

The top 21 CTOs in North American electronic trading

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We have compiled a list of the top 21 Chief Technology Officers in the electronic trading industry, operating in North America.

The following 21 CTOs were selected based on a survey distributed through our Total Trading blog with the following criteria in mind:

- Excellence in building and maintaining technological infrastructure
- Respected selection of technological products
- Influence on the electronic trading industry

Thank you to everyone who responded to our survey, and please feel free to share this publication with your colleagues.



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4 questions for our top 21 CTOs

We want you to gain a true insight into North America's top technology officers, so we asked all of them the same questions:

- 1) What has been your biggest achievement or accomplishment as CTO?
- 2) Which future technology or advancement do you see playing a large role in the electronic trading industry in the future?
- 3) What is a skill, trait, or experience that you discovered early in your career, which has enabled you to be successful today?
- 4) What is a fun or interesting fact that people might not know about you?

For their answers, flip the page for the list of our top CTOs and their responses...

In alphabetical order by surname

Sonny Baillargeon



Pico Quantitative Trading

<u>Achievement</u>: "Helping our clients solve the race to zero, as Pico is a thought leader in the industry, as well as providing a cost effective solution to latency sensitive clients is what I'm most proud of."

What will change? "The hybridization of hardware acceleration of software. Everything from compilers to FPGA - letting FPGA do what it does really well, which is the straight accelerated decoding, but leave the logic and software, and it may not be as fast as a pure hardware solution, but it's a hell of a lot more flexible."

<u>Valuable Trait:</u> "Early on I realized the business doesn't talk tech and the tech doesn't talk business, and I saw an opportunity to fill that gap."

<u>Fun Fact:</u> "I'm an avid guitar player but recently picked up the ukulele in favor of more mellow Jamming. I am a Taylor fan; I have a pretty sweet T5."

Michael Beller



TradeWorx

Achievement: "Architecting, and bringing to reality, the fastest commercially available trading system for U.S. Equities"

What will change? "Long haul microwave systems are going to have a big impact on trading. I'm excited about how big data technology and cloud computing can make the market more attractable."

<u>Valuable Trait:</u> "I learned a dedication to the science of engineering and the importance of assimilating old technology with new technologies. Staying hands on, data driven, and applying everything you know to every problem that comes across your desk has really been beneficial to me."

<u>Fun Fact:</u> "I learned to speak Hebrew at the age of 40."

Adam Besch-Turner



Toro Trading, LLC

Achievement: "I am proud of how Toro Trading has been able to utilize or build top notch technology that has enabled our trading while keeping costs to a minimum. There is that constant tension between build/buy while maintaining your IP."

What will change? "Compliant OMS's are going to be increasingly important. Speed is out there and if you are an ultra low latency trader you have to maintain that edge – and that will drive the lion's share of your technology budget."

<u>Valuable Trait:</u> "I came to trading from a technology background and that has made all the difference. Modern trading is about merging the best technology you have access to with top notch strategies and trading ability."

<u>Fun Fact:</u> "Now with three kids – they are pretty much my world. I still get to cycle to work a few days a week – and I am more into photography and tennis than ever."

Chad Cook



Lime Brokerage

Achievement: "Aside from all the technological innovations and advancements we have done, the biggest achievement for me has been the team and culture we created. We have one of the most talented groups I have worked with, and created a culture of innovation that is one of the best I have worked in. It is an honor to work with our great team."

<u>What will change?</u> "I believe we'll see new perspectives and valuable results that change our assumptions and increase our knowledge. The ability to leverage this new information, and automate operations around it, results in higher-performing organizations on many fronts."

<u>Valuable Trait:</u> "My focus on people and personalities; the psychology around how people interpret, motivate, and communicate is vital to any successful interaction or environment. I always try to understand how people process ideas in order to understand the conclusions they have made. I have found this allows me to more effectively help people become successful at their job, including me at mine."

<u>Fun Fact:</u> "I'm very interested in the intersection of people and technology."

Rob Cornish



International Securities Exchange

Achievement: "Our goal is to not only to be a technology provider and business enabler but also a key contributor to our corporate success. We start out by asking the business organizations what they need from technology in order for us, as a company, to be successful. Being clear about this strategy has resulted in: faster time to market for new functionality; lower technology expenses; and reduced market operational risk."

What will change? "New microprocessors, SDN (Software Defined Networking), Cloud Services, FPGA's (Field-Programmable Gate Arrays), mobile and microwave network technologies. More broadly though, I see significant changes in the way we run IT going forward as companies adopt organizational structures that support DevOps and begin treating infrastructure as code." Valuable Trait: "Surround yourself with smart people. Hire people smarter than yourself who will challenge your thinking and force you to expand your knowledge, which is what I have done at ISE." Fun Fact: "Grew up on a small farm in southern Minnesota where my grandfather and father raised corn and soybean. They taught me the values of hard work, determination and integrity in all that you do in life. Their passion for farming also inspired me to find my own passion, technology."

Jerry Dobner



GFI Group

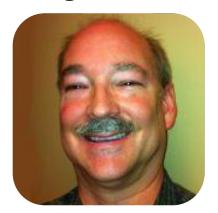
<u>Achievement</u>: "Upgrading GFI's trading environment from more of brokerage to something very close to an exchange. It's about automating the trading process front to back and being able to handle a large volume of trades."

<u>What will change?</u> "The computer-user interface will change. Also, we will see a lot more electronification of markets which do not have a lot of liquidity and by advancement they'll be able to match buyers and sellers."

<u>Valuable Trait:</u> "I love technology and still has have my original Sinclair ZX81. You have to understand both how the technology works and how the technology is used for your business applications."

<u>Fun Fact:</u> "I found a love for technology at the early age of 10 and would sneak into my father's office, read the Apple II manual, and program."

Craig Hellman



Ketchum Trading, LLC

Achievement: "When you first see a profitable trading system running that you've created from scratch — and I've had the good fortune to have that happen twice — I think that's always the most satisfying."

What will change? "The consolidation of exchanges and the less technology you have to deal with. As a technologist, you want to be able to hook up to the places you need to hook up to easily." Valuable Trait: "To look for solutions that everyone else isn't looking for is one thing that has really helped me a couple times."

<u>Fun Fact:</u> "I'm a big BMW enthusiast. I drive my meticulously restored 1977 320i as often as weather permits."

Richard Hochran



Direct Edge

Achievement: "I am proud of my pivotal role in reshaping our systems development life cycle process to migrate from a waterfalltype process to an agile process. This has resulted in shorter release cycles, and thus a quicker pace of successive upgrades. It has helped us become a nimble and disruptive force in a fiercely competitive field where we start each day with zero shares traded." What will change? "Definitely cloud computing with an emphasis on data. In particular, I believe that with ever increasing data set sizes and the required processing complexity, many of the data challenges around Business Intelligence and Analytics will move to the cloud." Valuable Trait: "Albert Einstein once said "If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions." I learned to develop that discipline very early in my career. You need to be tenacious and keep exploring until you have all the data you need to make the right decision."

<u>Fun Fact:</u> "Still photography. I find it interesting to look back and reflect on experiences and emotions from the past. Pictures really help bring those things back to life for me. It also allows me to freeze a moment in time and see details I might have missed the first time around."

Scott Ignall



Lightspeed Financial

<u>Achievement</u>: "I dealt with a large amount of growth in a short period of time and increased revenue 20-fold. Juggling the tightrope of cost vs. growth vs. organization has been one of my largest accomplishments."

What will change? "As long is we're all in this speed game arms race, I think wireless (microwave) technology will be here for the future."

<u>Valuable Trait:</u> "My business pedigree, because I started working at Datek which came out with Island, the first truly electronic ECN, and that was a very exciting time because that product shaped the electronic trading market."

<u>Fun Fact</u>: "I love to travel. My favorite place is Africa. I hope to see Cuba one day soon."

Fred Ling



Victory Networks

Achievement: "When I have customers telling me, "I loved how you came to us with that idea. It made such a difference to us. I did not even know that it was possible!" That's when I feel proud of my work."

What will change? "It looks like ultrahigh frequency trading is heading into a curve of diminishing return on investment. As trading system performance continues to improve across the board, the achievement gap is narrowing."

<u>Valuable Trait:</u> "Don't give up when things are not going well, but keep a cool head when everything is going your way. Don't take yourself lightly when you encounter obstacles, and don't look down upon others when you achieve. It is important to be able to analyze oneself critically under all circumstances."

<u>Fun Fact:</u> "I have loved to tear things down and build things up ever since I was a kid. Nowadays, having built from scratch a state-of-the-art audio system, I am more involved in making high resolution recordings for local musicians."

Keith Luo



Luo Capital Advisors

Achievement: "I led, designed and built 6 world-class, mission-critical, cross product electronic trading platforms in multi billions annually for global Exchanges and 2 Alternative Agency Trading Systems supporting 6,000 users at leading banks, hedge funds and asset managers in the past two decades in US and Asia."

What will change? "A fast, customized high performance solutions combined multiple core hardware. Non locking trading algorithms of software will increasingly play a big role in the electronic trading industry in the future."

<u>Valuable Trait:</u> "When I watched the first Olympic Games, I tried to figure out why some people won Gold Medals, why others did not. I concluded two points that I learned beyond the games. The first is seeking for perfection within your attainable limits. The second is relentlessly pursuing breakthrough of your own self improvement." <u>Fun Fact:</u> "People may not know that I am a lot older and much more mature than my face or age reveals of me. At frequent times, my unique combination of broad and in-depth expertise in electronic trading systems, business acumen of financial products and structure of financial markets, and influential leadership surprise people sometimes."

Matt Lyons



Geneva Trading

<u>Achievement</u>: "Putting a real-time performance monitoring solution in place based on Corvil appliances. It has allowed us to monitor and tune our environment with significantly less time and effort than was required previously."

What will change? "I expect electronic trading to continue to leverage already proven technologies. Two existing technologies with significant, untapped potential are touchscreen UIs for professional trading interfaces and cloud computing for risk management and back office purposes." Valuable Trait: "It's critical to surround oneself with excellent team members, listen to what they have to say, give feedback as needed, and trust them to execute what they promise. I believe people matter as much, if not more, than whatever technology I'm working with at the time."

<u>Fun Fact:</u> "While I was employed at Microsoft, I participated in quasi-annual events called "Microsoft Puzzle Hunts." They were basically 48+ hour marathons of solving logic, physical, and other various puzzles in teams of up to 12 people to complete an underlying "metapuzzle" ahead of other teams. It was a great outlet for both my competitive nature and my love of logic puzzles. My team won twice."

Mike Madigan



WH Trading

<u>Achievement</u>: "Helping build the team that took an open outcry trading firm from the floor to a global electronic trading presence."

What will change? "Risk management tools. Given the speed of trading, regulatory changes and industry issues"

Valuable Trait: "Tenacity and team work ... going after something

and not giving up until you accomplish your task, whether it is cutting through bureaucracy or marshaling a team to solve a difficult technology problem."

<u>Fun Fact:</u> "My wife and I have a very close family and have seven children of our own."

Edwin Marcial



Intercontinental Exchange, Inc.

Achievement: "I led the redesign of ICE's trading platform. During this time, we transformed the ICE trading platform architecture into an ultra high performance platform and it became the fastest energy trading platform in the world."

What will change? "I think the role of mobile technology in electronic trading will continue to increase. I can see firms controlling their algorithms from a mobile phone or iPad."

Valuable Trait: "The ability to identify the strengths of people on my team and put them in the best position to succeed."

Fun Fact: "I play 3B in a fairly competitive amateur baseball league in Atlanta. I also traveled (legally) to Cuba last year to play baseball."

Richard Radnay



XFT

Achievement: "Designed and managed a global trading desk that allows traders to arbitrage Exchange Traded Products in real-time. Designed the most comprehensive and accurate ETP website in the industry allowing fund managers to search for and compare ETFs using a proprietary ratings methodology and effectively use them in asset allocation strategies."

What will change? "Greatly increased transparency and access into electronic derivatives and fixed income trading. Wireless algorithmic trading and news-driven bots providing liquidity. An open market for trading carbon and services such as skills." Valuable Trait: "The ability to digest and communicate complex issues with clarity."

<u>Fun Fact:</u> "I love strategy and role-playing games. I have met most of my best friends in the intersection of finance and gaming."

Curt Schumacher



CBOE

Achievement: "The building and migration of CBOE's trading platform (CBOE Command) from Chicago location to east coast datacenter for latency improvements. On December 3, 2012, we flash cut entire trading venue to the new state of the art installation."

What will change? "Its all about latency and speed. Faster Intel chips, FPGA technology, and faster network speeds (40 gig and beyond). It's the race to the nano."

<u>Valuable Trait:</u> "Starting on the trading floor right out of college and learning the business side of CBOE and financial markets. This enabled me to apply business knowledge to technology decisions. Determine which technology decisions will be best for CBOE 's success and for our users (traders, member firms, etc)." <u>Fun Fact:</u> "Almost took a job at Enron in late 1990's. Think I made good decision to stay at CBOE."

Gil Tene



Azul Systems

<u>Achievement</u>: "The creation and bringing to market of a Java Runtime solution that appears to have changed the way Java is thought of in latency sensitive and response time sensitive applications."

What will change? "With the shedding of historic limitations around execution consistency, and with obstacles such as Garbage Collection stalls completely removed, the proven productivity, agility and lifetime cost benefits of Java are now available to electronic trading applications and the organizations that build and deploy them."

Valuable Trait: "I've always enjoyed taking on problems that required a re-thinking of fundamental principles. As I look through the solutions, products and technologies that I had successfully built throughout my career, I see a common thread running across them. My most successful projects usually involve doing something new, which often meant doing something that had previously been considered to be either "too hard", "too expensive", or "impossible."

Fun Fact: "I am a private pilot, a certified diver, and I've spent my share of time in the military. But practically speaking, I think the most dangerous activity I've regularly engaged in is snowboarding."

Viral Tolat



EBS

<u>Achievement</u>: "Getting the opportunity to work at EBS and taking it to the next level."

What will change? "Wireless and tablets."

<u>Valuable Trait:</u> "Learning how to explain complex system ideas in simple ways so that more people can understand it." Fun Fact: "I ski and scuba dive."

Robert Walker



xCelor

<u>Achievement</u>: "From a personal perspective I've finally managed to accomplish something I've struggled with for my entire career: hitting the right balance of building and managing great teams and projects while still being technical and playing a big part in technical design and implementation."

What will change? "With an upturn in volatility, I expect that solutions for the smart management of data will become more prevalent, and such technology will pay for itself as huge data volumes will no longer need huge resources to handle them."

Valuable Trait: "the most important trait for leaders in any domain is empathy. Teams are made up of unique individuals, and it's crucial to understand what makes each one of them tick if you're to run a successful team."

<u>Fun Fact:</u> "I'm a karaoke king! I love nothing more than to liven up a dying party by whacking on the SingStar."

Joshua Walsky



Broadway Technology

Achievement: "I would have to say Broadway's software platform itself is that achievement. Now, hundreds of billions of dollars a day are processed by this platform across many different customers in five continents."

What will change? "It isn't necessarily a single technology that will play a significant role, but rather firms' and peoples' ability to connect together lots of disparate pieces of technology. Any technology that can help achieve that will be impactful."

Valuable Trait: "Something I have always kept in the back of my mind even early on in my career was a deep-seeded belief that there is always a better way and a desire to find it. That takes patience, a willingness to try new things and a willingness to be wrong."

<u>Fun Fact:</u> "I ride my skateboard to and from work every day, commuting by skateboard."

Nigel Young



Spot Trading, LLC

Achievement: "We've created a culture and team that has the capability to build and operate world class technology."

What will change? "The competitive climate of our primary business, Proprietary Trading of US Equity and Index options, is one significant change. Heavy regulation and fierce competition. "At Spot we are just starting to scratch the surface of what we can do algorithmically."

<u>Valuable Trait:</u> "Being meticulous and focused in the execution of our strategy and then maintaining a steadfast level of patience to see those initiatives through to completion. Sometimes it takes such a long time to see results, and we all have to resist the urge to switch directions before we've given ourselves adequate time to capitalize on strategic investments."

<u>Fun Fact:</u> "I grew up in the North East of England (Yorkshire) and moved to the United States when I met my (now) American wife. We have two young children and live in Bucktown."

We thank all of our CTOs for their participation and insightful answers about both themselves and the electronic trading industry.

If there is a Top CTO we did not include, and you feel as though they should be properly recognized, please contact michael.ryan@terrapinn.com — we value your feedback!

We'd love to hear your views on all of this...

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We'd love to involve you too...

We're hosting The Trading Show Chicago on June 24-25, 2013 at the Marriott Downtown in Chicago. We would love to see you there! The Trading Show Chicago hosts three conferences: HFT World Chicago, Quant Invest Chicago and Exchange Technology World Chicago.

It focuses on everything the trading sector needs to know:

- · How to build or buy the most effective technology
- How to achieve lower latency
- · How to optimize quant portfolios through strategic risk modeling and diversification
- · How to comply with regulation governing the trading industry
- · How to achieve higher trading returns

Attended by traders, quants, HFT firms, hedge funds, asset managers, institutional investors, exchanges, investment banks and brokers!

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