

IBM i 7.1 Overview

**Power your planet.
Smarter Systems for a Smarter Planet**



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Power Systems – ATS, IBM Coppell

Power your Planet



Workload-Optimizing Systems



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



Dynamic Energy Optimization

- ✓ 70-90% energy cost reduction
- ✓ EnergyScale™ technologies



Resiliency without Downtime

- ✓ Roadmap to continuous availability
- ✓ High availability systems & scaling

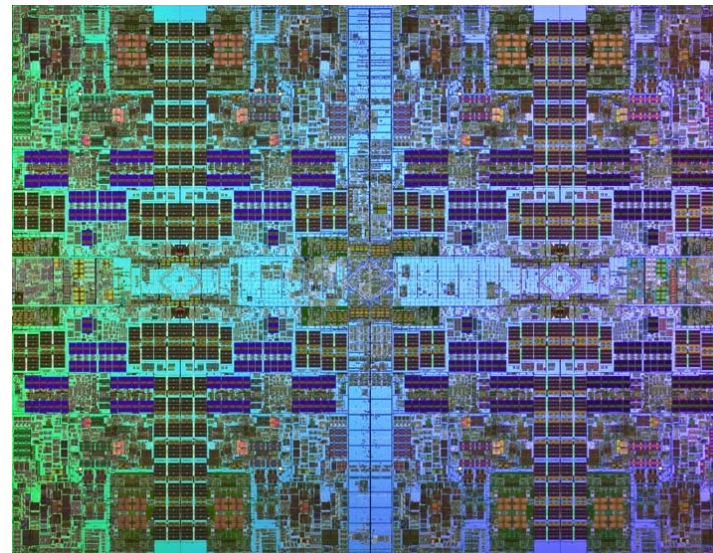


Management with Automation

- ✓ VMControl to manage virtualization
- ✓ Automation to reduce task time

Systems for a Smarter Planet

Power Technology leadership



- ✓ 4, 6 or 8 cores per socket
- ✓ 3.0 to 4.14 GHz
- ✓ Up to 4 threads per core
- ✓ Integrated eDRAM L3 Cache
- ✓ Dynamic Energy Optimization

Power Systems Portfolio

Power 795



Power 780



Power 770



Power 740



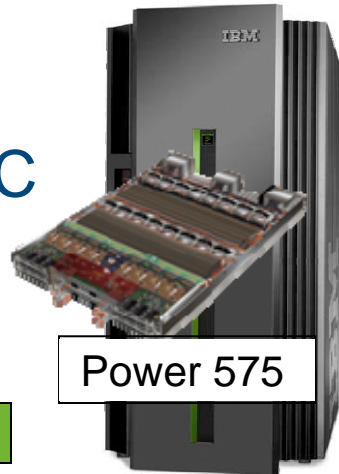
Power 720



Power 750



HPC



Power 575

Power 755



Power 710



Power 730

PS Blades



PS702
PS701
PS700



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.*



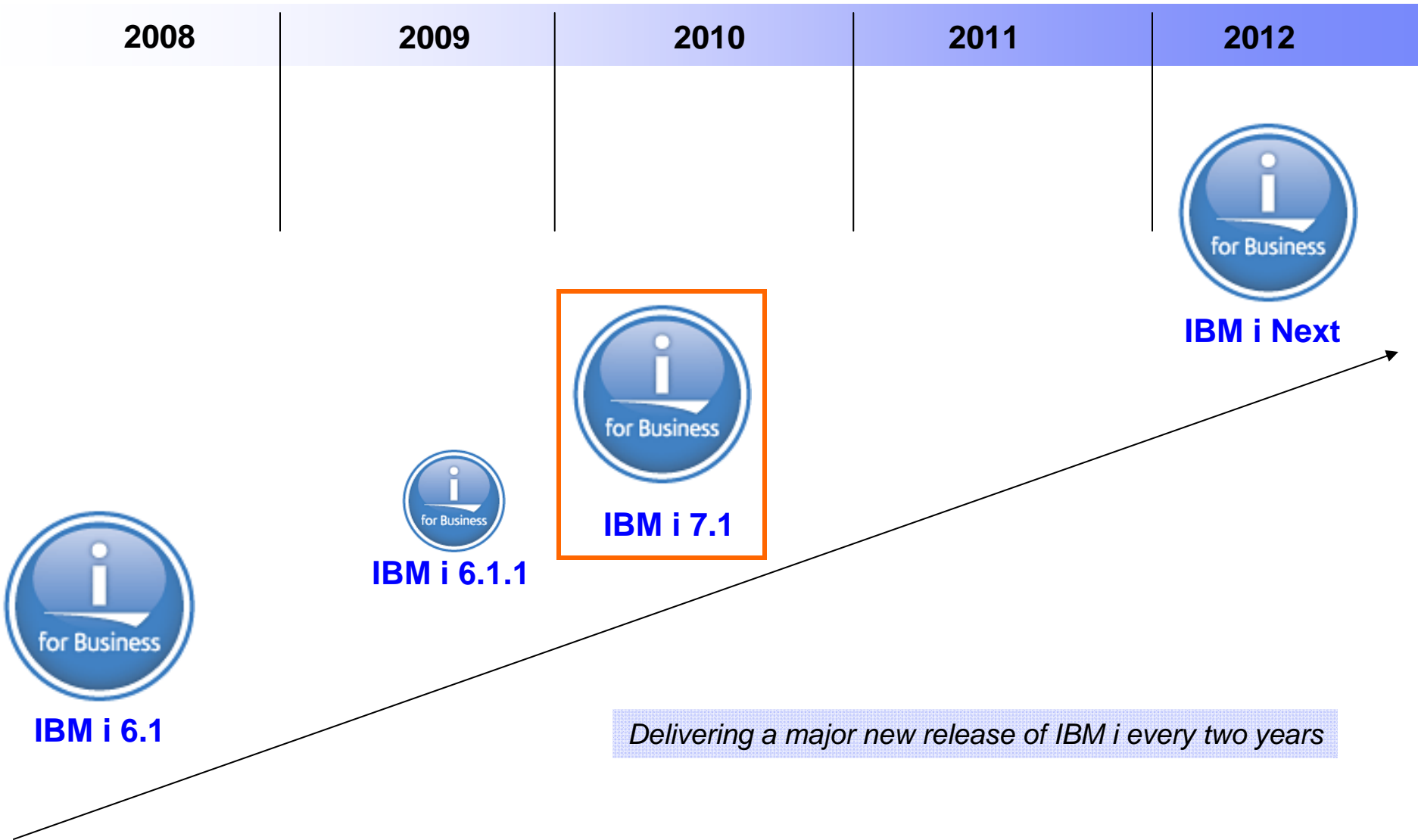

General Manager, IBM Power Systems

- **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 Roadmap



Building on the Foundation

IBM i 6.1 Highlights

- New **Solid State Drive** support with unique IBM i performance advantages
- New **DB2 for i** functional and performance enhancements
- New **DB2 Web Query** product (replacement for Query/400)
- New **Compliance Security** Features
- New **Data Encryption** during disk and tape backup, BRMS support
- New **Java Virtual Machine**, shared with AIX & Linux
- New **Integrated Web Application Server** for less sophisticated Java apps
- New **Systems Director Navigator** web-based console
- New **PowerHA** disk clustering
- New **IBM i on Power Blade** support for BladeCenter
- New **PowerVM** virtual storage for IBM i partitions
- New SAN **DS8000** performance optimization
and much more....



IBM i 6.1 is a cornerstone release for strategic initiatives which follow.

IBM i 7.1 Announcement Highlights

- **DB2**
 - Support for XML and column level encryption
 - SQL statements use OmniFind Text Search Server
 - DB2 Web Query enhancements

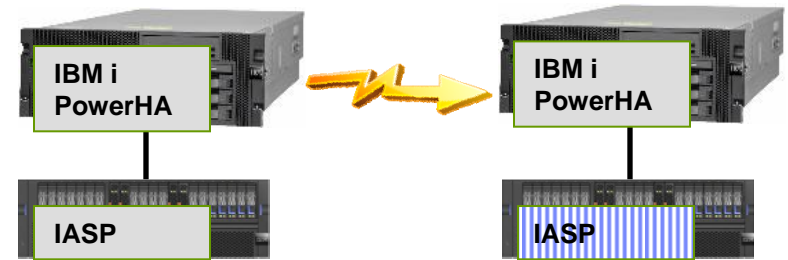
- **PowerHA SystemMirror for i**
 - Async Geographic Mirroring & LUN-level switching
 - Space efficient Flash Copy





- **Virtualization**
 - IBM i virtualization for IBM i partitions
 - N_Port_ID (NPIV) support for fibre tape and SAN
 - Fibre channel over Ethernet (FCoE)

- **Storage and Solid State Drives**
 - Automatic movement of hot data to SSDs
 - Concurrent remove of disk units
 - Native support for DS5000

- **Systems Director**
 - Richer management of IBM i via Systems Director
 - 5250 Emulation and Set Target System
 - New Journal Management capabilities

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



 IBM i 6.1	 IBM i 7.1		
Power Systems			

Announced on April 13
GA'd on April 23

IBM i 7.1 Announcement Highlights continued

- **Remote Upgrade to IBM i 6.1.1 or 7.1**

 - NFS backed optical images for IBM i upgrades
 - Electronic Delivery Support expanded

- **IBM i 7.1 technology update method**

 - *Technology Refresh (TR)*
 - An update to the Licensed Internal Code (LIC)
 - Planned to be delivered on approximately a six month cycle, and targeted to enable a specific set of new hardware and firmware functions

- **Open Access for RPG**

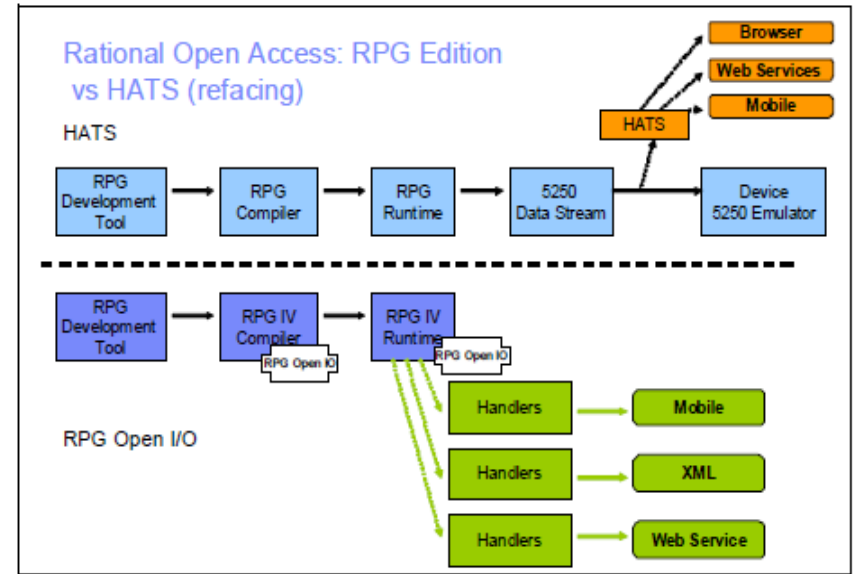
 - Extend application reach to pervasive devices
 - RPG applications can support other interfaces such as mobile devices by using “*Handlers*”.

- **Zend Server Community Edition**

 - PHP environment preloaded with IBM i

- **Application Runtime Expert for I (SOD)**

 - Deliver a new capability for IBM i to verify application run time attributes to ensure consistent performance and deployment of new workloads



System name	User profile	Password	Template
<input checked="" type="checkbox"/> WAS_2	QSECOFR	••••••	ITSOredbook
<input checked="" type="checkbox"/> WAS_3	QSECOFR	••••••	ITSOredbook
<input checked="" type="checkbox"/> WAS_4	QSECOFR	••••••	ITSOredbook

Server address	Status	Result
WAS_2	Complete	4 errors, 7 warnings
WAS_3	Complete	6 errors, 10 warnings
WAS_4	Complete	235 errors, 10 warnings

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 ~

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

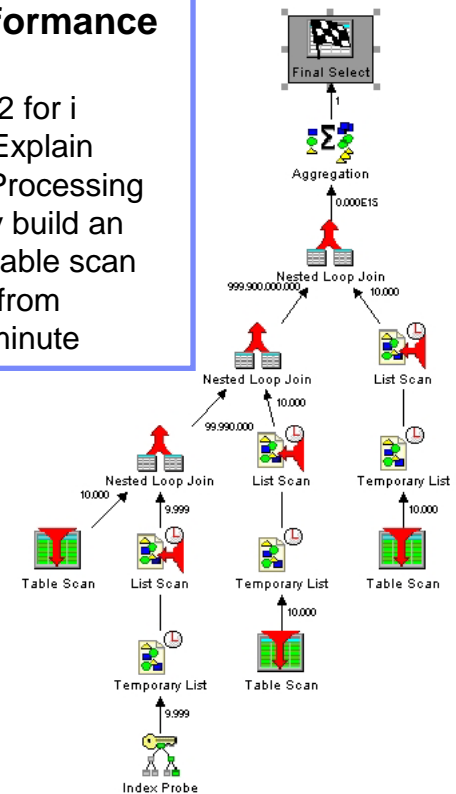
Management

- 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

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

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 Web Query

✓ Upgrade Query/400 with DB2 Web Query

- **Get Better Performance**
 - Up to 5x better performance over Query/400
- **Reduce Report Maintenance**
 - Leverage parameterized reporting or OLAP functions to minimize report maintenance
- **Remove Dependency on IT**
 - Give the Power of the data to end users in the formats they want it with information in real time
- **Upgrade into full blown BI**
 - DB2 Web Query enabled Data Mart/Warehouses

✓ Bring BI and Query Solution Back to IBM i

- Stop the pain and expense of replicating data
- Make decisions with current data

<http://www-03.ibm.com/systems/i/software/db2/webquery/>

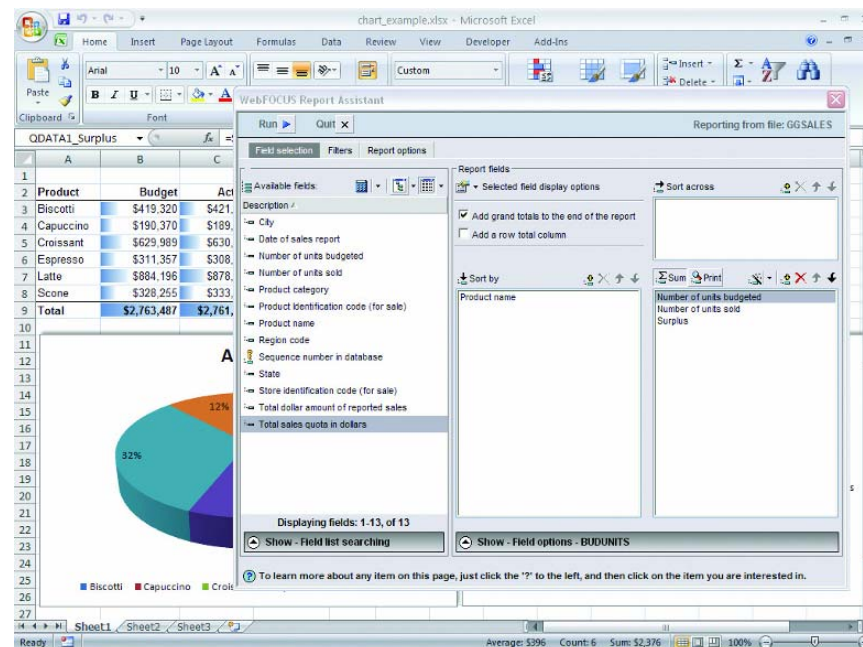
DB2 Web Query Enhancements

Make Better Business Decisions and Improve Customer Service

■ New functions for IBM i 5.4, 6.1 and 7.1

- Security Enhancements
 - Change password from within DB2 Web Query
 - Enhanced meta data control
- Administrative Enhancements
 - Change Management
 - New WRKWEBQRY functions simplifies admin
- Performance Enhancements
 - Improved internal processing
 - Improved analysis capabilities
- Usability/Functional Enhancements
 - Improved Dashboard development
 - Active Reports usability enhancements
- Additional application or data source support

■ DB2 Web Query supports querying XML documents with IBM i 7.1



DB2 Web Query provides an integrated Query/400 replacement product with Business Intelligence extensions that offer rich functionality and breakthrough performance

PowerHA SystemMirror for i



Asynchronous Geographic Mirroring for multi-site DR solution

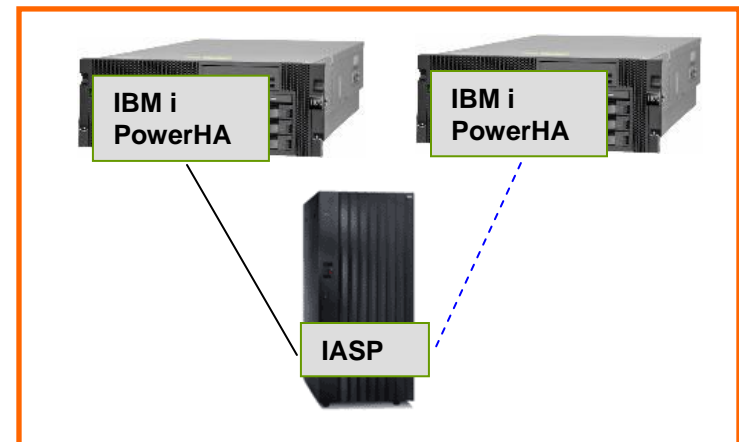
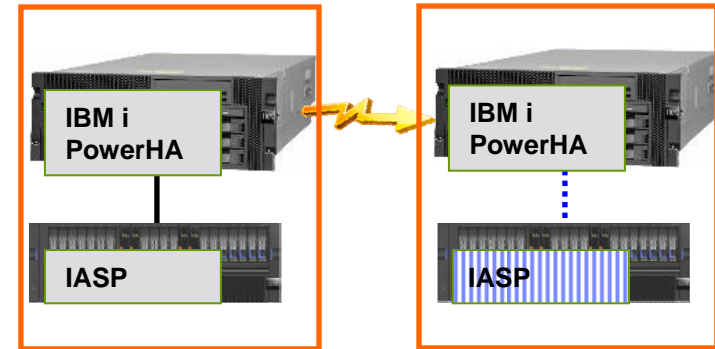
- IBM i based mirroring for geographically dispersed systems
- Asynchronously mirrors disk writes to target system
- Support for automatic failover
- Supports IASPs on integrated disk, SAN, and virtual disk

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

PowerHA SystemMirror for IBM i Editions

- Standard Edition targeted at datacenter HA
- Enterprise Edition targeted at multi-site HA/DR solutions
- 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	Enterprise Edition
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		✓

Virtualization Enhancements for IBM i

■ Maintain current IBM i 6.1 partitions

- IBM i 6.1 can host I/O for i 7.1 and 6.1 partitions
- Minimize change while deploying new release
- AIX 5.2, 5.3, 6.1 and SLES and Red Hat partitions
- iSCSI attached System x and BladeCenter

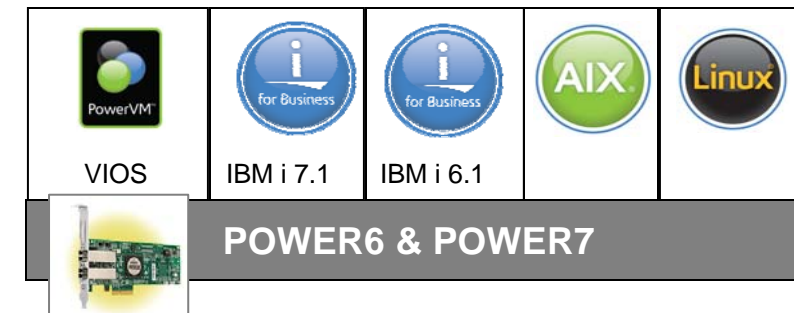
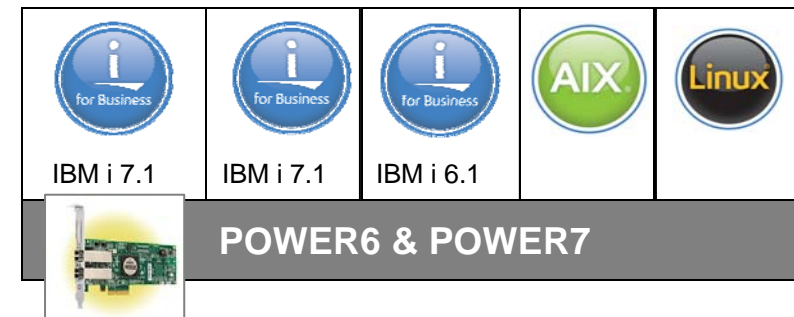
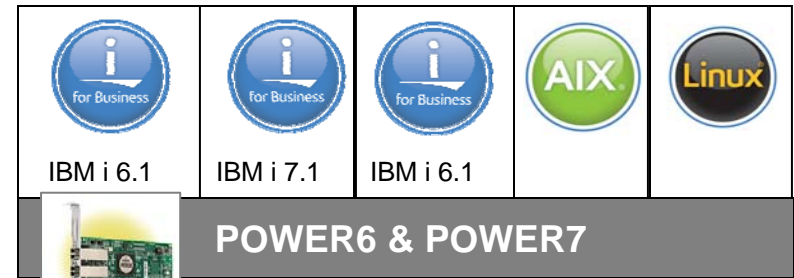
■ Deploy new IBM i 7.1 partitions

- IBM i 7.1 can host I/O for i 7.1 and 6.1 partitions
- Continue to run applications with IBM i 6.1 while leveraging new capabilities of IBM i 7.1
- AIX 5.2, 5.3, 6.1 and SLES and Red Hat partitions
- iSCSI attached System x and BladeCenter

■ PowerVM VIOS 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
- IBM i 6.1.1 or 7.1 can be hosted by dual PowerVM Virtual IO Servers for added high availability

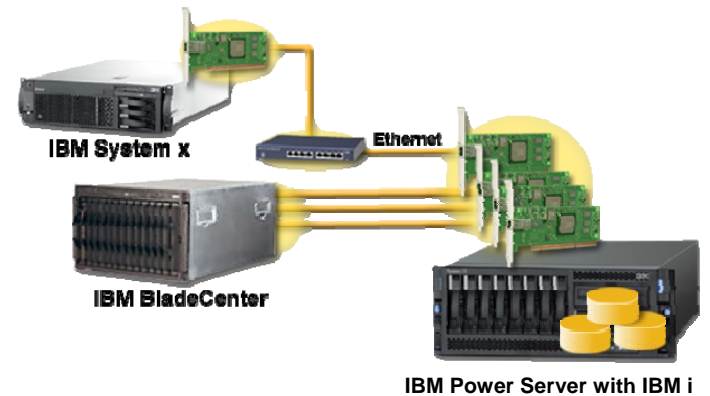
Storage Virtualization can reduce costs while improving IT infrastructure flexibility



IBM i integration with BladeCenter and System x

■ 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

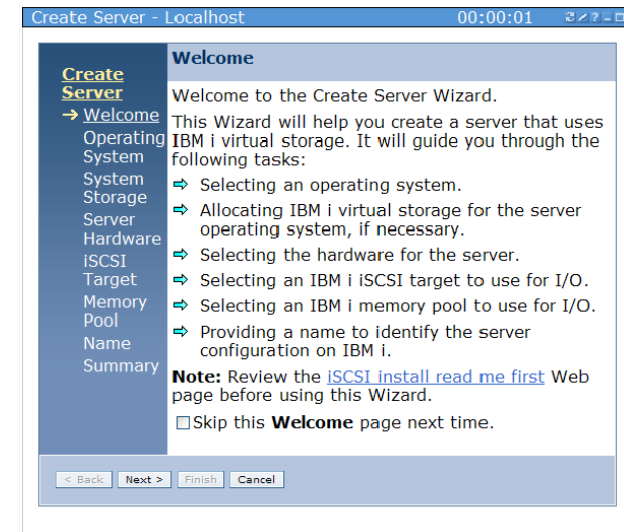


■ Supported Environments

- 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

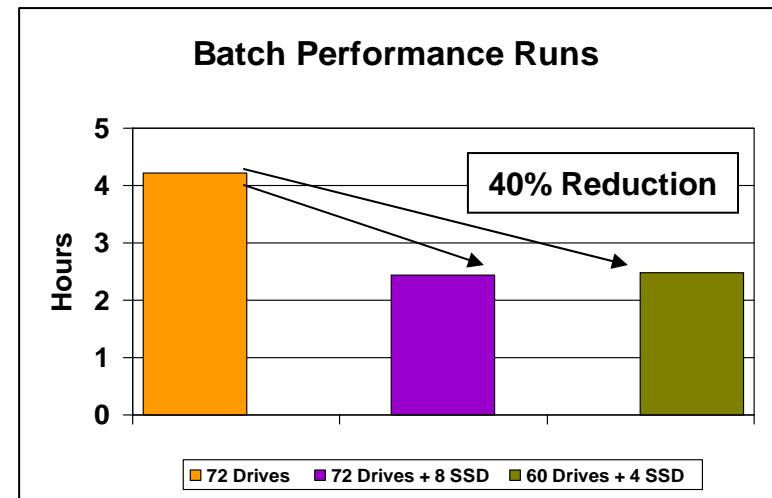
IBM i Storage Management and SSD



- **IBM i 6.1.1 and 7.1 adds**
 - Native support for IBM Systems Storage DS5100, DS5300, DS8700
 - Support for PCI-e Dual SAS disk controllers
 - Concurrent disk remove and hot disk spare for mirroring
- **IBM i supports hierarchical storage management**
 - Now IBM i automatically collects I/O performance data and moves most active data to Solid State Drives (SSD)
- **DB2 for i supports SSD as preferred media**
 - New DB2 Random Read Statistics
- **Additional enhancements for SSDs**
 - New “SSD-Aware” utilities
 - Improved performance instrumentation
 - Usability enhancements
- **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

<http://www.ibm.com/support/techdocs/atmastr.nsf/WebIndex/PRS3780>

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



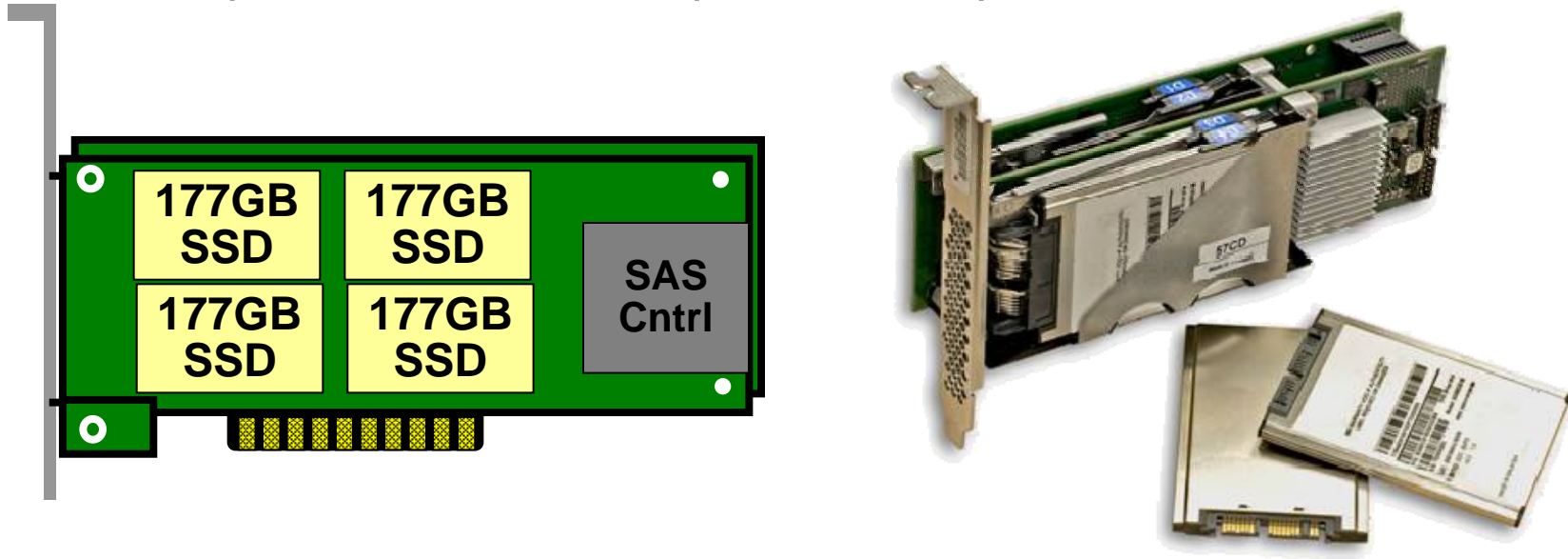
72 Drives replaced by 60 Drives + 4 SSD

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

* http://www.ibmsystemsmagpowersystemsibmidigital.com/nxtbooks/ibmsystemsmag/ibmsystems_power_200909/index.php/#/16#

Solid-State Disk Drive PCIe SAS RAID Adapter

- Higher I/O performance for the most demanding applications
- PCIe SAS Adapter / Double-wide card
- 4 SSD bays on card / 1, 2 or 4 SSD modules per adapter
- 177 GB per SSD module / Up to 708 GB per card



Supported OS: AIX 5.3 or later, IBM i 7.1, REHL 5.5 or later, SLES 10 or later
Supported servers: POWER7 servers: 710/720/730/740/750/770/780 (not 795)



Remove Disk Units Without an IPL or Outage

1 Work with Disk Configuration

Select one of the following:

1. Display disk configuration
2. Add units to ASPs
3. Work with ASP threshold
- ...
- ...
10. Stop hot spare
11. Work with encryption
12. **Work with removing units from configuration**

- **Concurrent Remove of Disk Units**
 - Hot remove disk unit(s) without having to IPL or take an outage
 - Does not require restricted state
 - Can be paused and restarted
 - *So hot, its cool*
- Any POWER hardware supporting IBM i 7.1

More details in Chapter 8 in: **IBM i 7.1 Technical Overview, SG24-7858-00**
<http://www.redbooks.ibm.com/redpieces/abstracts/sg247858.html?Open>

2 **Work with Removing Units From Configuration**

Select one of the following:

1. Display disk configuration
2. Display status of remove operation
3. **Remove units from configuration**
4. Pause the remove operation
5. Resume the remove operation
6. Cancel the remove operation
7. Cancel the remove operation and balance data in the ASP

3

Size	%Used	Status
195754	33.56%	Unprotected
55924	40.77%	Configured
18643	40.78%	Configured
23308	40.78%	Configured
27965	40.77%	Configured
32623	40.77%	Configured
37287	2.88%	Removing

4

Serial Number	Resource Type Model Name	Capacity Status
YL4RUT3ERVR7	6B22 050 DD006	37287 Non-configured

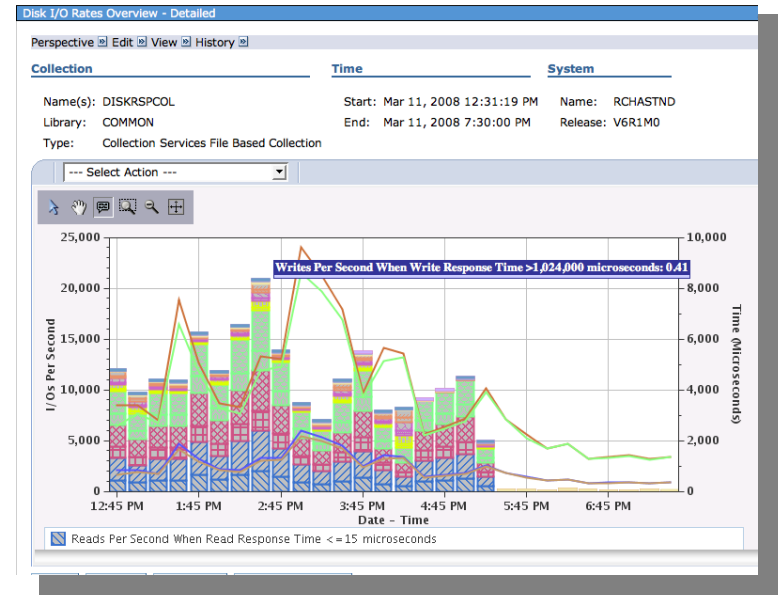
- Manage from:*
- (Today) SST (System Service Tools)
 - (Future) Systems Director Navigator for i and System i Navigator

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

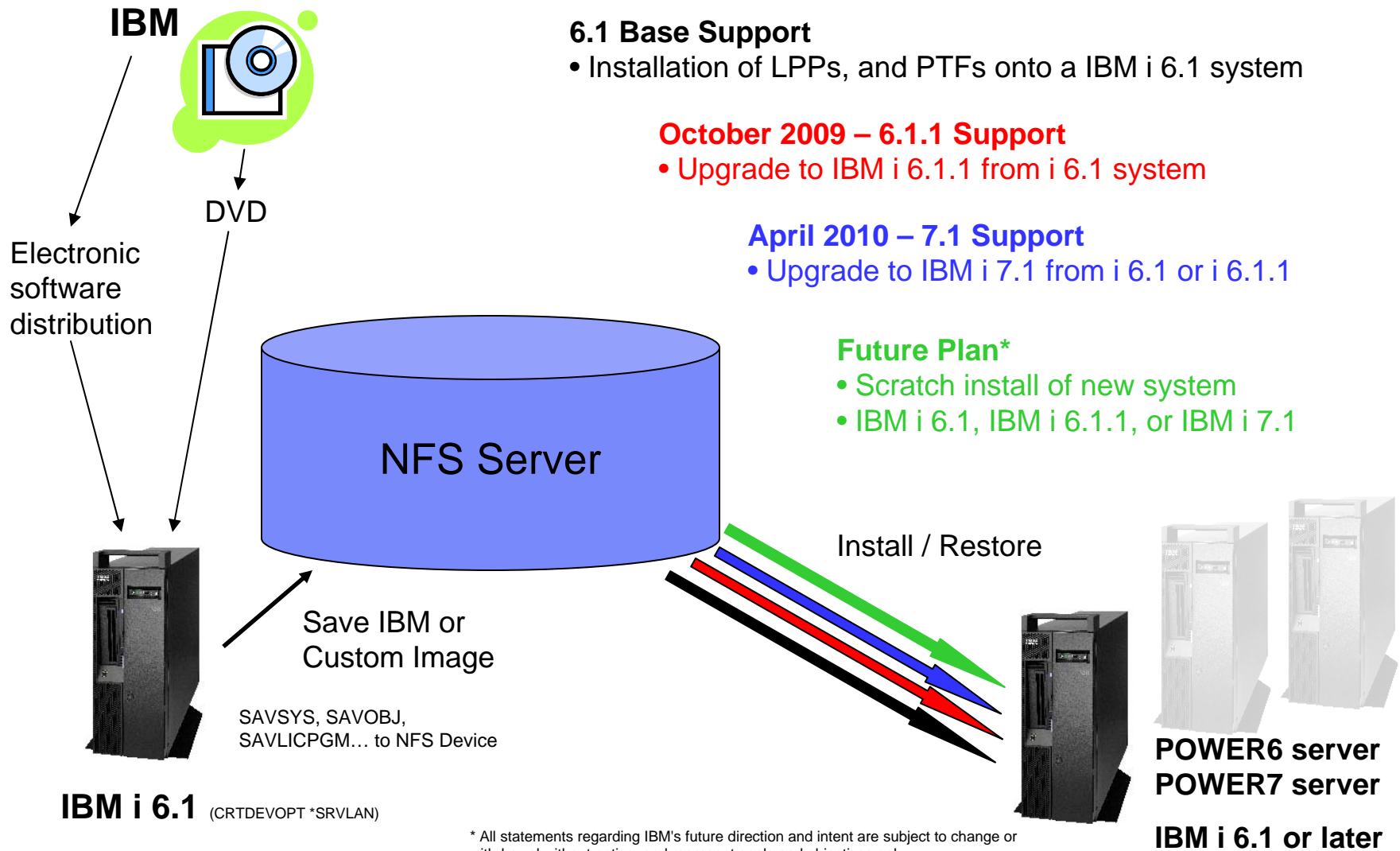
- **Systems Director Enhancements**
 - New functions for managing IBM i
 - Management server runs on AIX, Linux, or Windows
 - Manages IBM i 6.1 and 7.1 environments



Systems Director	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			✓

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

Network Upgrade Simplifies Upgrading Multiple Systems



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

Install or Upgrade using VSCSI Virtual Optical support

IBM i or VIOS hosting – can provide virtual storage and/or just the optical (POWER6/7)

```

Work with Image Catalog Entries
System:
Catalog . . . : V7R1GA          Status . . . : Ready
Type . . . . : Optical         Device . . . : VOPT1
Directory . . : /virtual_media/V7R1GA

Type options, press Enter.
 1=Add  2=Change  4=Remove  6=Mount  8=Load  9=Unload
10=Initialize volume  12=Work with volume

Opt  Index  Status  Image File Name
---  ---
 1  *AVAIL  Mounted  slic_n_v7r1.iso
 2  2  Loaded  B_GROUP3_01.iso
 3  3  Loaded  B_GROUP3_02.iso
 4  4  Loaded  B_GROUP3_03.iso
 5  5  Loaded  B_GROUP3_04.iso
 6  6  Loaded  B_GROUP3_05.iso
 7  7  Loaded  F_MULTI_NLV.iso
 8  8  Loaded  F2935_01.iso

F3=Exit  F5=Refresh  F6=Load/Unload image catalog  F7=Verify image
F8=Reorder by index  F12=Cancel  F24=More keys
    
```

```

Work with Optical Volumes
System:
Device . . . . . : *ALL
Side information . . . . . : *ALL
Type options, press Enter.
 1=Add  2=Change  3=Copy  4=Remove  5=Display  8=Work with di
10=Initialize  11=Work with object links  12=Duplicate .

Opt  Volume      Device  Volume  Media  Authorization
---  ---
 1  SLIC_N      OPT01  *PRIMARY  *CD-ROM  QOPTSEC

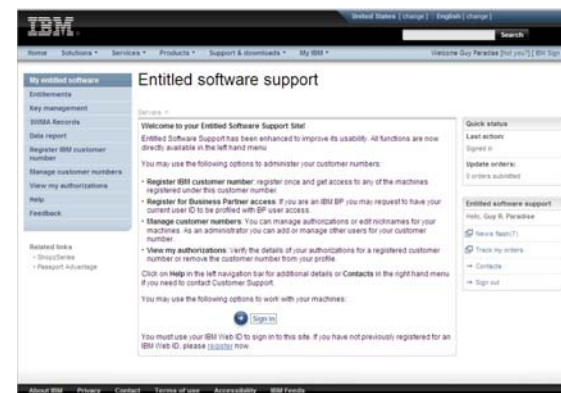
Parameters or command
===>
F3=Exit  F4=Prompt  F5=Refresh  F6=Print list  F9=Retrieve  F1
F12=Cancel  F14=Show extended information  F24=More keys
    
```

- From HMC, create a server VSCSI to map to the client partition
- Create a NWSD for the client partition & vary on
 - Client side will auto create an *OPTxx* device or devices for each physical an virtual option presented
 - Load images into the IMGCLG or a physical optical drive on the Server.
- Media in either the physical DVD/CD or virtual optical on the Server can be used by the client

- From HMC:
 - create a client VSCSI (“as required” initially) to map to the hosting partition.
 - Under tagged IO for Alternate Restart Device select the Client VSCSI resource.
 - Once tagged, change the VSCSI to “as desired”.
- Utilize them to install, upgrade, PTF maintenance Automatic switching of images coming in the future

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



Technology Refresh (TR)

- Is an update to the Licensed Internal Code (LIC) base release, planned to be delivered on approximately a six month cycle, and targeted to enable a specific set of new hardware and firmware functions. The first TR will start with IBM i 7.1
- The TR mechanism allows customers to more timely and easily take advantage of new hardware and firmware functions without moving to a new release. The TR PTF and related PTFs are packaged together in a technology refresh PTF group to provide ease of use when ordering and installing the TR
- For details on ordering and installing the TR PTF group, refer to the “Maintaining and managing IBM i and related software” topic in the IBM i 7.1 Information Center at:
<http://publib.boulder.ibm.com/infocenter/iseres/v7r1m0/index.jsp>

Note: Subsequent TR PTFs will be a superset of earlier ones so that only the latest available TR would have to be applied. However, it is recommended to stay current on the latest level of TR PTF group to limit the number and time of IPLs required for applying any newer PTF with a TR requisite, i.e. that affects the code area of the TR PTF

- Steve Will, IBM i Chief Architect provides an overview at:
http://ibmsystemsmag.blogs.com/you_and_i/2010/08/ibm-i-what-are-these-technology-refreshes-anyway.html

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



IBM Web Administration for i

Setup | Manage | Advanced | Related Links

Common Tasks and Wizards

- ▶ Create Web Services Server
- ▶ Create HTTP Server
- ▶ Create Application Server
- ▶ Create WebSphere Portal

IBM Web Administration for i

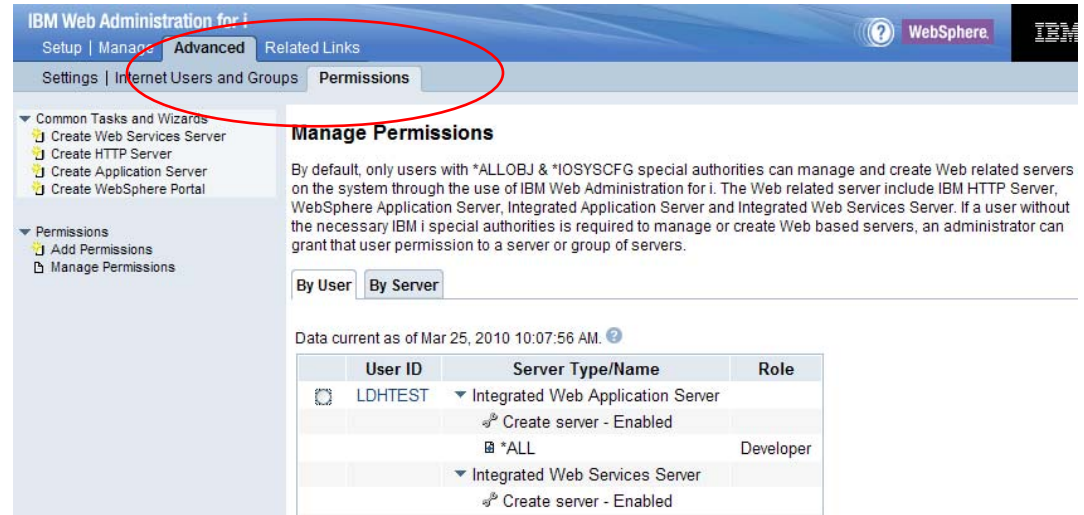
Getting started - Create and learn about the servers needed to run your Web content.

- Create a New Web Services Server**
 Create Web Services Server Wizard provides a convenient way to externalize existing programs running on IBM i, such as RPG or COBOL, as Web services. This allows Web service clients to interact with IBM i program based services from the Internet or intranet using Web service based industry standard communication protocols such as SOAP.
- Create a New HTTP Server** ⓘ
 Create a new HTTP Server (powered by Apache) to run your HTTP Web content. This wizard will create everything you need to get started with simple Web serving.
- Create a New Application Server** ⓘ
 Create a new application server to run dynamic Web applications. Create either an IBM integrated Web application server for i or a WebSphere Application Server.
- Create a New WebSphere Portal** ⓘ
 Create a new application server to run powerful and compelling business partner, customer, and employee information portals. This includes configuring an HTTP server, creating a new WebSphere Application Server, and configuring database and LDAP as necessary.

Web Integration New Features

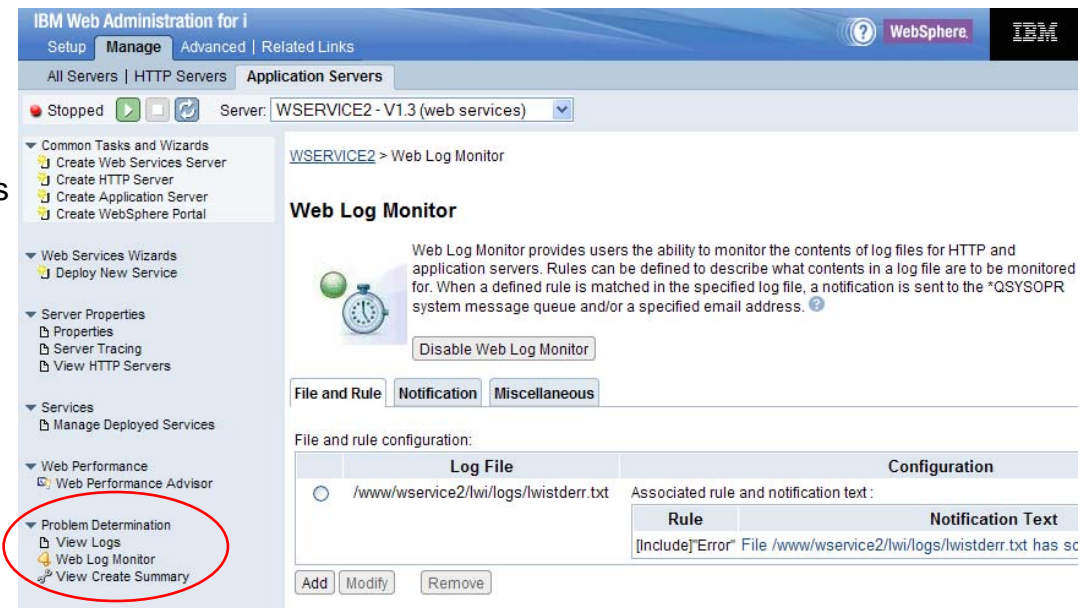
■ Developers can use Web Admin

- 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

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. software

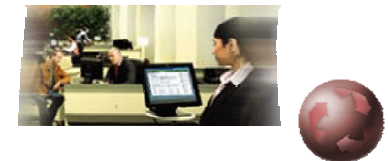
Access information



Customer retention



Operational efficiency



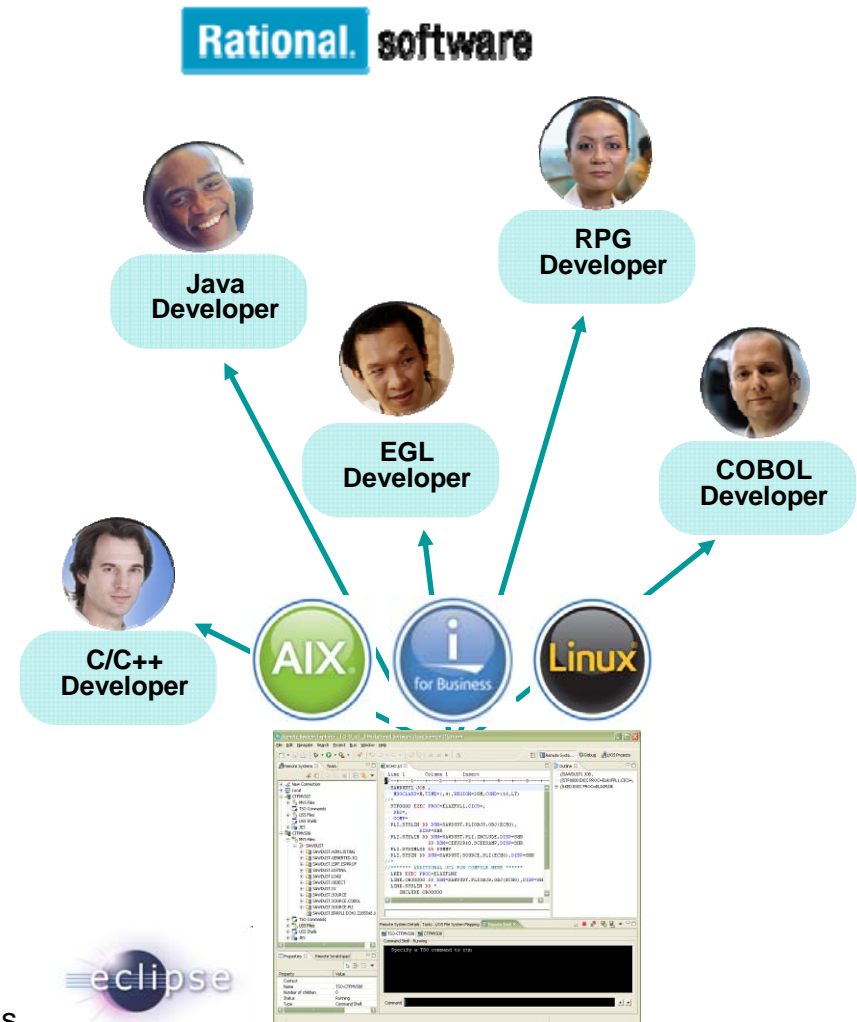
Cost reduction



WebSphere offers rich Web application server solutions for IBM i

Rational Support for IBM i 7.1

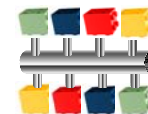
- Rational Developer for Power**
 - **Feature: RPG and COBOL Development for i**
 - eclipse-based tools for RPG/COBOL development
 - New print designer & support for language enhancements
 - Replaces Rational Developer for i (RD*i*)
 - Support for COBOL and C/C++ options for AIX
- Rational Team Concert 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 compilers + traditional development tools
 - New language functions have been added to ILE Compilers



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

Rational Open Access: RPG Edition

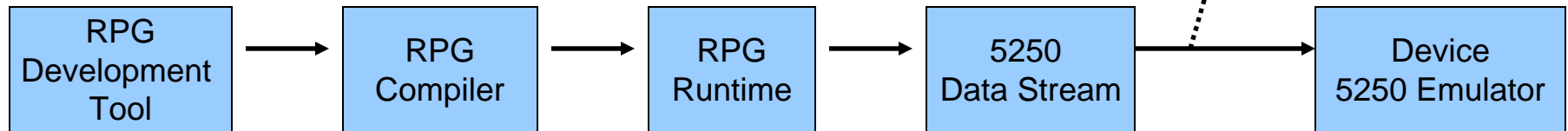
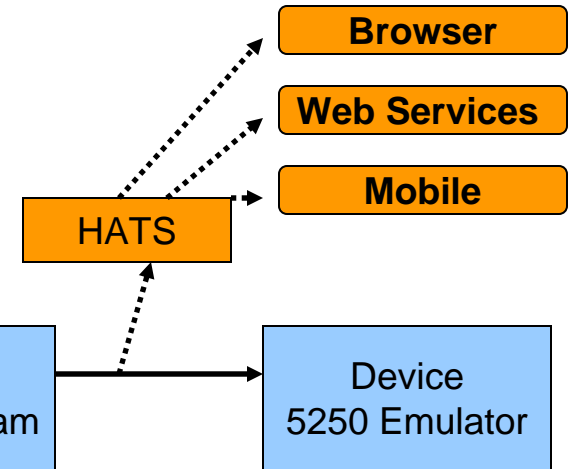
- **Extends RPG application reach to pervasive devices**
 - Provides ability for RPG programs to work with a variety of clients including phones, XML, Web Services
 - Developers write handlers for non-5250 interfaces
- **Tool providers plan to offer handler solutions for common devices and interfaces**
 - looksoftware, Profound Logic, IBM Lab Services, VMI
- **New product 5733-OAR required to create or run programs that utilize Open Access for RPG**
- **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

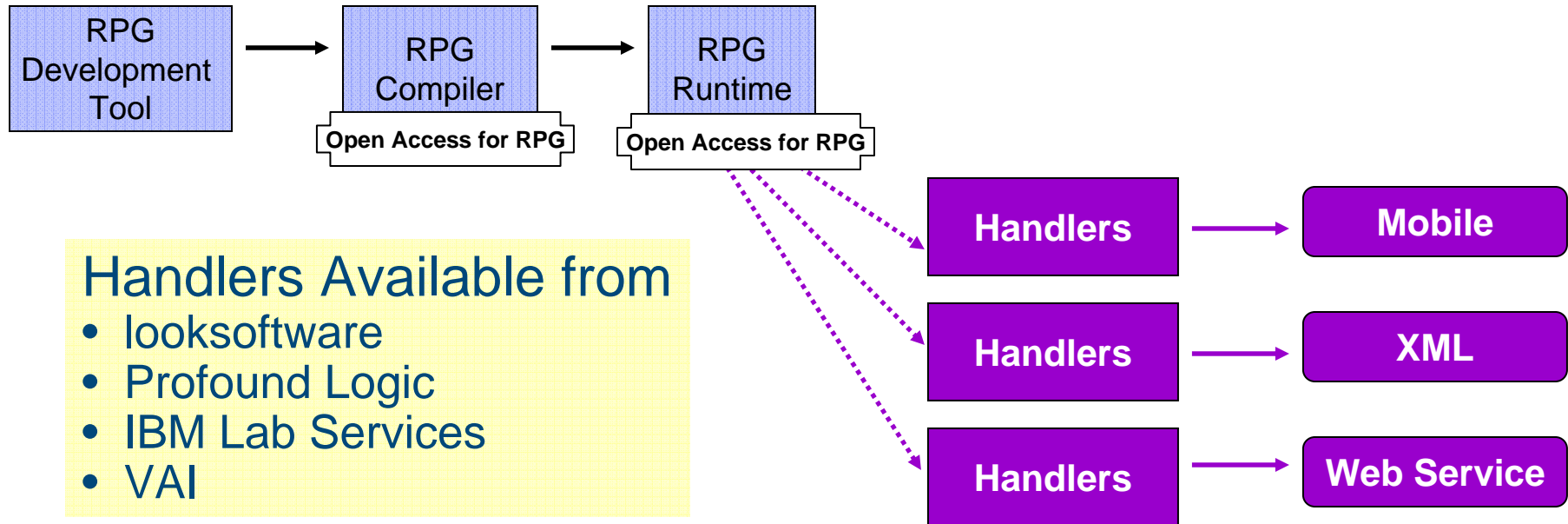
Rational Open Access: RPG Edition

- **RPG applications produce 5250 data stream**
 - HATS and partner tools are used to extend to other user interfaces



RPG Applications Today

RPG Applications with Open Access



Handlers Available from

- looksoftware
- Profound Logic
- IBM Lab Services
- VAI

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

Zend PHP Enhancements

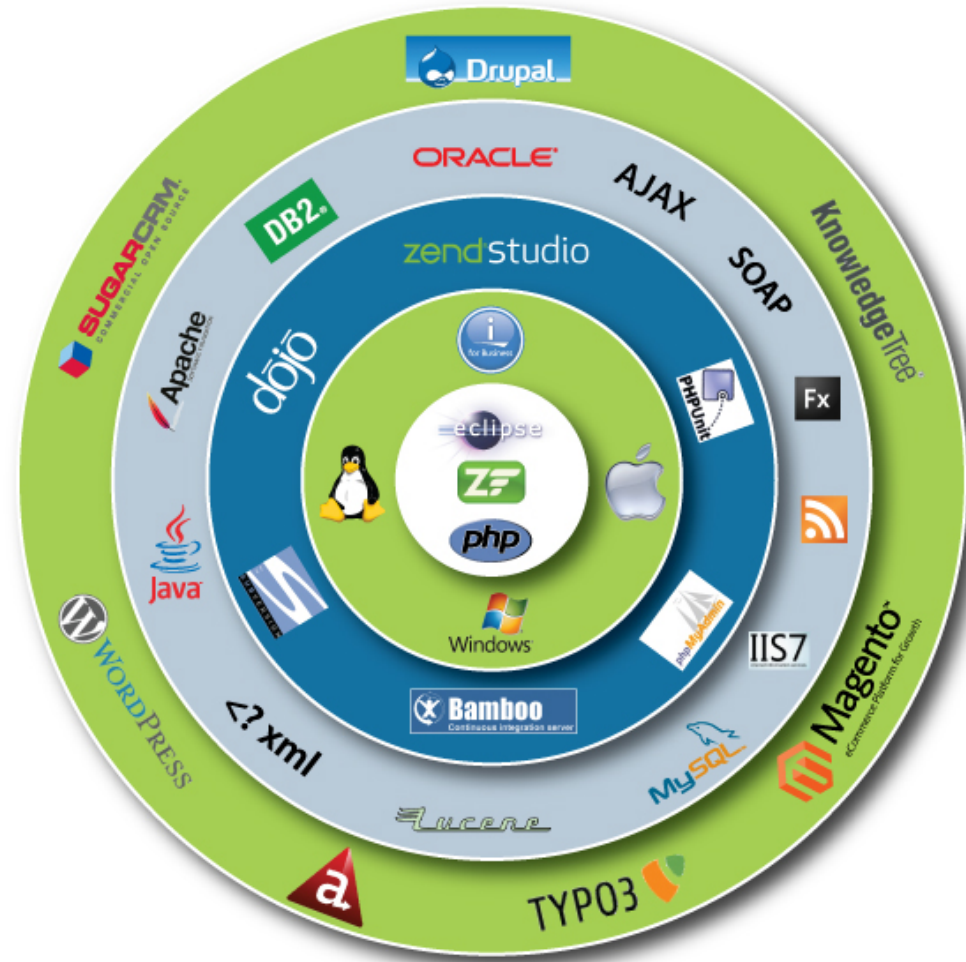
- **Zend Server Community Edition for i**
 - Preloaded with IBM i 7.1, 6.1, 5.4
 - Includes one year of Silver support from Zend
 - Provided for no additional charge
 - Also available for download from zend.com
 - Replaces Zend Core
- **Zend Server for i**
 - Provides advanced functions
 - Available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

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**



New Zend Product Offerings for IBM i

Zend Server Community Edition
Replaces Zend Core

Zend Server
Replaces Zend Platform

	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 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

Lotus Support for IBM i 7.1

▪ Lotus Notes and Domino

- *Collaboration beyond e-mail*
- Domino 8.5.1

▪ Lotus Sametime

- *Real-Time community collaboration*
- Sametime 8.5.1

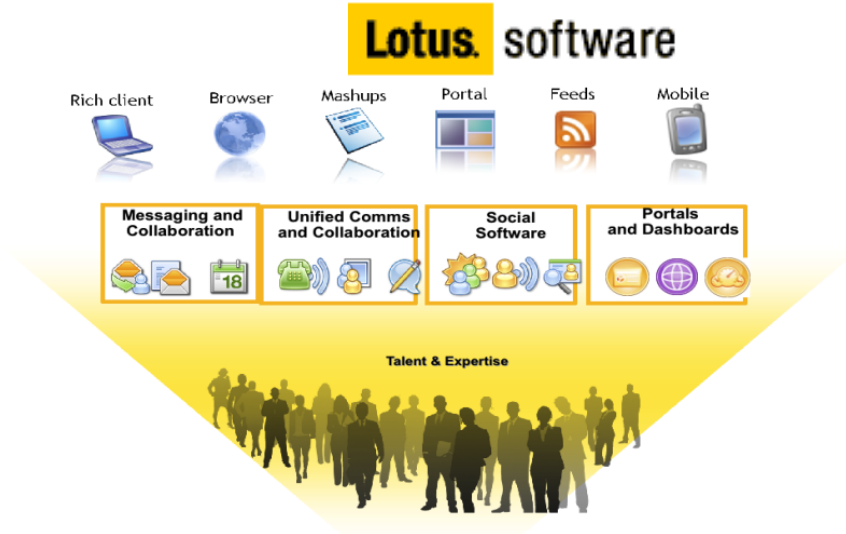
▪ Lotus Quickr

- *Share everyday content*
- Quickr 8.5

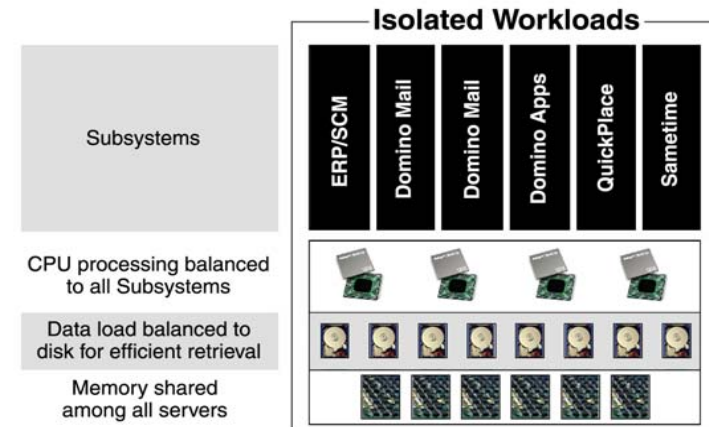
▪ Additional Products

- 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



For the latest information, see:

<http://www.ibm.com/systems/resources/releasesupport.pdf>

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



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)

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



Getting to IBM i 7.1 - Supported Upgrade paths

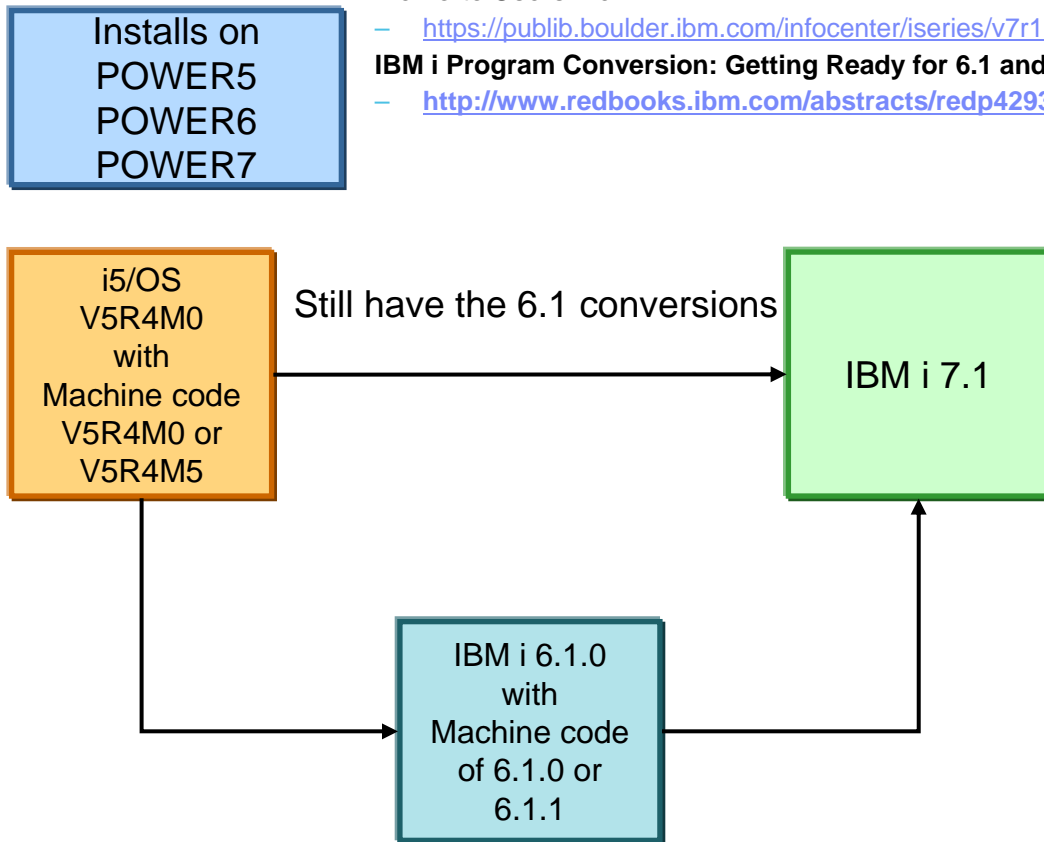
Important planning documents:

Memo to Users. For IBM i 7.1:

– <https://publib.boulder.ibm.com/infocenter/iseres/v7r1m0/topic/rzaq9/rzaq9.pdf>

IBM i Program Conversion: Getting Ready for 6.1 and Beyond

– <http://www.redbooks.ibm.com/abstracts/redp4293.html>



Servers	IBM i 5.4	IBM i 6.1	IBM i 7.1
POWER7: 710, 720, 730, 740, 750, 770, 780, 795		✓	✓
Power Blades POWER7: PS700, PS701, PS702		✓	✓
Power Blades POWER6/6+ JS12, 22, 23/43,		✓	✓
POWER6+ 550*, 560		✓	✓
POWER6 and POWER6+ 520, 550, 570, 595	✓	✓	✓
POWER5+ 515, 525	✓	✓	✓
POWER5 520, 550, 570, 595	✓	✓	✓
800, 810, 825, 870, 890	✓	✓	
270, 820, 830, 840	✓		

IBM i planning website

<http://www-947.ibm.com/systems/support/i/planning/migrationupgrade.html>

<http://www-947.ibm.com/systems/support/i/planning/upgrade/index.html>

Installing, upgrading, or deleting IBM i and related software:

<http://publib.boulder.ibm.com/infocenter/iseres/v7r1m0/index.jsp?topic=/rzahc/rzahc1.htm>

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 520, 550 and larger systems
- IBM i processor-core entitlement moves to new system

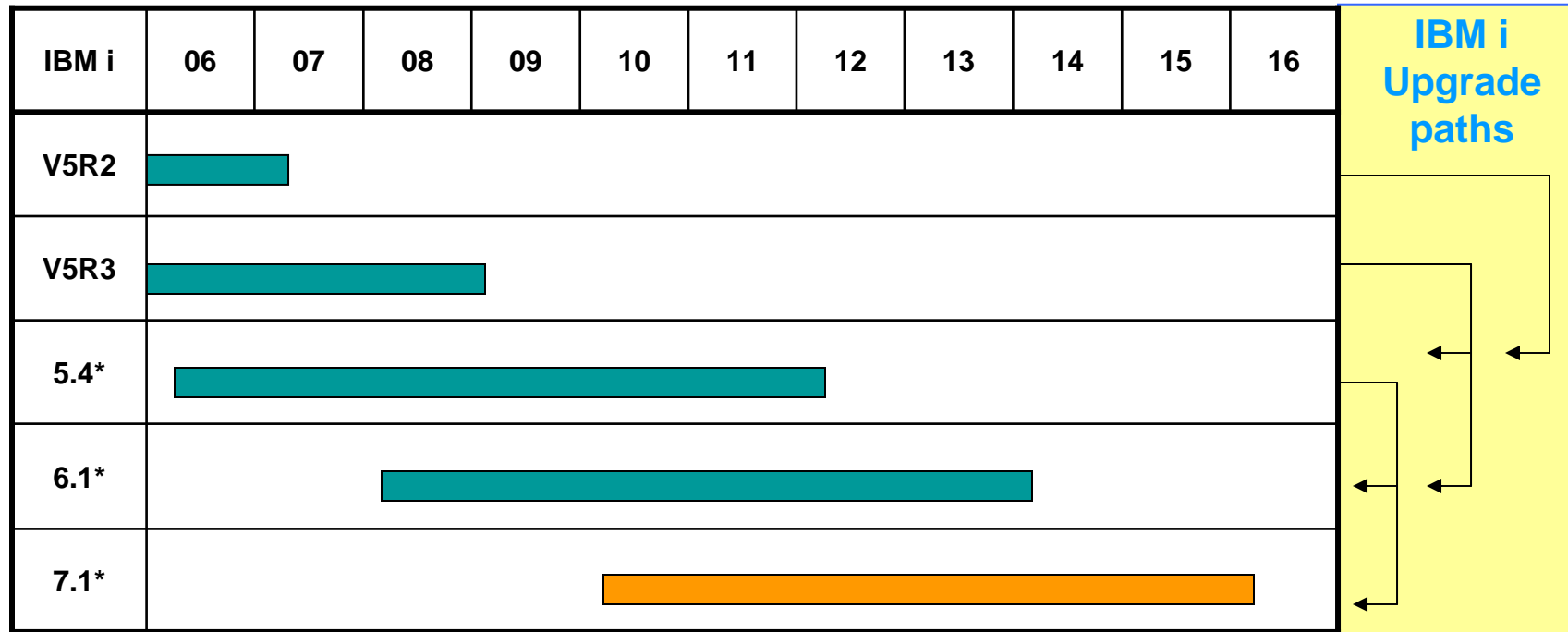
Making it Easier for Clients to

- Buy a replacement system
- Consolidate systems
- Move workloads

From POWER5, 6, 7		To POWER6, 7
9406-520, 550, 570, 595		
Power 520, 550 (9407-M25, 8203E4A) (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 720, 740, 750, 770, 780, 795		Power 720, 740, 750, 770, 780, 795

For detailed information: [IBM i Processor Entitlement Transfer guide](http://www-947.ibm.com/systems/support/planning/notices71.html)
 Planning Details: <http://www-947.ibm.com/systems/support/planning/notices71.html>

IBM i Life Cycle



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. IBM's plans and directions are subject to change without notice.

The effective withdrawal from marketing date for IBM i 5.4, and additional selected programs and features, as announced in Software withdrawal 909-003, dated January 27, 2009, has been revised. Withdrawal Announcement 909-285, dated November 10, 2009, has **extended marketing availability for IBM i 5.4** from January 5, 2010, **to January 7, 2011**. This enables systems that may still be running on IBM i 5.2 or 5.3 with the option to still order 5.4 and then perform a two step upgrade.

3 IBM i 7.1 Language Groups

Group 1

5770-SS1 feature 5817

- 2924 English
- 2963 Belgian Dutch MNCS
- 2909 Belgium English
- 2966 Belgian French MNCS
- 2980 Brazilian Portuguese
- 2981 Canadian French MNCS
- 2926 Danish
- 2923 Dutch Netherlands
- 2925 Finnish
- 2928 French
- 2940 French MNCS
- 2929 German
- 2939 German MNCS
- 2958 Icelandic
- 2932 Italian
- 2942 Italian MNCS
- 2933 Norwegian
- 2922 Portuguese
- 2996 Portuguese MNCS
- 2931 Spanish
- 2937 Swedish

Group 2

5770-SS1 feature 5818

- 2924 English
- 2995 Albanian
- 2954 Arabic
- 2974 Bulgarian
- 2912 Croatian
- 2975 Czech
- 2902 Estonian
- 2998 Farsi
- 2957 Greek
- 2961 Hebrew
- 2976 Hungarian
- 2904 Latvian
- 2903 Lithuanian
- 2913 Macedonian
- 2978 Polish
- 2992 Romanian
- 2979 Russian
- 2914 Serbian
- 2994 Slovakian
- 2911 Slovenian
- 2956 Turkish

Group 3

5770-SS1 feature 5819

- 2924 English
- 2938 English DBCS
- 2984 English DBCS
- 2930 Japanese Universal
- 2962 Japanese Katakana
- 2986 Korean
- 2906 Laotian
- 2989 Simplified Chinese
- 2987 Traditional Chinese
- 2972 Thai
- 2905 Vietnamese

Withdrawals and Changes

Function / Product	Notes	Recommended Replacement
Direct Attach Ops Console	Not supported with i 7.1	LAN Console or HMC
Java Developer Kit (Classic)	Not included with i 7.1	IBM Technology for Java
Extended Integrated Server Support	Not support on i 7.1 (5761-LSB) Linux not supported on iSCSI attached systems IBM i no longer support save while active and File Level Backup for Linux partitions	IBM i in Option 29 - Integrated Server Support.
IBM i Information Center Media	Physical Media no longer available	Use the online version of the Information Center
AnyNet	Still included in i 7.1, but no longer supported	Enterprise Extenders function of IBM i
System i Access for wireless	Not supported on i 7.1 (5722-XP1)	
Secure Perspectives	Not supported on i 7.1 (5733-PS1)	Lab Services offering
Rational Developer for i	Withdraw Feb 9 effective May 11 (5733-RDI)	Rational Developer for Power – RPG and COBOL Development for i
Zend Core for i	5639-ZC1 product renamed to Zend Server Community Edition for i	Zend Server Community Edition for i
Zend Platform for i	Withdraw 4/13 effective 7/17 (5619-ZP1, 5771-ZP1)	Zend Server Support for i 5771-ZC1
Zend and MySQL Value Pack	Withdraw 4/13 effective 7/17 (5639-MVP)	Zend Server Support for i 5771-ZC1

IBM i Planning Web Site: <http://www-947.ibm.com/systems/support/i/planning/upgrade/v6r1/planstmts.html>

New wiki for key links to the most current information

<https://www.ibm.com/developerworks/wikis/display/WikiPtype/IBM+i>

<h2>Main Content</h2> <p>Getting Started</p> <ul style="list-style-type: none"> Introduction to IBM Executive Overview Why i? <p>Integrated Functions</p> <ul style="list-style-type: none"> DB2 for i HTTP Server for i IBM i Access IBM i Net Server Work Management Security <p>Products on IBM i</p> <ul style="list-style-type: none"> Lotus WebSphere Application Server DB2 Web Query for i Advanced Job Scheduler for i PowerHA SystemMirror for i <p>Managing IBM i</p> <ul style="list-style-type: none"> Systems Management Backup Recovery and Media Services Navigator for i Systems Director System Director Navigator for i Performance Management Performance Data Investigator PowerVM <p>Developing Software for IBM i</p> <ul style="list-style-type: none"> Rational Open Access RPG Zend and PHP 	<h2>News & Highlights</h2> <p>POWER7</p> <ul style="list-style-type: none"> 7.1 Enhancements 7.1 Webcasts 	<h2>Events</h2> <ul style="list-style-type: none"> COMMON Europe, 2010 Annual Meeting and Exposition Stratford on Avon, UK June 12 -15, 2010 COMMON, 2010 Fall Conference and Exposition Crowne Plaza Riverwalk, San Antonio, TX October 4 -6, 2010 IBM Power Systems Technical University Las Vegas, NV October 18 -22, 2010 More Conferences and events
<h2>Resources</h2> <p>Redbooks</p> <ul style="list-style-type: none"> Complete list of IBM i (AS/400, iSeries, System i) Redbooks <p>IBM i Information Center</p> <ul style="list-style-type: none"> IBM i Version 5 Release 4 IBM i Version 6 Release 1 IBM i Version 7 Release 1 <p>Support</p> <ul style="list-style-type: none"> Fix Central Online Support Entitled Software Support and License Keys IBM i support and services / Partnerworld Offerings Upgrade planning <p>Publications</p> <ul style="list-style-type: none"> IBM Systems Magazine System iNetwork MCPress Online 	<h2>Communities and Social Networking</h2> <ul style="list-style-type: none"> Academic Initiative #IBMi on Twitter IBM i User Groups Midrange.com Power Systems YouTube Channel Rational Developer for i (RPG Cafe) Why i? presentation on YouTube Young i Professionals <p>Blogs</p> <ul style="list-style-type: none"> Dawn May: i Can Steve Will: You and i iDevelop Angus the IT Chap imho.midrange.com <p>User Group Meetings</p> <ul style="list-style-type: none"> IBM i A list of eServer User Groups <p>Other IBM i Wiki's</p> <ul style="list-style-type: none"> midrange wiki 	

Redbook: IBM i 7.1 Technical Overview –

<http://www.redbooks.ibm.com/redpieces/abstracts/sq247858.html?Open>

POWER7 August Announcements

POWER7 795, 710, 720, 730, 740



New

Power 795

- ✓ New High-end
- ✓ 24 to 256 Cores
- ✓ 8 TB memory
- ✓ TurboCore
- ✓ 3.7, 4.0 or 4.25 GHz
- ✓ 1,000 VMs* with PowerVM
- ✓ Capacity on Demand
- ✓ Enterprise RAS
- ✓ 24x7 Warranty
- ✓ PowerCare



* Statement of Direction

Power your planet with Power Systems Express servers

1 Socket

Power 710 Express



Power 720 Express



2 Socket

New

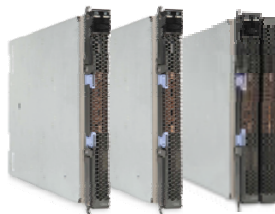


Power 730 Express

Power 740 Express



Blades



PS700, PS701, PS 702 Express

4 Socket

Power 750 Express



Power 710, 720, 730 and 740 Express Highlights

Power 710

4-core P05 Tier
 6- or 8- cores P10 Tier
 Max memory: 64 GB
 PCIe = 4 low profile
 Zero 12X I/O loops
 IBM i 6.1 or later

2U - 1 Socket



Dense, attractively priced 1-socket server that fits seamlessly in your existing infrastructure

4U - 1 Socket



Power 720

4-core P05 Tier
 6- or 8-cores P10 Tier
 Max memory: 128 GB
 CEC PCIe = 4 + 4
 Up to 1* 12X I/O loop
 * if 6- or 8-core
 IBM i 6.1 or later

Affordable, flexible rack or tower server for distributed applications or a complete, integrated business system with IBM i

Power 730

8, 12 or 16 cores
 P20 Tier
 Max memory: 128 GB
 CEC PCIe = 4 low profile
 Zero 12X I/O loops
 IBM i 6.1 or later

2U - 2 Sockets



High performance, energy efficient server ideal for running multiple application and infrastructure workloads in a virtualized environment

4U - 2 Sockets



Power 740

4, 6, 8, 12, or 16 cores
 P20 Tier
 Max memory: 256 GB
 CEC PCIe = 4 + 4
 Up to 2 12X I/O loops
 IBM i 6.1 or later

High-performance, flexible, configurable and reliable midsize database and consolidation server

All systems above have 3 year warranty

Why 720/740 Probably Best for IBM i Clients

You can run IBM i on the 710/730, but the 720/740 is probably a much better fit for most IBM i environments.

Similar pricing 710 vs 720

Rack density not that important

(Most i clients have one or two servers, not dozens)

720/740 more “balanced” for typical IBM i workload

see table on the right → → →

	Power 710 / 730	Power 720 / 740
Footprint	2U rack	4U rack + tower
SW tiers	same	same
Internal drives	6	8
12X I/O drawers	No	Yes*
Disk only drawers	Yes**	Yes** <small>w/ more write cache options</small>
Max. GB memory	64 / 128	128 / 256
Internal tape	No	Yes
PCIe slots CEC max	4 LP	4FH + 4LP
PCIe slots max	4 LP	24* / 44
PCI-X slots max	0	24* / 48
Upgrades	No	Yes 720
CBU	No	Yes
IBM i Editions	No	Yes 720
Solution Editions	No	Yes

* 4-core does supports zero 12X I/O drawer

** 710 4-core and 720 4-core support zero disk-only drawer

Power Systems Express Rack/Tower Positioning

	Power 710	Power 720	Power 730	Power 740	Power 750
Footprint, packaging	2U rack	4U rack, tower	2U rack	4U rack, tower	4U rack
Number of processor sockets	1	1	2	1 or 2	1 to 4
Number of cores	4, 6, 8	4, 6, 8	8, 12, 16	4, 6, 8, 12, 16	6, 8, 12, 16, 18, 24, 32
GHz clock	3.0, 3.7, 3.55	3.0	3.0, 3.7, 3.55	3.3, 3.7, 3.55	3.0, 3.3, 3.55
Max GB memory	64GB	64 (4-core) 128 (6/8-core)	128	256	512GB
Max disk storage in system unit	1.8TB	2.4TB	1.8TB	2.4TB	2.4TB
PCI slots in system unit	PCIe: 4	PCIe: 4+4LP	PCIe: 4	PCIe: 4+4LP	5 (3PCIe, 2PCI-X)
LPARs	80	80	160	160	160 (SOD 320)
12X I/O Drawers	No	4-core No 6/8-core Yes	No	Yes	Yes
Disk-only I/O drawers (#5886)	4-core No 6/8-core Yes	4-core No 6/8-core Yes	Yes	Yes	Yes
Power requirements	100-240VAC	100-240VAC	200-240VAC	200-240VAC	200-240VAC
Warranty	3 year	3 year	3 year	3 year	1 year
Primary Use	Infrastructure and application server	Distributed application server or all in one business solution	Infrastructure consolidation	Small to mid-size DB server, application consolidation server	Mid-size DB server, application consolidation server
Key differentiators	Dense form factor, 1-socket performance	Flexible, reliable and secure	Density, high performance and energy efficient	Memory capacity and configurability	Performance, scalability, energy efficiency and hot swap PCI

Power 710 8231-E2B 4-,6-,8-core

- 1 socket
- Processor module – pick ONE
 - 4-core: #8350 3 GHz
 - 6-core: #8349 3.7 GHz
 - 8-core: #8359 3.55 GHz
- Can NOT change module



- **For 4-core** (1 socket)
 - Zero 12X I/O loops
 - Max 1 4X IB Adapter
 - Max 64 GB memory
 - Zero disk-only drawers
 - Fibre Channel cards ok
 - IBM i P05 tier (users)
 - AIX small tier

- **For 6-/8-core** (1 socket)
 - Zero 12X I/O loops
 - Max 1 4X IB Adapter
 - Max 64 GB memory
 - Disk-only drawers
 - Fibre Channel cards ok
 - IBM i P10 tier (users)
 - AIX small tier

Power 730 8231-E2B 8-,12-,16-core

2U

- 2 sockets
- Processor module – pick TWO of the same feature
 - 4-core: #8350 3 GHz
 - 4-core: #8348 3.7 GHz
 - 6-core: #8349 3.7 GHz
 - 8-core: #8359 3.55 GHz
- Can NOT change module



- **For 8-/12-/16-core**
 - Zero 12X I/O loops
 - Max 2 4X IB Adapters
 - Max 128 GB memory
 - Disk-only drawers ok
 - Fibre Channel cards ok
 - IBM i P20 tier (5250)
 - AIX small tier

- **4 PCIe slots in base for 710 or 730**
 - Low profile, short, Gen 1
 - Not hot plug
 - No 12X I/O drawers to add more slots

Power 720 8202-E4B 4-,6-,8-core

- 1 socket
- Processor module – pick ONE
 - 4-core: #8350 3 GHz
 - 6-core: #8351 3 GHz
 - 8-core: #8352 3 GHz
- Can NOT change module



- **For 4-core**
 - Zero 12X I/O loops
 - Max 64 GB memory
 - Zero disk-only drawers
 - Fibre Channel cards ok
 - IBM i P05 tier (users)
 - AIX small tier

- **For 6-/8-core**
 - Max 1 12X I/O loop
 - Max 128 GB memory
 - Disk-only drawers
 - Fibre Channel cards ok
 - IBM i P10 tier (users)
 - AIX small tier



Power 740 8205-E6B 4-,6- & 8-,12-,16-core

- 1 or 2 sockets
- Pick processor modules
 - 1 or 2: 4-core: #8353 3.3 GHz
 - 1 or 2: 4-core: #8347 3.7 GHz
 - 1 or 2: 6-core: #8354 3.7 GHz
 - 2: 8-core: #8355 3.55 GHz
(just one 8-core module not supported)
- Can NOT mix feat codes
- Can add 2nd 3.3 or 3.7 GHz module later
 - Then 2nd module's activations all chargeable



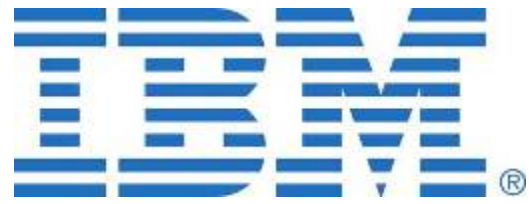
4U

- **For 4-,6-core** (1 socket)
 - Max 1 12X I/O loop
 - Max 128 GB memory
 - IBM i P20 tier
 - 5250 Entitlements
 - AIX small tier

- **For 8-,12-,16-core** (2 socket)
 - Max 2 12X I/O loops
 - Max 256 GB memory
 - IBM i P20 tier
 - 5250 Entitlements
 - AIX small tier



Thank You!



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Revised September 26, 2006

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