The Explosive Growth of Linux and Open Source : *What Does It All Mean?*

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President Director, IBM Indonesia

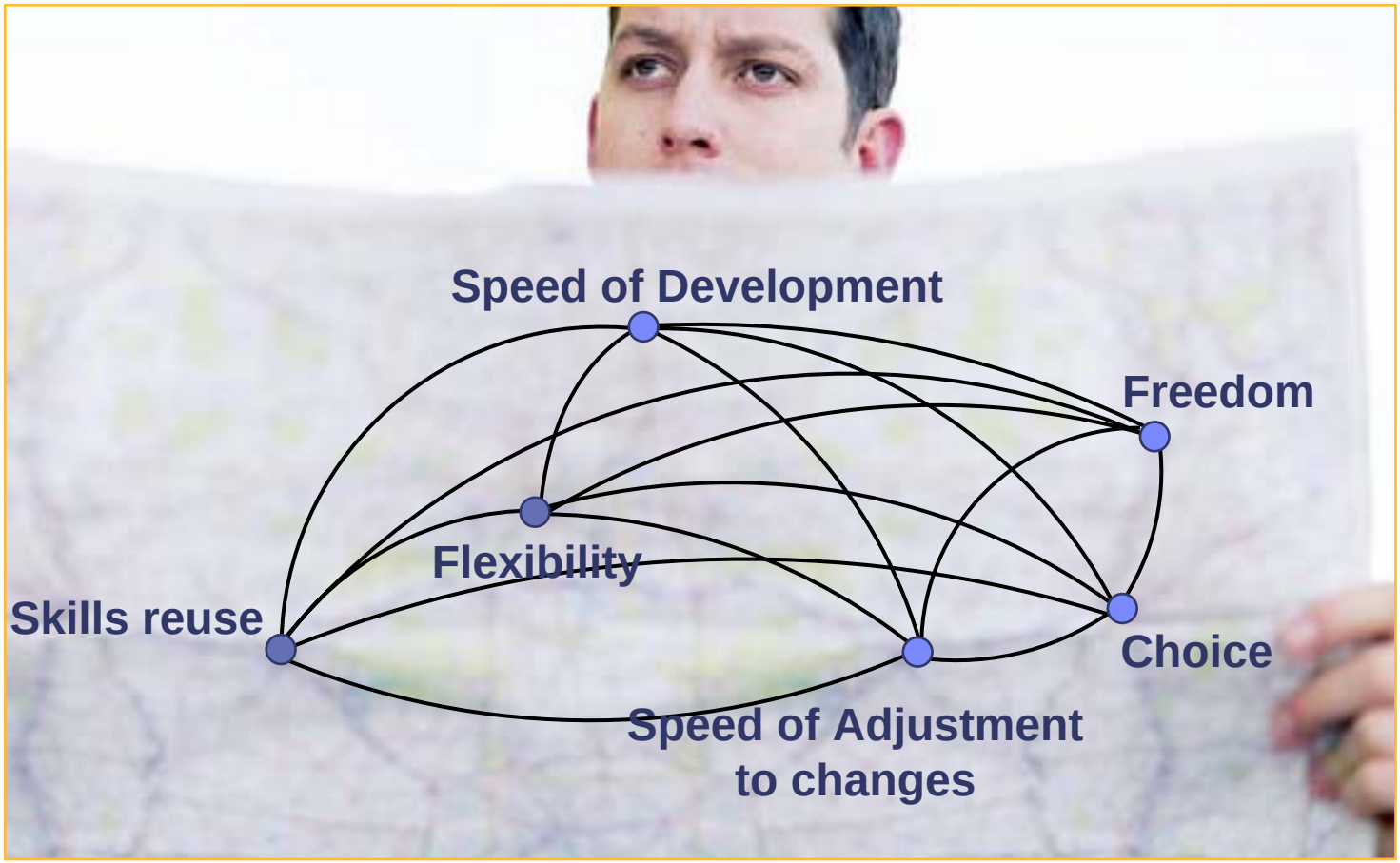
Topics

- Open Standard, Open Source and Linux
- The explosive growth of Linux and Open Source
- IBM Activities in Linux and Open Source
- What does it all means ?
- Summary

Standards simplify the rules and drive innovation

It is only by adopting common standards that an industry achieves uncommon things

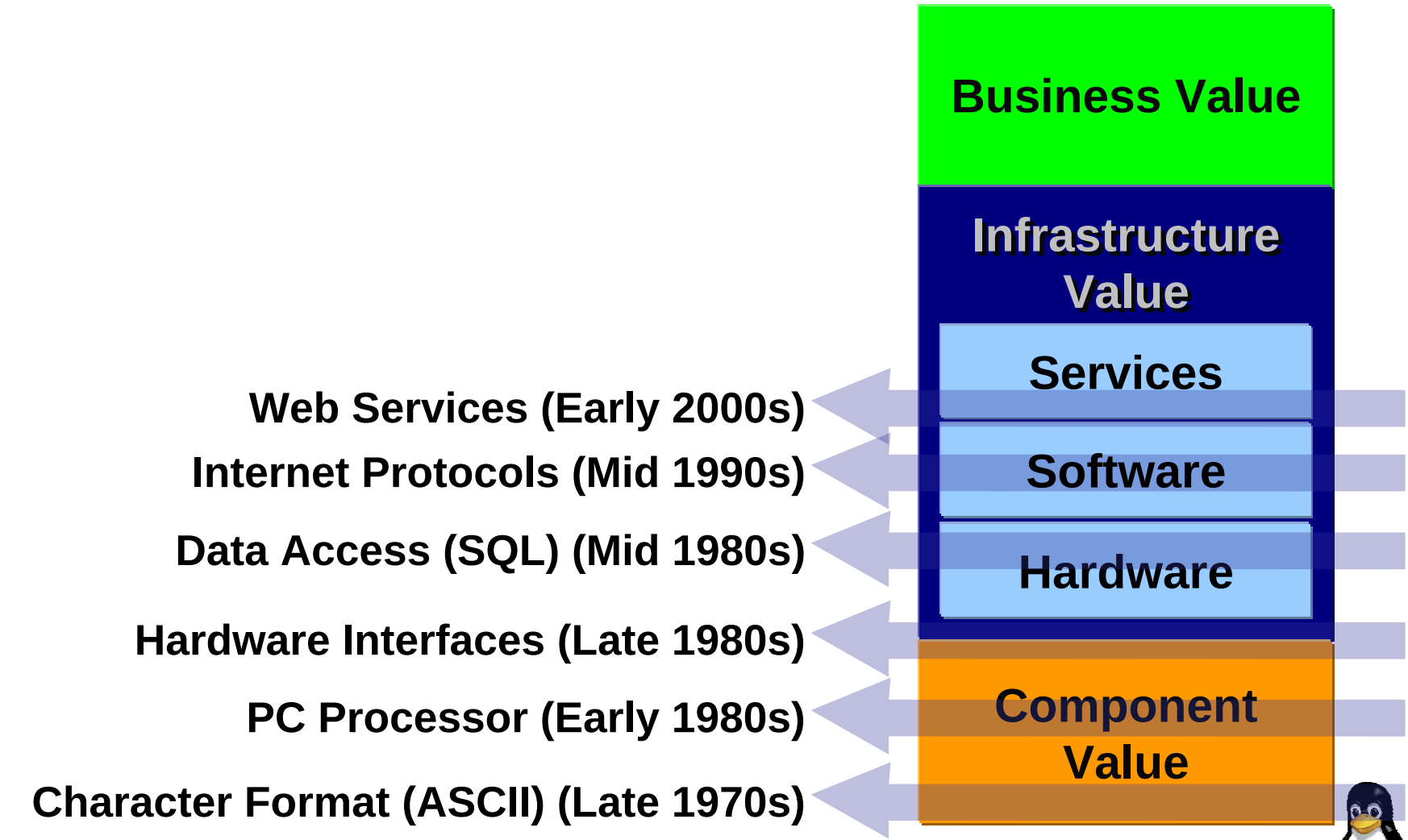
Standards translate to value for business



Industry needs standards now

Automotive	▪ Quality issues—warranty costs average $700 per vehicle in US ▪ Growing need for multi-vendor **in-vehicle systems/software integration**
Healthcare	▪ Accelerating costs, slow response times, quality of patient records ▪ Increasing **pressure to integrate payers, providers, hospitals**
Electronics	▪ Moving from traditional manufacturing to configure-to-order ▪ Lack ability to **mass produce with last-minute customization**
Banking	▪ Information silos, redundancy and underutilization of data ▪ Pressure to **speed development and delivery of new products & services**
Retail	▪ Available data increasing exponentially (e.g., RFID), but not leveraged effectively ▪ Access to **real-time information required to optimize supply chain**
Telecom	▪ “Island” infrastructures—multiple legacy systems and heterogeneous environments ▪ **No single view of the customer** (activation, self-service, billing, customer care)

The Progression of Standards – Simple view



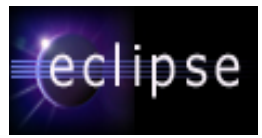
What is Open Source Software (OSS)?

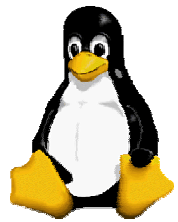
The Open Source Model is a very pragmatic way of evolving software in a rapidly changing environment. It harnesses the collective wisdom, experiences, expertise and requirements of its most demanding users to help ensure that their needs are rapidly met.

- Community develops, debugs, maintains
- Generally high-quality, high performance software
- Security on par with UNIX®, perceived as superior to Windows®
- Peer code reviews are Darwinian -- structured/ discipline
- Need to differentiate between open source projects and for profit companies
- More information: www.opensource.org

Sendmail

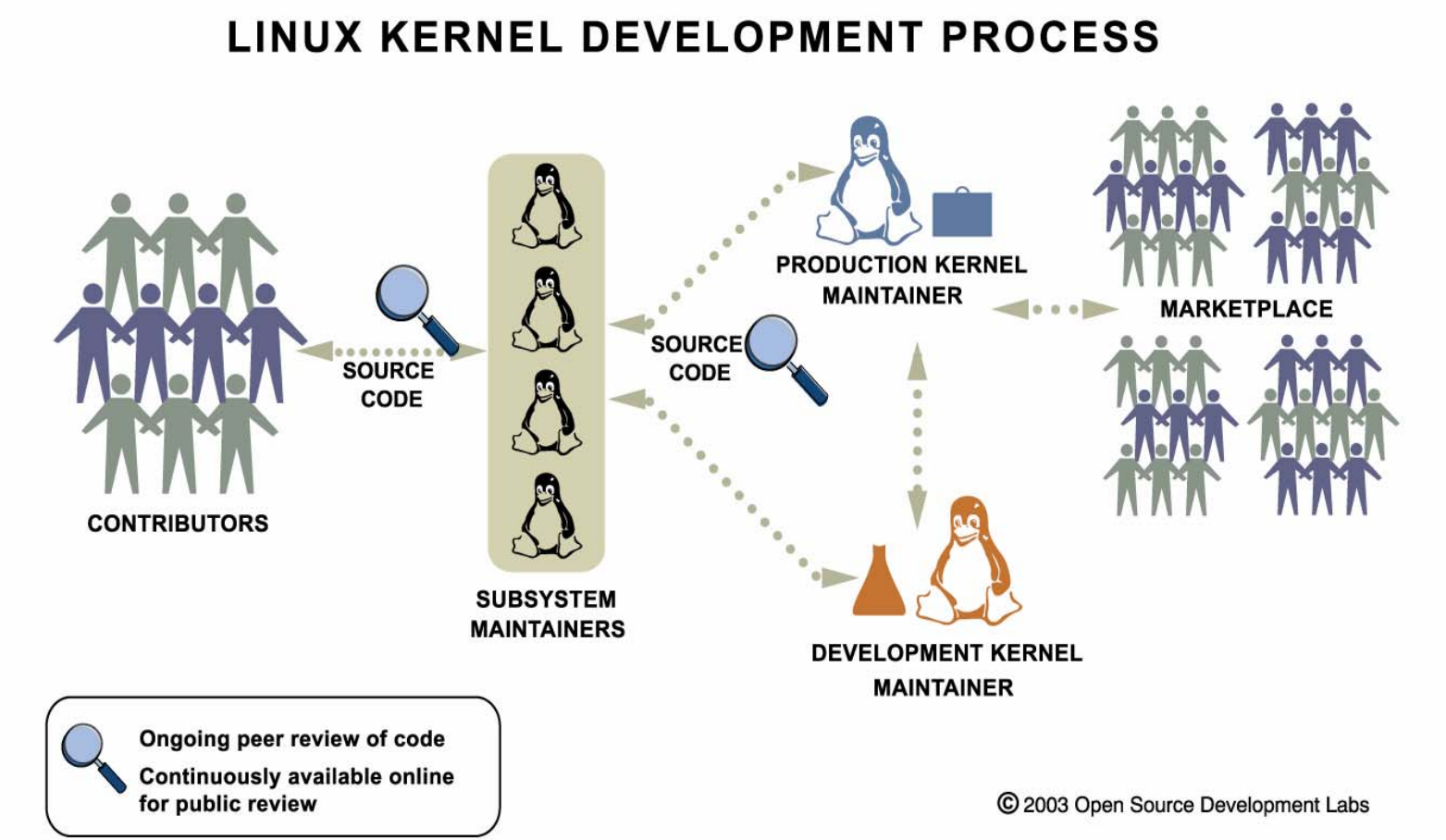
The Apache Software Foundation
http://www.apache.org/





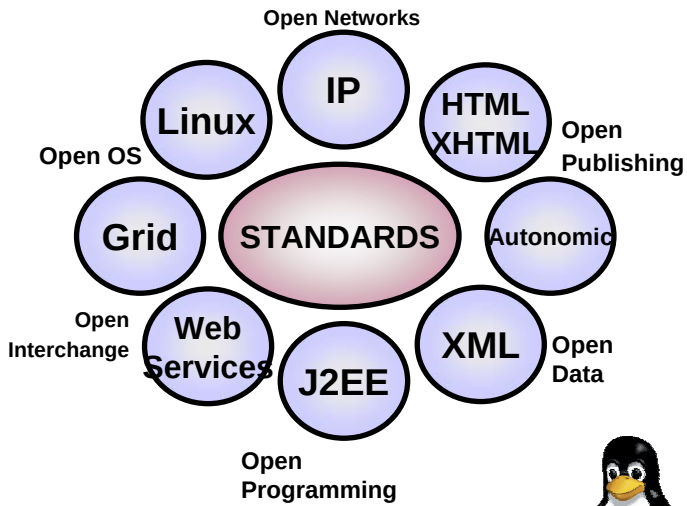
Linux
Operating System

The open source software development process is radically different from proprietary software development



Linux is the first example of how Open Source Software can rapidly mature to become a key IT and business enabler

- 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 will do for applications what the Internet did for networks." ***-Irving Wladawsky-Berger***

The Explosive Growth of Linux and Open Source

National Retail Federation

STORES

DECEMBER 2002

WWW.STORES.ORG

CUSTOMER-FACING TECHNOLOGY

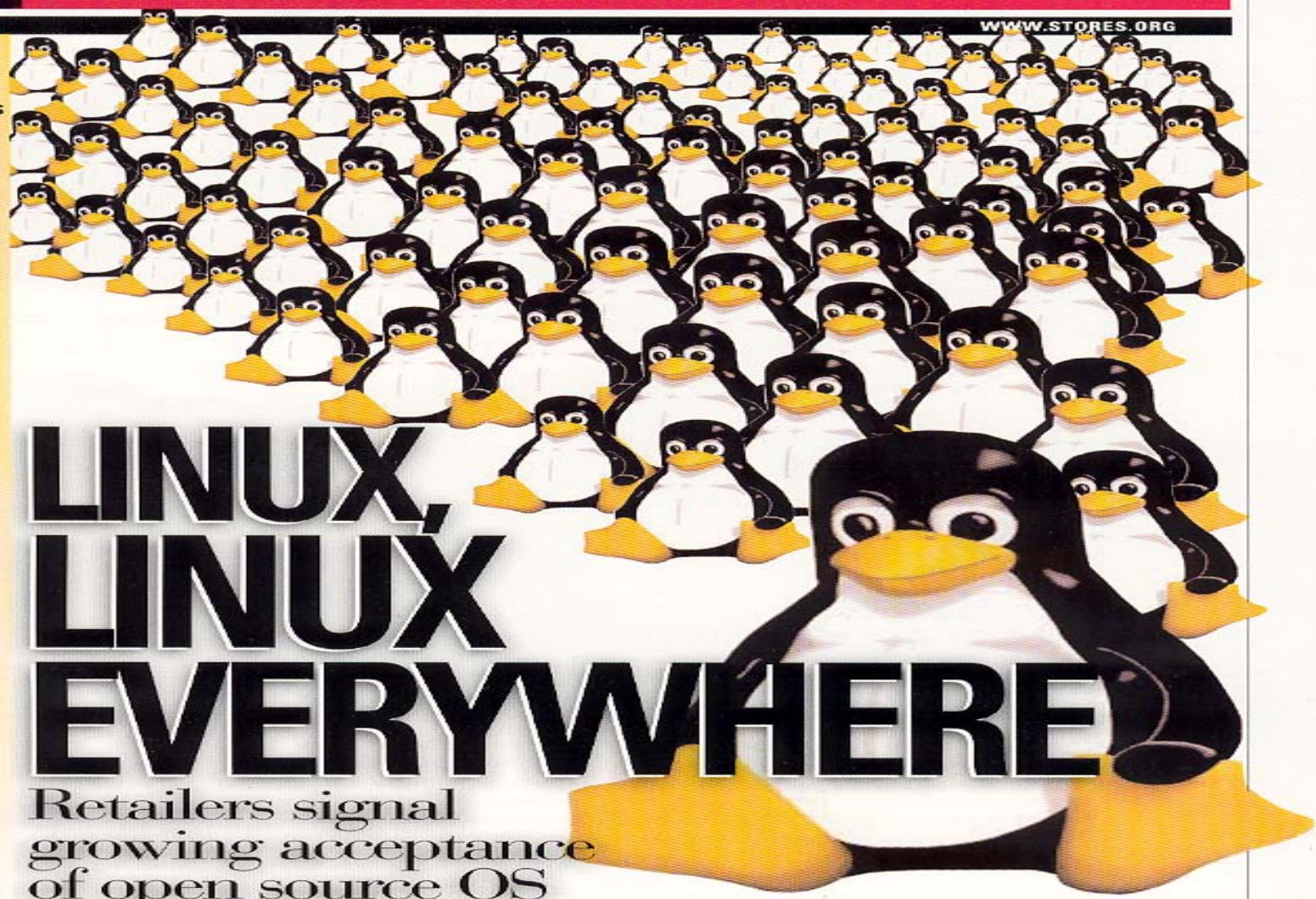
Stop & Shop Pilots Shopping Assistants

SUPPLY CHAIN & LOGISTICS

Tanguay Routes Trucks to Profitability

MARKETING TECHNOLOGY

Discovery Channel Discovers Accurate Traffic Data



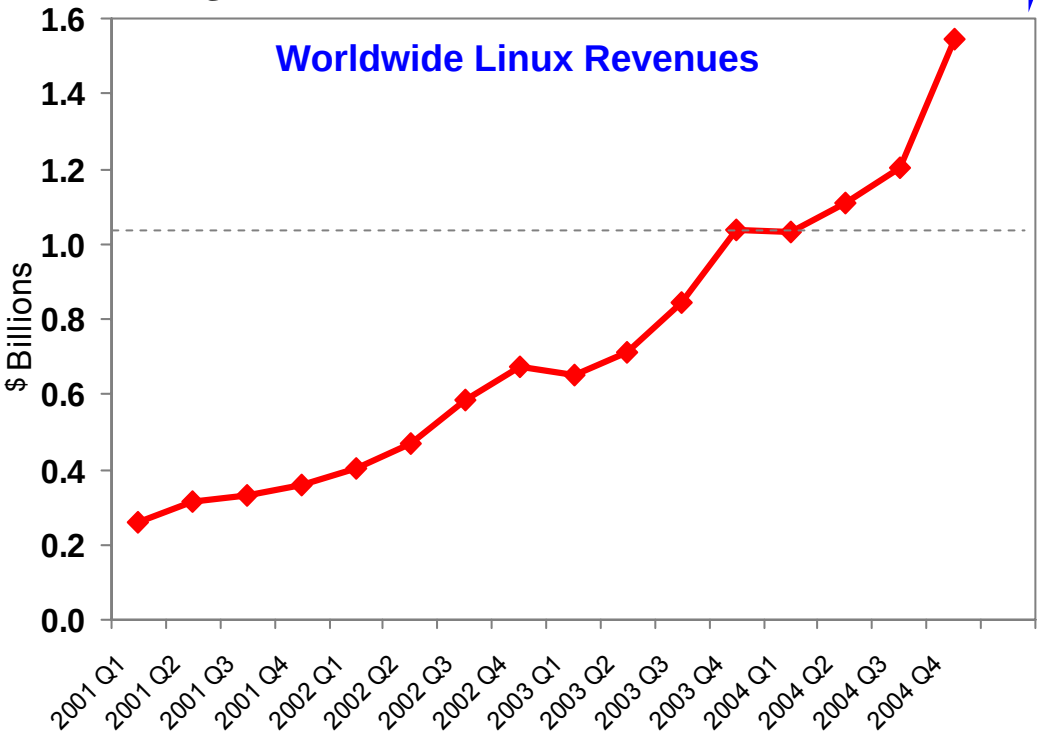
LINUX, LINUX EVERYWHERE

Retailers signal growing acceptance of open source OS

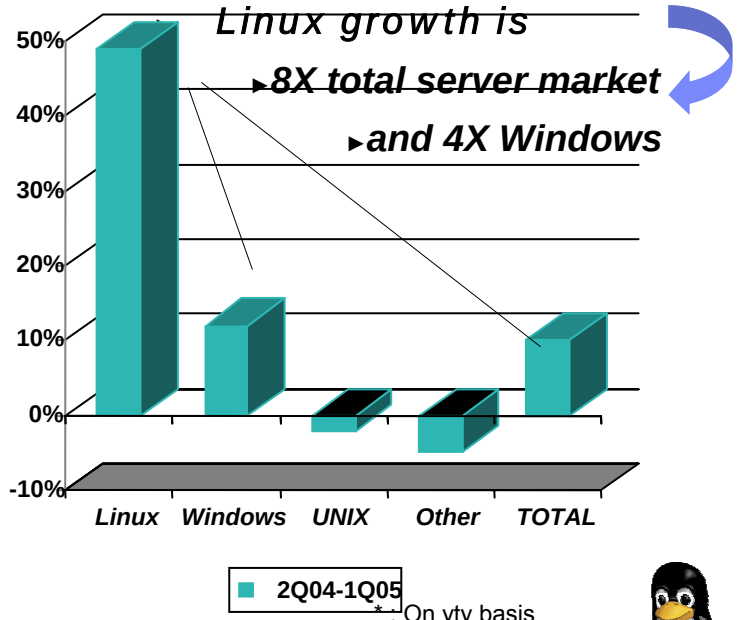
Periodical Single Copy $15

Linux Server Revenue Growth Continues to Outpace Industry

6th Quarter in a row of $1B in revenue



WW Server Market FY (2Q04-1Q05)			
2004 YTY	Revenues	Revenue Growth*	Unit Growth*
Linux	$5,554	49%	52%
Win	$17,614	12%	15%
UNIX	$16,235	-2%	6%
Others	$10,593	-5%	-15%
Total	$49,996	6%	10%

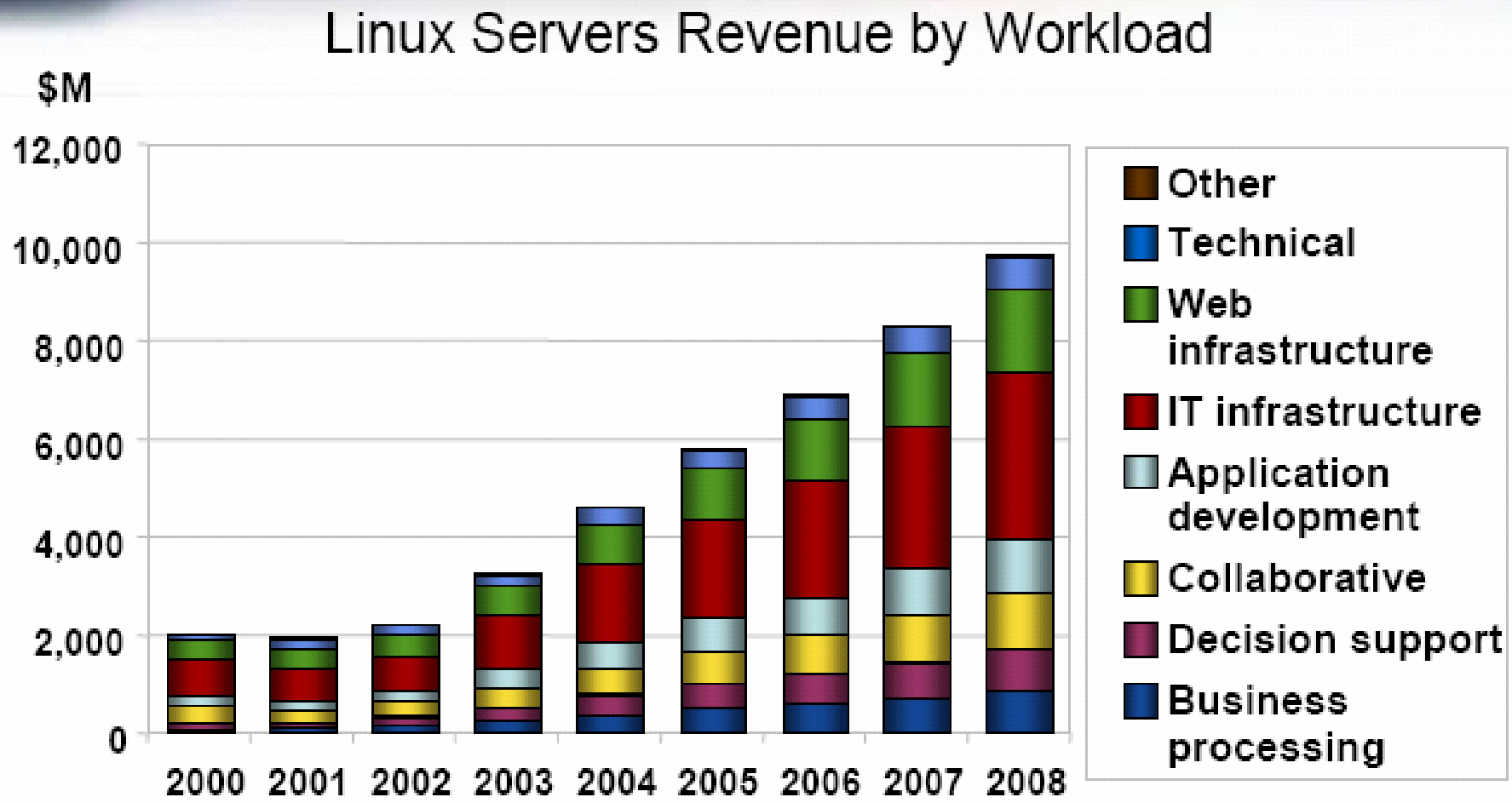


Source: Gartner Quarterly Statistics, Server Market 1Q05

*. On yty basis

Linux Servers Will Shift Their Workload Mix

IDC
Analyze the Future



Source: IDC Directions 2005

Source: IDC Workloads Study

Over 6000 Linux-enabled ISV applications

Linux Evolution – Linux is Mainstream

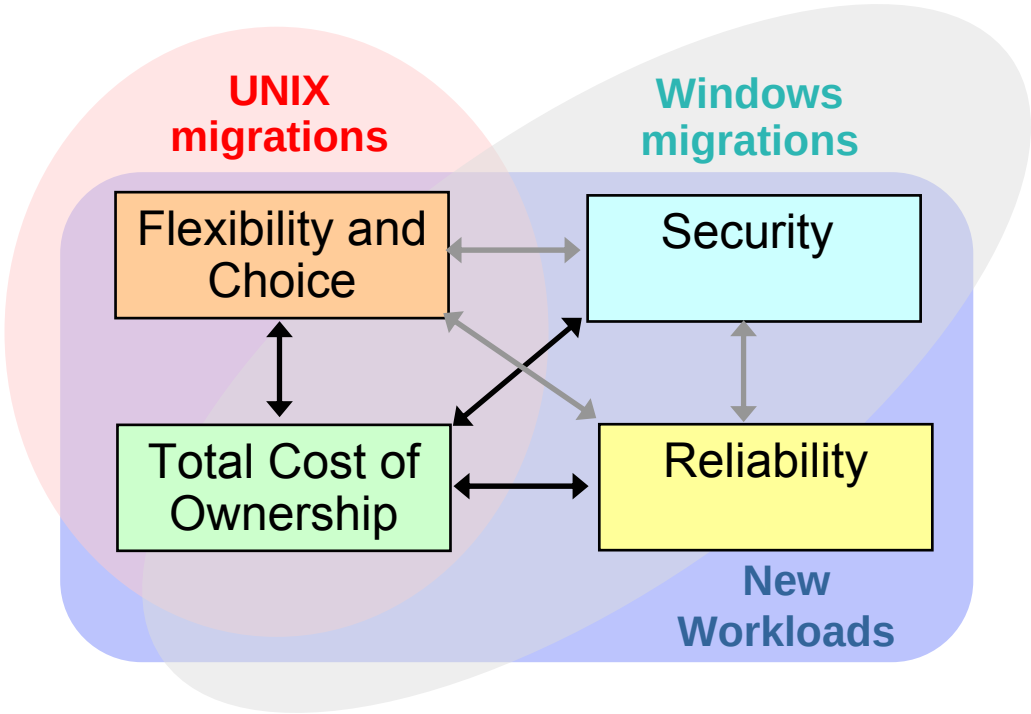
	Edge Infrastructure	Static Web Infrastructure	Application Serving	Enterprise On Demand Computing
Industries	▪Government ▪Infrastructure ▪Scientific/HPC ▪Telco (ISP Access)	▪Government ▪Infrastructure ▪Scientific/HPC ▪Telco (ISP Access) ▪Retail (POS) ▪Finance (risk management) ▪Banking (portfolio analysis)	▪Government ▪Infrastructure ▪Scientific/HPC ▪Telco (ISP Access) ▪Retail (POS) ▪Finance (risk management) ▪Banking (portfolio analysis) ▪Travel (reservations) ▪Media and Entertainment ▪Digital content creation ▪Aerospace (analysis applications)	▪Government ▪Infrastructure ▪Scientific/HPC ▪Telco (ISP Access) ▪Retail (POS) ▪Finance (risk management) ▪Banking (portfolio analysis) ▪Travel (reservations) ▪Media and Entertainment ▪Digital content creation ▪Aerospace (analysis applications) ▪Insurance (actuarial) ▪Finance (tracing) ▪Travel (kiosks)
Economic Value	▪Price/Performance ▪Lower TCO ▪Simplified Systems Management ▪Improved Time to Market	▪Price/Performance ▪Lower TCO ▪Simplified Systems Management ▪Improved Time to Market	▪Price/Performance ▪Lower TCO ▪Simplified Systems Management ▪Improved Time to Market ▪High Reliability ▪Open platform/foundation ▪Rapid Implementation ▪Reusability/flexibility	▪Price Performance ▪Lower TCO ▪Simplified Systems Management ▪Improved Time to Market ▪High Reliability ▪Open platform/foundation ▪Rapid Implementation ▪Reusability/Flexibility ▪Better Levels of Service ▪Increased IT utilization
Services	▪Implementation Services ▪Average Lower Billable $/hr ▪Shorter Implementation projects	▪Implementation Services ▪Systems Integration Services	▪Implementation Services ▪Systems Integration Services ▪Application Architecture Services	▪Implementation Services ▪Systems Integration ▪Application Architecture ▪Business Innovation Services
Typical Applications	▪ E-mail Servers ▪ DHCP ▪ Scientific HPC	▪ Apache ▪ Websphere ▪ WebLogic ▪ Oracle	▪ e-business applications ▪ (CRM, SCM, ERP)	▪ Enterprise Integration ▪ Partner Integration ▪ Dynamic Business Models

Present → **Future**

Source: The Linux Services Opportunity, May 2003

How are Customers Adopting Linux

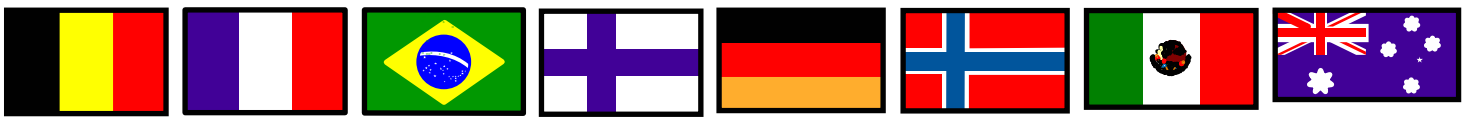
- Much of the early Linux adoption is replacing proprietary UNIX because Linux offers UNIX-like features and platform independence with low cost of ownership
- Linux is replacing Microsoft servers due to choice, attractive cost of ownership, and enhanced security
- New workloads are being added to gain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

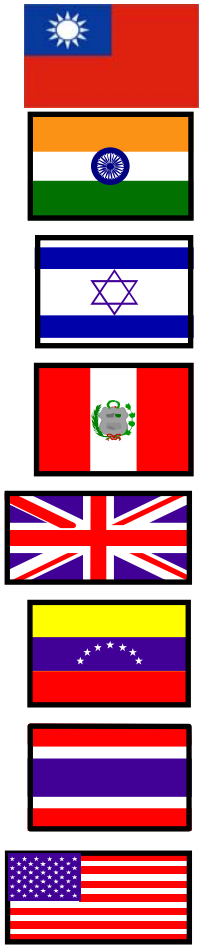


Linux Initiatives in Government

- Legislation and Policy Guidance in place today:
  - European Commission
  - National Governments: United Kingdom, France, Australia, New Zealand, USA DOD, **Malaysia**
  - State or Provincial Governments: Germany, Belgium - Brussels Government, Brazil, India, China, Spain
- Recommended Government Policy:
  - Encourage evaluation of Linux in Procurement Cycle
- Countries with Significant Initiatives in Linux:

Taiwan/ ROC	European Commission	Philippines
China/ PRC	Norway	South Korea
India	Australia	Brazil
USA	Malaysia	Mexico
Germany	Thailand	Columbia
Finland	France	Chile





IBM in Open Source and Linux

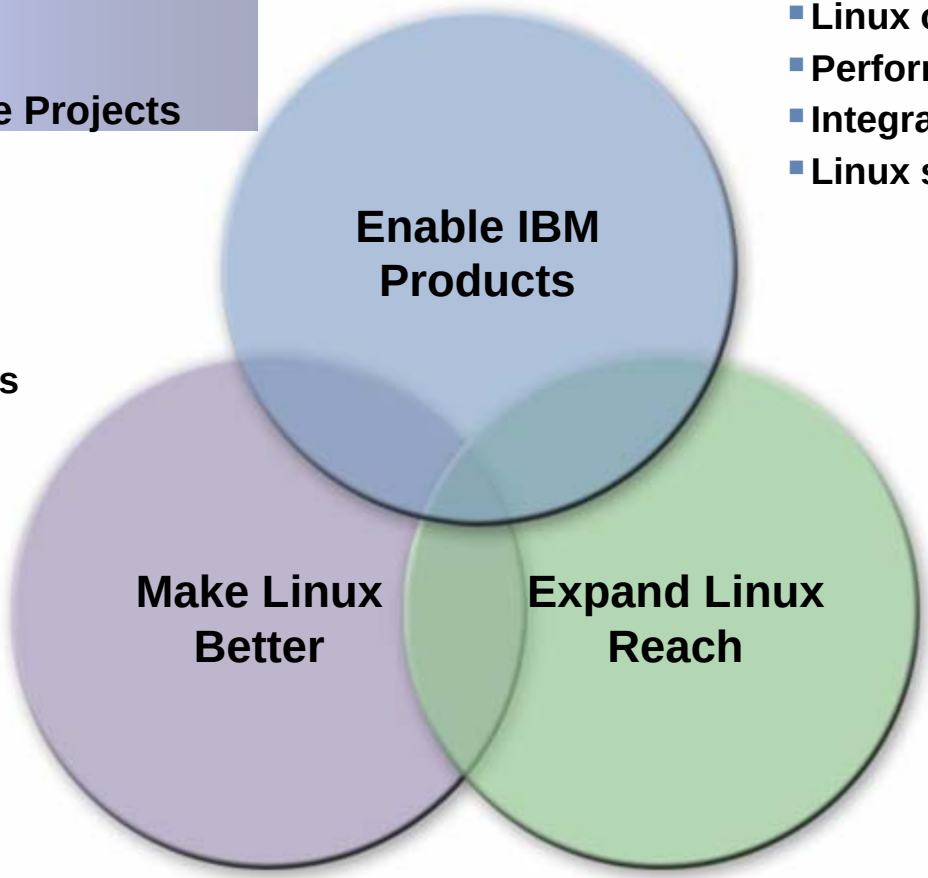
Basic Facts on IBM Support for Linux

- IBM has been committed to Linux since 1997.
- Every IBM Hardware and Software is enabled for Linux with over US$ 1 Billion invested in related products and services in 2001.
- Over 7000 IBMers are currently working on Linux developments, research, services and sales.
- Internally, IBM is currently running Linux on over 1000 servers.
- IBM currently support thousands of Linux customers worldwide.
- Over 380 software products from DB2, Lotus, Websphere, Tivoli and Rational

Linux Technology Center

- 600 People
- 43 Locations
- 150 Open Source Projects

- Linux on Power
- Performance optimizations
- Integrated Platform for Telco
- Linux security assurance



- Development Focus Areas
  - *Scalability*
  - *RAS*
  - *Networking*
  - *Systems Mgmt*
  - *Security*
  - *Performance*
  - *Standards*
  - *Test*
  - *Quality*
  - *Performance*

- Secure Linux
- Carrier Grade Linux
- Data Center Linux
- Windows Interoperability

Linux Momentum & IBM

- IBM hold's #1 overall in Linux-based server revenue with 28 percent of market share [1]
- IBM gained over 2 points in 1Q05, driven by OpenPower [2]
- At the same time, IBM was the only vendor to gain 1 point of UNIX share [3]
- There are now more than 12,000 IBM Linux customer engagements worldwide
- IBM announced Chiphopper – goal to double ISV application on IBM servers from 6,000 to 12,000
- More than 300 Business Partner Value Networks worldwide, teaming up top partners to create repeatable Linux-based industry customer solutions
  - More than 6,000 total IBM BPs supporting Linux
- IBM is shipping over 380 software products running on Linux across IBM DB2, WebSphere, Lotus, Tivoli and Rational
  - IBM registered its 100,000th developer actively creating Linux-based applications running on IBM software

[1] Source: Gartner Quarterly Server, 1Q05
2 Source: IDC Quarterly Server Statistics 1Q05
3 Source: IDC Quarterly Server Tracker, 1Q05

IBM your Linux Partner : Continued Investment

The IBM Patent Pledge

The New York Times

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AUTOS NEW

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National
Washington
Business
Technology
Science
Health
Sports
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Past 30 Days

BUSINESS/FINANCIAL DESK | January 11, 2005, Tuesday

I.B.M. to Give Free Access To 500 Patents

By STEVE LOHR (NYT) 883 words
Late Edition - Final , Section C , Page 1 , Column 5

ABSTRACT - IBM plans to announce it is making 500 of its software patents freely available to anyone working on open-source projects, like popular Linux operating system, on which programmers collaborate and share code; analysts say new model for IBM represents shift away from traditional corporate approach to protecting copyrights, trademark and trade-secret laws; estimate IBM collected $1 billion or more last year from licensing its inventions; IBM senior vice president John Kelly calls patent contribution beginning of new era in how IBM will manage intellectual property; company was granted 3,248 patents in 2004, far more than any other company (M)

The Explosive Growth of Linux and Open Source : *What Does It All Mean?*

Finding a Trend

The three shifts had things in common:

- $$ and people move towards the trend
- Community, Standards based
- Established industry players say, "Who needs it?"

LINUX

Internet
TCP/IP

PC's

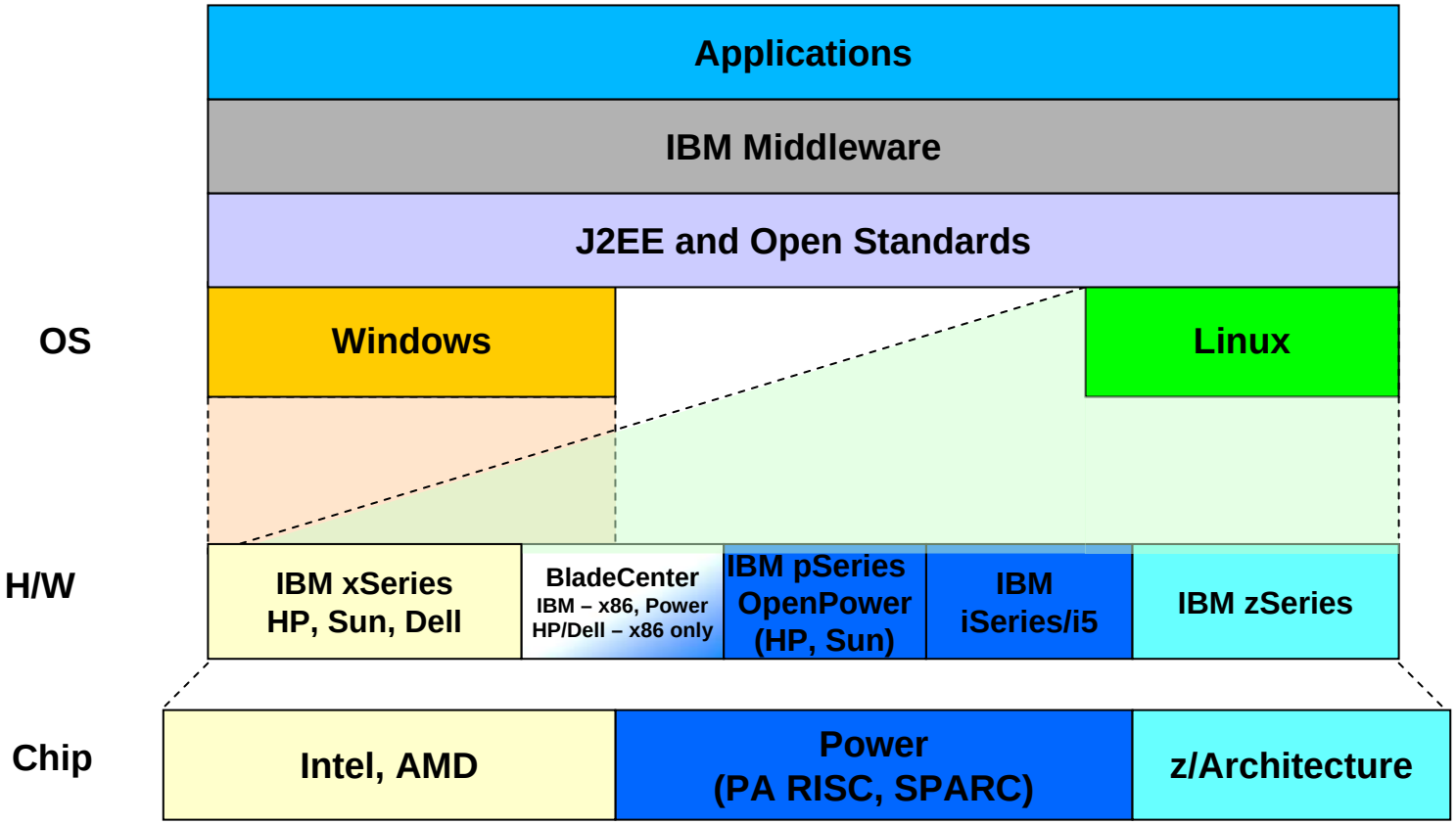
Drivers to Use Linux Today

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

Linux gives Customers Choice:

On Demand Businesses Need Flexibility and An Open Computing Model



An Excellent path to On Demand Business

An On Demand Business is an enterprise whose business processes—integrated end-to-end across the company and with key partners, suppliers and customers—can respond with flexibility and speed to customer demand, market opportunity or external threat.

PURCHASE

TRACK

... multiple companies, seamless process

Open Source Software Accelerates Innovation

By Igniting Collaborative Problem-Solving

- Software developed by a community and made available to copy, modify and redistribute (without paying royalties or fees)
- Enables rapid collective response to today's most pressing business challenges

Linux, Open Source and Collaborative Innovation

"It is not about free. It is about freedom.

The freedom to collaborate. The Freedom to innovate."

Nick Donofrio,

IBM Senior Vice President for Technology and Manufacturing

- **Open source gives more people access to the building blocks of Innovation, enabling diverse perspectives and influences to be integrated into the creative process.**
- **The rise of open, non proprietary standards is making possible the rapid worldwide transfer, exchange and adoption of new idea and methodologies.**
- **The Linux source code is touched by the most culturally and geographically diverse group of people to ever work on a technology project. Since the source code is continually tested and honed by this worldwide constituency , developers can concentrate on building innovative and valuable applications.**

Unstoppable *Linux*

Linux passes the inflection point

A safe choice for customers

Unleashing Innovation

Pervasive in business

IBM

Your Partner of Choice

- Enabling the On Demand Infrastructure
- Industry leadership
- Strong offerings in hardware and software
- Investing not only in Linux, but in industry specific application solutions and partner support
- Tying it all together with support and services

Linux