An IBM Linux on zSeries Teleconference

"NT to Linux on zSeries Migration"

-- June 29, 2004 --

2:00 pm Eastern Time (session #455722)

Migrating From NT to Linux zSeries

Solutions with zSeries Linux

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Linux zSeries Strategy and Sales

Agenda and Speakers

- **Bill Reeder, IBM**
  - Linux Brand Strategy & Support

- **Joe Poole, Boscov's Department Stores**
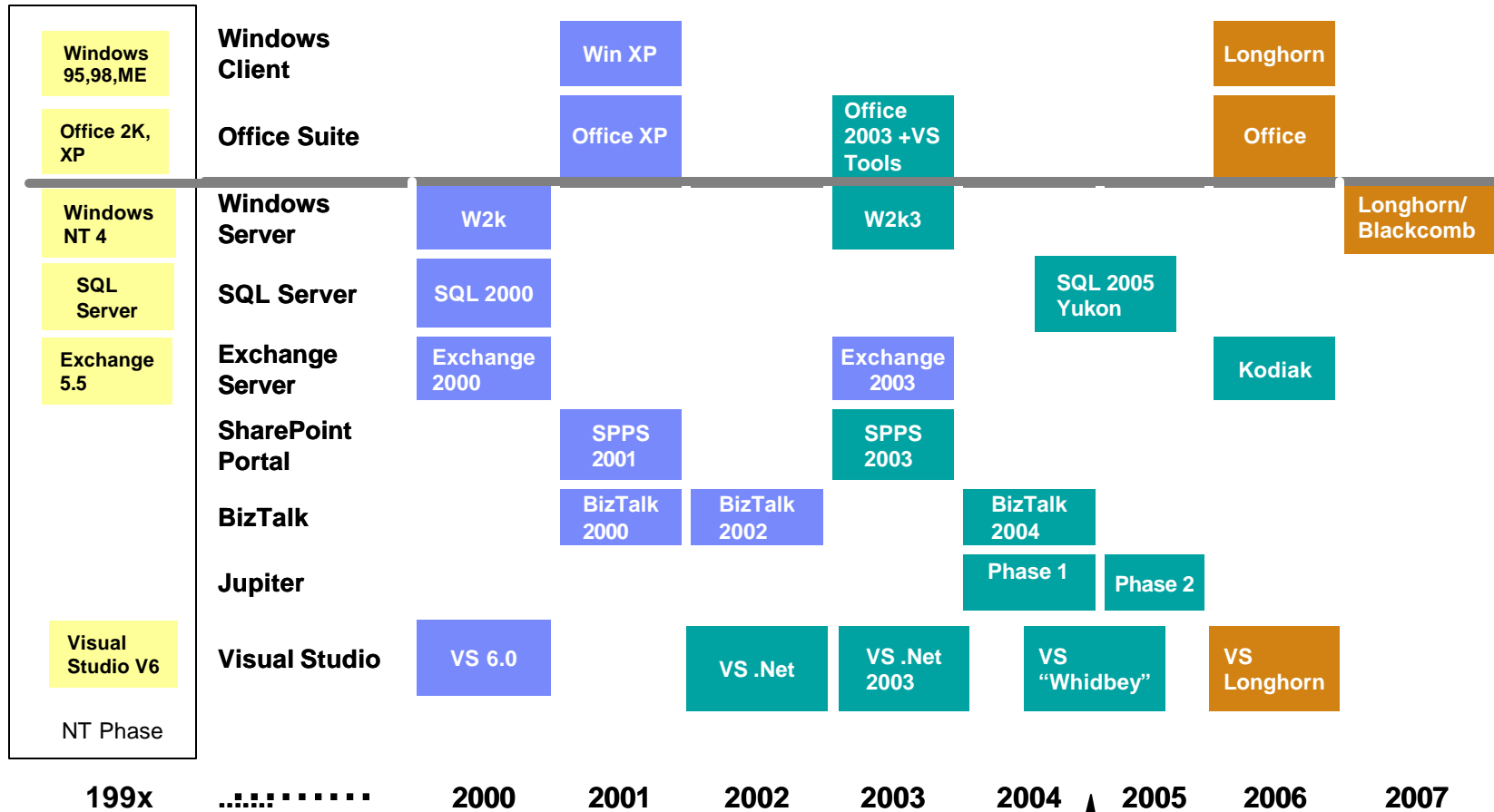 - Manager of Technical Support

Linux on zSeries - Solutions Overview

✓ IBM Software Migrated from NT to Linux

✓ Solution: NT-to-Linux on zSeries-Migration

✓ File/print to Samba Migration

✓ IIS to Apache/WAS Migration and Application enablement

✓ SQL Server to MySQL/DB2 Migration

✓ eMail, Collaboration, Calendaring & Scheduling

■ Exchange to Domino/Bynari/CommuniGatePro /SamsungContact Migration

NT- Microsoft Roadmap
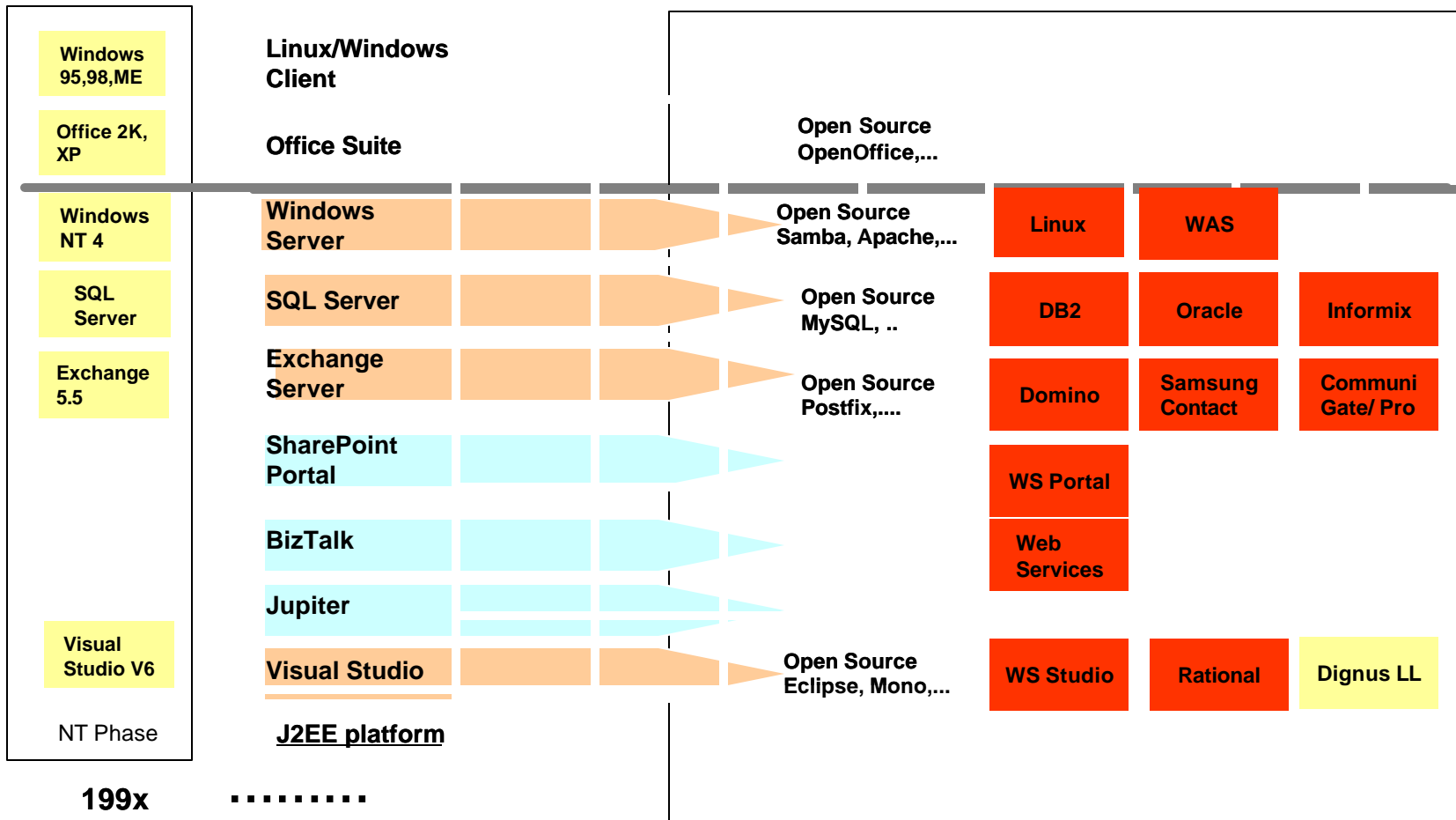
Legend:
- COM Phase
- COM/.NET Phase
- Longhorn Phase

NT Phase
- Windows 95,98,ME
- Office 2K, XP
- Windows NT 4
- SQL Server
- Exchange 5.5
- Visual Studio V6

Product	199x	2000	2001	2002	2003	2004	2005	2006	2007
Windows Client			Win XP					Longhorn	
Office Suite			Office XP		Office 2003 +VS Tools			Office	
Windows Server		W2k			W2k3				Longhorn/ Blackcomb
SQL Server		SQL 2000				SQL 2005 Yukon			
Exchange Server		Exchange 2000			Exchange 2003			Kodiak	
SharePoint Portal			SPPS 2001		SPPS 2003				
BizTalk			BizTalk 2000	BizTalk 2002		BizTalk 2004			
Jupiter						Phase 1	Phase 2		
Visual Studio	VS 6.0			VS .Net	VS .Net 2003	VS "Whidbey"		VS Longhorn	

Upgrade Advantage contracts will expire June 30, 2004

IBM

NT-to-Linux Roadmap

Windows 95,98,ME	**Linux/Windows Client**
Office 2K, XP	**Office Suite**

Open Source OpenOffice,...

Windows NT 4	**Windows Server**	**Open Source Samba, Apache,...**	**Linux** / **WAS**
SQL Server	**SQL Server**	**Open Source MySQL, ..**	**DB2** / **Oracle** / **Informix**
Exchange 5.5	**Exchange Server**	**Open Source Postfix,....**	**Domino** / **Samsung Contact** / **Communi Gate/ Pro**
	SharePoint Portal		**WS Portal**
	BizTalk		**Web Services**
	Jupiter		
Visual Studio V6	**Visual Studio**	**Open Source Eclipse, Mono,...**	**WS Studio** / **Rational** / **Dignus LL**

NT Phase

J2EE platform

199x • • • • • • • •

Eclipse - see http://www.eclipse.org/

Mono c# compiler - see http://www.go-mono.com/

Rational ClearcCase - see http://www-1.ibm.com/servers/eserver/zseries/os/linux/rational.html

Dignus C++ compiler - see http://www.dignus.com/dcxx/

IBM
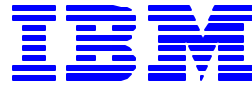
IBM Cross Platform Software Portfolio

Software Development	e-Business Integration	Integrated Information Infrastructure	Human Productivity	Business Impact Management
Rational software	**WebSphere** software	**DB2** Information Management Software	**Lotus.** software	**Tivoli** software

Software Development — Rational software

Requirements & Analysis
- Rational Suite AnalystStudio
- Rational RequisitePro
- Rational Rose Family
- Rational XDE Family

Visual Modeling & Devel.
- Rational Suite DevelopmentStudio
- Rational Rose Family
- Rational XDE Family
- Rational PurifyPlus Family:
  - ✓ Rational Purify
  - ✓ Rational Quantify
  - ✓ Rational PureCoverage

Automated Testing
- Rational Suite TestStudio
- Rational Robot
- Rational TeamTest
- Rational PurifyPlus
- Rational TestManager
- Rational Test RealTime
- Rational ClearQuest

Team Unifying Platform:
- Project Management
  - ✓ Rational RequisitePro
  - ✓ Rational ProjectConsole
  - ✓ Rational Unified Process
  - ✓ Rational soDA
  - ✓ Rational TestManager
- Software Configuration Mgmt
  - ✓ Rational ClearCase Family
  - ✓ Rational ClearQuest Family

e-Business Integration — WebSphere software

Foundation and Tools
- WebSphere Application Server
- WebSphere Edge Server
- IBM VisualAge
- WebSphere Studio (Family)
- Websphere Business Components
- Composer
- WebSphere Host Integration (Family)
- IBM Fault Analyzer
- IBM File Manager
- IBM Application Monitor
- IBM Debug Tool

Broadening User Experience
- WebSphere Portal Server
- WebSphere MQ Everyplace
- WebSphere Transcoding Publisher
- WebSphere Commerce Suite
- WebSphere Voice Server
- WebSphere Personalization
- WebSphere Everyplace

Business Integration
- WebSphere Business Integration for Industries
- WebSphere Interchange Server
- WebSphere Business Integration Modeler
- WebSphere Business Integration Monitor
- WebSphere MQ
- WebSphere MQ Integrator Broker
- WebSphere MQ Workflow
- WebSphere Event Broker
- WebSphere Data Interchange Server
- WebSphere Business Connection
- WebSphere Business Integration Adapters

Integrated Information Infrastructure — DB2 Information Management Software

Database and Tools
- DB2 Universal Database
- DB2 for zOS & OS/390
- Informix Dynamic Server (IDS)
- Informix DataBlades
- Informix 4GL
- DataJoiner
- DataPropagator
- DB2 DataPropagator
- DB2 Tools
- IMS DB/DC
- IMS Tools for OS/390

Business Intelligence
- DB2 OLAP Server
- DB2 Intelligent Miner for Data
- DB2 Intelligent Miner for Text
- DB2 Intelligent Mining Scoring
- DB2 Warehouse Manager
- Query Management Facility
- Informix XPS
- Red Brick Warehouse

Content Management
- IBM Content Manager
  - ✓ On-Demand
  - ✓ CommonStore
  - ✓ VideoCharger
- IBM Enterprise Information Portal

Human Productivity — Lotus software

Messaging and Wireless
- Domino
- Notes Family:
  - ✓ Notes
  - ✓ iNotes
  - ✓ Mobile Notes
- Domino Everyplace Access
- Domino Everyplace Enterprise

Advanced Collaboration
- WebSphere Portal Server
  - ✓ Lotus Collaboration components
- Lotus Discovery Server
- Domino Extended Search
- QuickPlace
- Sametime
- Lotus Workflow
- Domino.Doc

eLearning
- Lotus LearningSpace
- Lotus LearningSpace Forum

Business Impact Management — Tivoli software

Configuration & Operations
- Tivoli Configuration Manager
- Tivoli Workload Scheduler
- Tivoli Remoe Control
- Tivoli Data Exchange
- Tivoli Provisioning Manager
- Tivoli Orchestrator

Performance & Availability
- Tivoli Service Level Advisor
- Tivoli Web Site Analyzer
- Tivoli Business Systems Manager
- Tivoli Enterprise Console
- Tivoli Tivoli NetView Switch Analyzer
- Tivoli NetView for TCP/IP Performance
- Tivoli NetView Performance Monitor
- Tivoli Monitoring

Security
- Tivoli Identity Manager
- Tivoli Access Manager
- Tivoli Risk Manager
- Tivoli Privacy Manager
- Tivoli Intrusion Manager

Storage
- Tivoli Storage Manager
- Tivoli Storage Manager for SAN
- Tivoli Storage Resource Manager
- Tivoli SANergy
- Tivoli Storage Manager for Mail
- Tivoli Storage Manager for Hardware
- Tivoli Storage Manager for Database
- Tivoli Storage Manager for Applications
- TSM for Space Manager
- Tivoli Storage Network Manager

Windows   Linux   AIX   Solaris   HP-UX   OS/400   OS/390   z/OS

Customer Questions

1) What is your file server strategy for your Microsoft environment
   - ✓ Expect them to tell you they are looking at or are migrating to Microsoft Active Directory (AD) and a Microsoft File/Print server environment
2) What is your security/directory server for your Microsoft environment
   - ✓ Expect further validation of a Microsoft AD solution
3) Would you want to use Active Directory as the source directory server for other environments such as Oracle, SAP, Siebel?
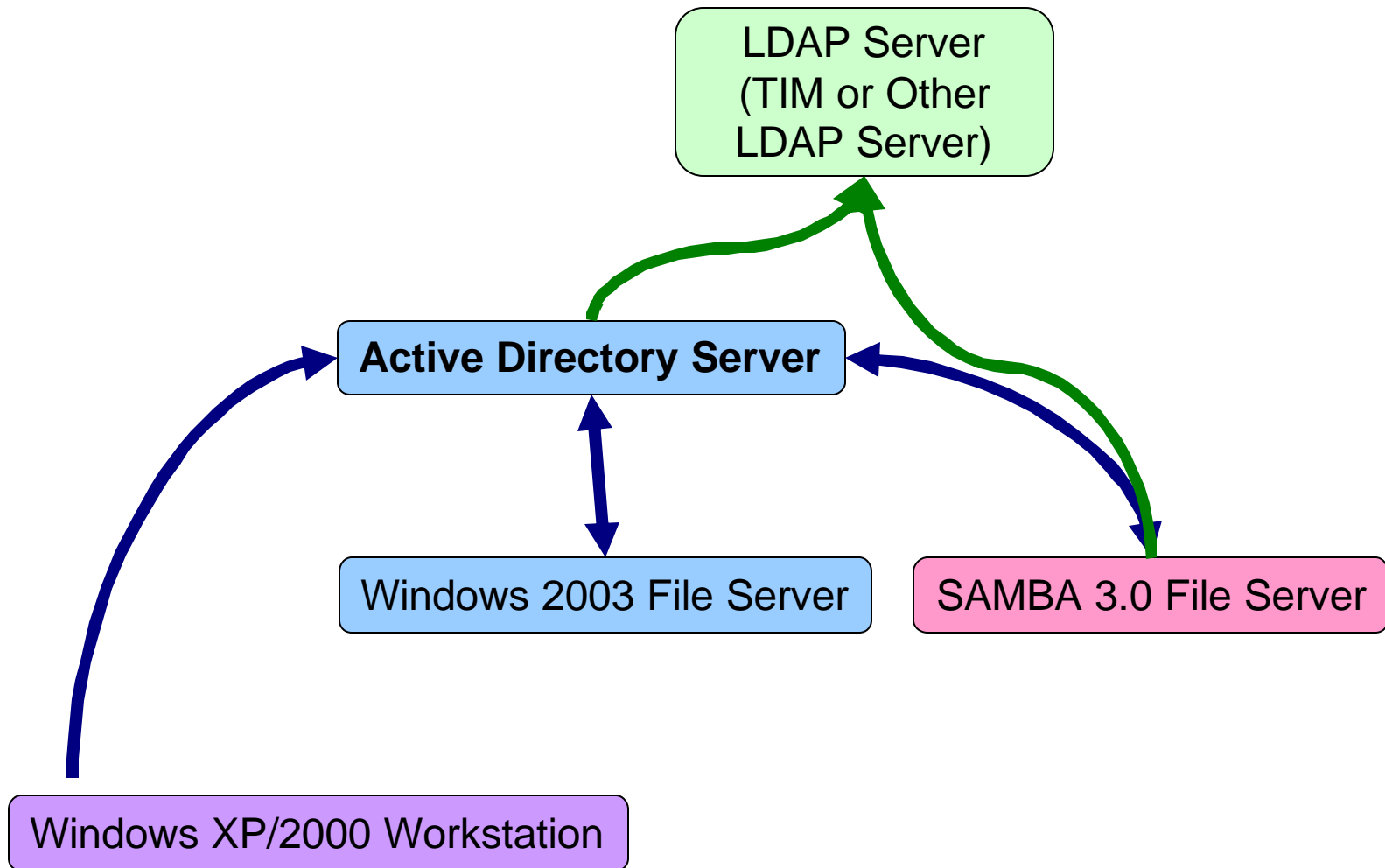   - ✓ At this point the answer should be either NO, or uncertainty

Two Related Solutions to Offer

- Integrating AD solutions with Tivoli Identity Manger (TIM). This creates an LDAP Server that can serve as the main security server with AD becoming a client of TIM

- AD communicates with TIM with Tivoli Directory Integrator via LDAP communications

- SAMBA File server can authenticate two ways integrated into the existing environment:
  1. Directly authenticate to AD (using winbind)
  2. LDAP Client to TIM

Security and File Services

LDAP Server
(TIM or Other
LDAP Server)

Active Directory Server

Windows 2003 File Server

SAMBA 3.0 File Server
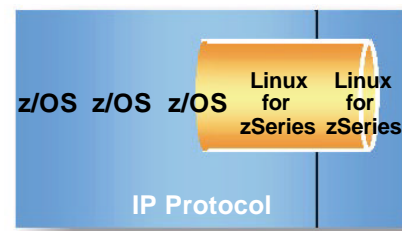
Windows XP/2000 Workstation

High Speed Connectivity
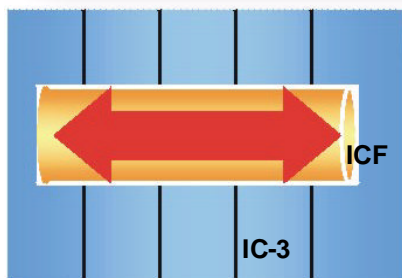
Innovative Technology

Internal connectivity

- HiperSockets*
  - High speed internal TCP/IP network
  - Memory to memory across LPARs including Linux for zSeries

A network within the server

z/OS z/OS z/OS Linux for zSeries Linux for zSeries

IP Protocol

- Internal coupling channel (IC-3)
  - Coupling links in harmony with system performance
 - Memory to memory link for Parallel Sysplex

Balanced coupling connections

ICF

IC-3

IBM

High Speed Connectivity

External connectivity

- OSA-Express
  - 24 line speed ports
  - Gbit Ethernet, Fast Ethernet and ATM

- 2 Gb/sec peer mode links (ISC-3)

- 800 MB/sec short distance links (ICB-3)

- 96 FICON channels
  - 928 ESCON channel paths equivalence
  - Native tape and printer support

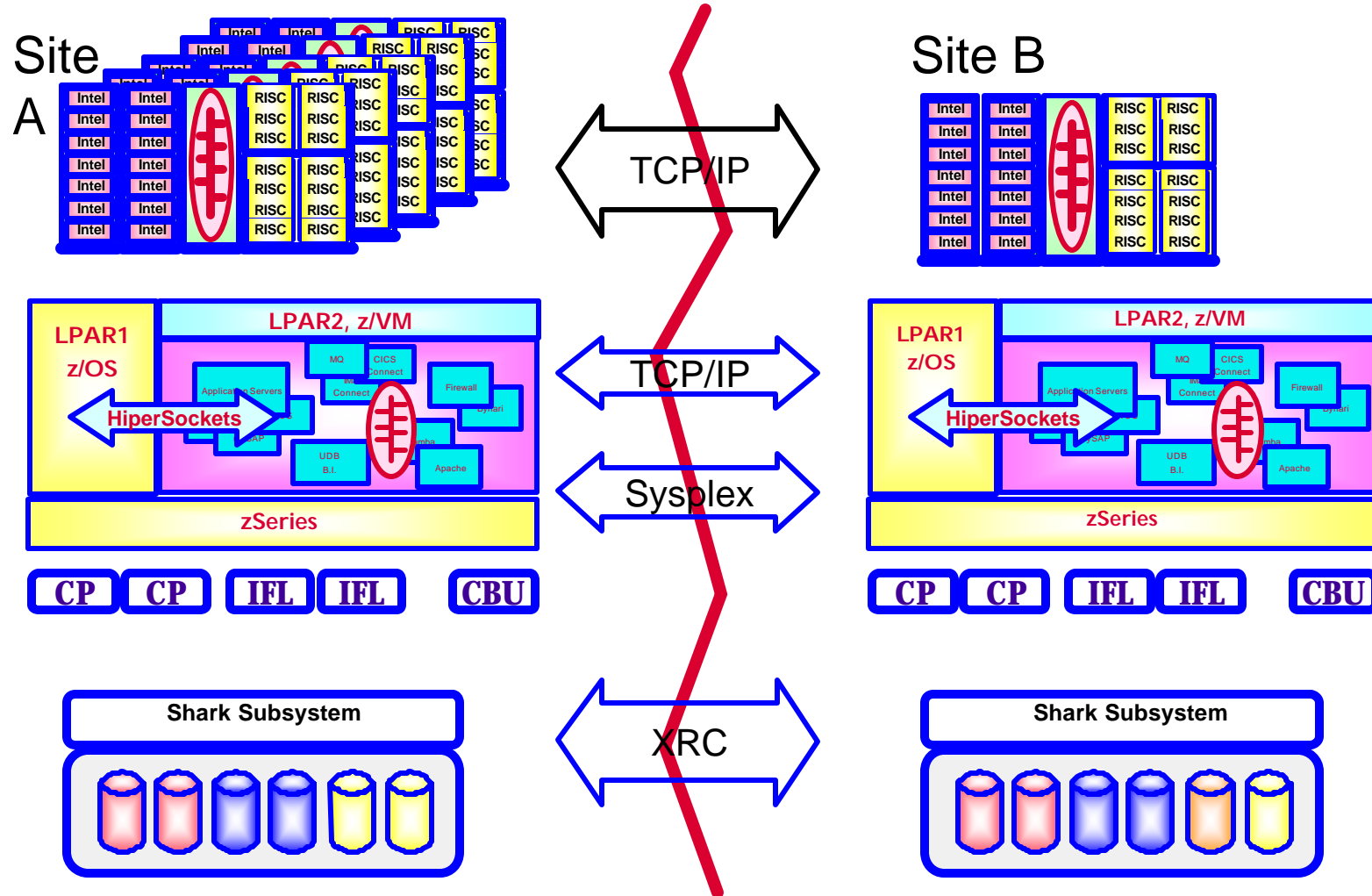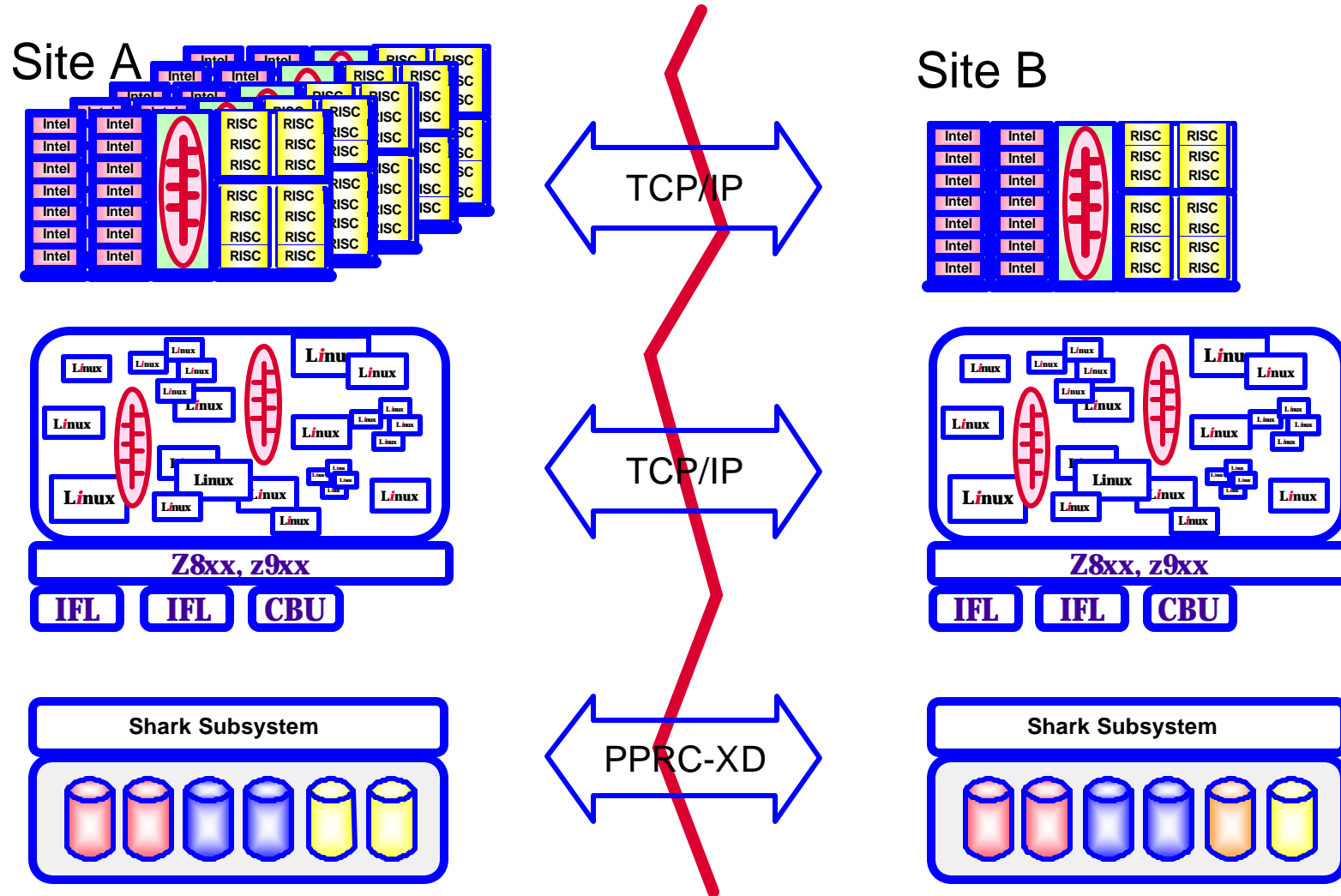- Token-Ring, FDDI and parallel channels supported in compatibility I/O cage

zSeries 900   zSeries 900

ICF   ISC-3   10-20 km

ICB-3   <7 meters

z/OS   z/OS
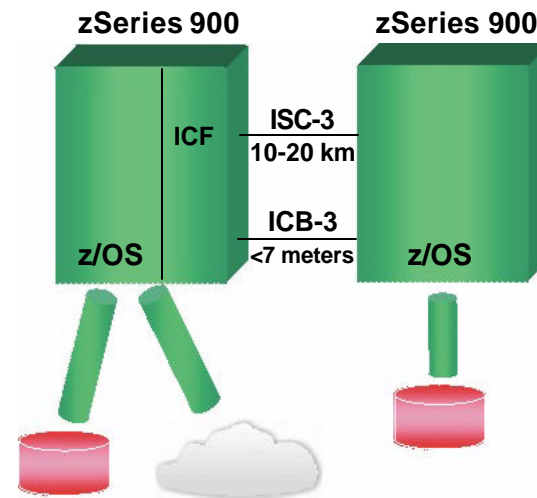
Balanced bandwidth

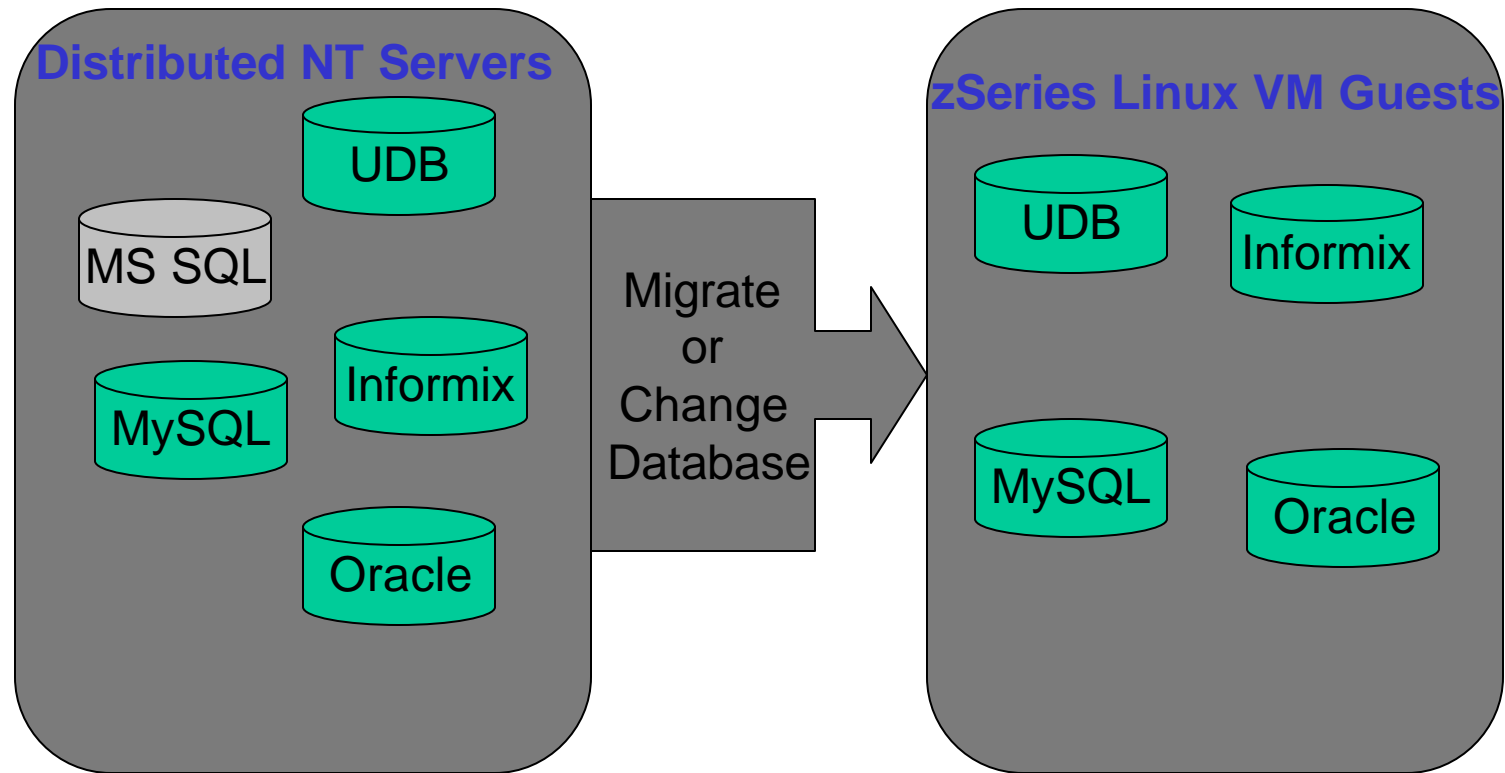# On Demand with Linux and z/OS

A Phased Approach towards Continuous Operations

Migrating NT Databases to Linux

Distributed NT Servers

UDB

MS SQL

MySQL

Informix

Oracle

Migrate
or
Change
Database

zSeries Linux VM Guests
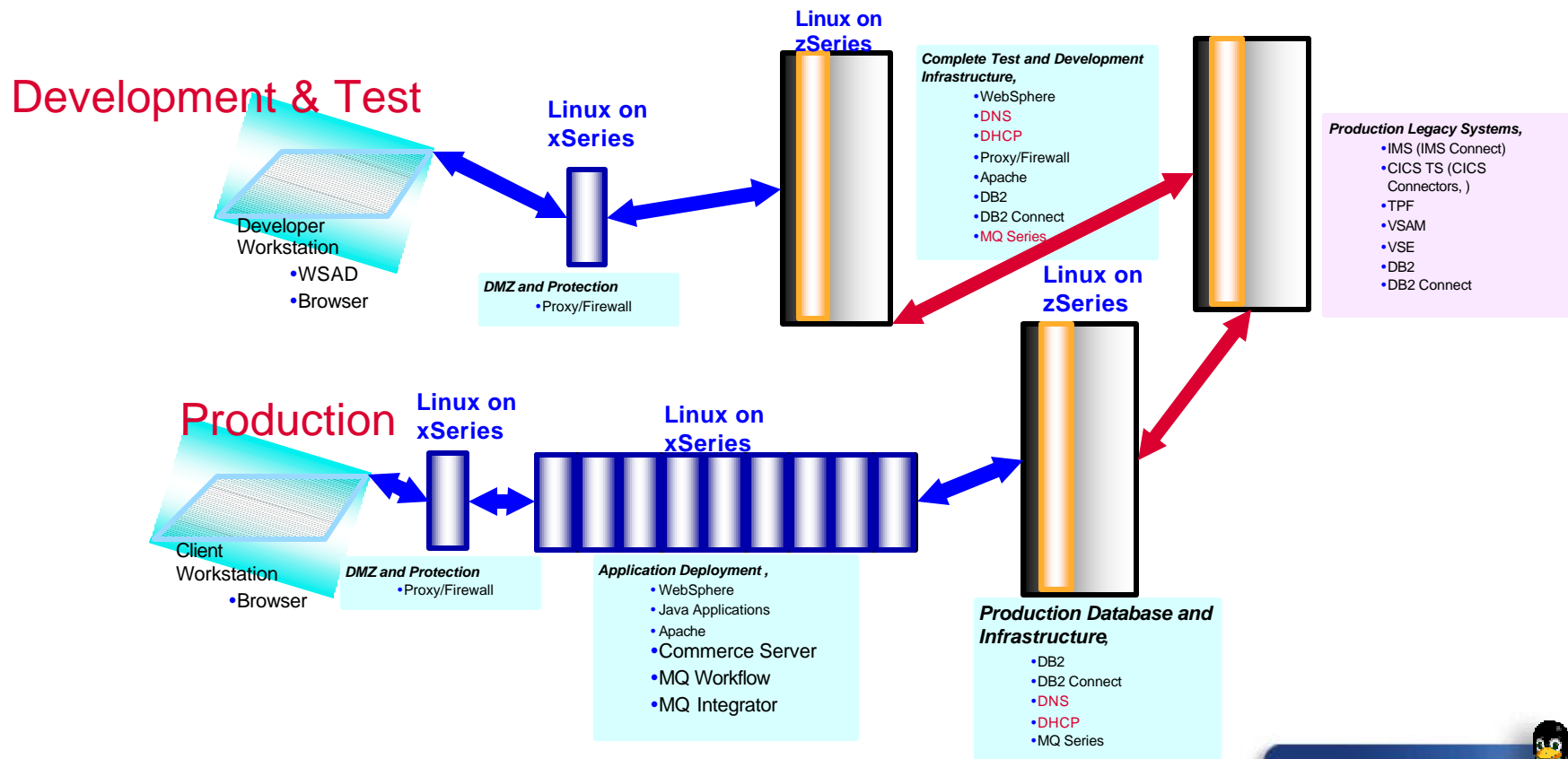
UDB

Informix

MySQL

Oracle

- Distributed Management
- No resource sharing

- Centralized Management
- Resource sharing
- High i/o bandwitdh

IBM

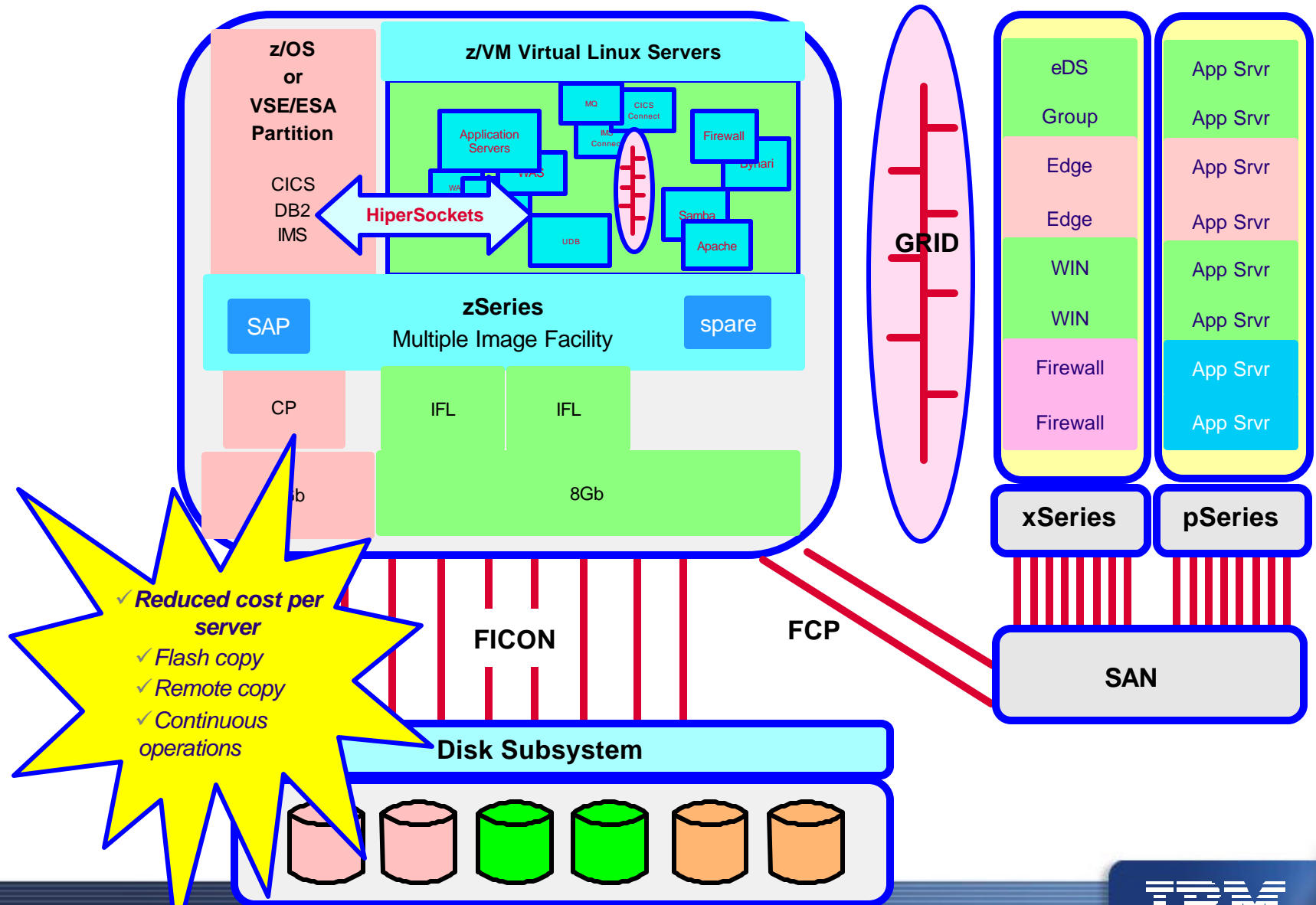# IBM Middleware, an end-to-end Solution with Legacy Connectors

Development & Test

Developer Workstation
- WSAD
- Browser

Linux on xSeries

DMZ and Protection
- Proxy/Firewall

Linux on zSeries

Complete Test and Development Infrastructure,
- WebSphere
- DNS
- DHCP
- Proxy/Firewall
- Apache
- DB2
- DB2 Connect
- MQ Series

Production Legacy Systems,
- IMS (IMS Connect)
- CICS TS (CICS Connectors,)
- TPF
- VSAM
- VSE
- DB2
- DB2 Connect

Production

Client Workstation
- Browser

Linux on xSeries

DMZ and Protection
- Proxy/Firewall

Linux on xSeries

Application Deployment ,
- WebSphere
- Java Applications
- Apache
- Commerce Server
- MQ Workflow
- MQ Integrator

Linux on zSeries

Production Database and Infrastructure,
- DB2
- DB2 Connect
- DNS
- DHCP
- MQ Series

IBM

Complete ∧ Solution

z/OS or VSE/ESA Partition

CICS
DB2
IMS

HiperSockets

z/VM Virtual Linux Servers

MQ
CICS Connect
IMS Connect
Application Servers
WAS
Firewall
Dynari
Samba
UDB
Apache

zSeries
Multiple Image Facility

SAP

spare

CP

IFL

IFL

8Gb

GRID

eDS
Group
Edge
Edge
WIN
WIN
Firewall
Firewall

App Srvr
App Srvr
App Srvr
App Srvr
App Srvr
App Srvr
App Srvr
App Srvr

xSeries

pSeries

✓ *Reduced cost per server*
✓ *Flash copy*
✓ *Remote copy*
✓ *Continuous operations*

FICON

FCP

SAN

Disk Subsystem

IBM

Migrating IIS and Application Development

✓Simple IIS applications migrate directly to Apache Web Server

✓Migration of Visual Studio applications

✓Re-hosting .NET and .NETASP applications with Java and Linux

Ready-to-Run Software

The Software Port Authority™

Microsoft® FrontPage

Providing UNIX Support for Microsoft FrontPage Server Extensions.

Release Notes for the FrontPage 2002 Server Extensions SR1.1 for the IBM eServer systems.
Extensions are available here.
Installation script is available here.
These extensions have been verified to run with the Apache 1.3.26 which is currently shipping with SuSE Linux Enterprise Server. They have also been tested with Apache 1.3.29 which has a number of security fixes released by Apache.org and also with Apache 2.0.48.

http://www.rtr.com/fpsupport/releasenotes_IBM_eServer.htm

IBM

Levanta logically manages the application stack, unlocking the value of Linux/zVM

| Business application |
| Linux |
| z/VM |
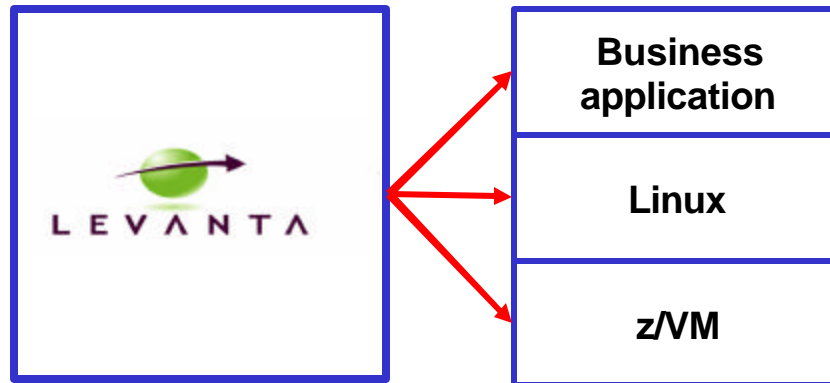
Linux on z/VM value

- Higher RAS and better DR

- Lower costs

- Retained flexibility of distributed systems

Levanta

- Deploy best practices operational concepts
- Share DASD

- Increase effectiveness of existing admin staff
- Foster cooperation with distributed teams through managed self-service access

IBM

Levanta Overview of Capabilities

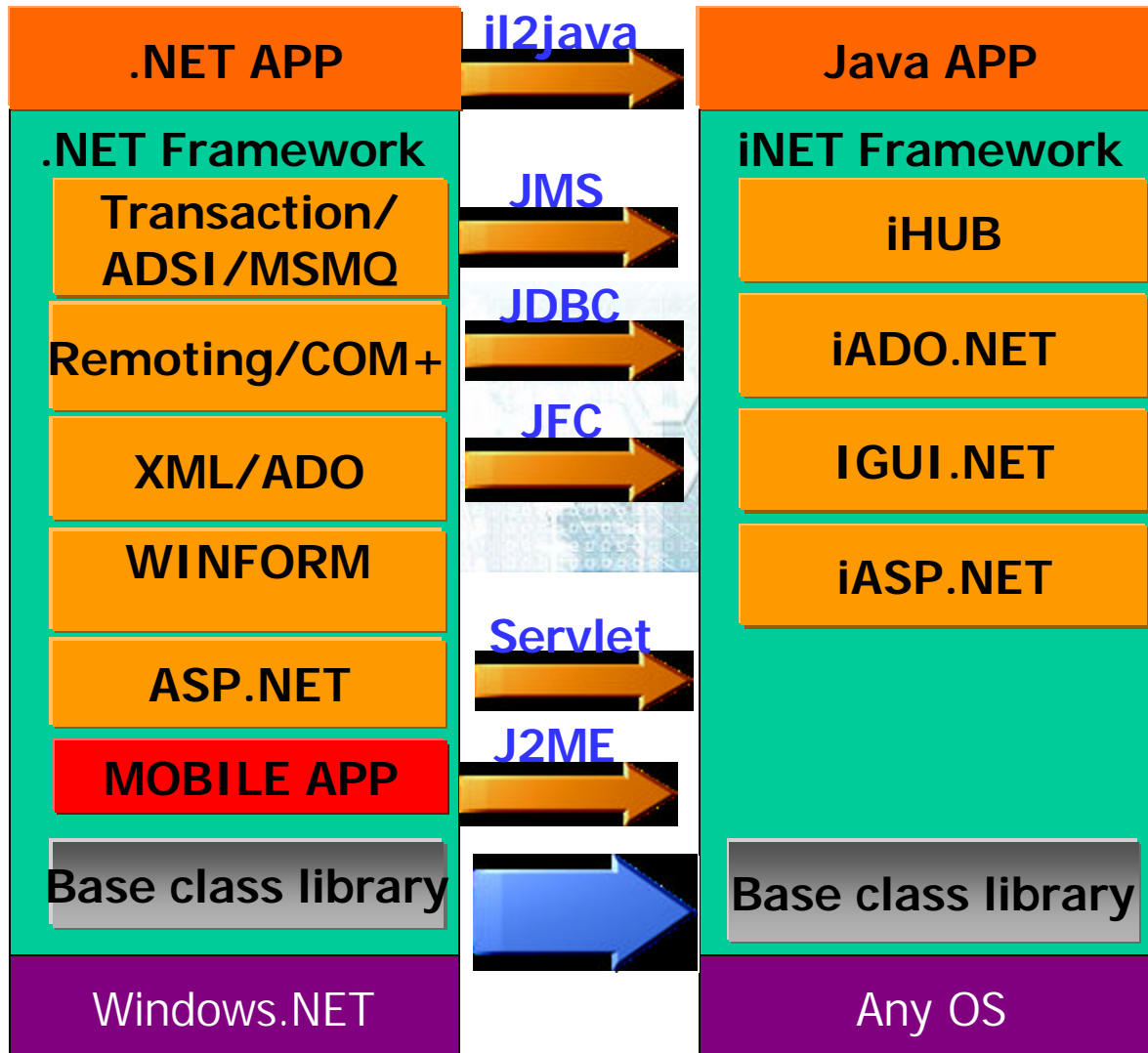| Capabilities	Product features	Benefits
Server configurations and provisioning	• Easy creation and modification of server configurations (even from running servers) • Efficient, reliable and accurate creation of new servers (in minutes) • Ability to set up and manage servers as groups	• Speed provisioning and create best practice controls • Double the number of servers to be managed • Automate administration
Server change management and rollback	• Checkpoint to capture installation and configuration changes of virtual servers (state-based approach) • Easy "recording" and consistent propagation of changes to any group of virtual servers • Rollback of virtual servers to a stable configuration captured with Checkpoint (in minutes)	• Can always restore a server to a consistent state • Implement updates rapidly and reduce server downtime • Speed server disaster recovery significantly
Role-based access and self-service model	• Roles and access permissions to enable a managed self-service model • Set of pre-defined roles that model typical administrative and jurisdictional functions	• Enable IT teams to control and manage their domains • Greatly facilitate the interaction and collaboration among various IT teams • Reduce the need for scarce VM skills
Shared storage and resource management	• Access to and sharing of common resources among virtual servers (e.g., disks) • Generic store for arbitrary data (e.g., server configurations, server components, any user data)	• Expedite recovery and save costs • Speed server provisioning dramatically (no need to copy files to servers)

IBM

Visual MainWin Product Family

	Visual MainWin for UNIX & Linux	Visual MainWin for the J2EE Platform
Platform	UNIX & Linux	J2EE Application Servers
Development Language	C++ (Non-Managed)	C#, VB.NET
Type of Solution	Porting	J2EE Development
Status	Version 5	Version 1.1

Microsoft .NET Compatibility

.NET APP	il2java →	Java APP
.NET Framework		**iNET Framework**
Transaction/ ADSI/MSMQ	JMS →	iHUB
Remoting/COM+	JDBC →	iADO.NET
XML/ADO	JFC →	IGUI.NET
WINFORM		iASP.NET
ASP.NET	Servlet →	
MOBILE APP	J2ME →	
Base class library	→	Base class library
Windows.NET		Any OS

STRYoN

IBM

Linux® on zSeries™ - Attractive collaboration platform

- **Collaboration solutions**

  -Lotus Domino for Linux on zSeries from IBM Corp

- **E-Mail / Calendaring & Scheduling solutions**

  –Bynari InsightServer from Bynari, Inc.
  –CommuniGate Pro Groupware from Stalker Software, Inc.
  —Samsung Contact™ from Samsung SDS

- **E-Mail solutions**
  –CommuniGate Pro Server from Stalker Software, Inc.

  –Sendmail Mailcenter™ from Sendmail, Inc.
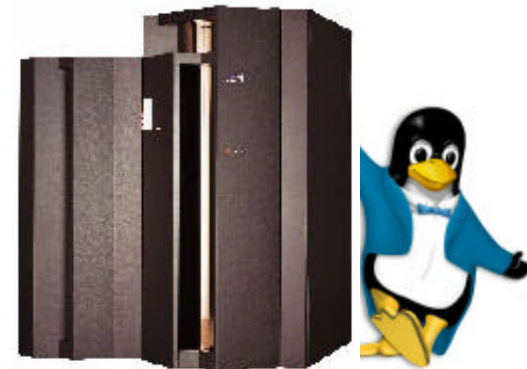
Why Domino for Linux on zSeries?

- Linux on zSeries - Virtual Linux Server Environment
    - Linux or Intel server consolidation
    - Centralization of expertise and hardware
    - Improved system management, backup and recovery

- World class Virtualization Technologies

- A scalable Linux solution using *epoll* based Domino Thread Pools
    - Domino Thread Pool support in Linux for zSeries is a scalability enhancement over Domino on Intel solutions.
        - Developed by Davide Libenzi
        - Approved for 2.6 Kernel Standard
        - Backported to 2.4 Kernel by IBM LTC (available to major distributors)
        - Overcomes barrier to single instance Intel Linux scalability

What's New & Value Props –
## Domino Access for MS Outlook

- Value Points
  - –Keep the Outlook client on the users desktop
  - –No user retraining
  - –No costs associated with desktop change
  - –All the benefits of Domino
  - –6.5.1 now becomes the enterprise edition of Domino Access for MS Outlook

- New features in Domino Access for Microsoft Outlook
  - –Capability to use MS Outlook 2k and XP against a Domino 6.5 or 6.03 and higher server.
  - –Utilizes Notes replication mechanism to synchronize the Outlook pst file with Domino for Mail, Calendar and Contacts.
    - •User now only accesses local data – improves performance
  - –Provides capability to decrypt Notes and X509 mail.
  - –Provides access to key Domino preferences from within Outlook.
  - –Data migration between Exchange and Domino has been improved.
    - •Improves data integrity
  - –IMAP/iCal support replaced by NRPC in 6.5
  - ▪ ***Strong Sales/Services Incentives for Exchange 5.5 to Linux on zSeries Migrations…***

Product details, solution components
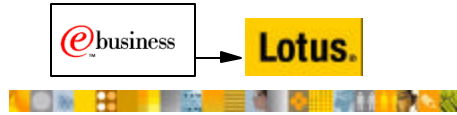
- IBM Lotus Domino 6.5 Server a multiplatform foundation for collaboration and e-business, extends support with V6.5 to Linux on zSeries as well as Windows 2003®.

- Lotus Notes 6.5 gives users a single access point to their messaging, collaborative and personal information management (PIM) resources.

- Lotus Domino Web Access 6.5 (iNotes) gives you browser-based access to Lotus Domino.

- IBM Lotus Domino Access for Microsoft Outlook delivers the messaging, calendar, scheduling and personal information management (PIM) services of Lotus Domino technology to Microsoft Outlook 2000® and Outlook 2002® clients

(1)   http://computercops.biz/article1345.html

(2)   http://www.pandasecurity.com/notes.htm

(3)   http://www.kaspersky.com/buyonline.html?chapter=752114&spage=2

Backup & Restore	Tivoli® Storage Manager™
- especially support for single user restore	Tivoli Storage Manager for Mail (formally Tivoli Data Protection for Domino) under evaluation
Anti-virus protection	Trend Micro ScanMail™ for Linux – discussion underway for availability for Linux on zSeries, see (1)
Anti-Virus/Anti-Spam	RAE Internet

Anti-Virus/Anti-Spam

Alternatives are:

Anti-virus product on other platforms
– e.g. Trend Micro ScanMail or Interscan™ Messaging Security Suite on xSeries

Or any other ISV's anti-virus product for Domino on UNIX/Linux - e.g. see (2) or (3)

| Spam filtering | Integrated into Domino 6.5 |

Bynari InsightServer

Product details, solution components

- Insight Server facilitates complete messaging and collaboration capabilities on all IBM platforms
- InsightConnector is an MS Exchange client extension that allows MS Outlook to use Insight Server to store messages, calendar events, contacts and other Outlook groupware functions
- Insight AddressBook client – the address book for Outlook provides functionality similar to the Exchange Global Address List.
- Insight WebClient is a Web browser client that integrates with Outlook clients and provides groupware functions like calendaring, contacts, and public folders, over the Web.

Backup & Restore - especially support for single user restore	- Tivoli Storage Manger™ - Amanda - Legato Networker - Mailboss
Anti-virus protection	bitdefender – see (1) F-Prot – see (2) - Offers features including spam protection, content filtering, group support and more - Mail virus scanning – support for Sendmail, Qmail, Postfix on Linux, xBSD and Solaris
Spam filtering	SpamAssassin – see (3) - Open source product that has been integrated into the Insight Server

(1) http://www.bynari.net/index.php?id=1029
(2) http://www.raeinternet.com/fprot/fprot_linux.html
(3) http://www.bynari.net/index.php?id=3492

CommuniGate Pro / + Groupware

Product details, solution components

- CommuniGate Pro supports messaging standards such as SMTP, POP, and IMAP, offers the functionality of shared folders, WebMail, LDAP directory, personal Web pages, mailing lists, and anti-spam/anti-virus protection
- Communigate Pro with Groupware, released October 2002, supports e-Mail, C&S and group scheduling using Microsoft Outlook's advanced functionality, and via its integrated Web-based interface
- CommuniGate Pro MAPI Connector should be installed on Microsoft Outlook client workstations in order to use CommuniGate Pro Groupware Server as the "service provider"

Backup & Restore - especially support for single user restore	Tivoli® Storage Manager™
Anti-virus protection	McAfee Anti-virus plug-in - available for Linux on zSeries and other platforms - download http://www.stalker.com/CGPMcAfee
Spam filtering	Integrated into CommuniGate Pro Server - advanced anti-spam filtering

© Copyright Stalker, Inc., http:// www.stalker.com/cpro/default.html

Samsung Contact

Product details,   solution components

- Samsung Contact, released in March 2003, is based on Hewlett Packard (HP) OpenMail

- The messaging server is an e-Mail and general communication solutions that runs on Linux, IBM AIX®, HP-UX and Sun Solaris Linux

  – offering the same level of access through Web, Windows and Linux clients

  – providing server level calendar and PIM (Personal Information Manager – e.g. handheld PC or Palm) access.

Backup & Restore - especially support for single user restore	Standard UNIX® /Linux backup tools - Legato, Veritas, Omniback, Tivoli, cpio, etc. Samsung Contact - mirroring and SnapShot support, single user backup ISS service for single user restore capability
Anti-virus protection	Plug-in for AhnLab Anti-virus engine - server based integrated trapping and cleaning - Sophos, Kaspersky, NOD32 (Eset) engines coming soon - Trend Micro and NAI under negotiations
Spam filtering	Anti-spam/UCE/UBE handling – Samsung Contact 8.0.2 server implements SMTP-AUTH or RFC2554 - anti-spam RFC-2505

Sendmail Mailcenter

Product details,   solution components

- Sendmail Mailcenter combines all the components necessary to deploy a complete or extend an existing e-Mail system of any size :

  - Sendmail Advanced Message Server (SAMS) **-** The sophisticated indexing and caching capabilities of SAMS' fast, multithreaded POP and IMAP access servers optimize performance and maximize concurrency
  - Sendmail Mobile Message Server (SMMS) – carrier-class, flexibly scalable Webmail and wireless solution providing users the freedom to access messages from anywhere at anytime

Backup & Restore - especially support for single user restore	Sendmail Message Copier - compleying with e-Mail archiving and review requirements Tivoli Storage Manger Amanda Legato Networker
Anti-virus protection	Sendmail Switch - integrated virus infection and contagion (McAfee Anti-virus filter powered by Sendmail on Linux RedHat Advanced Server for ~ xSeries®)
Spam filtering	Sendmail Switch **–** integrated anti-spam filter running on Linux (Advanced anti-spam filter on Linux RedHat Advanced Server for ~ xSeries®)

Summary

✓ Consolidation on zSeries is making a dramatic impact on the bottom line, today

✓ Linux and Open source are well established, accepted and a growing alternative to NT

✓ Linux offers more choice in replacing your NT environment

✓ IBM continues to participate and collaborate in the open source community

✓ IBM offers comprehensive Linux solutions that include hardware, software and services

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

Linux zSeries in Production at Boscovs

Joe Poole

Manager Systems Programming

The largest family owned department store chain in the United States

Berkshire Mall, PA

- ? 40 Stores in 5 states – PA, NJ, NY, DE, MD
- ? over $1 billion in sales
- ? over 10,000 employees
- ? www.boscovs.com
- ? In 1911, Solomon Boscov left Russia and arrived in Reading, PA. He purchased $8.00 worth of merchandise, and set out for the countryside. He earned enough money in his first year to buy a horse and wagon.
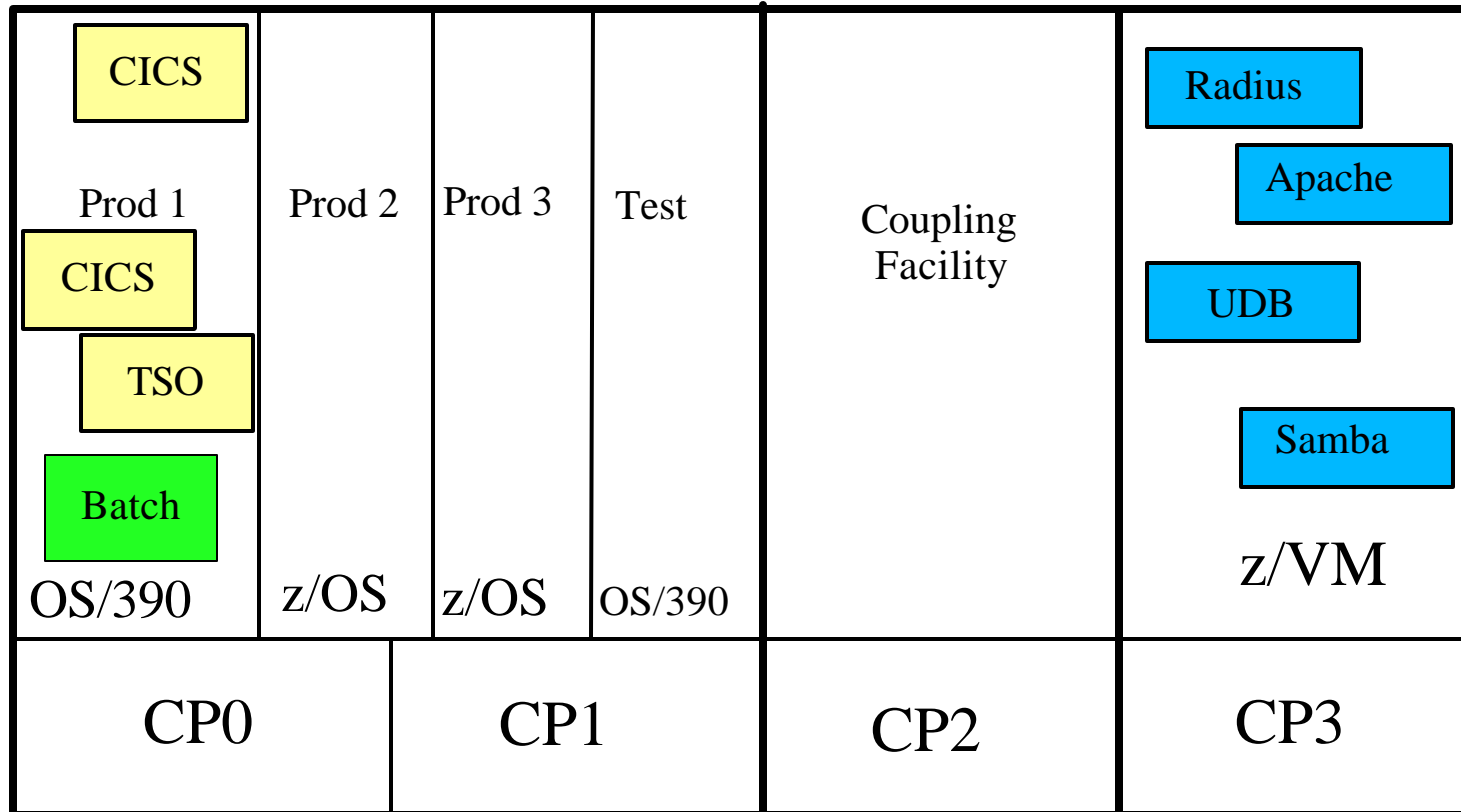
z900   2064-102

- 2 CPUs for z/OS
- 1 CPU for z/VM
- 1 CPU for coupling facility
- 5 more can be activated
- 16 GB Memory
- 4 GB Ethernet OSA
- 64 bit Architecture
- 250 MIPS Processor

Boscov's 2064-102

Why did we focus on Linux?

- Thousands of Linux contributors around the world with a tremendous pride of authorship

- Reputation for rock-solid reliability

- Substantial investment by IBM

- Server software monopoly portends price increase for Windows based operating systems and support

- Linux would run on a platform that was going to be on our floor

- Linux could be the future of our cash registers, store processors, and possibly even desktops and PDAs

Financial Considerations

? **Each Server:**

- Costs an average of $20,000 to purchase

- Consumes $192 in electricity each year (320 watts)

- Averages $600 on your Business Recovery plan

- Averages $800 for annual vendor maintenance

- Is part of an expanding network of devices

- Produces heat, which must be removed by A/C

- Must be backed up somehow

Your Expanding Server Farm

- ? If you add 5 servers a year:
  - $107,960 for hardware, electricity, DR, and Maintenance
- ? An Integrated Facility for Linux (IFL):
  - $150,000 to activate
  - $50,000 for z/VM with optional components
- ? ROI is 2 years for the IFL, with no increase in electricity, floor space, air conditioning or equipment maintenance.

Forming the Team

- z/VM Systems Programmer, preferably 2

- Unix trained server administrators, preferably 4

- Combine the team under 1 supervisor

- IBM Education for z/VM and Linux, like ZV050

- Education for Linux administration, many available

- Assessing the server farm

- Pick the "proof of concept conversion"

- Select and order the software

- Initial installation to be done as a team – let everyone watch

Preparing the Environment

? Create an LPAR and load z/VM 4.x

? Download Linux or buy prepackaged version

? Create ADSM (TSM) backup routines

? Create minidisk to tape jobstreams (OFFLINDR)

? Install AntiVirus software

? Create 2 IP stacks; both sides of the firewall

? Establish some kind of support services

Netware to Linux Conversion

? Netware command, change context to root

- cx /R

? Create file of group membership

- nlist user show "group membership" /C /S > D:\cv\user.txt

? Create file of all users

- dir J:\USERS > D:\cv\nwdir.txt

? Create file of directories

- dir J:\ /AD /X /S > D:\cv\nwdir2.txt

? Create file of all rights

- rights J:\ /C /F /S > D:\cv\irights.txt

Stoppers and Gotchas

- ? Reluctance of vendors to port their software to Linux
- ? Other projects in IT that require your involvement
- ? Virus attacks, like Nimda, that bust through the firewall
- ? Negativity of the staff, unwilling to try something new
- ? Servers that do more than file or print serving
- ? How the economy affects your business sector
- ? User departments that can order their own servers
- ? Defections and poaching, once the team is trained
- ? Supporting everyone else's problems!

Other Linux Instances

- UDB for invoice match

- Radius for Cisco routers

- WINS, DNS

- Apache for vendor site

- Websphere Application Server for developers

- DB2 Gateway

- Specialized file servers

- Test instances of each

New Production Linux Instances

- ? JAVA Bridal Registry
- ? Radius for Cisco routers
- ? LDAP with Linux and DB2 to RACF
- ? Internal Firewall
- ? Acucorp's Acucobol for application migration
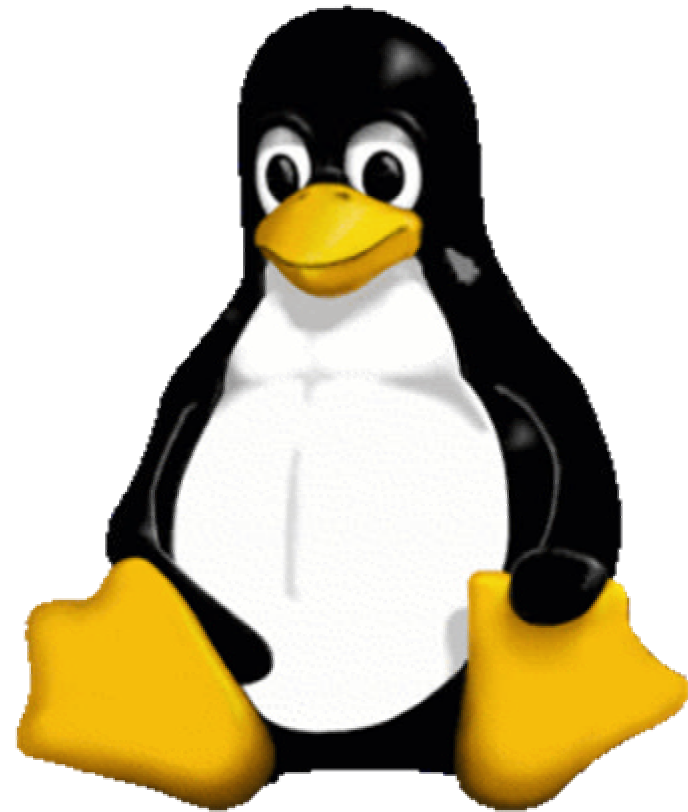
Favorites

- The HOME page!
  - www.linuxvm.org
- Linux Documentation
  - www.tldp.org
- SaMBa
  - www.samba.org
- Open Source HQ
  - sourceforge.net
- IBM Developer Works

- SuSE Linux SLES 7.2
  - www.suse.com
- RAV AntiVirus
  - www.raeinternet.com
- IBM Support Line
- IBM Redbooks
  - www.redbooks.ibm.com
- Subscribe to the Marist listserv!

Credits

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This presentation was produced on a Netfinity desktop with SuSE Linux 8.0, StarOffice 6.0, and I didn't do any windows!

Sources of Information

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Replay of Today's Teleconference (available . July 1, '04 – Sept. 29 '04)	**1-800-964-4326 or 1-402-280-9271** (select from replay list)
Audio Tape or CD of this Teleconference (available after July 5, 2004)	**1-800-813-5795 or 1-719-457-2865** (request session #455722 - small charge applies)
Linux for IBM eServer zSeries	**www-1.ibm.com/servers/eserver/zseries/os/linux/**
z/VM and Linux on zSeries Resources	**www.vm.ibm.com/linux/**
Speed Start Your Linux App	**www-106.ibm.com/developerworks/offers/linux-speed-start/download-z.html**
Linux on zSeries Redbooks	**publib-b.boulder.ibm.com/cgi-bin/searchsite.cgi?query=Linux+AND+zSeries**
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