**1. Virtualization**

**What is Virtualization?**

Virtualization is the ability which allows sharing the physical instance of a single application or resource among multiple organizations or users.

Run multiple applications on the same physical hardware and this process is nothing but Virtualization.

It is the process of creating a virtual environment of something which may include hardware platforms, storage devices, OS, network resources, etc.

**What is the use of Virtualization and why?**

For able to run Multiple operating systems

Virtualization can usually improve overall application performance due to technology that can balance resources, and provide only what the user needs.

**2**. **Virtual Machine**

**Why we need Virtual Machine?**

If someone needs to work on different operating system on top of another Operating System.

**E.g.** You may want to use Linux for your work on top of windows. This is one the best use of virtual machine

**Prerequisites for creating a Virtual Machine**

You generally must have a fast enough processor, enough RAM and a big enough hard drive to install the system and application software you want to run, just as you would if you were installing it directly on your physical machine.

**3**. **Microservices**

**What is monolithic architecture?**

Monolith means composed all in one piece. The Monolithic application describes a single-tiered software application in which different components combined into a single program from a single platform.

**What is Microservice architecture?**

Micro services are an architectural style that develops a single application as a set of small services.

1. Each service runs its own process
2. It is loosely coupled
3. Independently deployable
4. Reusability of each service code
5. Highly maintainable and testable

**Can we host a website/app on virtual machine using microservice?**

Yes

**4. API**

**What are API’S?**

An application programming interface (API) is a **particular set of rules ('code') and specifications** that software programs can follow to communicate with each other.

* It's used when 2 or more separate systems need to work together to achieve something they can't do alone.

**Explain some examples wrt API**

An example, you are buying an item in online through your credit card. You will provide credit card details and press continue button. It will tell you whether your information is correct or not. To provide these results, there are lot of things in the background.

The application will send your credit card details to a remote application which will validate your information and send the result back your application. API is used in this scenario.

**5. Endpoints**

An endpoint is one end of a communication channel.

When an API interacts with another system, the touch points of this communication are considered endpoints.

**6. Software Integration**

**What is software integration?**

Software Integration is a process of merging two or more diverse software systems either mono-directional or bi-directional so that data/functionality flows between that system smoothly.

**7. Cloud - Concept**

**What is cloud?**

The cloud refers to servers that are accessed over the Internet, and the software and databases that run on those servers. Cloud servers are located in data centers all over the world. By using cloud computing, users and companies don't have to manage physical servers themselves or run software applications on their own machines.

**What is Datacenter?**

Data centers are simply centralized locations where computing and networking equipment is concentrated for the purpose of collecting, storing, processing, distributing or allowing access to large amounts of data.

**Why everyone is switching to cloud? And Advantages?**

Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access.

* Flexibility
* Disaster recovery
* Automatic software updates
* Work from anywhere
* Security

**Which are the cloud providers? Why AWS is famous?**

Earlier we used to store our data in hard drives on a computer. Cloud Computing services have replaced such hard drive technology. Cloud Computing service is nothing but providing services like Storage, Databases, Servers, networking and the software through the Internet.

Amazon Web Services

Microsoft Azure

Google Cloud Platform

Adobe

VMware

IBM Cloud

Rackspace

Red Hat

Salesforce

Oracle Cloud

SAP

Verizon Cloud

Dropbox

AWS is trusted by many firms, small or big because of the features it provides. AWS helps companies with a wide variety of workloads such as game development, data processing, warehousing, achieve, development and many more. AWS helps firms by providing the quality services and supports their businesses. It provides many features.

**UNIX/LINUX Commands**

-bash-4.4$ mkdir /tempo

-bash-4.4$ ls -l

total 0

-bash-4.4$ touch demo

-bash-4.4$ ls -l

total 0

-rw-r--r-- 1 bkongara Domain Users 0 Jan 20 12:54 demo

-bash-4.4$ ls -ltr

total 1

-rw-r--r-- 1 bkongara Domain Users 0 Jan 20 15:05 file1.txt

-rw-r--r-- 1 bkongara Domain Users 25 Jan 20 15:14 file.txt

-bash-4.4$ vi file1.txt

-bash-4.4$ ls

file.txt file1.txt

-bash-4.4$ vi file.txt

-bash-4.4$ more file.txt

bindusri kongara

-bash-4.4$ vi file.txt

-bash-4.4$ more file.txt

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bindusri kongara

-bash-4.4$ rm file.txt

-bash-4.4$ more file.txt

more: stat of file.txt failed: No such file or directory

-bash-4.4$ ls -lrt

total 1

-rw-r--r-- 1 bkongara Domain Users 414 Jan 20 15:36 file1.txt

-bash-4.4$ touch f1.txt

-bash-4.4$ vi f1.txt

-bash-4.4$ less f1.txt

-bash-4.4$ cat f1.txt

this is the f1 file.

20/1/2020

-bash-4.4$ more f1.txt

this is the f1 file.

20/1/2020

-bash-4.4$ ls -l

total 2

-rw-r--r-- 1 bkongara Domain Users 31 Jan 20 15:47 f1.txt

-rw-r--r-- 1 bkongara Domain Users 414 Jan 20 15:36 file1.txt

-bash-4.4$ cp f1.txt file1.txt

-bash-4.4$ more file1.txt

this is the f1 file.

20/1/2020

-bash-4.4$ more f1.txt

this is the f1 file.

20/1/2020

-bash-4.4$ mv f1.txt fil1.txt

-bash-4.4$ more fil1.txt

this is the f1 file.

20/1/2020

-bash-4.4$ more f1.txt

more: stat of f1.txt failed: No such file or directory

-bash-4.4$ ls -l

total 2

-rw-r--r-- 1 bkongara Domain Users 31 Jan 20 15:47 fil1.txt

-rw-r--r-- 1 bkongara Domain Users 31 Jan 20 15:52 file1.txt