Oracle on Linux on System z Solutions and Support Update

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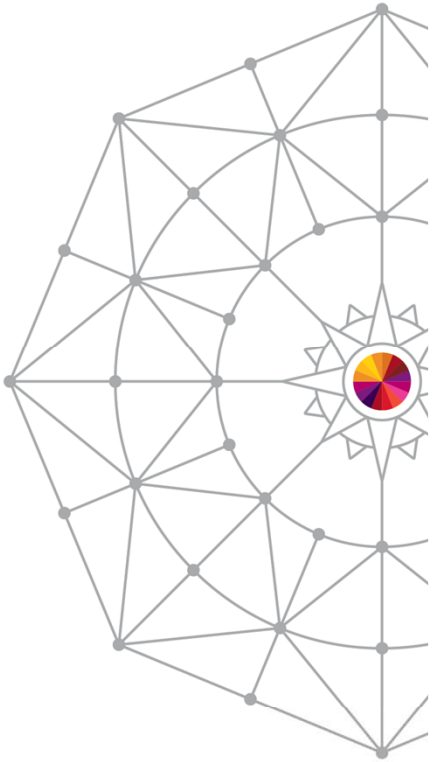
Rhoda Pereira, Oracle

Wednesday, August 5, 2014
Session Number 15948

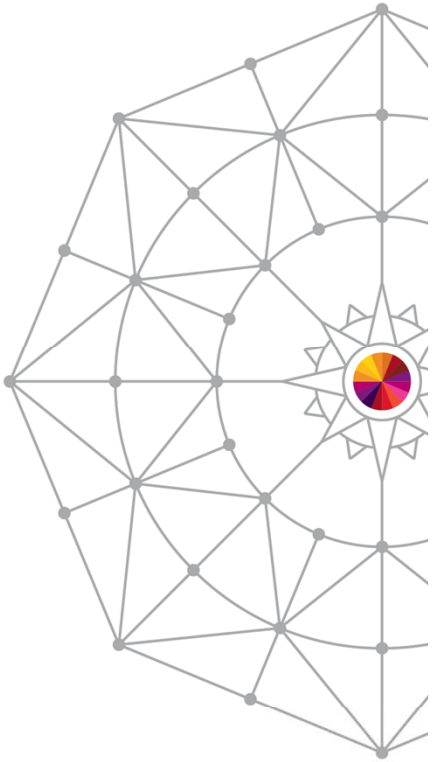


Test link: www.SHARE.org

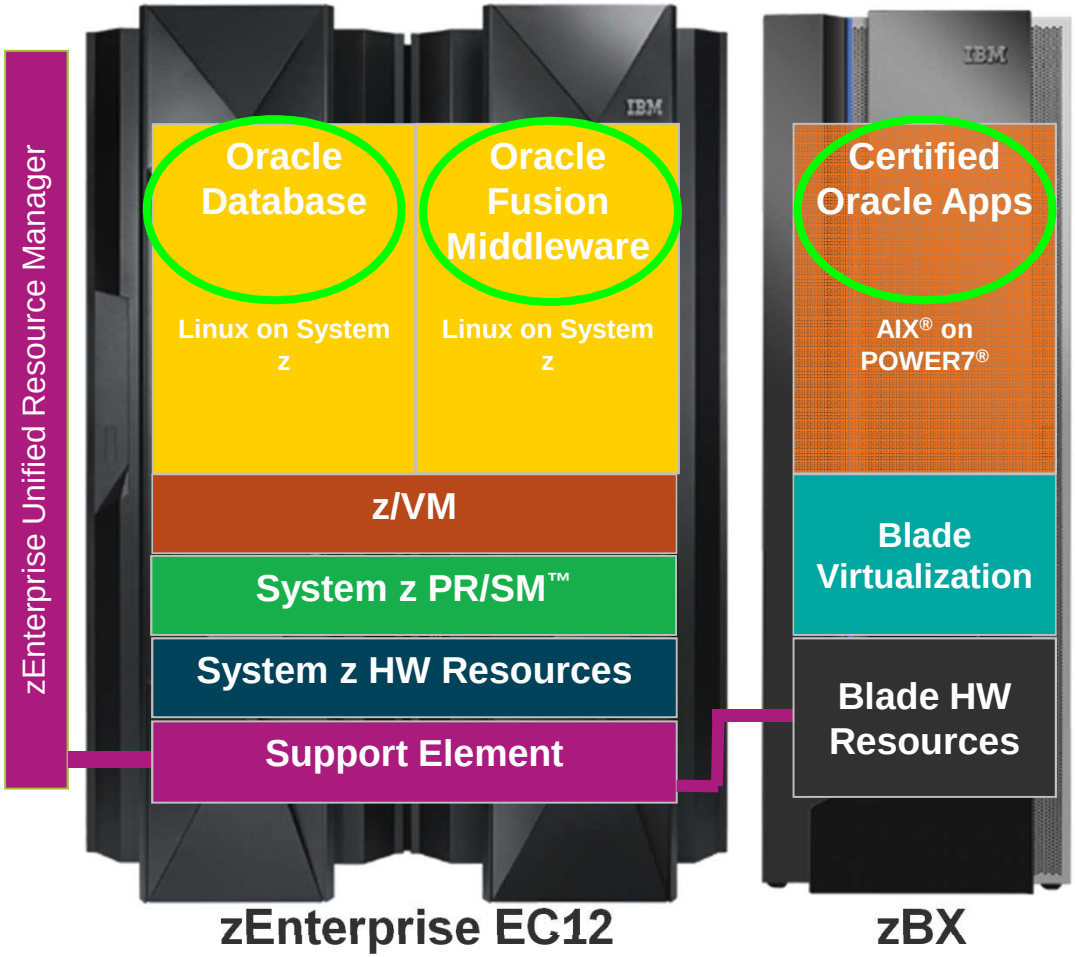
#SHAREorg

SHARE in Pittsburgh 2014

Oracle on Linux on System z Solutions and Support Update



Example of Oracle Solutions deployed on IBM zEnterprise System



Oracle solution landscape on a single zEnterprise System

- Run certified Oracle database and Fusion Middleware on highly available and reliable zEnterprise EC12 (zEC12) or the zEnterprise BC12 (zBC12) servers for mid range enterprises
- Run certified Oracle solutions, applications and web tiers, on AIX on zEnterprise BladeCenter Extension (zBX)
- Fully benefit from zEnterprise, the hybrid system, and manage all your Oracle solution servers with the zEnterprise Unified Resource Manager

Oracle Solutions delivered for Linux on IBM zEnterprise

Oracle DB 12C Release 1 Version 12.1.0.1.3 Q214

New
E-Business Suite Release 12.2.2 accessing Oracle DB 11g Release 2 Version 11.2.0.4 Q214

Enterprise Manager Agent 12c Release 2 Version 12.1.0.4 Oracle DB 11gR2, 12c Q214

New
Oracle DB 12C Release 1 Version 12.1.0.1.1 Q114

WebLogic Server 12c Release 1 with Coherence Version 12.1.2 Q413

Oracle DB 11g Release 2 Version 11.2.0.3.8 Q413

New
Oracle Billing and Revenue Management Version 7.5.0.0.0 accessing Oracle DB 11g Release 2 Version 11.2.0.3 Q113

Oracle DB 11g Release 2 Version 11.2.0.3 RHEL 6.2 Support Q113

PeopleTools 8.52 accessing Oracle DB 11g Release 2 11.2.0.3.1 Q212

Enterprise Manager Agent Release 12c Version 12.1.0.1 Q212

Oracle DB 10g Release 2 Version 10.2.0.5.5 Q411

New
Hyperion EPM Version 11.1.2.2 accessing Oracle DB 10g Release 2 11g Release 2 Q212

Oracle DB 11g Release 2 Version 11.2.0.3 Q411

Oracle DB 11g Release 2 Version 11.2.0.4.2 Q114

New
Hyperion EPM Version 11.1.2.3 accessing Oracle DB 10g Release 2 11g Release 2 Q213

Oracle DB 11g Release 2 Version 11.2.0.3.5 Q113

PeopleSoft 9.2 PeopleTools 8.53 accessing Oracle DB 11g Release 2 11.2.0.3 10gR2 10.2.0.5 Q213

Oracle DB 11g Release 2 Version 11.2.0.4.3 Q214

New
E-Business Suite Release 12.2 accessing Oracle DB 11g Release 2 Version 11.2.0.3 Q114

Siebel Public Sector, Loyalty Management Version 8.2.2.3 accessing Oracle DB 11g Release 2 10gR2 Q213

New
Enterprise Manager Agent 12c Release 2 Version 12.1.0.2 Q212

Oracle DB 11g Release 2 Version 11.2.0.2.5 Q112

Oracle DB 11g Release 2 Version 11.2.0.3.1 Q112

SOA WebCenter 11gR1 PS6 WebLogic Server 11gR1 11.1.1.6 Q213

New
WebLogic Server 12c Release 1 Version 12.1.1x Q212

Oracle DB 11g Release 2 Version 11.2.0.3.3 Q312

Oracle BIEE Version 11.1.1.7 with Oracle DB as DSR* 10g Release 2 11g Release 2 Q213

E-Business Suite Release 12.1x accessing Oracle DB 11g Release 2 Version 11.2.0.3 Q112

WebLogic Server 11gR1 PS3 Q111

Oracle DB 11g Release 2 Version 1.2.0.2.3 Q311

PeopleTools 8.51 accessing Oracle DB 10g Release 2 10.2.0.5 Q311

Oracle DB 11g Release 2 Version 11.2.0.3.6 Q213

Oracle DB 11g Release 2 Version 11.2.0.3.4 Q412

WebLogic Server, SOA, WebCenter 11gR1 PS5 Q112

Oracle DB 10g Release 2 Version 10.2.0.5.10 Q113

Oracle DB 11g Release 2 Version 11.2.0.3.7 Q313

Siebel CRM Version 8.1.1.10 accessing Oracle DB 11g Release 2 10gR2 Q213

PeopleTools 8.51 accessing Oracle DB 11g Release 2 11.2.0.3 Q212

Oracle DB 11g Release 2 Version 11.2.0.3.2 Q212

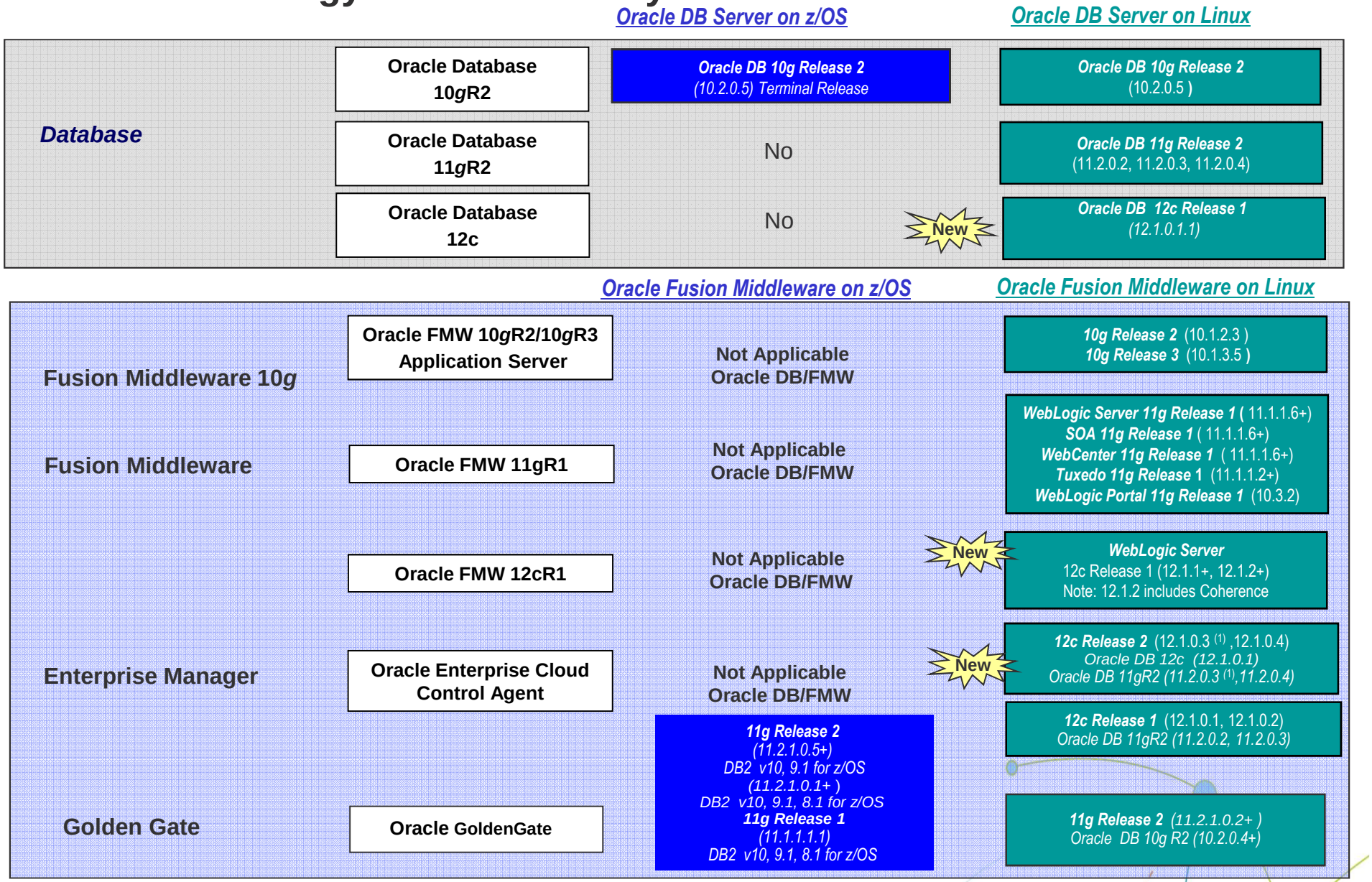
New
PeopleSoft Campus Solutions V9 PeopleTools 8.52 accessing Oracle DB 11g Release 2 Q411

PeopleTools 8.52 accessing Oracle DB 11g Release 2 11.2.0.2 Q411

PeopleTools 8.52 accessing Oracle DB 10g Release 2 10.2.0.5 Q411

* Data Source or Repository

Oracle Technology Solutions for System z Servers

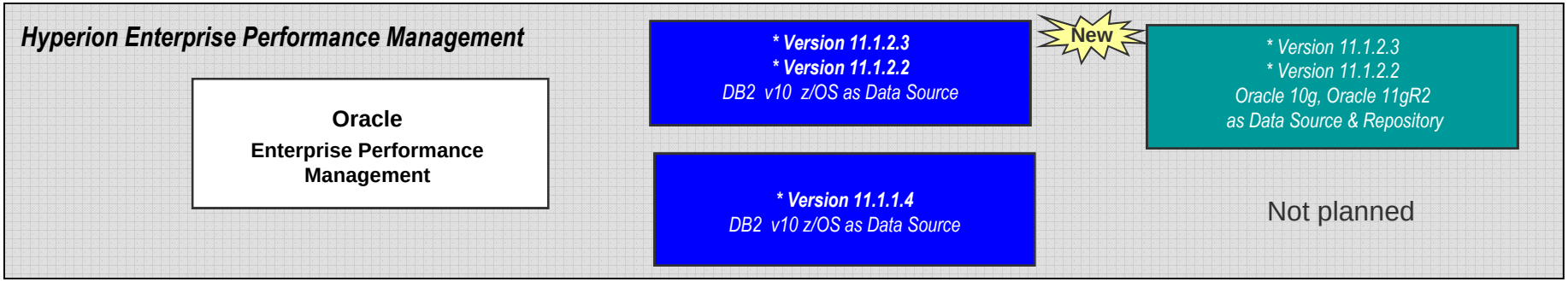


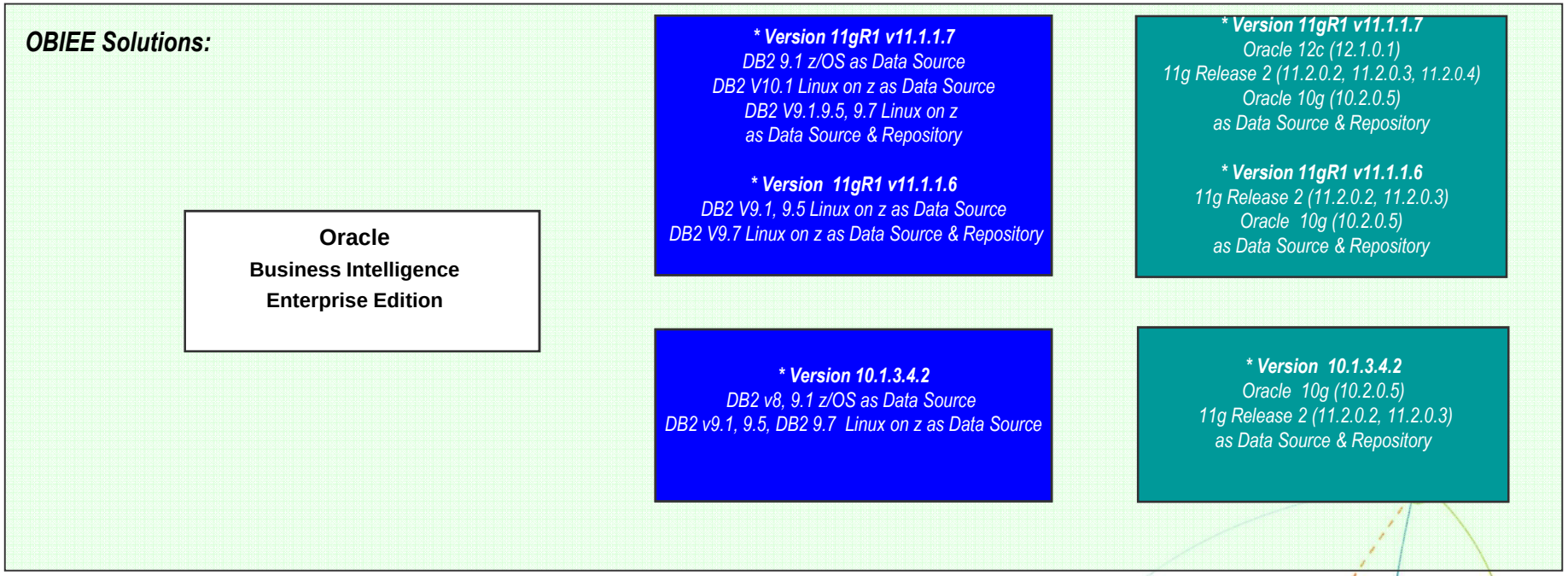
Oracle Analytic Solutions for System z Servers

*IBM Data Server on DB2 z/OS and or Linux**

Oracle DB Server on Linux

** Note: Multi-Platform "Split Tier" Configuration – Only the Database runs on System z Servers unless otherwise noted*





Oracle Applications for System z Servers

	IBM Data Server on DB2 z/OS and or Linux*	Oracle DB Server on Linux

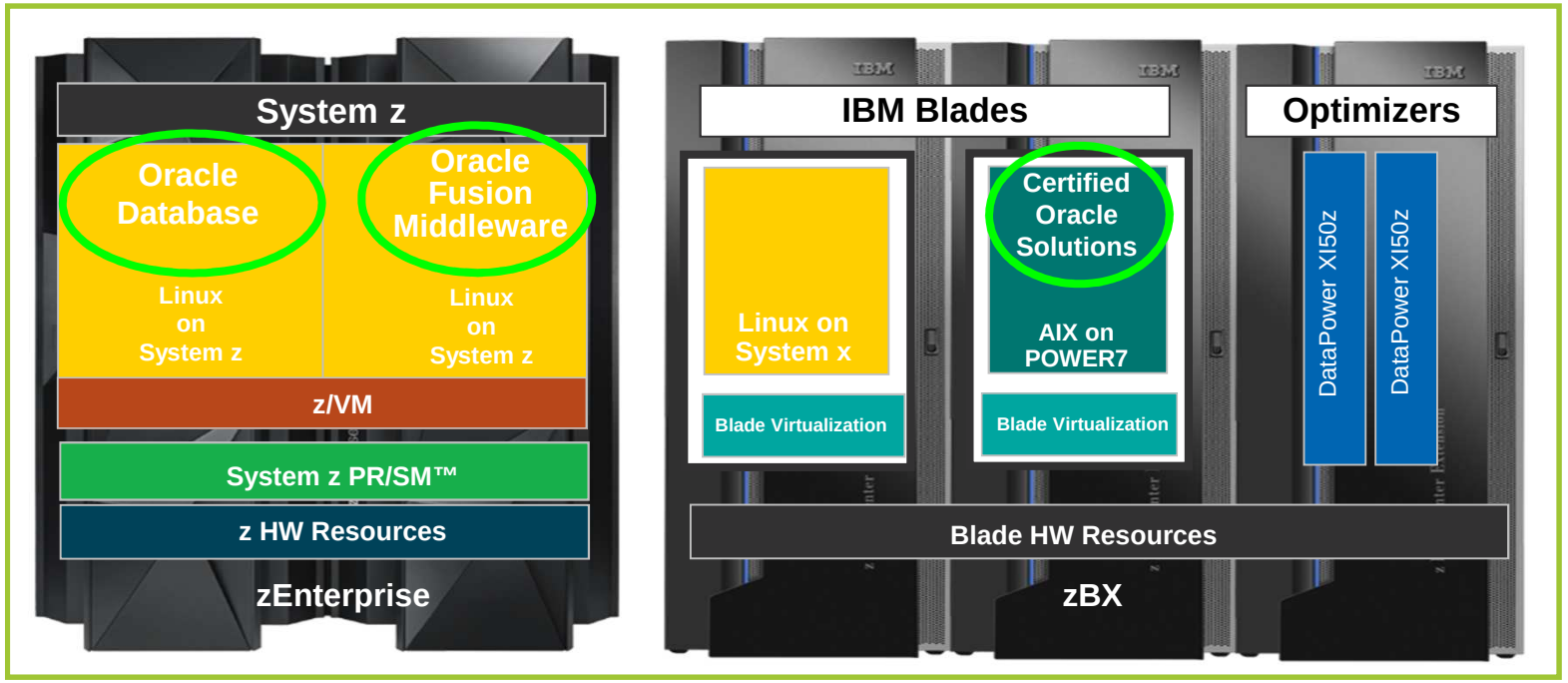
** Note: Multi-Platform "Split Tier" Configuration – Oracle applications accessing Database,, only the Database runs on System z Servers unless otherwise noted*

ERP & CRM Solutions	IBM Data Server on DB2 z/OS and or Linux*	Oracle DB Server on Linux
Oracle PeopleSoft	**** Version 9.2/Tools 8.53*** *DB2 v9.1 , V10 Database on z/OS* **** Version 9.0, 9.1 /Tools 8.50, 8.51 & 8.52*** *DB2 v8, v9.1 , V10 Database on z/OS* ** Batch Server Supported on z/OS & Linux*	***• Version 9.2/Tools 8.53*** *Oracle 10gR2, 11gR2* **** Version 9.0 & 9.1 /Tools 8.50, 8.51 & 8.52*** *Oracle 10gR2, 11gR2*
Oracle Siebel CRM Applications *IP2013 is inclusive of all Industry applications*	**** Release IP2013*** *Version 8.2.2.4* *DB2 V9.1, v10.1 on z/OS* *DB2 V9.7 on Linux* **** Release IP2013*** ***Version 8.1.1.11*** *DB2 V9.1 , v10.1 on z/OS* *DB2 V9.7 on Linux* **** Release 8.1*** *Version 8.1.1.10* *DB2 v9.1, v10.1 on z/OS* *DB2 v9.7 on Linux*	**** Release IP2013*** *Version 8.2.2.4* *Oracle 11gR2, 12cR1* **** Release IP2013*** *Version 8.1.1.11* *Oracle 11gR2, 12cR1* ***• Release 8.2*** *Version 8.2.2.3* *Oracle 11gR2*
Oracle E-Business Suite	**Not Applicable Oracle DB/FMW**	***• Version R12.2.2*** *Oracle 11gR2* **** Version R12.1.2, 12.1.3*** *Oracle 10gR2, 11gR2*

Oracle Industry Applications for System z Servers

		IBM Data Server on DB2 z/OS and or Linux*	Oracle DB Server on Linux
		* Note: Multi-Platform "Split Tier" Configuration – Oracle applications accessing Database,, only the Database runs on System z Servers unless otherwise noted	
Industry Solutions	Higher Education Oracle PeopleSoft Campus Solutions	Not planned	* Version 9.0 /Tools 8.50, 8.51, 8.52, 8.5.3 Oracle 10gR2, 11gR2
	Insurance Oracle Documaker Enterprise and Standard Editions	Version 12.3* DB2 v10.1 z/OS Version 12.1* DB2 v8.1, v9.1 z/OS Note: Only Oracle Documaker Server Standard Edition supports both application and DB Tiers	Not planned
	Communications Oracle Billing and Revenue Management	Not Applicable Oracle DB	New * Release 7 Version 7.5.0.0.8 Oracle11gR2, 12c
Cross Industry Solutions	Oracle Policy Automation	Not Applicable Oracle DB/FMW	Version 10.4.5 With Oracle Weblogic 11gR1,12cR1 With IBM WAS 6.1/7.0 Version 10.4.2, 10.3.1 With Oracle WebLogic 11gR1 With IBM WAS 6.1, 7.0

Examples of Oracle Solutions deployed on IBM zEnterprise System



Oracle solution landscape on a single zEnterprise System

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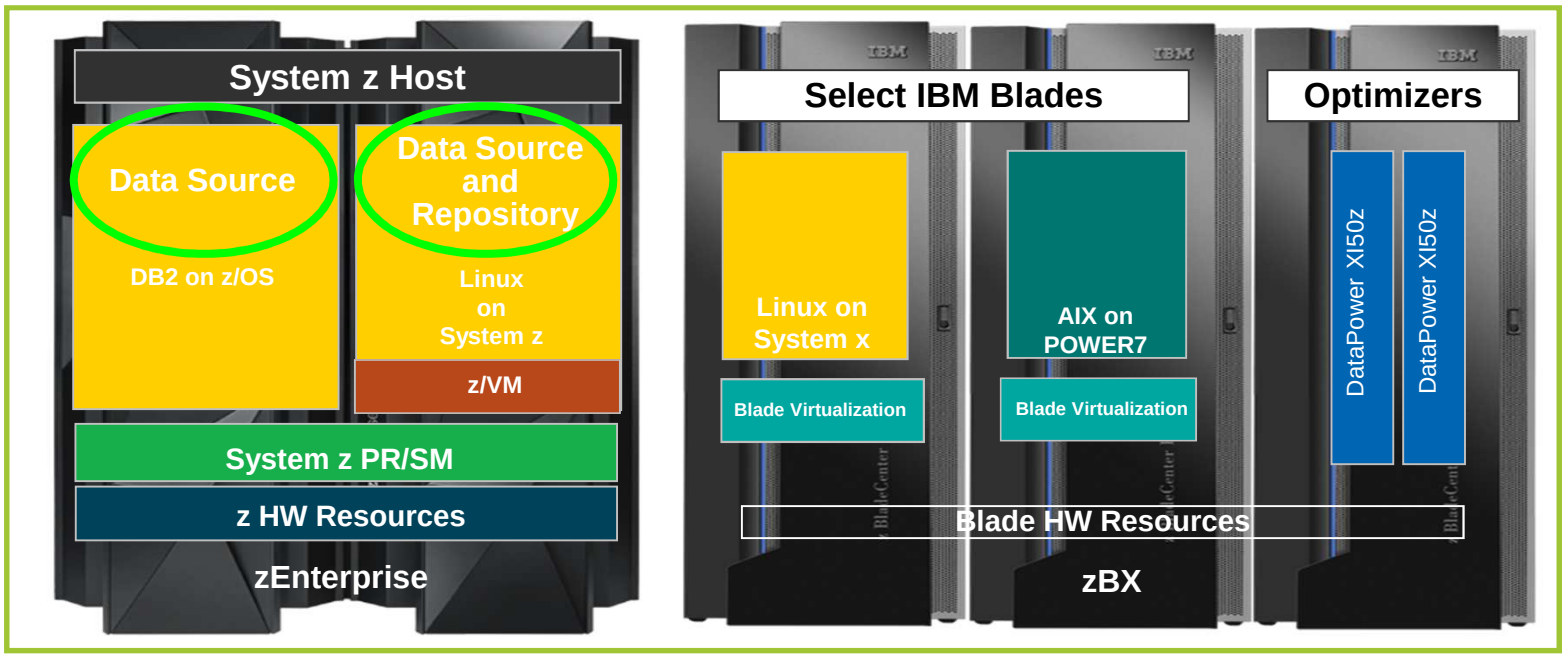
- Run certified Oracle solutions, applications and web tiers, on AIX on zEnterprise BladeCenter Extension (zBX)
- Fully benefit from zEnterprise, the hybrid system, and manage all your Oracle solution servers with the zEnterprise Unified Resource Manager

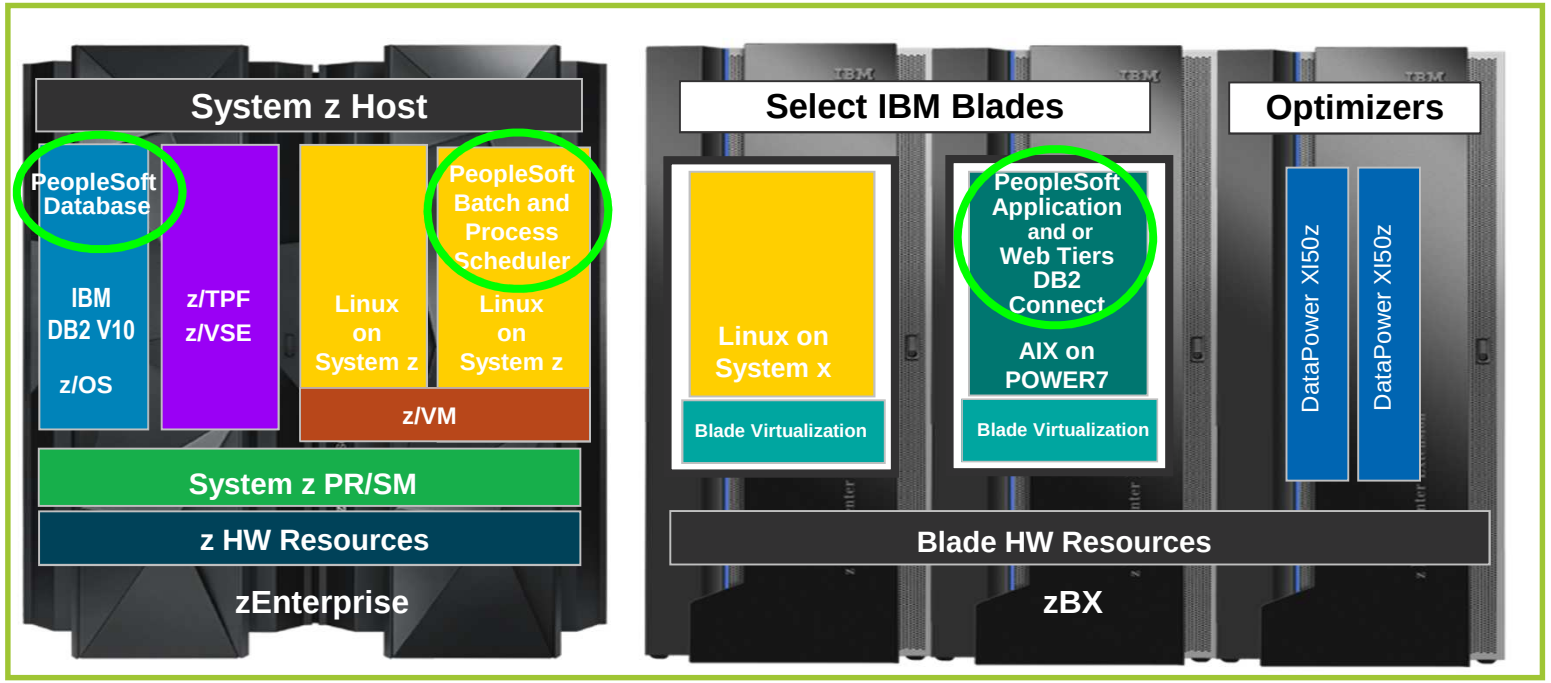
Examples of Oracle Analytical Solutions deployed on IBM zEnterprise System



Oracle solution landscape on a single zEnterprise System

- Run Oracle certified Analytical Data Sources and or Repositories on highly available and reliable zEnterprise EC12 (zEC12) or zEnterprise BC12 (zBC12) for mid range enterprises
- Run certified Oracle Analytical Solutions, including OBIEE and Hyperion Enterprise Performance Management solutions, on AIX on zEnterprise BladeCenter Extension (zBX)
- Fully benefit from zEnterprise, the first hybrid system, and manage all your Oracle solution servers with the zEnterprise Unified Resource Manager

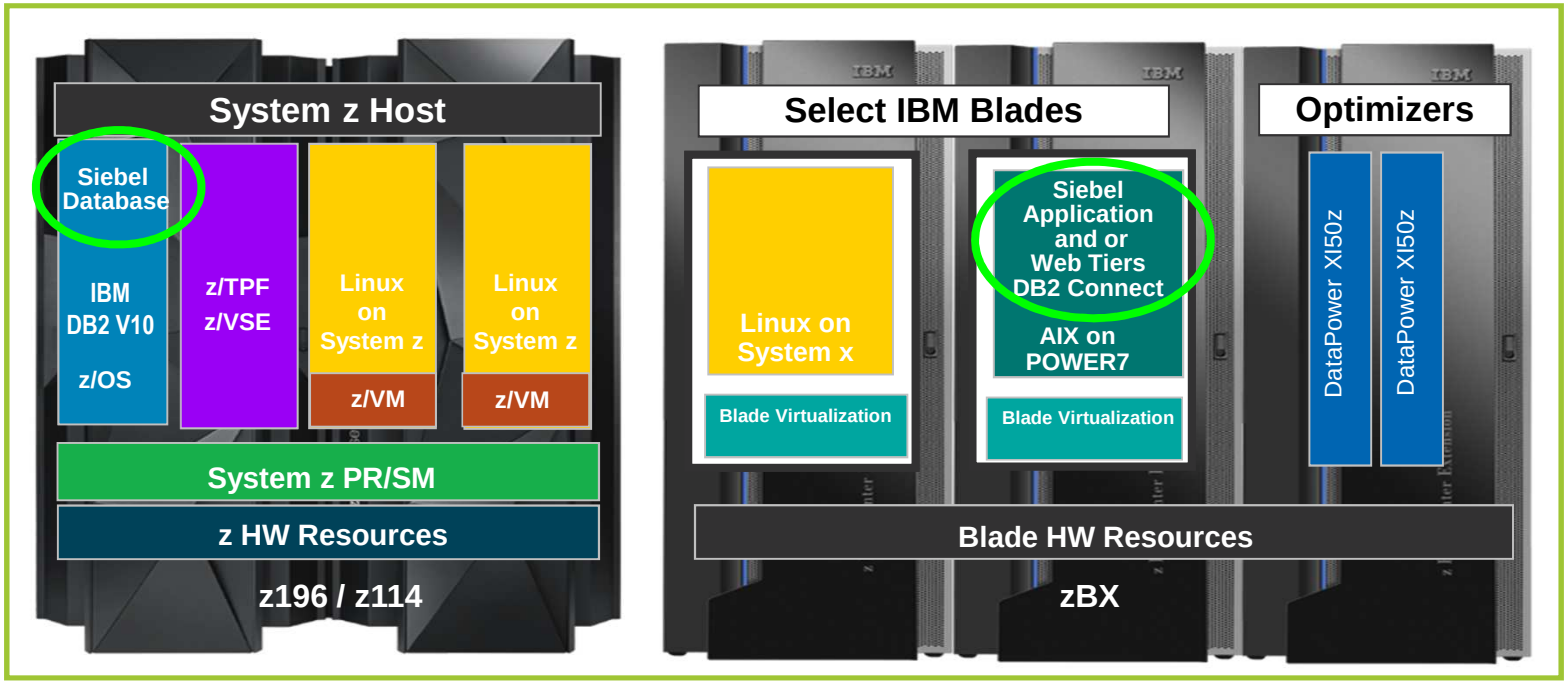
Example of PeopleSoft for System z DB2 z/OS deployed on IBM zEnterprise System



PeopleSoft 3-tier options using DB2 z/OS a single zEnterprise System

- Run DB2 z/OS, PeopleSoft Batch and Process Scheduler on the highly available and reliable zEnterprise EC12 or zEnterprise BC12 (zBC12) Server for mid range enterprises
- Run PeopleSoft App and Web Server Tiers with AIX on zEnterprise BladeCenter Extension (zBX)
- Fully benefit from zEnterprise, the first hybrid system, and manage the PeopleSoft multi-tier environment with the zEnterprise Unified Resource Manager

Example of Siebel for System z DB2 z/OS deployed on IBM zEnterprise System



Siebel 3-tier options using DB2 z/OS a single zEnterprise System

- Run DB2 z/OS, Siebel Database on the highly available and reliable zEnterprise EC12 (zEC12) or zEnterprise BC12 (zBC12) for mid range enterprises
- Run Siebel Application and Web Server Tiers with AIX on zEnterprise BladeCenter Extension (zBX)
- Fully benefit from zEnterprise, the first hybrid system, and manage the Siebel multi-tier environment with the zEnterprise Unified Resource Manager

IBM zEnterprise System and IBM PureSystems

zEnterprise
Client Optimized Systems

- Multi-Architecture System for z/OS, AIX, Linux and Windows
- Centrally managed through the Unified Resource Manager
- Best fit when data or applications exist on System z, consolidating Linux solutions and clients desire z governance

PureSystems
Integrated Expert Systems

- Multi-Architecture system for AIX, i/OS, Linux and Windows
- Centrally managed through Flex System Manager (FSM)
- Best fit when data and applications run on a combination of POWER and System x architecture

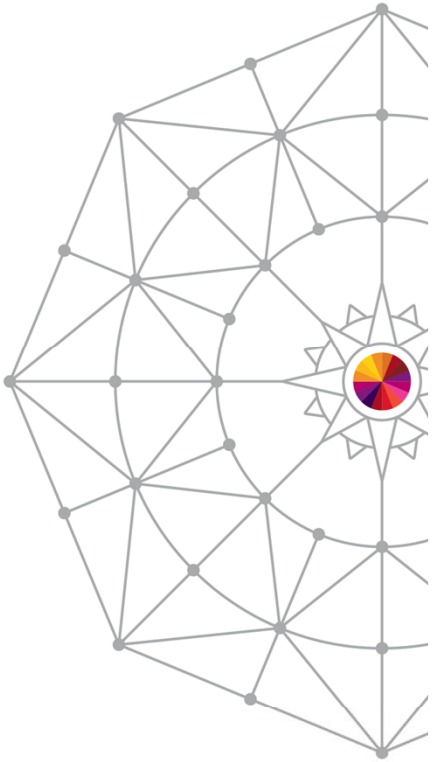
<u>Today:</u> Clients can also attach IBM zEnterprise and IBM PureSystems (via Ethernet) to gain benefits of simplified management and lower IT infrastructure costs for all workloads. IBM's Tivoli service management platform allows for integration for improving delivery of business services.

<u>In future:</u> Tighter integration of these two systems. Today's investment in either will gain value over time.

Oracle on Linux on z – Strengths and Growth

- Solution Current with Oracle 12c
- Entire stack officially certified by Oracle (support.oracle.com)
- Oracle Patch Set Updates and Critical Patches for Loz same date as other platforms
- Over 1,000 Customers running Oracle on Loz, all sizes, industries
- Oracle is 'Best Fit' Solution for Loz
- SUSE and RedHat Support
- Dedicated IBM Team, continued growth, new z customer, over 12 POCs underway now
- IBM Oracle Alliance and International Competency Center
- Dedicated System z team in Oracle Development
- Dedicated System z team in Oracle Support
- Oracle presentations on Loz at SHARE, COLLABORATE, SIG, and Webcasts
- Over 10 Redbooks on Oracle z, latest May 14, Oracle participation
- System z 'My Oracle Support Community' on support.oracle.com
- Active z Oracle User Group, Volunteer led, Oracle and IBM Supported
  - longest running still active official Oracle user group, 27 years
  - www.zseriesoraclesig.org
- 27th Annual z Oracle SIG User Group Annual Conference, DC, April 2014
  - Well attended, Oracle and IBM Supported, very positive feedback
  - presentations at www.zseriesoraclesig.org

Oracle on Linux on System z Solutions and Support Update



THANK YOU

ORACLE

Oracle Support Update

Sandra Skehin

SIG Washington DC April 2014

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decision. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Support Update
Washington DC – April 2014

- How to Engage Linux on System z Team
- Patching
  - Patchsets
  - PSUs
  - One-Off Patches
- Oracle 12c Installation References
- Changes to Opatch
- TFA

How Oracle Support works

- Firstly, Oracle on Linux on System z is the same Oracle as on any other platform- we just port the code to the new environment
- Oracle 12.1 on SUSE x86-64 is the same as Oracle 12.1 on IBM: Linux on System z running SUSE.
- There is no difference between Linux distributions – it's the same Oracle iso image for any Linux on System z – we support SUSE and Red Hat in exactly the same way

How Oracle Support works

- This means that the majority of the functionality in Oracle is common across all platforms, i.e a set of *GENERIC* features.
- **'Select sysdate from dual'** does the same thing whatever the platform
- As does any SQL, PL/SQL, DDL – it all follows the same code path.
- So how does the support work ?

‘Generic’ Support

- We have “teams of expertise” in just about every country, every time zone, all skilled in generic features:
  - Performance
  - RAC
  - ASM
  - Backup and Recovery
  - Networking
  - Enterprise Manager and Grid Control
  - eBusiness Suite
  - Application servers
  - Etc etc etc

How Oracle Support works

- These teams can handle any SR that doesn't have platform specific dependencies – it's the same Oracle code running the same operations, platform isn't relevant.
- So there are in excess of 20,000 support staff to handle 99.9% of the issues
- Platform specific issues are very rare.

Linux on System z - Dedicated Support

- In parallel to, and without replacing the standard Support Process, you can engage specific engineers
- If you believe that the platform is relevant, or you believe that a Linux on System z specialist would be able to move the issue on to resolution.
- We generally work in collaboration with the generic engineers, providing breadth and customer knowledge with their deep technical specific skills.

Oracle Linux on System z

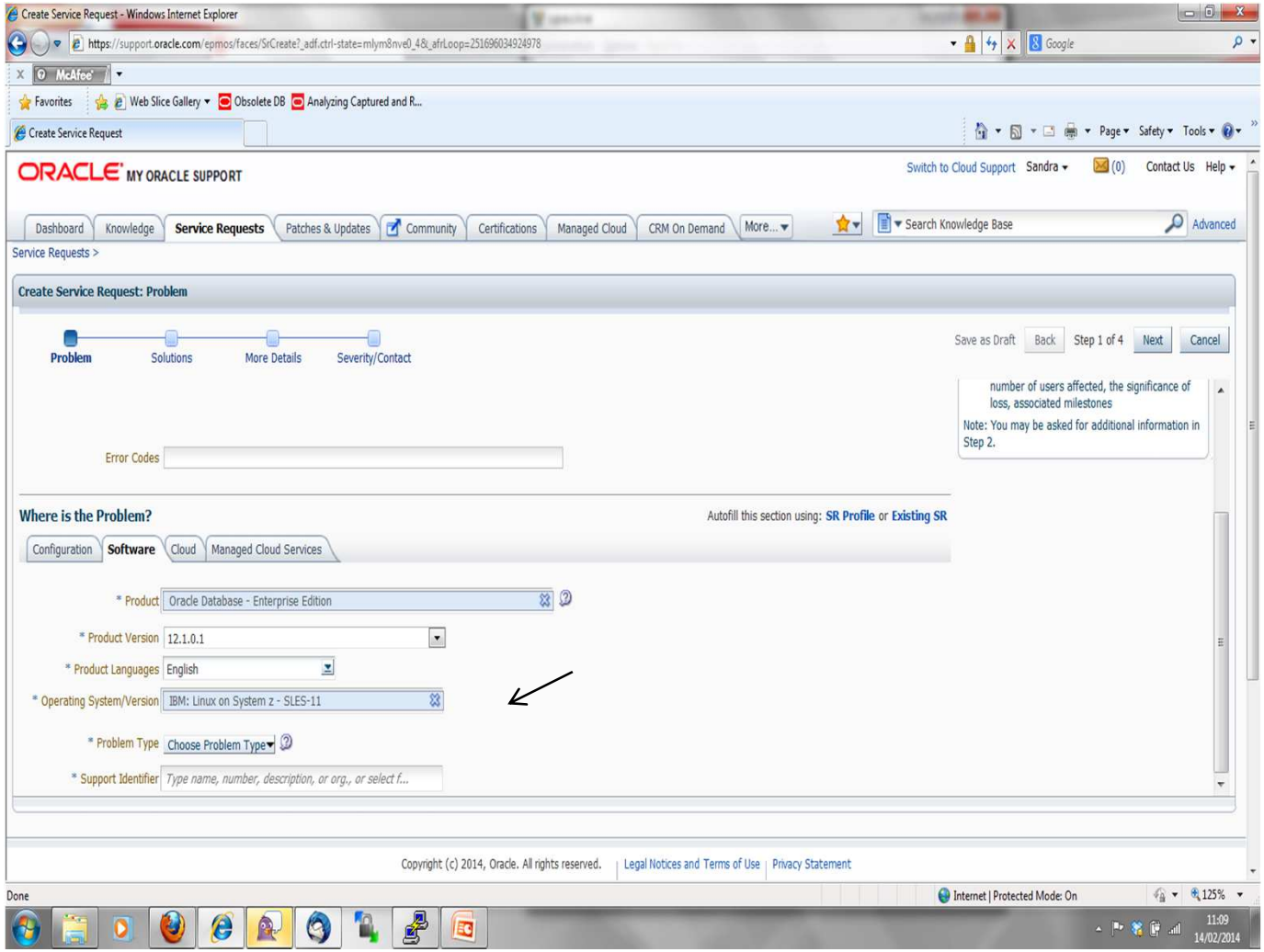
- United States
- East & West coast
- UK
- Spain
- Germany
- India

*24 *7 coverage for Sev1 including weekends and public holidays*

How Engage Our Team

- Open a service request via MyOracleSupport – in parallel with an existing one, if appropriate
  - Platform: IBM: Linux on System z (Platform 209)
  - Type of Problem: Issues on Linux on System z
  - Problem Clarification
    - Database Install Issues on Linux on System z
    - General Issues on Database running on Linux on System z
    - Performance Issues on Database running on Linux on System z
    - RAC on Linux on System z

How to Engage an IBM: Linux on System z Engineer



Platform specific issues

- Typically
  - Installation – specific prerequisites.
  - Performance – especially in a virtual environment
  - RAC and Clustering - specific issues around the virtual hardware, switches etc
- This is where a z skilled team can assist

Planning and Preparation Prevent Poor Performance

- Ensure the OS and Oracle performance tools are installed eg:-
  - Sysstat/sar,nmon,OSWatcher
  - LTOM
  - AWR , statspack
  - PerfKit, Velocity zMon
  - RDA, RDA HC, OCM
- Ensure you are familiar with running them (**before you need them!)**
- Appropriate change control and data release completed
  - prevents delay due to change control, management approval during a crisis…….

The patching process

- Linux on System z Support team taking more control over patching, in order to reduce turnround times. I'll cover:
- Creating patches
  - Bugs
  - Porting a patch
  - Backporting a patch
  - Patch merging
- Patch collections
  - Patch Sets
  - Patch Set Updates
  - Security Patch Updates (CPUs)

Bugs / Defects

- These are generally discovered either in QA, or during a customer's workload
- Diagnosis and patch provision are driven by the severity of the problem and impact to the customer – all other environmental factors are irrelevant!
- Once the defect has been diagnosed, we move to producing a patch (assuming a non-patch solution is unavailable)
- 99+% of defects discovered on Linux on System z are generic, i.e apply to the database on any platform – defects specific to Linux on System z are extremely rare.

Patch creation

- Oracle consists of some 10 million lines of C code
- This code is identical for all platforms – we have the same source tree everywhere.
- Patching is the process of:
  - Updating the common source - a patch transaction on reference platform
  - This affects one or more modules
  - These modules must then be compiled as object modules for the target platform
  - Object modules are packaged together with metadata for Opatch
  - This package is the basic patch on My Oracle Support

Porting patches

- The source change is done at one of two levels:
- Either the current development level (12.9.9.9.9)
- Or the current maintenance level (12.1)
- This change is made on the current reference development platform – which changes periodically, currently Oracle Enterprise Linux.
- We then determine whether the change is eligible to be merged into prior versions – back level versions – and if so, we generate the information to back port the change.

Back Porting

- Back ports are usually created on customer demand – i.e in response to a Service Request
- We identify a bug/defect, which has backport information for our customer's platform.
- We generate a backport request
  - This requests a specific patch be generated
  - For this bug
  - For a specific version: 11.2.0.4, for example
  - For a specific platform: 209, Linux on System z, for example
  - This generates the object module and Opatch metadata
  - Packaged as a Patch on Metalink

Patch Merging

- If you already have a patch which affects a common object module, OPatch will detect this
- Support will also ask for an Opatch lsinventory listing when generating a backport
- If there is a conflict, i.e two fixes which affect the same module, we must merge the fixes – i.e make a source change which incorporates both fixes.
- We then generate this as before as a patch, backported as appropriate

Patch Collections

- Patch Sets
- Patch Set Updates
- Security Patch Updates (CPUs)

Patch Sets

- Major collection of patches and source updates
- Goes through extensive QA
- Oracle Numbering
  - **11.2.0.3.0 -> 11.2.0.4.0 (Terminal Patchset)**
  - **Version.Release.<reserved>.Patchset.PatchsetUpdate**
- Contains many hundreds of bug fixes
- Available on all platforms - Release Schedule of Current Database Releases [Article ID **742060.1**]

Patch Set Update

- **What is a PSU and when is it provided?**
  - PSU is a bundle of patches Oracle recommends to apply. It consists of Security Patch Updates (SPU), Generic patch bundle, RAC patch bundle and Data Guard patch bundles
  - Quarterly released - Where a patchset is released close to a PSU release date, the PSU will be delivered at the first possible opportunity. (Jan, Apr, Jul, Oct)
  - All PSUs are cumulative
- **Benefit for Linux on System z Customers**
  - Verified and tested before provided to the customer
  - Easy database maintenance
  - Reduces problem situations and downtime.
- **What About Critical Patch Updates? (SPU)**
  - No SPU available for Oracle 12.1 for any platform.

PSUJUL2014

- GI PSU
  - 12.1.0.1.4 – Patch 18705972
  - 11.2.0.4.3 -- Patch 18706472
  - 11.2.0.3.11 – Patch 18706488
- DB PSU
  - 12.1.0.1.4 – Patch18522516
  - 11.2.0.4.3 – Patch 18522509
  - 11.2.0.3.11 – Patch18522512
- SPU
  - 11.2.0.4 - Patch 18681862
  - 11.2.0.3 - Patch 18681866
- Always use latest Opatch version (Patch 6880880)
  - Currently **12.1**.0.1.2 and **11.2**.0.3.6

12c Installation

Preparation is Key to Success:

Documentation

MOS Articles:-

- Getting Started - 12c Release 1 Grid Infrastructure, Oracle Database - **IBM: Linux on System z (s390x**) (Doc ID 1574412.1)
- Requirements for Installing Oracle Database 12c Release 1 on **SLES 11 on IBM: Linux on System z (s390x)** (Doc ID 1574414.1)
- Requirements for Installing Oracle Database 12c Release 1 on **RHEL 6 on IBM: Linux on System z (s390x)** (Doc ID 1574413.1)

Oracle RPM Checker

Attachments to Prereq MOS Articles:

- Requirements for Installing Oracle Database 12c Release 1 on **SLES 11 on IBM: Linux on System z (s390x)** (Doc ID 1574414.1)
- Requirements for Installing Oracle Database 12c Release 1 on **RHEL 6 on IBM: Linux onSystem z (s390x)** (Doc ID 1574413.1)

"Dummy" rpm which validates OS has required rpm dependencies

- SuSE - **ora-val-rpm-SL11-DB-12.1.0.1-1.s390x.rpm**
- Redhat - **ora-val-rpm-EL6-DB-12.1.0.1-1.s390x.rpm**

  - #**rpm –ivh ora-val-rpm-SL11-DB-12.1.0.1-1.s390x.rpm**
  - **#yum install ora-val-rpm-EL6-DB-12.1.0.1-1.s390x.rpm**

rpm -ivh /home/oracle/ora-val-rpm-S11-DB-12.1.0.1-1.s390x.rpm
Preparing... ### [100%]
1:ora-val-rpm-S11-DB ### [100%]
****
* Validation complete - Your SLES 11 OS has required rpms for Oracle 12.1 *
****

#rpm –e ora-val-rpm-S11-DB-12.1.0.1-1.s390x ##### to remove

Oracle 12c Install

Minimum Supported/Certified kernel levels:-

- SLES 11 SP2 - 3.0.13-0.27 or later
- RHEL 6.3* - 2.6.32-279.el6 or later

  Note: Recommend RHEL 6.4* (errata 1156 mandatory in 6.3)
- RHEL 5.8 also certified

Disk Space Required:

- /tmp - 1024MB (< 2TB)
- /grid - 3.5GB Grid Infrastructure/ASM Home
- /oradb - 5.2GB Database Home
- Database ~ 2GB Preconfigured db file storage
- BASE ~ 3GB

  Note: SI (Non-ASM) Oracle DB on RHEL6 – ext4 filesystem recommended

Oracle 12c Install

General Tips and Dos and Don’ts:-

- Unset all ORACLE env variables apart from **ORACLE_BASE**
  - setting ORACLE_HOME, PATH, LD_LIBRARY_PATH to include Oracle binaries in .profile, .login file and /etc/profile.d should be completely avoided.
- Unset any JAVA env variables
- hostname should return the fully qualified hostname

  hostname.domainname
- Redhat 6 has selinux set to “enforcing” by default – this can cause problems. May need to change to permissive for duration of install.
- Placeholder Patch 6880880 – Opatch Version 12.1 Version – post install – do not rely on Opatch with base install.
- Always use ./runInstaller which comes with software being installed
- Silent installs not always “honest” with errors returned!
- Problems identified in 11.2 installs with older versions of Exceed ?

Oracle 12c Install

Reporting Problems:-

Logfiles:

- Early OUI Bootstrap errors ➔ /tmp/OraInstall<datestamp>
- CVU fixup scripts ➔ /tmp/CVU<datestamp>
- OUI logs ➔ oraInventory/logs (dependent upon /var/opt/oracle/oraInst.loc
- Linking issues ➔ $ORACLE_HOME/install/make.log
- Opatch issues ➔ $ORACLE_HOME/cfgtoollogs/opatch
- root.sh for Grid Installs ➔ $GRID_HOME/cfgtoollogs/crsconfig (roothas or rootcrs)
- Catbundle (PSU) ➔ $ORACLE_BASE/cfgtoollogs/catbundle

Notes:

- Don’t ignore OUI prereq errors!
  - Exception /tmp space
  - client install
- root.sh can be rerun multiple times should errors occur (-deconfig) and rerun
- Cleanup Note - How to completely remove 11.2 and 12.1 Grid Infrastructure, CRS and/or Oracle Restart - IBM: Linux on System z (Doc ID 1413787.1)
- Zero out ASM devices before reinstall...
  - dd if=/dev/zero of=/dev/<device> bs=1M count=10000

Oracle 12c Install

Observations during 12c Install:-

- When installing clusterware and Flex ASM configuration you may see the following WARNING during the running of root.sh which can safely be ignored:-

  CLSRSC-46: Error: '/grid/12101/cfgtoollogs/crsconfig/srvmcfg0.log' does not exist

- ensure you have ARP enabled on network interfaces.

  #ifconfig -a will confirm whether you have NOARP

- Check /etc/multipath.conf file has +r access if you are using multipathed shared storage devices for ASM - this will prevent PRVF-5150 warning during pre-requisite checking.(Redhat 6.3 issue)

  # ls -la /etc/multipath.conf -rw-r--r--. 1 root root 3084 Aug 5 13:24 /etc/multipath.conf

- SLES 11 SP2 - /etc/inittab – possible KVM hypervisor console(s): conflict h:1 – See OHASD fails to start on SuSE 11 SP2 on IBM: Linux on System z (Doc ID 1476511.1)

Oracle 12c Install

Good News!

- 12c Prereq checking for both GRID and DATABASE install work.
  - -ignoreSysPrereqs no longer needed
- CVU Fixup scripts work!
- Documentation for base release and generic documentation includes IBM: Linux on System z sections – including links to MOS articles
- runcluvfy can be trusted!
  - ./runcluvfy.sh stage -pre crsinst –n node1,node2
- Excellent IBM Redbook

  http://www.redbooks.ibm.com/redpieces/abstracts/sg248159.html?Open

Opatch 12.1

- **Changes in Opatch :**
  - No Security Patch Updates (CPUs) available on any platform for 12.1 releases - PSUs only which will include Security Fixes.
  - Opatch apply remains the same but Steps for Loading Modified SQL Files into the Database in the database have changed.
  - For a Non-Container Database

```
SQL> Connect / as sysdba
SQL> startup
cd $ORACLE_HOME/OPatch
[oracle@strkfxx OPatch]$ ./datapatch
SQL Patching tool version 12.1.0.1.0 on Thu Feb 13 09:23:50 2014
Copyright (c) 2012, Oracle.  All rights reserved.
Connecting to database...OK
Determining current state...done
Nothing to roll back
  Nothing to apply
SQL Patching tool complete on Thu Feb 13 09:24:02 2014
```

Opatch 12.1

For a Container Database with pluggables after startup as sysdba:

```
SQL> alter pluggable database all open;
[oracle@strkf34 OPatch]$ ./datapatch -verbose
SQL Patching tool version 12.1.0.1.0 on Thu Feb 13 09:34:08 2014
Copyright (c) 2012, Oracle.  All rights reserved.
Connecting to database...OK
Determining current state...done
For the following PDBs: CDB$ROOT
  Nothing to roll back
  Nothing to apply
For the following PDBs: PDB$SEED
  Nothing to roll back
  Nothing to apply
For the following PDBs: PDB1
  Nothing to roll back
  Nothing to apply
For the following PDBs: PDB2
  Nothing to roll back
  Nothing to apply
SQL Patching tool complete on Thu Feb 13 09:34:15 2014
```

Opatch 12.1

Post patch:

- Check dba_registry_history
- Check dba_registry_sqlpatch – verify status is “SUCCESS”
- Note **1609718.1** What to do if the status of a datapatch action was not SUCCESS!
- Database 12c Post Patch SQL Automation (Doc ID 1585822.1)
- Oracle Database 12.1 : FAQ on Queryable Patch Inventory (Doc ID 1530108.1)

Trace File Analyzer - TFA

- Version 3.1 – IBM: Linux on System z
  - For Grid Installs will be installed by default
  - Single Instance – script needs to be run
    - $ORACLE_BASE/tfa/
  - May be available from 12.1.0.2?
- TFA Collector - Tool for Enhanced Diagnostic Gathering (Doc ID 1513912.1)
- 3.1 TFA will collect scripts from 11.2 environments
- Fast and efficient, version agnostic, log trimming – way forward?

Trace File Analyzer - TFA

```
#/oracle/base/tfa/bin/tfactl  -help

Usage : /oracle/base/tfa/bin/tfactl <command> [options]
<command> =
        start       Starts TFA
        stop        Stops TFA
        disable     Removes all init entries
        enable      Adds all init entries
        print       Print requested details
        access      Add or Remove or List TFA Users and Groups
        purge       Delete collections from TFA repository
        directory   Add or Remove or Modify directory in TFA
        host        Add or Remove host in TFA
        diagcollect  Collect logs from across nodes in cluster
        analyze     List events summary and search strings in alert logs.
        set         Turn ON/OFF or Modify various TFA features
        uninstall   Uninstall TFA from this node

For help with a command: /oracle/base/tfa/bin/tfactl <command> -help
```

Trace File Analyzer - TFA

```
/oracle/base/tfa/bin/tfactl diagcollect -database orcl -since 1d -z foo
Collecting data for all nodes
Repository Location in strkf33 : /oracle/base/tfa/repository
2014/03/24 11:29:19 GMT : Running an inventory clusterwide ...
2014/03/24 11:29:19 GMT : Collection Name : tfa_foo.zip
2014/03/24 11:29:37 GMT : Run inventory completed locally ...
2014/03/24 11:29:37 GMT : Getting list of files satisfying time range [03/23/2014 11:29:20 GMT, 03/24/2014 11:29:37 GMT]
2014/03/24 11:30:15 GMT : Completed Zipping of all files
2014/03/24 11:30:15 GMT : Total Number of Files checked : 478
2014/03/24 11:30:15 GMT : Total Size of all Files Checked : 20MB
2014/03/24 11:30:15 GMT : Number of files containing required range : 0
2014/03/24 11:30:15 GMT : Total Size of Files containing required range : 0kB
2014/03/24 11:30:15 GMT : Number of files trimmed : 0
2014/03/24 11:30:15 GMT : Total Size of data prior to zip : 200kB
2014/03/24 11:30:15 GMT : Saved 0kB by trimming files
2014/03/24 11:30:15 GMT : Zip file size : 29kB
2014/03/24 11:30:15 GMT : Total time taken : 54s
2014/03/24 11:30:16 GMT : Completed collection of zip files.

Logs are collected to:
/oracle/base/tfa/repository/collection_Mon_Mar_24_04_29_01_PDT_2014_node_all/strkf33.tfa_foo.zip
```

Trace File Analyzer - TFA

```
/oracle/base/tfa/bin/tfactl set autodiagcollect=ON
Successfully set autodiagcollect=ON
.--------------------------------------------------------------------.
|                     strkf33                            |          |
+--------------------------------------------------------+----------+
| Configuration Parameter                                | Value    |
+--------------------------------------------------------+----------+
| TFA version                                            | 3.1      |
| Automatic diagnostic collection                        | ON       |
| Trimming of files during diagcollection                | ON       |
| Repository current size (MB) in strkf33                | 0        |
| Repository maximum size (MB) in strkf33                | 1269     |
| Trace level                                            | 1        |
'--------------------------------------------------------+----------'
```

Trace File analyzer – TFA

/oracle/base/tfa/bin/tfactl diagcollect -help

Options:

-all Collect all logs (If no time is given for collection then files for the last 4 hours will be collected)
-crs Collect CRS logs
-dbwlm Collect DBWLM logs
-database Collect database logs from databases specified
-os Collect OS files such as /var/log/messages
-install Collect Oracle Installation related files
-cfgtools Collect CFGTOOLS logs
-nocopy Does not copy back the zip files to initiating node from all nodes
-nomonitor This option is used to submit the diagcollection as a background process
-since <n><h|d> Files from past 'n' [d]ays or 'n' [h]ours
-from "MMM/dd/yyyy hh:mm:ss" From <time>
-to "MMM/dd/yyyy hh:mm:ss" To <time>
-for "MMM/dd/yyyy" For <date>.

Useful Oracle Database 12c tips.

- glogin.sql to set SQL prompt to include container name:

  vi $ORACLE_HOME/sqlplus/admin

  set sqlprompt "_USER'@'_CONNECT_IDENTIFIER'>'"

- dbca – using customised non-seed template:

  $ dbca -silent -createDatabase -templateName Custom_DB_.dbt -gdbName -sid CDB1 -
  createAsContainerDatabase true -numberOfPDBs 1 -pdbName pdb -sysPassword <password> -
  systemPassword <password>   -listeners listener
  Enter PDBADMIN

- $OH/rdbms/admin/catcon.pl – perl script to run SQL scripts against multiple PDBS

  $ perl catcon.pl -u SYS -U SYS -d $ORACLE_HOME/rdbms/admin -l '/home/oracle' -b catblock_output
  awrinfo.sql

- Set following to allow CDB to continue running if Pdb loses a datafile

  SQL>alter system set "_datafile_write_errors_crash_instance"=FALSE

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