IBM Systems and Technology Group University 2005

Selling Linux on POWER Solutions

Course #: P19

Andy Wachs
Program Director, Linux on POWER Solutions
awachs@us.ibm.com

Chuck Bryan
Linux on POWER Ecosystem Marketing
cbryan@us.ibm.com

v 1.0

This presentation is intended to assist IBM Sales and their business partners in understanding IBM server marketing tactics, sales tactics and our direction during 2005.

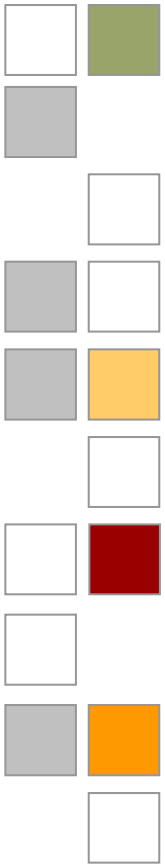
This presentation can be used in sales situations except individual charts labeled VENDOR CONFIDENTIAL or IBM CONFIDENTIAL, in which case they should be considered confidential under the practices in place in your firm and under any existing agreements with IBM regarding disclosure of confidential information.

For questions or to request permission for any other use of the information or distribution of the presentation, please contact any member of the IBM sales team.

Confidentiality Reminder

- As a reminder, any IBM Confidential information in this session is not to be shared by you with anyone outside of your company. This is in accordance with the PartnerWorld non-disclosure agreement as signed by your company. Thank you for your adherence to this agreement.

Training objectives



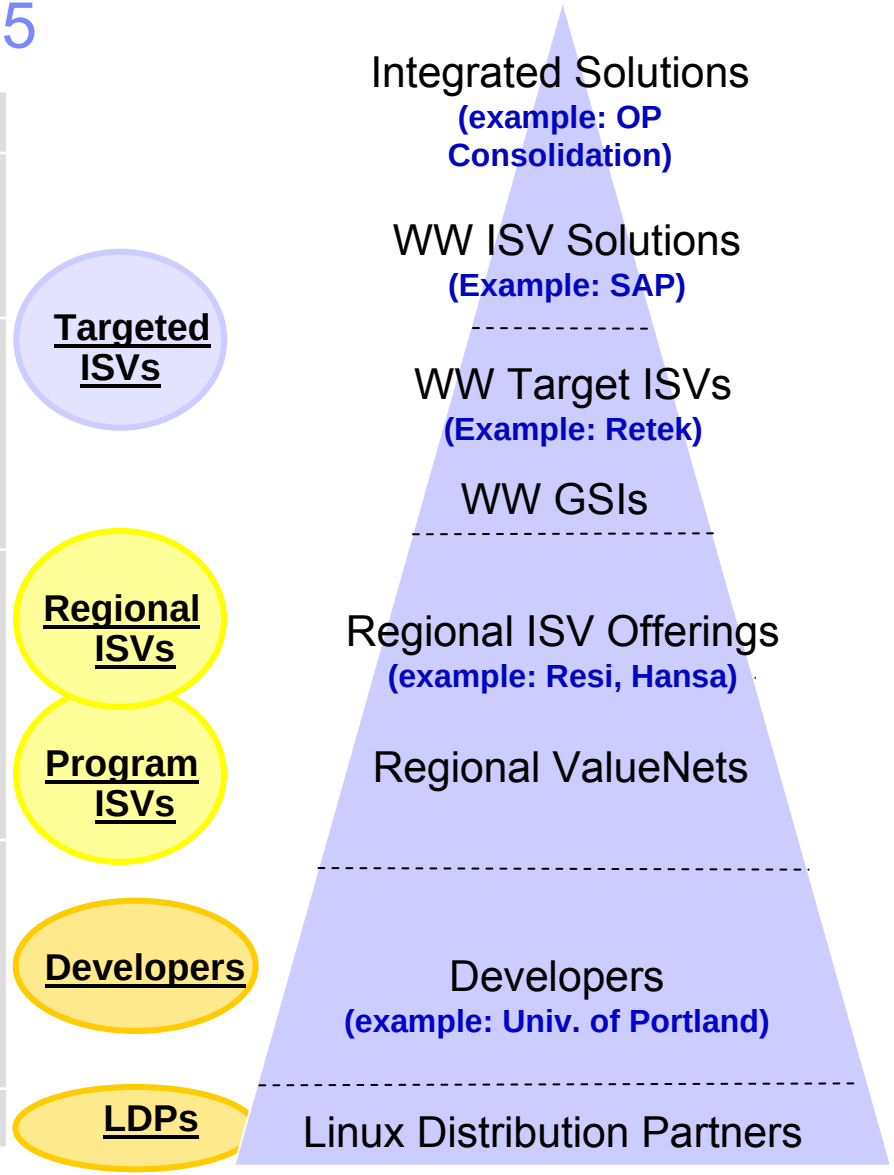
- Enable sales team to discuss Linux® on POWER™ solutions with customers and partners
- Enable sales teams to create solution proposals for customers
- Enable sales teams to identify ideal targets for selling Linux on POWER
- Enable sales teams to utilize resources to maximize efficiency and effectiveness

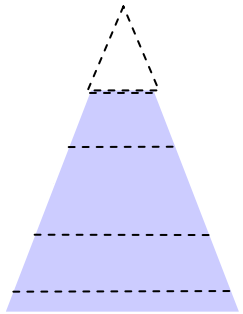
Agenda

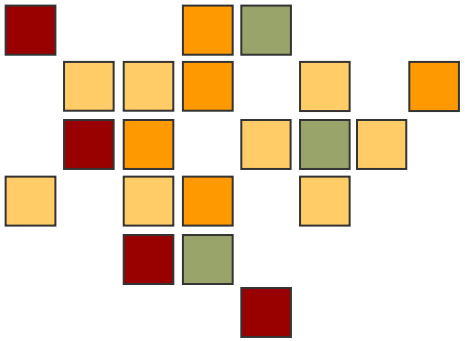
- Strong and growing community support
- Linux on POWER Solution Program
- Infrastructure Solutions
- Business Solutions
- Life Sciences Solutions
- Solutions Roadmap – What Coming?

LoP Ecosystem Objectives – 2005

2005
▪ Deliver IBM Integrated Solutions (leveraging Cross Industry & Industry ISVs) ▪ Define new Solution Offerings
▪ GTM with ISVs and ISV Solutions ▪ Build Global ValueNet ecosystem w/ Target ISVs & GSIs ▪ Align Target ISVs w/ Solutions (Enable 100 PWIN ISVs)
▪ GTM with Regional ISVs ▪ Define and Build Regional ValueNet Ecosystem ▪ Incorporate Marketing on Demand Framework and Programs into Regional initiatives ▪ Recruit & Enable 300 additional Regional / Program ISVs
▪ Increase Relevance of POWER to Developers, Universities ▪ Build Open Source Community (tbd by 10/29/04) ▪ Build University Community (tbd by 10/29/04) ▪ Build Corporate Developer Community (tbd by 10/29/04)
▪ Integrate LDPs into offerings and go-to-market programs

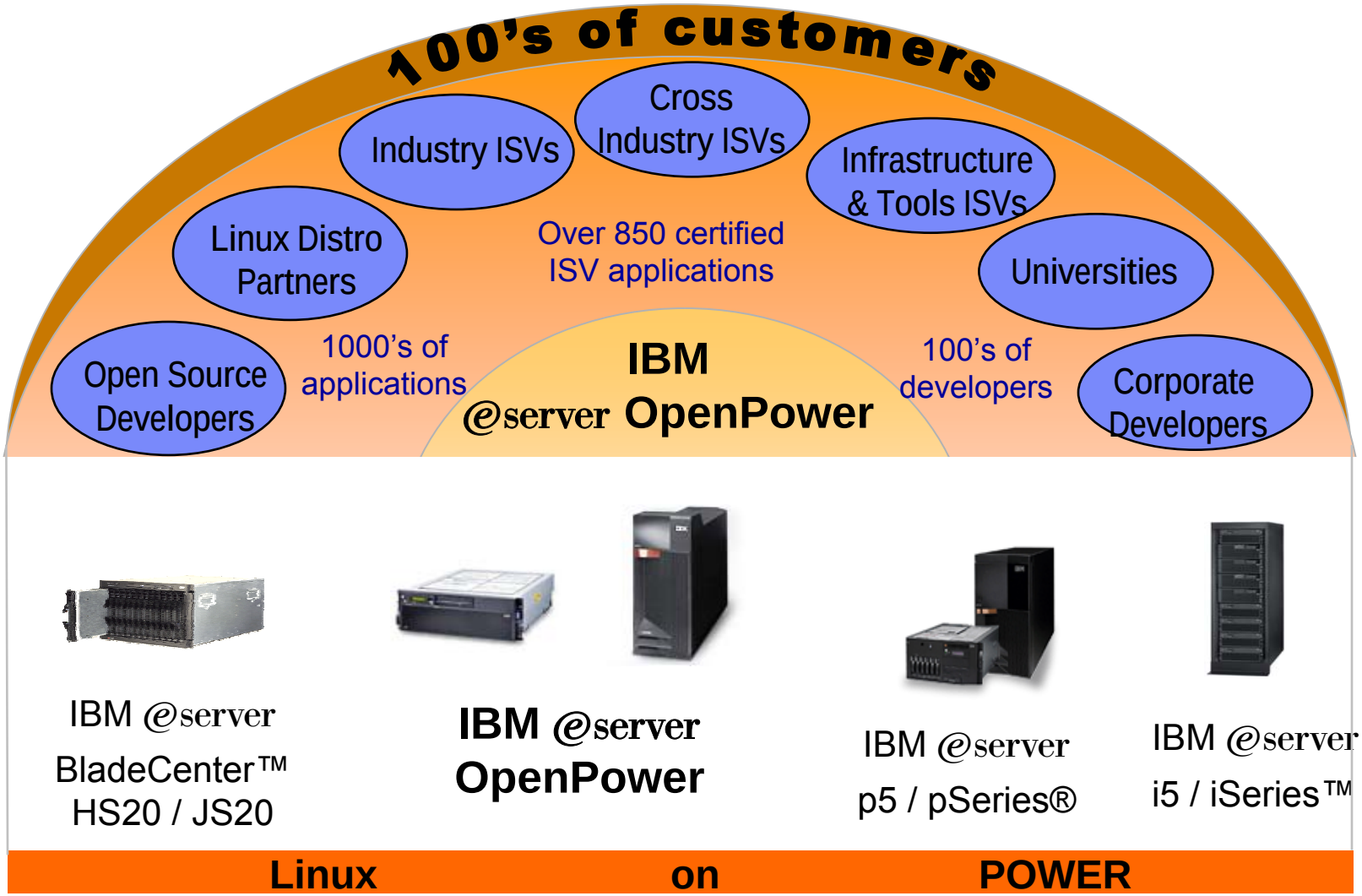






Strong and growing community support

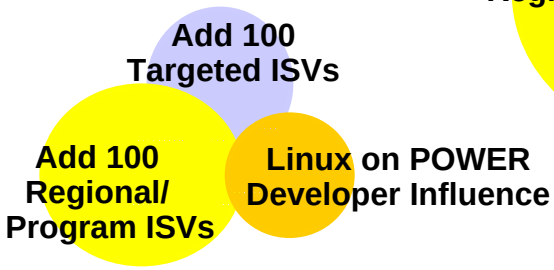
Linux on POWER offers a wide and rapidly growing choice of applications, tools and platforms



Linux on POWER (LoP) Ecosystem Evolution Goals

2004

Build the Portfolio

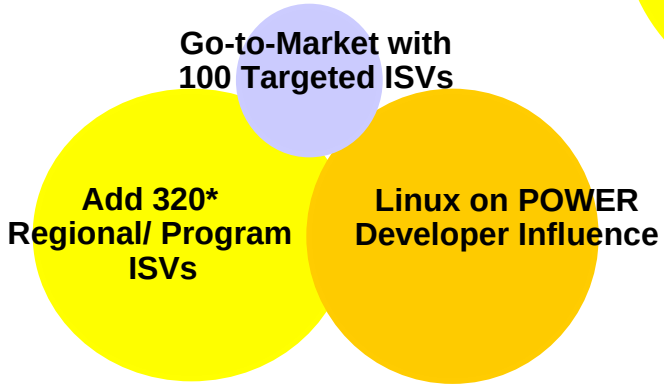


- 850+ cumulative applications*
- 420 cumulative ISVs*
- Established Open Source Dev infrastructure with Universities

* Estimated based on 11/04 fcst

2005

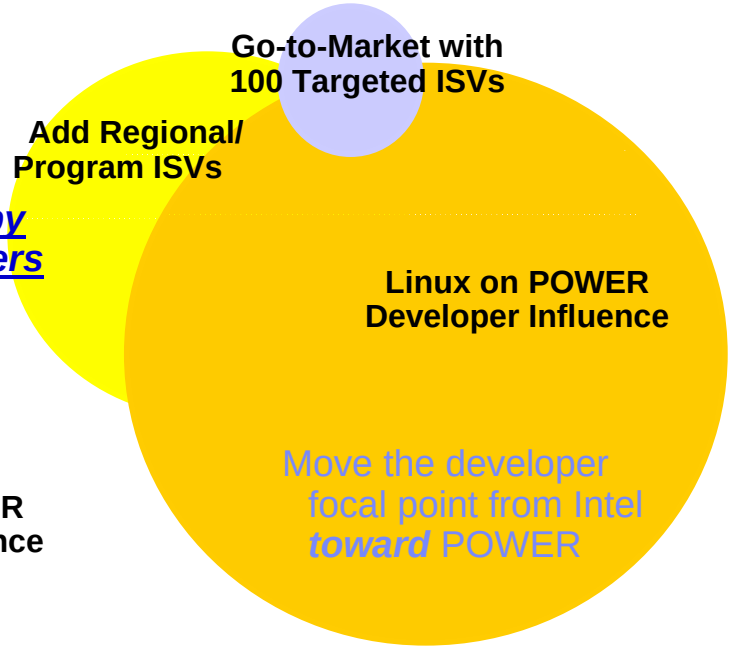
Accelerate toward Self-sustaining Ecosystem by enabling a clear ROI for IBM, ISVs, and Developers



- 1600 cumulative applications
- 800 cumulative ISVs
- GTM with Target ISVs to deliver LoP solution offerings
- Increase relevance of POWER to Developers & Universities
- Aggressively recruit and GTM with 100s of Regional ISVs and System Integrators

2006

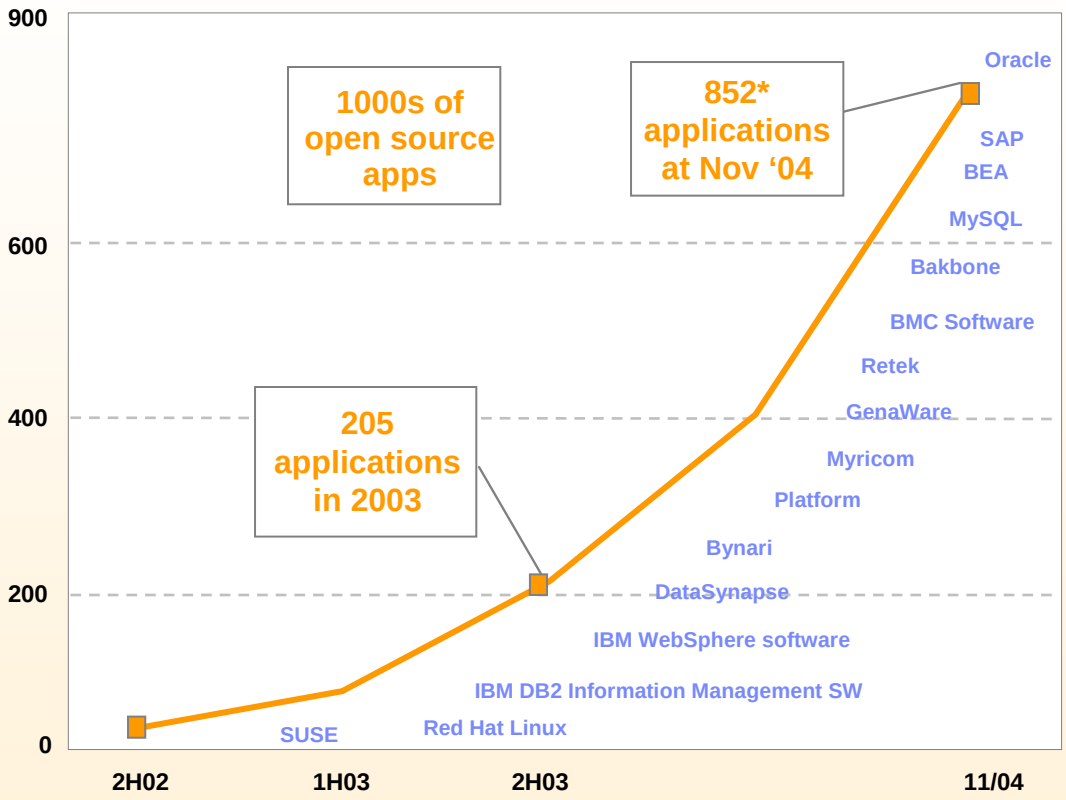
Drive Self-sustaining LoP Ecosystem



- Double Applications ISV's
- Push to Pull
- Development of Applications on Power Platform
- Focus on GTM with targeted ISV

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

Quadrupling in the last year, a wide portfolio of infrastructure and industry applications is now available



* http://www-1.ibm.com/servers/eserver/linux/power/apps/all.html

IBM Middleware applications
- Full complement of core software from IBM WebSphere®, IBM DB2®, Tivoli®, IBM Informix®
- IBM Compilers, Cluster Management

ISV infrastructure and tools
- Cognos, BEA Weblogic Server, MySQL DB, Bakbone, NetVault, BMC Patrol Agent & KMs, Novell, Acucorp, Absoft, Myricom, Storix, Platform Computing, Oracle 10g client & others

Open source infrastructure and tools
- Apache, SAMBA, Sendmail, others
- Distributed with Red Hat & Novell SuSE

Workload applications
- Deep computing – growing portfolio of Life Sciences, Petroleum & Open Source apps
- SAP now available for LoP

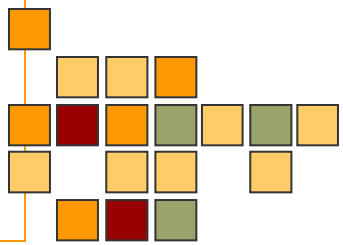
Industry and regional applications
- Temenos, Fair Isaac, Genaware, Hansa, Tecsys, Evant, eOne, Triversity & others

*Number of applications depends on distribution level.

Leading-edge ISVs support eServer OpenPower

"Running Linux on POWER technology gives customers a highly scalable and robust 64-bit computing platform that is unmatched in the industry."

— Alan F. Nugent, senior vice president and chief technology officer, Novell, Inc.



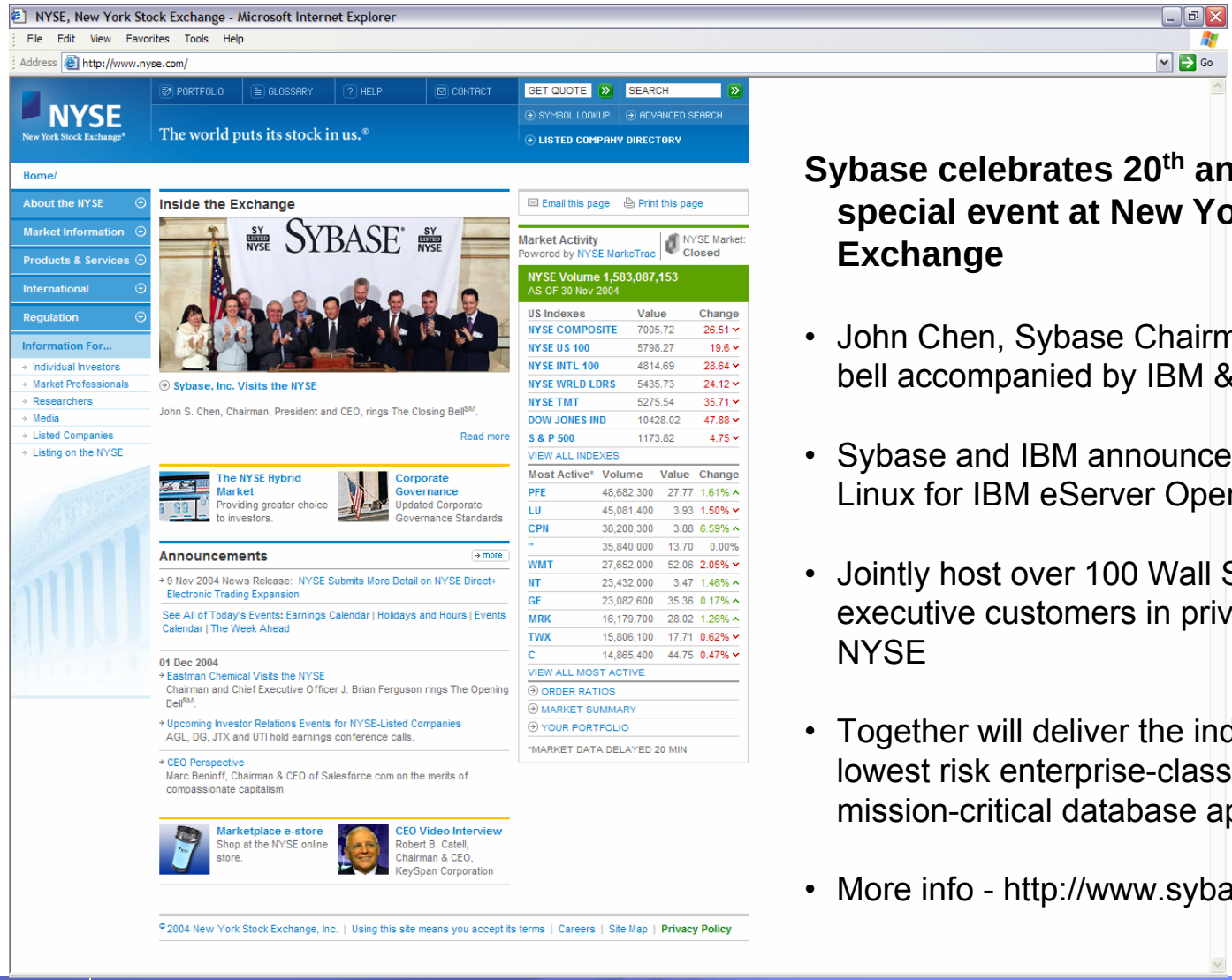
"SAP® considers Linux on POWER a strategic platform for customers looking to take advantage of the flexibility of Linux with the reliability and scalability of IBM @server [platforms] with the POWER microprocessor."

— Erwin Ledig, vice president, platforms, SAP AG

"Oracle is working on its release of Oracle Database 10g for Linux on POWER. Running Oracle on Power based servers will give our customers the open, flexible value of Linux, combined with a cost-effective solution that promises performance and reliability."

— Juan Jones, Vice President , Oracle Corporation

Sybase and IBM to deliver data management platform of the future for Financial Markets



Sybase celebrates 20th anniversary with special event at New York Stock Exchange

- John Chen, Sybase Chairman, rings closing bell accompanied by IBM & other partners
- Sybase and IBM announce Sybase ASE on Linux for IBM eServer OpenPower
- Jointly host over 100 Wall Street senior executive customers in private briefing at NYSE
- Together will deliver the industry's lowest cost, lowest risk enterprise-class Linux solution for mission-critical database applications
- More info - http://www.sybase.com/ibm

Targeted Linux on Power ISVs by Industry (12/15/04)*

MULTI INDUSTRY

- Absoft Corporation
- Axe Group Pty Limited
- BakBone Software, Inc.
- BEA Systems
- Bynari Inc.
- GenaWare Group Asia Pacific Pty Ltd
- KIES
- Libelle Informatik GmbH
- MySQL AB
- Novell, Inc
- Relavis Corporation
- Resi Informatica SPA
- SAP AG
- Selectica
- Willow Technology, Inc.
- BMC Software, Inc.
- Micro Focus
- IBM SWG Rational
- IBM SWG Lotus
- Oracle
- Rogue Wave Software, Inc.
- RSA Security, Inc.
- SSA Global
- SteelEye Technology
- Stonesoft Corporation
- Sybase
- Tarantella, Inc.
- Tibco Software

GOVERNMENT

- Argonne National Laboratory
- DataSynapse Inc.
- Dichain
- Oak Ridge National Laboratory
- OptimaNumerics (EMEA)
- Scali AS
- Triton Tech., Inc.
- Etnus, L.L.C.
- Computer Sciences Corporation

PETROLEUM

- CGG
- Numerical Algorithms Group (NAG)
- Paradigm Geophysical
- PGS Tensor

INDUSTRIAL

- GIS Gesellsch. Fuer Informationsysteme MBH
- IDS Enterprise Systems Pty Ltd.
- ILS Technology LLC
- math-atlas.sourceforge.net
- Adapco Star-CD
- Ansys
- Engineous Software, Inc.
- LSTC LS-Dyna
- UGSPLM NX-Nastran

Target Date for Power5 Support
(Applications supporting Power5 will also support Power4 on SLES9 or RHEL3u3)

Available now
4Q04
1H05

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

Targeted Linux on Power ISVs by Industry (Continued)*

RETAIL

- ABAS Software AG
- AlphaNova Ltd
- Blue Martini Software Inc.
- MarCole Enterprises, Inc.
- RedPrairie
- Taxware, LP
- Triversity Inc.
- Intentia International AB
- Quanta Systems Ltd
- Retek Inc.

SMB

- AlphaNova Ltd
- Evant, Inc.
- IDS Enterprise Systems Pty Ltd.
- MarCole Enterprises, Inc.
- Retek Inc.
- Tecsys Inc.
- Triversity Inc.
- Intentia International AB
- Integrated Distribution Solutions

BANKING

- Acucorp, Inc.
- Alaric
- Fair Isaac Corporation
- FINEOS Corporation
- Hansa Business Solutions (UK) Ltd
- Lakeview Technology, Inc.
- NSS Corp.
- Point Solutions Ltd
- Synchronised Software Pty Ltd
- Temenos
- eFunds Canada Corporation
- Fidelity Information Services, Inc.
- Informatica Corporation
- Mosaic Software, Inc.
- S2 Systems, Inc.

Target Date for Power5 Support
(Applications supporting Power5 will also support Power4 on SLES9 or RHEL3u3)

Available now
4Q04
1H05

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

Targeted Linux on Power ISVs by Workload (12/15/04)*

INFRASTRUCTURE

- BakBone Software, Inc.
- BEA Systems
- IBM SWG Data Mgmt
- IBM SWG WebSphere
- IBM SWG Tivoli
- Libelle Informatik GmbH
- Novell, Inc
- Resi Informatica SPA
- Silk Systems Inc.
- Trifox, Inc.
- Willow Technology, Inc.
- BMC Software, Inc.
- SteelEye Technology
- DataDirect Technologies Corp
- IBM SWG Rational
- Oracle
- Sybase
- Tarantella, Inc.
- Tibco Software

HPC TOOLS

- Etnus, L.L.C.
- IBM SWG Rational
- math-atlas.sourceforge.net
- Scali AS
- Streamline Computing Ltd

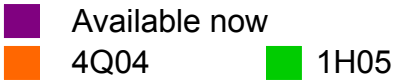
LIFE SCIENCES

- Cancer Research UK
- CPMD
- Crescent Bay Software
- European Bioinformatics Institute
- FFTW.org
- Gene-IT
- Groningen University
- HGMP-RC
- IBM Thomas J Watson Research Center
- Iowa State University
- NCBI
- Platform Computing Corporation
- Streamline Computing Ltd
- Thermo Electron Corporation
- UCSF
- University of Virginia
- Washington University in St. Louis
- Gaussian, Inc
- Geospiza
- Matrix Science Limited
- Sencel
- Southwest Parallel Software
- The BioTeam
- Waters Corporation
- Harvard University
- Proteome Systems Limited

BUSINESS APPLICATIONS

- AccessVia, Inc.
- Evant, Inc.
- Fair Isaac Corporation
- GenaWare Group Asia Pacific Pty Ltd
- ILS Technology LLC
- MarCole Enterprises, Inc.
- RedPrairie
- Relavis Corporation
- Synchronised Software Pty Ltd
- Tecsys Inc.
- Temenos Headquarters SA
- Healthtrio, Inc.
- Intentia International AB
- Cerner Corp.
- Integrated Distribution Solutions
- Mosaic Software, Inc.
- S2 Systems, Inc.
- SunGard SCT

Target Date for Power5 Support
(Applications supporting Power5 will also support Power4 on SLES9 or RHEL3u3)



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

IBM makes it easy to simplify and expedite the porting of applications

ISV and developer portals
- Comprehensive Web site for access to HW, technical support, education, toolkits and unique marketing on demand programs

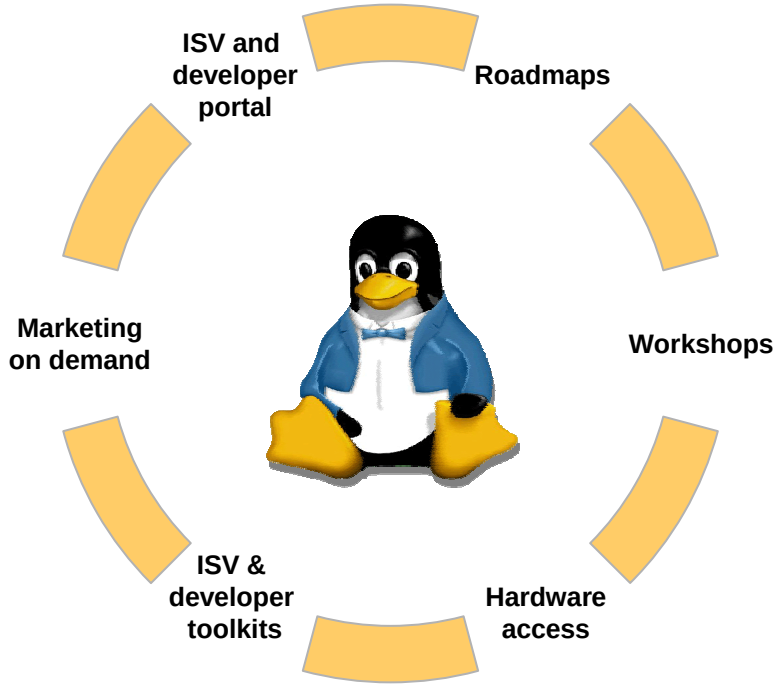
Porting white papers
- Microsoft® Windows® to Linux
- IBM POWER4™ to POWER5
- How to achieve compatibility between distributions
- Java™ on Intel® to Java on POWER

Workshops
- Access to 100s of free seminars and workshops (hands-on labs, technical white papers, how to guides)

Hardware access (free, on demand access)
- Access to 25 WW Innovation Centers
- Virtual Loaner Program to handle 1000s of ISV
- Remote test drive for ISVs to test applications
- Remote access for developers through U of Portland
- Developer access to 100s of technical support personnel

ISV and developer toolkits
- IBM and open source toolkits for ISVs and developers

Marketing on demand
- Global Solutions Directory and @server Solution Connection @server Proven
- Online sizing tools, templates for sales collateral and GTM



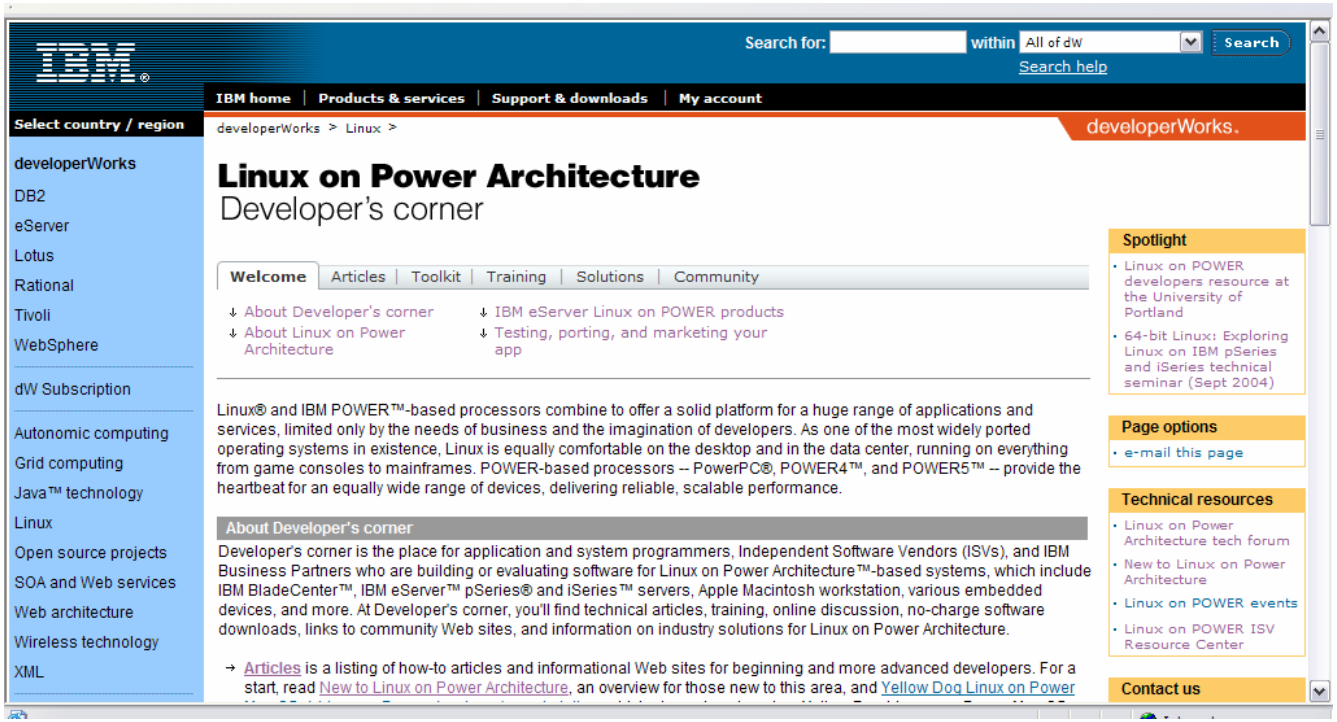
http://www.ibm.com/developerworks/linux/power

Linux on POWER ISV Resource Center

- Announcements
- Biz opportunities
- Roadmaps
- Tech collateral
- Training/Events
- Hardware/Software resources
- Market/Sell resources
- Tech support
- FAQ
- Quick links

http://www.ibm.com/servers/enable/linux/power

developerWorks Linux on Power Developer's Corner



- Developer announcements
- Tech articles
- Toolkit
- Chat forum
- Training/events
- Open source solutions
- New to LoP content
- Community links

Linux on Power Architecture developer's corner

http://www.ibm.com/developerworks/linux/power

Open Source Promotion

Linux on POWER Open Source Developer Promotion

- Get Involved in the Linux on POWER Community
- Contribute Open Source Software
- Port Existing Open Source Applications
- Win Prizes for Doing What you Do Anyway – Developing and Porting Open Source Applications

"Most Innovative" New Open Source Application Developed for Linux on POWER ***Wins a Toyota Prius***

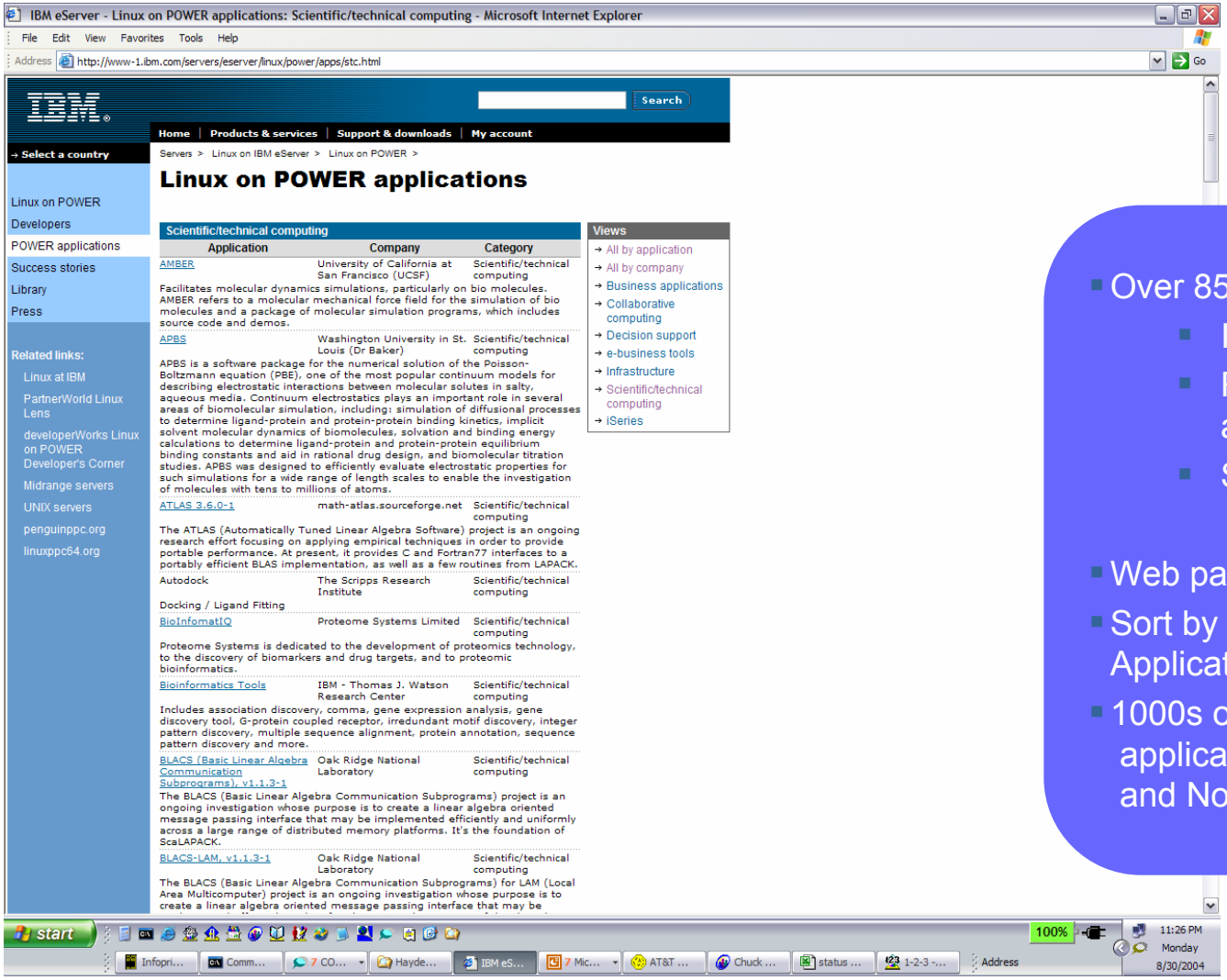
First to Port an Application from the Top Tier Predetermined *Wins an Apple G5*

First to Port an Application from the Second Tier Predetermined List *Wins a Cash Award*

Subject to contest rules and regulations. IBM employees and Business Partners not eligible, 1 grand prize winner WW for most innovative application, Developer Workstation and cash award winners based on Linux on POWER application open source acceptance and posting by the open source maintainer. More information can be found at http://www.ibm.com/products/us/ by entering "lopdev" in the "NavCode" entry box on the right-hand side of the page.

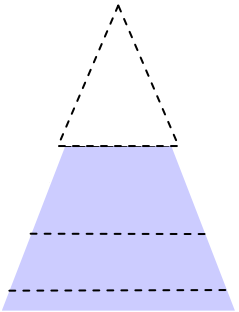
University of Portland – Open Source Developer Access to LoP

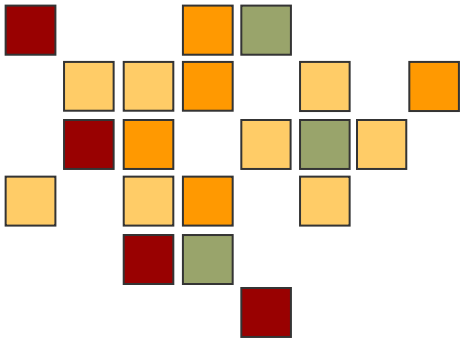
Applications for Linux on POWER



- Over 850 certified applications
  - ISV applications
  - Research lab & University applications
  - Source available apps
- Web page updated monthly
- Sort by company name or Application Name
- 1000s of additional Open Source applications available on Red Hat and Novell SUSE distributions

http://www-1.ibm.com/servers/eserver/linux/power/apps/all.html





LoP Rapid Response Team

LoP Rapid Response Team - YTD Through 3Q04

Mission and Services

- Provide a simple process and fast path to critical resources needed to close LoP sales deals & recurring sales inhibitors
  - •Quickly evaluate ISV, SWG, first of a kind implementations, Linux Distributor (LDP) support issues
  - •Build plan and bring together resources needed to win
    - •Recruit and port key ISVs and applications
    - •Test solution stacks via Linux Integration Center
    - •Provide POWERassist consulting resources
    - •Leverage linkages to resolve LDP support issues
    - •Provide any additional resources needed to close

Statistics

Engagements	Accts	Revenue
Total	26	$66.8M
Won	3	$5.1M
Pending	21	$25.9M
Lost (or platform switch)	2	$35.8M

3Q04 Highlight

Seoul National University

- 425 node JS20 cluster: $2.3MUS
- Engaged early with sales team to identify key must have applications & potential alternatives
- Delivered two key "must have" applications from initial list of over 15 applications
  - •Etnus Totalview, SVPablo
- Provided sales assistance for RFP response
- Ongoing recruitment/enablement of add'l apps

Key Account Opportunities

Seoul National University

China National Development & Reform Committee

University of New Mexico

Vanderbilt University

University of Memphis

Citadel Investment Group

Ebay

Hewitt

Amaranth Partners

Petrobras

Commerzbank

NSTAR

*Legend: **Won**, **Pending**, **Lost***

Rapid Response Team Process

Provide a simple process and fast path to a Rapid Response Team for LoP who will focus on closing recurring sales inhibitors

1) Nominate

- Client teams
- pSeries Sales
- Other sales teams

2) Qualify & Recommend

- Geo LoP Sales Leads
  - Steve Michael
  - Chris Hicks
  - Ray Belcher
  - Andrew Rouch
- Geo LoP FTSSs

3) Build Team & Plan

- Rapid Response Team

LoP Ecosystem

Rapid Port

POWERassist

Linux Integration Center

Linux Technology Center

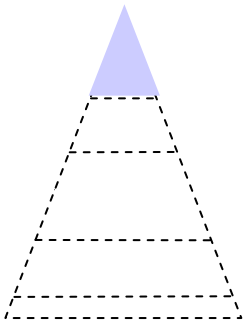
Other resources req'd
- ABC
- XYZ

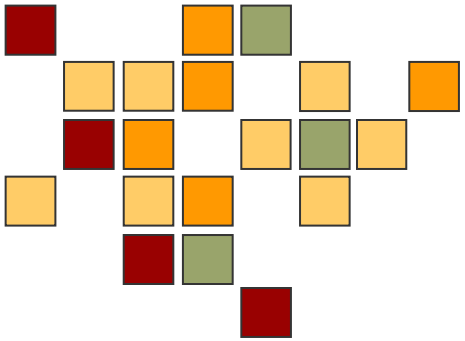
4) Execute Plan

- Rapid Response Team
- Geo Sales Team

5) Transition

- Customer to Geo Sales Team
- ISVs to Solution Marketing, IDR or Geo for ongoing support and coverage





Linux on POWER Solutions Program

Solutions highlight the Linux on POWER promise of value

Objectives

Deliver solutions that highlight technology advantages: IBM & Partners

- Price/performance
- RAS
- Virtualization
- 64-bit

Target workloads, application areas and industries based on attractiveness, competitiveness & go-to-market capability

- Deep & Narrow (Industry interlock)
- Infrastructure (Volume generation)
- Cross-industry (Highlight technology)

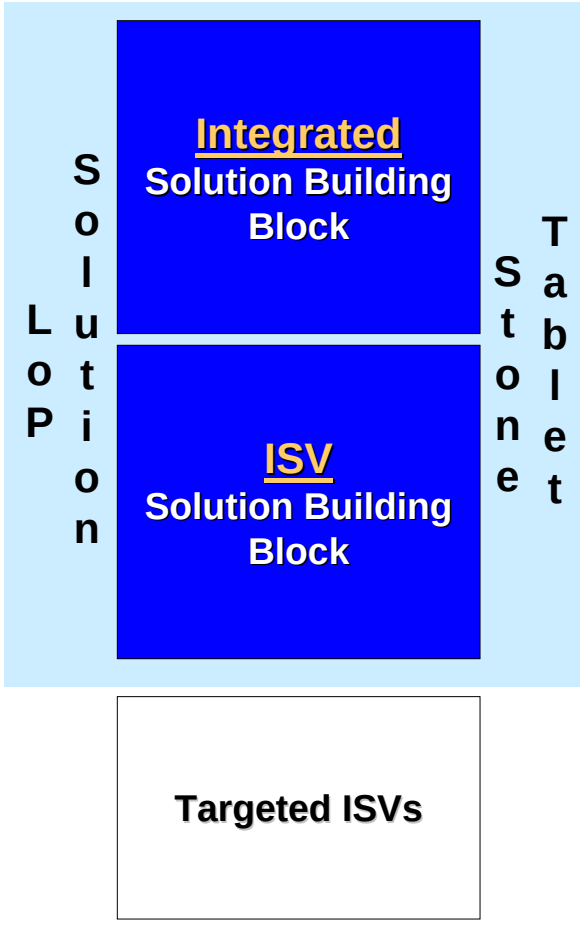
Deploy with confidence

- Tested and qualified
- Sized for capacity planning
- Key customer challenges addressed
- Strong partnership with solution provider
- Proof-points

Structure

- **Multiple** software components
- **Integrated** and pre-tested by **IBM**
- **Prescribed subset** of LoP platforms
- **Always** pre-tested recommended configs. & blueprint

- **Single primary** application
- Tested by **ISV**
- **Multiple** LoP platforms
- **Optional** pre-tested recommended configs. & blueprint



Solution framework

	Eng. Integrate	Distro. certify	Customer Assurance		Sol. Brief	Sol. Web page	Sales Training	Routes enabled	Proof-Point	Demand generation
			What	By Who						
Integrated	✓	✓	**Tested Solution**	**IBM**	✓	✓	✓	✓	✓	**Dedicate**
ISV Solution	☒	✓	**Tested Apps**	**ISV**	✓	✓	✓	✓	✓	**Dedicate**
Targeted App	☒	✓	**Tuned Apps**	**ISV**	✓	**Option**	**Option**	**Option**	**Option**	**Combine**

Solution Stack Team

Offering/Portfolio Management

▪ Integrated and some ISV solutions	**Andy Wachs** awachs@us.ibm.com **Kevin Dawson** kdawson@us.ibm.com

ISV solution owners:

▪ SAP	Joakim Lialias (JK) lialias@us.ibm.com
▪ Life Sciences Solutions	Anna Fredricks afredric@us.ibm.com Gordon Ellison gfellison@us.ibm.com
▪ DB2 & WAS	Robert Nelson rfnelson@us.ibm.com
▪ Sybase ▪ Cerner	Carl Cappolino carlc@us.ibm.com

Function	Rep
PDT Lead	**John Langlois** (johnlang@us.ibm.com)
Channel Mngt.	Helen Bristow (hbristo@us.ibm.com)
Competitive Analysis	Jerry Burke (jdburke@us.ibm.com)
Development	Unique to solution
developerWorks	Gretchen Moore (gemoore@us.ibm.com)
Finance	Mesfin Bekele (mesfin@us.ibm.com)
GTM Deliverables	Irene Wong (irenenw@us.ibm.com)
Fulfillment	Jeff Magee (HVEC) (jmagee@us.ibm.com)
RFA writer	Covered by server PDT rep
Service	Susan Eriksen-Knorre (seriksen@us.ibm.com)
Software Planner	Betty Carr (bacarr@us.ibm.com)
Solutions enablement	Steve Dibbell (dibbell@us.ibm.com)
Strategy	Ralph Clark (rfclark@us.ibm.com)
Toolchain	Steve Munroe (sjmunroe@us.ibm.com)

Key customer segments

Segmentation methodology

High priority
Medium priority
Low priority

Market attractiveness (50%)
- Financial impact (revenue opportunity and growth, profit potential)
- Strategic importance to pSeries or LoP

High	Invest	Win
Low	Accom-modate	Protect
	Low	High

Competitive Position (50%)
- Share and share growth
- Competitiveness (products, solutions, RTM, service/support)

LoP Priority segments in 2005

Priority	SME	LE
High	**CSI** **Retail** **Health** **Mfg Other**	**Government** **Banking** **Retail** **Telecom**
Medium	Wholesale Media Education	Insurance, Health, Education, CSI, CPG, Financial, Mfg Other

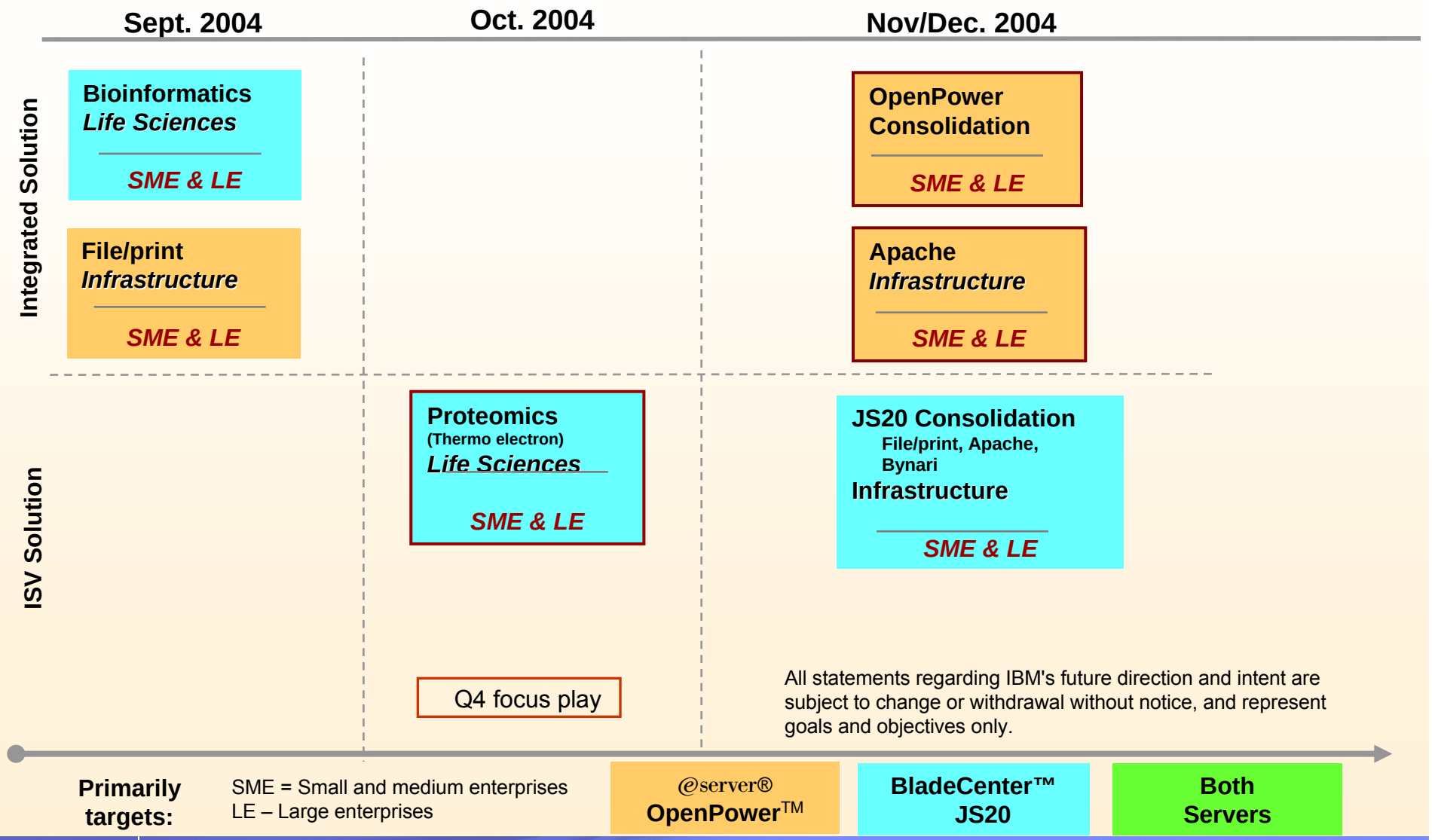
Criteria

- Opportunity size, growth
- Server market share
- Technology/product fit
- ISV/application portfolio
- Competitive position

Linux on POWER solution positioning

- **New Territory – Use OpenPower as a game changer**
  - IT Infrastructure
    - IT Infrastructure Consolidation (OpenPower Consolidation solution)
    - File/ Print – SAMBA 3
    - Web serving – Apache
    - Others…
- **Familiar Territory – New approaches to existing accounts**
  - HPC / Life Sciences
    - JS20 GA2 / OpenPower as Game changer to HPC
    - Customer Home Grown Apps
  - Distributed Application Server (WebSphere & DB2)
  - Others…
- **Building the Foundation for Growth**
  - SAP
  - Sybase
  - Others…

2004 Linux on POWER solutions



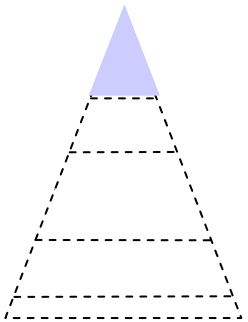
Solutions Roadmap: OpenPower 710 **Launch** (Jan 25th)

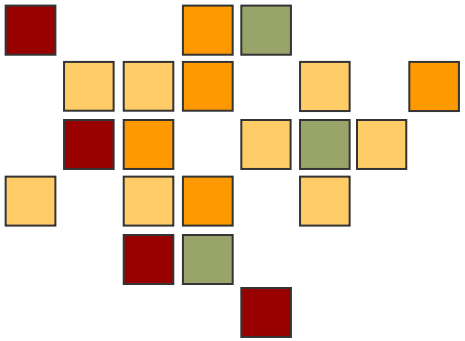
	Launch	Launch
Integrated Solution	**File/print** Update ***Infrastructure*** ***SME & LE*** ▪OP 710 proof-point ▪OP 710 in Sizing Guide ▪OP 710 in collateral	**Security** New ***Infrastructure*** ***SME & LE*** ▪New Solution ▪Numerous codes ▪Proof-point ▪Sizing Guide
	Apache Update ***Infrastructure*** ***SME & LE*** ▪OP 710 proof-point ▪OP 710 in Sizing Guide ▪OP 710 in collateral	**OpenPower** Update **Consolidation V2** ***LE*** ▪OP 710 tested in blueprint ▪**Express** branding ▪Additional apps.
ISV Solution	**SAP** New ***Cross*** ***SME & LE*** ▪OP 710 proof-point ▪OP 710 in Sizing Guide ▪OP 710 in collateral	

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

Primarily targets: SME = Small and medium enterprises; LE – Large enterprises

@server OpenPower 710	BladeCenter™ JS20	Both Servers

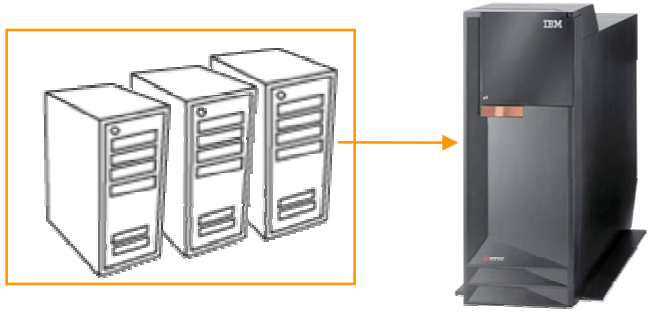




Infrastructure Solutions

OpenPower infrastructure solutions help reduce costs and improve the efficiency of your IT assets

IT Infrastructure Solution Portfolio



Solution	Application
File and print	- Samba 3
Static Web serving	- Apache
IT Consolidation	- OpenPower Consolidation solution
Database	- DB2 8.2 and DB2 Express
Application serving	- WebSphere and WAS Express

Princeton University

Princeton, New Jersey

Challenge

- Bring greater processing speed and storage capacity to stem cell research lab
- Reduce the time it takes to download information from lab's Web site
- Improve performance for lab experiments

POWER solution

IBM eserver® pSeries® 630 system running SuSE Linux® Enterprise Server V.8 technology to enable 24x7 access to data and to the Blast, Apache Web Server, MySQL, PostgreSQL, Perl and Xcluster applications as well as to micro-array programs

Benefits

- Speed of database inquiries increased by ten times
- Time spent on server-related administrative tasks reduced to less than 10 minutes per week
- Virtually 100% uptime

Chinese Ministry of Railway

Beijing, China

Challenge

- Reengineer existing computer ticketing service
- Base system on open standards for enhanced reliability, integration and security

POWER solution

- Ten IBM @server® pSeries® 630 systems running the SuSE Linux® V 8.1 operating system
- Fifty-four IBM @server xSeries® 335 and 440 systems running Red Hat Linux® technology spread across 68 locations

Benefits

- A standards-based, security-rich platform for issuing railway tickets that prevents internal theft and is expected to reduce processing costs by 20 percent
- High levels of performance, availability and reliability

LexCom

Munich, Germany

Challenge

- Transfer electronic spare parts catalogs and technical information databases from PC-based applications to a Web-based system

POWER solution

- IBM DB2® Universal Database™ V.7.2 system stores 4G of spare parts data
- IBM WebSphere® technology provides Internet access to data stored in DB2 database
- Five IBM @server® pSeries® servers running IBM AIX® and SuSE Linux® V8 partitions

Benefits

- The new system is much easier to manage
- Customers have fast, reliable access to a single, centralized source of up-to-date information
- The solution benefits from the openness, scalability and stability of Linux technology

Infrastructure on Linux is a BIG Opportunity!

Linux File & Print Market Opportunity

	2004	2005	2006
File/prt $M (IDC)	304	**376**	450
File/print units (IDC)	82K	**106K**	132K
Server farm (MAX)	10.9K	**14.1K**	17.6K

Assumption: Average server farm consolidation is 7.5 to 1

Linux Web Serving Opportunity

	2004	2005	2006
Web Serv $M (IDC)	844	**1065**	1297
Static Web units (IDC)	216k	**285k**	357k
Server farm (MAX)	28.8K	**38K**	47.6K

Assumption: Average server farm consolidation is 7.5 to 1

Linux email Opportunity

	2004	2005	2006
E-mail $M (IDC)	530	**671**	813
E-mail units (IDC)	150k	**201k**	253k
Server farm (MAX)	20K	**26.8K**	33.7K

Assumption: Average server farm consolidation is 7.5 to 1

Source:

- **IDC Annual Server Market, 2/04**
- **IDC workload, STG MI, 5/04**

Infrastructure Customer Scenarios

Using UNIX
(Considering Linux)

- **Pain points:**
  - Aging servers with inadequate performance
  - Server farm sprawl creating complexity
  - Encouraged to migrate (e.g. from PA-RISC to Itanium)
  - Limited flexibility to adapt to changing requirements

Using Windows
(Considering Linux)

- **Pain points:**
  - Expensive OS and virtualization options
  - Feels “locked-in” and controlled
  - Windows NT® and Windows 2000 support disappearing
  - Server farm sprawl creating complexity
  - Limited flexibility to adapt to changing requirements

Using Linux already
(Strategic to business)

- **Pain points:**
  - Need for better reliability than Intel / Opteron can provide
  - Intel / Opteron performance inadequate
  - Server farm sprawl creating complexity
  - Limited flexibility to adapt to changing requirements
  - Expensive virtualization options

Infrastructure Customer Targets

- Already using, considering or open to **Linux** and have **not yet** migrated infrastructure to Windows 2003
- Currently using aging Sun or HP UNIX® servers for running **Apache**, especially server farm environments (“low-hanging fruit”)
- Undertaking or considering a **consolidation** project
- Currently running Windows NT® , Windows 2000, and/or Sun/HP UNIX servers for **email** and/or **file and print** on **aging** servers
- Business growth/change (e.g. merger, new business venture) placing **new** demands on **old** infrastructure (strong pain point for consolidation)
- Looking to improve infrastructure service delivery and flexibility to employees/customers (e.g. strong pain point for consolidation – customer complaints)
- **Do not target:** 1) Customers using “white box” servers for these workloads 2) Small user requirements (<50) or extremely large file and print user communities (1000s – could be costly migration)

OpenPower Web Solution

Brings enterprise-class capability at entry prices

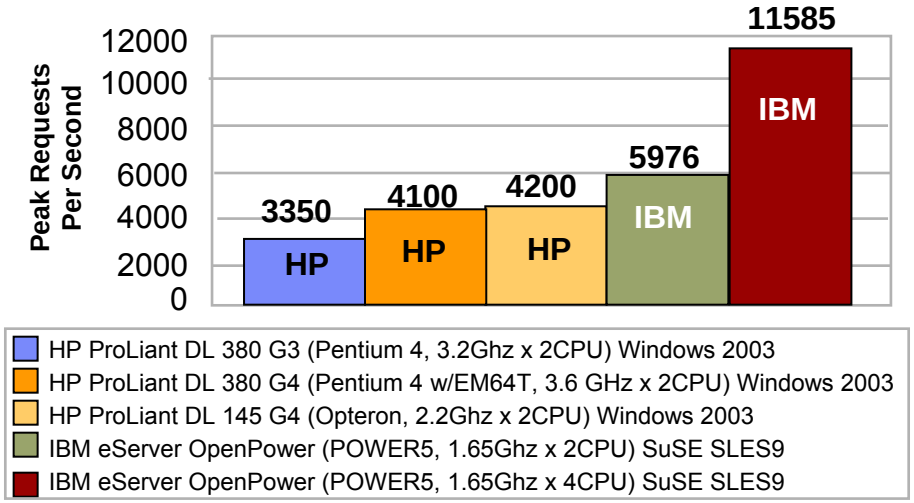
WebBench: eServer OpenPower 720 beats HP Opteron/Xeon and exhibits 97% scalability

Challenges addressed
- UNIX servers aging
- Proprietary Solaris OS
- Uncompetitive price/performance
- Server sprawl
- Inflexible infrastructure

Business value
- Exceptional performance
- Improved price/performance
- Familiar, open technology - Apache
- Simplify through consolidation
- Fewer servers to manage

Deploy with confidence
- Tested and qualified
- Sized for capacity planning ("Apache")
  http://www.developer.ibm.com/welcome/eserver/e3/CSFServlet?mvcid=main&packageid=3002
- Proof-point
  http://www.veritest.com/clients/reports/ibm/default.asp
- Sales play sheet

WebBench Results for HP with Windows vs. eServer OpenPower with Linux[2]

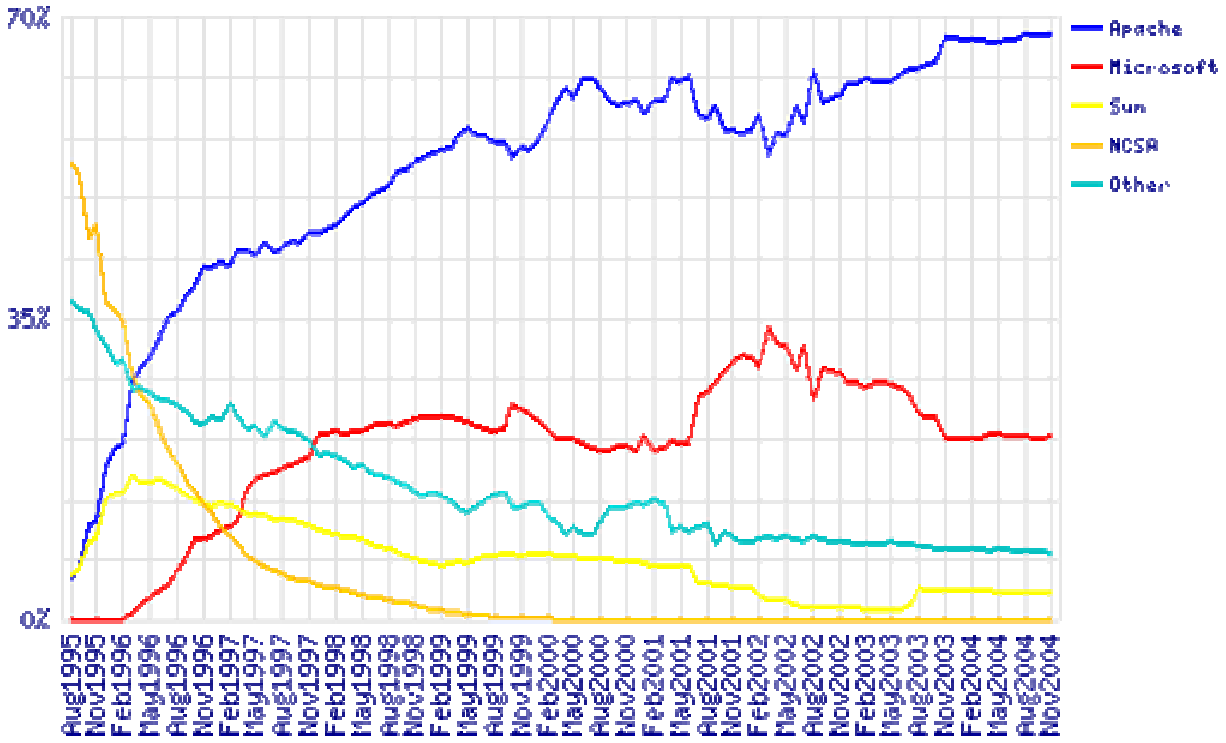


- **OpenPower running Linux beats HP Opteron by 42%**
- **OpenPower running Linux beats HP Xeon by 46%**
- **OpenPower scales 97% from 2 to 4 processors; HP Opteron scales 71% from 1 to 2 processors (a 37% advantage for OpenPower)**

[1]Based on published Ziff Davis Media WebBench benchmark result of 5,976.6 requests/s on a 2-way 1.65 GHz POWER5 IBM eServer OpenPower 720 and 11,585 requests/s on a 4-way 1.65 Ghz POWER5 IBM eServer OpenPower 720 (http://www.veritest.com/clients/reports/ibm/). HP results published in (ftp://ftp.compaq.com/pub/products/servers/benchmarks/dl380g4-webbench.pdf). and (http://h18004.www1.hp.com/products/servers/benchmarks/dl145-webbench.pdf)

Apache Opportunity

Market Share for Top Servers Across All Domains August 1995 - November 2004*



Netcraft Web Server Survey, November 2004 (www.netcraft.com)

File and Print Solution

Brings new levels of performance on real-world workloads

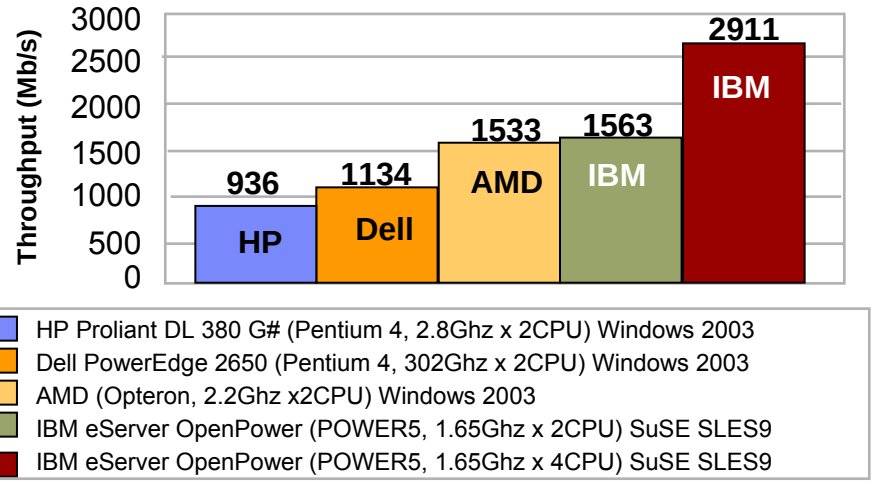
NetBench: eServer OpenPower 720 beats AMD and exhibits extraordinary scalability

Challenges addressed
- UNIX servers aging
- Windows NT® support disappearing
- Servers underutilized
- Server sprawl
- Inflexible infrastructure

Business Value
- Exceptional performance
- Large # of files, users
- Superior consolidation
- Fewer servers to manage

Deploy with confidence
- Tested and qualified
- Sized for capacity planning
  http://www.developer.ibm.com/welcome/eserver/e3/CSFServlet?mvcid=main&packageid=3002
- Proof-point
  http://www.veritest.com/clients/reports/ibm/default.asp
- Solution Web site:
  http://www-1.ibm.com/linux/solutions/linuxonpower.shtml
- Sales Kit:
  http://w31.ibm.com/sales/systems/portal/_s.155/254?navID=f220s240&geoID=All&prodID=pSeries&docID=pslxfileprnt.skit&docType=SalesKit&skCat=DocumentType

NetBench Results for Windows vs. Linux on eServer OpenPower 2-and 4-CPU[1]

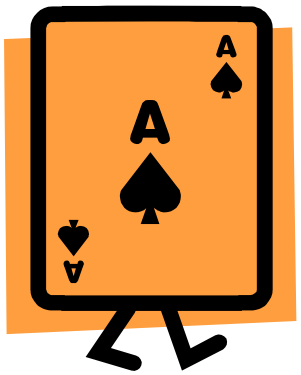


- **OpenPower beat Intel Xeon by up to 63%**
- **OpenPower scales 93% from 2 to 4 processors; Opteron scales 67% from 1 to 2 processors (a 38% advantage for OpenPower)**

[1]Based on published Ziff Davis Media NetBench benchmark result of 1,563.42 Mb/s on a 2-way 1.65 GHz POWER5 IBM eServer OpenPower 720 and 2,911.04 Mb/s on a 4-way 1.65 Ghz POWER5 IBM eServer OpenPower 720 (http://www.veritest.com/clients/reports/ibm/). HP results published in (http://www.veritest.com/clients/reports/microsoft/ms_samba.pdf). AMD and Dell results published in (http://www.veritest.com/clients/reports/amd/amd_opteron.pdf)

Windows® is NOT the Only File & Print Game In Town

- **Linux has become an accepted and widely-used platform for delivering file and print services for Windows and Linux clients**
  - Linux with Samba, an Open Source solution first released in 1991, has become a popular alternative to Windows
  - Linux can help reduce network costs and improve stability, reliability and performance
  - File and print serving features are included in many Linux distributions at no extra charge!
  - Using Samba, Linux platforms can "speak" to Windows clients like a native server.
  - Linux with Samba services:
    - File and print
    - Authentication and authorization
    - Name resolution
    - Service announcement (browsing)



OpenPower Consolidation Solution

Virtualization of infrastructure workloads simplified

Reference architecture thoroughly tested by IBM Engineers to accelerate time-to-value

Challenges addressed

- Servers underutilized
- Servers undersized based on forecasted demand
- Server sprawl complicating management
- IT not easily adaptable to changing requirements

Business value

- Simplified infrastructure – less servers, more performance, easier to manage
- Flexibility – resources assigned as/when needed
- Utilized – get more from your servers
- Scalable – grow IT with your business
- Robust – improve customer satisfaction
- Easy to implement – optimize your staffing

Selling tools

- Recommended configs tuned for performance
- Install, set-up and configuration scripts https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=opowercon
- Sizing guide and tuning instructions
- Solution brief & scripted customer presentation
- Proposal letter and ROC campaigns
- Solution web site ibm.com/eserver/openpower/solutions/consolidation
- Sales kit http://w3-1.ibm.com/sales/systems/portal/_s.155/254?navID=f220s240&geoID=All&prodID=pSeries&docID=opconsolsk.skit&docType=SalesKit&skCat=DocumentType

Tested Solution Stack

Apps	**Directory/Authentication**: OpenLDAP **Firewall:** SUSEfirewall2, Red Hat Firewall* **File and Print:** Samba 3, NFS* **Web Serving:** IBM HTTP Server, apache* **Mail:** Bynari Insight Server
OS	SUSE Linux Enterprise Server 9 for POWER Red Hat Enterprise Linux AS for POWER*
HW	eServer OpenPower 720, Future server * Advanced OpenPower Virtualization

*Available in second release in Q105

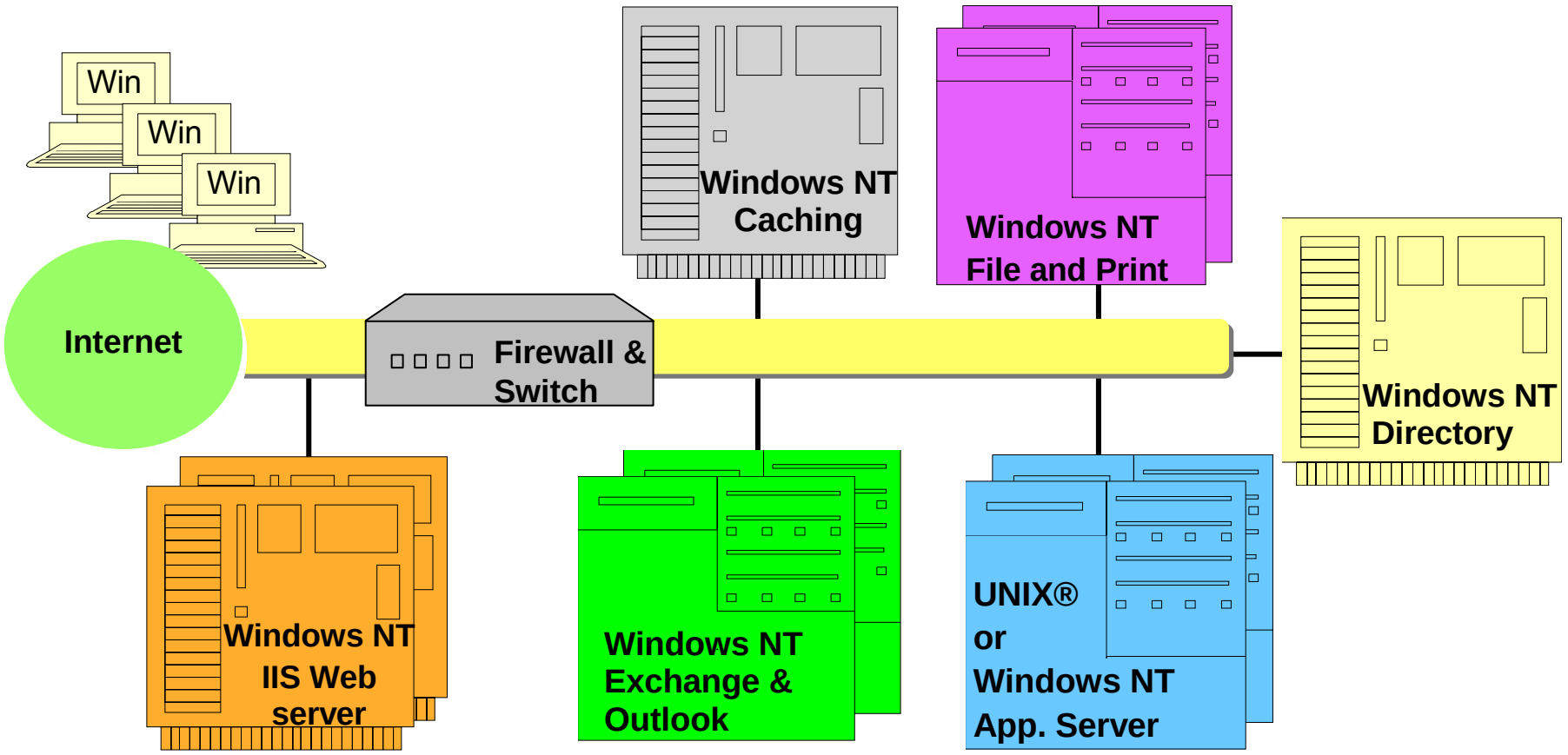
Fast Start Kit

- Workloads stress tested
- Tuned, pre-tested “Solution Starter Points”
- Sizing popular combinations of stack components*
- Single sign-on through OpenLDAP
- Highly secure with optional firewalls included
- Tailored installation and configuration scripts, including automated AOPV set-up
- Manual with tailored install, configure, integrate and tune instructions
- **Available at no charge on download page**

@server OpenPower Consolidation - *"Before"*

Profile

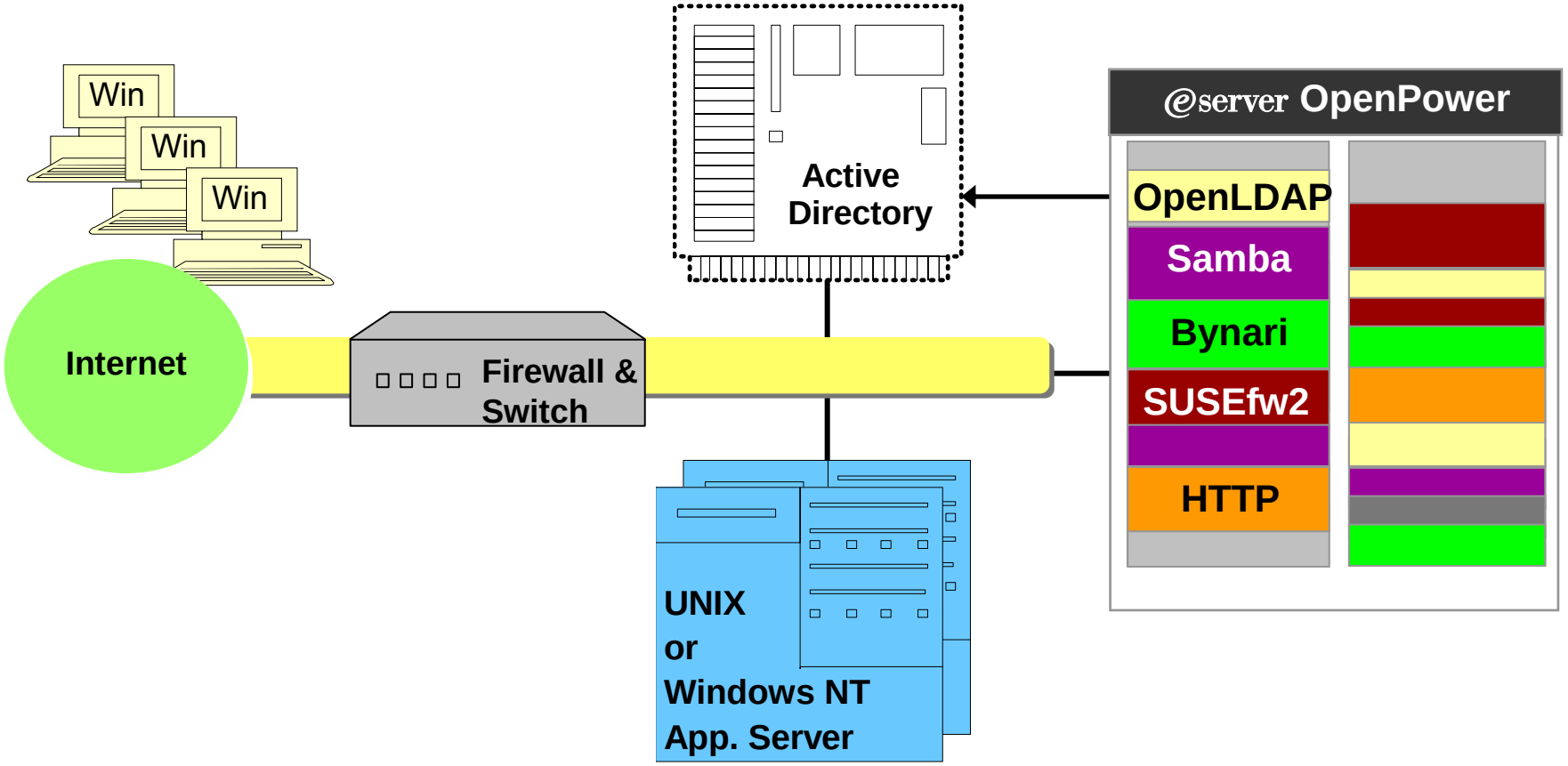
- Infrastructure on Windows® NT™
- Servers aging, underutilized
- OS no longer current
- Preserve or upgrade Directory
- Preserve Windows clients



@server OpenPower Consolidation - "*After*"

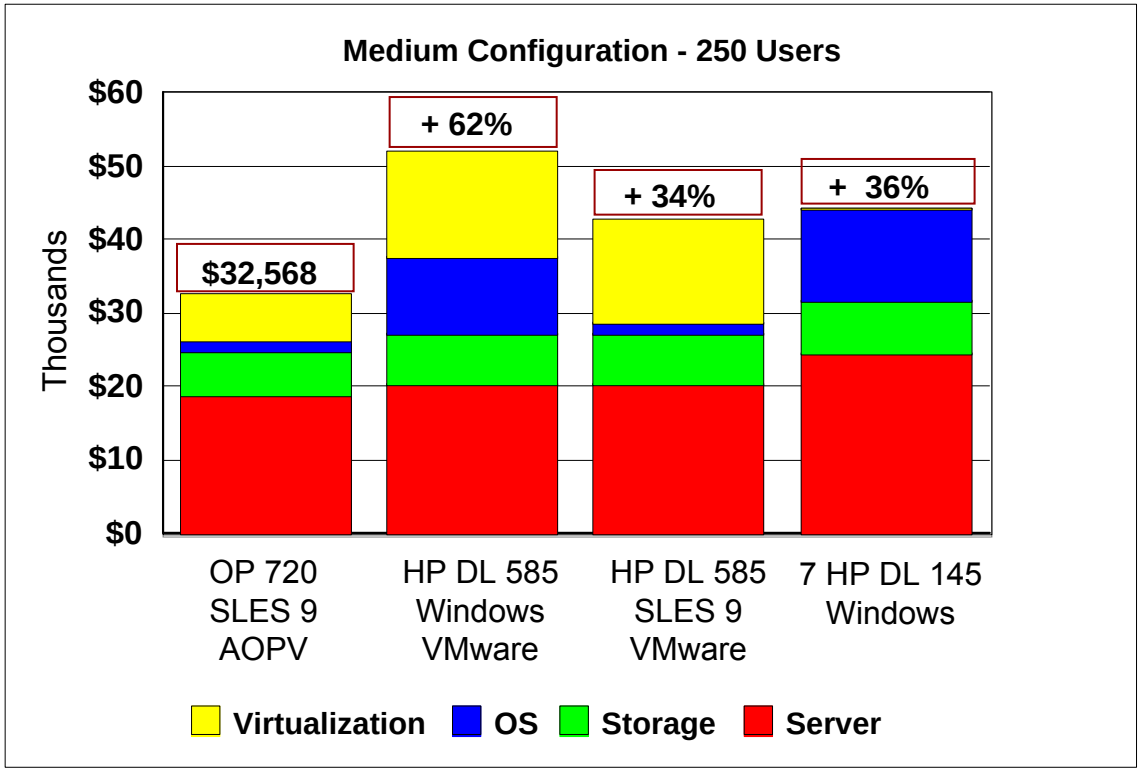
Results

- Less servers, lower cost
- Easier to manage
- Higher resource utilization
- Full secure and expandable
- Interoperate with Active Directory



IBM @server OpenPower Consolidation reduces acquisition cost

OpenPower Consolidation Pricing Comparison

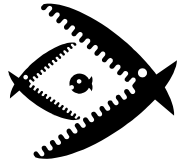


Highlights

- OpenPower with virtualization:
  - ❑ Lower price than HP with VMware
  - ❑ Lower price than seven (7) dedicated low-end servers
  - ❑ Higher performance (WebBench, NetBench)
  - ❑ Fewer servers to manage than a dedicated solution
  - ❑ More adaptable/flexible than a dedicated solution

The solutions represented by the bar graph assume a customer is consolidating 7 servers based on 30% utilization using Advanced OpenPower Virtualization or VMware. The OpenPower Consolidation solution medium configuration (4 processors, 6GB memory, six 72.8GB 15K drives) with 250 users was used. The HP DL 585 was configured with 8GB memory because 6GB is not supported with 4-processors. Derived from the WebBench benchmark, one OpenPower 720 can collapse 7 Opteron servers with 30% reserve capacity. The last bar represents a solution which contains 7 dedicated servers. It is for illustrative purposes only, and actual solutions for the same or similar replacements will vary. Prices for the DL585 hardware, the DL140, and the VMware for Virtual Infrastructure Node (for four processors) are U.S. prices as listed at http://www.hp.com on December 13, 2004. As of October 14, 2004, VMware's Web site indicates DL585 is supported in 32-bit mode only (see http://www.vmware.com). Prices for the OpenPower solution are IBM U.S. list prices as of October 19, 2004. Reseller prices may vary. Linux operating system prices for the OpenPower solution are applicable only when licensed through IBM.

Infrastructure Customer Scenarios: *Competitive positioning*



Using UNIX

(Same architecture/Same OS)

- **OP solution Advantages:**
  - Open (Linux vs. UNIX version)
  - Lower price (e.g. OpenPower vs. Sun Opteron)[3]
  - OpenPower performance better than SPARC on industry benchmarks[5]
  - High-end virtualization functionality in entry system[6] (Consolidation server)

Using Wintel/Lintel

(Same architecture/Same OS)

- **OP solution Advantages:**
  - Open (Linux vs. proprietary Windows)
  - Higher performance on these workload[1,2]
  - Lower price on these workloads[4]
  - Better scalability on these workloads[1,2]
  - Exceptional RAS enablement on OpenPower[6]
  - ***Consolidation server:***
    - Exceptional virtualization
    - Less servers to manage, administer, upgrade
    - Higher server utilization when resources shared
    - Dynamic resource sharing (flexible provisioning)

[1]Based on published Ziff Davis Media NetBench benchmark (see slide #27)

[2]Based on published Ziff Davis Media WebBench benchmark (see slide #25)

[4] See slide #33

[6]Based on IBM internal conclusions

[5]All results current as of November 30, 2004. Based on IBM 1-way OpenPower 720 SPECint2000 peak result of 1,138 compared to 1-way Sun Blade 2000 SPECint2000 peak result of 722. Source: http://www.spec.org.. Based on IBM 4-way OpenPower 720 SPECint_rate2000 peak result of 59.8 compared to 4-way Sun Fire V480 SPECint_rate2000 peak result of 31.7. Source: http://www.spec.org

[3]OpenPower 720 benchmark results submitted to http://www.spec.org on September 13, 2004. SPECfp_rate and SPECjbb results of Dell, Sun, HP, Verari servers and AMD Opteron™ processors are published in http://www.spec.org_ verified September 12, 2004. Prices of Sun, Dell, and HP products from http://www.dell.com, http://www.sun.com, http://www.hp.com as of September 12, 2004. Reseller prices may vary.

Objection Handling:

Solution Weaknesses

1. **Requires some migration in most cases**
2. **Linux stack not as integrated as Windows/UNIX**
3. **NFS (used frequently by UNIX) is not supported**
4. **Red Hat distribution not supported by solution**

- **Objection:** *Requires migration*
  - –No more than Intel
  - –Better ROI than Intel for Linux
  - –IBM has experience with these workloads
  - –Solution integrates with NT directory, Active directory, NT protocols
  - –IBM and BPs offer services
- **Objection:** *Linux stack not as integrated*
  - –Comprehensive install and configure scripts
  - –Recommended configurations pre-tested
  - –Ready-to-run
- **Objection:** *NFS not supported*
  - –Will be pre-tested and integrated in next release
  - –Can be manually integrated today
- **Objection:** *Red Hat not supported*
  - –Will be supported in next release

IBM @server OpenPower Consolidation Solution

Solution description

The IBM @server OpenPower Consolidation solution helps to consolidate legacy servers running infrastructure workloads, including file and print services, Web serving, email, directory services and firewall. Through consolation, customers simplify their IT (less servers, easier management), increase their flexibility, improve their utilization and lower their overall IT costs.

Customer pain points

Currently using UNIX for IT/Web Infrastructure

- Aging servers with inadequate performance
- Server farm sprawl creating complexity
- Encouraged to migrate (e.g. from PA-RISC to Itanium)
- Limited flexibility to adapt to changing requirements

Currently using Windows for IT Infrastructure

- Expensive OS and virtualization options
- Feels "locked-in" and controlled
- Windows NT® and Windows 2000 support disappearing
- Server farm sprawl creating complexity
- Limited flexibility to adapt to changing requirements

What the solution does for your clients

- Reduce operational cost of their server environment used for common IT tasks
- Reduce complexity in their IT Infrastructure
- Improve productivity of their IT personnel
- Get more out of their server investment
- Enhance their adaptability to changing demand

Target clients

- Already using, considering or open to Linux
- Currently running Windows NT® , Windows 2000, and/or Sun/HP UNIX® servers for IT/Web with aging servers
- Undertaking or considering a consolidation project
- Have **not yet** migrated infrastructure to Windows 2003
- Business growth/change (e.g. merger, new business venture) placing **new** demands on **old** infrastructure
- Looking to improve infrastructure service delivery and flexibility to employees/customers (e.g. complaints)
- **Do not target:** 1) Customers using "white box" servers for these workloads 2) Small user requirements (<50)

Solution Elements

- IBM @server® OpenPower™ 720
- Hardware Management Console (HMC)
- Advanced OpenPower Virtualization option
- SUSE LINUX Enterprise Server 9 (SLES 9) OS
- Solution Blueprint and Fast Start script includes:
  - Pre-tested "Solution Starter Points"
  - Recommended LPAR and Micro-Partitioning™ configurations
  - Tailored installation and configuration scripts
  - Manual with tailored install, configure, integrate and tune instructions
  - Sizing for popular combinations of stack components
    - **Directory/Authentication**: OpenLDAP
    - **Firewall**: SUSEFirewall2
    - **File and print**: Samba 3
    - **Web server**: IBM HTTP Server
    - **E-mail**: Bynari Insight Server from Bynari, Inc.
- Optional SupportLine for Linux
- Optional IBM Services for implementation and migration
- Optional GF financing
- **Note:** Fast Start Kit available at GA in November

Solution Sizing

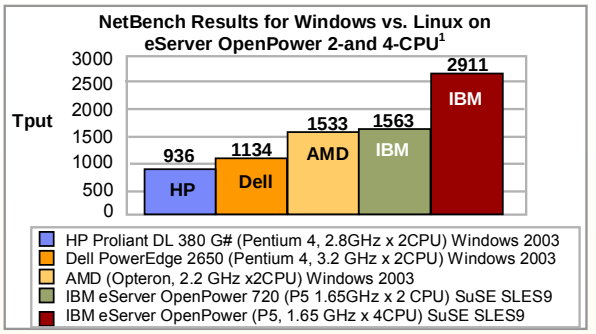
"Small" Starting Point "suite spot": 100 Users, 3 Partitions
"Medium" Starting Point "suite spot": 250 Users, 5 Partitions
"Large" Starting Point "suite spot": 500 Users, 6 Partitions
(Note: See configuration details in Appendix)

Competitive Advantages

Performance and scalability advantages

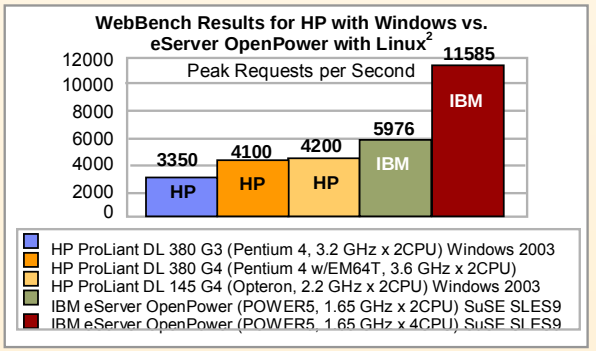
1. NetBench

- **NetBench® benchmark** for file and print serving using Linux and SAMBA 3 vs. Windows
- OpenPower running Linux beats all others running Windows 2003
- OpenPower beat Intel Xeon by up to **63%**
- OpenPower scales **93%** from 2 to 4 processors; Opteron scales **67%** from 1 to 2 processors (a **38%** advantage for OpenPower)



2. WebBench

- **WebBench® benchmark** performance of Web serving using Apache vs. Microsoft IIS
- OpenPower running Linux beats HP Opteron running Windows 2003 by **42%**
- OpenPower running Linux beats HP Xeon running Windows 2003 by **46%**
- OpenPower scales **97%** from 2 to 4 processors; HP Opteron scales **71%** from 1 to 2 processors (a **37%** advantage for OpenPower)



WebSphere and DB2 Solution on Linux on POWER

DB2 on Linux on POWER

Products[1]
- Workgroup and Enterprise Edition (V8.2)
- Express Edition for SMB
- DB2 ICE support in Q105
- Data Warehouse Edition support in 1H05

Business value
- Single user to thousands of users
- Increase transaction throughput
- Speed up queries
- Full 64-bit exploitation

Selling tools
- Solution brief
- POWERbreak sales training
- Linux Test Drive support

  ibm.com/servers/enable/linux/testdrive
- Linux Integration Center
- TPC H proof-point
- Customer references: Prudential Life Insurance, LexCom GmbH, CJ Systems

WebSphere software on Linux on POWER

Products[1]
- WebSphere application server
- WAS Express
- WAS Commerce Edition
- WAS Portal Server Q105
- WAS MQ 1H05

Business value
- More users/server reduces complexity, cost
- Improved response through large memory
- Broad, compatible product line enhances choice
- Consolidate AIX and Linux workloads improves flexibility

Selling tools
- Solution brief
- POWERbreak sales training
- Linux Integration Center
- Customer references: LexCom GmbH

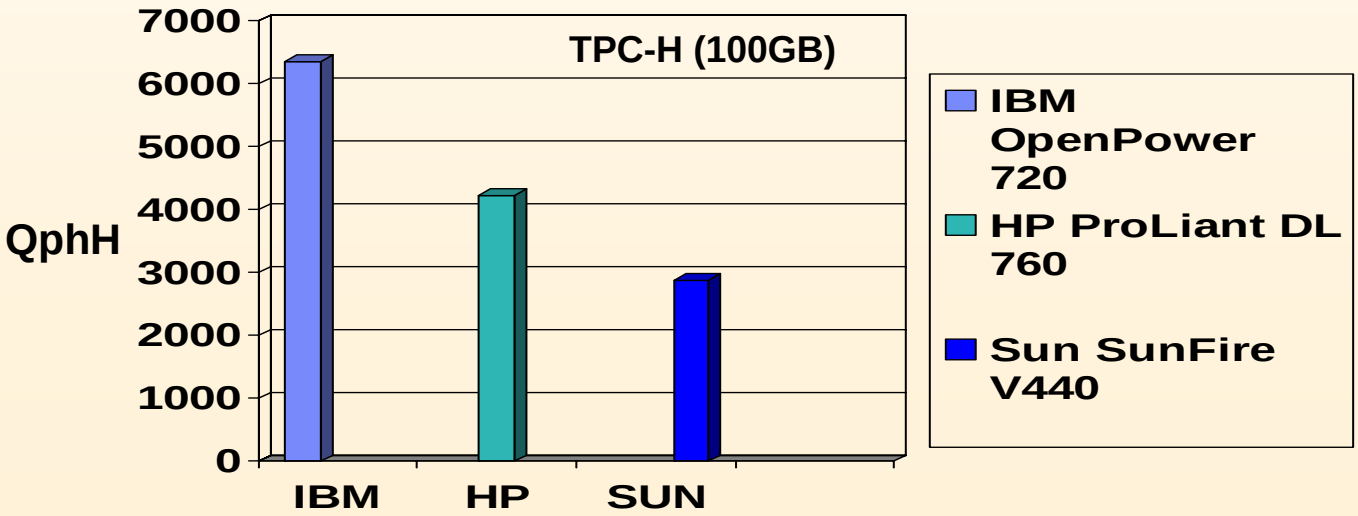
[1]For details on version support refer to: ibm.com/software/os/linux/software/index.jsp

IBM OpenPower 720 and DB2 UDB set World Record in Performance

- IBM OpenPower 720 & Novell's SUSE Linux Enterprise Server set Database Performance World Record in TPC-H Benchmark

"IBM's DB2 Universal Database and SUSE Linux Enterprise Server 9, together With IBM POWER, deliver a compelling value to businesses who want to reduce their IT Complexity, lower their cost of ownership and benefit from exceptional stability, performance and security of Linux."

Markus Rex, VP, SUSE Linux at Novell



Linux on POWER / SWG Synergies in Banking

LoP Target Markets	SWG Priority	Key Workloads	Target Solutions	Key ISVs	SWG Affinity: WS	SWG Affinity: DB2	SWG Affinity: Tivoli
Banking	Yes	Business Applications	Payments	*eFunds Canada Corp*		X	X
Banking	Yes	Business Intelligence		▪Cognos	X	X	
				▪*Informatica Systems*	X		
				▪IDS Enterprise Systems Pty	X	X	X
Banking	Yes	CRM		▪FINEOS Corporation	X	X	
				▪*SunGard Data Systems*	X	X	
				▪*Mosaic Software, Inc.*		X	
Banking	Yes	Business Applications		▪*S2 Systems, Inc.*	X	X	
				▪Fair Isaac Corporation	X	X	
				▪Synchronised Software Pty		X	
				▪Temenos	X	X	
Banking	Yes	Infrastructure		▪Lakeview Technology	X	X	

**** Italics = Committed but not yet available on LoP***

Linux on POWER / SWG Synergies

LoP Tgt Markets	SWG Priority	Key Workloads	Target Solutions	Key ISVs	SWG Affinity		
					WS	DB2	Tivoli
Govt. & Cross-Industry	Yes	ERP	SAP	SAP	X	X	X
				▪Blue Martini	X	X	
				▪Evant	X	X	X
Retail	Yes	Business Applications	Retail	▪*Intentia*	X	X	
				▪Marcole	X	X	
				▪Triversity	X	X	
				▪*Zvolve*	X		
Telco	Yes	Business Applications	Communications	▪Ubiquity	X	X	
				▪Intelliden	X		X
Telco	Yes	Business Applications	Digital Media	▪*Ardendo*	X	X	
				▪*Jutel Oy*		X	

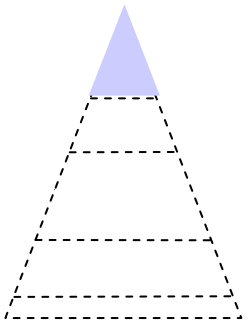
**** Italics = Committed but not yet available on LoP***

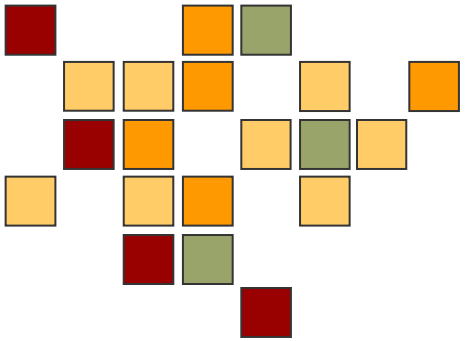
All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Linux on POWER / SWG Health/Life Science Synergies

LoP Tgt Markets	SWG Priority	Key Workloads	Target Solutions	Key ISVs	SWG Affinity: WS	SWG Affinity: DB2	SWG Affinity: Tivoli
Life Sciences	Yes	Life Sciences	Bioinformatics	▪*Sencel*	X		
Life Sciences	Yes	Life Sciences	Proteomics	▪*Proteome Systems Ltd.* ▪*Waters Corporation*	X	X	X
Health	Yes	Life Sciences	Health	*Cerner Corp*	X	X	X
Health	Yes	Business Applications	Health	*Healthtrio, Inc.*	X	X	

**** Italics = Committed but not yet available on LoP***

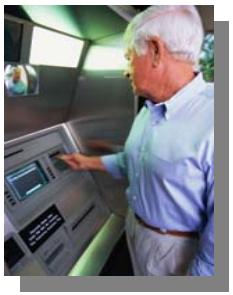


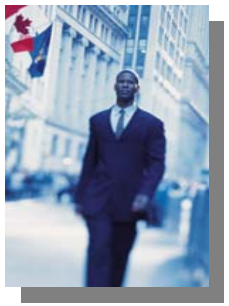


Business Solutions

OpenPower industry solutions help meet unique IT challenges

Industry Solution Portfolio





Solution	Application
Bioinformatics	- HMMER, Blast, etc.
Proteomics*	- Waters / Micromass
Computational Chemistry*	- GAMESS, CPMD, Amber
ERP**	- SAP
Banking Payments*	- eFunds IST/Switch

Others in future...

* Planned availabity in Q104
** Application server now, database server future

IT- Informatik: Linux on POWER proof on concept

- **The Solution**
  - Solution based on an IBM eServer™ p5 550 with MaxDB and Linux performed significantly better than the customer's Microsoft® Windows cluster-based environment
- **The Benefit**
  - SAP workload completed much faster due to 64-bit capabilities of Linux on POWER; criteria regarding price/performance of the new platform and room for growth were met; indication that migration to the new platform would be relatively easy
- **The Results**
  - The main job for processing daily input from SAP modules in preparation for the next working day required – after little optimization – only about 45 minutes, compared to nearly 7 hours on the customer's current system.
  - The job for archiving the Production Planning system took about one hour, compared to five and a half hours.
  - All other jobs ran at least twice as fast on the test system as on the current system.

IT-Informatik GmbH
Industrie und Technik

"These are the kind of results we had hoped for. The performance bottleneck that the customer has experienced on their 32-bit system disappeared on the 64-bit POWER5-based system…."

-Jochen Wöhrle, IT-Informatik

Why Linux for SAP? It is a great TCO story!!!!

- Marketshare of mySAP Solutions on Linux:
  - More than 2500 installations with Linux on the database server (Q2/2004)
  - Linux installations have doubled each year since 1999
  - More than 5500 Installed Linux based application servers
- SAP Linux support:
  - General Availability of SAP R/3 on Linux in Q4 1999
  - Distributions SuSE and Red Hat Enterprise
  - Databases: IBM DB2 – Max DB – Oracle 9i
  - Linux is Reference Platform for SAP software development
- SAP on Linux same user experience as other platforms
  - Platform independent SAP architecture permits transparent porting
  - The application stays the same (not changed)

OpenPower 720 SAP performance leadership

No Compromises – 64-bit performance and robustness of POWER5 delivering leading 4-way Linux SAP 4.7 SD 2-Tier benchmark

- OpenPower 720 delivers:
  - Increased productivity through exceptional performance
  - Enterprise-class availability
  - Proven and stable processor architecture
  - IT optimization through virtualization
  - Uncompromising 64-bit performance
- Profile
  - Linux affinity or interest
  - Need to lower TCO
  - Environment requiring enterprise-class availability, performance, and virtualization

OpenPower 720

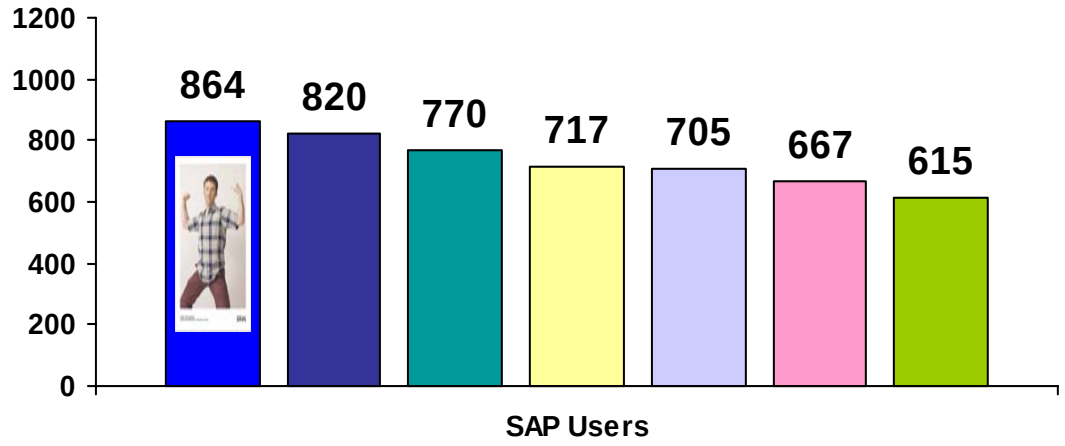
864 SAP SD Users[1]

[1]www.sap.com/benchmark

OpenPower 720 SAP SD 2-Tier Performance

The performance & robustness of POWER5 with the economics of x86 – supporting more users than competitive 4-way Windows and Linux systems

OpenPower 720 vs. 4-way Windows®/Linux® Systems



OpenPower 720

Delivering robust performance for Linux based SAP Solutions

Source: http://www.sap.com/benchmark/
As of 10/25/04. See notes for details.

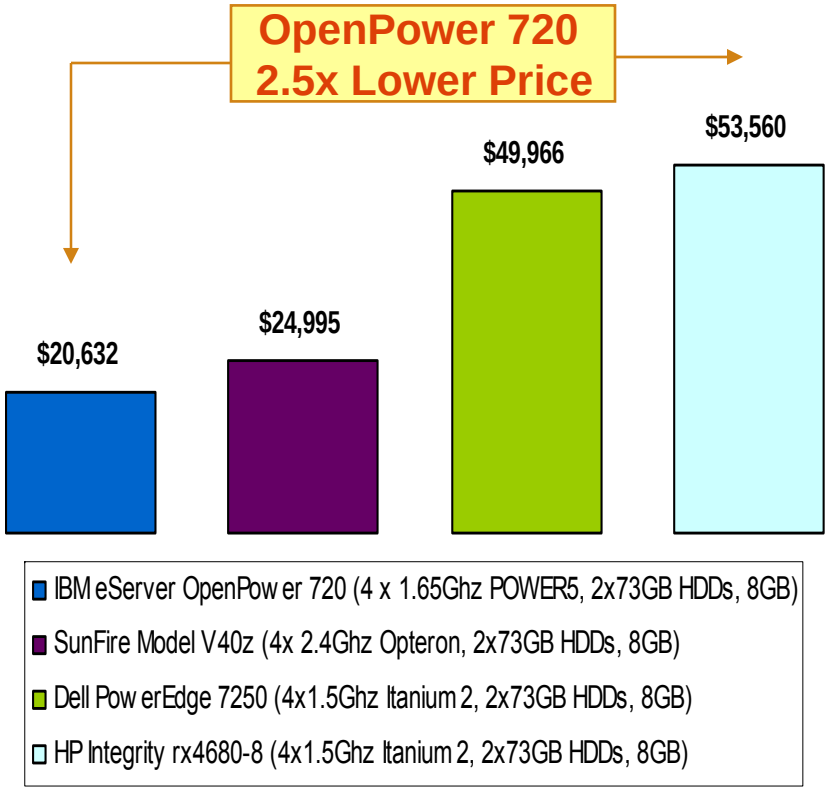
OpenPower 720 superior price point

OpenPower 720 delivers up to 2.5x lower price than competition

OpenPower
720

Superior price/performance helping customers drive down the total cost of ownership

System Price Comparison*



*Based on published prices using a base configuration with 4 processors, 2x73 GB HDDs, and 8GB of memory. Pricing based on www.hp.com, www.dell.com, www.sun.com web prices. Prices are as of 10/25/04, for updated pricing please visit respective web sites.

Product overview and availability: Application Server

3-Tier heterogeneous solution scenario w/ SAP application server on Linux on POWER

SAP Technology (New)

- NetWeaver '04 (ABAP & Java)

SAP Components

- BW 3.1, CRM 3.0, SCM 4.0...
- R/3 Enterprise (4.7)
- BW 3.5
- ERP 2004 (goes with NetWeaver)
- SRM 4.0
- SCM 4.1
- EP 6.0

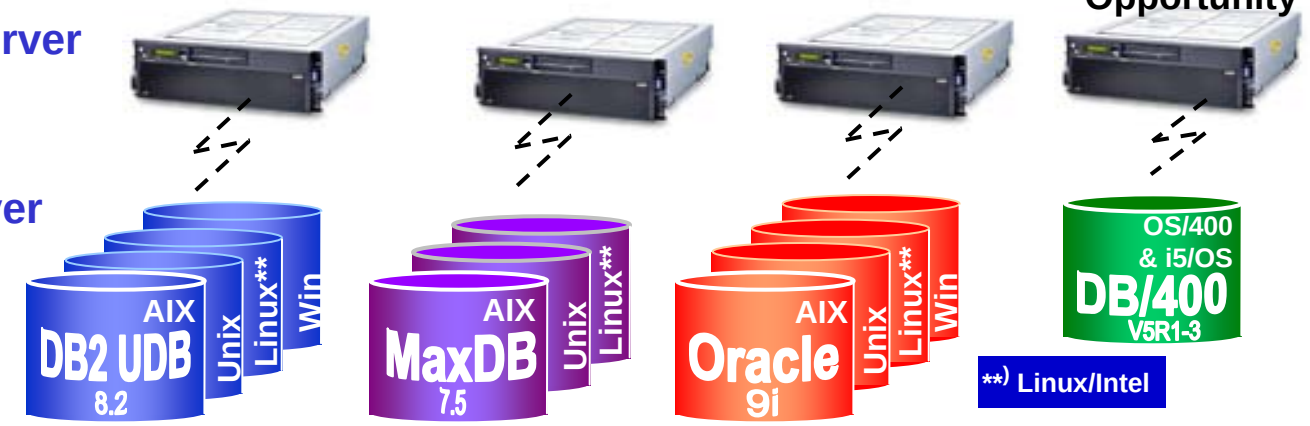
12/04	01/05	09/05	
✓	✓	03/05*	✓
✓	✓	03/05*	✓
12/04	01/05	09/05	✓
02/05	02/05	11/05	✓
04/05	04/05	11/05	✓
07/05	07/05	2H05	✓
2H05	2H05	2H05	✓

Sweet Spot

Great Opportunity

SAP Application Server
WebAS 6.40 AKK / NW'04

SAP Database Server



**) Linux/Intel

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

Product overview and availability: All Linux on POWER

2-Tier/3-Tier homogeneous SAP solution scenarios, all Linux on POWER

SAP Technology

- NetWeaver ’04 (ABAP & Java)

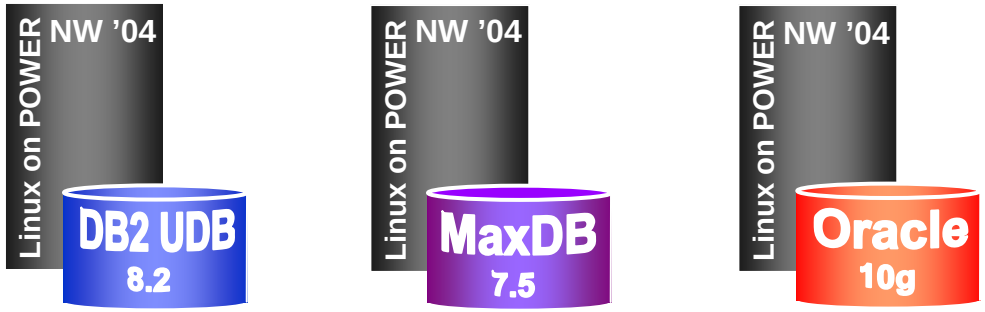
SAP Components

- R/3 Enterprise (4.7)
- BW 3.5
- ERP 2004
- SRM 4.0
- SCM 4.1
- EP 6.0

12/04	01/05	09/05
02/05	02/05	09/05
12/04	01/05	09/05
02/05	02/05	11/05
04/05	04/05	11/05
07/05	07/05	11/05
2H05	2H05	2H05

Sweet Spot

SAP Database Server & Application Server



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

SAP on Linux on POWER - Who can benefit from this technology?

POWER Advantages: Choice, Flexibility, Performance and low TCO for SAP solutions

Target Customers

- Linux affinity (planning or already using Linux within their IT environment)
- Looking for alternative to Wintel, Sun/Solaris, or HP-UX
- Needs to find ways to reduce their SAP infrastructure costs
- Wants Unix performance, reliability, and efficiency, but wants reduced costs
- Upgrading R/3 4.6 to 4.7 or 4.6 to Netweaver/ ERP 2004

Pain Points

- High overall SAP infrastructure costs and looking for ways to reduce
- Old servers impacting performance
- Reduce costs to improve ROI
- Reliability & performance challenges
- Meet growing business demands

LoP Benefit

- Reduce SAP infrastructure costs
- Increase responsiveness to users & overall solution productivity
- Accelerate ROI with best-in-class price/performance
- Increased reliability reducing downtime and enhancing QoS
- Lower total cost of ownership

Key opportunity areas – Linux on POWER

	Application Server	2-Tier Solution	3-Tier Solution
Customer Situation	▪ Adding additional application servers to an existing SAP solution ▪ Will be three-tier solution	▪ New installation ▪ Small to medium sized installation (below 3,000 SAPs)	▪ New Installation ▪ Larger installations ▪ Customers wanting more flexibility with three-tier implementation
Lead with Platforms	▪ OpenPower 720/710 ▪ JS20 Blades	▪ OpenPower 720 ▪ Low end pSeries	▪ OpenPower 720/710 as application servers ▪ JS20 can be deployed as front end servers ▪ Database could on either AIX, i5/OS, or Linux ▪ Smaller three- tier implementations could utilize the OpenPower 720 as DB with either JS20 blades or OpenPower 710 for application servers

IBM @server OpenPower SAP Application Server Play

Solution Description

The IBM eServer OpenPower application server play positions the OpenPower 720 as a powerful new alternative for SAP application servers helping customers to get more price/performance with the utmost reliability for their SAP solution deployment. Immediate opportunities can be found with customers who are looking at adding new application servers to an already existing SAP implementation.

Customer Pain Points

- Aging application servers impacting performance
- High SAP infrastructure costs
- Poor efficiency and productivity
- Downtime impacting QoS
- Scalability and flexibility
- Increased responsiveness to users and meet growing business demands on SAP environment

What the solution does for your clients

- Reduce SAP infrastructure costs
- Increase responsiveness to users and overall solution productivity
- Accelerate ROI with a server delivering best-in-class price/performance
- Improved availability reducing downtime enhancing QoS

Target Clients

- Linux affinity (planning or already using Linux within their IT environment)
- Looking for alternative to Wintel, Sun/Solaris, or HP-UX
- Wants Unix performance, reliability, and efficiency, but wants reduced costs
- Needs to improve application server performance to provide better quality of service
- Existing AIX customer that might want to add Linux server for SAP solution
- **Do not target:** Customers who have wide implementations of Windows and have standardized on Microsoft SQL as the back end database with no Linux strategy.

Solution Elements

- IBM @server® OpenPower™ 720
- SUSE LINUX Enterprise Server 9 (SLES 9) OS
- SAP Solution Support
  - **TODAY -** Support for ABAP application server (6.40 kernel) for SuSE Linux Enterprise Server 9. The database support for these application servers are DB2 UDB v8.2, SAP maxDB v7.5.
  - **December** - application server layer and database layer (DB2 UDB v8.2 and SAP maxDB v7.5). In addition, application server support for iSeries (DB2). The pilot phase for this release stage starts in Oct/Nov 2004 in which customers can deploy for a development environment.

For more detailed release support, please visit: http://w3.ncs.ibm.com/solution.nsf/SOL/JWKZ-65BG6G?OpenDocument&TableRow=1.#1

Solution Sizing

The number of users that OpenPower will be able to support is dependent on the architecture deployed – combination of number of application servers and database server size. An OpenPower 2-Tier solution can support up to 4330 SAPS. http://w3.ncs.ibm.com/solution.nsf/SAP/KTOS-5PHLFD?OpenDocument

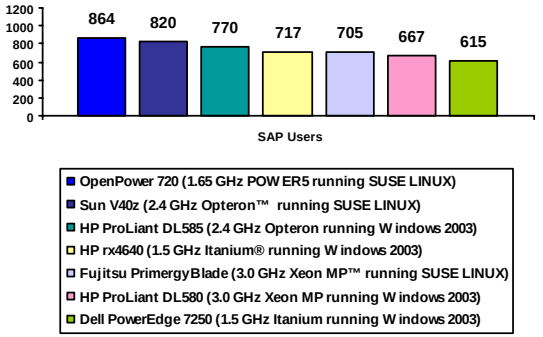
Competitive Solution Alternatives

Here are some competitive solution alternatives that you might be facing as you propose IBM eServer OpenPower for an SAP solution:

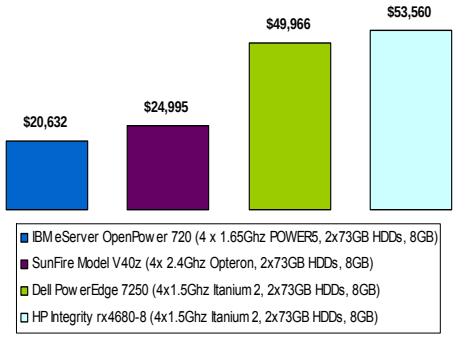
- Intel 32-bit with Windows (most common)
- Intel 32/64-bit (EM64T) with Linux – new in Q4
- Itanium 2 with Linux or Windows (still ramping up)
- AMD with Linux – 64-bit support new in Q4
- Sun Solaris – common and with old install base
- HP-UX – common and with old install base

Competitive Advantage

- Proven processor architecture demonstrating uncompromised 64-bit performance



- #1 Leadership Linux based SAP 4.7 SD 2-Tier results compared with other 4-way based servers – up to **40%** better performance
- **20%** better performance compared with the best 4-way Itanium 2 and Windows based benchmark



- Up to 2.5x price advantage compared with competing 4-way based solutions
- If your customer is looking at buying 6 application servers using the prices above, a customer considering the HP rx4680-8 will pay a total of $321,360 and with the OpenPower 720 the price tag would be $123,792, a staggering difference of **$197,568**.
- Using the SD 2-Tier benchmark result to estimate expected performance for the application server, you will

Where to get help for SAP solutions on Linux on POWER

- Resources to help you
  - pSeries Linux Site: www.ibm.com/servers/eserver/pseries/linux/

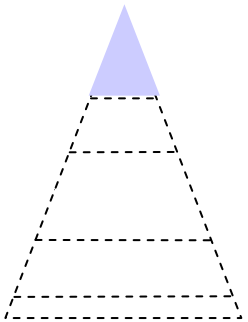
    Latest Announcements, Linux Express Configs, Solutions, Links
  - Technical support **https://techsupport.services.ibm.com/server/Linux_on_pSeries**
  - Sales Support Advisor IBM-SAP Alliance Portal for Sales Support

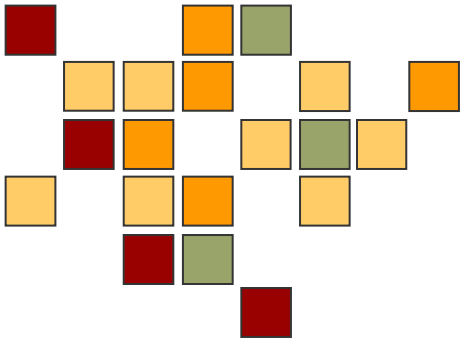
    http://w3.ncs.ibm.com/sap

- Contacts
  - IBM Marketing and technical:
    - Joakim Lialias: LoP ISV Business Development Manager
    - Eberhard Saemann: SAP on Linux on POWER program manager
  - IBM Sales:
    - Christopher Johnson (worldwide)
    - Steve Michael (AG)
    - Rohan Fernando (EMEA)
    - Wayne Chen (AP)

    SAP:

    Lutz Bieberstein, lutz.bieberstein@sap.com





Life Sciences Solutions

Centro Nacional de Investigaciones Oncologicas (CNIO)

Madrid, Spain

Challenge

- Implement a high-performance, open and reliable hardware platform on which to develop and continuously enhance algorithms designed to solve genomics problems for biomedical research

POWER solution

Two IBM @server® pSeries® 650 servers running the SuSE Linux® 8 operating system, with support from the Linux workload consolidation solution from IBM

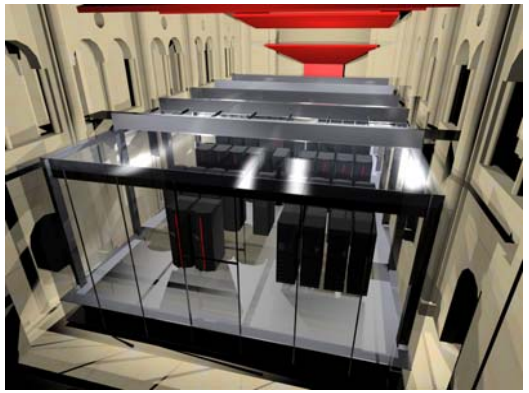
Benefits

- Twice the performance of previous solution
- Greater flexibility for CNIO's Bioinformatics Unit team to quickly and easily install Linux technology-related tools themselves
- Strategic, long-term investment in world-class technology to help ensure scalability and research continuity

MareNostrum & SNU

Mare Nostrum

- **#1 Supercomputer in Europe and #4 Worldwide**
- **Customer: Ministerio de Ciencia y Tecnologia**
  - Barcelona, Spain
- **2282 IBM eServer BladeCenter JS20 2.2 GHz Blades**
  - All commercial components
- **Linpack performance @ 1782 Nodes**
  - Rmax 20.53 teraflops
  - Rpeak 31.363 teraflops
- **Metrics**
  - Speed/Power: 50 GFLOPs*/Kwatt
  - Speed/Space: 13 GFLOPs*/Sq Ft
  - Price/Speed: $970K/TFLOP**
- **Applications include**
  - Life Sciences: Proteomics, Bioinformatics, computational chemistry
  - Weather
  - Material science



SNU

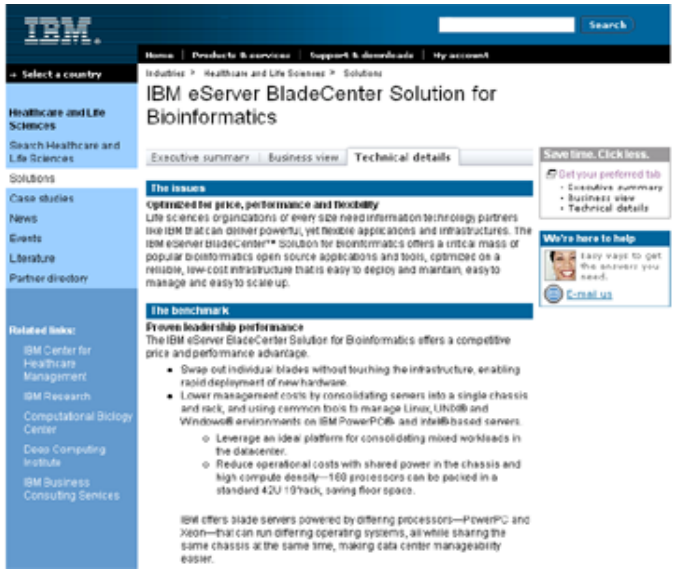
- Customer: Seoul National University ; Target install early December
- 425 IBM eServer BladeCenter JS20 2.2 GHz Blades
- Linpack performance @ 425 Nodes: Rpeak 5 teraflops

* Rpeak
** Rmax

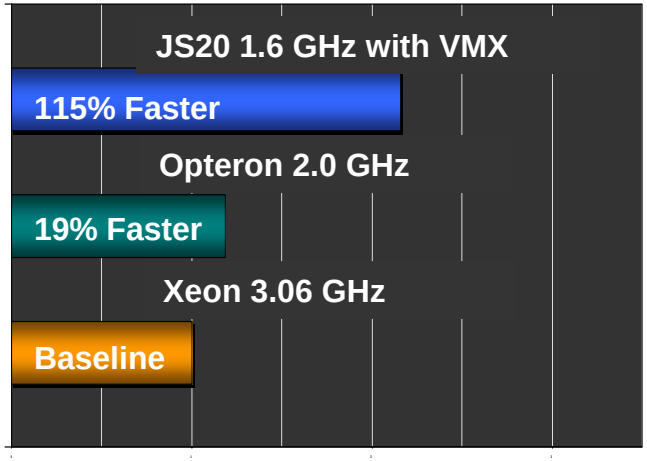
@server BladeCenter for Bioinformatics Solution

Bring new powerful technology to Bioinformatics

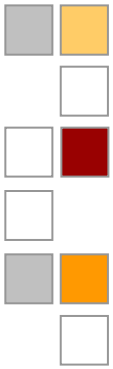
- **Business Value**
  - Accelerate time-to-solution
  - Affordable 64-bit computing
  - Enhanced price/performance
  - Scalability
- **Deploy with confidence**
  - Developer “Recipe page” with links to vendor sites
  - Comprehensive Internet solution external web site
  - IBM eServer BladeCenter JS20 White-Paper



HMMER Performance



Testing was performed with HMMER Version 2.3.2 with a single execution thread, SWISS-PROT Release 41.9, 44x10E6 residues, Sequence PF02610, length = 500.



Solution Stack (Recipe Page)	
Applications	BLAST, HMMER, BLAT, FASTA, ClustalW
Libraries	bioPERL, bioJAVA
Compilers	xlC, XlF and gcc
OS	SLES8 (first) & Red Hat*
Hardware	JS20 Blade, TotalStorage

Typical Bioinformatics Customer

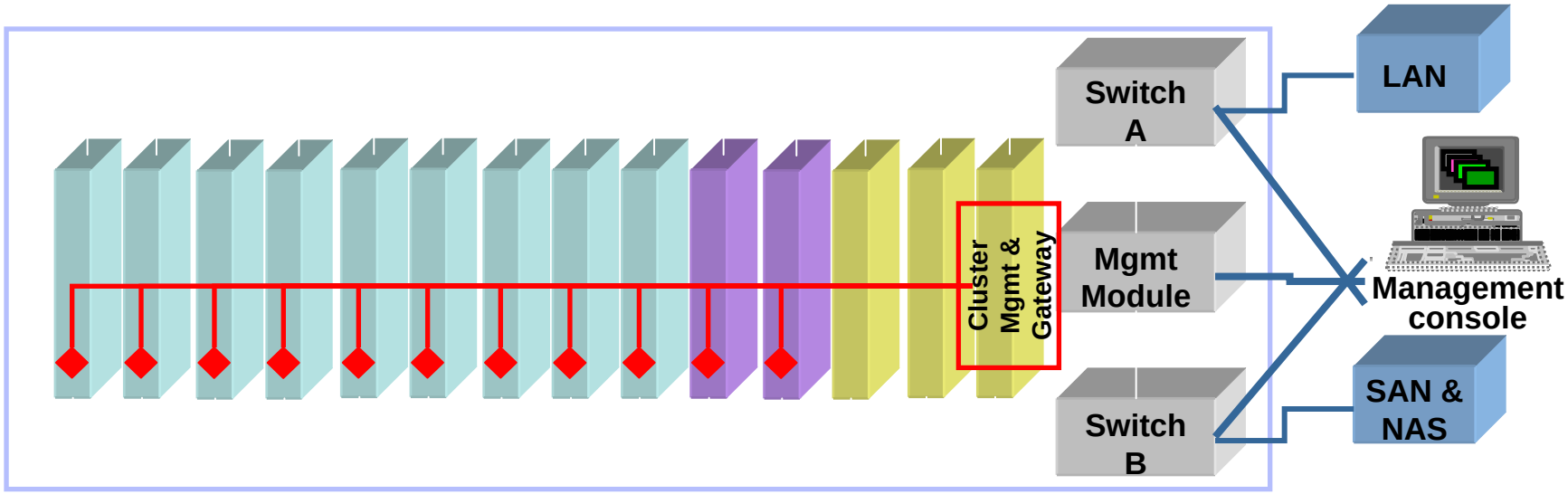
Market Characteristics

- Fragmented market with many IT and application providers
- Diverse set of applications
  - Open source
  - Commercial ISVs
- Complex data environments
  - Hundreds of data formats have been identified, with new data types being defined
  - Growing exponentially & they save everything!
- Growing importance of real-time data analysis

Customer Profile

- Price sensitive
  - Academia/Gov't Research teams, small startups, larger biotechs
  - Buys from several vendors to meet needs
  - Writing their own code is the fastest way to get to a result / solve a business problem. Users solve problems in the optimal way for the data.
  - Academia/Gov't Research customers are a "tight knit" community that shares data and collaborates
    - UCSF – big player in genetics
- The name of the game is speed
  - HPC means "high throughput"

Typical Bioinformatics Scenario



- BLAST Jobs
- HMMER Jobs
- Management and Spare Blades

- Adapts to handle mixed job streams and application workloads
- Modular design for scaling out for additional capacity
- Mixed blade capability adds workload and configuration flexibility

IBM eServer BladeCenter for Bioinformatics vs. the Competition

- **The IBM eServer BladeCenter for Bioinformatics Difference**:
  - IBM Solution & Industry Expertise - First to market with targeted solution
    - Apple, SGI, Sun following suit
  - Integrated infrastructure with built-in features
    - Intelligent packaging- power supplies, flexible architecture, etc.
  - Mixed operational environment to handle diverse set of workloads
    - Linux on POWER and Intel
  - Recipe page to make access to applications easier
    - Includes installation instructions to make tuning applications easier
  - Breadth of IBM product portfolio: Integration, IGS, Financing, etc.
  - IBM commitment and investment in Life Sciences, Linux, and POWER

JS20 Proteomics Solution

Proteomics Solution delivers affordable, scalable performance

- **Marketplace**
  - Proteomics uses computational tools in the study of proteins.
  - Large opportunity for 64-bit optimized performance
  - Market is moving to Linux
  - IBM has a great relationship with the top ISVs
- **Value proposition**
  - JS20 and IBM TotalStorage will allow Proteomics customers to process and store more data proving a quicker time to solution at a price point that is competitive with Intel Architecture based systems which will maximize customer time-to-value
- **Selling Tools**
  - Comprehensive Internet solution external web site
  - IBM eServer BladeCenter JS20 White-Paper
  - JS20 solution for Proteomics Brochure
  - Performance proof-point: Active Protein DB search over 40x faster…Thermo Electron
  - Customer reference: **Medical College of Wisconsin**

Sector: Public
Focus area: Industry app in LE & SMB
Industries: Pharma, Gov't, academia
Size: $12M LS 2004 GA: 09/30/04

Solution Stack	
Applications	**Sequest 3.1 (Thermo Electron)**
Middleware & Tools	**Apache, Java,** **OTG diskXtender (optional)**
System Mgmt	**TSM (optional)**
OS	**SLES9 (first) & Red Hat**
Hardware	**JS20 Blade, TotalStorage** **Cisco GB Enet Switch**

Instruments

I/O Intensive

SEQUEST Cluster Application Server

CPU, Memory & I/0 Intensive

SEQUEST Cluster Nodes

CPU & Memory Intensive

Recommended SEQUEST Cluster Hardware Configuration:

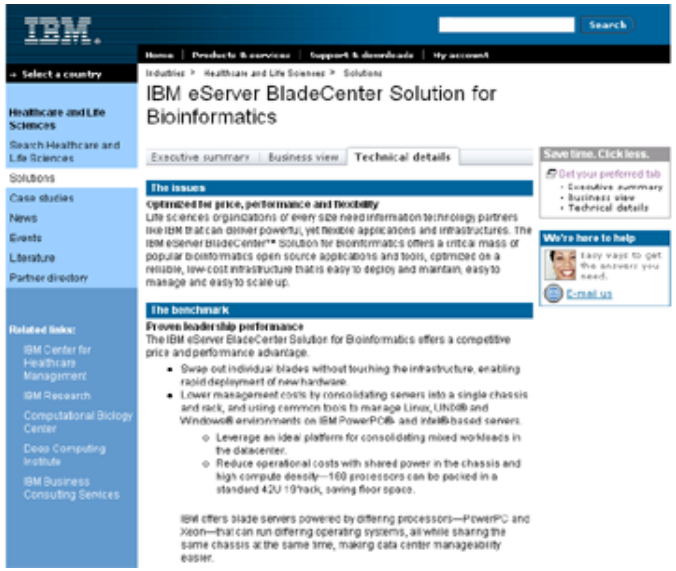
- **Application Server –xSeries x345**
  - Dual Intel Xeon; 2 GB minimum RAM; 100 GB minimum RAID 5 SCSI HDD.
  - Microsoft Windows (must communicate with Bioworks).

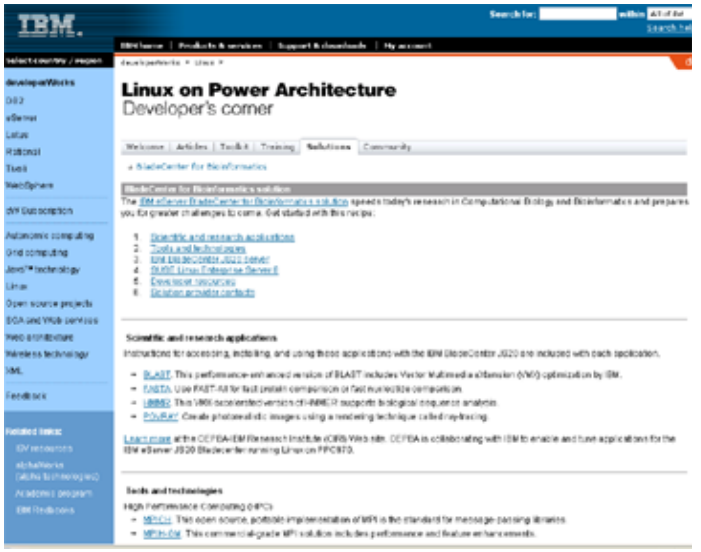
- **Compute Nodes – JS20 BladeCenter**
  - Dual cpu; 512 MB minimum RAM; 40 GB minimum IDE HDD.
  - SUSE/RedHat Linux or Microsoft Windows

- **Storage – FastT & LTO Tape Library**
  - FastT attached to x345 via FC HBA.
  - LTO Tape Library SCSI attached to x345.
  - Tivoli TSM/HSM.
- **WebSphere Web portal**
  - For collaboration with remote researchers or to provide deliverable to “customer”.

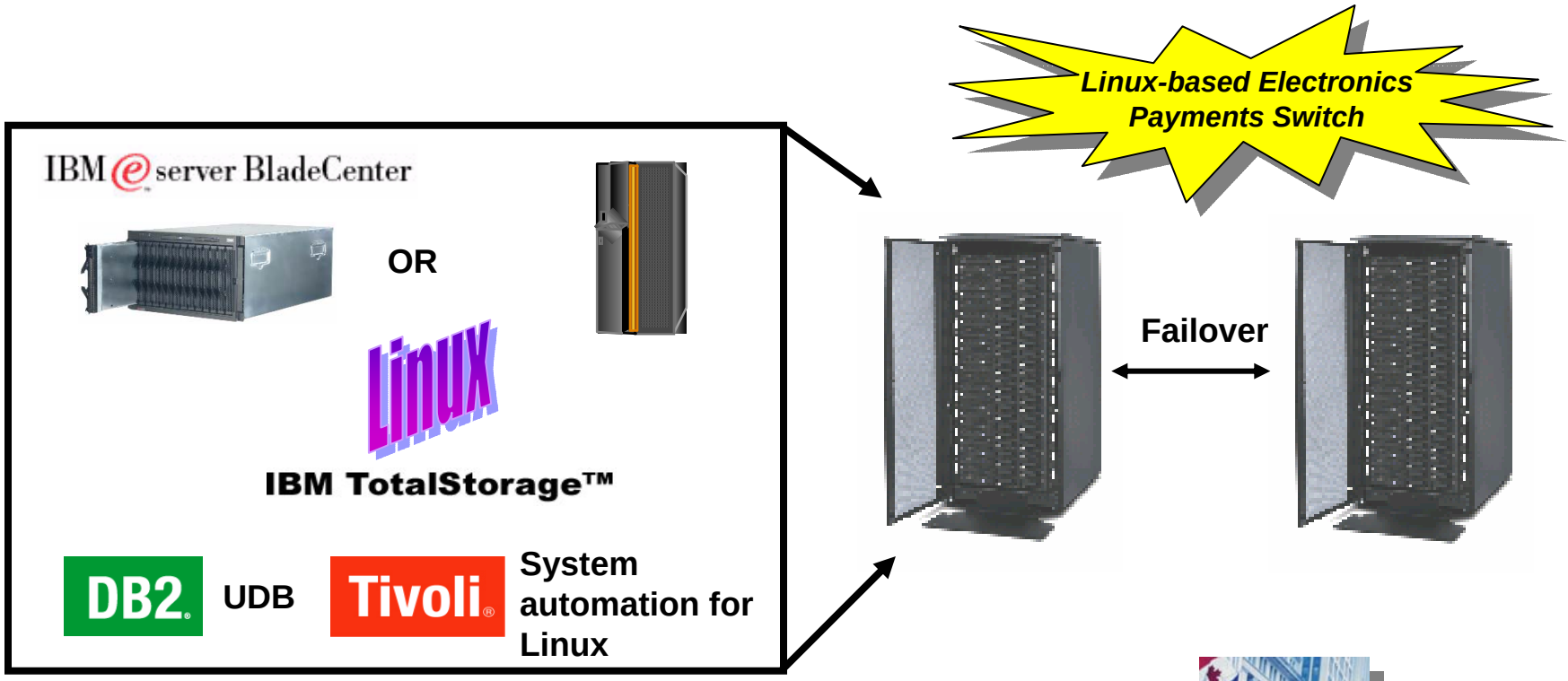
Life Sciences Solution Sales Tools

- Bioinformatics Solution page
  - http://www-1.ibm.com/industries/healthcare/doc/content/solution/1012978205.html
- Bioinformatics Recipe page
  - http://www-106.ibm.com/developerworks/linux/power/industry.html
- JS20 for Bioinformatics Solutions Brochure
  - http://www-1.ibm.com/industries/healthcare/doc/content/bin/BladeCenter_lores.pdf
- JS20 Proteomics Solution page
  - http://www-1.ibm.com/industries/healthcare/doc/content/solution/976932305.htmlhttp://www-1.ibm.com/industries/healthcare/doc/content/solution/976932305.html
- Life Sciences Sales Kits
  - **http://w3-1.ibm.com/sales/systems/portal/_s.155/254?navID=f220s240&geoID=All&prodID=BladeCenter&docID=bcjs20rk**





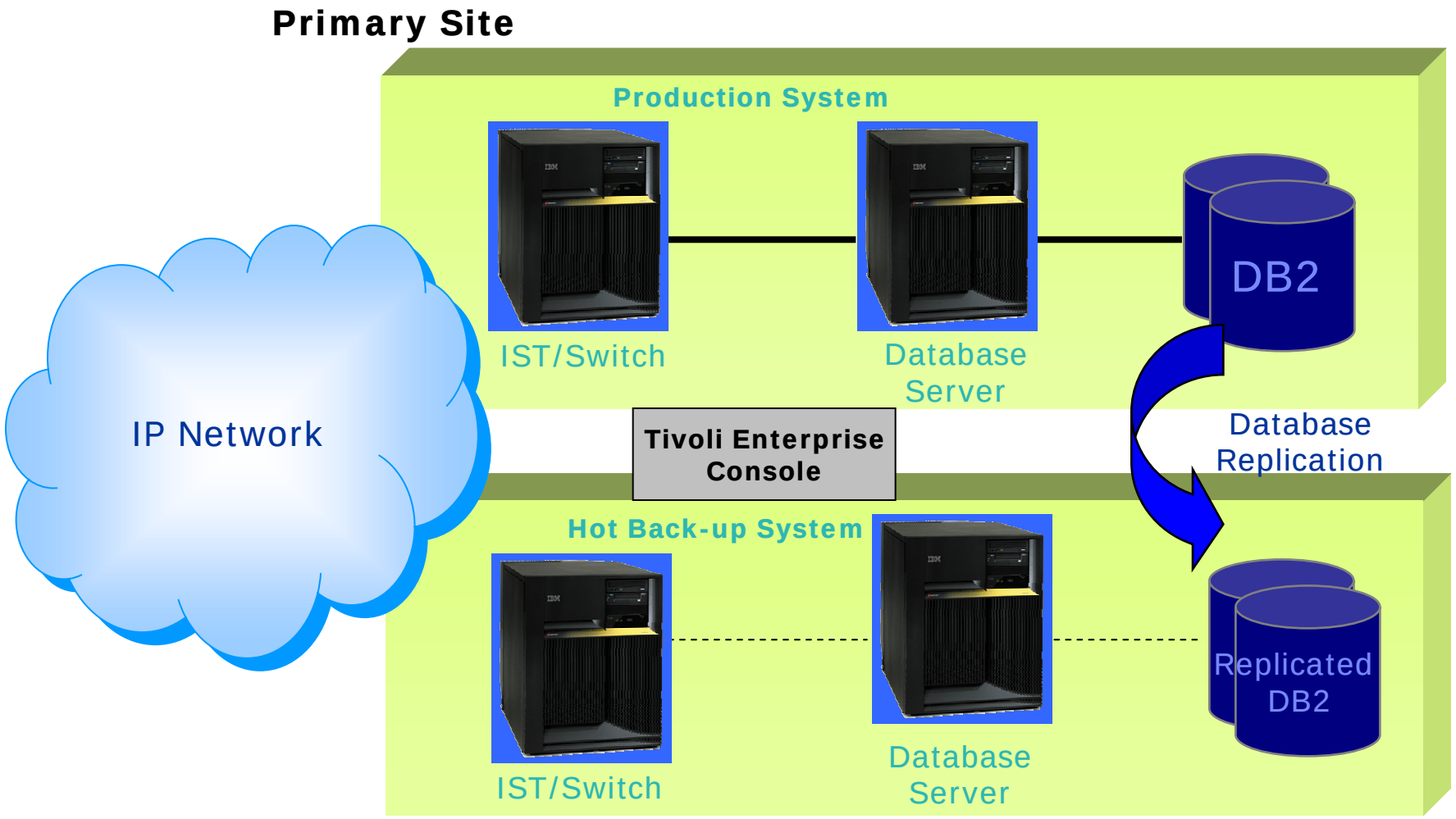
IBM/eFunds Solution Reference Architecture



- ***Lowest cost of ownership improving profitability***
- **Built on proven IBM and eFunds technology and architecture**
- **Open platform for on demand flexibility**
- **Modular scalability as your business grows**
- **Expertly integrated reference configuration to optimize solution**

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

IST/Switch Linux Solution HA Architecture



High Availability Reference System Options

1

Supreme HA Scale Up
- eServer® pSeries® and eServer OpenPower™
- 2 pairs of 4 way SMP
- Separate staging and development systems

2

Supreme HA Scale Out
- eServer BladeCenter™ JS20
- Dual BladeCenter Solution
- Separate staging and development systems

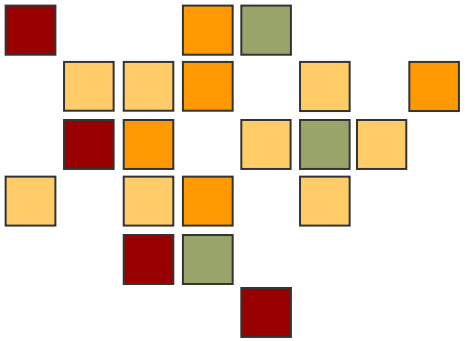
3

Premium HA Scale Out
- eServer BladeCenter JS20
- Dual BladeCenter Solution
- Integrated staging and development

4

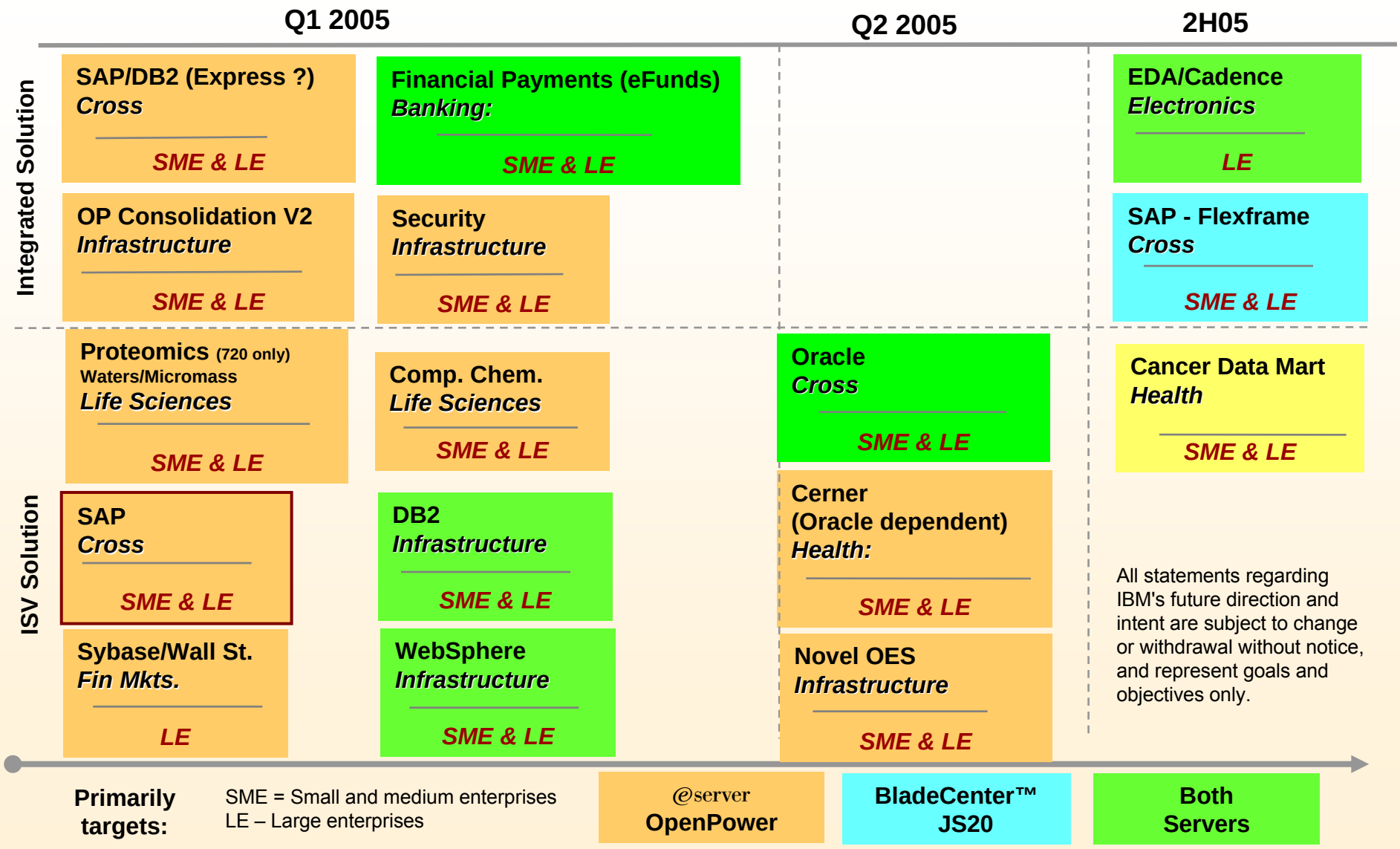
Standard Ha Scale Out
- eServer BladeCenter JS20
- Single BladeCenter Solution
- Integrated staging and development

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

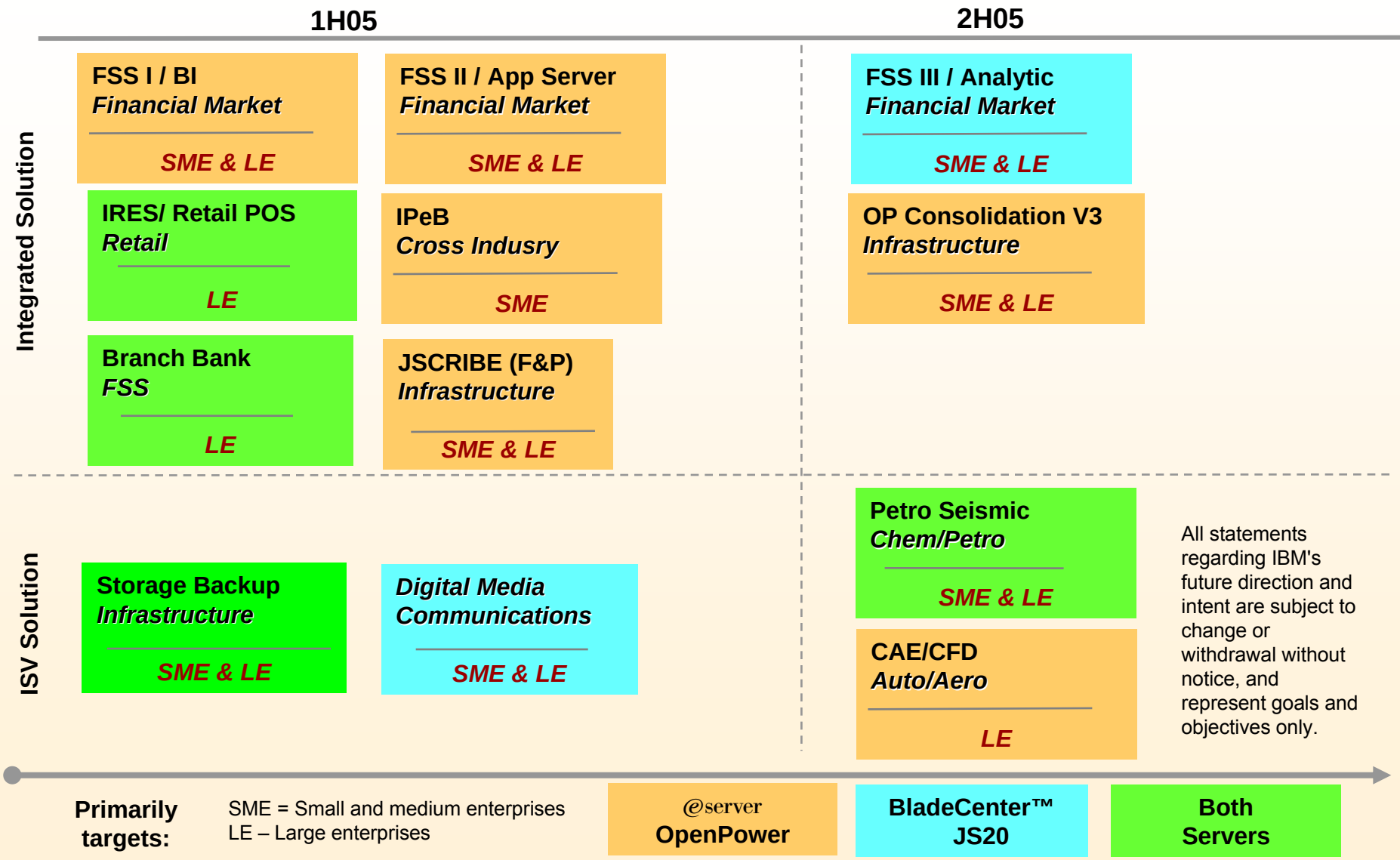


Solutions Roadmap: What's Coming

Solutions Roadmap Highlights: **New** for 2005



2005 Solutions Roadmap Candidates (Requirements Only)



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, DBE, e-business logo, ESCO, eServer, FICON, IBM, IBM Logo, iSeries, MVS, OS/390, pSeries, RS/6000, S/30, VM/ESA, VSE/ESA, Websphere, xSeries, z/OS, zSeries, z/VM, OpenPower, POWER, POWER4+, POWER5, BladeCenter, Tivoli

The following are trademarks or registered trademarks of other companies

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

Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.

References in this document to IBM products or services do not imply that IBM intends to make them available in every country.

Any proposed use of claims in this presentation outside of the United States must be reviewed by local IBM country counsel prior to such use.

The information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.