

Setting up Linux for a Oracle Data Warehouse Environment and Oracle E-Business Suite Environment

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Agenda

Setting up Linux Guests for Oracle Development

Challenging rpms

Setting up a minimum size Linux Guest

Database

Fusions Middleware

Setting up for a Large DB or DW environment

Setting up for E-Business Suite

Resources

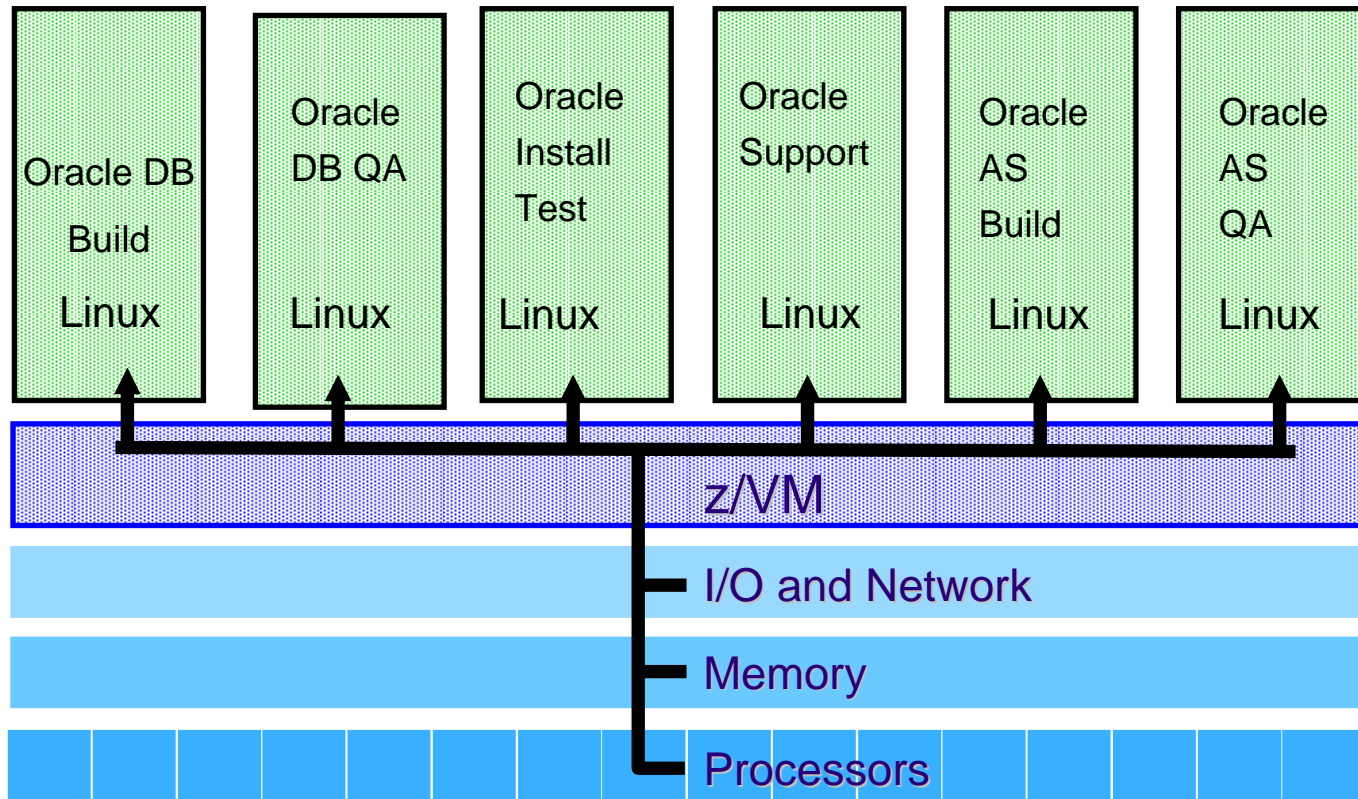
Contacts

Virtual Machine Partitioning for Oracle DB Development at Oracle

Efficiently Exploiting the Entire Mainframe Complex

A *Virtual Machine* simulates the existence of a dedicated real machine, including processor functions, storage, and input/output resources.

Up to
200 guests
Same
Specs



Easy to create new images, easy to manage

Setting up Linux Guest for Oracle

All versions of Linux, SLES9,SLES10, RedHat 4 or RedHat 5

Practice at Oracle is to install all rpms on a

27 GB CKD disk with Linux code

Generally 2 CPUs, 4 GB of memory

Some exception for Build (compile) and stress testing

Few issues with missing rpms

Master guest – clone for the others

Customers want smaller images to save disk space

Recommendations for DB, AS10g, FMW(WebLogic) and EBS now documented in support notes (Metalink)

Experiences building a minimal size Linux guest

Start with base default installation plus rpms

Can be a painful process if adding rpms one at a time

Hard to locate missing rpms on distro media

RedHat provides packages of rpms to choose from

SLES can more easily choose unique rpms

Need extra rpm and symbolic link

SLES 10 - libstdc

Filter: Search

Search:

libstdc++

Search

Search in

- Name
- Summary
- Description
- RPM "Provides"
- RPM "Requires"

Search Mode:

Contains

Package	Summary	Size
<input checked="" type="checkbox"/> compat-libstdc++	The Old stdc++ Library	1.7
<input checked="" type="checkbox"/> libstdc++	The standard C++ shared library	2.1
<input checked="" type="checkbox"/> libstdc++-devel	Include Files and Libraries mandatory for Development 70.0	70.0
<input type="checkbox"/> libstdc++-doc	Documentation for the GNU C++ standard library	3.9

SLES 10 – openmotif

Filter: Search

Search:
openmotif Search

Search in:

- Name
- Summary
- Description
- RPM "Provides"
- RPM "Requires"

Search Mode: Contains

Package	Summary
<input type="checkbox"/> openmotif	Open Motif
<input checked="" type="checkbox"/> openmotif21-libs-32bit	Open Motif 2.1.30 Libraries
<input type="checkbox"/> openmotif-demo	Open Motif Demo Programs
<input type="checkbox"/> openmotif-devel	Include Files and Libraries mandatory for Development.
<input type="checkbox"/> openmotif-devel-32bit	Include Files and Libraries mandatory for Development.
<input checked="" type="checkbox"/> openmotif-libs	Open Motif Runtime Libraries
<input checked="" type="checkbox"/> openmotif-libs-32bit	Open Motif Runtime Libraries

SLES 10 - libaio

Filter: Search

Search:

libaio

Search

Search in

- Name
- Summary
- Description
- RPM "Provides"
- RPM "Requires"

Search Mode:

Package	Summary
<input checked="" type="checkbox"/> libaio	Linux-Native Asynchronous I/O Access Library
<input checked="" type="checkbox"/> libaio-32bit	Linux-Native Asynchronous I/O Access Library
<input checked="" type="checkbox"/> libaio-devel	Development Files for Linux-native Asynchronous I/O Access
<input checked="" type="checkbox"/> libaio-devel-32bit	Development Files for Linux-native Asynchronous I/O Access

SLES 10 - gcc

YaST2@DSCVG027

File Package Extras Help

Filter: Search

Search:

gcc

Search

Search in

- Name
- Summary
- Description
- RPM "Provides"
- RPM "Requires"

Search Mode:

Contains

Case Sensitive

Name	Disk Usage	Used	Free	Total
/	<div style="width: 15%;"></div> 15%	2.1 GB	11.4 GB	13.5 GB
/scratch	<div style="width: 0%;"></div> 0%	198.4 MB	393.5 GB	393.7 GB

Package	Summary	Size	Avail. Ver.
<input checked="" type="checkbox"/> cpp	The GCC Preprocessor	4.9 M	4.1.2_200
<input checked="" type="checkbox"/> gcc	The GNU C Compiler and Support Files	1.7 M	4.1.2_200
<input checked="" type="checkbox"/> gcc-c++	The GNU C++ Compiler	5.6 M	4.1.2_200
<input type="checkbox"/> gcc-fortran	The GNU Fortran Compiler and Support Files	7.4 M	4.1.2_200
<input type="checkbox"/> gcc-info	GNU Info-Pages for GCC	977.4 K	4.1.2_200
<input type="checkbox"/> gcc-java	The GNU Java Compiler	5.2 M	4.1.2_200
<input type="checkbox"/> gcc-locale	Locale Data for the GNU Compiler Collection	4.9 M	4.1.2_200
<input type="checkbox"/> gcc-objc	GNU Objective C Compiler	5.2 M	4.1.2_200
<input type="checkbox"/> gcc-obj-c++	GNU Objective C++ Compiler	5.4 M	4.1.2_200
<input checked="" type="checkbox"/> libgcc	C compiler runtime library	114.7 K	4.1.2_200
<input type="checkbox"/> libgcj	Java Runtime Library for gcc	40.6 M	4.1.2_200
<input type="checkbox"/> libgcj-32bit	Java Runtime Library for gcc	22.4 M	4.1.2_200

Description Technical Data Dependencies Versions File List C

cpp - The GCC Preprocessor

This Package contains just the preprocessor that is used by the X11 packages.

Check Autocheck Cancel Accept

SLES 10 - glibc

Filter: Search
▼

Search:

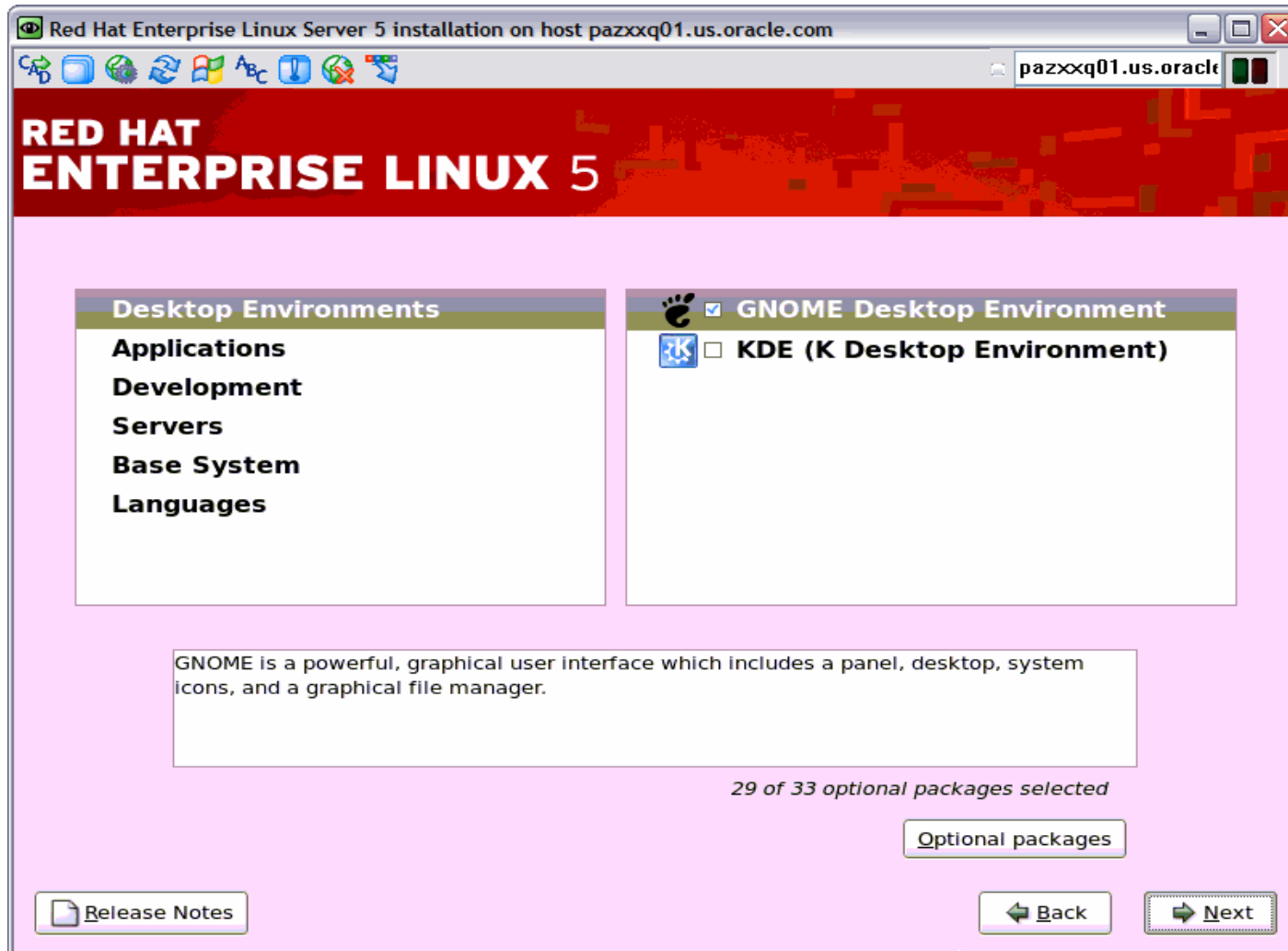
Search in

- Name
- Summary
- Description
- RPM "Provides"
- RPM "Requires"

Search Mode:

	Package	Summary	Size
<input checked="" type="checkbox"/>	glibc	Standard Shared Libraries (from the GNU C Library)	5.5
<input checked="" type="checkbox"/>	glibc-32bit	The 32-bit shared libraries (from the c-library-package)	3.0
<input checked="" type="checkbox"/>	glibc-devel	Include Files and Libraries Mandatory for Development	14.0
<input checked="" type="checkbox"/>	glibc-devel-32bit	32bit Libraries for the C Compiler	4.8
<input type="checkbox"/>	glibc-html	HTML Documentation for the GNU C Library	5.4
<input checked="" type="checkbox"/>	glibc-i18ndata	Database Sources for 'locale'	9.1
<input type="checkbox"/>	glibc-info	Info Files for the GNU C Library	861.1
<input checked="" type="checkbox"/>	glibc-locale	Locale Data for Localized Programs	62.8
<input checked="" type="checkbox"/>	glibc-locale-32bit	Locale Data for Localized Programs	5.8
<input type="checkbox"/>	glibc-profile	Libc Profiling and Debugging Versions	6.5
<input type="checkbox"/>	glibc-profile-32bit	32-bit Libc Profiling and Debugging Versions	4.9

RHEL 5 - packages



RHEL 5 - development

Red Hat Enterprise Linux Server 5 installation on host pazxxq01.us.oracle.com

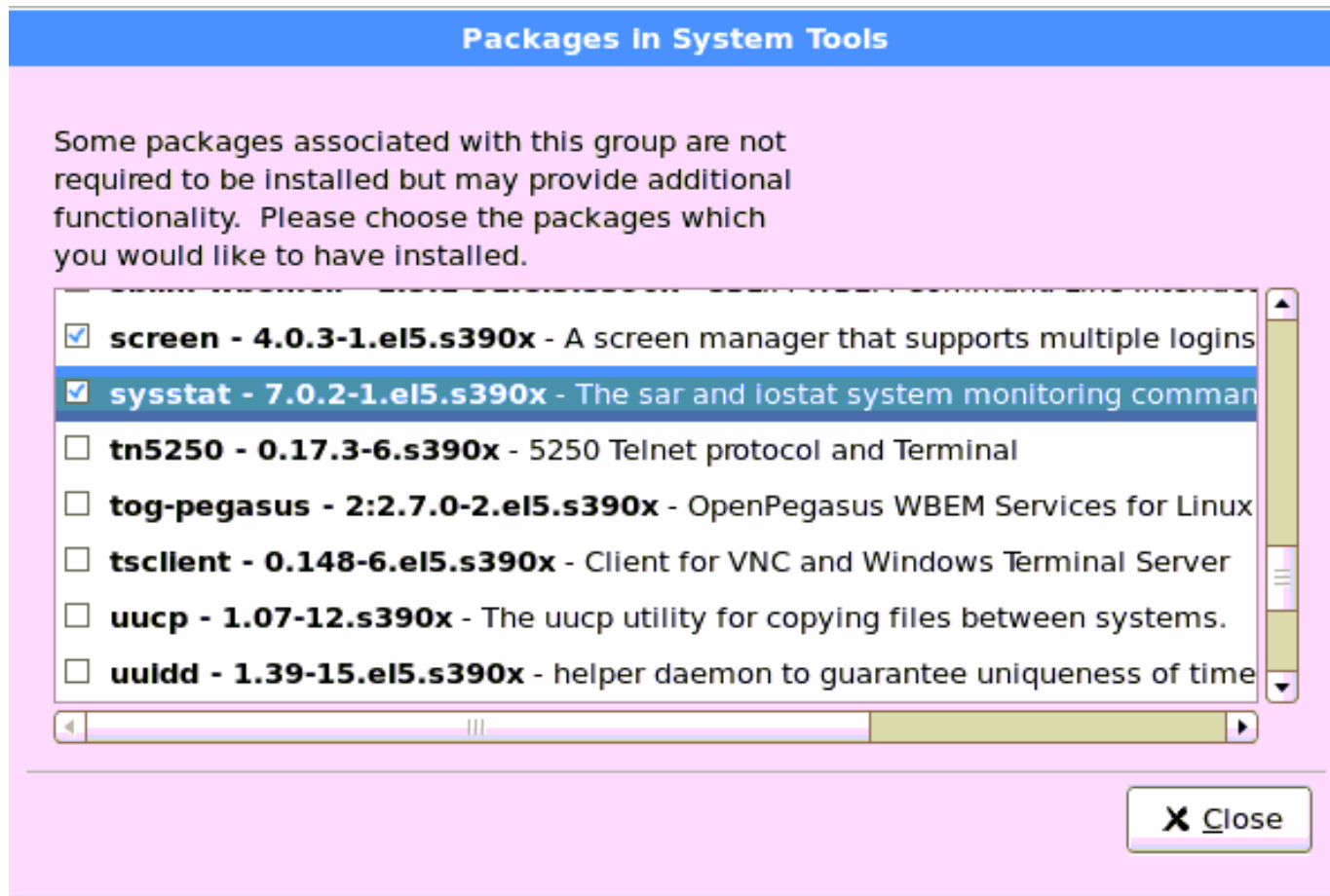
RED HAT ENTERPRISE LINUX 5

Packages In Legacy Software Development

Some packages associated with this group are not required to be installed but may provide additional functionality. Please choose the packages which you would like to have installed.

- compat-gcc-34 - 3.4.6-4.s390x** - Compatibility GNU Compiler Collection
- compat-gcc-34-c++ - 3.4.6-4.s390x** - C++ support for compatibility compil
- compat-gcc-34-g77 - 3.4.6-4.s390x** - Fortran 77 support for compatibility c
- compat-glibc - 1:2.3.4-2.26.s390x** - Compatibility C library
- compat-libs-295 - 2.95.3-85.s390x** - Compatibility 2.95.3 libgcc library
- compat-libs-c++-295 - 2.95.3-85.s390x** - Standard C++ libraries for Red
- compat-libs-c++-33 - 3.2.3-61.s390x** - Compatibility standard C++ librar

RHEL 5 - sysstat



Challenging to locate rpms

- Special instructions
 - openmotif 2.1
 - libsd.so.2
- Special rpms – might not be used by other solutions
 - gcc
 - libstd
 - 31 bit and 64 bit libraries
 - compat libraries
 - sysstat
- Level of JDK (WebLogic)

OPENMOTIF for SLES 10

- Older version required
- Available at <http://oss.oracle.com/projects/compat-oracle>]
- The required RPM is:
 - openmotif21-libs-32bit-2.1.30MLI4-143.2
- As root, you can install this RPM package by issuing the following command:
- `# rpm -i openmotif21-libs-32bit-2.1.30MLI4-143.2.rpm`

OPENMOTIF for Red Hat

- Available at <http://oss.oracle.com/projects/compat-oracle>
- The required RPMs are :
 - openmotif21-debuginfo-2.1.30-11.RHEL5.s390.rpm
 - openmotif21-2.1.30-11.RHEL5.s390.rpm
- As root, you can install this RPM package by issuing the following command:
- `# rpm -i openmotif21-debuginfo-2.1.30-11.RHEL5.s390.rpm`

libsd.so.2 file

- Use a symbolic link to provide this library
 - `# ln -s /usr/lib64/libgdbm.so.2.0.0 /usr/lib64/libdb.so.2`

- The same was done on the 32 bit lib folder once we found that the 64 bit solution works, so as to make it look identical.
 - `#ln -s /usr/lib/libgdbm.so.2.0.0 /usr/lib/libdb.so.2`

- This solution is found under the AS10G certification on X86 and X86-64 platforms documents on metalink Doc ID 564174.1

- On SLES 10 we installed the db1-1.85-101.2.s390x.rpm,

Oracle Support notes for DB rpms

- Note 556906.1 Requirements for Installing Oracle 10gR2 RDBMS on SLES 10 on zLinux (s390x)
- Note 431443.1 Requirements for Installing Oracle 10gR2 RDBMS on SLES 9 on zLinux (s390x)
- Note 741646.1 Requirements for Installing Oracle 10gR2 RDBMS on RHEL 5 on zLinux (s390x)
- Note 420382.1 Requirements for Installing Oracle 10gR2 RDBMS on RHEL 4 on zLinux (s390x)
- Note 420382.1 Requirements for Installing Oracle 10gR2 RDBMS on RHEL 4 on zLinux (s390x)
- Note 401705.1 "Linux x86 and Linux x86-64 Requirements Reference List" includes a pointer to each of these for all platforms.

DB 10gR2 rpms - RH

- Note 741646.1 Requirements for Installing Oracle 10gR2 RDBMS on RHEL 5 on zLinux (s390x)
- **RHEL 5 Operating System Requirements**

The following packages (or later versions) must be installed on your Linux on System x after a default rpm installation:

- glibc-devel-2.5-24.s390.rpm <<< This "s390" is the 31-bit ARCH. Both ARCH's are required.
- libaio-0.3.106-3.2.s390x.rpm <<< This "s390x" is the 64-bit ARCH. Both ARCH's are required.
- sysstat-7.0.2-1.el5.s390x.rpm
- java-1.4.2-gcj-compat-src-1.4.2.0-40jpp.115.s390x.rpm
- compat-gcc-34-c++-3.4.6-4.s390x.rpm
- compat-gcc-34-3.4.6-4.s390x.rpm
- compat-libstdc++-33-3.2.3-61.s390x.rpm
- compat-libstdc++-295-2.95.3-85.s390x.rpm

Oracle Support notes for AS rpms

- Oracle Application Server 10g Release 2 (10.1.2) Install Certifications on Linux Platforms [ID 947193.1]
- Two Links in this document list the Linux on z rp,ms
- <https://support.oracle.com/CSP/main/article?cmd=show&type=ATT&id=947193.1:1012-RHEL5-zlin-2>
- <https://support.oracle.com/CSP/main/article?cmd=show&type=ATT&id=947193.1:1012-sles10-zlin-2>

AS 10g rpms - RH

- Document ID 947193.1 - Oracle Application Server 10g Release 2 (10.1.2) on IBM s390x Z Series (zLinux) with Red Hat Enterprise Linux (RHEL) 5
- **RHEL 5 Operating System Requirements**

The following packages (or later versions) must be installed on your zLinux system:

- binutils-2.16.91.0.5-23.4.s390.rpm
- gcc-4.1.0-28.4.s390.rpm
- gcc-c4.1.0-28.4.s390.rpm
- glibc-devel-2.4-31.2.s390.rpm
- libgcc-4.1.0-28.4.s390.rpm
- libstdc-devel-4.1.0-28.4.s390.rpm
- libstdc4.1.0-28.4.s390.rpm
- make-3.80-202.2.s390.rpm
- compat-db 4.1.25-9.s390.rpm

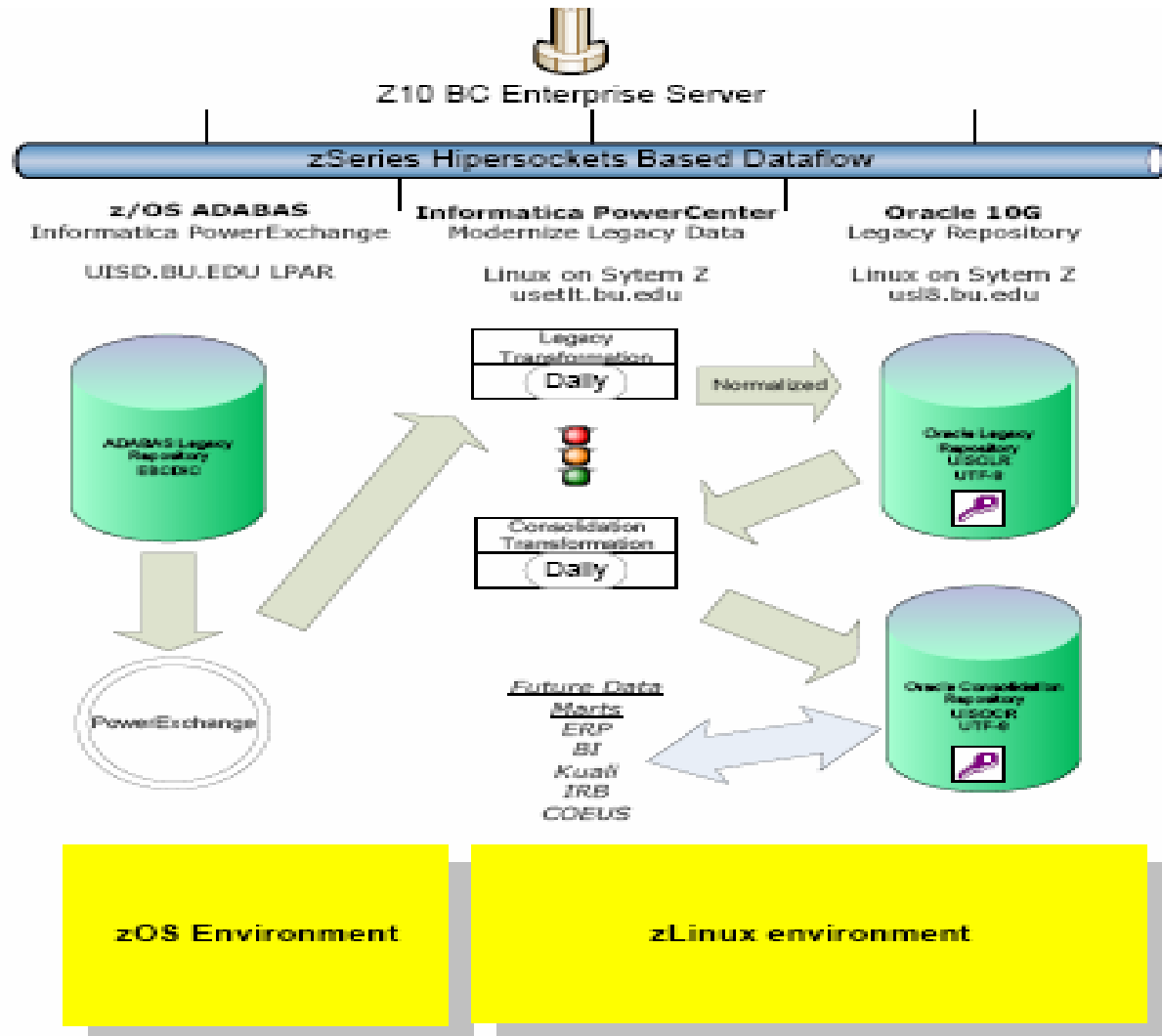
AS 10g rpms - SLES

- Document ID 947193.1 - Oracle Application Server 10g Release 2 (10.1.2) on IBM s390x Z Series (zLinux) with SUSE Linux Enterprise Server (SLES) 10
- **SLES10 Operating System Requirements**
 - The following packages (or later versions) must be installed on your zLinux system:
 - gcc-4.1.0-28.4.s390.rpm
 - glibc-devel -2.4-31.2.s390.rpm
 - gcc-c++-4.1.0-28.4.s390.rpm
 - libgcc-4.1.0-28.4.s390.rpm
 - libstdc++-devel-4.1.0-28.4.s390.rpm
 - libstdc++-4.1.0-28.4.s390.rpm
 - binutils-2.16.91.0.5-23.4.s390.rpm
 - compat-libstdc++-5.0.7-22.2.s390.rpm
 - compat-2006.1.25-11.2.s390.rpm
 - make-3.80-202.2.s390.rpm

Set up for a large DB or DW

- Increase values for Linux parameters
 - kernel settings in `/etc/sysctl.conf`
 - `/etc/security/limits.conf` set higher number for `nproc` and `nofile`
 - `/etc/pam.d/login` file
 - Set `ulimit` parameter in Oracle user profile
- Increase values for `initora` parameters
 - Increase `sessions` and `processes` values
- Distribute the data as much as possible on disks, especially the redo logs files
- Continue to monitor the performance of the workload with `nmon` and find the bottlenecks if there are any through AWR reports.
- Larger tables or fact tables should be partitioned
- Use common sense to apply parallelism only where it will help performance and not hinder it
- Always have accurate Optimizer statistics
- Set only the initialization parameters that you need to
- Avoid undocumented parameters

Example of large DW



Oracle E-Business Suite Certification

- Oracle E-Business 11i and R12 are certified for System z Linux in a mixed architecture configuration
- Only most current release of E-Business Suite
 - EBS 11i - 11.5.10.2
 - EBS R12 – 12.0 and 12.1
- Certified on the following Linux Distributions
 - Novell SuSE SLES9 and SLES10
 - Red Hat Enterprise EL4 and EL5
- Full port Status
 - E-Business R12.x will be available in 2010 to run fully on Linux on IBM System z with 10.2.0.4 Database

Setting up Linux Guest on z for E-Business full implementation

This solution will be available in CY2010 – this information is available to help you prepare for using this solution.

Choices are SLES10 or RedHat 5

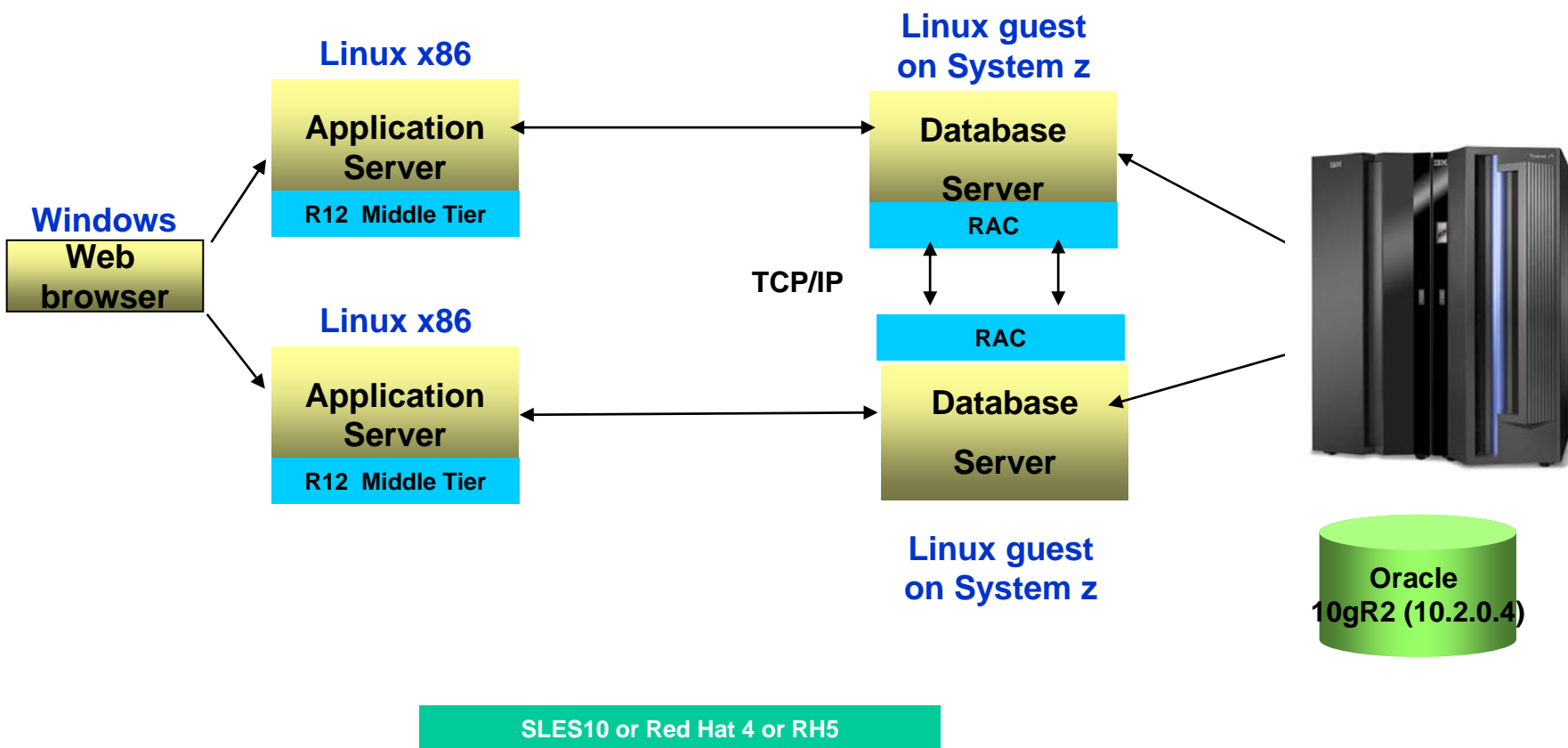
E-Business uses the DB tier and the FMW tier and EBS so extra rpms are required

Base default installation plus rpms

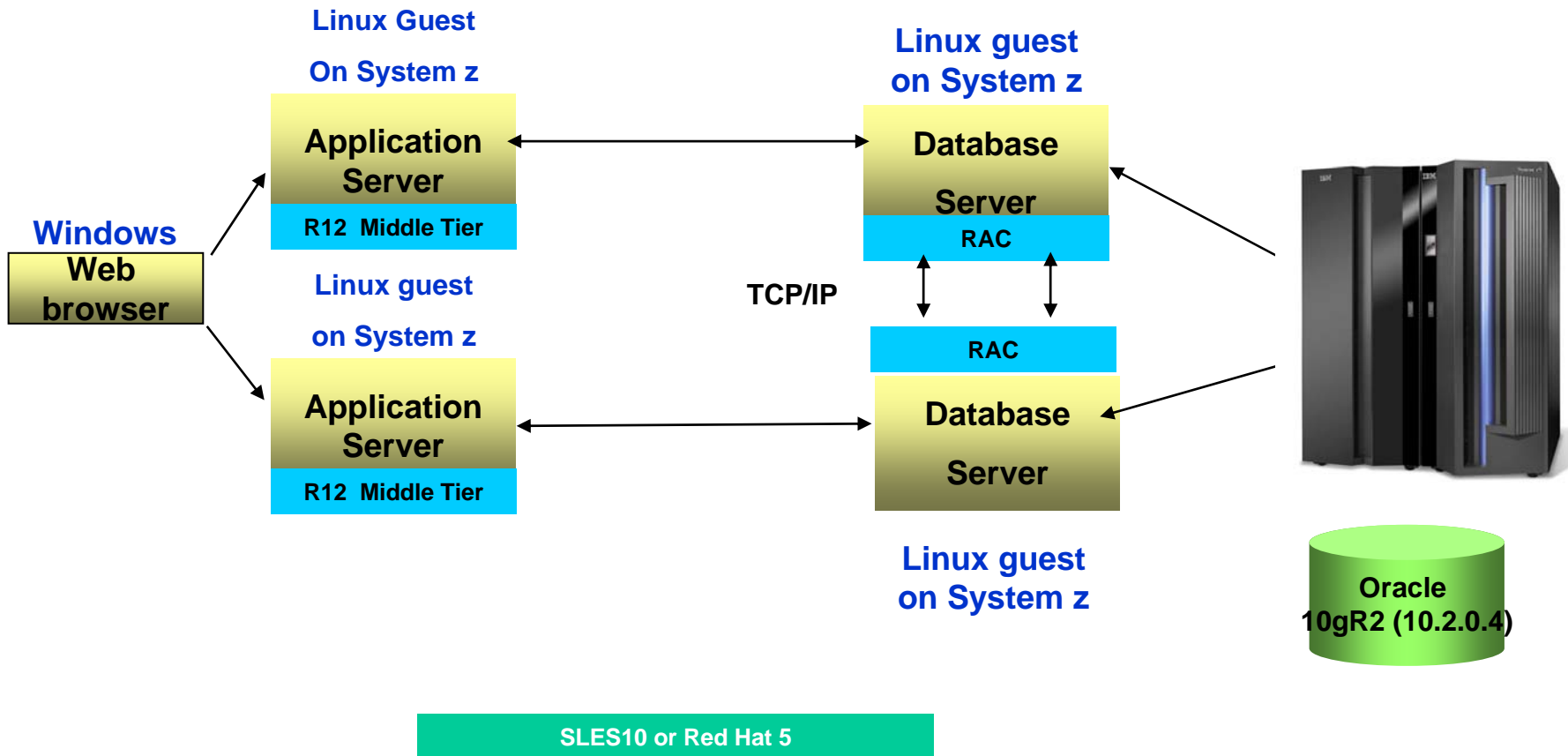
Oracle Set up for EBS

- Support notes being developed
- E-Business uses DB and AS so both sets of rpms will be required
- Red Hat 5 installation documented in
- SG24-7634-00 Experiences with Oracle Solutions on Linux for IBM System z at www.redbooks.ibm.com
- SLES 10 installation being documented for redpiece for 3Q

Oracle E-Business Suite R12 Mixed Architecture with DB RAC on Linux on IBM System z

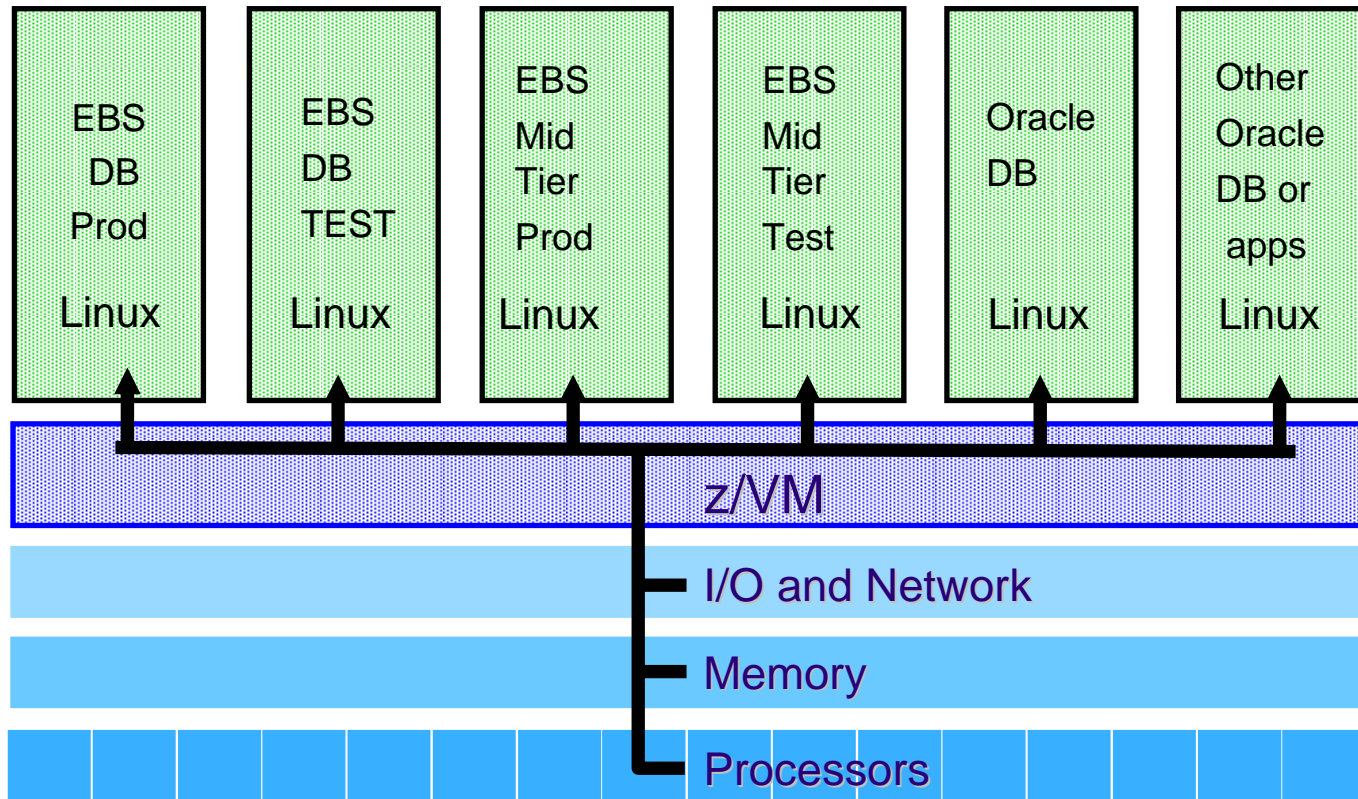


Oracle E-Business Suite R12 Architecture with Middle Tier on Linux on IBM System z Later in 2010



Virtual Machine Partitioning for EBS

Efficiently Exploiting the Entire Mainframe Complex



Easy to create new images, easy to manage

Sizing for E-Business Suite on z

- Sizing
 - If this is an existing implementation, use the server consolidation method
 - If this is a new implementation, Techline can provide the sizing questionnaire and give guidelines on resources required

Resources

- <http://www.ibm.com/redbooks>
 - SG24-6482-00 Experiences with Oracle Database 10g on Linux for zSeries
 - SG24-7191-00 Experiences with Oracle 10gR2 Solutions on Linux for System z
 - SG24-7573-00 Using Oracle Solutions on Linux on System z
 - SG24-7634-00 Experiences with Oracle Solutions on Linux for IBM System z

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Questions???