




Welcome to the Waitless World

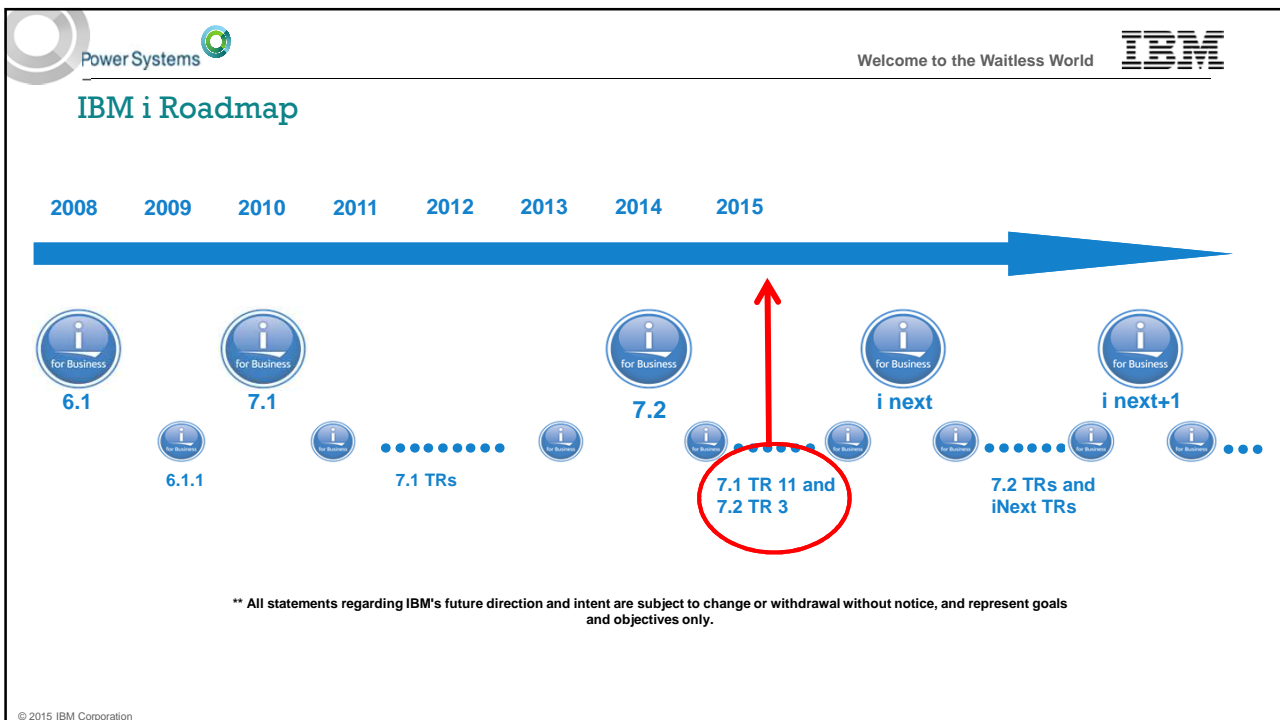
IBM i : the latest evolution




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Power S822 & IBM i

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IBM i 7.2 TR3 or IBM i 7.1 TR11 on Power S822

Special terms/conditions

Proposal:


1. All S822 will be at P10 SW Tier and have maximum of 2 Cores per LPAR
2. ONLY VIOS attached disk, for all models
3. Business As Usual for User entitlements and SWMA at P10 level


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Power S822 & IBM i

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IBM i 7.2 TR3 or IBM i 7.1 TR11

Special terms/conditions



- Only P10 software tier (P20 used on 2-socket S824)
- S822 with or without PurePower
- Maximum of 2 cores per partition -- multiple partitions per server supported
- All IBM i I/O virtualized through VIOS. No non-VIOS I/O.
 - No Async/Bisync PCIe adapters (can use IBM i 7.2 with OEM LAN-attached box for Async including Fax/400)
 - No Crypto cards
 - If using disk/SSD in system unit or EXP24S I/O drawer for IBM i it must use 4k byte sectors, not 5xx byte sectors
- CBU feature #0444 not announced Oct 2015




Plus normal 2U limitations of smaller physical server vs 4U server -- smaller memory, fewer PCIe slots, fewer PCIe I/O drawers, subset of PCIe I/O card as full-high cards won't fit including any PCIe SAS adapters with write cache.

Minimum code levels required: IBM i 7.2 TR 3 or IBM i 7.1 TR 11, VIOS 2.2.3.52, FW 840, if using HMC then HMC 840

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Other IBM i Hardware Announcements Welcome to the Waitless World



Multipath Support for Tape

- IBM i 7.2 TR 3 adds Automatic Fail-over for many scenarios
 - Active path is moved when operation fails
 - Tape operation completes without user intervention
 - Especially useful for those doing unattended back-ups
- IBM i 7.2 TR 2 (previously announced)
 - Redundancy for up to 8 paths (optional preferred path specify)
 - Native and VIOS NPIV attachment supported



Easier transition to different media types DUOPT of IPL-capable media

- Target media does not need to match physical source media
- IBM i 7.2 TR 3


LTO 7 tape technology support

- IBM i 7.2 TR 3 or IBM i 7.1 TR11

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Other IBM i Hardware Announcements Welcome to the Waitless World



Support for IBM i virtualization configurations with Little Endian Linux client partitions

- Better integration with Linux workloads
- Let IBM i partition be the I/O server partition
- IBM i 7.2 TR 3

HDD/SSD RAID array start time reduction

- IBM i 7.2 TR 3


VLAN tag support for network boot and install

- IBM i 7.2 TR 3

Support HyperSwap function of the IBM SAN Volume Controller and Storwize


- Support Enables highly available disk volumes to be accessible across 2 sites located kilometers/miles apart
- IBM i 7.2 TR 3

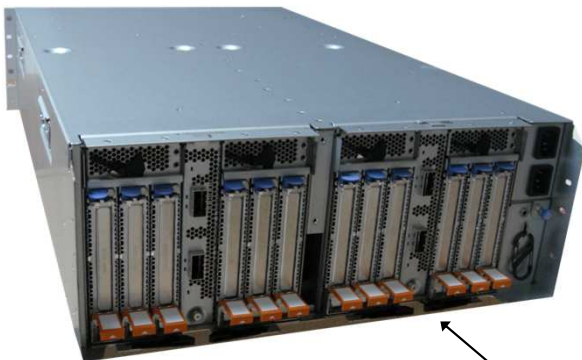
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PCIe Gen3 I/O Drawer Oct 2014

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Rear view

Fan-out Module
6 PCIe Gen3 Slots
4 x8 & 2 x16

Fan-out Module
6 PCIe Gen3 Slots
4 x8 & 2 x16




Front view

- 12 PCIe Gen3 slots
- 4U drawer
- Full high PCIe slots
- Hot plug PCIe slots


- More flexibility
- More reliability
- More configuration flexibility

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New HMC Options

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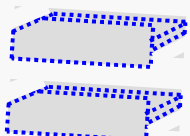


- Refreshed rack-mounted HMC
 - For POWER6 and later servers
 - 7042-CR9 --- follow-on to CR8
- New HMC virtual appliance (vHMC)
 - For POWER6, POWER7, POWER8 servers
 - Same functionality as traditional HMC (version 8)
 - Runs as virtual machine on x86 server






Options for attachment to a server

 <p>One or two HMCs</p>	 <p>One vHMC and one HMC</p>	 <p>One or two vHMCs</p>
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7042-CR9 HMC Details

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- For POWER6 and later servers
- 7042-CR9 --- follow-on to 7042-CR8
- Normal technology refresh
- Similar price to CR8


- Refreshed rack-mounted HMC
 - 2.4GHz Intel Xeon Processor
 - 16GB to 192GB memory (#EM20 16GB feature code)
 - Most clients expected to use 16GB or 32GB for HMC
 - One or optionally two 500GB SATA disk drives
 - Second drive allows RAID1 mirroring protection (recommended/defaulted)
 - Support any two of the eight physical hot-plug SFF bays (max 2 supported)
 - DVD-RAM
 - Four integrated Ethernet ports
 - Six USB ports (two front, four rear)
 - One PCIe slot
 - One or two power supplies (two recommended for hot-plug redundancy)
 - 1U (1 EIA)
 - Like CR8, does not offer an internal or external modem (or support one)
 - For POWER6 and later servers
 - 7042-CR9 --- follow-on to CR8

- HMC code level 8.4.0 or later
- 1U (1EA) rails included with CR9 (no separate feature code)



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HMC Virtual Appliance Details

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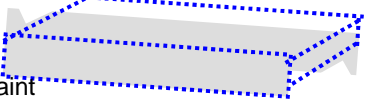


- IBM Virtual HMC Complete Software offering
 - License plus software maintenance
 - PID – 5765-HMV
 - Approximately \$3k price including 1 year SW maint

- Virtual HMC Runs
 - On x86 Hardware (provided by client)
 - Under KVM or VMware virtualization (provided by client)
 - Approximately \$3k price including 1 year SW maint

- New vHMC Complete Software offering
 - Activation engine – provides configuration on first boot
 - Accept License, locale, network, SSH, NTP
 - Allow second virtual disk multiple for /data

- Manages any POWER6 or later Power servers
- Version 8 HMC firmware
- Can be used with or without hardware HMCs



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LTO7

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Ultrium LTO Generation 7

- Over 2X LTO6 capacity
- Drive rated at nearly 2X native speed, however some Power development contacts believe effective speed due to connection and internal stacks will be modestly better than LTO6.
- 6 TB capacity yields 15 TB with 2.5 : 1 compression
 - Higher compression expected than LTO6 (only 2.0 : 1)
- Data rate up to 300 MB/sec with compression
- Read/Write on Ultrium 7 and Ultrium 6 cartridges
- Read on on Ultrium 5 cartridges



IBM tape options with LTO7

- 7226-1U3 Multi-media Enclosure
 - SAS attached #8441
 - Fibre Channel attached #8446
- TS2900 Tape Autoloader
- TS2270 SAS Tape Drive H7S
- TS3100 / TS3200 Tape Libraries
- TS4500 Tape Library
- TS3310 Tape Library

	LTO5	LTO6	LTO7
Native data capacity without compression	1.5 TB	2.5 TB	6 TB
Max uncompressed speed	140 MB/s	160 MB/s	300 MB/s *

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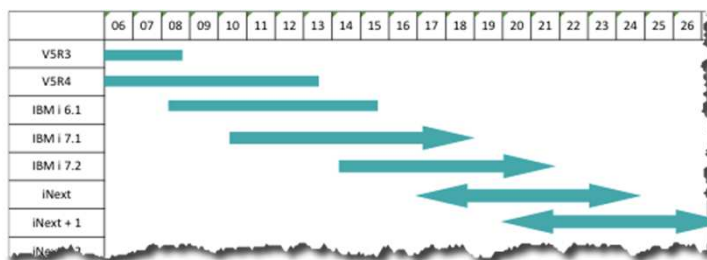
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IBM i Support for 6.1: A Reason to Call



- Clarification of September 9, 2014 announcement
 - IBM i 6.1 withdrawn from Marketing Dec 14, 2014
 - IBM i 6.1 withdrawn from Support Sept 30, 2015
 - IBM i 6.1 INCLUDES IBM i 6.1.1

Extended Service Option for clients at 6.1 or 6.1.1.

- http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_ca/6/897/ENUS615-016/index.html&request_locale=en
- The service extension will require SWMA and an additional uplift of 60%
 - (total amount is 160% of existing SWMA)

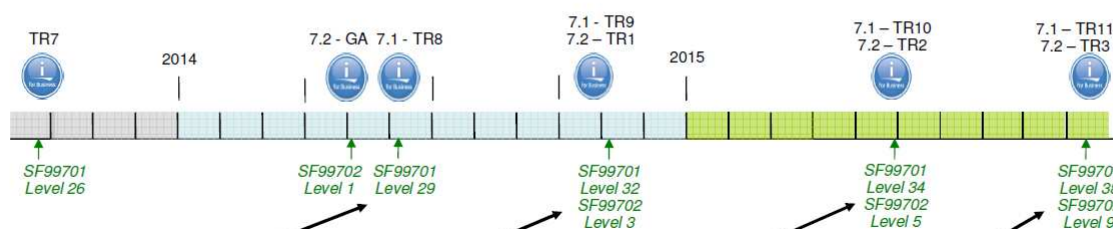
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IBM i TR 3 (i 7.2) and TR 11 (i7.1)

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DB2 for i – Enhancements delivered via DB2 PTF Groups

IBM i 7.1 & 7.2

7.1 - TR8&TR9 timed Enhancements:

- Generate SQL procedure
- Program & Package statement level statistical catalogs
- Pipelined Functions
- Regular Expressions
- Padding Scalar Functions

7.2 – TR1 timed Enhancements:

- CREATE OR REPLACE support on MASK and PERMISSION
- DB2 Built-in Global Variables for job name
- System Limits Phase 3 - IFS
- And more...

TR2 / TR10 Enhancements

- Create OR REPLACE table
- JSON – DB2 Store Technology Preview
- SQE Performance improvements
- And more...

Enhancements in TR3 / TR11:

- LIMIT and OFFSET
- Guardium V10 and other database security monitoring enhancements
- SQE Performance improvements
- More IBM i Services
- New SQL built-in functions
- Enhancements for SAP on i clients

Enhancements delivered by PTF are documented here:
www.ibm.com/developerworks/ibmi/techupdates/db2

DB2 for i – Application Development

SQL Programming enhancements

- LIMIT and OFFSET
- Remote 3-part name support on ASSOCIATE LOCATOR
- CREATE VARIABLE <name> FOR SYSTEM NAME <srvgm-name>
- Remove the 8-80 Column restriction for RPG (SQL Precompiler)
- Debugger improvements for LANGUAGE SQL users

Query enhancements

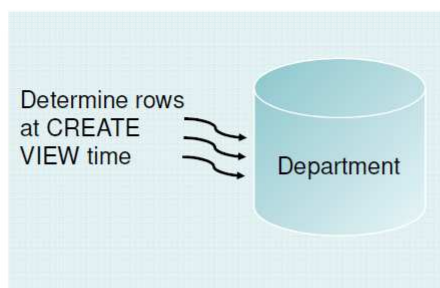
- Views with Global variables in the WHERE clause can be insert-able
- New Scalar functions
 - OVERLAY
 - LOCATE_IN_STRING & INSTR



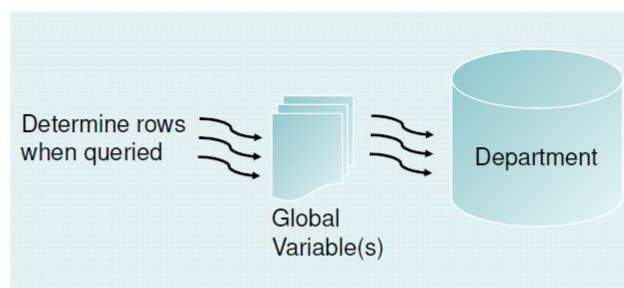
Flexible Views

- Traditional views are based upon a query that is locked in at create time
- Views with WHERE clause references to DB2 built-in global variables or DB2 global variables are flexible
- With the latest DB2 PTF Group, these views are eligible to be insertable, updateable, and deletable

Traditional View



Flexible View



DB2 for i – Performance

Availability enhancement

- Improved internal management of SQL packages for SAP clients

Use the `SQL_STMT_COMPRESS_REUSE_MIN` QAQQINI control to extend the lifespan of a Process Extended Dynamic *SQLPKG

- ☐ 0 → (default) The statement reuse count is not considered when performing package compression
- ☐ 1-32767 → The minimum number of times a statement has to be reused in order for it to remain in the package at compression time



```
INSERT INTO QUSRSYS.QAQQINI
VALUES('SQL_STMT_COMPRESS_REUSE_MIN', 5, DEFAULT)
```

DB2 for i
EVI
Index Advisor
Media Preference
SQL Query Engine
In-memory tables
Memory Preference
Encoded Vector Indexes
Inline Code Gen



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DB2 for i – Security & Compliance

Start Database Monitor (STRDBMON) command enhancements

- Support for Not Equal operator (job, user and table filters)

Guardium enhancements

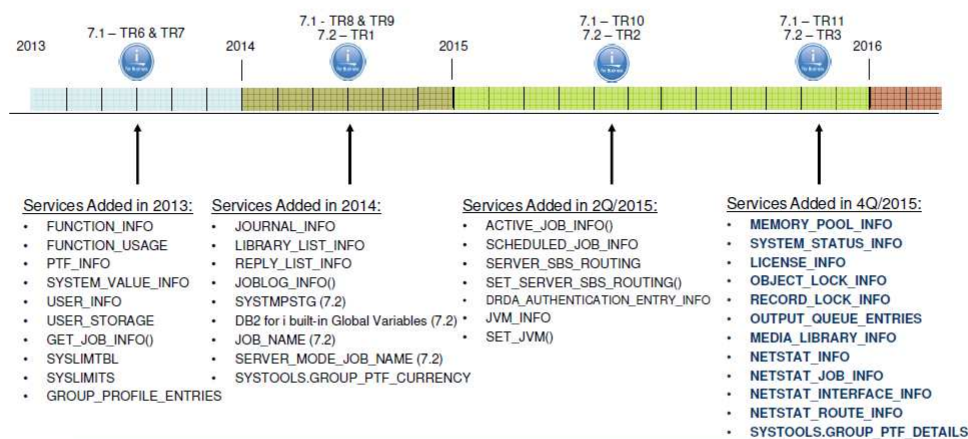
- Guardium V10 GA'd on August 28th
- Guardium Vulnerability Assessment (VA) for IBM i
- Guardium Database Activity Monitor (DAM)
 - ☐ Support for multiple policies
 - ☐ IBM i side support for Not Equal operator
 - ☐ Encrypted collector communication
 - ☐ Load balancing
 - ☐ Failover

Database Name	Status	Server Started	Start Time	Java SQL Auth'd	SQLs Processed
Q04A27.cch.vgdata	YES	2015-07-22 15:47:35	2015-07-22 15:47:35	YES	458/26

DB2 for i Enterprise proven
Guardium
Vulnerability Assessment
Secure Comprehensive Monitoring
Database Monitor Compliance IBM i Advanced

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IBM i Services for SQL users



<http://ibm.biz/DB2foriServices>

LICENSE_INFO

- The Work with License Information (WRKLICINF) command lacks OUTFILE support
- Implement improved Systems Management using SQL
- Proactive resource management

Added in TR11 / TR3

```
--
-- Return information about all licensed products and features
-- that will expire within the next 2 weeks.
--
SELECT * FROM QSYS2.LICENSE_INFO
WHERE LICENSE_EXPIRATION <= CURRENT DATE + 14 DAYS
```

PRODUCT_ID	COMPLIANCE_TYPE	LICENSE_TERM	FEATURE_ID	PROCESSOR_GROUP	GRACE_PERIOD	USAGE_LIMIT_UPDATED
5733QU2	*KEYED	V1R1M2	5101	P50		702014-10-04 13:05:10
5733QU2	*KEYED	V1R1M2	5102	P50		702014-10-04 13:05:11
5733QU2	*KEYED	V1R1M2	5104	P50		702014-10-04 13:05:11
5733QU2	*KEYED	V1R1M2	5105	P50		702014-10-04 13:05:12
5733QU2	*KEYED	V1R1M2	5106	P50		702014-10-04 13:05:12
5733QU2	*KEYED	V1R1M2	5107	P50		702014-10-04 13:05:13
5733QU2	*KEYED	V1R1M2	5108	P50		702014-11-03 13:13:26
5733QU2	*KEYED	V1R1M2	5109	P50		702014-11-03 13:13:26
5733QU2	*KEYED	V1R1M2	5110	P50		702014-11-03 13:13:26
5733QU2	*KEYED	V1R1M2	5111	P50		702014-11-03 13:13:26
5733QU2	*KEYED	V1R1M2	5112	P50		702014-11-03 13:13:26

DB2 for i – Navigator

IBM i Navigator

- Add Database content to Access Client Solutions (ACS):
 - ✓ Run SQL Scripts
 - ✓ SQL Performance Center
 - ✓ Web ↔ ACS Navigator interplay
- Include list support for Schemas → Constraints
- Add multiple View Entries support to Journal Viewer (IBM i Access for Windows only)

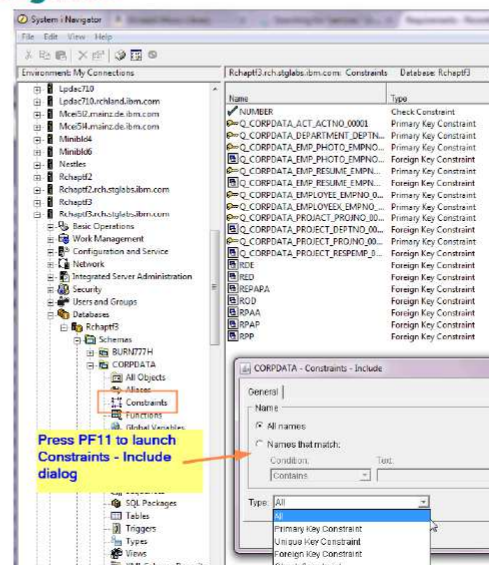


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DB2 for i – Navigator

Include list support for Schemas→Constraints

- Subset Constraints by:
 - ☐ Constraint Type
 - ☐ Name
- Similar support exists already for:
 - ☐ Aliases
 - ☐ Indexes
 - ☐ Functions
 - ☐ Procedures
 - ☐ Tables
 - ☐ Triggers
 - ☐ Views



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DB2 for i – TR3/TR11 Enhancements

How can you find out more?



- Read the details on the developerWorks Technology Updates wiki:
<http://www.ibm.com/developerworks/ibmi/techupdates/i72-TR3>
<http://www.ibm.com/developerworks/ibmi/techupdates/i71-TR11>
- Read my feature article on DB2 for i and TR3:
<http://www.mcpressonline.com/db2/what-s-new-in-db2-for-i-with-tr3.html>

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Other enhancements with TR 3 / TR11 :

- ❑ **Zend Server for IBM i (5639-ZC1-**
 - Is now level Zend Server 8.5 , with the latest PHP engine
- ❑ **IBM i Access Client Services:**
 - Includes now the SQL performance center and Run SQL scripts interface
- ❑ **Open Source for IBM i (5733-OPS) ;**
 - includes the industry-standard GCC compiler and tools for working in the open source world (Git, .zip,, .tar, bash, Python 2.7,...)
- ❑ **HTTP server**
 - now apache 2.4.12 level,

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Other enhancements with TR 3 / TR11 :

- ☐ **Integrated web services server:**
 - New features and capabilities to support REST an SOAP- based services
- ☐ **Rational developer Studio (5770-WDS)**
 - RPG : the entire source line can be used for free format code
- ☐ **Rational developer for i V9.5**
 - is enhanced for the latest RPG updates

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The Other Social Side of IBM i


- DeveloperWorks
 - Main page: <http://www.ibm.com/developerworks/ibmi>
 - Landing page for Refresh Updates: <http://www.ibm.com/developerworks/ibmi/techupdates>
- Blogs
 - Steve Will: http://ibmsystemsmag.blogs.com/you_and_i/
 - Dawn May: http://ibmsystemsmag.blogs.com/i_can/
 - Mike Cain: <http://db2fori.blogspot.ca/>
 - Tim Rowe: <http://www.iprodeveloper.com/blog/modern-i-zation-25/ibm-i>
 - Alison Butterill: <http://ibmsystemsmag.blogs.com/isight/>








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Personnel

- IBM i Team
 - Alison Butterill – Product Offering Manager
 - Linda Hirsch – Terms and Conditions; Offering Team Lead
 - Steve Finnes – partner for Solution Editions
- Power HA and CBU
 - Steve Finnes
- PowerVM
 - TR Bosworth
- Power Hardware
 - Edward Liu – ScaleOut Product Manager
 - George Gaylord / Bill Casey – Enterprise Server Product Manager
 - Mark Olson – I/O Product Manager (and all-around guru on hardware for IBM i)
 - BRMS (5770-BR1)
 - Modernizes storage tiering support (only 7.2)

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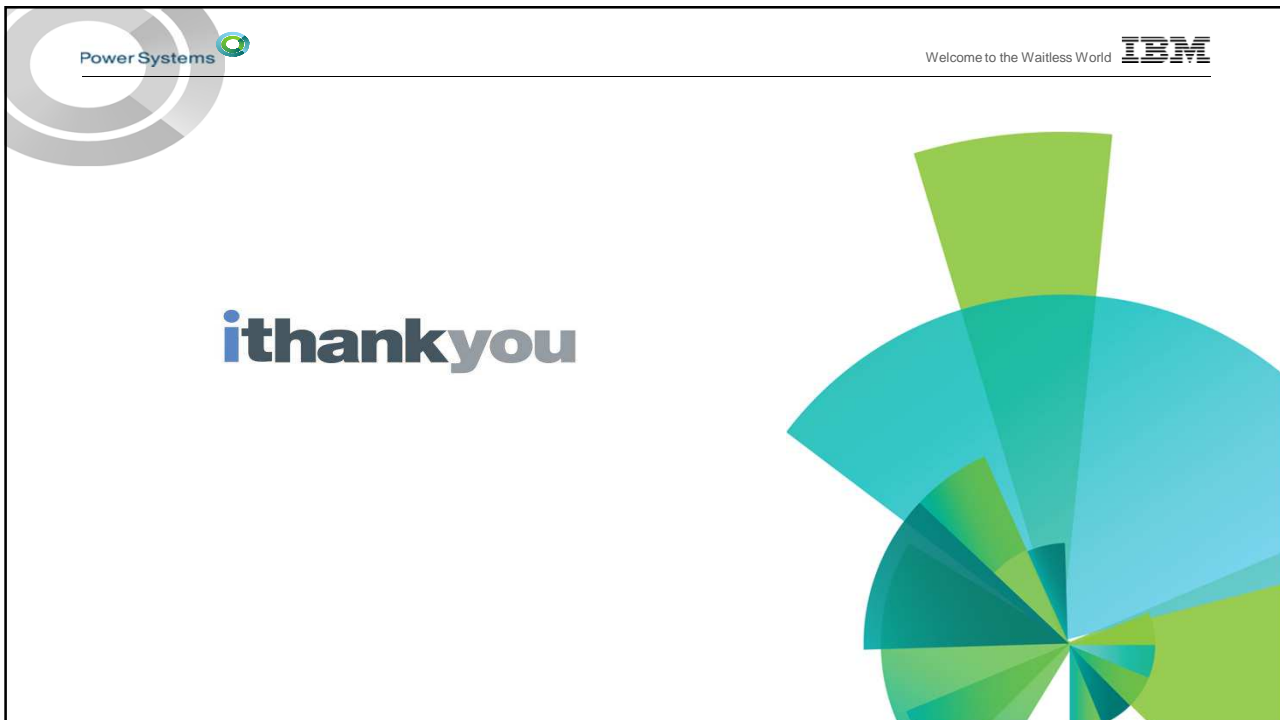


Personnel

- Dave Nelson – Director of Development, IBM i
 - Steve Will – Chief Architect of IBM i
 - Mark Anderson – Chief Architect for DB2 on i
 - Business Architects:

DB2 for i	Scott Forstie
App Dev and System Mgmt	Tim Rowe
Security, Communications	Jeff Uehling
Hardware and Firmware support	Nancy Uthke-Schmucki
IBM Collaboration Solutions (Domino, ST, Connections, Quickr), Integration of other Software products	Shuang Hong Wang
Compilers, Systems Management, LDAP	Yun Wang

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