

ACHIEVING RAPID DATA RECOVERY  
FOR IBM AIX ENVIRONMENTS  
An Executive Overview of MIMIX for AIX

 **VISION**<sup>®</sup>  
SOLUTIONS

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## Introduction

Businesses of all sizes must plan for recovery. IT personnel generally face several challenges when implementing an operational plan that protects both data and applications:

- How can I ensure my applications and data are recoverable, without impacting business operations?
- Are there any data protection approaches that meet my recovery point and recovery time objectives or must I lessen my objectives?
- Can I afford to implement a comprehensive plan that covers both my local and remote (disaster) recovery requirements?
- Are there cost-effective alternatives that meet my requirements?

Operational requirements are not the only mandates that may drive the design of your recovery plan. Various industry-specific regulations, including, among others, HIPAA, Sarbanes-Oxley and HITECH, specify requirements for data retention and recoverability.

To meet these requirements, businesses have to deal with a variety of data vulnerabilities: inadvertently deleted files or records (operator error), viruses or hackers that cause data corruption or deletion, and natural disasters that put much more than just your data at risk. Distributed or branch offices may also have ease-of-use needs that may not be an issue in larger, more centralized businesses.

So, the question is, do you have a plan that meets your recovery requirements to your satisfaction across these areas?

## Issues with Legacy Recovery Technologies

If your business is typical, you use some form of data protection today—probably tape-based backup. Periodically, someone shuts applications down to perform a backup to tape. Depending on the volume of data that is being copied, this may take several hours and require manual intervention to set up the backup job, run it, confirm that it ran, and then return the application to operation.

The backup copy may be kept locally in case data needs to be recovered in the near term. Eventually, possibly after several weeks, backup tapes may be moved to an offsite location for archival purposes. The reason to make and keep copies of your data is so that, should an event—catastrophic or otherwise—delete or corrupt data, you have a clean copy safely tucked away to use for recovery purposes.

Tape is used for backup and archival purposes because it is very inexpensive, but it is an old technology that has been available almost since the dawn of computing.

Leading analyst groups, such as the Gartner Group, the Enterprise Strategy Group and the Taneja Group, state that as many as 1 in 4 backup tapes suffer from some sort of problem that precludes performing a recovery.

There are several issues with tape-based backup:

- Tape-based backup is a time-intensive process that is potentially disruptive to your applications. This issue is commonly referred to as the backup-window problem.
- Because of the impact on applications and resources, tape-based backups are usually not taken more than once a day, and in some instances only once every several days, meaning that there are very few tape-based recovery points available for use over the course of a week. This is problematic because your data changes very frequently (on the order of seconds or minutes) and the fewer points in time when copies were made (for recovery purposes), the greater the amount of data that is, on average, lost for a given recovery. This issue is commonly referred to as the Recovery Point Objective (RPO) problem.
- It takes time—sometimes considerable time—to perform recoveries (e.g. finding the right tape, transporting it if it's offsite, restoring it to disk, restarting the application on top of the data, etc.). This issue is commonly referred to as the Recovery Time Objective (RTO) problem.
- As a storage medium for backup, tape is not entirely reliable. In fact, leading analyst groups such as Gartner, Inc., Enterprise Strategy Group and Taneja Group state that as many as one in four backup tapes suffer from some sort of problem that precludes performing a recovery.

Transporting tapes to offsite facilities for archival purposes also carries an inherent risk. Widely publicized tape losses during physical transport (by truck) have hit large companies like Bank of America, Citigroup Inc., ChoicePoint Inc. and LexisNexis, resulting in the theft of hundreds of thousands of company records. Replication of data across secure IP-based networks is a much faster, easier and safer way to transport data to offsite locations for archival purposes.

If you are driven by business and/or regulatory requirements to deploy a disaster recovery solution, a pure tape-based data protection strategy can subject you to undue risk.

## The Correlation between Data Age and the Possibility of Reuse/Restore

It is also important to consider the restoration patterns that may apply to your protected data as it ages. It has been proven over time that most data recovery requests are for relatively recent data and that there is a direct correlation between the age of data and the probability that it will be required for restore purposes. Issues such as an inadvertently deleted file or data corruptions introduced by a virus or a hacker drive most restore requests. Typically, these problems are discovered within several hours, or at most a few days, from when they first occur, resulting in restore requests for more recent data.

In general, the only time you may need to restore data that has already been archived would be in the event of a disaster, such as an earthquake or a tornado that physically destroys computer equipment and facilities. While it pays to be prepared for these occurrences, they are very rare. On the following page, in the “Data Reference Patterns” graphic the slope of the red line with the arrow (“Amount of data”) and the characteristics of the retrieval activity (the gray curve) vary by company type, but they reflect the general relationship between the age of the data and the chance that it would need to be restored.

## Data Reference Patterns

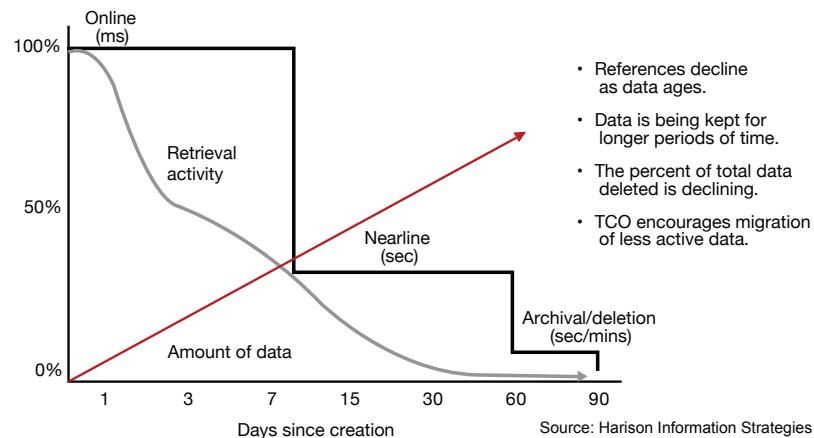


Figure 1. Correlation between the age of data and the probability of a need for access

Most restore requests are driven by issues such as a deleted file or a data corruption that is introduced inadvertently or by malicious intent.

It is key to note that as data ages, the value of being able to restore to any point-in-time generally decreases.

Note also the inflection point in the gray “retrieval activity” curve that occurs between day 3 and day 7 in Figure 1. Restore requests for data drop off significantly after that point. This might suggest that you would want to manage roughly three to seven days’ worth of your most recent data with a solution that allows quick and ready access to it, migrating it to less flexible, but less expensive media locally thereafter for several weeks, and then storing it in an off-site facility after about 30 days. This three-to-seven-day window is referred to as the optimized recovery window, or rollback window. The length of the optimized recovery window depends on the particular environment that is being protected.

### Continuous Data Protection (CDP): Complete, Point-in-Time Protection

The good news for businesses is that there is a data protection technology that helps to maintain an optimized recovery window for quick restoration or rollback that is easy to deploy and effective. Continuous Data Protection, or CDP, is a disk-based data protection technology that enables quick and easy recovery of data from a point-in-time.

For example, it is not uncommon for a user to accidentally delete a critical file or for malicious activity to corrupt business data. These actions render the data unusable, even though the server or other hardware resources continue to work as expected. CDP enables you to recover a version of the data to a point-in-time just prior to the accidental deletion or corruption. This earlier version of the data can then be restored to the production environment.

Unlike tape backups, CDP does not require applications to be interrupted. It works continuously to store your critical data to an alternate server so you can recover data from any point-in-time. Recovery occurs immediately, with just the push of a button.

Recovery of large amounts of data takes only minutes, as shown in Figure 2. With CDP, both data protection and data recovery occur with only a fraction of the time and labor resources required by a tape-only strategy. It also eliminates the threat of major data loss posed by the infrequent recovery points of a tape-only strategy.

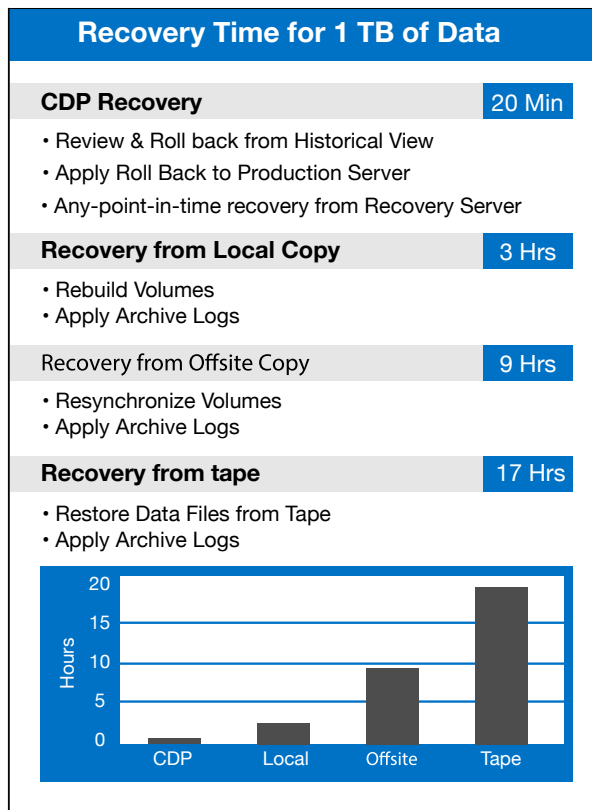


Figure 2. CDP offers significant savings in recovery time that can translate directly to cost savings.

CDP incorporates several techniques used in traditional backup, replication and snapshot solutions. How the CDP solution achieves its goals has much to do with its architecture, features and configuration. It is important to note the difference between “True CDP” and “Near CDP” solutions when evaluating your data protection strategy.

- **True CDP** – True CDP captures all data writes and transfers them to a secondary storage array. True CDP enables a data-undo by allowing recovery to any point-in-time. This is especially beneficial for a data corruption issue, such as malicious activity. With true CDP, you can, for example, identify a tainted transaction and then roll back to a point just prior to the time the transaction was received.
- **Near CDP** – Near CDP differs from true CDP in that you can recover only to specific points in time. For example, near CDP may copy data only when a file is saved or closed so the recovery point is only to the last known saved file. In some cases this could be several hours or more. In high-transaction environments or environments with rigid compliance or governance regulations, this may not be sufficient.

The efficiencies and flexibility of CDP translate into far superior data protection and recovery, as well as cost savings realized through the elimination of both planned downtime for backups and lengthy, error-prone tape recovery processes.



## MIMIX for AIX: The Proven Solution

The MIMIX for AIX family of products from Vision Solutions, which includes MIMIX Availability for AIX and MIMIX DR for AIX for high availability and disaster recovery, utilizes Continuous Data Protection (CDP) in conjunction with real-time data replication to resolve the difficulties commonly associated with data protection and availability discussed in previous sections in the following ways:

- **Backup window:** With MIMIX for AIX, data is continuously and transparently copied from your production servers throughout the day as changes occur, so you never again have to concern yourself with backup windows. As data is written on the production server, it is instantaneously prepared for transmission, compressed to preserve LAN/WAN bandwidth, and sent to a secondary, hot-standby server. Data can also optionally be encrypted during replication.
- **Recovery Point Objective:** Using CDP, MIMIX for AIX can fulfill the richest set of recovery point objectives in the industry. It not only allows you to recover data or resume operations on the secondary server using the latest, real-time data that was replicated from the production server, but it also allows you to pick any previous point in time for recovery, down to the second. The available recovery points essentially form a continuum. This allows you to failover to the secondary server at an earlier point in time, rollback the production server's data, or even generate a readable, writable snapshot of your data at a selected point in time for virtual recovery. MIMIX for AIX effectively presents all possible recovery points to you in a way that tape and other snapshot-based backup options, with their limited number of recovery points, never can.
- **Recovery Time Objective:** MIMIX for AIX replicates directly to a secondary server that operates as a hot standby for recovering data. This provides you with a fast, reliable recovery capability far beyond the limits of tape restores. Furthermore, CDP ensures that you can recover quickly and with confidence from any disaster or corruption. With flexible recovery features, you will be able to tailor your recovery operation to the disaster scenario at hand, thus minimizing the time you spend on recovery, meeting your most aggressive RTO service level agreements, and minimizing the impact and cost of an outage.
- **Redundant application server:** The secondary backup server provides an automated failover target that will allow critical applications to be rapidly restarted with access to current data. This will allow processing to continue if the primary server cannot be restarted for any reason. MIMIX for AIX lets you perform a failover to the target server within minutes; be it in the local data center or at a remote location.
- **Remote replication:** MIMIX for AIX includes the ability to replicate data across IP networks using WAN-optimized technology. Thus, you can replicate your data to a remote facility without exposing it to the risks associated with the physical transport of tape-based media.

In addition to addressing common application availability and data recovery issues through real-time replication with CDP, the MIMIX for AIX family of products delivers a number of other key features that enable your organization to meet its business continuity and data protection requirements:

- **Disaster recovery testing:** The virtual role swap capability built into MIMIX for AIX allows you to run your application in a virtualized storage environment on the recovery server, simulating a disaster recovery failover without impacting the production server. Virtual role swap also does not impact your recovery point objective, as data is continuously replicated even during an audit of your disaster recovery readiness.
- **Ease of operation:** MIMIX for AIX is managed and monitored using Vision Solutions Portal (VSP), a browser-based graphical user interface that is easy and intuitive to use. VSP provides you with the confidence that your recovery operation will work every time, any time. You can tailor the recovery operation to your needs; regardless of whether it is a prompted or automated recovery. Automated procedures will guide you through the recovery steps following industry best practices. Built-in, lights-out monitoring with email and SNMP notifications will inform you of any issues that may arise.
- **Mitigation of risks and minimizing planned downtime:** One of the often under-appreciated aspects of having an HA/DR replication solution in place is its potential for minimizing planned downtime, as well as mitigating risks commonly associated with common administration requirements, such as AIX upgrades, application upgrade testing, or month-end processing. As one example commonly deployed by customers, MIMIX for AIX can assist with AIX upgrades by allowing administrators to stage the upgrade operation: the DR server gets upgraded first, ensuring that the operation is practiced and goes smoothly. After it has been proven that the DR server is fully operational and ready to host the business (utilizing virtual roleswap), the production environment can be upgraded. The business can even run on the DR server during this time, further minimizing downtime. This staged upgrade strategy mitigates the risk of negative side-effects of the upgrade process, in addition to enabling AIX customers to meet their SLA targets.

Customers in many industries, including some with very strict recovery time and recovery point objectives, such as financial services and healthcare, already successfully use MIMIX for AIX. It is applicable to any application running on AIX. Applications for which MIMIX for AIX is a good fit meet the following profile:

- A 7 x 24 application environment with a small to non-existent backup window
- Critical applications from a business point of view that have high rates of data change and where less frequent recovery points translate to significant amounts of lost data on recovery
- Applications with stringent recovery time requirements that are not being met with existing data protection technologies



## MIMIX Availability for AIX for Easy, Automated HA/DR

Now that we have reviewed how the MIMIX for AIX product family supports your goals for recovery from various disaster recovery and planned downtime scenarios, let's look more deeply at the various features available in the MIMIX for AIX portfolio for both disaster recovery and high availability.

**MIMIX Availability for AIX** – the flagship solution in the portfolio – is a full-featured high availability and disaster recovery product with which the most stringent recovery time and recovery point objectives can be met, no matter the nature of disaster or corruption to recover from. This objective is achieved via a combination of industry-leading real-time replication and continuous data protection; high availability clustering to provide continuous network, disk and application resource monitoring and application-layer integration; and an easy-to-use, browser-based management interface.

**MIMIX DR for AIX** – a disaster recovery solution for AIX customers and workloads with somewhat less strict recovery time objectives – includes a select set of the features and capabilities found in MIMIX Availability for AIX. The feature set is tailored to AIX environments where continuous monitoring of resources and application-layer integration are not necessary to meet service level agreements. There is, however, no compromise on recovery point objective. Like MIMIX Availability, MIMIX DR features robust, industry-leading real-time replication with continuous data protection, as well as the Vision Solutions Portal for easy management from any device with a browser.

In the remainder of this section, we will discuss replication and clustering in the context of MIMIX Availability for AIX. In a subsequent section we will explore the functional differences between MIMIX Availability and MIMIX DR.

### Replication and Clustering

MIMIX Availability for AIX, as depicted in the figure on the following page, establishes WAN-optimized real-time replication over any IP network connection. A dedicated, hot-standby IBM Power Systems server running AIX is configured to protect one or more applications running on other IBM AIX production servers that are connected to it via an IP-based network.

MIMIX Availability replicates production server writes that are performed on designated “protected storage” (the storage where the application you want to protect resides) to the recovery server. These writes are stored in the “Recovery Storage” that is directly attached to the recovery server. MIMIX Availability runs continuously in the background and does not noticeably impact the performance of the protected application.

Compared to tape, which is subject to the many issues discussed previously, replication represents a much faster, much more secure way to get your data to an offsite storage facility.

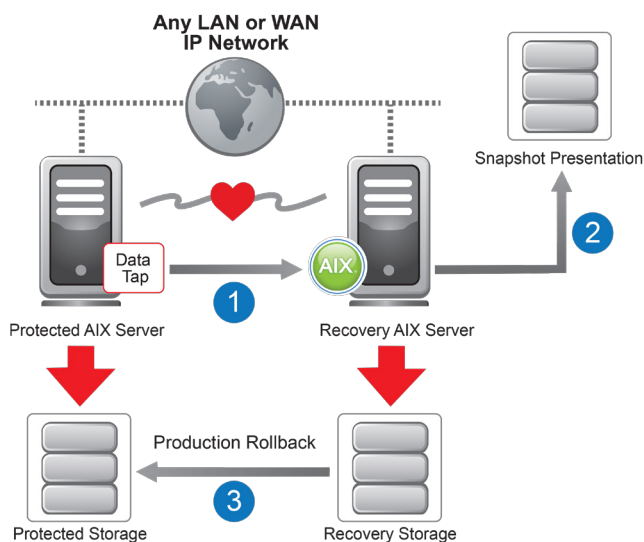


Figure 3. MIMIX Availability for AIX replicates data to a recovery server, which can then be used as a failover server, or can retroactively present snapshots for recovery, analysis, testing or development purposes, with no impact on the production server.

### The Replication engine

As the data flow ① in Figure 3 depicts, MIMIX Availability for AIX supports asynchronous replication of a continuous data stream to your recovery server, which can be located locally or at a remote facility connected to the primary facility by an IP-based network.

Asynchronous replication has several advantages:

- Replication interruptions, bandwidth issues and latency issues do not impact the production application, as they very easily would with a synchronous replication solution.
- Asynchronous replication allows virtually unlimited distance between your production and recovery server. You can size the bandwidth to the average data flow. Production-side buffering will smooth out any I/O spikes over the day, without any data loss.
- More efficient utilization of network resources is accomplished with asynchronous replication. MIMIX for AIX features aggressive built-in optimizations to address the constraints of scarce WAN resources.

### Flexible recovery options enabled by Continuous Data Protection (CDP)

Point-in-time recovery is achieved via CDP, which continuously tracks the changes that occur to the protected storage and preserves logical volume-level undo logs in the MIMIX for AIX journal space. Using these undo logs, you can efficiently and quickly reconstruct your data to any point-in-time within the rollback window and take advantage of any of the various recovery options supported by the product:

- **Virtual role swap:** Using MIMIX Availability for AIX's virtual role swap feature, you can create a snapshot (depicted by number ② in Figure 3), which is a view of the data on the recovery server. You can then start up the application on the recovery server using this virtualized view. The virtual role swap feature also allows you to create a snapshot to the latest point-in-time, or to an earlier point-in-time. These historical views can readily be used for non-disruptive virtual DR switch testing, "surgical database operations," application upgrade testing, running reports, offloading data analysis processes to the recovery server, taking backups, and other operations where you want to avoid impacts on the live production data and applications.

- **Roll back the production server:** At times, such as when an inadvertent deletion renders the production database inoperative, the best way to recover is “in-place,” right on the production server. Especially if your recovery server is hundreds or thousands of miles away, running production applications at the DR site could put a strain on your WAN and result in slow application response times for your users. While this may be acceptable when dealing with a major failure, switching should be avoided whenever possible. Instead, MIMIX Availability for AIX allows you to “dial back” your production server to the desired recovery point prior to the failure, down to the second, as indicated by number ③ in Figure 3. Since this is an undo operation, and not a full production data restore, the production server can be back in service quickly, with no switching required.
- **Disaster recovery failover and failback:** MIMIX Availability for AIX supports the entire spectrum of disaster recovery needs, whether it is planned failover, unplanned failover, or failback. Utilizing CDP, failover operations allow you to not only recover to the latest point-in-time on the recovery server, but also to a historical point in the past, with down-to-the-second granularity. This functionality becomes a life saver if your disaster scenario causes the latest data image to be corrupt.

### Browser-based, intuitive graphical user interface

Monitoring and management of MIMIX Availability for AIX is performed using the easy, browser-based Vision Solutions Portal (VSP) interface. If you have multiple MIMIX Availability or MIMIX DR for AIX instances in your enterprise environment, you can realize single-pane-of-glass operation using VSP to control all of your instances. Instances of MIMIX brand products for IBM i can also be configured, monitored and managed from within the VSP interface alongside MIMIX for AIX products. Lights-out monitoring, with email and SNMP notifications of events requiring your attention, allows you to monitor the solution even when you are away from the console.

VSP is used to drive your disaster recovery operations. Besides replication startup, shutdown, monitoring and typical administrative actions, wizards and intuitive procedures guide you through the steps that you need to take for a successful recovery. These procedures are a digitized version of the steps in the runbook you are accustomed to using with traditional disaster recovery solutions. They allow you to be confident that you are following industry best practices in your recovery operations.

### High Availability Clustering

The replication capabilities of MIMIX Availability for AIX discussed thus far are matched with advanced clustering features to achieve the highest levels of availability. A cluster manager process is started on each server in the cluster—depicted as the “heart” of the cluster. This process monitors and shepherds the resources under its control. Resources may include network interfaces, service IP addresses associated with the applications, replicated disk resources and database and application processes. If the cluster manager process detects any issue with the monitored resources, it can take appropriate action by sending out a notification, or it can even take automatic recovery actions if the administrator previously authorized it to do so.

The clustering features provided by MIMIX Availability for AIX include:

- **Application integration:** All-layer protection integrates the database, the application, and even the service IP address associated with the application. MIMIX Availability handles the application service as a unit, ensuring that all resources are online.
- **Enhanced resource monitoring:** The cluster manager process continuously monitors network resources, disk resources, replication processes, and even the processes of the database and the application itself.

- **Custom monitoring methods:** For even deeper levels of monitoring, custom monitoring methods can periodically be invoked to run; for example, SQL queries could be run against the database to ensure that it is truly functional from an end-user's perspective.
- **Network monitoring:** Periodic "heartbeats" are sent out in both LAN and WAN environments to conduct network monitoring. Because these small heartbeats travel on the network through which clients would access the server, this further assures that the server is usable by the business.
- **Automated recovery options:** MIMIX Availability for AIX offers recovery options with enhanced levels of automation for environments where that is a requirement.
- **Advanced customization options:** Through its advanced custom user exit methods, MIMIX Availability provides an environment that can easily be customized and extended. Whether calling a method to send a notification or to invoke third-party operations, MIMIX Availability's custom user exits provide a way to execute customized functions.

## MIMIX DR for AIX for Reliable DR Protection

MIMIX DR for AIX is the disaster recovery component of the MIMIX for AIX portfolio, containing a select subset of MIMIX Availability's rich feature set. The difference between MIMIX Availability and MIMIX DR lies in the high availability clustering features.

While both MIMIX DR and MIMIX Availability feature the same industry-leading replication engine enhanced with continuous data protection, as well as the Vision Solutions Portal for administration, MIMIX DR for AIX does not provide the high availability clustering features described in the above section on MIMIX Availability.

Because the replication engine is the same in MIMIX DR for AIX as in MIMIX Availability for AIX, the same levels of recovery point objectives can readily be achieved, and the same rich set of recovery options are available.

However, because the high availability capabilities are limited to MIMIX Availability, MIMIX DR does not include monitoring, administration and control for the database and application service. MIMIX DR does provide a basic level of resource and topology monitoring, as well as a basic level of notification and automation capabilities. Thus, the two areas that distinguish MIMIX Availability from MIMIX DR are the ease of clustering operations and, potentially, the expected recovery time objective.

Any restore requirement during that three-day period is performed instantaneously from disk, without the need to “build up” a restore image from multiple incremental backups, thus cutting recovery time to minutes.

## A Sample Use Case

### Using MIMIX for AIX to Provide Zero-Impact Data Protection and Rapid Recovery

In this scenario, we assume the customer wants to solve the rapid recovery problem. They have chosen, however, to retain tape for archival purposes, with physical shipment to an offsite location.

The customer runs an Oracle database as an order-entry system on an IBM Power Systems server with AIX and 600GB of storage. This is the production server. Ten percent of the data changes on a monthly basis and the overall rate of data growth is forecast to be 30% per year. Based on past experience, the customer knows that restore requests tend to drop off significantly after three days. The customer currently does daily incremental backups and weekly full backups across the LAN. Incremental backups take roughly 90-120 minutes per day, while the full backup takes between 5 and 10 hours.

To install MIMIX Availability for AIX, the customer purchases a second IBM Power Systems server running AIX to act as the recovery server, which is hosted at another of the company’s data centers. This can be at any distance because asynchronous replication will mitigate the impacts of distance, provided that the bandwidth required to accommodate the average rate of change can be made available. Based on the rate of data change and forecast database growth, 1.5TB of recovery storage is housed on the recovery server.

MIMIX Availability for AIX is installed on the production server, with the relevant storage that underlies the Oracle application designated as the protected storage. An optimized recovery window of three days is configured on the recovery server. An initial synchronization between the production server and the recovery server is performed while the production server continues to run (synchronization is run as a background process) so that database access is not impacted. Once the initial synchronization is complete, continuous data protection is enabled.

To take advantage of the capabilities of its newly implemented MIMIX Availability for AIX solution, the customer makes some changes to their tape backup processes. With three days’ worth of data included in the optimized recovery window, the customer no longer needs to perform daily incremental tape backups. Any restore requirement during that three-day period is performed instantaneously from disk, without the need to “build up” a restore image from multiple incremental backups, thus cutting recovery time to minutes.

A tape backup is still desirable every three days to prepare for the eventual archiving of data offsite, but the Oracle application no longer needs to be shut down to perform backups. Once a week, a snapshot view is created on the recovery server, which is then used to perform a tape backup. The customer continues to use the existing tape backup software to perform this backup.

MIMIX Availability for AIX is compatible with all backup software packages for the purposes of snapshot presentation for off-host backup. These tapes are kept on-site for two weeks, and then sent to an offsite facility for archival storage.

Implemented in this way, MIMIX Availability for AIX provides the following benefits:

1. Recovery time is shortened in several ways:
  - No restore from tape to disk is required because the application can simply be started on the recovery server.
  - Unlike traditional backup solutions, with which historical recovery points would need to be “built up” using incremental backups and roll-forward logs (a time consuming and error-prone operation), with MIMIX Availability for AIX, a historical recovery point can be instantiated quickly, efficiently and in a fail-safe manner. There is less administrative overhead associated with recovery because the selected point is just immediately presented from disk.
  - There is less time spent preparing the application for production use after the recovery because you can select the best recovery point to resolve the problem (e.g., if the problem is a file deletion or data corruption problem, the point right before that event occurred can be chosen).
  - Recovery time is considerably shortened in the event of a problem with the production server. The protected application is simply started on the recovery server using the current copy of the production data. It can continue to run there until such time as the production server can be repaired and restarted.
2. Backups to tape are now completely decoupled from the production application so they can be scheduled to occur when it is convenient for the administrator, without concern for impacts on business processes.
  - Backups are taken only once every three days now (instead of daily), thereby consuming less administrative time.
  - Restores within the optimized recovery window occur rapidly and reliably from disk, completely resolving tape media integrity issues for near-term restores.
  - Data loss on recovery is minimized because the administrator now has access to the optimal recovery point for every conceivable failure scenario (this is the RPO issue).
3. **Virtual Role Swap:** Using the Virtual Role Swap feature of MIMIX Availability for AIX, disaster recovery tests can now be run without impacting the production application. The most serious impediment to disaster recovery drills is usually their impact on production (thus they have traditionally been relegated to a weekend job that nobody looks forward to). Eliminating this issue allows drills to be run more frequently—even during business hours—thereby greatly improving the business’ confidence in its disaster recovery preparedness.

In addition to these benefits, there is another advantage that did not exist with the tape-based approach. Patched and upgraded applications can be tested against current production data in a manner completely decoupled from the production environment.

A snapshot of the current data state is created on the recovery server where the patched or upgraded application can be tested. Once the administrator is satisfied with the stability of the new environment, it can be deployed in production. MIMIX Availability for AIX makes it easy to create these snapshots for testing purposes, ensuring more reliable patch and upgrade processes against production environments.



In a similar vein, the same snapshot procedure can be used for offloading report generation to a snapshot. This way, the CPU-intensive report generation load can be run on the recovery server, yielding further return on investment in the form of decreased capital and operational expenditures.

### **Recovery Time Comparisons**

When downtime costs you money, a rapid recovery capability and a flexible availability option present a quantifiable return on investment opportunity. By offering a much faster and easier way to perform data recovery than that offered by tape, savings accrue not only in the area of downtime reduction, but also through a reduction in the administrative time and expense incurred. MIMIX for AIX can help you achieve your service level agreements by shortening recovery times by hours and even days in some cases.

## Summary

Any business, particularly a business experiencing rapid growth or consolidation, may be using a suboptimal data recovery solution, perhaps built around tape-based backup. This type of legacy solution potentially interrupts business processes due to the need for a “backup window,” subjects the business to possibly significant data loss when recoveries are required, and is time-consuming and labor-intensive during both data protection operations and recoveries.

MIMIX for AIX is a proven solution to data recovery and availability problems and is in use at many companies today. MIMIX for AIX leverages CDP technology to support instantaneous recoveries from disk, resulting in minimal data loss (due to its ability to present all possible recovery points) and rapid, reliable recovery (due to its ability to restore immediately from disk), while not imposing any downtime on production applications (zero-impact data protection).

Because MIMIX for AIX ensures that data on the backup server is always current, you can rely on its failover capabilities to rapidly restart application processing in the event of a catastrophic production server failure. In addition, MIMIX for AIX supports asynchronous replication that allows businesses to establish cost-effective and secure multi-site disaster recovery strategies that support rapid recovery.

MIMIX for AIX runs on IBM Power Systems servers with AIX and is applicable to any AIX application in physical, virtual or cloud environments, but is applied most often for use with business- or mission-critical applications such as enterprise databases or ERP systems.

## Easy. Affordable. Innovative. Vision Solutions.

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