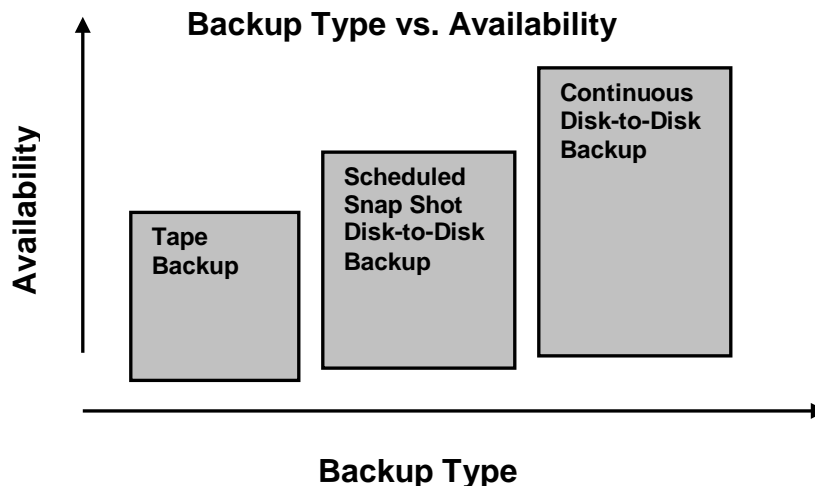


Continuous Data Backup and Protection Using Real-Time File Replication

Enterprise Data at Risk

With the move to client-server computing came a dramatic increase in data that businesses have distributed throughout their enterprise. Much of this data is frequently changed, frequently accessed and rapidly growing in size. An unexpected disaster can eliminate some or all-local data and seriously impact the continuous operation of the business. Enterprise data is at risk because traditional backup software has not kept pace with the ever-increasing demand for 24x7x365 data availability. This white paper discusses the advantages of using Continuous Disk-to-Disk Backup for enterprise data backup and protection.



Limitations of Traditional Backup Systems

Typical Tape backup software usually runs once a night. Scheduled or Snap-shot backups run periodically. This leaves hours or as much as a full day of data at risk if a server or disk should crash. Compounding the problem is the length of time required to restore a server from offline backup media. Although steady progress has been made with backup and restore systems, most server restores still take hours to complete. In addition to struggling to meet the demands of the “shrinking backup window”, many enterprises do not have critical data available to users during an outage and the restore operation. This lack of data availability is no longer acceptable in today’s business operations.

Requirements for a Better Solution

The key requirement that must be met is the immediate availability of fully up-to-date and complete backups from which application data restores can be made. In many cases, to protect against disaster, data must be backed up to a different geographical location. Satisfying this combination of requirements should allow the business operation to continue to run with a minimum break in continuity. To accomplish this, Continuous Disk-to-Disk Backup using real-time replication software is becoming a standard solution.

This automated process reduces the chance of human error and ensures that the file replication takes place either on schedule or in real-time. **more....** <http://www.linkpro.com>

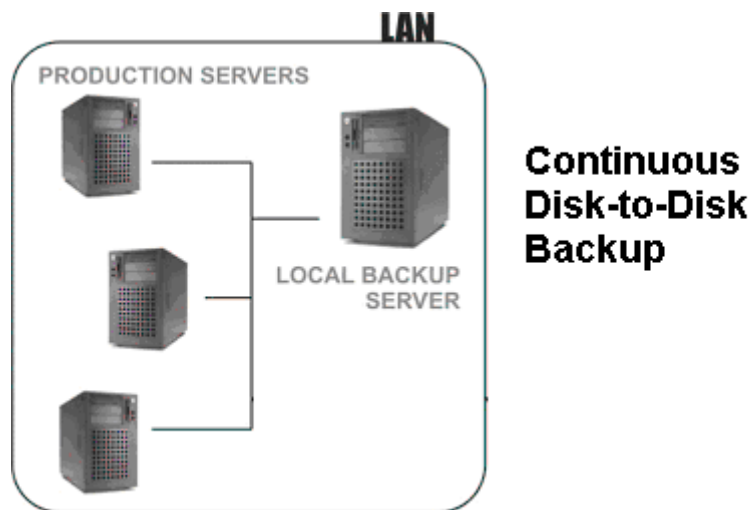
Continuous Data Protection using Real-Time Replication:

Two Solution Examples

LinkPro's Real-Time File Replication and Backup software can be used implement both local and remote continuous disk-to-disk backup. Two example solutions are presented below.

Local Disk-to-Disk Backup

The local backup and restore system illustrated below provides access to mission critical application data in the event of a production server failing. In this system configuration the production servers are continuously backed-up to a local backup server attached to the LAN. LinkPro's Real-Time File Replication and Backup software is installed on all of the production and backup servers. Traditional tape or ODD backup systems can be attached to the backup servers for archival purposes.

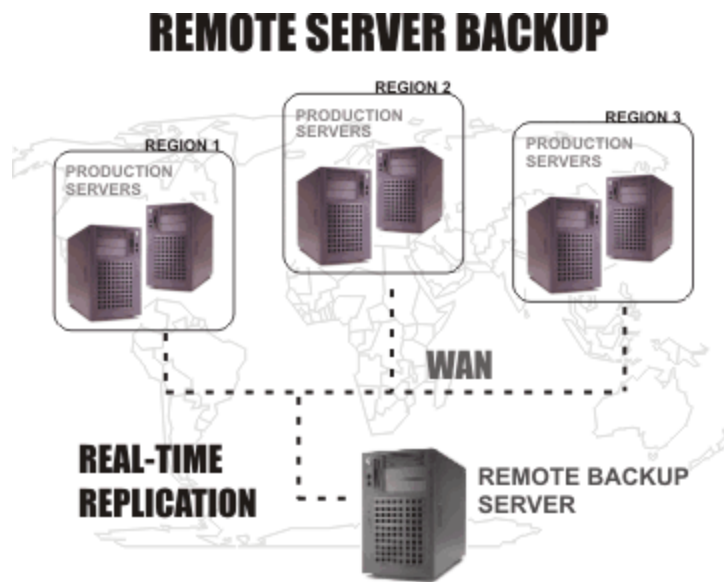


Traditional backups can take place once per night, however the replicas of production server data that reside on the backup server are kept current using real-time replication. So long as the "data outage" lasts, and until the production servers are fully restored, the operation can continue un-interrupted from the local backup server.

When the down server is again in operation, its data can be restored from the backup server by performing a restore replication. The restore replication will only update or add those files to the production server(s) to bring its data into synchronization with the backup server. After the production data and the backup replica are brought back into synchronization, work on the production server can continue.

Remote Disk-to-Disk Backup and Restore

The central backup and restore system illustrated below provides remote disaster recovery for the regional servers. LinkPro's Real-Time File Replication and Backup software is installed on each of the regional servers. The remote server backup and recovery process is easily managed from a central site using an intuitive GUI. Each remote server's files are continuously and transparently replicated to a dedicated directory on the Central Server's disk storage. This up-to-date backup copy is now available from the central location through a network connection if a regional server fails.



In the event any regional server fails, its data replica on the central server is ready for continued use by user applications. When the failed regional server is restored to operation, the required backup data can immediately be replicated from remote central to back to the regional server. Since this is compatible with most tape backup systems, an archive backup using tape can be done once a week at the remote central server.

Advantages of using Continuous Disk-to-Disk Backup Software

- Data is backed up as changes are made keeping the backup copy current.
- Immediate access of an up-to-date remote data backup in case of local server failure.
- Rapid disk-to-disk data recovery from the central server to remote server.
- When data is restored, data loss is reduced to a minimum.
- Continuous real-time operation minimizes impact on network performance.
- Backup windows all but eliminated.
- Provides 24x7x365 data availability and disaster recovery.

This disk-to-disk server backup and recovery capability can allow the business operation to continue to run with a minimum break in continuity when equipment failure or disaster strikes. This is why [disk-to-disk backup software](#) is becoming a standard requirement for IT infrastructures world-wide.

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Meeting the Continuous Backup Requirements for Enterprise Data Protection

Efficient implementations of Examples 1 & 2 described above requires software that is able to provide automatic directory and file replication from one or more source servers to one or more destination servers over LANs, WANs, VPNs or the Internet – even through firewalls. For security reasons, it should perform scheduled and real-time automatic replication process when running as a service. It should be able to backup data to the remote servers from the source server and restore this data when required. It is also important that this software be centrally administered. LinkPro's File Replication solution more than satisfies these key requirements and is described below.

IPReplicator® Product Overview

IPReplicator provides scalable, secure & automated data movement over LANs, WANs, & Internet while minimizing & controlling bandwidth usage - even thru firewalls. It automatically replicates Windows NT, 2000 & 2003 server directories and files from a source server to one or more target servers. IPReplicator supports real-time and scheduled, one-to-many and many-to-one, file replication.

Capabilities include:

- Concurrent operation - real-time and scheduled
- Scalable – can support up to hundreds of servers
- Secure – encrypted connections
- Conserves - network bandwidth
- Central administration – setup, monitor and control

About LinkPro

LinkPro Technologies, Inc., based in Irvine, Calif., is a privately held corporation that specializes in data movement and protection software. Its products are sold worldwide through value-added resellers, international distributors, direct sales and original equipment manufacturers (OEMs).

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