

Data Recovery



Why implement a data recovery plan that can't recover all your data?
Experts in remote site recovery suggest a layered approach to data protection and recovery, combining local and remote options.

Without Data Loss

Modern, high-speed Internet and call center transactions have replaced manual data entry. If a transaction is missing, there is no paper trail. And, because electronic transactions occur so quickly, the amount of work or business lost in an hour can far exceed what might have been lost five years ago.

In this competitive environment, missing transactions quickly translate into lost customers and lost business opportunities. Therefore, more than ever, businesses must strive to protect each transaction from loss and corruption.

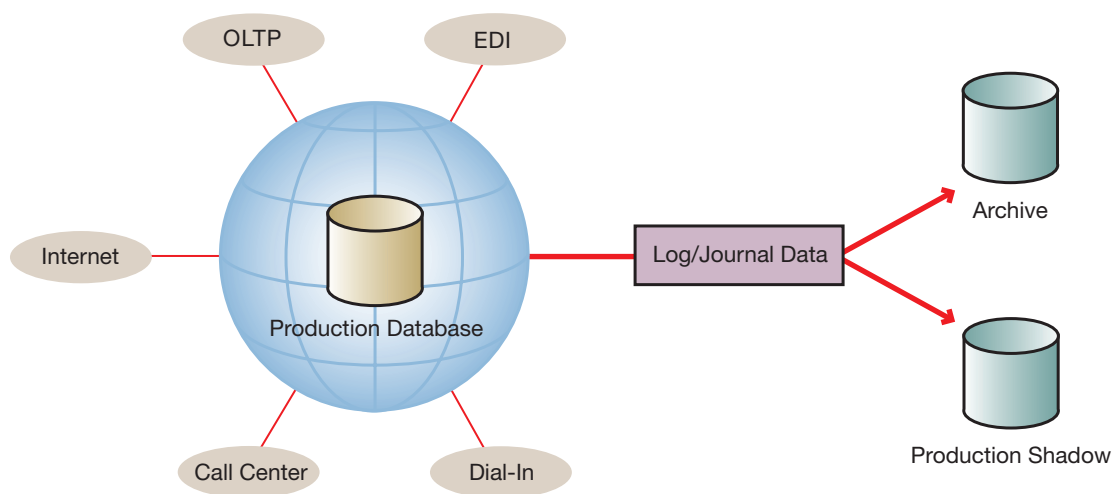
Setting recovery goals helps your company determine its tolerance of downtime and data loss. Companies with high-traffic data centers cannot bear even minimal downtime and require immediate restoration.

E-Net products meet the remote recovery requirements of companies with continuous availability or high availability demands: **immediate recovery and no data loss**. Unlike traditional incremental backups, which lose all transactions between the last backup and the outage, E-Net software restores all transactions, up to the time of the outage.

Local Recovery Options Alone Are Not Enough

Even savvy corporations may underestimate the possibility of a hardware or software failure and institute only *local* recovery techniques. Although sysplex configurations offer hardware redundancy and other local recovery mechanisms do add a single layer of data protection, these solutions are simply not enough. If a regional disaster or outage occurs (e.g., storm, blackout, earthquake, flood, etc.), the entire production site can be affected.

Experts in remote site recovery suggest a layered approach to data protection and recovery, combining local and remote options. E-Net's Remote Recovery Data Facility (RRDF) further insulates and protects your data and information systems. Unlike other recovery solutions, RRDF performs exceptionally well over long distances—without additional



Remote journaling of log data

network requirements. If a disaster occurs, processing can be quickly switched to the remote site and operations continued. When services are restored at the primary site and processing resumes, RRDF updates the production database with all the intervening transactions, and the company can return to business as usual.

Secure Remote Journaling

RRDF safeguards business transactions by securing up-to-the-second transaction journals at another location. It captures each new log/journal record and transmits it in real-time to a remote electronic vault and/or shadow database without affecting the performance of the production system. If an unscheduled outage occurs, these archived transactions can be used with an existing image copy of the database to forward recover to the point of failure. This real-time archive process ensures that your corporate data is safe from loss associated with unscheduled outages.

Patented spill file and gap recovery processing provide additional data protection. If a log/journal transmission is interrupted, updates are automatically buffered in a disk spill file. Then, when communication is restored, RRDF transmits the spill file data and resynchronizes with the receive site. During extended link failures, remote site outages or software/hardware failure, RRDF's state-of-the-art technology automatically retrieves any lost data from the production site log/journal files. It then transmits the data to the remote site. If the database system writes a log/journal record, RRDF guarantees its arrival at the remote site.

Two Levels of RRDF Data Protection

RRDF offers two tiers of enterprise data protection:

- Remote Electronic Logging/Journaling
- Database Shadowing

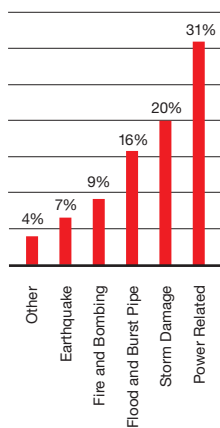
An appropriate solution should be based on company resources and data recovery requirements.

Remote Electronic Logging/Journaling

RRDF transmits database log/journal records to a remote site, where they are archived. If an outage occurs, the archived files are used together with image copies to forward recover the database to the point of failure. This eliminates the eight-, twelve-, even 24-hour gaps (lost data) that flaw other incremental backup scenarios. Databases restored with RRDF include virtually **all** transactions, up to the point of failure.

Remote logging/journaling is appropriate for companies that do not have severe time/business limitations. Businesses that require faster recovery should investigate RRDF database shadowing.

Leading causes of computer downtime for more than 12 hours



CIO Magazine, April 1, 1998

Database Shadowing

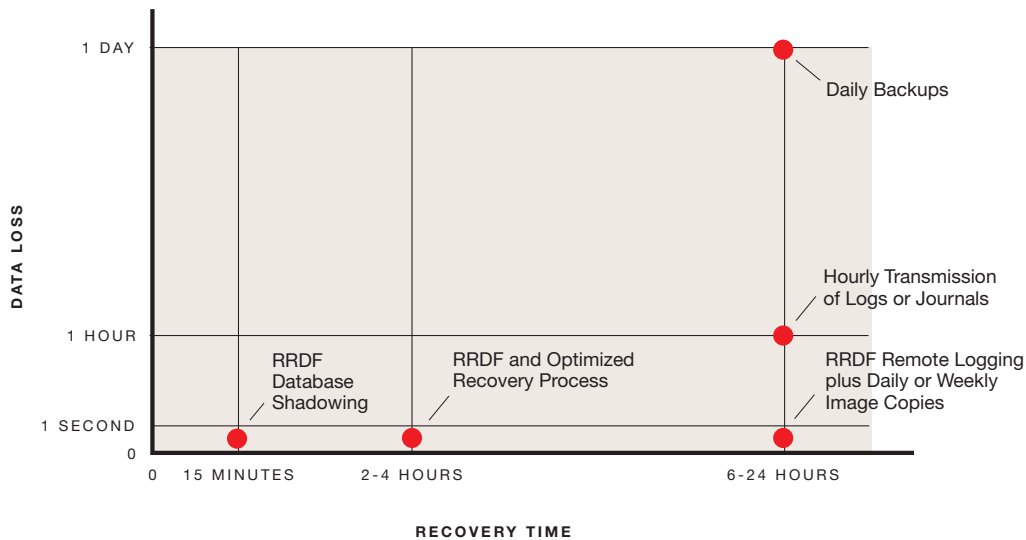
Shadowing is particularly versatile and appropriate for companies requiring instantaneous recovery from an outage or disaster. In this instance, instead of archiving current log/journal data, RRDF continuously applies it to a remote copy of the database. This “shadow” database is a real-time replica of the production database. Following a disaster, it takes just a few minutes to switch processing from the production database to the shadow.

In addition, a shadow database is an excellent resource for the following read-only functions:

- Data warehousing and mining
- Batch reporting cycles (quarterly and year-end reports, etc.)
- Complex SQL queries
- Local on-line access at the shadow site
- Load balancing

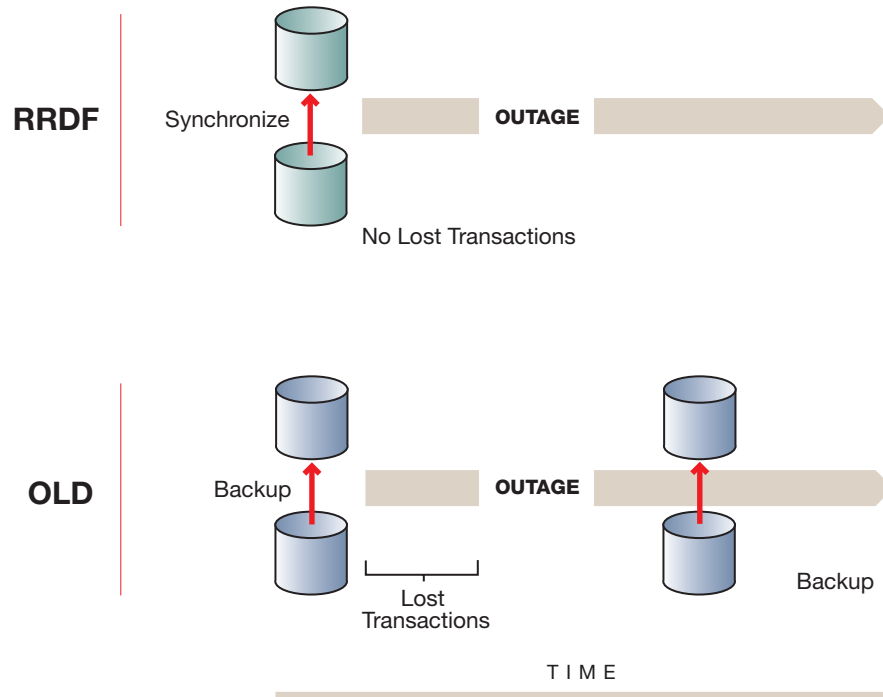
The RRDF Solution

Before the introduction of E-Net’s RRDF, it was impossible to secure affordable data protection for your information systems. Database backup and restore was a corporate Achilles heel. Complete or incremental backups required enormous amounts of non-productive downtime; and point-in-time backups did not protect transactions that occurred between backups. Local site recovery, on the other hand, is vulnerable to outages caused by regional disturbances and local destructive events, such as fire or broken water mains.



Alternatives for remote database recovery

RRDF addresses these issues by offering an affordable, multi-purpose solution for OS/390 (MVS) (single or sysplex) sites. Use it on your existing network infrastructure, as a continuous availability solution, or as a full-time shadow database, to lighten the load on your primary system. And, if your organization does not have a second site of its own, our business recovery service provider partners, Comdisco, IBM Business Recovery Services and Sungard all offer high-availability solutions using RRDF. Either way, your company and customers will enjoy the benefits of speedy, effective data recovery—without data loss.



Continuous backup means point-in-time recovery



E-Net Corporation
 417 Montgomery Street
 San Francisco, CA 94104
 Tel: +1.415.433-3800
 Fax: +1.415.433-3881

Information—all day, every day.