Name:- Krishan   Btech I.T   D4 IT A2
Roll No :- 1905355/1921057

Q1) What is edge Computing? Explain with example.

Ans. Edge Computing is a networking philosophy focused on bringing computing close to source of data as possible in order to reduce latency & bandwidth used. It means running fewer processes in the cloud and moving those process to local places such as on a user's Computers an IOT device or an edge server. Bringing Computation to network's edge minimizes the amount of long-distance Communication that has to happen between a client and server. It Centralised applications running close to users, either on the device itself or on network edge.

Example:- Consider a building Secured with dozens of high-definition IOT video Cameras. These are dumb cameras that simply output a raw video Signal and continuously stream that Signal to cloud Server. On the cloud Server, the video output from all the Cameras in put through a motion detection application to ensure that only clips featuring activity are Saved to the Server's database. This means there is a Constant and Significant Strain on the building internet infrastructure, as significant bandwidth gets Consumed by the high volume of video footage being transferred. This is very heavy load on the

Cloud Server that has to process the video footage from all cameras simultaneously. The Cloud Server is only responsit for storing the important footage, meaning that the server could communicate with a higher number of cameras without getting overloaded. This is what edge computing looks like

Q2) Explain Containers & edge computing with open stack.

Ans:- Containers with openstack:-

Containers are a technology that enables developers to download ready base images, pack onto them applications, break them down into components, deploy and test each part in continuous integration system and push them to a registry, where system engineers can deploy them on top of the existing infrastructure and make them available to the world.

Use of Containers:-

(1) Kolla (containers) is an openstack project to build Containers for each openstack service. It includes a sophisticated build and templating systems and is capable of building containers from both source and packages on a variety of hostos

(2) Containers require less system resources than

traditional as hardware VM environment because they don't include OS images

(3) openstack services are comprised of different compensable projects that deliver programmable infrastructure. When it comes to running containerized applications on openstack. It depends whether you want to run containers on bare metal

Edge Computing with open stack :-

(1) Openstack provides fundamental infrastructure building blocks that can be deployed anywhere including the edge of network.

(2) The flexible and modular nature of openstack means you can run the minimal services required at edge, yet provide robust support for base metal, container technologies and VM

(3) open stack is already, the most highly distributed infrastructure software, running in thousands of data centers around the world and many users in telecom and retail industries are working now to advance the edge computing use case with openstack.

Example :-
let say we are using openstack infrastructure in a distributed fashion across multiple physical areas, or edge sites.

Each edge Contains between 5 and 20
machines and we would like to
deploy one or more openshift clusters
at each one.
Benefits of these clusters :-
- Low latency to end uses
- Smaller footprint
- Confined fault domain
- Connected to Central Site for Central
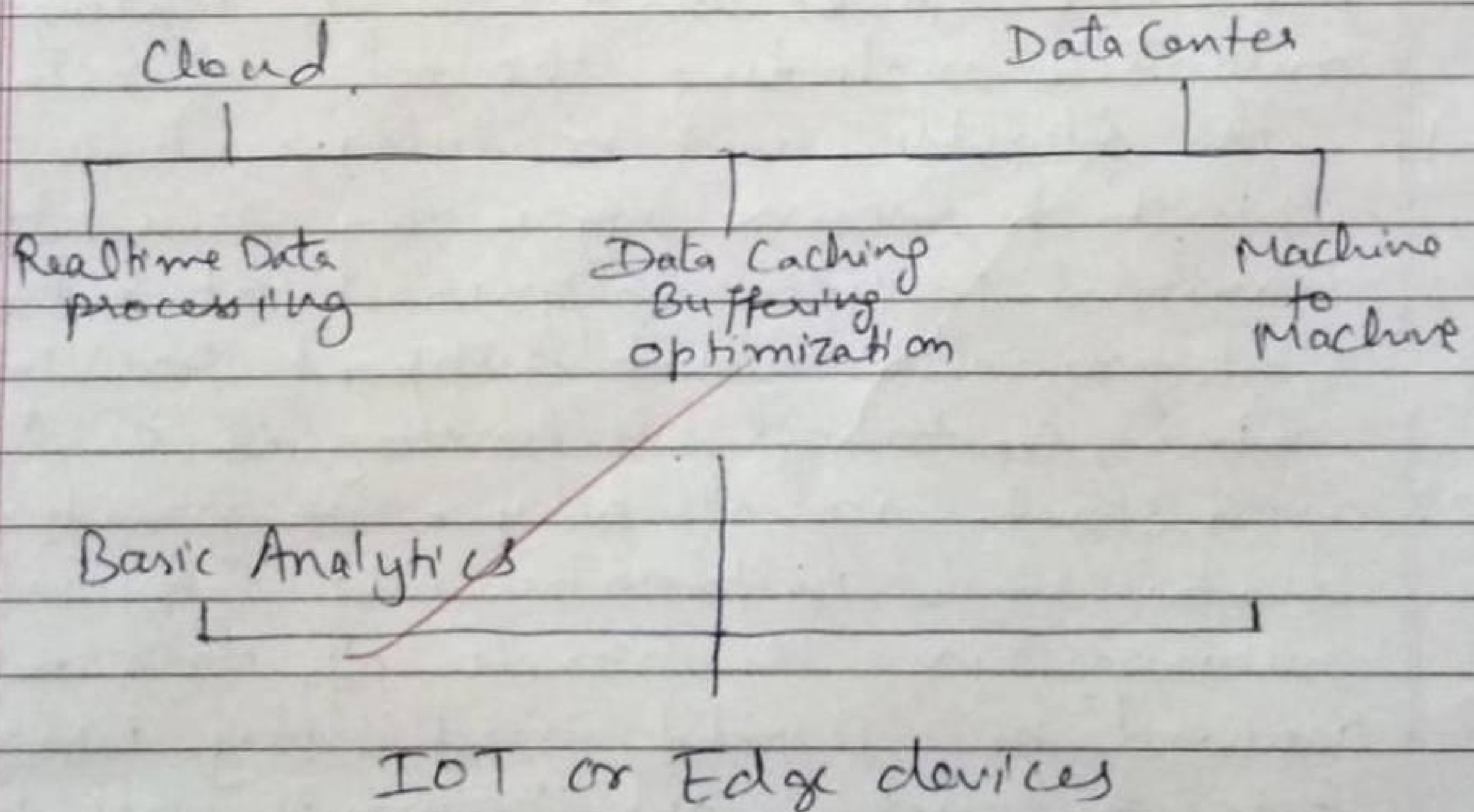applications or disaster recovery.

Edge Computing

Cloud   Data Center

Realtime Data   Data Caching   Machine
processing   Buffering   to
                       optimization   Machine

Basic Analytics

IOT or Edge devices

fig : Edge Computing