

Article Overview

Leased lines provide dedicated, private connectivity between geographically separate data centers, ensuring high performance, security, and reliability for critical applications.

Overview of Leased Lines in Data Centers

A leased line is a private telecommunications circuit that connects two distinct locations, such as data centers, offices, or cloud endpoints, over long distances. Unlike shared internet connections, leased lines offer dedicated bandwidth, symmetrical upload and download speeds, and consistent performance, making them ideal for data center interconnection (DCI), disaster recovery, and large-scale data replication . They are always active, point-to-point connections that do not traverse the public internet, providing enhanced security and reliability .

Use Cases for Data Center Interconnection

Leased lines are commonly used to:

- o Connect multiple data centers for redundancy, disaster recovery, or distributed applications .
- o Enable high-speed data replication between primary and secondary sites.
- o Support hybrid cloud architectures, linking on-premises infrastructure to public cloud providers.
- o Facilitate large data transfers and high-quality voice/video communications.
- o Extend LAN or SAN networks across sites, supporting Layer 2 or Layer 3 extensions for applications requiring consistent IP addressing or file server backups .

Technical Considerations

When implementing leased line interconnections between data centers, several factors are important:

- o Layer 2 Extension: Extends a single Layer 2 domain across data centers, useful for legacy applications or virtual machine mobility .
- o Layer 3 Extension: Provides routed connectivity for segmentation, virtualization, and backup applications, often using VPN or MPLS technologies .
- o SAN Extension: Connects storage networks over distance, requiring careful attention to latency and protocol compatibility, as Fibre Channel cannot natively traverse IP networks .
- o Path Optimization: Ensures efficient routing between geographically remote VLANs or subnets to maintain application performance .

Comparison with Other Interconnection Options

Data center leased line interconnection

- o Cross Connects: Operate within the same data center, providing ultra-low latency connections between racks or carriers, but are limited to short distances .
- o SD-WAN and Software-Defined Interconnection (SDI): Offer flexible, virtualized connectivity that can scale quickly and integrate multiple public and private links, but may not match the guaranteed performance of a dedicated leased line .

Benefits of Leased Line Interconnection

- o Guaranteed bandwidth and low latency for mission-critical applications.
- o High security due to private, dedicated circuits.
- o Reliability with service-level agreements (SLAs) ensuring uptime.
- o Scalability to support growing data transfer needs between sites. In summary, leased line interconnections are a cornerstone of enterprise-grade data center networking, providing secure, high-performance, and reliable links between geographically dispersed facilities, while complementing other connectivity options like cross-connects and SD-WAN for hybrid and multicloud environments .

In a colocation data center, the primary physical connectivity option is fiber cross connects, which are direct,

In essence, cross connects are about internal, localized, high-speed interconnection within a controlled data center

Everything you ever needed to know about data center interconnection and how it can help your business address

Data center interconnection can be confusing. This blog article will help you understand the various interconnection

7 For example, data centers owned and operated by their users may have greater ability to facilitate flexible consumption than data

Traditionally, leased lines were used by businesses to connect geographically distant offices for phone and networking. More

Leased lines create a constant tunnel between two points to enable a continuous data flow. Typically, the first location

Cross connects and interconnection services enable a customer's full use of a data center colocation

Data center leased line interconnection

They are responsible for establishing and managing the leased line connections, ensuring secure data transfer

A leased line fundamentally represents a dedicated, private data path connecting two specific geographic points, such

The term DCI (Data Center Interconnect) is relevant in all scenarios where different levels of connectivity are required

Below is a block diagram illustrating a typical leased line network architecture connecting two branch offices (Branch A

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Could data center interconnection be the missing piece in your strategy? Discover what it is,

A data center interconnect (DCI) is a connection between data centers and between the components within them. The goal of a

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