The Next Generation iSeries...
…simplicity in an on demand world

iSeries Nation Product Update 9/11/2003

iSeries 9/2003 Announcement Highlights

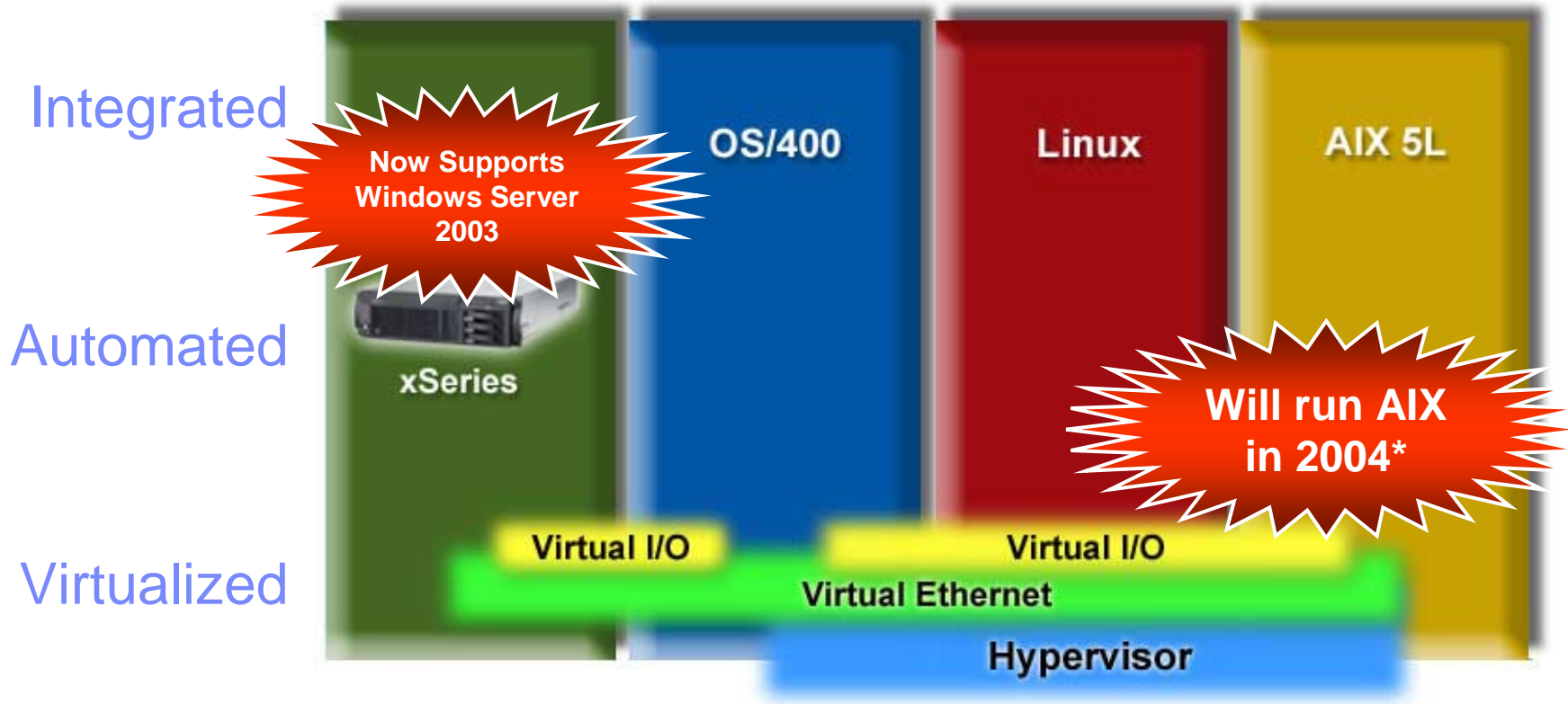|	**The Next Generation iSeries… …simplicity in an on demand world**
iSeries Servers	▪ Promote business continuity with iSeries for High Availability offering – Lowers the costs of 24x7 operations ▪ Improve disaster recovery protection with iSeries for Capacity BackUp – Exploits On / Off Capacity on Demand ▪ Reduce scheduled downtime with high performance backup solutions – New PCI-X fibre channel tape adapters deliver up to 5 TB per hour backup
Extending iSeries' on demand operating environment:	
Integration	▪ Extend iSeries Enterprise Edition software value & simplify installation – IBM WebSphere® Portal Express Plus for personalized web interaction – IBM DB2 UDB Workgroup Svr. Edition for Linux for robust database solutions – iSeries XML Toolkit extends ease of data interchange ▪ Expand collaborative applications with Lotus Domino 6.5
Virtualization	▪ Exploit ROI of Windows™ server consolidation with new 2.0 GHz IXS ▪ Lower costs of OS/400 consolidation with improved LPAR density
Autonomic	▪ Deliver robust storage and backup management for Linux™ – Tivoli Storage Manager Client for iSeries Linux

Announcement September 5, GA September 12 2003

iSeries On Demand Operating Environment

Integrated

OS/400

Linux

AIX 5L

Now Supports Windows Server 2003

xSeries

Automated

Will run AIX in 2004*

Virtualized
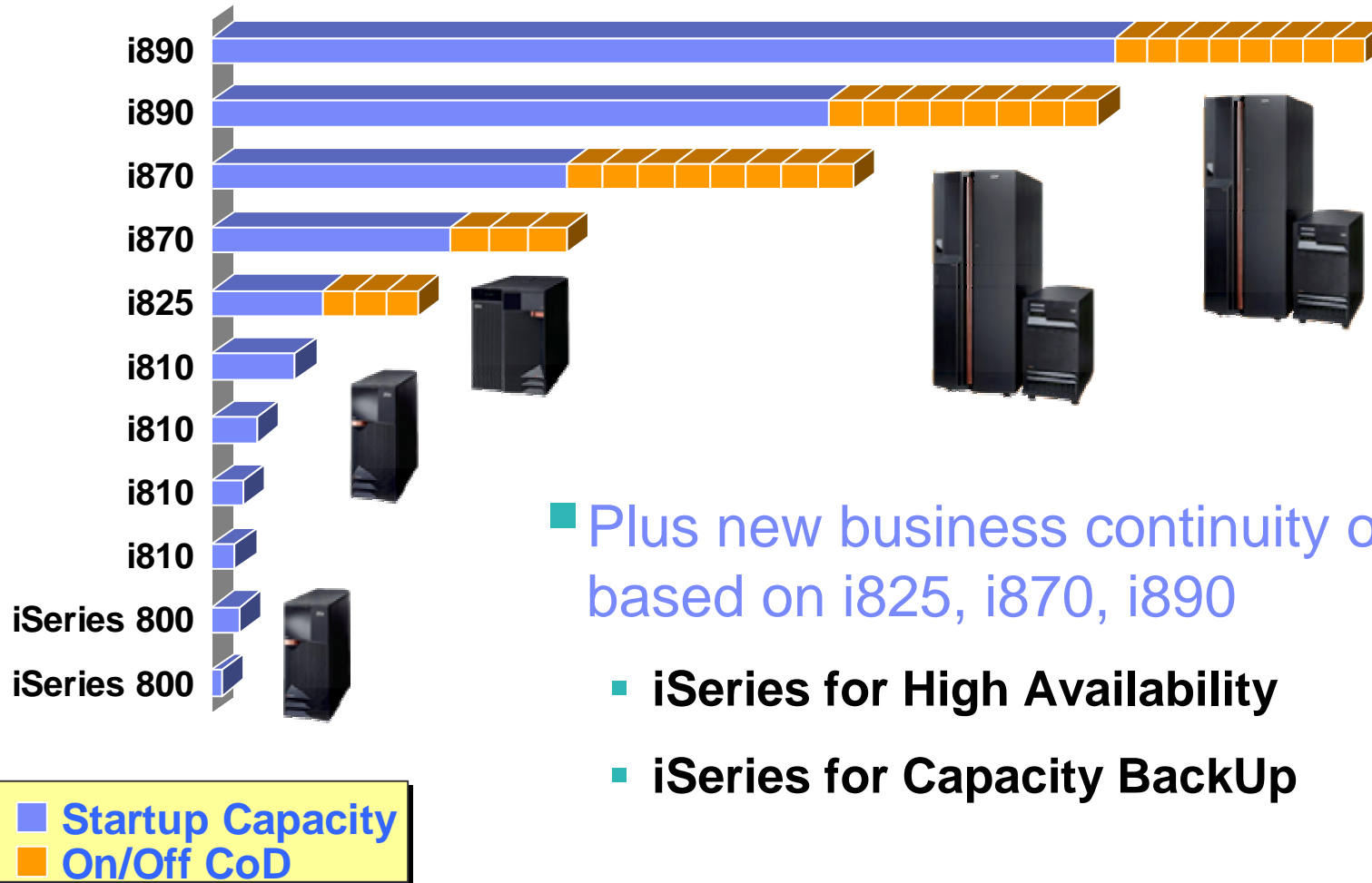
Virtual I/O

Virtual I/O

Virtual Ethernet

Hypervisor

Based on Open Standards

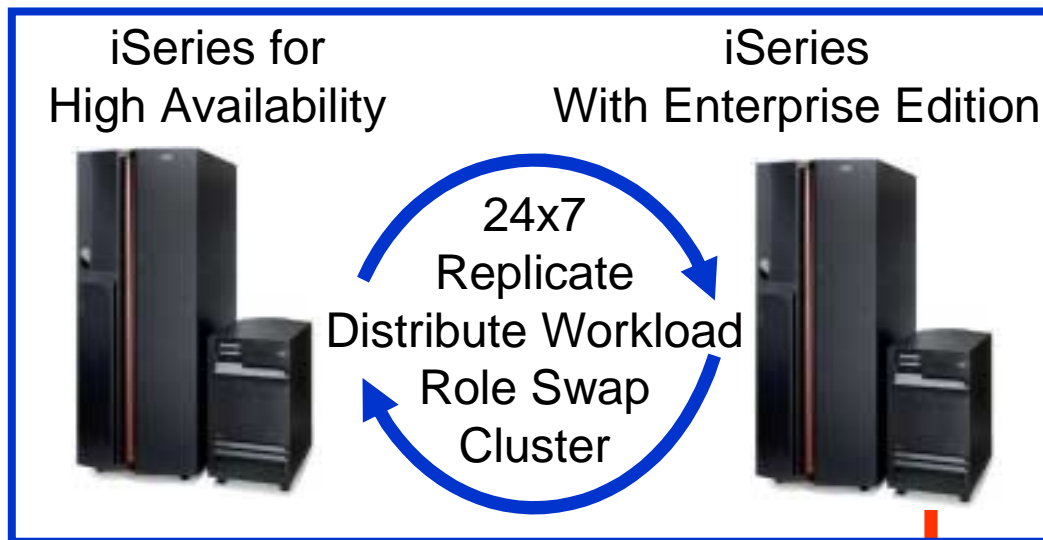*Statement of Direction: IBM plans to support AIX in a logical partition in the future.

This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.

IBM eServer iSeries

i890

i890

i870

i870

i825

i810

i810

i810

i810

iSeries 800

iSeries 800

■ Startup Capacity
■ On/Off CoD

■ Plus new business continuity offerings based on i825, i870, i890

- **iSeries for High Availability**

- **iSeries for Capacity BackUp**

The next generation iSeries…simplicity in an on demand world

Mainframe-class Business Continuity…
…iSeries-class Simplicity

iSeries for
High Availability

iSeries
With Enterprise Edition

24x7
Replicate
Distribute Workload
Role Swap
Cluster

Datacenter

Disaster Recovery Center

iSeries for
Capacity BackUp

Standby Server
for
Disaster Recovery

Business Continuity with iSeries for High Availability
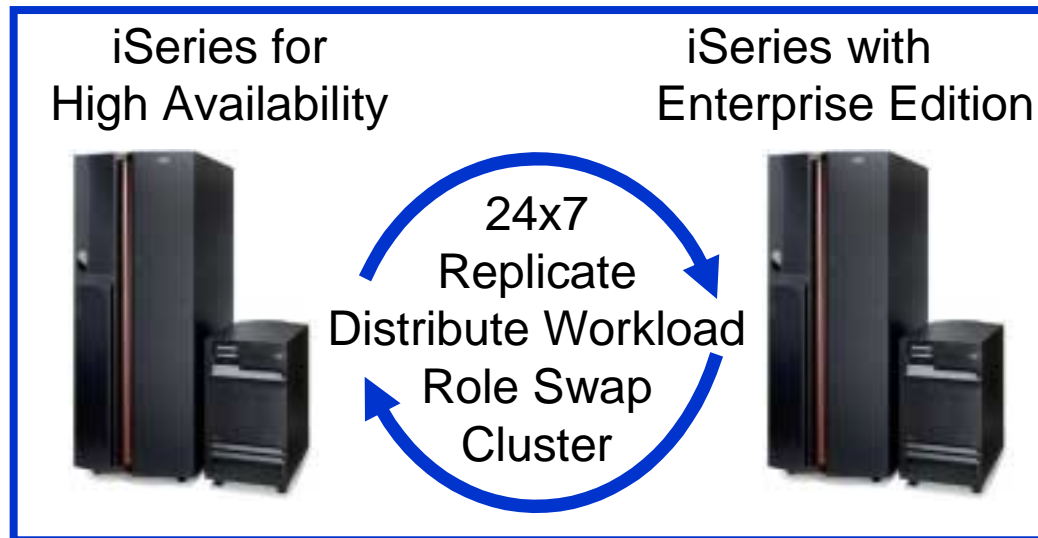
| iSeries for High Availability | 24x7 Replicate Distribute Workload Role Swap Cluster | iSeries with Enterprise Edition | **Datacenter** |

- **Support mission critical 24x7 5250 OLTP transaction environments**

  – **Complements iSeries with Enterprise Edition for high availability solutions**

  – **Options for i825 3/6 way, i870 5/8 & 8/16 way, i890 16/24 & 24/32 way**

- **Reduce planned downtime with role swapping and/or distributed workload**
- **On/Off Capacity on Demand & Capacity Upgrade on Demand options**
- **Requires high availability software from qualified vendors**

iSeries for Capacity BackUp

Disaster Recovery Center

iSeries for
Capacity BackUp

Standby Server
for
Disaster Recovery

- **A flexible standby server for off-site disaster recovery**
  - 825   1/6-Way   1250-6600 CPW
  - 870   2/16-Way   3200-20000 CPW
  - 890   4/32-Way   5600-37400 CPW

- **Startup processors can be used for any workload**

- **Standby processors deployed with On/Off Capacity on Demand**
  - **At no additional charge**
    - **During a qualifying disaster (up to 90 calendar days)**
    - **Fixed number of processor days for testing (14, 42 or 84)**
  - **Priced**
    - **All other usage is paid for by processor day**
    - **Not available for permanent activation**

Extending iSeries' Storage Support

Save and Restore Rates
Large File Concurrent Runs

- **iSeries PCI-X I/O delivers up to 5 TB backup performance**

  With IBM Ultrium LTO-2 tapes and new PCI-X Fibre Channel adapters

[Chart: Save and Restore Rates, Large File Concurrent Runs. Y-axis: TB/HR, 0 to 6. X-axis: # 3580 model 002 Tape Drives, 1 to 16. Save line and Restore line rising to 5.2 TB/HR]

5.2 TB/HR

Save
Restore

- **Improved throughput for SAN attached storage**

  –New PCI-X Fibre Channel Disk Adapter

- **More flexible tape drive options on the iSeries Model 800**

- **Raise utilization rates of tape and storage assets by exploiting the flexibility of SAN Fabric Switches and Directors**

  –Support for selected McDATA and Brocade products

The next generation iSeries…simplicity in an on demand world
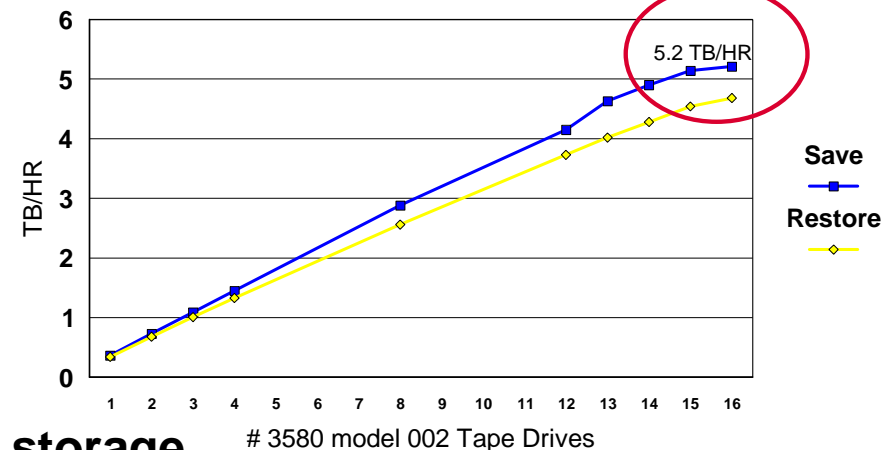
Mainframe-Class Business Continuity …World Class Backup Performance

iSeries Sets New Backup Record at 5.2 TB per hour!

"Our save rates on the i870 and IBM 3584 tape library with LTO-2 are awesome! A full system 450 GB backup now takes 1.5 hours compared to 6 hours with the i830."

Mike Shaw, iSeries Operations Manager,

Jackson Enterprises

KENDALL-JACKSON ®

WINE ESTATES, LTD.

Extending Integration with iSeries' Enterprise Edition

DB2. Data Management Software

Lotus. software

Tivoli. software

WebSphere. software

Web Server
HTTP Web Pages

Systems Management
Automation
Application Monitoring

Web Application Server
Web Transactions
Webfacing

Information Management
Integrated Messaging
Collaboration Services

Core Business Applications
Transactions
and Database

The next generation iSeries…simplicity in an on demand world

Extending Enterprise Edition Software Value
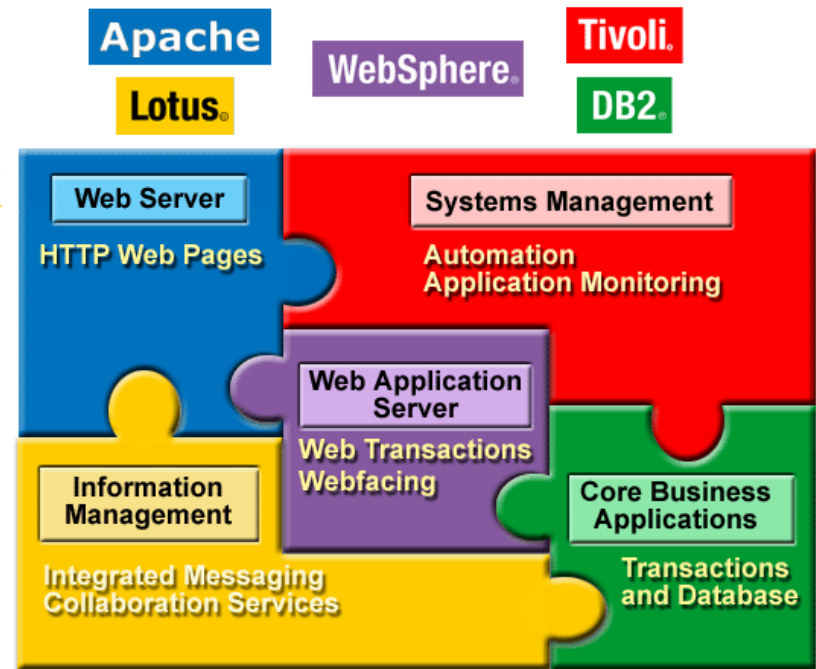## (i825, i870, i890)

Simplified Installation!

- **IBM e-business software**
  - WebSphere Application Server – Express for iSeries
  - WebSphere Portal Express Plus **New!**
  - Lotus Sametime
  - QuickPlace
  - DB2 Query Mgr and SQL Toolkit
  - DB2 SMP **New!**
  - DB2 UDB Workgroup Svr, Ed. for Linux
  - DataPropagator for iSeries
  - iSeries XML ToolKit **New!**
  - DB2 Extenders -- XML and Text

- **IBM Datacenter Management Tools**
  - Performance Tools & HA Cluster Resources
  - Media and Storage Extensions
  - Backup Recovery and Media Services
  - Tivoli Monitoring for Web Infrastructure
 - Tivoli Storage Manager Extended Edition

Apache Lotus WebSphere Tivoli DB2

Web Server
HTTP Web Pages

Systems Management
Automation
Application Monitoring

Web Application Server
Web Transactions
Webfacing

Information Management
Integrated Messaging
Collaboration Services

Core Business Applications
Transactions and Database

Notes: Licensing includes one server license for software charged by software tiers, or one license for each startup processor for software charged by processor.
For more information see http://www-1.ibm.com/servers/eserver/iseries/hardware/editions/

# IBM DB2 UDB for Linux on iSeries

- IBM DB2 UDB V8.1 is now available for Linux on iSeries

- Expanding application portfolio and extending application deployment choice

- IBM DB2 Workgroup Server Edition designed for departments and small business

  - Included with iSeries Enterprise Edition on i810, i825, i870, i890
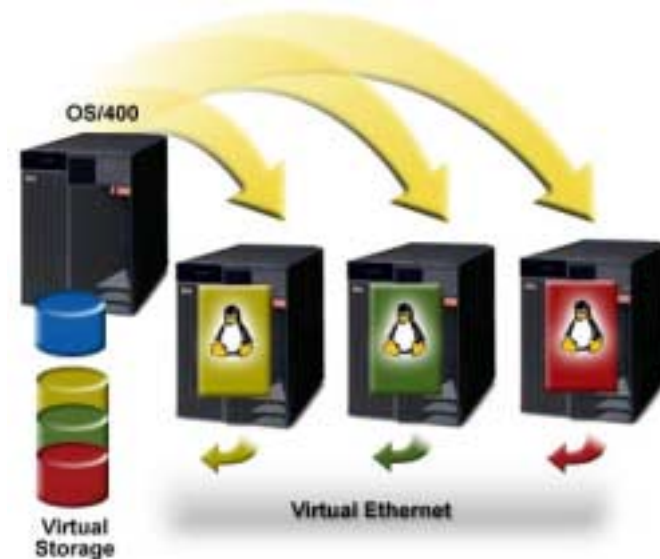
DB2 Data Management Software

WebSphere Portal Express & Portal Express Plus V5 for iSeries

- Powerful, personalized web interaction for small to mid-sized businesses

- Single point of web interaction

- GUI management integration with iSeries Navigator

- WebSphere Portal Express V5

  Base portal function

- WebSphere Portal Express Plus V5

  – Base portal function plus collaboration and instant messaging

  – Included with Enterprise Edition on i825/i870/i890

❶ Organized workspace

❷ Applications and content
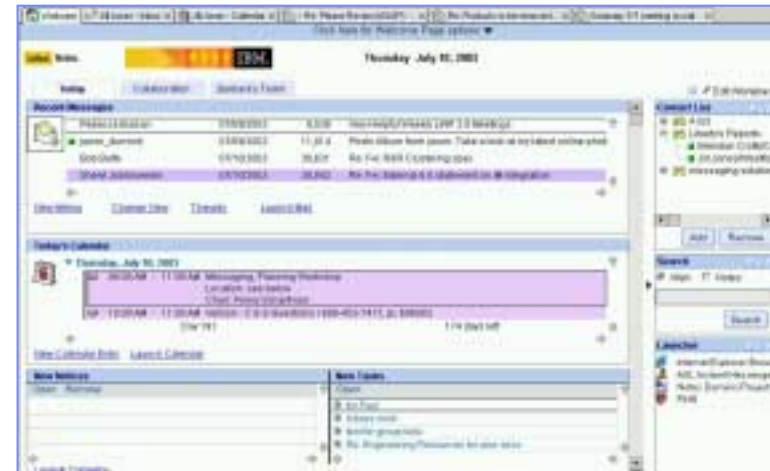
❸ Documents and search

❹ Calendar and e-mail
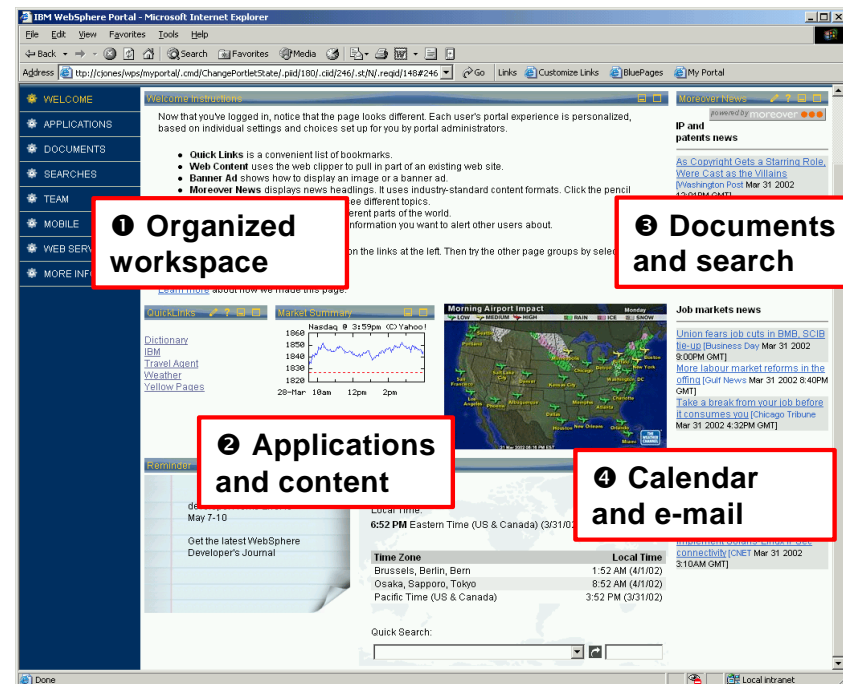
WebSphere software

Lotus Domino 6.5*

- Integrating mail clients with instant messaging
    - View who is on-line from your inbox and chat directly as you receive e-mail

- Workplace interface with 'portlet' style access to calendar etc

- Mozilla support for Domino Web Access provides first complete Linux messaging client
    - Mail, Instant Messaging, Calendar

- OS/400 enhancements:
    - Multi-versioning support allows flexible deployment/testing of multiple Domino releases in a single OS/400 system or partition
    - Domino and LEI 6.5 access to non-DB2 databases (e.g. Oracle)

* eGA 9/30/2003

Lotus. software

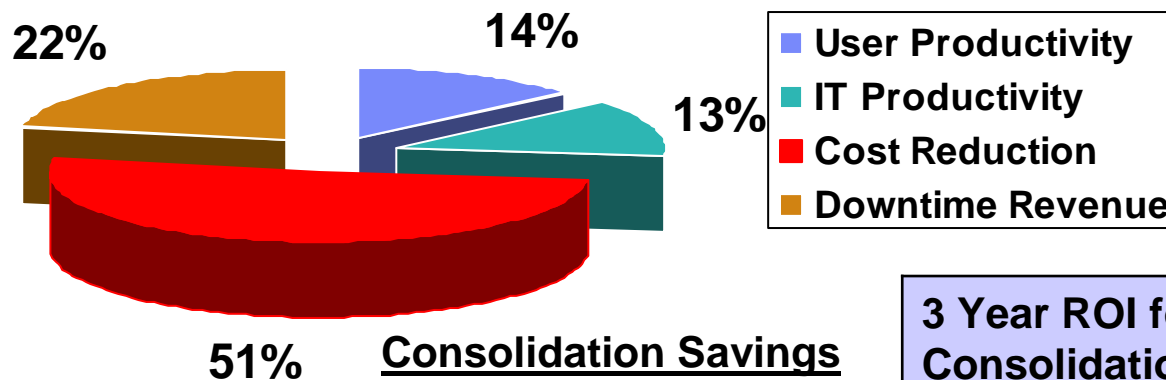The next generation iSeries…simplicity in an on demand world

Optimize IT Investments with LPAR

- iSeries has industry's leading midrange LPAR deployment rate
  - Over 55% of i825 customers using LPAR

- Lower LPAR deployment costs
  - Double the number of OS/400 partitions in a single iSeries I/O tower

  - Higher density using PCI-X Ultra 5703 RAID Disk Controller leads to lower costs

  - Between 18-45 disk drives can be deployed in up to 6 OS/400 partitions per 5094 tower

Consolidation of Windows & Linux Servers on iSeries Can Pay Back in Under 1 Year

22% 14%

13%

| ■ User Productivity |
|---|
| ■ IT Productivity |
| ■ Cost Reduction |
| ■ Downtime Revenue |

51%   **Consolidation Savings**

- Customer case studies of Windows & Linux server consolidation on iSeries

- Average ROI of 213% with payback in less than 1 year

- Monthly downtime was reduced by 90%

3 Year ROI for Server Consolidation	
	Per 100 users
Annual cost savings	$183,716
Net Present Value	$302,052
Total Investment	$141,227
ROI = NPV / Investment	213.9%
Payback	261 days
Discount Rate	12%

Source IDC White Paper July 2003: The ROI of Windows & Linux Server Consolidation on IBM eServer iSeries: Analysis and Case Studies in Small and Medium Businesses

Expanding the ISV Portfolio with Linux
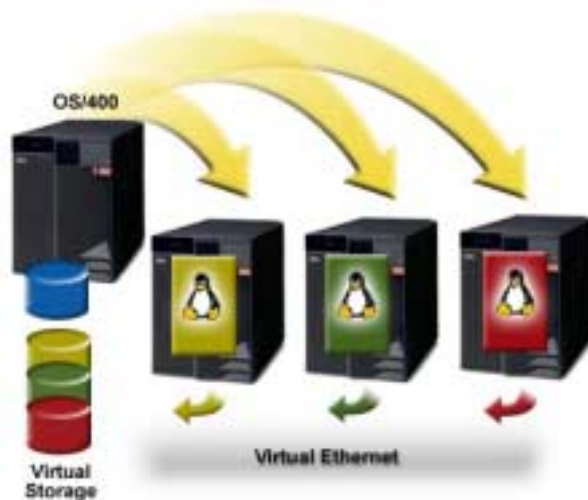
"The iSeries has enabled Brenntag Nordic to replace over 37 Windows servers with Linux. We have seen significant savings in administration costs, software licenses, and even in hardware acquisition."

Michael S. Langborg , Financial Director, Brenntag Nordic

- On demand virtualization, optimizes options, reduces complexity and cost

- Linux is growing the iSeries solution portfolio: open source, solution providers

- IBM software brings enterprise class solutions
  - IBM DB2 UDB, WebSphere Application Server, Tivoli Storage Manager

- Integrated Platform for e-business simplifies e-business deployment on Linux

DB2 Data Management Software

Windows Server Management
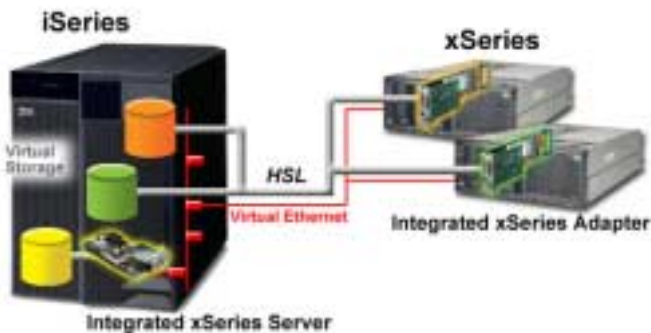
"Before consolidating on the iSeries and xSeries we required at least three dedicated administrators to run our servers…now because of its ease of use, we need only two administrators to run the new system."

Brendan Carlton
Systems Administrator, Huhtamaki

- Flexible and reliable server deployment

- Centralized server management with synchronized security

- Consolidated storage management and backup

- New Integrated xSeries Server with low voltage, 2.0 GHz Intel Xeon processor
  - Includes Hyperthreading technology, integrated Ethernet
  - Up to 4 GB memory, up to 2 TB of virtual storage

The next generation iSeries…simplicity in an on demand world

Windows Server Management

- Flexible and reliable server deployment

- Centralized server management with synchronized security

- Consolidated storage management and backup

- Exploit the performance of the latest xSeries servers
  - x235 1 or 2-way up to 3.06 GHz Xeon
  - x255, x360 1 to 4-way up to 2.8 GHz Xeon MP
  - x445 2-way, 4-way up to 3.0 GHz Xeon DP
  - x445 2-way, 4-way or 8-way up to 2.8 GHz Xeon MP

- Support for Microsoft Windows Server 2003 includes Microsoft Cluster Service
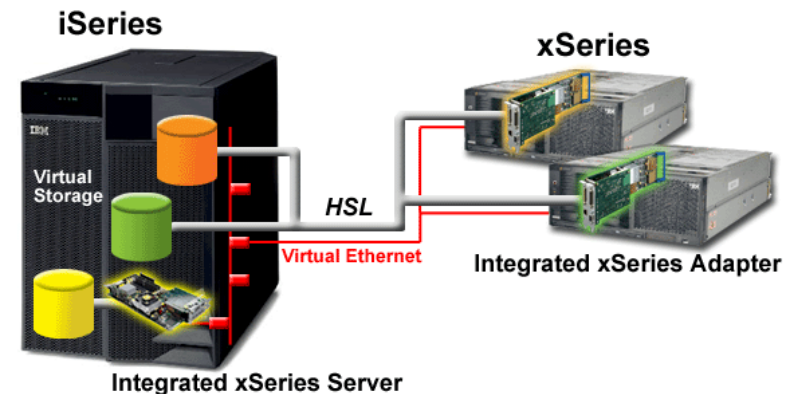
IBM eServer iSeries Technical Conferences

- The customer conference for iSeries technical experts and programmers
- Taught by IBM Rochester and Toronto experts
- Covers OS/400, IBM middleware and programming tools
- Presentations, hands-on labs, and Expo

- **US iSeries Technical Conference**
    - **October 13-17, 2003**
    - **Renaissance Hotel, Orlando, FL**
    - www.ibm.com/training/conf/us/iseries2

- **EMEA iSeries Technical Conference**
    - **October 20-24, 2003**
    - **Noga Hilton, Cannes, France**
    - **www.ibm.com/services/learning/conf/europe/iseries2/index.html**

The next generation iSeries…simplicity in an on demand world

The next generation iSeries...

...simplicity in an on demand world

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AIX/L (logo)	DB2	e-business (logo)	iSeries	pSeries	Tivoli
AIX 5L	DB2 Extenders	e-business Hosting	Magstar	Redbooks	VisualAge
Application System/400	DB2 OLAP Server	e-business on demand	MQSeries	SecureWay	WebSphere
AS/400	DB2 Universal Database	FlashCopy	Operating System/400	SmoothStart	X-Architecture
AS/400e	DRDA	IBM	OS/400	SQL/400	xSeries
Chipkill	e(logo)server	IBM (logo)	Parallel Sysplex	System/36	zSeries

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The next generation iSeries…simplicity in an on demand world

iSeries Infoprint Announcement

Enhancements to Infoprint Server and Infoprint Designer

E-output

- E-business is changing the face of business communications

  Traditional information methodology has been "print and distribute"

  Networks, Internet, and electronic documents are transforming this methodology

  Electronic documents mean:

  - Tie to preprinted form is broken
  - Flexibility in content
  - Flexibility in delivery

  Networks and Internet drives e-business process reengineering

  - Printing, if required, must take place later in the flow
  - Electronic documents and reports can flow as the process requires

- The output of e-business - "E-output"

  Ability to create fully electronic pages of information and deliver them to the desired destination in the desired format
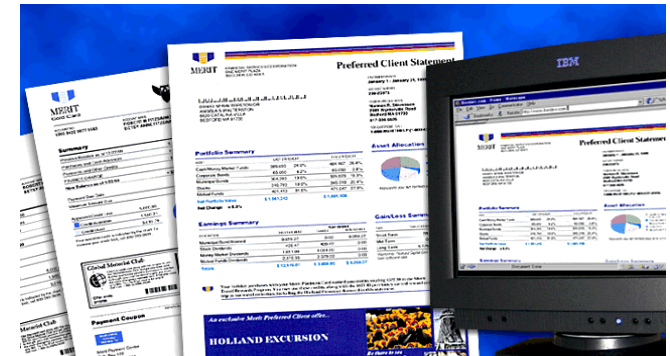
Output Management ROI

- Printing and distribution costs
- Increased productivity, service level with decreased cycle time
- Expanded options with electronic reports/documents
  - Additional delivery (forwarding, multi-channel profiles)
  - Archival or Web posting for on demand access
  - Indexing and search
- New applications (ie. Electronic bill payment)
- Competitive advantage
- NET: High ROI with short payback period

Infoprint e-Output Scenarios

- Publish or archive output to database (IFS)
- Electronic report or document distribution via e-mail
- Segmentation of print files ("electronic burst and bind")
- Re-queue print files or segments as PDF for printing
- **Intelligent routing of output**
- Re-queue print segments as AFP for downstream functions
- Access PDF and electronic output functions via iSeries Access (CA/400) and iSeries Access for Web
- Transform ASCII print to iSeries format for iSeries print serving
- Portable AFP electronic delivery
- Convert web image formats to iSeries image format
- Implement full color in business documents

Intelligent Routing

- **Scenario** - Order entry has been re-engineered to the Web. However, the back end of the order process -- the order confirmation -- is still printed and mailed in hardcopy
- **Requirement** – Electronic delivery including automatic segmentation of order confirmations, retrieval of e-mail profile, distribution in PDF format.
- **Advanced Requirement** – Ability to profile each print file or print file segment, and determine what actions are to be performed on each segments – Intelligent Routing.

V5R2+ - August 2003 Enhancements

- Intelligent Routing
- Command interface for multi-channel output implementation
- PDF enhancements
- Full color image in iSeries documents
- Infoprint Designer (V1.14) new functions

iSeries Infoprint Announcement Webcast | August 2003 | I

Infoprint Designer

Overlays

Fonts

Page Segments

Page & Form Definitions

Infoprint Server
Image Transforms

Page Resources

Output Applications

Infoprint Server
Postscript, PCL, PDF to AFP Transforms

iSeries Output Architecture

Output Queues

Print Drivers

OS/400

Host Print Transform

PSF/400

SCS

PCL

PDF

IPDS

Infoprint Server
AFP to Web and Segmentation Indexing

Infoprint Server
Intelligent Routing and PDF Subsystem

E-mail
PDF
Web
Print
Other

PDF Mapping Object

PDF Mapping Program

- or -

User Exit Program

IBM

Intelligent Routing

- Built on V5 segmentation support
- Enables customized delivery action by segment . . facilitating print, post or archive, email, fax, and re-queue
- Multiple actions per segment
- Respool of individual segments as AFP
- Action profile via user exit or new command interface

Spooled File

| CUST 1 |
| CUST 2 |
| CUST 3 |
| CUST 4 |
| CUST 5 |
| |
| CUST N |

User Exit

PDF
Mapping
Command
Interface

► EMAIL
► FAX
► PRINT
► IFS
► EMAIL+ FAX
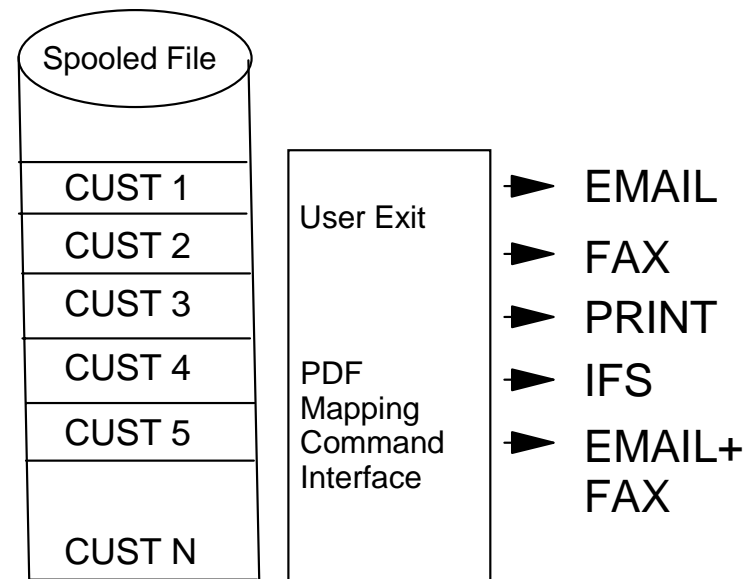
Customization Command Interface

- New non-programmed interface for defining print file and print segment action to Infoprint Server
- Alternative to existing user exit interface
- Interface is PTF'ed in V5R2, integrated as PDF mapping object next release
- Defines input documents, desired action(s)

PDF Enhancements

- Access to PDF functions via command or user exit
- PDF security

  Encryption

  Password protection

  Revision protection

- PDF color

  Full color document content

- PDF rotation control
- Full control over PDF filename and IFS directory
- Reduction in PDF file sizes
- Support for 2D barcodes and Planet barcode

Infoprint Designer for iSeries

- State-of-the-art document design system for iSeries
- Three integrated design editors: image, overlay, layout
- Integrates seamlessly into iSeries output architecture
  - Design integration
  - Production integration
  - Creates standard iSeries document resources
- Geared for non-technical user with additional interfaces for the technical user
- Professional, high-precision design functions matched to requirements of business communications
- Re-engineer existing application output without changes to application program
- Entire AFP font set built in

Enhancements to Infoprint Designer

- Easy to use design wizard for complex design operations
- 2D barcode support (UPS MaxiCode, Datamatrix, PDF417
- Finishing, including group or sub-document levels
- National language support
- Expanded design examples
- MICR fonts for check applications
- Line data input to ease of updates
- Full color images (FS45 IOCA)
- Image editing enhancements, included shaded images (watermarks)
- Enhanced document preview, including duplex and constant back
- Base version continues as V4R5, enhancements at level 1.14

Delivery

- **Infoprint Server**

  PTF 1: SI09449 (July 15, see co-reqs and pre-reqs)

  PTF 2: II13623 (planned for early September 2003)

- **Infoprint Designer**

  Base release is V4R5

  Current version is 1.14

  PTF SF67740 (see PTF for co-reqs)

- **Infoprint Server functions rolled into next OS/400 release**

Resources

- iSeries Guide to Output (S544-5319)
- IBM AS/400 Printing VI (SG24-6250)
- Infoprint Server for iSeries Users Guide (G544-5775)
- Getting Started with Infoprint Designer (G544-5773)
- 2-part series in iSeries News (August, November)
- Overview in eServer iSeries Magazine (August)
- Web info on www.ibm.com/iseries/printing
- Planned Redbook update
- Education

    Infoprint Designer University (K2516)

    Infoprint Server University (K2518)

    Custom on-site training/implementation

Summary

- Infoprint focuses on "e-output" business transformation
- Infoprint Server focuses on multi-channel document/report delivery
- August 2003 functions significantly extend output capabilities and ease of use
- Delivery via PTFs, function rolled into next OS/400 release
- Enhancements to Infoprint Designer for electronic document design
- Reference info and training available to implementation

iSeries Developer Roadmap
Enterprise Moderization

Alison Butterill
IBM Toronto Development Lab
butteril@ca.ibm.com

iSeries Developer Roadmap

Better Tools ●——● **Better Interfaces** ●——● **Better Architecture** ●——● **Better Portability** ●——● **Better Scalability**

Extend skills from traditional RPG base toward J2EE

Modernize applications for e-business

Create new solutions and business value

iSeries Developer Roadmap

Better Tools ━━● Better Interfaces ━━● Better Architecture ━━● Better Portability ━━● Better Scalability

WebSphere Development Studio Client

WebSphere Express

iSeries Developer Roadmap

Better
Tools

**Better
Interfaces**

Better
Architecture

Better
Portability

Better
Scalability

JavaScript

HTML

WebFacing

HATS

The next generation iSeries…simplicity in an on demand world

iSeries Developer Roadmap

Better Tools ● **Better Interfaces** ● **Better Architecture** ● **Better Portability** ● **Better Scalability**

J2SE

Java

Servlets

JSPs

The next generation iSeries…simplicity in an on demand world

iSeries Developer Roadmap

Better Tools ⟶ **Better Interfaces** ⟶ **Better Architecture** ⟶ **Better Portability** ⟶ **Better Scalability**

WebServices

SOAP

WDSL

XML

iSeries Developer Roadmap

Better Tools ● **Better Interfaces** ● **Better Architecture** ● **Better Portability** ● **Better Scalability**

> **J2EE**
>
> **Enterprise Java Beans**
>
> **WAS V5.0**
>
> **Java Messaging Services**
>
> **Java Connectivity Architecture**

The next generation iSeries…simplicity in an on demand world