



Linux @ IBM

Linux and Open Source: The View From IBM



Jim Elliott

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Manager – System z9 and zSeries Operating Systems

IBM Canada Ltd.

ibm.com/vm/devpages/jelliott



Linux and Open Source: The View from IBM

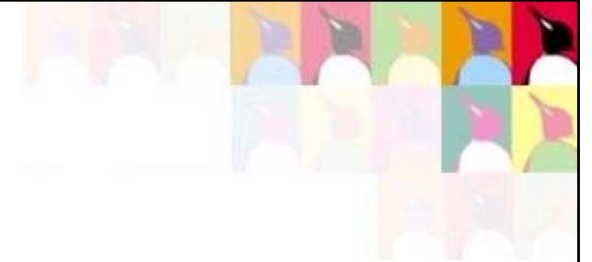
Session 9200

- **Linux and Open Source are game-changing technologies. Jim will provide a review of Linux and Open Source from IBM's point of view covering:**
 - Overview, Value and Marketplace: A brief update on Linux and Open Source and the value to customers
 - Usage: How Linux and Open Source are being used by customers today and our view of the future
 - IBM and Open Source: How IBM is using Open Source software internally and IBM involvement in the Open Source community





| Linux @ IBM



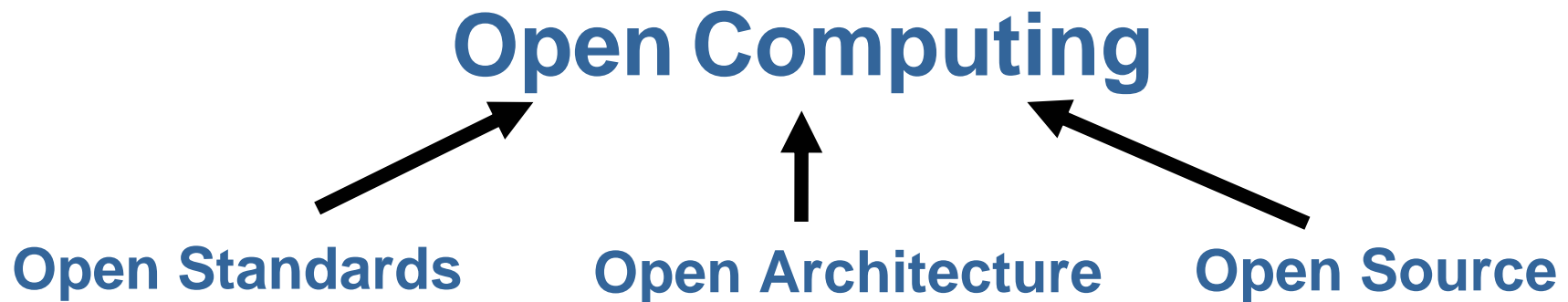
Open Computing





The Principles of Open Computing

- **Permit interoperability by using published specifications for APIs, protocols, and data and file formats**
- **The specifications must be published without restrictions that limit implementations, or require royalties or payments***

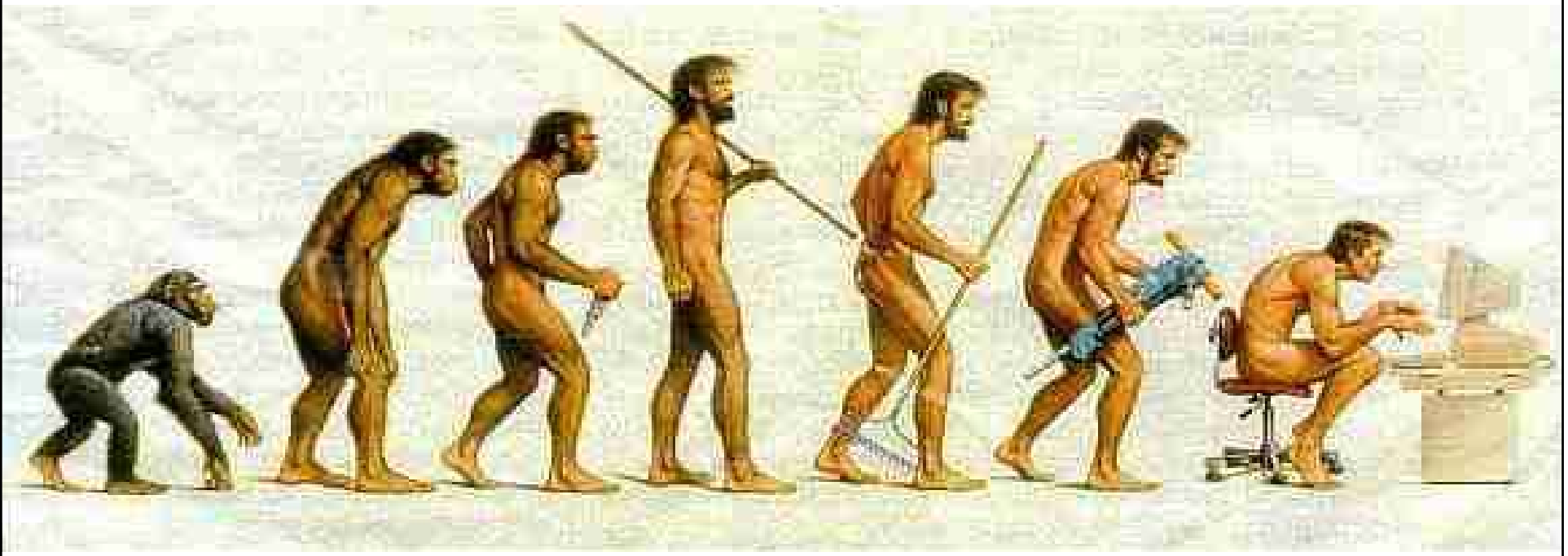


* other than reasonable royalties for essential patents



Adaptability is vital

- **“It is not the strongest of the species that survives, nor the most intelligent; it is the one that is most adaptable to change.”**
 - Charles Robert Darwin (1809-82)





Open Computing Policy Roadmap

1. Insist on open standards as a matter of policy... be pragmatic about it
2. Focus on interoperable ICT systems
3. Avoid procurement of proprietary, non-open standards based solutions
4. Evaluate Open Source solutions on equal footing with commercial solutions
5. Reject mandates or preferences based on development model
6. Insist on open File formats
7. Adopt open computing as an underlying philosophy

Insist on openness, but make pragmatic business oriented decisions based on features, training cost, availability of skill, interoperability and value for money



Linux @ IBM



Open Source



Open Source Software

www.opensource.org

- **Software whose source code is published and made available to the public**
 - Community develops, debugs, maintains
 - “Survival of the fittest” – peer review
 - Generally high quality, high performance software
 - Superior security – on par with other UNIXes
- **Often built by community**
- **Redistribution rights**
- **May be a reference implementation of an open specification**



- **Examples of Open Source Software:**

- Apache – web server
- Eclipse – application development
- Gnome – desktop environment
- Mozilla – browser/mail/calendar
- OpenOffice – productivity suite
- Perl – language
- Samba – file/print
- SendMail – mail server
- Tomcat – application server



Five principles of Open Source Software

- 1. Licensees are free to use Open Source software for any purpose whatsoever**
- 2. Licensees are free to make copies of Open Source software and to distribute them without payment of royalties to a licensor**
- 3. Licensees are free to create derivative works of Open Source software and to distribute them without payment of royalties to a licensor**
- 4. Licensees are free to access and use the source code of Open Source software**
- 5. Licensees are free to combine Open Source and other software**

Source: Larry Rosen – Open Source, Open Standards Conference – September 15, 2004



Can OSS co-exist with Commercial Software?

- **Most OSS licenses allow combination and distribution of OSS and Commercial source code under a commercial license**
- **Some commonly encountered OSS Licenses (BSD, MIT, X11, Apache) don't require modifications to original OSS to be published upon redistribution**
- **GPL allows commercial applications to be built on top of Linux to remain commercial**
 - Application can be licensed under commercial license of choice
 - No need to disclose source code of such applications
- **LGPL Libraries can be dynamically linked to arbitrary commercial code**
 - No requirement to release commercial code under LGPL
- **Decision to use OSS is just another business decision**
- **License terms need to be understood before beginning to work with OSS**



Why does IBM consider Open Source 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**
 - Internet has changed how enterprises address technical innovation
 - Shapes IBM 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
 - Example – want Linux to be part of an overall, vendor-supplied and supported total solution

Apache has Become *the* Standard Web Server

news.netcraft.com

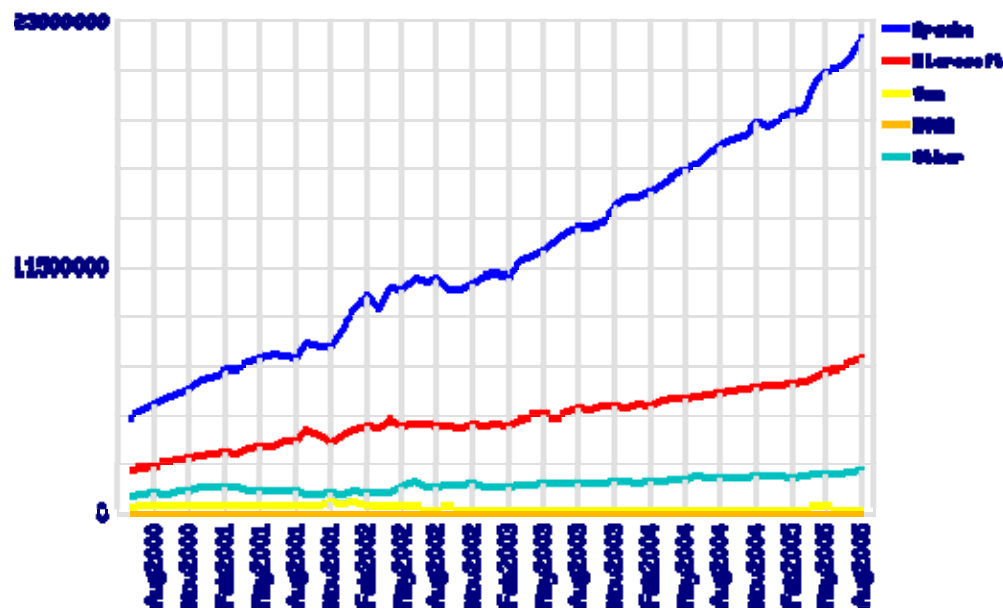
- Totals for active servers across all domains
- As of August 1, 2005

- Apache

- Sites: 22,195,711
- Share: 69.97%

- Microsoft IIS

- Sites: 7,171,595
- Share: 22.61%



The Apache Software Foundation

<http://www.apache.org/>



Freedom of Choice

- ***“Free software is a matter of liberty, not price. To understand the concept, you should think of free as in free speech, not as in free beer.”***
 - Richard Stallman, Free Software Foundation
- ***“It is not about Free. It's about Freedom. The freedom to collaborate. The freedom to innovate.”***
 - Nick Donofrio, IBM
- ***“Free software is only free if your time is worth nothing”***
 - Chris Pratt, IBM Canada

Open Source



| Linux @ IBM



Linux Overview, Value, and Marketplace



What is Linux?

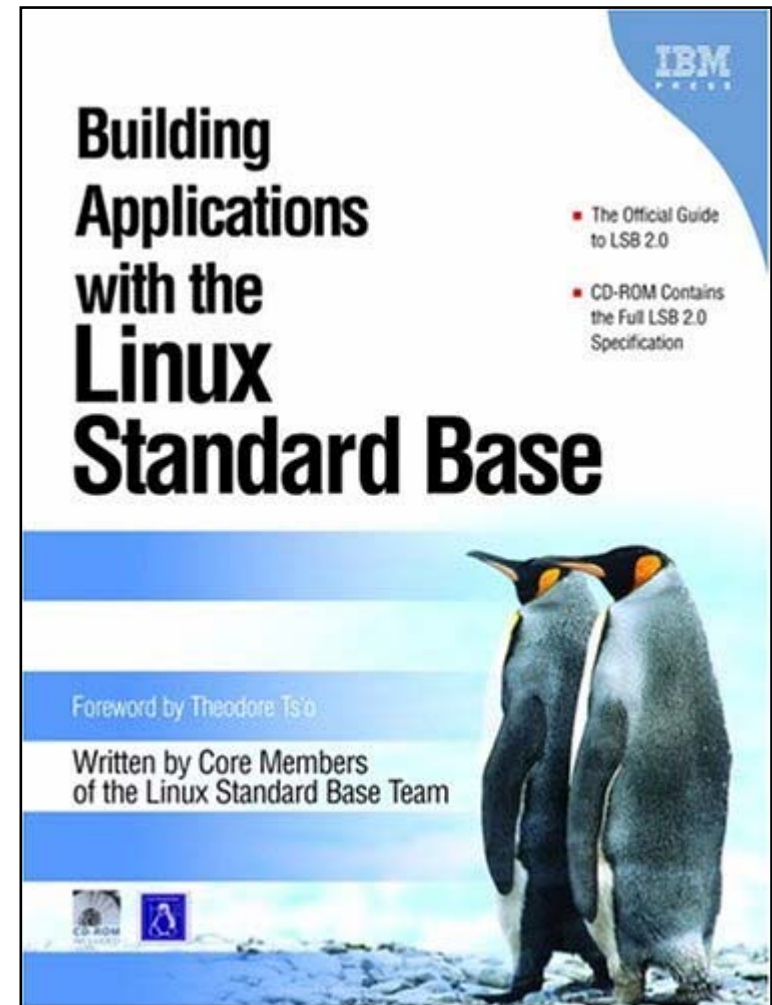
- A “UNIX-like” Operating System that is community developed with the source code being readily available
 - Robust functionality and scalability
 - Solid stability and security
 - Lightweight and modular
- Operates on virtually any platform
 - server or client
- Generally acquired on a support subscription basis from Linux Distribution Partner (LDP): Novell or Red Hat



Linux Standard Base

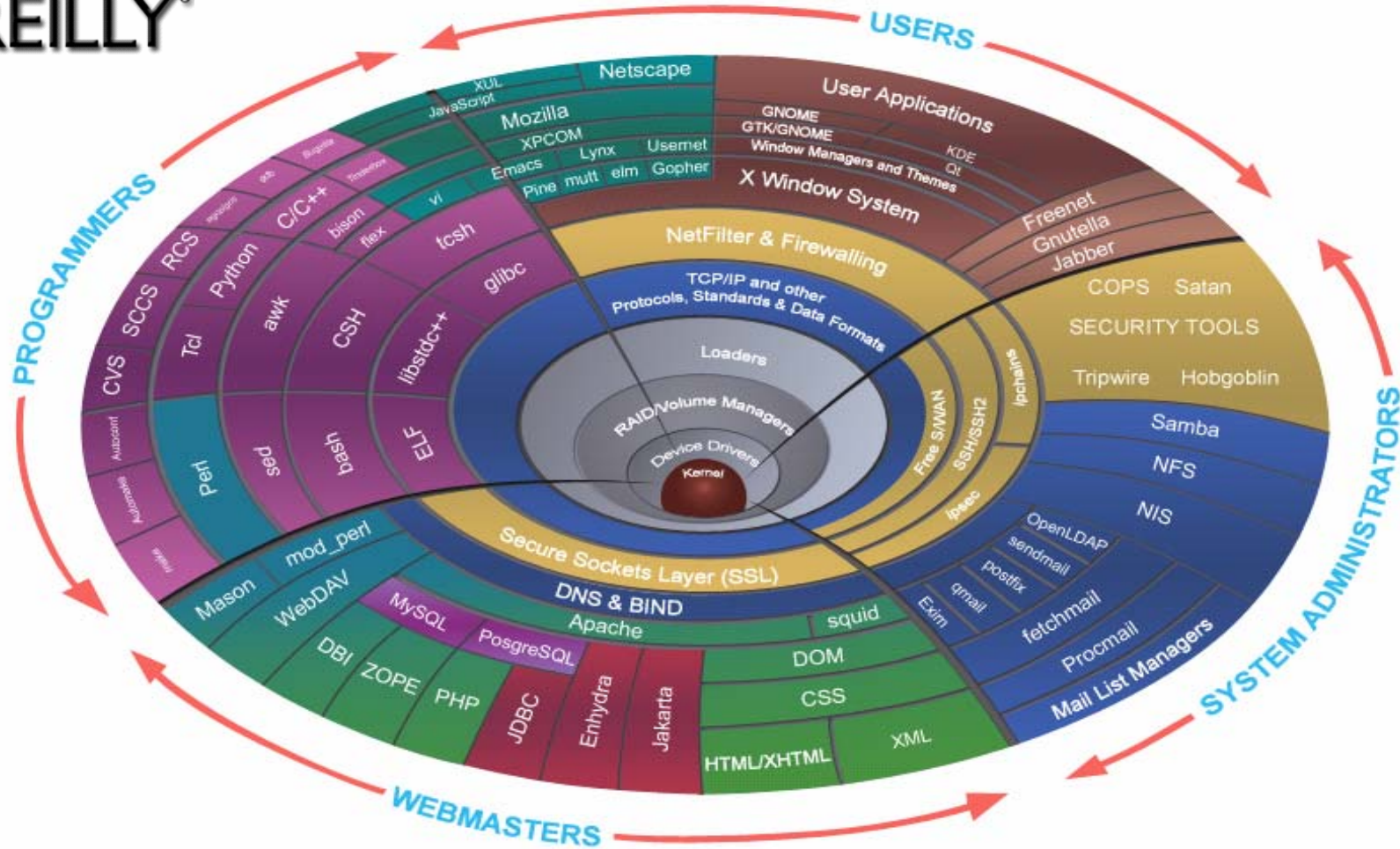
www.freestandards.org

- LSB supporters include AMD, Dell, HP, IBM, Intel, Novell's SUSE LINUX, and Red Hat
- This groundswell of support is significant as it promises to keep Linux from forking and going the way of proprietary systems in the past
- Because of the reduced costs for software vendors writing to the Linux, adoption of the LSB will also result in an increase in the number of applications written to the operating system





What is a Linux Distribution?



Linux is an industry-wide initiative

www.osdl.org



Computer Associates™



invent



- 10art-ni
- ActiveGrid
- Aduva
- Alcatel
- AMD
- BakBone
- Beijing Software Testing Center
- Berry OS Japan
- Black Duck Software
- BT Global Services
- Bull
- Cassatt
- CCIA
- Cisco
- Co-Create
- Computer Associates
- Comverse
- Cyclades Corporation
- EMC
- Ericsson
- ETRI
- Fujitsu
- Good-day
- Google
- Haansoft
- Hitachi
- HP
- IBM
- Intel
- IP Telecom
- Kobe Institute of Computing
- Korea IT Industry Promotion Agency
- Levanta
- Lynuxworks
- Marist College
- Microcost
- Miracle Linux
- Mitsubishi Electric
- MontaVista Software
- National University of Defense Technology
- NEC
- Network Appliance
- Nokia
- Novell
- NTT Corporation
- NTT Data Intellilink
- Open Country
- Open Source Japan
- Open Technologies Corporation
- Oregon State University
- Pacific Crest Securities
- Pixelworks
- Portland State University
- Radisys
- Red Flag Software
- Red Hat
- Scalix Corporation
- Search Cacher
- SpikeSource
- Stanford University
- Stratus Technologies
- Sun Microsystems
- Timesys
- Tokyo University of Technology
- Toshiba Solutions
- Transmeta
- Trolltech
- TurboLinux
- Unilever
- Unisys
- University of Helsinki
- Virtual Iron Software
- Voyager Capital
- Waseda University
- Wind River
- Wyse



Linux Adoption and Acceptance

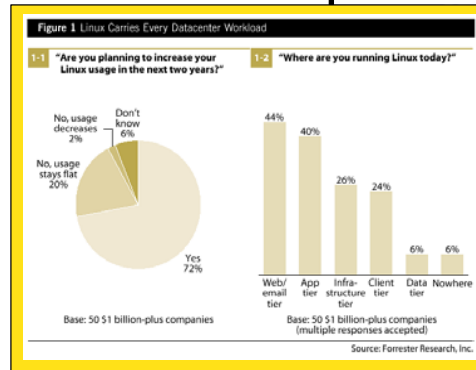
■ Reports from :

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

■ Articles in :

- Business Week
- Financial Times
- Many others ...

■ All very positive ...



Technology: Infrastructure Software
United States

Linux handbook

WholeView TechStrategy RESEARCH

Linux: Questions And Answers For Execs

By Ted Soderer
With David Hadas

Linux will go mainstream in the datacenter in 2003. Why? Because the open source OS delivers Unix reliability at Intel prices and has strong support from vendors like HP, IBM, Oracle, and SAP. But execs still wonder about the right Linux strategy.

27 March 2003

Linux

Enter the penguin

Deutsche Bank

Emerging Themes

Linux has become a viable operating system for the enterprise. This report discusses current market trends for operating systems and discusses key trends for Linux as it matures.

Helping Linux?
For IBM or HP will abandon Linux, and it's only a matter of time before Sun will do the same. The only material risk in that they will exit business that the Linux community rejects -- creating a self-sustaining ecosystem. Market analyst for Sun says, "Why not? Standards are the freedom to buy low-cost servers. That is, no-oping Linux and risking alienating its customers."

We made strategic bets on Linux!
Large companies that are moving to Linux, but many are still working out. A few have ditched their Linux work, for now. In Web apps and email, on Linux, Oracle plans to run in 2004, and Deutsche Bank has moved a risk engine to Linux.

Bloor Research - North America
Independent Technology Research & Analysis

Research Brief

IBM Corporation
Route 100
Somers, NY 10589
<http://www.ibm.com>

Linux is Ready: IBM's Strategy

Preface

In 1999, Bloor Research took a very close look at the "enterprise readiness" of Linux. We Linux side-by-side with Windows NT -- comparing the two operating environments as it database, application, and groupware servers. And we concluded that:

As a file and print server, Linux comes out on top, particularly for large organizations with users where vendor management is an important option. The same goes for Web and mail servers, where it excels, although NT doesn't score badly in combination with Exchange either. For a server environment, there is little or no difference between the two ... I really depends on the role of the database and the vendor's advice. The scale tips to Windows NT when it comes to servers, because there is so much more software available for the platform, even if Linux is catching up. And for groupware servers, the application will determine the ultimate choice. For Linux, there is NT in the backseat here. If you have mixed workloads (Web server, mail server, print server, etc), then Bloor Research says by all means, go for Linux. **But don't use it for a head-of-office critical of the operations systems. It's ready for that, too.**

Now, almost three years later, we've been asked by IBM to reexamine our Linux position, provide our thoughts on Linux "enterprise readiness" for mission-critical computing. Who wants to know is:

1. Is Linux enterprise ready (how is Linux faring from reliability, availability, scalability, flexibility, security, manageability, and server consolidation perspective toward being enterprise ready?); and,
2. How is IBM doing from a strategic/product/services/applications perspective with products and services?

This *Research Brief* represents the result of our analysis.

WholeView TechStrategy Research

FORRESTER

March 2003
The Linux Tipping Point

Helping Business Thrive On Technology Change

waters

NOVEMBER 2002

Consulting the Linux Charge

Lynch, Morgan Stanley and Lehman Brothers, Linux is to risk applications, equity options calculators and mainframe.

By Robert Daly

will Epoch is one of the few firms actively deploying Linux on the mainframe. The IBM efforts mentioned development is part of an effort to create a virtual server environment, and over the past year virtual server provisioning and Linux has led Merrill Lynch to improved server performance and customer savings.

"The goal here is to come up with the same scaling as a storage area network, for our servers," says McKinley. "We're putting a layer of abstraction between the application and the server it's running on. This allows the system to serve applications on different processors depending on the customer workload for a given day."

Currently, Merrill Lynch deployed virtual servers using two different methods -- running various versions of Linux on the mainframe and using VMware distributed computing software to host together servers within the data center. Linux-based applications now run on any available processor without concern for their architecture.

"Methods of server virtualization in our distributed environments," says McKinley. "We're in Charge of the Data Center" was both approach and focusing on the CEO. Both require understanding the server type for a given set of customers that through these techniques, Merrill Lynch has seen a 40 percent to 50 percent cost savings. "We see this virtualization as an essential tool in a CFO's toolbox for managing the organization's server," says McKinley. "With an operating system, that makes a big."

Also regarding the speed of provisioning, creating new servers on-site or at regional headquarters and allowing new data centers to be built.

All Right Reserved, Used by Permission. **waters** | November 2002



Why Linux is Important to Customers

- **Linux is about choice and flexibility**
- **Linux is secure**
- **Linux is reliable**
- **Linux drives business goals**
 - Reduce costs
 - Simplification
 - Improve application service levels
 - Promotes innovation
 - Internally change business process and drive contribution to business
 - Generate revenue

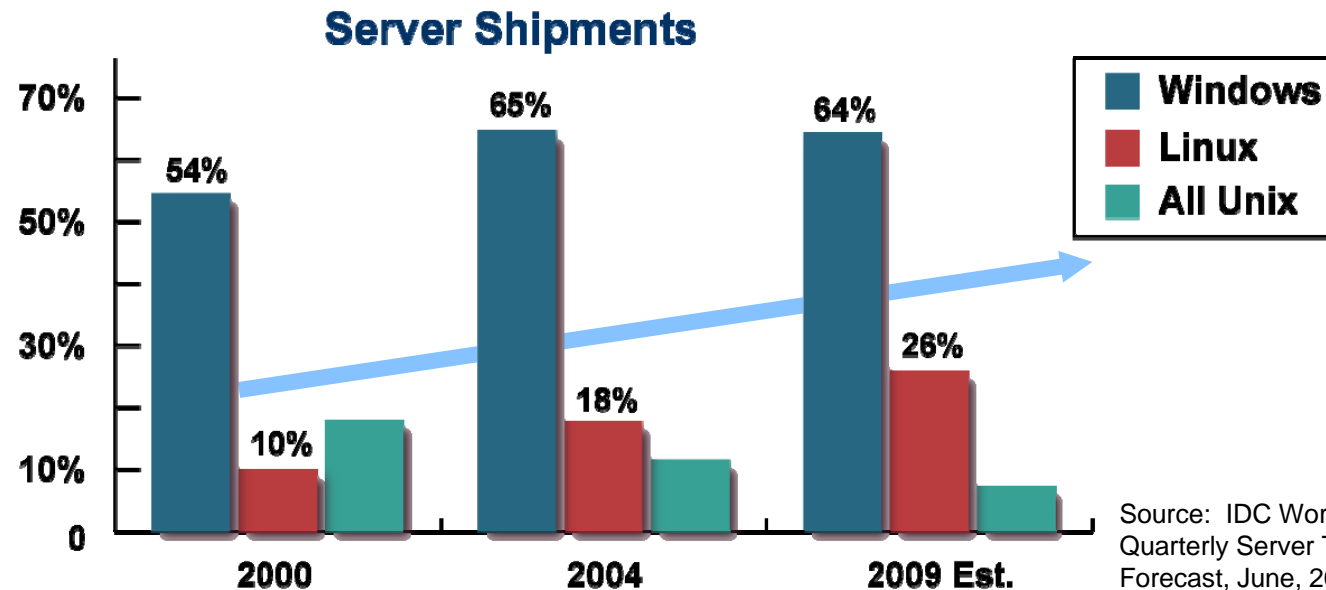
Drivers to Use Linux Today IDC
Analyze the Future

- Attractive hardware acquisition costs
- Availability of low-cost, open-source software
- Ability to modify Linux system software
- Linux runs across all hardware platforms
 - x86, x86-64, RISC and CISC (including mainframes)
- Interest in alternatives to Windows and Unix, offering customers choice in software platforms
- Expectations of improved price/performance
- Re-use of existing Unix skills in enterprise, HPC computing

Source: IDC Directions 2005

Linux Server Market Continues to Grow

- **11th consecutive quarter (1Q05) of year-to-year double-digit growth**
 - Linux server revenue exceeded \$1.2B in quarterly revenue, 10.3% of overall quarterly server revenue – an all-time high
 - Year-to-year revenue growth of 35.2% and unit shipments up 31.1%

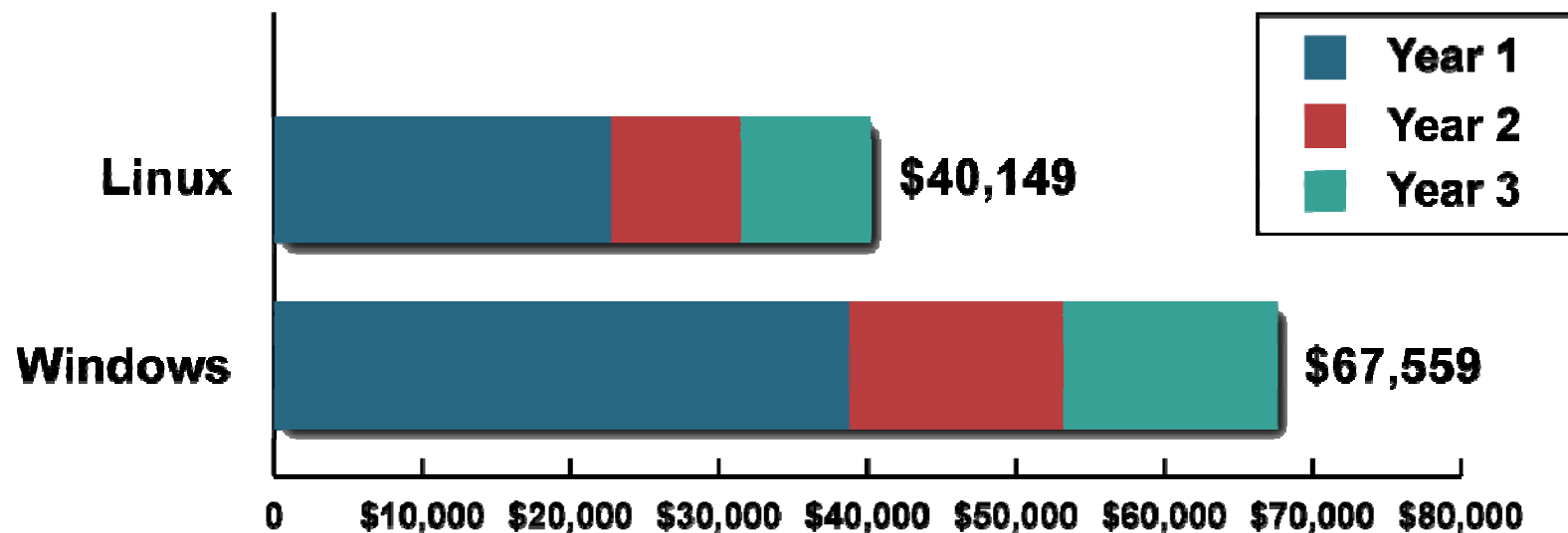


Linux Continues to Deliver Cost Benefits

- **Linux is 40% less expensive than a comparable x86 based Windows solution**
 - Based on a 3-year period of ownership for a system supporting 100,000 operations per second on the SPECjbb benchmark



Operating System TCO for Enterprise J2EE



Source: Robert Frances Group: TCO for Application Servers Study, August, 2005

Linux capabilities and value 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

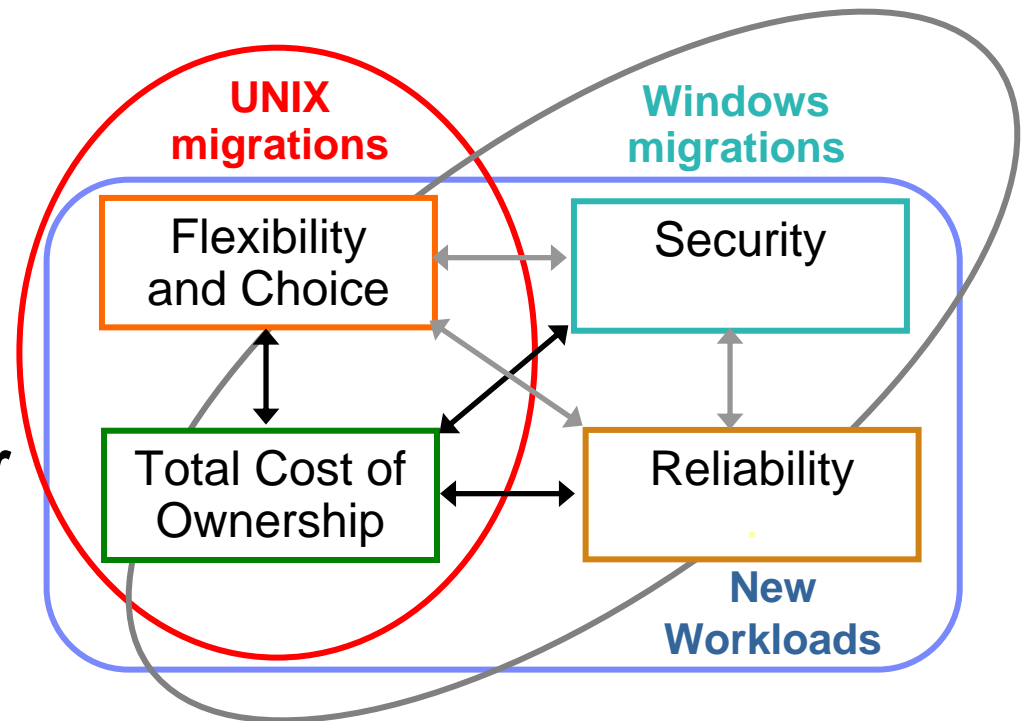
- Up to 16 way SMP support
- Unix-like features and enhancements
- Proven reliability, availability and stability
- Used for mission critical applications
- Runs ERP applications and databases

Fact: Linux is not implemented because it is cool nor as a religious experience

Fact: Linux is a facilitator of Business Solutions and / or IT initiatives

How are Customers Adopting Linux

- Much of the early Linux adoption is replacing proprietary UNIX as Linux offers UNIX-like features and platform independence with lower cost of ownership
- Linux is replacing Microsoft servers due to choice, attractive cost of ownership, and enhanced security
- New workloads are being added to gain the full benefits of platform and vendor flexibility, low cost of ownership, solid security, and solid reliability



Legal Issues?

- **50 million civil law suits were filed in US state and federal courts in 2003**
- **Novell/SUSE and Red Hat provide coverage**
 - Novell/SUSE: <http://www.novell.com/licensing/indemnity/>
 - Red Hat: <http://www.redhat.com/software/rhel/assurance/>
- **Discussion and analysis of the “legal” issues around Linux**
 - <http://www.groklaw.net>

“Since day one, the IBM strategy in the SCO Group lawsuit has been to defend against the SCO Group's unfounded claims vigorously in court. Our belief is that the best way to deal with the SCO Group campaign is where it can truly be resolved – in court.”

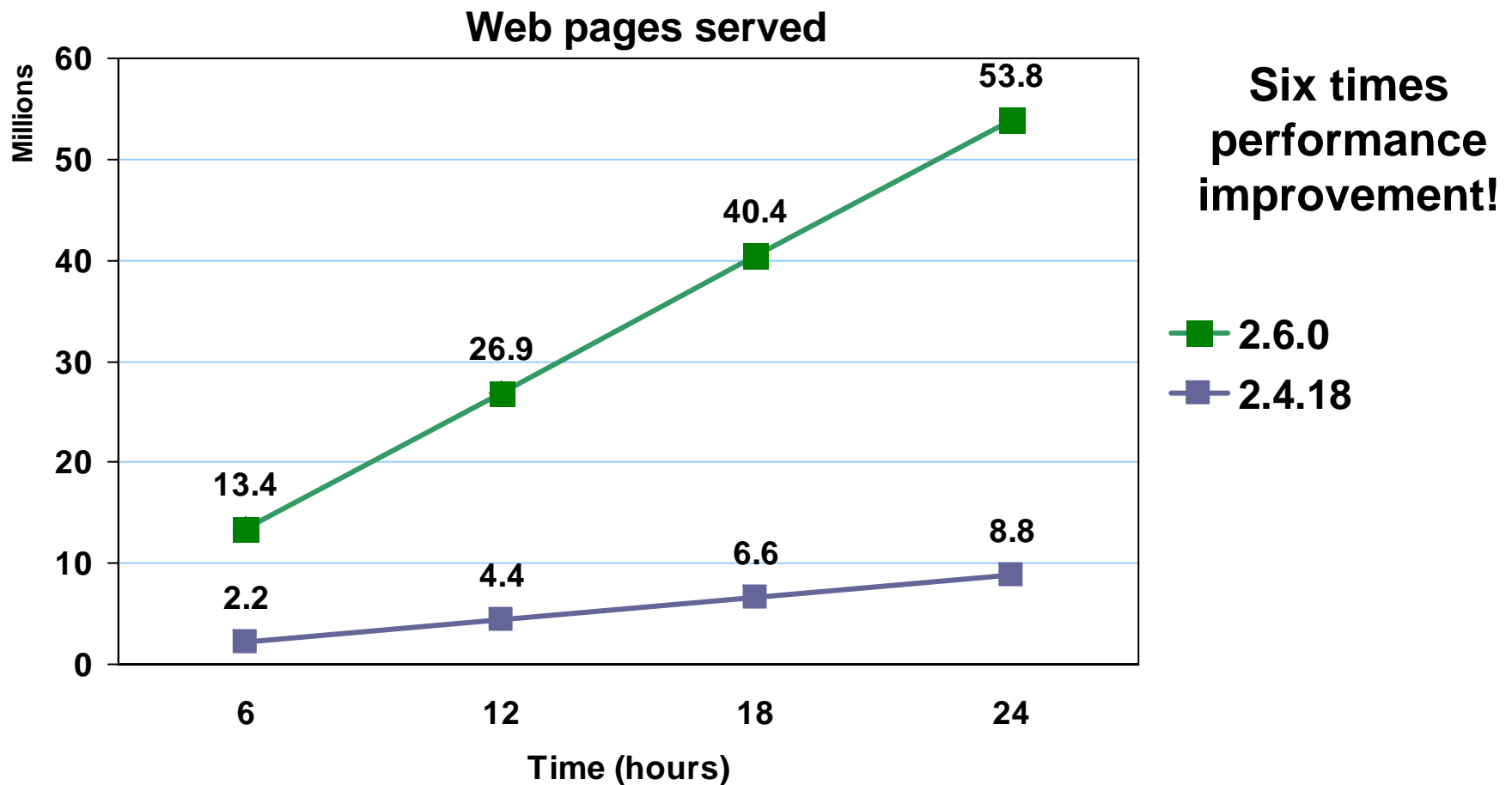
– Bob Samson – Vice President, System Sales, IBM

Linux 2.6 Kernel

| | | | |
|---|---|--|---|
| <p>Major kernel internal overhauls for robustness, performance, scalability</p> <ul style="list-style-type: none"> ▪ VM, Scheduler, NUMA topology, ▪ Filesystem and block IO ▪ HT, SMT support ▪ 64 GB memory support ▪ Max users/Groups 64K – 4 billion ▪ PIDs/processes 32K to 1 billion ▪ 16 TB filesystems, 1 million devices | <p>Scale UP: Large SMP & NUMA</p> <ul style="list-style-type: none"> ▪ 16 CPU xSeries ▪ 16-32 CPU pSeries/iSeries ▪ 16 CPU zSeries <p>Common Hot Plug infrastructure for</p> <ul style="list-style-type: none"> ▪ PCI ▪ Devices ▪ CPUs ▪ USB and Firewire <p>Security</p> <ul style="list-style-type: none"> ▪ Policy based security architecture ▪ New security policies – SELinux, etc. | <p>Scalable APIs</p> <ul style="list-style-type: none"> ▪ Futexes ▪ epoll ▪ Direct IO and Async IO ▪ Large Page APIs ▪ NPTL ▪ NUMA APIs & Topology <p>Distributed Filesystem Support</p> <p>IRQ & Scheduling Affinity</p> <p>Enhanced file system support</p> <ul style="list-style-type: none"> ▪ NFSv4, hardened JFSs | <p>Native Architecture Support</p> <ul style="list-style-type: none"> ▪ IBM Power ▪ IBM zSeries ▪ AMD x86-64 ▪ Intel EM64T ▪ Intel IA64 ▪ And all 2.4 based architectures <p>New networking protocols</p> <ul style="list-style-type: none"> ▪ SCTP, IPv6, Mobile IPv6, DHCPv6 |
|---|---|--|---|

Performance improvements

Web serving on 2.4 and 2.6



IBM xSeries Netfinity 8500R 8681-7RY with 8 Pentium III-700MHz

IBM alliances with Linux distribution partners

■ Novell

- SUSE Linux Enterprise Server

www.novell.com/products/linuxenterpriseserver/

- Certified at Common Criteria EAL4+ and COE



■ Red Hat

- Red Hat Enterprise Linux

www.redhat.com/software/rhel/

- Certified at Common Criteria EAL3+ and COE
 - In evaluation for EAL4 certification in 2005



■ Support for all IBM server products

■ Service available from IBM or distributors



| Linux @ IBM

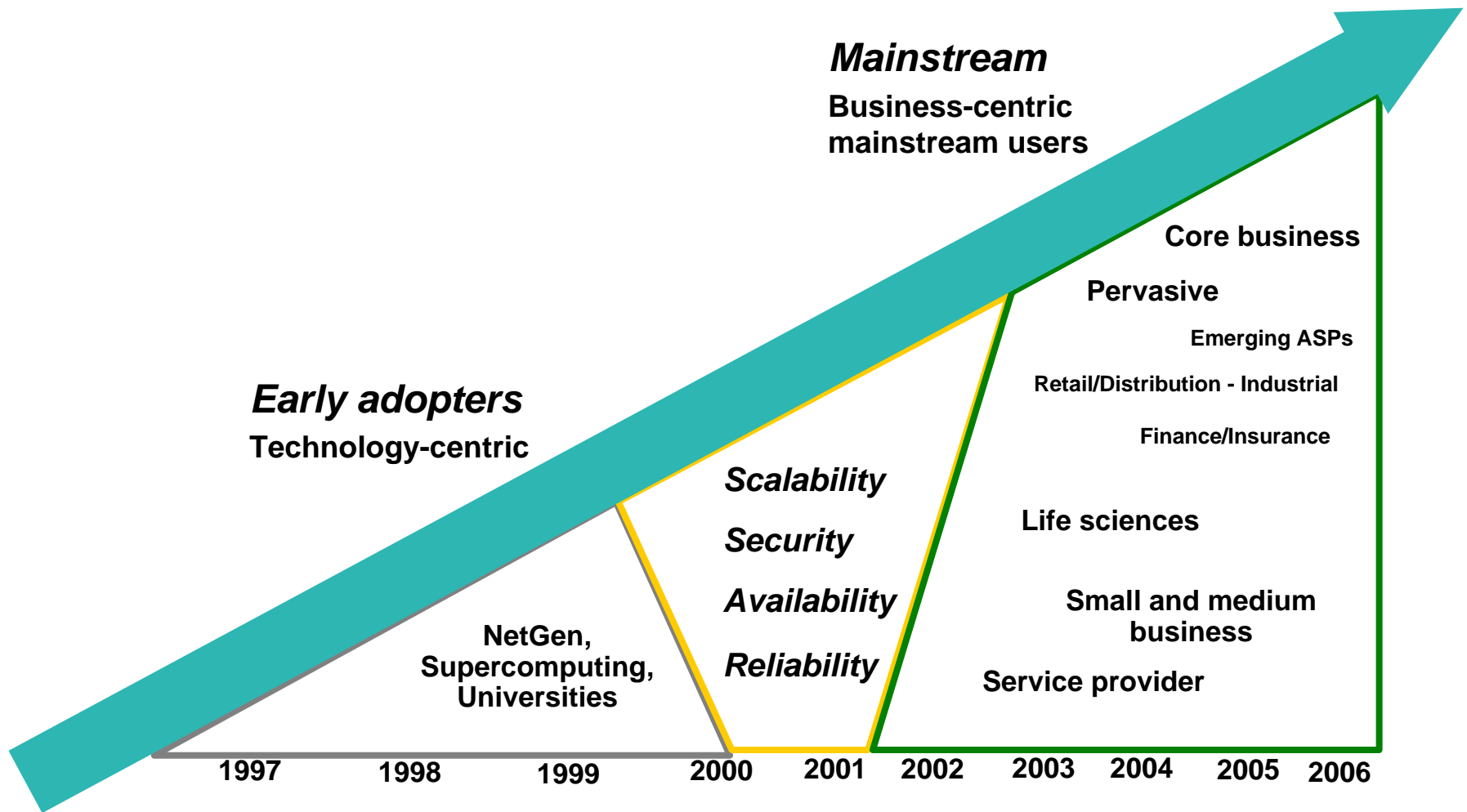


Linux Usage

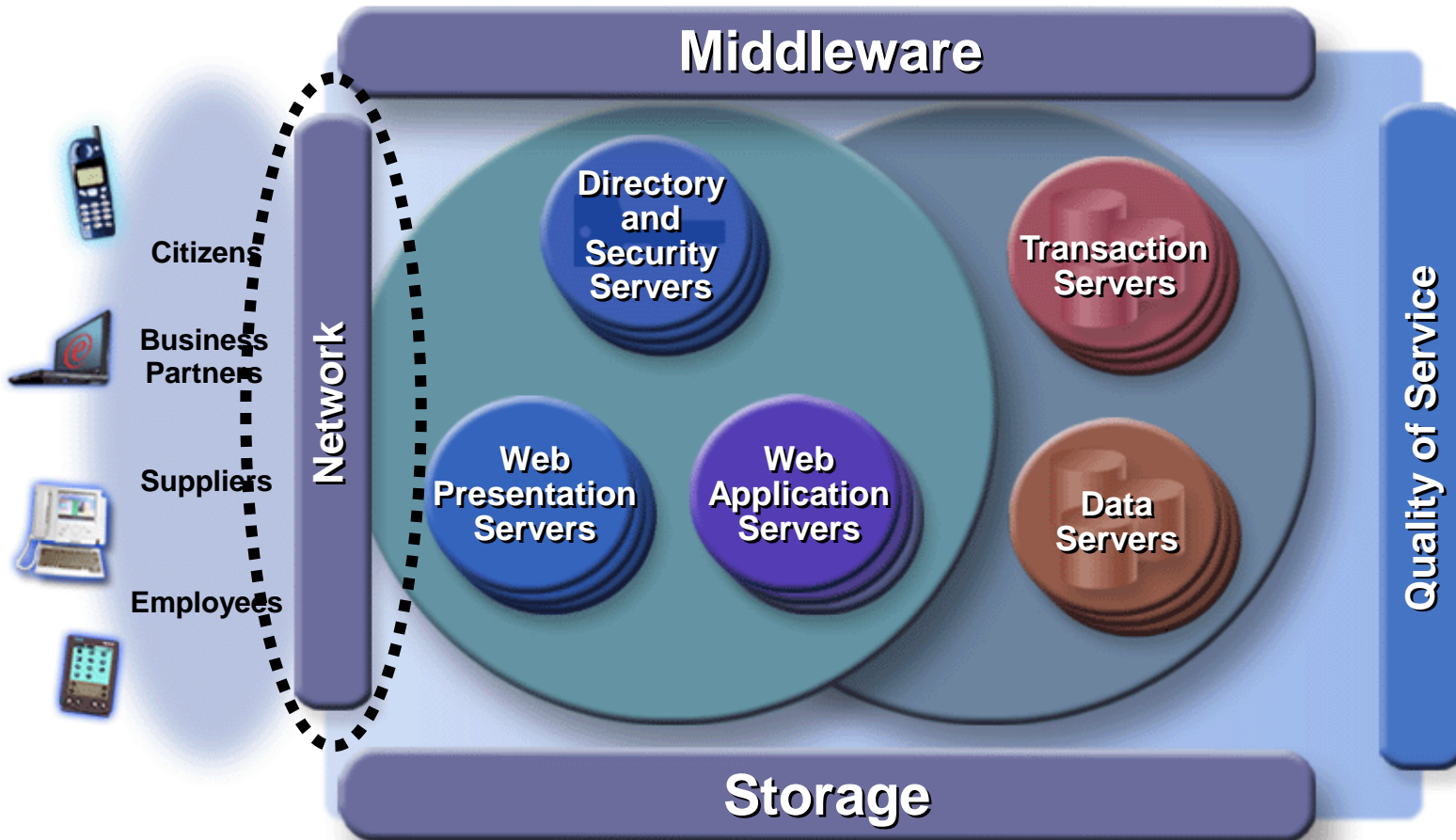




Taking Linux Mainstream

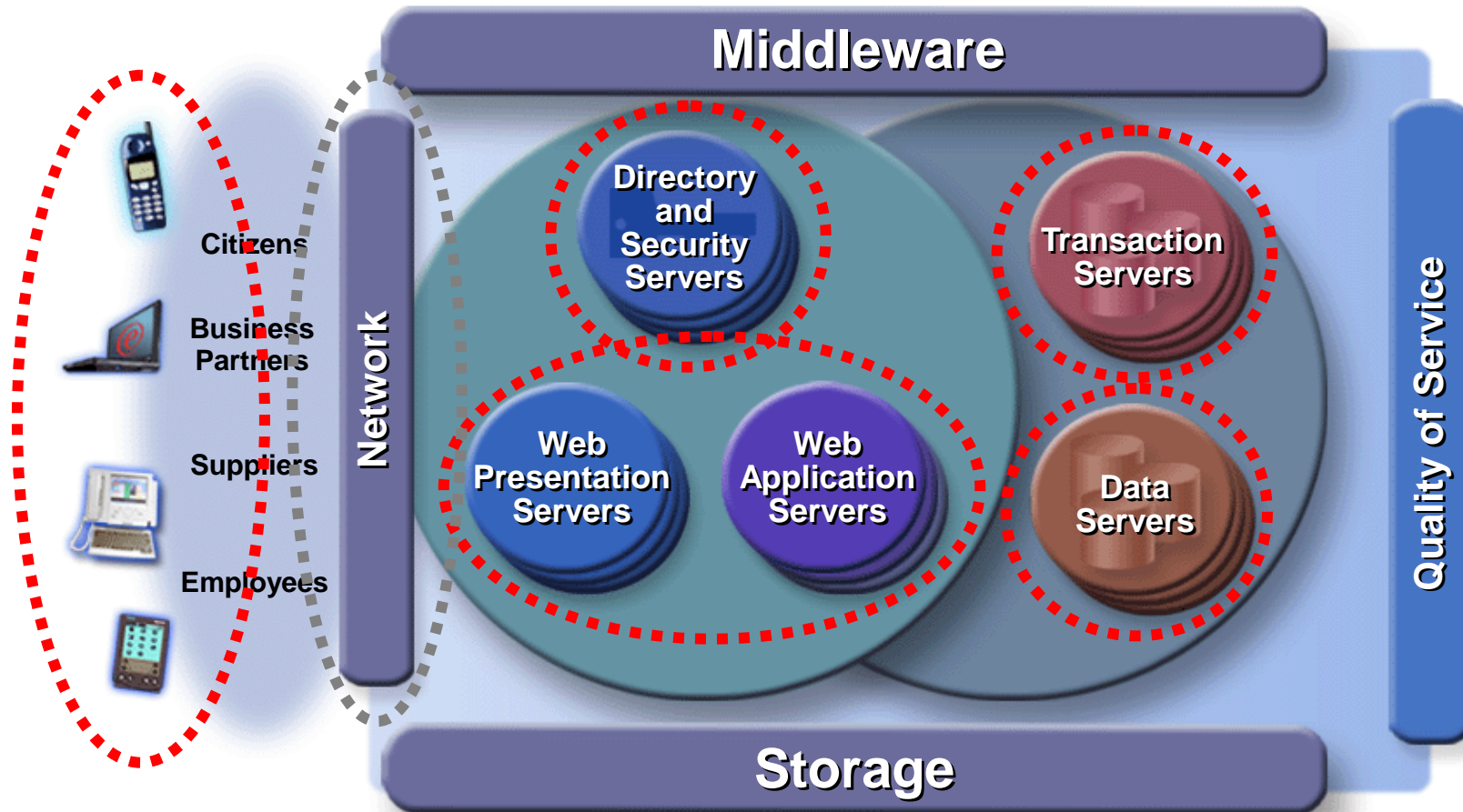


“Traditional” view of Linux fit is outdated





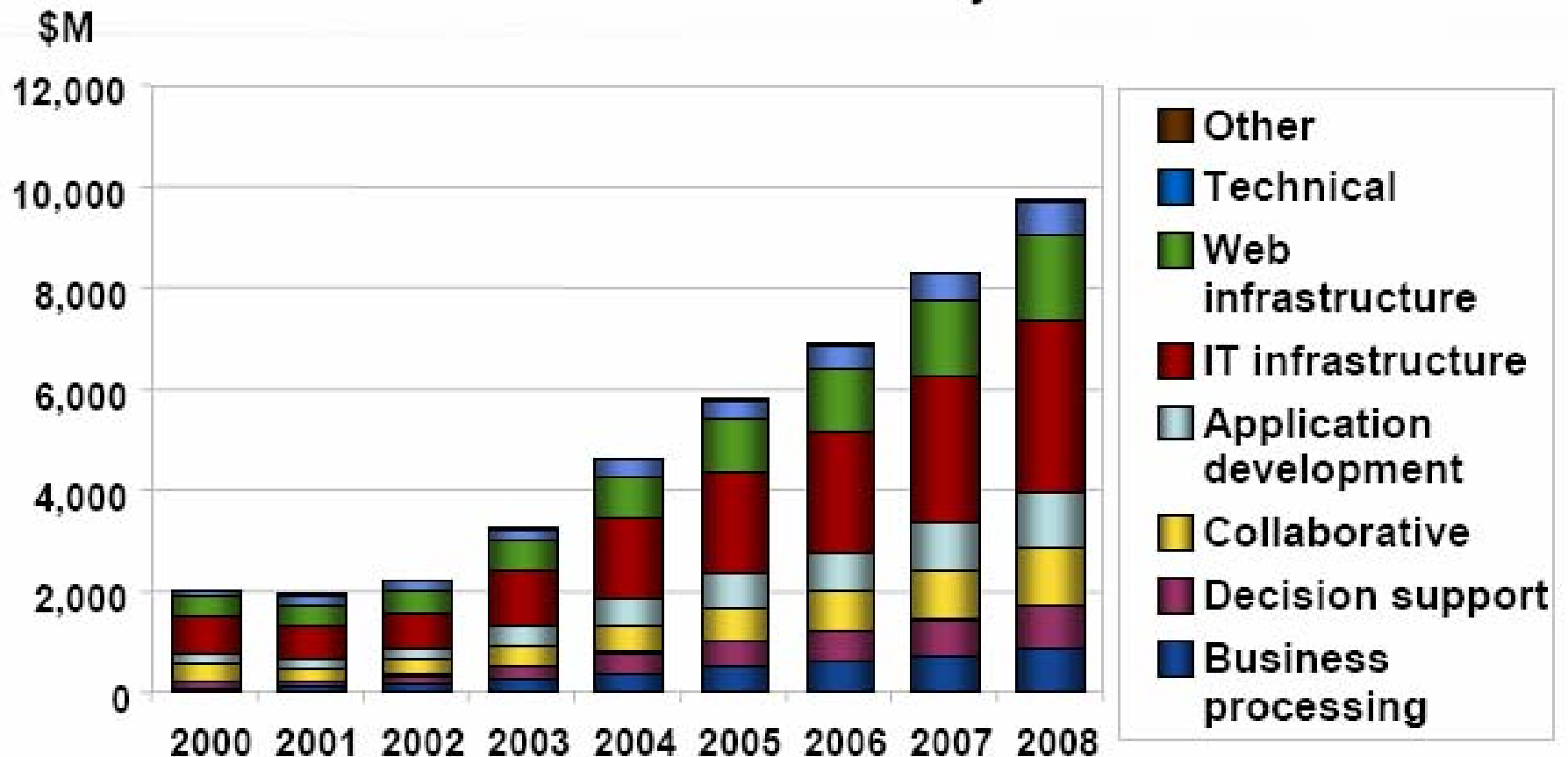
Linux fits everywhere!



Linux Servers Will Shift Their Workload Mix



Linux Servers Revenue by Workload



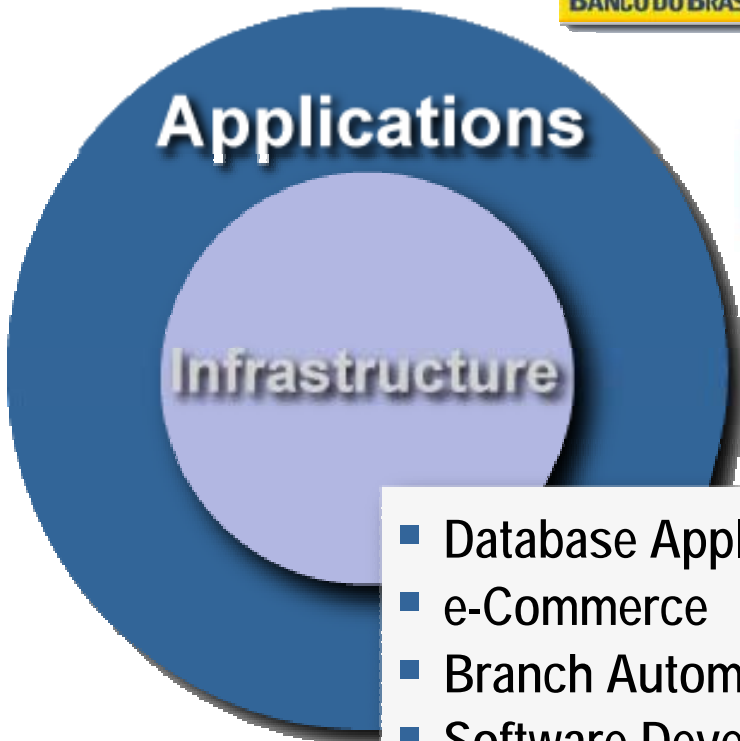
Linux Evolution to Mainstream

Companies Started with Infrastructure Implementations



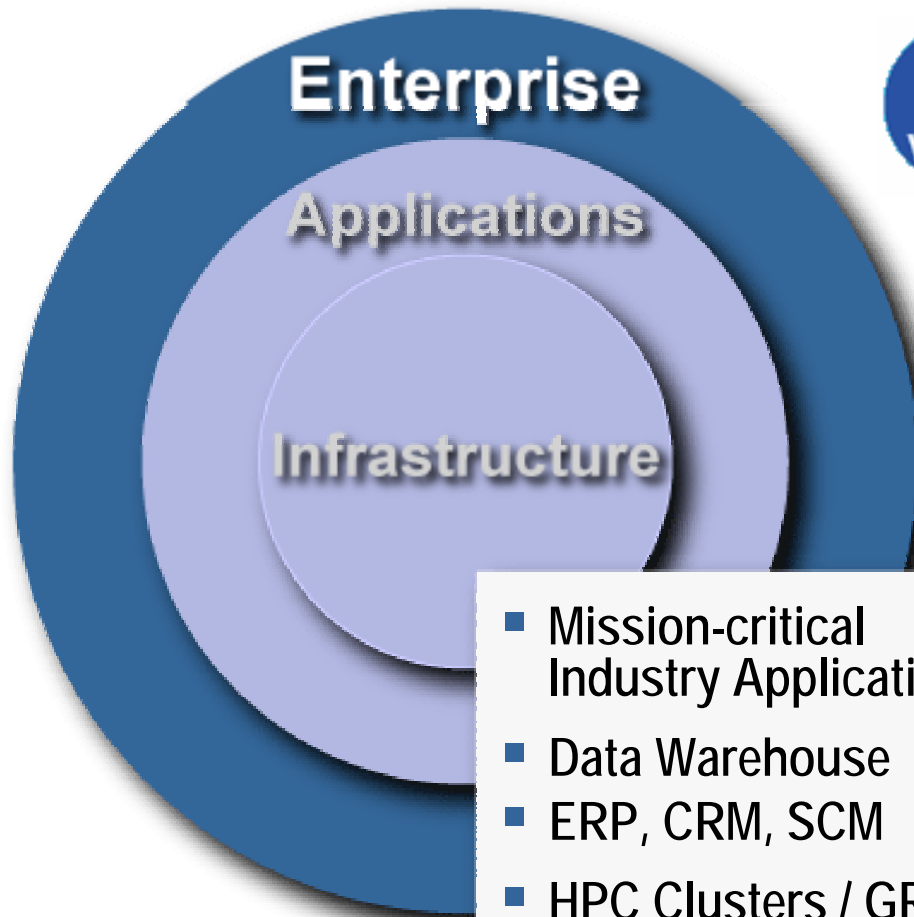
Linux Evolution to Mainstream

Database and Compute Intensive Applications Were Next

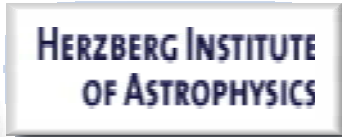


Linux Evolution to Mainstream

Building on Success, Enterprise Applications Followed

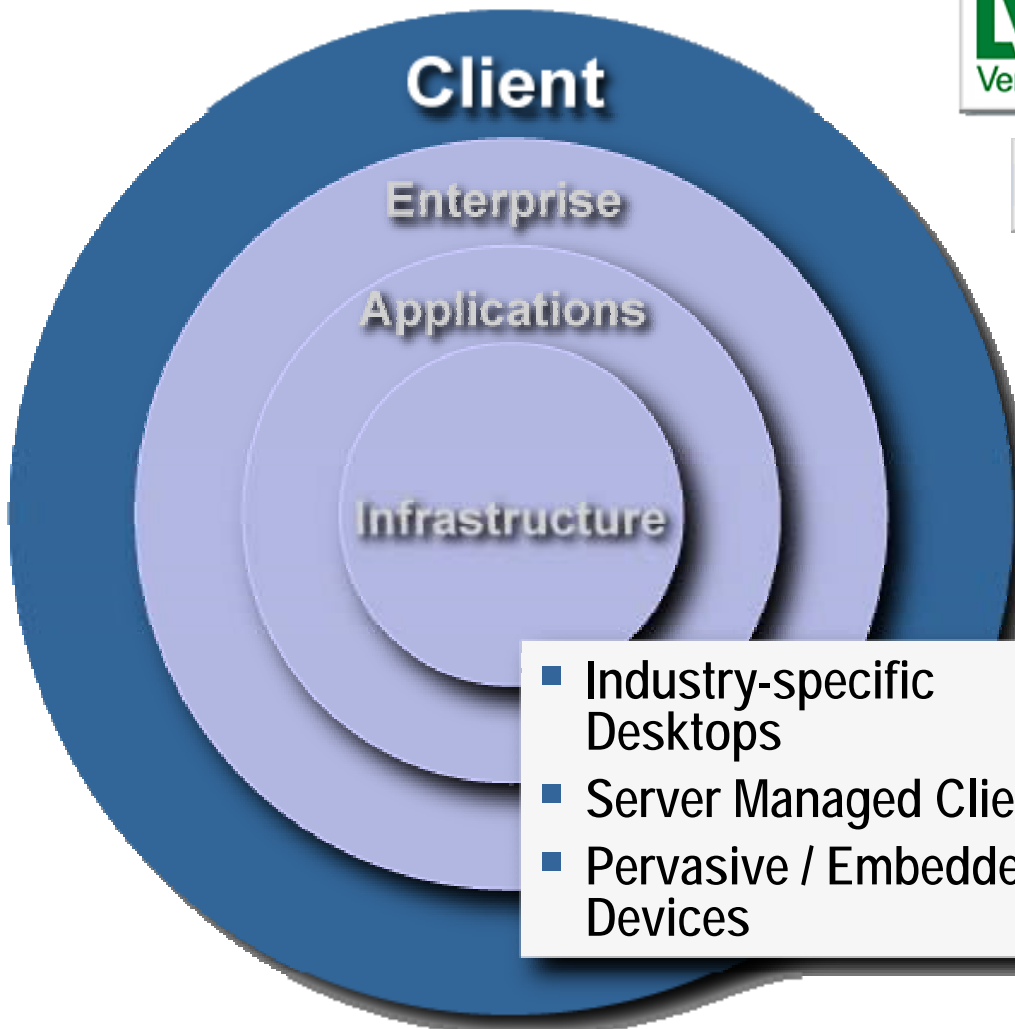


- Mission-critical Industry Applications
- Data Warehouse
- ERP, CRM, SCM
- HPC Clusters / GRID



Linux Evolution to Mainstream

Companies Looking for New Options to Leverage Linux



- Industry-specific Desktops
- Server Managed Clients
- Pervasive / Embedded Devices

Open Source in the Public Sector World-Wide

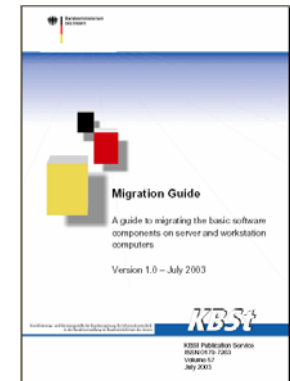
- **European Commission**

- The IDA Open Source Observatory
<http://europa.eu.int/idabc/en/chapter/452>



- **German Federal Ministry of the Interior**

- Migration Guide
http://www.kbst.bund.de/Anlage303807/pdf_datei.pdf



- **Denmark Board of Technology**

- Open-source software in e-government
http://www.tekno.dk/pdf/projekter/p03_opensource_paper_english.pdf

- **Canada Open Source Study**

- Open Source Business Opportunities for Canada's ICT Sector
<http://www.e-cology.ca/canfloss/report/>

- **Defense R&D Canada**

- Free and Open Source Software
<http://cradpdf.drdc.gc.ca/PDFS/unc35/p522804.pdf>





| Linux @ IBM



IBM and Linux





IBM Linux Investments



Linux Partners

- EAL2 **2003**
- EAL3 **2004**
- EAL4 **2005**



Patents

2005



Open Source Contributions

1998 to 2004
2005



Chiphopper

2005

Linux Technology Center

1999

Software

- DB2 **1999**
- WebSphere **2000**
- Tivoli **2001**
- Lotus **2001**
- Rational **2003**



Linux White Papers and RedBooks



Open Source Development Lab

2000



Servers

- xSeries **1998**
- zSeries **1999**
- Cluster and Power **2001**
- BladeCenter **2002**
- OpenPower and BlueGene **2004**



Business Partners



Linux Services

1999



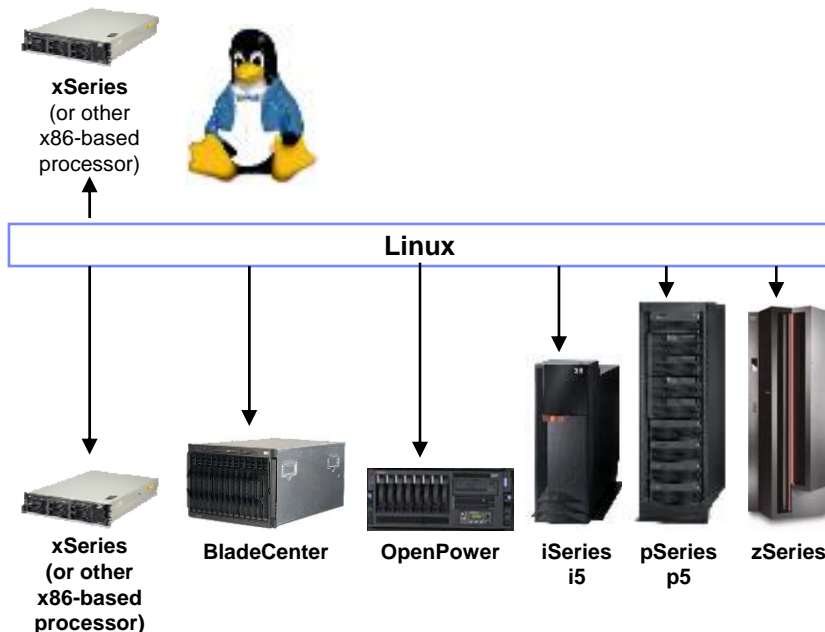
ibm.com/linux



IBM eServer Application Advantage for Linux

Chiphopper – IBM porting/rehosting, testing and assurance offering for ISVs

- ISVs achieve portability via standards
- Rigorous testing apps then porting assistance
- Attain **IBM Ready for eServer with Linux** mark
- ISV support is backed by IBM for porting-related customer problems on target platforms
- First of a kind offering



Ready for

IBM eServer®

with Linux®

- Provides assurance that IBM stands behind your choice of ISV application on IBM eServer platforms
- Helps grow the number of Linux applications on your platform of preference
- Encourages application conformance to standards, important in emerging Linux landscape
- Helps accelerate the maturation of Linux by facilitating more cost-effective choices for mission-critical, high-end environments

IBM Linux Technology Center

ibm.com/linux/ltc

- **IBM well accepted by the Linux community**
 - 600+ developers world-wide
- **IBM engineers leading enterprise Linux focus**
 - Deeply involved in Linux kernel development
 - Linux on POWER and zSeries
 - Motivated community to focus on addressing scalability and threading issues
 - Defect support for a set of core Linux packages
 - Key participant and contributor to the OSDL





IBM Open Source Contributions

- **IBM participates in over 130 Open Source projects**
 - Apache, PHP, CIFS, Samba, Geronimo, ...
- **IBM projects contributed to Open Source include:**
 - Secure Mailer (as Postfix)
 - Andrew File System (as OpenAFS)
 - Eclipse (integrated development environment)
 - Cloudscape (to Apache as Derby database)
 - Research Hypervisor and Secure Hypervisor (to Xen)
 - Jikes (Java compiler)
- **500+ patents into a “patent commons” to help drive innovation and future software development**

IBM Linux portal

ibm.com/linux

United States [change]
Terms of use

Home
Products
Services & solutions
Support & downloads
My account

- Linux at IBM
- Linux at IBM
- About Linux
- Library
- Industry
- Solutions
- The Linux at IBM competitive advantage
- PartnerWorld Lens for Linux
- Developers
- Centers of Competency
- Sports
- Geography
- Education
- Events
- News
- Linux links

- Related links**
- Deep Computing
 - Grid
 - Linux on POWER

Linux at IBM

Industries and solutions

Industries

IBM offers solutions to help improve overall performance and flexibility to increase sales and enhance customer satisfaction. Regardless of your industry, implementing solutions quickly can help you stay on track:



IBM Telecommunications Industry:
Realizing the promise of next generation services revenue

Select your industry:



Featured Solution

→ **The largest media company in eastern Switzerland** needed to set up a powerful, cost-effective operating environment for SAP systems in order to achieve high availability for applications and servers.

By using SAP, SuSE Linux, SteelEye LifeKeeper for Linux and IBM eServer xSeries 455, the media giant was able to create a modern economic platform providing much faster data preparation, faster online processes and room for growth.

- More solutions
- View our business partner solutions

Library

Customer testimonial
→ GDK

Migration

Migration to Linux can save thousands in lower

We're here to help



Ask the experts

Get expert advice on Linux solutions

Migration Factory



→ No Charge to Qualifying Customers for Solaris to Linux Migration Assessments.

Linux magazine



→ Download the full pdf

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Resources for open source development and implementation

Updated 09 Aug 2005

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Understand Geronimo's deployment architecture

The Geronimo deployment model has emerged as a single homogeneous framework, successfully integrating dozens of technologies. Tour it with Srinath Perera. [More >](#)

Advanced PHP V5 objects: Get introduced to more advanced and design-oriented features, including object types, which allow for the decoupling of system components, creating reusable, extensible, scalable code. (Articles)

Building and filling out templates with Python and Cheetah: Cheetah templates are easy to understand and maintain. Learn how to generate any kind of text-based content with Python scripts and Cheetah templates. (Articles)

Profiling and optimizing Ruby code: Discover how to profile and optimize Ruby code with RubyInline and ZenOptimize, two tools that make this process easier. (Education)

Integrate third-party components into Geronimo: Learn how Geronimo's unique GBeans feature lets you integrate third-party open source applications into its infrastructure. (Articles)

Discover Python, Part 3 : Explore the Python type hierarchy: Python does not include a special data type to handle a single character. Learn about

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- Developing on open standards databases
- Webcast: Using PHP with XML and Web Services for rapid Web development

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Top story



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Hacking the Linux 2.6 kernel, Part 2: Making your first hack: Add a feature, fix a flaw, or just have fun tinkering with operating system source code. This tutorial gets you on your way with kernel organization, system calls, kernel modules, and crafting patches. (Education)

Hacking the Linux 2.6 kernel, Part 1: Getting ready: Learn the best ways to acquire kernel source, how to configure and boot your new kernel, and how to use the printk function to print messages during bootup. Hack and be free. (Articles)

Assess system security using a Linux LiveCD: The four LiveCDs in this roundup -- Auditor, Whoppix, Knoppix-STD, and PHLAK -- pop into your CD drive, boot up, let you scan for problems, and then they're gone without a trace. (Articles)

Build a wireless ISP on Linux: Taking the next step beyond a wireless router doesn't have to be nightmare. Shell scripts, Linux, and easy-to-buy equipment help keep it simple. (Articles)

Get started with Zend Core for IBM on Linux: Connecting to a

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Spotlight

- Learn Linux at IBM LinuxFest, a no-charge workshop offered in Australia and New Zealand, Fall 2005
- OpenPower project: Open access to Linux on Power servers
- New book on tuning Linux server performance

Editor's picks

- Linux on board: Blowing TiVo's lid
- Manage C data using GLib



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Featured technologies

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BPEL Tracking for Tivoli Monitoring for Transaction Performance

This is an add-on to Tivoli Monitoring for Transaction Performance (TMTP) to support correlating business workflows with IT end-to-end transaction flows. [More.](#)

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BPEL Tracking for Tivoli Monitoring for Transaction Performance: An add-on to Tivoli Monitoring for Transaction Performance (TMTP) to support correlating business workflows with IT end-to-end transaction flows

Service Management Connectors for WebSphere Studio Application Monitor: An add-on to WebSphere Studio Application Monitor (WSAM) that supports Information Technology Infrastructure Library (ITIL) change management and capacity management processes.

Faces for Laszlo: A technology that makes use of multiple emerging technologies for rich Internet applications, resulting in a rich user experience on the browser. (This is an ETKK technology.)

IBM iSeries Navigator System Management Plug-in for SAP: An iSeries Navigator plug-in that provides simple management tools for a SAP system.

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- Messaging Solutions in a Linux Environment
- Tuning Red Hat Enterprise Linux on IBM eServer xSeries Servers

Most popular ... show Top 15

- IBM eServer i5 and iSeries System Handbook: IBM i5/OS Version 5 Release 3 October 2004
- Linux Client Migration Cookbook A Practical Planning and Implementation Guide for Migrating to Desktop Linux
- Lotus Domino 6 for Linux

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- **XML** RSS feed with newest Linux related publications... More about RSS
- Solaris to Linux Migration
- IBM Retail Env. for SUSE LINUX

The IBM Migration Station

ibm.com/developerworks/ondemand/migrate/linux.html

The screenshot shows the IBM Migration Station website. At the top, there is a navigation bar with the IBM logo, a search bar, and a dropdown menu for "Country/region [select]". Below the navigation bar, there is a secondary navigation bar with links for "Home", "Products", "Services & solutions", "Support & downloads", and "My account". The main content area is titled "Migration station" and features a breadcrumb trail "developerWorks >". A secondary navigation bar below the title includes links for "Overview", "Database", "App server", "Java", "Linux" (which is highlighted), and "Lotus". The main content area lists several migration options, each with a downward arrow icon: "Migrate from x86 Linux to multi-platform Linux", "Migrate from Solaris to Linux", "Migrate from Windows to Linux", "Migrate from Windows/.NET to Java", "Migrate from OS/2 to Linux", "Migrate to IBM middleware on Linux", and "IBM migration resources for partners and ISVs". To the right of the main content, there are three sidebars: "Document options" with links for "Print this page" and "E-mail this page"; "More resources" with a list of links including "Product documentation", "Migrating and developing new applications for Linux", "Developer resources for an on demand world", "Building better software faster with the IBM Software Development Platform", and "Globalizing your e-business"; and "Build applications" with links for "With DB2" and "With Linux". On the left side, there is a vertical navigation menu with links for "developerWorks", "DB2", "eServer", "Lotus", "Rational", "Tivoli", "WebSphere", "Autonomic computing", "Grid computing", "Java™ technology", "Linux", "Open source projects", "Power Architecture™", "SOA and Web services", "Web architecture", "Wireless technology", "XML", and "Feedback". Below the menu, there is a "Related links" section.

Linux: Transforming IBM's IT infrastructure

Providing Key Business Solutions

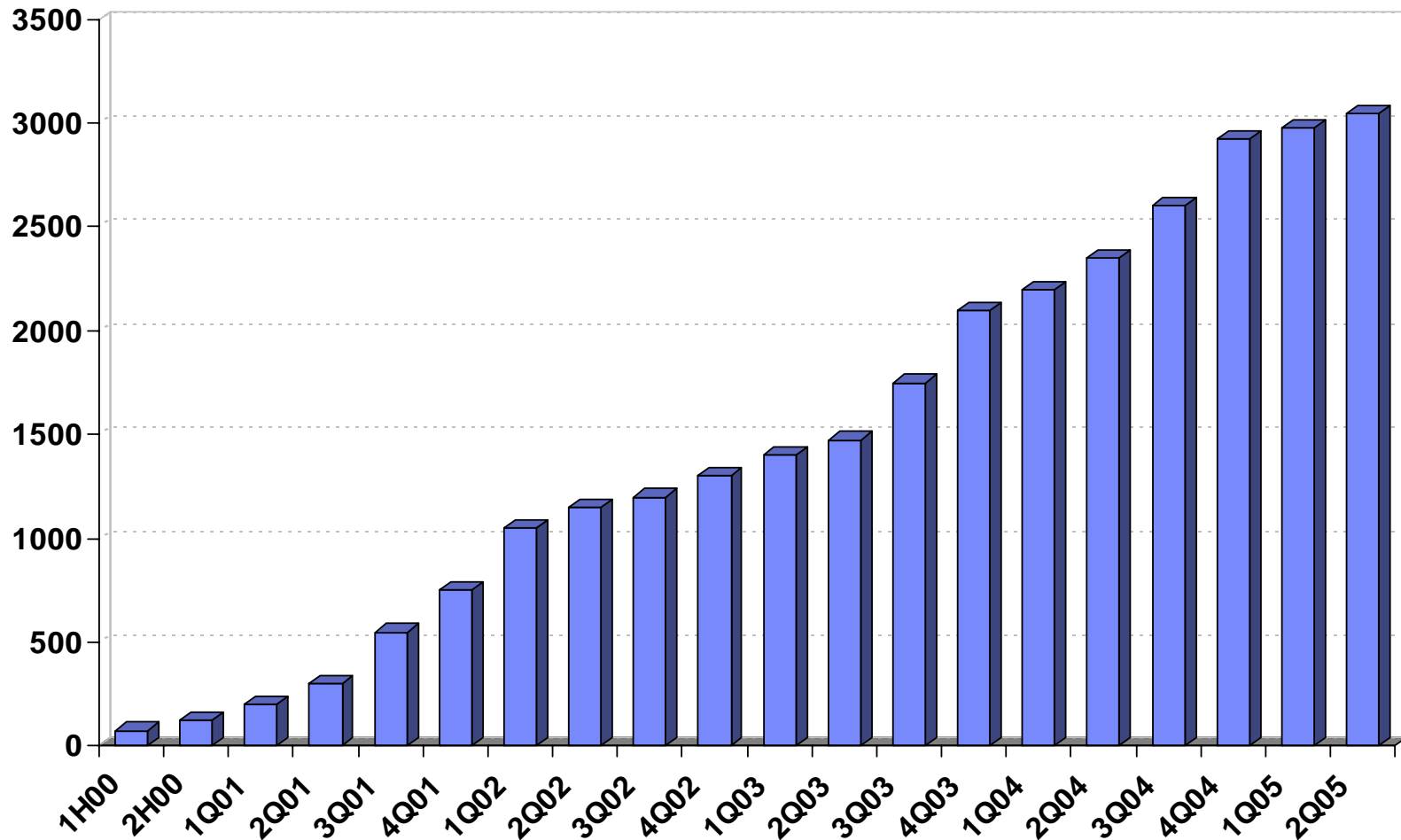
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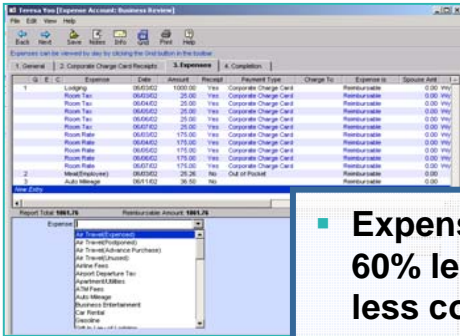
3044 Linux Servers in Production at IBM

At start of 2Q2005

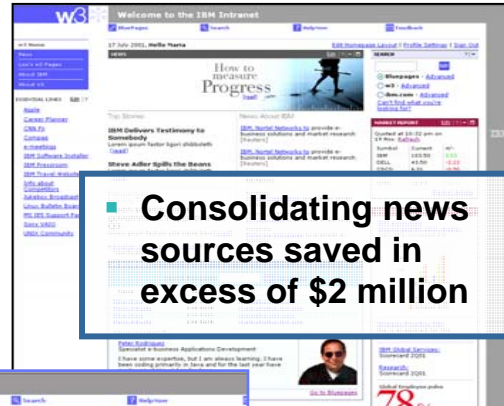




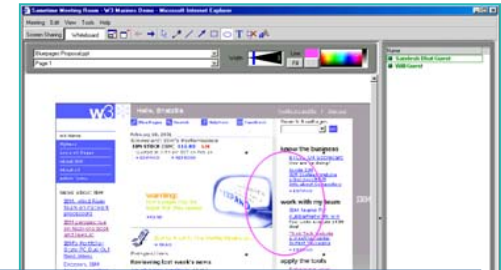
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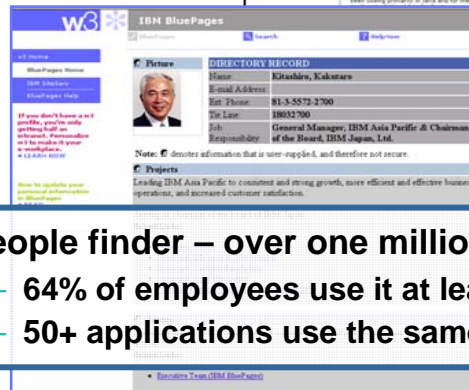
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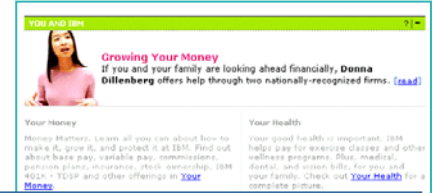
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– 50+ applications use the same directory



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– 90% satisfaction rate
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 - WebSphere – middleware, application server, e-business, and infrastructure software
 - DB2 – database software
 - Lotus – collaboration and messaging software
 - Tivoli – system and storage management software
 - Rational – software development tools
- **Over 350 IBM software products available today on Linux**
- **Linux editions of software products are available the same day as all other platforms**
- **Primary software solutions to be available on Linux**



IBM software product availability matrix

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| IBM @server® xSeries | | | IBM @server® zSeries | | | | |
|---------------------------|-------------------|----------|---|-------------------|----------|---|--|
| DB2 | Version - Release | Hardware | Tivoli software | Version - Release | Hardware | Kernel/Distribution | Sources |
| DB2 Administration Client | 8.2 | xSeries | | | | | |
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| | | | NEW! WebSphere Application Server | 6.0 | pSeries | Red Hat Enterprise Linux 3 Update 2, Update 3 SUSE Linux Enterprise Server 8 SP3 SUSE Linux Enterprise Server 9 | Available December 10, 2004 Software Announcement 204-289 November 30, 2004 Supported Platforms |
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Summary



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Next Steps



- **Familiarize yourself with Linux**
- **View Linux as a valid alternative for IT systems**
- **Incorporate open source software development into IT strategies**
- **Look at Linux to see how it can lower costs, increase reliability and security, and improve service**

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