Storage infrastructure refers to the overall set of hardware and software components needed to facilitate storage for a system.

This is often applied to cloud computing, where cloud storage infrastructure is composed of hardware elements like servers, as well as software elements like operating systems and proprietary delivery applications.

The storage infrastructure components are:

1. DAS(Direct Attached Storage) ,
2. SAN(Storage Area Network),
3. NAS(Network Attached Storage),
4. RAID
5. Internet Protocol SAN.

1. DAS(DIRECT ATTACHED STORAGE):

- DAS is well suited for a small-t-medium sized business where sufficient amounts of storage can be configured at a low startup cost.
- The DAS enclosure will be a separate adjacent cabinet that contains the additional disk drives
- An internal PCI-based RAID controller is typically configured in the server to connect to the storage.
- The SAS(Serial Attached SCSI) technology is used to connect the disk arrays.
- One of the primary benefits of DAS storage is the lower startup cost to implement.
- Managing the storage array is done individually as the storage is dedicated to a particular server.

2. SAN(STORAGE AREA NETWORKS):

- With Storage Area Networks, this solution used with medium-to-large size businesses, primarily due to the larger initial investment.
- SANs leverage external RAID controllers and disk enclosures to provide high-speed storage for numerous potential servers.
- SANs require an infrastructure consisting of SAN switches, disk controllers, HBAs and fibre cables.
- The main benefit to a SAN-based storage solution is the ability to share the storage arrays to multiple servers.
- This allows you to configure the storage capacity as needed, usually by a dedicated SAN environment, and data is highly available through redundant disk controllers and drives.

3. NAS(NETWORK ATTACHED STORAGE):

- A third type of storage solution exists that is a hybrid option called Network Attached Storage. This solution uses a dedicated server or "appliance" to server the storage array.
- The storage can be commonly shared to multiple clients at the same time across the existing Ethernet network.
- The main difference between NAS and DAS and SAN is that NAS server utilize file level transfers, while DAS and SAN solutions use block level transfers which are more efficient.
- NAS storage typically has a lower startup cost because the existing network can be used.
- This can be very attractive to small-to-medium size businesses.

- Different protocols can be used for file sharing such as NFS for UNIX clients and CIF for Windows clients.

4. RAID:

- RAID stands for "Redundant Array of Independent Disks".
- Combine multiple small, inexpensive disk drives into a group to yield performance exceeding that of one large, more expensive drive.
- It support fault-tolerance by redundantly storing information in various ways.
- RAID also uses data striping to achieve better performance.

5. INTERNET PROTOCOL SAN:

- It provide block level communication across a local or wide area network.
- Internet protocol SAN support availability of data and consolidation.

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