Zerto

Hypervisor-based Replication Technology Comparison

A Comparison of Zerto vs. Current and Legacy BC/DR Technologies

Microsoft Hyper-V

Overview

Zerto's innovative, hypervisor-based replication is a new technology for Hyper-V environments delivering a true enterprise-class, yet fully virtual-aware BC/DR solution to protect virtualized mission-critical applications.

Zerto Virtual Replication is the first hypervisor-based replication solution that allows replication and recovery between hypervisors. With the revolutionary capability to automatically convert Hyper-V VMs to VMware and VMware VMs to Hyper-V on the fly many new possibilities can be realized in the datacenter. By enabling hypervisor-agnostic replication, Zerto allows replication from remote office Hyper-V instances into a central VMware datacenter, seamless migrations of workloads between hypervisors or even the ability to replicate VMs from a primary VMware datacenter to a secondary Hyper-V datacenter for recovery.

Features

Zerto Virtual Replication is the leading BC/DR solution for VMware environments, protecting tens of thousands of Virtual Machines (VMs) worldwide. Zerto has now delivered the same BC/DR solution for Microsoft based environments. Key features include:

Hypervisor-based replication	Hypervisor agnostic continuous block level replication supporting VMware and Microsoft hypervisors
Granular, VM-level protection	Protect only the VMs needed with no snapshots and no performance impact
Storage Agnostic Replication	Replicate from anything to anything removing storage and hypervisor lock-in while reducing complexity
Continuous Data Protection	Recover from any disruption to increments every few seconds in up to 5 days of data
Full Orchestration	Automate failover, failback, reverse protection, disaster recovery testing with boot ordering and re-IPing
Aggressive Service Levels	Realize Recovery Point Objectives (RPOs) of seconds and Recovery Time Objectives (RTOs) of minutes
Simple Management	Centralized management for unlimited sites with key metrics including real-time RPOs
Protect Applications	Multi-VM consistency groupings maintaining write-order fidelity for consistent application recovery
Simple Installation	Installation in minutes with no downtime or architectural changes required
Offsite Backup	Increase the usefulness of replicated data with long term retention capabilities using replicated data
Complete Data Protection	One solution for replication, recovery, continuous data protection and long term retention

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Compared Technologies

The current and legacy solutions compared in this document include:

- **Zerto Virtual Replication**
  Enterprise-class replication, recovery orchestration and automation BC/DR technology.
- **Hyper-V Replica**
  Built-in free virtual replication technology for Hyper-V 2012 R2 configured on a per Hyper-V host basis.
- **Azure Site Recovery**
  Microsoft's cloud based disaster recovery orchestration and automation solution that leverages Hyper-V Replica or InMage agents remotely for replication.
- **Snapshot-based Replication**
  Software based replication performed by periodic scheduled snapshots (or checkpoints) and the subsequent transfer of changed blocks over the network to a remote site.
- **Array-based Replication**
  Replication between matching storage arrays on a per LUN basis with no orchestration or automation of disaster recovery.
- **Guest-based Replication**
  Replication using a replication engine installed in each individual VM.

Comparison Methodology

To provide a meaningful comparison, we have categorized the features into four categories that reflect the requirements for protecting virtualized applications:

- ✓ **Architecture**: Scalability to thousands of VMs with centralized management
- ✓ **Replication**: Enterprise class replication delivering RPOs of seconds with no performance impact
- ✓ **Automation**: Automated failover/failback to specific points in time with isolated testing
- ✓ **Cloud Readiness**: VM portability, multi-tenancy and multi-site management with network and data security

Comparison Matrix

Architecture	Zerto	Hyper-V Replica	Azure Site Recovery	Snapshot-based replication	Array-based replication	Guest-based replication
Scalability to thousands of VMs	✓	–	–	–	✓	–
Leverages Microsoft System Center Virtual Machine Manager or vCenter	✓	–	✓	✓	–	–
Hypervisor agnostic with support for both Microsoft and VMware hypervisors	✓	–	–	✓	✓	✓
Software only	✓	✓	✓	✓	–	✓
Ability to view and manage all BC/DR operations from one interface	✓	–	Limited	–	–	–
Rapid deployment (installed and configured in under an hour)	✓	✓	–	✓	–	–
Integrated into virtualized environment	✓	✓	✓	✓	–	Limited
Zero guest footprint	✓	✓	✓	✓	✓	–

Replication	Zerto	Hyper-V Replica	Azure Site Recovery	Snapshot-based replication	Array-based Replication	Guest-based Replication
Continuous, near-synchronous replication with no snapshots or checkpoints	✓	–	–	–	–	✓
No application or VM performance impact	✓	–	–	–	✓	–
Cross Hypervisor replication from Hyper-V to vSphere and vice versa	✓	–	–	–	–	✓
Storage agnostic per-VM replication	✓	✓	✓	✓	–	✓
VM-level consistency groupings with write-order fidelity	✓	–	–	–	–	–
RPO = seconds continuously	✓	–	–	–	–	✓
Supports vMotion, Live Migration, Storage vMotion/Live Migration, HA, DRS	✓	✓	✓	Limited	–	✓
Journal (CDP-based) protection with point in time recovery to increments every few seconds	✓	–	–	–	–	–
Built-in WAN compression, acceleration and resiliency	✓	Limited	Limited	✓	–	–
Bandwidth throttling and priority based QOS	✓	–	–	–	–	–
Schedule application consistent points in time	✓	✓	✓	–	–	–
Journal automatic re-sizing to meet SLAs	✓	–	–	–	–	–
No write penalty in source storage	✓	–	–	–	✓	–
Sync once replication for SQL TempDB and Windows Paging file virtual disks	✓	–	–	–	–	–

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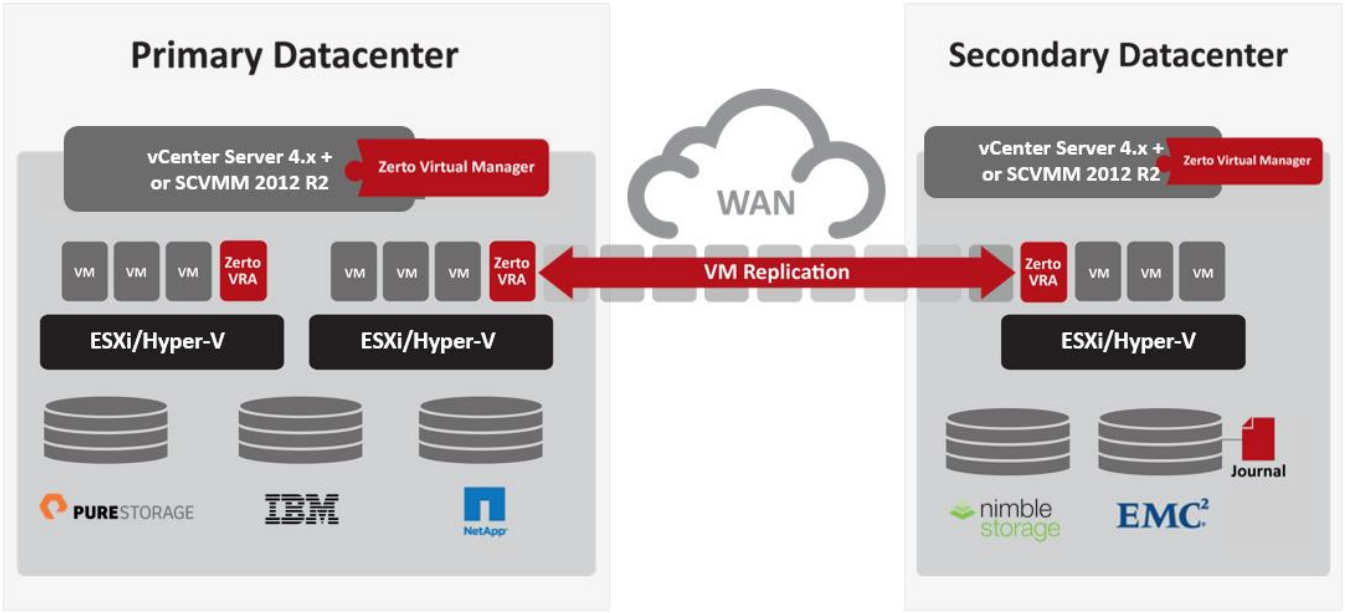
Automation	Zerto	Hyper-V Replica	Azure Site Recovery	Snapshot-based replication	Array-based Replication	Guest-based Replication
Cross-hypervisor recovery with automatic conversion of VMs	✓	–	–	–	–	–
Orchestrated and automated failover of VMs	✓	–	✓	–	–	–
Recovery to previous points-in-time	✓	✓	–	✓	✓	–
Failback with reverse protection	✓	✓	–	–	–	–
Failover testing in isolated network	✓	✓	✓	–	–	–
RTO = automated in minutes	✓	–	✓	–	–	–
Automatic re-IP of VMs	✓	✓	✓	✓	–	–
Customized recovery plans with scripts	✓	–	✓	–	–	–

Cloud Readiness	Zerto	Hyper-V Replica	Azure Site Recovery	Snapshot-based replication	Array-based Replication	Guest-based Replication
Public cloud agnostic	✓	–	–	✓	–	✓
Replication to AWS	✓	–	–	–	–	✓
True-multi tenancy with no duplication of infrastructure	✓	–	–	–	–	–
Replication to vCenter and vCloud Director	✓	–	–	–	–	–
Self-service portal capabilities	✓	–	–	–	–	–
Full REST based API	✓	–	–	–	–	–
Multi-SCVMM/vCenter central management	✓	–	✓	–	–	–

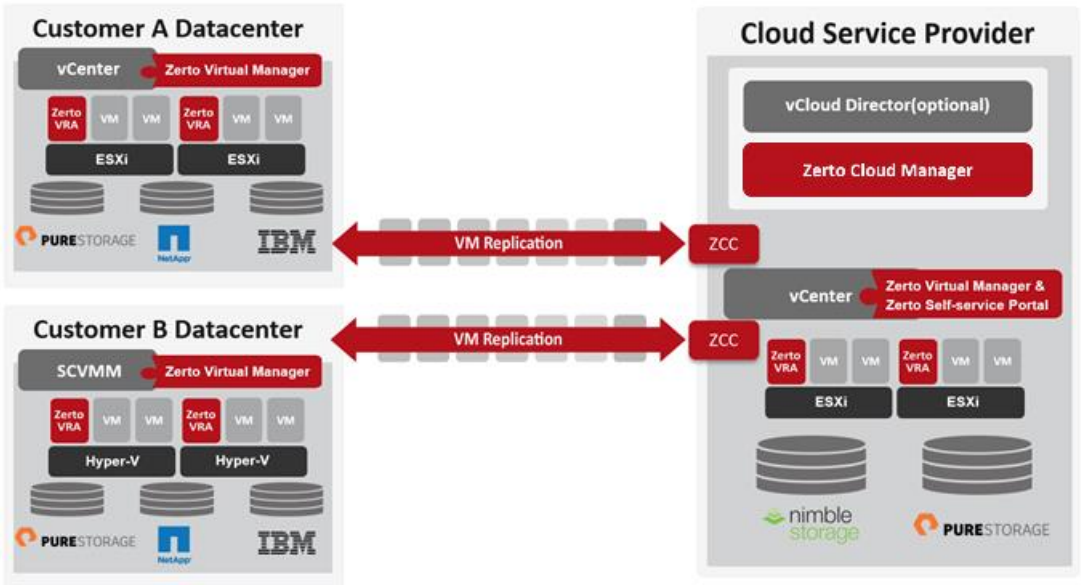
Summary

Only Zerto Virtual Replication provides enterprise-class replication features that easily align with flexible virtual environments and provides the added advantages of being storage agnostic, hypervisor agnostic with fully integrated orchestration and automation that is cloud ready.

Multi-Hypervisor Architecture



Multi-Tenant Architecture



Want to try it out?

Zerto Virtual Replication can be installed, configured and replicating VMs in under 1 hour. With simple VM-based replication enabling RPOs of seconds and RTOs of minutes why not go to www.zerto.com and click to download a free trial today?

VMs are replicated using Linux based Virtual Replication Appliances (VRAs) which are deployed one per hypervisor host. VRAs utilize 1vCPU, 1-3GB RAM and 12GB disk space each. VRAs are deployed from a Zerto Virtual Manager (ZVM) which is required 1 per vCenter/SCVMM. The ZVM is a web service installed in a windows VM with a static IP address, 2vCPUs and 4GB RAM. It is recommend to install the ZVM separate to vCenter or SCVMM for best performance when recovering large numbers of VMs.