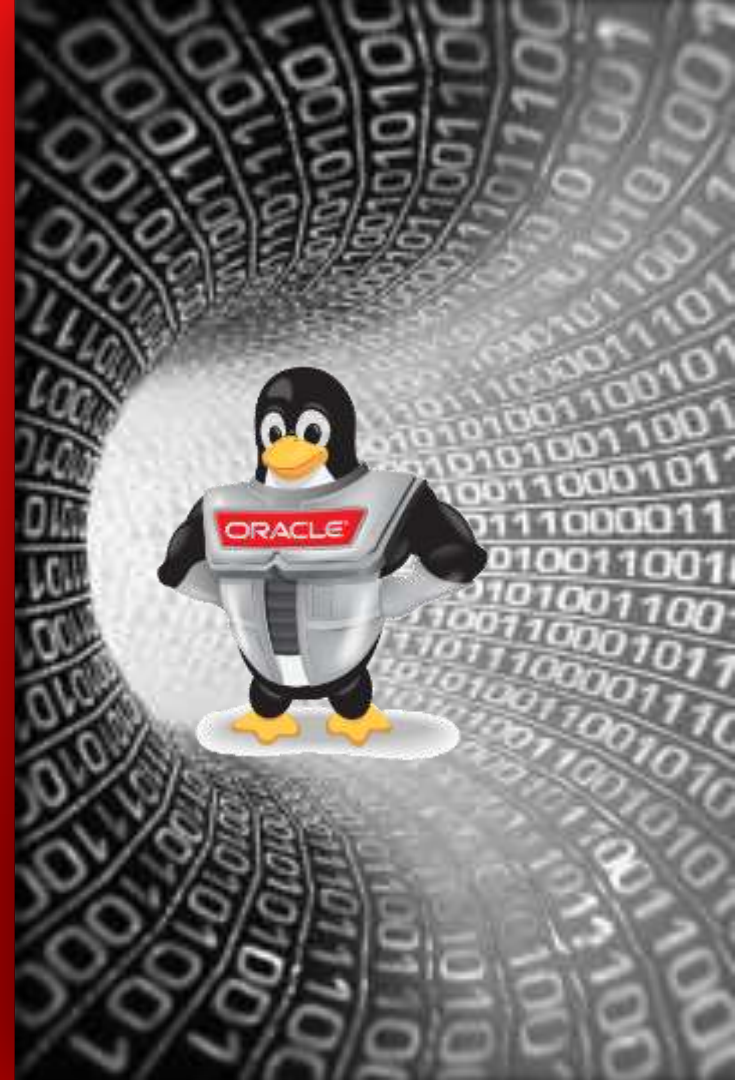


ORACLE®

Oracle Linux Overview

Presented by: Anuj Verma
Title: Senior Pre-Sales Consultant



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 decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

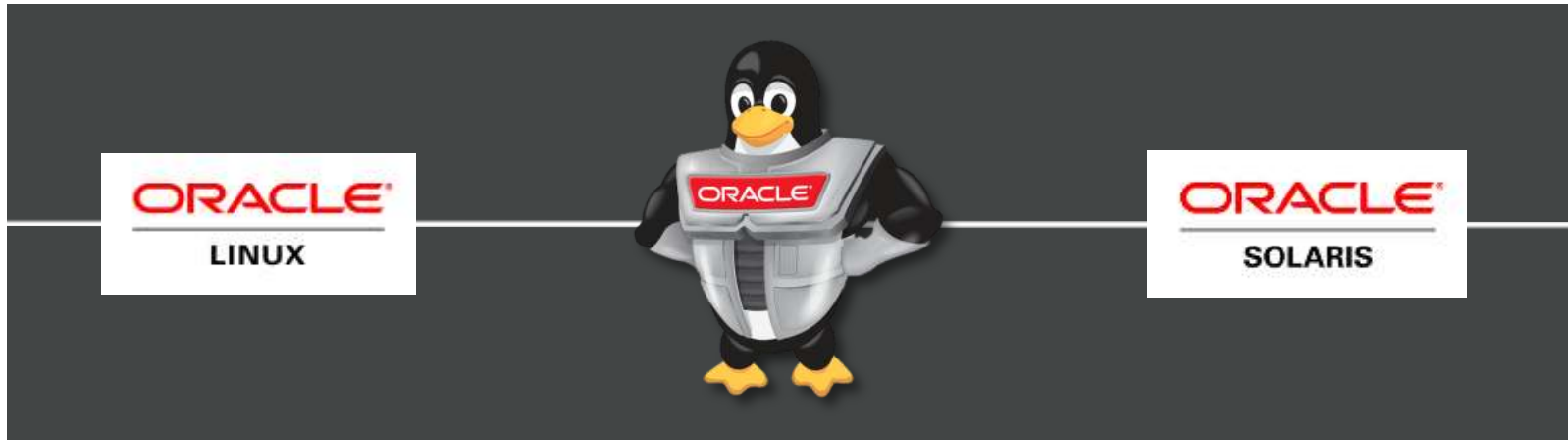
Introduction Overview

- Oracle Linux Strategy
- Oracle Linux Support Offerings
- Powering Oracle Solutions
- System Management: Patching & Provisioning
- Additional Oracle Linux Features

Oracle Linux Strategy

Oracle's Dual OS Strategy

Best in class. Optimized for the enterprise. Choice.



Oracle Linux

Building a solution to power the modern data center

Linux Innovations

Oracle Enhancements

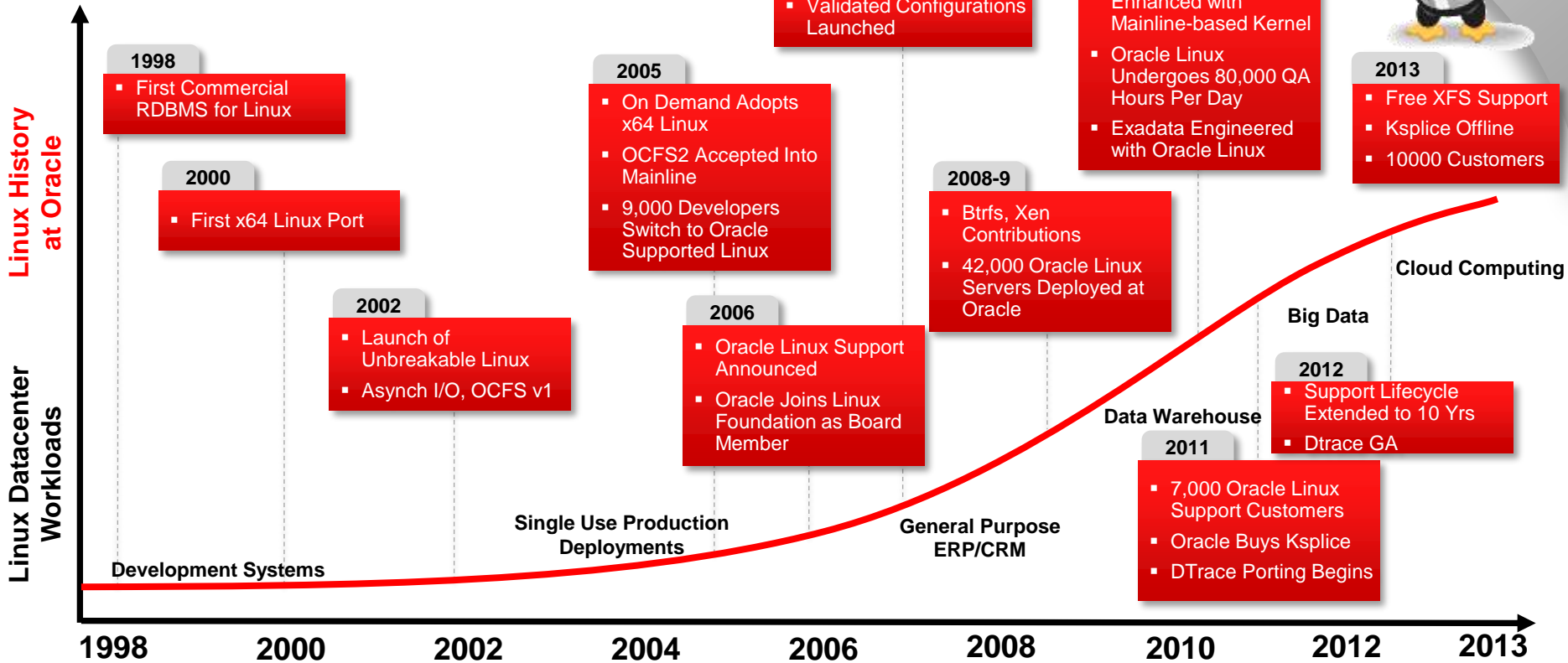


**The Best Enterprise
Linux Distribution for
Mission Critical
Workloads**



Oracle and Linux

Nearly 15 Years of Investments



Oracle Linux

Nearly 11,000 customers and increasing market annually by double digits!

According to Gartner, Oracle Linux is one of the top 3 distributions, growing more than 80 percent year-over-year in 2012, which outpaced the overall Linux server operating system market growth(1).



(1) Source: Gartner, Market Share, All Software Markets, Worldwide, 2012 – March 29, 2013

Linux Distributions

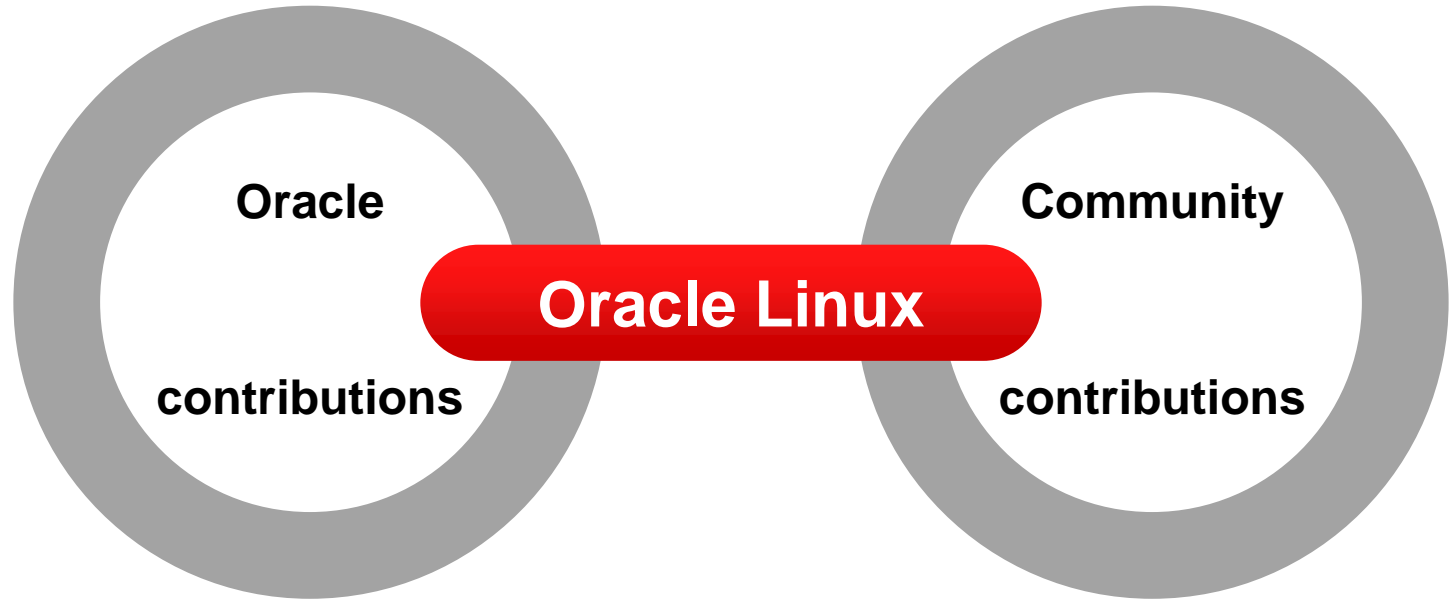
For the record...

- Nobody owns Linux
 - not Oracle
 - not Red Hat
 - not SUSE
- Linux receives contributions from a variety of sources representing hardware and software vendors as well as community supporters for a variety of solutions
- Oracle Linux will focus on features important to enterprise customers



The Oracle Linux Development Philosophy

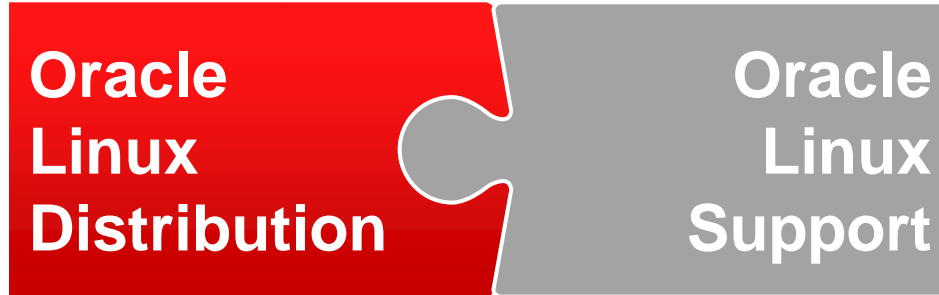
Open standards



Oracle Linux

Best Enterprise Linux combined with World-Class Support

ORACLE
LINUX



Oracle Linux

Our Focus

- Oracle Linux is developed to provide the best operating system for mission critical workloads
 - Oracle Database, Middleware, Applications, Engineered Systems
 - Any critical business application

- Our development efforts focus on features that drive:



Reliability



Scalability



Performance



- Real-world testing and validations
 - Oracle Linux goes through extensive testing cycles for each release
 - It is the Linux development standard at Oracle
 - It receives over 128,000 hours of testing at Oracle each day

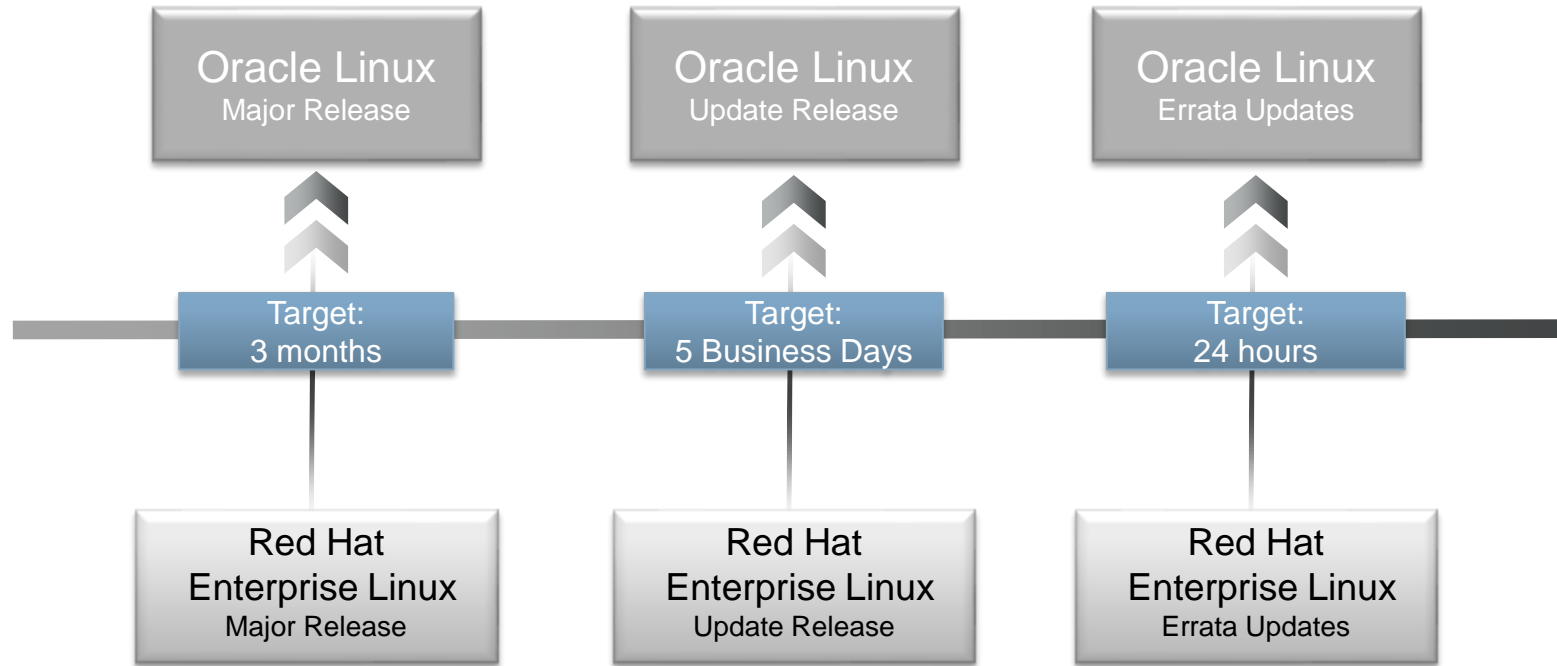
Oracle Linux

Our Delivery

- Oracle Linux is binary compatible to RHEL
- It provides two kernel options for customers to choose from:
 - The Unbreakable Enterprise Kernel (default)
 - Red Hat compatible Kernel – provides a simple migration path for existing Red Hat customers
 - Customers using RHEL are not required to reinstall, they can receive support from Oracle without migrating their system from RHEL to Oracle Linux.
 - Applications supported on RHEL will run on Oracle Linux.
- World-class, 24x7 global support under Oracle Linux Basic and Premier subscriptions
- Unbreakable Linux Network <http://linux.oracle.com> (Web portal)
 - Bug fixes, security updates, CVE information

Oracle Linux Release Schedules

Maintaining binary compatibility with Red Hat Enterprise Linux



Oracle Linux

Maintaining Binary Compatibility to Simplify Migrations

/SRPM

- package_a.src.rpm
- package_b.src.rpm
- package_c.src.rpm
- package_d.src.rpm

Source



1010100100
101011010
1101010010
10101010



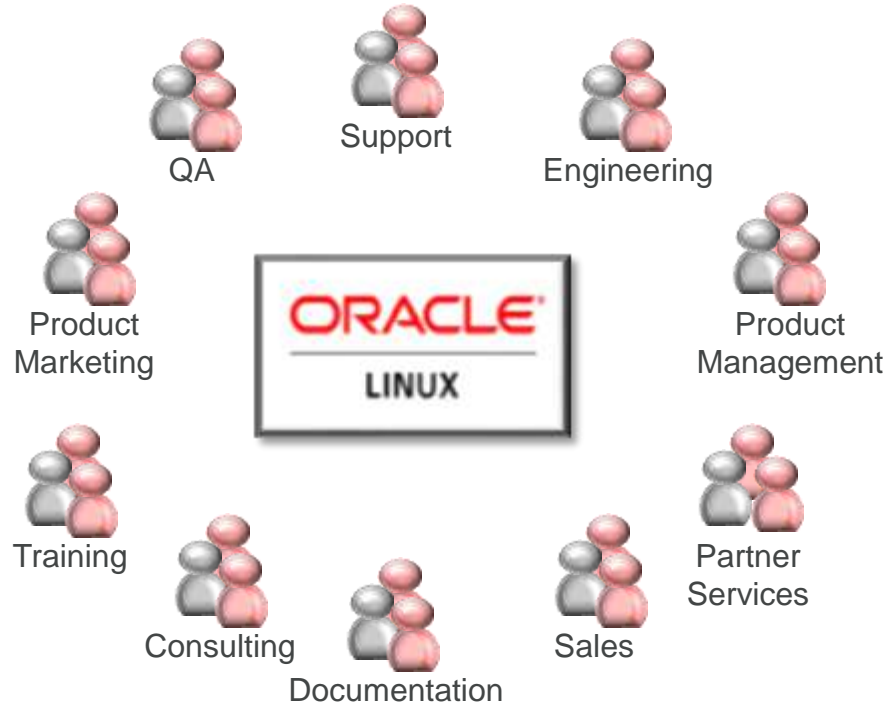
Binary

Oracle Linux Release Model

Understanding the terminology

- Major version:
 - Example: Oracle Linux 6
- Update/minor release:
 - Example: Oracle Linux 6.3
 - Consolidations of all bug fixes and security errata
 - All update releases within a major version are API compatible
- Errata: A package update which represents either a security or bug fix
 - Errata is published immediately via the corresponding `_latest` and `_patch` yum repositories and ULN channels
 - `_patch` channels contain all RPM updates after that update release was published and only until new update release is published

Oracle Is a Complete, Independent Linux Vendor



Oracle Linux: Freedom to Choose

Offering choice, not lock-in

- Free to download
- Free to distribute
- Free to use
- Choose your support level individually per server
- Free updates (errata)
- Open development



Oracle Linux Support Subscription Offerings

Oracle Linux Subscription Levels & Features

Network	Basic	Premier
<ul style="list-style-type: none">• Errata, updates, fixes• Comprehensive indemnification• Linux Patch Management support with Enterprise Manager• Access to additional software channels on ULN	<ul style="list-style-type: none">• All features from Network <p>Plus:</p> <ul style="list-style-type: none">• 24x7 phone and online support• Access to My Oracle Support and Oracle's comprehensive knowledgebase• Oracle Clusterware• Get ProActive program	<ul style="list-style-type: none">• All the features of Network and Basic <p>Plus:</p> <ul style="list-style-type: none">• Premier backports• Zero downtime updates with Ksplice• Lifetime sustaining support• XFS Support

Oracle Linux Subscriptions

Pricing Information



[For latest pricing:
https://shop.oracle.com](https://shop.oracle.com)

Oracle Linux	Pricing
Installable Binaries and errata	FREE
Basic Limited (24x7, unlimited support) (2 or less CPUs)	\$499
Basic (24x7, unlimited support) (More than 2 CPUs)	\$1,199
Premier Limited (24x7, unlimited support) (2 or less CPUs)	\$1,399
Premier (24x7, unlimited support) (More than 2 CPUs)	\$2,299

Oracle only counts physical sockets; no limit on cores or number of virtual guests

Oracle Linux Premier Support is included as part of Oracle's Sun x86 Premier Support for Systems.

Enterprise Features and Unique Value

Only with Oracle Linux

- The only Linux distribution providing comprehensive tracing and diagnostics with DTrace
- The only Linux platform providing zero-downtime kernel updates with Ksplice
- Comprehensive system management features available at no additional cost
- Enterprise high availability solution included at no additional cost



Oracle Linux

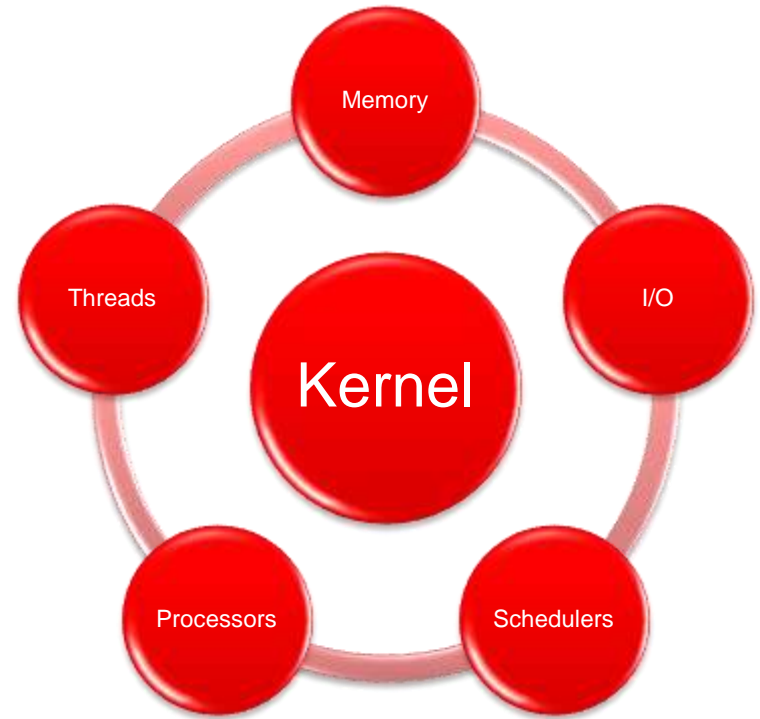
Architecture | Scalability

- Oracle Linux Architectures
 - x86 IA32 (32-bit)
 - x86-64 (64-bit)
- Oracle Linux holds the record for TPC benchmarks on x86_64 systems.
- Oracle Linux leads in scalability and benchmarks with support for:
 - Up to 4096 CPUs
 - Up to 4TB Memory

Oracle Linux

Why the kernel is so important?

- The kernel is the center of everything
- It controls access to critical hardware resources
- The features and improvements in the kernel drive stability and performance
- Mission critical applications, like those produced by Oracle, depend on the kernel to support their features

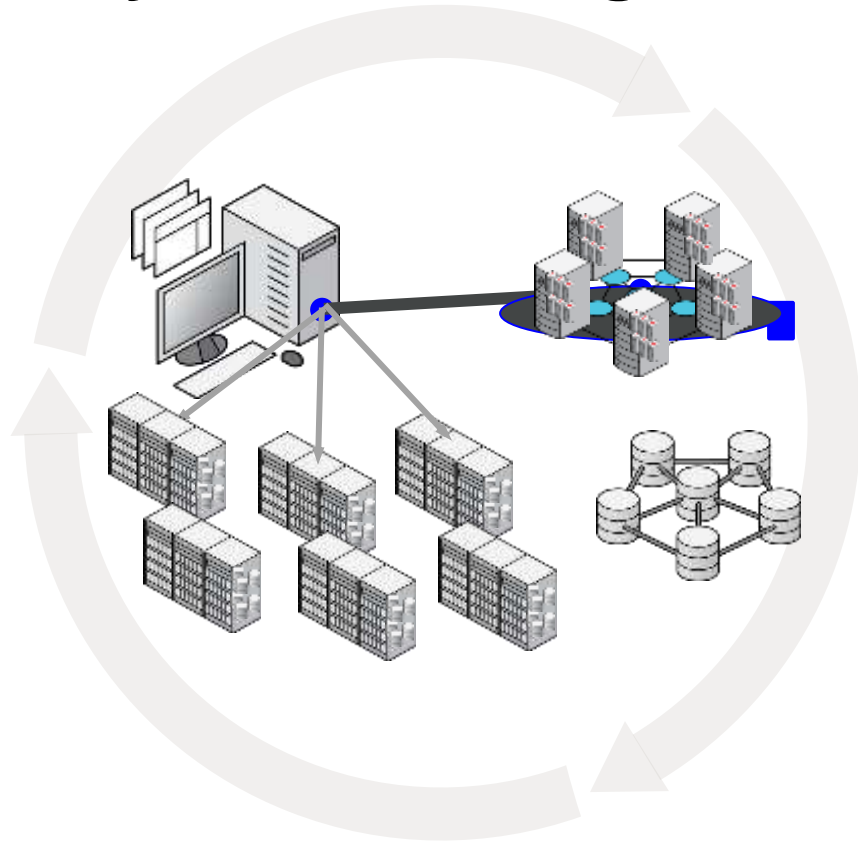


Oracle Linux

A Tale of Two Kernels

- The Unbreakable Enterprise Kernel (UEK) – is the default kernel
 - This is the kernel developed by Oracle for the Oracle Linux platform and is optimized for Oracle applications, engineered systems and mission critical workloads and fully supported for any Linux application.
 - 100% compatible for applications
- The Red Hat Compatible Kernel (RHCK)
- Development of the Unbreakable Enterprise Kernel is open source, does not contain any proprietary components and can be easily accessed at <http://oss.oracle.com/git>

Lifecycle of Testing



- **Linux development standard for all Oracle products**
- **Deployed across Oracle's business operations**
- **128,000 hours of testing each day**
- **175,000 total OS Instances (physical + virtual)**

Oracle Linux

Powering Oracle Solutions



Oracle Database Runs Best on Oracle Linux

Joint development, exceptional results

- Oracle Linux is the only Linux tested and certified with Oracle Database.
- Integrated features and joint development optimizes Oracle Linux for the Oracle database.
 - Database Smart Flash Cache
 - Data Integrity
 - Advanced security and monitoring features with Oracle Audit Vault and Database Firewall
- Oracle pre-install and Oracle Validated solutions to simplify Database deployments
- In September 2012, Oracle Linux and Oracle Database delivered world-record TPC-C benchmark for transactions per minute on a 2-socket system.
 - Better performance, lower cost and over 1.6 Million transactions per minute

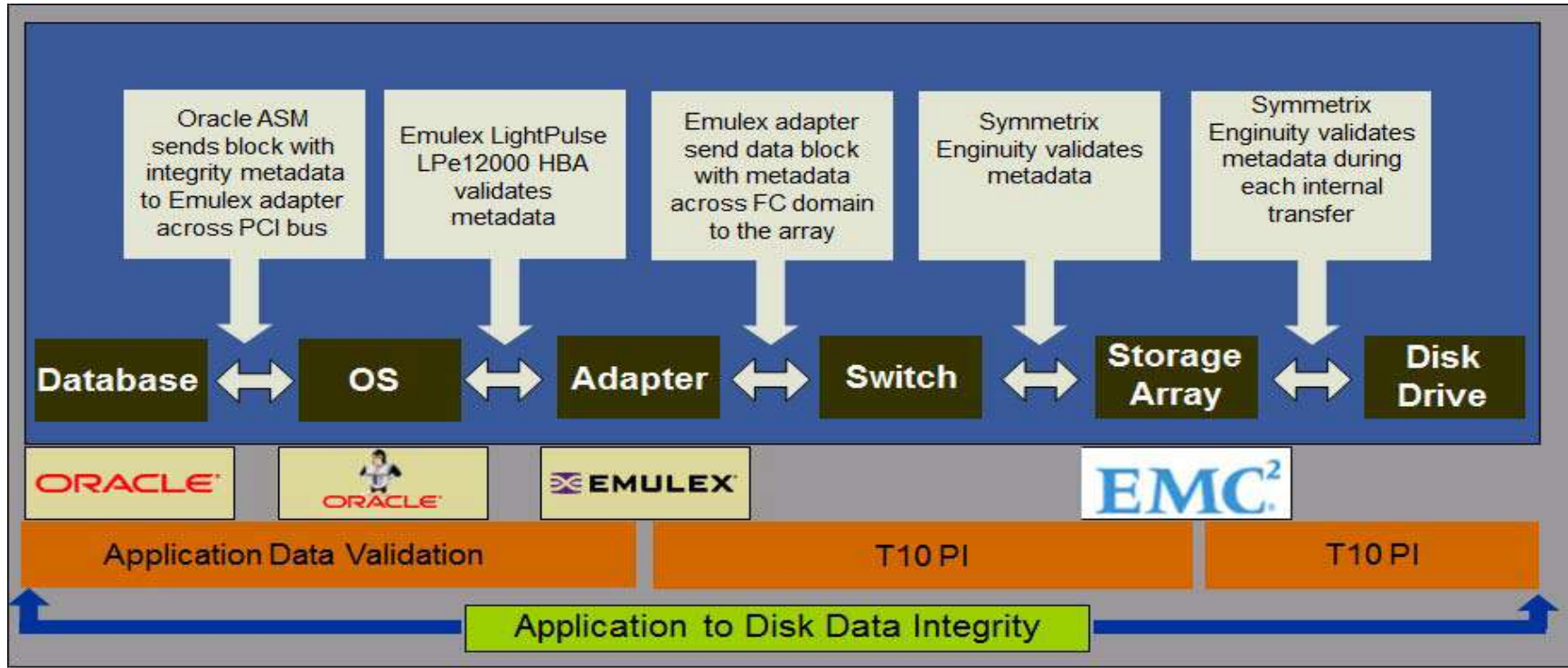
Oracle Database Smart Flash Cache

Integration with Oracle Linux

- Introduced with Oracle Database 11g Release 2
- Increases the size of the database buffer cache without having to add RAM to the system
- Available flash memory acts as second level database buffer cache
- Improves performance by eliminating physical disk reads, especially for read intensive application
- Only available on Oracle Linux and Oracle Solaris

Data Integrity – Application to Disk

How does it all work?



Oracle Linux Powers Oracle Engineered Systems

Hardware and Software Engineered to Work Together



**Oracle
Exadata
Database
Machine**



**Oracle
Exalogic
Elastic
Cloud**



**Oracle
Virtual
Compute
Appliance**



**Oracle Big
Data
Appliance**



**Oracle
Exalytics
In-Memory
Machine**



**Oracle
Database
Appliance**

System Management: Patching & Provisioning

Tools to Manage Oracle Linux Environments

The best solutions, the most choice

- Unbreakable Linux Network (ULN)
- Public-yum
- Ksplice
- Spacewalk
- Enterprise Manager 12c



Yum Package Manager

Easy installing, patching and removing of software packages

- Install packages from multiple repositories
- Resolves package dependencies automatically
- Query available updates on various categories
- Selectively apply security-related updates only
- Create local yum repositories

Oracle Enterprise Manager 12c

Comprehensive Management Suite



- Datacenter Discovery
- Virtualization Management
- Configuration Management
 - Patch OS, Update Firmware, Configuration Compliance and Reporting
- Operating System Analytics
- Maintenance (Health Check, Remote Management, Phone Home)
- Applications, Middleware & Database Management

Oracle Linux Support for Spacewalk

Overview

- Spacewalk is a Linux systems management solution for patching, provisioning and monitoring Linux systems
- It is the community project used for Red Hat Satellite Server and SUSE Manager
- Oracle Enterprise Manager is still the preferred systems management solution for Oracle Linux
- Spacewalk support is offered as an intermediary solution for customers migrating from Red Hat to Oracle Linux

Oracle Linux Support for Spacewalk

Summary

- Spacewalk is included, at no additional charge, with all Oracle Linux Basic and Premier subscriptions
- This release is based on the community Spacewalk version 2.0
- Builds can be downloaded from our public-yum repositories
 - Public yum includes channels hosting the following:
 - Spacewalk Server – supported on Oracle Linux 6 x86_64
 - Spacewalk Clients – supported on Oracle Linux 5 and 6 (x86, x86_64)

System Management Comparison

	Enterprise Manager 12c	Spacewalk	Red Hat Satellite	SUSE Manager
RPM and patch channel setup	✓	✓	✓	✓
Custom channel configuration	✓	✓	✓	✓
Bare metal provisioning	✓	✓	✓	✓
Scheduled updates	✓	✓	✓	✓
Server grouping	✓	✓	✓	✓
Monitoring	✓	✓	✓	✓
Reporting	✓	✓	✓	✓
Initial Setup Costs	\$0	\$0	\$10,000	\$10,000
Per unit system cost	\$499	\$499	\$1,487	\$1,787
TOTAL COST	\$499	\$499	\$11,487	\$11,787

Other Oracle Linux Features

Oracle Clusterware

Engineered for Scale and Performance

- Oracle Clusterware is a general purpose enterprise class clustering solution.
- It is the clustering solution with Oracle Engineered Systems.
- A highly scalable, cloud-ready cluster solution
 - Developed to manage physical and virtual workloads
- Included, at no additional cost, with Oracle Linux Basic and Premier subscriptions

Oracle Clusterware

Benefits

- Leverage commodity hardware
- Scalability
 - Easily add additional resources to cluster
- Reliability
 - Fail over (of course!)
 - Eliminate downtime
- Flexibility
 - Create dependency chains for application resources in your cluster

HA Comparison: Oracle Linux, RHEL, SLES

	Oracle Linux + Clusterware	RHEL + HA Add-Ons	SLES + HA Extensions
Failover	✓	✓	✓
Node membership management	✓	✓	✓
Lock Management	✓	✓	✓
Fencing	✓	✓	✓
Cluster administration tools	✓	✓	✓
Cluster File System	✓	✓	✓
Extended Cluster support	✓	✓	✓
TOTAL COST	\$499	\$2,497	\$3,297

Resource Isolation – Control Groups

Reliability and stability

- Fine-grained control over resource allocations
- Deliver consistent response times and adequate performance
- Use cases:
 - I/O throttling
 - Guaranteed memory allocation
 - NUMA pinning
 - Device whitelisting

Linux Containers (LXC)

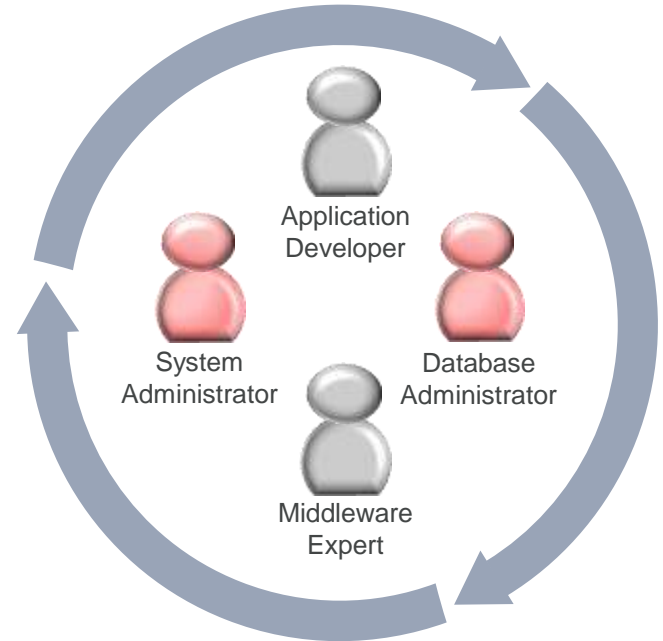
Lightweight and fast resource isolation

- Moved from technology preview to fully supported feature in UEK R3
- Operating system-level virtualization
- Isolates individual services or a complete Linux operating system from other services running on the same host
- Allows direct and fair distribution of CPU and I/O-resources
- All containers run under the same OS Kernel
- Supports different Linux OS versions (e.g. OL5 running on top of OL6)
- Use cases
 - Consolidation of underutilized servers
 - Quickly deploy sandbox environments for build/QA/testing purposes

DTrace and Oracle Linux

Challenges in debugging production systems

- Coordination required between multiple groups
- Lack of comprehensive tool(s) increase operational cycles during diagnostics, reducing productivity
- Traditional tools often add overhead and reduce performance on production systems



DTrace Integration in Oracle Linux

Real time tracing for Oracle Linux

- Fully integrated with the kernel in UEK R3
- Trace and debug complex issues from application to hardware
- Includes complete D programming language with critical providers
- Probes include:
 - Direct and Trap-based (Statically defined tracing (SDT) and Userspace Statically Tracing (USDT))



Oracle Linux and Ksplice

The only Linux distribution offering zero-downtime kernel maintenance

- Included with Oracle Linux Premier Support
- Fully integrated with ULN
- Multiple options for managing services with Oracle Linux

Standard

- Direct Connection with Oracle
- Comprehensive reporting features

Standard with Proxy

- Same features as standard
- Meant to integrate with local proxy server

Offline with Local Yum

- Leverages local yum repository which mirrors ULN
- No direct connection to Oracle systems required

Offline

- Multiple distribution methods (CD, USB)
- No direct server connection required

Oracle Linux curriculum footprint

Develop essential skills to become proficient in Oracle Linux

- Oracle Linux Training courses
 - Oracle Linux System Administration
 - Oracle Linux Advanced System Administration NEW
- Oracle Linux Certifications
 - Oracle Linux Administrator Certified Associate
 - Oracle Certified Professional, Oracle Linux 6 System Administrator
 - Oracle Linux Certified Implementation Specialist
- <http://oracle.com/education/linux>

Summary and Next Steps

Oracle Linux - The Best Linux for the Enterprise

Best for Cloud

Featuring the
Unbreakable
Enterprise Kernel

•
Runs in Oracle Cloud

•
More than 42,000
servers run Oracle
Linux within Oracle
Global IT

ORACLE
LINUX

Best for Scale

The best performing,
most modern, and
reliable Linux OS

•
Leading benchmark
performance, built-in
data integrity

•
Zero downtime
updates with Ksplice

ORACLE
LINUX

Best for Oracle Software

Runs in Oracle's
Engineered Systems

•
Oracle's base Linux
development platform

•
128,000 compute
hours/day testing
Oracle products on
Oracle Linux

ORACLE
LINUX

ORACLE

Stay Connected with Oracle Linux

Join Our Communities, Visit Websites For More Information



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