COMPAQ
White Paper

Contents

Compaq and the Open Source Software Story

Abstract: This white paper discusses the involvement of Compaq in the open source software revolution as both a supporter of Linux and as a contributor to the open source community since 1994. Compaq has positioned itself as a market leader reflecting the commitment to deliver the best server platforms and services available in the industry.

Compaq supports the following Linux distribution packages: Red Hat Linux, SuSE Linux, TurboLinux, and Caldera Systems eServer.

More information on Linux and open source is available on these Compaq websites: http://opensource.compaq.com/ and http://www.compaq.com/linux.

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Notice

Compaq and the Open Source Revolution

Compaq support for Linux and the broader open source community reflects the belief that open technologies encourage innovation and competition, expanding the choices available to the market. Compaq support for Linux and other open source technologies enables developers to work with the industry's top-selling platforms and latest designs, fostering close interaction between our product developers and software developers.

Compaq has been working with the open source software community longer than any other computer hardware vendor. In 1995, Compaq became the first hardware vendor to join as a participating member of the Linux International organization. For information regarding Compaq sponsorship, visit Linux International website: http://www.li.org/sponsors/sponlist.php?level=1.

The position of Compaq as the market leader reflects the commitment to deliver the best systems and services available in the industry. Information on open source is available on the following Compaq websites: http://opensource.compaq.com/and http://www.compaq.com/linux.

Compaq Solutions for Linux

Compaq support for Linux pre-dates the industry hype of the last few years. Linus Torvalds first visited the US in 1994, to speak at a Compaq user group event. In 1995, Compaq became the first hardware vendor to join Linux International, the vendor organization dedicated to promoting the Linux operating system.

Compaq over the years has had a collective tradition of breaking down the proprietary barriers in the information technology world. The Compaq tradition includes inventing cost-effective alternatives to old-style mainframe computing and launching compelling and user-friendly PCs -- designed at price points that have repeatedly helped broaden the market. It has also included embracing, developing and contributing to the initial implementation of X Window System (http://www.xfree.org) and supporting a wide range of other open source activities. Compaq also aids the support of Linux by contributing software to the actual Linux kernel.

Linux kernel development began in 1991 by Linus Torvalds on his Intel 386 computer system. Programmers from all over the world communicating via the Internet joined Linus in creating a freely available re-implementation of the interfaces for the popular UNIX operating system.

Linux has evolved into a fast reliable operating system complete with true multi-tasking, virtual memory, shared libraries, demand loading, and shared copy-on-write executables, proper memory management, and TCP/IP networking. Linux is commonly used for software development, networking (intra-office and Internet) and as an end-user platform. It supports multiple users and several X Windows-like graphic interfaces, and is exceptionally stable. Linux, from its inception was designed to take multiple hits and field numerous requests. This makes Linux an excellent choice for servers.

Compaq has the widest range of solutions for Linux including the ProLiant server and AlphaServer lines. Support for Linux includes close alliances with the major Linux distributors, contributions to open source projects, and the expansion of a portfolio of solutions, technology, and services. Compaq has partnerships with several Linux distributors including: Red Hat, SuSE, Caldera Systems, and TurboLinux.

Customers can also take advantage of the scalability of Compaq server systems and combine more than one platform into complex Linux systems with supercomputer capabilities.

Compaq is the top seller of Linux servers, beating out Linux specialty shops as well as other established computer makers in a market that grew 166 percent in one year, a study has found. Source-cnet.com April 2000

To enhance the productivity of the enterprise, Compaq also provides the options of architectural consulting, configuration design, proposal support, and factory integration of Linux operating systems, selected tools, and customer-specified applications.

From the solutions perspective, Compaq provides partnering opportunities to developers, consultants, system integrators and service providers though the Compaq Solutions Alliance.

Visit either of these Compaq websites for further information on Linux Solutions/Services: http://www.tru64unix.compaq.com/linux/solutions.htm and http://www.compaq.com/services/software/ss_linux.html.

Compaq AlphaServer and Linux

Compaq was the first to port Linux to a 64-bit architecture and developed a non-Intel distribution with Red Hat Linux for the AlphaServer platform. Collaboration efforts with Informix and SuSE resulted in the first 64-bit commercial database now available, delivering customers the ability to leverage the new large-memory capabilities of the latest version of Linux. Linux distributions for the AlphaServer platform are available from Red Hat, SuSE and TurboLinux. Compaq works closely with these Linux partners to certify, test and support the releases on the AlphaServer. Compaq is the market leader in support for open source software, including Linux, on the AlphaServer platform.

Compaq is the market leader in support for open source software, including Linux, on the AlphaServer DS series and AlphaServer ES series. Addition information on AlphaServer systems is available on these websites: http://www.compaq.com/alphaserver/linux/index.html and http://www.compaq.com/alphaserver/servers.html.

Compaq ProLiant Servers and Linux

In 1998, Compaq officially incorporated Linux-ready (tested and certified) servers into its portfolio, a set of products that continues to expand, beyond servers to the desktop and to handhelds.

The ProLiant family of servers together with several Compaq Linux partners including Caldera eServer, Red Hat, SuSE, and TurboLinux, provides industry leading Linux solutions and support. Compaq offers pre-installed Linux on select ProLiant servers in addition to marketing Linux-certified desktops. Red Hat Linux 7.0 can be pre-installed on the ProLiant DL360, ProLiant ML330 and ProLiant DL320 servers.

The SmartStart CD-ROM for ProLiant server configures Compaq hardware, loads optimized drivers and assists with software installation. It also provides functionality for integrating operating systems on Compaq servers to achieve optimum reliability and performance.

Visit the Compaq ProLiant Linux certification website http://www.compaq.com/products/servers/linux/OSMatrix1.html for the most recent certification information.

Compaq Open Source Initiatives

Compaq is hosting a number of ongoing open source software projects running on the ProLiant and AlphaServer platforms. The Compaq open source website contains engineering projects, technical papers, news and articles from within the Compaq open source community. Compaq also aids in the support of Linux by regularly contributing software to the Linux kernel.

General Projects

All current open source projects are located on the Compaq Corporate website: http://opensource.compaq.com/

- Ethereal Graphical Enhancements is a project that adds graphical enhancements for the Ethereal network monitoring application. For more information on this project, visit: http://opensource.compaq.com/sourceforge/project/?group_id=16

- J2SDK v1.2.2 is the Compaq port of Java^{TM} 2 SDK, Standard Edition Version 1.2.2 to Linux on Alpha. It is currently in the public beta stage. For more information on this project, visit: http://opensource.compaq.com/sourceforge/project/?group_id=7

- Linux PPTP Client is a PPTP Client Project which aims to develop Linux based client for the proprietary Microsoft Point-to-Point tunneling Protocol. For more information on this project: http://opensource.compaq.com/sourceforge/project/?group_id=8

- Solaris Compatibility Libraries (SCL) allows applications using non-standard, proprietary Solaris APIs to be easily ported to Tru64 UNIX. Many applications written for Solaris use non-standard functions that can make porting to other UNIX operating systems difficult. Compaq has eased the migration of such applications to Tru64 UNIX by providing a number of libraries, available as open source, which implements many of the non-standard Solaris APIs enabling application source to be ported with little or no change. For more information on this project, visit: http://www.tru64unix.compaq.com/complibs/.

- The Open Source Database Benchmark (OSDB) project is defining a database-independent, system-independent benchmark to enable individuals to analyze the performance of a variety of system configurations. Information on this project is available at the following link: http://opensource.compaq.com/sourceforge/project/?group_id=19

- Compaq funded improvements and maintenance to Bind, the Internet name server, and to various versions of Sendmail.

- In June 2000, Compaq released its port of Linux to its new, award-winning handheld, the iPAQ 3600. The corporation is supporting the open project site, Handhelds.org. In addition to porting the core Linux operating system, Compaq is providing other software components including drivers, X Window support, handwriting recognition, touch screen and multimedia support. Compaq has also provided hardware specifications for the iPAQ handheld unit and will be providing specifications for its innovative Expansion Pack system. Visit http://www.handhelds.org for more information.

- In April 2000, Compaq made a "Software Developer's Kit" available for the Personal Juke Box, PJB-100. There is a USB protocol specification, file system specification, a library of "C" routines to implement the communications protocol, and a device driver for Linux. These sources are released under the GNU Public License. The kit is available at the following website: http://crl.research.compaq.com/downloads/register.cgi?download=Linux+Jukebox.

- Compaq engineers built the first implementation of the X Window System server (Version 11), donating the result to MIT. This code base resides at the core of all Linux and UNIX desktops.

AlphaServer

Compaq AlphaServer open source projects are listed below.

- Linux Jumpstart! configures an Alpha system to be ready to install any popular Linux distribution. Jumpstart! configures the hard disk and provides information on how to install the different Linux distributions. JumpStart! is now an open source Project, maintained by Compaq using SourceForge software management tool from VA Linux. To find out more about Linux Jumpstart! visit http://opensource.compaq.com/sourceforge/project/?group_id=3.

- Alpha Linux Digital Video Project is making digital video a reality on Alpha Linux systems. Our initial goal is to enable capture from a DV camcorder over IEEE 1394, conversion to streaming video, and serving to remote clients on Alpha Linux workstations. Visit the Alpha Linux Digital Video Project http://opensource.compaq.com/sourceforge/project/?group_id=6.

Drivers and Storage

Compaq driver and storage open source projects are listed below.

- TLAN Driver for Linux supports various Ethernet adapters based on the ThunderLAN chip. This driver is maintained by Compaq and is available at the following websitehttp://opensource.compaq.com/sourceforge/project/?group_id=12.

- CCISS Driver for Linux supports the Compaq Smart Array 5300 controller providing hardware RAID capability. The Smart Array 5300 series of high performance Ultra3 array controllers provides improved flexibility and data protection thanks to an innovative modular design and new Advanced Data Guarding (RAID ADG) technology. For additional information, visit: http://opensource.compaq.com/sourceforge/project/?group_id=9.

- CPQARRAY Driver for Linux supports the Compaq Smart-2 PCI Disk Array family of controllers, which provides hardware RAID capability. The Smart Array Controller family is the simplest to use and has the lowest cost of ownership of any industry-standard family of storage solutions. The Smart Array Controller family offers consistent configuration and management tools and data compatibility across the entire family. For additional information on this project, visit: http://opensource.compaq.com/sourceforge/project/?group_id=11.

- CPQFC Driver for Linux is the Compaq 64-bit/66 MHz Fibre Channel Host Adapter supporting connections to the Compaq RAID Array 4000/4100 Fibre Channel External Storage Platform and the Compaq Modular Data Router. The 64-bit/66-MHz Fibre Channel Host Adapter combines a 64-bit architecture with the connectivity and flexibility to deliver unparalleled storage scalability. This adapter builds on the Compaq commitment to Fibre Channel and expands our price/performance leading RAID Array 4000 family of products. For additional information on this project, visit: http://opensource.compaq.com/sourceforge/project/?group_id=10.

IMPORTANT: Compaq Linux drivers (CCISS, CPQARRAY and CPQFC) have been included in the source code of the Linux kernel beginning with Version 2.2.11 and the most recent version.

ProLiant Server

Compaq ProLiant server open source projects are listed below.

- The PCI Hot Plug for Linux project is developing the infrastructure for PCI Hot Plug, including some minor 2.4 kernel changes and a driver for the PCI Hot Plug Controller. For more information on the PCI Hot Plug for Linux, visit the Compaq website: http://opensource.compaq.com/sourceforge/project/?group_id=13. The Public Beta will be available soon.

Useful Links

All Compaq drivers and kernel patches (SoftPaqs) for Linux distribution packages are available for download at our websites:

> http://www.compaq.com/products/servers/linux/linux-drivers.html
> http://www.compaq.com/support/files/server/us/index.html

To view the Linux Options Support Matrix listing all supported array controllers:

> http://www.compaq.com/products/servers/linux/OptionsMatrix.html

Information on the Linux kernel is available at the following website:

> http://www.kernel.org/pub/linux/kernel/

Installing Linux on ProLiant Servers in printable Adobe PDF, go to the Compaq FTP site:

> ftp://ftp.compaq.com/pub/products/servers/linux/Compaq-ProLiant-HowTo-JA.pdf

Compaq also hosts a number of projects for handheld and wearable computers found here:

> www.handhelds.org

Compaq Continues to Contribute to the Open Source Community

Compaq regularly contributes to open source projects and will continue to contribute intellectual property to help further the adoption of Linux in the enterprise. Compaq has donated equipment to organizations, projects, and individuals across the Linux community.

Compaq also actively sponsors efforts to enhance development of open source GUIs as a member of the GNOME Foundation's Advisory Board and as part of the KDE League Board of Directors.

Just a few of the development contributions to the community are XFree86, MySQL, PostgresSQL, Linux Counter (http://counter.li.org/), OpenSSL, FreeBSD, and OpenBSD projects.

Some of the hardware contributions are the supplying of USB Modems to the Linux USB project, AlphaServers to support the Debian project and a ProLiant DL360 in support of the LinuxBIOS project. Systems are used for a variety of purposes, namely kernel development on scaling and memory issues, graphics ports, GUI development, and Java as well as application development.

Appendix - Web Resources

Table 1 lists Compaq resources available on the web.

Table 1. Compaq web resources

Item	Web Location
Compaq website contains projects and information regarding ongoing open source developments.	http://opensource.compaq.com
Compaq and Linux website contains valuable information about the Compaq commitment to Linux.	http://www.compaq.com/linux/
Compaq ProLiant Linux website discusses and presents information regarding running Linux on ProLiant servers.	http://www.compaq.com/products/servers/linux/
Compaq Tested and Certified ProLiant Servers- a detailed matrix illustrating Linus tested and certified server solutions.	http://www.compaq.com/products/servers/linux/OSMatrix1.html
Compaq Storage Options Tested Matrix-illustrates tested and certified hardware options.	http://www.compaq.com/products/servers/linux/OptionsMatrix.html
Compaq Alpha Linux website contains detailed information regarding Compaq AlphaServer running Linux.	http://www.compaq.com/alphaserver/linux/index.html
Compaq Linux Support Software (including SoftPaqs and kernel patches)	http://www.compaq.com/products/servers/linux/linux-drivers.html
Compaq-ProLiant Linux Installation "*How To"* document *"Installing Linux on Compaq ProLiant Servers"*	ftp://ftp.compaq.com/pub/products/servers/linux/Compaq-ProLiant-HowTo-JA.pdf
Compaq Foundation Agents for Linux - web page to download these agents.	http://www.compaq.com/support/files/server/us/download/9361.html
Compaq NIC Agents for Linux web page to download these agents.	http://www.compaq.com/support/files/server/us/download/9360.html
Compaq Server Agents for Linux web page to download these agents.	http://www.compaq.com/support/files/server/us/download/9358.html
Compaq Storage Agents for Linux web page to download these agents.	http://www.compaq.com/support/files/server/us/download/9359.html
Compaq FTP directory contains drivers, publications, and other product information.	ftp://ftp.compaq.com/pub/products/drivers/linux/released/
Compaq ActiveAnswers gives you the benefit of our experience to help manage your system and reduce the time, risks, and complexity associated with deploying solutions.	http://www.compaq.com/activeanswers
Compaq Info Messenger offers you timely access to information products, which can be accessed through the Compaq website. If you submit a profile to Compaq Info Messenger, telling it what platforms and operating systems you are interested in, the service tracks your areas of interest advising you when related information products are released.	http://www.compaq.com/infomessenger

continued

Table 1. Compaq web resources *(continued)*

Item	Web Location
Customer Advisories for Linux running on Compaq server platforms inform you of important issues and their resolutions.	http://www.compaq.com/products/servers/linux/advisories.html
Press releases and Communiqués announce the availability of new products and versions.	http://www.compaq.com/newsroom/pr
Compaq Server Software Download Center website provides the capability to download device drivers, utilities, services, and BIOS required for Compaq ProLiant servers.	http://www.compaq.com/support/files/server/us/index.html
White Papers (complete listing) inform you of ways to optimize your environment and obtain the maximum benefit from software enhancements.	http://www.compaq.com/support/techpubs/whitepapers/index.html

Table 2 lists Linux distribution package resources available on the web.

Table 2. Linux distribution package vendors

Item	Web Location
The Red Hat offical website	http://www.redhat.com/
Caldera Systems website	http://www.calderasystems.com/
TurboLinux website	http://www.turbolinux.com/
SuSE Linux website	http://www.suse.com/