

Case Study: METTLE SE

Vertical : Financial
Geography : Kochi, Kerala

Client Profile

They were established in the year 1978 and were one of the premier stock exchanges in India. They started out with a listing of 5 companies and 14 members which later expanded to 240 listed companies and 508 members. They computerised their offices as early as in 1980s, introduced the facility for computerised stock trading in 1997. Being an IT savvy company they were one of the promoters of the "Interconnected Stock Exchange of India" programme. By the dawn of 21st century the regional stock exchanges started facing stiff challenge from National and Bombay stock exchanges (NSE & BSE). To face this challenge they promoted a 100% subsidiary and started trading in National and Bombay Stock Exchanges. They are the first subsidiary of a stock exchange to get membership in both NSE & BSE.

Problems to solve

The client is involved in online stock trading and they have about 170 sub brokers doing business with them. They wanted to introduce online trading so that their sub brokers can trade from outside their office premises. Introduction of a successful online trading requires that the following challenges are resolved:

- They needed a solution to make their LAN based stock trading application to work on Internet.
- Their stock trading application uses UDP broadcast to send stock scrip information to clients. Forwarding of UDP broadcast over VPN was not supported in any of the VPN/router/firewall equipment they evaluated. The closest they could get was "ip helper-address" based solution which converted UDP broadcast into unicast.
- The chosen solution should be able to scale to hundreds of simultaneous users without introducing performance problems.
- Sub brokers' computers connected through the VPN should not be able to communicate with each other to avoid possible virus/worm break out.
- As a stock broking company they required absolute reliability and wanted to avoid any single point of failure.

Solution

Mettle SE provides the following solutions to resolve the engineering challenges of deployment at the client site.

1. Mettle SE VPN (Enhanced PPTP To Support UDP Broadcast Relay)

2. 10mbps textscvpn Traffic
3. Firewall (PPTP, LAN and WAN interfaces)
4. Stateful Fail Over.

Mettle SE Enhanced Client-Server VPN

Their head office at Cochin use trading application to obtain market information from NSE & BSE and relay to their sub brokers. Market information and details have to be made available to all sub brokers and branches at the same time. Delay or missing ticker update cannot be tolerated. The trading application uses UDP broadcast to send ticker update to all clients connected to the network.

Clients from different geographical locations connect trading server via Mettle SE using enhanced VPN service. Mettle textscse forwards the ticker updates from BSE and NSE to the VPN clients connected to Mettle SE. Ticker updates are sent to all clients connected to Mettle SE at the same time. The client evaluated different equipment which could do this but only Mettle SE supported this particular requirement. Mettle SE ensures that scrips from trading application server reach all VPN clients simultaneously, enabling efficient stock trading. Mettle SE deployed an enhanced version of the well understood PPTP protocol to implement the UDP broadcast relay.

10mbps textscvpn Traffic

Ticker updates from NSE & BSE are relayed to the clients at regular intervals. During trading hours when a customer buys or sells stock it is updated in trading application server. VPN tunnels carry a constant flow of data to and from the server to the clients. It is calculated that during trading hours a data exchange rate exceeds 10mbps. Mettle SE has worked flawlessly even under the extreme loads providing a reliable link between clients and the server.

Firewall

Mettle textscse while providing a robust VPN solution to the client, it also secures their IP network infrastructure. Remote users' access to host machines in the corporate network is strictly controlled, based on their requirements. Mettle SE blocks all unspecified traffic from reaching the corporate network. To build a secure network firewall rules are implemented in LAN, WAN and VPN interfaces. Traffic entering these three points are monitored and if found to be non conforming to the specific firewall rules it will not be let through.

To improve the security of VPN service firewall rules prohibit client-client communication. VPN clients are allowed to communicate only with required servers. It is implemented to prevent the possibility of a virus/worm outbreak from one of the client machines from affecting other client machines on the network. Firewall rules restrict VPN clients' access to corporate resources, they are provided with limited access based on their requirements and privileges they have.

WAN interface and Internet access is secured and monitored by Mettle SE. Unauthorised access of corporate network is disallowed and illegitimate traffic is blocked before it enters the corporate network from the Internet.

Stateful Fail Over

Downtime is something that no one can afford, especially for a stock trading company. A down time be it for maintenance or as system fault would critically affect trading. To prevent this a Mettle SE failover stack has been implemented using two Mettle SE devices. One is the Master device and the other a Slave device.

Mettle SE Master is the default device that handles all traffic and data in a normal situation. Master and Slave are both connected together so that any configuration changes made in the Master device would be reflected in the Slave device. This makes sure that the Slave device would have an up to date Mettle SE running configuration. In the unfortunate event of failure of Master Mettle SE, data and traffic handling would be taken over by the Slave device. The changeover happens quickly and automatically without user intervention, data flow would not be critically affected and trading could go on as usual.

Conclusion

Mettle SE has been doing it's duty as a VPN/Router/Firewall impeccably and without any downtime. Mettle SE has enabled efficient stock trading over Internet, especially with the support for UDP broadcast relay and VPN bandwidth handling. They are very satisfied with the performance of our device and it has become the centre of their trading and IP network infrastructure.

For further information:

Call: +91 471 2340 850

Web: www.mettle.in

—

Mettle is a trademark of Linuxense Information systems Pvt. Ltd. All other trademarks belong to respective owners.
2008 © Linuxense Information Systems Pvt. Ltd. All rights reserved. This document was prepared on 12 December 2008.

Document: CS/2008-4