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NETWORKS

Free to SAMBA

London's FTSE adopts Linux clustering for its SAMBA file sharing.

The financial community is notoriously tight-lipped about its dabbling with and adoption of Linux, especially in the wake of the recent [SCO](#) lawsuit against [IBM](#). There are honorable exceptions such as [Deutsche Bank](#), which trumpets its adoption of the open-source operating system (OS), but by and large the British investment firms prefer to keep mum on how much or little they've experimented with it as an alternative to licensed OSes. It a refreshing change, therefore, to find one key player, a household name based in the City of London, with eight offices around the globe, that is prepared to go public with the fact that it has deployed Linux.

[The FTSE Group](#) describes itself as "an independent company whose sole business is the creation and management of indices and associated data services." It makes much of the fact that it has no capital market involvement, and could not in order to fulfill its role. It provides the information on which investors in 77 countries carry out investment analyses, performance measurement, asset allocation and the creation of index tracking funds. Two and a half trillion dollars worth of assets are under management using its indices.

And FTSE is using Linux.

Inside its London headquarters, the company now has 10 ProLiant servers from [Hewlett-Packard](#) (HP) running Linux Red Hat 8, alongside 10 servers running HP's proprietary version of Unix, HP-UX. Ten [Sun Microsystems](#) servers are running Sun's Unix flavor, Solaris. Meanwhile, all of its desktops are running Microsoft Windows.

Graham Smith, head of the FTSE's IT services, explains that the servers

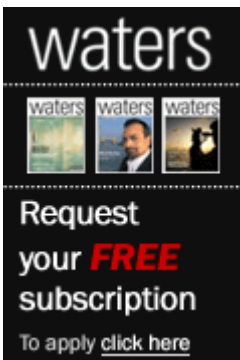
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calculate the various indices and draw on a range of databases to create real-time, end-of-day and custom index products. The company's Web site provides data for point-in-time and historical indices and average 120,000 page impressions per day.

FTSE Linux Requirements: Availability and Scalability

Availability and scalability are clearly major issues with the FTSE technology staff, with the end-of-day indices being provided via an FTP server that has to be up and available all the time to meet demands from the client base. It typically services 46,000 client connections per week.

Since the first half of last year, two of the Linux servers have been dedicated to what Smith calls "cross-department sharing of information," with FTSE's information store being shared across seven offices in six countries. Smith says the company considered Windows file sharing but a solution based on a Linux cluster and running SAMBA, an open-source implementation of the Server Message Block (SMB) protocol for sharing files and devices between Windows and Unix environments, "looked to be the most reliable and scalable."

FTSE achieves the twin goals of reliability and scalability by deploying the cluster with LifeKeeper high-availability and disaster recovery technology from US start-up [SteelEye](#), which was implemented by UK systems integrator Open Minds High Availability Solutions. "The Linux cluster acts as a file server using SAMBA and LifeKeeper protects the SAMBA. LifeKeeper provides the basic Internet protocol and file system failover and we also purchased its SAMBA recovery kit. The Samba Recovery Kit provides a mechanism to recover protected Samba file and print shares from a failed primary server onto a backup server," Smith says.

Failing SAMBA Over

LifeKeeper detects failures at the server level via heartbeat, and at the resource level by monitoring so-called "daemons" it places on devices in the network, with any change causing it to switch the SAMBA services onto the backup server. "We could have used the second server as a Web server to produce an active/active environment, but we decided that the system was too important to us and chose to have the active/standby configuration," Smith says. In other words, one of the two servers in the cluster stands in the wings and waits to take over in the event of problems.

Having decided against Windows file sharing and in favor of Linux, sources close to the company say FTSE considered other clustering and high-availability technologies besides the [SteelEye](#) product. One that was rejected at an early stage was [Mission Critical Linux](#)'s Convolvo product, which supports only two nodes (i.e., servers) in a cluster, whereas [SteelEye](#) supports up to 32, says John Banfield, [SteelEye](#)'s director for EMEA.

FTSE clearly has plans to grow its Linux cluster beyond the current two-node implementation, which Smith acknowledges. "We plan to expand to a three-node cluster, with the third server to be used as an off-site recovery," he says. In other words, the disaster recovery capability of the **SteelEye** technology on Linux also helped tip the scales in **SteelEye**'s favor.

More Than Free

The FTSE case highlights, as Open Minds business development manager Shobana Patel puts it, that "cost is not always the issue deciding in Linux's favor in the financial markets." That may be, but it clearly helps. A dual-node Linux cluster using **Intel**-based servers such as the ProLiant and running LifeKeeper comes out at under £10,000 (\$17,600), whereas an equivalent Sun configuration would have cost anywhere between three and four times that amount, she says.

So, Linux comes out cheaper, but it was scalability, availability and reliability that led FTSE to opt for the clustered SAMBA environment with LifeKeeper. Scalability is a particularly key factor in the financial sector, according to a number of industry pundits, who see Linux-on-Intel (Lintel) blades replacing large Sun Solaris servers in areas of high-performance computing, in which lots of hefty number crunching, such as analytics, is required.

"The banks tend to like Linux for these types of applications, because they can add in new Lintel blades on the fly, without additional license costs," says one executive from a leading bank in London. "We're seeing a lot of movement from proprietary RISC-based products to Lintel clusters," says Adam Jollans, Linux strategy manager at IBM.

At FTSE, Smith says the SAMBA-on-Linux cluster with high availability "has given us the flexibility to look at different solutions without worrying about downtime. We can perform upgrades and systems maintenance without being concerned about downtime. We also know that although our systems and components are working 24/7, any failure will be resolved without intervention."

A Possible Linux Target?

There are various reasons for banks' reluctance to talk about Linux or reveal their Linux strategies. First, there is the straightforward competitive edge:

"Why should I divulge the success I've had with Linux if it's going to take my competitor six months more to work out how to do it?" Second, there is the issue of potential investor discomfort with the fact that a bank is entrusting mission-critical applications to an open-source OS: Who will fix it if it breaks?

Finally, there is the question of security. As Marc Adams, vice president of global channel operations at security software vendor, **Clearswift**, puts it, "Until now, hackers have targeted primarily Microsoft platforms because they

are the most widely used. If the banks let it be known they're moving heavily into Linux, that OS becomes a more interesting target for malicious code writers."

Reluctant to talk about it they may be, but there is evidence to suggest that several major UK institutions have done more than dabble in Linux. One IT executive says he had attended a seminar at which [Merrill Lynch](#)'s private banking division detailed how it was running Oracle databases on Linux. Merrill Lynch declined comment.

[HSBC](#) is running much of its Web infrastructure and disaster recovery infrastructure on Linux, according to informed sources, and Nomura is deploying the open-source OS for compliance-driven retention of financial [records](#).

Company Snapshot: FTSE Group

Origins: Joint venture between the London Stock Exchange and the Financial Times

Opened for Business: 1995

Headquarters: London

Top Brass: Mark Makepeace, chairman; Paul Grimes, COO

Number of Indices: 60,000, including 600 real-time indices

Fastest-Growing Index: The FTSE Global Equity Index with 7,000 companies from 48 countries

Satellite Offices: Paris, Frankfurt, Madrid, New York, San Francisco, Tokyo, Hong Kong, Beijing

Competition: MSCI, Standard & Poor's, Dow Jones, Stoxx and Russell

by **Rik Turner**

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