Data Centers

Data Centers are group of high-end server grade machines networked together and hosted aspart of big building which are geographically separated and are inter-connected

The data center vendors by themself procure necessary infrastructure like
1. high-end server grade machines
2. physical real-state space with air-conditioned
3. high-speed dedicated leased internet lines
4. 24/7 power backup
5. Networking
6. Networking devices with huge/high end capacity
7. man power resources required for administration, networking, monitoring, security and support etc

Data Centers

The Data center vendors offers dedicated infrastructure services to the enterprise large scale business organizations, so that they can host their applications on those machines:
1. The machines that are provided by data center vendors are bare-metal machines that are not installed with any operating system or software tools/utilities. The business organization upon procuring these machines has to buy their own licensing, install and configure these softwares inorder to use the machines

2. The customers/business organizations has a flexibility of procuring the machines of their choice out of available shapes that are offered by data center

3. The infrastructure is provided on leased basis. which means the business organization has to run into contract with data center inorder to use the infrastructure.

4. The business organizations can request a group/cluster of computers with an private networking options as well. So that organization can host/scale their applications on that dedicated cluster

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There are lot of advantages with data centers:
1. No up-front investment cost involved in setting up the infrastructure/resources in running the application. The business organizations can procure the resources on a leased model with data center with minimal investment
2. The time required for getting the infrastructure inorder to host the application is very less. upon requesting the data center for the infrastructure resources, the turn-around time in providing them will be very less. This means the investment can quickly be put into returns
3. The infrastructure is not shared, it is dedicated to the business organization hence it is very secured
4. The business organization has full-control over using the infrastructure like they can install their own operating system, software packages for running their application on their own technology stack of their choice
5. Better release planning and release management is possible as it is dedicated infrastructure
6. patching, upgradation and maintainance (backup/recovery) lies totally under the control of the business organization

dis-advantages with data centers:
1. No flexibility in customizing the machines of our choice. The data centers offers fixed-shape machines only, so the organizations has to choose one of these shapes out of the offering only

2. scaling-up and scaling-down the computing resources of the physical machine is not possible

3. The data centers usually enforce the customers in signing up into long-term contracts only in procuring the infrastructure. So we cannot procure the infrastructure for short-interval of usage

4. Upon procuring the infrastructure, the business organization has to spend lot of time in setting up the required environment inorder to run/host the software application on them. since the machines delivered by the datacenter are bare-metal machines, it takes lot of time in setting up
   1. operating system software
   2. platform softwares
   3. tools/configurations
that are necessary for running the software applications. Usually the process involved in installing/configuring the platform software is very complex and time consuming.

5. Periodical backup and incase of crash recovery of data and software packages on those infrastructure responsibility will lies in the hands of business organization only

6. Upgrading, patching of the platform softwares has to be taken care by business organization

7. securing, monitoring and maintainance should be taken care by business organization