helpsystems

Robot HA

With customers demanding access to your systems and services around the clock, companies today can't afford any downtime. If your competitor is open for business while you are not, you could be losing out. So, you must be prepared to dodge downtime, whether it comes as part of planned maintenance or unplanned production failures. Robot HA is a software-based high availability solution that allows you to replicate your important data and keep business running even when your production environment goes down.

Protect Business During Disasters

Among IBM i shops, over 75 percent run more than half of their core business on IBM i. However, 38 percent still rely on nightly tape backups as their only method of recovery during disasters. Recovery from tape can take days before business applications are up and running after a production failure. Such a lengthy outage can have serious consequences on your business.

Software-based replication is more nimble than hardware-based replication, allowing you to recover more quickly from any unplanned switches. Robot HA can cut recovery times down to minutes by making a fast unplanned switch to a hot backup, ideally at a remote location. Typical recovery time objective (RTO) is between 15 and 30 minutes.

Make Planned Maintenance More Productive

Nightly tape backups, application maintenance, software updates, hardware upgrades, operating system upgrades, and other maintenance activities also introduce downtime that can put your business at risk. Robot HA allows tape backups to take place reliably from the hot backup without introducing downtime on production. It also allows you to upgrade the hot backup system first and run with it for as long as you need to make sure it's safe before upgrading the production operating system.

If you need dedicated access to production for maintenance, a planned role swap allows users to be temporarily switched to the hot backup. When maintenance tasks are complete on production, another planned role swap takes place, restoring users and data back to production with minimal downtime.

PRODUCT SUMMARY

KEY BENEFITS
- Maintain business continuity when disaster strikes
- Prevent production downtime during planned maintenance
- Switch to a hot backup within minutes of a production failure
- Implement high-speed, real-time replication to a hot backup
- Install quickly and easily
- Be ready to do a role swap at any moment
- Keep infrastructure costs down with software-based replication
- Satisfy regulatory compliance requirements

SYSTEM REQUIREMENTS
IBM i 7.1 or higher

During normal operation, the hot backup is not locked for read access. This means that I/O-intensive query and reporting jobs or business intelligence load jobs can be offloaded to the hot backup to balance the workload in production.

Avoid Data Loss

Remote journaling-based replication has become the most trusted method of transporting data from production to hot backup. Robot HA can replicate hundreds of millions of journal transactions per hour over any distance without consuming excessive communications bandwidth or introducing latency. A highly efficient apply routine on the hot backup applies data the moment it is received, which means that your hot backup is always a real-time copy of production. During a production failure, users switch to the hot backup and continue using business applications from the last transaction entered on production before the failure.

Install with Ease

Robot HA is quick to install and easy to use. Auto-configuration tools examine your environment and set up an optimal configuration for mirroring with minimal manual work. Data is synchronized, users are trained, and a role swap test is performed to make sure people and processes are ready. A typical A to B environment—that is, a single production system or partition replicated to a single hot backup system or partition—takes between three and five days, and the experts at HelpSystems are available to help.

Be Ready for Role Swaps

A role swap is an automated process that quickly prepares the hot backup to take on the role of production and then automatically switches users. Audit routines continuously examine the hot backup database and objects and compare them with production. This ensures that the hot backup is a true and ready-to-use copy of production. By continuously auditing the hot backup, it remains instantly ready when you need it.

Keep Costs Down, Realize Greater ROI

Unlike hardware-based solutions, there's no need to oversize your production or hot backup systems to get adequate performance. There is also no need to order excessive disk storage or memory. Robot HA is frugal with your resources. Data transport is achieved over exceptionally long distances without the need for excessive communications bandwidth, extra hardware, or compromises to recovery time objective (RTO) or recovery point objective (RPO). Robot HA is designed to provide maximum levels of availability, recoverability, and flexibility. The design ensures the most efficient use of hardware and communications infrastructure and the lowest burden on your team, providing the best ROI in the industry for high availability and disaster recovery.

Spotlight on the Tech Specs

Based on years of experience, we've put together this list of the most helpful features in Robot HA and outlined the benefits of each in practical terms.

Transport Method

Feature	Benefit
Local journaling	Permits high levels of filtering on production, which is useful when communications bandwidth is very limited.
Remote journaling	Permits high speed, low latency transport. It can be configured for asynchronous (long distance) or synchronous (guaranteed delivery) mode.
TCP/IP support	Most widely used and flexible communications protocol.

Replication and Data Integrity

Feature	Benefit
Data replication	Following a role swap, the very latest version of data on production is quickly made available for use on hot backup.
Support for all critical object types	Following a role swap, the very latest version of all critical objects and libraries on production are quickly made available for use on hot backup.
IFS directory and IFS objects replication	Following a role swap, the very latest version of data, objects, and directories within the integrated file system on production are quickly made available for use on hot backup.
Spooled file replication	Following a role swap, printer output is quickly made available for use on hot backup.
Data queue replication	Following a role swap, the very latest content within production data queues is quickly made available for use on hot backup.
Commitment control	Following a production failure, uncommitted transactions are rolled back to their most recent commit boundary. This preserves transactional level consistency.
Triggers	Disabled automatically on hot backup to avoid duplication of data during replication.
Constraints	Disabled automatically on hot backup to avoid conflict errors during replication.
CHGPF/ALTER_TABLE	Continuity of replication is maintained even when file structures are being altered or file attributes are being changed.
Automated library, object, and file registration/deregistration	Automatic maintenance of Robot HA configuration files to reflect the changes that occur on production, such as creation, deletion or movement of files or objects. This automated mechanism greatly reduces the level of operator effort required to manage HA/DR.

Role Swap

Feature	Benefit
Automated role swap	Performs all tasks necessary to prepare applications on the hot backup system and switch users automatically once triggered by an operator. This helps ensure operators do not have an unnecessary extra workload and reduces recovery times to a minimum. Recovery time objective (RTO) is typically five to 30 minutes depending on the environment.
Automated role swap back	After a period of operation on the hot backup system, an automated process triggered by an operator synchronizes data back to production and switches users back. Since many role swaps are executed as a result of planned or temporary production outages, this process is possible after most role swaps and minimizes business disruption.
While active role swap test	It is possible to test the role swap while users are still using production. This helps minimize business disruption.

Monitoring

Feature	Benefit
System monitoring	Automated process continuously monitors all aspects of replication and informs operators of any issues that need their attention. This automated process filters out unnecessary chatter and helps ensure operator workload is kept to a minimum.
Role swap readiness monitoring	Automated process confirms that hot backup system is ready for a role swap. This helps ensure that operator workload is kept to a minimum.
While active role swap test	In sophisticated environments involving multiple systems or LPARs, the automated monitors can be configured to span the entire environment. This helps keep operator workload to a minimum.

Auditing

Feature	Benefit
Object-level audits	Objects on the hot backup are continuously audited to ensure they match production. This helps ensure consistency and integrity of the hot backup automatically.
Role swap readiness monitoring	IFS objects and directories on the hot backup are continuously audited to ensure they match production. This helps ensure consistency and integrity of the hot backup automatically.
Orphan object cleanup	Objects that exist on the hot backup but not on production are continuously repaired, deleted, or corrected. This helps ensure consistency and integrity of the backup automatically.

Performance

Feature	Benefit
Performance example	In a simple environment, a single Robot HA group is capable of applying over 188 million journal transactions per hour (MJTPH) in a POWER7 or higher environment. Multiple concurrent groups can yield much higher overall apply rates. Most SME environments generate less than 10 MJTPH at peak times. This makes Robot HA suitable for enterprise-scale workloads.

User Interface

Feature	Benefit
Green screen	Most IBM i administrators prefer a green screen 5250 interface, which includes control via CL commands and is fast, flexible, reliable, and familiar. Robot HA fully supports this.
Help text	Cursor-sensitive help text is used extensively to help ensure ease of use.

Additional Features

Feature	Benefit
Broadcast mode	Enables one production system to replicate to two or more backup systems. This is useful when you wish to provide individual hot backups for different business applications or if you have smaller, older systems that you want to re-purpose as hot backup systems. Also provides the ability to perform a live migration to a newer system with a potentially newer OS. Migrate your data to a new production system without introducing downtime.
Consolidation mode (with library rename)	It is possible to rename libraries while mirroring. This allows many-to-one replication scenarios within a single system or LPAR. For example, you may have two applications with identical/overlapping library names running on two different production systems. These libraries could all be replicated to a single hot backup and the library rename capability will ensure that library names remain unique.
Single-system mode	Enables a single system or LPAR to act as both production and hot backup, eliminating backup-related downtime. This is useful for testing, training, and demonstrations. It can also provide a level of HA/DR for application-level failures and planned application-level mainte-nance. This mode does not require a second backup system. This mode is not recommended when system and site failure protection is needed.

General

Feature	Benefit
Housekeeping and cleanup	Automated routines manage journal receivers and general housekeeping tasks automati-cally. This reduces operator workload.
User customizable tools	A tools library is provided which allows users to customize the way Robot HA behaves and optimize the way it runs in your environment.

Let's Get Started

Seeing Robot HA in action will help you determine how speedy, software-based replication can protect your data and keep your system avail-able whenever downtime or disaster strikes.