



Case Study

High Availability and Security for UNIX-based Trading Application

Challenge:

Create a secure, highly-available environment for a custom, real-time trading application on a UNIX platform.

Benefits of Treadstone's solution:

- Fault-tolerance at all levels of the application and infrastructure
- The ability to take a component out of service for maintenance without taking down the application
- Security through network components and proxies.
- Real-time updates via multicast

Our client, an entity at the forefront of the energy trading sector, was in need of a solution to improve the resiliency of their homegrown trading software and the associated web portal, all running on a UNIX platform. Treadstone Consulting's Systems Architects were tasked with designing a solution to provide security and fault-tolerance at each level of this 3-tier application.

At the front-end layer, Apache-based web servers provide users access to the application. In the 2nd tier, application servers provide access to the database and analyze market data to keep pricing and commodity information up to date. The back-end consists of an Oracle database and NetApp storage hardware.

As an initial phase Treadstone conducted an assessment of the infrastructure, servers, and components involved in the application and its environment. The focus of this phase was on discovery of the architecture and interviews with key members of the client's IT infrastructure and application teams in order to gain a clear understanding of the requirements and dependencies involved in this endeavor.

With the assessment activities complete and documented, the Treadstone team began constructing a robust high-availability solution that would meet or exceed all of the requirements as they were layed out in the assessment. The solution that was presented offered redundancy across each tier of the application through a combination of global load-balancing across UNIX server farms at each data center and back-end redundancy through database and storage-level replication. Maintaining the real-time nature of the market data was accomplished by using multicast streams to make sure that all servers in the farm and users on the floor had the same market data at the same time. Security was addressed by 2 layers of Cisco PIX firewalls at each data center, proxy servers in the DMZ, as well as server load balancer appliances. The complete solution was then presented to the client along with a proposed migration and project plan.

We were then given the task of implementation where Treadstone's engineers and project management led the charge to put the architected solutions in place.