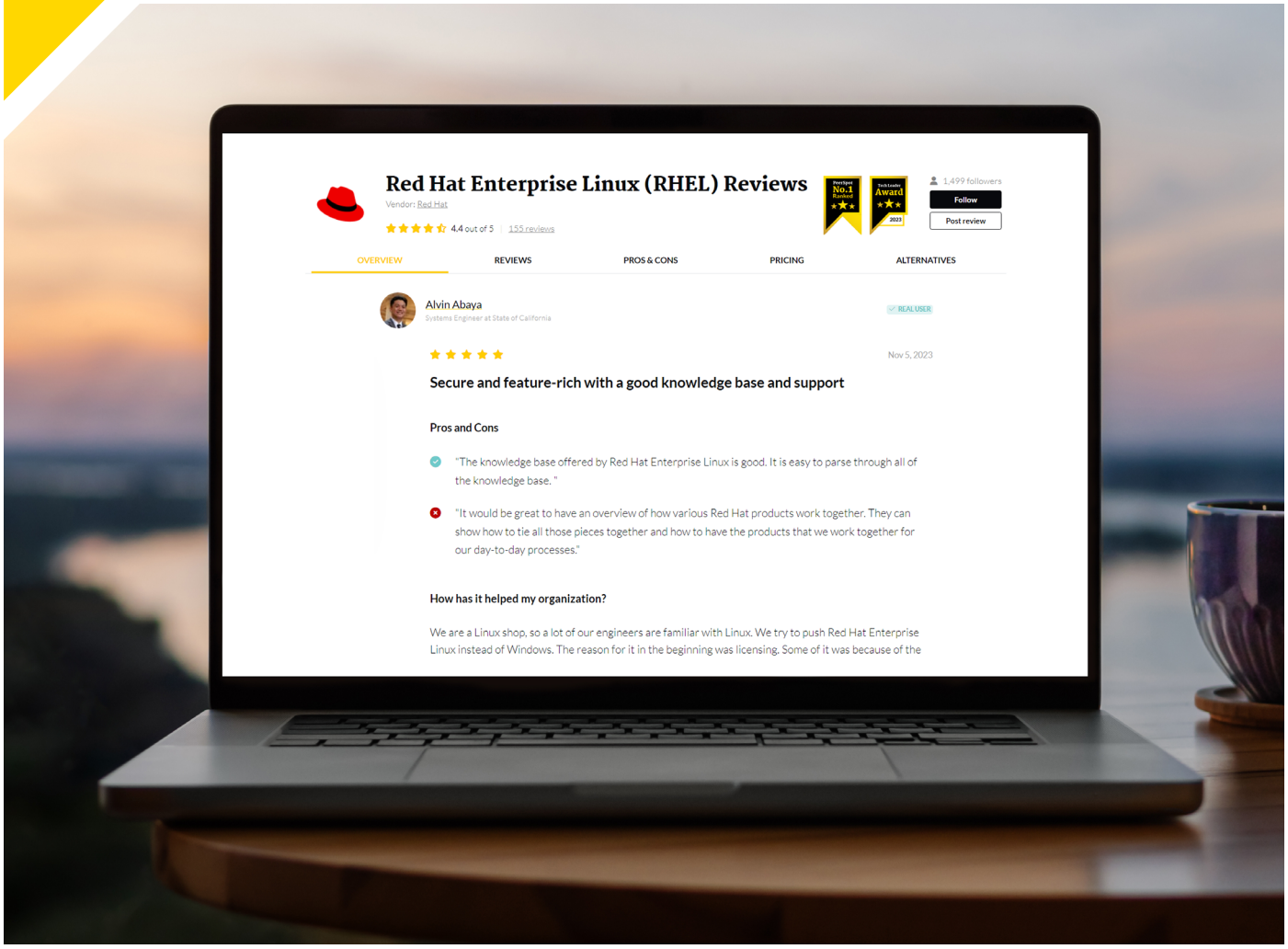
PeerPaper™ Report 2023

Based on Real User Experiences with Red Hat Ansible Automation Platform

Red Hat® Ansible Automation Platform: The Advantages of Automation in EMEA



PeerSpot

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Introduction

Enterprises continue to struggle with manual processes for system configuration, software development, and other IT workflows. The stress level will only increase as their IT organizations start to deploy servers at the edge. The edge, with its geographically distributed infrastructure and need for remote management, does not favor manual processes. As a result, IT organizations in the Europe, Middle East and Africa (EMEA) region are turning to automation, as made possible by solutions like Red Hat® Ansible® Automation Platform (AAP), powered by Intel® Xeon® Scalable platform. According to Ansible users on PeerSpot, the automation offered by the platform delivers a number of advantages relevant to the edge use case. These include time savings, faster development, better collaboration, and return on investment (ROI). This paper explores how these advantages come to life with Ansible.

Red Hat and Intel Collaborate to Power Edge Innovation for Industry 4.0 Systems Worldwide

Organizations today are faced with a growing volume of data gathered from various machines, Internet of Things (IoT) devices, and sensors, which they must decipher and apply to effectively build intelligent business operations. This phenomenon is at the core of the Industry 4.0 revolution as organizations turn to data-driven digital technologies to transform the ways in which they develop, produce, and deliver products.

Red Hat understands that in order to operationalize at the edge, organizations must unlock and harness significant volumes of data. This requires a hybrid cloud strategy based on open, connected systems, from the datacenter to the edge and out to the cloud, in order to drive actionable insights and real business outcomes.

The edge is a natural extension of open hybrid cloud, and for many organizations, the next frontier. In establishing jointly supported labs and innovation centers, Red Hat and Intel aim to help organizations develop data-driven solutions and applications to support containerized hybrid cloud workloads and empower the industrial ecosystem with more sustainable operations and greater flexibility.

From 5G to AI/ML to industrial use cases, Red Hat and Intel are teaming up to establish hands-on lab environments worldwide to accelerate innovation at the edge with customers and partners.

DevOps Consultant
at a government with
501-1,000 employees

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Europe - Stockholm

Red Hat and Intel are jointly collaborating within the framework of a 5G Innovation Center located at Intel's offices in Stockholm, Sweden. As part of the 5G Innovation Center, Red Hat and Intel are focused on driving the following engagements and demos for customers:

- Demonstrating end-to-end workflows based on 5G, AI/ML, and intelligent edge workloads supported by a diverse ecosystem of service providers, systems integrators, and hardware and software vendors.
- Enabling hybrid multicloud workloads using Red Hat OpenShift, Azure Red Hat OpenShift, Red Hat OpenShift Service on AWS, and Red Hat Advanced Cluster Management—advancing multicloud innovation with customers, powered by Intel® Xeon® Scalable platform.
- Jointly developing infrastructure capabilities based on consumable reference architectures and blueprints to provide visual demos for leading innovations in key areas, including security, AI/ML, automation, power management, telemetry, and more.

These workloads, the various workstreams, and blueprints built, involve building blocks and contributions from independent software vendors (ISVs), original equipment manufacturers (OEMs), and systems integrator partners to enable fully end-to-end and commercially viable ecosystem solutions that are ready to be deployed in a production environment.

Ansible Automation Platform and the Edge

AAP helps accelerate modern application development and delivery. It enables greater consistency and security capabilities across the hybrid cloud and the edge than was previously possible. The Platform achieves these outcomes by automating a wide variety of IT processes. Examples include configuring servers and deploying software into production, among many other tasks.

Comprising a suite of open-source software tools, APP works by establishing an inventory of machines under its control node. The software automates processes for setting up and managing network and IT processes, as well as security systems. Users can then build orchestrated process steps that can then be executed on an automated basis. The result is known as “infrastructure as code.”

Additionally, the Intel® Xeon® Scalable platform provides high-performance compute, storage, and networking resources for automating processes in the datacenter and at the edge. With a processor microarchitecture optimized to accelerate a range of workloads, the Intel® Xeon® Scalable platform delivers large memory and input/output (I/O) bandwidth, along with robust performance for compute-intensive workloads.

Edge Computing Environment Automation

Ansible Automation, powered by Intel® Xeon® Scalable platform, is thus capable of automating the configuration of Unix-like systems, as well as Microsoft Azure, AWS, and Google Cloud platforms. When migrating and managing workloads in the cloud, Intel provides a variety of cloud software tools to enable thorough evaluation, analysis, performance enhancement, and cost-effective resource management for a broad spectrum of cloud workloads. Many of these cloud tools take advantage of hardware-enabled features in Intel® Xeon® Scalable processors and other Intel® processors and platforms to help further improve the price performance of cloud operations.

Three special-purpose tool sets that can be used for base-level cloud optimization include:

- Intel® Workload Optimizer: Intel works with software vendors and cloud service providers (CSPs) to offer access to Intel® platform technologies like Intel® Workload Optimizer by Granulate, an AI-enabled, automated solution that helps to enhance performance and reduce latency in cloud deployments.
- Intel® Cloud Optimizer: Excellent results can also be achieved by focusing on optimizations of the infrastructure. Intel® Cloud Optimizer by Densify deploys machine learning to analyze an organization's range of cloud workloads automatically, matching them with platform and service combinations that are offered by the cloud service provider (CSP).
- Intel® Migration Advisor: The Intel® Migration Advisor by CloudGenera automatically captures and catalogs information about applications. The vendor-agnostic cloud management tool analyzes all aspects of an organization's cloud migration plan, across CSPs and including on-premises and off-site data centers, recommending workload placements and optimal configurations.

With regard to hybrid cloud automation, Ansible can automate the provisioning of instances and networks. Ansible can also automate edge computing environments. This is a necessity given how the edge consists of many servers deployed in geographically distributed patterns where they will be close to end users. It will be simply impossible to send people to support hardware in so many locations. Additionally, the number of sites will strain the resources of infrastructure management teams working remotely. AAP solves these problems by enabling IT managers to standardize configuration and deploy edge infrastructure across data centers and clouds.

Red Hat and Intel have recently taken a step forward in this direction. Today, manufacturers can enjoy an edge-ready, software-defined, industrial control system that relieves the burden of manual effort and runs on commodity hardware and a commodity operating system that uses commodity automation techniques. Red Hat and Intel have worked hand-in-hand to create a more modern, network-based experience–similar to modern automated, cloud-based deployments–and demonstrate a next-generation smart factory that not only showcases leading-edge advancements but also shows the way to the next generation of distributed control systems. This edge-ready infrastructure, automation, and orchestration of next-generation smart factory are going to power the plants, oil refineries, and manufacturing lines that ultimately make the things we consume every day.

Ansible Use Cases in EMEA

AAP use cases highlight the advantages of its automation capabilities. For instance, The CEO/Founder of Zen Networks, a small tech services company in Morocco, puts Ansible to work on server configuration management. He explained, "This is Ansible's forte, as it has multiple modules to interact with servers either to orchestrate or configure them. This can take multiple forms like pushing a script and executing it, sending commands to restart services…"

This user also automates network configuration management with Ansible, coupled with Jinja2, the extensible templating engine for Python. The combination allows his team to "push parametered configurations in a reliable way." He also uses Ansible for continuous integration/continuous deployment (CI/CD) of software code.

"We use it to configure operating systems, apply security, and for day-to-day management," said a DevOps Consultant at a government agency in the UK with more than 500 employees. Their use cases include collecting information from end nodes, rather than writing shell scripts or any other types of scripts, as they had done previously. He said, "These days, you write an Ansible playbook and it does things for you. And if you don't have a playbook, you can simply gather the facts from the nodes, and that's available out-of-the-box without writing anything. You simply utilize the Ansible modules." The agency's Ansible deployment is for a hybrid cloud/on-premises environment.

Automation Engineer
at a tech vendor with
10,001+ employees

"Nobody is siloed anymore. We have a lot more collaboration."

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Infrastructure code is the Ansible use case for the Chief Cloud Architect at T1 Solution, a small tech services company in Czechia. He shared, “Ansible provides a central solution for automation for our customers. We deploy this solution on AWS.” As a cloud company, they have no IT assets on premises. “We prefer a cloud approach,” he added. Specifically, they use server version 17 and Ansible plus Ansible Tower, which is Ansible AWS.

For an Automation Engineer at a tech vendor in the UK with over 10,000 employees, Ansible Platform provided a remedy for a situation where, as he put it, “We had a lot of manual labor. We had patching that was a manual process, and we had configuration drift. There were a lot of touch points. There were parts of the business where we knew that there could be a faster deployment and much quicker development and production.” Ansible has increased his team’s speed of deployment. They run Ansible on AWS, as well as on-premises. “We have a source of truth now,” he added. “It has sped everything up, and it has saved a lot of people’s time.”

AgileWorks Information Systems, a small tech vendor in South Africa, uses Ansible to implement a software-defined infrastructure. According to their Managing Director, this work involves defining the desired configuration of machines in terms of their components, setup, security, user roles, software deployment, and certificate deployment. He said, “With this platform, we are able to set up new environments and manage the lifecycle of instances across various stages, such as development, production, and pre-production. We also use it for routing up and back of new software.”

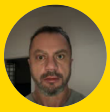
Advantages of Automation

Ansible users' praise for the platform's automation capabilities makes sense in the context of their use cases. The UK government DevOps Consultant, for instance, revealed, "Historically, lots of things had to be orchestrated manually. There weren't any great tools to do configuration management across multiple nodes. IT servers were physical but then moved into virtual, and with that change came the need to manage more and more nodes. It became quite time-consuming, and employing people to manage hundreds or thousands of servers wasn't really a great solution."

Ansible, as an orchestrator, has filled the gap, he said, adding, "It allows you to manage an almost unlimited number of nodes with a single body. That has been a great improvement in the way organizations manage their estates. With Ansible, you can pretty much automate everything."

T1 Solution's Chief Cloud Architect concurred, saying, "One of the most valuable features is automation. We are doing automation infrastructure, which allows us to automate regular tasks. This solution provides us with a service catalog, like building new services and automating daily tasks."

Overall, Ansible users in EMEA have found that automation confers advantages in four key ways: time savings, better collaboration, faster development speeds, and return on investment (ROI).



Venek O.
Chief Cloud Architect at T1 Solution, s.r.o.

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Saves Time

Time Savings

Ansible, powered by Intel® Xeon® Scalable platform, helps users save time, which is essential in the enterprise, but critical at the edge. As an Intern at a university in France simply stated, "It brings a lot of time-saving." The UK government DevOps Consultant likewise noted, "Ansible also saves us time when it comes to service deployment, moves, and updates. If we consider the effort involved in writing playbooks, and the effort to deploy them, Ansible saves 80 to 90 percent when it comes to the time involved in these scenarios."

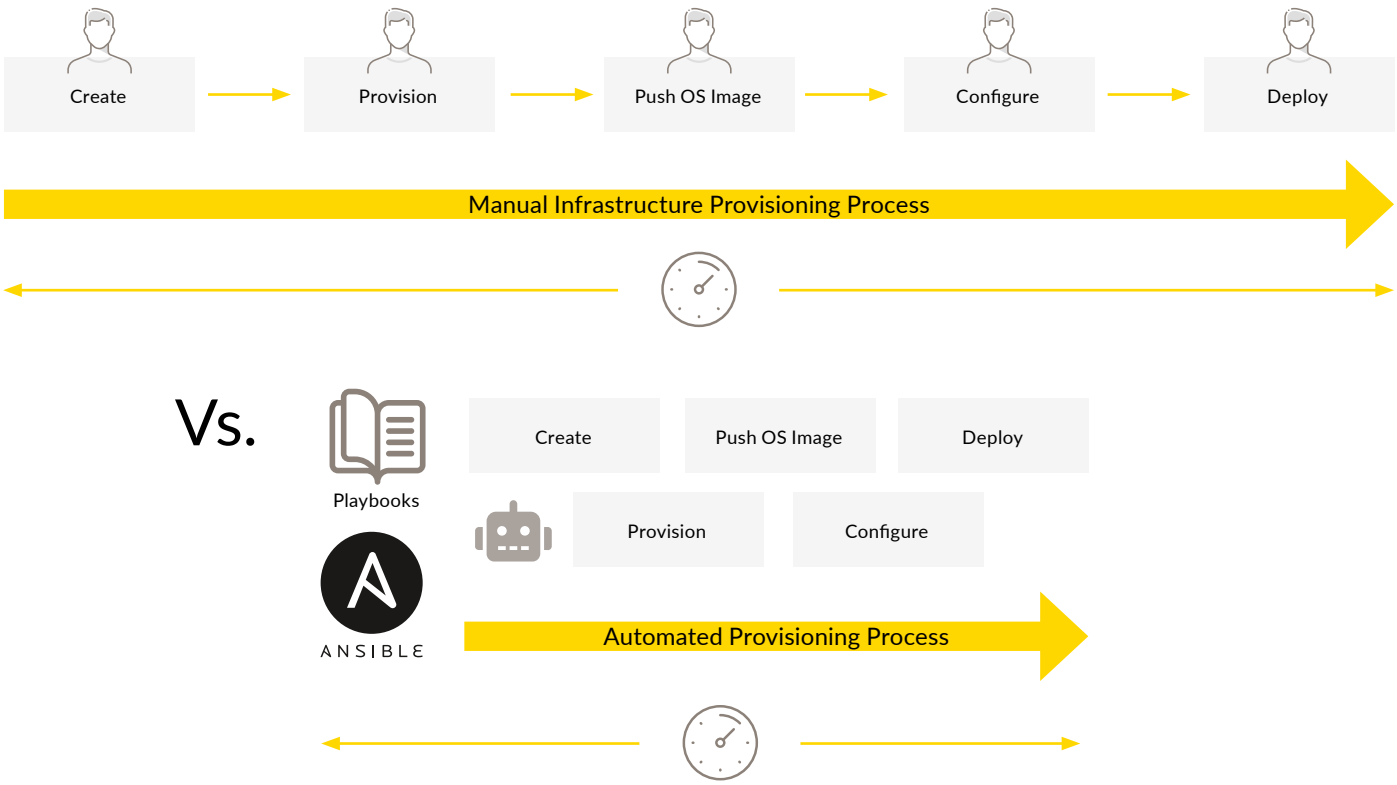

Figure 1 - Comparing manual vs. automated processes for infrastructure provisioning.

This user went into further detail, explaining that Ansible makes it possible to configure or deliver something to their end nodes step-by-step. “You can have dependencies, types of conditions, between steps,” he added. “For example, if something isn’t present or it’s not happening on that node, you can skip steps and move to another one. This ability definitely helps.” In the past, he went on, many tasks had to be done manually or with a semi-manual script. “Ansible automates those things. As long as you’ve got your playbook written up and tested correctly, you can run it with confidence against your production system.” Figure 1 offers an example of manual versus automated processes of this type.

Eliminates Siloes

Better Collaboration

Managing IT assets is a team sport, particularly at the edge. For this reason, tools that can improve collaboration between teams, and individual team members earn praise from users. The tech vendor’s Automation Engineer framed the issue like this: “The biggest issue that we’ve had has been changing the way people work. We have a lot of people doing the work, and they all had a certain way of working. There was a certain set of tools that they used. We had to gradually migrate all of the tools that they were using to be more automated. There was a lot of code and a lot of tools on people’s individual machines or shared drives.”

Automation Engineer
at a tech vendor with
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"By automating more, we've put all of our code into a central repository so that everybody who is a member of that repository can see everyone's code."

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He elaborated, saying, "For example, User 1 had all of his applications and tools on his machine, and he might also have had some small scripts that he wrote personally on his machine. When User 2 came along, he didn't get to see what User 1 had because all of the scripts were on his machine. By automating more, we've put all of our code into a central repository so that everybody who is a member of that repository can see everyone's code. Nobody is siloed anymore. We have a lot more collaboration. There is a lot more progressive thinking in the way people are working. It is not where a bit of code is written for one specific purpose. It is always adaptable by just changing variables, etc." Figure 2 depicts this kind of collaboration environment.

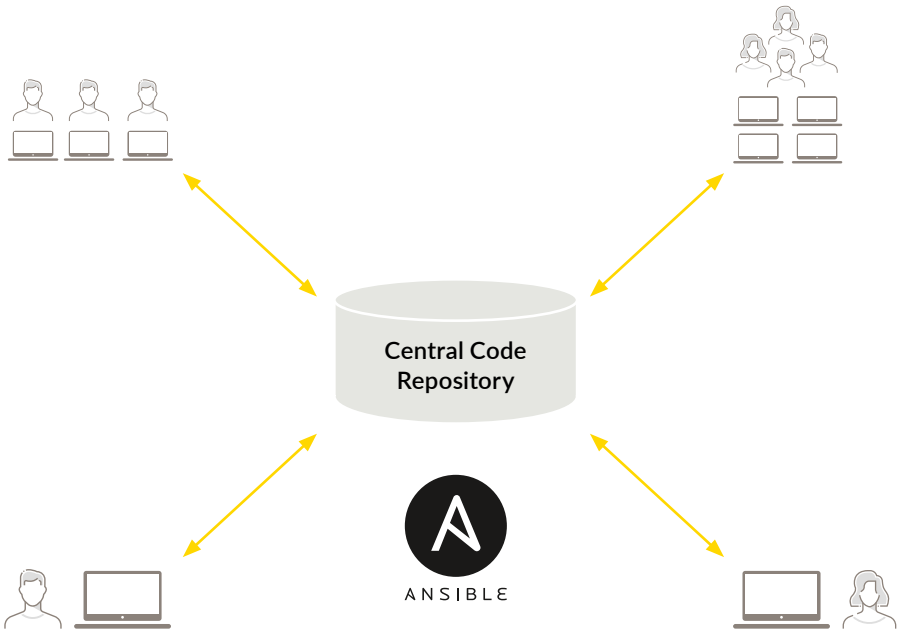

Figure 2 - Collaboration, as enabled by a central code repository.

"Ansible enables collaboration across teams," said the UK government DevOps Consultant. "We're transparent. Whatever we deliver needs to be backed by the code. That code lives in source control." In this user's experience with Ansible, anyone who is capable and wants to could grab that code. He offered playbooks as an example. "They could simply apply them against the target," he explained. "This is a form of collaboration, where one person does something and another can grab it and use it."

With Ansible, multiple people can work together on a specific project and have influence on that project, providing updates, features, and bug fixes. He advised, however, that source control is important in this context.

Speeds Up Deployment

Speed of Development

Time to market matters in today's digital businesses, especially as companies compete to prove edge business models. To this point, Ansible stands out as a platform that can speed up development. The tech vendor's Automation Engineer shared that Ansible has "effectively sped up everything from our sandpit environment to our full CI/CD process and our end deployment."

Previously, his team had to build everything manually in the sandpit, test environment, and production environment. Now, however, he said, "Because we have environments that are matched all the way through, now, after we've built something in the sandpit, we can just promote that code. So, the copying of that code through various platforms has been eliminated with the use of Ansible and our repository system."

Increases Productivity

ROI

When automation is implemented the right way, it will drive ROI. In the case of T1 Solution's Chief Cloud Architect, ROI has come from reductions in people-hours. He said, "We have around 25 people doing this same job. Before using this solution, we had more than 100 people for the same amount of work. This solution has definitely helped us to reduce and optimize our efforts."

For the Zen Networks' CEO, ROI arose from a faster learning curve, which he described as "The most important cost" for tasks like local user management (backup/monitoring) or monitoring configuration management (Syslog/SNMP). He said, "The ROI is definitely there." T1 Solution's Chief Cloud Architect concurred, saying, "Yes. We saw ROI three or four years after implementing the solution." According to the tech vendor's Automation Engineer at a tech vendor, ROI is "just time saved."

The Importance Ease of Use, Integration, and Management Capabilities

Ansible users on PeerSpot also stressed the importance of ease of use, integration, and management in their assessments of the platform. "It has an easy-to-use interface," said the tech vendor's Automation Engineer at a tech vendor. "It is REST API driven, and it integrates with Active Directory."

These capabilities translated into the ability to grant permissions to other users who would not necessarily have those permissions via the graphical user interface (GUI). They could then run other people's jobs. "For example," he said, "you could have the Oracle team grant permissions to the Linux team so that they can use each of those playbooks or each other's code. It is called shift-left."

T1 Solution's Chief Cloud Architect found the language Ansible uses to be "very intuitive." He went on to say, "The solution is easy to learn. The solution enables us to deliver incrementally. We are able to expand this facility by implementing more templates and using them digitally." As an international company, they use Ansible collaborative approach. In his experience, the platform enables his team to enforce the same security settings, "so it's quite easy to maintain."

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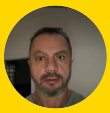

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Not having to change existing infrastructure stood out as a major benefit to the UK government DevOps Consultant. This issue ties in with SSH connectivity. However, as he said, "You don't have to prepare any infrastructure to use Ansible. When you provision an operating system, that SSH remote connection is available. It's embedded in the operating system. That means you don't have to enable anything. All you have to do is make sure you can reach the nodes, either via SSH, passwordless authentication, or possibly other mechanisms. We've only been using SSH, and it does the job very well."

Conclusion

Migrating infrastructure to the edge, which may be inevitable in many cases, will require more automation for processes like configuration and software deployment. Ansible, powered by Intel® Xeon® Scalable platform, offers a solution. As Ansible users in EMEA shared, the platform enables enterprises to move beyond manual processes and start saving time, speeding up development, and collaborating more effectively. Ansible also facilitates ROI, which reflects the overall financial benefits of automation.

About PeerSpot

PeerSpot is the authority on enterprise technology buying intelligence. As the world's fastest growing review platform designed exclusively for enterprise technology, with over 3.5 million enterprise technology visitors, PeerSpot enables 97 of the Fortune 100 companies in making technology buying decisions. Technology vendors understand the importance of peer reviews and encourage their customers to be part of our community. PeerSpot helps vendors capture and leverage the authentic product feedback in the most comprehensive way, to help buyers when conducting research or making purchase decisions, as well as helping vendors use their voice of customer insights in other educational ways throughout their business.

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About Red Hat and Intel

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.

About Intel

Software defined, Silicon enhanced.

Intel aims to deliver open software and hardware platforms with industry-shaping standards. We no longer live in a world of monolithic computing architectures. To compensate for the current multitude of hardware types, software has grown more modular. This new world of decentralized and distributed services offers incredible opportunities to deliver innovative and efficient solutions, but it comes at the cost of increased complexity.

Open ecosystems create choice for developers, empowering them to maximize value and trust in their solutions. By fostering a cross-platform, standards-based ecosystem that delivers a common developer experience across processor and accelerator architectures, Intel is helping developers create and realize value throughout the stack.

Intel is leading the way toward a new frontier of collaboration, combining our unique strengths in hardware with a commitment to a strong, open software ecosystem.

Developers, customers and partners differentiate and optimize applications to deliver business value when using Intel's massive ecosystem of open tools and technologies at the foundational and middle layers of software. We continue to expand our reach so that every application will run best on Intel — no matter the architecture in play.

Spanning more than 25 years, Intel and Red Hat's long history of engineering achievements includes advanced software-defined infrastructure and industry-standard platforms that improve datacenter agility and flexibility. Together, Red Hat and Intel build agile, cloud-ready network architectures based on high-performance, industry-standard platforms and open, software-defined infrastructure.