



IBM Systems and Technology Group

An Introduction to Linux and Open Source



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9200 – An Introduction to Linux and Open Source

- **Linux and Open Source continue to see substantial growth around the world**
- **This session will provide an overview of Open Source and an introduction to Linux (including concepts and terminology)**
- **Jim will also provide an overview of Novell's SUSE Linux Enterprise (SLE) 10 and Red Hat Enterprise Linux (RHEL) 5**

Topics

- **Introduction to Open Source**
- **Introduction to Linux**
- **Novell SUSE Linux Enterprise 10**
- **Red Hat Enterprise Linux 5**
- **Linux and Open Source on the Web at IBM**

Linux user presentations on Wednesday

All sessions on the 3rd floor, Ford A&B

Session	Speaker	Title
9215 1:30pm	Marcy Cortes – Wells Fargo	Penguins Board the Stagecoach for the Linux Frontier: A User Experience with Linux on zSeries
9230 3:00pm	Alain Leclerc – CSPQ and David Kreuter – VM Resources	How to Rise Above the Challenges of Deploying z/VM and Linux on the Mainframe and Thrive
9231 4:30pm	Alain Leclerc – CSPQ and David Kreuter – VM Resources	Building a Strong z/VM and Linux Architecture on the Mainframe

Linux user presentations on Thursday

All sessions on the 3rd floor, Ford A&B

Session	Speaker	Title
9240 1:30pm	Erich Amrehn – IBM	Putting Linux on System z into Production: True Stories
9212 3:00pm	Jim Vincent – Nationwide	Linux for System z at Nationwide – From Woe to Whoa! How did We Get Here, Toto?
9213 4:30pm	Rick Barlow – Nationwide	Anatomy of a z Penguin – A Customer Experience Helping A Colony Thrive Under Extreme Conditions



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Introduction to Open Source



ibm.com/developerworks/opensource

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What is Open Source technology?

www.opensource.org



- **In a word, Open Source is collaboration – more specifically, it's public collaboration on a software project**
- **According to the Open Source Initiative (OSI), it can be defined this way:**
 - *“Open source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code. To be OSI certified, the software must be distributed under a license that guarantees the right to read, redistribute, modify, and use the software freely.”*
- **Open source can also apply to the popular movement of individuals, organizations, and companies that seek to put such software into mainstream usage**

What guides Open Source licensing?

- **According to the Open Source Initiative, Open Source consists of 10 points, which are reproduced below**
 1. Free redistribution
 2. Source code
 3. Derived works
 4. Integrity of the author's source code
 5. No discrimination against persons or groups
 6. No discrimination against fields of endeavor
 7. Distribution of license
 8. License must not be specific to a product
 9. License must not restrict other software
 10. License must be technology-neutral



Why is Open Source technology important?

- **Can be a major source of innovation**
 - Innovation can happen anywhere – any time
 - Development through “open communities” leads to potentially broad ideas and creativity
- **Community Approach**
 - The Internet has changed how we address technical innovation
 - Shapes technical leaders thinking and approach to broad collaboration
- **Good approach to developing emerging standards**
 - Popular Open Source projects can become de facto / open standards
 - Wide distribution/deployment
- **Enterprise customers are asking for it**
 - Increase choice and flexibility – adoption/use of Open Source can reduce time to market

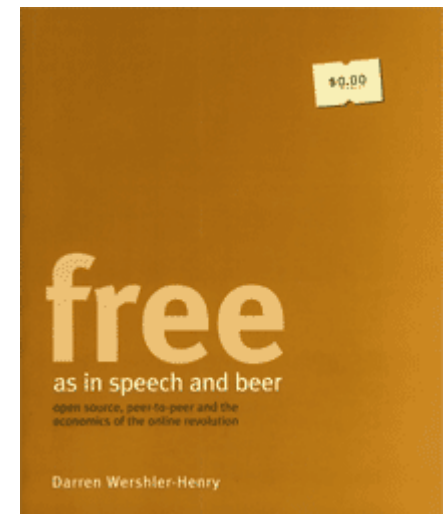
What is FOSS?

- **FOSS stands for Free and Open Source Software**
 - Sometimes referred to as FLOSS (Free/Libre and Open Source Software)
- **This term is used for software that satisfies either the definition in free or the definition in Open Source, when there is no need to make a distinction**

What does Open Source have to do with “free beer” and “free speech”?

- The English word “free” is tricky in that it can mean either freedom or gratis, as in no-cost to the taker
- When Open Source proponents speak, they often have to preface their remarks so the listener knows if the speaker is referring to “free” as in “free speech,” which is a matter of policy, or “free” as in “free beer”
- As any college student can report, someone needs to bear the cost of creating the beer (or software) while others consume the beer (or software) and enjoy it with no out-of-pocket costs

freeasinspeechandbeer.com



How may I get started with Open Source?

- **The decision to start developing Open Source software is a political and licensing decision and less so one of technology**
- **See the OSI list of approved Open Source licenses and make your selection according to your needs and plans for your project**
 - See the developerWorks articles *“Open source licensing, Part 1: The intent”* and *“Open source licensing, Part 2: Academic v. reciprocal”* for additional information
- **You may want to consult with an attorney specializing in intellectual property if you find the terms of the existing licenses confusing or if you have questions**

What is LAMP?

- **LAMP stands for Linux, Apache, MySQL, and PHP**
 - However, depending on who you talk to, the P can stand for Perl or Python, but in general, P is assumed to be PHP
- **LAMP has a bigger meaning, too**
 - LAMP represents a nonproprietary, flexible way to create a server-based application
 - Each of the programs comprising the term can be replaced with an alternative that best suits the needs of the application
 - Each component can be upgraded independently, although this is usually done with care and planning
 - Best of all, each program in LAMP is free, or almost free in both meanings of the word

What language is Open Source written in?

- **All of them**
- **The technology behind Open Source is not the most important element of Open Source**
- **The important element is the decision of the author or authors to release the software as Open Source and use one of the many Open Source licenses**

Is Open Source software legal?

- **Yes, and almost everyone who uses e-mail or surfs the Web is an Open Source software user**
 - Most e-mail passes through an Open Source server during its travels across the Internet
 - Most Web servers rely on Open Source software
 - Google is based on Open Source
 - As OSI points out, the running gears of the Internet, including the mail transports, Web and FTP servers, are virtually all Open Source-based
- **Open source software is not warez, which is software distributed without permission of the copyright holders or a proper license**

What are IBM's Open Source efforts?

- **In a nutshell, IBM is a significant force supporting Open Source innovation and collaboration**
 - The company participates in more than 150 collaborative projects contributed to the Open Source community, including Eclipse, Derby, Geronimo, and Globus
 - IBM contributed 500 patents into a “patent commons” for development and innovation
 - IBM has invested more than \$1 billion in Linux development
 - IBM has Open Source licenses – the Common Public License and the IBM Public License
 - IBM also releases under many other licenses, including GPL

8+ years of community innovation with IBM

1999 – 2001	2002 – 2003	2004 – 2005	2006 – 2007
<ul style="list-style-type: none"> ▪ IBM forms Linux Technology Center ▪ Leads Apache projects Xerces (XML4J), Xalan, SOAP ▪ Creates OSI-approved IBM Public License ▪ Strategic participation in Mozilla ▪ IBM becomes founding member of OSDL ▪ Founder of Eclipse.org and Eclipse Consortium ▪ Creates internal bazaar using OSS methodology 	<ul style="list-style-type: none"> ▪ Linux contributions to scalability (8-way+), reliability (stress testing, defect mgmt, doc) ▪ Leads Apache projects: Web Services (WSIF and WSIL), Pluto (Portlet API) and WSRP4J (Remote Portal) ▪ Leads Eclipse projects GEF (editing), EMF (modeling), XSD (XML Schema), Hyades (testing), Visual Editor, AspectJ, Equinox rich client ▪ Globus Toolkit contributions for OGSA, OGSi 	<ul style="list-style-type: none"> ▪ IBM and Novell/SUSE achieve security milestone (EAL4+ and COE compliance) ▪ Eclipse becomes independent as Eclipse Foundation, Inc. – IBM contributes UML2, Voice Tools, Aperi, COSMOS, Ajax Tools Platform ▪ Globus Toolkit 4 is WS-I compliant ▪ Pledged 500 patents to open source ▪ Partner with Zend PHP ▪ IBM enhances Apache partnership 	<ul style="list-style-type: none"> ▪ IBM contributes accessibility code to Firefox ▪ IBM becomes founding member of Eclipse Aperi project ▪ Leads Open AJAX initiative ▪ Leads Apache Tuscany project and Perl PHP SOA ▪ IBM donates code for user-centric security management to Eclipse Higgins ▪ IBM donates code for medical record management to Eclipse Open Healthcare Framework (OHF) ▪ IBM announces support for Eclipse.org version of Eclipse ▪ IBM contributes to Apache Lucene project and announces OmniFind Yahoo! Edition
<p>More than 1000 IBM developers involved in OSS projects</p>	<p>IBM leads 80+ OSS projects</p>	<p>IBM contributes to 150+ OSS projects</p>	



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Introduction to Linux



ibm.com/developerworks/linux

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So, what is Linux, anyway?

- In the simplest terms, Linux is an operating system
- It was created in October 1991 by a University of Helsinki student named Linus Torvalds (Linux stands for Linus's UNIX)
- Linux itself is actually just the kernel; it implements multitasking and multiuser functionality, manages hardware, allocates memory, and enables applications to run



Do I care about the Linux kernel?

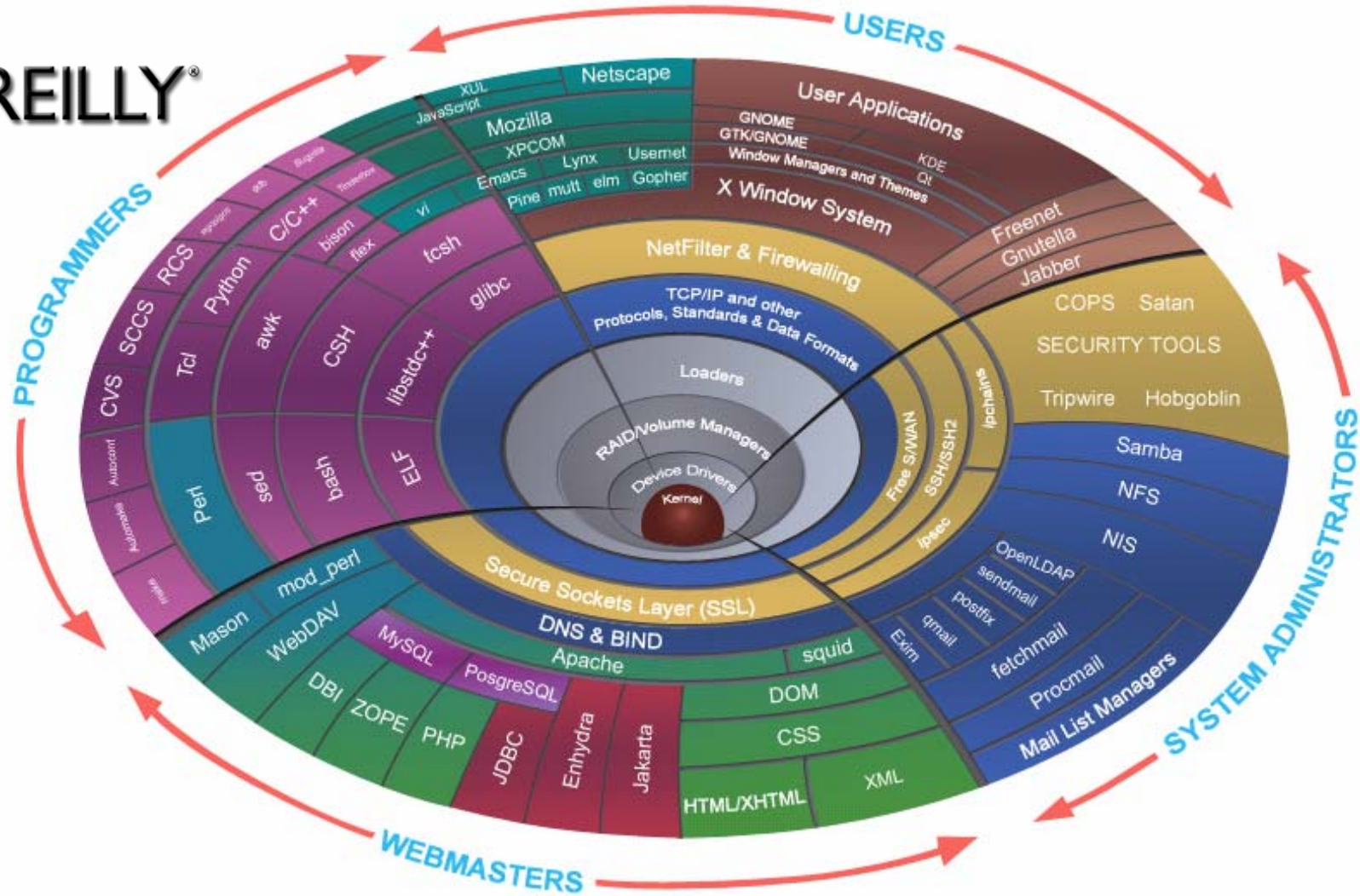
- **The average user will never be interested enough in any operating system to want to know about things like kernel internals**
- **Only the truly dedicated – those who have no personal lives, or those who are being paid to do this kind of work – are going to want to explore these intricacies**
- **But even if you never descend to the giddy depths of kernel hacking yourself, it is reassuring to know that you can easily hire a contractor or firm to do this work for you; to commission such modifications for a proprietary system is very often a more difficult and more costly undertaking**

Linux distributions and GNU

- **A typical Linux distribution includes the Linux kernel, but it also contains many application programs and tools**
- **Many system- and user-level tools found in a Linux distribution come from the Free Software Foundation's GNU project (GNU standing for "GNU's Not UNIX").**
- **Both the Linux kernel and the GNU tools suite are released under the GNU General Public License, or GNU GPL**
 - The GNU GPL is a way of setting computer code free so that the people who use that code may meddle and experiment with it to their hearts' content

What is in a Linux distribution?

O'REILLY®



Linux capabilities have evolved and expanded

Linux is free

- Better TCO than UNIX
- Better TCO than Windows
- Migrate to commodity hardware
- Use as a bargaining chip
- Pluck the low hanging fruit



Linux is mature

- Drives innovation
- Provides choices
- Enables consolidation
- Facilitates simplification
- Reduces IT costs
- Results in business advantage



1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

Linux runs on x86

- Works but not enterprise ready
- Used in non-critical areas
- Good infrastructure solution



Linux runs on multiple architectures

- Up to 256 way SMP support
- UNIX-like features and enhancements
- Proven reliability, availability and stability
- Used for mission critical applications
- Runs ERP applications and databases

What is the difference between UNIX and Linux?

- **Invented at AT&T Bell Labs in 1969, UNIX (the name is a play on the earlier “Multics” operating system) is a robust, flexible, and developer-friendly computing environment**
- **Written originally for the Digital Equipment Corporation (DEC) family of PDP microcomputers, UNIX has taken over roles in all areas of computing**
- **Some twenty-odd years into its history, UNIX began to be eclipsed – in some of its roles, anyway – by Linux**
 - Linux is not UNIX; it is merely very UNIX-like
 - For some jobs, you want Linux – for others, you still want UNIX
- **UNIX and Linux play very well together, and well-written programs are extremely easy to port between the two systems**

Why is Linux important?

- **Because it is free software, licensed under the GNU General Public License, Linux obviates the need for programmers to keep reinventing the operations layer with each new project**
- **The GNU family of tools provide royalty-free bricks and mortar with which to begin building independent projects**
- **Critics of free software often voice fears that the freedoms and low cost of free software will lead to economic disaster for the computing sector**
- **However, it is just as likely – if not more likely – that free software will do for the world of computing what Gutenberg’s printing press did for the world of Letters**



www.dilbert.com scottadams@aol.com



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What can I do with Linux?

- **What you want out of your Linux system will determine which Linux system you want and how many layers of complexity you need to understand before you begin to work with it**
- **Linux is an excellent learning platform to do kernel hacking, to learn UNIX, or to learn programming; many tools and applications are available to play games, to do desktop publishing, or just to hang out doing e-mail and Web browsing**
- **Linux is a popular platform for everything from middleware to embedded computing and clusters, to mainframes, supercomputers and gadgets**

How do I get started with Linux?

1/2

- **If you are completely new to Linux, or if you are using Linux as a desktop operating system, you need to learn at least some basics about system administration and security**
- **Linux does not promise to hold your hand or to clean up after you: you have to take care of the system yourself**
 - Luckily, basic maintenance and basic security are pretty easy
- **In many ways, Linux and UNIX administration is today much easier than administration for popular commercial personal operating systems because it is much more transparent**

How do I get started with Linux?

2/2

- **While Linux does have several windowing environments that allow you to perform administration, the most straightforward way to control the system is at the command line**
 - Built in to the structure of the command-line environment are dozens of commands and several text-based help systems.
- **There are a great many resources on the Web and in the real world to help you get started with Linux**
 - There are Web sites, articles, and books devoted to the subject, and Linux User Groups (also known as LUGs) meet in cities and countries around the world – and are well-known for being very friendly even to very new users

How can I use Linux in application development?

- **Linux includes the GNU Project's suite of programming and debugging tools – absolutely free**
- **The Eclipse foundation's very large set of development tools are available for Linux**
- **Many commercial programming packages are also available**
- **If you are using Linux as a development platform, do not skip first learning administration and security**
- **Linux is by nature standards compliant**
 - Linux developers as a rule place very high importance on keeping the operations layer, as well as those built atop it, open, interoperable, and standards friendly

What programming languages can I use on Linux?

- **In addition to steadfast stalwarts like Fortran and C/C++, many scripting and other computer languages are at home on (or were even designed to work best with) Linux**
 - The most popular include Perl, Python, PHP, and Tcl
- **Dynamic new technologies such as the Java technology and XML run swimmingly on Linux, as do any number of more esoteric programming languages, from Logo and Rebol to Smalltalk and many more**

How can I continue to improve my Linux skills?

- If you want to use Linux as a platform for a very advanced application or application set, you will be interested in aspects of the system such as kernel hacking, the differences between various filesystems, and other nitty-gritty details
- Another skill set that is often needed for high-end applications (or games) is fine-tuning a Linux machine, cluster, or network for optimum performance – this includes expertise in things such as multiprocessing, threading, clusters, and other arcane but sophisticated points of system administration
- Understanding these aspects of Linux aren't quite as gritty as actual kernel hacking, but can nonetheless get pretty hairy

What IBM tools are available for Linux?

- **Linux is a superior operating system on which to run standard applications – from office applications such as word processors and spreadsheets; to database systems; to Web publishing and serving environments**
- **IBM products such as DB2, Lotus, Tivoli, Rational and WebSphere all run on Linux, and IBM is not the only industry leader to recognize that Linux is an excellent platform for middleware**
- **Though misunderstood and very often maligned – at least, among the self-proclaimed digerati – middleware is an essential (and for many computer users, the essential) reason for having computers around in the first place**
- **The open nature of Linux allows middleware vendors to fine-tune solutions to meet users' needs in ways that no closed system allows**

What do the analysts say about Linux?

■ Reports from :

- Gartner
- Deutsche Bank
- Forrester
- IDC
- DH Brown
- Goldman Sachs
- Bloor Research
- Wall Street
- IBM

■ Articles in :

- Business Week
- Financial Times

Figure 1. Linux Carries Every Datacenter Workload

1-1 "Are you planning to increase your Linux usage in the next two years?"

No usage decreases	2%
Don't know	6%
No usage stays flat	20%
Yes	72%

Base: 50 51 billion-plus companies

1-2 "Where are you running Linux today?"

Web/email tier	44%
App tier	40%
Infra-structure tier	26%
Client tier	24%
Data tier	6%
Nowhere tier	6%

Base: 50 51 billion-plus companies (multiple responses accepted)

Source: Forrester Research, Inc.

Analyst reports abound – pick wisely!



What lies ahead for Linux?

- **Linux's openness and flexibility lend its use to work in laboratories and other research facilities on the bleeding edge of revolutionary technological change**
- **Linux can easily be clustered or customized for highly original experiments or prototypes, simulations, or tests; and the vast array of free software tools that Linux was created to work with can be used in the same creative way**
- **Even with all of the exciting new technologies that are being developed today – from Grid computing and wireless voice applications to artificial intelligence and Quantum computing – the potential and promise of the computing age in which we live is still largely untapped**
- **Linux's robust and open flexibility means that it will remain at the forefront of the development frontier for years to come**



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Novell SUSE Linux Enterprise 10

Novell.



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Major package versions

- **Kernel 2.6.16 + IBM updates**
- **s390-tools 1.5.3**
- **gcc 4.1.0**
- **binutils 2.6.91.0.5**
- **glibc 2.4**
- **Apache 2.2.3**
- **Samba 3.0.22**
- **IBM Java 1.4.2**
- **Check IBM developerWorks for info on restrictions**
 - ibm.com/developerworks/linux/linux390

New features

- **Accurate CPU time accounting**
- **Support for OSA-Express 2 OSN – Open Systems Adapter for NCP**
- **3590 tape device driver now Open Source**
 - No remaining OCO modules!
- **SCSI over FCP n-port ID virtualization (NPIV)**
- **zcrypt replaces z90crypt**
 - Support of PCICC, PCICA, PCIXCC, CEX2C, CEX2A
 - Support for clear key and **secure key** functions

New features

- **Collaborative Memory Management Stage II**
 - z/VM 5.3 function enabled in Linux with `cmma=on` option
- **Support for Parallel Access Volumes (PAV)**
 - New for Linux in an LPAR (z/VM already provided this)
- **Support for z9 CPACF Pseudo Random Number Generator**

What's not in SLE 10

- **JBoss – The JBoss code is not included in SUSE Linux Enterprise, but can be downloaded and is still supported through additional subscription from Novell or JBoss**
- **GFS – Storage stack from Red Hat**
 - The High-availability Storage Foundation ships with SUSE Linux Enterprise
- **Reiser4, Samba v4 – Not enterprise ready for this release**
- **SELinux – Novell provides AppArmor which is easier to configure and deploy than SELinux and provide the same level of security**

Deprecated features

- **31-bit operating system**
 - 31-bit applications are supported via the 31-bit emulation layer
- **CLAW**
- **CTC (virtual and real)**
- **IUCV network device**
- **Native FBA DASD devices**
 - Virtual FBA and FBA emulated on SCSI devices supported



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Red Hat RHEL 5 Overview



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Distribution changes

- **No more AS/ES/WS**
 - Server/Client/Workstation and AP (Advanced Platform)
- **s390x (64bit) kernel only**
 - Still has s390 (31bit) compatibility libraries
- **Major kernel update**
 - 2.6.9 → 2.6.18
- **s390utils update**
 - v1.3.2 → v1.5.3
- **up2date → yum**
- **Installation number**
 - Used to filter packages, but doesn't prevent installation

Performance and measurement

- **Accurate CPU accounting**
- **Access to PR/SM LPAR performance data**
- **Channel Path Measurement Data**
- **Reduce virtualization overhead for FCP and networking**
- **Fast minidisk access on 64bit guests**
- **Consolidate guest monitoring data in z/VM**
- **Linux API to access z/VM *MONITOR records**

Other features

- **PAV: parallel access volumes**
- **zFCP: fiber channel protocol**
 - Better IPL/reIPL support
 - NPIV: Nport ID virtualization
- **Device support**
 - DS6000: asymmetric multipathing
 - Open source driver for 3590/3592 tape drive
- **DASD support for write barriers**
 - Data is reliably committed to disk
- **Crypto2 Express support**
 - CEX2C, CEX2A models

On the horizon

- **What's coming in 5.1**
 - Support for Layer 2 OSA at install
 - Upstream DASD driver updates
 - Upstream zFCP driver updates
 - SCSI layer change
 - Bugfixes
- **Training class under development**
 - 2 day hands on lab (for System z Expo)
 - 5 day in depth (based on RHEL 5 Virtualization Cookbook)



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Open source

Resources for open source development and implementation

Updated 31 Jul 2007

Build a custom search engine with PHP
 For fast searches on mountains of text, Sphinx provides a better solution than MySQL alone. Learn how to use Sphinx, PHP, and MySQL to create a fast, accurate search engine. [More >](#)

Maximize your Mac OS X Java development experience using Eclipse: Build Java and other applications on Mac OS X quickly and easily with Eclipse. Import Xcode projects, tweak key bindings, and integrate Eclipse with the Mac OS X-bundled CVS.

The Geronimo renegade: Using integrated packages: Codehaus' Woodstox: Find out the advantages of using this StAX parser to parse XML documents and how to integrate it with Apache Geronimo 2.0.

Get started with the Eclipse Platform: Learn about the Eclipse Platform, including its origin and architecture. Also survey some software development tools available as plug-in extensions.

Turn SQL into XML with PHP: Easily transform SQL result sets into XML in this introduction to the PHP Extension and Application Repository (PEAR) package, XML_Query2XML. See real-world applications of its usage.

Manage Apache Pluto within Geronimo: Developing portals and portlets is a hot skill. Get a hands-on lesson using Apache Pluto as the portal environment for Apache Geronimo's management console.

Separate form and function in PHP applications with Smarty: Mixing HTML and PHP in a file is convenient, but it makes both hard to read and maintain. Template systems like Smarty separate code from content.

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- IBM WebSphere Application Server Community Edition
- IBM Development Package for Eclipse

- alphaWorks (alpha technologies)
- CodeRuler

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Top project resources

- Apache Derby
- Apache Geronimo
- Eclipse
- PHP

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Spotlight

- IBM contributes STEM open source software
- White paper: Integrate open source into your business
- Apache Geronimo 2.0-M6 passes Java EE 5.0 TCK

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developerWorks > Linux Updated 31 Jul 2007

Top story

Linux tip: Controlling the duration of scheduled jobs
 Knowing how to schedule jobs using cron and at is all well and good, but do you know how to automatically stop them at a scheduled time, or run them for a specific duration? We'll show you. [More >](#)

Use gperf for efficient C/C++ command line processing: Improve the speed and maintainability of command option processing code with gperf, an efficient hash function and table generator for C and C++.

Industrial-strength Linux lockdown, Part 2: Executing only signed binaries: Improve security by using GPG to ensure that all approved scripts and applications are signed, and then build a kernel that executes only those applications.

Linux tip: Job scheduling with cron and at: Too many repetitive tasks eating away your day? Learn how to use cron and at to automate processing of both regularly scheduled and one-off administrative jobs.

Anatomy of the Linux networking stack: Linux networking, exposed. Learn the basic architecture of the stack and dig into its interfaces for system calls, protocols, and device drivers.

The distro jungle: New to Linux and not quite sure what all this talk of "distributions" is about? Commercial vs. community, general purpose vs. specific, we sort it all out for you.

LPI exam 102 prep: Administrative tasks: Linux administration wizardry from square one. Learn how to manage user information, work with log files, schedule cron jobs and backups, and maintain system time.

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→ Migrating to Linux	→ Developing for Linux on Intel
→ Finding IBM software for Linux	→ Developing for Linux on Power
→ Developing for Linux with Rational	→ Developing for Linux on System z

Downloads and CDs

→ IBM Software Evaluation Kit (SEK) for Linux	→ alphaWorks (alpha technologies)
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Spotlight

- Linux certification-prep tutorials
- Community space on Linux security
- Top 10: Readers' favorite Linux articles (Apr 2007)

Editor's picks

- Turbocharge Ruby on Rails with ActiveSupport
- Industrial-strength Linux lockdown, Part 1: Removing the shell

News

- Red Hat set to update Enterprise Linux (internet.com)

Left Navigation Menu:

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- Feedback

IBM Redbooks

ibm.com/redbooks/linux

The screenshot shows the IBM Redbooks website interface. At the top, there is a navigation bar with the IBM logo, a search bar, and a 'Country/region [select]' dropdown. Below this is a secondary navigation menu with links for Home, Business services, IT services, Products, Support & downloads, and My IBM. A welcome message for 'Mr. Jim Elliott' is displayed on the right.

The main content area is titled 'Linux at IBM' and features a large green graphic with the text 'Linux and IBM Redbooks'. Below this, there are several sections:

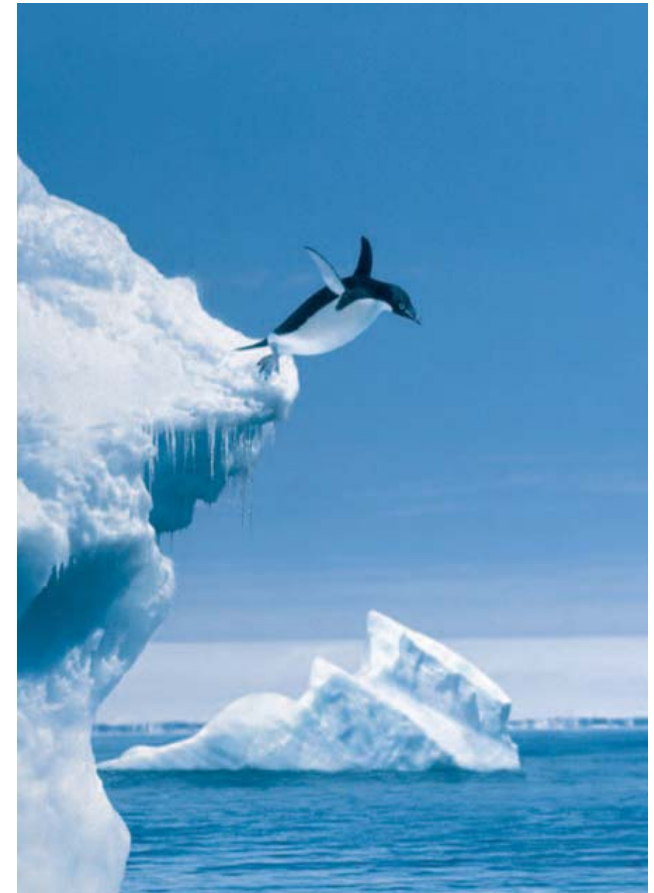
- Linux Redbooks Domain**: A section header for Linux-related content.
- Latest Drafts ... show all**: A list of draft documents, including 'High Availability and Scalability Guide for DB2 on Linux, UNIX, and Windows', 'Database Partitioning, Table Partitioning, and MDC for DB2 9', and 'Oracle to DB2 Conversion Guide - Converting to DB2 for Linux, UNIX, and Windows'.
- New Technotes ... show all**: A list of new technical notes, including 'Installing Oracle 10gR2 on SLES10 Linux on System z - July 10, 2007', 'VIOS Network Install from Linux Server', and 'Using the z/VM INDICATE Command'.
- Skills Development**: A section for learning resources, including 'Residencies' and 'Workshops'.
- What's New**: A section for the latest updates, featuring a banner for a 'NEW GUIDE FOR SYSTEMS ADMINISTRATORS' titled 'Solutions to Linux Migration: From Mainframes to Linux'. The banner includes the IBM logo and an image of the book cover.
- New Redbooks/Redpapers ... show all**: A list of new publications, including 'Linux Performance and Tuning Guidelines', 'Tuning Linux OS on System p The POWER Of Innovation', and 'NIM from A to Z in AIX 5L'.
- Most popular ... show Top 15**: A list of popular content, including 'Tuning IBM System x Servers for Performance', 'NIM from A to Z in AIX 5L', and 'Linux Performance and Tuning Guidelines'.
- More info ...**: A section for additional information, including an RSS feed link: 'RSS feed with newest Linux related publications... More about RSS'.

On the left side of the page, there is a vertical navigation menu with the following categories:

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What next?

- **Familiarize yourself with the facts**
- **Establish an Open Policy**
- **Align to Open Standards**
- **View Open Source and Linux as valid alternatives for IT systems**
- **Make decisions based on business value; not hype and hope!**
- **Be prepared for change!**



Thank you

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