AberdeenGroup

IBM and Trustix: Secure Infrastructure Solutions for SMBs

An Executive White Paper

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Executive Overview

When IT organizations install and configure hardware and software to provide basic infrastructure capabilities — such as file, Web, and e-mail serving — there is an investment in systems administration, licenses, deployment, and training. Today, many of these company's systems are running proprietary Microsoft Windows for file and print, e-mail, Web, and firewall servers. They are paying license fees for Microsoft Exchange Server, Microsoft Proxy Server, Microsoft ISA Server, etc. — and, for some applications, such as Microsoft Exchange Server, there are client access licenses. In addition, organizations pay license fees for whichever Windows operating system they are using.

Trustix is a software company dedicated to developing and marketing Linux-based server solutions for small and medium businesses (SMBs). Its Trustix Linux Solutions offers functionally equivalent solutions for file and print, e-mail, proxy, firewall, and Web servers on its secure Linux operating system at a fraction of the cost of comparable Microsoft solutions.

Trustix Linux Solutions provide software cost-of-ownership advantages over Microsoft Windows-based solutions. End-users can take advantage of the familiar graphical user interface (GUI) of Microsoft Windows on the client side; on the server side, companies get the highly reliable and stable Linux operating system — a significant win.

One of the primary components of the Trustix value proposition is that Trustix Linux Solutions are made available on the highly reliable IBM eServer xSeries platforms. Other important components of the Trustix value proposition for Trustix Linux Solutions include rapid deployment capability by end users, enhanced security via Trustix Secure Linux, and low total cost of ownership.

Trustix seeks to position Trustix Linux Solutions in the marketplace in several ways:

- Provide a suite of point solutions (firewall server, e-mail server, file and print server, LAN server, and proxy server)
- Focus on and enhance security across all Trustix Linux Solution point solutions, in terms of hardened/secure Linux, up-to-date automated software maintenance, and reduced complexity through simplified management
- Provide a graphical user interface (GUI) capable of managing all point solutions, while reducing the complexity and risk of system administrator errors
- Provide the convenience of managing Trustix Linux Solutions from native Microsoft Windows (or Linux) desktops

- Deploy Trustix Linux Solution point solutions on IBM xSeries servers as the preferred Intel-based platform

In this *Executive White Paper*, Aberdeen examines Trustix's value proposition in detail, and presents an overview of its product offerings.

Trustix — An IBM Software Developer Partner

All Trustix Linux Solutions are certified for IBM xSeries servers. Trustix has chosen to work with IBM and certify its solutions on xSeries platforms because of IBM's record of providing some of the most innovative server technology in the industry, as well as the company's industry-leading service and support.

IBM's X-Architecture is a plan of action for building IBM mainframe features into Intel processor-based xSeries servers. The result is enhanced availability, scalability, and systems management. IBM's new phase of X-Architecture innovation, termed Enterprise X-Architecture, includes advancements in performance, memory, and I/O capabilities. This new technology enables many new capabilities, including system partitioning (running multiple operating systems and applications concurrently), real time diagnostics (running diagnostics without taking the server offline), Chipkill memory, and large memories (up to 256 GB). The xSeries 440 is the first xSeries server to fully exploit the entire Enterprise X-Architecture blueprint. However, other xSeries servers — such as the xSeries 360 and xSeries 330 — are also reaping the benefits of Enterprise X-Architecture.

IBM works with developer partners, such as Trustix, to help reduce integration risks, and enable smoother installations and reliable implementations. Considering Trustix to be one of its most important international Linux partners, IBM ensures that Trustix Linux Solutions are made available through some of IBM's largest distributors. As IBM's Linux strategy unfolds — Linux on all eServer platforms — Trustix is positioned to grow its market through its partnership with IBM.

Trustix Linux Solutions

The Trustix Linux Solutions suite is a set of turnkey server solutions targeted at SMBs. They combine the reliability and stability of Linux with the convenience of managing Trustix Linux Solutions from Microsoft Windows (or Linux) desktops.

Trustix's suite of server solutions is available in the form of "plug-and-serve" solutions:

1. Trustix Firewall
2. Trustix LAN Server
3. Trustix Mail Server
4. Trustix Proxy Server
5. Trustix Web Server

Trustix Firewall

Trustix Firewall is a full-featured, packet-filtering router with support for virtual private network (VPN) and port forwarding, and offers a GUI for editing the firewall policy and behavior. By using the GUI, an administrator can configure a firewall server in as few as 30 minutes.

Trustix LAN Server

Trustix LAN Server is designed to replace or work in conjunction with existing Windows or Unix file-sharing servers. It includes a dynamic host configuration protocol (DHCP) server for automatic Internet Protocol (IP)-address maintenance. The server supports Network File System (NFS), Network Information System (NIS), and Microsoft Windows Server Message Block (SMB) protocols, allowing it to work in almost all common business-network environments.

Trustix Mail Server

Trustix Mail Server is compatible with most e-mail software support for simple mail transfer protocol (SMTP), for e-mail and secure Internet message access protocol, (IMAP) and POP3 (post office protocol 3), and it supports Open Secure Sockets Layer (OpenSSL) for security. The e-mail server provides basic, back-office functionality through Web-based mail, address book, and shared calendar functionality.

Trustix Proxy Server

Trustix Proxy Server is an Internet caching server that contains a temporary storage of Web and file transfer protocol (FTP) content on the LAN, in order to speed up browsing. The Proxy Server is equipped with a filtering option to deny access to banned domains and sites.

Trustix Web Server

Trustix Web Server provides a secure platform for delivery of Web content. It is based on Apache Web Server, which is the most commonly used Web server engine in the world. In addition, Web Server is compatible with all of the important Web browsers.

Trustix Linux Solutions Architecture

The Trustix Linux Solutions architecture is illustrated in Figure 1. All of the Trustix Linux Solutions are built on Trustix Secure Linux. Trustix Secure Linux is open source and available as a free download from www.trustix.net, or it can be purchased from any Trustix partner.

Trustix Secure Linux is Trustix's Linux distribution. Currently, Trustix Secure Linux consists of about 220 software packages, considerably less than most Linux distributions, such as Red Hat Linux and SuSE Linux. Because unnecessary services and applications are not contained in the Trustix Secure Linux distribution, a higher degree of security is attainable. The distribution is supported by a number of

people in the open source community, and Trustix works very closely with the Linux development community to ensure that the stability and security aspects of the Linux distribution are always kept up to date. The Trustix Secure Linux distribution is targeted at servers only.

The Trustix middleware is built with middleware, based on the common object request broker architecture (CORBA) standards, and uses OpenSSL over transmission control protocol/Internet protocol (TCP/IP) for cross-platform communication. This allows Trustix Linux Solutions to be managed securely from anywhere on the Internet. The Trustix Linux Solutions contain proprietary code in the middleware, administration client, and GUI, and are not freely available.

The Trustix administration client is the same for all Trustix Linux Solutions. The Trustix administration clients are available for both Linux and Windows as native applications. From a single client, a user can, in an integrated manner, manage several Trustix Linux Solutions servers. For example, a user can manage a Trustix mail server on one machine, a Trustix LAN server on another machine, and so on.

The Trustix Application Server illustrated in Figure 1 can configure and manage underlying Linux applications. These applications can be independent software vendor (ISV) applications and/or open source applications. For each Trustix Linux Solution, Trustix selects the most stable applications available, and configures the applications to provide a stable, secure server. As illustrated in Figure 1, the Trustix Linux Solutions architecture is very modular and permits applications to be easily plugged in. The most important open source applications that Trustix utilizes include Apache (Web server), Postfix (e-mail server), Squid and Squidguard. (proxy server), Samba (LAN server), and FreeS/WAN and Linux (firewall server). Trustix uses Postfix for its e-mail server rather than Sendmail, because Sendmail is not as strong with respect to security and stability.

All Trustix Linux Solutions can run on a single server. However, in the SMB market, customers tend to stay away from general frameworks, instead adding functionality as needed over time. For example, if a SMB buyer wants a new e-mail server, they often do not want to migrate all of their applications and servers to Linux. Instead, they likely will just want to swap their current e-mail server for another. Using these characteristics of the SMB marketplace, Trustix delivers preconfigured servers that perform one function — either firewall server *or* e-mail server *or* LAN server, etc. — in an appliance-like fashion.

Why Trustix Solutions and Why Linux? — Trustix's Value Proposition
When setting-up or upgrading an IT infrastructure, a number of issues must be considered:

      1. Cost effectiveness of the solution

      2. Robustness

3. Degree of security required

4. Expansion capability

5. Investment protection

6. Availability of support

Cost Effectiveness
The cost effectiveness of a solution depends on several things, including:

1. The purchase costs of hardware, software licenses, and support

2. The costs of installing systems, performing day-to-day operations, and maintaining the hardware and software

3. The cost associated with users

The Trustix Linux Solutions suite is based on open source applications — such as Apache, Postfix, and Samba — so there are no license fees for the applications themselves. And in the Trustix Linux Solutions' licensing model, there is no client limit or client access license. There is only a license fee per server, regardless of the number of clients or the number of server processors.

Figure 1: Trustix Linux Solutions Architecture
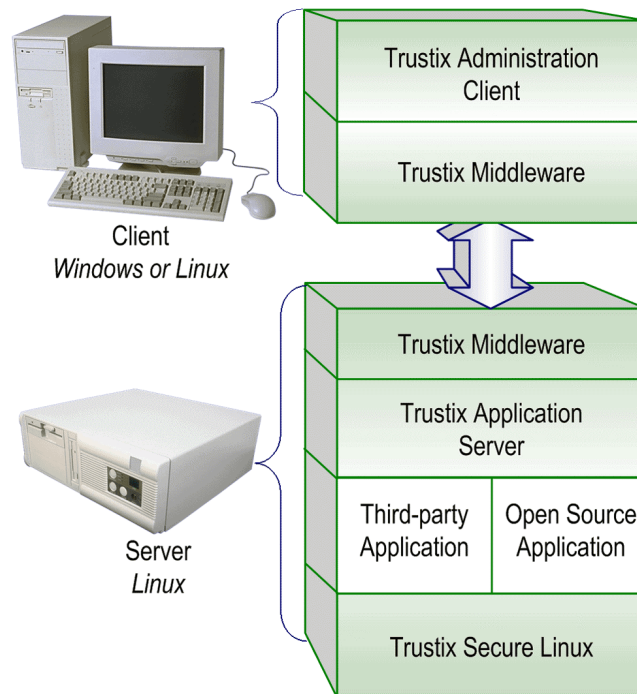
Source: Trustix, September 2002

To reduce the cost of maintaining Trustix Linux Solutions, administrators manage them via a GUI that does not expose configuration files. This exclusion reduces the amount of system administration training and the skill level required for administrators, without causing loss of management capabilities. However, knowledgeable Linux administrators can also manage Trustix Linux Solutions by editing configuration files.

Because Trustix servers are transparent to end-users, no special Linux training is required. The reliability and stability of Linux and the Trustix Linux Solutions reduce user costs associated with system unavailability due to system downtime.

Robustness
Linux is known for its high degree of reliability. The use of Trustix Secure Linux increases the stability of Linux beyond that of the standard Linux distributions. Because Trustix Linux Solutions are administered via the Trustix GUI that checks for the consistency of settings before they are applied, administrators are apt to make fewer mistakes that cause application downtime.

All Trustix Linux Solutions are automatically upgraded via the Internet. When Trustix makes an upgrade available, Trustix servers automatically detect the upgrade, derive and resolve any package dependencies, and then download and install the package(s). The update mechanism is based on the open Resource Description Framework/Extensible Markup Language (RDF/XML) standard, in order to maintain and present the metadata of the binary packages included in the product.

Security
Trustix Linux Solutions run on Trustix Secure Linux. Automatic upgrading and installation of security patches are handled like other software upgrades. Trustix's philosophy is to limit the number of services per server to help increase security. Trustix engineers thoroughly test the packages before they are released to the public.

Expansion and Investment Protection
When an IT infrastructure is created or enhanced, IT managers should consider the following questions:

- Can I increase capacity or performance later?
- Can I add other servers for other tasks later?
- Can I restructure my infrastructure later?

These questions and their answers are appropriate for investment protection, as well as expandability. In order to increase the capacity of a particular server that is running, say, Trustix Mail Server, the user can add one or more servers, or upgrade to a more powerful server.

All Trustix Linux Solutions adhere to industry standards. Existing installed base Windows and Unix servers can either be integrated with the Trustix solutions or replaced. Companies can introduce Trustix Linux Solutions into an infrastructure whenever it desires.

Support
Trustix provides support for partners and training programs for value added resellers (VARs) and distributors. This includes support for both Trustix Linux Solutions and Linux. For Trustix VARs and distributors, a certification program is required to ensure the quality Trustix requires of its products.

The Open Source Influence — Lower Cost of Ownership for Software
Trustix's product offering and market differentiation are tremendously influenced by open source. Trustix Secure Linux, the foundation of Trustix Linux Solutions, is a product of open source; and the Trustix Linux Solutions are based on the use of best-of-breed open source applications, such as Apache and Samba.

Trustix boasts significant cost-of-ownership advantages over comparable Windows-based solutions, because there are no application license fees for Apache, Samba, and other open source software, nor is there a license fee for Trustix Secure Linux. In addition, there are no client attach license (CAL) fees for the open source applications.

CALs are a main factor in pushing cost of ownership of Microsoft Windows significantly higher than the cost of ownership for Trustix Linux Solutions. For example, the CAL for Microsoft Exchange 2000 is $67 per client. The cost of an Exchange Server license is $699, and the cost of a single Windows 2000 Server license is $1,199, including 10 CALs (Source: Microsoft, November 2002). For an SMB with 100 users, the cost of licenses for a single Exchange Server is $7,928. A SMB can install all five Trustix Linux Solutions — firewall, LAN, e-mail, proxy, and Web servers — with purchase fees of $2,000, $1,400, $1,400, $1,000, and $1,000, respectively, and with unlimited client access for under $6,800 (Source: Trustix, November 2002).

Total cost of ownership (TCO) studies performed by Aberdeen Group and other marketing research companies for Linux, Unix, and Windows indicate that TCO factors other than software licensing — such as cost of machines, cost of system administration, cost of training, and so forth — are relatively close for Linux and Windows, with Unix generally higher. It is Aberdeen's perspective, however, that the findings in a general TCO study may not be a good reflection of the TCO for a specific enterprise. In this *White Paper,* only cost of ownership for software licensing is examined

Aberdeen Conclusions

All small SMBs need an e-mail server, a firewall server, a Web server, and so on. Trustix Linux Solutions provide a practical solution for SMBs. When compared to comparable Windows solutions, Trustix Linux Solutions are a fraction of the software cost of ownership for Windows-based solutions. A SMB with 100 users can acquire all of the Trustix Linux Solutions for less than the cost of acquiring a single Microsoft Exchange Server solution.

Trustix is leveraging its relationship with IBM as a software developer partner in order to increase its market share through the provision of low-cost, Linux-based infrastructure alternatives for SMBs. Through its IBM relationship, Trustix is being placed on the list of software solution providers at IBM's largest distributors. Today, Trustix Linux Solutions are being offered only on IBM's eServer xSeries platforms. The reason: Trustix Linux Solutions are a "scale-as-you-go" product suite and xSeries platforms provide this same scaling capability.

Trustix's software development partnership with IBM has produced some big wins for the company. In August 2002, Trustix announced that 7-Eleven is running the Trustix Mail Server on xSeries servers, and in October 2002, Ferrari UK decided to incorporate Trustix Linux Solutions into its information technology infrastructure.

To provide us with your feedback on this research, please go to www.aberdeen.com/feedback.