



IBM

Linux on demand:

***Real Experience, Real Solutions . . .
for Real Business***

John Sarsgard

*VP, WW Linux Sales
IBM Corporation*

BusinessWeek: The Linux Uprising, March 3, 2003



LINUX CUTS BOTH WAYS

THE WINNERS

IBM Big Blue is selling twice as many Linux servers as any other company and is well-liked by Linux developers

INTEL The processor giant is riding Linux into the world of high-powered computing in corporate data centers

DELL The thriftiness of Linux appeals to Dell, which can sell Linux servers cheaper than other major computer companies

RED HAT The leading seller of Linux has lined up distribution deals with just about every big computer company

THE LOSERS

SUN MICROSYSTEMS Customers are abandoning its Solaris software for Linux, which performs similar tasks

MICROSOFT Linux wins the price war and is luring corporate customers leery of getting locked into Microsoft

LINUX STARTUPS Other than Red Hat, there's not much room for these small fry

LINUX PURISTS Linux developers who don't like the idea of working with capitalists had better get used to it

USA TODAY: Linux Wins in Munich, July 14, 2003



Linux took on Microsoft and won big in Munich

Victory could be a huge step in climb by up-and-comer

Cover Story

By Brian Achido
USA Today

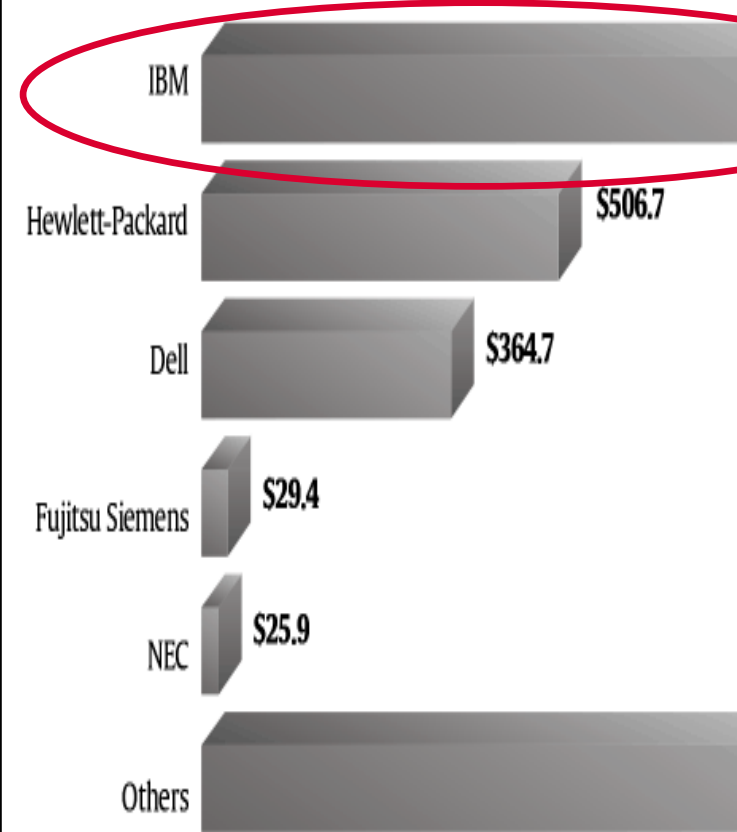
On the brink of losing a pivotal account to an ascending rival, Microsoft last March dispatched CEO Steve Ballmer to the rescue.

The German city of Munich was balking at a \$36.6 million proposal from Microsoft to upgrade 14,000 desktop PCs to the latest versions of Windows and Office.



Leading vendors

Top five worldwide Linux vendors in 2002 (in millions of dollars):



Source: Gartner Dataquest, March 2003
By Robert W. Ahrens, USA TODAY

What is an on demand Company?

An enterprise whose business processes can respond with speed to any customer demand, market opportunity or external threat.

Responsive

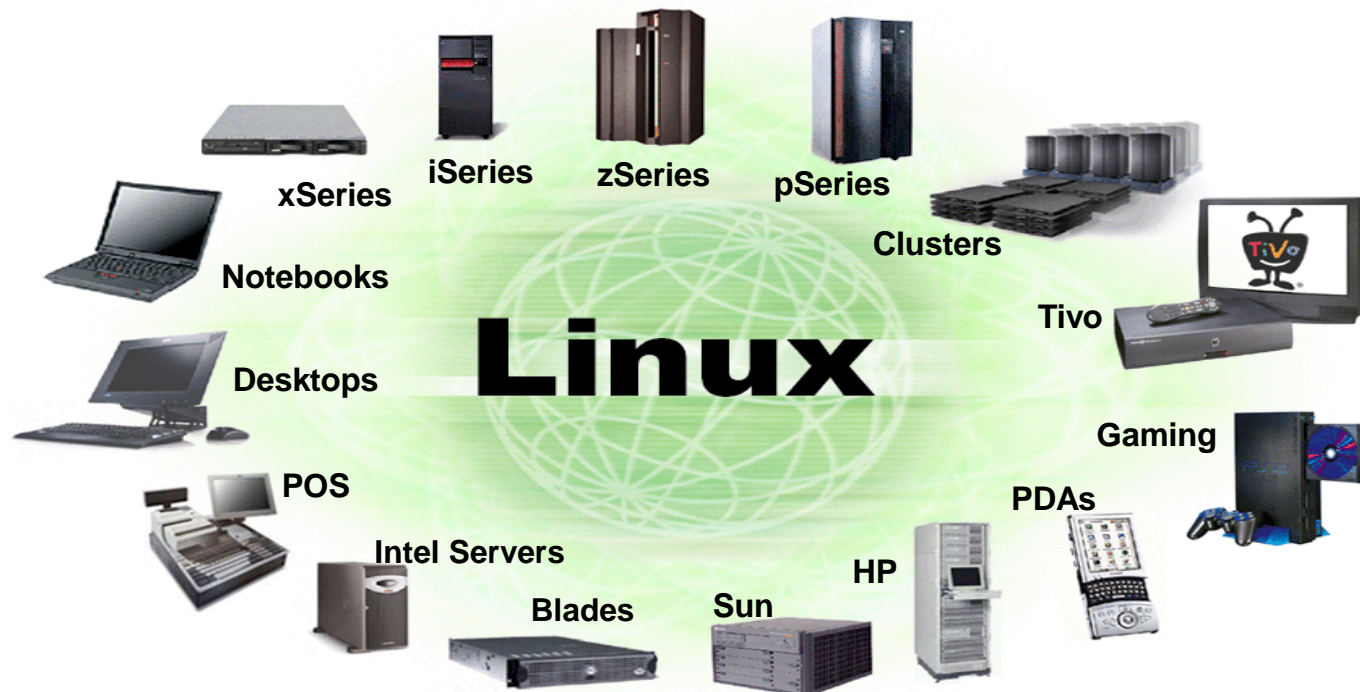
Variable

Resilient

Focused

Why Linux?

- It enables choice: the right platform for any given



Why Linux?

- It enables *choice*: the right platform for any given job

- Linux is *efficient and cost-effective*

20-30% reduction in Sun servers

\$7-10 million savings

25% performance increase



Why Linux?

- It enables *choice*: the right platform for any given job
- Linux is *efficient and cost-effective*

- It supports server consolidation to reduce operational costs

Replaced Sun and HP servers w/ 1 zSeries

45% quicker response times; 22% performance increase

Lower license, maintenance costs; floor space savings

Reduced system downtime



Why Linux?

- It enables *choice*: the right platform for any given job
- Linux is *efficient and cost-effective*
- It supports server consolidation to *reduce operating costs*

- It enables **on demand** capacity for a more variable cost structure

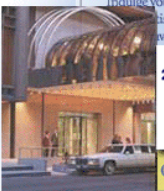
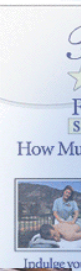
IBM e-business on demand™ services

Linux on zSeries

Dynamically allocated capacity

Minimized upfront capital investment

Pay only for capacity used



Why Linux?

- It enables *choice*: the right platform for any given job
- Linux is *efficient and cost-effective*
- It supports server consolidation to *reduce operating costs*
- It enables *on demand* capacity for a more variable cost structure

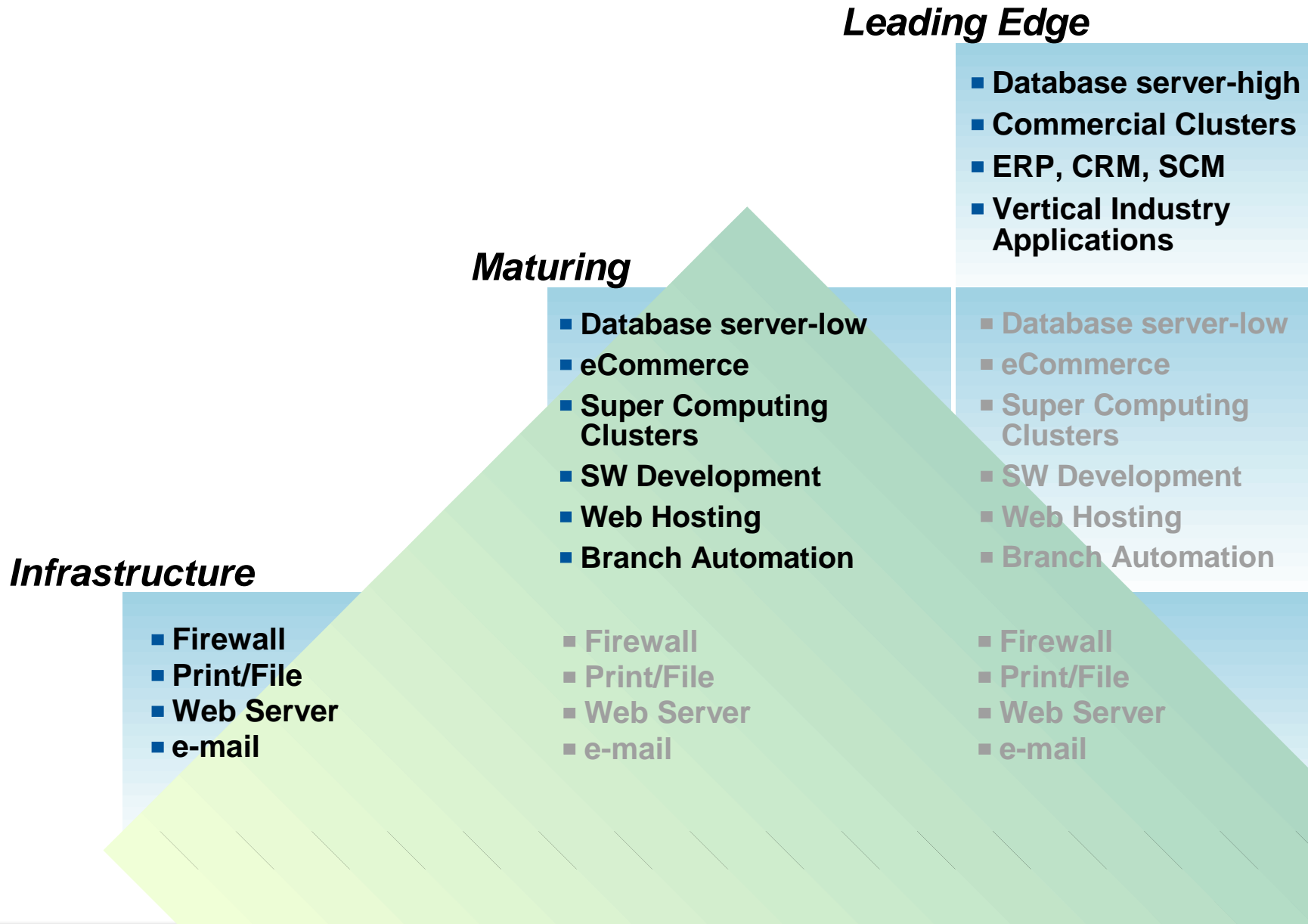
- It taps into the awesome *innovation* of the collaborative Linux community



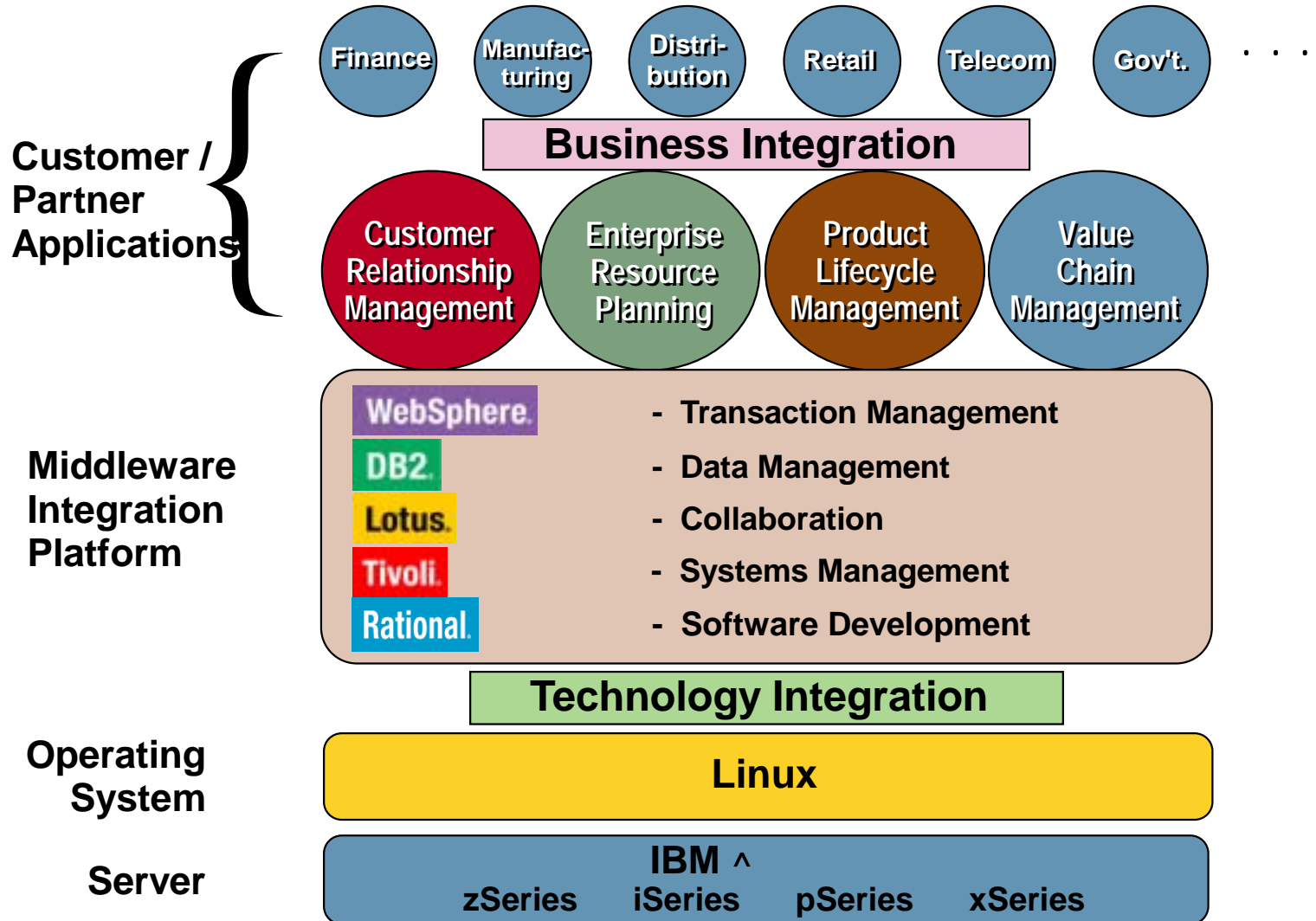
Linux News

- **2.6 Linux kernel beta released**
 - ▶ Production distributions expected next year
 - ▶ Linus Torvolds, Andrew Morton to work full time at OSDL on v2.6
- **Open Office 1.1 release candidate**
 - ▶ Greater integration w/ MS Office; support for .PDF
- **Munich switching 14,000 computers to Linux**
 - ▶ Faced with end of support for Windows NT
- **Novell announces Nterprise Linux Services**
 - ▶ File, print, messaging, directory and management services on SuSE and Red Hat
- **Linux receives EAL2 Common Criteria certification**
- **IBM adds 50 new developers to Linux Technology Center**
 - ▶ Ongoing effort to certify Linux on servers with 8+ Power4 processors

IBM's Perspective on Linux Deployment



A Linux Solution



Member of the Linux Community

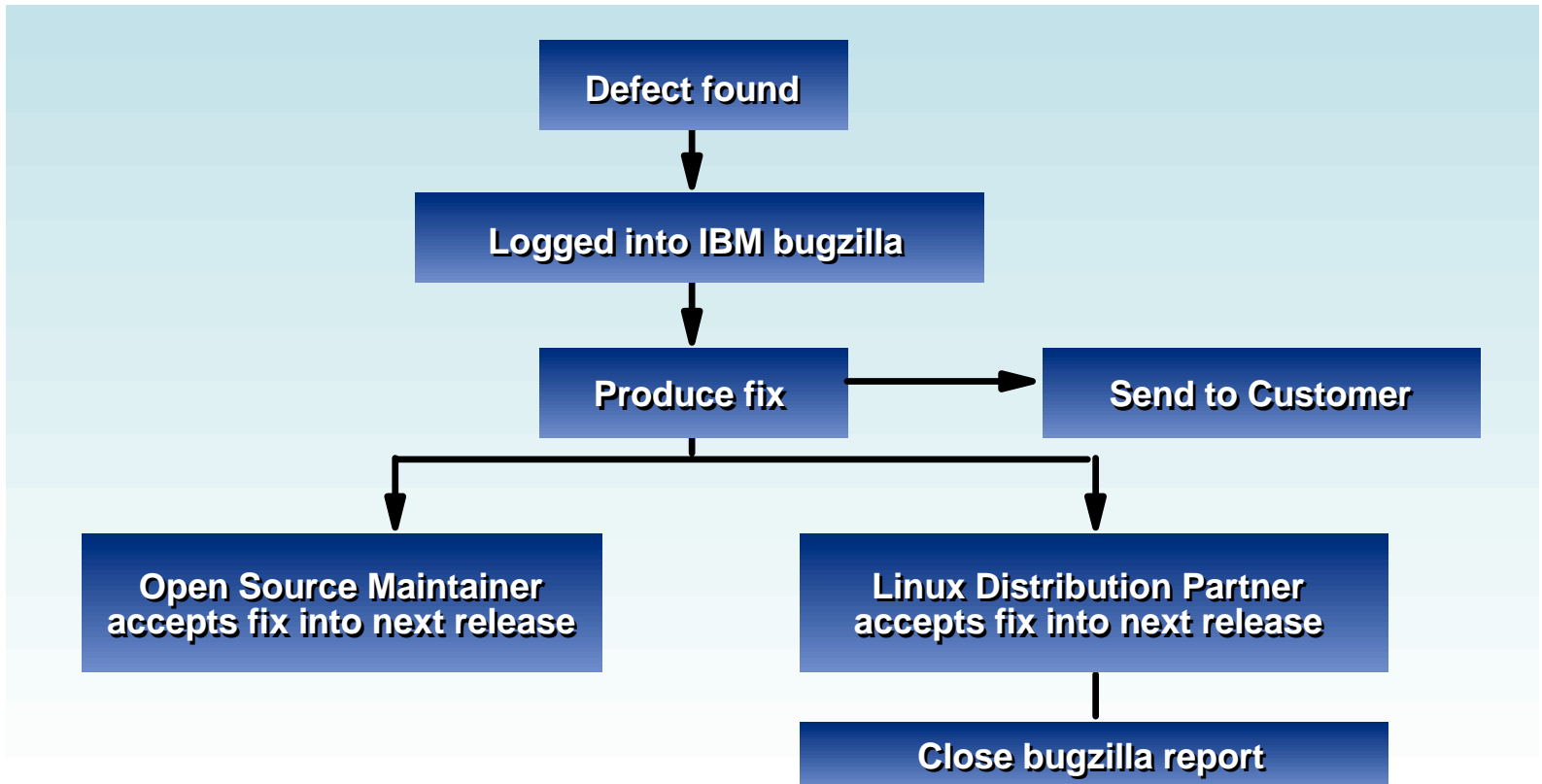
- **IBM well accepted by the Linux community**
 - ▶ 250+ Developers worldwide
 - ▶ 70+ active Open Source projects
 - ▶ 80% of IBM's contributions are accepted
- **IBM engineers leading enterprise Linux focus**
 - ▶ Deeply involved in Linux kernel development
 - ▶ Motivated community to focus on addressing scalability and threading issues
 - ▶ Defect support for a set of core Linux packages
 - ▶ Led formation of Linux Test Project to validate reliability, robustness, and stability of Linux distributions
 - ▶ Key participant and contributor to "Carrier Grade Linux" project



IBM Level 1-2-3 Linux Support

Open Source Involvement Benefits Our Customers

- LTC and IGS teams have experts in every key Linux subsystem and can respond to any problem
- IBM works directly with the code owners to integrate fixes into the base quickly and efficiently



IBM Customers Running Linux

Financial/Insurance Services



Communications



Education/Government/Health



Distribution/Retail



Industrial



IBM Uses Linux

Transforming IBM's IT infrastructure - \$10M+ in Savings

- 1,500+ production servers; 13,000 clients, 3,500 servers WW
- www.ibm.com/linux & w3.ibm.com/linux
 - ▶ redundant xSeries Linux servers
- Intranet search engine
 - ▶ xSeries servers; Inktomi search engine
- IGS Internet Vulnerability Security Scanning
 - ▶ 100 xSeries scanning 30k IP addresses/ week
- Performance monitoring
 - ▶ 75% fewer Linux servers than NT servers for same workload
- IBM Global e-Mail Anti-virus Management
 - ▶ xSeries scans incoming/outgoing mail for viruses
- 300mm Wafer Manufacturing Equip. Control
 - ▶ Much more reliable than Win2000
 - ▶ 174 xSeries; 200-300 by year end
- Workstation Asset Management Applications
 - ▶ 4 Linux zVM Guests on zSeries server
 - ▶ Variable workload / on demand capacity



Deutsche Bank

Linux Cluster Dramatically Improves Responsiveness

Challenge

- Reduce time to calculate Profit and Loss, and Market Value at Risk
- Long job times potentially impact following day's business

Solution

- IBM ^ xSeries Linux cluster
 - 40 xSeries 330 Servers
 - 224 blade servers

Benefits

- Reduced batch time from 8+ hours to 20 minutes
- P&L calculation now occurs during workday increasing responsiveness
- Significant cost savings



Safeway

zSeries and MQ Enable Reduce Cost and Complexity

Business Objectives

- Increase accuracy of warehouse inventory
- Tighter monitoring of entire IT infrastructure

Solution

- WebSphere MQ on handheld devices running Linux
- 2 zSeries 900 IFLs running Linux
- WebSphere Application Server on zSeries
- Tivoli NetView for Linux

Benefits

- Flexible, scalable platform with a low total cost of ownership (TCO)
- Allows staff to expand existing zSeries skills
- 1 zSeries vs the complexity and cost of 20 to 50 servers



Safeway



"Much more of a good"

West Yorkshire Police

Digital Video on Linux Speeds Suspect Lineups

Business Objectives

- Reduce crime to meet government targets
- Reduce set-up and cost of ID parades in order to help to increase conviction rates

Solution

- xSeries 345 servers, IBM General Parallel File System
- IBM TotalStorage FAStT 500 Storage Servers, 3584 Ultrium UltraScalable Tape Library
- 28 IBM IntelliStations
- Tivoli Storage Manager
- Sagitta WatchDog and eXpert Support Service

Benefits

- Costs reduced from £750 to £1,250 (GBP); 6-10 weeks set up to £150 (GBP) and 1 hour
- Expected savings of £7+ (GBP) million within first year
- Enables West Yorkshire Police to concentrate on core business



Volvo

Linux Cluster Powers Engine Simulation

Challenge

- Increase simulation performance and capacity by 50%
- Compatible with existing 30 RS/6000 SP nodes

Solution

- Linux cluster of 39 IBM IntelliStation M Pros connected to IBM eServer pSeries servers
- Volvo's Star-CD and Fluent applications

Benefits

- Computing power increased by 100%
 - more than the customer expected
- Cost effectiveness of the Linux solution



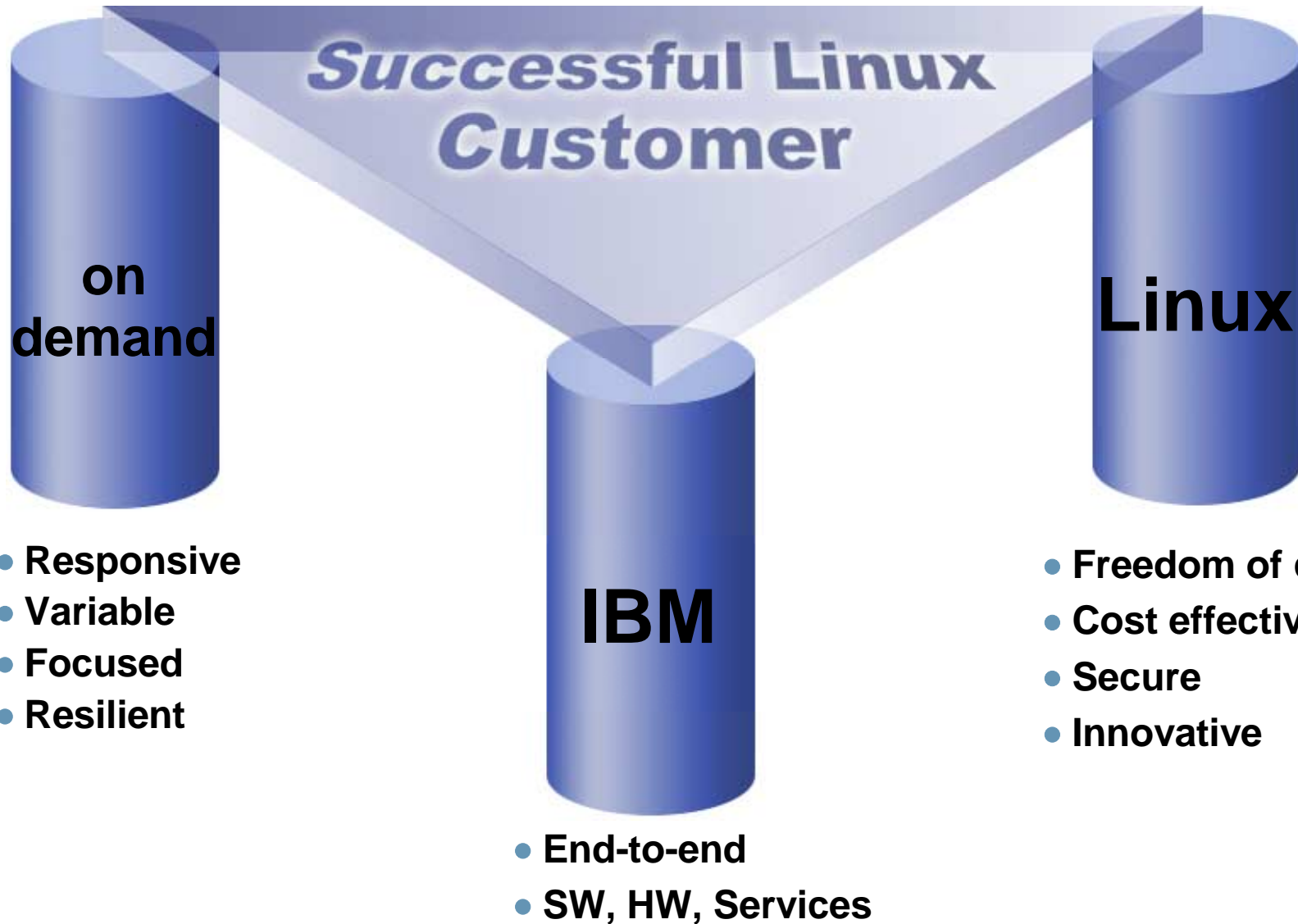
IBM Linux Solutions Portal

End-to-End Linux Solutions from IBM & Business Partners

- **Easily search solutions by:**
 - ▶ Industry, solution type or business size
- **Solutions include:**
 - ▶ Customer references, architecture documents
 - ▶ Analyst reports, white papers, and related press articles
- **In depth discussions of specific industry solutions updated quarterly**
- **Ask an IBM expert business or technical questions via the web**
 - ▶ Discuss your requirements to determine the best solutions for your business



IBM and Linux: The Right Choice





IBM

Linux on demand:

***Real Experience, Real Solutions . . .
for Real Business***

John Sarsgard

*VP, WW Linux Sales
IBM Corporation*

Trademarks

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries. For a complete list of IBM Trademarks, see www.ibm.com/legal/copytrade.shtml

AS/400 DB2 E-business logo ESCON eServer FICON IBM IBM Logo iSeries M
OS/390 pSeries RS/6000 S/390 VM/ESA VSE/ESA Websphere xSeries z/OS zS
zVM

The following are trademarks or registered trademarks of other companies

Lotus, Notes, and Domino are trademarks or registered trademarks of Lotus Development Corporation

Linux is a registered trademark of Linus Torvalds

Java and all Java-related trademarks and logos are trademarks of Sun Microsystems, Inc., in the United States and other countries

UNIX is a registered trademark of The Open Group in the United States and other countries.

Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation.

SET and Secure Electronic Transaction are trademarks owned by SET Secure Electronic Transaction LLC.

Intel is a registered trademark of Intel Corporation

* All other products may be trademarks or registered trademarks of their respective companies.

Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.