

## SITE-FOUR HIGH AVAILABILITY PROGRAM REVIEW

EVENT DATE(S): 10/14/2018 – 10/17/2018

### SUMMARY:

As part of an ongoing business continuity program, Site-Four, LLC actively maintains a high-availability (HA) core-processing environment with real-time CU\*Base/GOLD data replication between identical servers located at two geographically dispersed, state-of-the-art datacenters. Regular HA rollover events are scheduled to redirect core-processing and operations to the secondary/backup datacenter (located in Kentwood, MI) for up to seven business days. At the completion of each event, core-processing is redirected back to the primary location (located in Yankton, SD). These rollover exercises are an invaluable part of validating business continuity and recovery procedures, and ensure the ongoing availability of CU\*Base/GOLD core processing.

The role-swap to the HA system took place on the evening of Sunday, 10/14/18, and began at 10:12pm CT. The rollover itself was completed in under one hour. The conclusion of the scheduled event was performed on Wednesday October 17, at which time core-processing of CU\*BASE/GOLD was transferred back to Yankton.

This event was performed with the collaboration of recovery teams from Site-Four, CU\*NorthWest, CU\*SOUTH, and CU\*Answers as part of an ongoing reciprocal colocation agreement with CU\*Answers dating back to 2014. As a proactive measure and to minimize disruptions at credit union branch locations, the Group Providers announced this planned event and strongly encouraged credit unions to test connectivity to the secondary data center in advance of the rollover.

Notable characteristics regarding this rollover event include:

- Collaborated with FIS to test rollover of their communications to our DR facility as noted above.
- During this rollover event, an entire end-of-day/beginning-of-day nightly processing cycle for Site-Four was completed by CU\*Answers OpsEngine data center operators as a critical part of testing co-location processing capabilities. This activity relies heavily on clean automation and all processes were completed correctly, on time, and with no issues by the secondary data center in Kentwood, MI.
- This role-swap event carried on a move to the 10:00pm CT Sunday night window, done to avoid delays caused by replication, in anticipation of upcoming changes in the processing environment, and for improved access to vendor support channels.

As highlighted in this report, the mutual colocation agreement between Site-Four and CU\*Answers not only includes shared facility space within a state-of-the-art data center, but also network and operations support throughout the rollover event. The end goal in this agreement is to provide seamless support and a level of readiness that allows the party experiencing the disaster time to focus on recovery and resumption while the unaffected party oversees daily operations from the high-availability data center.

The following sections identify other details, challenges observed, lessons learned, and recommendations for consideration.

### EVENT DETAILS:

On the evening of October 14, beginning at 10:03pm CT, the recovery team brought CU\*BASE/GOLD offline and began the role-swap process to redirect Site-Four core-processing from the PROD server in Yankton, SD to the high availability system in Kentwood, MI. At this time, a “splash-page” for online mobile banking was displayed to alert members that system maintenance was being performed. CU\*BASE/GOLD was back online by 10/14/18 11:20pm CT. All communications issues with vendors resolved by 11:47pm CT.

The rollback was performed on October 17, beginning at 10:00pm CT to redirect core-processing back to the primary production server in Yankton, SD, thus completing the rollover event. CU\*BASE/GOLD was back online at 11:05pm CT with all issues resolved by 11:59pm CT.

## CHALLENGES:

As we continue to expand and improve our products and services to a growing client network, systems and environments experience an increased number of changes at a very rapid pace. Performing these rollover exercises in a planned, controlled setting during non-peak business hours is a small investment to better prepare for a situation that is less ideal. It is the position of Site-Four that any rollover which does not uncover any issues is a missed opportunity to learn and improve.

Maintenance windows necessary to perform these rollover exercises continue to shrink as more routine tasks are required of system operators and users of the system. This will become ever more the case as we consider expanded servicing, including seven day per week processing and an environment that strives towards a 24/7 member-access environment. It is important that we continuously seek ways to improve processing efficiency through automated and managed productivity while at the same time testing our operational resiliencies.

Conditions change with every rollover event. Also due to the nature of the rollover exercise (redirecting live production traffic from 80+ credit union locations to our HA/DR location), some challenges are to be expected. Comments on the rollover and challenges encountered are provided below.

- Rollover:
  - Users remained present on the system just before time for role-swap. May need some stronger reminders to users.
  - There was a brief delay in DNS changes updating; the DNS cache was flushed, and the problem was quickly resolved.
  - The automation Alert system on S4HA was not initially able to reach the SMTP host. Changes had to be made to the HA subnet to allow access to the SMTP relay which immediately resolved the issue.
  - Three jobs remained in the ISOPost1XW queue during rollover which required programmer follow-up to ensure the transactions were completed.
  - EFT vendors PEMCO and Visa did not immediately recover. The vendors were contacted, and the connections were recovered at 11:47pm CT.
- Issues during role-swap
  - All issues during the role-swap were investigated to determine cause.
    - FIS went offline on Monday morning 10/15. Connectivity re-established by renegotiating the VPN tunnel to the vendor.
    - Pre-roll testing revealed that SCFCU Springfield branch not able to establish a VPN connection to the HA Site. The issue was determined to be an issue with their ISP. A temporary route to send traffic through Yankton was applied as an immediate remedy to prevent connectivity loss during the roll-swap. The ISP resolved the issues by the time the system was rolled back to Yankton.
    - ANECA (Benton branch) also could not connect to the HA host. It was determined that their VPN settings had been changed. Settings were updated on the HA firewall to bring the VPN online.
- Rollback:
  - DNS dropped repeatedly after the roll back to the primary system. There were delays in engaging CU\*Answers support personnel, but CNS was eventually able to resolve the problem after the rollover.
  - Once again, jobs remained in ISOPOST queue during rollover. Careful attention must be paid to the order that jobs are ended and restored for these subsystems, and this will be reviewed prior to the next rollover.
  - All third parties recovered without need for Site-Four to contact them.

## CONTINUING EFFORTS AND RECOMMENDATIONS:

Each recovery test and high-availability rollover exercise provides us the opportunity to continually improve the process and adjust the needed procedures accordingly. The best way to accomplish this is to “Practice. Learn. Document. Repeat”. The following is a list of action items and projects that we are pursuing to get us closer to that goal:

- More careful attention will be paid to assigning support roles prior to the rollover to prevent any delays in issue resolution.
- A review of the rollover checklist will be conducted with special attention to ending and restarting ISO control subsystems.

This Site-Four rollover exercise was one of the most successful in that all 3rd party communications were restored completely, easily and (on rollback) on the first try. DNS issues aside, the roll back to the primary system was one of the smoothest and fastest events to date.



Respectfully,

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