

Technology applications needed to implement pre-trade risk management controls for DMA and Sponsored access clients.

Nick Garrow
Global Head electronic trading
Newedge Group

CFTC TAC
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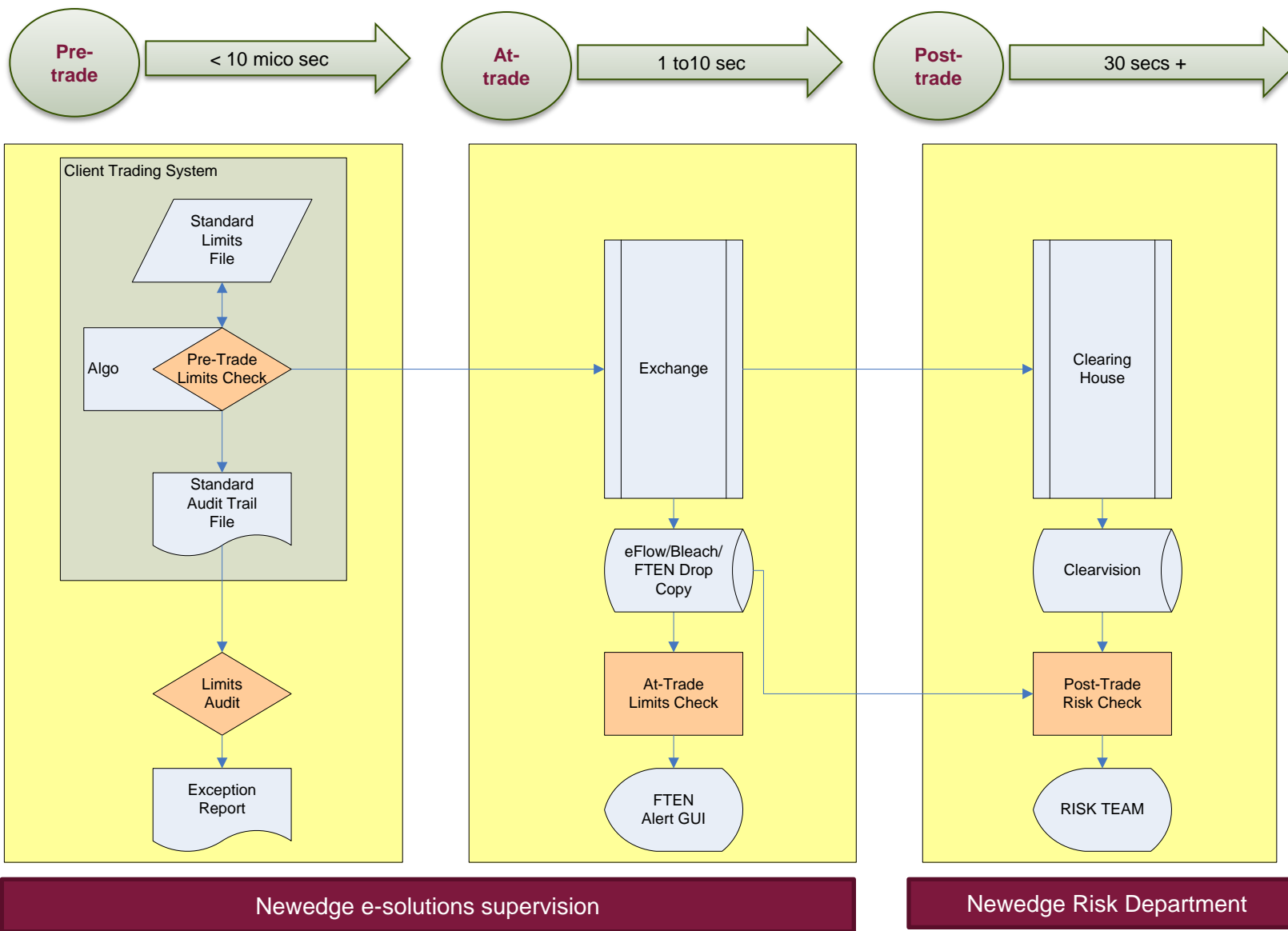
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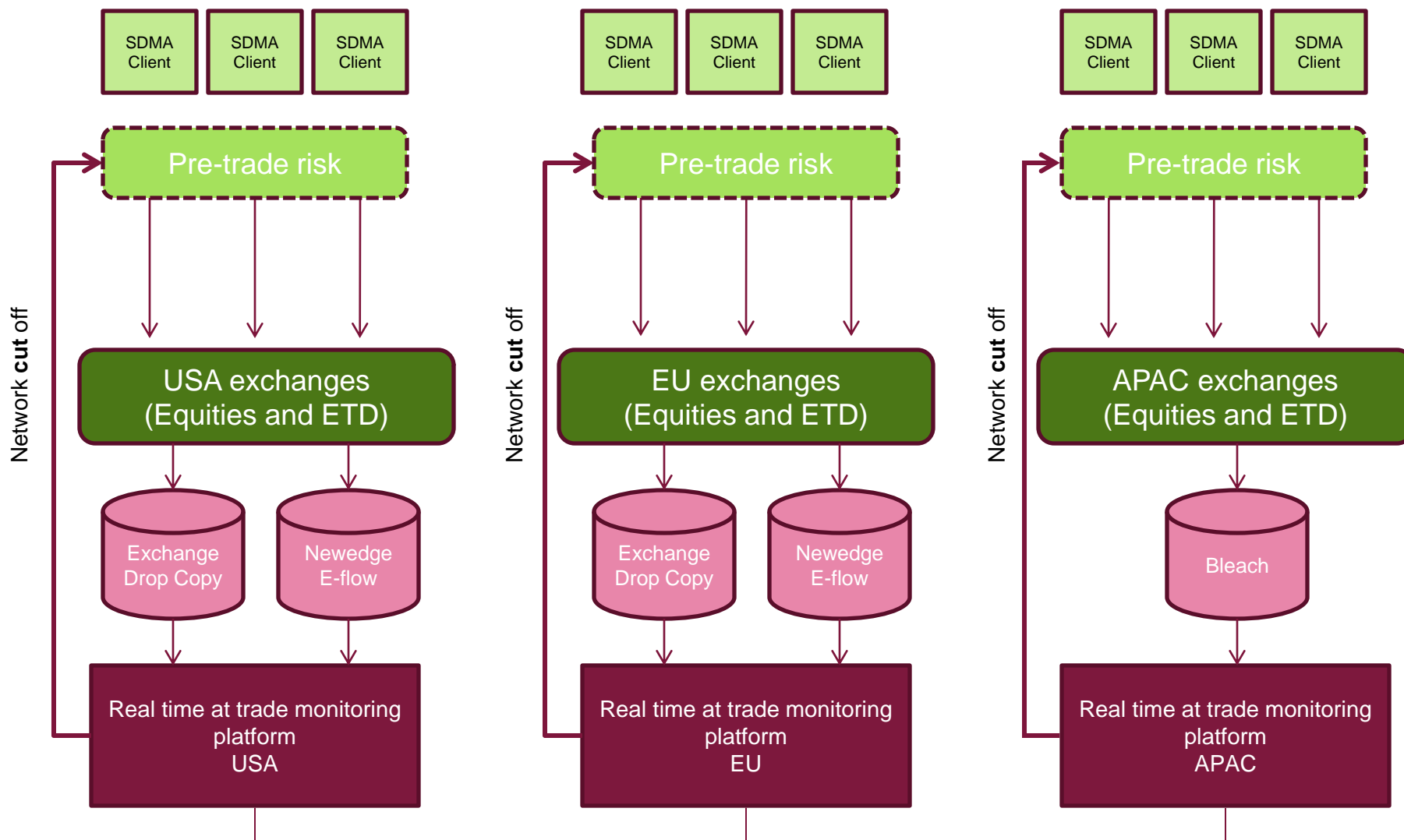
DMA and SDMA landscape

	SDMA Clients	DMA clients
Definition	Newedge “sponsors” the client onto the exchange by providing client with direct access to it outside of Newedge e-trading infrastructure	Client trades through the Newedge electronic trading systems and platforms (TT, CQG, FIX...) over which we have full and exclusive control of pre-trade limits
# & types of client	Prop trading groups, CTA's, NCM's 100+ clients , 500+ connections	CTA's, Banks, Asset management companies, commodity trading companies, corporates... 1000 clients, 4,000+ end users
Main challenges	<ul style="list-style-type: none"> • Maintaining real time supervision over multiple client connections to multiple markets • Full and exclusive control • Clients using a wide range of trading applications • Wide network footprint and data centre footprint 	<ul style="list-style-type: none"> • Supporting and managing a wide range of DMA systems and platforms • Cost
Newedge policy	All SDMA clients are “scored” by Operational Risk for adherence to our ability to set pre-trade limits, view orders, cancel orders and shut the client off. Client signs SDMA order routing agreement Limits vetted and approved by risk	DMA clients sign standard order routing agreement Pre-trade limits are approved and set up on the relevant platform by Newedge
Regulatory environment	Move towards limiting, or outright ban on, SDMA or “naked market access”	Getting tighter in reference to SEC §15c3-5 which covers DMA as well as SDMA

Our strategy moving forward



At trade risk monitoring



Challenges

- Data consistency and transportation
 - Lack of consistency in the way exchanges provide real-time drop copy reporting
 - Big data normalisation challenge (3000+ traded instruments)
 - Architecture design needs to deliver data with lowest possible latency
 - Huge quantities of data to be processed and stored (millions of orders per day)
- Implementing low latency pre-trade controls
 - No single supplier providing ultra low latency controls for all asset classes
 - Adding pre-trade controls adds latency Commercial considerations
 - Impact on the clients set-up
- Regulatory conformance
 - Need to deliver different solutions in different regions to ensure local regulatory conformance
 - Need consistency in rules moving forward
- Costs
 - Estimate at \$4M set up costs and \$4M to \$6M per year to run
 - Take 12 to 14 months to fully implement ; initial focus on conformance with SEC July 2011 requirements
 - Need to invest in people / skills / training ~ \$1M per year

Appendix

SDMA risk monitoring framework

	Control	Type	Clients	Risk Coverage	Key Issues/requirements	Residual Risk
Pre-Trade	1/ Prevents And Blocks the order => Newedge fully monitors and has full control (SDMA becomes DMA) 2/ FF-Positions limits	pre-trade module or other low latency module	Risky Clients (clients whose creditworthiness would not enable to cover Fat Finger risk)	1/ Execution error (Fat finger) is eliminated 2/ Counterparty Risk (if client defaults because of Fat finger error) is eliminated 3/ External fraud (clients set up false limits or no limits) is eliminated	<ul style="list-style-type: none"> - Requires true Low latency (less than 5 micros) - Requires Newedge procedure to escalate when need limit urgent changes - Requires Ultra Low latency as otherwise not acceptable for clients 	LOW
	1/ Preventive and Warning / Reactive => Newedge ensures clients set up limits 2/ FF-Positions limits	Newedge products: SLF combined with STAF	Medium to low risk	1 and 2/ Same as above if Newedge sets up the limits 3/ Save manual intervention (monitoring is automated / streamlined until break is detected)	<ul style="list-style-type: none"> - Fraud risk - risk that clients bypass our controls (should detect in STAF) - Not yet applicable to ISVs (only to Proprietary systems as of now) - Requires Newedge procedure to escalate when need limit urgent changes 	MEDIUM
At-Trade	1/ Warning / Reactive and then Preventive after first break => Newedge detects and then prevents 2/ Monitoring FF-position & IML type limits	Real time centralised risk platform with rwal time drop copies	Medium to Low Risk	1/ Easier to implement (no module at client side) 2/ Mitigates Risk efficiently and is quicker than SLF-STAF 3/ monitoring is dynamic (takes into account clients usage and do not need allocate all limits among all servers/accounts).	<ul style="list-style-type: none"> - Switch off capability to be set up when a breach of limits has occurred (block when Trade / exec or orders has broken limit) - Dynamic allocation to build on derivatives (already done on cash) - Requires Blocking after first break of limits be automated as otherwise same as Post Trade - Newedge procedure to escalate when limit needs be changed urgently. 	MEDIUM
Post-Trade	1/ Warning / Reactive Newedge monitors after the fact only 2/ Monitoring stress / var	Global Risk post trade module	<ul style="list-style-type: none"> - Low Risk clients if no Pre and/or At trade monitoring - High/Medium risk clients when combined 	1/ Complement the Pre or At trade 2/ Requires that order flow feeds risk systems from drop copies or exchanges (not yet done)	<ul style="list-style-type: none"> - Procedure for escalation and 24 hour coverage required - Does not eliminate FF, Execution risk and Fraud risk 	HIGH