Keep It Simple

Your Linux assets are a complex assortment of servers and workstations running in virtualized, public or private clouds or IaaS environments. How do you manage all that diversity and still keep it simple to maximize IT efficiency? SUSE Manager is a single, open source tool that offers complete lifecycle support for your enterprise Linux environment—from deployment, to configuration, to administration, to software updates and auditing.

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Enterprise networks grow organically. New servers come online as needs change and budgets expand. Sometimes different departments have differing priorities, leading to dissimi

lar configurations with varying degrees of compatibility and complexity. Even if management succeeds in establishing basic objectives for uniformity and interoperability, subtle differences in management tools and configuration methods can lead to indecision or staffing inefficiencies for admins who are tasked with managing and troubleshooting the network.

According to many experts, the best way to save on cost and maximize efficiency for IT staff is to reduce the number of management tools used to maintain and administer an IT landscape. A uniform management environment saves money and time by providing:

- **Simplified workflow**—Processes and deployments occur in a predictable and reproducible manner, saving time and allowing for more accurate staffing estimates. Tasks and responsibilities are clearly and consistently separated between expert and novice system administrators.
- **Error reduction**—Automation of configuration and maintenance procedures reduces the chance of costly mistakes. Restricting the management environment to a common interface or command set builds competence through familiarity and repetition, further reducing both errors and downtime.
- **Staffing flexibility**—IT managers can deploy staff across different locations and departments with the assurance of productivity from the moment of arrival and can quickly redeploy them to deal with any local or temporary workload peaks.
- **Training savings**—Fewer tools means significantly less training and a flatter learning curve for IT staff.
- **Simplified lifecycle management**—A single point of entry makes it far easier to move and manage packages throughout the DevOps cycle.

SUSE Manager is a powerful tool that enables your staff to manage the complete lifecycle of both RPM- and DEB-based Linux systems through a single user interface (UI). You can use SUSE Manager to administer, deploy, configure, monitor and audit all your Linux systems, whether they are running on bare metal or in a virtual environment. A powerful collection of automation and orchestration features included with SUSE Manager enables you to extend and expand the power of a single admin, minimizing staffing cost and reducing the time for system deployment and updates, even in complex DevOps scenarios.

Software-defined Infrastructure

SUSE Manager is part of a new generation of tools for man- aging a software-defined infrastructure (SDI). A single SDI might consist of many thousands of objects, running on any possible mix of compatible hardware, IoT devices and cloud platforms. SDIs allow IT staff to manage dynamic, heteroge- neous networks in a hardware- and location-independent way. All systems on the network are managed through the same interface and procedures, regardless of where they are running and whether they are running on hypervisors, containers, bare metal, IoT devices or third-party cloud plat- forms. With SUSE Manager comes near real-time virtualiza- tion management, via a user-friendly UI that allows for quick starting and stopping and the creation of Salt States.

Comprehensive

The power of SUSE Manager is deep as well as wide. SUSE Manager combines all-in-one versatility with a comprehensive feature set. Many organizations discover that SUSE Manager is as efficient and as tailored to the needs of their IT infrastructure as a full custom management system would be, but without any of the associated risks and costs. Regardless of the complexity of your local network or SDI, SUSE Manager will help to make it simpler with:

- More efficient (and simplified) deployment Tighter and more granular control of Linux system configurations
- Streamlined management for hassle-free software and system updates
- Audit for ironclad compliance with corporate policies

The next sections provide a closer look at the power and economy of SUSE Manager.

Easy Deployment

Deployment couldn't be easier. You just declare how many Linux systems you need and what you need them for, and SUSE Manager does the rest. Admins can build their own images for bare metal, containers or virtual machines (VMs), using AutoYaST or Kickstart, and then install those images on individual computers or groups of systems, via a fully unattended process. The tools included with SUSE Manager (Figure 1) enable staff to define system prototypes and then adapt the definitions for easy automation and complex environments.

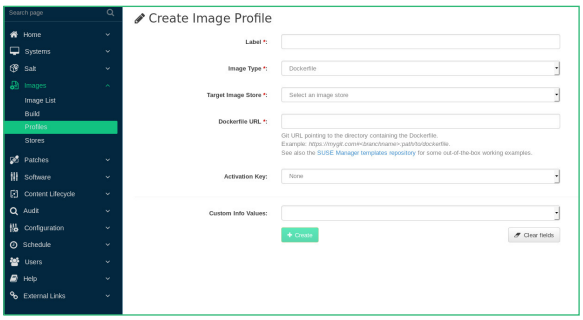

Figure 1. SUSE Manager makes it easy to build and deploy system images.

Cloud deployments are easy and convenient with SUSE Manager. The procedures used for creating and managing Linux systems on private or public clouds closely match the procedures used for deploying on-site resources, thus keeping the learning curve to a minimum.

Provisioning is only a few clicks away. For each system, the administrator defines the product type and nature (virtual, bare metal, etc.), defines the configuration system (Salt or file-based management), sets the location and configures the necessary software channels. When the system is up and running, all those parameters, together with the system's status and its planned maintenance schedule, are visible in one single window.

SUSE Manager adapts easily to organizations that have different departments with very different IT needs. You can partition your landscape into independent units, each with its own separate management team and software repositories. Each department can deploy and update its infrastructure at its own pace, but in a common environment with common rules that are easy to maintain and verify.

Software Management

Once the systems are deployed and configured, SUSE Manager enables you to install and manage software in an efficient and comprehensive manner. SUSE Manager automates software updates (Figure 2) for whole systems, groups of systems or individual packages. You can schedule and execute multiple software updates at once, using one command, and SUSE Manager guides you through the complete upgrade process.

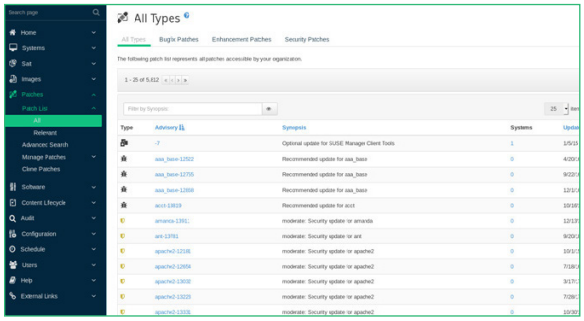

Figure 2. A listing of patches, which includes information about available updates.

Use SUSE Manager to lock down software installations and keep your Linux systems free of unauthorized packages that could threaten security or stability (Figure 3). You can configure predefined software channels that each system must use to receive a package update and define a software channel for each use case, thus ensuring that software targeted for a development or testing system is never installed on a production machine. SUSE Manager enables you to authorize every package deployed in the environment, from critical security updates to packages developed in-house.

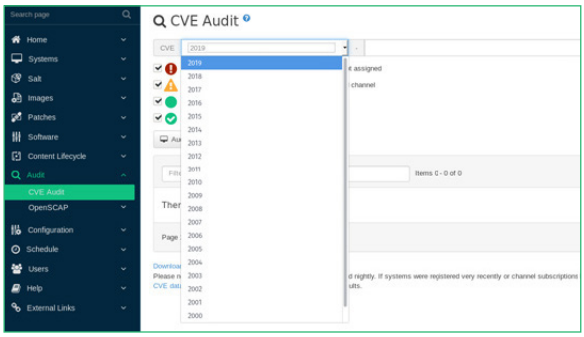

Figure 3. Scanning for known vulnerabilities.

Careless employees configuring Linux systems in a sloppy and inconsistent manner can cause headaches, downtime and security problems for the management team. SUSE Manager makes it much easier to enforce and demonstrate compliance to both company rules and external security or licensing policies (Figure 4).

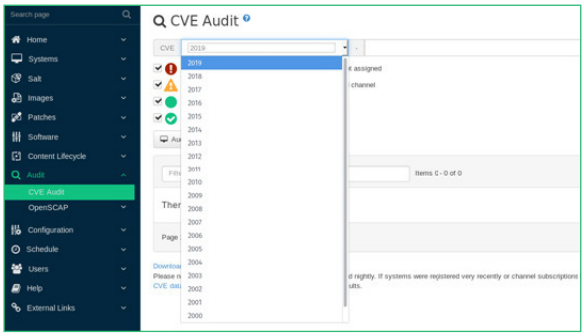

Figure 4. Monitoring compliance with SUSE Manager.

You can use SUSE Manager to perform an initial inventory. Once the inventory is complete, SUSE Manager reports on any deviation from the configuration, desired patch levels or security requirements. You can also check the compliance of Linux systems against publicly distributed vulnerability lists (CVE, common vulnerabilities and exposures) or security policies imposed through the Open Security Content Automation Protocol (OpenSCAP). SUSE Manager even enables you to check containers running in Kubernetes for missing patches or CVE vulnerabilities.

Administrators can generate custom reports of all the machines affected by a specific vulnerability, prepare and analyze licensing audits and even assign separate administrators for subgroups and tasks (Figure 5).

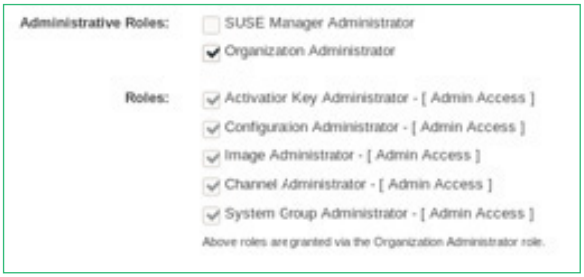

Figure 5. Lock down security by assigning a role to each system admin.

Powerful Automation

One powerful way for an IT management system to save you time and money is for it to do as much of the routine work as possible by itself. SUSE Manager includes several features that can help you automate the daily management operations for your Linux infrastructure, including:

Automated image building: Built-in integration with the Kiwi image-building server enables you to build custom images for both hardware systems and VMs in a fraction of the time.

Salt on steroids: SUSE Manager eases the management of VMs by way of Salt. This new paid-for add-on feature allows near real-time management of hundreds of servers, all through Salt State definitions and an efficient UI. For example, you can create a Salt State that always ensures the same three VMs are created and running on all of your retail branch servers.

Salt Formulas are pre-written Salt States that contain generic parameter fields and can be installed from either RPM packages or an external Git repository. With these formulas, SUSE Manager can reproduce a specific configuration over and over, to make it even easier to set up SAP HANA nodes and HA cluster configurations and to implement SAP's best practices for installing SAP HANA on SUSE Linux Enterprise.

The use of Formulas with Forms has been simplified with improved content staging UIs and Application Programming Interfaces (APIs). This revamped content staging makes it even easier to build patch staging environments for Linux updates without having to create your own custom scripting.

Command-line automation: Graphical interfaces are easy to learn and use, but command lines and scripts are faster, more flexible and easier to automate. SUSE Manager provides the best of both worlds. The spacecmd command-line tool supports scripting for all functions of SUSE Manager without manual interaction.

APIs: Several APIs and services enable you to integrate SUSE Manager with your existing tools and processes, as well as with third-party tools, further extending the opportunities for automation.

SSM: System Set Manager (SSM) enables you to administer several systems simultaneously from the graphical interface. The SSM main window provides quick access, through one set of tabs, to the controls you need in order to apply configuration states, schedule patch updates, group or migrate systems and much more.

Content Lifecycle Management

With the help of a new Content Lifecycle Management (CLM) user interface, SUSE Manager makes it possible to clone software channels (Figure 6) through a lifecycle of several environments.

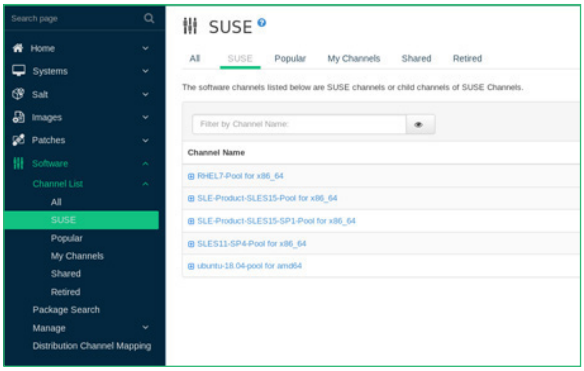

Figure 6. Software channels help you keep control of software installation.

This new tool enables you to create content projects, select a custom set of software channels as sources and whitelist specific packages and patches. With your sources chosen, you can build the selected set, which will then populate your first environment. That environment can then be promoted through the environment lifecycle.

With SUSE Manager, the process cycle looks like this:

1. Create a Content Lifecycle Project.
2. Add sources to your project.
3. Add environments (stages).
4. Attach filters.
5. Build your first version.

Prometheus-based Monitoring

SUSE Manager now supports Prometheus-based monitoring. This new monitoring feature is an open source systems monitoring and alerting toolkit, which enables you to:

- Monitor nearly anything you want on a system. Receive notifications of updates and patches. Enable auto-patch updates.
- Select from various Salt Formulas.
- Export nearly any type of metric about a system.
- And more.

If you don't find a Prometheus exporter to fit your needs, you can even build one of your own and integrate it into SUSE Manager. And with the help of Blackbox Monitoring, you can probe endpoints over HTTP(S), DNS, TCP and ICMP and easily measure service latency. The integration between SUSE Manager and Prometheus is transparent and the Blackbox daemon acts as another scrape target for Manager.

Better Organization of Human Resources

SUSE Manager can reduce your IT costs by helping your staff share the workload. The main administrator of a SUSE Manager installation can delegate different tasks to other users at different levels. It is possible to divide the Linux landscape and provide separate administrators for each subgroup. It is also possible to give different admins responsibility for diverse tasks, such as key activation, image preparation, system configuration and software channel maintenance. SUSE Manager's workload allocation features facilitate a clean separation of concerns between high- end expert responsibilities and day-to-day admin tasks.

SUSE Manager's task manager and scheduler enables administrators to manage many kinds of tasks automatically. For instance, you can quickly schedule, browse, review or audit all activities related to:

- Software packages and channels (installation, removal, rollbacks or upgrades)
- Single systems or groups (automated installations, reboots, patching, configuration changes or hardware updates)

Top-Notch Enterprise Support with No Lock-In Risk

Unlike several of its competitors, SUSE offers the full feature set of SUSE Manager through its upstream, community-based development project, Uyuni—thus preventing lock-in, simplifying evaluation and maximizing the benefits of open source development.

Uyuni is developed publicly, with frequent releases and solid, automated testing that constantly improves quality. SUSE adds technical support, hardware certification and lifecycle guarantees to the SUSE Manager Enterprise edition. And Uyuni offers the complete feature scope in an open development setting, thus providing significantly more transparency than alternative tools that strip down the community edition and stuff advanced features into the commercial version as proprietary extensions.

Conclusion

Managing a large, complex Linux estate with dissimilar tools adds significantly to your total cost of ownership (TCO). Deploying and configuring systems under constantly changing requirements and business needs can slow down your IT operations and increase the possibility of errors if you don't have the right tool for the task.

SUSE Manager is a powerful, fully open source, future-proof platform that makes it possible to manage the whole lifecycle of your entire Linux infrastructure in a controlled and cost- effective way.

SUSE Manager reduces TCO, simplifies administration and manages risks associated with your Linux infrastructure by:

- Fully supporting SDIs that constantly change to adapt to business needs—in DevOps environments and also in more conventional management scenarios.
- Sparing your staff from having to learn multiple dissimilar tools to do their jobs.
- Automating as many operations as possible, while allowing for easy customization and adapting to your company's needs.
- Enforcing compliance with both internal policies and external security standards.
- Staying on top of systems with powerful monitoring tools that enable you to work with querying metrics.

If you are looking for a versatile and powerful platform for deploying, configuring, updating and auditing all your Linux systems from a single interface, contact the experts at SUSE® to learn more about SUSE Manager: U.S. and Canada: 1-800- 796-3700 Worldwide: 1-801-861-4500

Thank You

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