Linux Stategie bei Novell

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Open Source Development Model



Different Development Model

VS

Cathedral Approach (perfect design...?)

Bazaar Approach (marketplace of ideas)

- Planning (Waterfall)
- Infrequent Releases
- Paid Developers
- Closed, Proprietary





- Evolutionary
- Frequent Releases
- Volunteers (historically)
- Open,
 Standards

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Principles

- Code rules
- Art Code design
- Direct user feedback
- Peer review candid feedback
- Worldwide Collaboration; cross-company
- Mailing lists, IRC
- Project leaders, but dynamic
- Influence by contributions, no control
- Sharing ideas, compete for best one





openSUSE[™]



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Distribution differences

- Target audience
- Scope
- \cdot Development model
- Supported hardware architectures
- Commercial backing / non-profit
- $\boldsymbol{\cdot}$ Stability vs latest and greatest
- \cdot Release speed
- Availability of for-pay support
- Long term support commitment

6 SLES / SLED Workshop

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openSUSE[™] Project

Project for creating the worlds best Linux distribution with the community for the community and end users



Goals



Leverage open source collaboration



Dramatically simplify and open the development and packaging process



Make this Linux distribution the easiest Linux for anyone to obtain, and make openSUSE the most widely used Linux

SUSE_® Linux Enterprise Development Process



Der Linux-Entwicklungsablauf bei Novell-AutoBuild





Reliable 7-Year Support Life Cycle





SUSE₈ Linux Enterprise Subscriptions

For one price, subscription to SUSE Linux Enterprise products provide:

- Enterprise-class software Backed by 7-year lifecycle and predictable roadmap
- Ongoing hardware and software certifications Ensures compatibility with your IT systems
- Software patches and security fixes
 Download, evaluate and deploy updates via Novell. Customer Center
- Access to any supported release Consume technology advancements at your own pace

- Technical support

Unmatched support from Novell and its partners

Products Overview Eine Desktop bis zur Data Center Plattform



The best engineered, lowest cost and most interoperable platform for mission-critical computing

SUSE Linux Enterprise 11 Themes and Development Engagement

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SUSE Linux Enterprise 11 Major Themes

- $\boldsymbol{\cdot}$ Designed for
 - Mission-critical applications
 - Unix server replacement
 - Virtual environments
 - Low Latency Data Centers
 - Enterprise Desktop Deployments

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SUSE Linux Enterprise 11 Server Deployment Paths

- Server (physical)
- Virtual Host
- Perfect Guest
- Appliance
 - minimal packaging
 - created using imaging tools

SUSE Linux Enterprise 11 Mission Critical

- Improved Kernel Instrumentation
 - Systemtap
- Kernel Ressource Management
 - control groups"/ "cgroups": basic container technology as part of the Linux kernel
- Improved crash dumping (and configuration)
- Faster
 - Booting
 - Patching

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SUSE Linux Enterprise 11 UNIX "Parity"

- Automated and Assisted Healing
 - Swap over network to handle out-of-memory case
- High-End Hardware Integration
 - leverage joint efforts with CPU-/Chipset-vendors and IHVs
- Profiling, development & debugging tools

SUSE Linux Enterprise 11 Virtualization

- \cdot QoS on dynamic resources
- Enhanced Performance
 - VMDq (network I/O)
 - VT-d2 (direct I/O device mapping)
 - Virtual SMP
- Improved VM Management capabilities
- KVM technical preview

SUSE Linux Enterprise 11 Concept of pDistro and vDistro



Virtual Distribution (vDistro)

- Optimized to support a dedicated workload
- Customization with Image Creator
- Image include OS + Apps.
- Provided in a warehouse

Physical Distribution (pDistro)

•Are used to deploy physical machine specific hypervisors with those drivers and agents needed by specific hardware.

- •very SLIM and secured Linux OS
- •Tuned for the underlying hardware (drivers, performance config.)

•Provides management function and CIM management interface

SUSE Linux Enterprise 11 Real Time & Low Latency Data Center

- Hardening of real time characteristics
- I/O throughput enhancements
- QoS for Fabrics (OFED)
- Realtime and Power Management
 - More tuning parameters for Throughput <--> Latency
- Common Code Base between SLERT and SLES
- RT Java Support

SUSE Linux Enterprise Real Time 10

Released on Nov 27, 2007 as add-on to SLES 10 SP1, entirely based on community PREEMPT_RT.

Key Features:

- Kernel pre-emption
- CPU shielding
- Priority Inheritance
- Interrupt Threads
- High Resolution Timers
- Open Fabrics Enterprise Distribution 1.2.5



SUSE Linux Enterprise 11 Real Time & Technology Preview/Future

- Realtime and Virtualization
- Tracing and Tuning Tools
- RT Mono Support

SUSE Linux Enterprise 11 Enterprise Desktop Deployments



- Effective collaboration
 - Integration with Novell® Team + Conferencing
 - Evolution with strong integration to Microsoft Exchange
- Enterprise Interoperability
 - Active Directory and eDirectory™
 - OpenOffice.org productivity and doc. fidelity
- Ground-breaking Linux desktop security
- Desktop Virtualization
 - Client-hosted desktop virtualization
 - Shared-remote desktop virtualization

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SUSE Linux Enterprise 11 Technology

- · Green IT
- High Availability
- Common Code Base
- Integrated Management Capabilities
- Technology Previews

SUSE Linux Enterprise 11 Green IT

- Hardware enablement
 - "Tickless Idle"
 - Processor C-states
- Management
 - YaST
 - CIM enablement



SUSE Linux Enterprise 11 High Availability

- Common Linux High Availability software stack
 - Heartbeat 2
 - openAIS
 - Pacemaker
- Open Source Cluster Filesystem
 - OCFS2 (with flock(), lockf(), ext. attributes, ACLs, quotas)
- Data Replication
 - DRBD
- Loadbalancing
 - Linux Virtual Server



High Availability for SAP active-active with NFS





SUSE Linux Enterprise 11 Common Code Base

SUSE Linux Enterprise platform								
other extensions*	enablement kits*	SLE POS	unsupported SDK	SLED	SLES	SLE RT		
Binary Code Base							RT	
Common (open source) Code Base								

SUSE Linux Enterprise 11 Common Code Base - Storage

- LVM2/cLVM2 replaces EVMS2
- Enhanced YaST partitioner
- SMI-S providers (Aperi!)
- Public Statements and Roadmap:
 - > (EVMS)http://www.novell.com/linux2/volumemanagement/strategy.html
 - > (Filesystems) http://www.novell.com/linux/techspecs.html?tab=0

SMT - Subscription Management Tool N for SUSE® Linux Enterprise

- Challenges of Disconnected Update
 - Compliance and Auditing; including additional work to maintain security perimeter at the firewall

• OR

- Excessive bandwidth usage
- Solution
 - Tightly integrated proxy system
 - Mirroring NCC (repo: nu.novell.com) at the customer's site
 - Provides registration target syncing with NCC

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Highlevel Architecture



SUSE Linux Enterprise 11 Technology Previews



• Filesystems

- ext4
- eCryptfs
- Samba 4: libraries only

(Samba 3.2 is fully supported on server and client)

- Security
 - SELinux "Basic Enablement"
- Virtualization
 - KVM

Not supported by Novell, but area of interest for future development and deliveries

Microsoft Partnership and Unix to Linux Migrations

Linux shipments growth continues

Gartner

Worldwide Server Shipment Revenues by OS



Linux and Windows as the only ISV Tier-1 **Platforms** Stop **Entrenched/ Declining Niche Base Platform** (predominantly Legacy/Proprietary) **Tier 3 ports** Viable Niche Base Platform (predominantly Legacy/Proprietary) Cascade Caution

Declining New Business Platform (predominantly Unix/RISC & Unix/Itanium)

Increasing New Business Platform (predominantly Linux/x86 &/or Windows/X86)

Development Platform (predominantly Linux/X86 &/or Windows/X86)

Go **Tier 1 ports**

Tier 2 ports

- ISV and ERP vendors are increasingly focusing new application functionality first on Tier 1 ports.
- Tier 2 ports are viable for mainstream applications and functions (potentially with delayed new features)

Gartner ERP & ISV Vendor Platform Priorities

The Initial Business Case: "Quick Win" Example

For commodity Hardware (x86 Blades) and commodity Linux (SUSE)

For the 90 Servers and 150 Databases analysed, in relation to the current consolidation to p-570's compared to Linux/Blade/RAC option:



5yr Full P&L (£m) 50% Improvement

- Existing p-Series is coming to end of life
- Either a partial or total consolidation will cost more
- Linux Blades: (1) improve P&L, (2) increase agility, and (3) maintain QOS
- After 5 years the run-rate reduces by 95%

<u>Cost:Income – specific line items</u>



- For every £1m spent on p-Series (hardware and software), for which Linux Blades are an alternative, £875,000 could either be redeployed or handed back to the business. This is the equivalent of £1.7m of Income at a cost:income ratio of 50%.
- The migration services to Linux equalled the cost of the migration services to the later versions of AIX



Traditional Physical Architectures



SUSE. Appliance Program



SUSE_® Appliance Program

- The SUSE Appliance Program enables ISVs to get to new markets
 - Small and Medium Business markets where traditional software is too difficult to manage
 - New Cloud and SaaS markets where traditional software management needs simplification
 - Emerging markets where traditional delivery is challenging or impossible
- The SUSE Appliance Program provides the technology and support to get to new markets FAST

SUSE. Appliance Program What do appliances do?



- Minimal assembly and setup
- One standalone unit







Appliance Solution Components





SUSE Appliance Program Appliance Operating System



SUSE Linux Enterprise JeOS

Based on SLE10 SP2

~85Mb (compressed)

Supported



LimeJeOS

Based on openSUSE 11 Community project Unsupported



SUSE Appliance Program SUSE Linux Enterprise

- Designed for data center missioncritical workloads
 - Certified for SAP, Oracle and hundreds of leading ISVs
 - Robust development environment operating system for custom J2EE solutions
 - Optimized for commodity workloads DNS, DHCP, e-mail
- Key features include:
 - Integrated Xen virtualization, AppArmor application security, and YaST systems management tools
 - Complete interoperability with Windows and Unix
 - Certified across all seven major hardware architectures from x86-32 bit through zSeries





SUSE Appliance Program SLE JeOS is the Appliance OS

- \cdot SLE JeOS is SLES
 - A simple, minimum install of SLES
 - SLES certifications apply
 - No special engineering completed
 - Service packs, maintenance updates and versions of SLES are applicable to the JeOS*
 - Capabilities of SLES are available in JeOS
- SLE JeOS provides
 - An easier starting point for appliance creation
 - Another path to customize the OS



SUSE Appliance Program Benefits of JeOS

- Supported Linux distribution
- Single platform certification, whether in physical, virtual or appliance form
- Optimized to be the Perfect Guest across
 VMs (Xen, HyperV and VMware)
- Mono .Net application platform capability
- Systems management interoperability with MS
- Fastest growing supported Linux ISV program
- SLE JeOS appliance starting point







SUSE. Appliance Program Traditional Software Installation





SUSE Appliance Program Appliance Build Tools



Command-line appliance creator Outputs many different formats Powerful, scriptable Open Source (GPL)



SUSE Appliance Program Appliance Build Tools



	marketplace my appliances appliance editor
3	SuseStudioDemo's openSUSE 10.3, Text Only edit name Build Software Configuration Personalize Files
Appliance Information WMware Image based on openSUSE 10.3 Estimated size: 174.9 MB 1 pattern selected 8 packages selected 139 total packages	Welcome to SUSE Studio! Use the tabs above to configure your appliance. Click the big green Build button when you're ready to build! Don't forget to give your appliance a new name by clicking the edit name link above; the name will show up on your appliance's boot screen.
	Format VMware Virtual Machine (.vmdk) Version (?): 0.0.1 Cloned from: openSUSE 10.3, Text Only (standard template)
	Builds starting build
	Version 0.0.1 (Initializing) View Log Save Log Cancel O:01
	You are currently using 2.0GB (13%) of your 15.0GB.



SUSE Appliance Program Supporting Elements

- Partner provides support front end (L1, L2) to customer
- Novell only provides Level 3 support on unmodified, supportable packages
- Automated test suite used to determine supportability by Novell
- Restrictions enforce standardization of "SUSE inside" branding

ISV software
modified SLES
unmodified SLES components
Appliance



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