EXCHANGE TECHNOLOGY

Exchange | Clearing Corporation | Depository | Regulator

63 moons™
the new digital ecology

KEY OFFERINGS

DOME	Leading **'Exchange Trading Platform of Choice'** for the next generation financial markets
TRADeBART™	A **web based trading platform** empowering various industries/sectors to create auction, continuous, OTC or innovative market places
POWER ARMS™ Automated Risk & Matching System	An ideal electronic Trading, Risk Management and **Clearing & Settlement** Platform for the energy market
CnS	Robust, **multi-faceted post-trade** solution, endowed with component-based layered architecture
Risk Management	A pro-active Risk Management System empowering **real-time quantification** of Value at Risk (VaR)
FOVEA™ Surveillance & Monitoring System	An agile system which enables **surveillance** of trading activities and **business monitoring** of market makers for exchanges/regulators
DMATS	**A depository** for **multi-asset transaction** system that integrates technology and security to maintain and transact different types of assets in electronic form
MARKET STREAM™	A **low-latency,** real-time **high throughput system** with complete market data dissemination
ECS	**Exchange Customization Services,** a sub-division of Exchange Technology, facilitates customers with customized development in accordance with their specific business needs
Add Ons	List of independent components that can be used as **'Plug and Play'** with FTIL's or other ecosystems for further enrichment

COMPETITIVE EDGE

- **Low Total Cost of Ownership (TCO)**
  Modular architecture of the solution facilitates business-driven deployment, resulting in low TCO

- **Easy to Upgrade**
  Flexible design that facilitates rapid integration and seamless deployment of new functionalities

- **Efficient System**
  High performance and low latency system,which is scalable in accordance with business needs

- **Proven Expertise**
  Performance of exchanges powered by our solutions stand testimony to our domain expertise

Comprehensive | Versatile | Dominant

DOME (Distributed Order Matching Engine), one of the flagship products of Financial Technologies (India) Ltd.'s Exchange Technology Division, is a robust, flawless and resilient platform. DOME empowers trading in terms of order processing, trade generation, information accuracy and risk management. The solution covers all the stages of a trading life cycle: Pre–Trade, Trade and Post-Trade.

HIGHLIGHTS

- Multi-featured trading environment providing unique solutions for order processing, trade generation, risk management and data dissemination

- Spot, ETF, futures, options, CFD, swaps, and auctions in all market verticals including equity, commodity and currency market

- Multi-asset and multi-currency platform

- Suite of application for the exchange personnel, members and dealers

- Multiple preferences to the exchange to plan and administer trading activities

- Exhaustive business validations secures investor interest and minimizes exchanges' risks

- Pro-active position monitoring and real-time risk management with various types of margining like VaR, CME-SPAN® and thumb-rule

- Best fit for the conventional exchanges and the contemporary trading venues – Dark Pool/ATS/ECN/MTS

- Extensive value added reports for analysis and monitoring

- Market movements with tick-by-tick data updates

- Tailor-made solutions for regional, national and international exchanges

- Development of customized applications through user-friendly APIs with exhaustive information

- Flexibility integration and seamless deployment of new functionalities

- Supports FIX and native API

- Block deals and negotiated trade matching mechanism, apart from established price-time priority and uniform price mechanism

Scalable | Secure | Swift

TRADEDART™ is a highly scalable, robust and customizable web-based trading solution that facilitates trading across various industries and TM sectors. TRADEDART™ enables entities at both ends of the supply chain — producers and consumers of various goods and services — to come together and create a marketplace for better price discovery. TRADEDART™ is designed for entities looking for personalized trading, speed and flexibility of online trading solutions, backed by personalized support on demand.

HIGHLIGHTS

- 24 X 7 availability

- Web-based trading platform for OTC trading

- Trading standardized as well as tailor-made products

- Different types of auction trading - Exchange Buy In-Exchange Sell Out auction and Member Buy In-Member Sell Out auction

- RFQ with public/private negotiations

- Continuous trading with Price-Time priority matching

- Trading in products with different currency denominations

- Easy-to-use and intuitive graphical user interfaces

- Robust and secure system to ensuring data security

- Extensive Reports

POWER™
ARMS™
Automated Risk & Matching System

The GenNext solution for Energy Markets

PowerARMS (Power Automated Risk and Matching System) is an ideal electronic trading, risk management and clearing & settlement platform for the energy markets, including Day-Ahead Market (DAM), Term-Ahead Market (TAM) and green certificates. The solution, built using cutting edge technology and domain expertise, facilitates easy integration and deployment in an optimum time period.

HIGHLIGHTS

- Trading in multi-asset power and green certificates
- Multi-currency trading
- Double side closed auction with uniform price discovery in DAM with flexible energy periods (e.g. 15 Minutes/Hourly)
- Continuous trading and single price auction in TAM for hourly/Daily/Weekly/Monthly/Yearly periods
- Single Price Auction for Certificate trading
- Exhaustive validations business rules and provides state-of-the-art architectural design
- Multiple Connectivity modes such as Internet, VSAT and others.
- Wide range of multiple DAM order types like single bid, block bid, flexi bid, parent- parent/parent-child block bid linkage facility

- Smart implementation of multiple order entry interfaces, considering the user's convenience
- Congestion management of transmission flow
- Provides complete audit trial
- Integrated automated real-time risk management
- Integrated back-office solution to perform exchanges' back-office operations
- Computation of financial obligation (provisional/final) considering multi-level charges for Pay In/Pay Out
- Comprehensive delivery scheduling considering multi-level loss computation
- Interface with participants, banks, TSO/registry and regulators

CnS

Trusted | Customizable | Risk-efficient

CnS, another flagship product of Financial Technologies (India) Ltd.'s Exchange Technology division, offers an extensive catalog of proven, fully integrated and competitive post-trade solutions. These solutions are commensurate with a fully-automated, state-of-the-art clearing and settlement platform. CnS is highly customizable and cost-effective as it incubates and nurtures the evolving market needs at the lowest possible costs.

HIGHLIGHTS

- Multi-asset and multi-currency platform

- Multi settlement schedule with simultaneous Pay-In/Pay-out

- Component-based cohesive clearing and settlement solution

- Management of multiple level of positions and exposures

- Trade enrichment through various interfaces

- Customized delivery mechanism

- Treasury management with efficient accounting system

- Maker checker mechanism.

- Process-driven solution with automated progression ensuring minimal user intervention

- Efficient Collateral Management of multiple instruments like cash, bank guarantee, treasury bills, share securities and warehouse receipts

- Empowered risk management with various types of margining including fixed margin, VaR and CME-SPAN^{TM}.

- Delivery Mechanism empowering the physical and electronic delivery

- Incident based processing and extensive data dissemination system

- Flexible user management/permission schemes

- Integration with depositories, banks and other solutions for smooth flow of settlement

- Exhaustive reports through Data Warehouse and Business Intelligence solution

Risk Management

Identify | Measure | Control

Risk Analysis and Management System (RMS) is a pro-active, real-time solution providing advanced analytics and quantification of risks for multi-asset and multi-currency portfolios. RMS offers seamless integration with trading, clearing and other data sources for real-time monitoring of Profit & Loss and margins utilized. RMS offers transparent quantification of margins based on VaR, CME-SPAN® and thumb rule.

HIGHLIGHTS

- Real-time Risk Management of multi-asset and multi-currency portfolios

- Seamless Integration with trading, clearing and other data sources

- Margin computation based on customized thumb - rule margins, VaR based model and CME-SPAN®

- Profit & Loss/Mark-to-Market and margin-based alerts including reverse alerts

- Real-time impact of early pay-in of securities

- Event-based update of member status

- Risk management at account level

- Ability to perform "What if" analysis

- Real-time square–off at product and member level

- Greeks and implied volatility details

- Theoretical price computation based on multiple models including Black Scholes

- Margin benefits to members for mitigating the risks on intra-commodity, inter-commodity with multi-tier positions

- Extensive value-added reports by providing data to third party reporting software (Data Warehouse)

- Real-time interim settlement of products

Define | Monitor | Investigate

FOVEA™ is an agile trading compliance solution that facilitates exchanges and regulators in effectively conducting market surveillance and monitoring activities to ensure compliance and check abuses. FOVEA™ with its comprehensive rule engine adapts to integrate with trading, data warehouse and other systems. FOVEA™, empowered with cutting-edge technologies, has the capability of handling huge data from multiple data sources, and ensures quick implementation.

The name 'FOVEA™' is derived from a small region in the retina of the eye where visual acuity is the highest, thereby reflecting the efficacy of the system.

HIGHLIGHTS

- Multiple exchanges across multiple market segments and asset classes

- Profiling of alert rules, products and members

- Proactive warnings and alerts mechanism with high degree of reasoning algorithms

- Seamless deployment for any fresh alerts

- Sifting of alert based on advanced scoring mechanism

- Bespoke Alerts - Facility to define tailor- made customized alerts

- Visual Analytics - Graphical representation through Market Mine and Heat Map

- Dashboard for bird's eye view of surveillance activities

- Market Replay for historical data

- Powerful reporting

- Plug and play features include:
  - Market Makers' Management including exhaustive Market Maker Definition and real-time monitoring of commitment
  - Integration with data warehouse for drill-out reports
  - Issue management

Integrated | Secure | Multi Asset

DMATS™ (Depository for Multi-Asset Transaction System) represents an integrated system supporting safe–keeping and processing of multiple assets in an electronic form. DMATS™, backbone for depository institutions and their business partners, is built on cutting-edge technologies and domain expertise. It enables easy integration and deployment in an optimum time period.

HIGHLIGHTS

- Multiple market segments, multiple settlement cycles, settlement types

- Configurable operations as per users' requirement

- Settlement mechanism for multi exchanges with a single clearing corporation

- Single early pay-in account for all clearing members

- Auto delivery Pay-In/Pay-Out functionality

- Auto delivery pay-in from members' accounts to the clearing corporation

- Real-time messaging with sub-second response time

- Batch upload facility for mass data driven functionalities

- State-of-the-art user interfaces

- Easy integration with third-party systems for providing depository services through APIs

- Extensive MIS reporting using data warehousing concepts

FIX Gateway

Reliable | High Performance | Cost Effective

FIX Gateway is a high performance, reliable, cost-effective and multi asset solution with ultra-low latency. FIX Gateway is supported by flexible APIs through which companies can build customized FIX solutions. Besides being cost-effective, FIX Gateway is scalable, dynamic and easily customizable and ensures quick deployment. It also offers flexible plans for licensing, pricing, consultancy services, product support and training.

HIGHLIGHTS

- Compatible with Microsoft platform as well as LINUX

- FIX 4.2 protocols at session and application levels

- Transaction requests from commercial or open-source software

- Multi-threading and Symmetric Multi-Processing (SMP) in multi-core CPUs/multi-CPU machines to ensure performance

- Compatibility with administration and application of messages as per FIX standards

- Interactive private channel for interfacing with exchange trading system

- Acts as a link between third-party applications and exchanges, based on TCP/IP connection mechanism

- Manages network connections for a large number of users

- Horizontal scalability for load balancing purposes

- Disconnection of entities on threshold breach or incorrect requests

- Multiple member requests are processed through a single FIX Dealer Id, resulting in cost effectiveness

- SSL, Triple DES and PGP encryption for message integrity and security

- Built using flexible modular component architecture, ensuring robustness and scalability for ever-growing business needs

- Powerful, easy and dynamic customization with support to FIX session logic

- Customizable event login

MARKET✕STREAM™

Connect | Collate | Create

MarketXstream™ is a market data solution that combines exceptional performance and rich functionality with unparalleled flexibility and adaptability. MarketXstream™ is an ultra-low latency and high throughput application empowering the dissemination of comprehensive market depth level information from single or multiple exchange(s).

HIGHLIGHTS

- Real-time market data dissemination over multicast and TCP/IP on every single order or trade-related events

- Robust solution to ensure seamless flow of full market depth

- Optimal utilization of network resources using binary communication structures to facilitate quick flow of information

- Cost-efficient access to markets via low latency connections

- Adequacy of information to update data other than market depth levels (e.g. Open Interest, Open Price)

- Access to customized historical data during trading hours (on request)

- Seamless data dissemination from multiple exchanges with source identification for user

- Latest market snapshot availability, beneficial in case of intra-day outages

- Compression of messages leading to optimization of bandwidth

- Inbuilt intelligence assisting strategy formulation for Automated Trading Strategy (ATS) Users/Traders

- Value added market data over a feature-rich, unified API interface

ECS

Customized Development | Seamless Deployment | Project Management

Exchange Customization Services (ECS), a sub-division of Exchange Technology, facilitates financial institutions such as exchanges, clearing organizations and regulators with customized development and seamless deployment, as per specific business needs. The core functions of ECS are to provide services for all or specific process(es) in the project life cycle of a new/maintenance project with complete implementation and after-sales support. ECS has successfully delivered projects for financial institutions, including exchanges, clearing organizations and regulators.

HIGHLIGHTS

- Techno functional teams with exposure to financial-markets

- Customized development as per domain requirement

- Dedicated teams for exclusive Project Management

- Customized services for regular maintenance or one-time activity

- Quality check with domain know-how auditors and automation tools

- Project Management with planned schedules and regular updates to stake holders

- Time-bound cost-effective development

ADD ONS

External Feed Interface

External Feed Interface (EFI) facilitates different exchanges located in different geographies to trade products correlated with each other. EFI enables receipt of real-time price information of a product being traded in other trading venues. The interface converts it into a comparable price using its formula builder and disseminates it in one's own trading network.

OI Engine

Open Interest (OI) Engine computes the level of liquidity in derivatives, with respect to the number of contracts that have not been settled. OI is computed on a real-time basis considering impact of trades and trade enrichments for analyzing future trends/concentration. The prescribed level of OI by regulators and exchanges is maintained and monitored on a real-time basis for any breach. OI engine is designed with perfect acumen to generate customized alerts and OI violation messages on a real-time basis, thereby helping exchanges to identify violating members and plan manual or pre-defined automatic restrictive measures.

FT-ICE

FT-ICE, the Index Computing Engine, is a system designed to define, compute and disseminate index values for an index/index of indices.

Membership

Membership is an integrated application that captures segment-wise static/periodic information related to existing and prospective members across multiple segments. Membership details include a repository of data from the membership form, shareholding pattern, bio-data, authorized person details, regulatory compliance information, financial details and other timely information required by members. Customized change management module enables smooth processing of requests such as transfer, transmission, conversion, change in name/address, etc., with parallel processing of existing and new records.

Listing

Listing application is an integrated platform that empowers exchanges to perform activities pertaining to listing of companies and securities. The listing application maintains a data bank of listed securities including those getting listed or already listed on an exchange. This enables exchanges to provide a range of listing services for Initial Public Offerings (IPO) and Future Public Offerings (FPO), as well as for maintenance of financial and nonfinancial records that can impact corporate action. Regulatory reporting and reconciliation of securities (with third-party) is extensively covered to facilitate corporate governance..

Price Polling

Price Polling is a multi-user application that enables exchanges to perform/carry out price polling activities for various U/L assets traded on the exchange platform. The application also disseminates the same to the market to derive a reference price for market participants to trade in derivative markets. Spot prices can also be disseminated to the clearing corporation for monitoring Futures Prices in comparison to Spot Prices and can be used in the settlement process, if required.

Book Building

Book Building Manager (BBM) is an electronic method of collecting bids, thereby enabling exchanges to streamline book building/reverse book building processes with the reflection of demand and supply details. Book Building, a recognized mechanism for raising capital, is made fool-proof and compliant through BBM.

The multi-layered architecture of BBM empowers exchanges to seamlessly integrate with entities — book runners, lead managers, syndicate members, self certified banks and trading members — for successfully completing an IPO process in the electronic format. BBM enables book-keeping of multiple securities with multi-layered controls and security-level role assignment.