

IBM System i5 & i5OS V5R4 1Q 2006 Announcement Summary

By Barry Pow

On January 31, 2006, IBM announced a complete refresh of the eServer i5 including a name change to the System i5. You may also see your beloved AS/400 or iSeries referred to as the System i (now joined by its IBM brothers the System p and the System z) and reflecting IBM's desire to have the market and our customers take a "system" view versus a "server" view of these offerings. Also part of the January 31st announcement was a new version of i5OS, V5R4. Both the refreshed hardware models and the new SW version began shipping on February 14, 2006.

So let's look first at some of the highlights of the announcement.

- All i5 models received a 1.9 ghz or higher processor including the entry model 520.
- V5R4 is NOT a prerequisite for running the refreshed models. They will run with V5R3.
- Capacity on Demand capabilities are introduced to the model 520.
- Upgrade paths are provided from the 810, 825, 870 and 890 to the refreshed i5 models.
- Upgrade paths are available from the power5 i5 models to the power5+ i5 models.
- HA Editions are announced for all models.
- Model 570 gets a 2.2 ghz processor and delivers up to 58,500 CPW.
- Overall CPW on the 595 now tops out at 184,000 CPW.
- V5R4 supports models back to the 270, 820, 830, 840, SB2, SB3, as well as the 800, 810, 825, 870 and 890, plus the i5 models.
- WebFacing and Host Access Transformation Services (HATS) are now combined in WebSphere Development Studio (HATS) and NO 5250 interactive capability is required for applications that use either WebFaced output interfaces or HATS output interfaces.
- Optimum Care services offering is introduced to all model 595 Standard or Enterprise Editions – new or upgrades to – and to new model 570 8/16-way systems.

Now let's take a closer look at the refreshed i5 models.

System i5 Model 520

The model 520 still comes as either a pre-bundled and packaged Express Edition (there are 7 packaged configurations available from your IBM Business Partner); a Value Edition which is fully configurable and customizable for flexibility; a Standard Edition



Barry Pow, at the recent IBM System i5 Road Show

which has no 5250 interactive capability (perfect with the new Webfaced and HATS combination); and the full 5250 enabled Enterprise Edition. As I mentioned in the highlights, Capacity on Demand is introduced to the refreshed model 520. On the Express and Value Editions, Capacity on Demand comes in the form of what is newly termed the IBM Accelerator for System i5. This can be thought of as a hardware key feature which you order from IBM or your Business Partner. When received, you enter the key into the model 520 to open/release the additional CPW to use. On the Standard and Enterprise Editions capacity on demand works as it does on the model 550 and higher.

The refreshed Express and Value Editions are shipped as a minimum either with 600 CPW overall and 30 CPW for 5250 interactive workload, or with 1200 CPW overall and 60 CPW for interactive workload. The Accelerator feature, when enabled, will increase the overall CPW either from 600 CPW to 3100 CPW or from 1200 CPW to 3800 CPW. The interactive CPW does not change. Of note is that the SW p-group does not change when the Accelerator feature is activated. You may also choose to have the Accelerator feature turned on prior to shipment from manufacturing if you so desire. With 3100 CPW or higher you can have up to 10 logical partitions.

The Standard and Enterprise Editions are shipped as either 1-way processor systems, or as a 1/2-way capacity on demand systems with 1 processor enabled, or 1/2-way systems with both processors fully enabled. The fully enabled 2 processor systems have 7200 CPW and allow up to 20 logical partitions. The 1-way Standard Edition has

Cathy Gregson addresses the Toronto crowd, which was indicative of the great turnout at similar roadshows all across Canada



3800 CPW. The 1-way Enterprise Edition has three optional CPW levels, 1200 CPW, 2800 CPW, or 3800 CPW. The 3800 CPW systems allow up to 10 logical partitions. The 1/2-way Enterprise Edition with only 1 processor enabled has 3800 CPW and offers full capacity on demand just as available previously on the model 550 and up. You simply sign up for the type of capacity on demand you wish to have (temporary or permanent) and once the agreements are processed, you are given a key to allow you to turn on the 2nd processor either temporarily (1 day minimum each time) when you desire to use it, or permanently. If you turn it on temporarily, then you can also turn it off again once the need for its use has finished. You report monthly, and are then billed by IBM on a quarterly basis for the days that you used during that quarter. The per-day charge also includes usage of i5OS on the temporary processor as well. With this announcement the model 520 still comes in Solutions Editions and a High Availability Edition as well.

System i5 Model 550

The new news on the model 550 is that it is now orderable as a High Availability Edition. Overall CPW ranges from 3800 to 14000 CPW depending on how many of the 4 processors you are using.

System i5 Model 570

The model 570 has been greatly simplified in addition to receiving the 2.2 ghz power5+ processors. The 1/2-way option has been dropped, so it now starts as a minimum 2/4-way system. There are also now just 3 processor groupings instead of the 5 processor groupings previously offered which not only simplifies the 570, but also reduces the number of physical hardware upgrades as you increase the total number of processors available. So now, in addition to the 2/4-way option, there is a 4/8-way option and an 8/16-way option.

As well, the number of i5OS licenses and enterprise enablements has been made consistent for all options and also is reduced to just 1 of each. This was done in response to our Customers and Partners, who said that the extra licenses and enablements were forcing an unnecessary expense onto many of you as you did not require them. By removing the extras, then not only did the 570 become simpler and more consistent, but also IBM was able to remove the extra license costs from the price, so the 570 becomes more attractive and more price competitive.

IBM System i5



	520	550	570	595
Processor Max CPW	1, 1/2-way 1.9 POWER5+ 7100	1/4-way 1.9 POWER5+ 14,000	2/16-way 2.2 POWER5+ 58,500	8/64-way 1.9 POWER5 184,000
Key Changes	Accelerator CoD DDR2 Memory Optional IOP/HSL	DDR2 Memory Optional IOP	Simpler Structure & Licensing DDR2 Memory Optional IOP	Expanded I/O Optional IOP
i5/OS Release	V5R3 & V5R4	V5R3 & V5R4	V5R3 & V5R4	V5R3 & V5R4

Value / Express	Y			
Standard	Y	Y	Y	Y
Enterprise	Y	Y	Y	Y
Solution	Y	Y		
Domino (Workplace)		Y		
HA	Y	Y	Y	Y
CBU			Y	Y

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System i5 Model 595

The model 595 remains as a power5 system but with 1.9ghz processors in all shipments. Two new additions are an HA Edition and a Capacity Backup or CBU Edition. The big news with the 595 is the Optimum Care services provision. This provision is to help you experience the most expedient, and most highly satisfying installation experience possible especially during complex implementations. The i5 Optimum Care provides you with 160 hours of IBM Project

Management Services, an updated System Availability Technology Checkup and 5 Education Vouchers to educate your people on the newest capabilities they will use on their new 595. It is available for both Standard and Enterprise Editions and for new 595 shipments or for upgrades to 595 models.

IBM System i5 595 "Supercomputer"

- ☑ Up to 184,000 CPW
- ☑ Up to 64 processors
- ☑ Up to 1 TB DDR1 memory
- ☑ Up to 381 TB disk
- ☑ Up to 254 LPARs
- ☑ Runs i5/OS V5R3 and V5R4

Upgrade Paths

Hardware upgrade paths are announced from Models 810, 825, 870, 890 to the new power5+ System i5 models, and from i5 power5 models to power5+ i5's. One change on model to model upgrades with this announcement is that if you are upgrading from a power5 to a power5+ model, you are no longer required to activate idle processors prior to the upgrade. The "same-size n-way" option gives new flexibility. So, for example, if you are upgrading from a model 570 2/4-way power5 with 2 processors activated to a model 570 power5+, you can have a resulting model 570 2/4-way which still just has 2 processors activated. The same edition upgrade rules apply as with the POWER5 generation.

The same I/O is supported as on POWER5 systems, although the new 1.9/2.2GHz POWER5+ systems have some additional options to run the system unit without an IOP.

Now let's turn our attention to the other key part of this announcement.

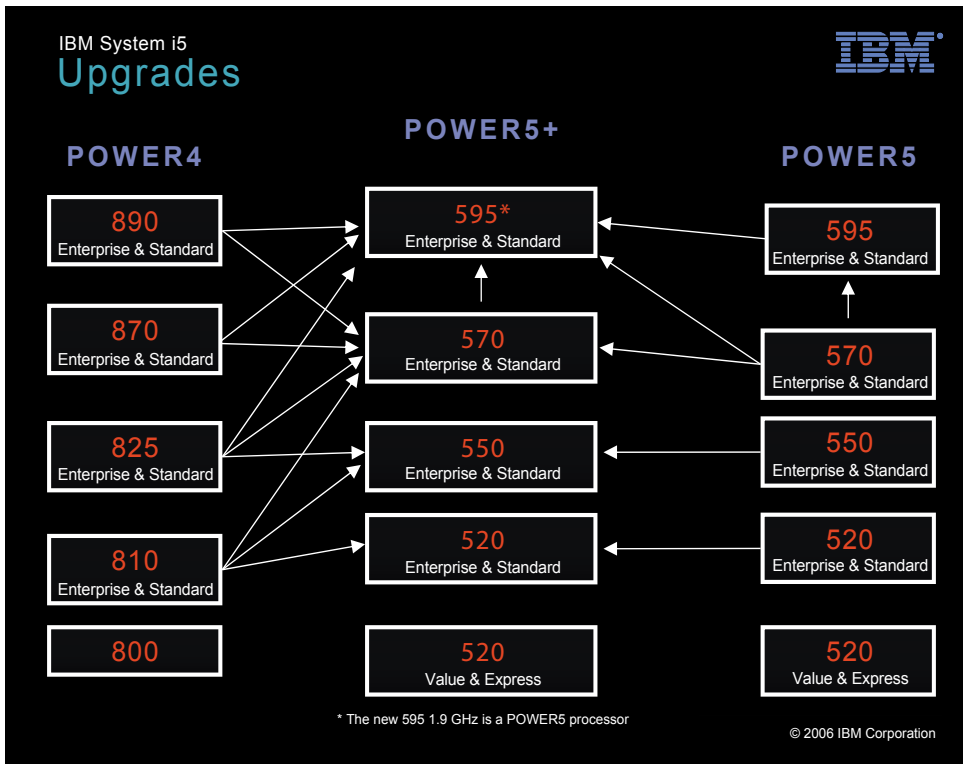
New Operating System – i5OS V5R4

Highlights with V5R4 include:

- i5/OS V5R4 is supported on iSeries models 270, 520, 550, 570, 595, 800, 810, 820, 825, 830, 840, 870, 890, SB2, and SB3.
- i5/OS V5R4 is the final release that will be supported for models 270, 820, 830, 840, SB2 and SB3.
- For the first time with V5R4, all national language versions, either primary or secondary, will be available worldwide.
- **WebFacing Deployment Tool** for WebSphere Development Studio with HATS Technology (WDT), a new combined offering with no requirement for 5250 interactive support by either WebFacing or HATS output.
- Support for new IBM 32 bit Java Virtual Machine (JVM) which will be supported across all IBM systems to facilitate solution porting to System i.
- A new WDSC Lite technology preview providing a light-weight edit/compile/debug environment for developing native iSeries applications (Only 256 MB of memory is recommended to operate effectively).
- ILE RPG enhancements include the ability to access data in XML documents. Also with i5/OS V5R4, RPG developers will now be able to use free format SQL database access in their applications. With improved flexibility to recognize and analyze SQL statements, this enhancement should make

it much easier for RPG developers to incorporate SQL into their current applications.

- ILE COBOL enhancements include the ability to output COBOL data records into XML format.
- Application Development ToolSet supports network server configuration objects in PDM and changing PDM defaults.
- WebSphere Development Studio Client for iSeries has a new extension to the Web service wizard to create Web Services from ILE programs in one step, making it easier to create SOA applications.
- Also new in V5R4 is the Web Services Client Support to enable non-Java programs, such as RPG, C, C++, and COBOL to invoke remote Web Services as a requester via easy to use APIs shipped as part of the XML Toolkit for iSeries. The Web Services Client Support is ported from the Apache Software Foundation's open source Axis C/C++ version 1.5.



- iSeries Access for Web offers browser-based access to iSeries servers and enables end users to leverage business information, applications, and resources across an enterprise by extending the iSeries resources to the client desktop through a web browser. iSeries Access for Web provides a “lightweight” user deployment, requiring only a browser on the client, as it installs on an iSeries server and eliminates the install, configuration, and management of any client code. iSeries Access for Web provides both a set of servlets (for use on Tomcat and WAS web application servers) and a set of portlets (for use on WAS Portal products).
- i5/OS V5R4 contains another set of significant enhancements for CL. Simple subroutines will allow CL application developers to reduce code repetition in a CL program or CL procedure. Pointer CL variables and based CL variables enable new ways to pass and view data. New support for defined variables can be used to provide data structures in CL. Together, the V5R3 and V5R4 CL compiler enhancements make CL a better application development language than ever. In particular, these enhancements make it possible for CL to leverage the rich set of APIs which are built in to i5/OS.
- With i5/OS V5R4, a System i5 **iSCSI Host Bus Adapter** will enable xSeries servers – either standalone or in an IBM BladeCenter – to be connected to System i5 storage across an iSCSI network. The features provided to xSeries servers will be very similar to today’s Integrated xSeries Adapter, however,



the connection to the iSeries system’s storage will be via the industry standard iSCSI protocol, rather than across the iSeries system’s High Speed Link (HSL) bus. Using iSCSI and industry standard network components should enable lower cost and more flexible connections to the System i5 from a wider range of xSeries servers. iSCSI is the Internet SCSI (Small Computer System Interface), an Internet Protocol-based storage networking standard for linking servers to storage over intranets, LANs and WANs.

- With i5/OS V5R4, the **Database OnDemand Performance Center** – accessed through iSeries Navigator – enables a database administrator quickly to identify and correct database performance problems. For example, the system will

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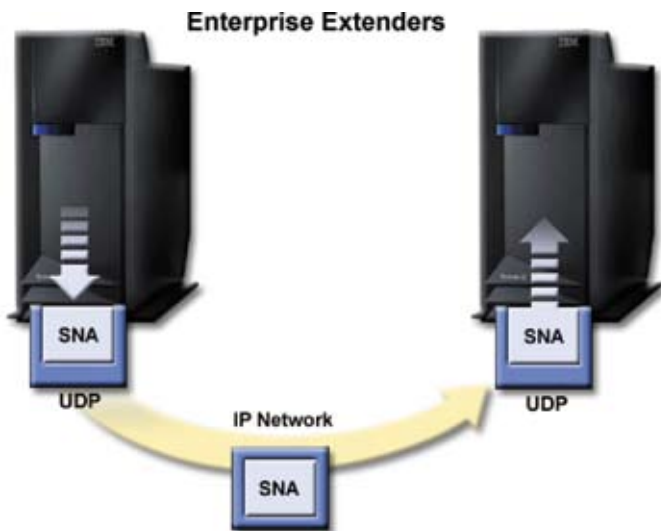
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automatically identify indexes that are not being

used and indexes that are being referenced but do not exist. The Database OnDemand Performance Center should help reduce the time spent on day-to-day database maintenance and enable operators to focus on delivering projects of greater value to their business.

- **Bytware StandGuard Anti-Virus**, powered by McAfee's industry-leading scanning engine, is a native i5/OS virus detection product. StandGuard Anti-Virus now supports scanning and cleaning of Linux and AIX 5L partitions on iSeries and System i5 systems. Linux, like all platforms, is susceptible to hosting and spreading viruses and malicious code; and today's security requirements demand protection on all operating systems within a network. StandGuard Anti-Virus's new Linux and AIX 5L partition support helps you ensure that your System i5 and network stay free of malicious code. With StandGuard AntiVirus, only one set of virus definition files (DATs) are needed to scan i5/OS, Linux, and AIX and all partitions can be scanned from a single interface, eliminating the need to manage multiple anti-virus solutions from multiple vendors. For more information, see www.bytware.com/products/sgav.html.
- Many System i5 customers have applications that have been written to use SNA (Systems Network Architecture) or its services such as SNA Distribution Services. These applications will now be supported over IP networks using **i5/OS Enterprise Extender**. With a simple configuration to route their SNA applications over an IP network, Enterprise Extenders will help customers continue to exploit their

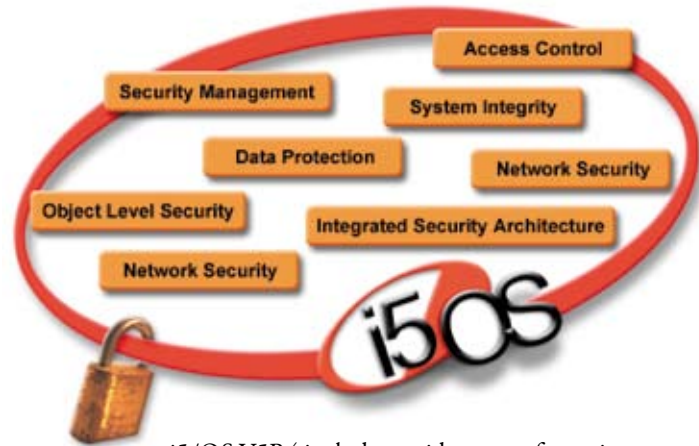


investments in SNA-based applications. Customers moving to IP networks should use Enterprise Extender as an alternative to AnyNet services, to achieve optimum performance and obtain broadest SNA application and protocol support.

- **i5/OS subsystems** enable multiple applications to run simultaneously and efficiently on a single operating system instance. Subsystems provide i5/OS a major competitive advantage for application and work management compared to Linux and Windows servers. In i5/OS V5R4 subsystems, a new mechanism to end a job without creating a job log will significantly improve job ending performance, especially when hundred or thousands of jobs end simultaneously. By reducing recovery time, the system's resources previously held by the terminating jobs will become available for productive work in a much shorter time. The new job log pending option will still allow the operator to create the job log later if required. Operators will also now be able to more easily view the actual or current user of jobs that were pre-started as a group during subsystem initialization.
- The resource governor that provides tools to control resource intensive queries includes a new option to limit the temporary storage taken by a query. New tools have been added to show materialized query tables, manage index rebuilds and advise on index maintenance. DBAs can now better monitor and analyze SQL performance with, for example, a new simpler option to compare SQL monitors. Database tools have also been enhanced to better analyze current activity, such as statistics requests and viewing the current SQL for a job.
- The new health center helps customers see how their use of the database corresponds to system limits, such as the maximum number of physical files, the number of files on the system and the percentage of the limit.
- In i5/OS a number of database limits have been increased in response to various customer requests. The database now supports, for example, 2MB SQL statements, 128 byte column names, 1000 tables in a query and an increase of objects journaled to a single journal to 10,000,000.
- i5/OS V5R4 includes a wide range of security and compliance enhancements. For example, new hardware storage protection helps prevent against rogue or altered programs from directly accessing system objects, such as database records. New intrusion detection capabilities enable an administrator simply to configure intrusion event monitoring with entries created in the audit journal for intrusion events, such as scanning for open TCP/IP ports. Additional auditing and compliance enhancements include the ability to audit special authority violations and to restrict the displaying of audit attributes to system administrators.
- Other enhancements include more PTFs, for example to TCP/IP, that can be applied without starting the system or network subsystem.
- With i5/OS V5R4, **virtual tape support** dramatically extends and enhances the options for saving data to disk. Virtual tape is enabled on all save/restore commands (including SAVSYS) and APIs except save storage (SAVSTG).
- i5/OS cluster services have been enhanced with administrative domain support. An administrative domain

enables changes made on a source system to be replicated to a target system for system objects such as user profiles, work management objects (such as job descriptions), storage pool descriptions, select system values and network attributes, system environment variables, and TCP/IP attributes. This adds to the remote journaling support that replicates data changes to the target system. With the new administrative domain support, it will be much easier to maintain and recover systems in a clustered environment.

- **RAID6** is parity protection enhancement for disk that provides data availability while allowing up to two independent DASD to fail in the RAID array. RAID-6 requires two drives' worth of capacity per array to hold the parity data, compared to RAID-5 which only requires one drive's worth capacity. RAID-6 also has a benefit over a hot spare implementation in that all of the DASD in the array are available for I/O, versus a dedicated hot spare which is unused until a failure occurs. RAID-6 is a great option for customers who like the low cost of RAID-5 but would prefer an implementation that tolerates more than one failure. Initially, RAID-6 is only available with the #5737 System i5 disk controller which, like the #5703 disk controller, does not have auxiliary write cache. IBM continues to recommend mirroring as the highest level of protection. But compared to a RAID-5 #5703, the #5737 and RAID-6 offers a higher level of protection.



- i5/OS V5R4 includes a wide range of security and compliance enhancements. For example, new hardware storage protection helps prevent against rogue or altered programs from directly accessing system objects, such as database records. Objects, including database and file system containers, will be accessible only to IBM Licensed Internal Code, helping protect against rogue system state programs. No changes are expected to be required for valid application programs.
- New intrusion detection capabilities enable an administrator simply to configure intrusion event monitoring with entries created in the audit journal for intrusion events, such as scanning for open TCP/IP ports. A policy file allows the administrator to configure intrusion event monitoring and

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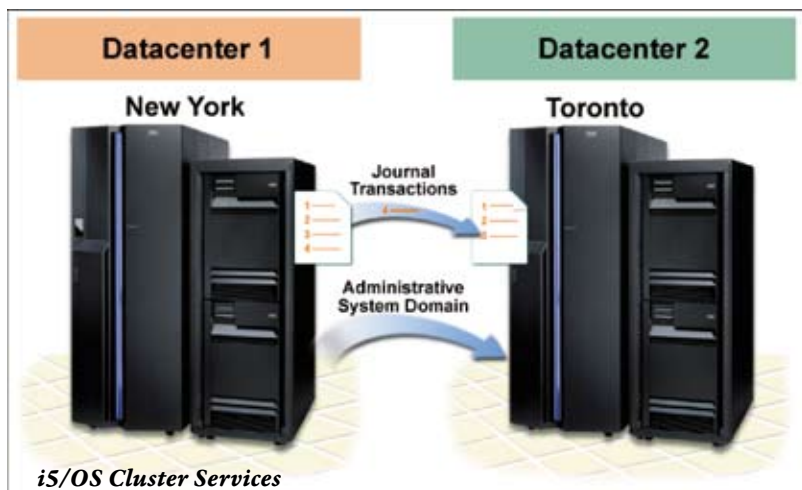
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create audit journal entries created for intrusion events such as malformed packets, SYN floods, restricted IP options and protocols, traffic regulation events and port scans.

- Additional auditing and compliance enhancements include the ability to audit special authority violations. So for example, an audit journal entry would be recorded if a user is authorized to CRTUSRPRF create user profile command without the corresponding *SECADM security administrator authority. Also, now users will not be able to display their audit attributes, this function will be limited to system administrators. Note that these capability add to the extensive enhancements to the audit journal in V5R3, with much more granular options to save only the security data required.
- In i5/OS V5R2, support was added to VPN to allow system initiated VPN connections to traverse NAT firewalls. In V5R4, server side NAT traversal support has been added and with this enhancement, i5/OS has a complete solution for establishing VPNs through NAT firewalls.

it is targeted at larger customers that may not be able to bring the system to restricted state very often.

- i5/OS cluster services have been enhanced with administrative domain support. An administrative domain enables changes made on a source system to be replicated to a target system for system objects such as user profiles, work management objects (such as job descriptions), storage pool descriptions, select system values and network attributes, system environment variables, and TCP/IP attributes. This adds to the remote journaling support that replicates data changes to the target system.
- Cross site mirroring has been enhanced to provide source side tracking of changes. Now the source system will keep track of changes even if there has been a break in the link to the target system. When the target system comes back on-line, then only the recent changes are sent to update the system. This capability removes the previous requirement for a full disk resynchronization to the target system.
- Other save restore enhancements in i5/OS V5R4 include parallel save/restore support for Integrated File System (IFS) objects, support to save the contents of data queues and an option to save up to 32767 libraries.



- New support in i5/OS V5R4 to save and restore spooled file data and attributes helps companies with record retention and disaster recovery. Now system Save/Restore commands provide a new spool file data parameter, that can be used to save all spooled files or just new files. APIs are available to select and subset files to be saved or restored based on an extensive list of attributes including output queue, job name, job number, user name, spooled file name, and create date/time ranges. An expiration date can also be set on spool files. For companies that use traditional system menus, the save and restore menu options have been enhanced to offer the option to save and restore all spool files. The new support is also integrated with Backup & Recovery Media Services (BRMS).
- A new option to save and restore system information (SAVSYSINF) provides a limited alternative to a full system save (SAVSYS) that requires the system to be in restricted state. The new i5/OS V5R4 commands save PTFs applied since last SAVSYS, System Values, Network Attributes, System Reply Lists, Service Attributes, Environment Variables, and changed objects in QSYS. Save system information is NOT intended as replacement for normal SAVSYS, instead

Summary

In summary then, the intention with new and enhanced offerings is to help companies exploit new business opportunities using the System i5. These enhancements also enable increased integration of people, data and processes from multiple parts of the business delivering more value, and by providing better access to information, it will help increase productivity and enable you to be more responsive to your customers.

Through the IBM Initiative for Innovation, we are enabling Independent Software Vendors (ISVs) to integrate their solutions with IBM middleware and with a broad range of Open tools. The result is you have more solution choices that will run your System i. This increases your return on investment and reduces your need to introduce or add other servers in to your IT infrastructure. With the capabilities delivered with this announcement, you are able to simplify your IT infrastructure, adapt new capabilities with minimal or no disruption to your IT infrastructure, choose solutions for your system that match your requirements, and optimize resource utilization so that you help reduce operations costs.

So there you have it. The new System i5 and i5OS V5R4 announced January 31st, 2006 and available February 14th, 2006 with two key focus areas. First to promote Solutions Innovation to enable you to get more value from your System i investment. And second to help you simplify your IT infrastructure to minimize costs and increase productivity and customer satisfaction.

Thank you for your interest.



Barry R Pow is the System i Product Manager for IBM Canada Ltd. He can be reached at barrypow@ca.ibm.com.

