

HP NonStop Remote Database Facility software

Data sheet

HP NonStop Remote Database Facility (NonStop RDF) software extends the HP Integrity NonStop server's legendary fault tolerance to disaster tolerance. By geographically dispersing your NonStop systems, NonStop RDF software allows your critical applications to survive a total site failure without specialized programming.

For over two decades now, many companies relying on HP Integrity NonStop servers have chosen HP NonStop RDF software to help ensure uninterrupted service in the event of a system outage no matter what the cause.

With the NonStop RDF software, you can think of primary and backup databases instead of disks or systems. You can implement a wide variety of configurations, including multiple backup databases for each primary database or a single backup for multiple primary databases, and every source and target system can be running live transactions.

Using the transaction log generated by HP NonStop Transaction Management Facility (NonStop TMF) software, database changes are instantaneously replicated to one or more target systems, no matter how many transactions per second your application generates. If a primary database becomes inaccessible for any reason, processing can continue using the backup database with minimal service disruption or data loss.

NonStop RDF software only protects critical databases, lowering system and communications overhead. As transactions are applied to the primary database, changes are replicated to the backup database, which can simultaneously be accessed for billing, decision support, reporting, or other activities. NonStop RDF software does not limit the type or distance of the communications link.

The NonStop RDF product family consists of NonStop RDF/IMPX and NonStop RDF/Zero Lost Transactions (NonStop RDF/ZLT) software, an optional add-on product to NonStop RDF/IMPX that provides complete transaction protection using remote disk mirroring. The product(s) that you choose depends on which features

are needed for particular situations. See the ["No lost transactions"](#) section, which describes NonStop RDF/ZLT functionality.

Key features and benefits

- High throughput for instantaneous replication
- Granular specification of primary and backup databases
- Support for all NonStop TMF configurations
- No lost transactions
- Robust manageability
- Cross-release replication
- Upgrades with no application downtime

Geographically dispersed Integrity NonStop servers

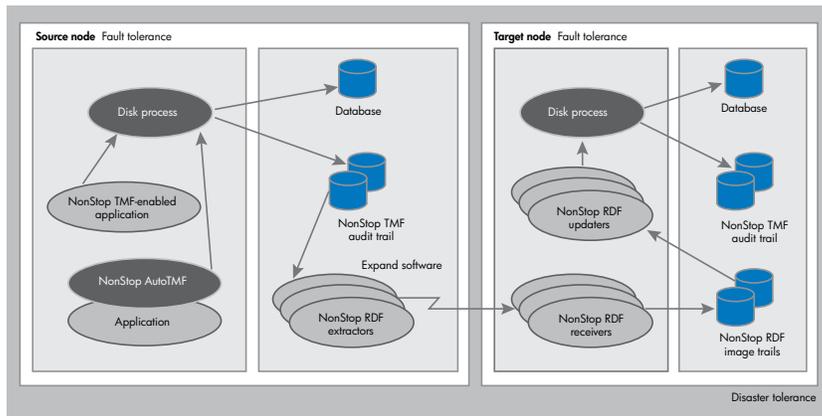
HP Integrity NonStop servers are known for their exemplary fault tolerance, but there are times when you want to protect your application by maintaining multiple copies of both the application and database, allowing continuous availability in the event of a local or regional outage.

Two new cluster configurations for HP Integrity NonStop servers are designed to provide disaster tolerance for critical business applications:

- The HP Metrocluster configuration consists of two or more HP Integrity NonStop servers that are part of the same application domain and linked to each other for distances up to 15 kilometers (9 miles) using HP ServerNet connections and up to 100 kilometers (62 miles) if NonStop RDF/ZLT remote disk mirroring is used.



Figure 1: NonStop RDF architecture overview.



- The HP Continental clusters configuration using NonStop RDF and HP Expand networking software allows HP Integrity NonStop servers to be geographically dispersed over unlimited distances.

Increased throughput for instantaneous database mirroring

NonStop RDF software reduces the effects of a site or a regional disaster by efficiently sending audit trail information to one or more target systems, keeping your transactions safe from a system failure.

Refer to figure 1 for an overview of NonStop RDF architecture.

Configuration flexibility

NonStop RDF software can replicate all or a portion of the database from one source system to one or more remote target systems (see figure 2). NonStop RDF software can be configured to protect individual

files or tables, the contents of one or more subvolumes (directories), or entire disk volumes. You can configure multiple systems to share both the database as well as the processing load. You can also configure one target to provide backup for several sources or configure two or more targets to protect one source as well as each other for "triple contingency." NonStop RDF software is as flexible as your business needs dictate.

Online all the time

There is no need to be offline after a takeover while a transaction manager or database recovery tool scans logs to repair a corrupt backup database after a system failure. NonStop RDF software's takeover processing takes only seconds to complete (see figure 3). For the shortest possible takeover time, your application can be running on the target system, waiting to be activated. If the target system is processing transactions, such as in a split-workload arrangement, that processing can continue without interruption. In fact, users on the target system don't even know that NonStop RDF software is performing takeover processing to provide a transactionally consistent backup database. Users who were on the source system can be up and running on the target system within seconds. You can even initialize and load the backup database while the primary database remains online.

Instead of being at the mercy of power failures, fires, floods, earthquakes, and other disasters, you are in full control of your business-critical applications with NonStop RDF software. As part of your business continuity plan, it can save your company when disaster strikes. It also has other uses apart from protecting your applications from unplanned outages. For example, it can be used to facilitate system upgrades and migration.

Figure 2: Flexible NonStop RDF configurations.

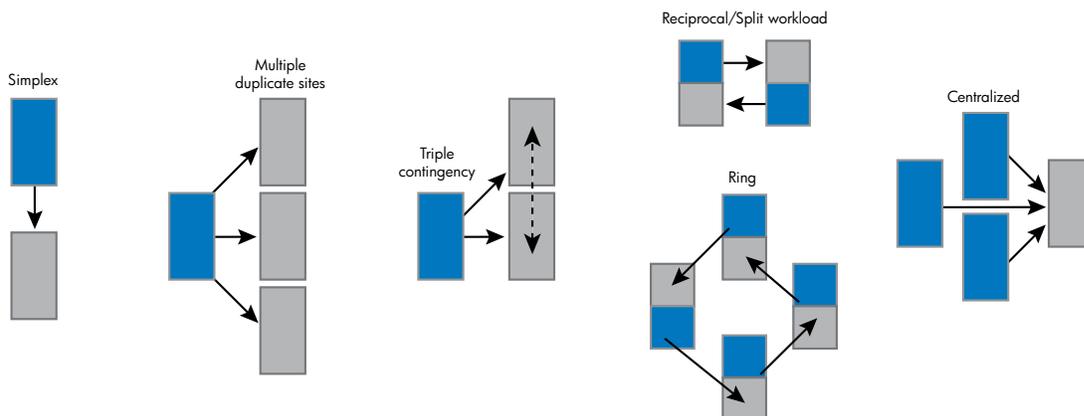
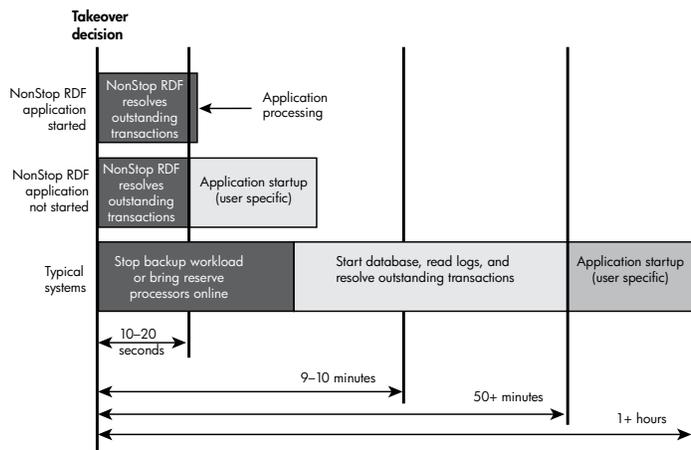


Figure 3: Backup system takeover timeline.



There may be times when you want to use the backup database to keep your application accessible during a planned outage such as upgrading power or other site maintenance or to install hardware, operating system, or application software upgrades on the primary system.

Transaction replication

Unlike hardware-based replication, which simply replicates disk track changes, NonStop RDF software understands the state of every transaction that it is replicating, whether the transaction is wholly contained on one system or spans multiple HP Integrity NonStop servers. NonStop RDF software can replicate transactions even before they have been flushed to the source system's database, further reducing data loss, overhead, and latency. In a takeover situation, NonStop RDF software backs out any transaction whose final state is unknown, thereby enabling complete database consistency on one target system or across a network of target systems.

No lost transactions

Because NonStop RDF software replicates transactions asynchronously, it is possible that a small number of transactions will be lost if the source system fails before they can be read and sent to the target system. For many applications, the loss of some transactions is not necessarily a problem. However, for other applications, the loss of even a single transaction is intolerable.

As part of a Metrocluster configuration, NonStop RDF/ZLT is used to prevent the loss of any committed transaction even in the event of a catastrophic failure though the use of a remote copy of the NonStop TMF audit trail. This copy can be located up to 100 kilometers from the system if an HP StorageWorks XP enterprise storage system or other supported remote disk mirroring technology is used.

Robust manageability

NonStop RDF software provides administrators with a robust, flexible, and convenient system management environment. Messages are logged in the HP Event Management Service (EMS) log, and exceptional events can be logged to an operator console.

HP Availability Stats and Performance (ASAP) software supports NonStop RDF software, enabling it to display detailed performance information and up-to-the-minute statistics, including:

- The status of the extractor and updater processes
- Relative delay times
- Information about the current record being processed
- Sequence number of the current audit and image trails

Dedicated services

Companies looking to make NonStop RDF software a foundation for their business continuity or disaster recovery program can turn to HP for complete planning and implementation services. Our NonStop RDF software consultants are specialists in implementation and continuity planning. They work with your staff to determine remote database requirements and make recommendations on system and bandwidth sizes, configurations, and operational aspects of your environment to make sure that service recovery is accomplished with the least downtime.

HP Services can provide the following support:

- Technical evaluation
- Product training and knowledge transfer
- Implementation planning
- Implementation activities, including testing and documentation

Easy upgrades

The independent products NonStop RDF/IMPX, and NonStop RDF/ZLT, are shipped on a CD, not as part of a site update tape (SUT). Because NonStop RDF enhancements are independent of the NonStop Kernel operating system, there is no need for the source and target systems to be running the same operating system release or even the same hardware architecture. This makes system and application upgrades much easier. By using NonStop RDF software to move the active database from one system to another during upgrades, near-zero application downtime becomes a reality.

Features	NonStop RDF/IMPX
Audited backup database	X
Long-running transactions have no impact on speed	X
Browse access to backup database	X
Audit trails supported	16
Benchmarked throughput on Integrity NonStop S-series servers	>48 MB/s, >80 MB/s on NonStop S86000 Server
Takeover in seconds	X
Support for NonStop Storage Management Foundation (NonStop SMF) disks	X
Number of replicated physical volumes	255 without NonStop SMF, more than 1,000 with NonStop SMF
Support for ASAP software	X
Replication to multiple nodes	X
Triple contingency	X
Backup database initialization with no application downtime	X
Backup application can be running and waiting for takeover on backup system	X
Network transactions	X
Process lockstep	X
No lost transactions	X (with NonStop RDF/ZLT)
Specifications	System requirements for NonStop RDF/IMPX and NonStop RDF/ZLT
Hardware	HP Integrity NonStop server, HP Integrity NonStop BladeSystem server HP StorageWorks XP enterprise storage system or other approved remote disk technology for NonStop RDF/ZLT
Software	Release version update (RVU) H06.09/I06.03 or later NonStop Transaction Management Facility
Ordering information	
Product ID	Description
HSA44V1	NonStop RDF/IMPX for Integrity NonStop H-series servers
QSA44V1	NonStop RDF/IMPX for Integrity NonStop J-series servers
HSA88V1	NonStop RDF/ZLT for Integrity NonStop H-series servers
QSA88V1	NonStop RDF/ZLT for Integrity NonStop J-series servers

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