

MARKETS

SPEAKER

Upcoming Globex Initiatives

Elizabeth Gisch, Managing Director,
Global Market Solutions & Services,
CME Group

Agenda

1. Upgrade of the GLink Network Infrastructure
2. Migration to iLink 3 on Convenience Gateway (CGW)
3. Product Reference Data & New RDW
4. New Market Data via Websocket
5. CME STP on Google Cloud
6. CME FedWatch API on Google Cloud

CME Group Upgraded GLink Network Infrastructure in Aurora

Expanded capacity to support future growth

Upgraded GLink at the CME Co-Location Facility in Aurora, IL

- Introduced new Arista switches to replace End Of Life (EOL) Juniper switches
 - Maintained the proven GLink architecture: a Layer 3 network in a leaf and spine configuration
 - Expanded network capacity from 12 switch pairs to 24 switch pairs to support growth
- All Aurora GLink customers successfully migrated on Saturday, February 3, 2024

New GLink Network Details

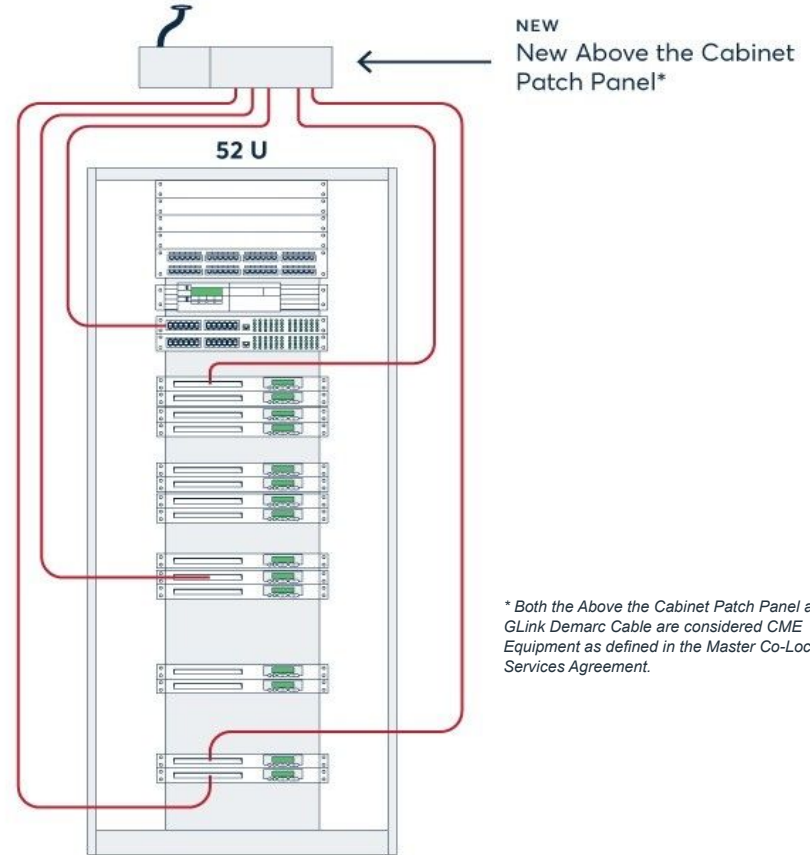
- GLink network upgrade included all new fiber cabling, new Demarc Cable, new monitoring, etc.
 - GLink Demarc Cable allows customers to optimize their CME Co-location Licensed Space
 - Equidistant connectivity within each cabinet
 - Delivered via the new, above the cabinet, patch panel
-

CME Group Upgraded GLink Network Infrastructure

GLink Demarc Cable

- Delivered via the Above the Cabinet Patch Panel
- Equidistant cable used for all GLink connections
- Long enough to provide connectivity to any rack unit (RU) within the customer's cabinet
- Extends equidistant point for GLink in Aurora to the customer end of the cable
- Armor coated to provide additional protection and security

NEW
GLink Demarc
Cables Provided
by CME Group*



* Both the Above the Cabinet Patch Panel and GLink Demarc Cable are considered CME Equipment as defined in the Master Co-Location Services Agreement.

Agenda

1. Upgrade of the GLink Network Infrastructure
2. **Migration to iLink 3 on Convenience Gateway (CGW)**
3. Product Reference Data & New RDW
4. New Market Data via Websocket
5. CME STP on Google Cloud
6. CME FedWatch API on Google Cloud

iLink 3 on Convenience Gateways (CGW)

Simplifying client adoption across APIs for CME Globex

History of Simple Binary Encoding (SBE) for CME Globex APIs:

- First introduced for market data in 2016 on MDP
- Extended to order entry in 2020 on iLink 3 for the Market Segment Gateways
- Implemented for BrokerTec and EBS for CME Globex at launch (2021-2022)

iLink 3 now available for futures and options Convenience Gateways, completing the implementation across CME Globex APIs.

SBE Benefits:

- A consistent encoding method for Globex order entry and market data
- Faster and more efficient message encoding and decoding
- Standard message size, fixed positions, and fixed length fields
- A simple, lightweight, point-to-point session layer protocol using [FIX Performance \(FIXP\)](#)

Single Encoding Format For Order Entry and Market Data

iLink 3 on Convenience Gateway (CGW)

- Following the successful launch in the New Release testing environment in May 2023, iLink 3 on CGW launched in Production in January 2024.
- Plan your migration now! Certify your application & create iLink 3 session IDs
- Port activation and MIC charges for iLink 3 CGW sessions are waived until 31 October 2024.

Migration Timeline		Customer Actions
January 28, 2024	Production launch of iLink 3 and start of production parallel	Certify application (if applicable) Create new session IDs Begin trading in production parallel
December 31, 2024	Deadline for customer migration to iLink 3; surcharges begin in January (\$1,000 per week per session ID)	Cutover to iLink 3.0 before end of year
January 31, 2025	iLink 2.0 decommission; all iLink 2.0 sessions eliminated	

Drop Copy for iLink 3

Drop Copy CGW Migration Impacts

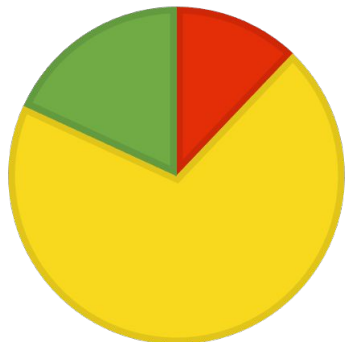
- Functional Certification is not required for existing Drop Copy CGW users
- Drop Copy for iLink 3 encoding will include additional tags and values
- As with iLink 2, the creation of new iLink 3 sessions may generate additional Drop Copy target sessions
 - A new target session may be automatically created to accommodate iLink order entry infrastructure load balancing and optimization considerations
 - Clients should continue to check in Request Center for new automatically generated Drop Copy target sessions
- Until January 31, CME Globex will support Drop Copy target sessions connected to both iLink 2 and iLink 3 CGW source sessions
- Once decommissioned, any Drop Copy target sessions with only iLink 2 sessions will be removed

Please see the [Client Impact Assessment](#) on the Client Systems Wiki for more information.

iLink 3.0 CGW Migration - APAC Vendor Update

VENDOR TOTAL SYSTEMS TRACKER

Red Amber Green



44 Global Vendors
20 Supporting APAC Sessions

Vendor	Status	Front End Deployment
• Trading Technologies	Scheduled Cert by end of Q2	TT will manage the upgrades. Client creates sessions.
• ESunny	Fully Certified	ESunny will manage the upgrades. Client creates sessions.
• CQG	Scheduled Cert by July	CQG will manage the upgrades. Client creates sessions.
• Fidessa	Scheduled Cert by August	Fidessa will manage the upgrades. Client creates sessions.
• Computer Voice Systems	Scheduled Cert by August	CVS will manage the upgrades. Client creates sessions.
• Sharp Point	Scheduled Cert by July	Sharp Point will manage the upgrades. Client creates sessions.
• Stellar	Fully Certified	Stellar will manage the upgrades. Client creates sessions.
• Deltix	Scheduled Cert by July	Deltix will manage the upgrades. Client creates sessions.
• Winway	Clients will certify	Clients will certify. Client creates sessions.

Agenda

1. Upgrade of the GLink Network Infrastructure
2. Migration to iLink 3 on Convenience Gateway (CGW)
3. **Product Reference Data & New RDW**
4. New Market Data via Websocket
5. CME STP on Google Cloud
6. CME FedWatch API on Google Cloud

Applications in Google Cloud Platform

Product Reference Data

Opportunity

As new global risk management needs emerge, the number of products and instruments at CME Group continues to grow

Challenge

In May 2023, capacity on CME Globex expanded from 1 million to 2 billion F&O instruments

Risk

Clients manually supported new instruments and product maintenance

Clients had high sensitivity to product initiatives

Manual processes are inherently higher risk and more expensive

Solution

CME Group has delivered the tools and services to help clients automate their product libraries

Product Reference Data

Including New Applications on Google Cloud Platform

Security Definition Messages on CME Globex MDP

- Instrument information only
- Specific to trading on CME Globex
- No relational information
- **Real-time view only**

Please note: FPRF and static product files are deprecated and will be decommissioned in the future. Clients are encouraged to plan their migration now!

Reference Data API on GCP

- Product and instrument information for clients to populate their own libraries via API
- Details for all CME Group venues and the CME Clearing House
- Deep and robust relational information
- **Real-time and limited historical view**

Reference Data Warehouse on GCP

- Product and instrument information for clients to view into CME Group libraries via BigQuery in GCP
- Details for all CME Group venues and the CME Clearing House
- Deep and robust relational information
- **Historical view only**

Agenda

1. Upgrade of the GLink Network Infrastructure
2. Migration to iLink 3 on Convenience Gateway (CGW)
3. Product Reference Data & New RDW
4. **New Market Data via Websocket**
5. CME STP on Google Cloud
6. CME FedWatch API on Google Cloud

CME Market Data Via Websocket

CME Globex Google Cloud MDP Launches in Review

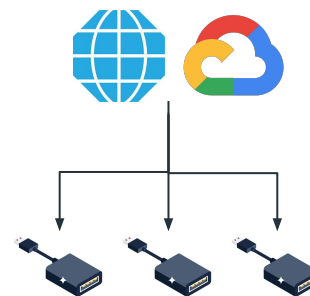
- In 2019: real-time SBE market data within Google Cloud
- In 2020: real-time JSON market data within Google Cloud
- In 2021: delayed SBE market data within Google Cloud

New - Market Data over Websocket

- WebSocket connectivity allows client market data connections via the internet
- Google account not required
- JSON Format
- Real-time Futures and Options data offered including:
 - Trade data
 - Market by price top of book
 - Market statistics (open interest, settlement and traded volume)
 - Security Status for Ixm & Product level (launching in April)
- Reference Data API required for instrument and product information
- Certification required
- [Contact Data Sales](#) for more information

CME Market Data Via Websocket Benefits

- Platform independence - connection via the internet
- Full-duplex, bidirectional communications
- Open standards utilized to ease client development
 - Websocket & JSON
- Built-in support for secure communication
 - Leveraging Google Cloud Security Technology
- Subscribe to and pay for data at a product level
- Compliments [CME Globex Order Entry APIs on Google Cloud](#)



Product (Futures)	Estimated GB per Month			Projected Monthly Cost
	Trades	Top of Book	Stats	
Corn	0.8	3.5	0.01	\$99.12
Crude Oil	4.83	3.5	0.01	\$191.80
E-mini S&P	9.72	3.5	0.01	\$304.24
Australian \$	0.49	3.5	0.01	\$92.03
3-month SOFR	2.72	3.5	0.01	\$143.18
Gold	2.14	3.5	0.01	\$129.90
Bitcoin	0.2	3.5	0.01	\$85.37

CME Market Data Via Websocket Benefits - Continued

SBE
Model

```
00000000 0000 0001 0001 1010 0010 0001 0004 0128
00000010 0000 0016 0000 0028 0000 0010 0000 0020
00000020 0000 0001 0004 0000 0000 0000 0000 0000
00000030 0000 0000 0000 0010 0000 0000 0000 0204
00000040 0004 8384 0004 c7c8 00c8 4748 0048 e8e9
00000050 00e9 6a69 0069 a8a9 00a9 2828 0028 fdfc
00000060 00fc 1819 0019 9898 0098 d9d8 00d8 5857
00000070 0057 7b7a 007a bab9 00b9 3a3c 003c 8888
00000080 8888 8888 8888 8888 288e be88 8888 8888
00000090 3b83 5788 8888 8888 7667 778e 8828 8888
000000a0 d61f 7abd 8818 8888 467c 585f 8814 8188
000000b0 8b06 e8f7 88aa 8388 8b3b 88f3 88bd e988
000000c0 8a18 880c e841 c988 b328 6871 688e 958b
000000d0 a948 5862 5884 7e81 3788 1ab4 5a84 3a8c
000000e0 3d86 dcb8 5cbb 8888 8888 8888 8888 8888
000000f0 8888 8888 8888 8888 8888 8888 8888 8888
00001000 0000 0000 0000 0000 0000 0000 0000
*
00001130 0000 0000 0000 0000 0000 0000 0000
0000113e
```

Data Handlers



Vendor Solutions



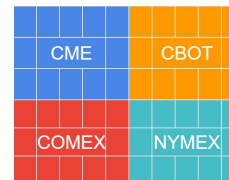
Advanced
Custom Code

Population



High Functioning
Programmers

Subscription



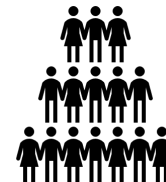
Channel Level

JSON
Model

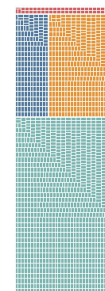
```
{
  "Payload": {
    "Instrument": {
      "DefinitionSource": "E",
      "ExchangeMic": "XNYM",
      "Id": "123456789",
      "MarketSegmentId": "58",
      "PeriodCode": "20181208",
      "ProductCode": "CL",
      "ProductGroup": "51",
      "ProductType": "EFT",
      "Symbol": "CLZ8"
    },
    "AskLevel": {
      "LastUpdateTime": "2018-11-08T09:29:32.123456789",
      "OrderCnt": 1,
      "Price": "61.00",
      "Qty": 10
    }
  }
}
```



Operable with Nearly All
Programming Languages



Entry Level
Programmers



Product Level

Globex Futures and Options Real-time Market Data Offerings

Feature	MDP 3.0	CME Smart Stream on GCP - SBE	CME Smart Stream on GCP - JSON	CME Market Data Over WebSocket
Latency	Lowest Latency Real-time Messaging	Real-time Messaging	Real-time Messaging	Real-time Messaging
Access	CME WAN	Google Cloud	Google Cloud	Websocket (Internet)
Format	SBE	SBE	JSON	JSON
Book Offerings	<ul style="list-style-type: none"> • 10 Deep Market by Price (MBP) • Full Depth MBO 	<ul style="list-style-type: none"> • 10 Deep Market by Price (MBP) • Full Depth MBO 	<ul style="list-style-type: none"> • Top of Book MBP (Conflated) • Level 2 MBP Order Book (Conflated) 	<ul style="list-style-type: none"> • Top of Book MBP (Conflated)
Instrument Data	<ul style="list-style-type: none"> • Security Definition • Reference Data API 	<ul style="list-style-type: none"> • Security Definition • Reference Data API 	<ul style="list-style-type: none"> • Reference Data API 	<ul style="list-style-type: none"> • Reference Data API
Statistics	All Available	All Available	Open Interest, Settlement and Traded Volume only	Open Interest, Settlement and Traded Volume only

Agenda

1. Upgrade of the GLink Network Infrastructure
2. Migration to iLink 3 on Convenience Gateway (CGW)
3. Product Reference Data & New RDW
4. New Market Data via Websocket
5. **CME STP on Google Cloud**
6. CME FedWatch API on Google Cloud

CME STP on Google Cloud

Migrating STP to the Cloud

In 2nd half of 2024, CME Straight Through Processing (STP) will be made available via Google Cloud

- Both CME STP FIXML and CME STP FIX are included
- Client impacts will be minimized to ensure a smooth migration
 - New endpoints, IPs and URLs
 - No messaging changes
 - No functionality changes
- System impacts, due to differences between on-premise and cloud-hosted solutions, will be documented and communicated in advance
- Environment for testing will be available prior to launch
- Will run in parallel in the Production environment prior to the decommission of legacy APIs
- Stay tuned to the CME STP Notices for updates, details, and timelines!


Agenda

1. Upgrade of the GLink Network Infrastructure
2. Migration to iLink 3 on Convenience Gateway (CGW)
3. Product Reference Data & New RDW
4. New Market Data via Websocket
5. CME STP on Google Cloud
6. **CME FedWatch API on Google Cloud**

CME FedWatch API on Google Cloud

New - FedWatch API via Google Cloud

- CME FedWatch API provides access to rate probability for upcoming Federal Open Markets Committee (FOMC) meetings along with historical rates
- Track and analyze the probability of changes to the Fed Funds rate and U.S. monetary policy, as implied by 30-Day Fed Funds futures pricing data
- CME FedWatch API allows clients to integrate the tool's data directly into their systems
- Alternative to the [FedWatch tool](#) on cmegroup.com
- JSON format
- Built-in support for secure communications
- Available 24 hours a day, 7 days a week
- Contact your Global Account Manager (GAM) for more information



The screenshot displays a dark-themed interface for the CME FedWatch API. At the top, there is a tab labeled '2YYH4' and a briefcase icon. Below this, the title '2-Year Yield Futures' is visible. The main content area shows a table of market data with the following values:

LAST PRICE	4.495
CHANGE	+0.007
% CHANGE	+0.16%
VOLUME	33

Please see the [Client Impact Assessment](#) on the Client Systems Wiki for more information.

Thank you