

Real-World Customer Solutions

Archipelago Exchange (ArcaEx)

Archipelago was launched in 1997 as one of the four original ECNs approved by the SEC. Since its inception, Archipelago has offered its subscribers outbound order preferencing and has effectively created a national limit order book for Nasdaq and listed stocks. In 2000, Archipelago partnered with the Pacific Exchange, Inc. (PCX) to create the first totally open, electronic stock market in the United States. The rules governing the Archipelago Exchange (ArcaEx) were approved by the SEC in October 2001. In 2002, Archipelago completed its merger with REDIBook, another leading ECN.

Since its inception, Archipelago has worked to deliver innovative trading technology solutions to its subscribers. Archipelago became a TransactTools customer in the summer of 2000 and has since implemented the entire TransactTools messaging platform.

Pioneering Automated FIX Certification: ArcaCert

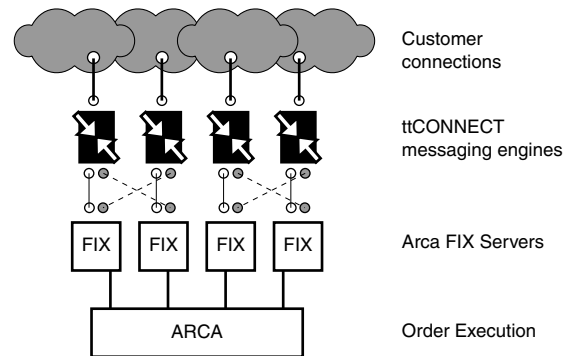
Getting customers connected and into production is a time-consuming and difficult proposition for an ECN that has dozens of scenarios that must be tested exhaustively. It's difficult for the customers who are testing also, because it requires scheduling valuable time with resources on both sides, often many times, until everything that could happen in production has been tested.

ArcaCert was Archipelago's revolutionary answer to the testing challenge. Built on TransactTools' then-new ttCERT server platform, ArcaCert provides customers with an automated FIX certification service that is available to them around the clock, providing interactive testing for all production scenarios as well as access to results and log information.

With ArcaCert, customers are able to manage the testing process on their own time. Since the launch of ArcaCert, most ECNs and many financial institutions have built similar services with ttCERT for their own customers and trading partners.

Dynamic Fail-Over for Customer Connections

In preparation for the launch of ArcaEx, with the number of customer FIX connections growing and trade volumes increasing, it was important for Arca to put in place a mechanism that would allow for internally distributing transaction loads without having to ask the customer to make changes each time a rebalance takes place. Also, in the event of any internal outage, Arca needed to protect the customer connections and transactions during the recovery process.



In June of 2002, Arca put into production a cluster of ttCONNECT engines that sat between the customers and the internal FIX server farm. These ttCONNECT engines had several responsibilities, such as providing uninterrupted service for external customers in the event of an internal configuration change or system outage. The customer is protected by this cluster from isolated service interruptions—for example, an outage at ArcaEx can be addressed while the customer continues to transparently trade OTC stocks through REDIBook. This helps both the customer and ArcaEx by limiting the business impact of isolated problems.

Transaction Routing: Sending Trades to REDI

When Archipelago and REDI agreed to merge operations in 2002, it became possible for ArcaEx to accept through its customer FIX interfaces orders for both listed and Nasdaq securities, delivering the Nasdaq orders to REDI for execution on behalf of the customer. For the ArcaEx customer, this meant convenient access to both markets through a single interface.

"TransactTools is a lot like Archipelago in that they're innovative, aggressive, and always looking for ways to bring new value to the customer. I think this is why we've built such a great partnership with these guys."

Jerry Putnam
CEO, Archipelago LLC

SOLUTION HIGHLIGHTS

The Archipelago solution takes advantage of the entire TransactTools connectivity platform to deliver scalable and highly-reliable customer access:



Automated certification for both the Archipelago ECN and ArcaEx. ArcaCert has certified hundreds of new customers since its launch in October 2000.

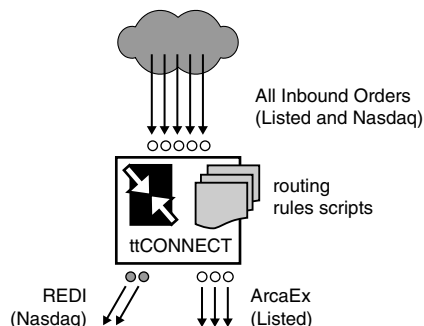


A farm of fifteen servers provides real-time failure recovery for customer connections. Content-based order routing to both ArcaEx and REDI through a single customer FIX interface.



Real-time monitoring and analysis of more than twelve million trading events each day. Notifications to support, trading, and even customers about execution performance, connectivity problems, and other information.

To accomplish this as an interim measure prior to future full integration, rather than build complicated links between the ArcaEx and REDI execution engines, content-based routing of inbound orders was done inside ttCONNECT, so that routing happens before the order is delivered to the ECN or exchange.



Using ttCONNECT's scripting API, rules were created to check each inbound order's security type. Orders for listed securities are passed through to the Arca FIX handlers as normal. Orders for Nasdaq shares, however, must be delivered to REDI through the REDIBook FIX interface—the same interface that REDI customers use to connect directly to the REDIBook ECN.

Since the REDI FIX interface is slightly different than Archipelago's, the script rules inside ttCONNECT actually transform Nasdaq orders into the REDI FIX format prior to delivering them for execution. Executions received from REDI are transformed back and

"The entire TransactTools platform continues to play a role as we grow and expand our execution capabilities. From certification to connection management to real-time monitoring and analysis, it all helps us deliver quality service to our customers. TransactTools solutions are innovative, they work, and they're backed by a team that provides excellent support."

*Steve Rubinow
CTO, Archipelago LLC*

For financial firms that want the cost savings and competitive benefits of straight-through processing, TransactTools provides intelligent connectivity infrastructure, adding business intelligence and unprecedented flexibility to financial messaging technology.

The TransactTools connectivity platform combines intelligent messaging, protocol certification and testing, and transaction management with the performance, reliability, and scalability that global financial services firms demand.

TransactTools technology powers the trading networks of companies such as Archipelago, Bloomberg, JP Morgan Chase, Instinet, WestLB Panmure, and Thomson Financial.

delivered to the customer. It all happens inside ttCONNECT, and all in lightweight, easily modified scripts.

Monitoring Transactions in Real Time

ttALERT is the final piece of the solution, and it's the mechanism by which Archipelago can understand what's happening with every transaction throughout the day, in real-time.

Since ttALERT is intelligent and stateful, it knows things that were very difficult to know before: average and maximum ACK times for remote execution destinations, for instance.

When external ECNs are slow to respond, notifications are sent to traders at Archipelago, support personnel, even customers.

ttALERT rules are created using the same API for scripting as the routing inside ttCONNECT, so this means that new rules and new reports are constantly being defined and created.

It all adds up to a higher level of service for the ArcaEx customer. Convenient, automated certification, extra-reliable messaging interfaces, and real-time intelligent monitoring of execution quality.



135 West 29th Street, 9th floor
New York City, NY 10001 USA

www.TransactTools.net

+1-888-93-TOOLS

info@transacttools.net

© 2002 TransactTools, Inc., All Rights Reserved. TransactTools, ttCONNECT, ttCERT, and ttALERT are registered trademarks of TransactTools, Inc. All other trademarks are the properties of their respective owners.