group of one or more Azure Datacenters. As of this course recording, Azure has 58 regions worldwide.

An **Azure Availability Zone** is a unique physical location within an Azure region. Each Availability Zone is made up of one or more datacenters with independent power, cooling, and networking. Not all Regions have Availability Zones. Regions that support Availability Zones have a minimum of three separate zones to ensure resiliency.

**Azure regional pair,** paired regions, or region pair, all these terms are used interchangeably and they refer to the same thing, i.e a pair of azure regions. So in simple terms, a regional pair consists of two regions within the same geography.

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1. **Provide overview of Azure Compute Services.**

The word compute here refers to the hosting model for the computing resources on which our application runs. Azure compute service can be divided broadly into three categories.

Infrastructure as a service

Platform as a service

Serveless services

The most fundamental building block is the Azure virtual machine. Using Azure virtual machine, we can able to deploy different services such as Windows, Linux within the Azure cloud. When we implement a virtual machine, every virtual machine will have an associated OS and data disk.

Following are the main compute options available in Azure:

Virtual Machine: It is an IaaS service, allowing us to deploy and manage VMs inside a virtual network (VNet).

App Service: It is a managed PaaS offering for hosting web apps, mobile app back ends, RESTful APIs, or automated business processes.

Service Fabric: It is a platform that can run on any environment, including Azure or on-premises. It is an orchestrator of micro-services across a cluster of machine

Azure Kubernetes Services: It manages a hosted Kubernetes service for running containerized applications.

Azure Container Instances: It offers the fastest and most straightforward way to run a container in Azure without having to provision any virtual machines and without having to adopt a high-level service.

Azure Functions: It is a managed FaaS service.

Azure Batch: It is a managed service for running large-scale parallel and high-performance computing (HPC) applications.

Cloud Services: It is a managed service for running cloud applications. It uses a PaaS hosting model.

1. **What is an Azure virtual machine and when to opt for an Azure virtual machine?**

Azure Virtual Machines (VM) is one of several types of on-demand, scalable computing resources that Azure offers. Typically, you choose a VM when you need more control over the computing environment than the other choices offer. This article gives you information about what you should consider before you create a VM, how you create it, and how you manage it.

An Azure VM gives you the flexibility of virtualization without having to buy and maintain the physical hardware that runs it. However, you still need to maintain the VM by performing tasks, such as configuring, patching, and installing the software that runs on it.

Azure virtual machines can be used in various ways. Some examples are:

Development and test – Azure VMs offer a quick and easy way to create a computer with specific configurations required to code and test an application.

Applications in the cloud – Because demand for your application can fluctuate, it might make economic sense to run it on a VM in Azure. You pay for extra VMs when you need them and shut them down when you don’t.

Extended datacenter – Virtual machines in an Azure virtual network can easily be connected to your organization’s network.

There are always a multitude of design considerations when you build out an application infrastructure in Azure. These aspects of a VM are important to think about before you start:

The names of your application resources

The location where the resources are stored

The size of the VM

The maximum number of VMs that can be created

The operating system that the VM runs

The configuration of the VM after it starts

The related resources that the VM needs