

Real-Time Solutions

High Performance Global Trading Infrastructure Services

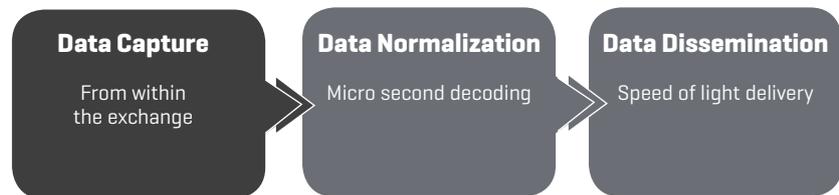
QuantHouse enables our customers to manage the ever-increasing demand for low latency market data and to meet the changing requirements of today's trading environment with new trading venues, fragmentation of liquidity and rapidly increasing volumes of data, QuantHouse has developed an end-to-end product offering encompassing data capture within the exchange, ultra-fast data normalization and dissemination over QuantHouse's proprietary fiber optic network.

QuantFEED

Data Capture

Data Normalization

Data Dissemination



DATA CAPTURE:

This occurs within the exchange site or nearest proximity venue.

Data is captured as close to the source as possible and this is the first step towards lowest latency provision either in the data centre, or Globally, via our fiber optic backbone.

DATA NORMALIZATION:

Feedhandler technology, hosted within the exchange, developed using C++ under Unix, to create highly optimized software, including native multi-threading to take advantage of multi-core processors and provide optimal decoding times and throughput.

DATA DISSEMINATION:

Data is sourced, normalised and distributed from the exchange and multiple global exchanges and aggregated in each data center to provide a true end-to-end "speed of light" advantage for proximity or Global data.

Since we design, implement and maintain every single element of the market data chain, we can offer our customers an ultra-low-latency solution; accessible through a connection to a single POP on our network; using a single API;

making it very easy to access any market using the same application.

Knowing that every financial institution is unique, we offer different solutions:

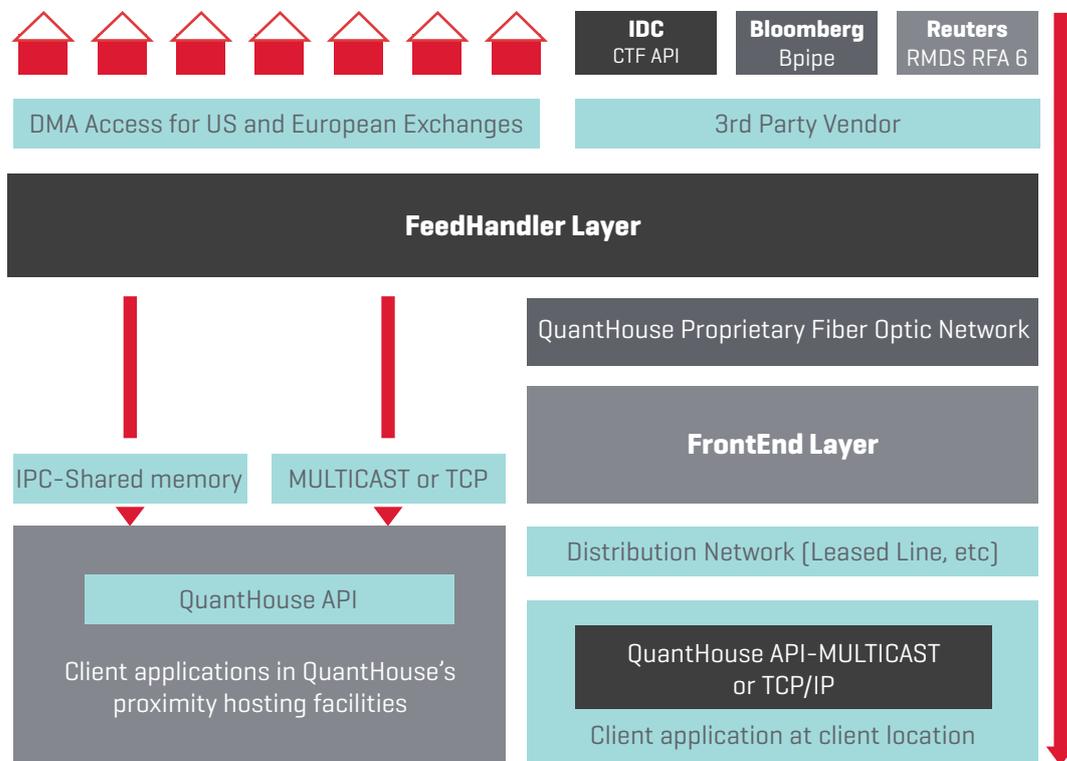
- QuantFEED Solution** ▶ To simply receive the feed via our API.
- QuantFEED Software Solution** ▶ To complete your existing infrastructure with our software.
- QuantFEED Client Side Solution** ▶ To tailor solutions to meet your specific needs.

Main Features

- Capture from within the exchange
- Normalize direct and 3rd party vendors market data
- No ticks loss for the highest data quality
- Proprietary fiber optic network
- High bandwidth capacity
- Single API in C++, Java and C#
- Publication functionalities
- Replay and Storage options
- Multicast, TCP/IP and IPC
- Access to more than 90 exchanges

QuantFEED - The End to End ultra low latency market data solution

QuantFeed is a proven, out of the box, ultra low latency market data solution. The market data chain is optimized by use of QuantHouse FeedHandler technology, a proprietary fiber optic network and FrontEnd applications, all delivered through the QuantHouse API.



Direct Market Access - Market data captured at the closest point to the exchange

QuantHouse captures data from within the exchange sites and delivers this using the fastest path available.

Feedhandler Layer - Market data normalization at the closest point to the exchange.

Located in QuantHouse hosting facilities, FeedHandler servers decode, normalize and disseminate either direct or 3rd party vendor's market data.

QuantHouse's FeedHandlers are based on an advanced proprietary middleware - FeedOS - which is the result of several years of Research & Development.

This object-oriented, natively multi-threaded software written in C++, has been carefully crafted to handle large volumes of data while focusing on low latency. A proprietary protocol has been designed to efficiently carry market data in various configurations (TCP, UDP, IPC) and runs on Linux 64bit servers. QuantHouse technology, when combined with the latest processor chips available, provides enough decoding power to handle any market data feed with sub-millisecond latency and scalability for message rate growth and the future.

QuantFEED Performance

C.M.E. FAST FeedHandler layer performance with IPC technology

Measures from Feedhandler to Client Application:

Average latency: 38µs ●●●●●●●●●● ● Standard deviation: 9µs

L.S.E. FeedHandler layer performance with IPC technology - 5 times the normal speed

Measures from Feedhandler to Client Application:

Average latency: 25µs ●●●●●●●●●● ● Standard deviation: 6µs

QuantFEED - The End to End ultra low latency market data solution Proprietary Fiber Optic Network - The fastest market data dissemination

Using the latest technology available; 10Gbps Networks and peak data capacity links ensure capacity and speed when you need it.

QuantHouse's global network transports normalized market data around the globe at the speed of light.

QuantHouse has built its own fiber optic network. We manage and control every hop including network components, such as Routers and Switches used in our network; as well as selectively procuring the fastest fiber optic links between sites.

FrontEnd Layer - Market data aggregation closest to the customer

Located in QuantHouse hosting facilities, dedicated to a single client (QuantFEED Premium) or shared (QuantFEED Classic), FrontEnd servers are responsible for aggregating feeds coming from several FeedHandlers.

Like the FeedHandlers and other QuantFeed servers, a FrontEnd server is based on QuantHouse custom-made middleware. The role of a FrontEnd server is to aggregate feeds from several FeedHandlers. Various configuration parameters allow fine-tuning of the server depending on the usage: the number of CPUs, the amount of memory available, how many feeds are aggregated, how many clients are expected to connect, which protocols and requests are supported, etc.

QuantHouse API - Easy Market data integration through a single API

Available in three different languages, Java, C++ and C# the QuantHouse API will allow you to receive normalized ultra low latency feeds and integrate our data with your software design choices.

Several solutions exist to connect to the FrontEnd servers: proprietary protocol (C++, Java and C# API) or standard FIX protocol. Once you have integrated the QuantHouse API, you are able to receive every feed from any global market asset class - either from QuantHouse Direct Market Access (DMA) or from 3rd party vendors - without any further development. Richly featured and provided with sample applications, QuantHouse's API is all you need to receive the fastest ultra low latency normalized feed. The API allows four types of requests: historical data, referential data, snapshot and subscription.

QuantFEED Software - Our technology at your service

Complete and boost your existing infrastructure with QuantHouse's best-of-breed software.

QuantHouse's FeedHandler and FrontEnd software can allow you to optimize your own market access. By adopting QuantHouse's powerful software, you can focus on your core business, and avoid wasting resources in custom software development and maintenance. QuantHouse FeedHandler and FrontEnd servers can be deployed at the client site. The feeds can be sourced from the exchanges using an existing client connection. Various configuration setups are available depending on requirements.

QuantFEED Client side solutions - Tailor your solution

Every financial institution is unique; therefore, QuantHouse uses a consultative approach to provide its clients with tailor-made solutions based on FeedOS - QuantHouse's proprietary middleware technology.

Proxying functionality

Redistribute, merge and disseminate real time feed with QuantHouse's Relay server.

QuantHouse has developed a relay server to provide clients with advanced functions such as redistributing real time feeds to several user applications over a LAN, merging legacy feeds from other vendors and allowing multicast dissemination.

Publication functionality

QuantHouse's Publication Server allows customers to create and publish market data instruments in order to enrich, complete or transform market data.

Instrument Management: Customers are able to create, update and hide instruments.

Market Data Publication: Customers are able to publish Level 1 and Level 2 market data events.

Access to Published Data: Our customers are able to access published data using the QuantHouse API, allowing to develop and enrich content, using a subscribe/response mechanism.

Storage, Recording and Replay functionalities

Safely and cost effectively outsource your market data storage.

QuantHouse can store and record an exchange's full-depth market data feed for its clients.

Using this service, the client outsources the storage and capture of market data to QuantHouse.

In addition they can replay the data in the same format as was provided in real-time via an application.

Our Added Value:

FEED NORMALIZATION

- CFI code and ISO compliant Static Data
- Unique High level API for the a real time feed

TAILOR MADE FOR EACH CLIENT

- Sequence numbers between L1 and L2
- Packet loss management

HIGH LEVEL FUNCTIONS

- Historical snapshot
- Maintained order book including MBO

Fits within your Infrastructure

HIGH LEVEL OBJECT oriented API

- Multicast and TCP/IP
- Inter Process Communication (Shared memory)

MESSAGING ARCHITECTURE SUPPORTED

- LBM from 29 WEST
- Solace

CONTRIBUTION PLATFORM SUPPORTED

- Reuters RMDS platform
- QuantHouse Publication Server

QuantHouse Inc.

55 Water Street,
44th floor
New York, NY 10041 USA
+1 (212) 438 4346

130 East Randolph
One Prudential Plaza,
Suite 2900
Chicago, IL 60601 USA
+1 (312) 233 7129

QuantHouse S&P Capital IQ

12 Marina Boulevard,
#23-01 Marina Bay
Financial Centre, Tower 3
Singapore 018982

QuantHouse/UK

20 Canada Square,
Canary Wharf London
E14 5LH UK
+44 (0) 203 107 1676

QuantHouse/FR

52 Rue de la Victoire
75009 Paris, FR
+33 (0) 1 73 02 32 11

www.quanthouse.com
www.spcapitaliq.com

About QuantHouse

QuantHouse, the global provider of next generation market data and Algo trading solutions, was acquired by S&P Capital IQ earlier this year. Its international offerings include low latency market data (QuantFEED), automated trading platform (QuantFACTORY) and proximity hosting low latency order routing (QuantLINK) to buy- and sell-side and technology companies, as well as exchanges and MTFs. QuantHouse has over 120 clients, 20 global data centres, 45 direct exchange connections and 90 total exchange data feeds.

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