Introduction

Structure cabling is imperative for any datacenter and it should be performed well as per the standards. Below factors needs to be considered when choosing the media,

- The quality and the life of a span must be checked
- The quantity of the cable
- Trunking capacity of the cabling
- Vendor background must be checked.

Telecommunications distribution consists of two basic elements—the distribution pathways and related spaces and the distribution cabling system.

Datacenter cabling covers two major sections, network equipment and Server equipment. Below list are comes under networking equipment

- Voice, modem, and facsimile telecommunications service
- Switching and other network equipment
- telecommunications management connections
- Keyboard/video/mouse (KVM) connections
- Intelligent infrastructure management (IIM)
- Wide area networks (WAN)
- Local area networks (LAN)

Below list comes under server equipment

- Storage area networks (SAN)
- Wireless systems utilized in the data center including wireless LANs

Other items require cabling, other building signaling systems (building automation systems such as fire, security, power, HVAC, and EMS)

Based on the capacity requirement planning, adequate copper conductor and optical fiber capacity to the site should be provided to meet the current and projected needs of the entire site,

Multiple connectivity paths with enough capacity should be provided based on the datacenter class requirements.

Connectivity capacity to the site should be planned and implemented very carefully. If the data center is designed for minimal initial capacity with large future capacity requirements, careful consideration should be given to the amount of capacity requested to be delivered to the site by the access providers.

The selection of the primary access provider should be carefully determined to ensure that the required availability requirements can be achieved.

To have a reliability of the communication services, Data centers should have redundant circuits from the primary access provider or adding services from alternate access providers.
The reliability of the overall communications services can be further increased if the redundant circuits are serviced from separate access provider offices following diverse routes.

Redundant telecommunications service cabling is planned, telecommunications service cabling pathways should maintain a minimum separation of 20 m (66 ft.) along the entire route.

At least two diversely routed telecommunications service feeds from different access provider central offices with each access provider central office connected to multiple higher-level access provider and multiple long-distance carrier offices.

At least two diversely routed telecommunications service feeds from different access provider central offices with both access provider central offices connected to the same higher-level access provider and long-distance carrier offices.

At least two diversely routed telecommunications service feeds from one access provider central office. One telecommunications service feed from one access provider central office.

All telecommunications service cabling to the facility should be underground with a minimum separation of 1.2 m (4 ft.) from other utilities along the entire route.

The datacenter should not have overhead telecommunications cables especially if there is only one service entrance, in such a scenario, ensure that the entrance cables are well protected from physical damage at the drop pole.

If cables drop from service poles to underground, the drop pole should provide 100 mm (4 in) rigid conduits from below grade up to the elevation where the cables are suspended to protect the entrance cables from physical damage.
Data centers should be in an area with easy sustainable connectivity to the access provider central offices. Datacenter should be in an area where connectivity is provided by two or more access provider for Tier 3
and higher datacenter.

Redundant data centers for disaster recovery (DR) purposes should be located with enough physical separation to reduce single modes of failure (natural or manmade) - within acceptable limits for the critical data.

The two locations should be on separate distribution systems to minimize the occurrence of one outage affecting both locations.

Telecommunications cabling is, therefore, one subset of telecommunications distribution and may be described as a specific system of balanced twisted-pair, unbalanced cabling (e.g., coaxial) and optical fiber cabling, equipment/patch cords, connecting hardware, and other components supplied

as a single entity.

Cabling plan should reduce maintenance and relocation and expansion of additional equipment. It should ensure that cabling can be accessed for reconfiguration under the floor or overhead on cable pathway system.

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