

CU*ANSWERS HIGH AVAILABILITY PROGRAM REVIEW

EVENT DATE(S): 9/23/2018 – 9/26/2018

SUMMARY

As part of an ongoing business continuity program, CU*Answers actively maintains a high-availability (HA) core processing environment with near real-time data replication between identical hosts located at two geographically dispersed, state-of-the-art data centers. A minimum of twice each year, live HA rollover events are scheduled to redirect CU*BASE core processing production and operations to the HA data center (located in Yankton, SD) for a period of 72 hours or more. At the conclusion of the rollover event, core processing is redirected back and operations resumed at the primary data center (located in Kentwood, MI). These HA rollover events are invaluable in an effort to validate procedures and ensure the ability to recover CU*BASE GOLD core processing in an effective and timely manner should the need arise.

The rollover event was completed successfully with relatively few issues, all of which were addressed. On Monday morning following the rollover to systems at the secondary data center, a small number of credit unions reported that they were unable to connect to CU*BASE GOLD from at least one branch location. This resulted in a brief service interruption for the locations impacted until support teams could resolve the problem on each network. Prior to the planned rollover event, multiple announcements were published with instructions for testing connectivity to the secondary data center. These connectivity tests are required prior to each rollover since networks and systems are continuously changing both at the credit union and at CU*Answers. Early detection is necessary to minimize disruptions. In addition, credit unions are encouraged to schedule staff to arrive early on the morning following the rollover to test access to CU*BASE GOLD and allow adequate time for troubleshooting prior to opening the doors for business.

This HA rollover event began at 10:00 PM ET on Sunday, September 23th, when recovery teams began the role-swap process to bring CU*BASE GOLD online at the Site-Four data center in Yankton, SD. Production of CU*BASE GOLD continued from the Site-Four data center until the scheduled roll-back process, beginning at 10:00 PM on the evening of Wednesday, September 26th.

The following sections identify challenges observed, lessons learned, and recommendations for consideration related to this event.

EVENT DETAILS

As identified in the Summary section above, the planned HA rollover began on **Sunday, September 23** at 10:00 PM ET and completed by 12:58 AM. During the role-swap process, the amount of time required by the system to perform the database identify column resets took an extra 10 minutes, raising a cautionary flag by recovery teams (especially on the heels of the May rollover/recovery event). The rollover process was temporarily suspended until

logs could be analyzed and additional audits performed to confirm the synchronization of data between the source and target host. The replication software vendor was contacted to verify the status before proceeding. This precautionary step prolonged the total duration of the rollover event by approximately 90 minutes, but it provided valuable insight into the process for future exercises.

Connectivity with all third-party EFT vendor networks was restored by 1:16 AM. During each rollover process, all third-party EFT vendors function in “stand-in” mode adhering to predefined settings on transaction types and amounts (set by the credit union). Once all post-roll application testing was completed, the Operations Team performed normal EOD/BOD processing to prepare for the new business day.

During the early morning hours on **Monday, September 24**, support teams received calls from five (5) credit unions (of the 200+ on the network) who were experiencing connectivity issues at one or more branch locations. Connectivity was restored by adjusting network routing configurations and/or re-establishing VPN tunnels between the credit union and the secondary data center. One of the VPN issues was reported on the Friday prior to the rollover but not corrected until Monday morning after opening for business.

On the evening of **Wednesday, September 26**, beginning at 10:00 PM, recovery teams began the process to roll-back CU*BASE production to the primary data center. This was completed by 10:55 PM.

CHALLENGES

Every rollover event, planned or unplanned, provides an opportunity for a valuable learning experience. Even those that appear relatively smooth on the surface, often require decisions to be made and resolutions to apply behind the scenes. Every recovery team member gives their all to minimize the impact to clients and members, while performing their job with an intense focus. Challenges observed during this rollover event include the following:

1. Slow transmission speeds for large file transfers were observed again during this HA rollover event between the GoAnywhere host and servers at two credit union locations. Files that had taken 5-6 minutes in the production environment were now taking 45-60 minutes or longer from the secondary environment.
2. On the morning following the rollover to the HA host, five credit union locations reported the inability to log in to CU*BASE/GOLD. Support teams assisted the credit unions in making corrections on their networks to enable connectivity to the HA environment located in Yankton, SD.

CONTINUING EFFORTS AND RECOMMENDATIONS

Whether planned or unexpected, each recovery test and high-availability rollover exercise provides the opportunity to continually improve the process and adjust procedures. The following is a list of action items and projects relative to this rollover event.

1. Logs were collected during production and troubleshooting efforts to correct the slow transmission times for large files between the HA environment, the GoAnywhere environment at CU*Answers, and servers at two credit union branches.

- a. Support teams analyzing the transfers have arrived at a likely cause and solution related to network configuration.
 - b. Teams are working to develop a testing plan to confirm the solution resolves the issues and does not negatively impact other processes.
 - c. Once confirmed, an implementation plan will be created and scheduled prior to the next rollover event.
2. During the weeks prior to each planned HA rollover event, an announcement is sent to all client credit unions with instructions for testing connectivity to the secondary data center from each branch location. Future announcements will also strongly encourage each credit union to schedule staff to arrive 30-60 minutes before opening for business on the morning following the rollover so that access to CU*BASE/GOLD can be confirmed, allowing adequate time for troubleshooting and support if necessary.
 - a. Network changes at the credit union are occurring more frequently with the potential of disrupting connectivity to the secondary data center. A more active level of credit union participation during HA rollover events is required to ensure uninterrupted member services.
 - i. This includes performing the connectivity test prior to each rollover event. A successful connectivity test during a previous rollover does not guarantee the same results for the current rollover.
 - b. Support teams at CU*Answers will also perform additional checks of branch VPN connectivity using automated monitoring tools to detect disruptions and coordinate the response.
 - c. Open support tickets involving VPN connectivity at credit union branch locations will receive an escalated response in the days leading up to a rollover event.
3. The tools developed as a result of the May, 2018 HA rollover/recovery event to provide additional confirmation of the state of data synchronization between primary and secondary hosts proved to be successful during the September rollover.
 - a. Teams will continue to refine the tools for utilization between rollover events to ensure a state of readiness for planned and unplanned disruptive incidents.

CLOSING REMARKS

The message is clear. Every rollover test requires an extra amount of due diligence on the part of credit unions to avoid member service interruptions. It is important that each branch location ensure its readiness on the morning following a rollover event by scheduling staff to arrive at least 30-60 minutes prior to opening for business to confirm access to CU*BASE GOLD core-processing.

High Availability processing requires that three separate computer environments be in alignment to work properly. The credit union's technology, CU*Answers' primary production technology, and CU*Answers' secondary production technology. These three environments are in a constant state of flux and therefore at any time during a test or even during production hours, the status of the credit union branch can be in doubt for an interruption. The objective of the HA rollover test is to verify our partnership status and awareness of the state of these three environments. Interruptions are anticipated, and the purpose of the drill is to practice the response of credit unions teams and CU*Answers' teams to bring systems back into alignment and return all credit unions to an active status. Therefore, it is highly recommended that the credit union verify branch readiness not only in the pre-

drill communications test, but also to verify the morning-of-status to ensure that CU*Answers has a chance to respond prior to opening the doors for members.

In fact, CU*Answers only considers the rollover test successful if there are the proper amount of disruptions and response efforts so that credit union teams learn and validate the state of readiness and experience with business recovery procedures.

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