IBM and Vision Solutions application availability and data protection for IBM PureFlex System

The integration of Vision Solutions MIMIX Availability with the IBM PureSystems platform ensures application uptime and simplified management

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Abstract

This paper presents a series of solutions to enable high availability and systems optimization in a virtualized environment. It is targeted at systems administrators of IBM Power Systems, mainly IBM i, who have some understanding of their availability needs and are requiring additional information about the availability options.

The information in this paper enables administrators to use the advanced features and functionality of the new IBM PureFlex System architecture in combination with Vision Solutions MIMIX and iOptimize solutions using Vision Solutions Portal. Optimizations that focus on system availability, system monitoring, and system optimization are also explained in this paper. In addition, Vision Solutions Portal (VSP) uses IBM Flex System Manager (FSM) for tighter integration between Vision's solutions and the IBM PureFlex System.

Introduction

With the introduction of IBM® PureFlex™ System, IBM is delivering a new platform that integrates networking, storage, compute resources, and management into a single product line. Targeted at consolidation environments and other optimized workloads, IBM PureFlex System uses deep integration of its resources to enable rapid time to value and quick return on investment (ROI) for customers. The converged infrastructure of the IBM PureFlex System allows for rapid scale out or scale up combined with the ability to dynamically restructure resources to meet changing business requirements. In order to maximize the value of PureFlex System, IBM has worked with independent software vendors (ISVs) such as Vision Solutions to ensure that their products are fully compatible and optimized for use on the new platform. Vision Solutions MIMIX Availability v7.1, iOptimize v7.1, and Vision Solutions Portal (VSP) v2.0 are examples of such products.

Vision Solutions has specialized in resiliency and recovery solutions for IBM i for more than 20 years. Today, their solutions span beyond just IBM Power Systems™-based solutions for IBM i and IBM AIX® to Double-Take branded solutions for Microsoft® Windows® and Linux®-based systems. Vision Solutions is uniquely positioned to provide solutions for customers considering the consolidated PureFlex System platform of IBM. Additionally, Vision Solutions provides migration services and solution options that allow customers to easily migrate from existing systems to PureFlex System.

Application availability: 22 years of progress

Vision Solutions has specialized in resiliency and recovery solutions to mainstream IBM computing platforms for more than 20 years. In 1990, many of the underlying technologies needed to perform replication with reliable error checking and acceptable latency metrics did not exist, so Vision Solutions created them. Vision Solutions did this because businesses with unwavering requirements for 24x7 system availability had tape as their only fallback. Vision Solutions believed in HA and its commitment to this market remains unchanged; today Vision Solutions have more than 25,000 clients who rely on its solutions.

The IBM PureFlex System is now a key focus for Vision Solutions. This new integrated computing server environment offers a reliable and cost-effective system on which you can run applications that sit atop IBM i, AIX, and other operating systems. It also integrates networking, storage, and management tools into one package. The ability to consolidate multiple disparate workloads into a single frame suits today's market

requirements for smaller footprints, optimized workloads, and exceptional value. IBM is working with Vision Solutions and other ISVs to ensure that their products are optimized and compatible with the new platform.

The availability imperative

The pace and competitive landscape of global commerce today dictates the need for a flexible, resilient, and available IT infrastructure that provides 24x7 access to applications and information. Any interruption or downtime to your data, systems, and applications poses a threat to business operations and can have a major cost impact to your organizations' bottom line, potentially impacting customers, reputation, and revenue. Achieving the new levels of high availability, required to support mission-critical systems, puts increased demands on IT and data center professionals. What's required is a new approach that provides better performance with enhanced scalability, in a cost-effective solution.

IBM PureFlex System

Expert integrated systems are essentially the building blocks of capability. They represent the collective knowledge of thousands of deployments, established best practices, innovative thinking, IT leadership and distilled expertise. They come in two types: Infrastructure systems that deeply integrate IT elements and expertise of system infrastructure, and platform systems that include middleware and expertise of the application platform and the components of an infrastructure system.

The IBM® PureFlex™ System includes the IBM PureApplication™ System, an application platform designed to fully integrate with the system infrastructure and deploy a range of applications, and an integrated computing system that combines servers, enterprise storage, networking, virtualization, and management into a single expert integrated system.

The IBM PureFlex System platform represents an important new server class that combines the flexibility of a general purpose system, the elasticity of cloud, and the simplicity of an appliance to deliver a system with integrated expertise. The PureFlex System offers built-in best-practices functionality to address complex business and operational tasks automatically, and integrates system tuning to deliver optimal performance and efficiency.

Vision Solutions family

Vision Solutions leads the availability industry in quality and innovation, providing solutions that are comprehensive and easy to use. Vision Solutions products cover Windows, Linux, IBM i, and IBM AIX platforms and they scale from a single server to support hundreds of virtual environments across multiple data centers.

The IBM PureFlex System platform coupled with Vision Solutions MIMIX Availability, offer a highly resilient and pervasive environment upon which you can run IBM i applications. The smaller IT footprint of the PureFlex System allows you to achieve higher levels of efficiency and the unparalleled level of application availability offered by MIMIX ensures application uptime.

Vision Solutions Portal (VSP)

Figure 1: VSP home page with MIMIX and iOptimize

VSP provides a single, consolidated view of multiple instances of Vision Solutions High Availability software and multiple products on multiple platforms, including iOptimize and Double-Take RecoverNow for AIX. In fact, VSP can integrate with even more Vision Solutions products in the near future so as to provide a common user interface across all of Vision Solutions solutions.

VSP enables user-selected portlets to be arranged visually to provide a customized view of the HA environment for monitoring, management, and control. With a quick glance of the interface, administrators have a color-coded overview of system status and any alerts.

VSP takes the guesswork out of finding and resolving issues. When combined with MIMIX Availability, VSP offers a number of tools to help you more easily keep tabs on your HA environment, from fly-over help notes to intelligent prompting and sortable columns.

Other features of VSP include:

- Detailed lists of all objects that have been replicated
- Verification of the audit status of each replicated object
- Graphs showing analysis of transaction volume and apply backlog levels over time
- Customizable view for each user that can be configured to match their style based on functions for which they need immediate access to
- Alerts and status information sorted by highest severity conditions with smart prompting to assist in addressing the steps for resolution
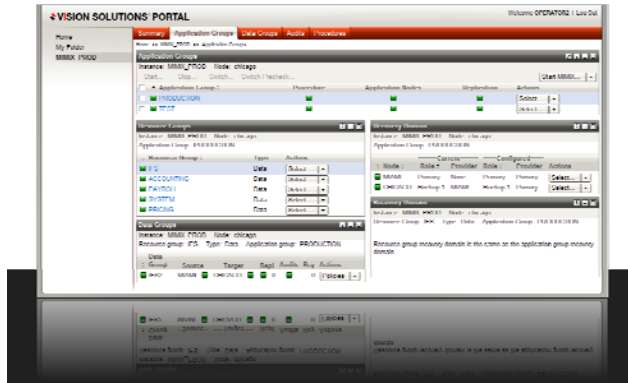
MIMIX Availability

Figure 2: MIMIX instance summary page

Scalable from Small and Medium Sized Businesses SMB to enterprise, MIMIX Availability for IBM i virtually eliminates planned and unplanned downtime with innovative features that minimize the administration of high availability and ensure data integrity. MIMIX Availability easily integrates into advanced IT environments that require multiple replication and switching topologies and the technologies to keep your applications and data continuously protected and available.

MIMIX Availability offers the following features.

High availability that scales from SMB to enterprise

- Replicates your production environment to a backup server in real time with zero data loss
- Supports virtually any application environment and network topology, including virtual environments
- Keeps your applications and data available and your business productive
- Eliminates planned and unplanned downtime
- Meets the most aggressive regulatory mandates and service level agreements (SLAs) by supporting short recovery time objectives (RTO) and recovery point objectives (RPO)
- Delivers fast, proven ROI by eliminating IT costs and business consequences of downtime

Superior replication technology and performance

- Application aware replication technology ensures transaction integrity
- Intelligent management of transaction apply process on the target system maximizes performance with use of multithreading
- Secondary copy of data is available for tape backup, maintenance, upgrade, and application testing with no interruptions to business operations

Switch confidence

- Supports comprehensive auditing with self-healing
- Eliminates human error with automated, customizable switch operations for planned and unplanned downtime
- Enables worry-free switches every time with integrated best practices

- Improves switch performance by maintaining historical data on past switch procedure steps for analysis
- Ensures monitoring of backup data on the target system for unauthorized activity

Automated optimization of the IBM i environment

- Improves system efficiency, performance, and resilience
- Monitors, manages, and generates reports on system health
- A healthy IBM i system yields an efficient and effective HA environment
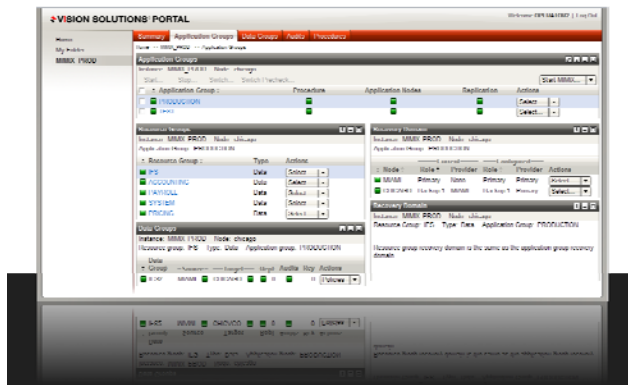
MIMIX Global

Figure 3: MIMIX Global Application Groups pane

MIMIX Global is part of the MIMIX Availability product family, extending traditional 2-node topologies to multinode environments. MIMIX Global allows you to switch to any node and maintain HA protection on all other nodes.

MIMIX Global also takes advantage of the cluster features offered in the IBM i base operating system to provide full integration with the technologies configured by IBM PowerHA® for i in a single, hybrid environment. MIMIX Global integrates these advanced topologies into a single management interface for monitoring and control.

MIMIX Global offers:

- Multi-management (declared as the number 1 benefit from the Vision Solutions Professional Services team)
- Integrated monitoring / control of hybrid environments
- Hybrid solution (PowerHA / MIMIX Availability)

iOptimize

Figure 4: iOptimize health report summary

iOptimize is a highly integrated set of applications available in MIMIX Availability and integrated into VSP that can proactively monitor, manage and optimize IBM i servers, databases, and application environments.

iOptimize maintains a complete, dynamic object cross-reference; tracks and analyzes object growth; analyzes resource usage and non-usage; analyzes response times; tracks, monitors, and reports the jobs and users; monitors, tracks, and manages system inefficiencies; and performs many more tasks. In addition, iOptimize allows administrator's group libraries to appear in multiple domains and reports on and monitors growth across these domains. Change Analysis goes further to identify how the system changed over any period at the domain, library, object, or profile levels.

iOptimize also offers reports and graphical charts that increase productivity significantly by presenting easy-to-understand views of the health of your system. They can be printed for use as part of IT operations, SLAs, or other reporting requirements, and are beneficial for comparison, documenting progress, or capacity planning.

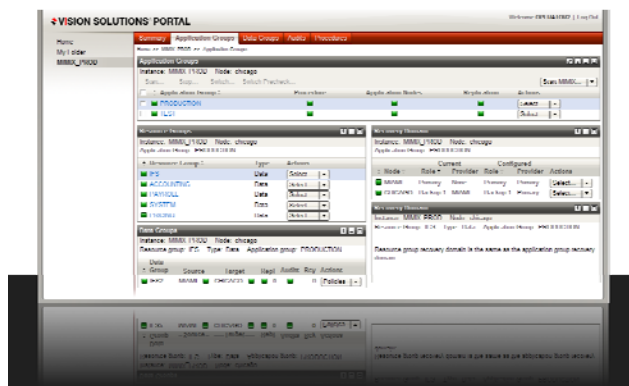## Double-Take RecoverNow for AIX

Figure 5: Double-Take RecoverNow for AIX main monitor pane

Double-Take RecoverNow for AIX provides reliable, affordable disaster recovery for your applications and data. Real-time replication of changes to your data, coupled with true Continuous Data Protection (CDP) technology, delivers nearly instantaneous recovery of data from any point in time at the push of a button, allowing you to meet the most aggressive regulatory mandates and SLAs. Double-Take RecoverNow for AIX enables rapid recovery of one or many deleted or corrupted transactions that might be due to reasons,

such as server failure, software corruption, accidental deletion, security breach, or other causes of data loss. To further enhance productivity and ROI, the secondary copy of your data is available for tape backup, reporting, maintenance, testing, and training with no interruption to business operations.

No downtime migration to PureFlex System

Properly migrating applications and data to new platforms involves some risk and takes time. When using traditional migration methods and technologies, operations might have to be halted. In larger storage foot-prints, the migration process can take longer, sometimes spanning hours or days. Consequently, application, system, and data migrations have always been a challenge for IT organizations.

Software-based availability and replication solutions help you to eliminate downtime during migrations, while also allowing you to avoid many of the sources of migration failures. They monitor your production system and replicate data and object changes to a second system that serves as a hot-backup server. The software also typically provides an easy and fast way to switch users to the backup system when your production server becomes unavailable or you need to take it offline to perform maintenance.
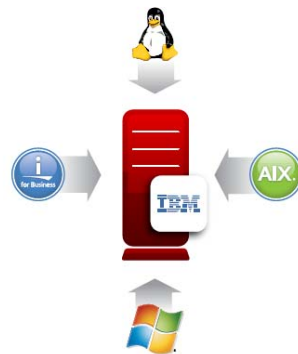

Figure 6: Vision Solutions software solutions facilitate live migrations from dissimilar platforms to the PureFlex System

HA solutions can maintain system availability during most types of migrations because the underlying rep-lication processes usually do not require that the production and backup servers run the same version of an operating system or that the servers be of the same size. This means that you can place an upgraded server into the HA topology without needing to upgrade all the servers in the topology simultaneously.

As the replication software keeps the old and new servers continuously synchronized, without impacting production operations, migrations can be performed during regular business hours.

Automated Flex optimization

iOptimize complements IBM Flex System Manager by integrating services management and automating data center operations. Essentially, it allows you to optimize and manage files and objects, simplify the

management of system resources and objects, simplify activity management, and simplify database management and performance.

Optimizing the Availability solutions from Vision Solutions for the PureFlex System

There are innumerable benefits associated with consolidating the workloads of several servers into a unified scalable environment. One important consideration when consolidating all of your computing resources is the time and effort required to monitor and manage those resources. IBM PureFlex System provides integrated management with built-in expertise of data center optimization. The Vision Solutions Portal can be used to extend the capabilities of the PureFlex System across your availability network, providing integration between your PureFlex System environment and your Vision Solutions software.

The PureFlex System includes a graphical user interface called IBM Flex System Manager (FSM). By way of the IBM Flex System Manager, you can set up basic and advanced monitoring of the system health and status of the resources in their environments. Through industry-standard interfaces, it is possible within VSP to monitor the same events that you monitor within your IBM Flex System Manager environment. Users have the capability to set up views within VSP of their availability network that works for them. They can combine IBM PureSystems™ data alongside their Vision Solutions products. The views can be cross-product and cross-platform and you can fully integrate the views in different ways to meet your requirements.
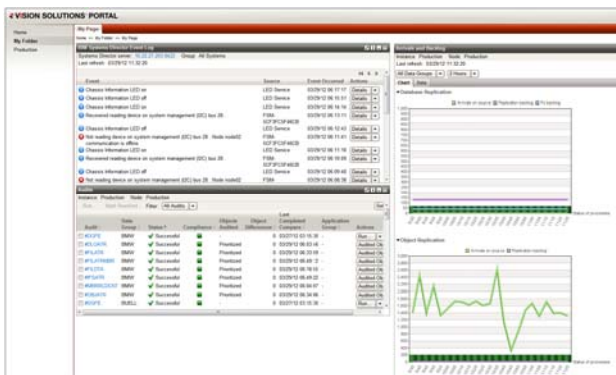

Figure 7: Event messages in unified VSP

Configuration

VSP is the user interface that provides a single console view of your Vision Solutions products. In order to fully integrate Vision Solutions products, PureFlex System users need to create custom pages in VSP. Using custom pages, users can consolidate and arrange the information that includes not only Vision Solutions products but also PureFlex System. To create customized pages in VSP:

1. Click **My Folder** in the navigation area.
2. Click the **Edit** icon at the upper-right corner. The Page/Folder Customizer will be displayed.
3. Click the **+** button next to **Add Portlet**.

4. Find the IBM Systems Director Event Log portlet in the list. You can click the VSP quick search text to quickly narrow down your search results.
5. Click **Add** below the portlet title.
6. Repeat this process for each portlet you want to include on your custom page.
7. Save your changes by clicking **[Go Back]** or the green back arrow. You will be returned to the Page/Folder Customizer.
8. Change your page layout and arrange your portlets as necessary for your environment.
9. Return to the normal view by clicking **View** at the upper-right corner of your page.

In order to display events, you need to configure the Event Log portlet with the address of your IBM Flex System Manager or IBM Systems Director. To configure the Event Log portlet:

1. Click the **Edit** icon in the portlet title bar area.
2. Complete the information on the form as defined for your environment.
3. Click **Save** to save your changes. You need to perform this action only one time. The information will be saved and can be reused when you view the portlet in the future.

In order for the Event Log portlet to display events, it must connect to your Flex System Manager or Systems Director server using the credentials you provide. It might be necessary for you to log in each time you log in to VSP. To log in to Flex System Manager or Systems Director server:

1. Click **Log In** on the portlet. The Log In dialog will be displayed.
2. Enter the user ID and password using your own credentials.
3. Click **Log In** in the dialog box. If your credentials are valid, the event log entries from your server will be displayed.

Summary

New computing paradigms, such as PureFlex System bring exponentially higher levels of efficiency through consolidation to the table. Moreover, increased flexibility and scalability allows your organization to become more dynamic and better address the demands of the marketplace. Vision Solutions, a company with more than twenty years of experience in the area of application and information availability, has already ported its industry-standard HA solutions to PureFlex System. This is of great importance to organizations that are deploying this IBM technology for the first time, and those who are porting their existing IBM i and AIX-based computing environments to PureFlex System.

About Vision Solutions

Easy. Affordable. Innovative. Vision Solutions

With over 25,000 customers globally, Vision Solutions is one of the industry's largest providers of business continuity and information availability solutions for Windows, IBM i (i5/OS), AIX, Linux, and Cloud environments. Vision Solutions MIMIX, Double-Take, and iTERA brands keep business-critical information continuously protected and available. With an emphasis on affordability and ease-of-use, Vision Solutions products and services help customers achieve their IT protection and recovery goals, which in turn improves profitability, productivity, regulation compliance, customer satisfaction, and quality of life.

Vision Solutions oversees a global partner network that includes IBM, HP, Microsoft, VMware, Dell and hundreds of resellers and system integrators. Privately held by Thoma Bravo, Inc., Vision Solutions is headquartered in Irvine, California with development, support, and sales offices worldwide.

For more information call 1 (800) 957-4511 or visit visionsolutions.com. You can also find more about Vision Solutions on Facebook, Twitter, YouTube, or at the Vision Solutions Blog.

Resources

The following websites provide useful references to supplement the information contained in this paper:

- IBM Systems on IBM PartnerWorld®
  ibm.com/partnerworld/systems

- IBM Redbooks®
  ibm.com/redbooks

- Vision Solutions website
  - www.visionsolutions.com
  - http://www.visionsolutions.com/partners/IBM/pureflex

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