



# FUTURES INDUSTRY BUSINESS CONTINUITY AND DISASTER RECOVERY

**2011 INDUSTRY TEST RESULTS**  
***“DR VIII”***

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# I. BACKGROUND

- The FIA Information Technology Division conducted the first annual Disaster Recovery (DR) Test in October 2004.
- Starting in Q1, 2011, 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:

<b>Canadian Derivatives Clearing Corp.</b>	<b>International Derivatives Clearing Corp.</b>
<b>CBOE Futures Exchange</b>	<b>Kansas City Board of Trade</b>
<b>CME Clearing</b>	<b>Mercado Espanol Futuros Financieros</b>
<b>CME Group</b>	<b>Montreal Exchange</b>
<b>ELX Futures</b>	<b>Minneapolis Grain Exchange</b>
<b>ICE Exchanges</b>	<b>New York Portfolio Clearing</b>
<b>ICE Clear Europe</b>	<b>NYSE Liffe US</b>
<b>ICE Clear US</b>	<b>OCC</b>

## 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 eighth 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:
  - 62 FCMs, clearing firms and non-clearing firms and 47 trading participants participated - an increase over last year
  - ~93% of firms tested successfully

## EXECUTIVE SUMMARY (CONT'D) ...

- This year's test initiative was expanded to include several other exchanges and clearing houses:
  - Canadian Derivatives Clearing Corp.
  - New York Portfolio Clearing
  - NYSE Liffe US
  
- The exchanges and clearinghouses demonstrated that their systems, processes and procedures simultaneously worked very well, communicating from back up systems/sites.

## 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
  - 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

- 16 domestic and international futures exchanges and clearinghouses, 62 clearing/non-clearing firms\* and 47 trading firms participated\*\* in the test
- Test participants included clearing firms, non-clearing firms and non-clearing trading participants
- ~82% of all futures clearing firms participated
- Participant firms represent a significant critical mass of futures order flow and liquidity:
  - ~80% of overall futures exchanges' volume.

\* Some firms are common members of multiple exchanges

\*\* Represents non-clearing trading participants

# CANADIAN DERIVATIVES CLEARING CORP.

- Tested via their Toronto back up site
- Trades and positions created by Bourse de Montreal flowed to CDCC via the Clearing Manager.

# 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 (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
- Trade date was Monday October 31st
- 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.

# INTERNATIONAL DERIVATIVES CLEARING GROUP

- Utilized the IDEX XT trading system from the back up site
- Trade orders were received by IDEX Market Operations
- Trades were reported and automatically matched and executed with a trade date of October 29th
- Generated trade confirmations and transmitted to firms
- NFX/IDEX trades were automatically processed for clearing and settlement to the IDCH.

# 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 Exchange electronic trading system DR site
- Tested ECS, AFTS, PTMS/ACT, Crystal Reports and SFTP
- Member firms submitted Large Trader files, Banking and Delivery files via AFTS
- SPAN files were delivered via AFTS and the ICE website.

# 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
- TRES 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 electronic trading system via the Toronto back up site
- Orders were entered with an October 29th 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

# NYSE LIFFE US

- Tested TRS and CPS via their back up site
- Order entry was for MSCI Pan Euro contract only, with a trade date of October 28<sup>th</sup>

# OCC

- 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; messaging and routing of M1 records
  - Incorrect firewall configuration parameters, IP addresses/incorrect network configuration
  - Firewall access problem with a dynamic vs. static IP address.

## PROBLEMS ENCOUNTERED (CONT'D)...

- Problem with an exchange application prevented the ability to reset their session; revised their start up process and was resolved
- Incorrect contact name/numbers at firms
- Incorrect user ID login/misunderstood how IDs were configured
- Issues with front end trading system (DR setting) - would not allow access to the exchange ETS
- Member firm server connectivity
- A multi-cast communications line was improperly configured; was re-set and resolved

## PROBLEMS ENCOUNTERED (CONT'D)...

- Public key authentication issue for SFTP failed; was resolved by adding additional certificates to the users account
- Firm problem with a proprietary applications; was connected but unable to submit trades
- Lack of domain or technical knowledge on test day impeded firms' problem solving capabilities
- Some firms only completed 2 of 3 components of an exchange test script; some focused on 1 or 2, others did not complete the 3<sup>rd</sup>.

## 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.

## 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 must be sensitive to any environmental impact on their network fire walls 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, and some exchanges had “no shows”
- 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
- Continue to stress standardization of test plans/scripts across all participating exchanges and clearing houses.
- Include as much granular detail in test plans as possible, add technical and business contacts and identify where changes will be required by the firms
- Stress the importance/efficiencies of offering ping testing on 1-2 common dates across all participating exchanges/clearing houses
- Announce the details, goals and objectives of the next DR test - Saturday October 27, 2012

## 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
- Coordinate the 2012 test date with SIFMA; this facilitates firms to participate that are joint FIA/SIFMA members.