Section 1: Introduction

For the online store to be open 24/7/365 with a less than 1-minute changeover time should DR need to be called, a disaster recovery (DR) site is required. When an organization's primary data center is unavailable, it can employ a disaster recovery site to retrieve and restore its technical infrastructure and business activities. This BCDR presents the prerequisites and actions to recover from any disaster affecting the data center environment for an e-commerce site.

Disaster recovery as a service (DRaaS) Solution provider

At this stage, the effectiveness of the DR plan hinges on selecting a provider who satisfies all business needs. Businesses in different sectors would want the DRaaS provider to know security services, hybrid cloud deployments, and regulatory compliance (Mahapatra et al., 2021). In addition, it is crucial to know the infrastructures and programs that online stores use for their operations. Ideally, certifications can provide a wealth of information regarding the systems that the vendor can support.

RPO, RTO, SLAs, and rotational datacenter locations all play significant roles in choosing a disaster recovery plan centered on the business's specific requirements. Additionally, the firm will ensure that such DRaaS provider has options for testing systems with little to no impact on daily operations. In its capacity as a DRaaS vendor, TierPoint will assist the company in making plans to prepare for and lessen the effects of interferences to data, applications, and infrastructure that may result from cyber disasters, big data applications, routine maintenance, and security management. With any mix of cloud service providers, a cloud-based TierPoint private infrastructure, colocation, and on-premises solutions, TierPoint will meet the company wherever it is on its digital transformation path.

To suit the company's needs, TierPoint will work together and tailor DRaaS solutions. TierPoint is a proactive partner involved in the planning, deployment, and administration of disaster recovery solutions. TierPoint has a customer-first mentality. In Gartner's 2018 Magic Quadrant for DRaaS, TierPoint received the highest satisfaction rating among the analyzed providers (Mahapatra et al., 2021). It will provide the company with round-the-clock help from its accessible and receptive DR professionals. Data replication and virtual or physical server hosting by third-party providers comprise emergency preparedness as a service (DRaaS). Due to its substantially quicker recovery times than the invoked DR, DRaaS is quickly overtaking other disaster recovery methods as the top choice for enterprises.

Colocation, often known as colocation hosting, is renting out infrastructure, servers, space, and connectivity to companies in a super secure datacenter. To host their servers, companies can rent space in colocation facilities, which provide more robust security and uptime guarantees. Most businesses store their vital equipment in a colocation facility because they are not in the company or organization of owning and maintaining datacenters (Wagdy et al., 2021). The company can benefit from the following benefits from its supplier by adopting a colocation hosting service:

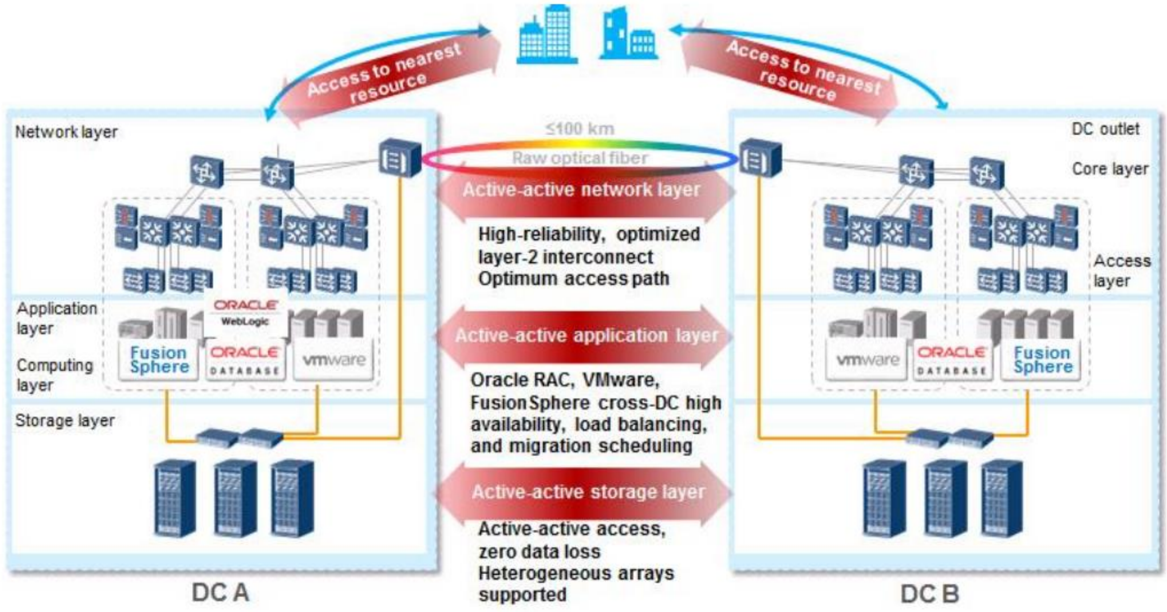
- Cost-effective electricity and bandwidth
- A fast, redundant network connection available 24/7365
- Architectural datacenter security measures
- Compliance certificates and badges
- Long-term stability, adaptability, and scalability
- Professional technical assistance

Colocation hosting typically raises customer service quality, lowers capital expenses, and increases business operation uptime. With colocation, the customer's current server infrastructure can be transferred from their offices or on-premises infrastructure to the datacenter of the colocation provider (Wagdy et al., 2021; Mahapatra et al., 2021). The company can reduce IT spending by utilizing colocation hosting while concentrating solely on managing operations and achieving goals. The cloud-to-cloud recovery that satisfies the company's particular needs will be possible with the help of TierPoint's Disaster Recovery as a Service (DRaaS) products.

Regardless of whatever vendor is chosen, they must ensure that they adhere to all applicable data protection legislation and requirements in all countries where Pampered Pets business operates.

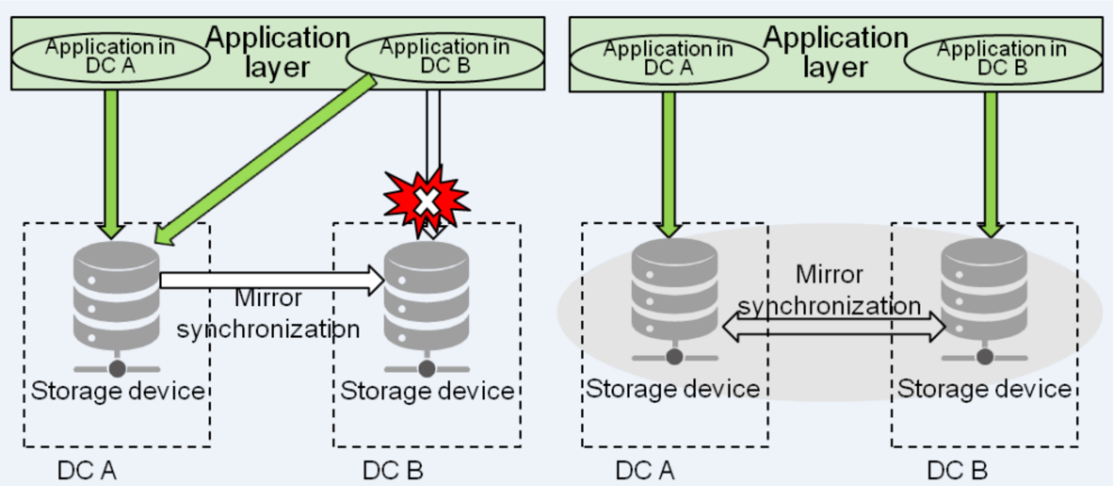
Active-Active Data Center SAAS Architecture

The Active-Active DC Solution implies that both DCs operate concurrently to share service loads and increase overall service capability and resource utilization. In the event of device failures or even single-DC failures, the system enables automatic failover with zero service awareness. Additionally, it has a recovery point goal (RPO) of zero and a recovery time objective of zero (RTO). (RTO is contingent on the application system and deployment mode).The storage, compute, application, network, transmission, and security layers comprise the key essentials for Active-Active DC Solution.


Access to nearest resource
Access to nearest resource
Network layer
DC outlet
Core layer
Access layer
≤100 km
Raw optical fiber
Active-active network layer
High-reliability, optimized layer-2 interconnect
Optimum access path
Application layer
Computing layer
ORACLE WebLogic
Fusion Sphere
ORACLE DATABASE
vmware
Active-active application layer
Oracle RAC, VMware, FusionSphere cross-DC high availability, load balancing, and migration scheduling
Storage layer
Active-active storage layer
Active-active access, zero data loss
Heterogeneous arrays supported
DC A
DC B

Active-Active Design at the Storage Layer

Storage data in the active-active LUNs on both arrays is synchronized in real time, and both arrays perform read and write I/Os from application servers to offer the servers with non-differentiated parallel active-active access. When either storage array experiences a malfunction, services are effortlessly moved to the other end without interfering with service access.

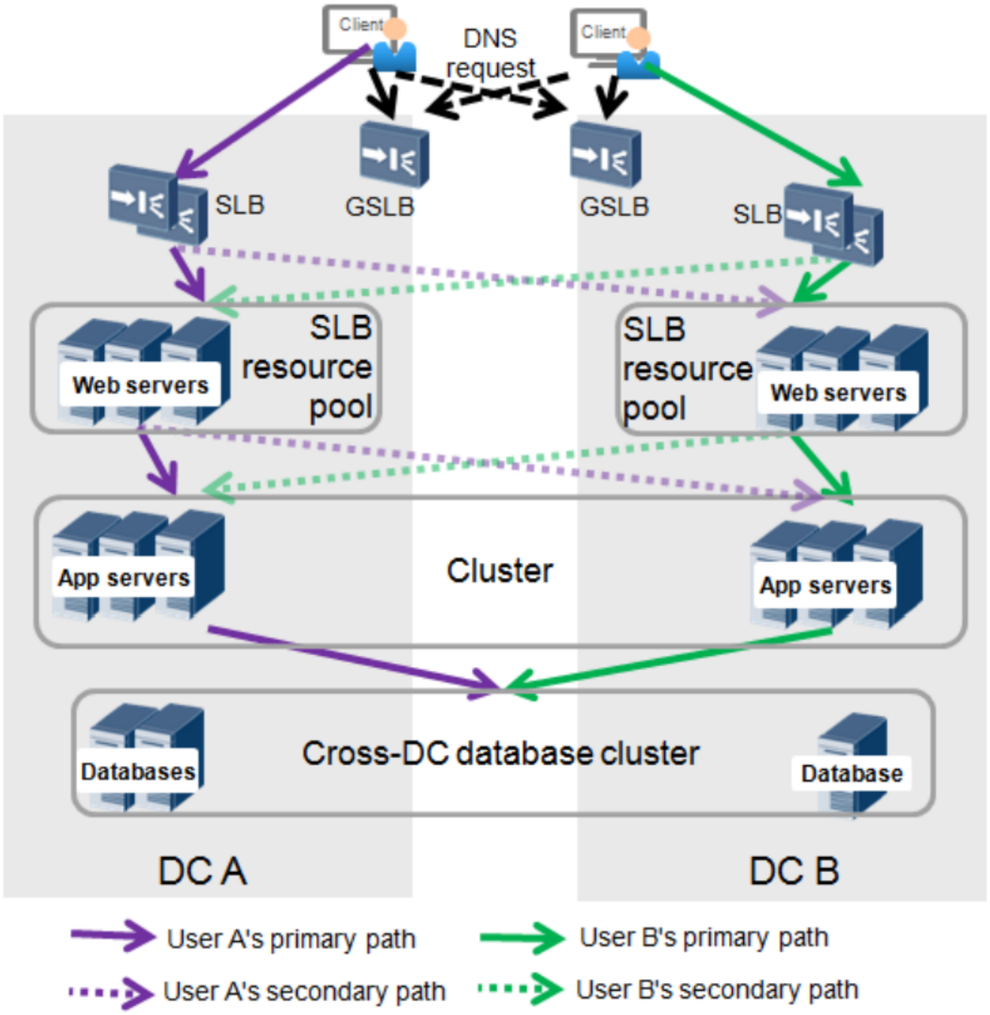


Active-Active Design in the Computing Layer

Cross-DC clusters, when installed with physical machines, allow quick service switchover and uninterrupted service access without data loss. Commercially available virtual platforms include VMware vSphere and FusionSphere. Following the active-active reconstruction of the computing layer, VMs can better balance service loads based on the original computing resources, significantly improving resource usage and running efficiency, making service deployment simpler and more flexible, and allowing VMs to have improved reliability, online migration performance, and maintainability.

Active-Active Design at the Network Layer

Each site has many web servers that are not clustered. On the SLB, all web servers at each site form a resource pool (F5 LTM). DC A & DC B resource pools are formed in the active-active DC Solution. If each site has many application servers, arrange application servers of the same type into an active-active cluster. The cross-DC database cluster is connected to the application server clusters in the two DCs.



Network Across Data Centers

This approach separates data transmission links and heartbeat links to maintain reliability. It uses VLAN or VRF to isolate end-to-end traffic and assigns independent physical interconnection links to establish traffic isolation between services and cluster heartbeats with no mutual affects.