



# RHEL v. OL

## Auf welche OS sollte meine Oracle Datenbank laufen?

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# Welche BS?

- Kunden fragen uns oft welche Betriebssystem wir für deren Oracle Datenbank Server empfehlen werden



# Oracle Linux?

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- **Überblick OL früher**
  - Open World 2006
  - Wie RHEL aber billiger Support /mit Fixes
  - UEK / RHEL Kernel
  - Support RHEL
  - Oracle & Open Source async I/O, OCFS, timing, usw.



# Oracle Linux UEK (Unbreakable Enterprise Kernel)

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## ■ Überblick OL UEK

- Default kernel
- ASMLIB
- OCFS2
- Ksplice
- Installation (rpm)
- BTRFS
- Smart flash cache



# UEK - Unbreakable Enterprise Kernel (1/2)

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- **Note that Oracle has renamed their Linux. It is now called “Oracle Linux” and no longer “Oracle Enterprise Linux”.**
  
- **Oracle supplies their Linux with two different Linux kernels**
  - The RHEL Linux kernel and an Oracle version of the Linux kernel – “Unbreakable Enterprise Kernel” (UEK). With the newer versions of Oracle Linux, the UEK is installed per default.

# UEK - Unbreakable Enterprise Kernel (2/2)

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## ■ UEK= Oracle eigene Kernel?

- Lange Zeit kein Support für RHEL6 / OL6
- jein Std. Kernel mit RHEL5 Version, backported RHEL6 Features mit Addons, Hardware Support, Treiber (Sept 2010 RHEL6)
- Ist es kein Standard-Kernel? Hat RHEL / SLES ein Standard-Kernel?

## ■ Zertifiziert?

- Oracle Linux maintains user-space compatibility with Red Hat Enterprise Linux, which is independent of the kernel version running underneath the operating system. The existing applications will continue to run unmodified on Unbreakable Enterprise Kernel Release 2 and no re-certifications are needed for RHEL certified applications.

# ASMLIB

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## ■ **ASMLIB – kein Support auf RHEL 6 ohne UEK.**

- Was ist ASM? Was ist ASMLIB? ASMLIB macht ASM (Automatic Storage Management) einfacher
- “For RHEL6, Oracle will only provide ASMLib software and updates when configured with a kernel distributed by Oracle.”
- This means that if you want to run ASMLIB on your RHEL6 server, you need to have Support from Oracle for that server and you need to install the Oracle UEK kernel. [ID 1089399.1].
- Although using ASMLIB makes life easier, you can use the alternative of udev and multipath thus avoiding the kernel dependency in ASMLIB [ID 414897.1].

# OCFS2 (Oracle Cluster File System)

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- **OCFS2 1.4 is available on RHEL 6. All newer versions of OCFS2 (OCFS2 is currently at version 1.6/1.8) require the Oracle Kernel (UEK).**
- This means that if you want to run a newer version of OCFS2 on your RHEL6 server, you need to have Support from Oracle for that server and you need to install the Oracle kernel. [ID 1253272.1].
- However, ASM and ACFS are often viable alternatives to OCFS2.



# Ksplice

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- **By buying Ksplice, Oracle now offers a service where kernel updates can be applied without rebooting– only available with UEK.**
- This is particularly interesting in combination with another Oracle Linux feature: Linux containers. With Linux containers, you have one installation of Linux which is centrally patched. Many hosts use this one single installation. (Linux containers is in beta)
- This could be interesting for larger installations where downtime is to be kept to a minimum.

# Einfacher Installation

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- **The installation of an Oracle database on OL is made easier through the Oracle-validated RPM.**
- By installing this RPM, the necessary users and groups are created; the kernel parameters and limits are set, etc.
- And indeed, through the Oracle public yum repository, you can also get an oracle-validated RPM for RHEL too.
- Now called „oracle-rdbms-server-11gR2-preinstall“

# btrfs

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- **The default file system for OL6 UEK2 is btrfs, not ext4 as on RHEL6.**
  - Btrfs is a file system developed by Oracle and has been in the mainline kernel since 2.6.29
  
- **Why btrfs?**
  - Its aim is to bring more efficient storage management and better data integrity features to Linux. It has been designed to offer advanced features such as built-in **RAID support, snapshotting, compression, and encryption**. Btrfs also checksums all metadata and will checksum data with the option to turn off data checksumming.
    - <http://static.usenix.org/publications/login/2012-02/openpdfs/Bacik.pdf>

# Smart flash cache

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- **Smart flash cache = Support für Flash / SSD (Solid State Disk)**
  
- The feature database Smart Flash Cache is available on Solaris and Oracle Enterprise Linux and allows customers to increase the effective size of the Oracle database buffer cache without adding more main memory to the system. See the following link for more details. <http://www.oracle.com/technetwork/articles/systems-hardware-architecture/oracle-db-smart-flash-cache-175588.pdf>

# Virtualisieren

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- **“Oracle Products are not certified to run on Virtual Machines/guests provided by Xen or KVM offerings by Red Hat, Novell or XenSource.” [ID 417770.1].**
- Oracle Products are not certified to run on operating systems on top of Red Hat, Novell SLES or Citrix XenServer Enterprise Edition Xen Hypervisors. Note however, that Oracle does indeed support Oracle products in a virtual environment even when not certified [ID 417770.1].

# Lizenzen (1/2)

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- **OL can be downloaded and run without a support licence.**
  - RHEL needs a support contract for a minimum of one year.
  - Either all RHEL Server have Support, or none.
- Oracle has announced a number of features for the Oracle database that will be no longer available on the standard Linux kernel, but only on the Oracle kernel (UEK). It is possible to get an Oracle support contract for a RHEL Linux and install the oracle kernel on RHEL. By installing the Oracle kernel on your RHEL server, **you invalidate your support contract from Red Hat.**

# Lizenzen (2/2)

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- The killer reason to use Oracle Linux?
  - something that was mentioned in the announcement that the Oracle database 11.2 and Fusion Middleware 11.1 are now supported on Oracle Linux 6. **“Effective immediately, Oracle will provide its Red Hat compatible Linux binaries, updates and errata for free <http://public-yum.oracle.com>. Terms, conditions and restrictions apply.”** See the announcement here (March 22, 2012) <http://www.oracle.com/us/corporate/press/1563775>
  
- Grid Infrastructure auf OL
  - ohne ein andere Oracle Produkt
  - Um ein 3rd-Party Produkt hochverfügbar zu machen

# Support, Dokumentation

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## ■ Support

### ■ Billiger als RHEL Support

- Linux Cost Calculator <http://www.oracle.com/us/media/calculator/linuxtco/index.html>

### ■ Ähnliche Qualität & Reaktionszeit wie bei andere Oracle Produkte

- (bezogen auf Basic Support)
- [http://docs.media.bitpipe.com/io\\_10x/io\\_104128/item\\_545226/Linux%20Related%20Technical%20Support%20Comparative%20Study.pdf](http://docs.media.bitpipe.com/io_10x/io_104128/item_545226/Linux%20Related%20Technical%20Support%20Comparative%20Study.pdf)

## ■ Dokumentation

- Ist der Redhat Dokumentation und ein paar White Papers über z.B. BTRFS, Smart Flash Cache, usw.



# Cloud Control

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## ■ Cloud Control

- PaaS kann man mit OVM, EMCC und OL betreiben

- - [Oracle Enterprise Manager 12c and Ops Center for Linux Management](#)  
(Lizenzen)

- DaaS geht nur mit EE & Oracle Cloud Management Pack for Oracle Database

## ■ Betrieb mit OVM?

- Backup?

- DOAG Kommentare

- <http://www.doag.org/home/aktuelle-news/article/doag-und-oracle-wollen-das-thema-oracle-vm-3-gemeinsam-angehen.html>

# Pro / Contra Oracle Linux

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## ■ Pro

### ■ Extra features

- ASMLIB, OCFS2, Ksplice, BTRFS, EMCC Einbindung & PaaS

### ■ Support Kosten (auch ohne Support möglich)

### ■ Cloud & Lizenz (könnte in Zukunft interessant sein)

## ■ Contra

### ■ Support

### ■ Zertifiziert?

- Oracle Linux maintains user-space compatibility with Red Hat Enterprise Linux, which is independent of the kernel version running underneath the operating system. The existing applications will continue to run unmodified on Unbreakable Enterprise Kernel Release 2 and no re-certifications are needed for RHEL certified applications.

# Fazit

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## ■ Fazit

- Auch angesichts dieser verlockenden Gründe, Oracle Linux anstatt Red Hat Linux zu nutzen, werden die meisten großen IT-Abteilungen, die **RHEL bereits nutzen, auch bei diesem Betriebssystem bleiben**. Für Abteilungen, die bislang kein Standard-Linux betreiben, ist Oracle Linux hingegen eine sehr gute Wahl. Dabei wird die Tatsache, dass **Updates nun umsonst und ohne Supportvertrag** erhältlich sind, insbesondere ausgabenbewusste IT-Verantwortliche interessieren.

# Fragen

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# Kontakt Daten

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