Getting to Know IBM i Access Client Solutions

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Agenda

• IBM i Access Family
• Product Positioning
• Configuration
• 5250 Emulation
• Data Transfer
• Console
• Printer Output
• Shell Commands
• Break
• Deployment
• Database Enhancements
• Demonstration and Questions

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• The r7.2 / r7.1 IBM i Access Family of Products

• IBM i Access for Windows (5770XE1)
  – Client Access
  – Most Mature and Widely used Product
    • System i Navigator
    • 5250 Display & Printer Emulator
    • Data Transfer
    • Operations Console & Virtual Control Panel

• IBM i Access for Web / IBM i Mobile Access (5770XH2)
  – IBM i System Hosted HTML based Mobile Web Product
  – Robust Capability that has been Well Received
    • 5250 Interfaces
    • Print Access
    • Database Access
    • Remote Command

• IBM i Access for Linux (5770XL1)
  – Lightly Embraced Product specifically for Linux RPM Operating Systems
    • ODBC Provider
    • 5250 Display Emulator
    • Remote Command

- Data Access Providers
- Remote Command
- Print Drivers
- Integrated File System
- Commands
- Jobs
Key features from legacy desktop products were included with the IBM i Access Client Solutions core offering

- **Access for Windows – Desktop**
  - 5250 display and printer emulator
  - Data transfer
  - Printer Output
  - Operations Console
  - System i Navigator
  - Data drivers (ODBC, OLEDB, .Net)
  - Printer drivers

- **Access for Linux – Desktop**
  - 5250 emulator
  - ODBC driver
  - A small subset of the IBM i Access components

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**IBM i ACS – Platform Independent**

- **Runs anywhere that has Java™**
  - Java 1.6 or later
  - Java 1.8 Recommended

- **This includes:**
  - Windows
  - Mac
  - Linux
  - AIX
  - IBM i

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Application Packages

- Core offering (platform independent)
  - 5250 display and printer emulator
  - Data transfer
  - Printer Output
  - Console consolidation
  - Other misc features

- Windows Application Package (Available at G.A.)
  - Windows Installer MSI Package
  - Data drivers (ODBC, OLEDB, .Net)
  - Printer drivers

- Linux Application Package (Available at G.A.)
  - RPM and Debian Install Packages
  - ODBC driver

Product Availability

- IBM i Access Client Solutions is identified as LPP 5733-XJ1
  - Not an IBM i OS installable LPP

- The GA version of the product is available to customers with valid SWMA and IBM i OS r6.1, r7.1 or r7.2 and is downloaded from the IBM i Access Client Solutions or IBM Entitled Software Support (ESS) websites
  - Technote with example instructions

- Product distributed in zip files
  - Platform Independent Core Java product
    - From IBM iACS website: IBM/Access_v1r1.zip
    - On ESS: IBM.i_Access_Client_Solutions_LCD#_*zip
    - Contains product jar and other supporting files

  - Windows Application Package
    - IBM.i_Access_Client_Solutions__Win_AP_LCD#_*zip
    - Contains 32bit and 64bit Windows installers

  - Linux Application Package
    - IBM.i_Access_Client_Solutions__Linux_AP_LCD#_*zip
    - Contains Linux RPM and Debian installers

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Product Details

- Supported connecting to IBM i OS r7.2, r7.1 and r6.1
- IBM i OS supports IBM i Access Client Solutions exactly the same as IBM i Access for Windows
  - Checks out the same 57xxXW1 Licenses for 5250 and Data Transfer
  - Connects to the same IBM i Access Host Servers on the same ports in the same way
    - Exit programs will continue to have the same impact
    - Application Administration local policies will still be applied

Main User Interface

- Provide an easy to use launch point for features
Getting Started

- Product contains Documentation folder containing "QuickStartGuide" and "GettingStarted" documents
- "GettingStarted" can also be launched from Main User Interface

Product Positioning

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Three Products in One

- IBM i Access Client Solutions is comprised of 3 separate packages

**IBM i Access Client Solutions**

- Core offering (platform-independent)
- Windows Application Package
- Linux Application Package

- Instead of updating (Linux) or creating (Mac OS) platform specific products, a strategic decision was made to instead take the core functions of IBM i Access for Windows and bring them into a new platform independent product:
  - Significantly reduces administration costs by eliminating platform specific installer and supporting simple network drive deployment for most users
  - The need to still address functions that are platform specific are addressed with the Windows and Linux Application Packages

Decoupling Access for Windows

- IBM i Access for Windows or Client Access has been the platform for nearly everything needed to interact with your IBM i OS for a long time. From end users just needing a 5250 session, to a System Administrator, the same product and maintenance overhead is needed.
- Many of these functions are now available in different ways depending on the needs of the user or application environment.

- Access for Windows major functions and where those functions are provided

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Dependencies

- IBM i Access Client Solutions Application Packages are built using the exact same infrastructure as the IBM i Access for Windows and IBM i Access for Linux products. Therefore they are mutually exclusive.

- The IBM i Access Client Solutions core platform independent product has no conflicts with either of the Linux or Windows packages.

- IBM i Access Client Solutions does not provide any Navigator interface instead relying on the IBM Navigator for i web based infrastructure that was introduced with IBM i OS r6.1 and has continually been enhanced since
  - Name change from IBM Systems Director Navigator to IBM Navigator for i indicates a very large investment into improving the performance and usability of this interface
  - Key IBM i OS solutions like Performance Data Investigator and HAS tools are only available in Navigator for i
  - r7.2 GA timeframe introduces monitors and PTF interaction
  - A few things have/had reliance System i Navigator
    - Run SQL Scripts (NOT Anymore, Delivered in December 2015)
    - Database Visual Explain (Expected around July 2016)

Configuration
System Configurations

• Use the System Configurations panel to store connection information on the IBM i Systems that will be used.

System Configurations

• Create, Edit or Delete connection information for IBM i Systems that are used.
  – System Name: What is entered by the user to connect to this host
  – IP Address: What the PC’s DNS environment last returned when connecting to the System Name
  – Service Host Name: The System’s Console host name or IP address as configured
  – Description: Defined by the user when created
New System Configuration

- OK - Saves the information entered and closes the panel
- Save/New - Saves the information entered and clears the panel
- Cancel - Closes the panel without saving anything

Use SSL

- Use SSL specifies that the connection will be secured
- If the Certificate Authority negotiated is not trusted, the user will be prompted to add to trusted list
- There still is a Key Management utility if needed
Password Prompting

- Use default user name to prompt once for each system
  - Caches credentials for duration of desktop session
- Prompt for user name and password every time
- Use Shared credentials
  - First time for desktop session that a connection is made to a System configuration using this option the user will be prompted to provide User name & Password
  - These credentials will be cached for use by all System configurations set to this option
- Use kerberos authentication; do not prompt
  - No further IBM i Access Client Solutions configuration needed

5250 Emulation
5250 Emulation

- Opens an IBM Rational Host On Demand 5250 Telnet session to the current System

- Provides nearly identical interaction, look and feel to the Access for Windows PC5250 emulator
  - Keyboard Mapping
  - Keystroke Macros
  - Edit Colors
  - Toolbar Customization
  - Pop-Up keypad
  - Window Setup
  - Hotspots
  - Printer Emulation

- Also some New features
  - Tabbed Sessions
  - Mouse Wheel
  - Simplified Codepage
  - Screen History
  - Watermarks
  - Default Session

- Immediately Following - Session “My Emulator is Better than Yours”
Tabbed Sessions

- Tabbed Session support added in V1R1M4

Mouse Wheel

- Allows the use of the Mouse Wheel to perform 5250 Aid Key Functions -
  - Defaults to Page Up/Down
  - Shift and Control options added in V1R1M4 and default to ‘No Action’
Data Transfer
• Select the Data Transfer option
  – Will default to the current System

• Displays the Data Transfer interaction panel
  – Starts out with a Data Transfer to IBM i and Data Transfer from IBM i tab to the current System on the main panel
Data Transfer

- Data Transfer interaction panel
  - All active Data Transfer requests are displayed in a tab on this panel
  - Open Saved Requests
  - Save Requests
  - Create IBM i Files
  - Data Transfer Migration

Data Transfer Migration

- Access for Windows Data Transfer saved request migration
  - Migrate saved .dtt and .dtf files to IBM i Access Client Solutions .dttx and .dtfx files
Creating a request to run on the i

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Creating a request to run on the i

```
QSH Command Entry

or directory.
$>
pwd
/home/jgorzins
$
$> java -jar acsbundle.jar /plugin=dtbatch c1.dtxf
Running saved request c1.dtxf...
Transfer request is complete.
Transfer statistics: 06:00:02
Rows transferred: 12
$
$>
ls *.xlsx
output.xlsx
$
===>
```

F3-Exit  F6-Print  F9-Retrieve  F12-Disconnect  
F13-Clear  F17-Top  F18-Bottom  F21-CL command entry

Data Transfer to Active Spreadsheet

- Data Transfer mechanism to interact directly with spreadsheet
  - On a Data Transfer From IBM i Select “Active Excel Spreadsheet” for the output device.
  - Data Options can be used to modify query
Data Transfer to Active Spreadsheet

- Data Transfer mechanism to interact directly with spreadsheet
  - The results of the data transfer are placed into the active Excel spreadsheet book at the currently selected cell.

Data Transfer from Active Spreadsheet

- Data Transfer mechanism to interact directly with spreadsheet
  - On a Data Transfer to IBM i Select “Active Excel Spreadsheet” for the Input device.
  - The selection from the Excel Spreadsheet will be uploaded to the file on the IBM i.
Data Transfer with Active Spreadsheet

• Support:
  – Microsoft Excel
    • Windows
  – OpenOffice Calc
    • Windows
    • Linux

-- Usage tips

• Bitness must match!!! (32bit vs. 64bit)

• ACS will "activate" the connection and attach at the moment the dropdown item is selected!

• Select target/source location in spreadsheet before activation
  (for upload, select the range)
At the moment this is selected, the connection is activated.

"Name" field shows the workbook it attached to.
Data Transfer with Active Spreadsheet
-- Usage tips

“Details” button to see the specific sheet and starting cell.
In this example, Sheet 2, cell E14
• 5250 Console – Opens a interactive console to the current System
• Virtual Control Panel – Opens a Virtual Control Panel
• Hardware Management Interface 1 – Opens a web browser to the management console specified for the current System
• 5250 HMC Console

Virtual Control Panel

• Virtual Control Panel

• Service Functions
  – Providing options for service commands instead of providing the up and down arrows and enter

• Starting in V1R1M3 supported with LAN and HMC console types
Console Configuration

- **Locate Console**
  - Listens on your LAN for discovery data packets from systems with LAN Console configured
  - Dynamically open a 5250 Console or Virtual Control Panel to the system/partition located
HMC Probe Utility

- Probes an HMC for managed systems & partitions

Printer Output
• Lists and allows interaction with the printer output on the IBM i OS System

• Printer Output user interface
  – Allows the user to view, and download spooled files
Printer Output

• Edit -> Preferences
  – Download location
    • Where the downloaded file will be stored on the local workstation
  – Other
    • Determines if the printed output should be downloaded in PDF format if available
      - Requires IBM i OS r7.1 or later with the IBM Transform Services for i (5770TS1) product installed
      - If this is unchecked a .txt file will be generated

• View -> Set Filter
  – Allows the user to specify how the list of printed output is generated.
  – Either the User, Output Queue or both filters may be modified.
Shell Commands

- IBM i Access Client Solutions provides several shell or command line utilities that can be used outside of the graphical user interfaces.

- Basic syntax is (all on the same line)

  ```
  acslaunch_win-32.exe /plugin=<name> 
  [/system=<system>] [/options]
  ```

  - Or

  ```
  java -jar acsbundle.jar /plugin=<name> 
  [/system=<system>] [/options]
  ```

- The "/system" parm is only valid for commands pointed at a specific system.
Shell Commands

- Examples include:
  - Backup
    - Saves the client configuration to file
  - Restore
    - Restores the client configuration from file
  - Cfg
    - Creates system configuration
  - Dump
    - Requests all running client processes to write service information
  - Medic
    - Packages the existing logs and dumps
  - Log
    - Sets the client logging level

- And…
  - Logon
    - Manages user id and password caching
  - Props
    - Opens the Edit -> Preferences panel
  - Maint
    - Maintenance options
  - Ping
    - IBM i Access Client Solutions connection verification
  - Sm
    - Opens 5250 session manager
  - 5250
    - Opens 5250 display session
  - DTGui
    - Opens Data Transfer interaction panel
Shell Commands

- Shell Command Ping example

```
\$ ping server.example.com
PING server.example.com (192.168.1.1) 56(84) bytes of data.
64 bytes from server.example.com: icmp_seq=0 ttl=64 time=3.49 ms
64 bytes from server.example.com: icmp_seq=1 ttl=64 time=3.50 ms
--- server.example.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 999ms
rtt min/avg/max/mdev = 3.493/3.498/3.503/0.004 ms
```

Break
• IBM i Access Client Solutions is not installed to the client operating system, it is deployed.
  – There is no Windows Based Installer (setup.exe) installation program for the core of the product.

• Access Client Solutions Deployment
  – The deployment involves the client bundle being placed wherever it is desired to be executed from, and determining where the product settings are going to be stored.

• Client Bundle
  – Contains the Java executable Jar, properties file, platform specific start executables and javascript start samples, product documentation, and licensing notices.
  – All that is required to be deployed is the Java executable Jar
  – The rest is optional

• No JRE distributed
  – IBM i Access Client Solutions does not deploy a specific JRE
  – Relies on a Java 1.6 or higher JRE to be accessible on the client OS
Deployment: initial questions

- When thinking about deployment, ask yourself where you want to put:

1. the product image? (jar file)

2. the user’s settings? (system configurations, 5250 sessions, etc.)

Deployment: What might be our options?

- Computer (local)
- USB Thumb Drive
- Network Share
- Intranet (http:// URL)
Where can I put the image (jar file)?

Any filesystem (local, USB drive, network)

or

Intranet link (http:// or https://)

NOTE: A Java Runtime Environment (JRE) will also need to be accessible

Where can I put the user's settings?

Any filesystem (local, USB drive, network)
How do I place the product image?

- For filesystem locations, simply copy the file(s) and give users access.
- For http:// or https://, you have two options:
  - Static-serving the file from your web server
    Simply have your web server “serve” the file via a static link or some similar mechanism
    (requires the user to have file association for .jar, and for that association to launch a Java 6 JRE)
  - Using Java WebStart technology
    Only requires the user to have some Java installed
    (does not have to be Java 6)

How do I control the User Settings?

AcsConfig.properties

- This can be configured in the product configuration file, named “AcsConfig.properties”
- AcsConfig.properties is simply a list of configuration properties and values.
- These properties may also be specified on the command line
  - `D<property>=<value>`
- One such property is
  `com.ibm.iaccess.AcsBaseDirectory`
The following locations are searched for the AcsConfig.properties file:

1. In the classpath (that is, inside acsbundle.jar)
   - Sample, default version included with the product

2. In the same directory as acsbundle.jar
   - Sample, default version included with the product

3. By interrogating the "ibmi.acs.configuration" Java System property (the property’s value is assumed to be the properties file). One would set this property on the command line. Example:
   ```
   acslaunch_win-32.exe –
   Dibmi.acs.configuration=M:\AcsConfig.properties
   ```
   - IMPORTANT NOTE!! When the configuration file exists in multiple locations, the last one wins
**AcsBaseDirectory : Special keywords**

- `{USER}`: would be the current username (valid anywhere in the path)
- `{PRODUCTDIR}`: would mean the product's location in the file system (valid only at the beginning)
- `{TEMPDIR}`: would be the temporary directory (valid only at the beginning)
- `{ROOT}`: the root of the file system where the product is located (valid only at the beginning)
- `{CWD}`: the current working directory (valid only at the beginning)
- `{HOME}`: the user's home directory (valid only at the beginning)
- `{DEFAULT}`: the default place the product normally puts its settings (valid only at the beginning)

**Tip: use forward slashes ('/'), not backslashes ('\')**
POP QUIZ

You have deployed the ACS jar file on a network share. Most users map this share as “M:” (Linux users have mounted it as /mnt/shr1).

You want user settings to also be stored on the network share. You also want each user’s settings to be saved in its own location.

Is this even possible?

a) Yes
b) No
POP QUIZ

You have deployed the ACS jar file on a network share. Most users map this share as “M:” (Linux users have mounted it as /mnt/shr1).

You want user settings to also be stored on the network share. You also want each user’s settings to be saved in its own location.

What would be an acceptable value for com.ibm.iaccess.AcsBaseDirectory?

d) (ROOT)/ACS/(USER)
f) {PRODUCTDIR}/ACS/(USER)
Verifying location

Cliff’s notes: Common configurations

Default ("My Documents" on Windows, home dir otherwise)
com.ibm.iaccess.AcsBaseDirectory=

Network share
com.ibm.iaccess.AcsBaseDirectory=ROOT/config_directory/[USER]
com.ibm.iaccess.AcsBaseDirectory=PRODUCTDIR/config_directory/[USER]

Thumb drive!
com.ibm.iaccess.AcsBaseDirectory=PRODUCTDIR/config_directory
IBM i Access Client Solutions v1r1m4 provided Operating System specific Application deployment scripts to make deployment easier for an user.

Provided Deployment/Install Scripts

- Provided Javascript will copy the IBM i Access Client Solutions deployment to a specific location that makes sense for the Operating System being used.
• Provided install_acs Javascript on Windows will copy the IBM i Access Client Solutions deployment to
C:\Users\<WindowsUser>\IBM\ClientSolutions and will create shortcuts on the Desktop for the Main User Interface and 5250 Session Manager. It will also create file associations for the .hod, .bchx, .dttx & .dtfx if they haven’t already been created.

• Provided install_acs Javascript on Mac will copy the IBM i Access Client Solutions deployment to the Mac Applications folder.
Provided Deployment/Install Scripts

- Provided install_acs Javascript on Linux will copy the IBM i Access Client Solutions deployment to the locations of
  - /usr/share/applications/
  - /opt/ibm/iAccessClientSolutions/

- IBM i Access Client Solutions v1r1m4 Update 3 (October 2015) provided an update to these deployment scripts for Windows to allow an Administrator to control some of the deployment behavior and how the client behaves for the user.

  - An Administrator runs the script passing a parameter of /AdminConfig
    - The Administrator is then presented with a series of questions about the deployment, like if ACS should be ran locally or remotely, what functions will the user have, and if desktop icons should be created.
  - The IBM i Access Client Solutions product files are placed in a central location
  - Users run the deployment script and IBM i Access Client Solutions is deployed to their Windows workstation.

- More Details
Database Enhancements

- IBM i Access Client Solutions v1r1m5 released December 2015 added a section of Database functions
  - Run SQL Scripts
  - SQL Performance Center
  - Closing the gap to Access for Windows System i Navigator
    - Visual Explain expected around July 2016
Database Enhancements

• New Database Section

• Run SQL Scripts
Database Enhancements

- Run SQL Scripts

```
SELECT * FROM quartofts
```

```
SELECT QNAME, LOCATION, CITY, ZIPCODE, BALANCE FROM quartofts WHERE BALANCE > 0
```

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Database Enhancements

• Run SQL Scripts

```sql
SELECT * FROM sys.tables
```

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Database Enhancements

- Run SQL Scripts – Integration with IBM Navigator for i
  - IBM i Access Client Solutions v1r1m5 in conjunction with 2016 HTTP Group PTF Levels
  - A connection link is created between IBM Navigator for i
    - IBM i ACS authenticated/cached credentials are used to authenticate with IBM Navigator for i
      - No Kerberos integration
    - Allows IBM Navigator for i to send requests to IBM i Access Client Solutions
Database Enhancements

- Run SQL Scripts – Integration with IBM Navigator for i
Database Enhancements

- Run SQL Scripts – Integration with IBM Navigator for i

- SQL Performance Center
Database Enhancements

- SQL Performance Center

```
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```

Demo / Questions

```
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```
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IBM benchmark results can be found in the IBM Power Systems Performance Report at [http://www.ibm.com/systems/hardware/system_pwr.html](http://www.ibm.com/systems/hardware/system_pwr.html).

All performance measurements were made with AIX or AIX 5L operating systems unless otherwise indicated to have used Linux. For new and upgraded systems, AIX Version 4.3 or AIX 5L were used. All other systems used previous versions of AIX. The SPEC CPU2000, SPEC2000, LINPACK, and Technical Computing benchmarks were compiled using IBM high performance C, C++, and FORTRAN compilers for AIX 5L and Linux. For new and upgraded systems, the latest versions of these compilers were used: XLC, Enterprise Edition V7.3 for AIX, XLC C++ Enterprise Edition V7.0 for AIX, XL FORTRAN Enterprise Edition V9.1 for AIX, XL C/C++ Advanced Edition V7.0 for Linux, and XL FORTRAN Advanced Edition V8.1 for Linux. The SPEC CPU2000 (revised in 2000) tests used preprocessor, KAP 3.2 for FORTRAN and KAP/C 1.4.2 from Kuck & Associates and VAST-2 v4.01.08 from Pacific-Sierra Research. The preprocessors were purchased separately from these vendors. Other software packages like IBM ESSL, for AIX, MASS for AIX, and Kaisushige Goto’s BLAS Library for Linux were also used in some benchmarks.

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

TPC  
http://www.spec.org  
SPEC  
LINPACK  
http://www.national-index.html  
Pro/E  
http://www.pro.com  
GPI  
http://www.gpi.com  
NotesBench  
http://www.notesbook.org  
StreamMark  
http://www.xs.nv.net/stream  
SAP  
Oracle Applications  
http://www.oracle.com/products/benchmarks.html  
Pepsoft  
To get information on Pepsoft benchmarks, contact Pepsoft directly  
Sse  
Microsoft Exchange  
Veritas  
Fluent  
TOP500 Supercomputers  
http://www.top500.org  
Ideas International  
http://www.ideas.com/benchmark/bench/index.html  
Storage Performance Council  
http://www.storageperformance.org/results

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

TPC  
http://www.tpcc.org  
SPEC  
LINPACK  
http://www.national-index.html  
Pro/E  
http://www.pro.com  
GPI  
http://www.gpi.com  
NotesBench  
http://www.notesbook.org  
StreamMark  
http://www.xs.nv.net/stream  
SAP  
Oracle Applications  
http://www.oracle.com/products/benchmarks.html  
Pepsoft  
To get information on Pepsoft benchmarks, contact Pepsoft directly  
Sse  
Microsoft Exchange  
Veritas  
Fluent  
TOP500 Supercomputers  
http://www.top500.org  
Ideas International  
http://www.ideas.com/benchmark/bench/index.html  
Storage Performance Council  
http://www.storageperformance.org/results

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Notes on performance estimates

- rPerf for AIX
  - rPerf (Relative Performance) is an estimate of commercial processing performance relative to other IBM UNIX systems. It is derived from an IBM analytical model which uses characteristics from IBM internal workloads, TPC and SPEC benchmarks. The rPerf model is not intended to represent any specific public benchmark results and should not be reasonably used in that way. The model simulates some of the system operations such as CPU, cache and memory. However, the model does not simulate disk or network I/O operations.
  - rPerf estimates are calculated based on systems with the latest levels of AIX and other pertinent software at the time of system announcement. Actual performance will vary based on application and configuration specifics. The IBM eServer pSeries 640 is the baseline reference system and has a value of 1.0. Although rPerf may be used to approximate relative IBM UNIX commercial processing performance, actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration. Variations in incremental system performance may be observed in commercial workloads due to changes in the underlying system architecture.
  - All performance estimates are provided “AS IS” and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, and application sizing guides to evaluate the performance of a system they are considering buying. For additional information about rPerf, contact your local IBM office or IBM authorized reseller.

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

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