CU*ANSWERS ITEM PROCESSING DISASTER RECOVERY TEST REVIEW

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SUMMARY

As part of a robust business continuity program, CU*Answers actively tests recovery plans to ensure validation of procedures for recovering critical processes and to identify opportunities to improve recovery efforts and minimize the impact of a disruption to the organization and its stakeholders.

On Wednesday, November 5, 2014, select team members from the CU*Answers Item Processing department completed a disaster recovery test of the Electronic Check Processing environment by restoring Image Center application and database servers and performing key business functions from the secondary datacenter located in Muskegon, MI.

For the purpose of this test, data replication was suspended 24 hours in advance at the secondary datacenter to allow Item Processing staff to "replay" the events of the previous day and compare totals with the production environment. This test was performed in parallel with the production environment with zero impact to clients. This was the first recovery test for one Item Processing team member, meeting the cross-training objective which seeks to expand the pool of skilled and trained recovery team personnel. This test was completed without the need of external vendor support.

Although 16 hours was allocated for the duration of the test, recovery teams were able to successfully complete all steps within 8 hours. This report identifies the details of the test, challenges observed, lessons learned, and recommendations for consideration based on the results of this exercise.

EVENT REVIEW

The existing production Image Center environment includes data volumes hosted on a SAN (Storage Area Network) located at the primary facility with data replicated to a redundant SAN at the secondary facility. As mentioned above, data replication was suspended 24 hours prior to the test window. Production application servers were restored (virtualized) in a sandboxed environment at the secondary facility with drives mapped to data volumes on the backup SAN.

On the morning of 11/5, Item Processing staff began the recovery test by retrieving check image data from the previous day and following daily operating procedures to process the images. Prior to and throughout the recovery test, precautions were taken to prevent accidental disruption or contamination of the production environment.

The critical business functions performed during this test included:

- Downloading, importing, and processing FRB image files from the previous day (11/4)
- Performing repairs on rejected images
- Comparing individual client totals and reports with production
- Building and submitting transmission files for online clients and each off-line client representing all delivery channels (CUAPROD, GoAnywhere, and 400ftp servers) and comparing totals
- Creating and receiving manual return files
- Building and transmitting FRB return files
- Printing Incoming and Outgoing Expectations Reports

The test process began on Wednesday (11/05) at 9:30 AM, following the restoration of the application servers. Tasks were completed by 4:30 PM, after which the test environment clean-up was performed. Item Processing Team participants operated from the Muskegon datacenter while other internal teams provided support remotely.

Perhaps what will be remembered most about this recovery test was the unplanned building evacuation alarm that sounded abruptly at 1:05 PM, requiring staff to follow the emergency stairwell to the exterior assembly area. The "all-clear" was provided by facility administration at 1:15 PM. The secondary datacenter is located in a secured suite within a seven-story multi-tenant facility.

CHALLENGES

Many of the documented challenges below are the result of efforts to perform a recovery test parallel with the production environment (no downtime for clients). In an actual disaster recovery effort (recovering the production environment), most of these challenges would not exist.

1. Data replication to the secondary datacenter was suspended at 8:30 AM on 11/4. At the beginning of the test, it was determined that a portion of the daily download files from 11/4 were present in the test environment.

    a. During troubleshooting, it was discovered that a service to automate the download of check image files was enabled and configured to begin at 8:00 AM (to improve application efficiency). This service configuration change had been added since the last recovery test. Had data replication been suspended prior to 8:00, the downloaded files would not have been present. Recovery procedures have been updated to reflect this new service and configuration start time.

    b. Recovery teams were able to determine which daily files had been downloaded and which were still needed. An audit was performed on the check image files to ensure they were accurate and complete before they were processed. The totals were found to be in alignment with the production environment.

    c. The application uses a folder naming structure based on the date of download (**yyyymmdd). This created some additional confusion with files downloaded on multiple dates (1104 and 1105).

2. The recovery workstations used drive mappings from a previous logon that pointed to production servers.

    a. These drive mappings were deleted and recreated (as were host tables modified) to point to servers located in the test environment. Recovery procedures have been updated to confirm drive mappings.

3. A new client browser SSL certificate was required on the recovery workstations (added since the last recovery test).

4. After the check image files were imported and processed on the Image Center servers, individual check data was present but the electronic images were not being displayed in the application.

    a. An application service restart on the test server resolved the issue. It is believed that this was due to the order that services were started during the virtualization process of the server.

5. Initial attempts to upload processed check image files to the CU*BASE host failed.

    a. This was due to a host-based firewall application (iShield) installed on the host at CU*Answers and at Site-Four that was preventing access from Image Center servers in the test environment. This host-based firewall application had been installed and configured since the last recovery test.

6. Key menu options on the user interface for the Check21 browser application were not present on the recovery workstations.

    a. Enabling browser compatibility mode resolved the issue.

CONTINUING EFFORTS AND RECOMMENDATIONS

1. A project is underway to migrate check image processing off of the Image Center platform and on to the eDOC platform in 2015. A recovery test should be performed shortly after the migration to validate the recovery process and procedures.

2. All application and system changes made to the production environment must be reflected in the recovery plan documentation (i.e. automation services added).

3. Identify additional functions and processes (core but not necessarily “critical”) to include in future tests to expand the scope.

4. Virtualize current physical production servers and move them to the VM cluster at primary datacenter. This would allow more current “snapshots” replicated to the Muskegon VM server. Note that for this test the two servers were virtualized using snapshots from mid-Summer. The process to perform these physical-to-virtual snapshots is manual and problematic. By moving the production servers to a VM server, this process could be automated and less problematic.

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