



Cboe Global Markets  
Technology Integration  
Customer Conference Call

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**CORPORATE PARTICIPANTS**

**Gary Compton**, *Vice President, Corporate Communications*

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## **PRESENTATION**

### **Operator**

Good morning and welcome to the Cboe Global Markets Technology Integration Customer Conference Call. All participants will be in listen-only mode. Should you need assistance, please signal a conference specialist by pressing the star key followed by zero. After today's presentation, there will be an opportunity to ask questions. The Q&A is intended for customers only. To ask a question, you may press star, then 1 on your touchtone phone. To withdraw your question, please press star, then 2. Those listening through the webcast may submit questions throughout the event by typing your question in the Submit Question box on your screen. Questions will be addressed after the prepared remarks have ended. Please note this event is being recorded.

I would now like to turn the conference call over to Gary Compton, Vice President of Corporate Communications at Cboe Global Markets. Please go ahead.

### **Gary Compton**

Thank you Laura, and thank you all for your time today. Joining us for today's call are Chris Isaacson, Executive Vice President and Chief Operating Officer; Andy Lowenthal, Executive Vice President and Co-Head, Markets Division; and Eric Crampton, Senior Vice President, and Chief Technology Officer. Following their prepared remarks, we will hold a Q&A session for customers only. Also joining us for the Q&A will be Troy Yeazel, Senior Vice President, U.S. Operations; and Anthony Montesano, Vice President, Market Structure and Functionality.

Customers on the phone can queue up for questions by following the operator instructions at the end of today's remarks. If you are online, you may submit a question via the box and Submit Question button on the right-hand side of your screen. If you are a journalist or analyst, please reach out to our Corporate Communications and Investor Relations teams, and they will address any questions you may have, separately.

As a preliminary note, you should be aware that this presentation contains forward-looking statements which involve some risks and uncertainties. Actual results may vary. Please refer to our filings with the SEC for more detailed information about these risks and uncertainties. Also note that references made to the planned migration of the Cboe Options Exchange is subject to regulatory review. All plan dates and timelines are subject to change without notice.

Now, I'd like to turn the call over to Chris Isaacson.

### **Chris Isaacson**

Thank you, Gary, and welcome, everyone. Thanks for joining us today for the call. It's been a few months since our last call in November, so I want to take this opportunity today to highlight where we're at on the C1 migration schedule and what's next as we've entered a very critical phase in the migration. But before that, I want to briefly touch on the changes in our senior management team we announced in January, including my appointment as COO and Eric Crampton's promotion to Chief Technology Officer.

I know I speak for all of us at Cboe when I say we could not be more pleased at Eric taking on the newly created role of CTO at Cboe. Eric is a world-class technology leader and financial industry professional and, as CTO, he's leading software engineering globally, quality assurance and project management for the company. Eric and I have been working closely together for over ten years and throughout the entire Cboe technology migration and, as I've moved into the COO

role, I'll continue to work closely with Eric and his team, along with the entire Cboe team, to take our final Cboe Options Exchange, or C1, migration across the finish line. Congratulations again, Eric. I know that you'll continue to deliver leading-edge technology to our customers.

Over the last few years, we've hosted a series of conference calls for the CFE and the C2 migrations. Your participation in those previous calls and your active engagement with us throughout this integration process has helped to make each of those migrations go seamlessly. We thank you for that and ask for your continued support this year as we work toward completing the C1 migration on October 7, 2019.

Today's call is our second dedicated exclusively to the C1 migration to Bats technology. The more feedback you can share with us along the way, the better we will be able to assist you in your preparations throughout the certification and testing phases in our lead-up to October 7<sup>th</sup>. We are fully aware that the work required for these migrations has been a big ask of you and recognize the additional work you and your teams will be putting in to meet our planned October date. This is especially true with the C1 migration, which will be the most complex yet. We have been and will continue to work alongside you over these next seven or so months to ensure you're ready to go on day one.

Leading up to October, we are providing several resources to help you prepare for the migration, including a series of conference calls, regular updates to the integration website, multiple testing opportunities and ongoing customer meetings, which have been extremely constructive thus far, and Andy will touch on that in a minute.

With the migration of C1, we look forward to providing a better trading experience with proven technology that seamlessly integrates electronic and open-outcry trading. We also look forward to being able to provide our customers with a single, world-class trading experience across all our equities, options and futures markets. We think this will be a real game changer, not only for Cboe, but for all of you. So, as we aim for October 7<sup>th</sup>, the Cboe team remains focused on executing a seamless technical and operational integration.

On today's call, I'll provide updates on our upcoming key milestones, the rollout schedule and where you can find information related to the C1 migration. And Eric will touch on the nine feature packs. But before I dive into all the migration details, let me hand it over to Andy to share a product update and feedback on our ongoing customer meetings to this point.

### **Andy Lowenthal**

Thanks, Chris, and let me add my welcome to everyone on the call today. It's nice to speak with you all again. As part of my Cboe business update, I'd like to highlight some new product developments and then share a quick word on our ongoing outreach efforts with you, which have really intensified since the beginning of the year.

Starting on the product front, it's been a busy few months. At CFE, our newest futures product, the Cboe<sup>®</sup> iBoxx<sup>®</sup> iShares<sup>®</sup> \$ High Yield Corporate Bond Index (IBHY) futures and Cboe<sup>®</sup> iBoxx<sup>®</sup> iShares<sup>®</sup> \$ Investment Grade Corporate Bond Index (IBIG) futures, which launched last fall, are off to a strong start. Market quality in the futures is on par with the respective ETFs, HYG and LQD, and open interest reached over \$60 million notional earlier this month. CFE's Corporate Bond Index futures have experienced several trading sessions where daily volume has surpassed \$30 million notional, as investors are beginning to recognize the products' utility, such as hedging corporate credit risk and simple allocation to the broad U.S. corporate bond market. We're

pleased to offer the only exchange-listed futures products linked to U.S. corporate bonds and look forward to growing this space.

On the option side, we have two notable developments in our S&P product suite, the launch of S&P Select Sector Index options on the Cboe Options Exchange in February and the planned listing of XSP options and our Cboe EDGX Options Exchange in April. Our Select Sector Index options are designed to provide exposure to 11 key U.S. equity sectors and offer investors new ways to efficiently incorporate sector investing into their portfolios, which has become a popular strategy in recent years. These sector options should also have great appeal to European investors, particularly in Germany and the UK, many of whom are unable to use ETFs or ETF options due to the strict regulatory constraints that dictate what products they can use. And the initial feedback we've received has confirmed this view. We also anticipate that U.S. asset managers who trade index options being early adopters.

Turning to our other S&P product development, we're looking forward to listing XSP on the Cboe EDGX Options Exchange next month. XSP is our mini-contract designed at one-tenth the size of the SPX. We think listing the retail-focused XSP contract and our retail-focused Cboe EDGX Options Exchange will provide a new, competitive alternative to SPY options. We believe our XSP options on Cboe EDGX will provide competitive pricing and tighter spreads. Further, we think the contract specs with cash settlement and European-style exercise, along with potentially beneficial tax treatment, will provide real advantages for our customers. Through the listing on Cboe EDGX, we're targeting active retail traders, along with registered investment advisors, as two key user groups. In anticipation of next month's Cboe EDGX listing, a number of market makers have expressed interest in participating in trading as flows develop.

Lastly, last week we announced an agreement with MSCI to develop a suite of strategy benchmark and volatility indexes based on MSCI's Emerging Markets and EAFE indexes. The new Cboe-MSCI benchmarks are expected to be designed in the same manner as our widely followed performance benchmark and volatility indexes on Cboe's S&P Dow Jones and FTSE Russell derivatives index products. We expect that BuyWrite, PutWrite and Volatility indexes will be the first benchmarks developed on the MSCI indexes.

Turning to the C1 technology migration, we've been focused on maintaining an active dialogue with you as you prepare for migration. We've been working closely with you throughout all of the migrations the past couple of years, but starting in January, we really ramped up our efforts to engage with you. We've intensified our schedule of one-on-one meetings, along with continuing to host our regular monthly technology and new product meetings. We are committed to maintaining this accelerated pace of outreach right up to October, as we work with you to get ready for the C1 migration.

These one-on-one meetings have been constructive, and we have truly appreciated how engaged all of you have been with us. We have been having great two-way dialogue, and the feedback you've been providing, not only on the enhancements we've already implemented, but the features coming next, has been incredibly helpful. I should add that some of that feedback has been incorporated into our migration development work.

So I ask that you keep sharing your feedback with us. Don't hesitate to reach out to Anthony, Brian, Chris, Eric, or me at any time. You may also contact your business development or operations liaisons or simply e-mail [batsintegration@cboe.com](mailto:batsintegration@cboe.com).

As always, we will continue to look for ways to better serve your needs through cutting-edge trading technology, superior customer service, advanced trading solutions and innovative products. Our entire team is hard at work delivering on this mission each and every day.

I'll be happy to take any questions at the conclusion of our prepared remarks, but, for now, I'll hand it back to you, Chris.

### **Chris Isaacson**

Okay, thanks, Andy. Now let's turn to the details of the C1 migration. As you know, we've mapped out an aggressive roll-out schedule, and have hit all of our milestones to date. We're pleased to say that we're still on schedule with our original plan of October 7, 2019. In preparation for the C1 migration, and in an effort to unify our options functionality as much as possible across our four options exchanges, we're introducing nine feature packs across our BZX Options, C2 Options, and/or EDGX Options Exchanges, subject to regulatory review and approval.

Rollout of the feature packs began in November and will continue through the third quarter of this year. As mentioned on the November call, the nine feature packs are related to: firstly, entitlements and reserve orders; second, quoting interface; third, electronic Secure Web API for post-trades; fourth, market data; fifth, simple order options; sixth, All-or-None orders; seventh, global trading hours in the opening process; eighth, complex crossing; and ninth, complex orders with stock legs.

The first four feature packs are already complete, with production rollout of feature pack five planned for this Thursday, March 21, and feature pack six on Thursday, May 2. Eric will have more details on the feature packs in a bit.

Beginning on February 1, we started accepting new 1G and 10G physical connections to the new C1 platform. Please be aware that C1 will have dedicated network infrastructure and customer connections, separate from our other U.S. equity, options or futures exchanges. Additionally, please note that Equinix is offering a waiver for the initial cross-connect install fee and up to six months of the Equinix Monthly Recurring Charges for cross connects run to the new C1 latency equalized network. Please be sure to contact your Equinix representative directly to obtain the paperwork necessary to obtain the waivers. And, of course, Cboe will not bill for these connections prior to October.

On March 4, we opened the new C1 certification environment for testing. All C1 TPHs, vendors and ISVs must certify to the new platform. We encourage all participants to start getting connected and to order their certification logical sessions using the Logical Port Request Form available in the Customer Web Portal. Completing your certification script, which is also available in the Customer Web Portal, will ensure your readiness for migration as well as ensure you are allowed to participate in daily production testing with test symbols in the new C1 NY5 production environment, which will be offered Monday through Friday, starting on May 6.

The next upcoming key dates on the migration timeline will be at the beginning of April when logical order entry sessions, FIX, BOE and BOE Quoting, will be created for each participant in the new production environment. It is important to note that customer order entry sessions in the new production environment will be created based on logins in use on the legacy C1 platform as of April 1.

Additionally, a single FIX DROP port will be created for every firm as well, and firms should work with the Cboe Trade Desk to ensure their DROP lines are set up to DROP the expected data.

Firms are expected to review logical sessions on the new platform any time after April 2 to ensure the number of ports is appropriate and default settings are acceptable. Any sessions existing on the new platform will become billable in October. Firms may begin ordering additional logical ports or requesting unnecessary ports be deleted within the new production environment after April 2 within the Customer Web Portal.

We plan to conduct a series of five weekend tests in the new C1 production environment, with the first weekend test scheduled for June 15 and the remainder of weekend tests running each month up until migration in October. The five customer weekend tests are planned for June 15, July 27, August 24, September 14 and October 5, the final Saturday before migration. Please make sure to get these testing dates on your calendar for 2019 if you have not already done so.

To facilitate effective testing, OPRA is expected to participate in each weekend test, and OCC intends to participate as well. Customers should plan to participate in as many of these weekend tests as possible. I want to also reiterate we anticipate enabling the new C1 production environment for testing with test symbols on May 6.

As was the case for CFE and C2, there will be no parallel period. The planned migration date of October 7 is a hard cut-over, and the legacy platform will be shut off.

I'm now going to hand the call over to Eric, who will cover the feature packs in more detail.

### **Eric Crampton**

Thanks, Chris. We just alluded to the nine feature packs, but I want to take a moment to highlight the first four that have already rolled out.

Feature pack one became available on November 29 and introduced the enhancements related to DPM entitlements and reserve orders, specifically, DPM small order entitlement allocation, implementation of reserve orders, implementation of new EFID group risk control, OCC customer ID and clearing member optional data field mapping and new behavior for sell market orders in the no bid series.

Feature pack two became available on January 17, and introduced enhancements related to the quoting interface, specifically the new BOE Quote Update message allowing firms to submit up to 20 updates via a single message on BZX, C2 and EDGX Options Exchanges. With this release, it is important to note that the existing Bulk Order message will be deprecated effective March 29, in favor of Quote Updates. Feature pack two also included new risk reset functionality.

Feature pack three went live on February 1, enabling members to utilize the Secure Web API Edit Service. Specifically, members are now able to retrieve trades, view trades that have already been edited and re-cleared and submit edited executions to OCC for re-clearing. Members can now also split single executions into multiple executions and apply post-trade clearing corrections to each new resulting execution.

Feature pack four was launched into production at the end of February and bundles material market data changes for BZX, C2 and EDGX. Specifically, the Global Trading Hours status field was added to the Trading Status message, enhancements were made to simple symbol mapping and complex instrument definition messages, and the Client ID Field was added to Add Order and Auction Notification messages. For more information on each of the enhancements within feature pack four, see the Trade Desk Notices on [markets.cboe.com](https://markets.cboe.com).

This Thursday, March 21, Cboe will introduce multiple enhancements to simple order auction functionality for EDGX for feature pack five, specifically, AIM harmonization with BAM; BAM will be renamed to AIM; addition of Sweep and AIM Auctions, and an update to QCC to support sending execution information for a separately-executed stock leg. Testing for feature pack five is now available in the EDGX options certification environment. Both Anthony's and Troy's teams will be closely working with you as we implement this new functionality on Thursday.

Turning to the final four feature packs, feature pack six will introduce All-or-None orders and SUM auctions. Testing of the new AON order functionality will be available on EDGX starting April 5, with rollout scheduled for May 2. As mentioned previously, feature pack seven relates to global trading hours opening process; feature pack eight relates to complex crossing; and feature pack nine relates to complex orders with stock legs. We'll announce the certification and production dates for the last three feature packs in the near future via Trade Desk Notices. We'll also have additional information on each of the feature packs as they roll out. In the meantime, for all the latest information, refer to the integration website.

With that, I'll hand it back to Chris.

### **Chris Isaacson**

Thanks, Eric. Lastly, I wanted to touch on the PAR workstations on the trading floor as we continue to upgrade those terminals with a two-phased approach. Phase one, or PAR 2.0, was successfully completed at the end of 2018 as legacy PAR was decommissioned and replaced by PAR 2.0. This phase incorporated a new user experience and functionality to interact with the legacy C1 Command platform. Phase two, or PAR 3.0, will interact with Bats technology and will incorporate exchange platform changes to enhance order handling and market data delivery to PAR. The target completion date of this phase will be the ultimate C1 migration date of October 7.

The Cboe Floor Support Team is working with users to prepare for the final migration. Product demonstrations and opportunities to interact with PAR 3.0 will be available at the Reporting Desk at Post 10 throughout the rollout period as new functionality is added. If you have any questions related to PAR 3.0, please reach out to the Cboe Trading Floor Operations Team, Market Structure and Functionality Team, or the Operations Support Center.

We've referred to the integration website a couple of times. I'd like to remind you the integration website is at [batsintegration.cboe.com/C1](https://batsintegration.cboe.com/C1). It's where you can find all the resources related to the C1 migration.

On the integration website, you can view the technical specifications, which includes the connectivity manual, market data specs, FIX and BOE specs and other related materials. Additionally, we have published a comprehensive FAQ, which covers a host of issues related to technology, certification, market data, billing and other items. You can also view the planned migration timeline, platform change matrix, new platform features and downloadable implementation guides. The website continues to be the source to find complete information on our series of customer calls, dates, times and call-in or webcast details for upcoming calls, along with archived materials from previous calls. We will be regularly adding to or refining the resources on the integration site, so I encourage you to look there regularly.

As usual, we've covered a lot today, so while the operator prepares for questions, I'd like to recap some of the key points we've touched on. It will be an exciting almost seven months as we prepare for the planned C1 migration to Bats technology on October 7. We are right on schedule,

but we still have a lot of work ahead of us. Rest assured we are laser- focused on delivering on the target date of October 7. We'll be working closely with you to make sure you're ready for day one.

Last month we started accepting new physical connections to the new C1 platform in either 1G or 10G connection speeds. A couple of weeks ago, we opened a new certification environment for testing. All C1 TPHs and vendor ISVs must certify to the new platform using BOE or FIX, so we encourage all participants to start getting connected soon.

On April 1, logical order entry sessions will be created in the new production environment, and on April 2, customer review of the existing logical ports on the new platform will commence. On May 6, daily trading of test symbols only will become available in the new C1 production environment. We'll have our first weekend test on June 15, followed by an additional Saturday test each month leading up to October.

The first four of our nine feature packs have been rolled out. This Thursday we'll go live with feature pack five, which are enhancements to simple order auction functionality. Feature pack six will be available for testing in the EDGX certification environment starting April 5.

Work is underway on PAR 3.0. The second phase of upgrades to the PAR workstations on the trading floor are scheduled to be completed on the ultimate C1 migration date.

And, lastly, the C1 migration to Bats technology on October 7 will be a hard cutover without a parallel production period.

You can find complete information and resources related to the C1 migration at our dedicated migration website. Again, this is found at [batsintegration.cboe.com/C1](https://batsintegration.cboe.com/C1).

Our team is hard at work on this migration and remains focused on executing a seamless technical and operational integration. We remain committed to ensuring you continue to enjoy the same great trading experience and superior customer service you've always enjoyed working with Cboe Global Markets. Please do not hesitate to contact our business development or operations teams with any questions you may have on the integration or any of these key initiatives.

With that, I'll hand the call over to our operator to begin the Q&A session.

## **QUESTIONS AND ANSWERS**

### **Operator**

We will now begin the question-and-answer session. To ask a question, you may press star, then 1 on your touchtone phone. If you are using a speakerphone, please pick up your handset before pressing the keys. To withdraw your question, please press star, then 2. You can also submit questions through the webcast by typing your question in the submit question box on your screen. At this time, we will pause momentarily to assemble the roster.

[Pause]

And we have no audio questions at this time.

**Chris Isaacson**

And, operator, I don't view any online questions either at this time. Just double checking that that's the case. Operator, we'll give it another 30 or 60 seconds to ensure somebody's not trying to submit a question.

**Operator**

We are still showing nothing on the audio side.

**CONCLUSION****Chris Isaacson**

Well, hearing no questions, I think this concludes the call today. I just want to thank you all for joining. We take the lack of the questions to mean that our outreach has been effective thus far, and we ask that you continue to remain very engaged in this pivotal integration for us. Thank you for your feedback thus far. We look forward to being in touch as we get closer to migration.

Actually, as I'm finishing up here, I just received two questions online that I do want to address or have somebody on the team address. The first question comes from Adam at DRW. *"Any updates with regard to MMTN floor API messaging?"* I'll let Anthony Montesano answer that.

**Anthony Montesano**

Sure. Thanks for the question, Adam. So, yes, we are planning to have MMTN functionality from PAR 3.0 as we have from PAR 2.0 currently and had from PAR 1.0 prior to the building of the new system. One of the interesting aspects of this too, that I'll add, is that PAR will also be enhanced to support open-outcry FLEX transactions to bring those more in line with normal processing and even the FLEX-executed orders that will be transacted from PAR going forward will generate MMTN so that the full suite of PAR executions in open-outcry will translate into the MMTN message, so you can get those into your positions quickly.

**Chris Isaacson**

Okay. Thanks, Anthony, and thanks, Adam, for the question. The second question comes from Michael at Group One. *"Is the Cboe Exchange being officially renamed to C1?"*

The answer is no. C1 is just an internal and external abbreviation that we use, because it's easier than saying Cboe Options Exchange repeatedly, and it allows us to distinguish between Cboe derivatives markets as well. So, you'll continue to hear us refer to it as "C1," but it's still officially the Cboe Options Exchange.

**Chris Isaacson**

Well, seeing no further questions, thank you again for joining the call today and for your engagement on this very pivotal integration for us. Have a great day.

**Operator**

The conference is now concluded. Thank you for attending today's presentation. You may now disconnect.

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