

Cisco Reference Architecture: Disaster Recovery as a Service for Cloud Providers At-a-Glance



Overview

The Cisco® Disaster Recovery as a Service (DRaaS) reference architecture is designed to provide a new set of cloud-based disaster-recovery capabilities, allowing Cisco Powered cloud providers to enhance their addressable market, financial performance, and differentiation compared to commodity service providers.

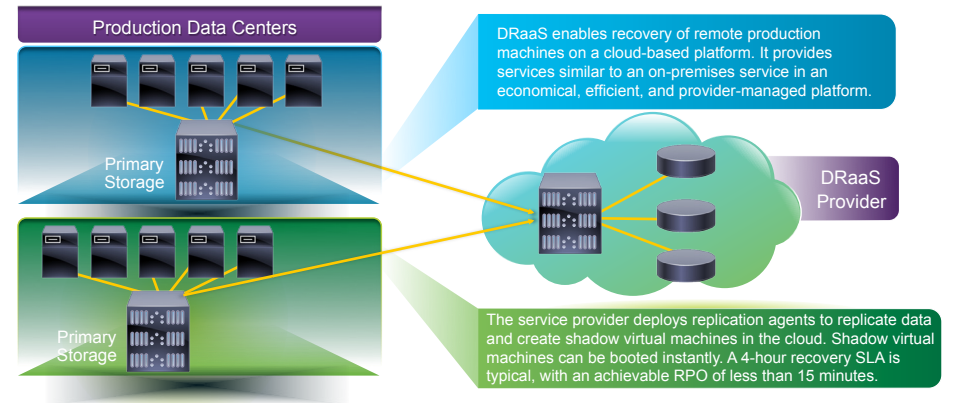
The Cisco DRaaS reference architecture for cloud providers is built as an overlay on the Cisco Virtualized Multiservice Data Center (VMDC) reference architecture for infrastructure as a service (IaaS) and incorporates partner-based software solutions, providing continuous data protection and host-based replication capabilities for storage-independent disaster recovery and business continuity. The solution architecture encompasses advanced capabilities such as encryption for integrated data security and data optimization to reduce WAN costs.

The Cisco DRaaS reference architecture offers a design template to provide disaster-recovery services for both physical and virtual servers from enterprise customer data centers to a service provider's virtual private cloud (VPC). The Cisco DRaaS architecture is designed to be deployed as a Cisco Powered cloud provider managed service for a provider's midmarket and distributed enterprise customers. The Cisco DRaaS reference architecture is accompanied by a Cisco Validated Design and an implementation guide and offers a fully integrated design with broad functional and at-scale testing for in-depth validation of features and functions, performance, scalability, and operations.

The Cisco DRaaS reference architecture allows cloud providers to offer new monetized disaster-recovery services for workloads outside the service provider's management domain that are either on the customer's premises or in co-located environments. The cloud provider can also offer data-protection and data-survivability services for workloads within its VPC environment and management domain.

Figure 1 summarizes the overall Cisco DRaaS approach.

Figure 1. What Is Disaster Recovery as a Service?



The Cisco DRaaS approach allows service providers to offer cloud-based disaster-recovery services with rapid and highly automated recovery to meet recovery-point objective (RPO) and recovery-time objective (RTO) service-level agreements (SLAs) with short time frames.

Business Reasons for Using DRaaS

The main business reason that enterprises may want to adopt DRaaS is to maintain the enterprise's business-critical infrastructure and applications and help ensure their survivability after a catastrophic event. Increased regulatory pressure increases the need for disaster-recovery and business-continuity plans, and implementation of these solutions presents a hierarchy of requirements such as geographic restrictions and regulatory compliance. Enterprises are frequently faced with budget constraints that do not allow infrastructure duplication. The building of disaster-recovery infrastructure requires some amount of specialization, with IT skill sets and resources that are significantly difficult for individual enterprises to develop and maintain on their own without sufficient scale.



Why Choose DRaaS

Enterprises frequently lack the knowledge to select and deploy optimal disaster-recovery tools for their needs. Current enterprise tools for quick RPO and RTO times tend to be too expensive for widespread deployment. Use of DRaaS allows enterprises to focus on application validation and not be distracted by rack, stack, and recovery activities for their infrastructure and IT services. DRaaS presents a potential opportunity to make better use of the disaster-recovery environment.

With additional monitoring and service-assurance capabilities, service provider managed DRaaS provides end customers with “pay-as-you-grow” capabilities. Disaster recovery is a niche technology that requires a significantly large scale for organizations to gain specialized experience. In addition, as a result of globalization, many organizations need to expand beyond the traditional primary and secondary models of disaster-recovery and business-continuity operations to provide in-country recovery capabilities for dozens of countries.

Typical Cloud Provider Benefits from DRaaS

The Cisco DRaaS reference architecture allows cloud providers to offer an attractive, revenue-generating service to their enterprise customers who continue to have on-premises workloads that require disaster-recovery plans. The architecture provides a complete solution for replicating and protecting on-premises environments at a low cost per protected server and gives the provider a robust tool set for runbook automation and replication monitoring. These capabilities coupled with the secure multitenancy features of Cisco VMDC allow cloud providers to offer low-cost disaster recovery on a multitenant platform with SLAs that require short recovery times.

Sample DRaaS End-to-End Deployment

Figure 2 and Table 1 present a sample DRaaS deployment for an entire data center.

Figure 2. DRaaS End-to-End Deployment

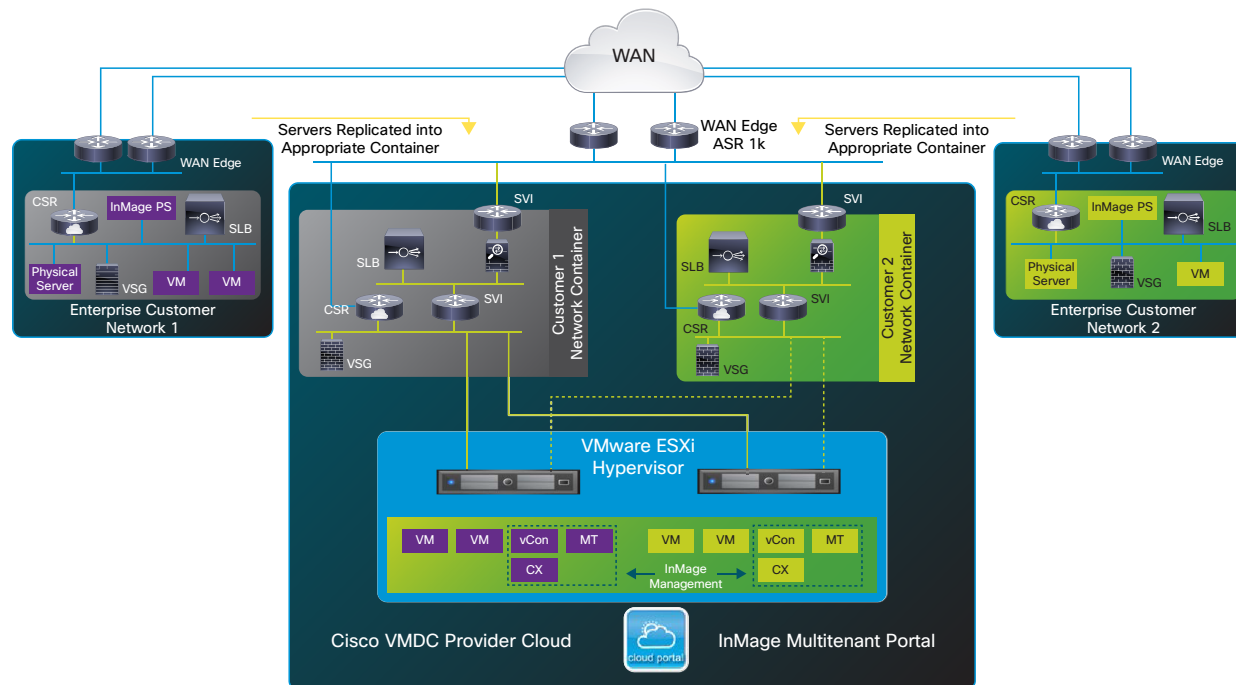




Table 1. Typical Service Provider Offerings Enabled by Cisco DRaaS Architecture

Criteria	Heterogeneous Environment (Physical to Virtual and Virtual to Physical)	VMware Environment Only (Virtual to Virtual)
Number of servers and virtual machines	5 to 80	5 to 1000
Physical or virtual	Physical or virtual	VMware only
OS	Microsoft Windows or Linux	Microsoft Windows or Linux
Applications	Common independent software vendors (Microsoft, Oracle, etc.) and Volume Shadow Copy Service (VSS)-aware applications	Any application that supports VMware
Number of data centers	1 (typical)	1 (typical)
RPO	1 to 15 minutes	1 to 15 minutes
RTO	4 hours or less	4 hours or less
Application consistency	15- to 60-minute intervals with consistency groups	Configurable intervals with consistency groups
Test capability	Nondisruptive disaster-recovery sandbox tests	Nondisruptive disaster-recovery sandbox tests

Why Use Cisco DRaaS Reference Architecture

The Cisco DRaaS reference architecture solution for cloud providers is a design template for disaster-recovery workloads for advanced IaaS use cases. It includes a Cisco Validated Design that uses the InMage ScoutCloud product to provide continuous data protection on top of the Cisco VMDC 2.3 reference architecture. The DRaaS architecture provides the service provider with a prevalidated design template for offering disaster-recovery services to enterprises. The solution architecture enables recovery of physical and virtual servers from the enterprise data center to service provider virtual private clouds.

DRaaS presents a new revenue opportunity for cloud providers using their existing cloud and network infrastructure assets. DRaaS increases end-customer retention, providing enhanced end-to-end use cases and operation efficiencies that enable service providers to differentiate their services offerings through innovative use of their current and future infrastructure investments.

DRaaS provides an opportunity for enterprises to reduce disaster-recovery complexity and costs while gaining the use of multitenant virtual private cloud or public cloud capabilities as a service. DRaaS enables transparent migration to hybrid architectures and operating models. It also provides a proven disaster-recovery solution from day one, without the need for capital expenditures (CapEx) and without distracting IT from business initiatives.

For More Information

- To learn more about Cisco Powered cloud solutions, visit www.cisco.com/go/spcloud.
- To find out more about Cisco VMDC, visit http://www.cisco.com/en/US/partner/solutions/ns340/ns414/ns742/ns743/ns1050/landing_vmdc.html.
- To learn more about Cisco Validated Designs, visit http://www.cisco.com/en/US/netsol/ns743/networking_solutions_program_home.html.