

Data Centers

⇒ A data center is a facility composed of networked computers and storage that businesses or other organizations use to organize data.

⇒ Data centers are not a single thing, but rather, a conglomeration of elements.

⇒ A data center must also contain an adequate infrastructure.

⇒ A data center's design is based on a network of computing and storage resources that enable the delivery of shared applications and data.

Data Center Consolidation and Colocation

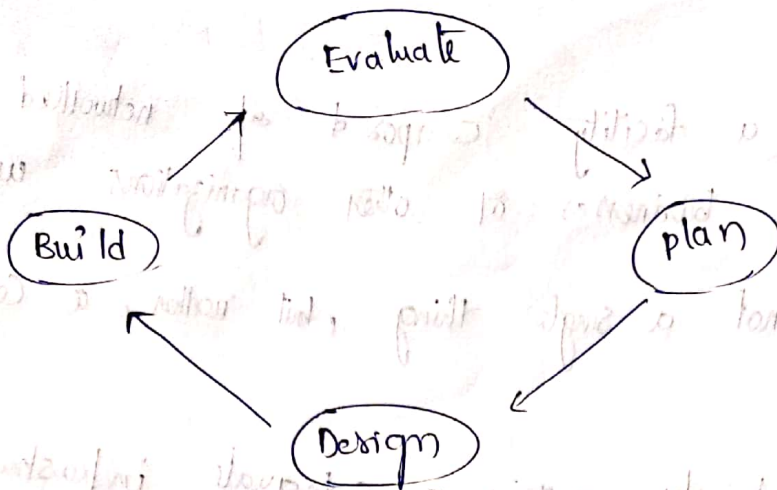
⇒ Data Center Consolidation is the process of downsizing or consolidating many servers, storage systems, network systems.

⇒ The purpose is to lower cost and improve performance among other things.

⇒ Colocation is an appealing option for organizations that want to avoid the large capital expenditures.

Benefits

1. physical locations
2. Procurement
3. Software
4. Security
5. Reduce errors.



Data Center Tiers

- Data Center tiers are a standardized ranking system that indicates the reliability of data center infrastructure
- The classification ranks facilities from 1 to 4, with 1 being the worst and 4 in the best performing level
- The ranking is based on
 1. uptime guarantees
 2. fault tolerance
 3. service cost

Tier 1 :

- A data center with single path for power and cooling and no backup components
- This tier has an expected uptime of 99.671% per year

Tier 2 :

→ A data center with single path for power & cooling and some redundant and backup components available

→ This tier offers an expected uptime of 99.74% per year

Tier 3 :

→ A data center with multiple paths for power & cooling and redundant systems

→ That allows the staff to work on setup without taking it offline

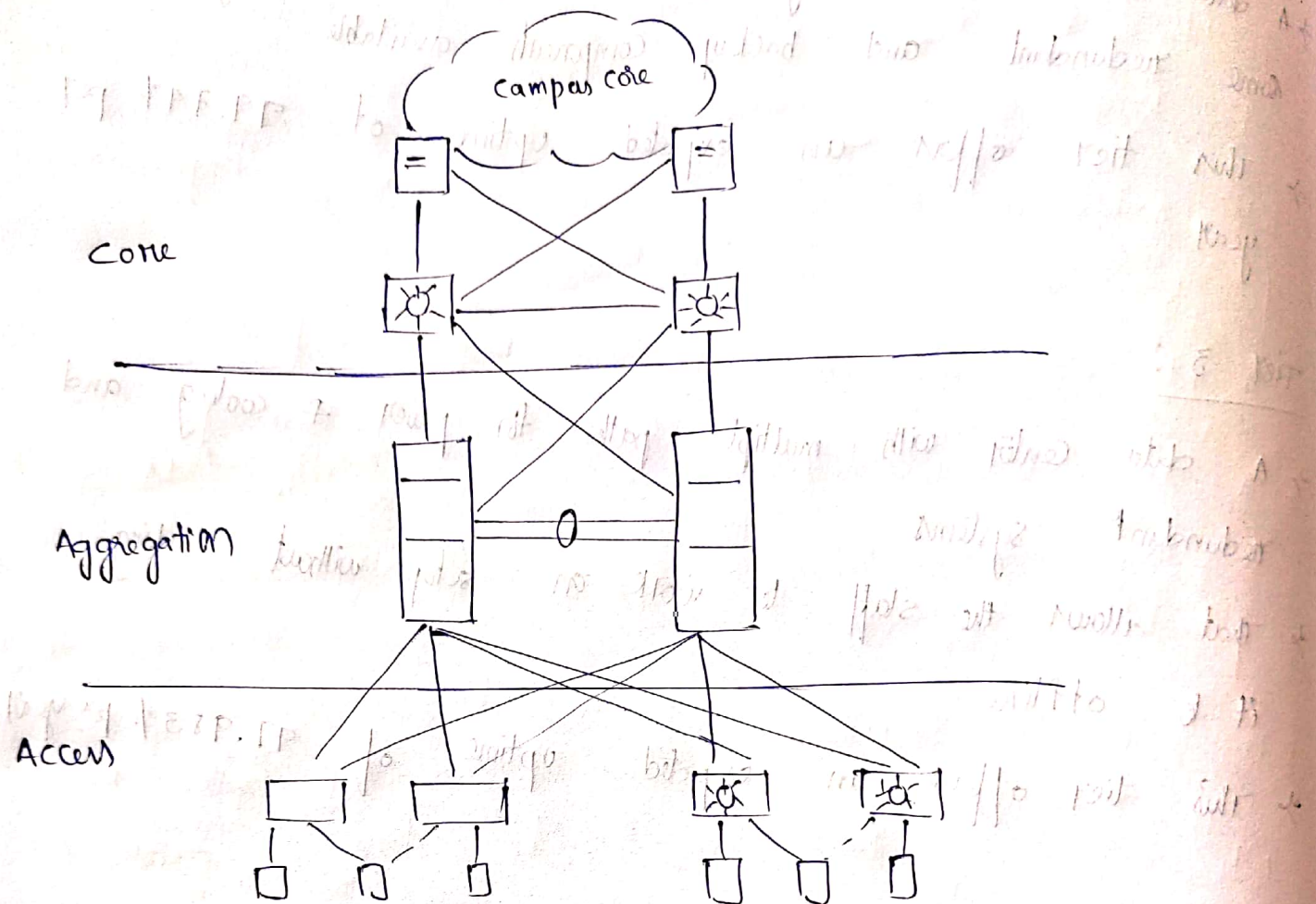
→ This tier offers an expected uptime of 99.983% per year

Tier 4 :

→ A completely fault tolerant data center with redundancy for every component

→ This tier offers with an uptime of 99.995% per year.

Data Center Architecture



Core Layer:

→ provides high-speed packet switching backplane for all flows going in and out of the data center.

Aggregation:

→ provides important functions

- service module integration
- layer 2 domain definitions.

Access Layer:

→ the access layer network infrastructure consists of

- module switches
- fixed configuration (or) 2RU switches
- integral blade server switches.