2007 NASCIO AWARD NOMINATION

Government: Government to Business

Oklahoma State Treasurer's Electronic Trading System

Title of Nomination: Oklahoma State Treasurer's Electronic Trading System

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Executive Summary

The Oklahoma State Treasurer's Electronic Trading System is a Web-based application that allows the Oklahoma State Treasurer (OST) to conduct real-time electronic trading on Oklahoma Treasury Notes and Bills. This system allows for increased competition, providing the state with the opportunity to gain the highest returns on its investments. It also reduces paperwork, provides for a non-editable auditing trail and streamlines the investment process for OST.

Since the application launched in March of 2006 (https://www.ok.gov/ostbid), OST has conducted over 100 live trades with a total of over $1.1 billion dollars traded.

"Our online trading system is bringing new efficiencies and increased earnings to our investment process. The new system allows all of our authorized financial institutions to participate in investment bids - helping to ensure the state will receive the best possible price and maximize our earnings," said Scott Meacham, Oklahoma State Treasurer.

Clearly stated title

Oklahoma State Treasurer's Electronic Trading System

Concise description of the business problem and solution

This system is a one-of-a-kind application operating at the state level, which was designed to address the traditional paper-intensive/phone operated process of conducting trades for the state of Oklahoma. OST is the first state agency in the United States to implement a real-time online trading system for state investments that is free to participating traders. The system was launched March 2006.

Features of the Treasurer's Electronic Trading System include:
- System security features such as SSL encryption and password protection
- Report generating capabilities for auditing purposes
- Ongoing display of the current time synchronized with Bloomberg® time
- Screen display refreshes constantly providing up-to-the-second status of trading session

The innovative technology features implemented into this system provide solutions to the business problem of conducting trades by phone. The technology allows for (see significance of the project to the improvement of the operation of government below):
- Increased competition for state investments
- A non-editable auditing trail
- Reduced paperwork
- Streamlined processes

The design of the system focuses on a bold and clean appearance in addition to simple user navigation. The state agency template was implemented into this application, providing a consistent header, footer and left navigation throughout the system. The template was produced to provide Oklahoma government Web sites and applications with a more cohesive look and navigation.

Significance of the project to the improvement of the operation of government

The innovative technology features implemented into this system allow for increased competition for state investments, a non-editable auditing trail, reduced paperwork, and a more streamlined investment process.

Increased Competition
OST traditionally conducted trades by phone with a maximum participation of three brokers. This traditional trade process could take over half an hour to conduct one trade session.

With the new Electronic Trading System, OST can receive quotes from all authorized financial institutions at one time, thus increasing the competition and providing the state with the opportunity to earn the highest returns on its investments.

This system also allows brokers to know immediately if they have not submitted the best quote. During the trade session, a broker's recent quotes are displayed at the top of their screen in chronological order. If they have the current best quote, the quote listing is highlighted. With a built-in automatic refresh function for both brokers and the OST Investment Officer, quotes are updated every two seconds with new entries and winning order; thus, creating increased competition.

Auditing Trail
OST auditors have instant access to a non-editable report. In order to preserve the integrity of each individual trade, all trade session details are stored in a separate table. Such details includes: trade session details, quotes, quote time/date stamp, institution names and participant login/logout times.

Trade session reports can be viewed as a trade ticket, by chronological order, or by institution. Each of these reports allows OST auditors to review past trade sessions, confirm quotes and confirm quote confirmations by institutions and the OST Investment Officer.

Reduced Paperwork
In order to properly document a trade, OST traditionally produced "mounds" of paperwork during and after a trade. This system eliminates the paperwork, allowing for a more efficient process of conducting trades for OST. (See the last page to view a copy of a non-editable trade report)

Streamline the Investment Processes
Since the inception of the system, OST staff members have been able to focus on other projects because the system has streamlined the process by eliminating much of the manual labor from the trading process. The reduced trade times and elimination of paperwork, resulting from the use of the system, provides for a more efficient process for staff within the agency.

Public Value of the project

User Benefit
The Electronic Trading System provides two major benefits to the OST broker community:
1) reduced trade time and 2) reduced paperwork. This provides brokers with more time to earn money on other investments.

> "OSTbid helps to level the playing field from primary to regional dealers by allowing the broker community the flexibility to go directly to the trading desk. With built-in safeguards like the broker's 60-second quote confirmation, the application is also flexible to market movement. It certainly instills the e-bay mentality. It also takes away the paperwork," said Mike Minahan, Vice-President, JP Morgan Securities Inc.

Taxpayer Benefit
Because OST gains higher earnings on investments through increased competition, Oklahoma taxpayers directly benefit by receiving additional dollars to allocate to state projects.

Agency Benefit
Due to the built-in trade report system, additional time and money are saved by OST. The report system reduces paperwork associated with conducting a trade and the time spent on the paperwork by OST staff members. OST is also able to provide auditors and brokers with reports detailing each transaction from all trades.

State Benefit
OST is able to conduct trades with an unlimited number of brokers per session; thus increasing the competition and the state's returns on investments.

Return on Investment
No formal return on investment analysis was completed for the application; however, OST estimates an average savings of $300,000 per year in staffing costs. OST has invested less than $15,000 into the development of the trading system. Within 3 months the system paid for itself through the above benefits mentioned.

Current Adoption Rate
The users of the application consist of brokers from authorized financial institutions. Most of the brokers were participants of OST's traditional form of trading (via phone). In order to facilitate the process of transferring the brokers from traditional trading to the new electronic trading process, training classes were scheduled in Oklahoma City and Tulsa, OK. The training classes were open to brokers and other interested parties from authorized financial institutions. Brokers from Oklahoma, Missouri, Texas and Kansas attended the training classes. The classes provided an opportunity for

OST to train the brokers, promote the application, recruit new brokers, and receive valuable feedback.

As a result of the training classes, OST increased the number of participating brokers by 32%, which has increased competition and state revenue. Registered brokers represent institutions such as AG Edwards, Bank of America, Bank of Oklahoma, JP Morgan Securities Inc., Merrill Lynch, Morgan Stanley and Salomon Smith Barney. Since June 2006, three new participating institutions have been added to the system which has increased the number of brokers by an additional 36%.

User's guides are utilized as a tool for promoting and educating the public about the electronic trading process. Per request, OST will provide a user's guide to interested parties. The user's guide depicts the entire trade process and allows OST to give a visual presentation without having to conduct a mock trade session with the new system.

OST also distributes one page, two-sided, color flyers at meetings and conferences. The flyers allow OST to present the application in a brief, concise, visual manner. The flyer provides readers with a basic description of the electronic trading process and the benefits received from utilizing the system.

The application has performed beyond its expectations. The system has almost doubled the usage rate. The projected usage rate was 1 to 2 trade sessions per week with traditional methods. Since inception of the system, OST has averaged over 2 trade sessions per week. Brokers have shown great support and participation in the application. Their feedback has increased our enthusiasm for the application and its future development. OST administrators are greatly pleased with the application's performance; in turn, OST and OK.gov are currently in the process of developing five additional trade types to incorporate into the application: Agency Discount Note Buy, Agency Discount Sell, Agency Bullet Buy, Agency Bullet Sell, and Agency Less than One Year Buy.

This solution for OST state investments was developed using PHP 5.1.2 and is supported by an Oracle 10g database. It runs on the Apache 2 Web server. The equipment used to house the application is an IBM Blade Center. The specific activities and operations of the program are listed below in chronological order.

Upon initial visit of the site, the following options are available in the left navigation menu:
- Login and Password entry fields
- Forgot password utility
- Main Menu link (active after login)
- Search Historical Trade Information Link (active after login)
- Contact Information Link
- User's Guide Link (active after login)
- FAQs Link

The Process of a Trade
The OST Electronic Trading Process utilizes a consistent flow for user-friendly transactions amongst all users, utilizing the same template:
- The Treasurer's Investment Officer creates a trade session by completing a session setup form. The OST Investment Officer may set the session to run for 5 or 10 minutes.
- After the Investment Officer creates a session, an email notification is sent out to all brokers.
- Participating brokers then log in to the upcoming session.
- OST Investment Officer activates the trade session.
- Once the session begins, the brokers submit quotes utilizing one of two options: 1) fraction or 2) decimal. The system will convert the fraction to decimal. (see Image A)
- Broker confirms quote.
- Quotes are displayed at the top of the broker's screen in chronological order. If they have a current best quote, it is highlighted in blue.

- The OST Investment Officer's screen displays the incoming quotes from the brokers. The best quote is highlighted in blue. (see Image B)
- For compliance purposes, the Investment Officer screen only displays a Unique Login ID for each broker, ensuring anonymity. Each broker is assigned a Unique Login ID per trade session.
- The built in automatic refresh function updates the quotes every two seconds. Once a session has expired, the Investment Officer may accept the best quote, or decline all quotes.
- If the OST Investment Officer accepts the best quote, that broker will receive an acceptance notification and has 60 seconds to confirm or deny their quote.
- Upon acceptance, the broker with the best quote receives a notification screen congratulating them on having the best quote. All other participating brokers receive a notification informing them they did not have a winning quote and what was the winning quote.
- The ability of the application to generate reports is available to all users, allowing them to search previous trading sessions and review details of the session. Such details include the winning quote and institution; as well as, other non-winning quotes and their respective institutions. The requested report appears with a "Printer Friendly" version and a "Downloadable CSV" version of the report.
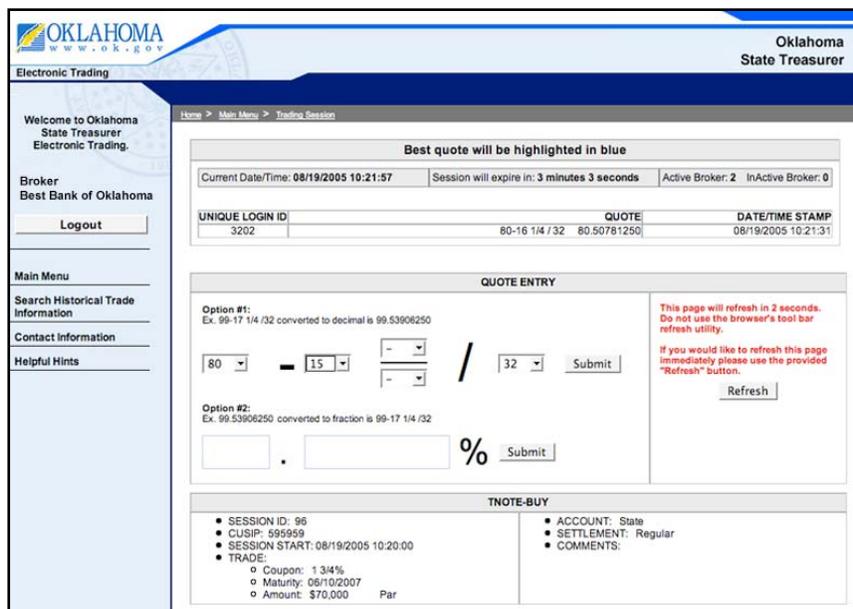

Image A: Broker's screen during a trade session. Recent quotes from the broker are displayed at the top. If the broker has the winning quote, it is highlighted in blue. Broker submits quote as a fraction or as a decimal. Application utilizes formula conducive to Bloomberg results converting fraction quotes to decimals. System ranks quotes in order of decimal; highest to lowest for T-Note Sells and T-Bill Buys; and lowest to highest for T-Note Buys and T-Bill Sells.

Image B:
The Investment Officer's screen during a trade session displaying a listing of all quotes. The best quote is highlighted in blue. The built-in auto refresh utility refreshes the screen every two seconds, displaying the most recent quotes. The Investment Officer may terminate the session by selecting the "Stop Session" button.
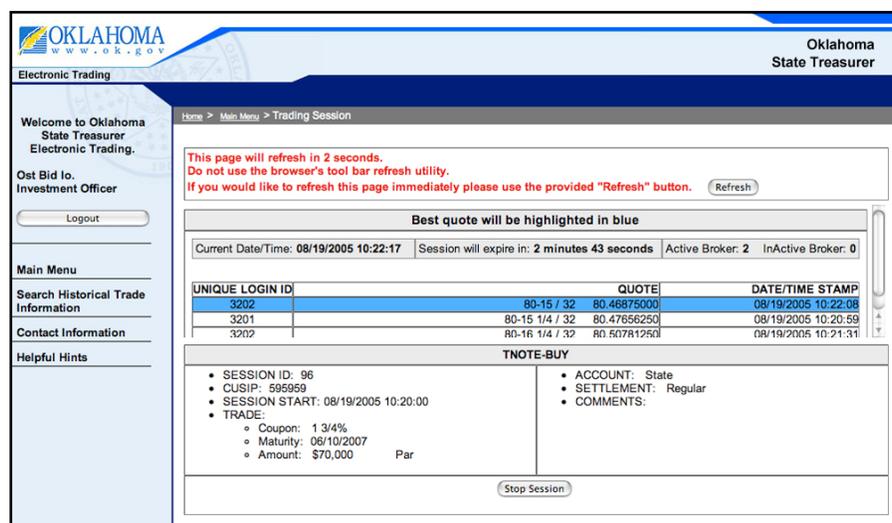
Home > Main Menu > Trading Session Report > Session ID - 430

Trade Ticket - TBILL-BUY

Session ID:	430
Session Start (mm/dd/yyyy hh24:mm:ss):	02/27/2007 14:10:00
Session End (mm/dd/yyyy hh24:mm:ss):	02/27/2007 14:15:00
Status:	CLOSED - Confirmed

ACCOUNT		
State ☐	Agency ☒	Fiduciary ☐

TRADE	
CUSIP 912795ZH7	
Maturity 05/24/2007	$22,000,000 Discount ☐

SETTLEMENT		
Cash ☐	Regular (+1) ☒	Skip ☐ On:

COMMENTS
NOTE: I AM BUYING FROM YOU. THE PREVIOUS TRADES WERE RENEGED. This trade needs to be broken down into a $12MM and $10MM trade.

Winning quote will be highlighted.

UNIQUE LOGIN ID	QUOTE	DATE/TIME STAMP	CONFIRMATION
Jp Morgan Securities Inc	5.011%	02/27/2007 14:12:12	ACCEPT
Bank of America	4.99%	02/27/2007 14:11:04	-
Capital Markets Group	4.99%	02/27/2007 14:10:44	-
Merrill Lynch			-
Wachovia	5.005%	02/27/2007 14:11:17	-
B B And T Capital Markets	4.96%	02/27/2007 14:14:48	-
Sanders Morris Harris Inc			-
Raymond James And Associates	5.005%	02/27/2007 14:11:05	-

Winning Institution		
Jp Morgan Securities Inc	5.011%	02/27/2007 14:12:12

Bloomberg Market Rate: 5.01%   98.8170833

INVESTMENT OFFICER

Close this Window

3/20/07 2:35 PM

End-to-end, the OST Electronic Trading System operates with easy-to-use functionality resulting in an application that is highly complex on the back-end, but is simple on the front-end for participating businesses.