

On 10th August 1998, Automated Trading System was introduced at Dhaka Stock Exchange Ltd. Within this period some of the new features were incorporated like multiple indices, introduced “Broker control over trader module” etc. Further upgradation of hardware in DSE automated trading system was done in August 2005 & continued till 2010. At the same time a major change done in the application software to incorporate facilities to trade from all over the country through dedicated WAN (wide area network) connectivity in branch or main offices of brokerage houses, client cash limit validation by introducing “Broker control over client module” etc.

It is mentionable that there is no facility of Internet trading in the existing trading system of DSE till date. Present TESA architecture supports only the clients application MSA & TWS which are connected through private network links (both LAN or WAN).

But keeping the view to introduce full-fledged Internet trading in future, DSE took the initiative for upgrading existing TESA client application MSA to *MSA Plus* and a work order was given to the existing vendor Cambridge Solution Ltd. in May 2010. This upgradation will provide platform for enabling Internet trading in near future.

In case of proposed upgraded client software (*MSA Plus*), basic architecture has been changed; it is now a Web Based Application. The hardware infrastructure for *MSA Plus* solution in a Brokerage House will consist of an Application Server, a Database Server & a Web Server component instated of earlier restricted single server facilities. In present solution users have to type URL on the web browser instead of clicking the program/software installed in the terminal.

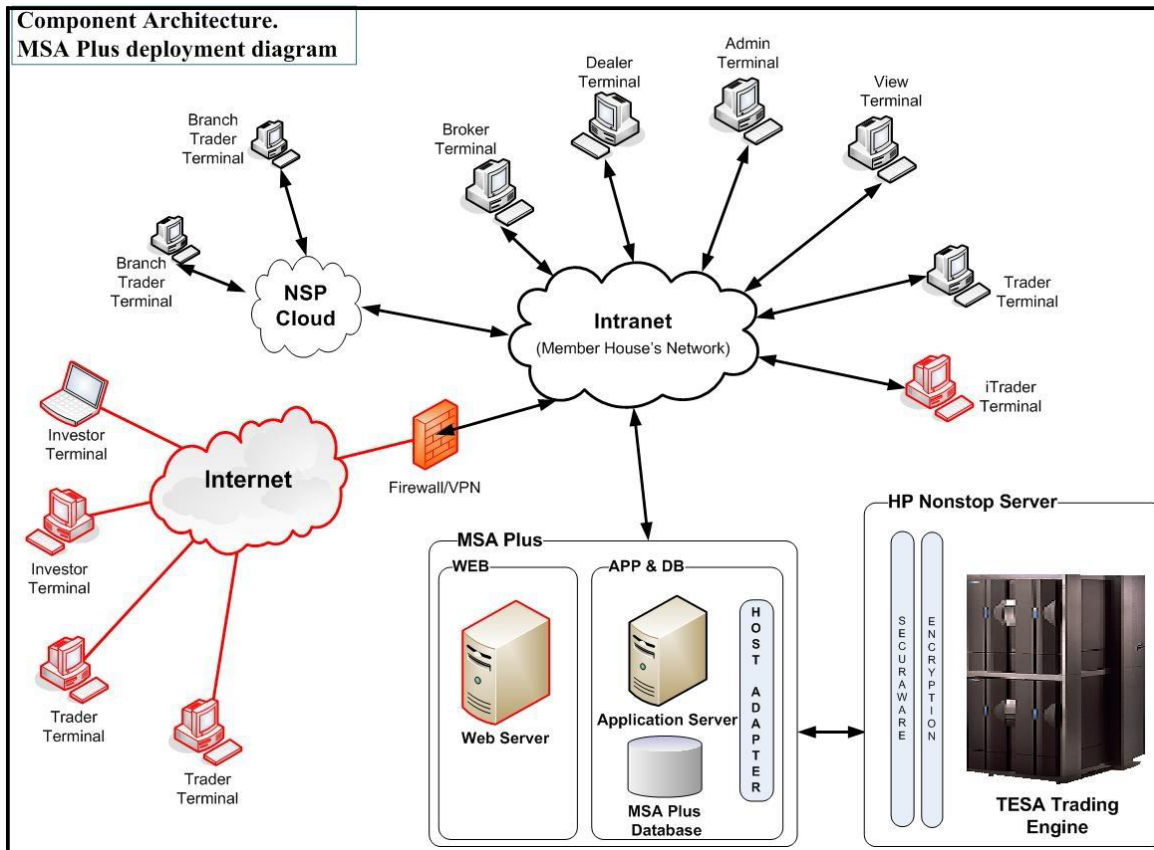
Industry standard API for Broker Order Routing & enabling internet trading will be provided by the vendor as a separate module in next phase after Go-live of *MSA Plus* project.

The basic benefits/features of upgraded *MSA Plus* Solution are as follows:

1. “Thin Client Architecture’ (web based application) instead of existing Thick Client Architecture (desktop application).
2. Investors would be able to submit order via Internet to the respective broker houses.
3. All workstations, which are now called ‘Terminals’, will be connected to the member web server using suitable browser through network (Intranet / Extranet / Internet).
4. Pre-validation feature will be adopted; this will empower the brokerage houses to pre-validate client’s buy (*cash limit*) and sell (*share limit*) orders.
5. Instrument’s buy/sell can be restricted individually. Can stop either buy or sell.
6. Intraday graph for price movement of each instrument.
7. BO ID to be made mandatory during client registration. BO ID field will not be allowed for modification.
8. Client type (normal, foreign, dealer, corporate & others) could be defined at the time of client registration.
9. Instrument category & sector parameter has been incorporated.
10. No local installation for trader work station will be required, since it is a web based application.
11. Number of Traders per broker will be open.
12. Export / Import facilities with a required new file format based on BO ID & ISIN will be available in *MSA Plus* to interact with broker’s back office System as well as CDBL.

Note: For feature no 2 & 3; it is recommended to maintain proper security and authentication process by using secured connectivity & infrastructure (like firewall, VPN etc.)

MSA Plus Deployment Diagram:



Terminals are as follows:

1. **Broker Terminal:** Broker would establish connection with trading engine, thus enabling all users under the broker to connect.
2. **Admin Terminal:** Administrative functions within the Broker are carried out from the admin terminal. There will be more than one Admin terminal to perform specified roles
3. **Trading Terminal:** Traders are users who trade on behalf of client. Traders connect to the MSA Plus and then login remotely to the Trading Engine.
4. **Dealer Terminal:** Dealer activities are performed here.
5. **Investor Terminal (new):** Clients/Investors are allowed to place local orders through Internet (as per Client/Investor registration on Brokerage House).
6. **iTrader Terminal (new):** iTrader user manages Investor orders.
7. **View Terminal:** View Terminal users can locally login into MSA Plus application and access the information available locally.

Comparison: Comparison between existing MSA and upgraded MSA Plus Solution.

#	<i>MSA & TWS</i>	<i>MSA Plus</i>
1	Desktop Based Application: Thick client application thus prompting for more system resource to run efficiently.	Web Based Application: Thin client application and requires minimum system resource to run efficiently..
2	No Internet Accessibility: Investors cannot place order through Internet	Order submission through Internet: Investors can submit order via Internet to the respective Broker Houses.
3	Pre-validation of cash: Possible (validate the consolidate / buy / sell trade value limit). Pre-validation of share: Not available	Pre-validation of cash, improved: Possible, client's buy (cash limit). Pre-validation of share: client's sell (share limit) orders.
4	Trader Restriction: Instrument's buy/sell cannot be restricted individually.	Trader Restriction: Instrument's buy/sell can be stopped either buy or sell or both for specific Trader.
5	Number of Workstation: Trader work stations are limited by numbers.	Number of Workstation: Trader work stations are virtually unlimited (necessary hardware should be scaled as per volume requirement)
6	Network Infrastructure: Trader workstations are connected to the member web server using suitable LAN or WAN (Point to point or Routed)	Network Infrastructure: All workstations, (Trader, Dealer, View, iTrader, Admin terminal etc.) will be connected to the member web server using suitable browser through network (LAN / Intranet / Extranet / Internet).
7	Instrument graph: not available.	Instrument graph: Intraday graph for price movement of each instrument is available.
8	Client type: cannot be defined during client registration.	Client type: normal, foreign, dealer, corporate & others client type is available during client registration.
9	Instrument category & sector parameter: not available.	Instrument category & sector parameter: available in all market books.
10	Software Installation: Installation & configuration is required up to trader workstation level.	Software Installation: Installation & configuration is not required up to trader workstation level. It is done centrally at the MSA Plus Server.
11	Maintenance: Deployment and maintenance procedure is cumbersome; it is distributed up to workstation level.	Maintenance: Deployment and maintenance is easier and centralized. MSA Plus software maintenance is not required at workstation level.