

Data Recovery Case Study

IBM System Storage DS 3512

SAN

A Storage Area Network (SAN) is a dedicated high-speed network that interconnects and presents shared pools of storage devices to multiple servers. It provides block-level storage that can be accessed by the applications running on any networked servers.

Consisting of dedicated cabling, usually Fiber Channel, a SAN is complex, scalable & more expensive than NAS.

LUN

Logical unit number, or LUN, is used to identify a logical unit, which is a device addressed by the Storage Area Network protocols which encapsulate SCSI, such as Fiber Channel or iSCSI. A LUN may be used with any device which supports read/write operations, but is most often used to refer to a logical disk as created on a SAN.

VMware vSphere

Formerly known as VMware Infrastructure, VMware vSphere is the brand name for VMware's suite of server virtualization products that includes its ESXi hypervisor and vCenter management software.

Thin-Provisioning

Thin provisioning is a method that optimizes storage utilization by allocating storage space in a flexible on-demand manner.



Background

Just two days before the closure of their financial year, our client, a private bank, contacted us frantically regarding their SAN storage failure. The subject unit was an IBM DS 3512 SAN with 12 drives configured in **RAID5** using IBM System Storage DS® Storage Manager.

We took the case on an Emergency Service basis, which meant that we could work on it 24/7 until we arrived at a solution to the problem.

The client mentioned that the Storage Manager reported the failure of four drives. After our preliminary diagnosis, we reiterated that two of them had **faulty Read/ Write Heads**, whereas the other two had SMART errors, and loses detection intermittently.

The catastrophe shook the entire bank and halted their day to day operations, including ATMs. Since it was the financial year closure, they had regulatory compliance requirements, in addition to the end-user woes.

Time and again, MORE expertise was on call, and we delivered on our promise, as expected.

Device: IBM System Storage 3512
[Find the details on the website](#)

Architecture: SAN Server with 12x600GB SAS drives in **RAID5**

File Systems used: Linux Ext 3/4 & VMware Virtual Machine File System (VMFS - a high-performance cluster file system for ESXi VMs).

Type of Data: Nearly 5TB, in multiple VMWare LUNs, consisting of Core banking, Database and HRMS Data.

How did we solve the puzzle?

The unit was operating in RAID5 with a Hot-spare drive. However, it appeared that the hot-spare was used for data reconstruction when one drive failed sometime back. This failure went unnoticed or was overlooked by the client's IT Team. When the second drive failed permanently, the unit lost data access, and they resorted to **MORE** expertise for recovering their precious data.

a). Despite all the challenges, we managed to **image** all the drives overnight, employing our **Clean Room Level Recovery** expertise.

b). We could find the parameters and **de-stripe** the array, excluding the drive that had failed earlier. The SAN storage had one logical drive using the Linux file system that housed the Oracle Database files and three VMware LUNs (VMFS) with the remaining data.

c). The mix of Linux Ext 3/4 and the VMFS LUNs posed a real challenge during the **logical recovery**. Besides this, the VMware ESXi had **Thin Provisioning**, which means the virtual disk started small and expanded as more disk space was required.

Onsite Inspection

For complex NAS/ SAN cases, we can assist the customer with a preliminary onsite inspection*.

Call us for details

24/7 Technical Helpline

Data loss can happen to any of us, any time of the day. Should you require assistance, call our Technical helpline number.

Pickup & Delivery

We offer free pickup and delivery of your storage devices within the UAE*.

Priority/ Emergency Services available

Based on the client needs, we can attend cases during/ after office hours and holidays, until a resolution is arrived at*.

Remote Diagnosis

If you are outside the UAE or need to diagnosis a connected storage device urgently, you can avail of our "Remote Diagnosis," via the internet through secure channels*.

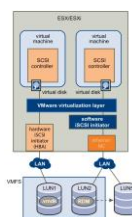
*Conditions apply

For more information on our services, please visit us on the web: www.datarecovery.ae

MORE @ your rescue, when technology fails

Summary

We succeeded in 100% recovery of nearly 5TB data in multiple VMWare LUNs in 48 hours, despite the four-drive failure within a DS3512 SAN



The customer was delighted to have the entire data restored on time, in its original shape and form.

About Us

Ensuring Business Continuity in the event of storage failure at our customer's premises is our primary concern. Be it a Laptop, Desktop, Internal/ External Hard Disk, SSD, RAID server, NAS/ SAN/ DAS device or a complex virtualized environment, our technical expertise, and years of experience ensure that the client is **back in business** within the **lowest possible downtime**.

DATA LOSS CAN HAPPEN TO ANYONE. IF THE DATA COSTS YOU YOUR BUSINESS, WHY TAKE RISKS?

- **MORE Datarecovery LLC** specializes in providing professional data recovery services for all types of RAID's and other storage hardware. Since 2001, we have received countless accolades for our unmatched quality in restoring mission-critical data from all sorts of storage devices.
- Feel free to contact us if you require assistance in the recovery of your critical data. We are more than glad to examine RAID arrays and other storages deemed "non-recoverable" by other companies, often a recovery is possible in most cases.

Disclaimer: the real case alluded to was used to showcase a typical data loss scenario that can happen to anyone in today's digital workplace and to emphasize the importance of employing Professional Data Recovery Services. It never implies that the storage unit used by the client was inferior by any means.

Our other services include:

- ✓ Data/ Mobile Forensics
- ✓ Backup Solutions
- ✓ Storage Solutions
- ✓ Disk Wiping/ Data Sanitization

Our Mission

Delivering value to our clients with Prompt, Secure, and most Affordable Professional Data Recovery Services needed to maintain their business continuity is our priority.

Feel free to contact the most trusted and reliable Data Recovery Service Provider in the Middle East



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