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Four use cases when using SUSE products with IBM Z and LinuxONE

Virtual VM Workshop

SUSE

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Agenda

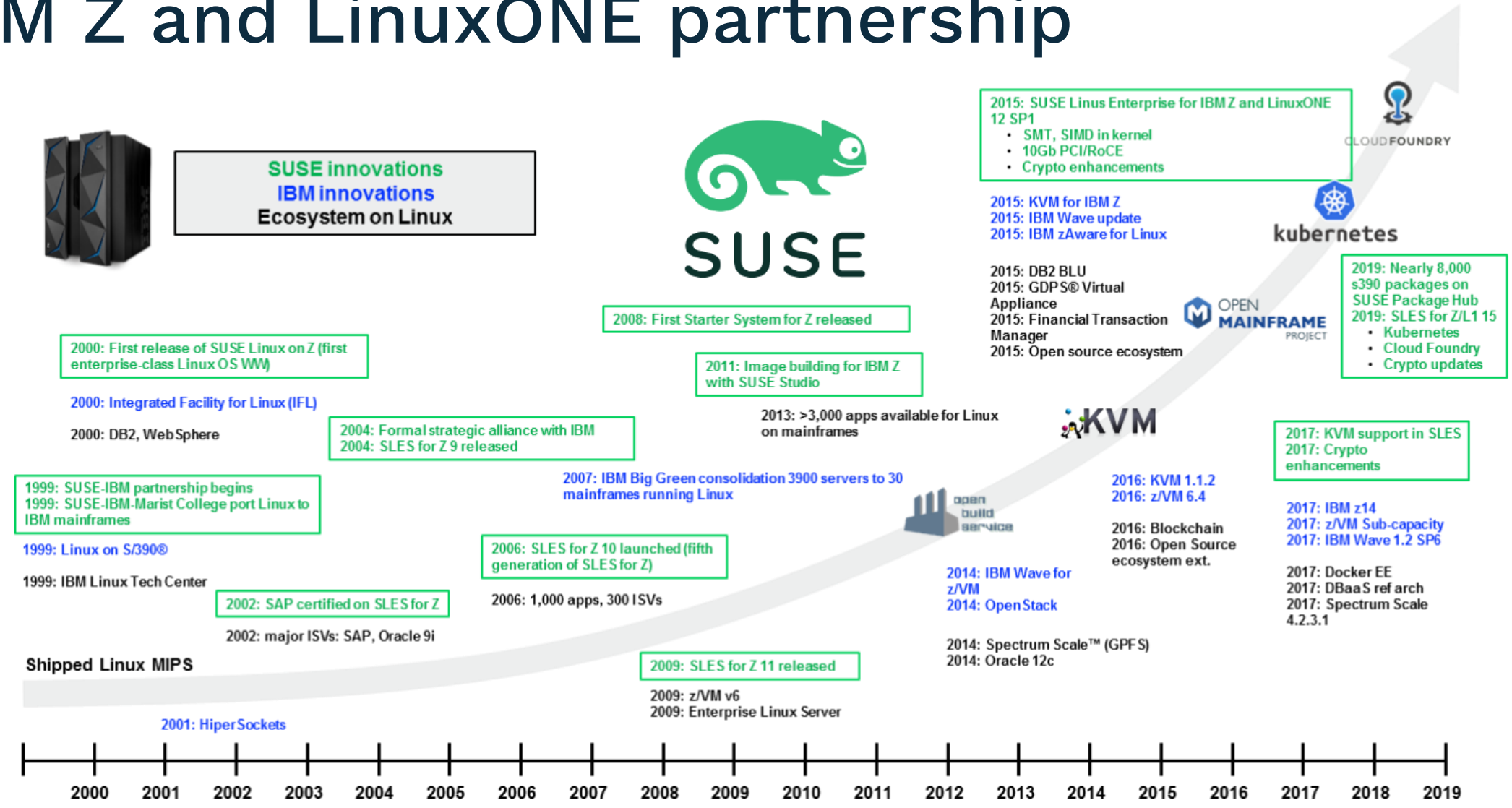
1 Building repeatable images for LPAR, z/VM and KVM

2 Assessing impact of a security vulnerability

3 Make mission critical applications more resilient to unexpected failures

4 Minimize reboots when running mission critical applications

SUSE and 20+ years of IBM Z and LinuxONE partnership



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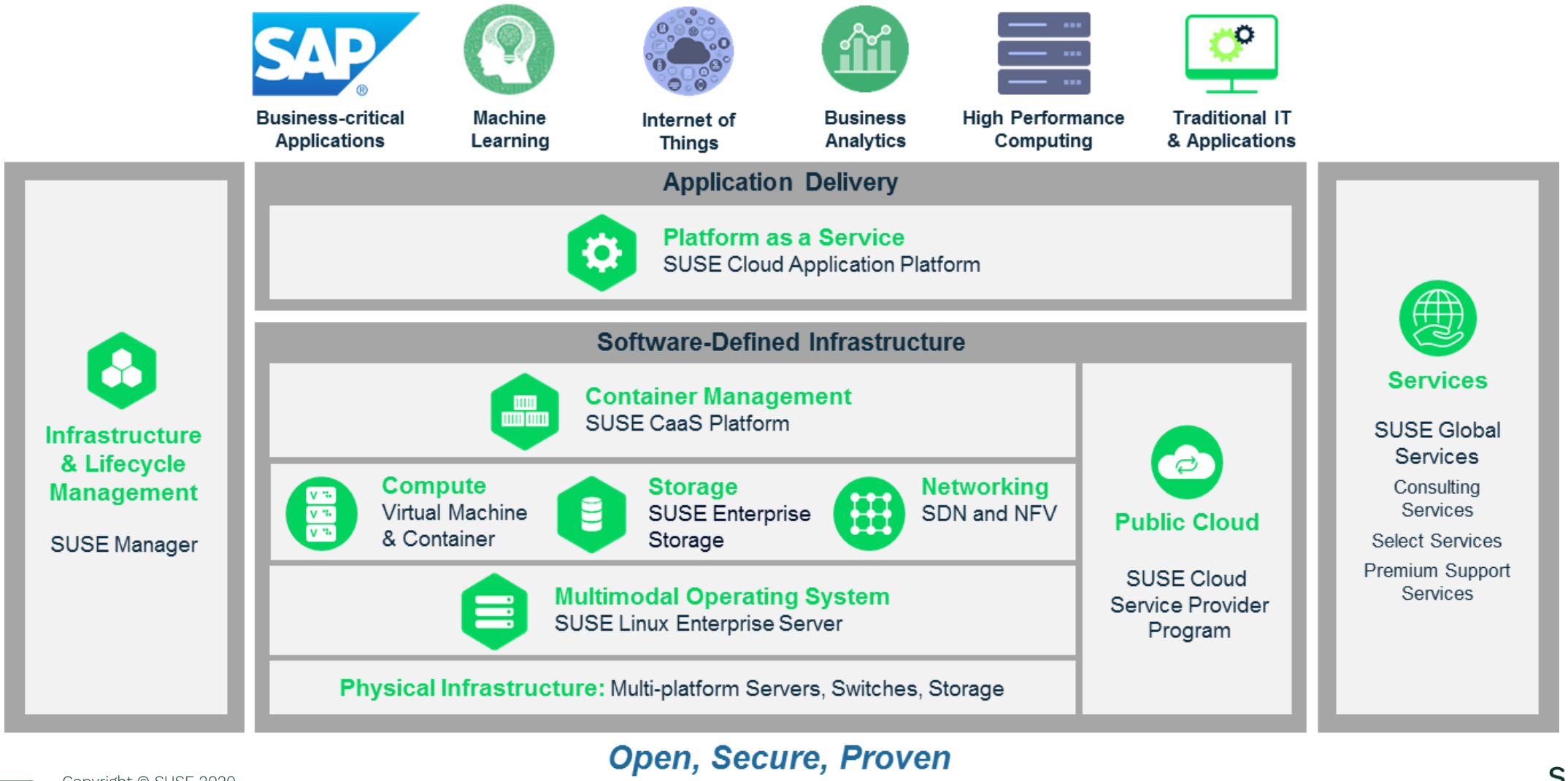
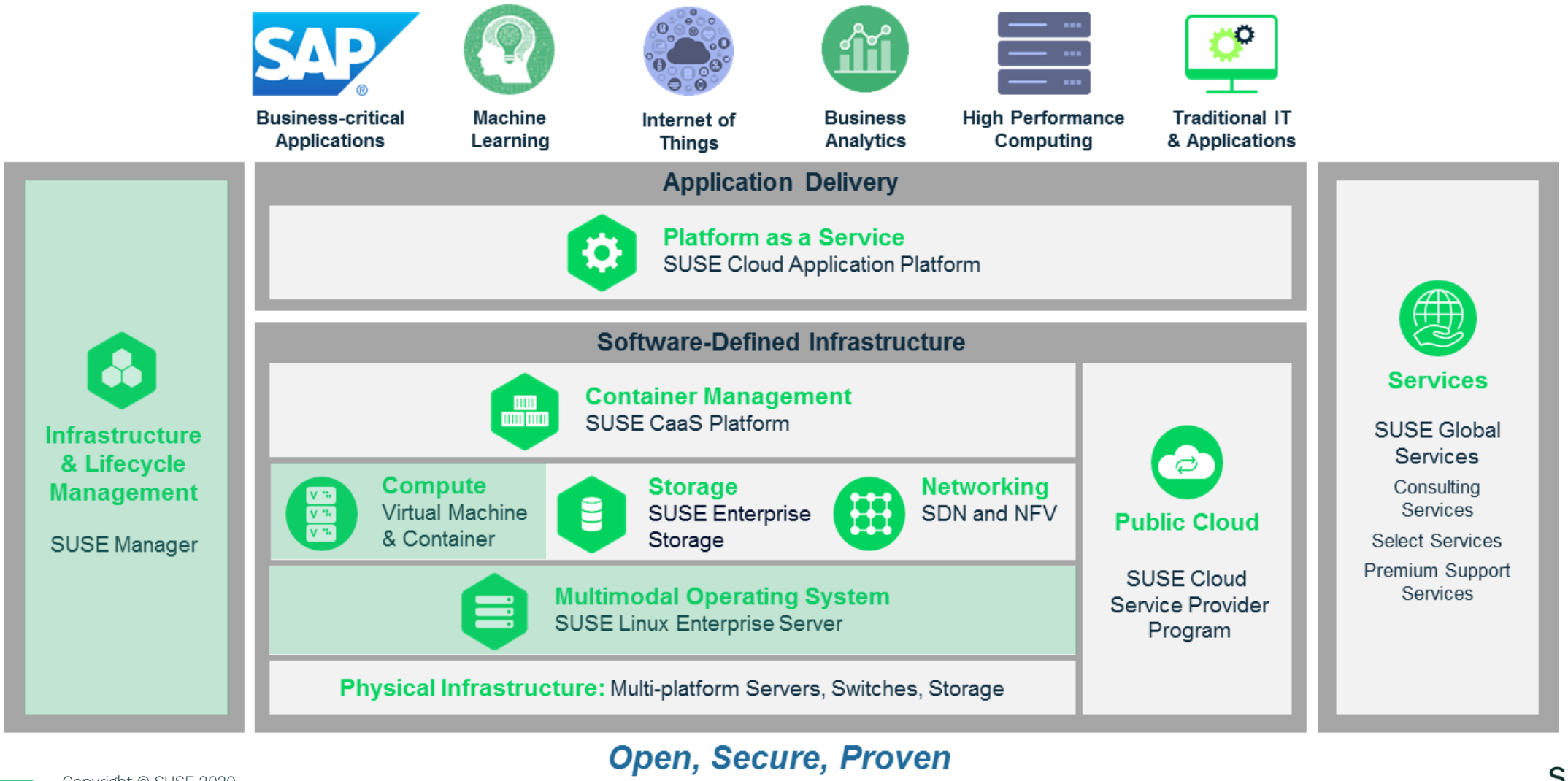
Underpinning Digital Transformation



Open, Secure, Proven

The focus of this presentation



Building repeatable images for LPAR, z/VM and KVM

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Image building with kiwi

- Also known as KIWI NG
  - Open Source project available on GitHub
- Included in the Development Tools Module in SUSE Linux Enterprise Server 15 SP1
- Build SLES, RHEL, Ubuntu, openSUSE, CentOS, Debian and other Linux distro images
  - Example image descriptions available in GitHub
  - Image types include virtual disk, OEM (raw disk), bootable/installable ISO, container
- SUSE includes templates in SLES for getting started
  - SLES JeOS (Just Enough Operating System) template that is available is for x86_64
  - SLES JeOS template for s390x with documentation is available here

Describing a reproducible image

- Image description is a XML file
  - image type (e.g. QEMU disk image, PXE bootable image, Vagrant box, etc.)
  - partition layout
  - packages to be installed on the system
  - users to be added
- Optional scripts run in a chroot environment for additional flexibility
- An optional root directory for files
- Use git for version control of an image description!!

```
<?xml version="1.0" encoding="utf-8"?>

<!-- OBS-Profiles: @BUILD_FLAVOR@ -->

<image schemaversion="6.9" name="SLES15-SP1-JeOS"
displayname="SLES 15 SP1">
    <description type="system">
        <author>SUSE Linux GmbH</author>
        <contact>mikef@suse.com</contact>
        <specification>SUSE Linux Enterprise 15 SP1
JeOS</specification>
    </description>
    <profiles>
        <profile name="kvm" description="JeOS for KVM"
arch="s390x"/>
        <profile name="kvm-unpatched" description="Unpatched
JeOS for KVM" arch="s390x"/>
        <profile name="OpenStack-Cloud" description="JeOS for
OpenStack Cloud" arch="s390x"/>
        <profile name="raw" description="JeOS raw image"
arch="s390x"/>
    </profiles>

    <preferences profiles="kvm,kvm-unpatched,OpenStack-Cloud">
        <version>15.1</version>
        <packagemanager>zypper</packagemanager>
        <bootsplash-theme>SLE</bootsplash-theme>
        <bootloader-theme>SLE</bootloader-theme>
    <!-- those settings are applied by suseConfig in config.sh
        <locale>en_US</locale>
        <keytable>us.map.gz</keytable>
        <timezone>Europe/Berlin</timezone>
        <hwclock>utc</hwclock>
    -->
        <rpm-excludedocs>true</rpm-excludedocs>
        <type
            image="vmx"
            filesystem="xfs"
```

Assessing impact of a security vulnerability

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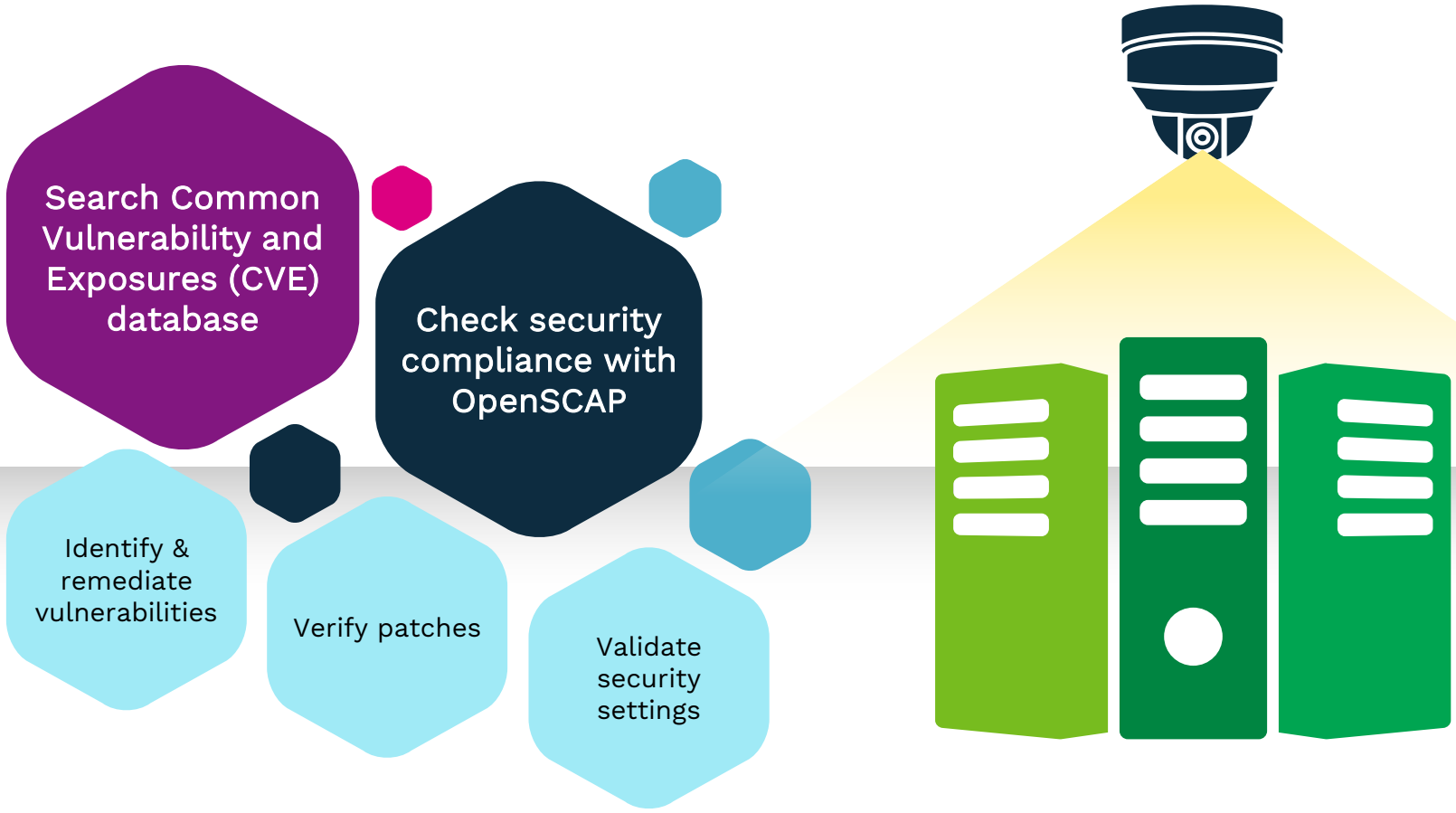
SUSE Manager

Best-in-class open source infrastructure management solution designed to help your enterprise DevOps and IT Operations teams to:

- Optimize operations while reducing costs
- Reduce complexity and regain control of IT assets
- Ensure compliance with internal security policies and external regulations

Ensure Compliance

With internal security policies and external regulations with automated monitoring, tracking, auditing and reporting



Make mission critical applications more resilient to unexpected failures

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Mission Critical Application

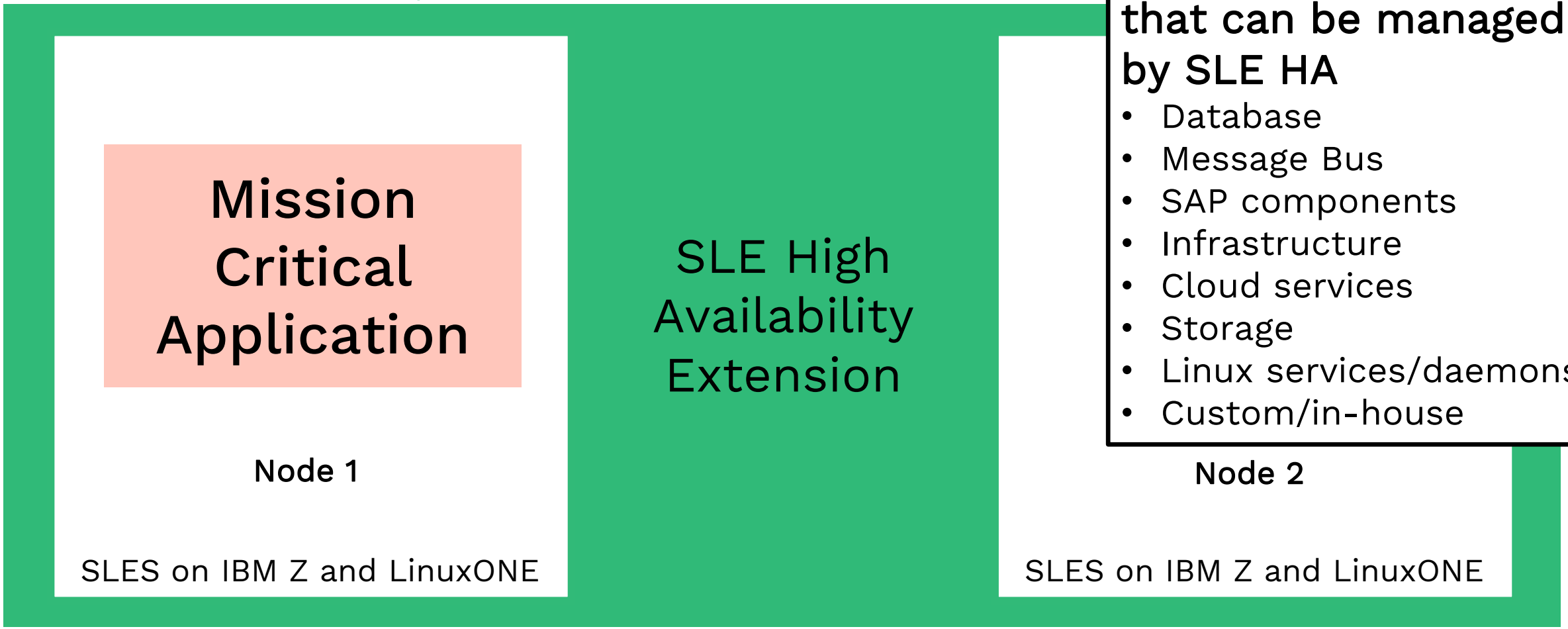
SLES on IBM Z and LinuxONE

Potential reasons for a failure

- Hardware failure
- Human error
- External factors
- Etc...

Setup a high availability cluster

SLE HA Installation and Setup Quick Start



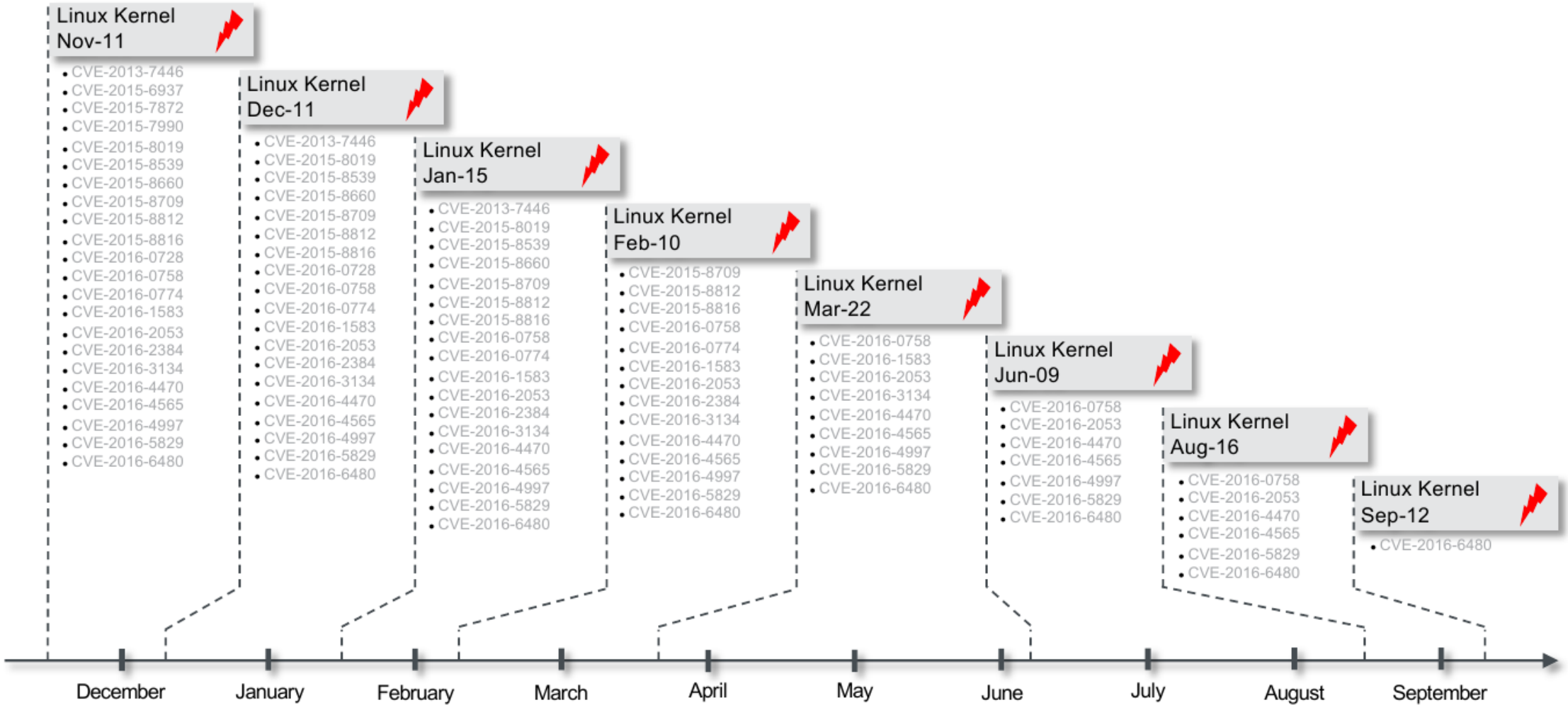
Types of applications that can be managed by SLE HA

- Database
- Message Bus
- SAP components
- Infrastructure
- Cloud services
- Storage
- Linux services/daemons
- Custom/in-house

Keep a Mission Critical Application available

Minimize reboots when running mission critical applications

Update Kernel And Reboot Or...



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Key Highlights For SLE Live Patching

No runtime performance impact and no interruption of applications

Provides fixes for Kernel bugs which affect

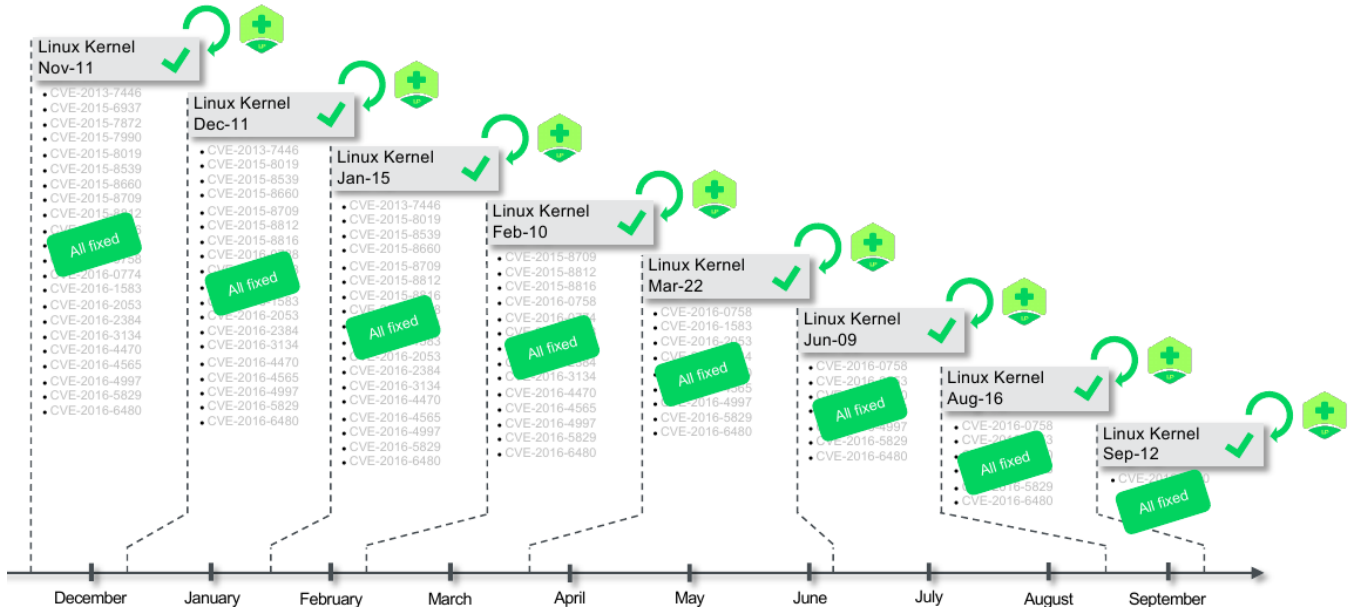
- Security (CVSSv2 >=6)
- Security (CVSSv3 >=7)
- Data integrity or system stability

Deploy using existing package management frameworks

- Consider using SUSE Manager to automate deployment of Live Patches

Availability

- SLE 12 SP4, SP5 and SLE 15 SP2 for s390x (June/July 2020)



[Live Kernel Patching Using kGraft]

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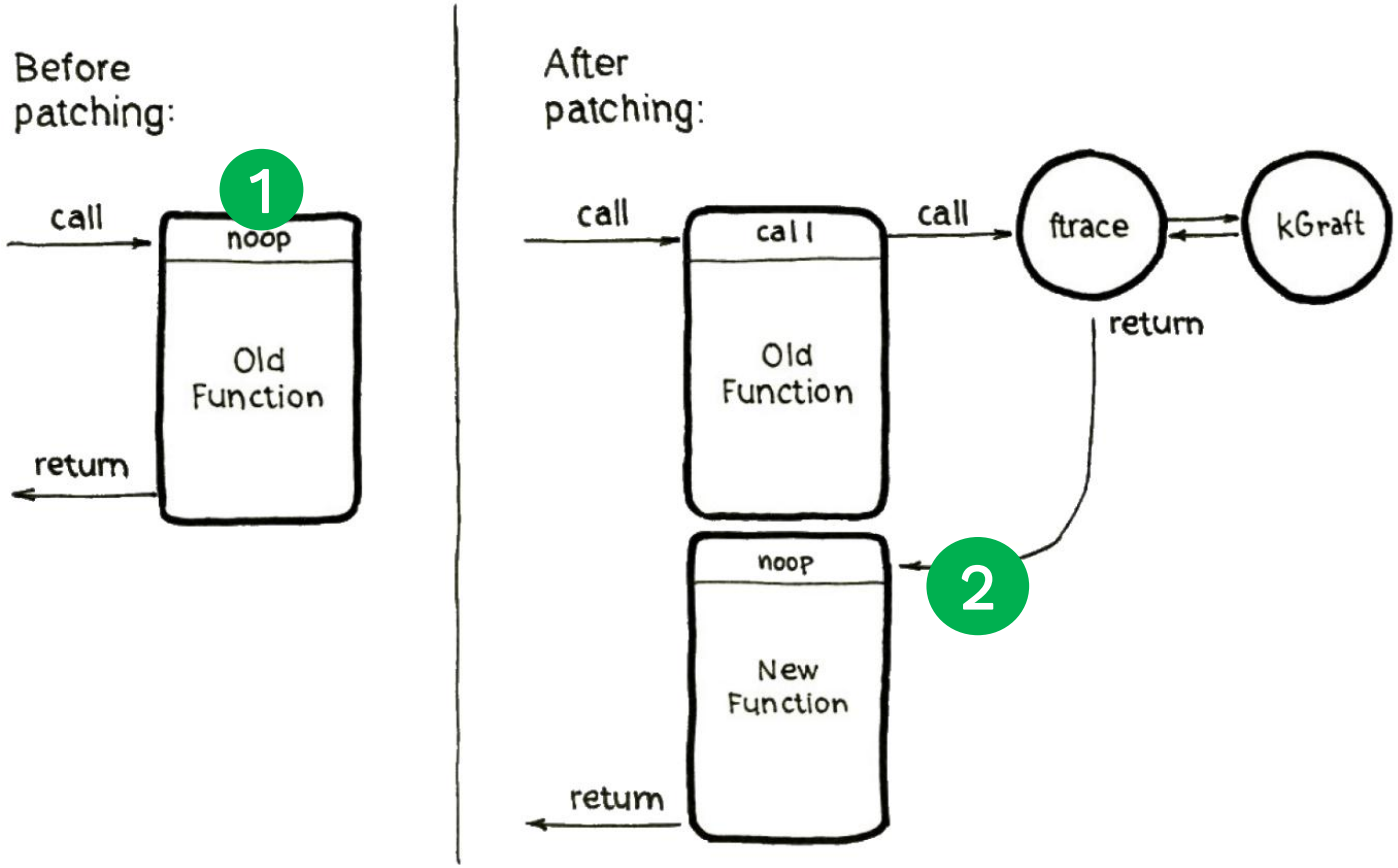
Live Patching Is Easy To Understand



1. Replace the placeholder “noop” with call to ftrace
2. ftrace returns execution to new “patched” Function

Old Function is by-passed
New Function is now in use

Questions?

Thank you!

For more information, contact SUSE at:

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