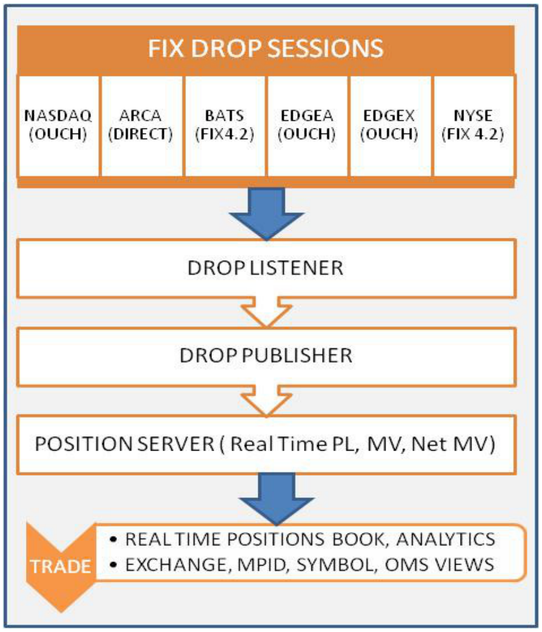
# SAVEN TECHNOLOGIES

Saven's client, HCM, Chicago, IL, a high frequency trading firm, needed a real time position server for Risk monitoring and trading decision making. HCM's high frequency trading (HFT) strategy fund trades large list of equities at multiple exchanges, employing some unique strategies. Trading is done via multiple electronic venues and trade messages are dropped on the FIX DROPS.




Saven has developed position server design that reads trading data from real time FIX DROP sessions. Position server design includes having 7-10 FIX DROP sessions ( from NSDQ, ARCA, NYSE, BATS, EDGE venues) and consolidate these FIX DROPS date via DROP publishing to real time Position server. Position Server engine creates a dynamic memory based data record cache that maintains lowest aggregation. Server handles high thru put of Messages from 5+ trading venues on 1K+ trading symbols on each trading venue.

Application is fail safe and recovery features are designed by saving memory cache to MySQL DB at frequent intervals. Server is a highly multi-threaded C++ engine that calculates library of position analytics, real time and publishes to other application listeners such as Excel/ RTD on Trader Desktop, Risk Monitor in QT.. etc. Position Server publishes latest snapshot data on request- response basis to any of the downstream applications.

***Technology***: C++, MySQL, ACE, Red Hat Linux Multi Core OS, Quick FIX C++ engine, FIX 4.2.

**Robust Server functionality**

- Position Server consumes Drop copies from 7-10 drop concurrent drop sessions that capture the trading.
- Drop session FIX logs are broadcast on Drop publishers over Active MQ to the Position Server.
- Completely memory based – dynamic record building and snapshot saving to database at pre-determined intervals.
- Maintains unique record for each combination of MPID, Venue, Strategy and Symbol thread for lowest record level aggregation.
- Positions are valued real time with market data stream from respective exchange prices or single market data source.
- Access real time Order status reports – Open orders, Executed Orders, Cancels, Replaces, Rejects etc.
- Create Position map from multiple FIX Drop sessions (10+ sessions) simultaneously.
- Instantly rebuilds Position Server Cache from the DB or FIX LOG files to reflect the latest trading activity
- Publishes latest snapshot data on request-response basis to any application

**Real time position analytics**

- Computes about 30+ fields real time – Realized PL, Un Realized PL, MV, Long/ Short Exposures, Average Buy/ Sell Price, Open Positions, Net Exposure, Avg Prices of Open Orders, Open Buy/ Sell Ord Qty at the Exchange,… etc.
- Computes orders pending execution at exchange and their aggregate order prices for each side in real time

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