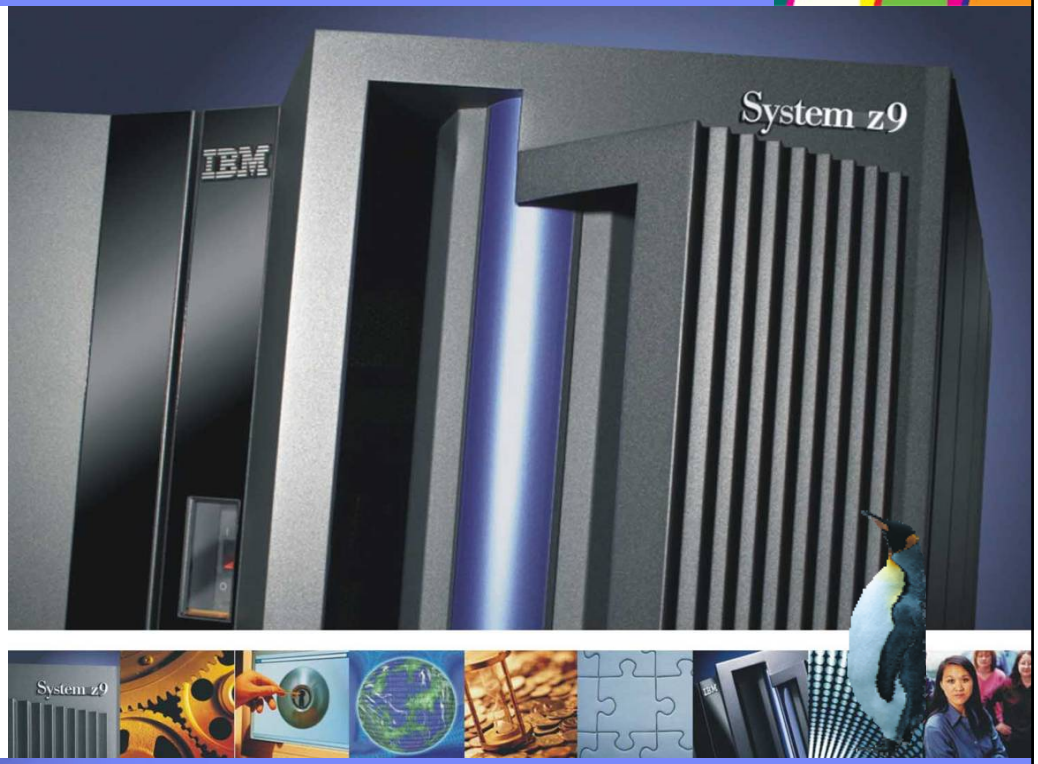
Linux and Open Source @ IBM

Open Standards, Open Source, and Linux



Jim Elliott
Advocate – Linux, Open Source, and Virtualization and Manager – System z Operating Systems
IBM Canada Ltd.

Innovation that matters

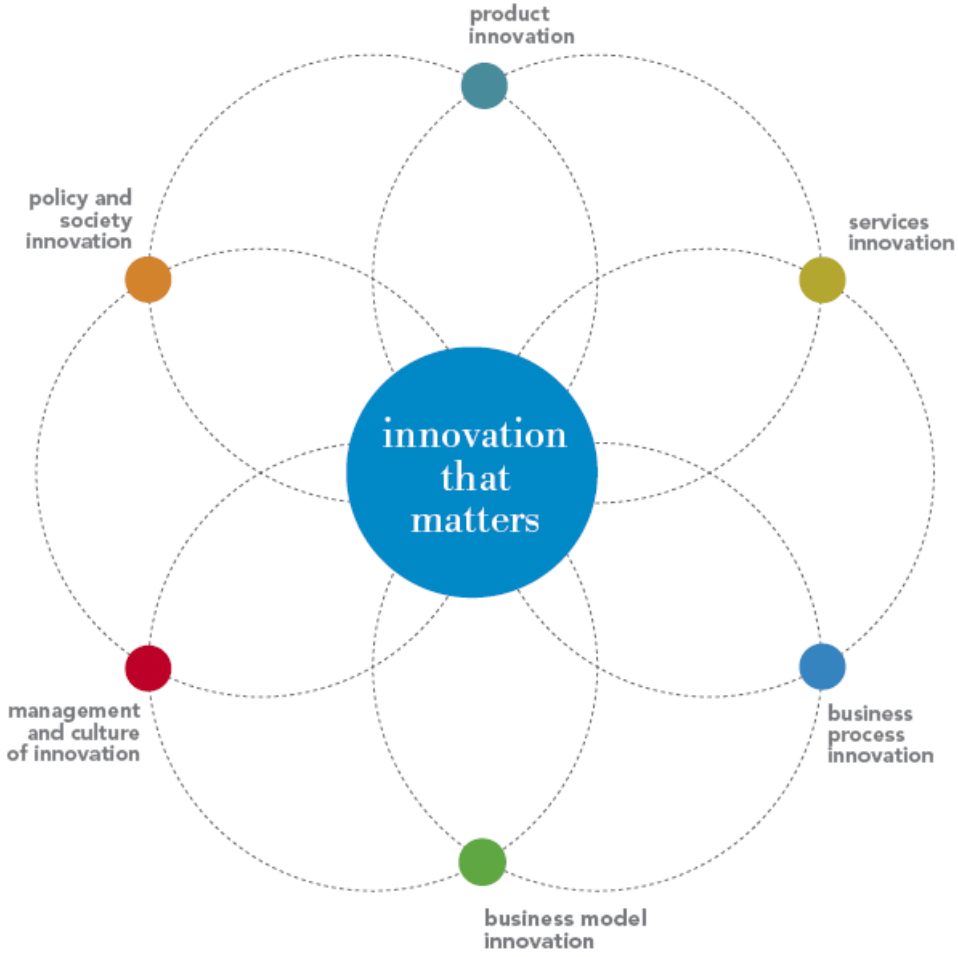
IBM Systems
Simplify your IT.

L11 – Open Standards, Open Source, and Linux

- **IBM has a vision of the future which can only become a reality in a world of Open Computing which covers Open Standards, Open Architectures, and Open Source (including Linux).**
- **Jim will delve into the Open Computing with a focus on Linux, the benefits of Linux, and the tremendous growth of Linux around the world as a direct result of these benefits.**
- **He will also review the participation of IBM in the Open Computing world including Linux and Open Source usage at IBM.**
- **Updated version of charts available at ibm.com/vm/events/sysz0610.html and ibm.com/vm/devpages/jelliott/events.html**

Agenda

- **Open Standards and Open Source**
- **Linux**
- **Linux and Open Source @ IBM**



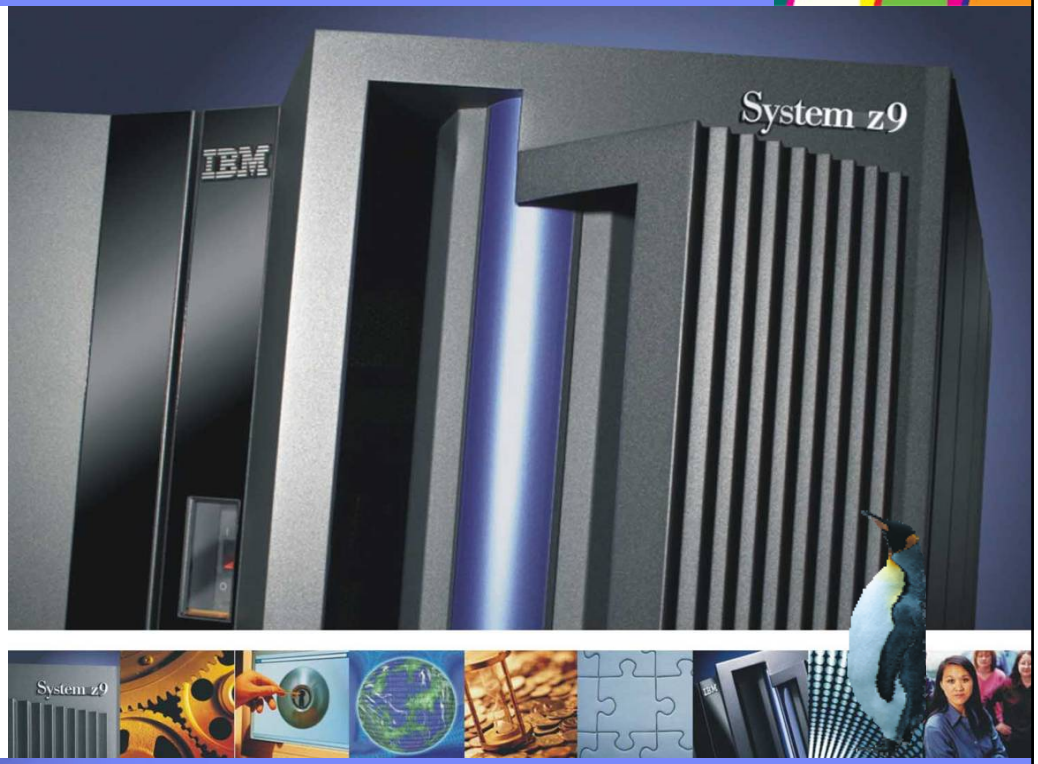
Key business challenges for IT

- **Increased expectations of accessibility to services**
  - Incomplete view of data and end-user services
  - Difficult to deliver new services and/or respond to new requirements
- **Empowering workforce to deliver higher value, productivity**
  - Difficulty in finding experts and sharing best practices
- **Improving operational and organizational effectiveness**
  - Costly and slow paper-based processing
  - Labor intensive to classify, track, retain and dispose of records
- **Collaborating across the business for increased efficiency**
  - Incomplete linkages block multi-department processes, sharing
- **Sensing, responding and managing across "political" boundaries**
  - Critical information scattered among departments, agencies
  - Inconsistent data standards and rules of engagement for usage

Bottom line: doing more with less!

Linux and Open Source @ IBM

Open Standards and Open Source



Innovation that matters

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Adaptability is vital

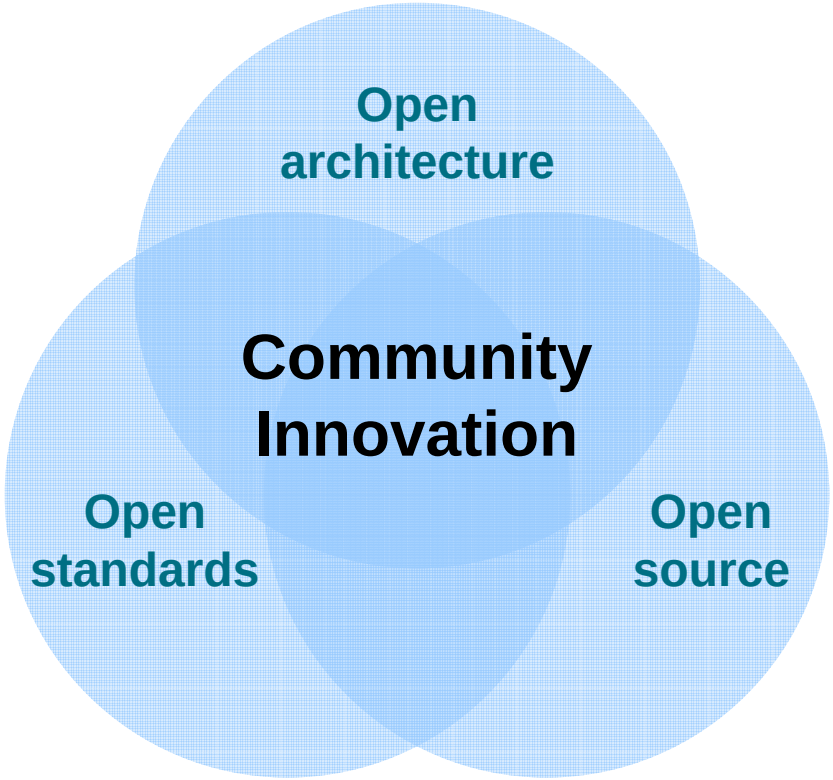
"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change."

Charles Darwin (1809-82)

Open Computing is about innovation

- **Open Standards**
  - Improving data sharing by simplifying integration of disparate technologies
  - Promoting interoperability by using open published specifications
- **Open Architecture**
  - Increasing collaboration by easily extending business processes
  - Innovating on top of common hardware specifications
- **Open Source**
  - Promoting innovation by leveraging community development

Open Computing



The benefits of Open Standards

- **What is Open?**
  - Lots of definitions – from published, proprietary interfaces to open source
  - What is a meaningful gauge?
    - Broad adoption
    - Public interfaces/public input
    - Path to long term stewardship
- **Market benefits**
  - ***Choice*** – The choice I make today doesn't limit the choices I can make in the future
  - ***Flexibility*** – I can connect to internal departments and external partners that made different technology choices
  - ***Speed*** – I can build new solutions that involve multiple hardware and software platforms quickly
  - ***Speed*** – I can adjust to changing business parameters (new opportunities, new partners, new employees) quickly
  - ***Skills*** – I can find skilled resources that understand these solutions

What is Open Source?

opensource.org

- **A development methodology**
  - Community approach to developing software
  - Meritocracy of developers
  - Peer review
- **A licensing approach**
  - Free access to source code
  - Conforms to one of the "*Open Source Initiative*" licenses
  - Prioritizes rights of users
- **A community of users, developers and partners**
  - Open participation

The Apache Software Foundation
http://www.apache.org/

- **Apache**
  - Web server
  - Community initiated (apache.org)
- **Linux**
  - Operating System
  - Individual initiated (Linus Torvalds)

- **Eclipse**
  - Integrated Development Environment
  - IT vendor initiated (IBM)

The power of open collaborative innovation

"… works like an ant colony, where the collective intelligence of the network supercedes any single contributor."

Community innovation is key to Open Source

- **Community-driven approach to problem solving**
- **People working across geographical and organizational boundaries**
- **Enabled by:**
  - Open standards
  - New intellectual property practices
  - The Internet and collaborative tools
- **It unites perspectives to:**
  - Rapidly solve business issues
  - Accelerate technological advancements
  - Stimulate economic growth
  - Enable new business models

Open Standards vs. Open Source

- **Many people who have not done software development are confused between "*open standards*" and "*open source*" – they don't know what code looks like and what you do with it**
- **A standard is like a blueprint: it tells you what you must do if you actually get around to building something**
  - An open standard is one that is developed and maintained in a particularly transparent way with community involvement, and is "*freely*" available and implementable
- **Open source is code, and it may implement open standards**
  - Open source is developed and maintained in a particularly transparent way with community involvement, and is "*freely*" available

Benefits and challenges in Open Source

Potential benefits

- **Low acquisition cost**
- **Frictionless access to software**
  - "Do-It-Yourself" computing
  - Rapid prototyping
- **Choice and flexibility**
  - Hardware portability and software flexibility
  - Modularity and componentization
  - Range of support options
- **Quality of software**
  - Peer review of source code
  - Fast cycle time of product releases and bug fixes
- **Community innovation**
  - Opportunity for two-way involvement with developers
  - Harvest commoditized components and use freed-up resources for innovation

Potential challenges

- **Support**
- **Integration**
  - With other open source software
  - With commercial software
- **Availability of applications**
- **Maturity**
  - Functionality / Scalability
  - Community / Industry support
  - Sustainability of business model
- **Too many choices**
- **Maintainability of "Do-It-Yourself" computing**

Gartner

The Open Source stacks are growing up

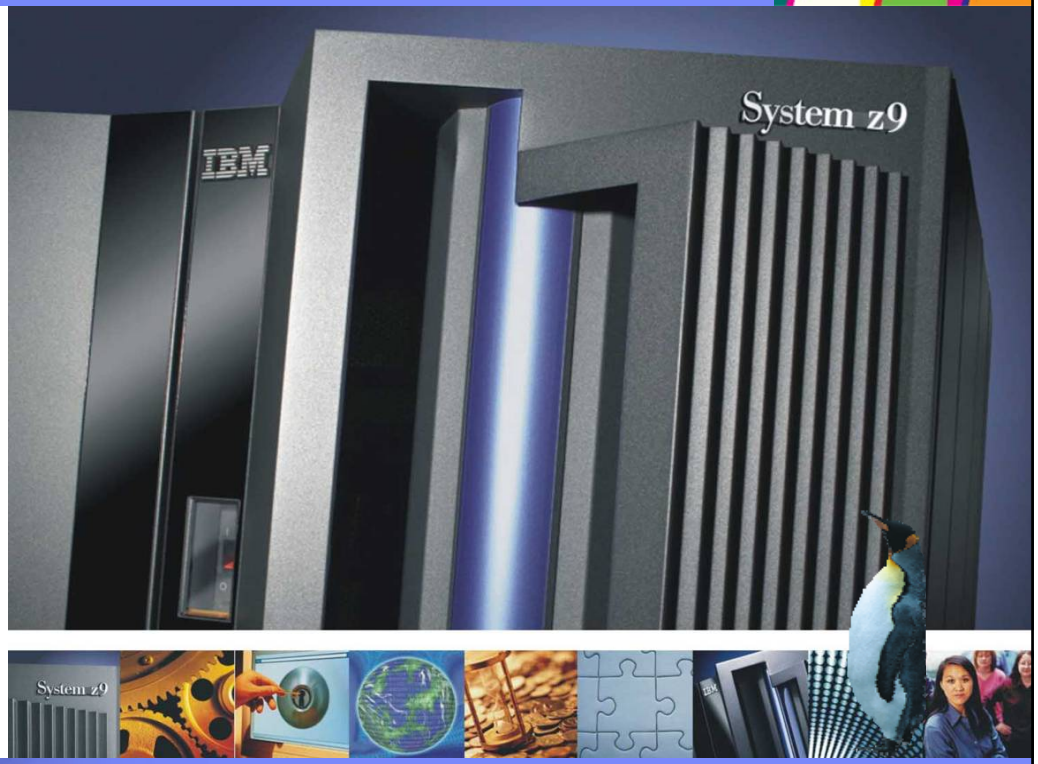
	Products	Maturity
Enterprise applications	SugarCRM, Compiere, Ohioedge	★
Collaboration	Zope, phpBB, Nukes, PostNuke	★ ★
Content management	Midgard, OpenCMS, Lenya, Typo3	★ ★ ★
Presentation	Jetspeed, Gluecode, Zope, uPortal, Liferay	★ ★
Search	Lucene, ht://Dig	★ ★
Process management	Openflow	★
Development tools	Eclipse, NetBeans, PHP, Perl, Struts, Hibernate, Spring	★ ★ ★ ★ ★
Integration services	Openadaptor	★
Enterprise service bus	Celtix, ServiceMix	★
Application servers	JBoss, JonAS	★ ★ ★
Directory services	OpenLDAP	★ ★ ★
RDBMS	MySQL, PostgreSQL, Firebird, Ingres	★ ★
Security	Snort, Nessus	★ ★ ★ ★
Operating system	Linux, FreeBSD	★ ★ ★ ★
Virtualization	Xen	★ ★

Why does IBM consider Open Source important?

- **Open Source is a good approach for driving emerging standards**
  - Popular open source projects can become the common implementations
  - Can have wide distribution and deployment
  - Can accelerate SOA adoption
- **Open Source can be a major source of innovation**
  - Innovation can happen anytime, anywhere, and might be downstream
  - Development through “open communities” leads to potentially broad ideas and creativity
- **Open Source is a source of competition and disruption in marketplace**
  - Office productivity applications
  - Operating systems (Linux for servers, desktops)
  - Software development environments, …

Linux and Open Source @ IBM

Linux



Innovation that matters

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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 a Linux Distribution Partner (LDP)**
  - Novell and Red Hat dominant in NA
- **Development coordinated by OSDL**

Top 500 super computers

TOP 10 sites for June 2006

Rank	Site	Computer
1	DOE/NNSA/LLNL United States	BlueGene/L - eServer Blue Gene Solution IBM
2	IBM Thomas J. Watson Research Center United States	BGW - eServer Blue Gene Solution IBM
3	DOE/NNSA/LLNL United States	ASC Purple - eServer pSeries p5 575 1.9 GHz IBM
4	NASA/Ames Research Center/NAS United States	Columbia - SGI Altix 1.5 GHz, Voltaire Infiniband SGI
5	Commissariat a l'Energie Atomique (CEA) France	Tera-10 - NovaScale 5160, Itanium2 1.6 GHz, Quadrics Bull SA
6	Sandia National Laboratories United States	Thunderbird - PowerEdge 1850, 3.6 GHz, Infiniband Dell
7	GSIC Center, Tokyo Institute of Technology Japan	TSUBAME Grid Cluster - Sun Fire X64 Cluster, Opteron 2.4/2.6 GHz, Infiniband NEC/Sun
8	Forschungszentrum Juelich (FZJ) Germany	JUBL - eServer Blue Gene Solution IBM
9	Sandia National Laboratories United States	Red Storm Cray XT3, 2.0 GHz Cray Inc.
10	The Earth Simulator Center Japan	Earth-Simulator NEC

Operating system family

Operating system Family	Count	Share %	Rmax Sum (GF)	Rpeak Sum (GF)	Processor Sum
Linux	367	73.40 %	1517733	2500463	427171
Windows	2	0.40 %	6196	10512	1560
Unix	98	19.60 %	530615	771992	142064
BSD Based	4	0.80 %	49852	55480	6136
Mixed	24	4.80 %	648430	823393	289408
Mac OS	5	1.00 %	37228	60995	7256
Totals	500	100%	2790054.02	4222834.82	873595

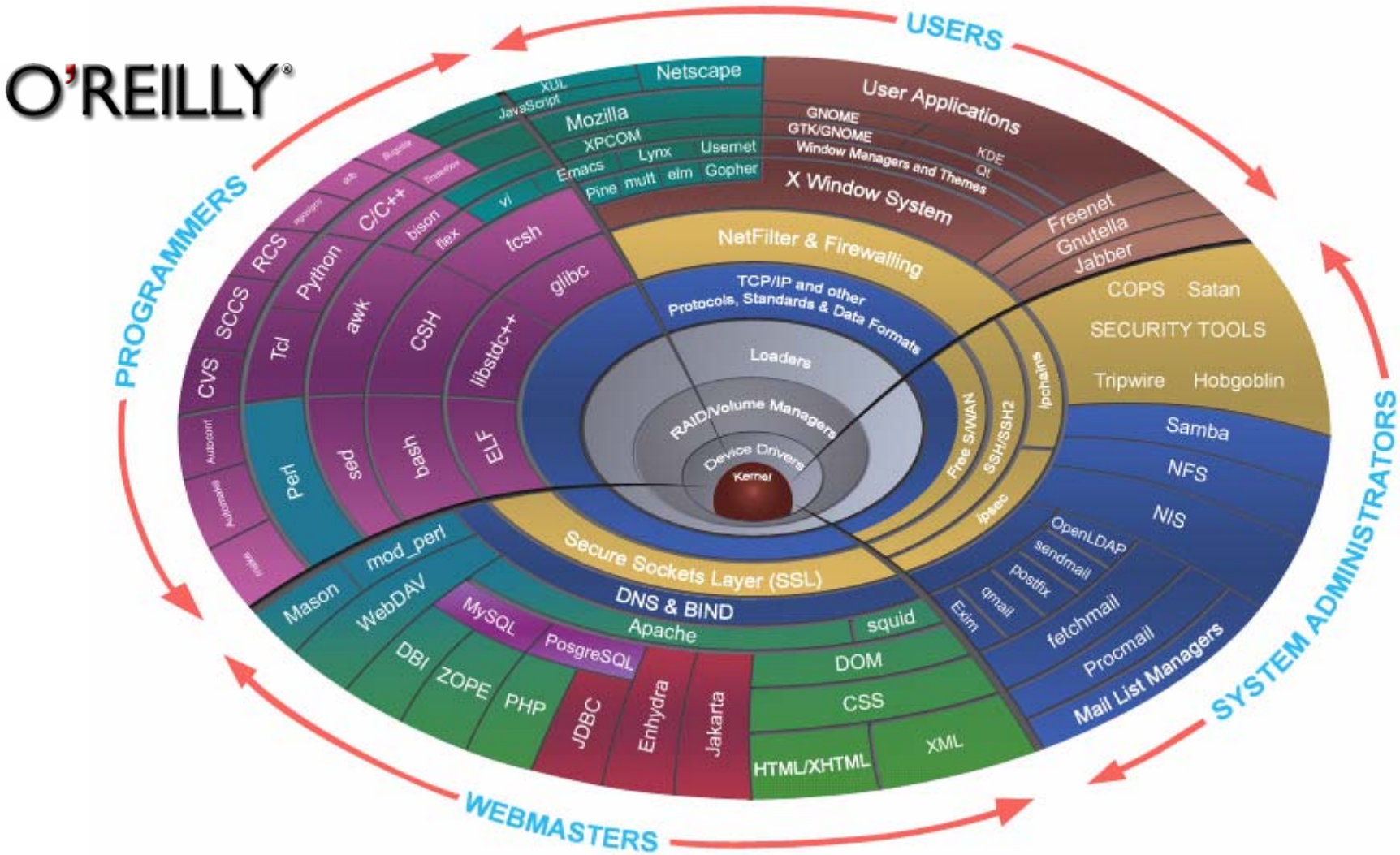
Source: top500.org/lists/2006/06

Linux is an industry-wide initiative

www.osdl.org

- 10art-ni
- ActiveGrid
- a la Mobile
- 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
- Siemens
- 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
- Xandros

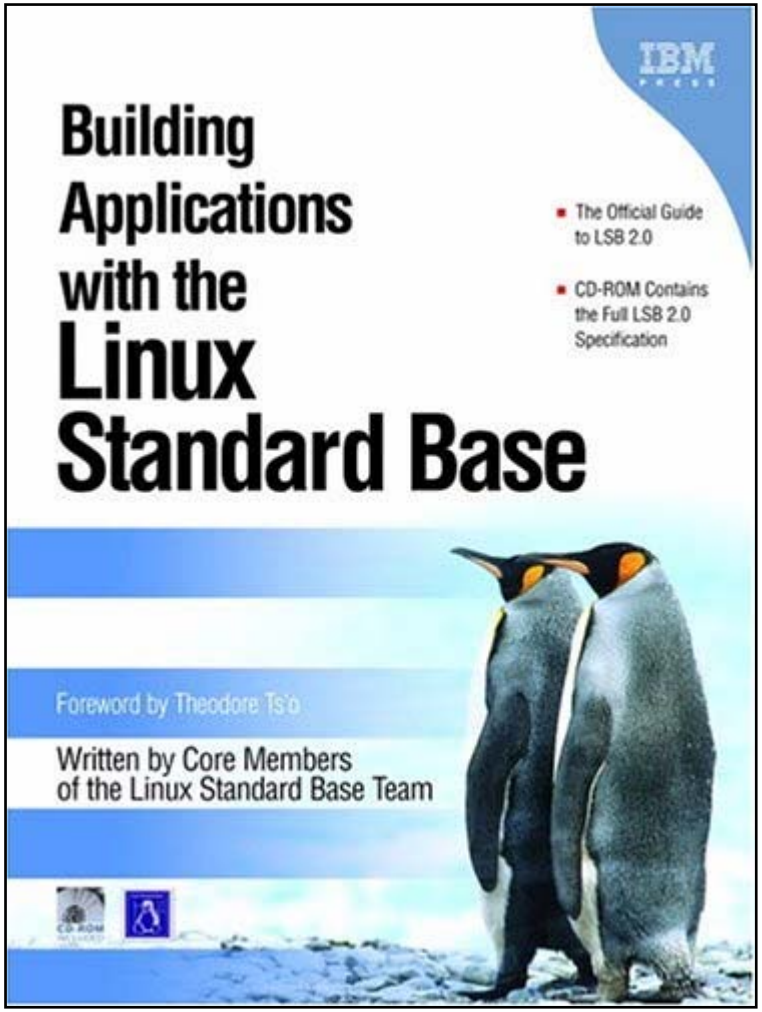
What is a Linux distribution?



Linux Standard Base

lsb.freestandards.org

- **The Linux Standard Base (LSB) is an application binary interface (ABI) for Linux and Linux-compatible platforms**
- **The LSB draws on the source standards of the IEEE POSIX standards and The Open Group's Single UNIX Specification for many of its behavioral interface definitions**
- **Partnership led by Canonical/Ubuntu, FSG/LSB, HP, IBM, Intel, Novell/SUSE, Red Hat and Usenix**



***ibm.com**/ibmpress*

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

Linux server growth continues to outpace all other platforms

Worldwide Linux Server Revenue

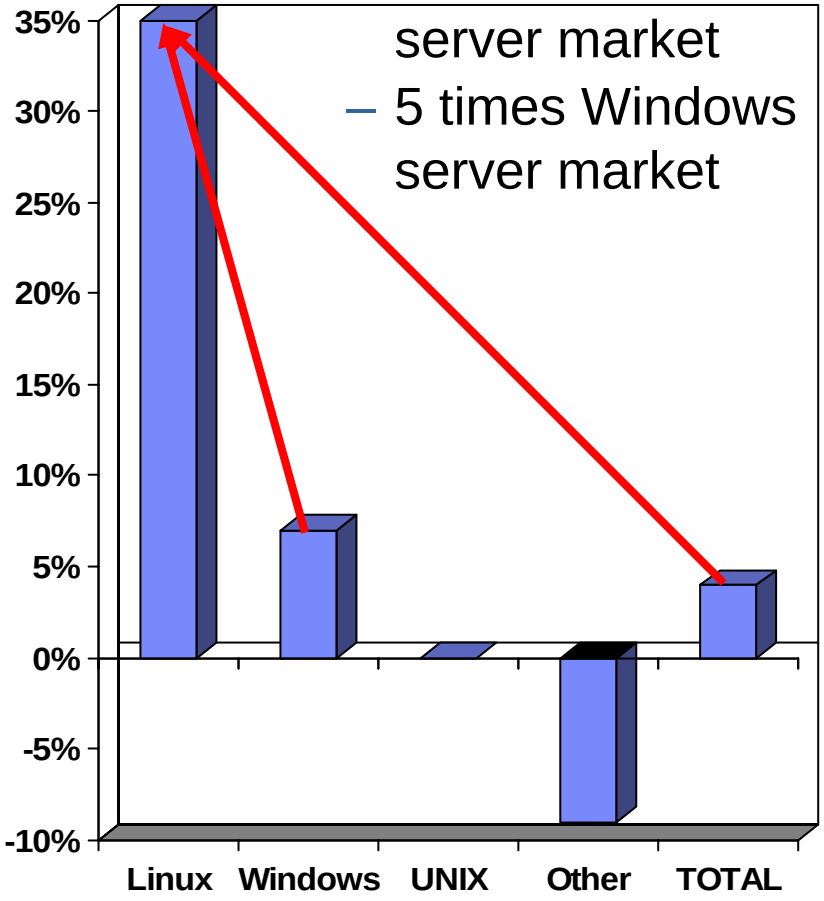
All vendors – full year 2005

OS Family	2005 Revenue	Revenue Growth	Unit Growth
Linux	$6,916M	35%	45%
Windows	$18,619M	7%	11%
UNIX	$16,251M	0%	-4%
Other	$9,896M	-9%	-26%
	$51,683M	4%	13%

9th quarter in a row of over $1B in revenue, 4Q05 was 1st $2B quarter for Linux

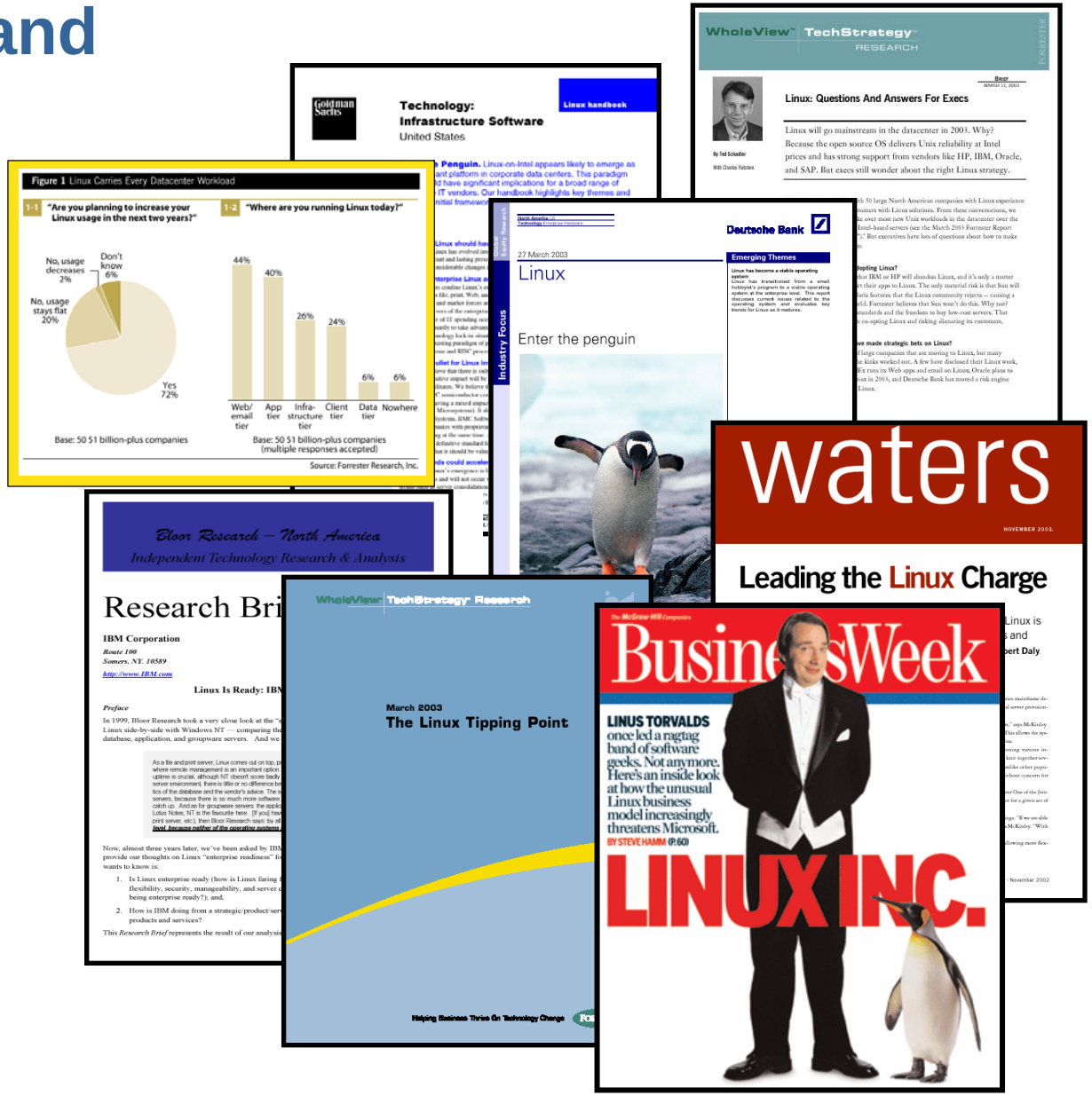
Source: Gartner Group, 4Q05

- **Linux growth is:**
  - 8 times total server market
  - 5 times Windows server market



Linux adoption and acceptance

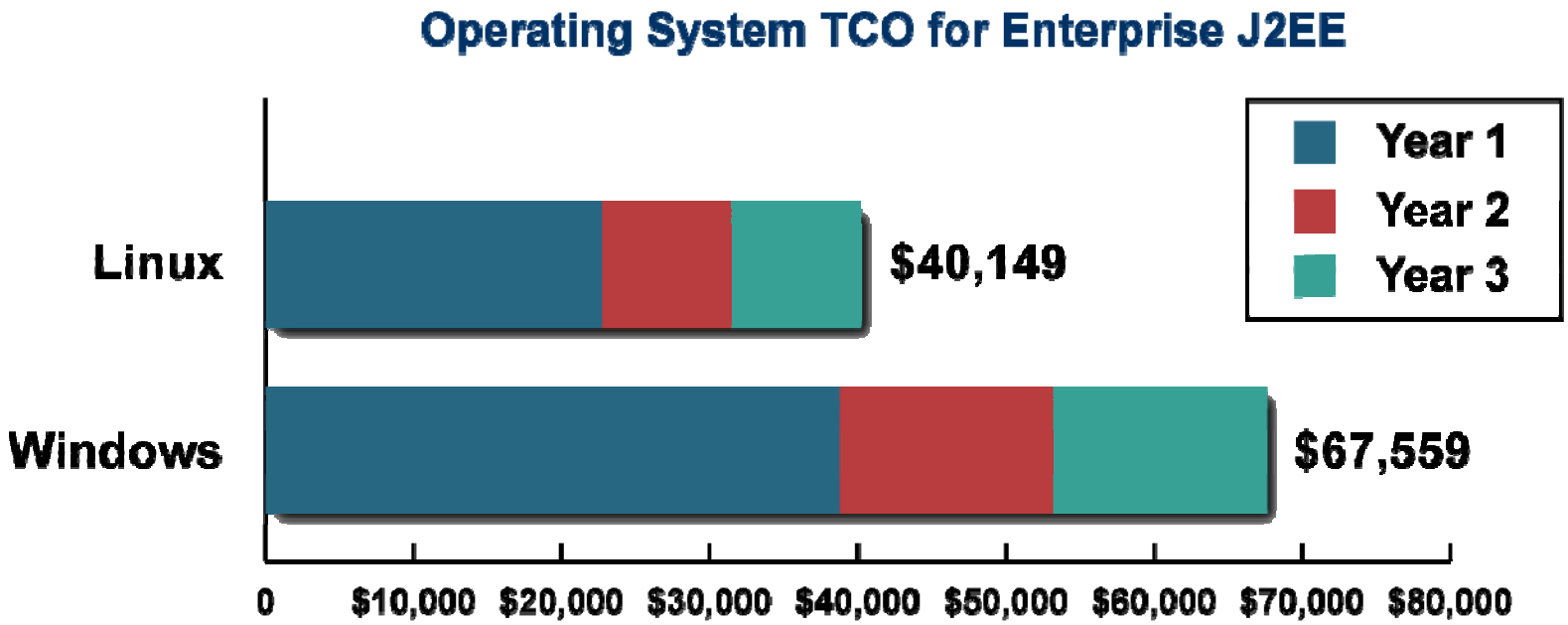
- **Reports from :**
  - Gartner
  - Deutsche Bank
  - Forrester
  - IDC
  - DH Brown
  - Goldman Sachs
  - Bloor Research
  - Wall Street
  - IBM
- **Articles in :**
  - Business Week
  - Financial Times



Cost studies abound – Pick wisely!

Linux continues to deliver cost benefits

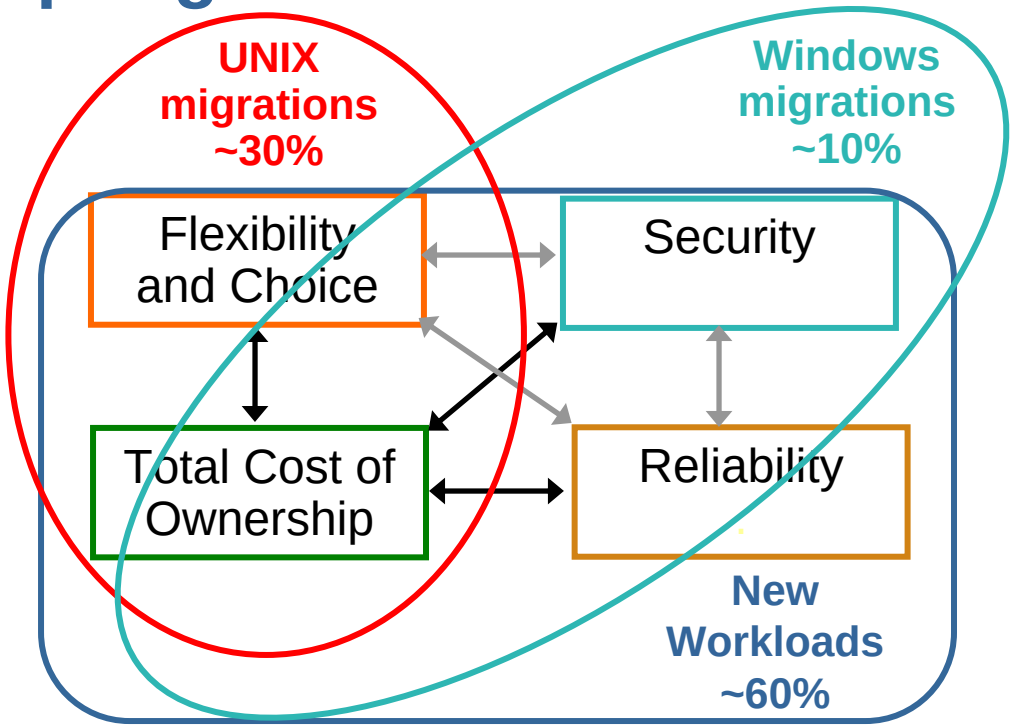
- **Linux is 40% less expensive than a comparable x86 based Windows solution**
  - Based on a 3-year period of ownership for a system supporting 100,000 operations per second on the SPECjbb benchmark



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

How customers are adopting Linux

- **New workloads are being added to gain the full benefits of platform and vendor flexibility, low cost of ownership, solid security, and solid reliability**



- **Linux 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**

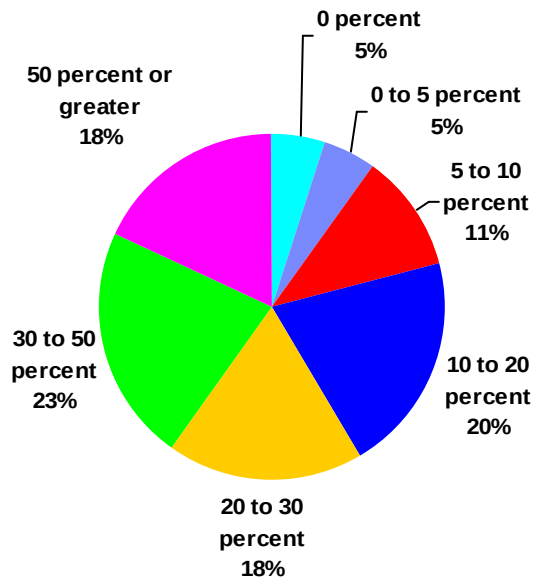
Note: Percentages on this chart are based on my personal observations of the Canadian marketplace

Can Linux and Windows coexist peacefully?

- **Linux is here and Windows is not going away**
  - Corporate users must address interoperability and integration issues
  - Microsoft, LDPs, and ISVs must deliver interoperability
  - Linux now accounts for 20% of the worldwide installed base of server operating systems
  - The majority of corporate networks are heterogeneous environments

Linux is Complementary to Windows

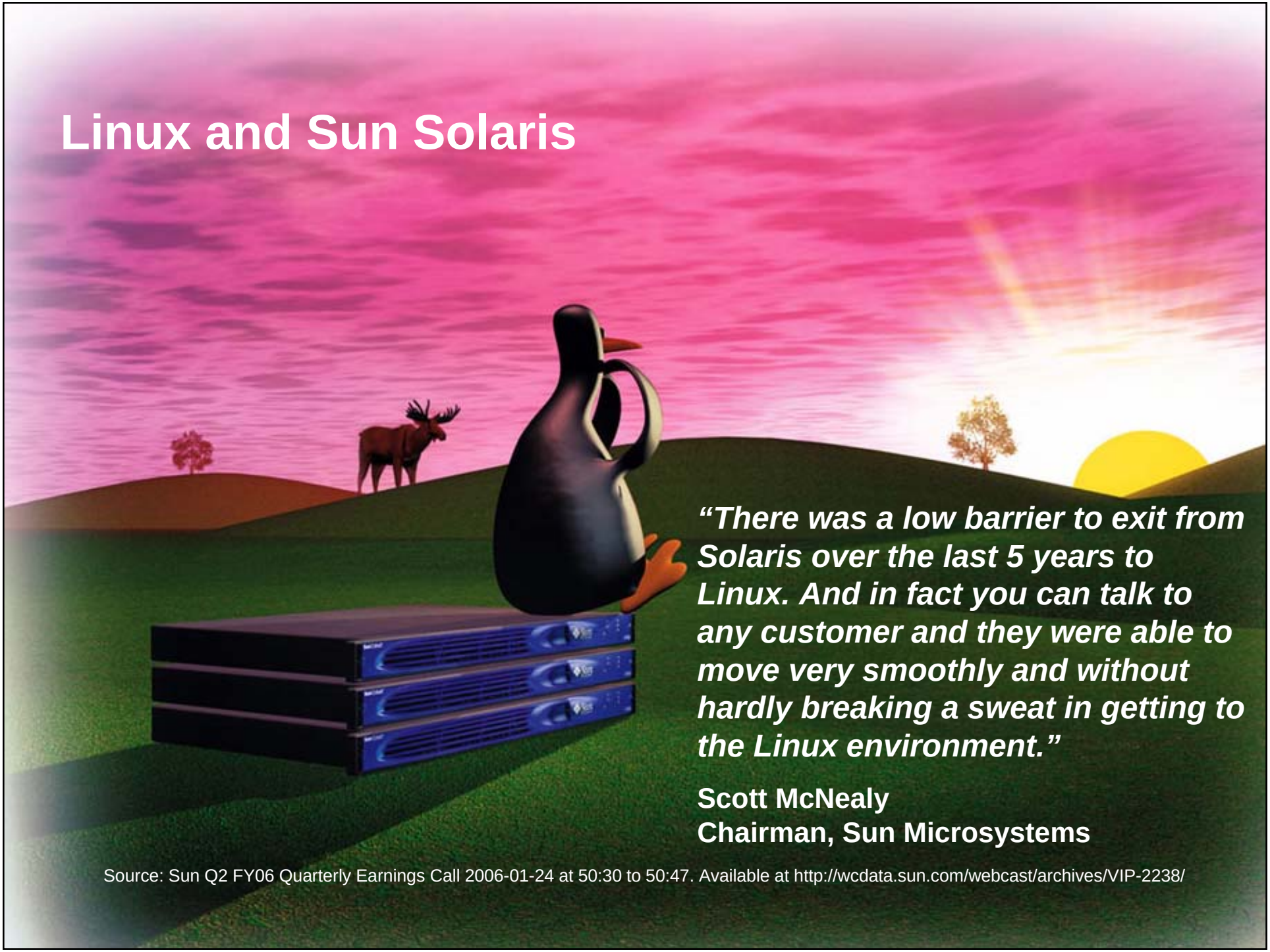
Estimate Linux's share in your environment as a complementary server alongside Windows



YANKEE GROUP

Source: Yankee Group, *Heterogeneous Linux, Windows Networks Heighten Integration Challenges*, May 19, 2005
Source: [1] Yankee Group *2005 North American Linux TCO Survey*

Linux and Sun Solaris



"There was a low barrier to exit from Solaris over the last 5 years to Linux. And in fact you can talk to any customer and they were able to move very smoothly and without hardly breaking a sweat in getting to the Linux environment."

Scott McNealy
Chairman, Sun Microsystems

Source: Sun Q2 FY06 Quarterly Earnings Call 2006-01-24 at 50:30 to 50:47. Available at http://wcdata.sun.com/webcast/archives/VIP-2238/

Linux and Oracle

- **Linux will pass Sun Solaris as the leading Oracle deployment platforms according to a groundbreaking study**
  - This survey of more than 800 enterprises using Oracle database technology revealed that while 49 percent of the respondents currently run Oracle on a Solaris platform, that number should slip to 43 percent next year
  - At the same time, 39 percent of the respondents currently run Oracle on Linux, a figure that should climb to 44 percent by next year, making Linux the top Oracle deployment platform

March 2, 2006 – Full report located at http://www.ioug.org/Research.pdf

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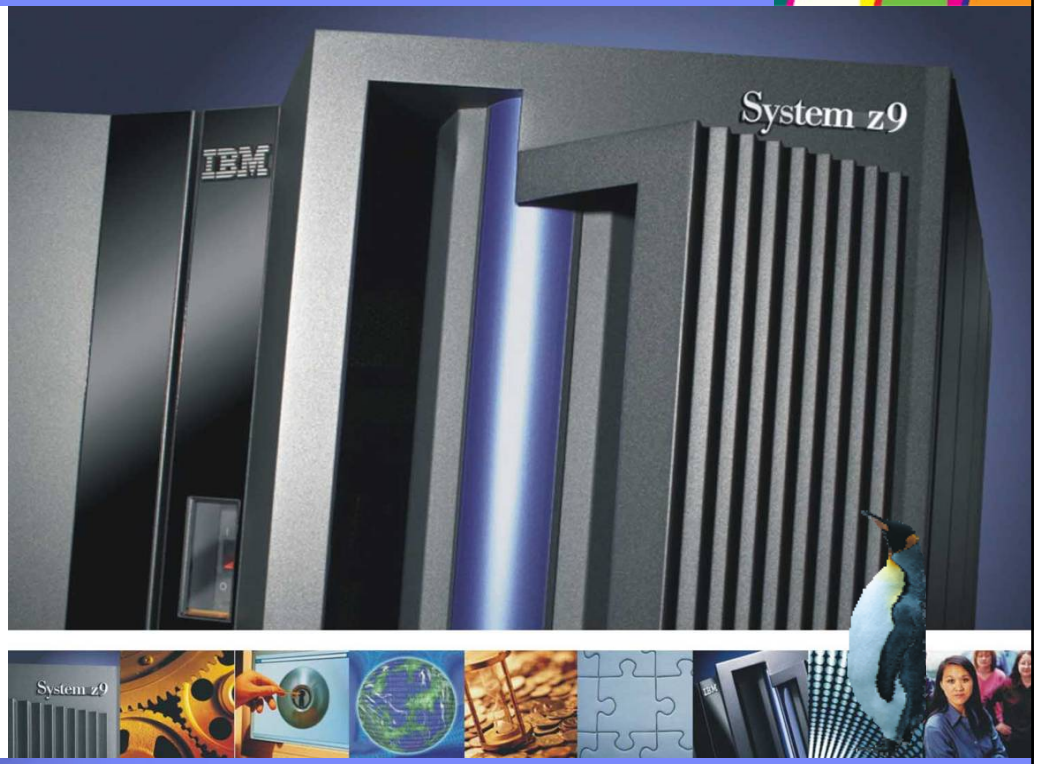

Innovation that matters

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IBM's Open Source Goals

- **Innovate: Harness and fuel the energy and innovation of open source communities**
- **Contribute: Become a strategic player in open source communities, both as a contributor and consumer of technology**
- **Enhance: Capture, focus and translate open source innovation into value for our customers**
- **Growth: Leverage open source to gain new users, enter new markets, and expand business opportunities**

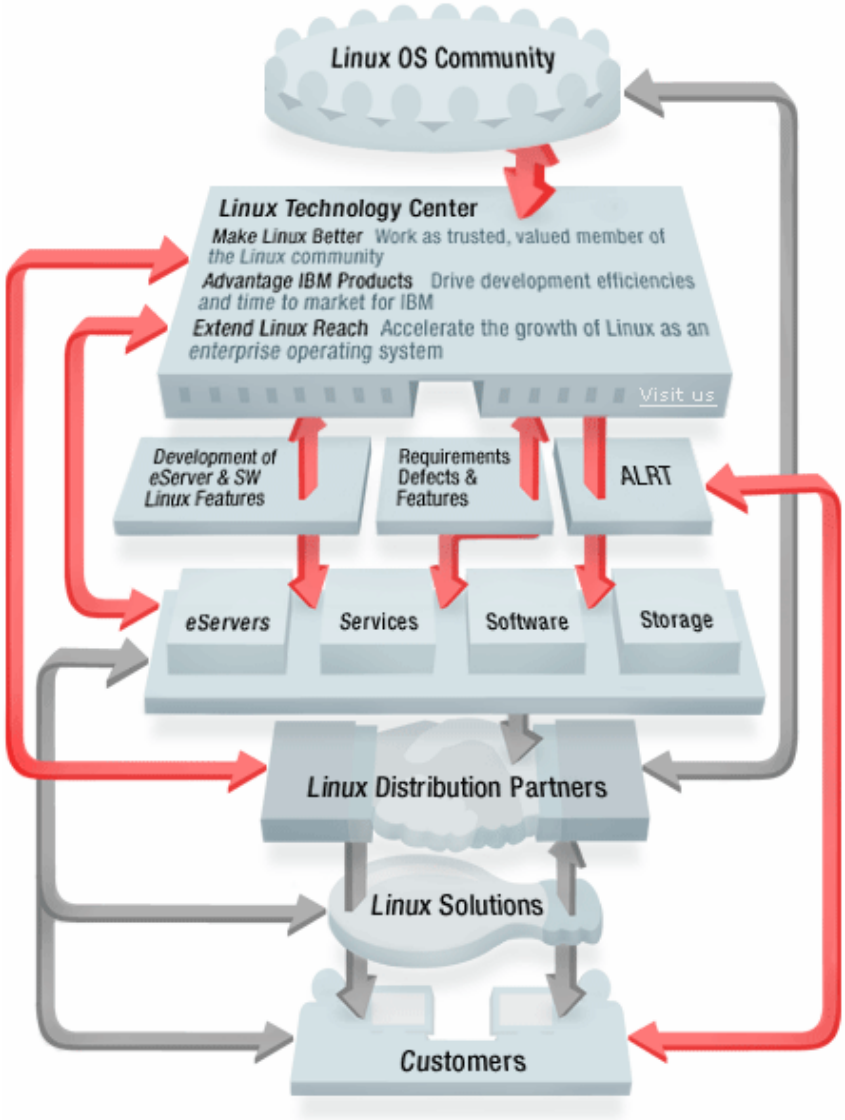
IBM and Linux
ibm.com/linux

Powered by

- **IBM supports Linux on the entire IBM Systems family**
- **Over 500 IBM software products are supported on Linux**
- **IBM provides full support of Linux through IBM Global Technology Services, including SupportLine for Linux and a wide range of education offerings**

Linux Technology Center
ibm.com/linux/ltc

- **LTC development mission:**
  - Help make Linux better
  - Assist the IBM Hardware, Software, and Services brands win with Linux
  - Expand the reach of Linux
  - Remain trusted, valued members of the Linux community
- **IBM participates in over 160 Open Source projects**
  - LTC members participate in over 90 Open Source projects



Note: Red denotes scope of LTC mission

Open Standards beyond Linux

- **IBM is collaborating with various open source projects with a focus on eight new disciplines in the open source business models:**
  1. Web Application Servers – Based on Apache open source projects like Geronimo.
  2. Development Tools – Built on the open source Eclipse Integrated Development Environment.
  3. Client-side middleware – Supporting the Eclipse Rich Client Platform project for hosting cross-platform applications.
  4. Database Servers – Building on both Apache Derby and a no-license fee with IBM DB2 Express-C.
  5. Systems Management – Including open source Aperi projects.
  6. Open hardware architectures – Community-driven collaborative innovation with Power.org and Blade.org.
  7. Grid Computing – Expanded support for Open Grid Services Architecture and the Globus Alliance.
  8. IBM Research/Business Consulting and Technology Services – Enabling markets to innovate with open source-based solutions and development models.

IBM and Openness

Sharing technology to drive the speed of innovation

- **Leadership position in open standards**
- **Pledged 500 US patents to Open Source in support of innovation and open standards**
- **Expanding ecosystems through blade.org, power.org and Aperi**
- **Commitment to open standards helps ensure**
  - Greater interoperability and investment protection
  - Platform flexibility and more options for growth
  - More choice in applications and solutions

IBM Open Leadership

IBM's open source and open standards strategy has grown from software industry oddity to industry-defining in three years.

Ted Schadler, Forrester Research
"IBM Wields Open Source As a Weapon"

Aperi

Blade.org

IBM Open Standards leadership

1998 / 1999	2000	2001	2002	2003	2004-2006
▪ Java, XML and ebXML ▪ Co-founder and lead architect for RosettaNet ▪ Author of XML4J ▪ Chair OMG XML Metadata Interch. Format ▪ Co-author W3C Document Object Model ▪ FounderXML.org ▪ Elected to Board of Directors in OASIS	▪ Web Services and UDDI ▪ Co-author of SOAP 1.1 and submission to W3C ▪ Cofounder of UDDI.org and author of original UDDI specification ▪ Co-author of WSDL ▪ IBM contributes SOAP4J to Apache	▪ Web Services and Tools ▪ Led submission of WSDL to the W3C ▪ Co-chaired W3 Web Services Workshop ▪ Founder of Eclipse.org ▪ Co-author of W3C XML Schema standard ▪ Chair of Web Services Interactive Applications TC	▪ Web Services and Security ▪ Founder and chair, WS-I Organization ▪ Co-author of web services bus process specification (BPEL, WS-TX, WS-TC) ▪ Co-author for Web Services Security roadmap and specification	▪ Web Services Interoperability ▪ Submission of BPEL to OASIS and co-chair WSBPELTC ▪ Submission of Common Base Events and WS-Manageability to OASIS ▪ Co-chair WSDM TC in OASIS ▪ Led workgroup responsible for finalization of SOAP 1.2	▪ Web Services Management ▪ Chair of workgroup responsible for WS-I Basic Profile 1.1 ▪ Co-chair of working group responsible for OASIS WS-Security 1.0 ▪ Co-chair of OASIS WS-Notification TC ▪ Eclipse becomes independent organization ▪ More than 1,000 developers devoted to XML and more than 1,500 focused on Linux.

Over 160 business integration technology patents

First Web Services Gateway

First integrated private UDDI directory

IBM Open Source leadership

1999 – 2001	2002	2003	2004	2005-2006
▪ IBM forms Linux Technology Center – contributions to serviceability, performance ▪ Leads Apache XML projects Xalan Xerces, SOAP ▪ Forms Open Source Steering Committee ▪ Creates OSI-approved IBM & Common Public Licenses ▪ Participation in Mozilla ▪ Founder of Eclipse	▪ Linux contributions to scalability (8-way+), reliability (stress testing, defect mgmt, doc) ▪ Leads Apache Web Services projects WSIF and WSIL ▪ Leads Eclipse projects GEF (editing), EMF (modeling), XSD (XML Schema) ▪ IBM contributes eServer support for Globus Toolkit 2x	▪ IBM and SUSE achieve EAL2+ Common Criteria security cert ▪ Leads Apache projects Pluto (Portlet API) and WSRP4J (Remote Portal) ▪ Leads Eclipse projects Hyades (testing), Visual Editor, AspectJ, Equinox rich client ▪ Globus Toolkit 3 contributions for OGSA, OGSI	▪ IBM and Novell/SUSE achieve EAL3+ and Common Operating Environment compliance ▪ Linux additional RAS ▪ Incubates Apache project Derby (Cloudscape Java database) ▪ Dialog components to Apache Jakarta taglibs ▪ Eclipse becomes independent org – IBM contributes UML2, Web Tools, Voice Tools ▪ Globus Toolkit 4 to be WS-I compliant ▪ IBM contributes voice recognition technology to Apache and Eclipse	▪ Contributions to Xen hypervisor, Linux accessibility ▪ Contributions to Apache WSDL4J 2.0 (Woden), Web Services Security ▪ Database extensions to PHP ▪ Redeploy 30+ developerWorks projects on SourceForge.net ▪ IBM pledges 500 patents to OSS

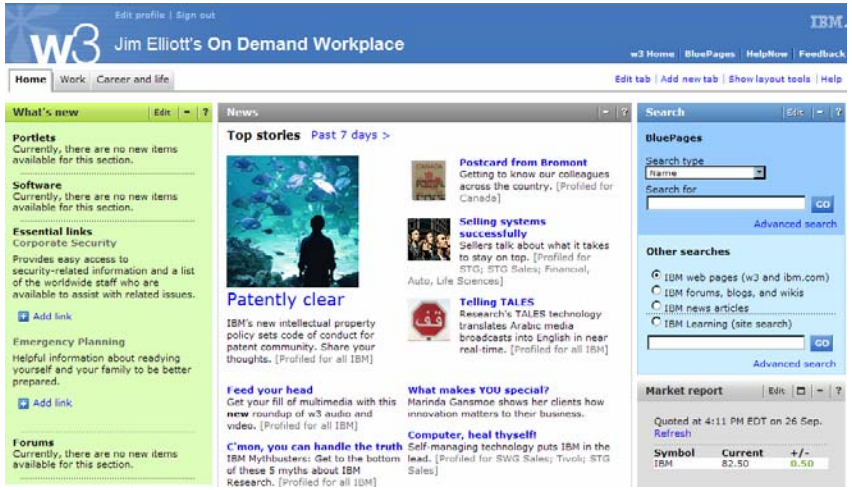
More than 1000 developers involved in OSS projects | **IBM leads 80+ OSS projects** | **IBM contributes to 150+ OSS projects**

Linux: Transforming IBM's IT infrastructure

Providing Key Business Solutions

- **4000+ production servers world-wide**
  - Excludes Research and Development
- **A few examples include:**
  - Web serving and portal
    - Intra and extra-net
      - All 350,000 IBMers use it
  - Security
    - Anti-Spam / Anti Virus
    - Port and IP scanning
  - Software and asset management
    - IBM Standard Software Installer
  - Performance monitoring
  - Telephony
  - Kiosk access for employees
  - Virtualized development resources

Powered by



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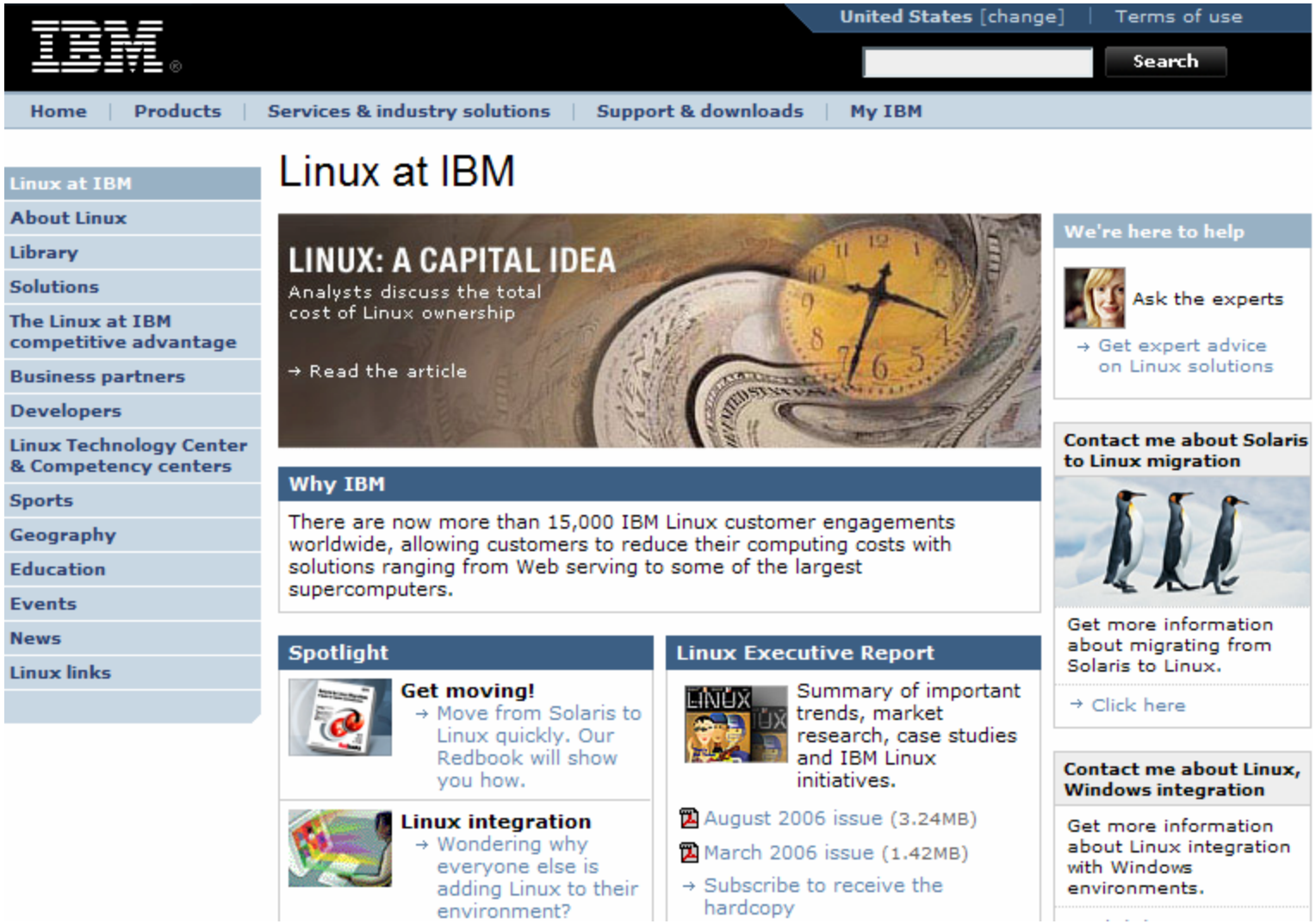

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Grid computing
Java™ technology
Linux
- New to Linux
- Downloads & products
- Open source
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- Forums
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Open source

Top story

Open source robotics toolkits
Whether softbots or hardware robots, Linux is ideal for building autonomous agents. We've rounded up a selection of tools that simulate mobile robots and create realistic physics models. More >

The GNU Linear Programming Kit, Part 2: Intermediate problems in linear programming: Use linear programming techniques and the GNU Linear Programming Kit to optimize business operations -- or just make the most of a bad diet.

Open BIOSes for Linux: PC BIOSes designed for MS-DOS may be wasting their time and yours performing functions that Linux has no need of. Here are some better options for server and embedded systems.

Printing in Linux: Learn how to administer your Linux printing environment, including configuring and monitoring print servers, working with print queues and files, and installing and configuring printers.

Boost application performance using asynchronous I/O: Synchronous I/O is a great model for many applications, but for some situations, asynchronous can be a better way to go. Learn why and when.

BusyBox simplifies embedded Linux systems: Want a really small operating environment? This compact toolkit shrinks the most commonly used GNU tools into a single executable. Add kernel and stir.

Notes from LinuxWorld San Francisco, 2006: In his last day of show coverage, Ian Shields lends his expertise to the LPI Technical Advisory Council, learns why AJAX matters, and even tries doing the MotoDance. And us without our camcorder.

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Latest Drafts ... show all

- Linux Client Migration Cookbook, Version 2 A Practical Planning and Implementation Guide for Migrating to Desktop Linux
- z/VM and Linux on IBM System z: The Virtualization Cookbook for Red Hat Enterprise Linux 4
- IBM BladeCenter JS21: The POWER of Blade Innovation

New Technotes ... show all

- VIOS Network Install from Linux Server
- Using the z/VM INDICATE Command
- Where are the LUN numbers on a DS8000?

New Redbooks/Redpapers ... show all

- An Overview of Installing SAP Applications on System i Models
- Implementing SAP Applications on the IBM System i Platform with IBM i5/OS
- Using Discontiguous Shared Segments and XIP2 Filesystems With Oracle Database 10g on Linux for IBM System z

Most popular ... show Top 15

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

Linux on IBM hardware

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System x	Intel Xeon, AMD Opteron
System p, System i	IBM POWER
BladeCenter	Intel Xeon, AMD Opteron, IBM POWER, IBM Cell BE
System Cluster	Intel Xeon, AMD Opteron, IBM POWER
System Blue Gene	IBM POWER
System z	IBM z/Architecture
System Storage	
Intellistation	Intel Xeon, AMD Opteron, IBM POWER
Point-of-Sale, Kiosks	Intel Pentium

IBM software and Linux
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- **Solutions available across all product lines**
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  - Information Management – database software
  - Lotus – collaboration and messaging software
  - Tivoli – system and storage management software
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- **Over 500 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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PRODUCT MATRIX

IBM eserver® xSeries

DB2 Data Management Software	Version - Release	Hardware	Kernel/Distribution	Sources
DB2 Administration Client	8.			
DB2 Alphablox				

IBM eserver® POWER

Tivoli software	Version - Release	Hardware	Kernel/Distribution	Sources
				Available December 2, 2005 Software Announcement 205-312 November 29, 2005
				Software Announcement 203-315

IBM eserver® zSeries

WebSphere software	Version - Release	Hardware	Kernel/Distribution	Sources
WebSphere Application Server	6.0.2	zSeries	Red Hat Enterprise Linux 3 Update 2,3,4 Red Hat Enterprise Linux 4 SUSE Linux Enterprise Server 8 SP3, SP4 SUSE Linux Enterprise Server 9 SUSE Linux Enterprise Server 9 SP1	Supported Platforms
WebSphere Application Server	6.0.1	zSeries	Red Hat Enterprise Linux 3 Update 2, 3, or 4 SUSE Linux Enterprise Server 8 SP3 SUSE Linux Enterprise Server 9	Supported Platforms

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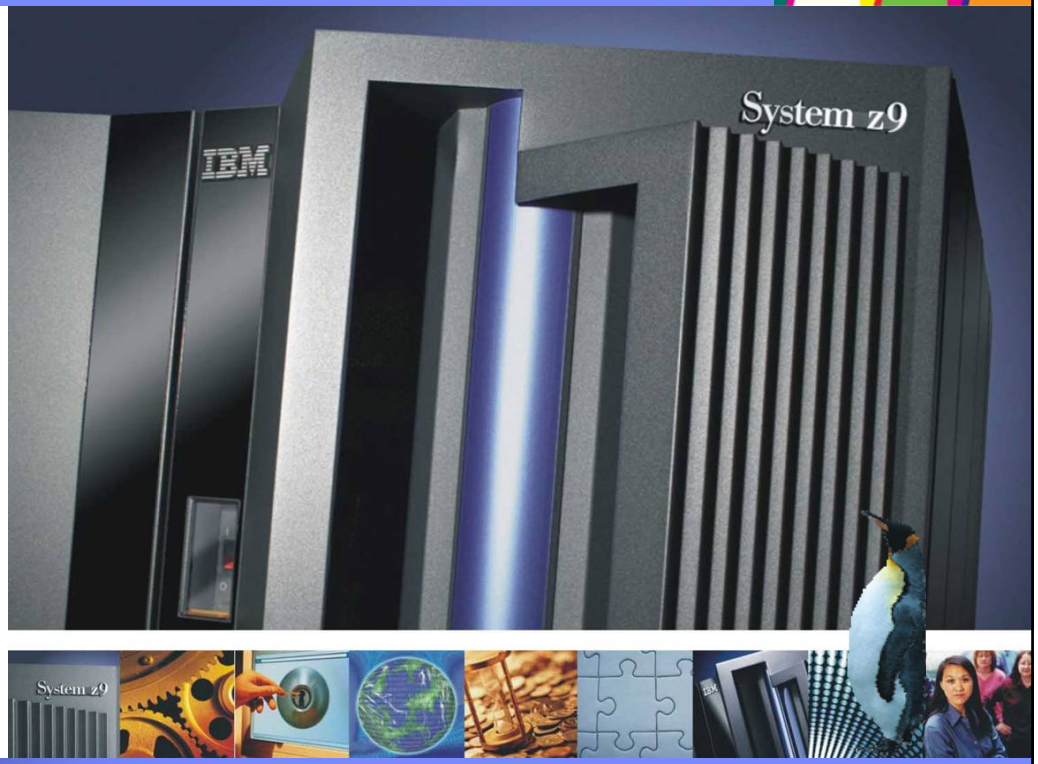
Summary



Innovation that matters

IBM Systems
Simplify your IT.

Insuring success for Open Source software implementations

- **Secure executive sponsorship**
  - Critical to secure appropriate program support and funding
    - Design, quality assurance, implementation, migration, training, support
  - Identify valid pilots for initial programs
    - Server based, problem solving, TCO based
- **Develop education and certification programs for open source software**
  - Sponsor workshops for contractors, ISVs, innovators
  - Leverage existing Linux certification programs
- **Establish open source and Linux pilot projects**
  - Focus on server implementations
- **Develop partnership with implementation partner for service, migration, and support**

Integrating Open Standards into your IT strategy

- **Insist on Open Standards**
  - Increases flexibility and responsiveness
- **Evaluate Open Source and Commercial software options**
  - Recognize the need for “buy/build/share” vs. “build or buy” decision driven by business value
  - Most government agencies are using a mixture of open source and private source
  - Don’t build a separate strategy – interoperability / migration considerations are important
  - Balance up-front costs against recurring costs
- **Evaluate Community and Maturity of Open Source before committing**
  - Open, robust communities and broad industry support are important
  - Sustainable business models are critical
  - Healthy ecosystem of ISVs and Business Partners is required

Integrating Open Standards into your IT strategy

- **Establish policies for working with Open Source software**
  - Educate agency teams about OSS before they work with it
  - Implement a management system to review, approve, and track the use of OSS inside the agency, and contributions of agency software assets to external OSS projects
  - Review Open Source Licensing – establish a process within your organization to help developers understand the terms of the OSS licenses and the procedures required to comply with them
- **Be pragmatic**
  - Run a proof of concept or pilot to test out viability
  - Make decisions based on both business and technical factors

Thank you

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My web pages:
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