



## “Moonwalk” Your Data

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### Management Summary

In 1983, Michael Jackson, youngest member of the Jackson Five singing family, thrilled his audience by “moonwalking” on stage. His dance steps caught the attention of both young and old fans, and many fans practiced for hours perfecting their version of the moonwalk. While many believe that Michael Jackson “invented” this dance, he was not the original moonwalker. Moonwalk is a variation of an older dance called the *Illusion Dance* that consists of floating, gliding, and sliding steps. Dancers that master the Illusion Dance create a distinctive illusion. Their bodies appear to float across the floor in one direction while the feet travel in different directions.

Moonwalk is a data management company was founded in 2002 in Australia. Moonwalk (the company) has no ties to Michael Jackson but its software is much like the moonwalk dance that Jackson made popular. Data floats around the network while the data movement software makes these movements fluid and transparent to applications.

Moonwalk is headquartered in Australia with has enterprise customers in Australia, United Kingdom, and Canada. Now they are ready to make their newest version of the software, version 6.0, available to the United States market. **Unlike other products that add data migration to existing programs, Moonwalk was designed from its inception to copy, move, or migrate data between different types of storage without affecting applications.** Originally designed to support those enterprises that ran Novell Netware applications, Moonwalk has expanded its support to many other platforms as well. Read on to find out more about this solution from Moonwalk.

### The Moonwalk Solution

There are, in general, two different ways to move data from one location to the next. Block-level based replication products have no knowledge about file structures and move data at the block level; that is, data is moved one block at a time until the logical volume is relocated to its new location. Array-based replication products move data at the block level. Other methods move data at the file level. These methods understand the file system and can move data by file, rather than by volume. They use and retain the attributes of the file to determine who owns the file and who can access the file. Moonwalk always moves data at the file level.

Each server that requires Moonwalk’s services requires a thin agent installed on that server. These agents can be pushed to each server through a central management console. Moonwalk supports *Linux*, *Netware*, *Windows*, and various *UNIX* platforms. These lightweight agents require few resources. NetWare agents require less than one MB of memory; Windows agents require 4 MB of memory.

Policy information about the files are stored in a central repository and managed by a web-based application called *Eagle*<sup>1</sup>. Eagle communicates to the various servers and instructs the agents to copy or move files based on pre-set policies. Files can be moved based on many different criteria, such as the age of the file, the size

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<sup>1</sup> Eagle was also the name of the first manned lunar module to land on the moon.

of the file, file type, or file name. Moonwalk also allows the administrator to move all files from one storage device to another, which allows the original storage device to be retired from service at the end of a lease. Applications can continue to access the files while the migration is underway.

Files migrated from higher cost storage to lower cost storage saves money. After the files are migrated to secondary storage, a small stub is placed on the primary storage to signify that the file has been moved. This frees up capacity on the more expensive, higher performance storage allowing the extra capacity to support new mission critical applications.

At times, files migrated to secondary storage need to be accessed. Here, the agent can retrieve the file from secondary storage and move it to primary storage. The file remains on primary storage until the policy states it should be migrated back to secondary storage. Moonwalk is not restricted to moving files to disk systems; it can move data to other Hierarchical Storage Management and tape management systems as well.

## How Moonwalk Differs

Hierarchical Storage Management, commonly called HSM, has been used by administrators for years to migrate data from one storage platform to another. HSM requires a special HSM server to manage and direct the migrations. If the HSM server fails, data can no longer be retrieved from its secondary storage. Moonwalk does not require an additional server to direct data migrations. Migrations are performed by the agents installed on the application servers. If the Moonwalk web-based policy manager should fail, application servers can continue to retrieve data from secondary storage.

### *Disaster Recovery*

Moonwalk leaves a stub on primary storage to signify that the data has been moved to a new location. This stub contains information about the new location of the file. Each migrated file contains information about the location of the stub in its metadata. The ability to cross-reference stubs and files gives Moonwalk customers some very flexible options to recreate the environment after a disaster has occurred. Consider the following situations.

#### Disaster One – Server is Down

Let's assume that the application server fails. A new server is rolled in - to replace the damaged server. Moonwalk's Disaster Recovery Tool recreates the stubs for the new server by querying the migrated files on secondary storage.

#### Disaster Two – Primary Storage is Down

Here the primary storage system fails. The DR tool can recreate the stubs on the new primary

storage by querying the migrated files on the secondary storage.

#### Disaster Three – Both Primary and Secondary Storage is Down

In this example, the main data center contains both the primary and secondary storage systems. That night, the data center is flooded after the hurricane passes through the city. The storage environment must be recreated as quickly as possible. The first step is to restore the contents of the secondary system from the normal tape backup. After the new server is operational, the DR tools can recreate the stubs on primary storage for the migrated files now restored on the secondary storage system. At the same time, files that resided on primary storage that were not migrated can be restored from the primary storage backup tape.

After the restores have been completed, the environment looks exactly the way it was, before the data center was flooded.

## Moonwalk's Benefits

Moonwalk's architecture simplifies data migration and disaster recovery. There is no need for additional servers to manage the migrations. That removes the potential of the migration server as a single point of failure. The web-based policy manager stores information about policies and can communicate to the agents when migrations should take place. However, it is not in the data flow. Agents can continue to access data if the policy manager is unavailable.

The agents are small in size and are idle until the policy manager informs them that a migration should begin. Installation of the agents is quick. The agents do not have any special 'hooks' into the operating system and do not require a re-boot of the server.

Administrators can start by implementing Moonwalk on several servers and add new servers to the environment over several weeks. The detailed metadata stored with the migrated files allows new stubs to be created when needed or existing stubs validated.

The cost of the Moonwalk solution depends on the number of servers, the amount of storage, and the number of users that can access and modify the policy manager.

The Moonwalk solution is simple, yet effective. If you are looking at data migration solutions, evaluate Moonwalk. In fact, you can download a free evaluation version of their software from their web site. Soon, your files can be moonwalking across your tiers of storage.



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