Backup and Recovery Are Becoming Critical

Oracle Databases form the backbone to many critical applications. Traditionally, their data is protected using Oracle Recovery Manager (RMAN) backups to stream data and logs to a backup target, such as tape. With the growth in data, this model is becoming strained. The amount of time needed to complete backups and recoveries is not allowing business requirements to be met.

Administrators are under pressure to shrink backup windows due to the performance impact of backup and the 24/7 nature of modern business. However, the amount of data to protect is constantly growing, so something has to give. Traditional backup processes create a full backup of the databases and logs, which can take hours to complete. This means that a backup can be completed, at best, once per day, supporting a recovery point objective (RPO) of 24 hours. As much as 24 hours of new database records may be at risk of loss, or need to be rolled back or re-entered, in the event of a failure of any type.

Data is more and more critical to business, so RPOs are under pressure to be improved. But having a smaller RPO is not possible with the traditional backup model. A different, more modern approach is needed to perform the backup faster and enable more frequent protection.

The time to recover, or recovery time objective (RTO), is also under pressure to shrink. Online customers navigate to competitive sites within minutes of an online service being unavailable. The traditional method of restoration takes hours for even a small environment. For the largest databases of today, a tape restore can take days.
Furthermore, companies are looking to improve their agility. They need to provide copies of their production data to perform development, testing and quality assurance (QA). With increasing pressure to be able to change to provide competitive advantage, improving the time needed to perform this task has a real business benefit.

To address these problems, organizations are increasingly turning to hardware-based snapshots and replication, but this is not easy. Generally, in-depth knowledge is needed to create scripts to manage this hardware-based data protection. Changes to the environment, such as the addition of capacity, need careful management and constant updating of scripts. Companies rely on staff with this deep technical knowledge during setup, maintenance and restoration of data. There is risk in having human-generated scripts and there is risk in reliance on a handful of staff with this specialized knowledge.

**Hitachi Data Instance Director**

Hitachi Data Instance Director (HDID) provides application-consistent storage-based snapshot, clone and remote replication orchestration for the Oracle database environment using an intuitive, comprehensive and efficient user interface.

**Meet Aggressive Business Service Level Agreements (SLAs)**

Create SLA-driven policies with HDID, based on RPO and retention requirements, to protect data using snapshots and to set up and manage local and remote replication with ease (see Figure 1). HDID provides an attractive alternative to RMAN streaming backup by providing concurrent (identical) local and remote snapshots over a large distance.

Concurrent snapshots can be performed, even where the source and destination are linked by asynchronous replication. HDID offers the flexibility to choose whether to have an identical remote snapshot or have separate RPOs at each site. It also offers the option to choose the same or differing retention policy at each site.

![Figure 1. HDID orchestrates synchronized local and remote snapshot operations.](image)
Enable Business Agility

HDID allows triggers to be set to allow the ad-hoc creation of data instances, or, alternatively, this can be done on a schedule. This capability allows the creation of an Oracle-aware clone and subsequent refresh of that clone of the production data. It also provides the ability to mount the cloned data and logs onto any “proxy” server, allowing it to be presented to a development or test machine, for example. Control files, password files and server parameter files can also be restored, giving all of the data that the database administrator needs to recover a new instance of the production database for repurposing (see Figure 2).

Eliminate Complexity

HDID eliminates the need for complex scripting of storage orchestration: Because the HDID agent detects the Oracle database’s relationship with the storage each time it prepares to run the policy, it removes human error associated with creating and updating scripts. The filesystems on Hitachi NAS Platform (HNAS) and LUNs on Hitachi Virtual Storage Platform (VSP) family systems that are related to Oracle databases are detected automatically. This detection includes where new capacity is added after initial setup (see Figure 3).

Figure 2. HDID offers full flexibility in creating and refreshing database clones.

Figure 3. HDID Workflows With VSP and HNAS
The intelligent agent is aware of the location of the data, online redo logs, archive redo logs, control files, parameter files and password files. This agent ensures that they are all protected within the assigned RPO. Because HDID handles communication and configuration of the storage device, scripting and management of Hitachi Open Remote Copy Manager (HORCM) files is no longer necessary.

HDID provides the option to perform online backups using Oracle hot backup mode for Oracle-aware backups that can be recovered by applying redo logs. Alternatively, offline backups can be used for noncritical databases to provide fully consistent backups that do not need logs for recovery. Furthermore, HDID performs the necessary steps to put the database into hot backup or offline mode and return the database to normal mode after the data protection policy has completed.

HDID offers the option to revert just the data or mount all data and logs to a "proxy" server (LUNs for block or files for Hitachi NAS Platform).

Operating System Support
- Red Hat Enterprise Linux 6 x64 (6.3+).
- Red Hat Enterprise Linux 7 x64 (7.0+).
- Oracle Enterprise Linux 6 x64 (6.3+).
- Oracle Enterprise Linux 7 x64 (7.0+).
- SUSE Linux Enterprise Server 11 x64 (11.3+).
- SUSE Linux Enterprise Server 12 x64 (12.0+).

Hitachi Storage
- Block: VSP, VSP G series, Unified Storage VM (HUS VM).
- File: HNAS 3xxx, HNAS 4xxx.

Hitachi Storage Data Protection Technologies
- Block: Thin Image, ShadowImage, Universal Replicator, TrueCopy.
- File: directory clone and file replication features.

Oracle
- Oracle Database 11g.
- Oracle Database 12c except multitenant container databases (CDB) and Flex Automatic Storage Management (ASM) feature.

Oracle Configuration
- Oracle Real Application Clusters (RAC).
- Oracle non-RAC.
- ASM.
- Non-ASM.

For More Information
For more information regarding how Hitachi Data Instance Director can support your Oracle environment, visit www.HDS.com/go/protect or contact your local Hitachi Data Systems representative.