IBM i 7.1 Overview

i for Business

Paul Masschelein
Senior IT Specialist

Power your planet.

IBM

Power your Planet

Workload-Optimizing Systems

+

Management
Energy
Security
Availability
Operating Systems
Virtualization

IBM®
Systems Software

AIX for Business Linux

AIX - The Future of UNIX

Total Integration with i

Scalable Linux ready for x86 Consolidation

Virtualization without Limits
✓ Drive over 90% utilization
✓ Dynamically scale per demand

PowerVM™

Dynamic Energy Optimization
✓ 70-90% energy cost reduction
✓ EnergyScale™ technologies

POWER7™ BUILT ON
7 Power™

Resiliency without Downtime
✓ Roadmap to continuous availability
✓ High availability systems & scaling

PowerHA™

Management with Automation
✓ VMControl to manage virtualization
✓ Automation to reduce task time

IBM® Systems Director

Systems for a Smarter Planet
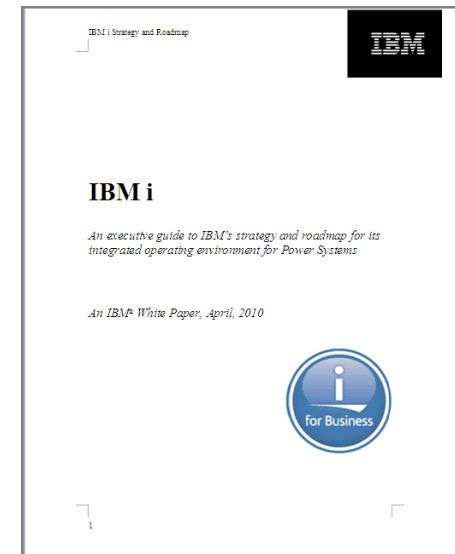
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IBM i Strategy and Roadmap

- *"Our commitment to our IBM i clients, ISVs and business partners is solid and unchanged. With our clearly defined processor and software roadmap, we are making substantial investments in the future of IBM i as an important, strategic element in the IBM systems portfolio.*
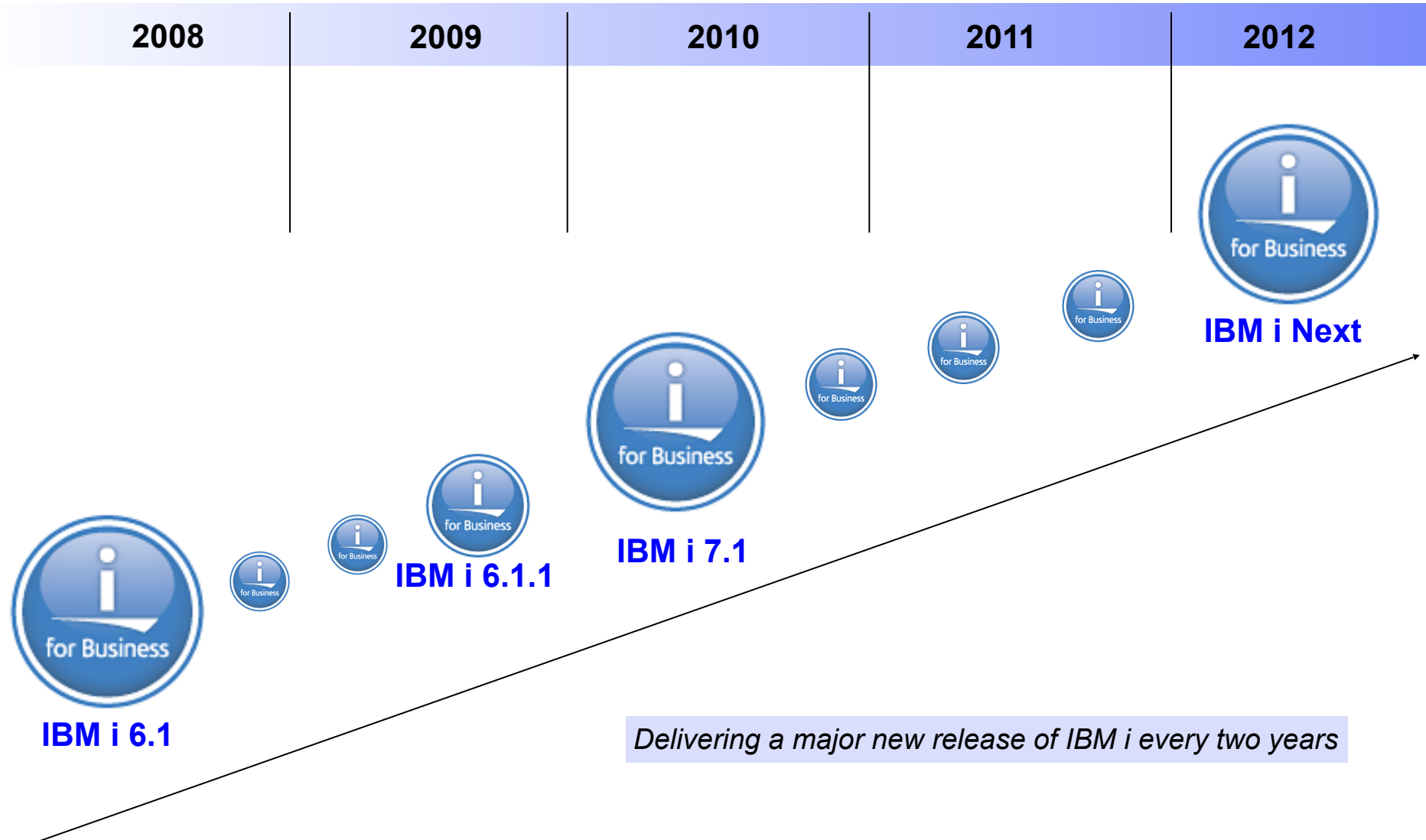
Ross

General Manager, IBM Power Systems

- **New IBM white paper**
  Includes information about the IBM i market, Power Systems and IBM i roadmaps, plus the latest information on POWER7 and IBM i 7.1

http://www.ibm.com/systems/power/software/i/rossmauri/index.html

IBM i Strategy and Roadmap

IBM i

An executive guide to IBM's strategy and roadmap for its integrated operating environment for Power Systems

An IBM® White Paper, April, 2010

i for Business

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IBM i Roadmap

2008	2009	2010	2011	2012

IBM i Next

IBM i 7.1

IBM i 6.1.1

IBM i 6.1

Delivering a major new release of IBM i every two years

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Power is...

Workload-Optimizing Systems

Virtualization without Limits

Resiliency without Downtime

Dynamic Energy Optimization
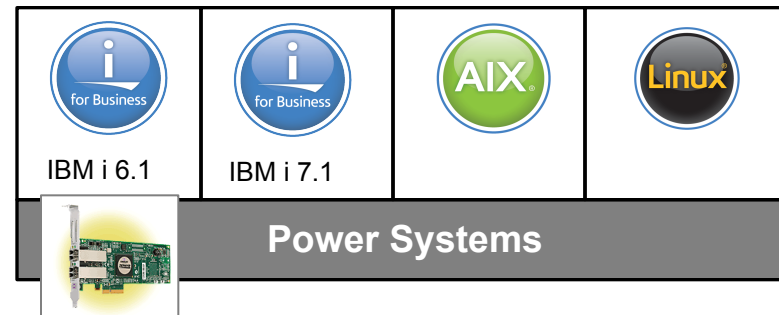
Management with Automation

Integrated Value

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IBM i 7.1 Announcement Highlights

- **DB2**
  - Support for XML and column level encryption

- **PowerHA**
  - Async Geographic Mirroring & LUN-level switching

- **Virtualization**
  - IBM i 6.1 virtualization for i 7.1 partitions

- **Solid State Drives**
  - Automatic movement of hot data to SSDs

- **Open Access for RPG**
  - Extend application reach to pervasive devices

- **Zend Server Community Edition**
  - PHP environment preloaded with IBM i

- **Systems Director Navigator**
  - Richer management of IBM i via Systems Director Navigator

PO #	Customer #	Date	Credit Card	Purchase Order
123	2468	5/27/09	&#^$&$^	~ XML ~

IBM i PowerHA — IASP → IBM i PowerHA — IASP

IBM i 6.1	IBM i 7.1	AIX	Linux
for Business	for Business		

Power Systems

Announce April 13
GA   April 23

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DB2 for i – XML Support

- **XML is an industry standard for exchanging information between customers, suppliers, and partners**

- **Rich XML Support now available with DB2 for i**
  1. XML data type stores XML documents supporting database operations
  2. Decompose (shred) XML documents into relational columns
  3. Generate XML documents from existing relational data

- **OmniFind Text Search Server provides support for searching XML documents**
  – Search elements of an XML document (e.g., customer name = Smith)
  – SQL statements use OmniFind to search the XML documents
  – Available with IBM i for no additional charge

- **Strategic replacement for XML Extenders Program Product**

PO #	Customer #	Date	Purchase Order
123	2468	5/27/09	~ XML ~
456	1357	6/10/09	~ XML ~

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DB2 for i - Additional Enhancements

- ## Column Level Encryption
  - Allows for transparent (no application changes) encryption of a specific column in a database table accessed through SQL or native
  - Solutions from tool providers including Patrick Townsend, and Linoma Software supply encryption algorithms

First Name	Last Name	City	State	Credit Card#
Megan	Jones	Minneapolis	Minnesota	*&^%$*
Casey	Smith	Ames	Iowa	$%@^

- ## Application Developers
  - MERGE, Array support, Global Variables, and consuming result sets in RPG allows for more powerful and efficient programming

- ## Performance
  - *Adaptive Query Processing* can modify query plan while the query is running to significantly improve performance
  - *Advanced SQE query* optimizer now supports native logical files

- ## Management
  - New tooling to monitor long running operations
  - SQL_CANCEL procedure to cancel long running queries.
  - Random or Sequential I/O statistics to identify tables that can benefit from SSDs

On-Demand Performance Center
- Rich tools for DB2 for i
- Including Visual Explain
- Adaptive Query Processing can automatically build an index to replace table scan ... taking queries from 30 minutes to 1 minute

DB2 is an integrated database supporting transaction processing and business intelligence applications

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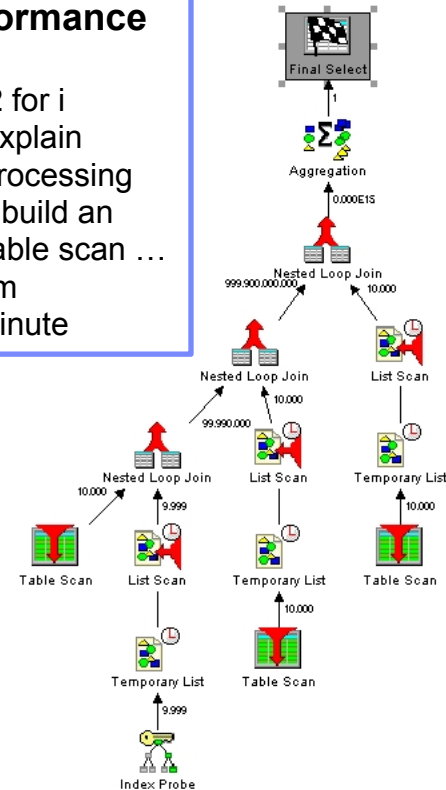
DB2 Web Query enhancements for 2010
Make Better Business Decisions and Improve Customer Service

- **Support for IBM i 7.1**

- **New functions for IBM i 5.4, 6.1 and 7.1**
  - Meta data security and password control
  - Simplified object distribution
  - Performance enhancements
  - Usability/functional enhancements
  - Additional application or data source support

- **DB2 Web Query supports querying XML documents with IBM i 7.1**
  - Combine DB2 XML Support with Omnifind text search capabilities
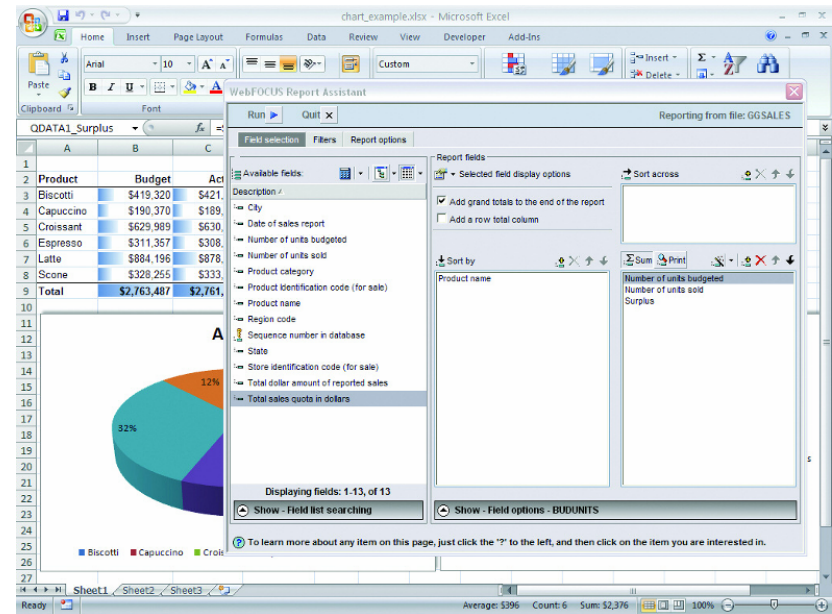
DB2 Web Query provides an integrated Query/400 replacement product with Business Intelligence extensions that offer rich functionality and breakthrough performance

9

Resiliency Without Downtime -- PowerHA

## *High availability solutions for UNIX, and i clients*

- Cluster management solutions for high availability
  - Can enable near continuous application service
  - Minimize impact of planned and unplanned outages
- PowerHA™ SystemMirror for AIX®
- PowerHA SystemMirror for i
- PowerHA pureScale

**www.ibm.com/systems/power/software/availability**

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Power HA SystemMirror Strategy
Simplification – Usability- Reliability

- **Solution Package Optimization & Standardization**
  - Standard Edition
  - Enterprise Edition
- **Deep Integration with AIX and/or IBM i**
  - Cluster Aware AIX (7.1)
  - Cluster Aware i (HASR)
- **Ease of use**
  - Smart defaults, graphical interfaces
- **Storage Integration & Disaster Recovery**
  - Extend PowerHA storage support
- **Middleware optimization**
  - Out of the box HA agents for popular AIX middleware environments
  - IASP enabled commercial applications for IBM i
- **Virtualization**
  - Exploit and align with Power Systems platform virtualization
- **Cluster wide resource management**
  - Single point of control

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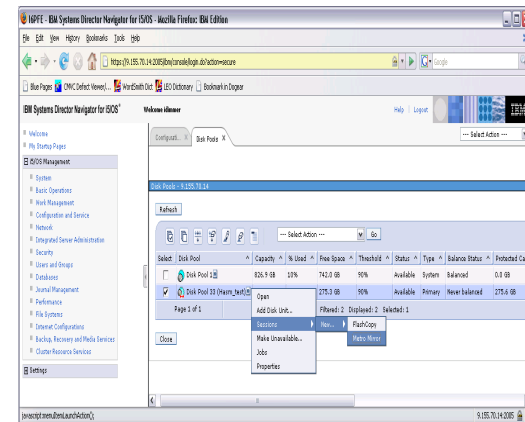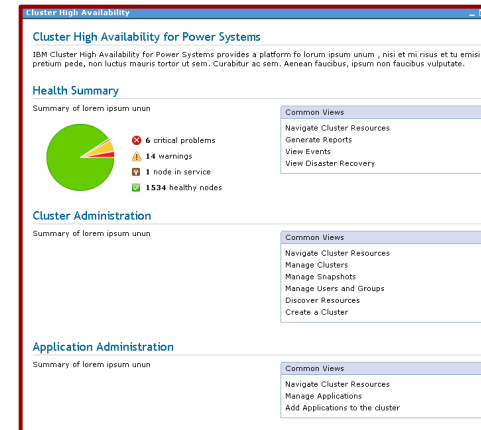
PowerHA SystemMirror for IBM i 7.1 Highlights

- **PowerHA SystemMirror Standard Edition** targeted at data center high availability solutions

- **PowerHA SystemMirror Enterprise Edition** adds support for multi-site high availability and disaster recovery solutions

- **Geographic Mirror async mode**
  - Host based mirroring for geographic dispersion

- **LUN level switching**
  - A set of disks on a DS8000 or DS6000 are switched between servers for high availability operations

- **Enhanced cluster capabilities**
  - Geomirror performance
  - Cross Sysbas/IASP transaction support
  - Enhanced failure detection

- **IPV6 support**

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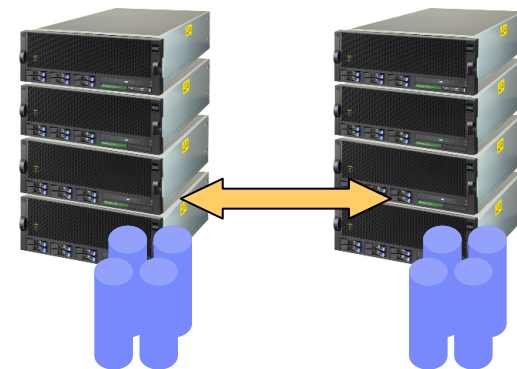
PowerHA SystemMirror for i

- **Asynchronous Geographic Mirroring for multi-site DR solution**
  - IBM i based mirroring for geographically dispersed systems
  - Asynchronously mirrors disk writes to target system
  - Support for automatic failover
 - Supports IASPs on integrated disk, SAN, and virtual disk

- **Space-Efficient Flash Copy**
  - Working with IBM DS8000 function to allow Flash Copy without requiring double DASD

- **LUN level switching for local HA solution**
  - Switch IASP on DS8000 or DS6000 between local systems
  - Support for automatic failover
  - Supports native and VIOS with NPIV attached SANs

PowerHA provides a robust, simple to manage High Availability and Disaster Recovery solution

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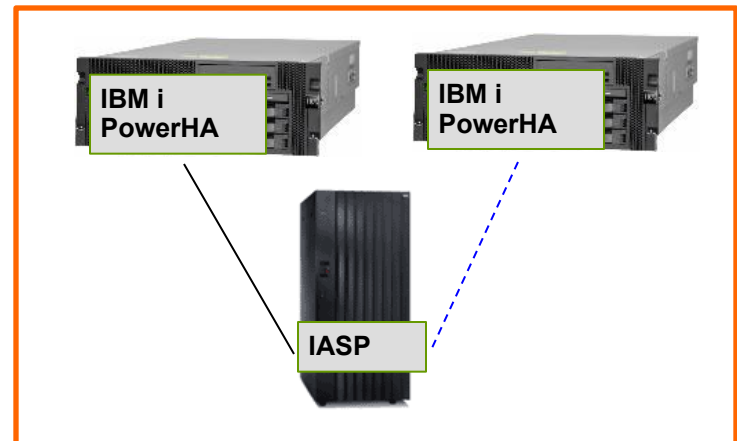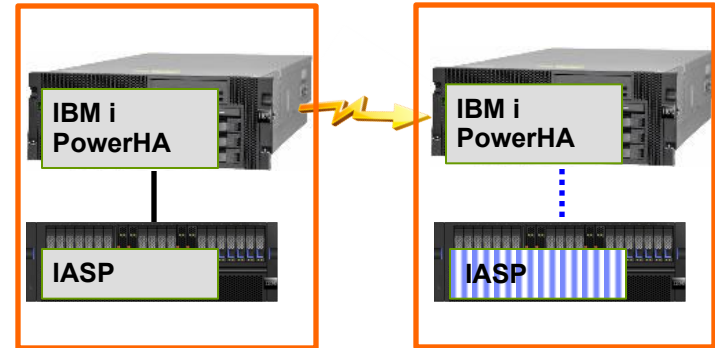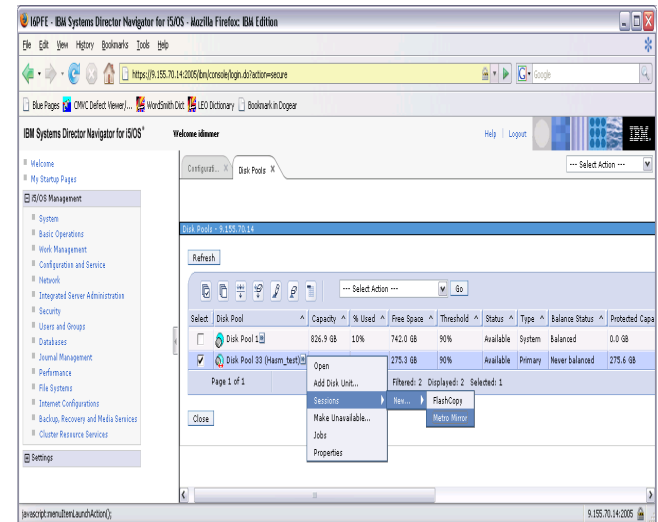
PowerHA SystemMirror Editions

PowerHA SystemMirror for i Standard Edition

- Cluster management for the **data center**
  - Monitors, detects and reacts to events
  - Establishes a heartbeat between the systems
  - Enables automatic switch-over

- IBM shared storage clustering
  - Can enable near-continuous application service
  - Minimize impact of planned & unplanned outages
  - Ease of use for HA operations
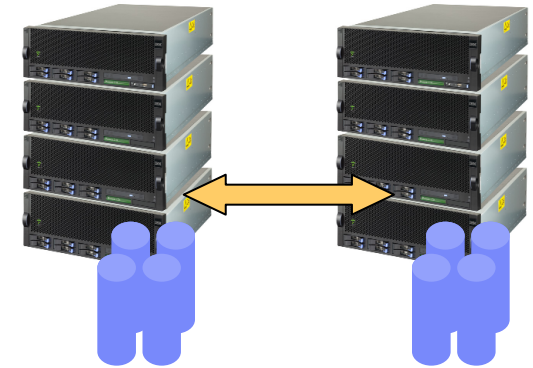
PowerHA SystemMirror for i Enterprise Edition

- Cluster management for the **Enterprise**
  - Multi-site cluster management
  - Includes the Standard Edition function
  - Optimized for IBM storage
  - Geographic mirroring async mode

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PowerHA SystemMirror for IBM i Editions

- Standard Edition targeted at datacenter HA

- Enterprise Edition targeted at multi-site HA/DR

- New tiered pricing structure lowers costs of HA/DR solutions for mid-sized businesses

- Advanced Copy Services for PowerHA Enterprise Edition or Standard Edition

IBM i HA/DR Clustering	Standard Edition	EnterpriseEdition
Centralized cluster management	✓	✓
Cluster resource management	✓	✓
Centralized cluster configuration	✓	✓
Automated cluster validation	✓	✓
Cluster admin domain	✓	✓
Cluster device domain	✓	✓
Integrated heartbeat	✓	✓
Application monitoring	✓	✓
IBM i event/error management	✓	✓
Automated planned switch over	✓	✓
Managed unplanned fail over	✓	✓
Centralized Flash Copy	✓	✓
LUN level switching	✓	✓
Geomirror Sync mode	✓	
Geomirror Async mode		✓
Multi-Site HA/DR management		✓
DS8000/DS6000 Metro Mirror		✓
DS800/DS6000 Global Mirror		✓

PowerHA™ i for Business

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# Virtualization Enhancements for IBM i

- ## Deploy new IBM i 7.1 partitions
  - *IBM i 6.1 can host I/O for i 7.1 partition*
  - Minimize change while deploying new release
  - iSCSI attached System x and BladeCenter

IBM i 6.1 | IBM i 7.1 | IBM i 6.1 | AIX | Linux

POWER6 & POWER7

- ## Maintain current IBM i 6.1 partitions
  - *IBM i 7.1 can host I/O for i 6.1 partition*
  - Continue to run applications with IBM i 6.1 while leveraging new capabilities of IBM i 7.1
  - iSCSI attached System x and BladeCenter

IBM i 7.1 | IBM i 7.1 | IBM i 6.1 | AIX | Linux

POWER6 & POWER7

- ## PowerVM VIOS can host
  - *PowerVM can host IBM i 7.1 and 6.1 partitions*
  - AIX and Linux partitions
  - VIOS supports advanced virtualization technologies including Active Memory Sharing and NPIV

VIOS | IBM i 7.1 | IBM i 6.1 | AIX | Linux

POWER6 & POWER7

Storage Virtualization can reduce costs while improving IT infrastructure flexibility

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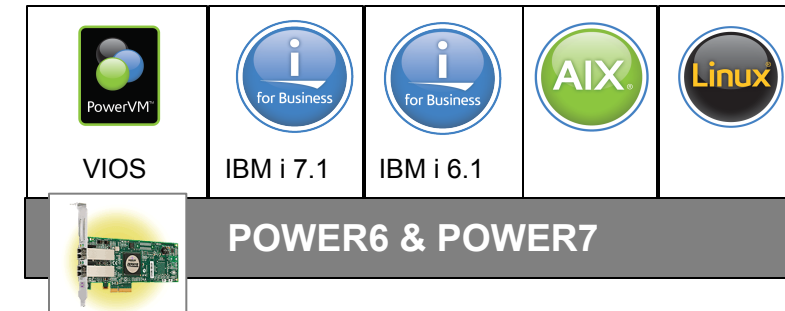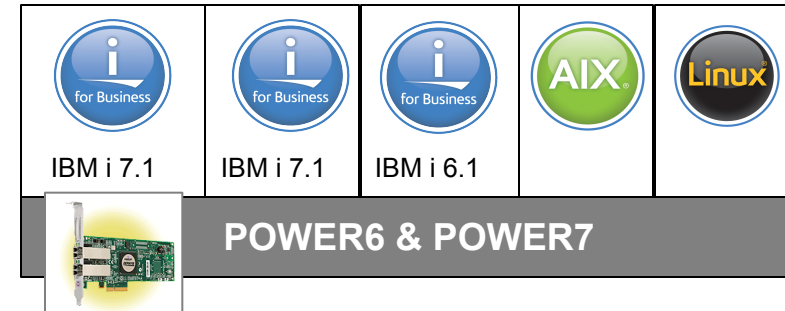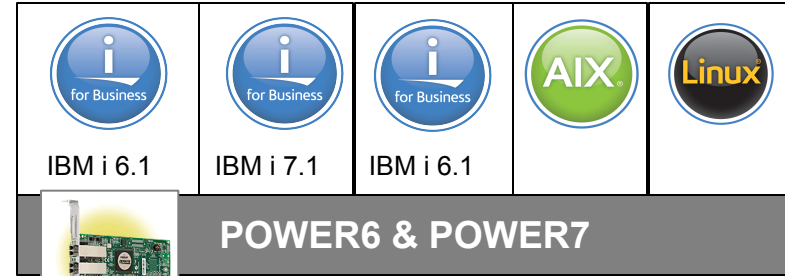
IBM i integration with BladeCenter and System x Enhancements

- **iSCSI Software Target Supports Higher Speed Connection**
  - Replaces current iSCSI adapter on Power server side with software in IBM i
  - Uses Ethernet adapters and network to connect Power to BladeCenter and System x
  - Supports 1 Gb and 10 Gb Ethernet connections
  - Can connect to iSCSI adapter or software initiator on BladeCenter and System x

- **Supported Environments**
  - Windows Server 2008 and 2003 Server editions
  - VMware ESX 4.0
  - VMware ESXi Embedded 4.0

- **New installation wizard**
  - Simplifies setup of integration environment and then starts install of Windows Server or VMware operating system
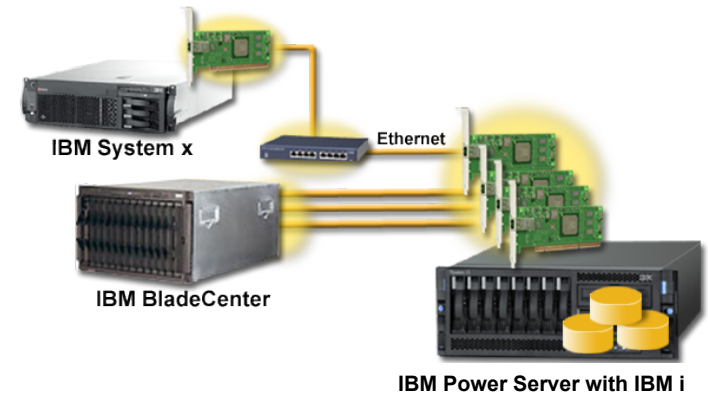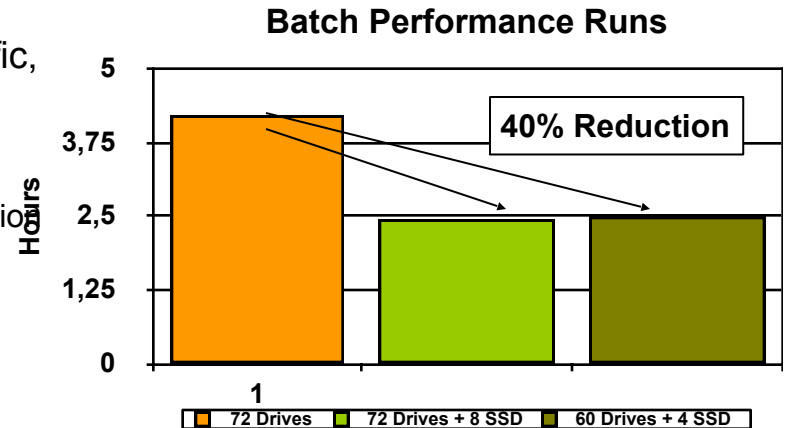
IBM i provides advanced storage management for x86 systems enabling cost reductions and better risk management

IBM System x
Ethernet
IBM BladeCenter
IBM Power Server with IBM i

Create Server - Localhost 00:00:01

Create Server
→ Welcome
Operating System
System Storage
Server Hardware
iSCSI Target
Memory Pool
Name
Summary

Welcome

Welcome to the Create Server Wizard.
This Wizard will help you create a server that uses IBM i virtual storage. It will guide you through the following tasks:

⇒ Selecting an operating system.
⇒ Allocating IBM i virtual storage for the server operating system, if necessary.
⇒ Selecting the hardware for the server.
⇒ Selecting an IBM i iSCSI target to use for I/O.
⇒ Selecting an IBM i memory pool to use for I/O.
⇒ Providing a name to identify the server configuration on IBM i.

Note: Review the iSCSI install read me first Web page before using this Wizard.

☐ Skip this **Welcome** page next time.

< Back | Next > | Finish | Cancel

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IBM i workload optimization for Solid State Drives (SSD)

- **Total integration with IBM i of database, storage management and performance management enable automated SSD optimization**

- **IBM i automatically moves most active data to SSDs**

- **Clients and ISVs can easily optimize applications for SSD**
  - DB2 for i supports specifying SSD as target for specific, high use files

- **SSD Analyzer Tool**
  - Designed to help determine if SSDs can help improve application performance   hot data
  - Runs on IBM i 5.4, 6.1 or 7.1
  - Plus additional enhancements and utilities

Associated Bank Reduces Batch Run Time by 40% with SSDs*

Batch Performance Runs

| | 40% Reduction |

Hours axis: 5, 3,75, 2,5, 1,25, 0

| 72 Drives | 72 Drives + 8 SSD | 60 Drives + 4 SSD |

SSDs can improve performance of long running batch jobs or queries.   IBM i can easily get the right data on the SSDs

72 Drives replaced by 60 Drives + 4 SSD

*http://www.ibmsystemsmagpowersystemsibmidigital.com/nxtbooks/ibmsystemsmag/ibmsystems_power_200909/index.php#/16
Download http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS3780

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SSD Analyzer Tool for IBM i

- Quick, easy, no-charge analysis introduced 4Q 2009
- Looks at standard performance report output –
- Provides "probably yes", "probably no", or "maybe

```
                        SSD ANALYSIS TOOL (ANZSSDDTA)

 Type choices, press Enter.

 PERFORMANCE MEMBER . . . . . . .    *DEFAULT__     Name, *DEFAULT
   LIBRARY  . . . . . . . . . . .    _____     Name

                          Additional Parameters

 REPORT TYPE . . . . . . . . . .     *SUMMARY      *DETAIL, *SUMMARY, *BOTH
 TIME PERIOD::
   START TIME AND DATE::
   BEGINNING TIME . . . . . . . .    *AVAIL__      Time, *AVAIL
   BEGINNING DATE . . . . . . . .    *BEGIN__      Date, *BEGIN
   END TIME AND DATE::
   ENDING TIME  . . . . . . . . .    *AVAIL__      Time, *AVAIL
   ENDING DATE  . . . . . . . . .    *END____      Date, *END
 NUMBER OF RECORDS IN REPORT  . .    50__          0 - 9999


                                                              Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys
```

Available via www.ibm.com/support/techdocs in "Presentations & Tools".
Search using keyword SSD

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Systems Management Enhancements

- **Systems Director Navigator for i**
  - Ability to manage a target IBM i 5.4, 6.1 or 7.1 system
    - Navigator management server runs in one place
    - One browser used to manage multiple environments
    - Extends Navigator management to IBM i 5.4
  - Support for Tape and Journal management and BRMS

- **Performance Management Enhancements**
  - More metrics into Collection Services: DS8000, 12X Bus, Save/Restore, and Tape
  - Performance Data Investigator is enhanced to include Disk response time and Java memory perspectives

- **Systems Director Enhancements**
  - New functions for managing IBM i
  - Management server runs on AIX, Linux, or Windows
  - Manages IBM i 6.1 and 7.1 environments

Systems Director provides an integrated platform management solution for IBM i and heterogeneous servers

Disk I/O Rates Overview - Detailed
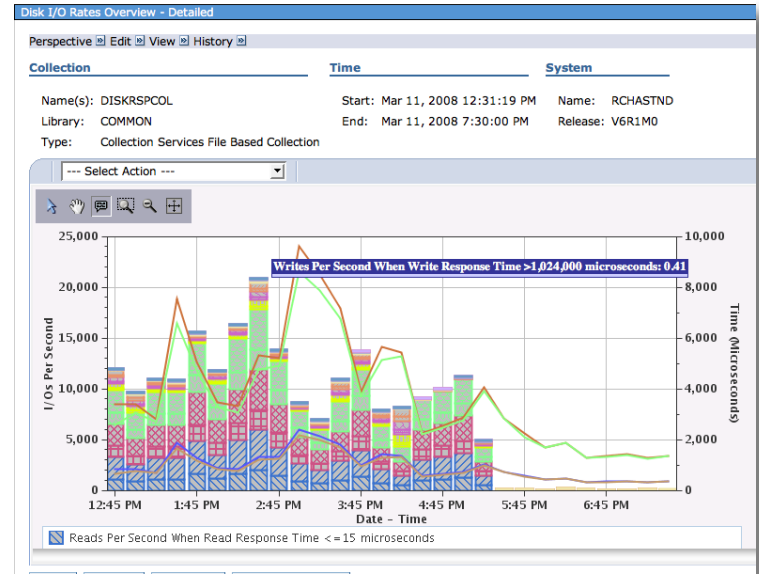
Systems Director	6.1.1 2Q 09	6.1.2 4Q 09	6.2 2Q 10
Support Group and CUM PTFs	✓	✓	✓
6.1.2 Agent for IBM i		✓	✓
Additional monitors			✓

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IBM i Network Upgrade Simplifies Upgrading Multiple Systems

IBM

DVD

Electronic
software
distribution

NFS Server

Save IBM or
Custom Image

SAVSYS, SAVOBJ, SAVLICPGM…
to NFS Device

IBM i 6.1 (CRTDEVOPT *SRVLAN)

6.1 Base Support
• Installation of LPs, and PTFs onto a IBM i 6.1 system

October 2009 – 6.1.1 Support
• Upgrade to IBM i 6.1.1 from i 6.1 system

April 2010 – 7.1 Support
• Upgrade to IBM i 7.1 from i 6.1 or i 6.1.1

Future Plan*
• Scratch install of new system
• IBM i 6.1, IBM i 6.1.1, or IBM i 7.1

Install / Restore

**POWER6 server
POWER7 server**

IBM i 6.1 or later
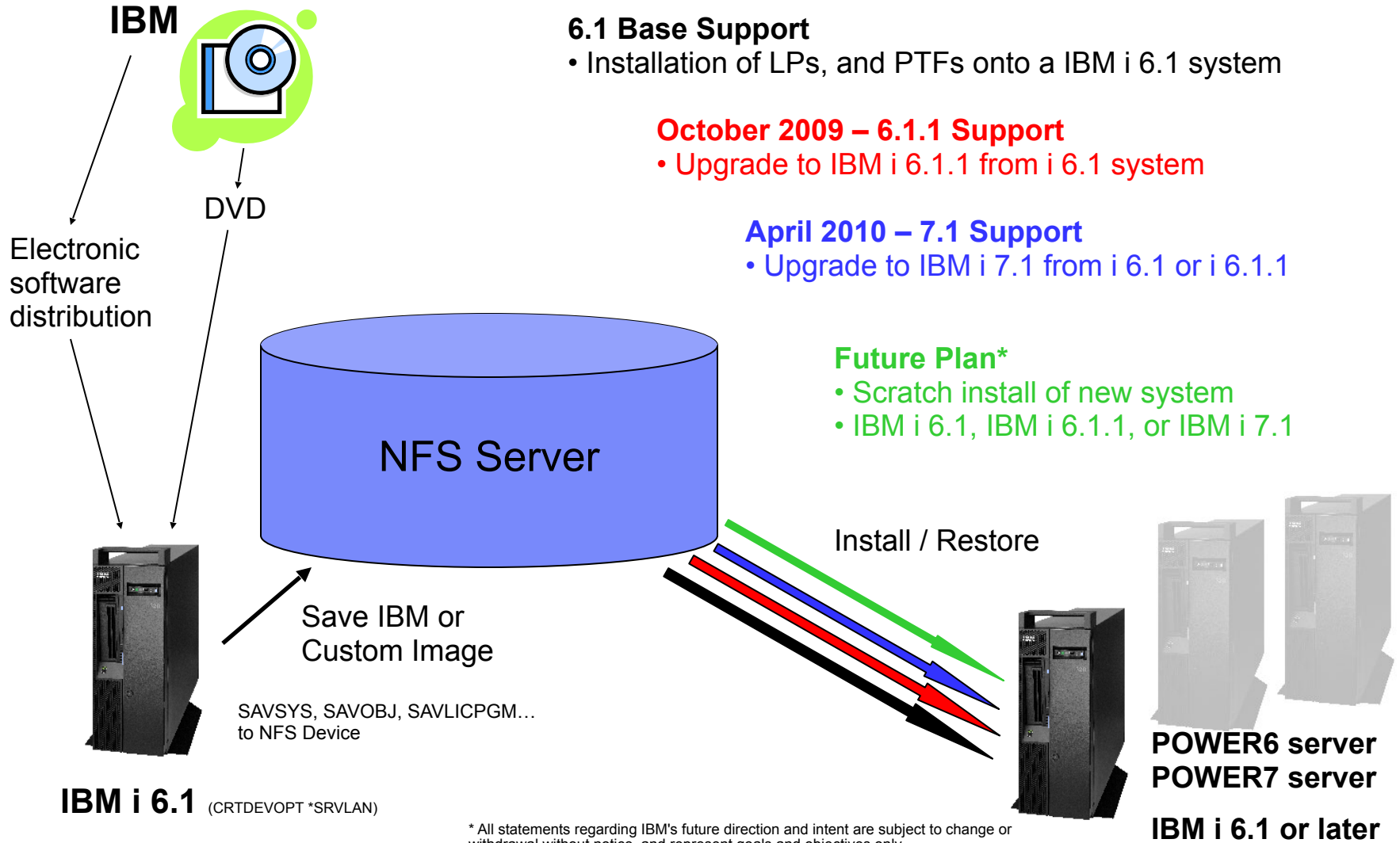
* All statements regarding IBM's future direction and intent are subject to change or
withdrawal without notice, and represent goals and objectives only.

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Web Server Enhancements

- **IBM HTTP Server for i running Apache**
  - Latest Apache 2.2 release
  - Payment Card Industry (PCI) Compliant

- **IBM Technology for Java**
  - Java 5 and 6 support for 32-bit and 64-bit JVMs
  - No longer shipping Classic JVM

- **Integrated Web Application Server**
  - Part of IBM i
  - Supports running Java 5 and 6 applications

- **Integrated Web Services Server**
  - Up to 2x performance improvement
  - Static WSDL support providing enhanced flexibility
  - Now supports programs in IASP

Integrated Web technologies easily support new application deployments

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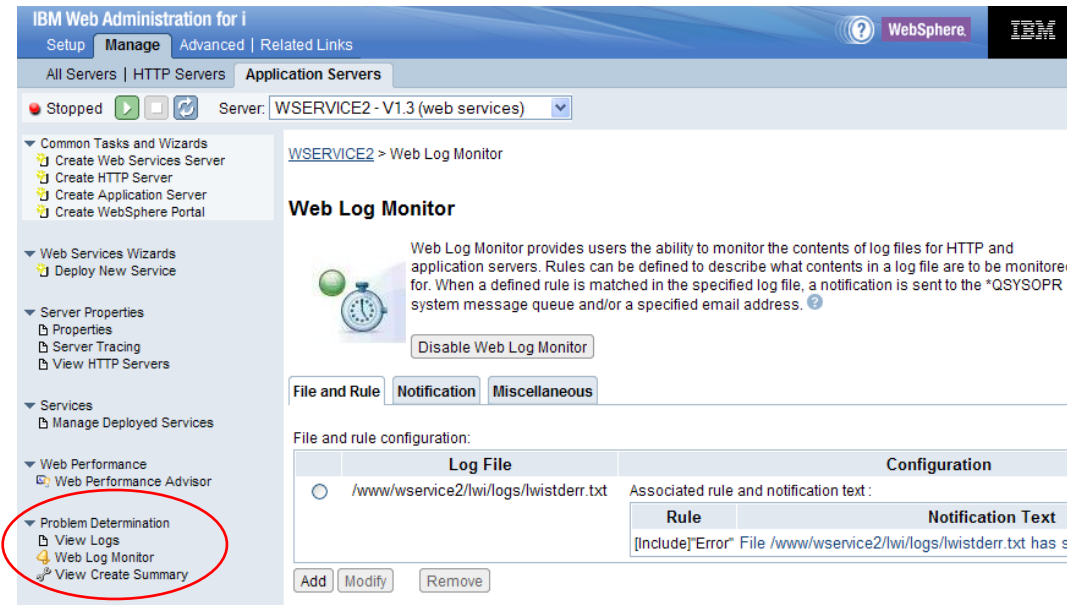
Web Integration New Features

- **Developers can use Web Admin**
  - No longer need *ALLOBJ special authority
  - Administrators can grant users 'Permission'
  - Empowering the User
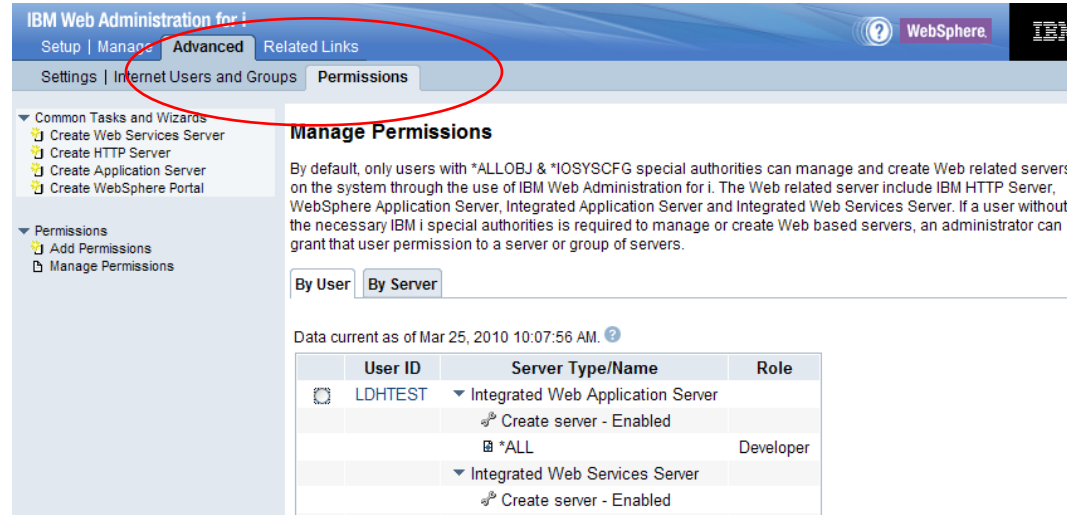
- **Monitor Web Server Log files**
  - Monitor log and error files for ALL Web servers
  - Send notifications on discovery
    - *QSYSOPR or Email

Integrated GUI interface now available to Developers and Operators without compromising your system security

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WebSphere Support for IBM i 7.1

- **WebSphere Application Server**
    - WebSphere Application Server Express V6.1 and V7.0
    - WebSphere Application Server V6.1 and V7.0
    - WebSphere Application Server Network Deployment V6.1 and V7.0
    - Fix Packs 6.1.0.29 and 7.0.0.7 contain IBM i 7.1 level support

- **WebSphere MQ**
    - WebSphere MQ V7.0.1
    - WebSphere MQ File Transfer Edition V7.0.2.1

- **WebSphere Portal**
    - WebSphere Portal 6.1.5

- **WebSphere Commerce Server**
    - WebSphere Commerce Server 7 (with fix pack 1)
        - (SOD for 2010 delivery for IBM i 6.1 and 7,1)

WebSphere offers rich Web application server solutions for IBM i

WebSphere software

Access information

Customer retention

Operational efficiency

Cost reduction

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Rational Direction for Power Systems

Extending the Software stack with "Power Tools"
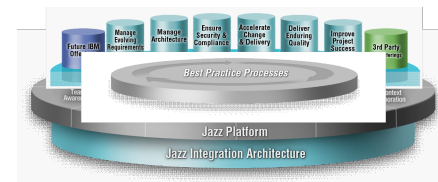
Rational. software

Accelerating importance of compilers in multi-core & parallel environments

Compilers

Common developer desktop across operating systems and languages

eclipse

Common development infrastructure for Power and the world around Power

IBM® Systems Software

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Rational Support for IBM i 7.1

Rational. software

- **Rational Developer for Power**
  - **Feature: RPG and COBOL Development for i**
    - eclipse-based tools for RPG/COBOL development
    - New print designer & support for language enhancements
    - Replaces Rational Developer for i (RDi)
  - Support for COBOL and C/C++ options for AIX

- **Rational Team Concert for Power**
  - Collaborative software development, automate best practices
  - Integrated source control and build management
  - IBM i or AIX repository options

- **Rational Application Developer**
  - Robust Java development environment
  - Web/Web Services development integration
  - EJB and J2EE fully supported

- **Rational Development Studio**
  - Rebranding for WebSphere Development Studio
  - Provides ILE & OPM compliers + traditional development tools
  - New language functions have been added to ILE Compilers

Java Developer

RPG Developer

EGL Developer

COBOL Developer

C/C++ Developer

AIX

i for Business

Linux
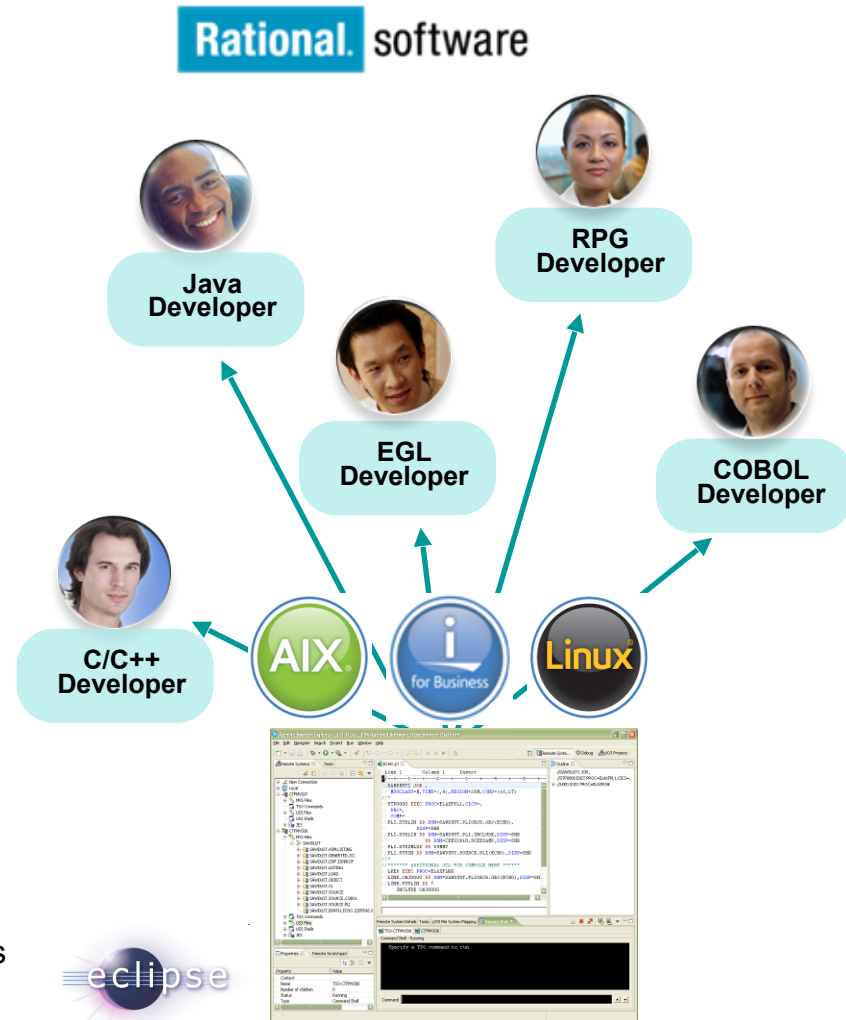
eclipse

Eclipse-based development tools can improve programmer productivity and provide a familiar development environment for new employees

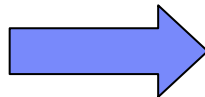**Power your planet.**

Re-Branding of WebSphere Development Studio for IBM i

April 2010

WebSphere. software

Rational. software

WebSphere Development
Studio for IBM i

Rational Development Studem
for i

- Feature 1 – ADTS
  - No new tool enhancements
  - No new language enhancements
- Feature 2 - Heritage Compilers
  - No new enhancements
- Feature 3 – ILE Compilers
  - RPG/COBOL enhancements

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Rational Developer for Power Systems Software

- IBM Rational Developer for Power Systems Software
  - Features:
    - RPG and COBOL Development for IBM i
      - New print designer
      - New screen designer
    - C/C++ Development for AIX
    - COBOL Development for AIX

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Upgrade Path for i Tools
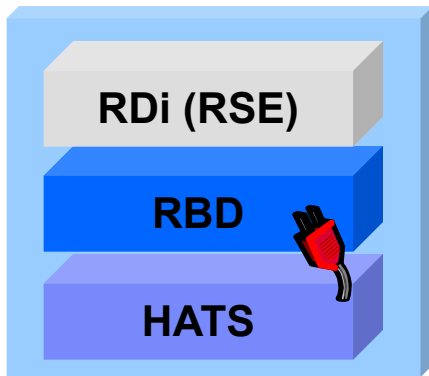
RSE

→

RSE
(+ screen designer
and print designer)

Rational Developer for i (RDi)

Rational Developer for Power Systems (RDPower)
- Feature: RPG and COBOL Development for i

RDi (RSE)

RBD

HATS

→

RSE
(+ screen designer
and print designer)

RBD

HATS

Rational Developer for IBM i for SOA
Construction (RDi SOA)
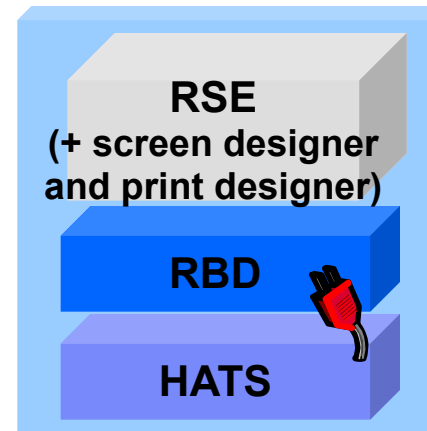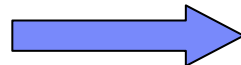
Rational Developer for IBM i for
SOA Construction (RDi SOA)

+ RDPower Feature: RPG/COBOL Development for i

- Upgrade available for tools ordered via Passport Advantage OR eConfig with valid SWMA

Power your planet.

Rational Open Access: RPG Edition

- **Extends RPG application reach to pervasive devices**
  - Provides ability for RPG programs to work with a variety of clients including phones, XML, Web Services
  - Developers write handlers for non-5250 interfaces

- **Tool providers plan to offer handler solutions for common devices and interfaces**
  - looksoftware, Profound Logic and IBM Lab Services, VMI

- **Rational Developer for Power with RPG development feature is required to write the code to invoke handlers**

- **Supported Environments**
  - IBM i 7.1 and 6.1
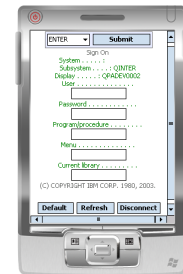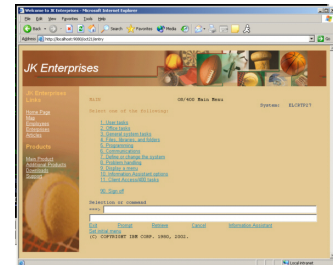
Open Access enables RPG applications to easily reach new devices and new users with new interfaces
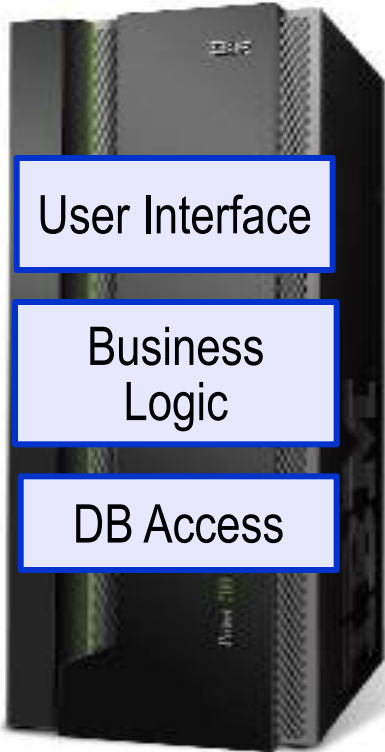
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Rational Open Access: RPG Edition

5250 Screens

RPG Applications

Traditional RPG Interface

User Interface

Business Logic

DB Access

Power your planet.
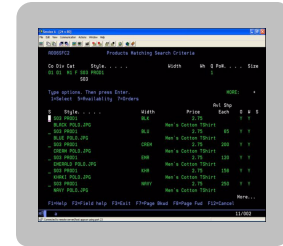
Rational Open Access: RPG Edition

5250 Screens
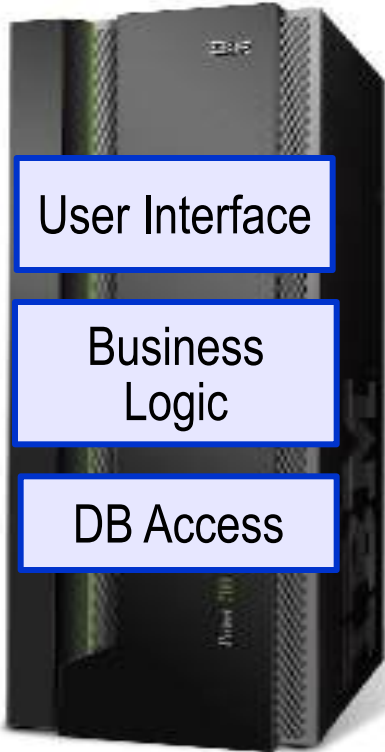
RPG Applications

Traditional RPG
Interface
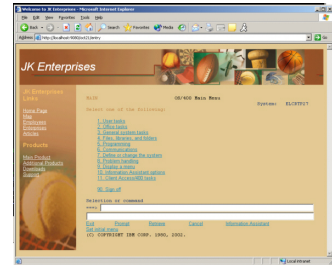
User Interface

How to Support Other Interfaces?

JSPs

Business Logic

DB Access

Other
Servers

Mobile
Devices

Power your planet.

Rational Open Access: RPG Edition

5250 Screens

RPG Applications

Traditional RPG Interface

JSPs

```
F          Define the Handler
D***********************
C*
C          Write    Section1
C*            :
C*            :
C          Write    Section2
C             :
```

Data

Handlers → Target Program →

Handlers → Target Program

Handlers → Target Program
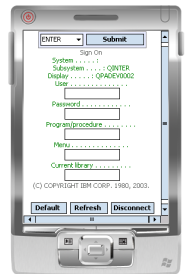
Mobile Devices

Other Servers

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Rational Open Access: RPG Edition

```
F         Define the Handler
D************************
C*
C              Write    Section1
C*                :
C*                :
C              Write    Section2
C                 :
```

Handlers

Target Program
(comms code)

ISV or Customer

Rational Open
Access: RPG
Edition
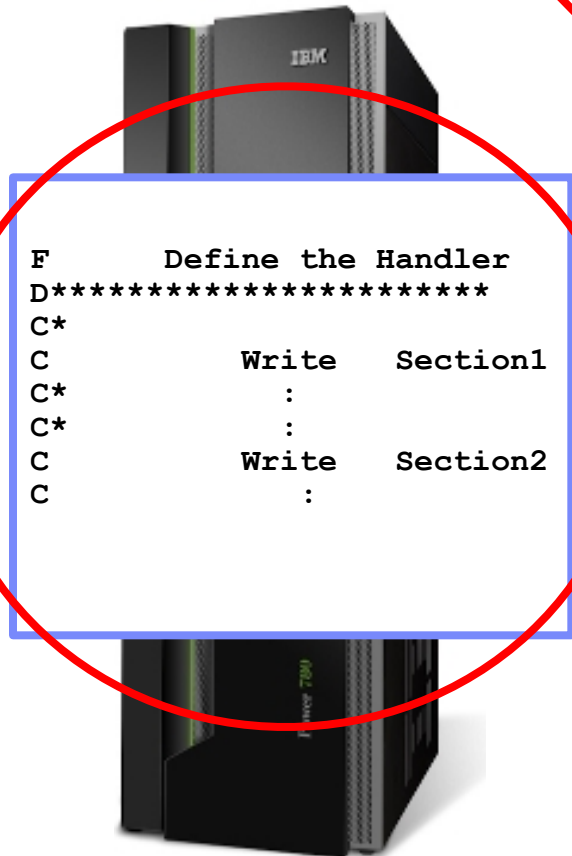
Data

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Rational Open Access: RPG Edition

```
F         Define the Handler
D***********************
C*
C              Write     Section1
C*               :
C*               :
C              Write     Section2
C                :
```

Data

Handlers

Target Program
(comms code)

**Rational Open
Access: RPG
Edition**

ISV or Customer

looksoftware
Profound Logic
Rochester Lab Services
VAI

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Rational Open Access: RPG Edition vs HATS (refacing)

HATS

RPG Open I/O

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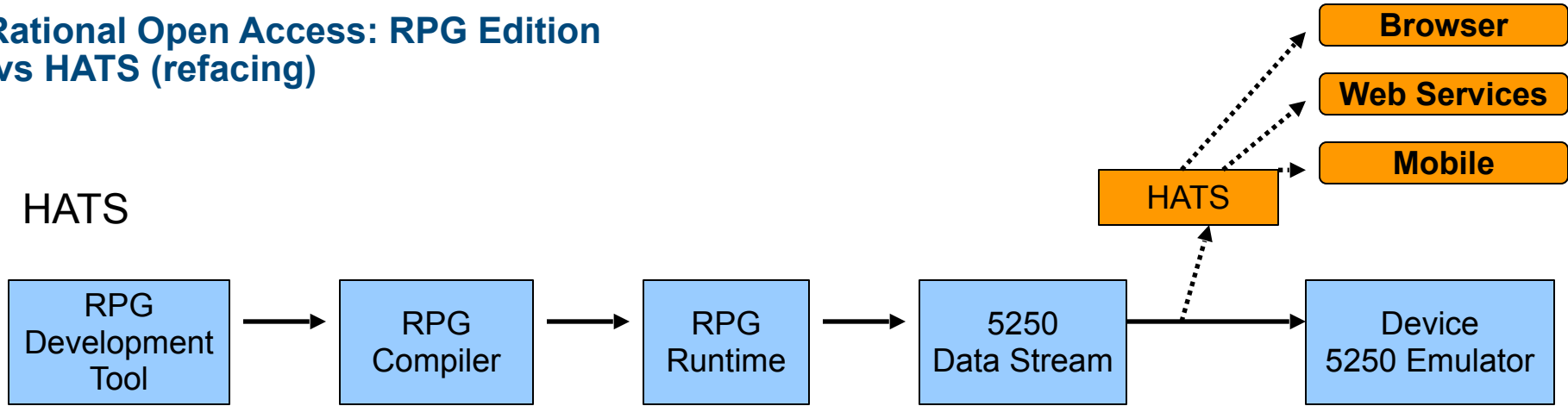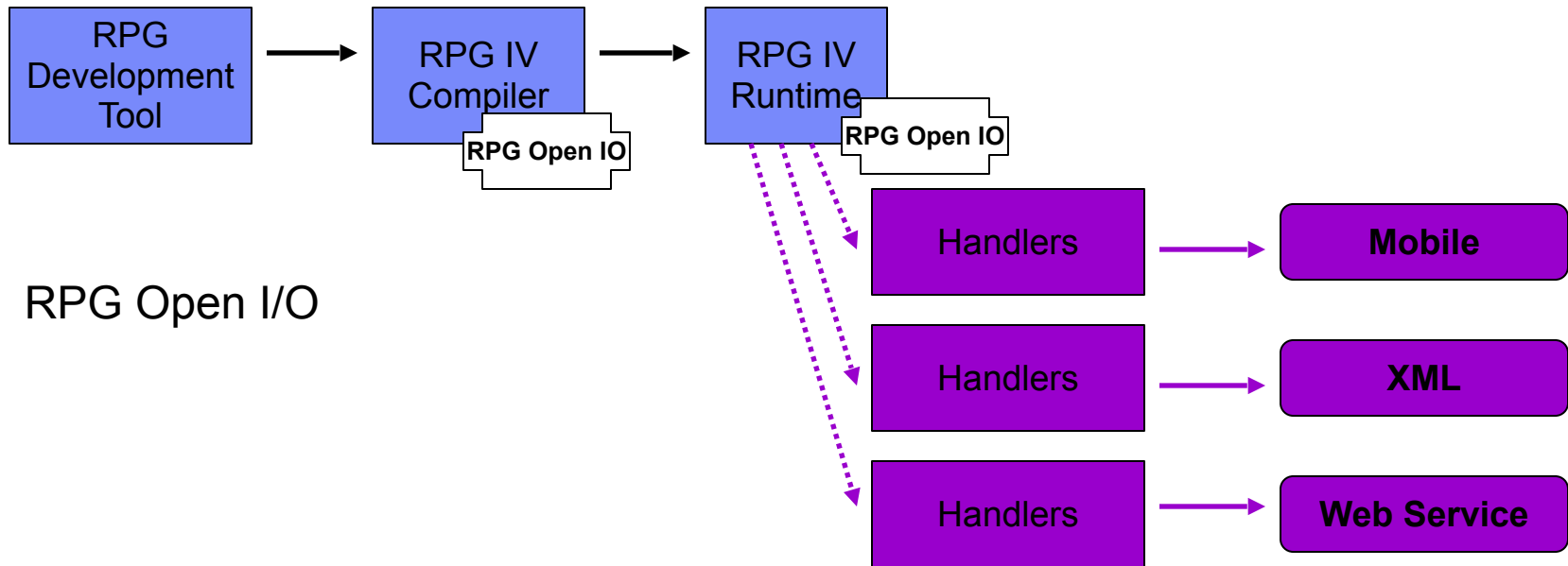
Rational Open Access: RPG Edition

- New Licensed Program Product
  - Required for both development and runtime servers
  - 5733-OAR

- Tier Group Price
  - Priced by processor based on software tier

- Requires *RDPower: RPG and COBOL Development for i* as the development environment
  - For syntax checking, semantic checking, etc

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ISV Handlers

Looksoftware
- Delivery of multi-channel User Interfaces from a single RPG program
- Includes support for smartclient, riaclient, thinclient and mobileclient

Profound Logic
- Native graphical user interface platform for IBM i
- Rapidly create rich browser based applications visually
- Uses native RPG operations and programming techniques

IBM Lab Services
- Three Options
  - FM handler - middleware to managed protocol between the client applications and RPG Open I/O
  - Web Services handler - convert RPG Open I/O to XML and transport via web services protocol
  - Socket Handler - covert RPG Open I/O data to a socket msg over TCP/IP

VAI
- Rich Browser based interface

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Rational Team Concert for Power Systems Software
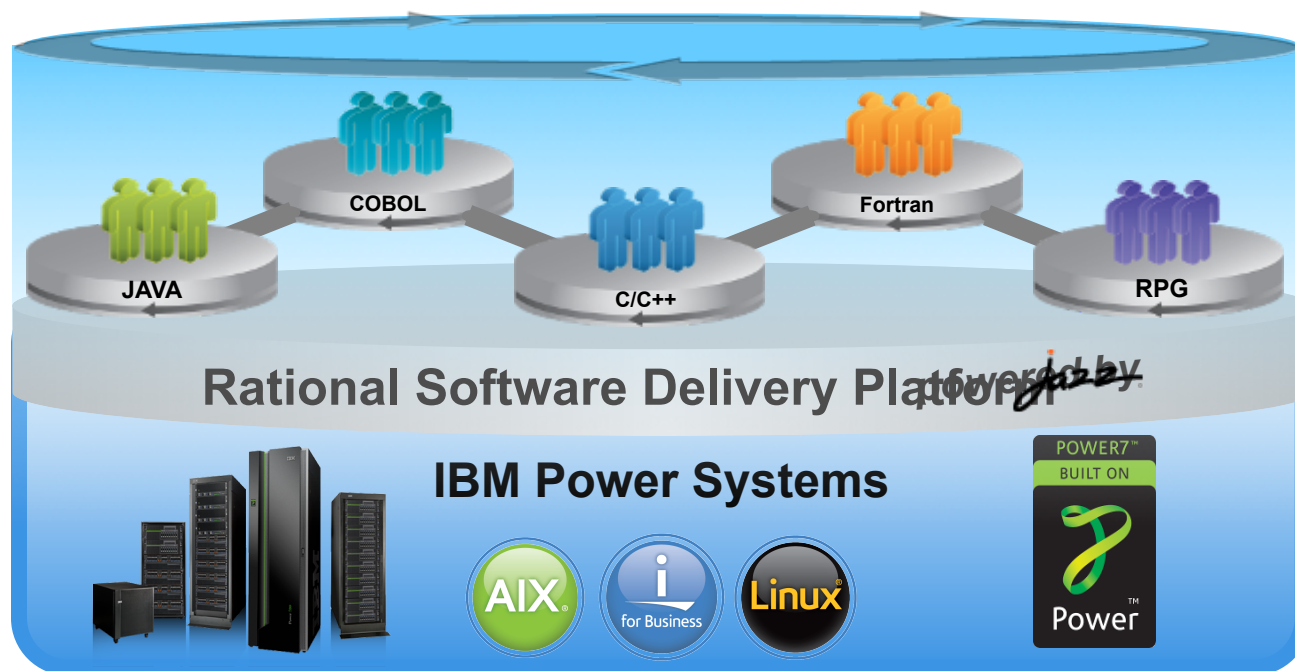
- Improve communication across disparate programming teams
- Significantly improve quality of application code
- Make software development automated, transparent and predictable

Rational Team Concert for Power Systems Software

Rational Desktop Clients
Eclipse Clients
Web Clients

Team awareness

Rational Team Concert
(Process Enactment)

Search and Query

Versioning

Collaboration

Security

Events Notification

Jazz Team Server

Jazz Repository

i for Business
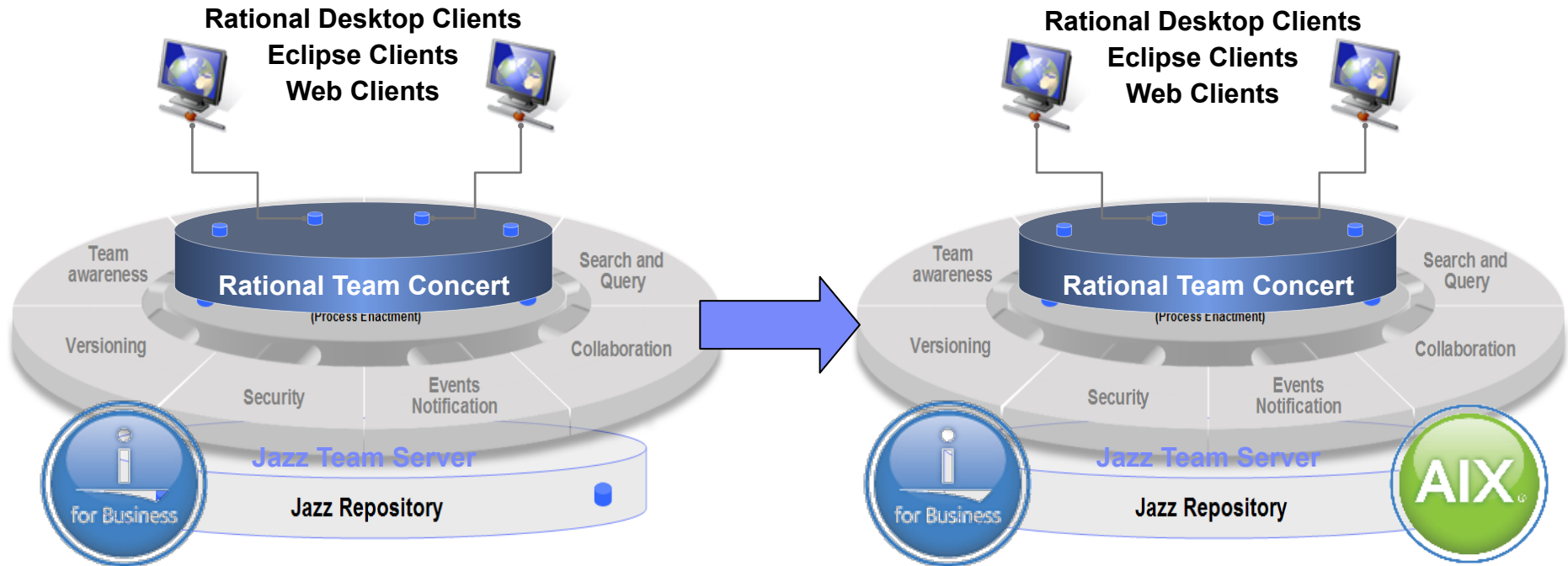
Rational Team Concert for Power
Systems Software
(RTCPower)

•*Support for i*

Rational Desktop Clients
Eclipse Clients
Web Clients

Team awareness

Rational Team Concert
(Process Enactment)

Search and Query

Versioning

Collaboration

Security

Events Notification

Jazz Team Server

Jazz Repository

i for Business

AIX

Rational Team Concert for Power
Systems Software
(RTCPower)

•*Support for i and AIX:*
April 2010

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Rational Team Concert for Power Systems Software

- Rational Team Concert for Power Systems Software (RTCPower)
  - Support for AIX
  - Support for IBM i (replaces RTCi)

NEW!

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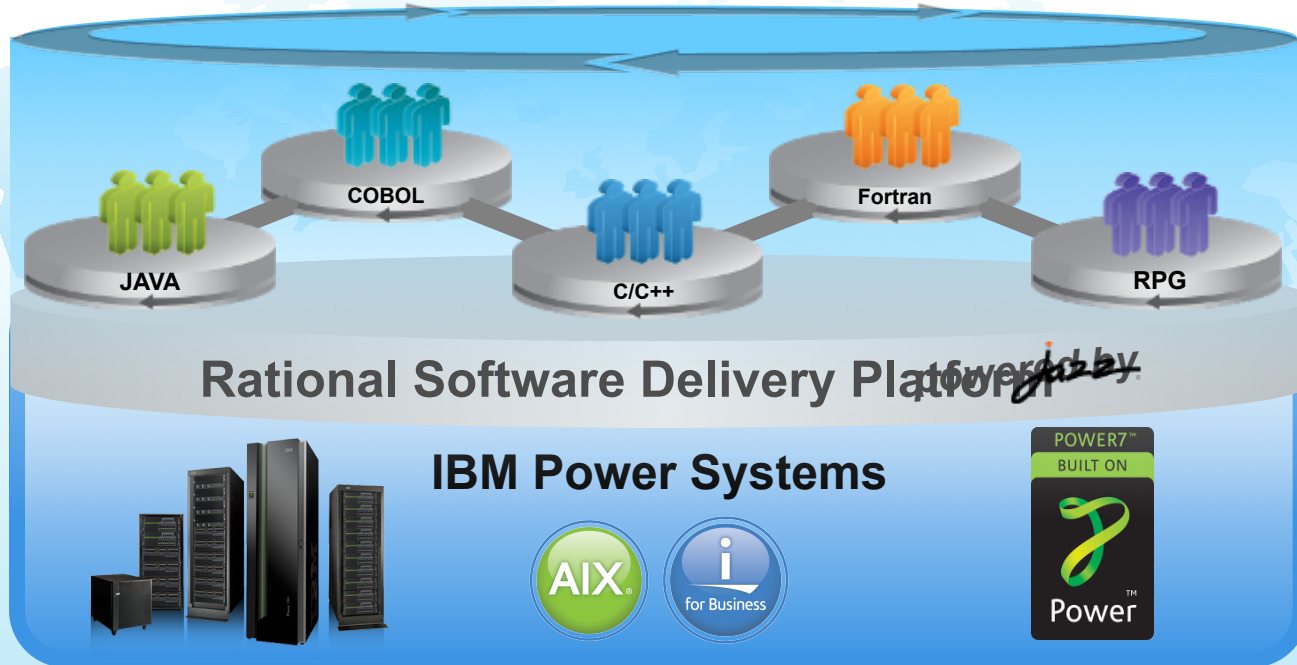
Summary Rational Tools Announcements - April

- **Rational Development Studio (RDS)**
  - Rebranding of WebSphere Development Studio (WDS)
- **Rational Developer for Power**
  - IBM i environment
    - Print designer
    - Screen designer
  - AIX C/C++ and COBOL features added
- **Rational Team Concert for Power**
  - Additional access to repository on AIX

Java Developer

RPG Developer

EGL Developer

COBOL Developer

C/C++ Developer

AIX

i for Business

eclipse

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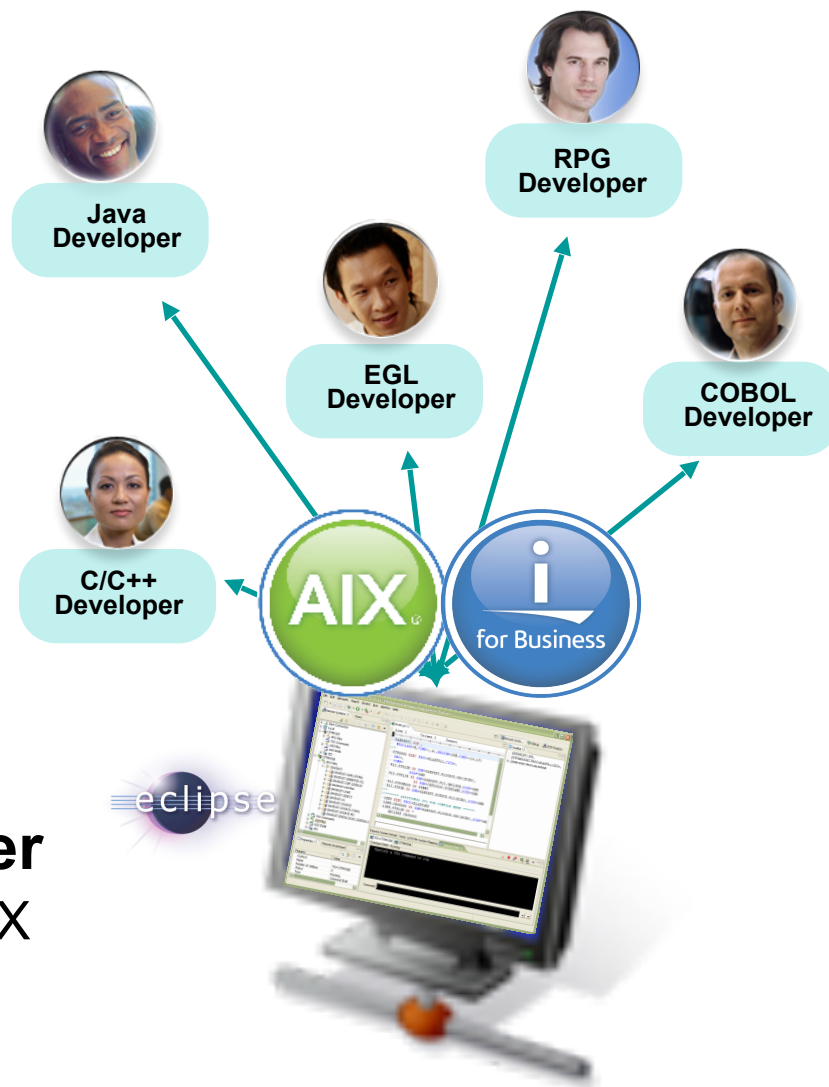
Zend PHP Enhancements

- **Zend Server Community Edition for i**
  - Preloaded with IBM i 7.1, 6.1, 5.4
  - Includes one year of Silver support from Zend
  - Provided for no additional charge
  - Also available for download from zend.com
  - Replaces Zend Core

- **Zend Server for i**
  - Provides advanced functions
  - Available from IBM with advanced support offerings
  - Also available from zend.com
  - Replaces Zend Platform

- **Zend Studio for i**
  - Eclispe-based development environment
  - Integrates with Rational Developer for Power
  - Available with one year of Silver support from Zend for no additional charge
  - Advanced support offerings available

- **Simplified Set Up and Management**
  - FastCGI support between ILE Apache and PHP
  - Eliminates 2nd copy of Apache and reverse proxy
  - Software fixes via PTFs

- **Significant Performance Enhancements**

- **New and improved features**

Zend provides open, easy to use PHP-based development and deployment solutions for i

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Zend Delivers an Open Solution Stack for IBM i

- **Opens up a vast ecosystem of technologies**
  - Development tools
  - Application frameworks
  - Applications

- **Zend Framework enables simple, scalable, best-practice, application development**
  - 10M+ downloads
  - Built into Zend Server and Studio

- **4+ million trained PHP developers**

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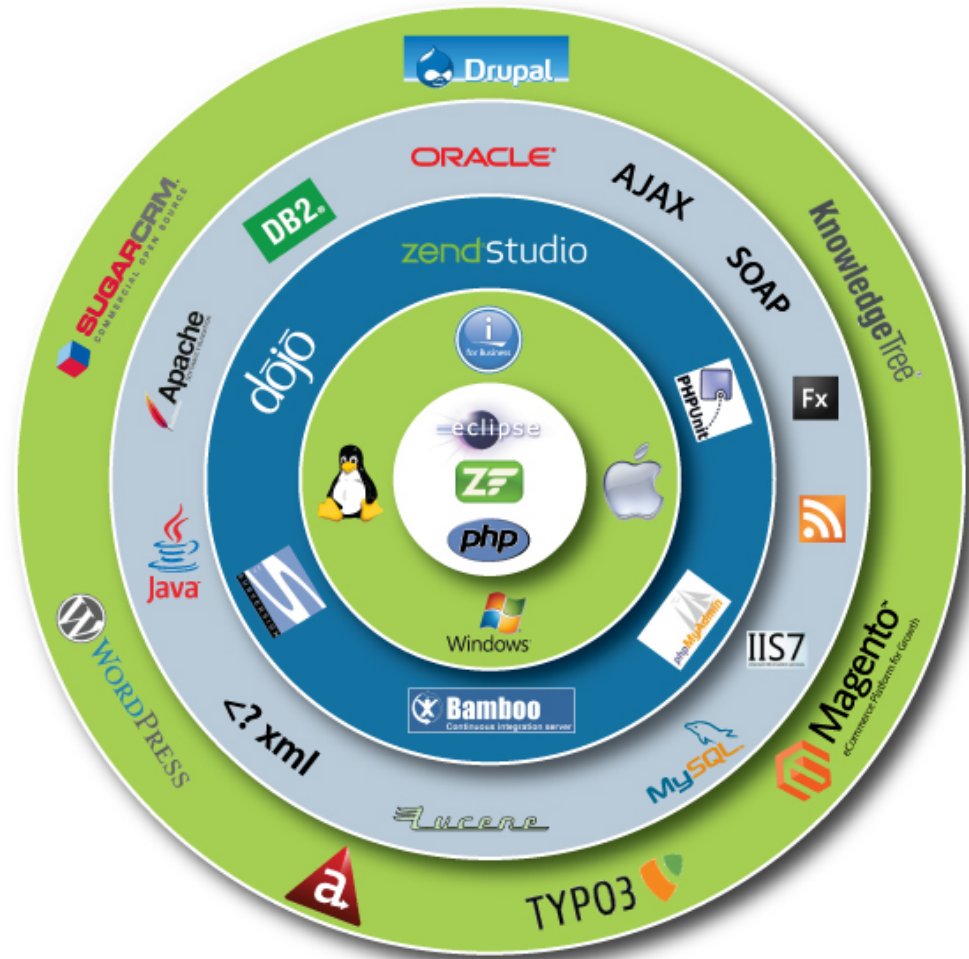
New Zend Product Offerings for IBM i

Zend Server Community Edition Replaces Zend Core	Zend Core	Zend Server CE
Native installation		✓
Certified PHP	✓	✓
DB2 Drivers	✓	✓
Bundled MySQL DB & Drivers	✓	✓+
Web-based administrator	✓	✓
Debugger interface	✓	✓+
Bytecode acceleration		✓
Zend Framework	✓	✓
IBM i Toolkit	✓	✓
Caching API		✓
Java connector		✓
Performance via Fast CGI		✓
Software updates & hot fixes	✓	✓
Technical support	✓	✓

Zend Server Replaces Zend Platform	Zend Platform	Zend Server
Native installation		✓
Certified PHP	✓	✓
DB2 Drivers	✓	✓
Bundled MySQL DB & Drivers	✓	✓+
Web-based administrator	✓	✓
Debugger interface	✓	✓+
Bytecode acceleration	✓	✓+
Zend Framework	✓	✓
IBM i Toolkit	✓	✓
5250 Bridge	✓	✓
Caching API	✓	✓+
Java connector	✓	✓
Application monitoring	✓	✓+
Performance via Fast CGI		✓
Page Caching		✓
Code tracing		✓
Job Queue	✓	✓+
Software updates & hot fixes	✓	✓
Technical support	✓	✓

New products provide more function, improved performance and deeper integration into IBM i

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45

Lotus Support for IBM i 7.1

Lotus software

- ## Lotus Notes and Domino
  - *Collaboration beyond e-mail*
  - Domino 8.5.1

- ## Lotus Sametime
  - *Real-Time community collaboration*
  - Sametime 8.5.1

- ## Lotus Quickr
  - *Share everyday content*
  - Quickr 8.5

- ## Additional Products
  - Enterprise Integrator 8.5.2
  - Forms 3.5.1
  - Domino Fax V4R5

IBM i offers platform for consolidation of Lotus collaboration solutions
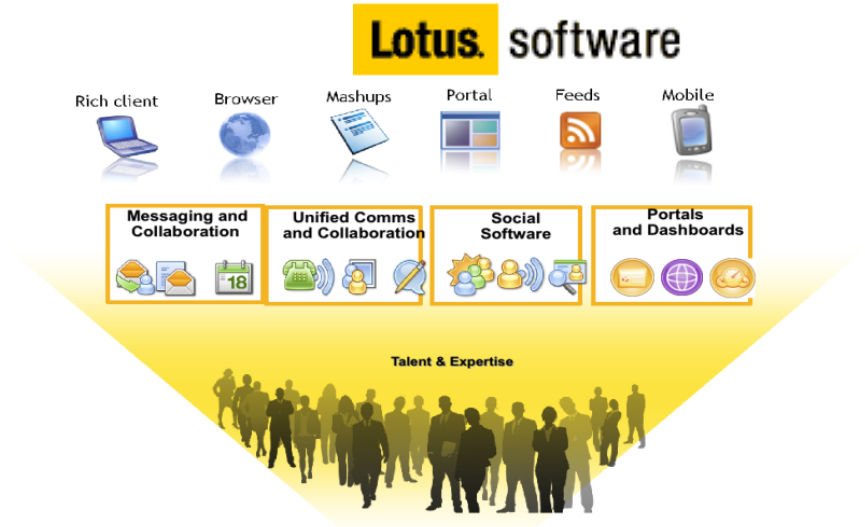
IBM i Supports Consolidation of x86 Workloads

Isolated Workloads

ERP/SCM | Domino Mail | Domino Mail | Domino Apps | QuickPlace | Sametime

Subsystems

CPU processing balanced to all Subsystems

Data load balanced to disk for efficient retrieval

Memory shared among all servers
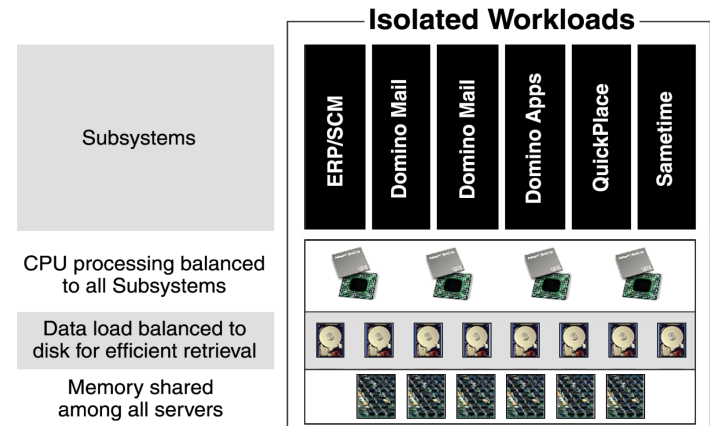
For the latest information, see:
http://www.ibm.com/systems/resources/releasesupport.pdf

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Additional Enhancements

- **IBM Transform Services for i Enhancement**
  - Delivers Adobe PDF output support to IBM i applications
  - New support to transform existing Spool Files to PDF format
  - Shipped with IBM i

- **Encrypted ASP Enhancements**
  - Added ability to start/stop encryption on an existing iASP
  - Encryption key management enhancements

- **BRMS Enhancements**
  - Improved functions for managing backups, media, backup history, and recoveries

- **Support for additional Tape Libraries with NPIV through PowerVM VIOS**
  - 3577 (TS3400) with (TS1120/TS1130) drives
  - 3584 (TS3500) with (TS1120/TS1130) drives
  - 3576 (TS3310) with LTO drives

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Additional Enhancements

- **IBM i Access Family Enhancements**
  - IBM i Access for Windows 7.1 offers:
    - Enhancements to the .NET, ODBC, and OLE DB providers including support for XML data type
    - Enhancements to Data Transfer
    - Updated PC5250 Display and Printer Emulation based on IBM Personal Communications 6.0
    - Help files converted to html help format
    - Enhancements to Install, including install-time support for secondary languages
  - IBM i Access for Web 7.1 includes:
    - Additional option for viewing spooled files as PDF documents

- **Networking Enhancements**
  - IBM i DHCP server is now based on the ISC (Internet Systems Consortium) DHCP server which contains support for IPv6 and DHCP failover
  - IPv6 support for the DHCP Client, PPP (Point-to-point protocol), L2TP (Layer 2 Tunneling Protocol), and RADIUS (Remote Authentication Dial In User Service)
  - Support for the IKEv2 (Internet Key Exchange version 2) tunneling protocol in the IBM i VPN support
  - Telnet Client support on IBM i is now SSL enabled (also PTF to IBM i 6.1 & 5.4)

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IBM i Life Cycle

IBM i	06	07	08	09	10	11	12	13	14	15	16	IBM i Upgrade paths
V5R2												
V5R3												
5.4*												
6.1*												
7.1*												
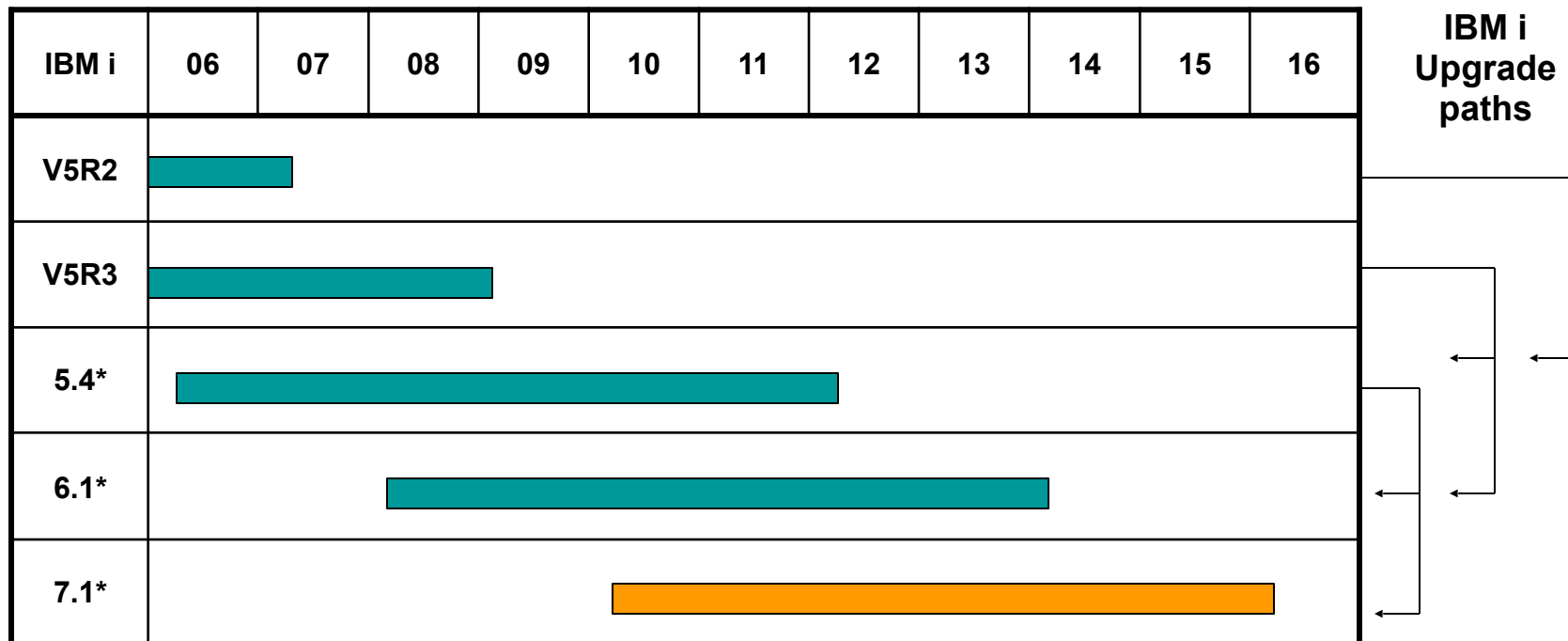
Service

*The projected date for the service of IBM i releases is based on current IBM planning assumptions. Note that it is IBM's current practice to support an IBM i release until the next two releases have been made available, plus twenty four months. This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.

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IBM i System Support

Servers	IBM i 5.4	IBM i 6.1	IBM i 7.1
POWER7 750, 770, 780 PS700, PS701, PS702		✓	✓
POWER6 JS12, 22, 23/43, 550* 560		✓	✓
POWER6 520, 550*, 570, 595	✓	✓	✓
POWER5+ 515, 525	✓	✓	✓
POWER5 520, 550, 570, 595	✓	✓	✓
800, 810, 825, 870, 890	✓	✓	✓
270, 820, 830, 840	✓		

* Specific models

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IBM i and Software as a Service

- Over 90 ISVs currently offer SaaS solutions on IBM Power Systems with IBM i
  - Lowers cost of solution acquisition
  - Lowers cost of ongoing maintenance

- Unique technology that is core to IBM i enables ISV to deploy SaaS with little change to their applications
  - Low cost for ISV to offer SaaS solution
  - Multiple deployment models available today for varied customer needs without the need for complicated cloud computing technology

CONVERGYS
Outthinking Outdoing

jack henry
& ASSOCIATES INC.

KINGLAND
S Y S T E M S

DPS

intelek
technologies

AgVantage®
Software   Your Partner in Agri Business

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Power is...

IBM i Solid State Drive Support
Autonomically move hot data to SSDs

IBM i 6.1 virtualization for i 7.1 partitions

PowerHA Async Geo Mirror and LUN-level Switching

POWER 7 Energy Efficiency

Systems Director Navigator
Tape, Journal, BRMS, Perf Data Inv

Total Integration of DB2
•XML Datatype
•Column level Encryption

Open Access for RPG
Extend to pervasive devices

Languages & Middleware
Zend Core Community Edition

IBM i 7.1

Workload-Optimizing Systems

Virtualization without Limits

Resiliency without Downtime

Dynamic Energy Optimization

Management with Automation

Integrated Value

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IBM i License Transfer

- **Enables IBM i entitlement to be transferred between selected systems**
  - Implemented WW via IBM configurator
  - SWMA required on From and To systems
  - From system must have been installed at least one year
  - Applicable to optional, not **base licenses**
  - Administrative fee plus license price difference
  - Applicable to 550 and larger systems
  - IBM i processor-core entitlement moves to new system

Making it Easier for Clients to

- Buy a replacement system
- Consolidate systems
- Move workloads

From POWER5, 6, 7		To POWER6, 7
9406-550, 570, 595		
Power 550 (9409-M50, 8204-E8A)		Power 550 (9409-M50, 8204-E8A)
Power 560 (8234-EMA)		Power 560 (8234-EMA)
Power 570 (9406-MMA, 9117-MMA)		Power 570 (9406-MMA, 9117-MMA)
Power 595 (9119-FHA)		Power 595 (9119-FHA)
Power 750, 770, 780		**Power 750, 770, 780**

For detailed information: IBM i Processor Entitlement Transfer guide

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IBM i license transfer scenarios

3 optional licenses

1 base license

POWER5 550
4-core
p20

POWER7 750
6-core
p20

$5k per license transferred*

4 optional licenses

POWER6 550
4-core
p20

POWER7 750
6-core
p20
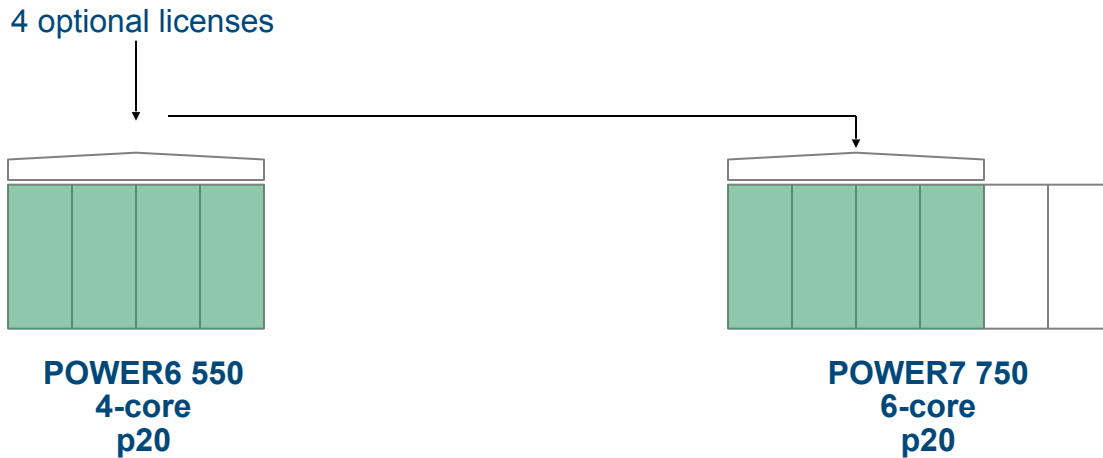
$5k per license transferred*

*Shown in US dollars

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IBM i license transfer scenarios

3 optional licenses

1 base license

POWER5 550
4-core
p20

POWER7 770
8-core
p30
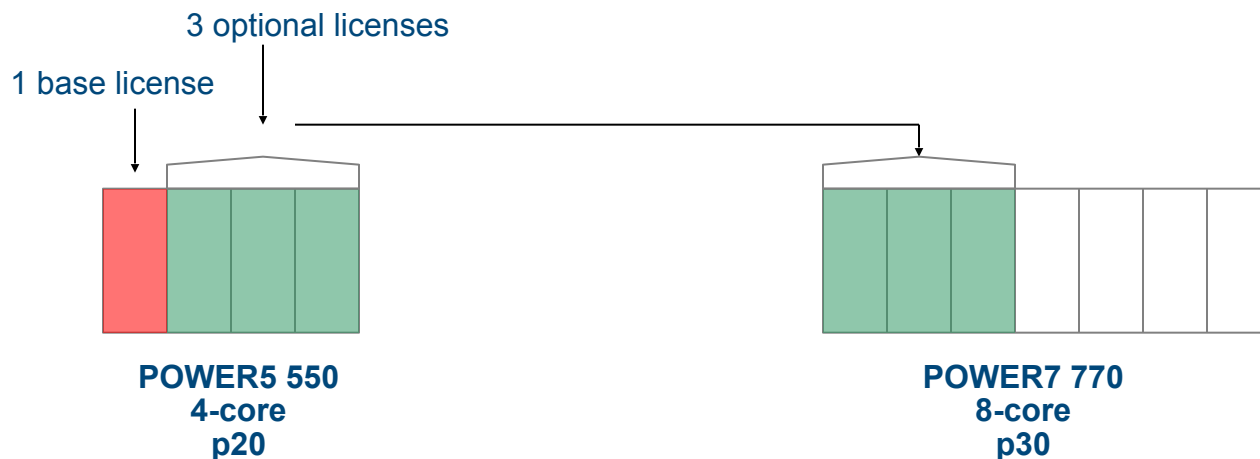
$5k per license transferred
+ license differential*

*Shown in US dollars

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Multi-Language Distribution Media

- **IBM i 7.1 packages 51 NLVs into 3 language groups for keyed media set**
  - IBM i 6.1 and previous versions/releases packaged each NLV separately
  - One language group will deliver 11-21 NLVs, depending on group ordered
  - US English included in each language group

- **Provides simplified ordering and software delivery**

- **Secondary language media can still be ordered, if desired**

- **No change for products (LPs) shipped individually, these continue to ship the product with all languages/NLVs**

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Electronic Software Download

- All currently marketed IBM i releases available
  - IBM i 5.4, 6.1, 7.1

- Software is downloaded from ESS web site: http://www.ibm.com/servers/eserver/ess
  - Products available, countries supported, and instructions for download are on web site

- IBM manufacturing continues to support IBM i preload on newly purchased Power Systems and BladeCenter

- Effective April 13, 2010, $50 USD media charge for IBM i
  - No media charge if use Electronic Software Download

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IBM i 7.1 Announcement Highlights

- **DB2**
  - Support for XML and column level encryption

- **PowerHA**
  - Async Geographic Mirroring & LUN-level switching

- **Virtualization**
  - IBM i 6.1 virtualization for i 7.1 partitions

- **Solid State Drives**
  - Automatic movement of hot data to SSDs

- **Open Access for RPG**
  - Extend application reach to pervasive devices

- **Zend Server Community Edition**
  - PHP environment preloaded with IBM i

- **Systems Director Navigator**
  - Richer management of IBM i via Systems Director Navigator

PO #	Customer #	Date	Credit Card	Purchase Order
123	2468	5/27/09	&#^$&$^	~ XML ~

IBM i PowerHA — IBM i PowerHA

IASP — IASP

IBM i 6.1   IBM i 7.1   AIX   Linux

Power Systems

Announce April 13
GA   April 23

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Revised September 26, 2006

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IBM

Notes on benchmarks and values

The IBM benchmarks results shown herein were derived using particular, well configured, development-level and generally-available computer systems. Buyers should consult other sources of information to evaluate the performance of systems they are considering buying and should consider conducting application oriented testing. For additional information about the benchmarks, values and systems tested, contact your local IBM office or IBM authorized reseller or access the Web site of the benchmark consortium or benchmark vendor.

IBM benchmark results can be found in the IBM Power Systems Performance Report at http://www.ibm.com/systems/p/hardware/system_perf.html .

All performance measurements were made with AIX or AIX 5L operating systems unless otherwise indicated to have used Linux. For new and upgraded systems, AIX Version 4.3, AIX 5L or AIX 6 were used. All other systems used previous versions of AIX. The SPEC CPU2006, SPEC2000, LINPACK, and Technical Computing benchmarks were compiled using IBM's high performance C, C++, and FORTRAN compilers for AIX 5L and Linux. For new and upgraded systems, the latest versions of these compilers were used: XL C Enterprise Edition V7.0 for AIX, XL C/C++ Enterprise Edition V7.0 for AIX, XL FORTRAN Enterprise Edition V9.1 for AIX, XL C/C++ Advanced Edition V7.0 for Linux, and XL FORTRAN Advanced Edition V9.1 for Linux. The SPEC CPU95 (retired in 2000) tests used preprocessors, KAP 3.2 for FORTRAN and KAP/C 1.4.2 from Kuck & Associates and VAST-2 v4.01X8 from Pacific-Sierra Research. The preprocessors were purchased separately from these vendors. Other software packages like IBM ESSL for AIX, MASS for AIX and Kazushige Goto's BLAS Library for Linux were also used in some benchmarks.

For a definition/explanation of each benchmark and the full list of detailed results, visit the Web site of the benchmark consortium or benchmark vendor.

TPC	http://www.tpc.org
SPEC	http://www.spec.org
LINPACK	http://www.netlib.org/benchmark/performance.pdf
Pro/E	http://www.proe.com
GPC	http://www.spec.org/gpc
VolanoMark	http://www.volano.com
STREAM	http://www.cs.virginia.edu/stream/
SAP	http://www.sap.com/benchmark/
Oracle Applications	http://www.oracle.com/apps_benchmark/
PeopleSoft - To get information on PeopleSoft benchmarks, contact PeopleSoft directly	
Siebel	http://www.siebel.com/crm/performance_benchmark/index.shtm
Baan	http://www.ssaglobal.com
Fluent	http://www.fluent.com/software/fluent/index.htm
TOP500 Supercomputers	http://www.top500.org/
Ideas International	http://www.ideasinternational.com/benchmark/bench.html
Storage Performance Council	http://www.storageperformance.org/results

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Notes on HPC benchmarks and values

The IBM benchmarks results shown herein were derived using particular, well configured, development-level and generally-available computer systems. Buyers should consult other sources of information to evaluate the performance of systems they are considering buying and should consider conducting application oriented testing. For additional information about the benchmarks, values and systems tested, contact your local IBM office or IBM authorized reseller or access the Web site of the benchmark consortium or benchmark vendor.

IBM benchmark results can be found in the IBM Power Systems Performance Report at http://www.ibm.com/systems/p/hardware/system_perf.html .

All performance measurements were made with AIX or AIX 5L operating systems unless otherwise indicated to have used Linux. For new and upgraded systems, AIX Version 4.3 or AIX 5L were used. All other systems used previous versions of AIX. The SPEC CPU2000, LINPACK, and Technical Computing benchmarks were compiled using IBM's high performance C, C++, and FORTRAN compilers for AIX 5L and Linux. For new and upgraded systems, the latest versions of these compilers were used: XL C Enterprise Edition V7.0 for AIX, XL C/C++ Enterprise Edition V7.0 for AIX, XL FORTRAN Enterprise Edition V9.1 for AIX, XL C/C++ Advanced Edition V7.0 for Linux, and XL FORTRAN Advanced Edition V9.1 for Linux. The SPEC CPU95 (retired in 2000) tests used preprocessors, KAP 3.2 for FORTRAN and KAP/C 1.4.2 from Kuck & Associates and VAST-2 v4.01X8 from Pacific-Sierra Research. The preprocessors were purchased separately from these vendors. Other software packages like IBM ESSL for AIX, MASS for AIX and Kazushige Goto's BLAS Library for Linux were also used in some benchmarks.

For a definition/explanation of each benchmark and the full list of detailed results, visit the Web site of the benchmark consortium or benchmark vendor.

SPEC	http://www.spec.org
LINPACK	http://www.netlib.org/benchmark/performance.pdf
Pro/E	http://www.proe.com
GPC	http://www.spec.org/gpc
STREAM	http://www.cs.virginia.edu/stream/
Fluent	http://www.fluent.com/software/fluent/index.htm
TOP500 Supercomputers	http://www.top500.org/
AMBER	http://amber.scripps.edu/
FLUENT	http://www.fluent.com/software/fluent/fl5bench/index.htm
GAMESS	http://www.msg.chem.iastate.edu/gamess
GAUSSIAN	http://www.gaussian.com
ANSYS	http://www.ansys.com/services/hardware-support-db.htm
	Click on the "Benchmarks" icon on the left hand side frame to expand. Click on "Benchmark Results in a Table" icon for benchmark results.
ABAQUS	http://www.simulia.com/support/v68/v68_performance.php
ECLIPSE	http://www.sis.slb.com/content/software/simulation/index.asp?seg=geoquest&
MM5	http://www.mmm.ucar.edu/mm5/
MSC.NASTRAN	http://www.mscsoftware.com/support/prod%5Fsupport/nastran/performance/v04_sngl.cfm
STAR-CD	www.cd-adapco.com/products/STAR-CD/performance/320/index/html
NAMD	http://www.ks.uiuc.edu/Research/namd
HMMER	**http://hmmer.janelia.org/**
	http://powerdev.osuosl.org/project/hmmerAltivecGen2mod

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Notes on performance estimates

rPerf for AIX

rPerf (Relative Performance) is an estimate of commercial processing performance relative to other IBM UNIX systems. It is derived from an IBM analytical model which uses characteristics from IBM internal workloads, TPC and SPEC benchmarks. The rPerf model is not intended to represent any specific public benchmark results and should not be reasonably used in that way. The model simulates some of the system operations such as CPU, cache and memory. However, the model does not simulate disk or network I/O operations.

- rPerf estimates are calculated based on systems with the latest levels of AIX and other pertinent software at the time of system announcement. Actual performance will vary based on application and configuration specifics. The IBM eServer pSeries 640 is the baseline reference system and has a value of 1.0. Although rPerf may be used to approximate relative IBM UNIX commercial processing performance, actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration. Note that the rPerf methodology used for the POWER6 systems is identical to that used for the POWER5 systems. Variations in incremental system performance may be observed in commercial workloads due to changes in the underlying system architecture.

All performance estimates are provided "AS IS" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, and application sizing guides to evaluate the performance of a system they are considering buying. For additional information about rPerf, contact your local IBM office or IBM authorized reseller.

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CPW for IBM i

Commercial Processing Workload (CPW) is a relative measure of performance of processors running the IBM i operating system. Performance in customer environments may vary. The value is based on maximum configurations. More performance information is available in the Performance Capabilities Reference at: www.ibm.com/systems/i/solutions/perfmgmt/resource.html

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