Thinking of Migrating During a Pandemic? You Are Not Alone!

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by Paden Holenstein

Executive Summary

We are truly amazed by the number of IT system migrations that are now occurring around the globe! In the strangest of times – during a pandemic – we find HPE NonStop technologists and system engineers practicing their craft. We see a surprising trend: IT teams honing their focus on new features while ramping up business continuity improvement projects, which is an inspiring and strategic move. The rest of the world may be too preoccupied with other concerns to be aware of the scrupulous work that the HPE NonStop community is providing behind-the-scenes.

Change is inevitable. It produces anxiety, may be difficult, and sometimes is even hard to think about, especially when you factor in how busy you feel. Instead of asking, “What do I need right now?” shift your perspective from the present towards the future and ask, “What is the best overall option in the long run?” It can be an eye-opening and sobering experience to see the difference. It will help you realize your company’s priorities, where you may suddenly see several delayed goals. Ask yourself, “In the grand scheme of our business, limited time, and resources, do we need to act upon these goals – or not?”

Business continuity boils down to a parallel question: do you believe in it – or not? Are you willing to undergo the cost and effort *now* to prepare your organization for future survival? Many companies only react to the day-to-day issues, instead of focusing on the future and solving problems – or even better – discovering a solution that leads to profitable results (a service or a product). Certainly, in the mission/business-critical space where we primarily work, all companies have implemented some form of business continuance solution. The key is to keep it updated, fresh, and improve on it as circumstances change. As we’ll see below, this is a key tenet – improving while maintaining services and minimizing risks.

Along these lines, the tenacity, passion, and knowledgebase for HPE NonStop systems is truly motivating. In this article, we review challenging system and software upgrades and migrations, revisiting when each team realized in a breakthrough moment, how to fix its problems. This article also is a learning and respectful tribute to all of the hard work and effort dedicated to these projects. It’s great when software actually works!

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Migrate Casino Application Environments with Zero Downtime

Situation: A casino manages all aspects of its business (gaming, hotel operations, restaurants, etc.) on HPE NonStop systems. As part of a major upgrade, the casino developed several new applications, restructured its databases, and changed the schema of the Enscribe files and SQL tables.

Problems: The casino needed to implement the new applications and database formats in a new platform environment. The casino required 24x7 application availability and could not accept any downtime during the migration.

Solution: Use HPE Shadowbase Zero Downtime Migration (ZDM) to create, synchronize, and test the new application and database environment: migrate users to the new environment while keeping the old and new environments in-sync with application services available while the migration takes place.

Outcomes: This approach maintained revenue and ensured zero loss of service during the upgrade. It also avoided a high risk "big-bang" approach, scaling up the new environment's load over time. See slider for the steps.

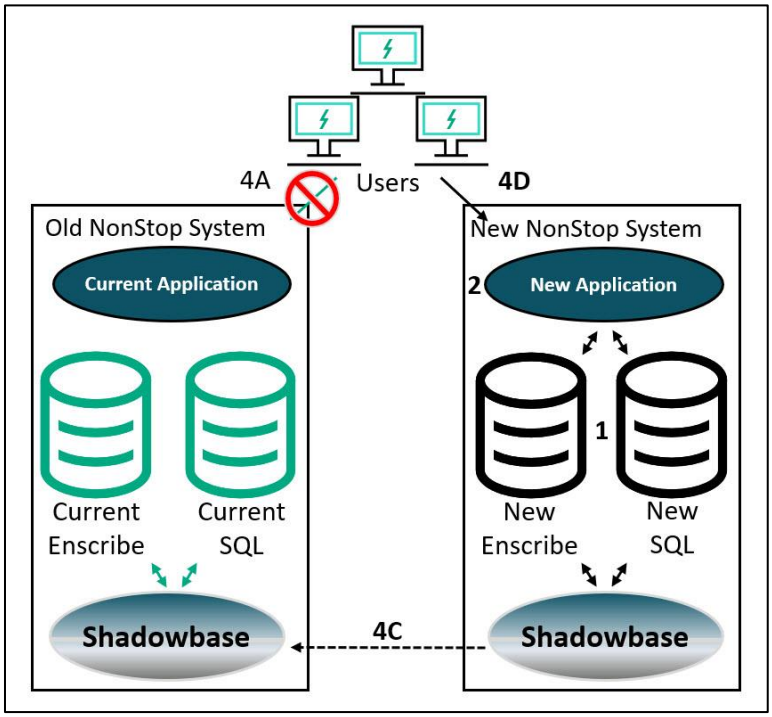
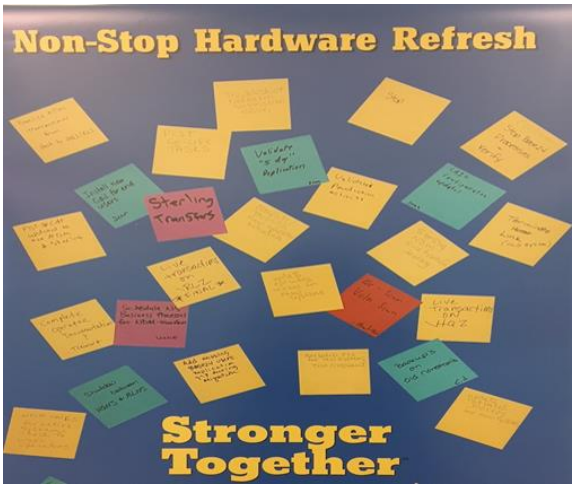


Figure 1 – The Casino's Zero Downtime Migration

A Word of Caution: Two-Node vs. Three or Four-Node Migration Architectures

A two-node architecture utilizes the same two nodes for the migration that are being used for production and business continuity standby processing, which increases the chance of adverse impact to the production environment if something goes awry. While this approach worked well for this casino, *we recommend using a three or (preferably) four-node architecture* as a best practice when migrating.

Zero Downtime Migration for California Credit Union



Situation: A large U.S. credit union (CU) has nearly 1 million members and grew to about $12 billion in assets. Senior management created a new initiative, "Stronger Together," of maximizing the value, convenience, and exceptional service provided to its members. Management wanted to improve the availability of the CU's application, so this initiative made its way to the IT team.

The CU services its members on a BASE24™ application running on a pair of HPE NonStop systems. The NonStop systems are running in an active/passive business continuity architecture using an existing data replication engine.

Problems: Current hardware had reached its end-of-life along with end-of-support dates and needed to be replaced. The CU decided to perform a "platform refresh" to update its hardware. Additionally, the CU had never successfully failed over with its existing business continuity solution. BASE24 was only licensed and running at the datacenter headquarters, and senior management wanted BASE24 to run on all of its NonStop systems (including backup and development datacenters) for testing and improved availability. The CU's existing replication vendor quoted substantial license fee increases to perform the migration and continue using the replication engine on the new hardware.

Solutions: Use HPE Shadowbase ZDM to perform the hardware platform refresh and replace the old data replication engine. Use HPE Shadowbase sizzling-hot-takeover (SZT) architecture to achieve improved availability goals.

Outcomes: The end users experienced minimal application downtime during the migration. There was no risk to perform the migration as the new environment was fully vetted before the migration occurred. Management understands that the migration and final business continuity solution works by performing failover/failback scenarios. A CU system technologist said, "We were able to do everything you see here [BASE24 application, new hardware, and a new replication engine] for less than [the original replication vendor's software upgrade fee]."

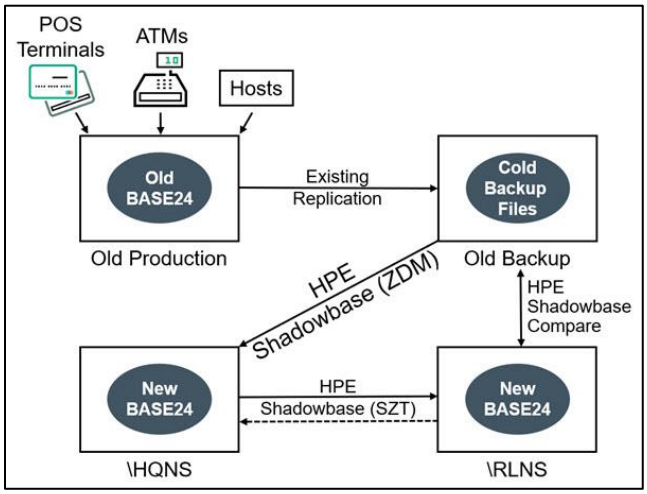
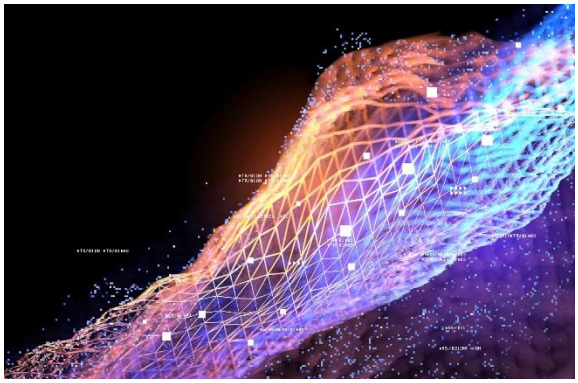


Figure 2 – The Credit Union's ZDM to an HPE Shadowbase Sizzling-Hot-Takeover (SZT) Architecture

Manage Massive Data Growth with Online Repartitioning



Situation: One of the largest U.S. processors of credit card transactions provides 24x7 card management services on HPE NonStop systems with HPE Shadowbase business continuity in an active/active (partitioned) architecture, where data collisions are avoided due to the partitioning.

Problems: The processor's database queries are starting to time out and are becoming very inefficient. The growing database size and activity requires an *online* repartition (no application outage is allowed). The repartitioning impact needs to be minimized for homogeneous (same) and heterogeneous (different) file formats and table schemas. The processor required one tool and approach for all file and table types (Enscribe, SQL/MP, and SQL/MX).

Solution: Use HPE Shadowbase ZDM to load and synchronize the new database partitions, then leverage the application to close the old files, and open the new files. (Note, the application was designed to close and re-open files/tables on command.)

Outcomes: This architecture enables dynamic online repartitioning, repartitions homogeneous and heterogeneous schemas and formats by using one solution for all file and table types (Enscribe, SQL/MP, and SQL/MX). The software minimizes the application impact (no application outage is needed). See slider for the steps.

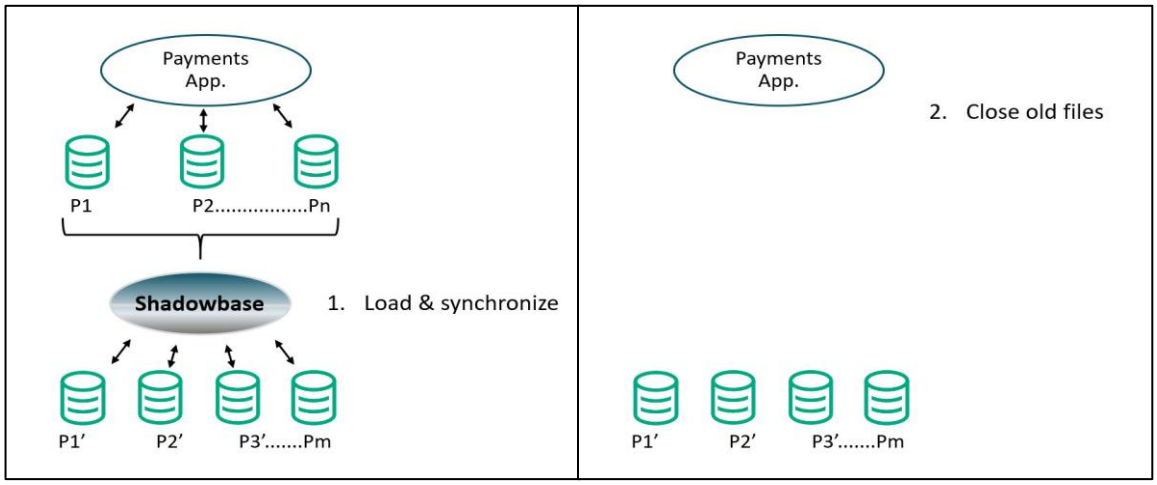


Figure 3 – The Credit Processor's ZDM to Repartition its Database (Steps 1 & 2: load and synchronize the new partitions using HPE Shadowbase, then close the old files)

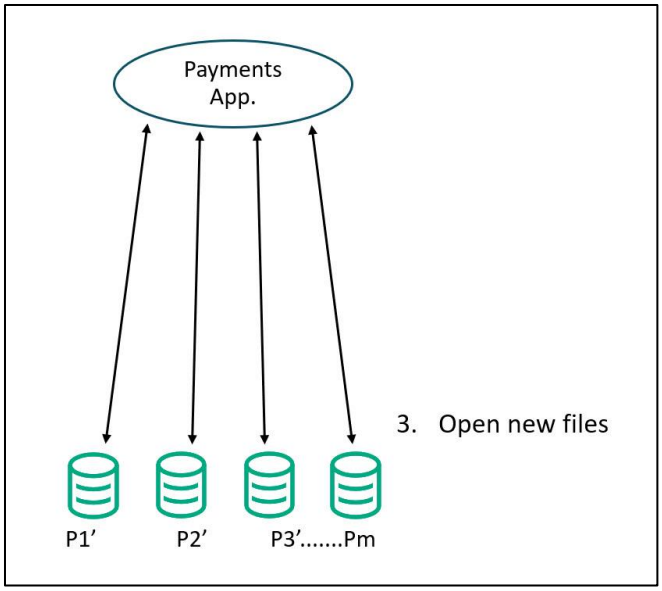


Figure 4 – The Credit Processor's ZDM to Repartition its Database (Step 3: open new files)

Summary

Migrations are a necessary part of life. IT teams must keep their hardware, software, applications, and databases current and 'fresh' to remain competitive. Leverage HPE Shadowbase Zero Downtime Migration software to avoid these issues and protect your company from the risks of a failed migration. For more information, please see HPE Shadowbase Zero Downtime Migration (ZDM) or read the white paper, *Using HPE Shadowbase Software to Eliminate Planned Downtime via Zero Downtime Migration*.

International Partner Information

Global

Hewlett Packard Enterprise
6280 America Center Drive
San Jose, CA 95002
USA
Tel: +1.800.607.3567
www.hpe.com

Japan

High Availability Systems Co. Ltd
MS Shibaura Bldg.
4-13-23 Shibaura
Minato-ku, Tokyo 108-0023
Japan
Tel: +81 3 5730 8870
Fax: +81 3 5730 8629
www.ha-sys.co.jp

Gravic, Inc. Contact Information

17 General Warren Blvd.
Malvern, PA 19355-1245
USA
Tel: +1.610.647.6250
Fax: +1.610.647.7958
www.shadowbasesoftware.com
Email Sales: shadowbase@gravic.com
Email Support: sbsupport@gravic.com

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