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# Commercial Service Provider Solutions on Linux

*Abstract*

This guide provides an overview of commercial software solutions available for Linux on the Intel platform. The focus of this paper is on the commercial applications that are important to Service Providers.

The target audience includes Compaq customers, systems integrators, and Compaq sales and support personnel who need a better understanding of commercial service provider solutions running on Linux.

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# 1 Introduction

This guide offers a basic introduction to the various commercial products available for service providers on Linux platforms. Historically, only Open Source software was available, but now a number of commercial firms either have written new software products specifically for the Linux platform or have ported their UNIX or Windows products to Linux. Another trend is for companies to form around successful Open Source software packages to provide easy-to-install software bundles, support, and professional services.

## 1.1 Linux Information Resources

A large amount of information is available on the World Wide Web. The following websites provide information on Linux, Linux distributions, news, and information sites that have timely information about Open Source and commercial Linux packages and solutions.

- <http://www.freshmeat.net> – If you are looking for a particular software package or need to explore what is available, this should be the first stop. Freshmeat.net is the primary site where new Linux software packages are announced. There are extensive cross references and hierarchy of types of both Open Source and commercial software.
- <http://www.linuxtoday.com> – For Linux specific news and information, this is the best starting point.
- <http://www.slashdot.org> – The self-described “News for Nerds” has a strong Linux and Open Source focus but also offers interesting news about events in the technology world.
- <http://www.linuxpr.com> – This is the primary site for keeping informed about Linux related press releases.

## 1.2 Linux Distributions

There are a number of distributions of the Linux operating system. All of them offer similar features. The right one for you is largely a choice of what is popular in your area or your level of experience with a particular version. Most of the distributions also offer various levels of commercial support such as 24x7 telephone support, priority access to updated packages, as well as a number of contract based professional services.

The following commercial distributions are those that Compaq works with to certify that they properly install and work for the Compaq *ProLiant* platform.

**Figure 1. Commercial Linux Distributions**

<a href="http://www.redhat.com/">http://www.redhat.com/</a>	Red Hat Linux distribution
<a href="http://www.calderasystems.com/">http://www.calderasystems.com/</a>	Caldera Linux distribution
<a href="http://www.suse.com/">http://www.suse.com/</a>	SuSE Linux distribution
<a href="http://www.turbolinux.com/">http://www.turbolinux.com/</a>	TurboLinux distribution
<a href="http://www.linux-mandrake.com/">http://www.linux-mandrake.com/</a>	Linux Mandrake distribution

## 1.3 Compaq *ActiveAnswers* Solution Resources

The Compaq *ActiveAnswers* website contains a growing number of documents that address the planning, deployment, and operation of Linux solutions on Compaq platforms. The site's main URL is:

<http://activeanswers.compaq.com/>

In the *ActiveAnswers* section for Service Providers, you can find a number of installation guides, sizing tools, and white papers that describe solutions built around Open Source packages. There is also a growing number of *ActiveAnswers* Web pages that describe solutions based on commercial Linux solutions such as the following:

- *Ensim ServerXchange and Compaq Platforms - a Comprehensive Application Hosting Solution* describes how to size, configure, and deploy the Ensim ServerXchange product family on Compaq *ProLiant* servers.
- *Lotus Domino R5 on Linux* describes installation of Lotus Domino R5 for the Linux operating system.
- *Installation, Sizing, and Operations Guide for Microsoft FrontPage Server Extensions on Linux* describes how to best offer Microsoft FrontPage client support with the Apache Web server.

## 2 Commercial Software Commonly Used by Service Providers

This section describes the growing number of commercial solutions and services typically used by Service Providers in providing their services. The goal of this section is to give an overview of each software component. The commercial solutions are grouped in the following categories:

- DNS and DHCP servers
- Web Server products and add-ons
- Mail software
- News software
- High-availability clustering products
- Database software
- Application sharing and deployment
- Application servers
- Backup and Restore

### 2.1 DNS and DHCP Servers

The Internet Software Consortium (ISC at <http://www.isc.org/>) is a nonprofit corporation dedicated to production-quality software engineering for key Internet standards. They provide an open source Domain Name System (DNS) software package known as BIND (the Berkeley Internet Name Domain), which provides domain name lookup for the majority of the Internet. The other flagship package from the ISC is the very popular, and open source, Dynamic Host Configuration Protocol (DHCP) server that provides IP addresses to systems that request them on startup.

#### 2.1.1 Nominum

**Web Address:** <http://www.nominum.com>

Nominum, Inc. and Nominum, Ltd. make up the primary development team that developed the latest Open Source versions of BIND and DHCP. They sell a number of support packages for BIND and DHCP ranging from e-mail support to 24x7 telephone support with an unlimited number of queries.

Design, audit, and installation consulting services and training courses are also available.

### 2.2 Web Server Products and Add-Ons

Linux has excelled in the area of Web hosting, and the Apache server is clearly the most preferred Web server software running over 65% of public websites. There are commercial versions of Apache as well as other Web servers for specific niche markets.

### 2.2.1 Covalent Technologies

**Web Address:** <http://www.covalent.com>

Covalent Technologies is a leader in products and services for Apache, the world's leading Web server, and full commercial support for the Apache Web server.

Covalent was founded in 1998 to enhance the Apache Web server for the enterprise. Covalent has created a full suite of Apache products and services that make Apache fully supported, easy to use and more powerful than ever before.

They have on staff a number of the key Apache core developers who continue to develop the Open Source package.

Covalent has focused on providing solutions for the service provider, large scale commercial website, and enterprise-sized business markets.

Service provider focused products currently include:

- Covalent Fast Start server provides a graphical installation of Apache that makes it easy to install SSL, PHP, DAV, and Perl, as well as modules for Apache Jserv and Jakarta Tomcat on a server.
- Covalent Managed Server provides an automated Apache Web server installation with popular extensions such as PHP, Perl, Java, DAV, and SSL. It also has Covalent extensions for management by popular network management tools and a graphical management interface.
- Covalent Secure Server provides full 128-bit SSL and comes with hardware acceleration support, full support of latest SSL and TLS security standards, an automated configuration tool, and a free SSL certificate. Additionally, anti-virus support is provided through embedding McAfee VirusScan technology directly into a virus protection module for the Apache Web server.

Covalent also has a strong professional services organization for custom projects and a training organization offering courses at all levels of Apache Web server management and development.

### 2.2.2 Zeus Technology, Ltd.

**Web Address:** <http://www.zeus.co.uk>

Zeus Technology, Ltd. sells a reliable, high performance Zeus Web Server, which is ideal for the needs of a mission-critical website. Features include the ability to be clustered with other Zeus Web servers in a large Web farm, a Web-based user interface for monitoring, and outstanding scalability.

With integrated clustering, scriptable provisioning, and unequaled hosting capabilities, the Zeus Web Server is a perfect solution for powering the most demanding websites and Web server farms.

The Zeus Mass Hosting Edition (MHE) is a framework designed specifically with large ISPs and Telcos (telecommunication companies) in mind. MHE provides website hosting services that can be fully rebranded for volume hosting or resellers, with custom definable service offerings, and easy to use delegable management interfaces. Major features include instant deployment of subscriber websites on a scalable cluster of servers, a self sign-up server, and a branded personal control panel for subscribers.



The Zeus Web Server/Appliance Edition is a version of the Zeus Web Server software, that is optimized for thin server hardware platforms and end-user ease of use. It is an attractive solution for the rapidly growing demands of OEMs, value added resellers, and dedicated hosting ISPs who require reliable and easy to manage Web serving systems.

Zeus Technology also has a Web load-balancing product. Zeus Load Balancer is an extremely powerful and intelligent software load balancer, enabling Web servers to be clustered for improved performance, scalability, and fault tolerance. Sophisticated protocol-based load balancing over a scalable cluster of Web servers improves throughput and responsiveness, increases availability, and copes with dynamic cluster configuration changes.

Zeus Technology offers support contracts from e-mail queries to enterprise 24x7 hotline support. Professional services are also available from architectural design, proof of concept, deployment services and performance tuning. Zeus has locations in the United States, England and Japan.

### 2.2.3 iPlanet Web Server

**Web Address:** <http://www.iplanet.com>

iPlanet is an AOL-Netscape-Sun Alliance company which offers the follow-on versions of the Netscape FastTrack and Enterprise Edition Web servers.

The FastTrack Edition Web server features a Web-based graphical interface for management, extensive server-side Java support, 56-bit SSL support, and LDAP-based user authentication.

The Enterprise Edition Web server has the FastTrack features plus intelligent load balancing across multiple Web servers, a multi-threaded, multi-process model for optimal performance under high load, delegated administration, cluster management, SNMP monitoring, and tight integration with the iPlanet Directory server.

## 2.3 Mail Software

Electronic Email is a key component of any service provider infrastructure. It is critical that the mail infrastructure is rock solid and supports all the popular protocols (SMTP, POP3, and IMAP) and features such as mailing lists.

### 2.3.1 Sendmail

**Web Address:** <http://www.sendmail.com>

Sendmail, Inc. is a company created by the primary authors of sendmail, which is the most widely deployed mail server in the world.

Sendmail, Inc. has a number of packages targeting the service provider market segment. Of particular interest are the following products.

Sendmail Advanced Message Server is targeted at growing service providers and standards-conscious enterprises looking for a high-performance, reliable Internet messaging solution that will scale seamlessly as their needs evolve. It includes the Sendmail Message Transport Agent (MTA) and provides a complete, rapidly deployed hosting solution that scales to hundreds of thousands of users comfortably on a single server. Additionally this product includes high performance POP3 and IMAP access, a robust message store, simple Web-based management, and optional Web-based mail client.

Sendmail Multiswitch allows entire mail systems to be integrated into one administrative domain. Designed for the IT staff, it allows for managing multiple distributed mail servers, delegating administration, real-time monitoring, and a Web-based graphical interface.

Sendmail, Inc. also offers a number of technical support packages ranging from phone support on a per-instance basis, through a support package for small to mid-sized corporations and service providers, to support that is custom designed for large mission-critical mail server deployments.

### 2.3.2 L-Soft

**Web Address:** <http://www.lsoft.com>

L-Soft International, Inc. is the creator of one of the early software packages for managing mailing lists. L-Soft has ported their flagship product, LISTSERV, to Linux. LISTSERV is designed for managing e-mail lists and personalized direct e-mail marketing campaigns. It is recognized for its flexibility, scalability, performance, and time-tested robustness.

## 2.4 News Software

Usenet News is a worldwide, distributed, discussion system that consists of newsgroups that are classified hierarchically by subject, for example, comp.os.linux. Articles are posted to these newsgroups, and the articles are then fed to other interconnected computer systems via a wide variety of networks. Additionally newsgroups are frequently used for local collaboration.

### 2.4.1 Dnews

**Web Address:** <http://www.netwinsite.com>

The DNews product from NetWin, Inc. is a fully-featured Usenet news server for Linux as well as a number of other platforms. In addition to the usual features found in Open Source Network News Transfer Protocol (NNTP) packages, DNews also includes a Web-based end user interface, a Web-based administration interface, and various authentication backends such as LDAP, Radius, and Pluggable Authentication Modules (PAM).

## 2.5 High Availability Clustering Products

As deployment of Linux moves from supporting simple Web servers to running business-critical applications there is a growing need to provide highly available service by adding clustering technology. In the Compaq Distributed Internet Server Array (DISA) architecture, high availability clustering fits ideally in the data resource layer. The Compaq *ActiveAnswers* site (<http://www.compaq.com/activeanswers>) contains extensive information about the planning, deployment, and operation of a DISA environment.

Clustering technology for service providers should provide at least the following features:

- Single view to users
- More than one system
- Automatic failover of services

In addition, some clustering products offer the following:

- Automated deployment
- Automatic load balancing
- Multiple systems
- Shared storage
- Automatic IP failover
- Concurrent shared storage
- Load balancing

### 2.5.1 SteelEye Technologies

**Web Address:** <http://www.steeleye.com>

LifeKeeper from SteelEye Technologies is a platform that allows enterprises to quickly implement cost-effective high-availability clustering solutions to maximize uptime of business-critical applications. Compaq has partnered with SteelEye to provide tested *ProLiant* server configurations for highly available systems. For complete information including the supported hardware matrix see this Compaq Web page:

[http://www5.compaq.com/solutions/enterprise/ha\\_linux\\_clusters\\_index.html](http://www5.compaq.com/solutions/enterprise/ha_linux_clusters_index.html)

LifeKeeper maintains the high availability of applications running on clustered Linux server systems by monitoring system and application health, maintaining client connectivity, and providing uninterrupted data access regardless of where the clients reside – on the corporate Internet, intranet, or extranet. LifeKeeper is a commercially proven solution that provides:

- Continuous uptime for e-commerce applications
- Enterprise-grade, high availability clustering for e-business
- Intuitive Java GUI and easy ongoing operations management
- Flexible configurations to maximize application service levels
- Non-intrusive integration with industry-standard OS and applications environments

### 2.5.2 Mission Critical Linux

**Web Address:** <http://www.missioncriticallinux.com>

Convolo Clusters from Mission Critical Linux, Inc. is an enterprise-ready, high-availability cluster product. It is based on the Open Source Kimberlite cluster technology that has been pioneered by Mission Critical Linux.

This product configures two server nodes in a failover configuration where both servers are active. Both systems are connected to external storage, which may be either SCSI or Fiber Channel based. Convolo Clusters can detect when one of the server systems leaves the cluster and then trigger recover scripts that restart the application on the remaining server system. When the server rejoins the cluster, applications can be moved back either automatically or manually. Server applications in the cluster environment are off-the-shelf and do not need to be modified to take advantage of the Convolo Cluster environment.

Mission Critical Linux also offers a number of service products to support the Convolo Cluster product such as their remote Secure Server Monitoring service.

### 2.5.3 Turbolinux Clusters

**Web Address:** [www.turbolinux.com](http://www.turbolinux.com)

Unlike other clustering products, Turbolinux Cluster products come with their own Linux distribution or they can be installed on Red Hat Linux distributions.

Turbolinux Cluster Server 6 (TCS6) is an enterprise-class clustering solution that configures highly available and scalable clusters using widely available components. Quality of service of most TCP/IP based network services such as Apache Web Server, Mail, Usenet News, and FTP can be greatly improved by automatic failover of services between systems.

Key features of TCS6 include the following:

- TCS6 is a pure application capable of being installed on either Turbolinux Server 6.0 or Red Hat Linux 6.2.
- TCS6 comes with a new Web administration tool, Cluster Management Console (CMC), for remote and local management via a powerful graphical Web framework.
- TCS6 supports Network Address Translation (NAT) as well as Direct Routing and Tunneling.
- The Cluster Management Console provides for real-time graphical statistics on service, performance, and load.
- Dynamic run-time configuration is available via the CMC of numerous cluster settings. With a simple mouse click, administrators can now take individual nodes offline for maintenance without impacting overall cluster service.
- Two powerful and secure synchronization tools are based around Secure Shell (SSH) technology for automatically replicating cluster configuration and for replicating content between the various nodes within the cluster.
- The Cluster Management Console supports secure authentication and encryption using Secure Sockets Layer (SSL) technology.
- Dynamic scheduling of server health checks gives increased service availability.
- Failover clustering provides for stateless applications.
- Packet forwarding and traffic management is included.
- "Virtual Hosting" of multiple sites can support configurations of over 1000 virtual hosts.

The Turbolinux technology supports heterogeneous platforms including Linux, UNIX, Solaris and Windows NT/2000.

## 2.6 Database Software

Web servers are rapidly moving from serving static Web pages to dynamic, personalized content that requires a database.

### 2.6.1 Abriasoftware

**Web Address:** <http://www.abriasoftware.com>

Abria SQL Standard by Abriasoftware Co. is a boxed version of the MySQL database bundled with Perl, Perl DBI, PHP, Apache Web server, and other tools. It has an installation program that intelligently handles upgrades, downgrades, and complex dependency conflicts. Versions are available for Linux and Windows platforms.

Abria MySQL Administration Training CD is a self-paced, interactive, Web-based training package designed for users with some database experience to learn how to administer a MySQL database. Abria also offers instructor-led training seminars available on such topics as *MySQL Administration*, *MySQL Advanced Administration*, and a number of Linux-focused classes.

Technical support services are also available at a number of different levels from per-incident calls billed in 15-minute increments to yearly enterprise-level support contracts that include 24x7 telephone and e-mail support, named contacts, and one-hour response time during non-work hours.

### 2.6.2 Great Bridge

**Web Address:** <http://www.greatbridge.com>

Great Bridge PostgreSQL for Linux from Great Bridge, LLC is an enhanced thoroughly-tested distribution of the popular Open Source PostgreSQL database. It includes a graphical automated installer for quick and easy installation and configuration. Extensive documentation is also included with the commercial package.

Technical support services are also available including a premium level of support that includes 24x7 telephone and e-mail support, named contacts, immediate response, and an assigned support team.

Professional services for custom projects are also available.

### 2.6.3 Informix

**Web Address:** <http://www.informix.com>

Informix is offering the Informix Dynamic Server, Linux Edition Suite, based on the Informix Dynamic Server. Informix Dynamic Server is designed for database scalability and performance, and provides a consistent database architecture that extends from the desktop to the data center. Informix Dynamic Server, Linux Edition Suite enables the development and deployment of client/server and Web/intranet applications across an organization, including distributed workgroups and departmental solutions on the Linux platform.

### 2.6.4 NuSphere

**Web Address:** <http://www.nusphere.com>

NuSphere MySQL by NuSphere is a boxed version of the MySQL database pre-bundled with the Apache Web server, Perl, PHP, and a Web-based administration tool for Linux, Windows, and other UNIX platforms. The boxed version also includes extensive documentation for those packages.

NuSphere also offers training classes on topics such as *Introduction to MySQL*, *MySQL Administration*, and *Optimizing MySQL*.

Technical support services are also available at a number of different levels from installation support through 24x7 telephone and e-mail support.

It is worth noting that NuSphere is providing the core Open Source MySQL database with significant new features. These features include complex transactional capabilities and a robust transactional storage engine. This functionality has been released under an open source license and has been integrated into the core MySQL distribution.

## 2.6.5 Oracle

**Web Address:** <http://www.oracle.com>

Oracle has made a number of their software products available on Linux:

- Oracle8i Database Server – Oracle’s premiere database server, the only database specifically designed as an Internet development and deployment platform, now includes the Oracle Parallel Server option on Linux.
- Oracle9i Application Server – Oracle Application Server provides an open, standards-based architecture, which is ideal for developing and deploying your real-world business and commerce applications for the Web.
- XML Parser for C/C++ – A standalone Extensible Markup Language (XML) component that allows a C/C++ application to parse an XML document or a standalone DTD.
- Business Component Editor – A standards-based, server-side framework that provides design-time facilities and runtime services to drastically simplify the task of building, debugging, customizing, and reusing business logic.

## 2.7 Application Sharing and Deployment

### 2.7.1 Ensim

**Web Address:** <http://www.ensim.com>

Ensim Corp. targets hosting providers to enable them to deliver a comprehensive platform that is designed specifically to serve as the flexible foundation of very large scale hosting operations. Ensim has created a new category of Internet infrastructure products and solutions precisely to address these needs.

ServerXchange is the industry's first comprehensive hosting operations platform designed to enable hosting providers, including ISPs, ASPs, and data center operators, to rapidly grow and efficiently operate large-scale hosting businesses. ServerXchange is a 3U rack-mountable hosting operations management appliance that can manage up to 100 servers. Administration of the appliance and available services is performed using a powerful remote administration console.

Downstream management of services is delegated to resellers and end customers using sophisticated, Web-based graphical user interfaces.

ServerXchange provides:

- Complete set of automation tools
- Delegated and distributed control of services
- Consistent administrative interface, regardless of OS
- Mass administration of deployed services
- Powerful reseller administration capability
- Easy-to-use customer self-administration tools
- Integration notes with billing systems, network and systems management platforms

Ensim AppXchange is a library of high-quality and up-to-date hosting plan software suites that hosting providers can use as a foundation for creating differentiated service plans. It automates the installation and upgrades.

AppXchange benefits include:

- Decreased administration costs
- Differentiation from competitors
- Reduced customer churn
- Increased revenue and profit per square foot of rack space
- Increased utilization of server capacity

The Service Provider section of the Compaq *ActiveAnswers* website (<http://www.compaq.com/activeanswers>) provides a number of documents to aid in sizing, configuring, and deploying the Ensim ServerXchange product family on Compaq *ProLiant* servers.

## 2.7.2 Sphera

**Web Address:** <http://www.sphera.com>

HostingDirector from Sphera Corp. is a complete, robust software platform that provides end-to-end global service automation targeted at the needs of service providers. HostingDirector is an extensible, scalable, and open solution that streamlines complex processes and delivers higher value to the end customer.

HostingDirector is composed of several software components cooperating to create a full hosting automation platform:

- When Sphera ServerDirector is installed on a machine, it uses its unique Virtual Dedicated Server (VDS) technology to bridge the gap between shared server hosting and dedicated server hosting. It simulates multiple dedicated servers on a single physical machine, each of which serves a single customer. To the customer, such a virtual dedicated server is indistinguishable from a dedicated server.
- ClusterDirector is a cross-platform, multi-distributed solution allowing seamless management of globally distributed sites across different architectures and physical locations. Sphera's robust clustering technology enables a service provider to control thousands of websites from a single control panel offering extensive monitoring and recovery for fast-growing mission-critical hosting operations.
- DomainDirector cuts down and simplifies complex DNS management tasks. Being the only point of contact exposed to the Parent Name Server, it encapsulates domain information relating to internal HostingDirector components. The DomainDirector handles all internal registration details and changes made within its managed domains.

## 2.8 Application Servers

### 2.8.1 Cold Fusion

**Web Address:** <http://www.allaire.com>

Allaire Corp. has brought their popular Cold Fusion Web application server to Linux. ColdFusion is a complete Web application server for developing and delivering scalable e-business applications. ColdFusion is designed to deliver on the key requirements of e-commerce and enterprise Web applications.

Key features include:

- Scalable Deployment – A high performance, multithreaded architecture that includes advanced features such as just-in-time compiling, load balancing, and failover, thus ensuring that your applications will scale upward
- Open Integration – Open integration with databases, e-mail, directories, Java, XML, and enterprise systems



Allaire has also made the JRun Server available on Linux. JRun Server delivers the full capabilities of the J2EE specifications Java Server Pages (JSP), Servlets, Enterprise Java Beans (EJB), Java Message Service (JMS), and Java Transaction API (JTA) in a modular design that lets you choose the technologies you require in your applications.

### 2.8.2 Lotus Domino

**Web Address:** <http://www.lotus.com>

Lotus Development Corp. has available for Linux the complete Domino groupware server family. Domino provides an extensible foundation for messaging and collaboration featuring multiple server offerings:

- Domino Mail Server – E-mail, Web access, calendaring and scheduling, bulletin boards, newsgroups, mobile support, and Web standards
- Domino Application Server – Collaborative Web applications with connectivity to back-end systems
- Domino Enterprise Server and Domino Advanced Enterprise Server – Clustering and partitioning services, including dynamic load balancing and failover for applications, for the ultimate in performance and reliability

### 2.8.3 Lutris Technologies

**Web Address:** [www.lutris.com](http://www.lutris.com)

Lutris Technologies is an Open Source based company providing enterprise class software and services based on their Open Source Java/XML Application Server called Lutris Enhydra.

Lutris Enhydra is a feature-rich application server for building wired and wireless Web applications using Java and XML technologies. This makes for a flexible development environment that supports complete separation of interface design, business logic, and data objects.

- Lutris Enhydra platform contains just about all enterprise level services to build extremely high volume websites. One interesting feature is the Enhydra XMLC technology, which is an object-oriented standards-based replacement for Java Server Pages that completely separates the designer and developer. Enhydra also provides plugins for the leading Integrated Development Environments such as the Borland JBuilder. Additionally, Enhydra includes object-to-relational mapping tools, clustering Web server extensions and much more.
- Enhydra Enterprise is a third generation design leveraging all of the capabilities of Enhydra, but adding full J2EE support and a JMX-managed plug-and-play services based architecture that allows the platform to be configured with different size footprints depending on desired functionality.

Lutris Technologies provides contract-based service and support programs for Enhydra. Levels of support range from Lutris Enhydra installation e-mail support through per-incident telephone support to enterprise class 24x7 support for mission critical applications.

Expert training classes are also available from Lutris. Current classes include:

- Lutris Enhydra Fundamentals
- Building Wireless Applications with Lutris Enhydra
- Database Techniques with Lutris Enhydra

Lutris Technologies' professional services organization can plan, implement, and deliver a reliable, customized, scalable solution.

## 2.9 Backup and Restore

While the tar command may be sufficient for simple backup and restore needs of small sites, deployments with multiple servers and a large amount of data require a more complete solution. The following products address issues such as backup of remote data, autoloading tape libraries, scheduled incremental, and full backup and restore functions.

### 2.9.1 Arkeia Software

**Web Address:** <http://www.arkeia.com>

*Arkeia* by Knox Software Corp. is a multi-server network-based archiving and recovery product with a graphical user interface. The product includes an extensive list of functionality including a client/server architecture, very high speed network performance, clients for Windows NT, UNIX, and Novell, full and incremental backup, and support of online and offline backup of Oracle databases. An extensive list of backup devices from 4mm DAT drives to high-end auto-loading tape robots is supported.

### 2.9.2 Legato

**Web Address:** <http://www.legato.com>

Legato NetWorker 6.0.1 from Legato Systems is available for Linux and is an excellent choice for the data storage needs of large and small heterogeneous business environments. It delivers superior results in manageability, performance, and scalability. It provides fast, reliable and complete data backup and recovery for all systems, databases, and enterprise servers running critical applications.

Legato NetWorker 6.0.1 provides the functions most needed by heterogeneous operations, such as serverless backup and library sharing for LANs or SANs. NetWorker 6.0.1 includes an indexing architecture that dramatically increases performance and scalability in backup and recovery operations.

The Legato NetWorker Module for Oracle increases application availability by performing fast, online backup of Oracle databases hosted on Linux servers. It provides fast, reliable backup and restore solution for databases, tablespaces, data files, and archive redo logs.

### 2.9.3 LONE-TAR

**Web Address:** <http://www.lonetar.com/>

LONE-TAR Backup and Restore by Lone Star Software Corp. is a menu-driven, data archiving and recovery utility that uses high compression to increase the capacity of the archive device. LONE-TAR supports full and incremental backup strategies. Included is support for 4mm DAT and 8mm tape drives. LONE-TAR is also available on a number of other UNIX platforms.