**Oracle Cloud Infrastructure (OCI)**

It is a set of complementary cloud services that enable you to build and run a range of applications and services in a highly available hosted environment. OCI provides high-performance compute capabilities (as physical hardware instances) and storage capacity in a flexible overlay virtual network that is securely accessible from your on-premises network.

*OCI is* ***physically hosted*** *in* ***regions*** *and* ***availability domains***

**OCI -Physical Architecture**

Components:

* **Regions** - localized geographic area, are globally distributed data centers
* **Availability domain** - one or more data centers located within a region
* **Fault Domains** - is a grouping of hardware and infrastructure within an availability domain. (Distribute your **instances** so that the instances are not on the same physical hardware within a single availability domain)
* **Realms** - A realm is a **logical collection of regions**. Realms are **isolated** from each other and do **not share any data**. Your tenancy exists in a single realm and has access to the regions that belong to that realm. OCI currently offers realms *for commercial regions, government regions, and dedicated regions*.

**Account and Access Concepts:**

* **Tenancy** - When you **sign up or subscribe to Oracle Cloud services**, Oracle creates a tenancy for you. You can think of the tenancy as your account, but it is also a **secure and isolated partition within Oracle Cloud Infrastructure** where you can **create, organize, and administer** **your cloud resources**. When you sign up, your tenancy is created in your **home region**, but you can subscribe your tenancy to **as many regions as you need**. Large organizations can have multiple tenancies
* **Compartment** -allow you to **organize and control access** to your cloud resources. **collection of related resources** (such as **instances, virtual cloud networks, block volumes**). When you sign up for Oracle Cloud Infrastructure, Oracle creates your **tenancy**, which is the **root compartment** that holds all your cloud resources. You then create additional compartments within the tenancy (root compartment) and corresponding policies to control access to the resources in each compartment.
* **Identity Domains and Policies –** It is a container for managing **users and roles**, federating and provisioning of users, secure application integration through **Oracle Single Sign-On (SSO)** configuration, and **OAuth administration**.  
  A **policy** is a document that specifies **who can access which resources**, and how. You can write policies to control access to all of the services within Oracle Cloud Infrastructure. Access is granted at the group and compartment level, which means you can write a policy that gives a group a specific **type of access within a specific compartment, or to the tenancy itself.** If you give a group access to the tenancy, the group automatically **gets the same type of access to all the compartments inside the tenancy**
* **Oracle Cloud Identifier (OCID) -** Every Oracle Cloud Infrastructure resource has an Oracle-assigned unique ID called an Oracle Cloud Identifier (OCID). It's included as part of the resource's information in both the Console and API. **To use the API, you need the OCID** for your tenancy

ocid1.<RESOURCE TYPE>.<REALM>.[REGION][.FUTURE USE].<UNIQUE ID>

* **Security Zone -** A security zone is **associated** with **one or more compartments** and a security zone recipe. When you create and update resources in a security zone, Oracle Cloud Infrastructure **validates these operations against security zone policies** in the zone's recipe.

**Core Services Concepts:**

* **VCN - virtual version of a traditional network**—**including subnets, route tables, and gateways**—on which your **instances** **run**. A cloud network **resides within a single region** **but includes all the region's availability domains**. Each subnet you define in the cloud network can either be in a single availability domain or span all the availability domains in the region (recommended). You **need to set up at least one cloud network before you can launch instances**.
* **Instance** - is a **compute host running in the cloud**. An Oracle Cloud Infrastructure compute instance allows you **to utilize hosted physical hardware**, as opposed to the **traditional software-based virtual machines**, ensuring a high level of security and performance.
* **Block volume -** is a **virtual disk** that provides persistent block **storage space for Oracle Cloud Infrastructure instances.** Use a block volume just as you would a **physical hard drive** on your computer, for example, **to store data and applications. You can detach a volume from one instance and attach it to another instance without loss of data**.

**Oracle Cloud Infrastructure Cloud Adoption Framework**

**Applications Services**

**Infrastructure Services**

OIC Questions:

**1. What are the products within OIC?**

Integration Cloud, VBCS (Visual Builder Cloud Service), PCS (Process Cloud Service)