



What's New with SUSE Linux Enterprise Server for z Systems

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SUSE Linux Enterprise

A highly reliable, scalable and secure server operating system, built to power physical, virtual and cloud-based mission-critical workloads.

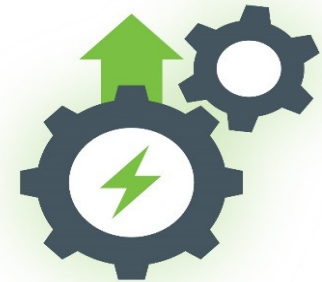
The advanced foundation for your success



innovation

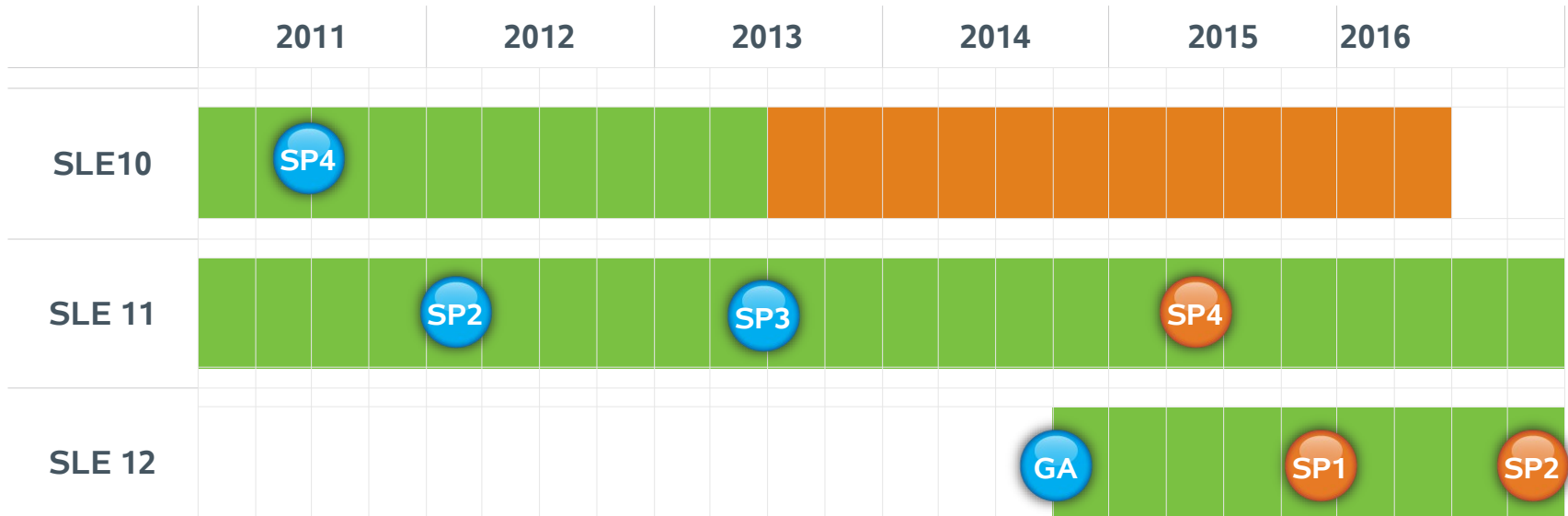


Increase
uptime



Improve operational
efficiency

SUSE Linux Enterprise Lifecycle & Codestreams



13-year lifecycle
For SLES 11 and SLES 12,
10 years general support,
+3 years Long Term Support

SUSE Linux Enterprise 12
Long Term Service Pack
Support for every Service
Pack

Tentative – Dates subject to change

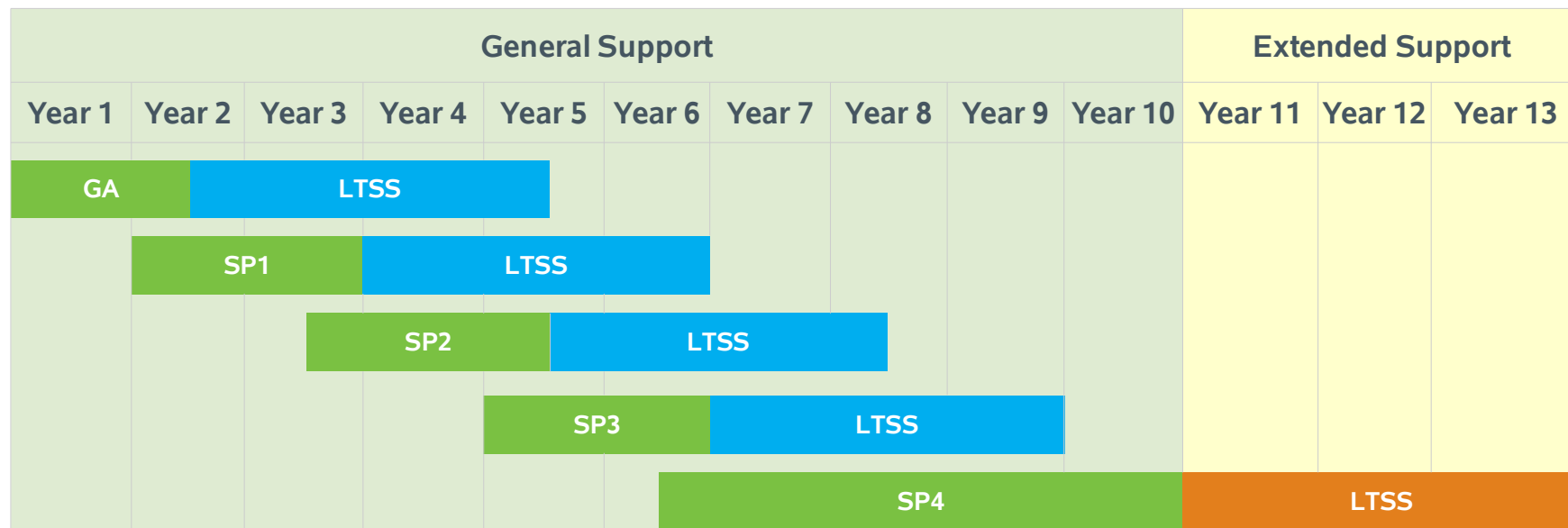
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SUSE® Linux Enterprise Server 12 Lifecycle Model



10 years lifecycle + 3 years Extended Support



- **13-year lifecycle** (10 years general support, 3 years extended support)
- **Long Term Service Pack Support (LTSS)** available for all versions, including GA

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SUSE® Linux Enterprise Server for System z 11 SP4



- z support continued
 - **z13, zEC12, zBC12, z/VM 6.3**, zBX support
 - z196 EC, z114 BC, z10 EC, z10 BC, z9 EC, z9 BC, support
 - <http://www.ibm.com/systems/z/os/linux/resources/testedplatforms.html>
- Improvements at a glance
 - s390-tools and performance monitoring updated
 - OFED introduction
 - Crypto support refresh
 - Networking enhancements
 - Update to IBM Java 7.1

Tested Platforms

<http://www-03.ibm.com/systems/z/os/linux/resources/testedplatforms.html>

<https://www.suse.com/yessearch/Search.jsp> z13, EC12, z196, z10, z9



Distribution	z13	zEnterprise - zBC12 and zEC12	zEnterprise - z114 and z196	System z10 and System z9
SLES 12	✓ (2,3)	✓	✓	✗
SLES 11	✓ (2,3)	✓ (7)	✓	✓
SLES 10 ^(*)	✗	✓ (8)	✓	✓
SLES 9 ^(*)	✗	✗	✓ (10)	✓
RHEL 7	✓ (1,3)	✓ (4)	✓ (4)	✗
RHEL 6	✓ (1,3)	✓ (5)	✓	✓
RHEL 5	✓ (1,3)	✓ (6)	✓	✓
RHEL 4 ^(*)	✗	✗	✓ (9)	✓



Indicates that the distribution (version) has been tested by IBM on the hardware platform, will run on the system, and is an IBM supported environment. Updates or service packs applied to the distribution are also supported. Please check with your service provider which kernel-levels are currently in support.

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SUSE Linux Enterprise 12 The Platform

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Hardware 64-Bit

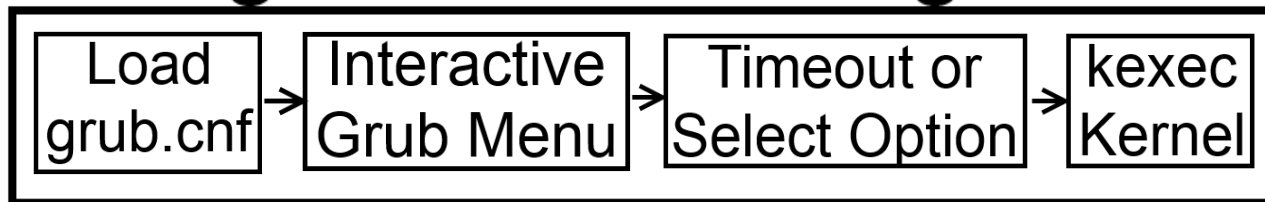
- 64-bit hardware is the future
 - 64-bit kernels only
 - Executing of 32-bit applications fully supported via 32-bit execution environment on top of 64-bit kernels
- Virtualisation
 - KVM, Xen, z/VM, LPAR support (depends on architecture)
 - 64-bit host; 64-bit and 32-bit guests
- Hybrid Computing
 - Platform specific workloads, GPUs, special purpose PUs
- Device Driver Innovation
 - SUSE Solid Driver Program (SSDP)

Grub 2 Boot Process

zIPL Stage

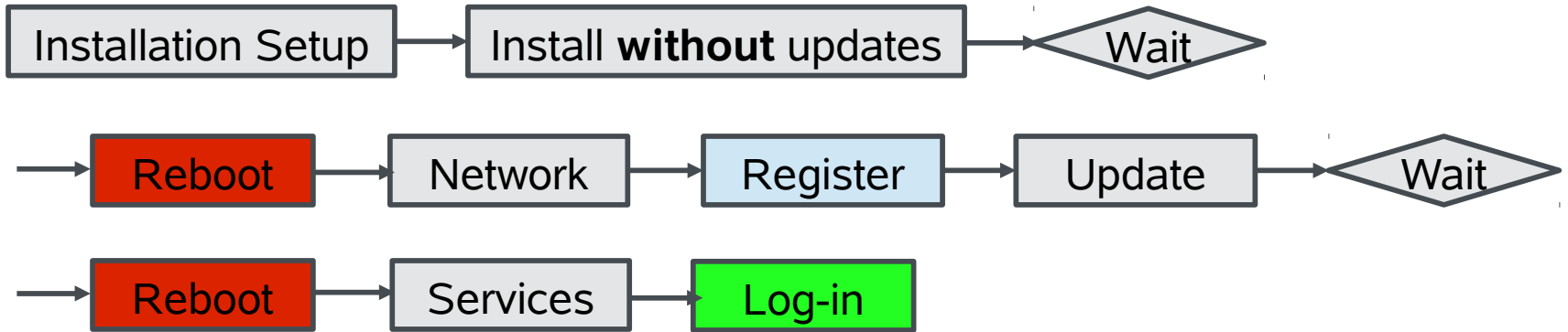


grub2-emu Stage

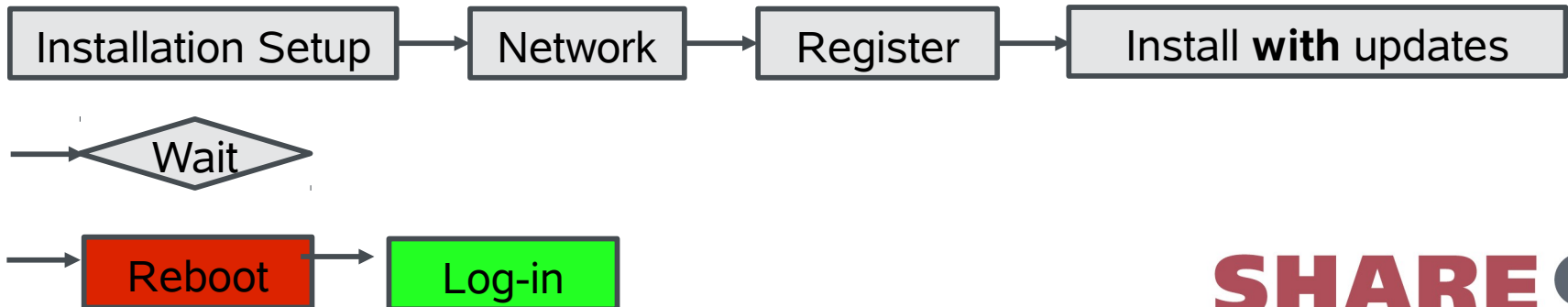


Installer - Workflow

SUSE Linux Enterprise 11



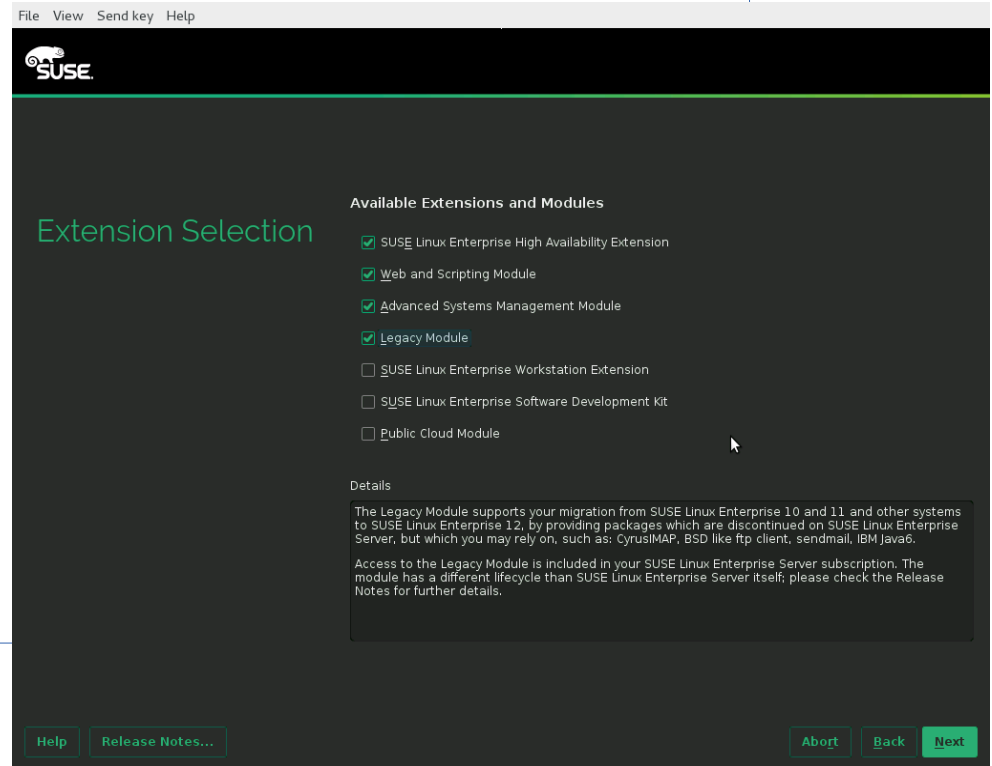
SUSE Linux Enterprise 12



SUSE Linux Enterprise 12

Modules

- Components of SUSE Linux Enterprise
 - Flexible lifecycle (different from the base product)
 - Delivered on-line
 - Fully supported
- List of modules
 - Web and Scripting
 - Legacy
 - Toolchain
 - Public Cloud
 - Advanced Systems Mgmt



Modules: A Closer Look

Module Name	Content	Lifecycle
Web and Scripting Module	“PHP”, “Python”, “Ruby on Rails”	3 years
Legacy Module	Sendmail, old IMAP stack, old Java etc.	3 years
Public Cloud Module	Public cloud initialization code and tools	Continuous Integration
Toolchain Module	GCC	Yearly delivery
Advanced Systems Management Module	the configuration management tools cfengine, puppet and the new "machinery" tool	Continuous Integration

Systemd: System/Service Manager

Init Replaement

- Bring up system and start services
- Integrate system wide ulimit settings and Cgroups
- Activation via Socket and d-bus
- Command line “systemctl”

Compatibility with SystemV init scripts

- Provide infrastructure for exiting ISV Applications
- LSB compatibility

SUSE specific usability enhancements

- Keep insserv, chkconfig and /sbin/servic
- Old style (calling “rc...”) redirected to systemctl
- LSB compatibility for targets like \$network

SUSE® Linux Enterprise Server for System z 12 SP1



- Support for z13
 - SIMD support (toolchain, kernel)
 - Crypto Express 5S (CEX5S) support
- In-kernel support of the DRBG (Deterministic Random Bit Generator)
- LPAR Watchdog support
- Enable OFED for System z
- MD-mirror (RAID 10) for DASD
- gcc 5.1 as addon compiler (docker support)

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Downtime isn't an option.

Towards Zero Downtime with SUSE.

www.suse.com/zerodowntime

Increase Uptime

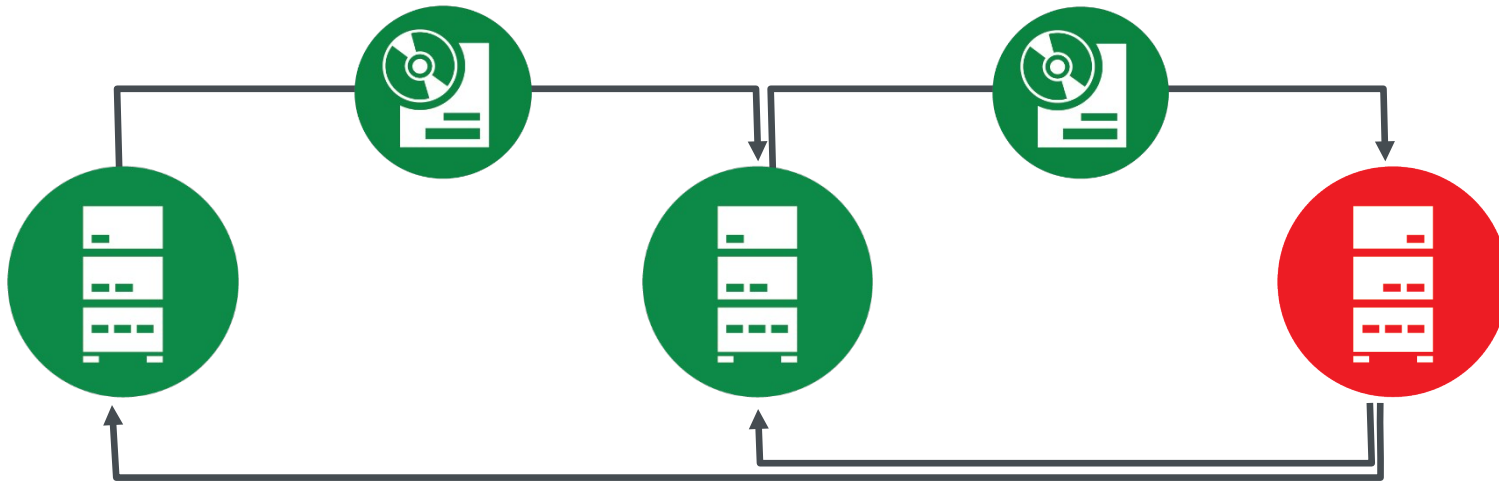
Full System Rollback

Rollback to a good state with one click for faster recovery from planned or unplanned downtime

Support for **service pack rollback**

Support for **kernel upgrade**

Based on **btrfs** and **Snapper**, bootloader integration



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Service Availability with Clustering

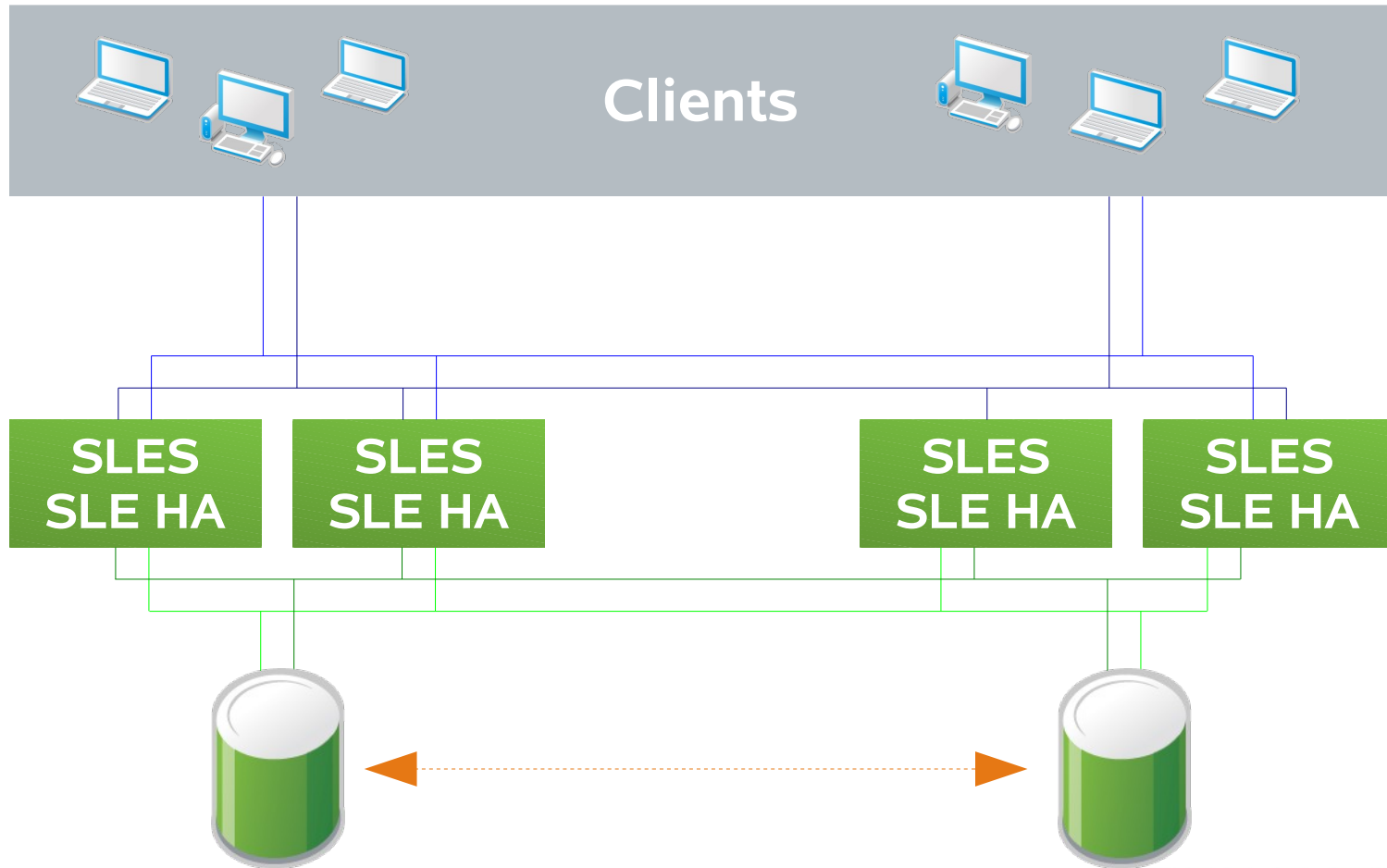
SUSE Linux Enterprise High Availability Extension

- Meet **Service Level Agreements**
- Increase **service availability** for mission-critical systems and data
- Enable **rolling software updates**
- **Quickly** and **easily** install, configure and manage clustered Linux servers
- Transparent to **Virtualization** – nodes can be virtual, physical or mixed! **Integrated** with SUSE Linux Enterprise Server

Geo Clustering for SUSE Linux Enterprise High Availability Extension

- Business continuity, anywhere in the world

Local Cluster For Rolling Updates



SUSE Manager Security Patch Audit

SUSE manager

Documentation | User: admin | Organization: SUSE | Preferences | Sign Out

Systems Search

Overview Systems Patches Channels **Audit** Configuration Schedule Users Monitoring Admin Help

No systems selected

CVE Audit
OpenSCAP





CVE Audit [?]

This page will display a list of systems with their patch status regarding a given CVE (Common Vulnerabilities and Exposures) number.

CVE Number:





CVE- 2013 -

System patch status to search:

-  Affected, patch available in a channel which is not assigned
-  Affected, patch available in an assigned channel
-  Not affected
-  Patched

Please note that underlying data subscriptions have been updated consistently.

Audit is updated nightly. If systems were registered very recently or channel data is updated, it is recommended that an [extra CVE data update](#) is scheduled in order to ensure

-  Affected, patch available in a channel which is not assigned
-  Affected, patch available in an assigned channel
-  Not affected
-  Patched

Outlook: Ready for Live Patching

SUSE Linux Enterprise Live Patching

- Kernel live patching designed and developed by **SUSE Labs**
- Ease of use: Builds on well-known update processes

Use Cases

- Mission-critical systems: Improve general availability and run until the next “maintenance window”
- Massive, time-critical deployment

Advantage

- Works with **zero** execution interruption
- Other implementation stop the whole system (milliseconds to seconds range) when patching

KVM

17489 KVM for z Systems, Tue 3:15 pm, Europe 11

SUSE Manager

17220 SUSE Manager at a large scale, Thu 4:30 pm,
Americas Seminar

Live Kernel Patching

17194 Linux Live Kernel Patching, Fri 8:30 am, Oceanic 8

Thank you

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