

# IBM i What's new ?

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# IBM i Roadmap

2008    2009    2010    2011    2012    2013    2014    2015



- 7.1 Introduced Technology Refreshes
- 7.2 Incorporates 7.1 TRs and adds new capabilities
- TRs will transition to 7.2 over time
- New Releases for pervasive changes beyond scope of TRs

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



# IBM i – Priorities

- **Solutions for Today and the Future**
  - Focus on solutions integration with new technology
  - Invest in DB2 and language features for strategic solutions
  - Enable Mobile Device Support
  
- **Systems On-Site or In the Cloud**
  - Exploit future POWER system technology
  - Deliver advanced virtualization of system & storage
  - Provide resiliency, availability & flexibility
  
- **Simple & Integrated, Secure & Available**
  - Simplify management of systems and high availability
  - Broaden storage area network integration
  - Extend industry-leading integrated security



Power **VM**

Power **VC**

Power **HA**

Power **VP**

Power **SC**

# IBM i 7.2 Themes

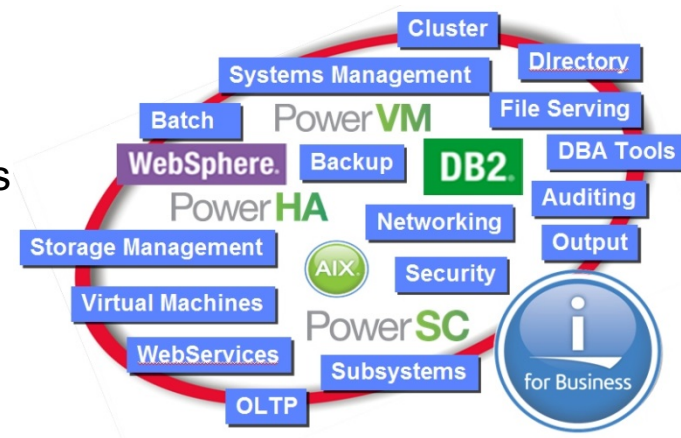
## ■ Solutions for Today's IT

- Growth Areas: Mobile, Graphical & Extending Value
- Delivering Capabilities where needed: Cloud & In-House
- Applying POWER with POWER8
- Powerful Advanced Middleware



## ■ Integrating Advanced Technology

- DB2 Security, Performance & Automation
- Development Platform, Language Features & Tools
- Integrated Security & Management
- Growing Beyond the Limits





## IBM i – 7.2 Enhancements – the Details



Scalable **SQE**  
Data Centric  
**RCAC**  
Easy to use

Bet your business on us  
**Encoded Vector Indexes**  
Open for Business  
Easy to maintain

Intelligent SSD  
**Secure** Proven

**DB2** **for i** Reliable

# DB2 for i enhancements in IBM i 7.2

## Security

- Protect business critical data using data-centric design with RCAC
- Secure remote journaling with SSL

## Application development

- Improved ability to build, maintain and extend complex database application architectures

## Database Engineering (DBE)

- Timestamp precision control (0 thru 12)
- Partitioned tables automatically reposition a row when updated

## Performance

- SQL Query Engine (SQE) supports OPNQRYP & Query/400
- Other SQE enhancements
- Use SQL to see temporary storage consumption



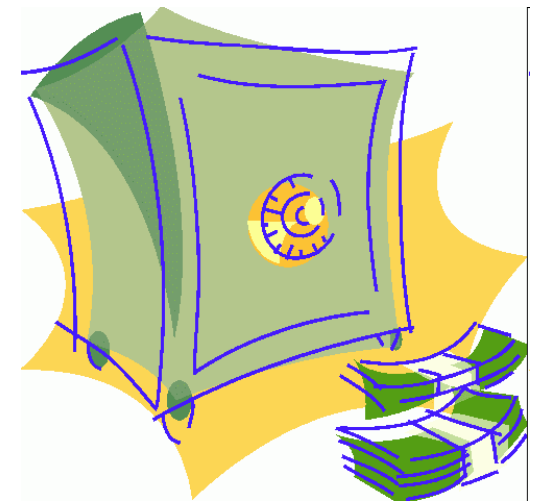
## DB2 for i - 7.2 Enhancements by role - Security

### Security & DB2 for i

- Column Masks  
→ Deploy “need to know” logic
- Row Permissions  
→ Simpler, faster security
- Violation clause for CHECK constraints  
→ Protect data integrity
- Secure remote journal using SSL  
→ Achieve HA & DR objectives without exposure
- SQL alternative to CHGOBJOWN  
→ Embrace separation of duty, using SQL
- Use adopted authority identity within business logic  
→ “Who am I?” conditional code using SQL

### Data-Centric Security

- Comprehensive
- Auditable
- Sustainable
- Scalable
- Manageable



Data is an asset... what's your data worth?

## Security - Separation of Duties

### Before 7.2

**Problem:** Anyone who has the authority to grant privileges also has the authority to perform operations that require those privileges.

Should the security administrator be able to access the data within tables?

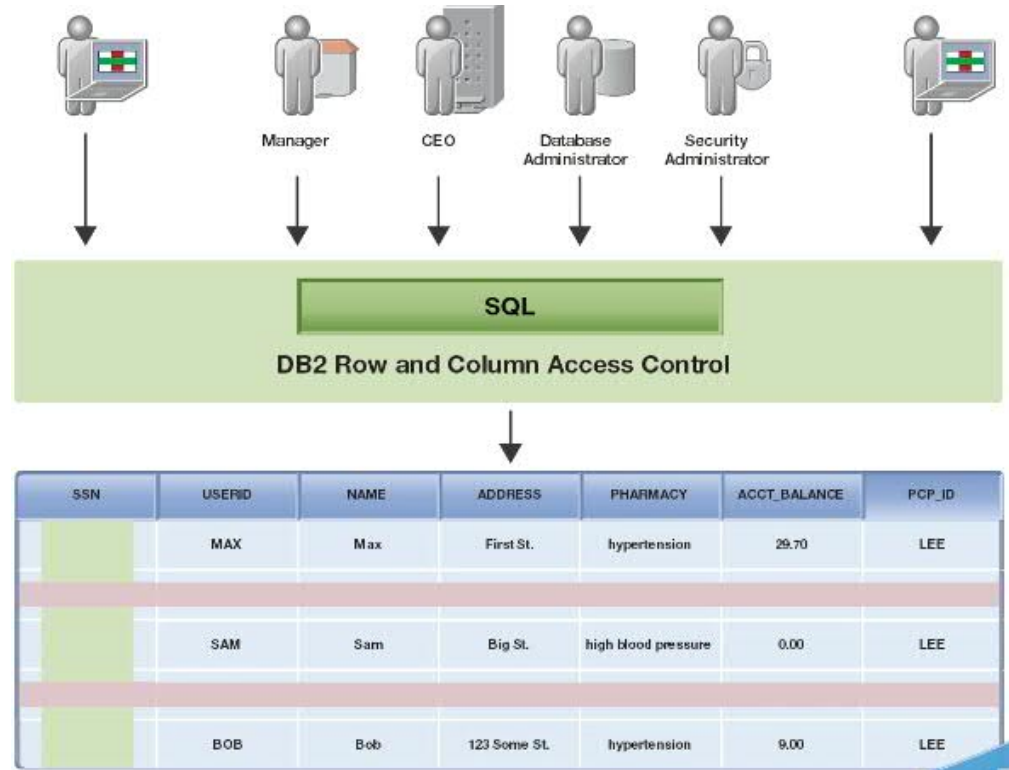
### IBM i 7.2 with RCAC

- Enable the management of security, **without exposing the data** to be read or modified.
- A user with security administration function usage (QIBM\_DB\_SECADM) will be able to grant or revoke privileges on any object to anyone, even if they do not have the SELECT privilege.

# What is RCAC?

- **Additional layer of data security** available with DB2
- **Complementary** to table level security
- Subsetting access to **only the required data** for a task
- Controls access to a table at the row, column, **or both**
- **Two sets of rules**
  - Permissions for rows
  - Masks for columns
- **IBM Advanced Data Security for i**
  - **No-charge feature - Option 47**

IBM Advanced Data Security for i  
**(Boss option 47)**  
 No Charge





## IBM Advanced Data Security for i (Boss Option 47)

- Option must be installed to use:
  - CREATE PERMISSION and CREATE MASK (RCAC)
  - Open a file that has RCAC activated
- RCAC constructs exist within the table (\*FILE) and get applied by SQE
- RCAC does not replace object authorization requirements
  - If you pass the object authorization check:
    - Row permissions reduce the set of rows returned
    - Column Masks limit full or partial access to sensitive column data
- RCAC is comprehensive and applies to any interface (Native DB, SQL, RPG, APIs, etc)
- Row Permissions are a replacement technology for Views / Logical Files
- Only users with QIBM\_DB\_SECADM authority can manage RCAC

```
5770SS1  47  IBM Advanced Data Security for i
```

# DB2 for i & IBM i 7.2 – Other enhancements

## Application Development

- Increased timestamp precision
  - Named and Default parameter support on UDF/UDTFs
  - Function resolution using casting rules
  - Use of ARRAYs within UDF/UDTFs
  - Obfuscation of SQL triggers
  - Built-in Global Variables
  - Expressions on PREPARE & EXECUTE IMMEDIATE
  - Autonomous procedures
  - CURRENT USER special register
  - LPAD and RPAD scalar functions
  - TRUNCATE TABLE
  - Constants in LANGUAGE SQL routines
  - Unified debugger support for SQL functions
  - Datetime scalar function improvements

## Navigator for DB Application Development

- **Support of all new SQL features**
  - Permissions
  - Masks
  - Named arguments and parameter defaults
  - Obfuscation of Triggers
  - Arrays in user-defined functions
  - Create based ON



## DBA/DBE

- Queued exclusive locks control
- SQL Server Mode detail in collection services
- SQL Details for Jobs enhancement
- Improved VARCHAR & LOB space management
- Automatic record movement between partitions

## Navigator for DBA/DBE

- **Performance Data Investigator (PDI)**
  - Investigate Data – DB2 category
  - SQL Plan Cache perspectives
  - Physical vs Logical I/O breakdowns
  - And more...
- **On Demand Performance Center**
  - Observance of Native Queries
  - Advanced Monitor Compare



**Application Development**  
Free <sup>Reliable</sup> <sup>Proven</sup> <sup>Easy to maintain</sup> <sup>RDi</sup> <sup>Secure</sup>  
Mobile Enabled <sup>Rational Developer for i</sup>  
<sup>Open for Business</sup> <sup>Bet your business on us</sup> **Easy to use**

# Application Development



**RPG**

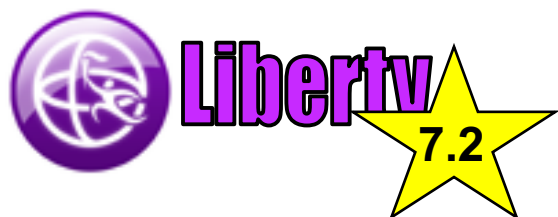
**COBOL**



**Apache**



**Rational** software



## File & Print Services

▪ Today - **IBM i NetServer**

▪ Industry

- Fast, modern, lightweight CIFS file server
- FTP style CIFS client (smbclient)
- NTLM and NTLMv2 authentication with session security enhancements
- Enhanced error code reporting
- Better protocol compatibility with current Windows clients
- SMB 2.0 protocol support



Why Samba? Performance & Interoperability

## What is Samba compared to IBM i NetServer?

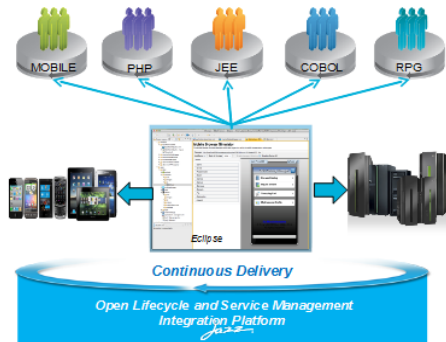
- A fast, modern lightweight CIFS file server
  - An FTP style CIFS client (smbclient)
    - NTLM and NTLMv2 authentication with session security enhancements
    - Enhanced error code reporting
  - Better protocol compatibility with current Windows clients
  - SMB 2.0 protocol support
- A CIFS file server capable of performing automatic CCSID conversion of EBCDIC text
  - Kerberos authentication and integration with EIM
    - NTLM and NTLMv2 authentication
    - A CIFS print server
    - Integration with IBM I auditing, exit programs and user management

Samba

Netserver

# Application Development Strategy for IBM i

Compilers & Languages



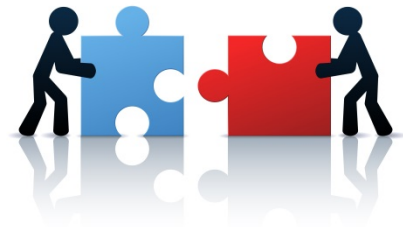
Common development and management tools across operating systems and languages

Embrace Open Source Solutions



Integrate web and development technologies into IBM i

Include vendor tools as necessary



# Significant Enhancements to RPG Built into 7.2

- New Free Format RPG
  - New Syntax; new style
  - Modern behavior
  
- Conversion tool changes old RPG to RPG Free Format
  - Arcad Converter
  - Linoma Software
  
- Rational Developer for i provided support in December 2013.

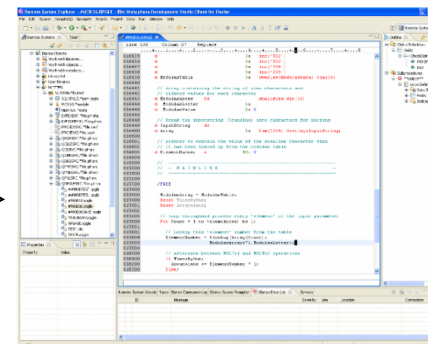
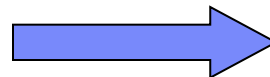
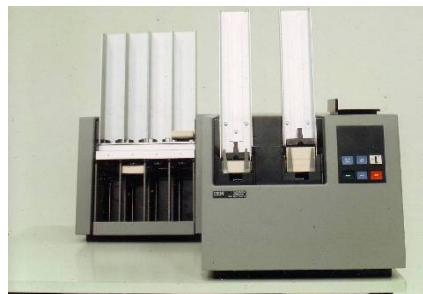
```

ctl-opt bnddir('ACCRCV');

dcl-f custfile usage(*update);
dcl-ds custDs likerec(custRec);
dcl-f report printer;

read custfile custDs;
dow not %eof;
    if dueDate > %date(); // overdue?
        sendOverdueNotice();
        write reportFmt;
        exec sql insert :name, :duedate into
            mylib/myfile;
    endif;
    read custfile custDs;
enddo;
*inlr = '1';

dcl-proc sendOverdueNotice;
    sendInvoice (custDs : %date());
end-proc;
    
```



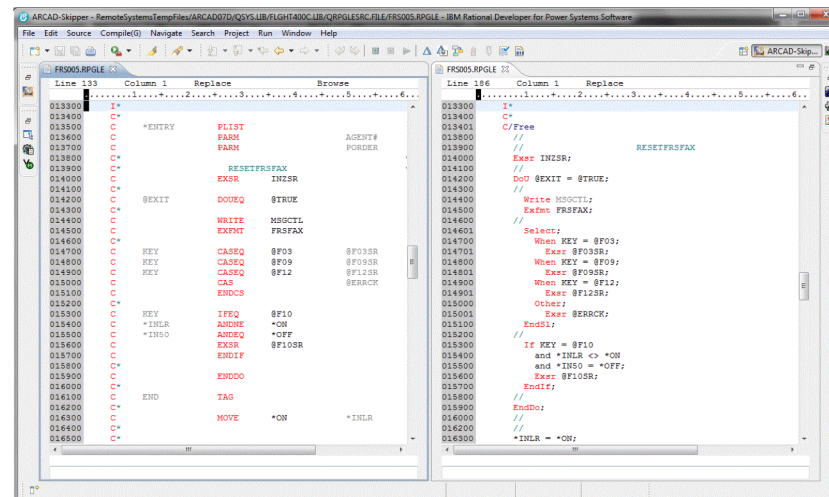


## Additional RPG Enhancements

- Enhancements that were already delivered by PTFs
  - Free-form H, F, D, and P statements (7.1)
  - New XML-INTO options (6.1 & 7.1)
  - Get warnings or exceptions for failed CCSID conversions (6.1 & 7.1)
  - Performance option for date and time operations (6.1 & 7.1)
  
- 7.2 enhancements
  - CCSID support for alphanumeric data
  - Option for externally-described data structure subfields to have the same CCSIDs as the external fields
  - Option to open database files without CCSID conversion
  - Implicit CCSID conversion for free-form concatenation
  - Control the length returned by %SUBDT
  - Timestamps can have from 0 to 12 fractional seconds

## ARCAD-Transformer RPG

- ARCAD-Transformer RPG (Converts to RPG Free Format)
  - ≈ 100 % of calculation specifications (C)
  - ≈ 100 % of declaration specifications (H, F, D, P)
  - (SQL)RPGLE : ≈ 100 % Free-Form
- ACVTRPGFRE batch command
- Plugs into RDi 9.0
- Single or multiple programs converted at one time

The screenshot displays two side-by-side windows of the IBM Rational Developer for Power Systems Software. The left window shows the original RPGLE code (FRS005.RPGLE) with columns for Line, Column, and Replace. The right window shows the converted Free-Form code (FRS005.RPGLE) with columns for Line and Replace. The code includes various RPGLE constructs such as declarations, calculations, and control structures, demonstrating the transformation process.

# Extending RPG to New Interfaces: RPG Open Access

- **Accesses multiple devices and resources** such as mobile devices, web services, cloud resources, external databases, XML files and spreadsheets.
- **Supports existing handlers provided by third parties**, including software vendors, business partners, service organizations and open-source software.
- **Takes advantage of existing RPG programming skills** by enabling RPG developers to access the resource or device in their applications using native RPG file specifications and I/O operations.
- **Supports RPG IV language enhancements** including the addition of ILE, which enables you to write modular, reusable code following programming best practices.
  - **Is a technology that is now included at no additional charge** with the [IBM i RPG compiler](#) and runtime (Rational Open Access RPG Edition was formerly a priced, keyed offering)



## Recent Advancements in Mobile Access for IBM i

- RPG Open Access
- XML Services
- JTOpen Lite
- PHP – Zend Server for IBM i, Zend Studio
- IBM Connections
- IBM Notes Traveler
- IBM Mobile Database
- DB2 WebQuery
- Rational HATS
- And more ...



+ PLUS – Tools from Industry Vendors

# IBM Worklight: A mobile application platform

*Speeding the development, integration and management of mobile applications and infrastructure*



**Development:** Develop and Test Web, hybrid, and native apps using open, standards-based, flexible, and efficient tools and technology. Development lifecycle tools and integration

**Security and Trust:** Server-enforced authentication, app authenticity and user-app-device binding. Secure and syncable on-device storage. App version enforcement

**User Engagement:** Unified push and SMS notifications. Geolocation and context collections and intelligence. Mobile-friendly integration. Passes.

**Mobile Analytics:** Efficient acquisition of analytics data. Development, operational, and business analytics. Offline and online event management integration

*IBM Worklight goes beyond mobile app UI creation to deliver mobile optimized, standards-based, middleware and tools for enterprise-grade mobile applications and services creation*



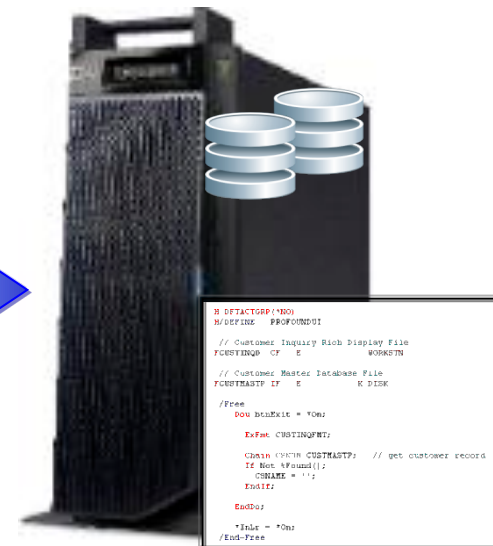
"Best Mobile Development Solution" as voted by SIIA members for 2013 CODiE Awards

# JTOpen Lite (JTLite) – Java Toolbox for the Mobile World

- Significantly smaller footprint Java toolbox for IBM i
- Supports mobile devices capable of a Java environment
- Targeted to the high use elements:
  - Database -- JDBC (SQL) and record-level access (DDM)
  - Integrated File System – open, read, write, delete
  - Program calls (RPG, COBOL, service programs, etc)
  - Commands
  - Job Information
  - Messages, Message Information (DSPMSG QSYSOPR)
  - Disk Status (WRKDSKSTS)
  - Object Information (WRKOBJ)
  - User and group Information



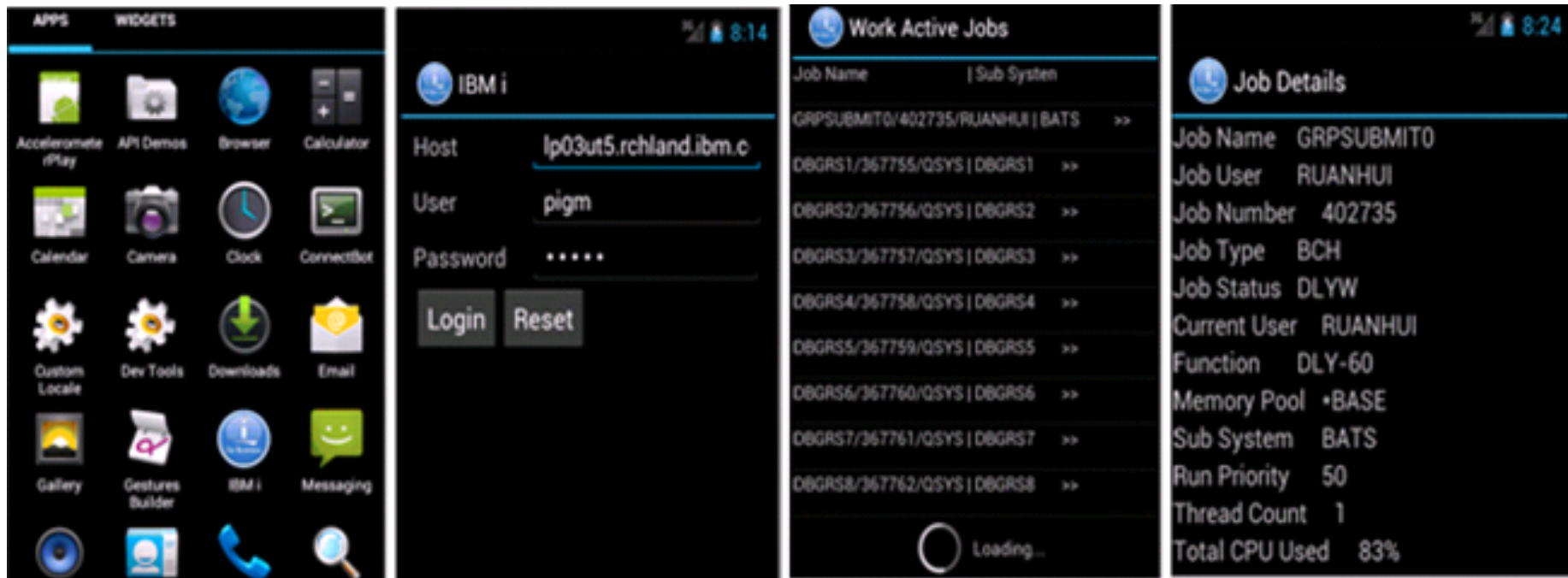
JTOpen  
Lite





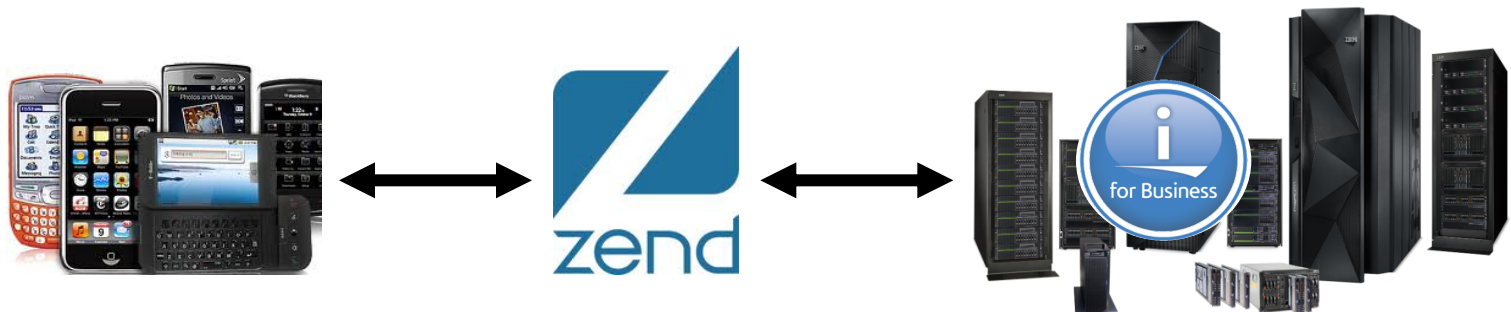
# JtOpen Lite – Demo Screen Shots

- WRKACTJOB
  - App Icon – IBM i logo
  - Login – Secure Login is ignored at this moment
  - WRKACTJOB – Loading while display
  - Job/Subsystem Details – Key/Value



# Zend Server for IBM i Version 6

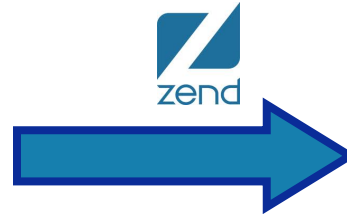
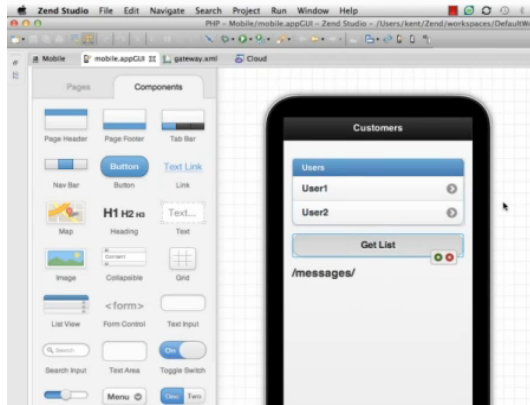
- **Zend Studio and Zend Server will create/run mobile apps**
  - Visual, drag-and-drop mobile client app creation in Zend Studio
  - Visual, drag-and-drop creation of RESTful PHP web services which connect the mobile app to Zend Server
  - Zend Studio creates mobile apps ready for deployment to app marketplaces of iOS, Android, Windows Phone, & more platforms
- **Zend Server has enterprise-grade features for managing PHP applications**
  - Application deployment, performance insight, management, caching, and monitoring on an application-by-application basis
  - Security and user management functions include
    - different roles for administrators and developers
    - permissions by application based on the users in an LDAP directory
    - maintaining a user audit trail





# Quickly & Easily Create Mobile Solutions for IBM i

## Zend Studio 10

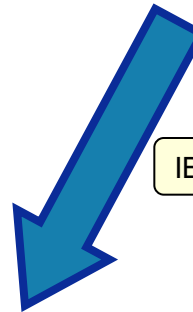


Deploy mobile apps application market places!



iOS, Android, Windows Phone, & more

- Drag & Drop interface
- Tie mobile apps to native IBM i artifacts
- Single development location for creating
  - mobile applications
  - Integrating restful web service
  - Tie to IBM i native toolkit
  - PHP application to drive the interactions



IBM i XML Service



### Zend Server for IBM i Version 6

- RESTful Web Services
- "Mobil-ize" RPG & COBOL applications
- XML Service ties Mobile application to native i artifacts
- Mobile solutions for IBM i!

<http://www.youtube.com/watch?v=t4nmRO9-gN4&feature=plcp>

## Integrated Middle Ware on IBM i

- IBM i HTTP Server now running Apache 2.4

- Improved performance
- SNI (Server Name Indication) support
- OCSP (Online Certificate Status Protocol) support
- Independent Subsystems



The **Apache Software Foundation**

<http://www.apache.org/>

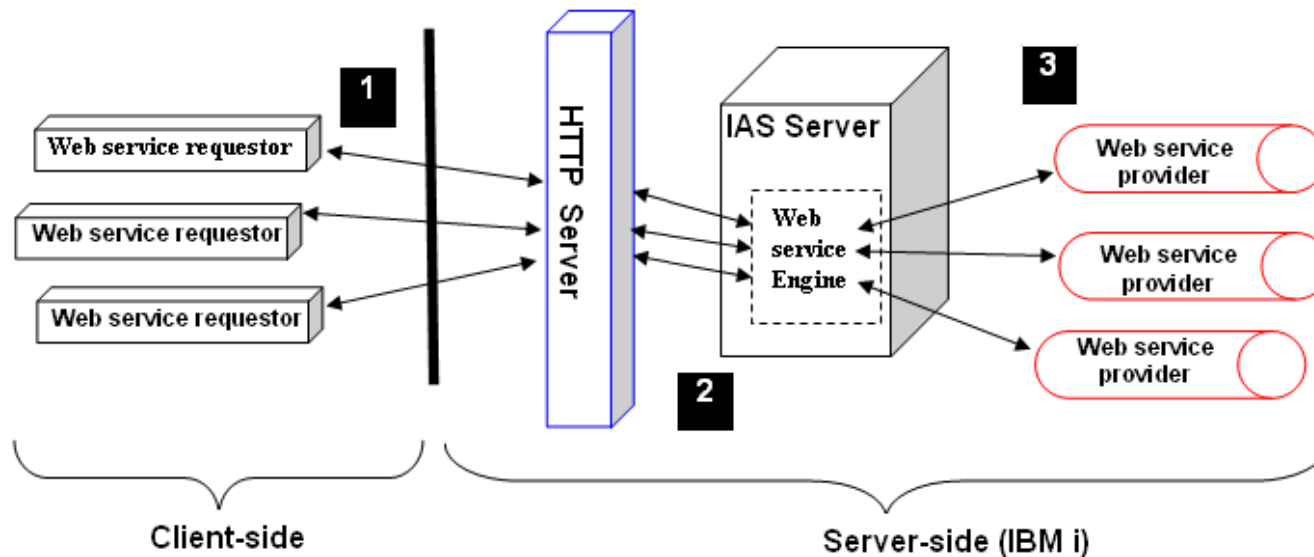
- IBM i Integrated Application Server – now powered by Liberty 8.5

- Runs on Java 7 & 7.1
- Updated to the latest web specs
  - JCA 1.6 , JSR 236
- Replace for Tomcat – runs on any platform
- Upward compatible to full WebSphere
- Supported by normal development tools!
- Several IBM interfaces have been running on this since last year!



## Integrated Middle Ware on IBM i

- Integrated Web Services Server – now powered by WAS Liberty & Jax-WS
  - Running on Liberty
    - Faster and better compliance
  - JAX-WS SOAP web service container
    - Latest industry standard support



## Benefits of Moving IAS to Liberty

- Fully supported, maintained, and enhanced Web Container
- Ensure PCI Compliance
  - Security Vulnerabilities corrected and patched
- Server will be easier for compliance
  - It is recognized as standard WAS server
- Opens up new technologies that can be leveraged
  - Web Services runtime engine for example
  - Move to new JVM levels (improved performance)
- Full Development tools support for user applications

## IBM Middleware products

- IBM Social Collaboration

- IBM Domino 9.0.1
- IBM Traveler 9.0.1
- IBM Sametime 9.0
- IBM Connections Next



- IBM WebSphere

- WebSphere Application Server V8.0
  - Liberty, Express, Base, ND
- WebSphere Application Server V8.5 & 8.5.5
  - Liberty, Express, Base, ND
- WebSphere MQ 7.1.0.5



# Managing the System with IBM i 7.2



Open for Business

Navigator

Easy to use

HMC Easy to maintain

ACS Access Client Solutions

Control

Bet your business on us

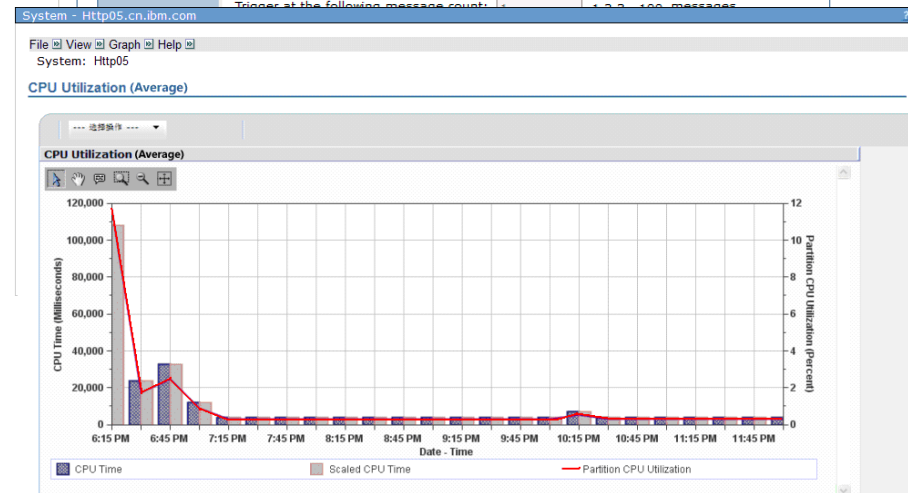
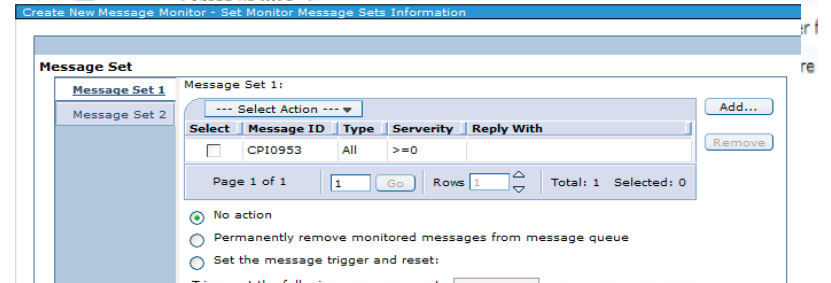
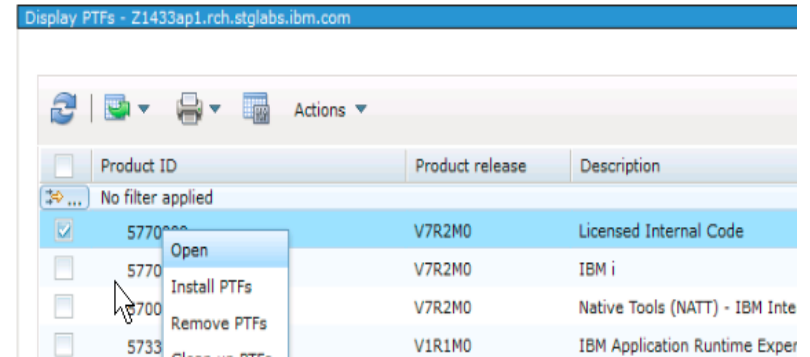
Mobile Reliable

VM

Systems Management

# IBM Navigator for i – new functions

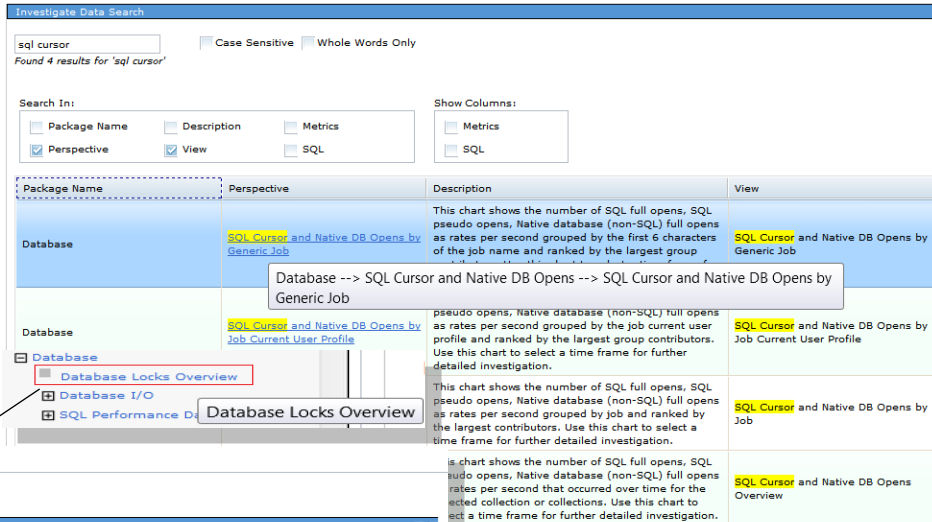
- Performance & Usability
  - New browsers
  - My Favorites
  - Quick Search
- PTF management
  - Installed PTF Navigation
  - Load/apply PTF on single or group systems
- Message Queue monitor
  - Based on the same CIM infrastructure
  - Filter messages based on rules
  - Trigger action to handle messages automatically
- System monitor
  - User defined IBM i OS metrics monitor
  - Graphical displays of performance trend
  - User defined event automation
- Database
  - Create new function and procedure
  - DB Performance Metrics



# Collection Services & Performance Data Investigator – 7.2

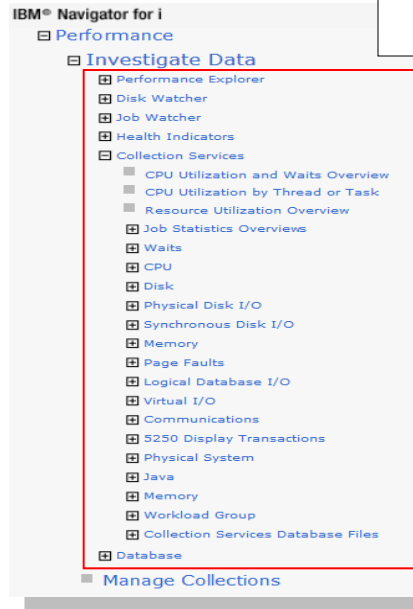
Fast Search – Enter metric see all charts its on!!

- Significant enhancements to PDI
  - New Collection Services Metrics
  - Batch Model
  - System Monitoring
  - New PDI Perspectives
  - Enhanced Left Hand Navigation

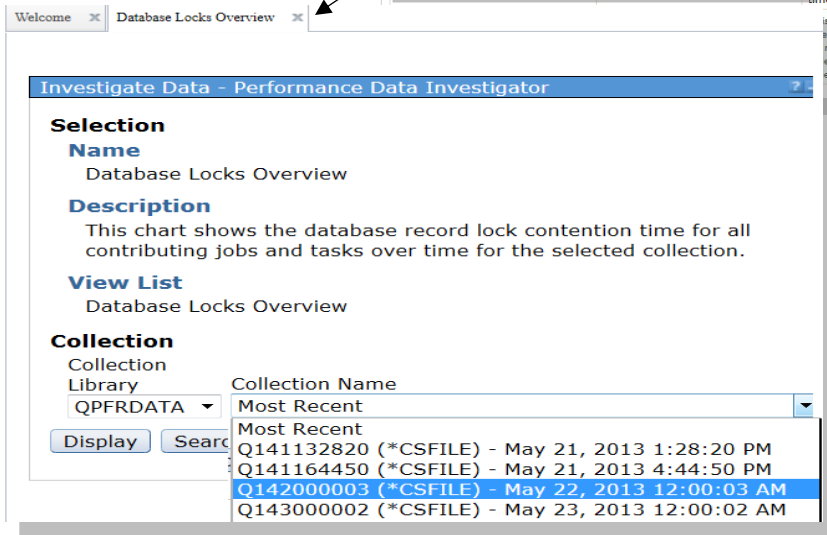


The screenshot shows the 'Investigate Data Search' window. At the top, there is a search bar containing 'sql cursor' and options for 'Case Sensitive' and 'Whole Words Only'. Below the search bar, it says 'Found 4 results for 'sql cursor''. There are two sections: 'Search In:' and 'Show Columns:'. 'Search In:' has checkboxes for 'Package Name', 'Description', 'Metrics', 'Perspective', 'View', and 'SQL'. 'Show Columns:' has checkboxes for 'Metrics' and 'SQL'. Below these is a table of search results with columns: Package Name, Perspective, Description, and View. The first result is for 'Database' with perspective 'SQL Cursor and Native DB Opens by Generic Job'. A tooltip points to this result with the text 'Database --> SQL Cursor and Native DB Opens --> SQL Cursor and Native DB Opens by Generic Job'. Other results include 'Database Locks Overview', 'Database I/O', and 'SQL Performance D...'. A 'Database Locks Overview' tooltip is also visible.

Select package and perspective from left hand



The screenshot shows the left-hand navigation pane of the IBM Navigator for i Performance Investigate Data. The 'Investigate Data' folder is expanded, showing a tree view of various performance metrics and collection services. A red box highlights the 'Database' folder, which is currently selected. Other folders include 'Performance Explorer', 'Disk Watcher', 'Job Watcher', 'Health Indicators', 'Collection Services', 'CPU Utilization and Waits Overview', 'CPU Utilization by Thread or Task', 'Resource Utilization Overview', 'Job Statistics Overviews', 'Waits', 'CPU', 'Disk', 'Physical Disk I/O', 'Synchronous Disk I/O', 'Memory', 'Page Faults', 'Logical Database I/O', 'Virtual I/O', 'Communications', '5250 Display Transactions', 'Physical System', 'Java', 'Memory', 'Workload Group', and 'Collection Services Database Files'. Below the tree view are 'Manage Collections' and 'Database' options.



The screenshot shows the 'Investigate Data - Performance Data Investigator' Selection screen for 'Database Locks Overview'. It has sections for 'Selection', 'Description', 'View List', and 'Collection'. The 'Collection' section shows a dropdown for 'Library' set to 'QPFRDATA' and a 'Most Recent' dropdown. Below these are 'Display' and 'Search' buttons. A list of collection names and timestamps is shown, with one entry highlighted in blue: 'Q142000003 (\*CSFILE) - May 22, 2013 12:00:03 AM'. Other entries include 'Q141132820 (\*CSFILE) - May 21, 2013 1:28:20 PM', 'Q141164450 (\*CSFILE) - May 21, 2013 4:44:50 PM', and 'Q143000002 (\*CSFILE) - May 23, 2013 12:00:02 AM'.



# Batch Model

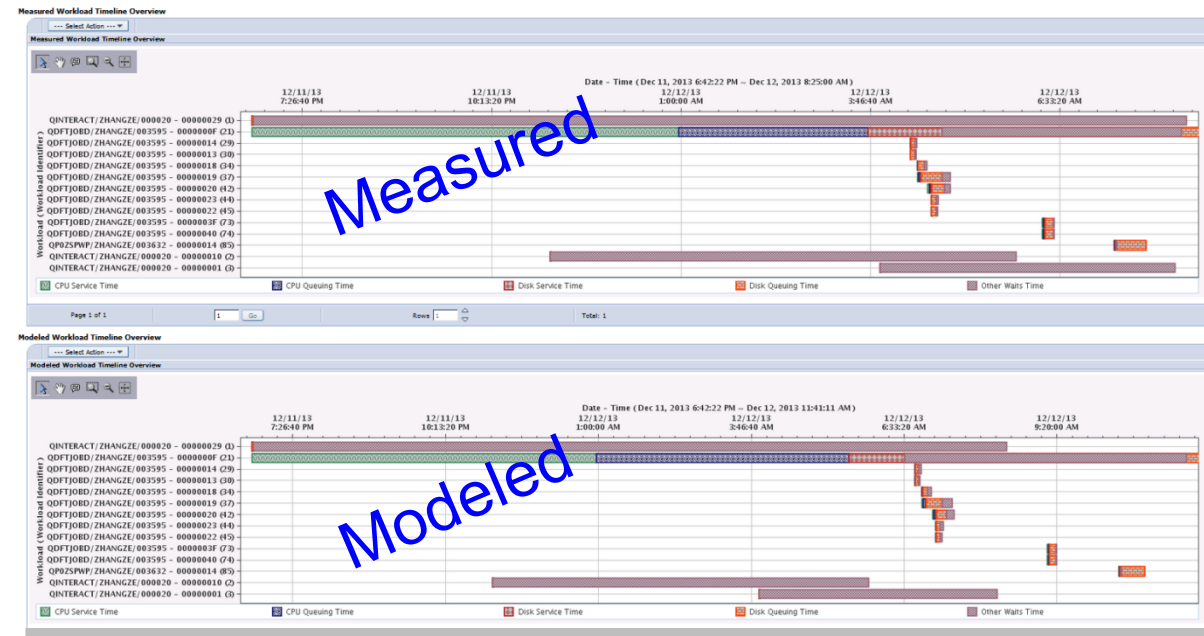
## Measure a batch workload

-Adjust hardware, processor, storage (SSD), system settings

## Model how these changes effect the Workload performance

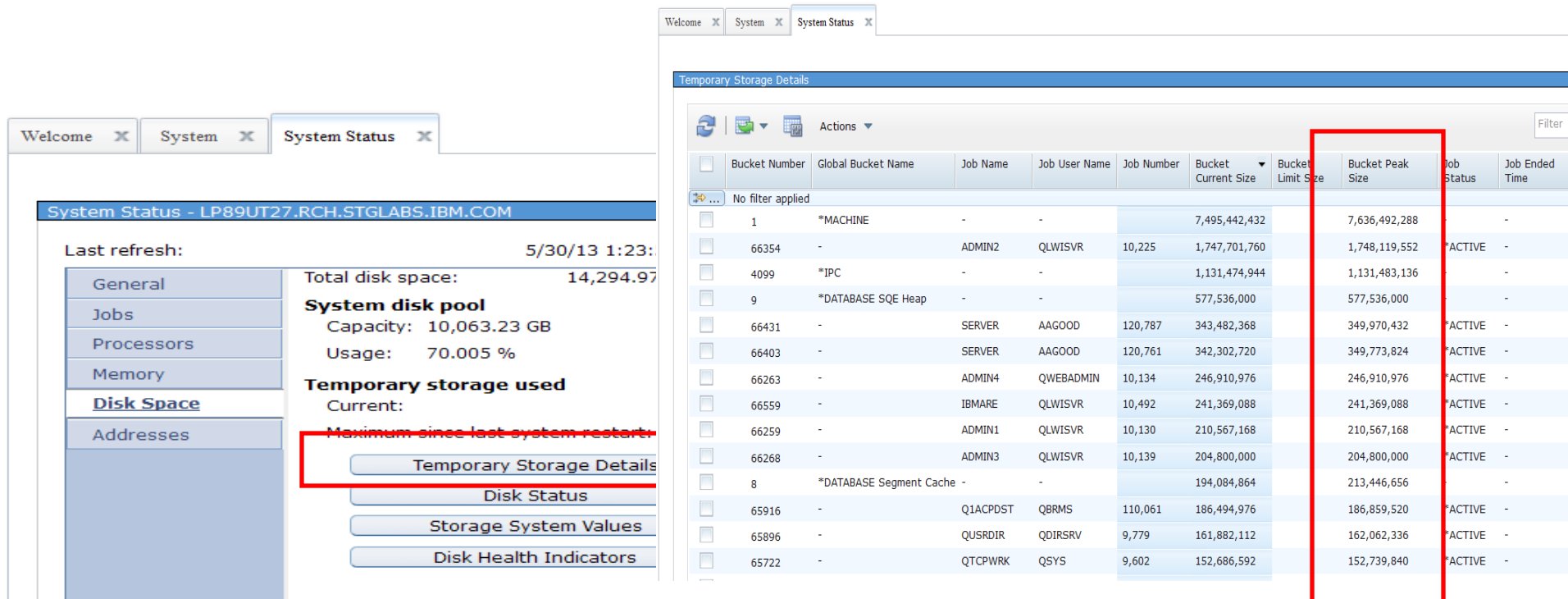
IBM® Navigator for i

- [-] Performance
  - [+] Investigate Data
    - Manage Collections
  - [-] All Tasks
    - Active Jobs
    - Disk Status
    - Manage Collections
    - Investigate Data
    - Performance Management for Power Systems
    - System Status
  - [+] Collections
  - [+] Performance Data Reports
  - [+] Collectors
  - [+] Sizing
    - Batch Model
      - Batch Models
      - Analyze Batch Model
      - Calibrate Batch Model
      - Change Batch Model Calibration
      - Change Batch Model
      - Create Batch Model
      - Merge Batch Model
      - Reset Batch Model



# Managing Temporary Storage – Improved Accounting

- Define new accounting “buckets” to track temporary storage usage.
- Track temporary storage allocations which persist after a job ends
- Track temporary storage scoped to a job, the temporary file system, LIC tasks, etc.



The screenshot displays the IBM System Status interface. On the left, a navigation pane shows 'System Status - LP89UT27.RCH.STGLABS.IBM.COM' with a sidebar menu including 'General', 'Jobs', 'Processors', 'Memory', 'Disk Space', and 'Addresses'. The 'Disk Space' section is active, showing 'Total disk space: 14,294.97' and 'System disk pool Capacity: 10,063.23 GB Usage: 70.005 %'. Below this, 'Temporary storage used Current:' is shown with a red box around the text 'Maximum since last system restart:' and a button labeled 'Temporary Storage Details'.

The main window displays 'Temporary Storage Details' with a table of storage buckets. A red box highlights the 'Bucket Peak Size' column. The table includes columns for Bucket Number, Global Bucket Name, Job Name, Job User Name, Job Number, Bucket Current Size, Bucket Limit Size, Bucket Peak Size, Job Status, and Job Ended Time.

Bucket Number	Global Bucket Name	Job Name	Job User Name	Job Number	Bucket Current Size	Bucket Limit Size	Bucket Peak Size	Job Status	Job Ended Time
1	*MACHINE	-	-	-	7,495,442,432	-	7,636,492,288	-	-
66354	-	ADMIN2	QLWISVR	10,225	1,747,701,760	-	1,748,119,552	ACTIVE	-
4099	*IPC	-	-	-	1,131,474,944	-	1,131,483,136	-	-
9	*DATABASE SQE Heap	-	-	-	577,536,000	-	577,536,000	-	-
66431	-	SERVER	AAGOOD	120,787	343,482,368	-	349,970,432	ACTIVE	-
66403	-	SERVER	AAGOOD	120,761	342,302,720	-	349,773,824	ACTIVE	-
66263	-	ADMIN4	QWEBADMIN	10,134	246,910,976	-	246,910,976	ACTIVE	-
66559	-	IBMARE	QLWISVR	10,492	241,369,088	-	241,369,088	ACTIVE	-
66259	-	ADMIN1	QLWISVR	10,130	210,567,168	-	210,567,168	ACTIVE	-
66268	-	ADMIN3	QLWISVR	10,139	204,800,000	-	204,800,000	ACTIVE	-
8	*DATABASE Segment Cache	-	-	-	194,084,864	-	213,446,656	-	-
65916	-	Q1ACPDST	QBRMS	110,061	186,494,976	-	186,859,520	ACTIVE	-
65896	-	QUSRDIR	QDIRSRV	9,779	161,882,112	-	162,062,336	ACTIVE	-
65722	-	QTCPWRK	QSYS	9,602	152,686,592	-	152,739,840	ACTIVE	-

## Temporary and Permanent storage

- Temporary storage
  - Called ‘unprotected storage’ (pre-7.2 WRKSYSSTS)
  - Temporary storage is **reclaimed on each IPL** of the operating system
  - Temporary storage has been “charged” at a **job** level
  - Temporary storage can also be shared across multiple jobs
  
- Permanent storage
  - Storage for all permanent objects in libraries and directories
  - **Persists across an IPL** of the operating system
  - Permanent storage is charged to the **user profile** that owns the object

# WRKSYSSTS - Improved Terminology

## Pre-7.2

```
04/23/14 11:43:27
Auxiliary storage:
System ASP . . . . . : 95.44 G
% system ASP used . . : 85.0860
Total . . . . . : 95.44 G
Current unprotect used : 4625 M
Maximum unprotect . . : 4855 M
```

7.2

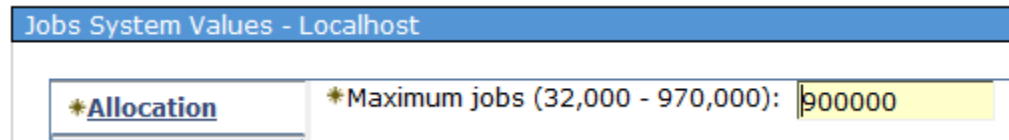
```
04/23/14 11:51:42
Auxiliary storage:
System ASP . . . . . : 355.6 G
% system ASP used . . : 71.7833
Total . . . . . : 533.4 G
Current temporary used : 13975 M
Peak temporary used . . : 17421 M
```

# Other Miscellaneous Work Management Enhancements

- Increased maximum number of jobs

```
System value . . . . . : QMAXJOB
Description . . . . . : Maximum number of jobs

Maximum jobs . . . . . : 900000      32000-970000
```



The screenshot shows a window titled "Jobs System Values - Localhost". Inside, there is a section labeled "\*Allocation" with a sub-entry "\*Maximum jobs (32,000 - 970,000):" followed by a text input field containing the value "900000".

- Increased size of memory pools
- New parameter Processor resources priority (PRCRSCPTY) to CHGJOB for job level SMT guidance.
- Subsystems for HTTP Servers
- SQL to see temporary storage

# IBM Navigator for i – Sort Active Jobs by Storage Used

Welcome x System Monitors x Active Jobs x

Active Jobs - Lp13ut25

Refresh Elapsed time: 00:00:00

Actions Filter

<input type="checkbox"/>	Job Name	Detailed Status	Current User	Type	CPU %	Run Priority	Thread Count	Temporary Storage Used(MB)
No filter applied								
<input type="checkbox"/>	Admin2	Waiting for thread	Qlwisvr	Batch immediate - Server	0	25	82	337
<input type="checkbox"/>	Admin4	Waiting for thread	Qwebadmin	Batch immediate - Server	0	25	41	162
<input type="checkbox"/>	Admin1	Waiting for thread	Qlwisvr	Batch immediate - Server	0	25	34	154
<input type="checkbox"/>	Admin3	Waiting for thread	Qlwisvr	Batch immediate - Server	0	25	34	145
<input type="checkbox"/>	Qypspfrcol	Waiting for dequeue	Qsys	Batch	0	1	30	117
<input type="checkbox"/>	Qypsjsvr	Waiting for signal	Qypsjsvr	Batch - Server	0	10	37	86
<input type="checkbox"/>	Qsrvmon	Waiting for thread	Qsecofr	Batch immediate	0	50	22	61
<input type="checkbox"/>	Qpadev0005	Waiting for workstation I/O	Angela	Interactive	0	20	1	41
<input type="checkbox"/>	Crtprfdta	Waiting for dequeue	Qsys	Batch - Server	0	50	1	32
<input type="checkbox"/>	Qzlsserver	Waiting for event	Qpgmr	Batch - Server	0	20	3	21
<input type="checkbox"/>	Qsqsrvr	Waiting for condition	Qsys	Prestart batch - Server	0	1	1	20
<input type="checkbox"/>	Qnadev0003	Waiting for workstation I/O	Wdtarara	Interactive	0	20	1	19

1 - 100 of 172 items 5 | 10 | 25 | 50 | **100** | All

# Mobile IBM i Access

- iAccess for Web new Mobile interface – shipped with 5770-XH2
- Access your IBM i from **ANY** web enabled mobile device
- Basic System and Management function
  - Job Management
  - Messages
  - Printer output
    - Spool files to PDFs
  - 5250 emulator
  - Run SQL Scripts!
  - Much more



iPhone  
iPad  
Android  
Surface



Tech Preview  
with 7.2 GA

# POWER



Secure Scalable  
Open for Business  
Easy to maintain  
CloudCache  
Accelerators  
Mobile  
Bet your business on us  
Easy to use  
Intelligent SSD  
SAN  
Power8  
Proven  
Reliable  
Optical  
Integrated  
**Hardware**  
**RAS**



# Power Systems Roadmap

POWER7+ and POWER8 systems deliver compelling application performance, security and application optimization; lower operational management costs; and it will be easier to upgrade to take advantage of new technology.



4Q2012-1Q2013



2014-2015

IBM i 7.2 runs on IBM POWER6/6+ & POWER7/7+ & POWER8 servers

# Scale-out Systems - DCMs and Chips



## 1S & 2S servers use DCM (Dual Chip Module)

- 1 DCM fills 1 socket .... Similar to POWER7+ 750 / 760
- 1 DCM has two Scale-out POWER8 chips
- 1 DCM can provide 6-core, 8-core, 10-core or 12-core sockets

### 6-core Processor Chip

- 362 mm<sup>2</sup>
- 22nm SOI w/ eDRAM

### Strengthen Cores

- 8 Threads per Core

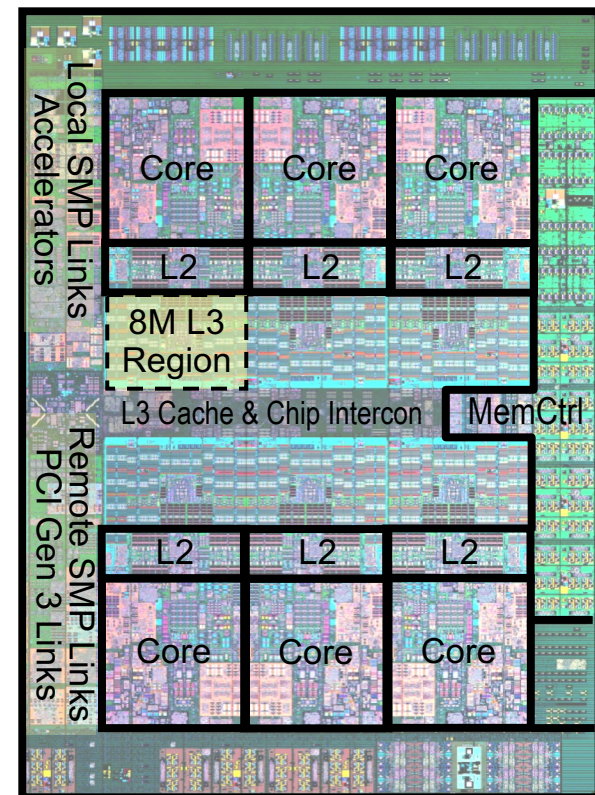
### Caches

- D Cache: 64KB
- L2: 512KB
- L3: 8 MB per Region Total: 48MB

### Fine Grained Power Management

- On Chip power management

### Excellent I/O bandwidth per socket

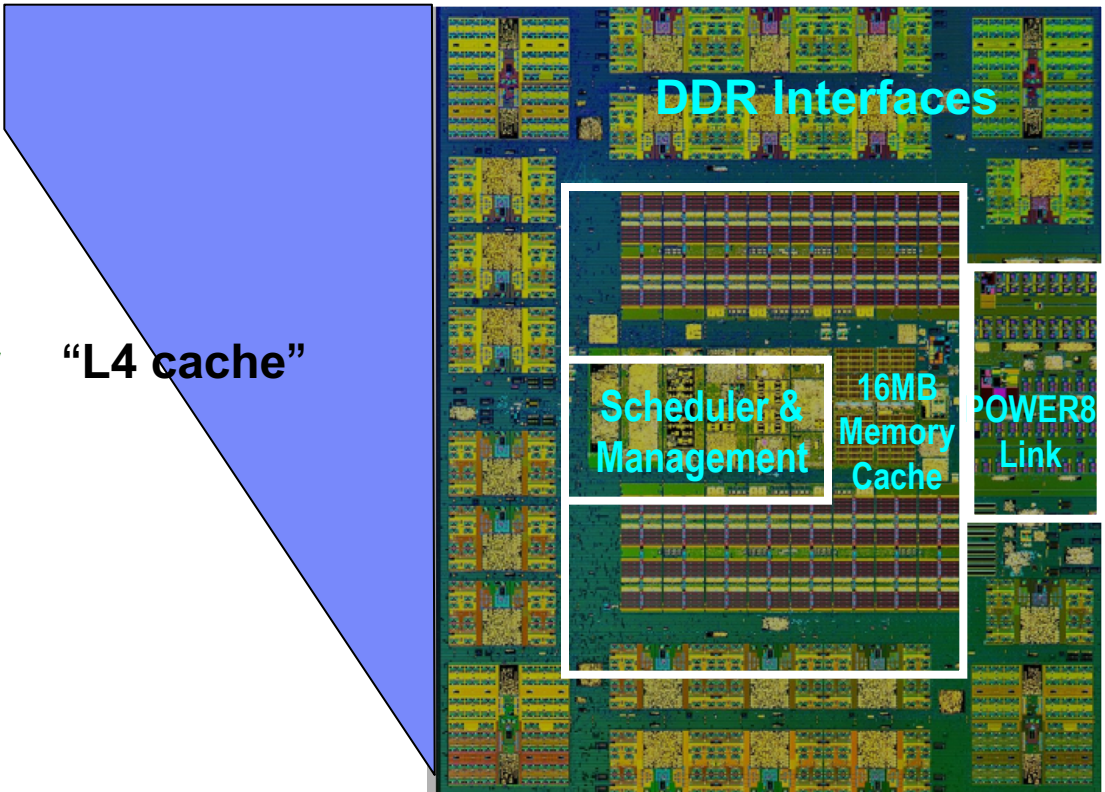
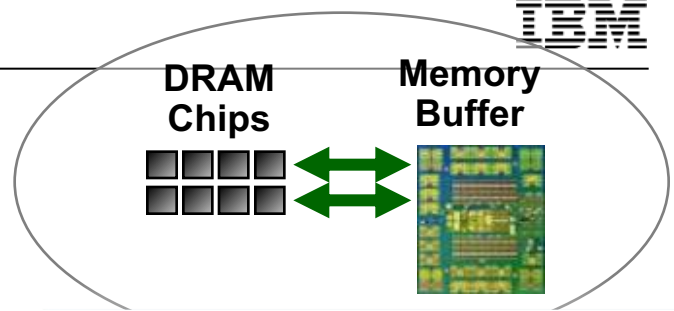
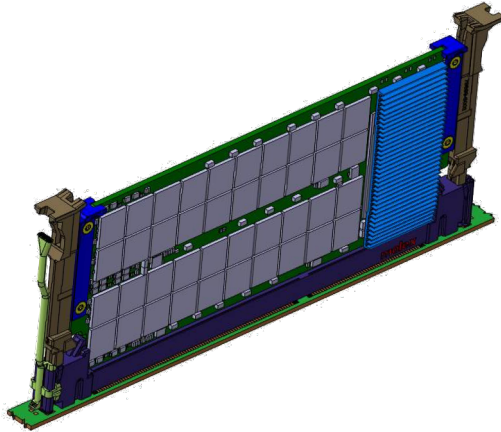


# IBM i Cores/Partition – SMT – Threads



IBM i 7.2	
<b>POWER7</b>	<p>Max published cores/partition = 32 cores                      Max cores/partition = <b>96 cores</b> with Lab Services approval RPQ                      SMT = ST, SMT2, STM4 (not SMT8)                      Threads = up to 128 threads / single partition (<b>384 threads</b> with Lab Services RPQ)</p>
<b>POWER8</b>	<p>Max published cores/partition = 24 cores (<b>48 cores theoretical announce</b>)                      Max cores/partition = <b>96 cores</b>(when announced) with Lab Services approval RPQ                      SMT = ST, SMT2, SMT4, <b>SMT8</b>                      Threads = <b>up to 192</b> (with 24-core server – theoretical max of <b>768</b> ) threads / single partition</p>

# POWER8 Memory Buffer Chip



## Intelligence Moved into Memory

- Scheduling logic, caching structures
- Energy Mgmt, RAS decision point
  - Formerly on Processor
  - Moved to Memory Buffer

“L4 cache”

## Processor Interface

- 9.6 GB/s high speed interface
- More robust RAS
- “On-the-fly” lane isolation/repair

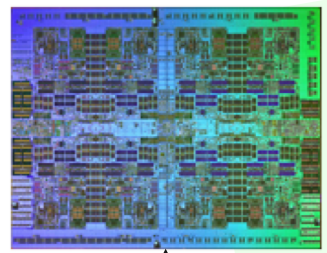
## Performance Value

- End-to-end fastpath and data retry (latency)
- Cache → latency/bandwidth, partial updates
- Cache → write scheduling, prefetch, energy



# POWER8 Integrated PCI Gen 3

## POWER7



### Native PCIe Gen 3 Support

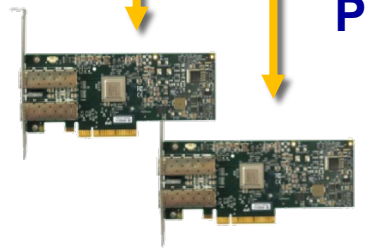
- Direct processor integration
- Replaces proprietary GX/Bridge
- Low latency
- Gen3 x16 bandwidth (32 GB/s)

GX Bus

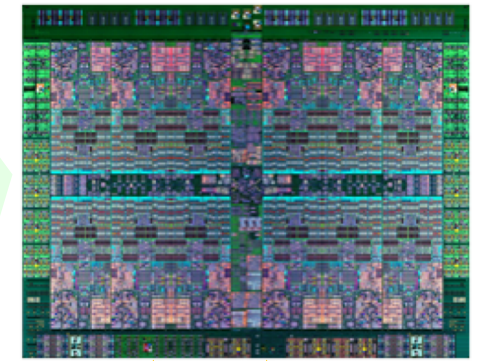
I/O Bridge

PCIe Gen2

PCI Devices

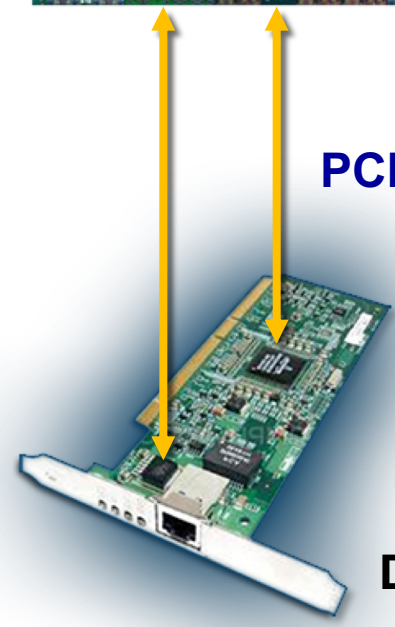


## POWER8



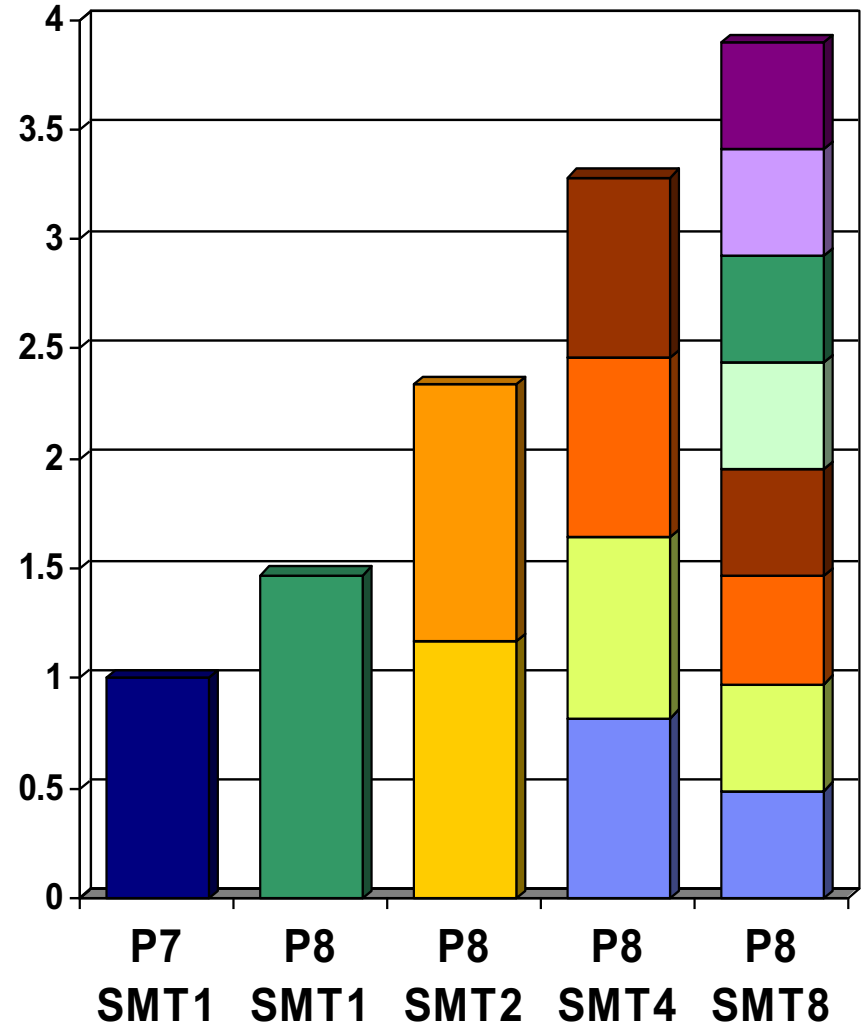
PCIe Gen3

PCI Device



# POWER8 Multi-threading Options

- **SMT1:** Largest unit of execution work
- **SMT2:** Smaller unit of work, but provides greater amount of execution work per cycle
- **SMT4:** Smaller unit of work, but provides greater amount of execution work per cycle
- **SMT8:** Smallest unit of work, but provides the maximum amount of execution work per cycle
- Can dynamical shift between modes as required: SMT1 / SMT2 / SMT4 / SMT8
- Mixed SMT modes supported within same LPAR
  - Requires use of “Resource Groups”



# IBM i System Support

<http://www-01.ibm.com/support/docview.wss?uid=ssm1platformibmi>

Servers	IBM i 5.4 <sup>1</sup>	IBM i 6.1	IBM i 7.1	IBM i 7.2
<b>POWER8</b>			✓ <sub>3</sub>	✓
<b>POWER7/7+ PS700/701/702/730/704, Power 710, 720, 730, 740, 750, 760, 770, 780, 795, Pureflex p260/460</b>		✓ <sub>2</sub>	✓	✓
<b>POWER6+ JS23/43, 550*, 560 POWER6 JS12/22</b>		✓	✓	✓ <sub>4</sub>
<b>POWER6+ 520* POWER6 520*, 550*, 570, 595</b>	✓	✓	✓	✓ <sub>4</sub>
<b>POWER5/5+ 515, 520, 525, 550, 570, 595</b>	✓	✓	✓	
<b>800, 810, 825, 870, 890</b>	✓	✓		
<b>270, 820, 830, 840</b>	✓			

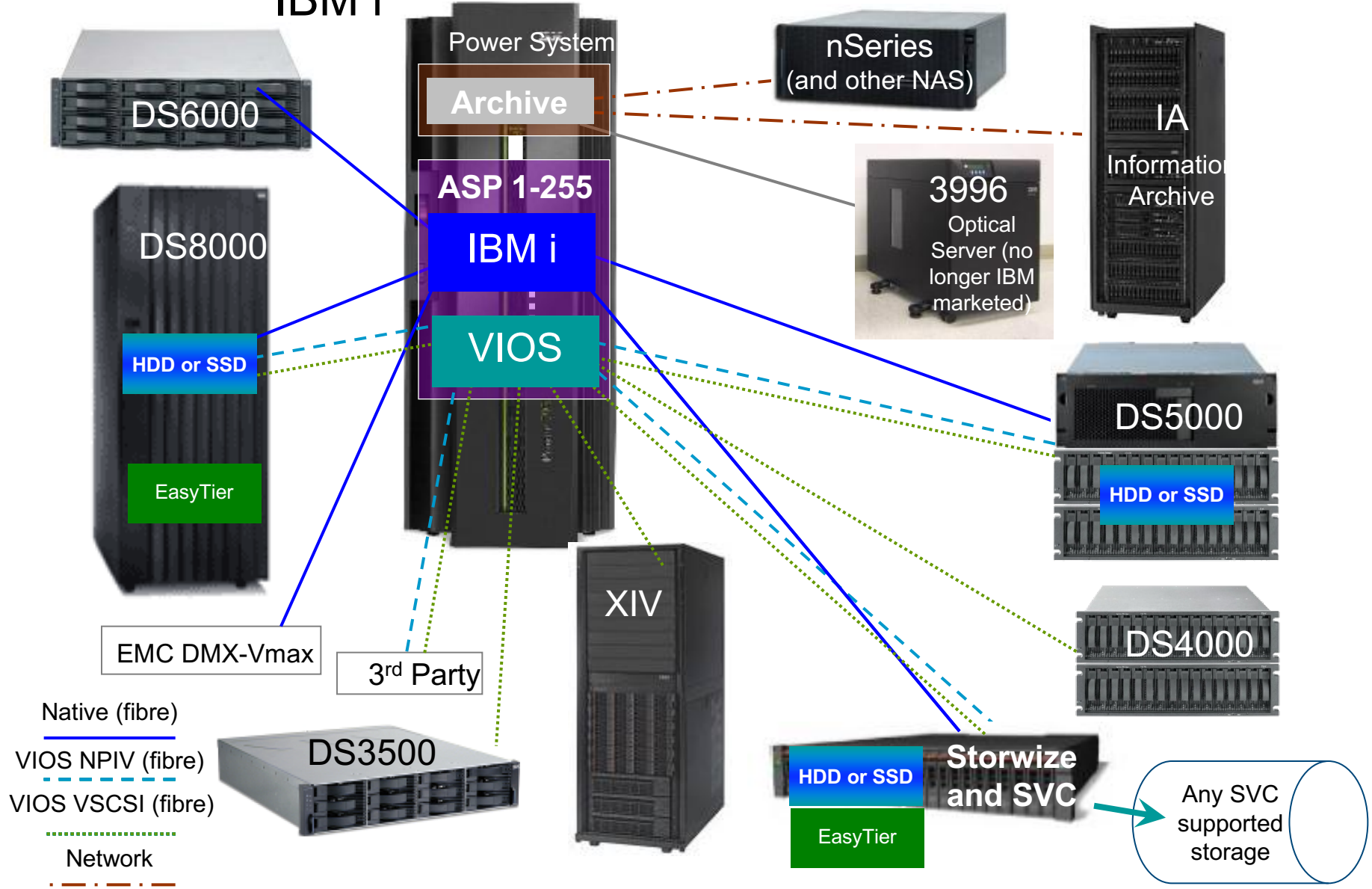
- 1 – IBM i V5R4 is no longer marketed or supported other than through extended service contracts
- 2 – POWER7+ 750/760 do not support native I/O. IBM i 6.1 on PureFlex must be client of IBM i 7.1 or later
- 3 – Requires IBM i 7.1 Technology Refresh 8
- 4 – no IOP or HSL support

# Storage option for IBM i





# SAN attached disk storage servers for IBM i



## Storage attach terminology

- Native attach – consists of one of two methods
  - Direct attach – switch or fabric device **is not** required between the adapter and the storage device
  - Fabric attach – switch or fabric device **is** required between the adapter and the storage device
- Virtual SCSI – A virtual I/O server (VIOS or IBM i) provides a virtual SCSI adapter to a client operating system (IBM i, AIX, or Linux)
- N\_Port ID Virtualization (NPIV) – aka virtual fibre channel – A virtual I/O server (VIOS) provides a virtual fibre channel adapter to the client operating system (IBM i, AIX, or Linux)

## Requirements for Flash Systems with IBM i

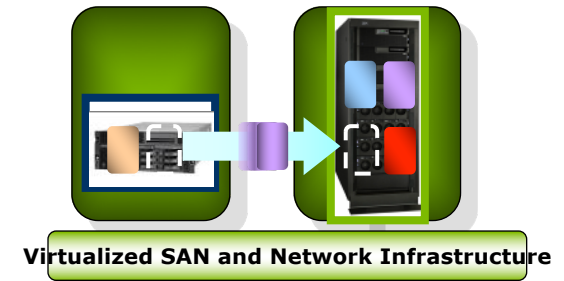
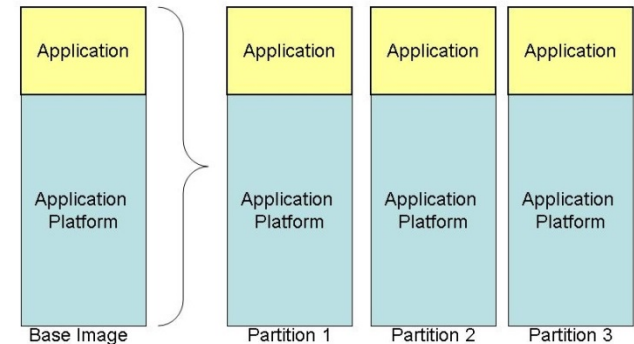
- SVC or Storwize required
- SVC or Storwize must be sized
  - **Disk Magic**
  - 100% SSDs in “virtualized storage”
  - Choose input data carefully!
- IBM i 7.1 or 7.2
  - 8Gbps or higher fibre with SAN fabric highly recommended
  - Native or NPIV recommended
  - VSCSI via VIOS is supported with SVC or Storwize + Flash System
  - VSCSI via VIOS is **not** supported for Flash System

# Cloud and Virtualization



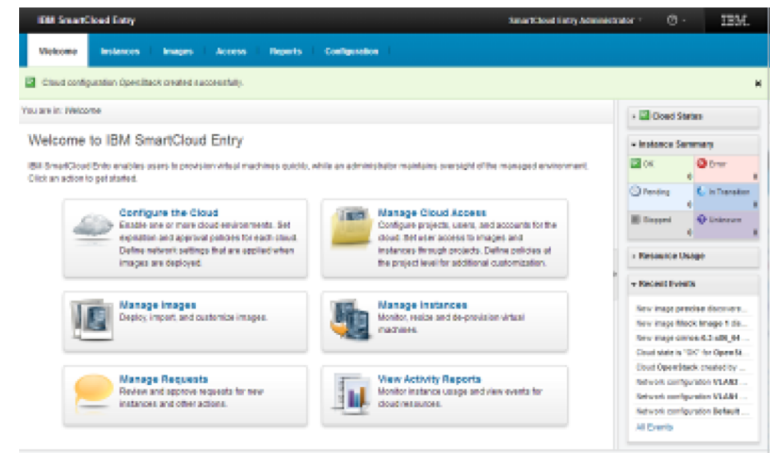
# IBM i 7.2 – Built in Cloud Capability

- **Network Installation** of all IBM i software for more efficient operations
- **Suspend/Resume** IBM i partition to optimize resource use
- **VM Image Management** to define and deploy partitions
- **Live Partition Mobility** to keep workloads running while changing systems

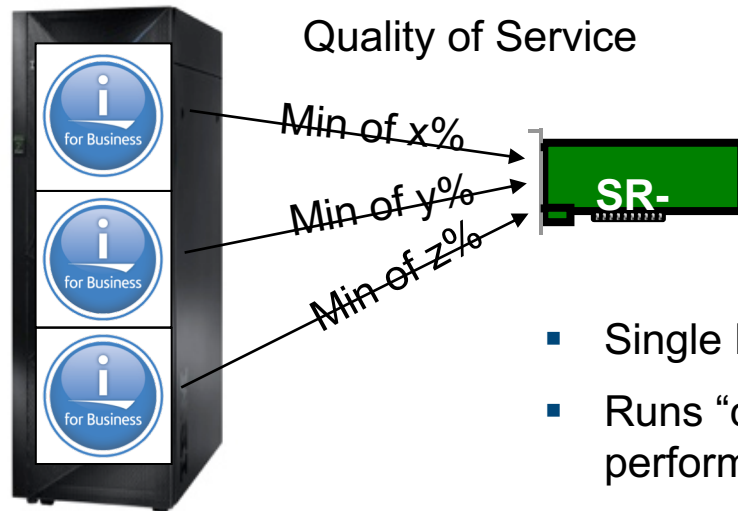


# IBM i 7.2 – Built in Cloud Capability

- **IBM SmartCloud Entry 4.1** is an easy to deploy, simple to use software offering that features a self-service portal for workload provisioning, virtualized image management, and monitoring.
  - Radically *improves time to value* for new workloads
  - Provides *repeatable accuracy and consistency* via automation
  
- **IBM Systems Director VMControl 2.4.5** offers Express, Standard and Enterprise Edition support for IBM i 7.2. Enables the cloud capability for quick partition deployment, systems pool.
  - Support appropriate *isolation* within a highly shared and multi-tenant environment



# SRIOV (Single Root I/O Virtualization) for Ethernet



- Single Root I/O Virtualization
- Runs “closer to the silicon” potentially offering some performance efficiencies
- Doesn't require VIOS as a pre-req and thus can do simple virtualization under PowerVM without VIOS .... **BUT** .... VIOS continues to offer many additional advanced functions
- Architecturally can virtualize a resource like an Ethernet adapter and allocate/provide a user-defined minimum level of bandwidth to a partition ... Quality of Service (QoS)
  - Ethernet NIC announced. FCoE and FC not announced.
- **Can use VIOS & SR-IOV together**

## “WAN over LAN”

- WAN applications have traditionally used WAN adapters
- In 7.2 WAN can run in an Ethernet to Ethernet Device Server with multiple RS232 serial ports
  - Provides true Virtual Serial ports for WAN applications
  - Clients running IBM Facsimile Support for i, 5798-FAX, can use this new support
- Expands advanced virtualization capabilities:
  - Reduces total cost by allowing
    - Fewer PCI slots for applications requiring a modem
    - One Ethernet adapter can provide both TCP/IP connectivity and WAN
  - Allows IBM i client partitions with virtual I/O to use FAX and other WAN applications
    - Support for Flex and Blades - previously had no WAN capability
- Minimal disruption for existing WAN applications
  - No application changes
  - Simple configuration change required for IBM i partition



# Integrated Value



# Security Enhancements

- Power 8 in-core Cryptographic Performance Acceleration
  - Support within the processor itself, no additional products or HW required
  - “Automatic” performance acceleration for certain cryptographic algorithms
    - AES & SHA-2 message digest
  - Does not support “cryptographic key” storage
    - Certain customers will still need the 4765 Cryptographic Coprocessor
  - Performance gains will be realized in support such as:
    - SSL (Secure Socket Layer)
    - VPN (Virtual Private Network)
    - Software Tape Encryption
    - Customer applications that use the Crypto Services APIs
- Enhance both FTP and TELNET to support authenticating with Kerberos (SSO)
  - Kerberos authentication and Enterprise Identity Mapping integrated in FTP & TELNET
  - Integrates into the IBM i SSO application suite
  - FTP client and server support
  - Telnet client and server support
- More ...

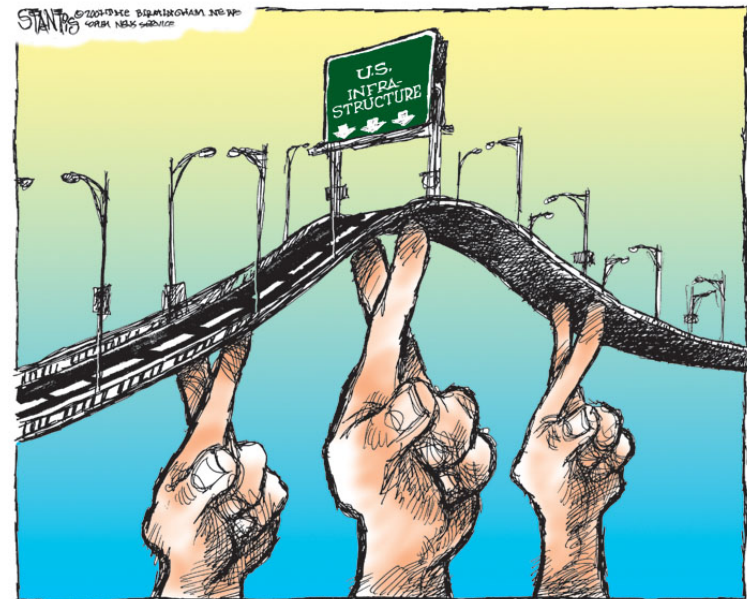


# Infrastructure Currency

- Enhanced Data in Audit Records
  - Significant changes to record both the "old" and "new" values in many security audit records (prior release audit record data included only the "new" values)
  
- System SSL (Security updates)
  
- PASE Updates
  - AIX 7.1
  - OpenSSL



IBM i does not have the 'Heartbleed' vulnerability. Never did. No fix needed





# Operations Enhancements

- Improved ease for installing Licensed Programs
  - New API (QLPINSLP) provides GO LICPGM option 1 and 11 support
- CRTIMGCLG support to automatically add all images within the catalog directory to the image catalog.
- D-mode IPL support from USB
- Tape and Tape Library devices can now be configured for "Online at IPL"
- PTF Enhancements
  - Auditing of PTF operations and associated objects
  - More "immediate apply" PTF options
  - GUI Support through Navigator
- New functions for backing up
  - Journaling enhancements for handling "wrong order" restores TCP/IP configuration automatically saved with QUSRSYS
  - More object selection capability (SELECT parameter)
  - Spooled file backup enhancements
  - Better IFS backup performance using the ASYNCBRING parameter

## i 7.2 Networking Enhancements

- System SSL (Security updates)
  - TLSv1.2
  - Elliptical Curve (ECDHE and ECDSA)
  - Online Certificate Status Protocol (OCSP)
- VPN
  - IKEv2 NAT
  - Re-keying IKE SA
  - Advanced IKE & IpSec Cryptographic Algorithms, ECDSA authentication
- Virtual LAN supports IEEE 802.1Q (VLAN)
- IPv6 Neighbor Proxy Discovery for virtual Ethernet and PPP
- LAN Console IPv4 initial configuration enhancements
- SNMP enhancements including implementing SNMPv3 Manager APIs
- TCP/IP IPv6 XML configuration file enhancements – validation and diagnostic messages
- Retrieve/Update TCP/IP Information
- CL commands for loading/unloading VPN & IP Filtering configuration files
- VIPA proxy ARP support tied in with the existing dead gateway support



## Printed Output Enhancements

- CPYSPLF to IFS
  - Option to convert to PDF (PTF'd back to 7.1)
- Bar Codes
  - Support for all bar codes currently defined by BCOCA
  - Rendered by Host Print Transform (ASCII printers) and Transform Services (PDF)
    - Databar
    - Intelligent Mail
  - DDS BARCODE Keyword enhanced
    - Support for QR Code special parameters
    - Trim indicator allows user to truncate trailing blanks from bar code data
      - Important for 2D bar codes that carry long text
      - Eliminates the need to define multiple records with different lengths
- Color Image Support
  - HPT can now print color images on PCL 5C capable printers
  - Popular image formats (JPEG, TIFF, GIF)
  - Stream files in IFS
  - Reference via the AFPRSC DDS keyword
- Color Management Support added to PSF/I
  - PSF/i enhanced to support AFP Color Management architecture (CMOCA)
  - Mechanism to print color consistently across different printer models and manufactures
  - Color profile of input and output devices used to adjust color “automatically” at high speed
  - Requires use of AFP Resource Installer tool to generate Resource Access Table (RAT)



## IBM i Middleware Updates

- Java

- Support for Java 6, Java 7 & Java 7.1
- Support removed for Java 5 and Java 1.4.2



- SAMBA

- Fast, modern, lightweight CIFS file server
  - Common Internet File System
- Better protocol compatibility with current Windows clients
- SMB 2.0 protocol support



# Expanding the Limits





## Extended Limits – Page 1

- 32 virtual disks per VSCSI adapter in IBM i client partition
  - (was 16)
  
- Memory pools > 2 Terabytes
  - (New parameter on CHGSHRPOOL, CRT/CHGSBSD for units (\*KB/\*MB))
  
- Job table limit 970,000 (QMAXJOB system value)
  - From 485,000
  
- SMTP removed the SDD limitations
  
- Optical: Expanded large saves for IFS QOPT files
  - Max IFS QOPT file size now almost 10 TB from 4 GB



## Extended Limits – Page 2

- PowerHA Administrative Domain monitored resource entry (MRE) limit now 45,000
  - From 25,000
- Maximum load source size will accommodate up to 2 TB, and load source drives must be at least 70 GB



## Managing Limits Easier than Ever

- Navigator's Health Center has DB2 and System Limits
- Hold a job that exceeds its defined limits (MAXTMPSTG and MAXCPU) and allow the operator to change the limit and let the job continue, or end the job

# Product Enhancements

Power **HA**

Power **VP**

**BRMS**



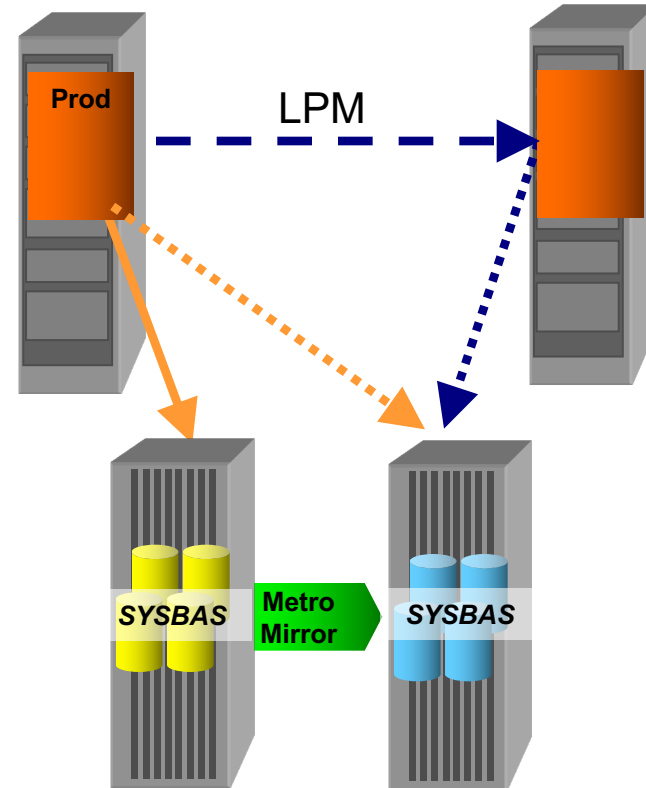
Application  
**R**untime  
**E**xpert

**DB2 WebQuery**



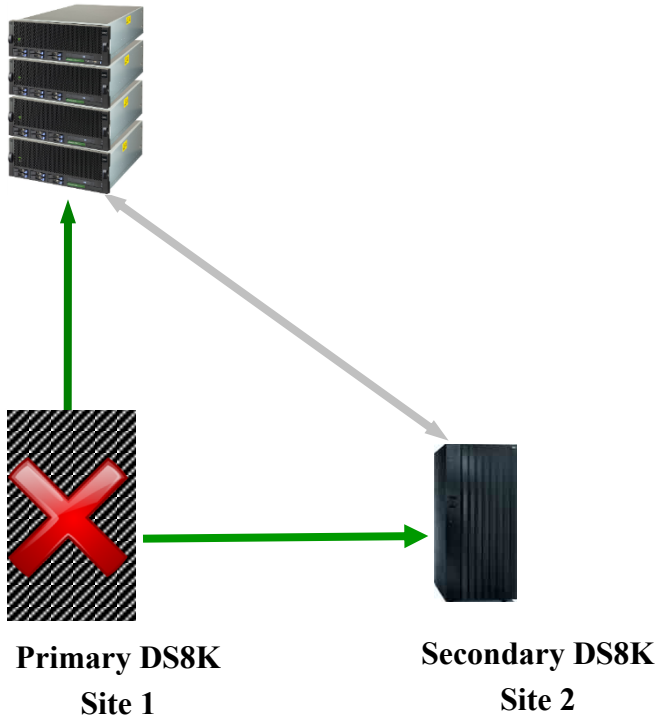
# PowerHA SystemMirror for i Express Edition – Hyperswap

- Provides ability to ‘instantly’ switch access from production IBM i DS8000 instance to remote DS8000
  - Switch can happen automatically in case of DS8000 failure
  - Switch can be manually triggered for planned maintenance
  - Affinity can be defined so an LPM switch triggers a DS8000 switch
- 
- DS8000 storage servers only
  - IASP based replication not yet supported



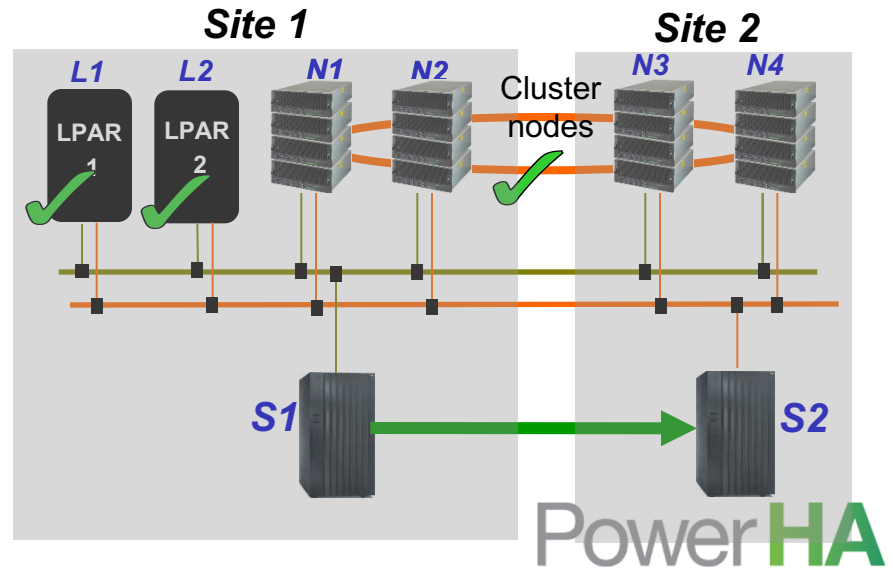
PowerHA

# One Node HyperSwap PowerHA i 7.2



- One Node HyperSwap
  - Configure a single IBM i LPAR for HyperSwap
  - No need for compute node on the second site
  - **Full LPAR (non IASP based)**
- Hybrid deployment:
  - PowerHA Clusters
  - Single Node LPARs

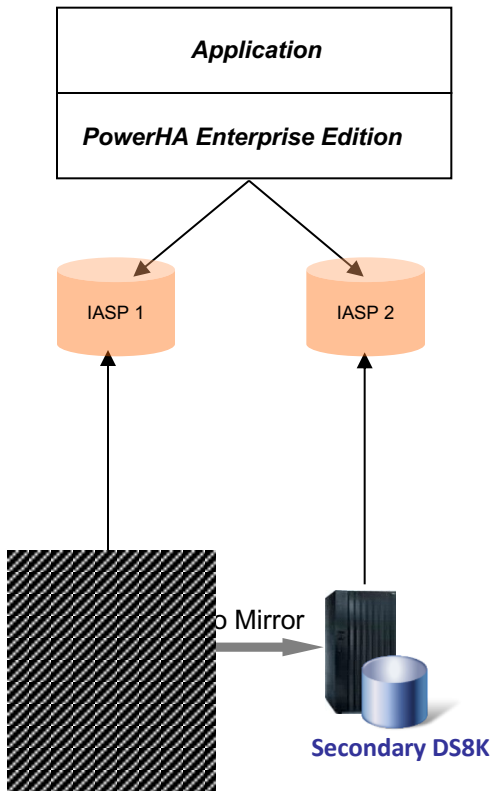
**Legend:**  
 Active Path  
 Passive Path



# PowerHA HyperSwap clustering technology

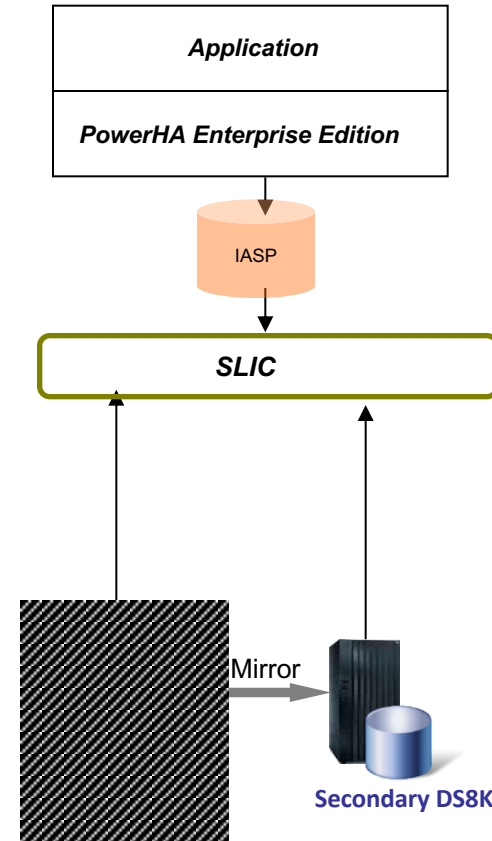
Applications halts while cluster switches

- Storage resumes after cluster switch



Applications continue to use the IASP

- Storage switched via SLIC



PowerHA

# PowerHA SystemMirror for i Express Edition – Cloud Enablement

- The Express Edition is all about partition restart based HA/DR solutions
  - Non clustered (ie non IASP) configurations
  - Switchable VIOS/LUN configurations or replicated partition configurations
  - Restore primary partition or partitions to second partition or partitions via reboot (IPL)
- Initial release (7.2) provides support for DS8000 with single partition/system HyperSwap
  - Provides continuously available storage servers
  - No downtime is associated with a HyperSwap switch (no IPL processing)
- Once configured, HyperSwap switch will occur automatically in the event of a storage outage
- HyperSwap switch can be triggered manually via the Change HyperSwap Status (CHGHYSSTS) command
- Can be combined with LPM
  - Affinity between a partition and a storage server can be defined via the Add HyperSwap Storage Description (ADDHYSSTGD) command

PowerHA

# PowerHA 7.2 Enhancements

## SYSBAS Replication Enhancements

- Object Authority and Ownership can now be replicated with Administrative Domain
- Increase the 25,000 Administrative Domain monitored resource entry (MRE) limit to 45,000 MREs



## Reduced Downtime

- DSPASPSTS improvements for monitoring vary-on time
- Reduce downtime by shortening UID/GID processing time during vary-on

## Management Improvements

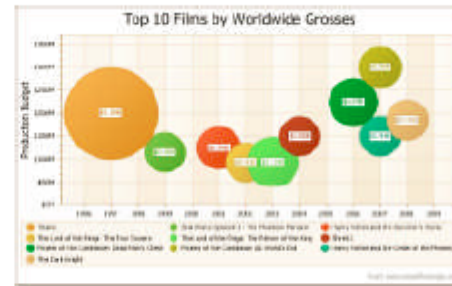
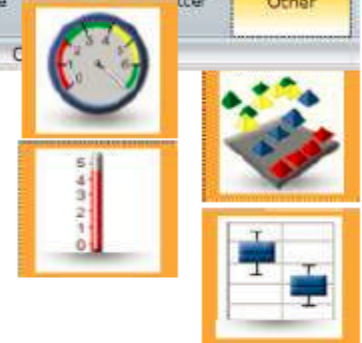
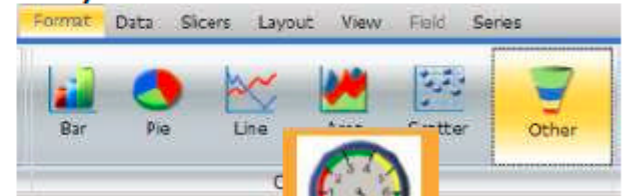
- Independent ASP Assignment
  - Enables use of one partition to save multiple production cluster environments
  - Allows attachment of an IASP to a partition not in the cluster device domain
  - Only one IASP can be attached to the partition at a time

PowerHA



# DB2 WebQuery – Latest (Version 2 + Update)

- DB2 Web Query contains over 100 different types of visualizations
  - Bar, Pie, Line, 3-D, Thermometers, gas gauges, stock reports, funnels, and more
  
- New Visualizations include
  - Heat Maps
  - Bubble Charts
  - Tag Clouds
  - Streamgraph
  
- Geo Maps
  - Interactive mapping out-of-the-box
  - 9 Layers of Zoom
  - Translated Countries
  - Adjust Heatscale and Opacity
  - Create customized maps



# PowerVP - Virtualization Performance Intelligence

PowerVP provides performance intelligence to proactively address performance issues mapping virtual workloads to physical hardware.

PowerVP

## Client Pain Points

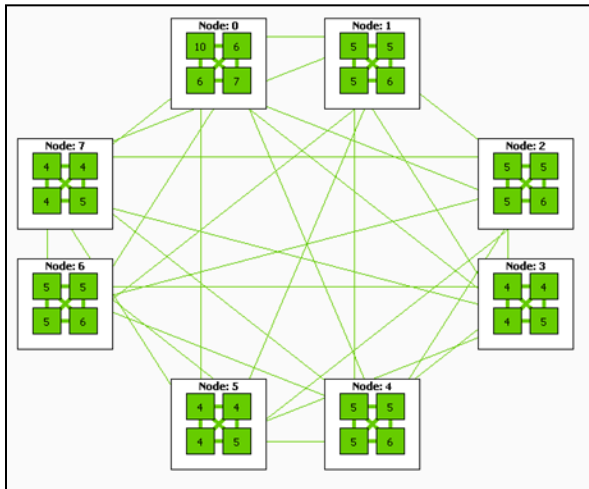
- **Complexity and time** required to pinpoint performance bottlenecks
- **Lack of visibility** of placement of VMs within a server's physical hardware
- Difficult to go **back in time** to diagnose detailed performance issues
- Lack of performance health metrics for virtualized workloads

## PowerVP Solution

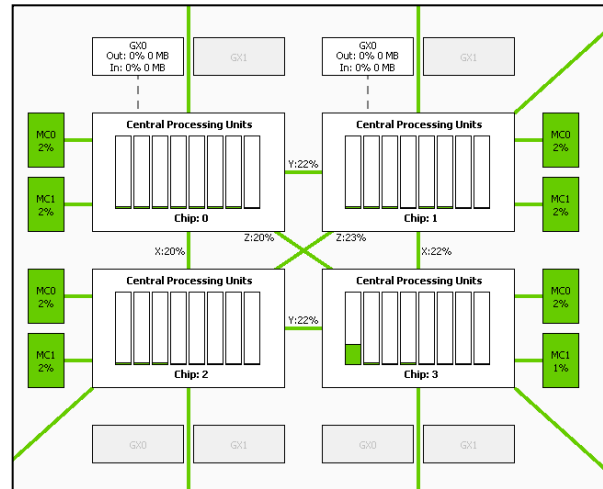
- ✓ *Simplifies management **and** performance measurement of virtualized systems*
- ✓ *Reduces cost of resolving performance issues*
- ✓ *Improves detection of performance bottlenecks before they cause a slowdown*
- ✓ *Provides a quick view of performance health*
- ✓ *Visually shows the physical resources a VM is consuming*

# Power Virtualization Performance

## PowerVP



**System  
Topology  
View**



**HW DRILL DOWN**



**LPAR DRILL DOWN**

## PowerVP Introduction

PowerVP

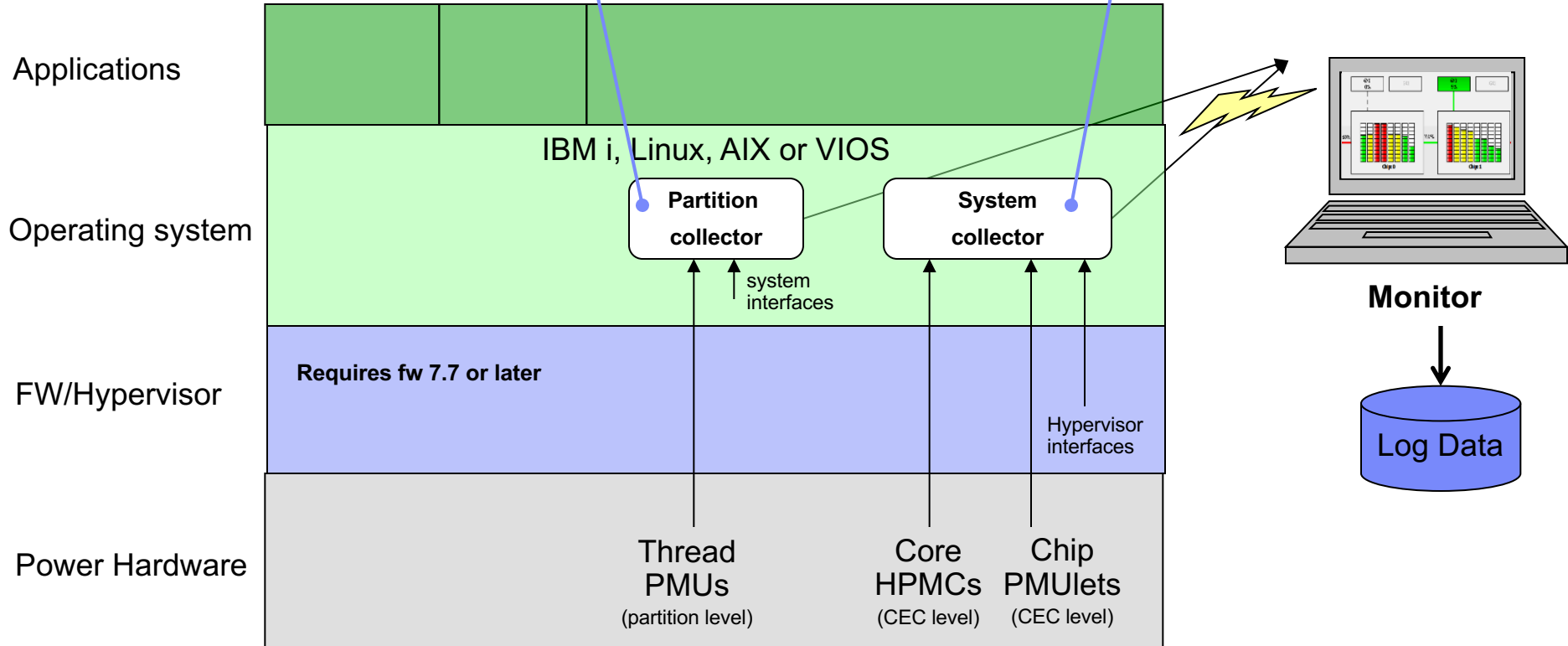
- PowerVP - “Power Virtualization Performance”
- New Licensed Program Product
- PowerVP was created to monitor and illustrate the performance of an entire system (or frame)
- PowerVP will allow you to monitor overall performance and allow you to drill down into more detailed hardware and software views to help you identify and resolve performance issues and to optimize the performance of your Power system.
- PowerVP illustrates Power Systems hardware topology in conjunction with resource utilization metrics to help you better understand the system.

# PowerVP Architecture

## Collectors and Monitor

- Partition collectors**
- Required for logical view
  - LPAR CPU utilization
  - CPI analysis
  - Cache analysis

- System-wide collector**
- One required per system
  - P7 topology information
  - P7 chip/core utilizations
  - P7 Power bus utilizations
  - memory and I/O utilization
  - LPAR entitlements, utilization



## BRMS Enhancements

- BRMS Enterprise
  - Dashboard of all BRMS systems
  - Central site monitoring
- Graphical Interface supports additional function
- Backup with improvements to IFS backups, include and exclude support in BRMS Object List and new ability to save by size of library
- Media Services allows concurrent duplications in batch via SBMOPT parm
- New features for Recovery supports restore list options and other new function
- Maintenance
  - Increase performance with \*BATCH on RGZBRMDB
  - RMVMEDI at an object retention level for \*OBJ, \*LNK, \*DLO, \*SPL
- Faster install via new alter table support!



# What is the Hub Center within the BRMS Enterprise support?

This is the main Enterprise panel - the BRMS Dashboard to find out information about all the nodes.

Enterprise nodes for hub APPN.Z1014P8:

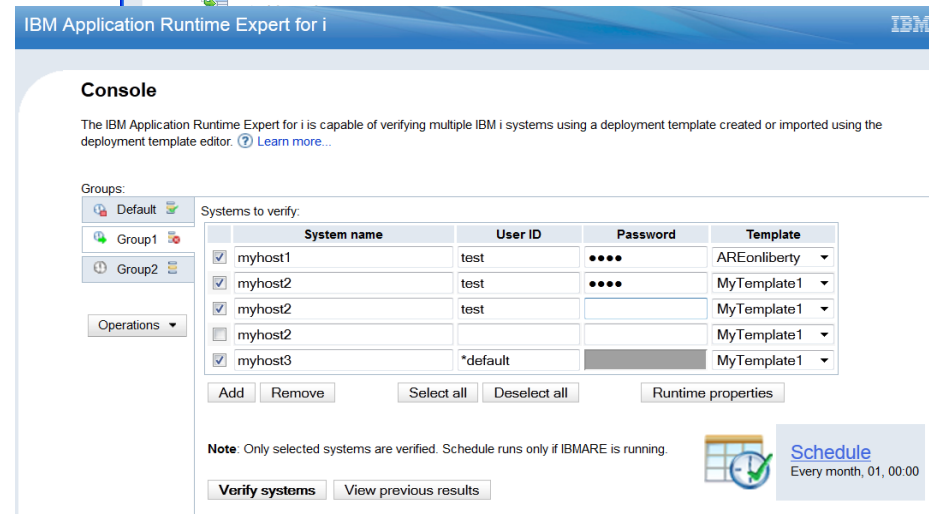
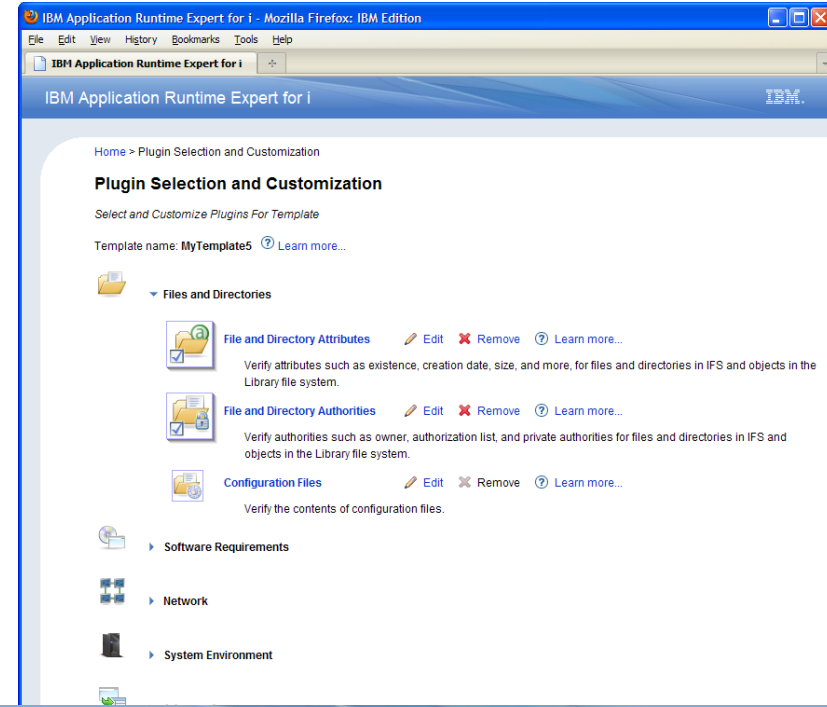
Hub Center
-- Select Action --

Select	Node	Release	BRMS PTF	BRMS Status	Report Definitions	Failed Reports	Successful Reports	Reports not Ran	Pending Network Transactions	Description
<input type="checkbox"/>	<a href="#">Appn.Kitkat</a>	V6R1M0	SI46339	Connected	2	2	0	0	0	
<input type="checkbox"/>	<a href="#">Appn.Lp86ut27</a>	V7R1M0	SI46340	Connected	2	2	0	0	0	NONE
<input type="checkbox"/>	<a href="#">Appn.Lp87ut27</a>	V7R1M0	SI46340	Connected	4	3	1	0	283	NONE
<input type="checkbox"/>	<a href="#">Appn.Marisis</a>	*NONE	*NONE	Not connected	4	4	0	0	0	NONE
<input type="checkbox"/>	<a href="#">Appn.Mounds</a>	V5R4M0	SI46335	Connected	3	2	1	0	1806	Test Node: Mounds
<input type="checkbox"/>	<a href="#">Appn.Rchassq2</a>	*NONE	*NONE	Not connected	2	2	0	0	0	
<input type="checkbox"/>	<a href="#">Appn.Rchasyum</a>	V6R1M0	SI46339	Connected	4	1	3	0	37	Test Node: RCHASYUM
<input type="checkbox"/>	<a href="#">Appn.Reeses</a>	V6R1M0	SI46339	Connected	2	2	0	0	0	
<input type="checkbox"/>	<a href="#">Appn.Test</a>	*NONE	*NONE	Not connected	2	2	0	0	0	NONE
<input type="checkbox"/>	<a href="#">Appn.Twix</a>	V5R4M0	SI46335	Connected	2	2	0	0	0	NONE
<input type="checkbox"/>	<a href="#">Appn.X0716p2</a>	V6R1M0	SI46339	Connected	2	1	1	0	0	NONE
<input type="checkbox"/>	<a href="#">Appn.X0716p3</a>	V7R1M0	SI46340	Connected	2	2	0	0	0	NONE

Page 1 of 2
1 Go
Rows 12
Total: 17 Filtered: 17

# Application Runtime Expert for i

- Verify runtime attributes & environment in an consistent and automated manner
  - Creates a template for well running application
  - Performs health check against current environment
  - Identifies differences between template and actual runtime attributes
  - **Schedule on a regular basis!**
  
- Application Runtime Attributes
  - File/Directory Authorities and Attributes
  - Compare native IBM i object attributes
  - Attributes in property/http/xml configuration files
  - User profiles
  - PTFs
  - System Values
  - Products installed
  - TCP/IP Network verification and configuration
  - Environment variables
  - Ports in use
  - Run & verify SQL
  - Run & verify results of CL commands





# From Collaboration to Social



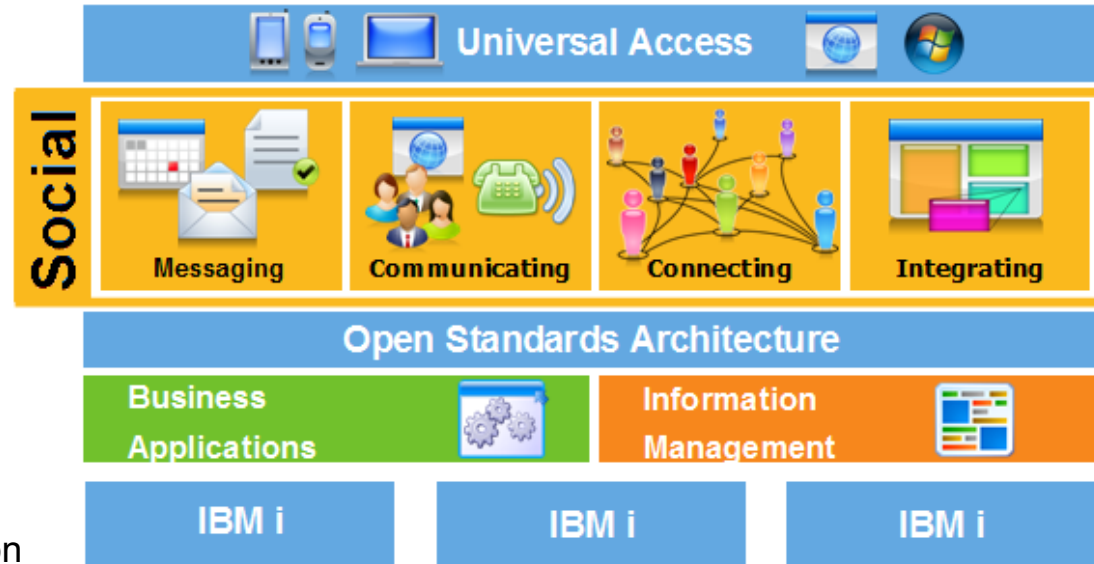
Social collaboration for IBM i

<https://www.ibm.com/developerworks/ibmi/social>



# IBM Social Software for IBM i 7.2 Everything Social, Mobile Everywhere!

- IBM Domino 9.0.1
  - Enterprise messaging & collaboration
- IBM Notes Traveler 9.0.1
  - Mobile access to your mail & calendar
- IBM Connections 5.0
  - Enterprise social software
- IBM Sametime 9.0
  - Real-time unified communication
- Additional products
  - IBM Enterprise Integrator 9.0.1
    - Exchange Domino data with 3<sup>rd</sup> party data source



**IBM i Supports Consolidation of x86 Workloads!**

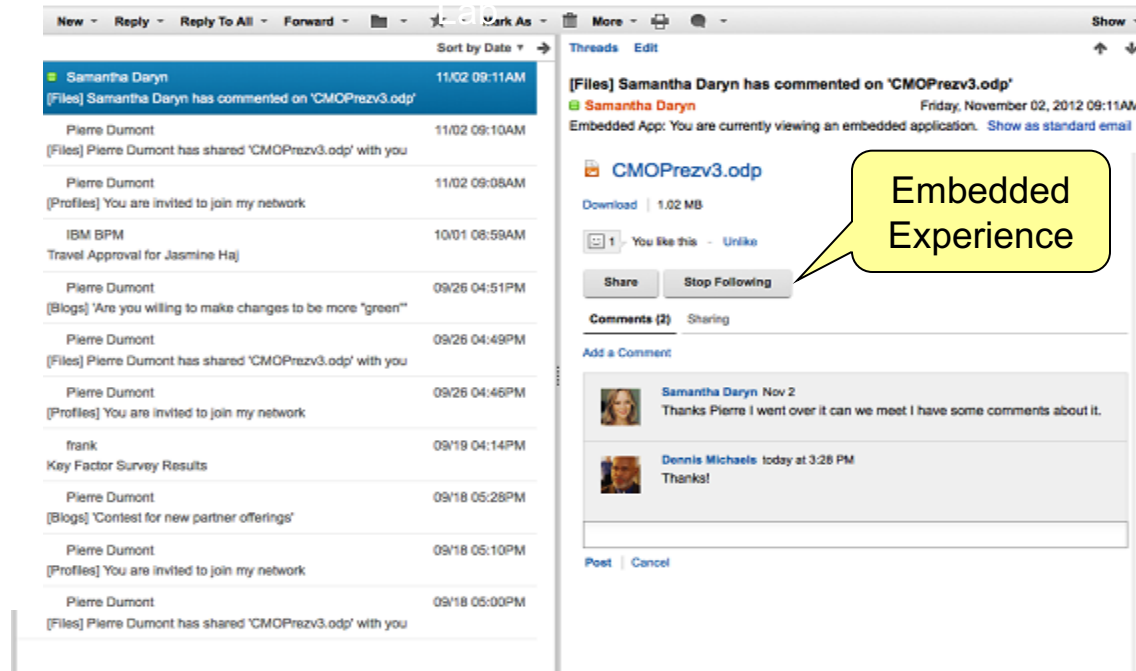
**For the latest information, see:**  
<https://www.ibm.com/developerworks/ibmi/social>  
<http://www.ibm.com/systems/resources/releasesuport.pdf>



# IBM Domino 9.0.1 Social Edition

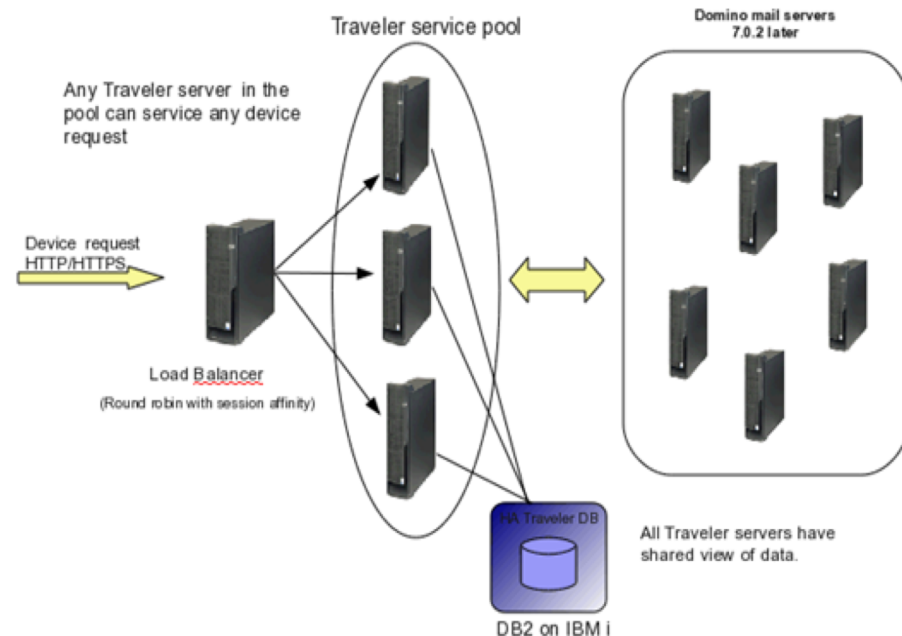
- Integration with IBM Connections
  - Accessing Domino mail from Connections directly
  - Store attachments in Connections Files
  - OpenSocial Component
  - Embedded experience
- Modern & ease user experience
  - IBM One UI
  - Notes Browser Plugin
- Security enhancement
  - SHA2, OAuth, ...
- Serviceability
  - QoS, DBMT, ...

- IBM i Specific enhancement
    - 64bit JVM support
    - Performance enhancement
      - Adaptive code generation
      - Advanced Argument Optimization
- 5+% CPU utilization improvement in LAB



# IBM Notes Traveler 9.0.1

- No charge mobile offering for IBM Lotus Notes® and Domino® users
- Full-featured e-mail for smart phones and tablets
- Read and compose Lotus Domino encrypted mail
- Search corporate directory for contacts
- Adheres to important corporate policies and safeguards sensitive corporate data
- Support remote wipe for lost or stolen devices
- Data on device is encrypted on Apple iOS, Google Android and Nokian Symbian devices
- Support both Standalone mode and High-Availability mode deployments



# IBM Connections 5.0



## Home page

See what's happening across your social network



## Profiles

Find the people you need



## Communities

Work with people who share common roles and expertise, media gallery and ideation



## Activities

Organize your work and tap your professional network



## Blogs

Present your own ideas, and learn from others



## Bookmarks

Save, share, and discover useful web-based content



## Files

Post, share, and discover documents, presentations, images, and more



## Forums

Exchange ideas with, and benefit from the expertise of others



## Social Analytics

Discover who and what you don't know via recommendations and metrics



## Micro-blogging

Reach out for help or share news with your social network



## Wikis

Create and share web content together with your teams and professional network



## Mobile

Access Connections anywhere, anytime with mobile & tablet access



## Libraries/Content Manager

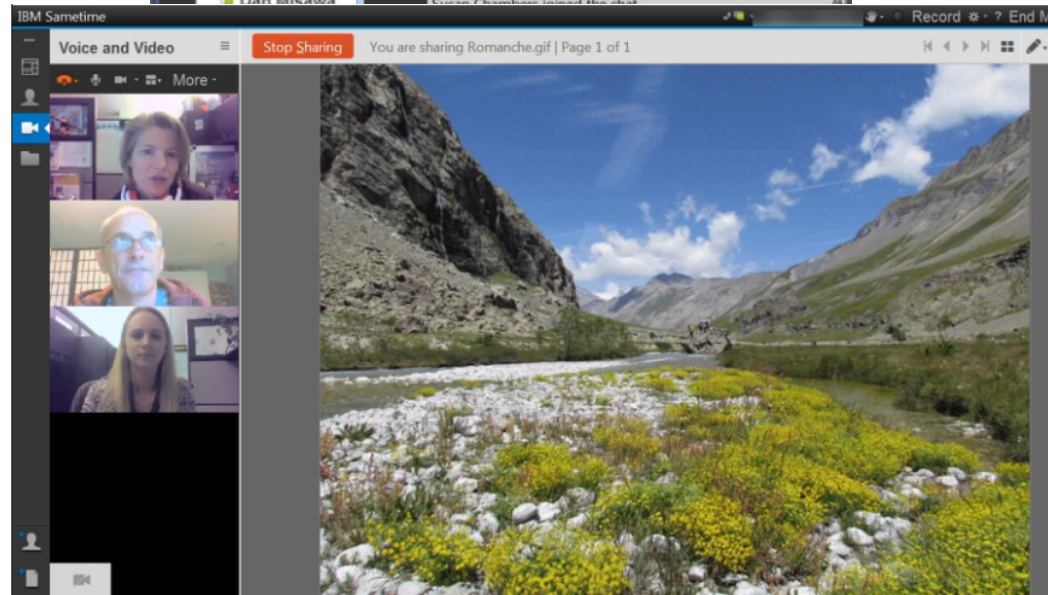
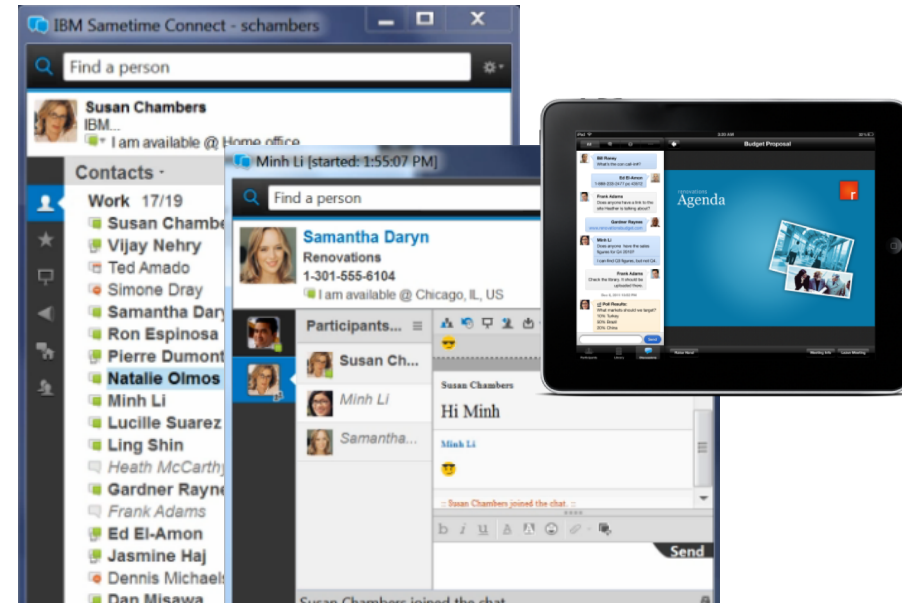
Document mgt with social capabilities, e.g. check in/out, versioning, workflow, tagging, commenting, "like", etc

\*\*\*Filenet needs to run on AIX or x86 Linux

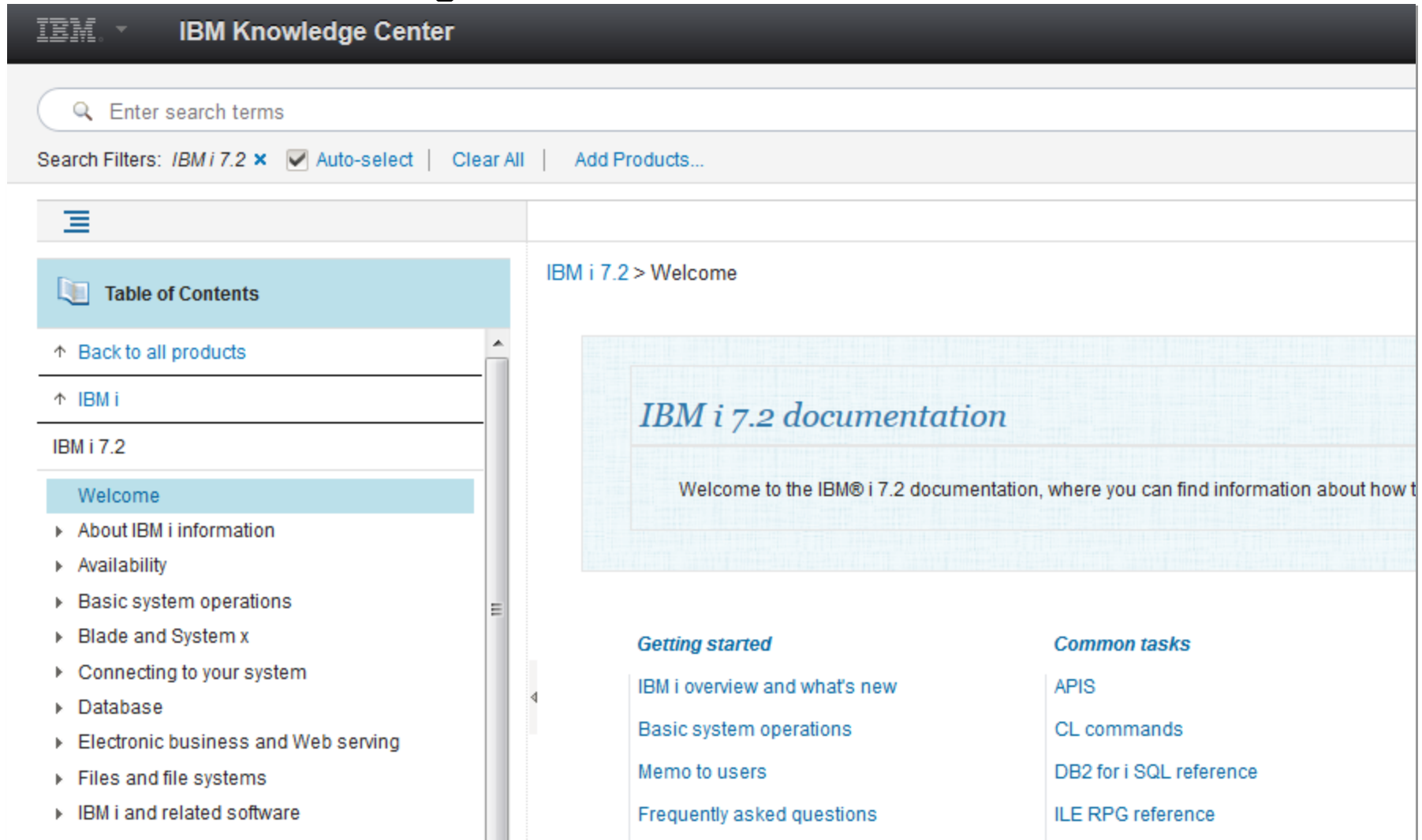
# IBM Sametime 9.0

- Modernized User Experience
- Continuous presence HD video through integrated software MCU
- Voice & Video on iOS & Android devices
- Tighter integration with IBM Connections
- Remove classic meeting
  
- Sametime for i supports:
  - Sametime Community Server
  - Sametime Meeting Server
  - Sametime Proxy Server
  - Sametime Gateway Server
  - Sametime System Console

\*\*\*Media service available only on x86 Linux



# IBM i IBM Knowledge Center



The screenshot shows the IBM Knowledge Center interface for IBM i 7.2. At the top, there is a search bar with the text "Enter search terms" and a magnifying glass icon. Below the search bar, there are search filters: "Search Filters: IBM i 7.2 x" (with a close icon), "Auto-select" (checked), "Clear All", and "Add Products...".

On the left side, there is a navigation menu with a hamburger icon at the top. The menu items are:
 

- Table of Contents
- Back to all products
- IBM i
- IBM i 7.2
  - Welcome (highlighted)
  - About IBM i information
  - Availability
  - Basic system operations
  - Blade and System x
  - Connecting to your system
  - Database
  - Electronic business and Web serving
  - Files and file systems
  - IBM i and related software

The main content area displays "IBM i 7.2 > Welcome". Below this, there is a large blue box with the text "IBM i 7.2 documentation" and "Welcome to the IBM® i 7.2 documentation, where you can find information about how t".

At the bottom of the main content area, there are two columns of links:
 

- Getting started**
  - IBM i overview and what's new
  - Basic system operations
  - Memo to users
  - Frequently asked questions
- Common tasks**
  - APIS
  - CL commands
  - DB2 for i SQL reference
  - ILE RPG reference

[http://www-ibm.com/support/knowledgecenter/ssw\\_ibm\\_i\\_72/](http://www-ibm.com/support/knowledgecenter/ssw_ibm_i_72/)




# IBM i updates on developerWorks

developerWorks®
Technical topics
Evaluation software
Community
Events

developerWorks > Technical topics >


## IBM i

IBM articles, tutorials, and technical resources for IBM i users



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### Featured article



#### IBM i 7.2 – The great beyond

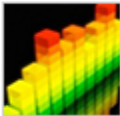
There is a wealth of new capabilities available with the IBM i 7.2 release. In this article, you will learn about some of the database, security, manageability, and mobile device integration enhancements that keep your IBM i solutions well-positioned for today and into the future.

### IBM i Technology Updates




---

### Spotlights



#### IBM i TCP/IP redundancy and virtual Ethernet

Network virtualization and redundancy are the key techniques for keeping systems available while simplifying hardware management and reducing capital costs. This article describes how to combine Ethernet and IP virtualization and redundancy techniques using IBM i.



#### Building an STRSQL utility with PowerRuby

### Products and downloads

- [→ Products and solutions](#)
- [→ Downloads and tools](#)

---

### Connect

---

### Support

<http://www.ibm.com/developerworks/ibmi/>



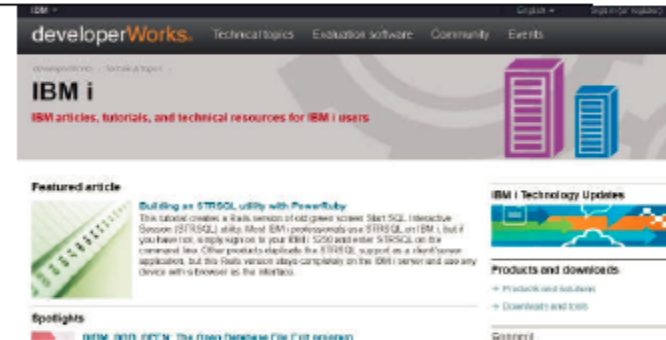
# Social Media for IBM i

## ■ DeveloperWorks

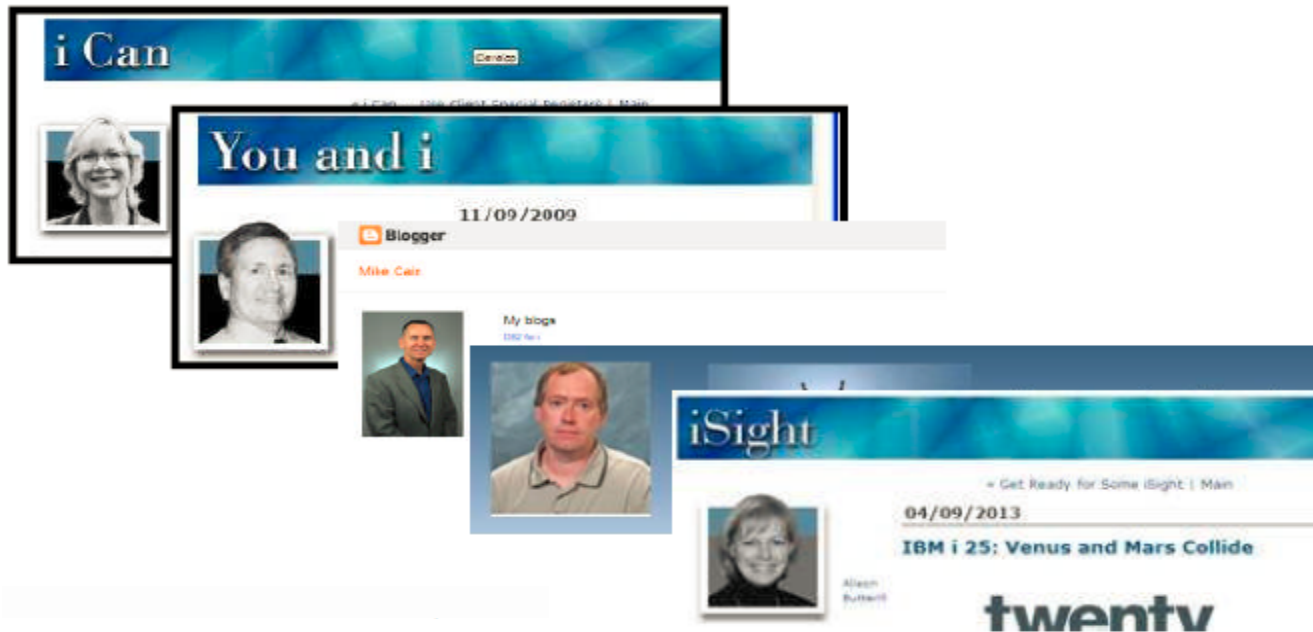
- Main page: <http://www.ibm.com/developerworks/ibmi>
- Technology Refresh Updates:
  - <http://www.ibm.com/developerworks/ibmi/techupdates>

## ■ Blogs

- Steve Will: [http://ibmsystemsmag.blogs.com/you\\_and\\_i/](http://ibmsystemsmag.blogs.com/you_and_i/)
- Dawn May: [http://ibmsystemsmag.blogs.com/i\\_can/](http://ibmsystemsmag.blogs.com/i_can/)
- Mike Cain: <http://db2fori.blogspot.ca/>
- Tim Rowe: [blogs.systemideveloper.com](http://blogs.systemideveloper.com)
- Alison Butterill <http://ibmsystemsmag.blogs.com/isight/>



#ibmi  
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[@DawnMayiCan](#)  
[@SAPonIBMi](#)  
[@Forstie\\_IBMi](#)  
[@ianpjarman](#)



**i**thankyou