Netezza Database Replication Case Study

Large US Retailer

Introduction

Organizations running large Netezza systems with large volumes of data will find relocating their data centers a time consuming, risky, and expensive process - as well as carrying considerable risk of downtime to the business.

Background

Our client is a large retailer in the United States that was running a Netezza N3001-005 system in Northern California and a second Netezza system of the same model for disaster recovery in Southern California. Having outgrown their existing data centres, the decision was made to set up two new data centres, one some distance away in Nevada, the other about 200 miles from their existing DR site.

Objectives

The primary objective was to always have one of the two Netezza systems operating as the production environment during the data centre relocation with minimal downtime to the business. This would be achieved by first synchronizing their two Netezza systems, failing over to the other system and then moving the original system to its new location, then repeating the process until both systems were up and running in their new data centres.

Approach

The client tried unsuccessfully to synchronize their two Netezza systems using IBM's Netezza Replication Services, at which point Smart Associates was approached to demonstrate its ability to synchronize the two systems using our Netezza Database Replication as a Service, or SmartSafe, product.

Our approach was to offer our client a free proof of concept demonstrating that we could achieve near real time synchronization between their two existing systems. The proof of concept was successful.

Solution

Based on the results of the proof of concept, the client was given the confidence to first switch off and relocate the Netezza DR appliance to the new data centre and synchronize it with the Production system. Once completed, the DR system was then made the new Production environment so that the other system could also be switched off and relocated to its new data centre in Nevada. Finally, the two systems were again resynchronized, and the Production environment swapped back to the original system.

Results

- The relocation of the two Netezza systems was achieved with virtually no downtime to the business

- Whereas previously the client kept one Netezza system on stand-by for disaster recovery, it now has two Netezza systems kept fully synchronized in near-time, allowing for workloads to be spread as well providing a far more robust disaster recovery solution

- Netezza Database Replication as a Service, or SmartSafe, is a module of Smart Management Frameworks (SMF). Using the automated diagnostic features of SMF we were able to determine that some developers were inadvertently creating cross-database dependencies in violation of their company's own internal development standards – which potentially could result in a deadlock scenario if two separate databases couldn't be replicated as a result of being dependent on a table that existed in the other. Not only was SMF able to detect and report this issue, but it was also able to dynamically generate the code necessary to correct the problem.

- Due to the successful delivery of DbRaaS, and the client's satisfaction with the service provided, Smart Associates was invited to provide ongoing support cover of the client's Mako generation Netezza systems after IBM support ended in April 2023.

- The customer has never had a single critical/severity 1 outage on any system for the entire duration of the support relationship