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**BANGLADESH UNIVERSITY**

Assignment

***Subject Name : physics***

***Assignment Name : DATA CENTER***

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**Data Center :**

A data center (American English) or data centre (British English) is

a building, dedicated space within a building, or a group of buildings used to

house computer systems and associated components, such

as telecommunications and storage systems

Since IT operations are crucial for business continuity, it generally

includes redundant or backup components and infrastructure for power supply,

data communication connections, environmental controls (e.g. air conditioning,

fire suppression) and various security devices. A large data center is an

industrial-scale operation using as much electricity as a small town.

**History:**

Data centers have their roots in the huge computer rooms of the 1940s, typified

by ENIAC, one of the earliest examples of a data center. Early computer

systems, complex to operate and maintain, required a special environment in

which to operate. Many cables were necessary to connect all the components,

and methods to accommodate and organize these were devised such as

standard racks to mount equipment, raised floors, and cable trays (installed

overhead or under the elevated floor). A single mainframe required a great deal

of power and had to be cooled to avoid overheating. Security became

important – computers were expensive, and were often used

for military purposes. Basic design-guidelines for controlling access to the

computer room were therefore devised.

During the boom of the microcomputer industry, and especially during the

1980s, users started to deploy computers everywhere, in many cases with little

or no care about operating requirements. However, as information technology

(IT) operations started to grow in complexity, organizations grew aware of the

need to control IT resources. The advent of Unix from the early 1970s led to the

subsequent proliferation of freely available Linux-compatible PC operating-

systems during the 1990s. These were called "servers", as timesharing operating

systems such as Unix rely heavily on the client-server model to facilitate

sharing unique resources between multiple users. The availability of

inexpensive networking equipment, coupled with new standards for the

network structured cabling, made it possible to use a hierarchical design that put

the servers in a specific room inside the company. The use of the term "data

center", as applied to specially designed computer rooms, started to gain

popular recognition about this time.

The boom of data centers came during the dot-com bubble of 1997–

2000. Companies needed fast Internet connectivity and non-stop operation to

deploy systems and to establish a presence on the Internet. Installing such

equipment was not viable for many smaller companies. Many companies started

building very large facilities, called Internet data centers (IDCs), which

provide enhanced capabilities, such as crossover backup: "If a Bell Atlantic line

is cut, we can transfer them to ... to minimize the time of outage."

The term cloud data centers (CDCs) has been used. Data centers typically cost

a lot to build and to maintain. Increasingly, the division of these terms has

**Why Needs of Data Center:**

Any entity that generates or uses data has the need for data centers on some

level, including government agencies, educational bodies, telecommunications

companies, financial institutions, retailers of all sizes, and the purveyors of

online information and social networking services such as Google and

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**The Future of data center:**

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**The Future of data center:**

According to the CB Insights Market Sizing tool, the global data

center services market is estimated to reach $228B by 2020. One of the more

recent transformations in data center construction is size. Some data

centers have become smaller and more distributed (these are referred to as

edge data centers)

**Advantages of Data center:**

Today's storage systems, servers and network devices use components so

miniaturized that they falter and fail under power conditions that earlier-

generation equipment easily withstood. A data center provides reliable storage

without the glitches of portable technology.

**Importance of data center:**

Data centers have also been around since the dawn of the modern computing

age. They are also responsible for data backup and recovery, as well as

networking. These centers also host websites, manage e-mails, and instant

messaging services. They support cloud storage applications and e-commerce

transactions.

So we can say that 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. ... They provide important services such as data storage, backup and

recovery, data management and networking.