



Reduce steps
to address SAP
best practices
tuning issues by

75%

Reduce time
to remediate
configuration drift

92%

Address
compliance
issues in

29%
less time

Simplify admin tasks such as drift and compliance remediation with Red Hat Insights

Compared to using SUSE Manager for infrastructure management

Choosing a robust infrastructure management solution can help keep your organization's Red Hat® Enterprise Linux® environment running securely and efficiently. But which tools can offer your administrators a simpler experience that reduces hands-on time? To find out, we compared two solutions that offer advanced management capabilities, one for Red Hat Enterprise Linux, and the other for SUSE Linux Enterprise Server environments.

In five use cases, the Principled Technologies IT team compared the impact on admin time of two Linux management solutions: Red Hat Insights and SUSE Manager. Across three common use cases—Advisor, Drift, and Compliance—we found that Red Hat Insights significantly reduced the time to remediation compared to SUSE Manager. By providing a simple path to automation and minimizing hands-on admin time for Red Hat Enterprise Linux environments for several routine tasks, enabling Red Hat Insights for your environment can help simplify administrator workflows and bolster infrastructure health.

How we tested the two infrastructure management solutions

We set up a three-node SAP cluster on which we tested Red Hat Insights with Red Hat Satellite and SUSE Manager.¹ We compared the time it took to detect, review, and remediate the following types of issues that some environments could face:

- SAP HANA best practices
- Drift
- Compliance
- Vulnerability
- Bugfix
- SAP HANA patches (Advisor)

We recorded the time and steps it took for our administrator to complete these tasks using both tools. Please note that time and steps will vary with the experience of your particular team. To reduce differences due to user experience, we researched any commands for SALT (the open-source remote task execution and configuration management SUSE Manager uses behind the scenes to manage systems) and the Linux command line before testing, and proceeded as if an experienced user were managing the environment.

We omit time and steps related to user error and time to read information, and describe subjective qualities of each tool that could influence time or steps in production. We also omit machine time, because while the admin waits for the system to perform a given task, they could be moving to a new task. Each use case addresses issues on a three-node SAP cluster. For the drift use case, we generated a configuration baseline on each system using each environment's best method, made changes, and then detected drift. For the compliance use case, we scanned for non-compliant PCI-DSS rules and remediated three issues on all systems as a sample set from all the PCI-DSS rules that the system detected as being broken.

For the remaining use cases, we took a sample of three different issues from the numerous issues each tool detected, and remediated these on all systems; we then averaged the time and steps for each issue to obtain the numbers we report. To see all the details of our test environment and the step-by-step details of our testing, visit the [science behind the report](#).



Modernize system management with Red Hat Insights

Red Hat Insights is included with Red Hat Enterprise Linux, which can simplify procurement of the infrastructure management solution. Delivered as a service, Red Hat Insights uses predictive analytics and comprehensive domain expertise to assess IT environments and proactively identify and prioritize operational and security risks. It can remediate those risks and also streamline other system management tasks such as creating and launching system images to the public cloud. According to Red Hat, "Insights uses predictive analytics and deep domain expertise to reduce complex operational tasks from hours to minutes, including identifying security and performance risks, tracking licenses, and managing costs."²

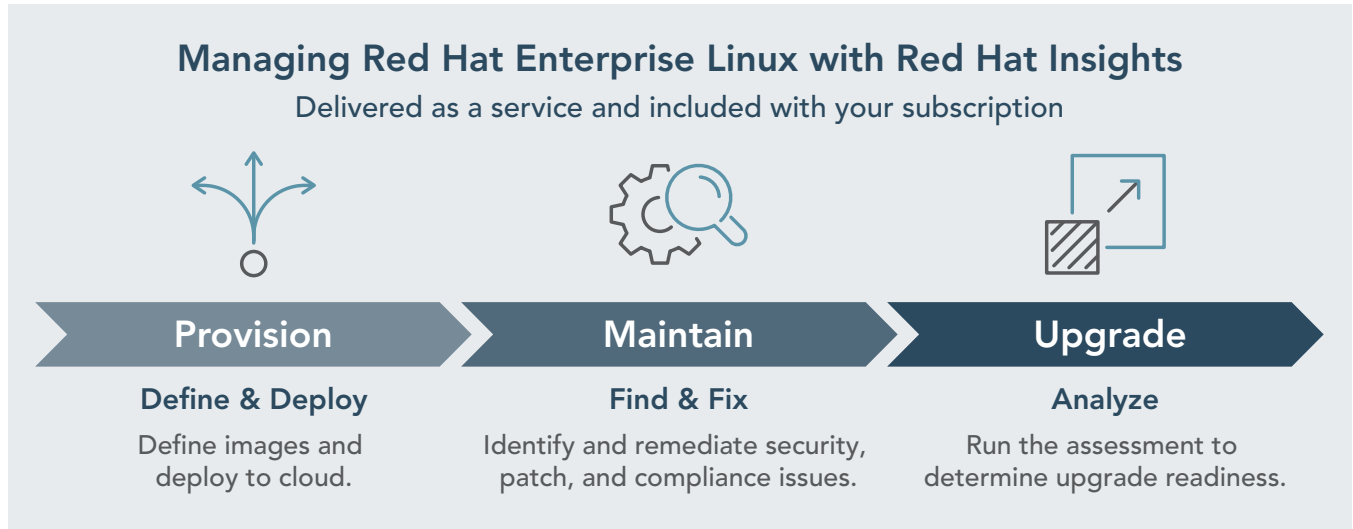


Figure 1: Red Hat Enterprise Linux includes Red Hat Insights for system management.





Use case 1: SAP HANA best practices

If your organization runs SAP HANA for database services, ensuring top performance of the database is crucial to success. Red Hat Insights offers the Advisor feature to alert admins to app-specific tunings that can improve performance, availability, or stability of applications. As Figure 2 shows, using Red Hat Insights to recommend and perform remediation steps for SAP HANA best practices via Advisor took 79 percent less time than completing the same tasks with SUSE Manager.

Time and steps to complete SAP Advisory use case (best practices)

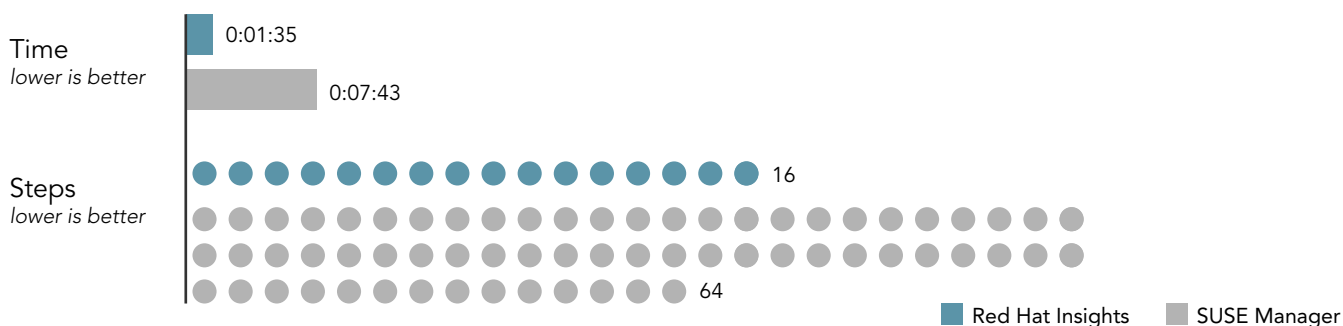


Figure 2: Time in h:mm:ss and number of steps to complete the SAP Advisory best practices use case using Red Hat Insights versus SUSE Manager. Lower numbers are better. Source: Principled Technologies.

This Advisor issue was one that Red Hat Insights automatically identified, because Insights includes logic to identify the use of Red Hat SAP best practices. There is no equivalent logic in SUSE Manager, so remediating this advisory issue for best practices was all manual and includes steps we took to search the internet to find best practices and ensure the systems were following them.



Use case 2: Configuration drift

After you have done the hard work to deploy your infrastructure with the correct configurations, configs can drift from their initial state due to routine updates (or users) breaking apps or installation of unwanted packages and programs. These changes can cause problems with application performance. To deal with this, Red Hat Insights monitors the entire environment and alerts admins to differences from the desired baseline configuration.

As Figure 3 shows, Red Hat Insights reduced the time to detect drift significantly compared to SUSE Manager—dropping admin time from approximately 61 minutes to approximately 5 minutes, a reduction of 92.2 percent.

Time and steps to detect configuration drift

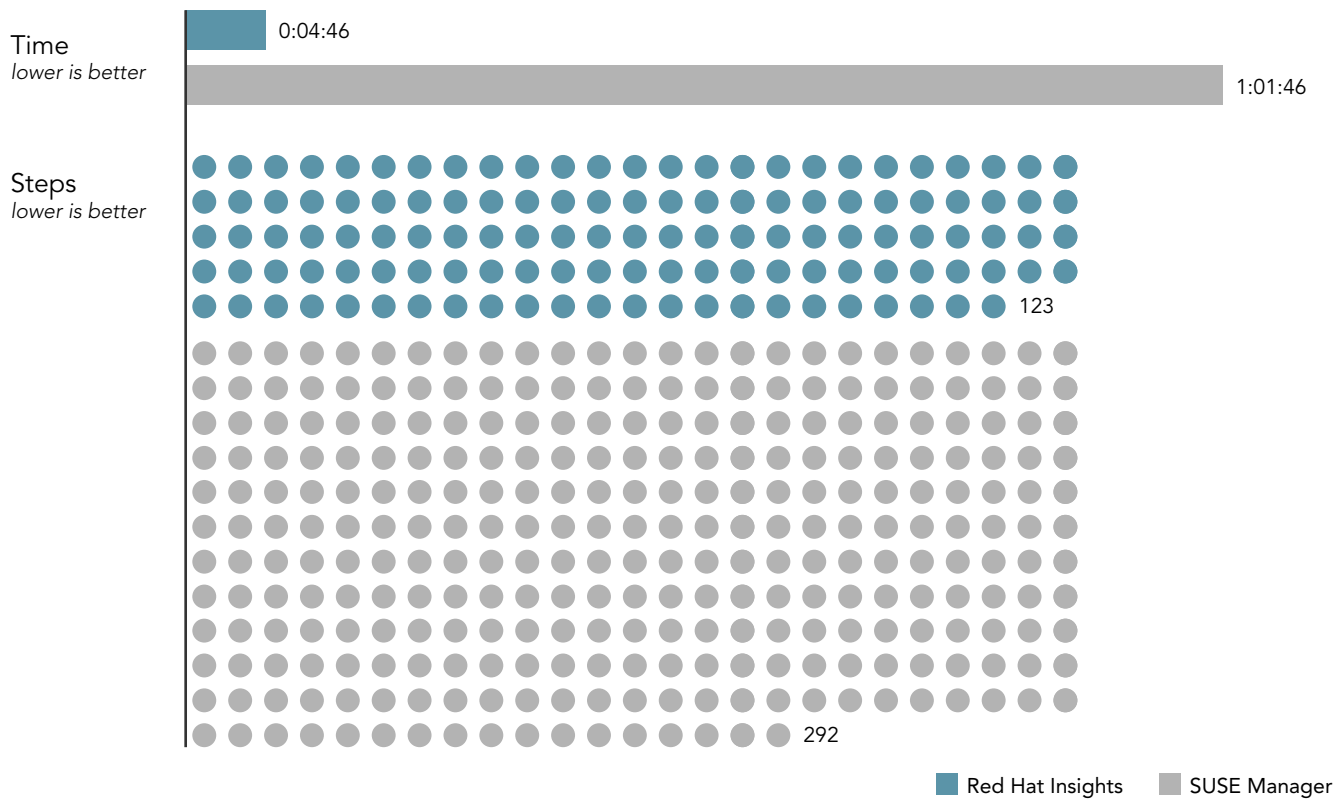


Figure 3: Time in h:mm:ss and number of steps to detect configuration drift using Red Hat Insights versus SUSE Manager. Lower numbers are better. Source: Principled Technologies.

We used both Red Hat Insights and SUSE Manager to detect configuration drift on the SAP clusters. We used the original node configuration of each node as a baseline, and made different changes to each node. We then used each tool to compare each node to its individual baseline and noted differences that required remediation.

When based on a current system, Red Hat Insights has a list of system attributes that it automatically checks for when creating a baseline. In SUSE Manager, we used SALT and the command line to manually create a SALT highstate for each node. Admins can then use SALT in testmode to find differences between the current configuration and baseline or highstate configuration. SUSE Manager and SALT do not have list of typical system attributes to automatically check for to create a baseline or highstate, so the user must look up the appropriate SALT methods and then do things manually. There is a section in SUSE Manager to turn monitoring on or off for individual packages, but there is no way to easily select them all. To be equivalent to Red Hat Insights, the interface would also need to automatically detect various system attributes and list all services, modules, kernel modules, and running processes. Instead of using the SUSE interface, we obtained appropriate lists of packages, services, modules, and processes from the command line and then used grep, awk, and other text manipulation tools to append the list in a SALT-appropriate format to a SALT state file. We did not include time and steps to find the appropriate SALT modules and/or text manipulations. We also used command history to repeat the same commands on the second and third nodes once we had used them on the first. This should make SUSE Manager using SALT and Red Hat Insights a fair comparison.

Use case 3: Compliance to policies

By giving administrators tools to make uniform policies from a single console and monitor configurations, infrastructure management tools can ensure that all hosts remain compliant with organizational policies. In this use case, we remediated PCI-DSS rule violations in both environments. This helps keep the Linux environment healthy and secure, while also helping organizations meet any regulatory guidelines.

As Figure 4 shows, remediating compliance issues with Red Hat Insights reduced admin time by 29.7 percent and took 16.1 percent fewer administrator steps to complete remediation. In addition, while Red Hat Insights had access to information for each compliance issue on a summary page, SUSE Manager referred the user to an external website, through a broken link, for information. We had to download a spreadsheet and search to locate information on how to remediate a PCI-DSS rule.

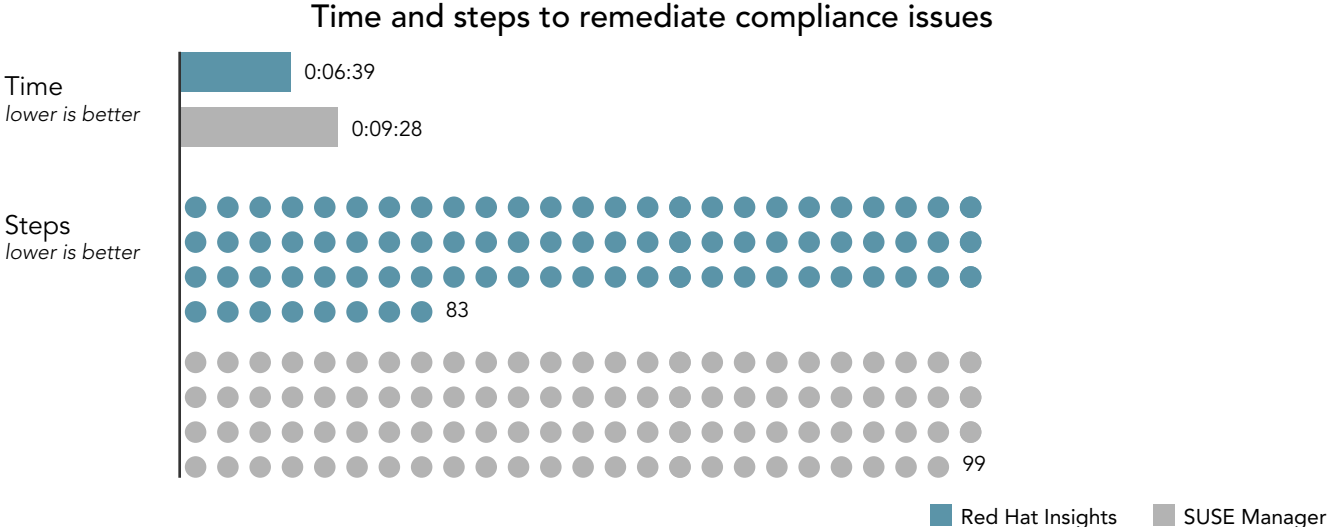


Figure 4: Time in h:mm:ss and number of steps to remediate compliance issues using Red Hat Insights versus SUSE Manager. Lower numbers are better. Source: Principled Technologies.

Other common use cases: Vulnerability, Bugfix, and SAP HANA patches (Advisor)

Issues of Common Vulnerabilities and Exposures® (CVEs) in software and hardware mount over time, but with proper monitoring and management tools, admins can address CVEs before they degrade performance or cause service interruption. As Figure 5 shows, both management tools remediated a vulnerability in an SAP cluster in just over 1 minute and in a similar number of steps.

We tested a Red Hat Bugfix advisory and found that both management solutions recommend the appropriate patches and remediated the issues in just over 1 minute and a similar number of steps. SUSE Manager does not differentiate between CVE and Bugfix issues, providing instead a single list of patches. For both Vulnerability and Bugfix, Red Hat provided a summary page for each issue that included Red Hat-specific information. SUSE Manager did not.

We also tested patch-related issues using Advisor for the SAP HANA application, ensuring that two advisory issues in both environments needed patching for SAP-related packages. (SUSE Manager has a section for automatic detection and remediation of packages needing patches, and we did a search for SAP packages there.) As Figure 5 shows, again Red Hat Insights and SUSE Manager remediated the issues in similar time and steps, taking an average of just over 1 minute for two different patching trials. Note: For these use cases, we took a sample of three different issues from the numerous issues each tool detected, and remediated these on all systems; we then averaged the time and steps for each issue to obtain the numbers we report.

Table 1: Time in h:mm:ss and number of steps to remediate CVEs, a bugfix advisory, and SAP advisor patches using Red Hat Insights versus SUSE Manager. Lower numbers are better. Source: Principled Technologies.

	Red Hat Insights	SUSE Manager
Remediate CVEs		
Time (h:mm:ss)	0:01:29	0:01:12
Steps	18.3	19.0
Remediate a Bugfix advisory		
Time (h:mm:ss)	0:01:08	0:01:07
Steps	15.7	16.0
SAP Advisory use case (average of two SAP patch trials)		
Time (h:mm:ss)	0:01:15	0:01:11
Steps	15.3	16.0



Conclusion

Choosing an infrastructure management tool that improves efficiency can streamline administrator duties and save them time. Red Hat Enterprise Linux includes Red Hat Insights to proactively identify risks, prioritize resolutions, and streamline remediation. In our comparison of Red Hat Insights and SUSE Manager, we found that using Insights simplified and reduced time to remediate issues in SAP Advisory best practice issues, configuration drift, and compliance compared to its competitor. On CVEs, Bugfix advisories, and SAP advisor patching issues, all remediation times for these tasks were similar (approximately 1 minute) using both solutions. The results of our tests show that using Red Hat Insights to monitor and manage your Red Hat Enterprise Linux environment can automate and simplify routine tasks for administrators.

1. At the time of testing in early 2023, Red Hat Satellite was required to execute remediations from Insights. As of May 2023, Red Hat Satellite is no longer required for these test scenarios. Figure 1 in the Setting up Red Hat Satellite 6.8 section on page 11 in the science behind the report presents a diagram showing the test environment we used in this study and the current requirements.
2. Red Hat, "Red Hat Insights," accessed July 21, 2023, <https://www.redhat.com/en/technologies/management/insights>.

Read the science behind this report at <https://facts.pt/F7WuO1b> ►



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