

Liquidnet H2O ATS

ATS-N ITM2.7d

P. Enterprise Technology Services personnel

Roles and responsibilities

Liquidnets Enterprise Technology Services (ETS) group maintains the computers, networks, databases and connectivity that comprise the Liquidnet system. ETS personnel provide services for the ATS and non-ATS portions of LNIs business.

Access to data

A subset of the ETS group (Production Support and Database Administration) has access to indication, order, execution and other trading information to troubleshoot production and system issues, when directed by the Product Support group. These ETS personnel are located in a keycard protected area and are on a separate network segment from other Liquidnet personnel for certain purposes.

Q. Software Development and Quality Assurance personnel

Roles and responsibilities

Software Development and Quality Assurance personnel are responsible for development, enhancement, and maintenance of the software components of the Liquidnet system. Software Development and Quality Assurance personnel provide services for the ATS and non-ATS portions of LNIs business.

Access to data

These personnel have access to indication, order, execution and other trading information on a real-time basis in connection with the performance of their duties.

R. Product personnel

Roles and responsibilities

Liquidnets Product group is responsible for the design and enhancement of Liquidnets trading products. Product personnel provide services for the ATS and non-ATS portions of LNIs business.

Access to data

Liquidnets Product personnel have access to indication, order, execution and other trading information for the products that they work on (for example, the Liquidnet desktop trading application, algos, TCA and commission management).

Product personnel can access and analyze trader usage data to enhance Liquidnets products. An example of analyzing trader usage data would be to identify the conditions under which a trader is more likely to respond to a targeted invitation.

Members of Liquidnets Product group have access to reports on Member and trader performance and activity through Liquidnet, as described above in the Sales coverage section. These reports are not symbol-specific and do not include symbol-level information.

In addition, designated Members of Liquidnets Product group have access to the EMS used by the LNI trading desk and Execution Consultants. This access is to assist LNI in responding to inquiries from Members and customers relating to system functionality in connection with day-to-day trading activity by Members and customers. Designated members of the Product group with responsibility for internal support tools have access to the same data as Member Services personnel.

S. Business Intelligence

Roles and responsibilities

The Business Intelligence (BI) team develops reports for use by internal groups, including Sales Analytics, Corporate Leadership, Sales, and Marketing, for use in monitoring, developing and enhancing Liquidnets products and services as well as in support of Liquidnets sales and marketing efforts. BI personnel provide services for the ATS and non-ATS portions of LNI's business.

Access to data

BI personnel have access to indication, order, execution and other trading information in the Liquidnet database that includes all order and other trading information. Reports, which can include trading information, may only be provided by the Business Intelligence group to employees in other groups if those employees are authorized, pursuant to Liquidnets policies, to have access to the associated data.

T. Head of Data Science

Roles and responsibilities

Liquidnets Head of Data Science is responsible for designing the analytics in Liquidnets analytics products. The Heads of Algo Design and Research and Business Intelligence report to the Head of Data Science.

Access to data

The Head of Data Science has access to the information described below under Data that is not symbol-specific. He does not have access to symbol-specific ATS data.

U. Legal, Compliance and SRM personnel

Roles and responsibilities

Liquidnets Legal and Compliance personnel are responsible for working with the business units to establish and enforce Liquidnets legal and compliance policies. Compliance includes the Liquidity Watch monitoring and surveillance function. Liquidnets Security and Risk Management (SRM) personnel are responsible for working with the business units to establish and enforce Liquidnets policies relating to information security. Legal, Compliance and SRM personnel provide services for the ATS and non-ATS portions of LNI's business.

Access to data

Liquidnets Liquidity Watch personnel have access to indication, order, execution and other trading information as well as commission aggregation information as part of their ongoing surveillance activity. Liquidnets Legal, Compliance and SRM personnel are permitted to access trading information in fulfilling their responsibilities, including for the conduct of investigations.

V. Finance personnel

Roles and responsibilities

Designated members of Liquidnets Finance team have responsibility for accounts payable and receivable operations in connection with the operation of Liquidnets business. Finance personnel provide services for the ATS and non-ATS portions of LNI's business.

Access to data

As part of these responsibilities, these designated members of the Finance Department have access to trading information after the end of the trading day.

W. Trading Analytics personnel

Roles and responsibilities

Trading analytics personnel (also referred to as analytics personnel) are involved in the development, sale and support of Liquidnet's analytics products and services, including analytics provided through the Liquidnet desktop application, analytics provided through other software products developed by Liquidnet affiliates (including Best Ex Analysis), and analytics provided by Liquidnet personnel through reports and individual or group communications, as described in the next sub-section. Trading Analytics personnel may be associated with LNI or an affiliate. Trading Analytics personnel provide support for the non-ATS portion of LNI's business.

Trading analytics

Liquidnet makes available to Members and customers analytics provided by one or more Liquidnet affiliates, including Liquidnet Technologies Europe Limited (LTEL). Liquidnet can make these analytics available through the Liquidnet desktop application, a Members or customers EMS and/or via API. Sales and trading personnel can send analytics to Members and customers together with a description of the analytics being provided. Certain Liquidnet personnel can generate reports based on these analytics and third-party data and analytics and send these reports to Members and customers directly or through Liquidnet sales and trading personnel.

These analytics can include the following categories of data for a stock:

- * performance
- * spread
- * trading volume
- * volatility
- * trading activity by control persons
- * short interest
- * posted liquidity.

The analytics described in this section are based on market-wide trading activity. Liquidnet sales and trading coverage personnel have access to these analytics. When providing analytics for a list of stocks or all of a participant's indications through the Liquidnet desktop application, the analytics may identify outliers (for example, a stock with a recent significant price movement). Members and customers can maintain and receive analytics for one or more watchlists of stocks. With prior consent, Liquidnet sales and trading coverage personnel (including Trade Coverage, Business Development, and Execution Consultant personnel) may also have access to a participant's watchlists for purposes of providing consultative support.

Liquidnet, in its sole discretion, determines whether to make any trading analytics available to a Member or customer and, if so, under what conditions. These conditions may include Liquidnet charging a fee for the service.

Access to data

Analytics personnel have access to information relating to trader usage of the Best Ex Analysis product and the analytics features of the Liquidnet desktop trading application, including analytics provided to traders relating to individual stocks. Best Ex Analysis provides analytics to traders to assist with best execution analysis. Liquidnet may also provide notifications to a trader relating to a traders activity through the system or information that a trader could otherwise see or have seen through the Liquidnet desktop trading application. The analytics provided by Liquidnet are based on overall market activity and not based on Liquidnet-specific activity. The sending of analytics or a notification to a trader can be based on the indications provided by the traders firm to Liquidnet or the traders activity through Liquidnet.

In addition, product personnel can engage LTEL personnel to assist in conducting an analysis of trader usage data for other products. When performing this function, LTEL personnel are provided access to trader usage data but without identifying trader or participant names. LTEL personnel access this data through Liquidnet systems.

Qtech

Liquidnet outsources development and support work relating to the Liquidnets analytics products (including Best Ex Analysis and other analytics provided through the Liquidnet desktop application and other means) to Qtech (UK) Limited, a UK-formed technology consulting firm, and its affiliate, Qtech Analytics Private Limited, a company organized in India (Qtech India). Qtech personnel work in London and in India. Qtech employees work in a data center in India that includes employees of MSBC Group (Qtech Indias parent company) and employees of other companies owned by MSBC. Qtech employees can access information relating to Liquidnets and affiliates analytics products and participant usage of such products in connection with their development and support roles. Qtech support personnel can access indication information for all indications of Members that are enabled for trading analytics through the Liquidnet desktop application. This support function may include Qtech personnel assisting with the creation of a watchlist of specific securities at a Members request based on the Members prior indications. This data is recorded on specific servers to which Qtech personnel have access; these servers are located in Liquidnet data centers in the US and Europe. These servers also record indication information of a participant during any period of time when a participant has the blotter window open in the desktop application, even if the participant is not enabled for trading analytics through the Liquidnet desktop application. The data above includes Member and user names. With prior authorization, Qtech personnel may also access historical trading information, including

indication data, to assist Liquidnets Software Development and Business Intelligence teams with other development projects on an as-needed basis. Qtech personnel may provide development and support services for other companies owned by MSBC Group and their clients.

X. Management personnel access to aggregated liquidity information

To assist Liquidnets Corporate Leadership and Sales management personnel in evaluating Liquidnets business performance, these personnel have access on a next-day basis to reports that include aggregated quantity of Member liquidity, broken out between buy and sell liquidity. This data is aggregated, and is not broken out by Member. The aggregated categories are as follows: country; sector; index and market cap (e.g., large, mid, small and micro). Liquidity information is based on the order quantity from a Members OMS or other indication quantity communicated by a Member to Liquidnet. Management personnel provide services for the ATS and non-ATS portions of LNIs business.

Y. Aggregated data

In addition to the above, Liquidnet can provide trading data to employees where the data is not symbol-specific. In particular, Liquidnet can provide trading data to any employees broken out by the following categories and similar aggregated categories: country; sector; index and market cap (e.g., large, mid, small and micro). This data is used for business planning, sales and marketing purposes.

Z. Salesforce CRM system

Liquidnet personnel, other than LCM personnel, have access to the primary version of Liquidnets Salesforce CRM (customer relationship management) system. Liquidnets CRM system contains standard CRM information relating to participants, including participant contact information, participant actual and target revenue information, participant trading volume information (not symbol-specific), the status of support incidents, and reports on participant meetings and calls. Through Salesforce, Liquidnet personnel can receive alerts relating to participant PAR, realization rate and similar performance metrics; these metrics are not symbol-specific. The CRM system does not contain symbol-specific information, but users can enter specific symbols into the CRM in connection with the resolution of trade errors and other trading incidents. LCM personnel have access to a separate instance of Salesforce specifically created for the LCM team containing standard CRM information relating only to LCM customers, including contact information, the status of support incidents, and reports on LCM customer meetings and calls.

AA. Helm

Through Helm, an internal Liquidnet support tool, Liquidnet sales and trading personnel have access to Member and customer configuration settings in order to respond to Member and customer requests. These settings include Member and customer names, user names (including trader names), Transparency Controls settings and whether a Member or customer is enabled for specific Liquidnet products such as trading analytics, targeted invitations, or Liquidnet algos. Personnel can view Member and customer settings for all regions and users. Helm does not contain trading data.

BB. Internal dashboards

Through various internal dashboards, Liquidnet personnel and their supervisors have access to the following:

- * Data that they are otherwise authorized to view based on their function, as expressly described in the specific section above relating to their specific function.
- * Data that is not symbol-specific relating to revenue, volume and product usage. This data can be broken out by Member or customer and individual trader. This data can include data described below that is not symbol specific.

CC. Data that is not symbol-specific

Liquidnet personnel in the following departments have access to data relating to customer and trader activity through Liquidnet that is not symbol specific (non-symbol data): Business Development; Business Intelligence; Commission Management; Compliance; Corporate Leadership; ETS; Execution and Quantitative Services (including Algo Design and Research; Execution Consultants, Performance Analytics, Liquidity Partnerships personnel, and the Head of Trading Alpha); Finance; Head of Data Science; Product; Product Support; Sales Analytics; Technology; Trade Coverage; Trade Services and Trading Analytics.

Non-symbol data provides information on individual Member and trader usage of Liquidnet's trading and analytics products, including the frequency of specific actions taken by a Member or trader through the system. The following are examples of these actions: accessing the blotter screen; right-clicking on a symbol in the blotter screen; accessing the analytics monitor; receiving a match popup; right-clicking on a match tile; right-clicking on an analytics monitor bubble; and clicking in an analytics window. An internal user can further filter this data based on the category of analytics alert (for example, performance, short interest or valuation). The non-symbol data also includes per trader and Member information on indications made available to Liquidnet and associated events, including number of indications, number of unique symbols, total principal value of indications, total indication shares, average indication duration, resulting matches, resulting matches executed, average match reaction time, average order resting time. The non-symbol data also includes data relating to orders and resulting executions. Liquidnet provides certain restrictions on an employee's access to non-symbol data based on the employee's role.