The 1 New Disaster Recovery Best Practice That Could Change Your Business

viawest
Hybrid IT Solutions

Table of Contents

Executive Summary

Many companies use log shipping to back up high
availability (HA) physical databases to physical
machines and view it as a low-tech way to ensure
disaster recovery (DR). However, when it comes time
for DR testing, log shipping leaves a lot to be desired.

In this white paper, we present a new DR strategy that provides companies
with the same business continuity and testing capabilities as global enterprises
at significantly less cost and with far less complexity. Companies can continue
log shipping for backups, but replicate from virtual machine to virtual machine
via journaling.

The benefits of this approach over log shipping include testing in the primary
location without compromising production databases and without requiring days of
recovery. This new DR strategy empowers companies of all sizes to conduct regular
DR tests, minimize the impact of testing on staff, and ensure business continuity (BC)
in the event of a true emergency. Finally, companies have the ability to implement a
DR plan that lives up to its true name.

When Gaps in Your Disaster Recovery Strategy Compromise Business Continuity

Having confidence in database availability for mission-critical applications is essential to the business owner and technology leader alike. Cloud-hosted HA solutions fuel systems and operational processes while providing the scale, security, and support an enterprise needs. With the latest generation of market-leading servers and database platforms such as Microsoft SQL Server 2014, enterprises can now realize gains in OLTP speed of 10X to 30X, accelerating the pace of business. Global enterprises can maximize throughput by balancing loads between data centers, use peer-to-peer replication to protect vital applications, and rely on various forms of failover to protect their companies in the event of limited or systemic IT failures. But many of these options may be out of reach financially for midsize companies who can't afford to scale all of their systems and processes across multiple data centers.

While most managed services providers guarantee 100% uptime for enterprise systems and data, most companies still need to prepare for the worst: a manmade or natural disaster that could reduce or eliminate access to vital data and systems for hours—or days.

In this paper we propose that today's approach to DR via log shipping doesn't serve the needs of many companies, forcing IT executives to choose between expensive replication of all systems across multiple data centers or log shipping for a low-budget approach to DR that won't stand the test of a real emergency.

Fortunately, with technology innovations, today's IT leaders can now gain the coverage, capabilities, and automated processes of their global enterprise peers. Even better, IT teams can eliminate hours of manual work recovering from DR tests of log shipping. It is now possible to ensure continuity of data coverage while testing is ongoing, and reduce the time needed to return backup databases to production status.

Let's look at where the future of DR is headed by taking a quick look at the pros and cons of current options.
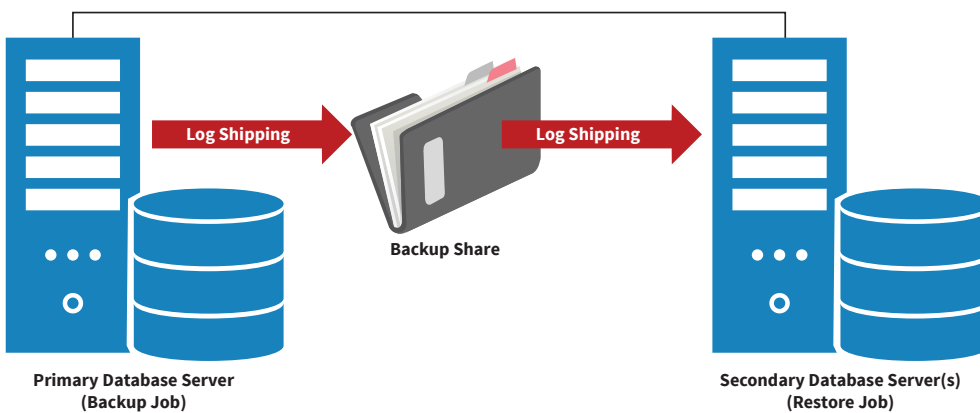
Is Your DR Strategy a Plan— or a Procedure?

Most companies' DR solutions won't stand the test of a true emergency, exposing companies to undue risk.

What's Right and Wrong with Log Shipping

Conduct a web search for disaster recovery strategy, plans, and best practices, and you will be overwhelmed with information and resources that bewilder even seasoned IT professionals. What you need is clear insight into how to set up your IT architecture, guidance on what you should replicate and how, and advice on common DR challenges you need to sidestep.

While complete replication is the platinum version of DR, you may decide you don't need—or don't want to pay for—wall-to-wall coverage for all systems and data. Companies that have "active active" solutions in two locations incur 2.2X the cost of HA solutions, while most firms strive for a DR solution that is only 1.4X the cost, with 1.0X allocated to HA and .4X allocated to DR. These firms opt instead for the bronze version of DR: log shipping. Only 5% of the average enterprise's applications are mission-critical,[1] requiring access to real-time data even when an emergency strikes. So if you're paying 2X or more, you may be backing up more than you need.

Log Shipping → **Backup Share** → **Log Shipping**

Primary Database Server (Backup Job)   **Secondary Database Server(s) (Restore Job)**

Log shipping provides vital data backups on a standby server and enables database administrators to restore all database activities from those logs if the primary server fails.

However, log shipping isn't without its pain points. When Brent Ozar Unlimited, a firm that focuses on Microsoft SQL Server consulting and training, held a webinar on using log shipping to prepare for disaster in 2013, the session was followed by pages and pages of questions from IT experts who were confused about how to make this DR approach work correctly for their companies.[2]

DR Costs Vary Wildly

"Active active" solutions are 2.2X the cost of HA solutions.

However, many strive for a DR solution that is just 1.4X the cost of HA solutions.

Log Shipping: A Starting Point, Not the Destination

While log shipping itself is not complicated, it's the process of testing the backup and syncing the data after the test that leaves a lot to be desired. **Some DBAs don't like relying solely on log shipping because:**

1 It is one-size-fits-all, requiring that all changes to the primary server be applied to the standby server.[3]

2 Your skilled IT talent is performing manual labor—backing up the standby server, applying logs, repointing applications, testing the standby server, restoring data from backup to the production server, and replicating any logs you've missed to the backup.

3 Standby servers don't fail over automatically like primary servers do, requiring DBAs to repoint applications to the standby server.[4]

4 SQL protection is at the database level only, not at the instance level. Even then jobs, users, and maintenance plans, among other tasks, must be replicated manually.

5 The production server can't fail over during the test, because the standby server is in use.

6 And during restoration the production server is not accessible, because the standby server is in exclusive mode.[5]

7 In the event of a true emergency, DBAs would be forced to make hard choices about which version of data to go with. The longer the time elapses, the more data to back up, the more bandwidth consumed, and the greater the disruption to the business.

8 A black swan event that cripples the industry during testing could slow this process even further, as a managed service provider's bandwidth and capabilities could be constrained.

It's no wonder that many companies that use log shipping delay DR tests or do the bare minimum required to meet their industry's compliance requirements. Running a full DR test can take days or weeks to go through the workflow, redirecting IT staff from strategic initiatives to the grunt labor of performing and overseeing the test.

How Often Organizations Test Their DR Plans[6]

Pie chart values:
- 23.3%
- 6.7%
- 9.6%
- 11.7%
- 12.5%
- 19.2%
- 17.1%
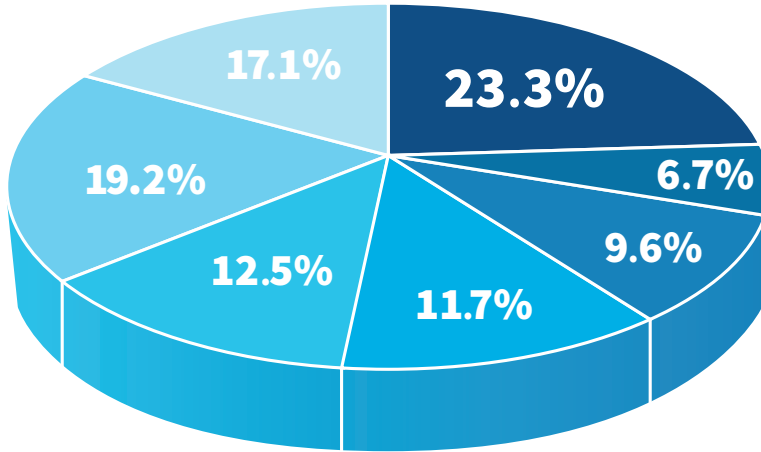
DR Testing Rare for Most Organizations	
6.7%	Weekly
9.6%	Monthly
11.7%	Quarterly
12.5%	Twice a Year
19.2%	Annually
17.1%	At Unspecified Intervals
23.3%	Never

However, that approach increases risk significantly—and companies know it. In an annual study, respondents freely admitted that their plans were inadequate to protect them, and some had recently suffered a major outage that harmed their business.

The High Cost of Failed DR[7]

The industry has spoken: DR plans are not protecting companies, and many firms have suffered a debilitating outage in the past year.

- When organizations do test their DR plans, 2 in 3 do not meet their own standards, **scoring a "D" or an "F"** *in terms of preparedness.*

- In 2014, **1 in 3 lost** 1 or more **critical applications**, VMs, or data files for hours, and **1 in 4** lost them **for days**.

- **Losing a critical** application can **cost $5K or more per minute**.

- **1 in 4 lost most or all of a data center** for hours or days.

- **1 in 5 could not recover replicas** for hours or days.

- **1 in 3** was **not able to fully recover** from the outage.

- Outage losses ranged from **$50K to $5M**. Damage included **business disruption**, **staff time**, **reputational harm**, and **non-budgeted costs.**

Thinking Virtually About Physical Realities

There's an easy fix to today's current DR dilemmas that doesn't require companies to eliminate log shipping: Just add to it. ViaWest is leveraging the Zerto orchestration, replication, and recovery platform Zerto Virtual Replication (ZVR). ZVR provides a simple yet powerful DR solution for virtualized infrastructures by including replication, recovery orchestration, and automation in one simple software solution. Replication occurs at the hypervisor layer and is storage-agnostic. ZVR layered on top of ViaWest's cloud infrastructure provides a cloud-based replication target.

**With this new strategy, companies can partner with ViaWest to**:

New Practice	Current Practice
1 Replicate the primary data center's virtual database to a virtual database in the geographically diverse ViaWest DR location via Zerto's virtual replication technology, which uses journaling. Zerto ensures replication is constant, even during the test.	**1** Bring the virtualized DR database online into a recovery bubble.
2 Bring the virtualized DR database online into a recovery bubble.	
3 Use Zerto to keep the DR server fresh with updated data, to within five minutes of the current time.	
4 Never use the physical database during DR testing, meaning that it is operating with current data.	

New Practice—DRaaS
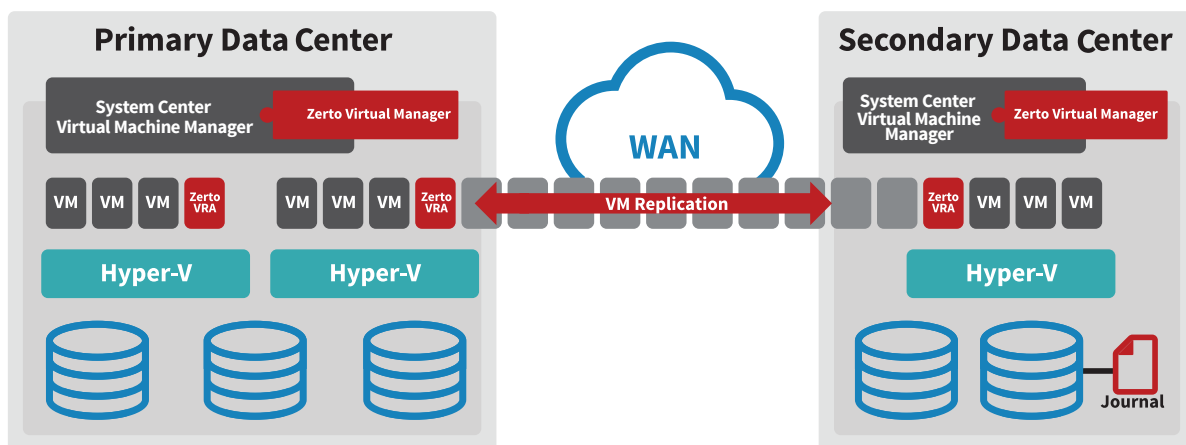
With ViaWest managed DR services and Zerto Virtual Replication technology, companies can easily test their DR plans and get back online quickly with accurate data, minimizing the business disruption of testing.

The advantage of ViaWest's Disaster Recovery as a Service (DRaaS) offering with Microsoft SQL Server Management and Zerto's Virtual Replication technology is clear: true DR. If a disaster or black swan event occurs during the test, DBAs can simply bring the replicating virtual machines online. Businesses will be able to operate and rapidly bring the virtual machine up-to-date, by applying logs from just the past five minutes. They can use the virtualized machine to run their businesses and serve customers until they can bring a primary server back online.
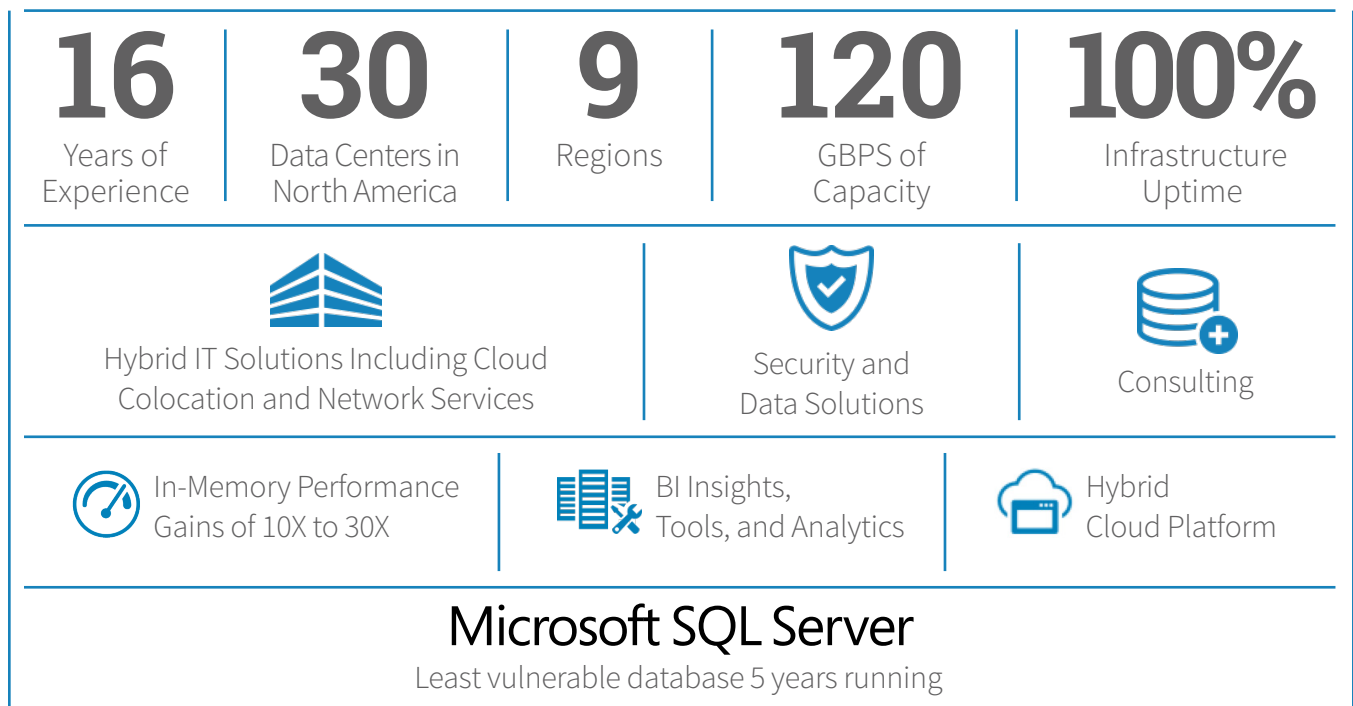
This approach assumes that you have a virtual machine in place at a ViaWest primary data center. If you are using only physical machines, ViaWest can support you by log shipping your physical Microsoft SQL Server 2014 database to a virtual machine database in the ViaWest cloud. You will then be able to leverage ViaWest and Zerto technology.

Conclusion

ViaWest helps take the guesswork and hard work out of DR: providing companies with an automated solution that simplifies DR testing, keeps systems current, and protects them in the event of a true emergency.

With true DR, companies can then focus on their true passion—running their business—knowing that their operations, customers, and technologies will be covered when disaster strikes.

Success by the Numbers: ViaWest and Microsoft

16 Years of Experience	**30** Data Centers in North America	**9** Regions	**120** GBPS of Capacity	**100%** Infrastructure Uptime
Hybrid IT Solutions Including Cloud Colocation and Network Services		Security and Data Solutions		Consulting
In-Memory Performance Gains of 10X to 30X		BI Insights, Tools, and Analytics		Hybrid Cloud Platform

Microsoft SQL Server
Least vulnerable database 5 years running

High Availability that Reaches for the Stars

Run your business with confidence, knowing that you'll always have exceptional availability to your data in the cloud. We guarantee it.

No either-or decision: Today's companies don't want to make a single-minded decision about their IT infrastructure—and with ViaWest they don't have to. Most IT leaders are choosing to pursue a hybrid IT approach—using on-premises or colocated data centers for confidential business processes and exploiting the power of managed server and storage solutions to gain rapid access to new capacity and capabilities. We work with you to meet your business imperatives.

A true partnership: When you partner with ViaWest, you get the best of both worlds: IT infrastructure expertise and support and the Microsoft SQL Server 2014 data platform, which delivers mission-critical performance, faster data insights, and a platform that's built for the hybrid cloud.

A comprehensive solution: ViaWest offers a managed database solution, based on Microsoft SQL Server 2014, that provides high availability groups; failover clustering, AlwaysOn readable secondaries, failover protections, and rapid recovery; local and cloud database management tools for scheduled and unscheduled work; Recovery Advisor and online backup reporting and analysis; in-memory OLTP, which can speed transaction processing to 30X; and in-memory features, which can extend the life cycle of legacy applications.

The best technology at a predictable price: With Microsoft SQL Server 2014 solutions, IT leaders get the benefit of working with a trusted market leader committed to evolving and securing technology infrastructure, while drastically reducing capital expenditures for hardware and software. Meanwhile, Zerto Virtual Replication provides a tested, effective way to replicate databases to strengthen DR and BC, at a price that fits most firms' budgets.

Leading business support: ViaWest managed database solutions are run by engineers who understand how to manage and optimize state-of-the-art solutions for high-performing business applications. We solve 87% of your support requests in the first call and take just seven seconds, on average, to answer your request. Use your IT talent for business-critical initiatives, while leaving the system patching, software updates, and security and regulatory compliance duties to us.

Microsoft

ViaWest is proud to partner with Microsoft to offer exceptional managed services based on the Microsoft SQL Server 2014 platform.

About ViaWest

ViaWest is a leading hybrid IT solutions provider offering cloud, colocation, compliance services, and security solutions. With more than 16 years of experience and 30 North American data centers, ViaWest offers IT and infrastructure solutions that solve business challenges while balancing cost, scalability, and security requirements. We leverage on-premises platforms, local ViaWest data centers, and cloud environments to deliver tailored solutions designed for maximum reliability and flexibility backed by our 100% uptime commitment. Visit our website or follow our Twitter account for more information.

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[3] Alan Glazer, "Top Disaster Recovery Challenges and How to Address Them," *The Data Center Journal*, April 1, 2015, http://www.datacenterjournal.com/Top-Disaster-Recovery-Challenges-Address/.

[4] "Description of disaster recovery options for Microsoft SQL Server," Microsoft Support Website, Revision 6.0, Last Reviewed July 3, 2012, https://support.microsoft.com/en-us/kb/822400.

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