Trends From UNIX To Linux In SAP Data Centers

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The UNIX to Linux trend
The Trend from UNIX to Linux in SAP DATA Centers:
Large. Critical. Beyond Limits

In 2012 refreshed trend study from REALTECH proves that Linux has become the preferred platform for SAP systems and that UNIX dramatically loses market share.

Source: http://www.realtech.com/linux
UNIX is the main migration source...
Linux is the main migration destination

58%
Top 12 Price/Performance are x86_64 CPUs
X86_64 servers with two and four sockets deliver sufficient performance for 99% of all possible single SAP applications
23,250 SAP SD Benchmark Users

Fujitsu PRIMERGY server
• Intel Xeon, 8 processors
• SUSE Linux Enterprise
• Sybase ASE
• SAP ERP

127,030 SAPS

Powered by
Virtualization

• Everybody does it!
• CPU and I/O throughput
• Critical and high-performance SAP systems
Top Reasons for Deploying SAP on Linux

#1 Cost savings
- Hardware Investment (~75%)
- Hardware Maintenance (~90%)
- OS License Cost (~60%)

#2 Standardization
- Transform UNIX to Linux: Less OSs
- Virtualization: Less Servers (on commodity hardware)
- Windows and Linux Interoperability: Less hardware platforms

#3 Choice
- More options (e.g. hardware purchase)
- Long term investment protection
- More flexibility for technology decisions
What Changes We See In IT

Big Data
- Everyone is mobile and is producing data
- The petabyte age
- Business analytics need to get faster

Technology Costs Less and is More Powerful
- New hardware
- New ways to do analytics

Mergers Happened
- Oracle / SUN

Usage of virtualization is today normal
What Has Changed?
Big Data?

**What is Big Data?**

**Volume**
Large amounts of data.

**Velocity**
Needs to be analyzed quickly.

**Variety**
Different types of structured and unstructured data.

**What are the volumes of data that we are seeing today?**

- **Facebook**
  30 billion pieces of content were added to Facebook this past month by 600 million plus users.

- **Zynga**
  Zynga processes 1 petabyte of content for players every day; a volume of data that is unmatched in the social game industry.

- **YouTube**
  More than 2 billion videos were watched on YouTube... yesterday.

- **LOL!**
  The average teenager sends 4,762 text messages per month.

- **Twitter**
  32 billion searches were performed last month... on Twitter.

**What does the future look like?**

Worldwide IP traffic will quadruple by 2015.

By 2015, nearly 3 billion people will be online, pushing the data created and shared to nearly 8 zettabytes.
Technology

Costs Less and is More Powerful

Example Hardware evolution

- **2002**
  - 2 socket
  - 2 Cores
  - No HT
  - = 4 cores

- **2010**
  - 4 socket
  - 8 Cores
  - HT
  - = 64 cores

- **2012**
  - 8 socket
  - 10 Cores
  - HT
  - = 160 cores
Technology

Costs Less and is More Powerful

Example for an actual Intel base server (4 U):

4 Sockets with 10 cores = 40 cores = 80 threads
1 TB Main Memory
10 Gbit Ethernet
Internal 2 TB HDD

~53,000 $

From 2-tier SD 2011: Linux
Max ~124,000 SAPS
Std. ~ 66,600 SAPS

The Chart plots the top 2-tier Sales & Distribution (SAP SD) results obtained on typical commodity boxes over the last 15 years*

* see http://www.sap.com/benchmark
Mergers Happen

As of today mergers happen nearly on a daily basis, which could affect your SAP environment

Example

Oracle acquired SUN in 2009
March 2011 – Oracle announced discontinue software development on the Itanium processor

SAP Note 1575609
Virtualization

Today, with the bulk of IT spending focused on application delivery, virtualization capabilities have become crucial.

Standards-based servers support leading virtualization technologies from VMware, Microsoft and Linux (XEN and KVM).

Due to virtualization support of the processors, virtualization reaches nearly native speed. Loss is < 9%
Actual Trends
IT Infrastructure Priorities

“Which of the following initiatives are likely to be your firm’s/organization’s top hardware/IT infrastructure priorities over the next 12 months?”
(Percentage of respondents who answered “Critical priority” and “High priority”)

- Consolidate IT infrastructure via server consolidation, data center consolidation, or server virtualization: 29% Critical priority, 52% High priority
- Maintain or implement broad use of server virtualization as the standard server deployment model: 29% Critical priority, 50% High priority
- Automate the management of virtualized servers to gain flexibility and resiliency: 15% Critical priority, 48% High priority
- Purchase or upgrade disaster recovery and business continuity capabilities: 19% Critical priority, 43% High priority

Base: 1,240 hardware IT decision-makers at enterprise firms globally

Source: Forrsights Hardware Survey, Q3 2011

61442 Source: Forrester Research, Inc.
Enterprises are choosing Linux to support big data
Linux Foundation Report
Linux Adoption Trends 2012

Even as IT spending forecast remain soft, enterprise users are adding more Linux

[Bar chart showing responses to the question: Relative to other operating systems, in the next five years do you think the use of Linux in your company or organization will:]
- Increase: 79.8%
- Stay the same: 11.3%
- Not sure: 7.5%
- Decrease: 1.4%
SAP Today

CORE
CLOUD
MOBILE
IN-MEMORY
Trends

CORE
→ UNIX to Linux
→ Standard Server
→ Linux / Windows
Why SUSE Linux Enterprise?

Close Engineering and Technology Partnership with SAP
- SAP's software development reference platform for UNIX and Linux
- Supports all major SAP workloads

Proven Platform with Excellent Customer References
- >4,000 SAP customers run on SUSE Linux Enterprise
- Runs SAP HANA and SAP cloud solutions

Exceeds Mission-critical Application Requirements
- First Linux distributor to certify high availability extension for integration with SAP NetWeaver
- Validated Best Practices Guides developed with SAP Linux Lab
Trends

CLOUD
→ Virtualization
→ Standard Server
→ Linux / Windows
Cloud

LF survey 2012 respondents indicate that Linux is being used as the dominant platform to address these enterprise technology trends.

Chart 7
Cloud Solutions from SAP
Presented at SAP Cloud & Virtualization Week 2012

SAP Virtualization & Cloud Management Program
Overview

SAP NetWeaver Landscape Virtualization Management
(on-premise)
Management Tool by SAP to centrally manage technical SAP landscape and basis tasks

Project Titanium
(on-demand)
Provides access for customers to a central library of pre-configured SAP software appliances

Manage Your SAP Landscapes

Customer
Titanium Web Application
Image Library

Public Cloud (IaaS)
Software appliances provided e.g. by SAP Virtual Appliance Factory (VAF)
Trends

Mobile

➔ 400 million Android devices activated
➔ Linux Kernel
Trends

IN-MEMORY
→ SAP HANA
→ Standard Server
→ Linux only
In-Memory (HANA)

Based on an understanding of the architecture and the inherent power it offers, SAP designed SAP HANA to take advantage of the following:

Multi-core architecture for massive parallel processing
Large amounts of RAM positioned on the main motherboard directly next to the CPU
Software that runs in memory
Database architecture leveraging row and column store
Commodity x86-64 architecture

Source: SAP HANA
SAP Partnership with Intel / Hortonworks

SAP HANA + Hadoop = Instant access + Infinite scale
SUSE Offerings
Comprehensive Portfolio

**SERVER**
- SUSE Linux Enterprise Server
- SUSE Linux Enterprise Server for System z
- SUSE Linux Enterprise Server for SAP Applications
- SUSE Linux Enterprise Point of Service

**EXTENSIONS**
- SUSE Linux Enterprise High Availability Extension
- SUSE Linux Enterprise Real Time Extension

**SUPPORT**
- SUSE Linux Enterprise Server with Expanded Support
- SUSE Linux Enterprise Server Long Term Service Pack Support

**VIRTUALIZATION**
- SUSE Linux Enterprise Server for VMware
- SUSE Linux Enterprise Virtual Machine Driver Pack

**DESKTOP**
- SUSE Linux Enterprise Desktop

**MANAGEMENT**
- SUSE Manager
- SUSE Studio

**CLOUD**
- SUSE Cloud
  - SUSE Linux Enterprise Server for Public Cloud
SUSE® Building Blocks for the Linux OS Lifecycle in the Data Center

SUSE Cloud
enables enterprises to rapidly deploy and manage a private cloud using their existing infrastructure.

SUSE Studio
Building workloads for physical and cloud environments

SUSE Manager
Provisioning Management Monitoring

SUSE Linux Enterprise
The foundation for your datacenter workloads and virtualization
SUSE Linux Enterprise Server

The **recommended** and **supported** operating system for SAP HANA
SUSE® Linux Enterprise Server for SAP Applications 11

A bundle of **SOFTWARE** and **SERVICES** that addresses specific needs of SAP users.

Example Use Cases:
- UNIX to Linux migrations, replatforming
- SAP appliances, SAP cloud deployments
SUSE Studio™

Simplifies application deployment

Build software appliances in minutes, not days

*Physical, virtual or cloud*

Integrated deployment to SUSE Cloud

Easy public cloud deployment
Manage both SUSE Linux Enterprise and Red Hat Enterprise Linux servers with a single centralized solution

Automated and cost-effective software management, system provisioning/configuration/auditing and monitoring capabilities

Manage Linux server deployments across physical, virtual and cloud environments
SUSE® Cloud

Provides an automated and affordable enterprise cloud computing platform for rapidly deploying private and hybrid clouds that

Combines the power of OpenStack with the excellence of SUSE engineering and support

Integrates with other SUSE technologies and third-party cloud management solutions

Seamlessly manages and provisions workloads across a heterogeneous cloud environment in a secure, compliant and fully-supported manner
Easy deployment of workloads with SUSE.

BUILD
your workloads

SUSE Studio
Build workloads for any platform and the cloud

MANAGE
your environment

SUSE Manager
Manage Linux workloads across platforms

DEPLOY
your Cloud environment

SUSE Cloud
Manage and provision workloads in the private cloud
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