

The Case for Application-Consistent Recovery

An untested Disaster Recovery (DR) plan is a speculative exercise in wishful thinking. A controlled DR test can be even worse. That's because it creates false expectations about service resilience that can collapse like a pack of cards in an unforeseen data center incident.

Unitrends ReliableDR has pioneered the concept of Disaster Recovery Assurance to automate and test DR procedures that allow flawless failover of virtualized applications across clouds, and application-consistent recovery. ReliableDR, was developed to automate all tasks associated with recovery, from infrastructure configurations all the way up the stack to application certification. It allows service delivery managers to manage to SLAs that are meaningful to the line of business, and demonstrate compliance with Business Continuity requirements.

IN THIS WHITE PAPER:

You will learn about best practices you can use to deploy in your virtualized environment, how to test and execute your recovery plans in a 100% automated manner, and raise sharply the resiliency of your business processes that rely on virtualized applications.

RECOVERY EXERCISES: THE PERMANENT HEADACHE OF DR PLANNERS

Executing recovery plans is a costly and complex undertaking, and while there are some management tools that help reduce some of the complexity and manual processes, there are three significant challenges that are increasing the risk of application outages:

The number of virtual assets (e.g. VMs, LUNs, switches) is growing sharply, but the staff available to manage them is staying flat at best. Therefore, the ratio of managed assets per admin is climbing quickly and is expected to continue to climb every year. Private cloud is being adopted rapidly in the enterprise, and the bottom layers of the service delivery stack (servers, storage and network) are multiplexed and repurposed dynamically. These virtual infrastructure changes can have a direct impact on DR procedures but go undetected until a test or an incident takes place. DR tests continue to be exercised with the same frequency as in the pre-virtualization period, mostly once or twice per year. The increase in testing complexity is being addressed by reducing the scope of the tests to only the most critical applications.

These trends are happening simultaneously with increased regulation, new legislation, board-driven audits and compliance requirements such as ISO22301 and SSAE 16. But DR remains largely a handcrafted collection of methodologies, unintegrated tools, some ad hoc scripts, and scant documentation. DR planners rely mostly on the unwritten know-how and experience of IT subject matter experts ranging from application specialists to DBAs to storage and network administrators.

Exercising DR tests is as critical as it is disruptive for those subject matter experts that must stop important tasks to be available during tests. DR planners must coordinate the work of dozens, if not hundreds of people, correlate results manually and build SLA reports by hand. And all that work can become obsolete within days or even hours, as the dynamics of the virtualized infrastructure drive changes across virtualized servers, storage and networks.

Unitrends is the only vendor that supports Citrix XenServer using agentless backup methods, which are far more efficient and cost-effective than legacy agent-based solutions. In 2013, Unitrends will extend its multi-hypervisor strategy to Hyper-V as well. While AppAssure and legacy based vendors claim support for all three hypervisors, they are strictly agent-based solutions that do not embrace the recommended agentless hypervisor backup processes. Additionally, AppAssure only supports Window machines, pushing it even further down the list when it comes to robust virtualization data protection.

FINDING A BETTER, LESS COSTLY WAY TO TEST

It is always easy to say “there must be a better way” but it takes a while to find it. Unitrends’s ReliableDR solution to Application-Consistent Recovery was forged in the 2008-2010 timeframe in close collaboration with early adopters of VMware VI (Virtual Infrastructure), vSphere’s precursor. The first release of what is now ReliableDR was a multi-cluster VI 3.5 recovery orchestrator that leveraged NetApp replication and snapshot to exercise application- consistent failover tests, and measure recovery time. Early ReliableDR customers guided us towards application awareness and SLA management, and these functions were integrated into the core orchestration of ReliableDR’s first release.

After obtaining validation from the early customers, ReliableDR release 2 emerged as a platform-agnostic orchestrator with support for all the main storage arrays and a powerful wizard-driven interface capable of doing asset discovery and recovery automation without the need for scripting. Additional out of the box support was incorporated for the most common applications like Sharepoint, Exchange, IIS, and expedited recovery certification of any web-enabled applications and databases like Oracle, SQL Server, MySQL.

Now in release 3, ReliableDR has a fully scalable architecture with a RESTful core and separate GUI that provides multi-tenancy and public cloud readiness, all the while increasing the number of platforms supported. Thanks to its rich orchestration capability, ReliableDR is a 100% agentless solution that requires no software of any kind in the protected site, thus reducing the possibility for performance or stability impact.

BEST PRACTICES FOR DEPLOYING RELIABLEDR

ReliableDR consists of a single VM that runs on Windows Server and has its own database. It can also run standalone on a physical server. It executes in the DR site and nothing needs to be deployed in production, and it can work with either one instance of vCenter or two.

It is best to have a reliable high-speed network connection between sites, preferably a dedicated connection, but ReliableDR can also run on VPN connections over the internet. ReliableDR supports hardware replication if present, and alternatively can drive agentless replication using native vSphere functionality.

The DR site must have sufficient servers, storage and network resources to support the application at the protected site and should have access to the same networks.

UNITRENDS RELIABLEDR

ReliableDR consists of four components that run in a single VM. The core component has the orchestration functionality, which itself includes recovery job scheduling and dispatching, interfaces with hypervisors, storage adapters, replication and SLA control. The second component provides RESTful web services into the core orchestrator. ReliableDR's GUI is the third component, which leverages the RESTful API. Lastly, ReliableDR has a built-in SQL Server Express database that contains recovery specifications, business rules, recovery execution logs and traces- this component can be replaced with an external SQL Server.

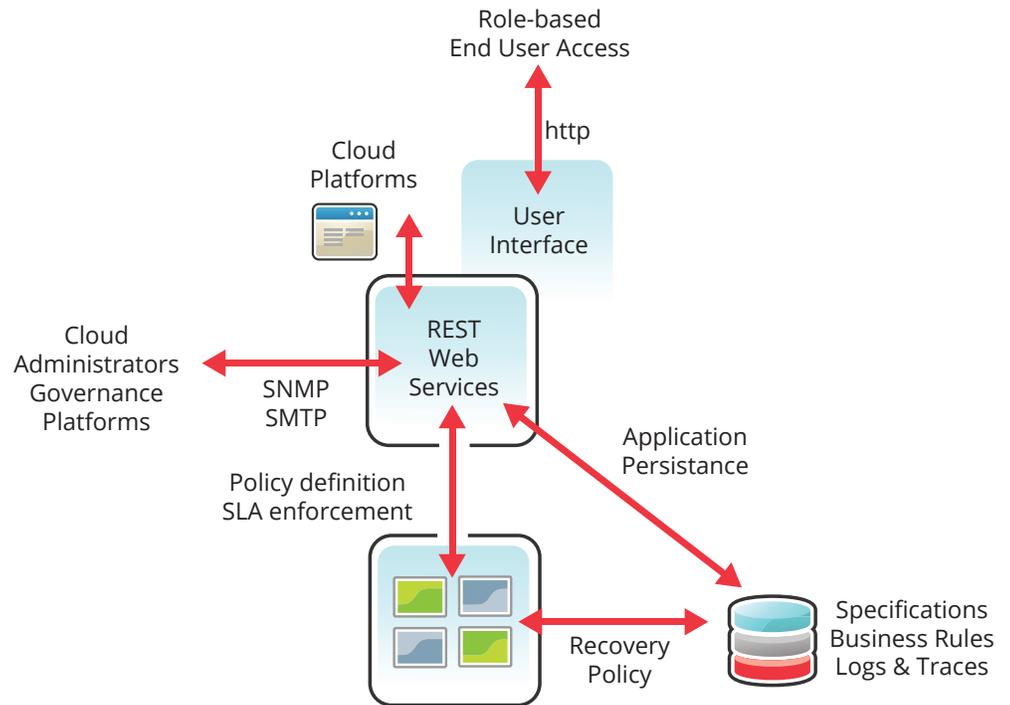
The sophistication of the architecture is such that no agents are needed in the protected site. Taking advantage of low level APIs in the hypervisor, the core orchestration enacts recovery exercises in a fully automated manner without impacting the performance or stability of production environments.

ReliableDR's powerful GUI allows DR planners to specify recovery runbooks through wizards and without scripting, which makes them easy to build, maintain and deploy. These runbooks include business rules that certify the health of each recovered component and compliance with SLAs agreed with the line of business. Each runbook has associated SLAs that are specific to the application protected, and aligned with the requirements of the line of business. DR planners can define protection tiers based on SLA levels, and provide reporting that compares objectives against actuals. See figure 1.

Figure 1: Defining protection tiers with recovery objectives and actuals

Protection Level	Method	Consistency Checkpoints	RTO	RTA
Gold	Sync Replication	Every 2 hours	30 mins	~15 mins
Silver	Async Replication	Every 6 hours	6 hours	60-90 mins
Bronze	Backup	Bi-yearly	Best effort	1 day

Figure 2: ReliableDR Architecture Components



INTRODUCING A NEW PARADIGM: DISASTER RECOVERY ASSURANCE

ReliableDR unveils a new Disaster Recovery paradigm that is service-centric and provides accurate SLAs. The line of business can rely on IT to provide continuity to business processes, without fear of indefinite outages. Auditors and compliance officers can verify that the business needs are being met in real time and on demand, without disrupting IT operations. And thanks to the orchestration capabilities, ReliableDR delivers all those business benefits in a fully automated manner and at a much lower cost point than previous generation solutions. In particular, there was a need to reduce the existing RPO below 24 hours. A search was made for advanced tools that could leverage their recent investment in a new virtualized infrastructure.

ReliableDR was deployed at Van Lanschot’s DR site and integrated with SnapMirror and FlexClone to automate DR testing. Several RPO tiers were defined, and for mission-critical applications ReliableDR runs twelve DR tests per day and provides an iron-clad RPO of two hours. Out-of-the-box recovery certification functionality was applied to Microsoft SQL Server databases and Exchange.

Corporate application servers were certified for recovery using ad hoc application tests as specified by the line of business.

Van Lanschot now benefits from tiered and fully automated DR testing of their x86 applications portfolio. SLAs are constantly tracked and enforced. Paul Timmermans, Managing Director at Van Lanschot Belgium, said, "Our Disaster Recovery strategy cannot fail to deliver and this is why we chose ReliableDR. It lets us run non-disruptive, frequent, scheduled Disaster Recovery tests to ensure that a successful service recovery is always assured."

ABOUT UNITRENDS

Unitrends provides physical, virtual and cloud-based protection and recovery for every organization's most valuable assets: its data and applications. Supported by a "crazy-committed" customer service model based on engagement, experience and excellence, the company consistently achieves a 98 percent customer satisfaction rating and lets everyone play IT safe by delivering the best cost-to-value ratio in the data protection and disaster recovery industry. Visit www.unitrends.com.

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