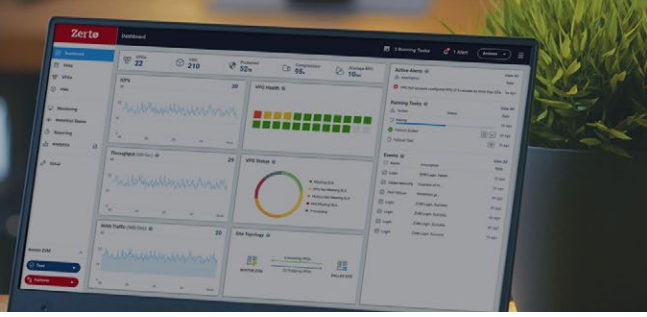
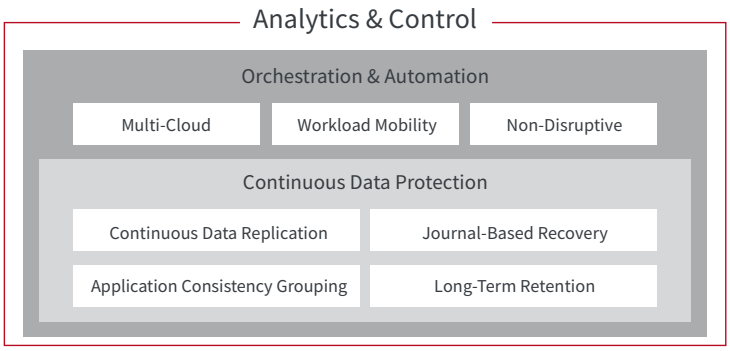
Zerto
IT RESILIENCE



Hypervisor-based Replication Technology Comparison

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

The Zerto IT Resilience Platform™ converges disaster recovery, backup, and workload mobility whether on-premises or to, from and between hybrid and multi-cloud environments. Built on a foundation of continuous data protection (CDP) with built-in orchestration and automation capabilities, the platform provides you with simplicity, enterprise scale, and agile data protection to save time, resources and costs. Analytics, with intelligent dashboards and live reports, gives you complete visibility across multi-site and multi-cloud environments and instills confidence that business service levels and compliance requirements are met.



Continuous Data Protection

- **Continuous Data Replication** - Zerto delivers recovery point objectives (RPOs) of seconds by replicating every change that is generated in near real-time. Performed at the platform level, this enables continuous capability by removing any production impact.
- **Journal-Based Recovery** - All replicated changes are stored in a journal for up to 30 days providing incredible recovery granularity through checkpoints inserted every few seconds.

COMPARED TECHNOLOGIES

The current and legacy solutions compared in this document include:

Zerto IT Resilience Platform™
Enterprise-class replication, recovery orchestration and automation

RecoverPoint for VMs (RP4VM)

Hypervisor based replication, CDP and recovery solution for VMware BC/DR

Array Based Replication (ABR)
LUN replication between storage arrays with manual recovery and testing operations

Site Recovery Manager (SRM)+ ABR
SRM v6.5 utilizing ABR configured between matching storage arrays for VMware BC/DR

SRM + vSphere Replication (VR)
SRM utilizing the vSphere replication v6 engine for VM-level protection for VMware BC/DR

Veeam Replication
Replication using Veeam Backup & Replication utilizing snapshots for VMware & Hyper-V

Carbonite
Replication and recovery solution using agents inside each VM to continuously replicate writes

- **Application Consistency** - Virtual Protection Groups(VPGs) allow you to protect multiple VMs together in a consistent fashion, ensuring every point in time that is inserted into the Zerto Journal is from the same point in time for all VMs within the VPG. This allows consistent recovery of an entire application, and all its VM dependencies, to a consistent point in time.
- **Long-Term Retention** – Compliance standards often require you to keep, and ultimately recover data, for longer than 30-days. Long-term retention utilizes your existing journal to store data from any point in time for days, weeks, months or even years with no production impact.

Orchestration & Automation

Built in orchestration and automation enables faster management of workloads at scale with minimal touch, allowing IT resources to shift their focus toward innovation and services that help your business run more efficiently.

- Zerto's platform supports your multi-cloud and hybrid cloud strategy, including VMware, Hyper-V, Azure, IBM Cloud, AWS and hundreds of Cloud Service Providers (CSPs).
- All recovery settings are configured up-front, such as boot order and re-IP failover, well before any disaster or other event occurs, thus greatly simplifying the recovery process.
- You can configure different settings for test failovers, ensuring that test failovers/ moves can be run at any time with zero impact on production or protection.

Analytics & Control

Zerto Analytics, included in the IT Resilience Platform, provides one single, comprehensive view of your entire multi-site, multi-cloud environment. Built-in intelligent dashboards provide real-time and historical analysis of the health and protection status of your applications and data. Metrics such as average RPO, network performance, and storage consumption, help you spot trends, identify anomalies, and troubleshoot issues. The powerful resource planning capability continuously monitors and analyses compute, storage and network resources across on-premises environments and public, private and hybrid clouds to give you confidence of your resource requirement needs.

COMPARISON METHODOLOGY

To provide a meaningful comparison, the features required as part of a complete BC/ DR solution have been separated into the following categories:

- Architecture
- Replication
- Recovery & Automation
- Cloud Readiness

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Comparison Matrix

Architecture	ZERTO	RP4VM	ABR	SRM & ABR	SRM & VR	Veeam	Carbonite
BC/DR for vSphere & Hyper-V	●		●			●	●
Hypervisor-based replication	●	●			●		
Installable in minutes at any scale	●						
Scalable to 10.000 VMs	●		●				
Software-only	●	●			●	●	●
Upgrade in-place in minutes	●						
No hypervisor version lock-in	●		●			●	●
Management redundancy	●	●	●	●	●		

Replication	ZERTO	RP4VM	ABR	SRM & ABR	SRM & VR	Veeam	Carbonite
Always-on, block-level with no scheduling	●	●			Complex		●
Storage agnostic VM-level replication	●	●			●	●	●
RPO = seconds with no snapshots	●	●					●
No protected VM performance impact	●	Partially					
Re-wind to increments in seconds	●	●					
Multi-VM consistency grouping for Short-term Retention	●						
Multi-VM consistency grouping for Long Term Retention	●	Complex	●	●			
One-To-Many simultaneous replication	●	●					
Cross-hypervisor replication	●						
vMotion & svMotion support	●	●			Partially	●	●
Built-in WAN compression	●	●			●	●	●
Bandwidth throttling and QOS	●						
Dynamic & compressed journaling	●						
SQL & Oracle Temp DB optimization	●						
Automatically protect new VMs	●			●	●	●	

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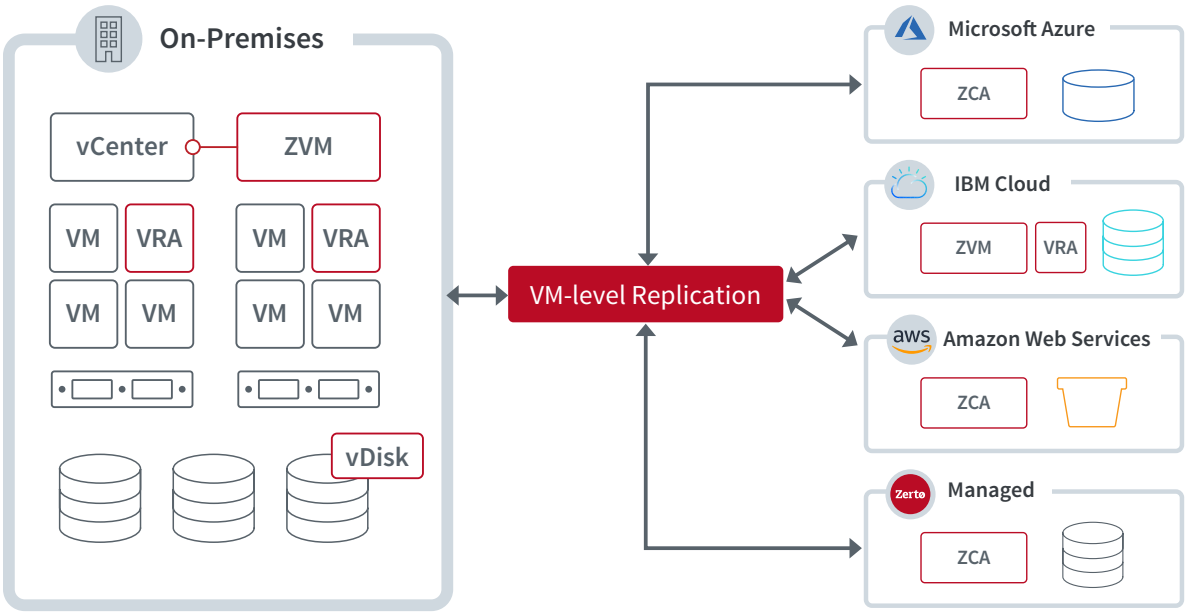
Only Zerto provides enterprise-class replication features that easily align with flexible virtual environments and provides the added advantages of being storage agnostic, hypervisor agnostic with fully integrated orchestration and automation that is cloud ready and provides a complete BC/DR solution for your virtualized applications.

Recovery & Automation	ZERTO	RP4VM	ABR	SRM & ABR	SRM & VR	Veeam	Carbonite
Recover sites, apps, VMs & files	●						
Recover to thousands of points in time	●	●					
RTO = minutes with boot ordering	●	●		●	●	●	
Cross-hypervisor VM conversion	●						
Orchestrated & automated failover	●	●		●	●	●	●
No snapshots on recovery VM	●	●	●	●			
Failback with reverse protection	●	●	Complex	●	●	●	●
Non-disruptive failover testing	●	●		●	●		
Automatic re-IP, re-MAC of VMs	●	●		●	●	●	●
Recovery reports for compliance	●			●	●	●	
REST API with automation examples	●						

Cloud Readiness	ZERTO	RP4VM	ABR	SRM & ABR	SRM & VR	Veeam	Carbonite
DRaaS to over 200 Zerto Cloud Providers	●				●		
DRaaS to Azure with RPOs in seconds	●						
DRaaS to AWS with RPOs in seconds	●						
Multi-tenancy & traffic isolation	●						
vCloud Director integration	●					●	
Self-service portals & role based access	●						
SaaS Delivered Analytics	●						
Multi-site management interface	●					●	

Architecture Overview



Zerto Component	Description
Zerto Virtual Manager (ZVM)	Central management interface for replication & recovery orchestration, deployed in a Windows VM, 1 per vCenter or SCVMM management server for redundancy
Virtual Replication Appliance (VRA)	Scale-out architecture of 1 VRA per hypervisor host utilizing 1 vCPU, 4GB RAM, 12GB disk & 1 IP for continuous VM block-level replication with no snapshots & no impact
Virtual Protection Group (VPG)	Multi-VM consistency grouping mechanism for consistent recovery of applications, supports VMs across hosts, clusters, storage, HA, vMotion & Storage vMotion
vDisk & Journal vDisk	Replica data stored as vDisks in target vSphere or Hyper-V environment with compressed journal vDisk for point in time recovery, average 7-10% additional space
VM-level Replication	Replicate over shared or dedicated port groups, VPNs & IP link, multi-site support, Direct Connect, VPN to VPC for AWS, VPN to Virtual Network or Express Route for Azure
Azure Zerto Cloud Appliance (ZCA)	Combination of a ZVM & VRA running in a Windows Azure D3 v2 VM, storing replica data in a storage account, with preconfigured recovery VMs only created when needed
AWS Zerto Cloud Appliance (ZCA)	Combination of a ZVM & VRA running in a Windows AWS m4.xlarge instance, storing replica data in a S3, with preconfigured recovery instances only created when needed

About Zerto

Zerto helps customers accelerate IT transformation by eliminating the risk and complexity of modernization and cloud adoption. By replacing multiple legacy solutions with a single IT Resilience Platform, Zerto is changing the way disaster recovery, data protection and cloud are managed. With enterprise scale, Zerto's software platform delivers continuous availability for an always-on customer experience while simplifying workload mobility to protect, recover and move applications freely across hybrid and multi-clouds. www.zerto.com

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