



FUTURES INDUSTRY BUSINESS CONTINUITY AND DISASTER RECOVERY

2012 INDUSTRY TEST RESULTS

“DR IX”

November 2012

Compiled and Developed by

Tellefsen and Company, L.L.C.

TABLE OF CONTENTS

	Page Number:
I. Background	3
II. Executive Summary	7
III. Overall Test Results	10
IV. Problems Encountered	27
V. Lessons Learned	29
VI. Suggested Next Steps	33

I. BACKGROUND

- The FIA Information Technology Division conducted the first annual Disaster Recovery (DR) Test in October 2004.
- Starting in Q1, 2012, the FIA Business Continuity Committee began detailed preparations for this year's seventh annual industry-wide test.
- A Working Group was convened to discuss and agree on a date, goals, objectives, etc.

BACKGROUND (Cont'd) ...

- Two futures Industry BC/DR symposiums were held in June and September via WebEx/conference calls.
- Panelists included representatives from the major exchanges and clearinghouses:

Canadian Derivatives Clearing Corp.	ICE Clear US
CBOE Futures Exchange	Kansas City Board of Trade
CME Clearing	KCBOT Clearing Corp.
CME Group	Mercado Espanol Futuros Financieros
ELX Futures	Montreal Exchange
Eris Exchange	Minneapolis Grain Exchange
ICE Exchanges	New York Portfolio Clearing
ICE Clear Canada	OneChicago
ICE Clear Europe	OCC

BACKGROUND (CONT'D) ...

- The scope of this year's initiative was designed to test disaster recovery back-up connectivity and functionality between exchanges, clearinghouses and member firms:
 - Test firm back-up to exchange back-up sites (DR-DR).
 - Verify connectivity.
 - Test round-trip communications capabilities.
- The WebEx sessions were well attended by numerous operations managers and BC/DR representatives from various clearing and non-clearing firms.
- Regular Committee conference calls were held between May and October (bi-weekly and weekly).

BACKGROUND (Cont'd) ...

- The Committee including representatives from:
 - Clearinghouses
 - Exchanges
 - FCMs
 - Clearing firms
 - Non-clearing firms
 - Key service providers
 - Independent software vendors

II. EXECUTIVE SUMMARY

- The ninth annual industry-wide disaster recovery test in the U.S. financial services sector was highly successful, largely in part to the good working relationship between exchanges and the firms.

- Major U.S. and international futures exchanges, clearinghouses, FCMs and clearing firms participated in this year's test:
 - 68 FCMs, clearing firms and non-clearing firms participated - an increase over last year
 - In addition, 46 trading firms participated
 - Between 87% - 100% of firms tested successfully, depending on the exchange

EXECUTIVE SUMMARY (CONT'D) ...

- This year's test initiative was expanded to include several other exchanges and clearing houses:
 - Eris Exchange
 - ICE Clear Canada
 - OneChicago

- The exchanges and clearinghouses demonstrated that their systems, processes and procedures simultaneously worked very well, communicating from back up systems/sites.

- The test was held on the weekend of Superstorm Sandy that devastated the east coast of the U.S.

EXECUTIVE SUMMARY (CONT'D) ...

- Feedback from the firms, exchanges and clearing houses indicated that this was a valuable and worthwhile exercise and that the industry should continue to do more common testing in the future

- Firms indicated that the test helped them:
 - Exercise their business continuity/disaster recovery plans
 - Identify internal single points of failure
 - Test other in-house applications and systems at the same time
 - Tighten up and document their business continuity procedures
 - Better understand the need for cross-training
 - Test connectivity with exchanges' DR sites

III. OVERALL TEST RESULTS

- 18 domestic and international futures exchanges and clearinghouses, 68 clearing/non-clearing firms* and 46 trading firms participated** in the test
- Test participants included clearing firms, non-clearing firms and non-clearing trading participants
- ~80% of all futures clearing firms participated
- Participant firms represent a significant critical mass of futures order flow and liquidity:
 - ~85% of overall futures exchanges' volume.

* Some firms are common members of multiple exchanges

** Represents non-clearing trading participants

CANADIAN DERIVATIVES CLEARING CORP./TMX GROUP

- Tested via their Toronto back up site
- Trades and positions created by Bourse de Montreal flowed to CDCC via the Clearing Manager of SOLA® Clearing.
- FTP Server access was included within scope of the test
- Reports were generated and uploaded to participating Clearing Members under a specified DR Test directory on Monday, October 29

CBOE FUTURES EXCHANGE

- Tested via member firms' back up connectivity to back up CBOEdirect trading platform
- Scripted trade entry for VIX futures contracts
- Transmitted trades to the OCC's back up systems via MQ
- Transmitted regulatory data to NFA via SFTP.

CME GROUP / CME CLEARING

- Tested member firms back-up connectivity to the production GLOBEX trading platform via remote data center
- Simulated a disruption of downtown Chicago (including CME Jackson Direct and LNet)
- Entered a script of orders for various products
- Received ex-pit, block trade information via CME remote site portal URL
- Generated trade registers and SPAN files from 10/28 trade date
- Received PCS and large trader information from member firms
- Transmitted trade registry data and SPAN files via FTP.

ELX FUTURES

- Tested via eSpeed electronic trading system
- Trading products included all ELX UST and Eurodollar futures contracts via eSpeed supported API's
- Block trades or EFP trade types were not accepted
- End of day files were produced by OCC.

ERIS EXCHANGE

- Validated trade data and customer account setup in DR environment
- Successfully tested file and data transfer from the backup site

ICE FUTURES US / ICE CLEAR US

- Tested member firms' back-up connectivity to the ICE Trader electronic trading system
- Scripted order entry for Cotton, Russell 2000 and Sugar futures contracts
- Utilized AFTS, ECS, PTMS/ACT, MQ and eReports systems
- Trade messages sent via FIXML to Clearing Members
- Clearing file submission via AFTS
 - Match off files, clearing report files, Large Trader, PCS and SPAN files.

ICE EXCHANGES

- Tested member firms' back-up connectivity to the ICE Exchange electronic trading system DR site
- Scripted order entry for Canola, Cotton, Russell 2000, Sugar and Brent futures contracts
- Tested ICE Block and other non trading functionality from DR site
- WebICE reporting via Internet portal for deal reporting, position reports, etc.

ICE CLEAR CANADA

- Tested member firms' back-up connectivity to the ICE Clear DR site
- Members entered a scripted list of orders
- ETS trades flowed to TEMS
- Firms downloaded clearing reports from ICE Clear Canada website for deal reporting, position reports, etc.

ICE CLEAR EU

- Tested member firms' back-up connectivity to the ICE Clear EU system DR site
- Tested ECS, MFT, PTMS/ACT, MQ and Crystal Reports
- Member firms submitted Large Trader files and PCS files via MFT
- Banking and Delivery files were available to members via MFT
- SPAN files were delivered via MFT and the ICE website.
- Tested member firms MQ connectivity to the ICE MQ in DR environment

KANSAS CITY BOARD OF TRADE

- Members tested connectivity to CME GLOBEX trading system
- Electronic trades were entered via GLOBEX and open outcry trades via KCBT remote data center
- Participated in post-trade testing - generated a subset of October 28th trades to member firms
- Transmitted trade confirmations from KCBT Clearing Corp.
- Accepted GLOBEX, open outcry and ex-pit transactions and changes.

MEFF

- Tested via the MEFF production ETS environment
- Simulated a failure of their London POP and successfully failed over to the backup system during the test
- Members entered trades and received reports
- Transfer files were delivered from clearing
- Clearing data was restricted and not sent to member firms' back office systems.

MINNEAPOLIS GRAIN EXCHANGE

- Trades were entered for MGEX products into the CME GLOBEX platform and MGEX TEMS system. Trades were processed by MGEX Clearing via the MGEX DR site
- TREX trade files were generated by the MGEX DR Clearing Server and placed on the MGEX DR FTP server
- The MGEX DR remote access and FTP servers were accessible with the same logins and passwords as the production system.

MONTREAL EXCHANGE/TMX GROUP

- Tested the SOLA® Trading electronic system via the Toronto back up site
- Orders were entered with an October 27th trade date
- Trades were transmitted to firms via HSVF and ATR protocols
- Executed trades were transmitted to CDCC for processing.

NEW YORK PORTFOLIO CLEARING

- Tested trade flow from NYSE Liffe systems

ONECHICAGO

- Tested CBOEdirect ETS via the back up site
- Trade entry from firms was successfully completed for AAPL1C futures and AAPL1D futures products

OCC

- Successfully tested from their back up site
- Supported FTP+ Pull/Push, SFTP, NDM and MQ file connectivity
- IP addresses and TCP Ports were unchanged, as they were the same as production for this test
- Firms submitted file transmissions and received output test files.

IV. PROBLEMS ENCOUNTERED

- A number of problems were encountered; most were resolved quickly, although some caused an unexpected delay to test progress
- Types of problems that were encountered included:
 - MQ session ID and MQ channel connectivity problems; MQ sessions not started on time
 - Inability to connect to clearing house back up site due to an incorrect configuration
 - Firewall configuration problems due to incorrect IP addresses, use of dynamic vs. static IP address.

PROBLEMS ENCOUNTERED (CONT'D)...

- Incorrect test day contact name/numbers at firms caused delay/difficulty for exchanges to communicate in a timely manner
- Incorrect user ID login for file download access
- Front end trading system setting (DR setting) would not allow access to the exchange ETS
- Member firm server connectivity
- Environment problems at clearing firms that could not be resolved within the testing window
- Lack of domain or technical knowledge on test day impeded firms' problem solving capabilities.

V. LESSONS LEARNED

- The futures industry proved that it is capable of successfully orchestrating an industry-wide disaster recovery test
- Most problems that were encountered were rectified quickly, although some caused an unexpected delay to the restoration of full processing capabilities
- Under real life situations, most problems could probably be resolved within hours or by the next business day
- Expect the unexpected! – the impacts from Superstorm Sandy

LESSONS LEARNED (CONT'D)...

- The exchanges and clearinghouses' internal support processes and procedures worked well; they indicated that the test helped them:
 - Identify some internal single points of failure
 - Tighten up and document their business continuity and system fail over procedures
 - Improve test scripts and plans for future tests
 - Identify/refine pre-test and post-test procedures for connectivity testing
 - Better understand the need for cross-training
 - Test connectivity to/from DR sites.

LESSONS LEARNED (CONT'D)...

- Firms that pre-tested has few/no problems as compared to those that did not
- Firms must be sensitive to any environmental impact on their network firewalls caused by test requirements:
 - Highlight any environmental impact or expectations on the firms
 - Pre-register via the FIA registration portal/participate in ping testing
 - Have proper network staffing support actively engaged before and during the test
 - Be aware of any firewall impact and make changes accordingly to accommodate testing.

LESSONS LEARNED (CONT'D)...

- Exchanges/clearing houses with a large population of MQ channels should explore a more efficient (i.e., automated) way of channel activation to streamline the process and facilitate faster turn up of these lines
- A number of firms apparently did not pre-register and “showed up” for the test at several exchanges; some exchanges had “no shows” due to overarching priorities for the hurricane preparation
- Exchanges should investigate methods to facilitate seamless failover (e.g., logical domain names vs. static IP addresses)

VI. SUGGESTED NEXT STEPS

- Survey firms and exchanges for input to future testing
- Testing should be mandatory for all clearing firms
- Firms must ensure that any ISVs utilized in production support their testing on test day and confirm that the systems correctly point to DR
- Test registration must include firms' key IT and operations contacts for pre-test and on test day
- Clearing firms should provide screen shots to exchanges as evidence of test success

SUGGESTED NEXT STEPS CONT'D)...

- Encourage exchanges to provide as much full “round trip” testing as possible (i.e., trading through clearing outputs)
- Broadly “market” future test initiatives to firms’ IT, operations, trading and senior management, to ensure a wider dissemination of test information within all firms
- Continue to coordinate the 2013 test (Saturday October 5, 2013) with SIFMA; this facilitates firms to participate that are joint FIA/SIFMA members.