



# Automate infrastructure workflows

Simplify IT operations with a unified automation pipeline

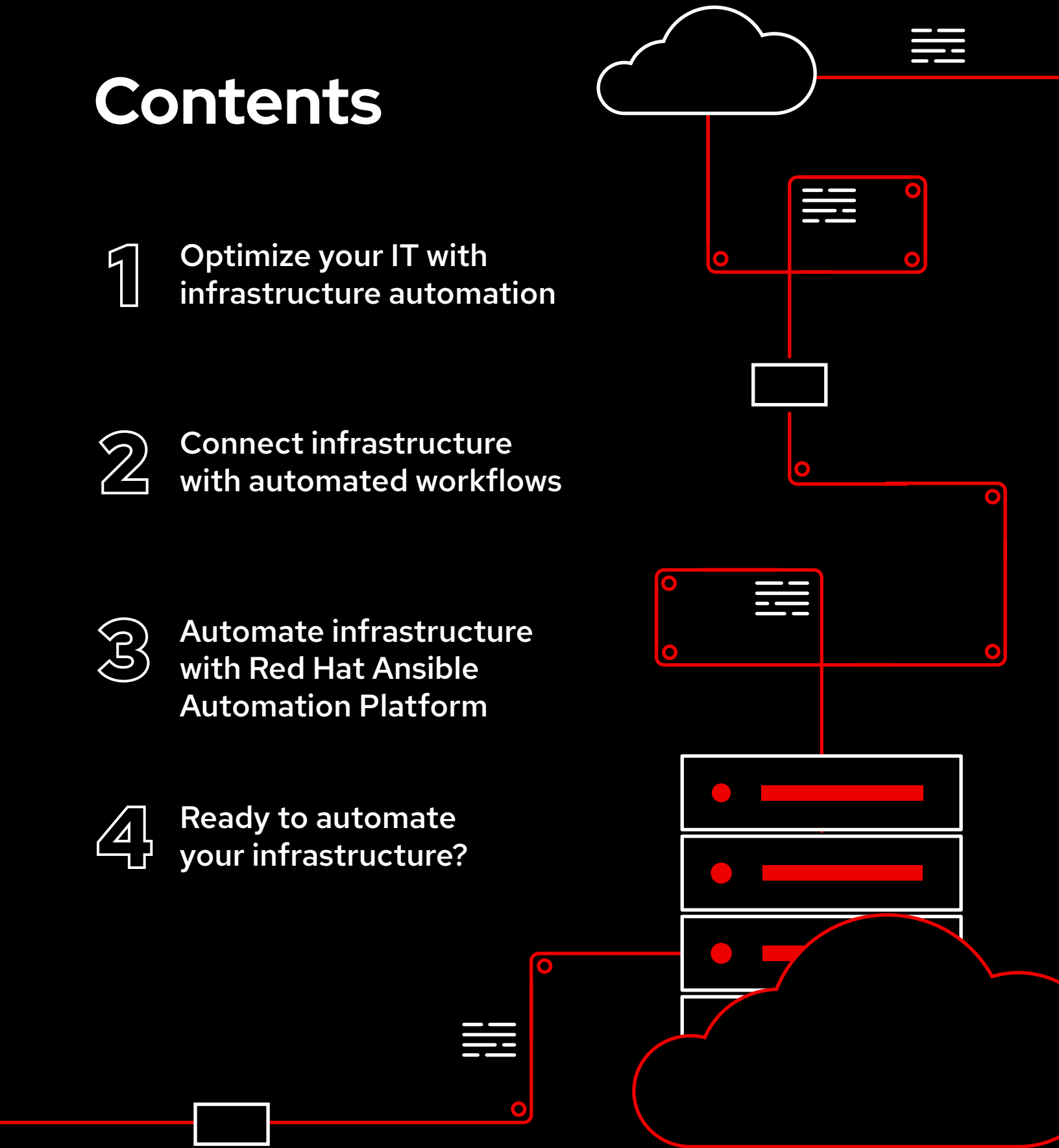
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# Optimize your IT with infrastructure automation

## Infrastructure automation can help you streamline and transform your IT

Automation is essential for IT optimization and digital transformation. Infrastructure automation can help your organization streamline IT operations, improve agility, boost productivity, and increase security and availability across on-site, hybrid, and cloud environments. In fact, 80% of surveyed business executives say adopting IT automation is “extremely important” or “very important” to the future success of their organization.<sup>1</sup>

Most organizations that have started to automate their infrastructure are doing so by domain. Each team uses their preferred automation tools and processes, prompting higher costs, lower efficiency, and limited collaboration across teams. Additionally, many automation tools do not integrate with each other and different teams often take dissimilar approaches to infrastructure automation. This results in time-consuming manual handoffs between teams that can significantly delay projects and resource delivery, even though automation is applied to some tasks within the process.

## Boost automation benefits with a holistic approach

A holistic approach to automation can help you save time, increase quality, improve employee satisfaction, and reduce costs throughout your entire infrastructure and organization. IT teams can be more productive, reduce errors, improve collaboration, and free up time for more meaningful work.

A holistic approach to infrastructure automation can help you:

- ▶ Speed operations and development.
- ▶ Improve agility and responsiveness.
- ▶ Boost productivity and efficiency.
- ▶ Increase reliability and availability.
- ▶ Improve security and compliance.
- ▶ Build consistency across hybrid environments

### The importance of IT automation

# 80%

of business executives say adopting IT automation is “extremely important” or “very important” to the future success of their organization.<sup>1</sup>

Learn how top organizations save time and money with infrastructure automation.

## What is infrastructure automation?

Infrastructure automation uses software to create repeatable instructions and processes to replace or reduce human interaction with IT systems. Automation software works within the confines of those instructions, tools, and frameworks to perform tasks with little to no human intervention. Most IT tasks can be automated to some extent. Examples include:

- ▶ Managing physical infrastructure.
- ▶ Administering virtualized environments.
- ▶ Provisioning and configuring cloud resources.
- ▶ Deploying, patching, and managing operating systems.
- ▶ Administering storage and data.
- ▶ Deploying, managing, and optimizing applications and workloads.
- ▶ Running standardized operating environments (SOEs).
- ▶ Managing stability and performance for edge devices.

### Task automation or workflow orchestration?

Effective IT infrastructure management requires you to automate both individual tasks and entire workflows.

**Task automation** streamlines single functions performed by one person on one infrastructure resource. It speeds operations at the staff action level and reduces the time it takes to perform specific job functions.

**Workflow orchestration** connects multiple tasks into a single progression. It speeds operations at the process level and moves automatically from one task to the next, reducing wait times due to handoffs between teams. Workflow orchestration also facilitates self-service operations while preserving IT control over resources.

### The benefits of IT automation

Organizations that deployed a holistic automation platform benefit from:

**30%**

more efficient IT infrastructure management.<sup>2</sup>

**75%**

faster deployment of new storage resources.<sup>2</sup>

**30%**

more efficient IT security teams.<sup>2</sup>

**76%**

reduction in unplanned downtime.<sup>2</sup>

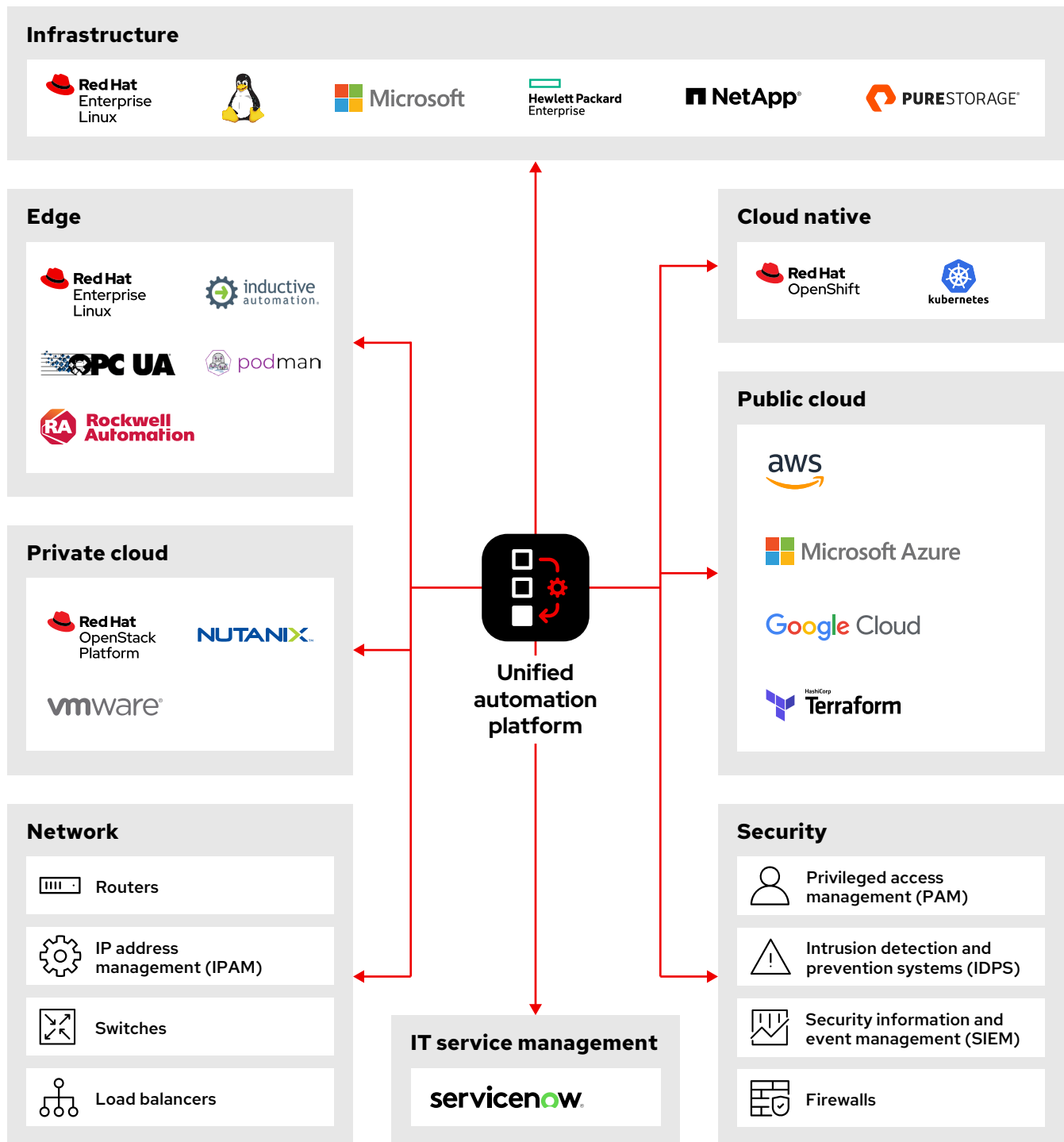
**\$1.9M**

total new revenue gained per year.<sup>2</sup>

Learn how much time your organization can save with IT automation.

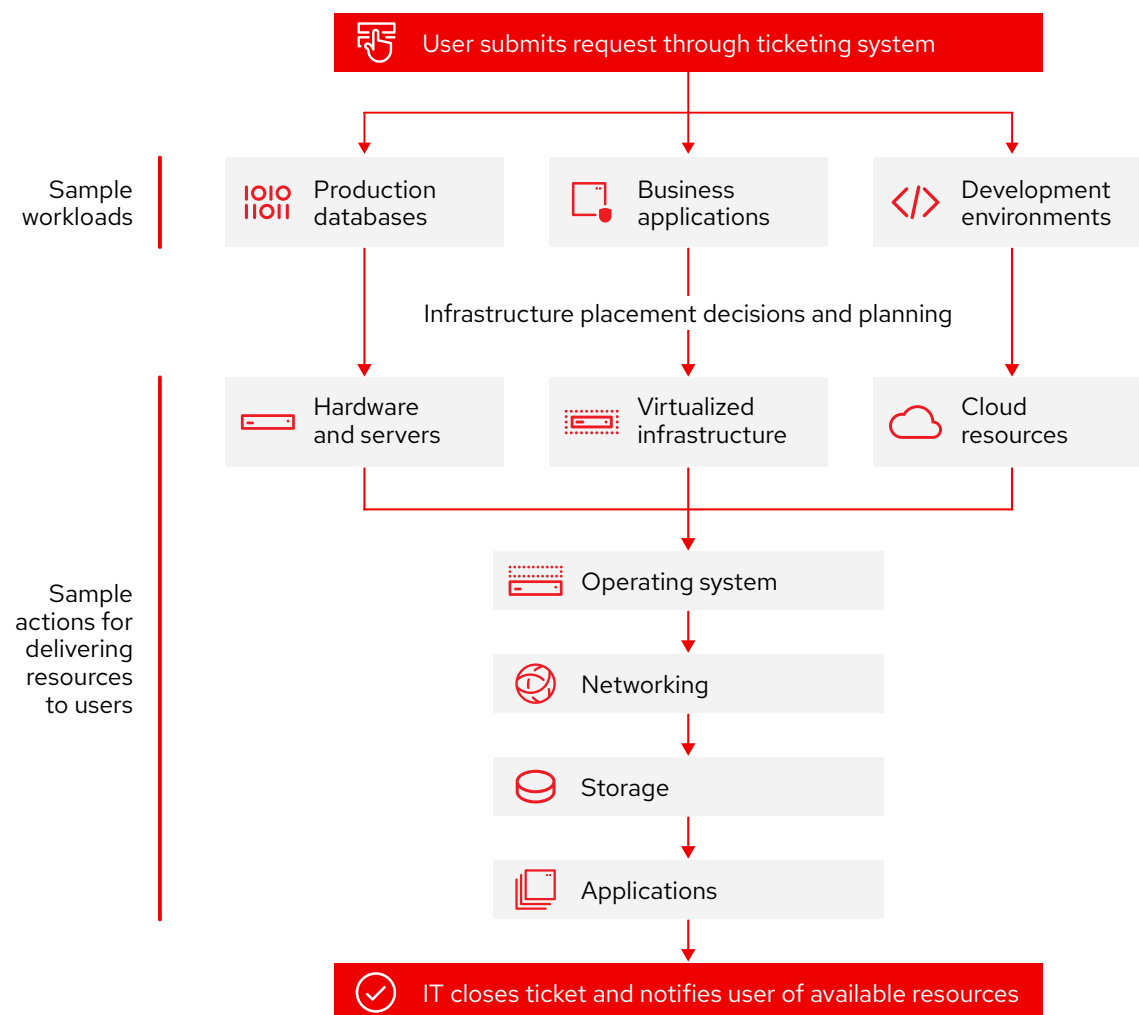
## What can you automate?

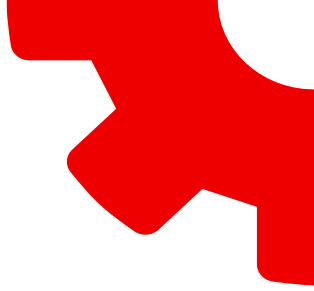
You can automate most aspects of your infrastructure. A unified automation platform brings together operating systems, networking, security, management tools, and more, giving you control of your entire infrastructure from the datacenter, across clouds, to the edge.



# Connect infrastructure with automated workflows

IT automation can connect teams, processes, and tools into a single, automated workflow. This chapter follows an example automated build pipeline to show how you can use automation to streamline a request for IT resources and other domain-specific use cases.





## STEP 1

# Identify workload requirements

Each workload has different requirements that determine where it should be deployed. Some workloads need high-performance infrastructure while others call for high availability or increased flexibility. Resource use and cost may also be a consideration. Depending on your IT environment, you may choose to deploy your workload on physical, virtualized, or public or private cloud infrastructure. You should also consider storage, networking, and security requirements at this time.

## STEP 2

# Set up base infrastructure

Infrastructure is the underlying foundation for all IT operations and users. Automating underlying infrastructure life-cycle management streamlines operations and can improve productivity, security, and compliance. Working across datacenter, private cloud, public cloud, and edge environments, IT automation can help you:

- ▶ Deploy applications consistently across footprints.
- ▶ Track and proactively resolve configuration drift.
- ▶ Apply and enforce security and compliance policies.
- ▶ Update and patch systems.
- ▶ Gain visibility into and retrieve information about cloud environments and resources.
- ▶ Establish a single source of truth in your configuration management database (CMDB).

### Hardware and servers

Physical infrastructure is often chosen for performance-sensitive applications like production databases. Once servers are installed in your datacenter, most administration operations are handled via a management interface. Automation platforms can interact with these tools to speed operations and reduce setup errors.

#### Automation use cases

- ▶ Provision server resources
- ▶ Configure BIOS and disk settings
- ▶ Install media on servers
- ▶ Power servers on and off
- ▶ Diagnose and remediate hardware issues

#### Recommendations

Look for an automation platform that integrates with your hardware management interfaces.

## Virtualized resources

Virtualized environments are often chosen for workloads that require high reliability like business applications. Automation can help you more effectively manage virtualized environments to optimize costs and control sprawl. You can even automate the hypervisor itself to simplify updates.

### Automation use cases

- ▶ Provision virtual machines (VMs)
- ▶ Move and load balance workloads
- ▶ Assign IP addresses and attach storage to VMs
- ▶ Manage hosts within clusters
- ▶ Create, manage, and apply templates for hosts and VMs
- ▶ Find and delete unused VMs

### Recommendations

Look for an automation platform that supports your chosen virtualization hypervisors.

## Cloud services

Cloud infrastructure is often chosen for workloads that need to be spun up and down to optimize resource use and cost. Cloud environments are designed for automation, and most cloud components and services need to be completely automated to maximize their value.

### Automation use cases

- ▶ Deploy and retire cloud resources
- ▶ Enforce compliance rules and policies
- ▶ Configure and manage hybrid and multicloud environments consistently
- ▶ Set up user credentials, roles, and virtual private cloud (VPC) access
- ▶ Provision VMs according to templates and security profiles
- ▶ Ensure consistent network connections between clouds

### Recommendations

Look for an automation platform that integrates with your chosen cloud providers.



## STEP 3 Install an operating system

Most organizations use varied IT stacks within their business. Manually managing each of the different components can be tedious and error-prone.

Automation can help you define and manage a **standardized operating environment** to boost efficiency, security, and uptime while reducing costs. You can also unify management of mixed **Linux®** and **Windows** environments.

### Automation use cases

- ▶ Install, update, and manage operating system (OS) images
- ▶ Apply security settings and set up authentication services
- ▶ Manage compliance with corporate and regulatory requirements

### Recommendations

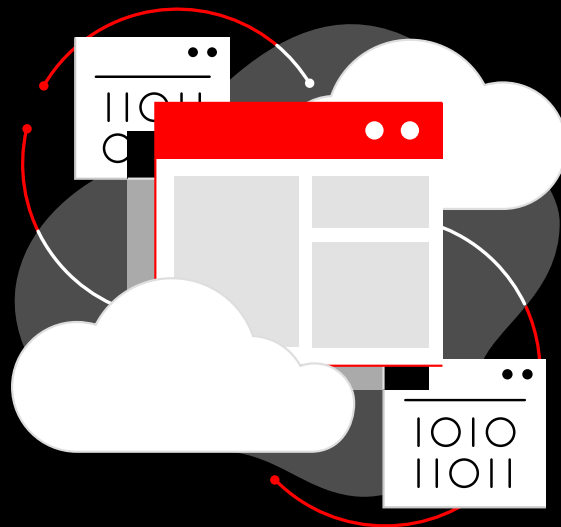
Look for an automation platform that supports the OSes you use. An agentless platform simplifies management of multiple OSes, as there is no agent to maintain on the system themselves.

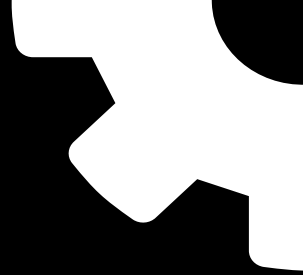
### Unify mixed OS environments

Most organizations use varied IT stacks within their business. You may have a Linux server farm and use a Microsoft Active Directory cluster to provide identity services. Or you may maintain a cross-platform environment that builds software for multiple targets. Manually managing each of the different components can be tedious and error-prone.

A unified automation platform lets you manage multivendor environments more easily. Learn more:

- ▶ [Automate Linux](#)
- ▶ [Automate Microsoft Windows](#)





## STEP 4 Set up networking

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Networks connect all areas of your IT and business infrastructure. They must be managed to allow the right access and bandwidth to the right users, applications, and data at all times.

Automation can help network teams confidently make predefined, pretested changes on demand. It can also help teams accomplish more within each change window. Finally, automation can improve change accuracy.

### Automation use cases

- ▶ Create and manage firewall port access control lists (ACLs) and virtual local area networks (VLANs)
- ▶ Patch and maintain switches
- ▶ Build and maintain an inventory of connected devices
- ▶ Manage and audit changes

### Recommendations

Look for an automation platform that allows you to connect and maintain network devices from many vendors via a single interface.

## STEP 5 Configure storage

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Data is a critical business asset. Storage systems must be configured and managed to provide the right data to the right applications and users.

Automation can help storage teams reduce manual work to speed operations. Predefined storage requests can be automatically provisioned and storage resources can be scaled dynamically to meet changing needs.

### Automation use cases

- ▶ Configure and connect storage to servers, VMs, applications, and users
- ▶ Set up backup agents and validate backup client configuration
- ▶ Expand storage allocations
- ▶ Consolidate storage systems and migrate data

### Recommendations

Look for an automation platform that can manage storage systems from many vendors via a single interface.

## STEP 6 Deploy applications

Application deployment is the end goal of our example build process. As key business assets, applications and workloads must be configured properly to ensure optimal performance and security.

Automation can help you consistently deploy applications across development, test, and production environments in addition to physical, virtual, and cloud infrastructures according to corporate, regulatory, performance, and cost requirements. It also helps you streamline Day 2 operations like patching, backup and restoration, and system copying. It's at this stage that many organizations really start to see the benefits of their automated investments.

### Automation use cases

- ▶ Install, configure, and patch applications and databases
- ▶ Load data into applications and connect to other required systems
- ▶ Dynamically scale application resources
- ▶ Manage application life cycles through DevOps approaches and continuous integration/continuous deployment (CI/CD) pipelines

### Recommendations

Look for an automation platform that can manage as much of the application life cycle as possible via a single interface. CI/CD, DevOps, and software management capabilities allow you to speed development and deployment.

### Modernize your SAP environments

Many organizations rely on SAP databases and applications to manage their business and must migrate to SAP S/4HANA® by 2027 to continue receiving support from SAP.

You can automate many migration steps to increase the speed and accuracy of the process. And, you can maximize your benefits by automating ongoing management and maintenance of your SAP environment.

**Read the strategic guide** to learn about automating your SAP S/4HANA migration.

Automation is strategic for Cepsa, and Red Hat is collaborating with us to implement best practices and learn from their expertise across our entire organization.

Francisco José Martín  
Automation Manager, Department of  
Exploitation and Operation, Cepsa

# STEP 7

## Explore advanced automation use cases

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Once you've gained experience automating infrastructure workflows, you can expand your knowledge and processes to other use cases throughout your organization.

### IT service management

IT service management (ITSM) is a key factor when moving to more agile IT-as-a-Service approaches. Automation can help you transform and modernize IT service management processes while maintaining strict auditability and control.

- ▶ Accelerate your service management workflows.
- ▶ Establish a single source of truth in your service management CMDB.
- ▶ Implement role-based access to service management workflows.
- ▶ Orchestrate development, testing, and production of systems and applications.

**Learn more** about automating ITSM workflows.

### Security automation

Security is a leading concern for most organizations. Automation can help you streamline your security practices, respond to incidents faster, and reduce the risk of human errors.

- ▶ Connect your security systems, tools, and teams with a unified automation platform and integrated workflows.
- ▶ Accelerate change and update processes to address threats more quickly.
- ▶ Centralize response processes and standardize security operations across domains.
- ▶ Take fast action across multiple security tools when a threat is detected.

**Learn more** about automating your security operations.

### Event-driven automation

Even automated workflows can be delayed if they must be started manually. Event-driven automation lets you respond in a predetermined way to observed events in your IT environment, without manual intervention.

- ▶ Automatically identify and remediate issues before they impact users and operations.
- ▶ Simplify and speed troubleshooting activities.
- ▶ Automatically respond to user administration requests.
- ▶ Proactively provision and manage systems.
- ▶ Scale and tune infrastructure automatically to meet demand.

**Learn more** about event-driven automation and architecture.

# Automate infrastructure with Red Hat Ansible Automation Platform



A unified automation platform is central to effective workflow automation. It gives you a consolidated foundation on which multiple people can automate consistently and provide ways to efficiently manage and share automation content across your organization. While each team can still create automation for their own domain, all domains are connected into the same automation platform, workflows, and strategy.

**Red Hat® Ansible® Automation Platform** is a unified foundation for building and operating automation across an organization. It helps you accelerate operations, orchestrate workflows, and innovate with automation. Using Ansible Automation Platform, you can scale your automation with control and insight, encourage collaboration across teams, and manage policies and governance more efficiently. As a result, you can achieve real business outcomes and unleash the full potential of your teams and technology.

Ansible Automation Platform includes everything needed to implement enterprise-wide automation, including content creation tools, a visual dashboard, and **rich analytics**. Your subscription also gives you access to curated **Ansible Content Collections** from Red Hat and our partners, hosted management services, and technical support to help you fully integrate automation into your organization. Finally, Ansible Automation Platform delivers open source innovation—hardened for enterprise use—so you can boost productivity and reduce time to completion for new projects.

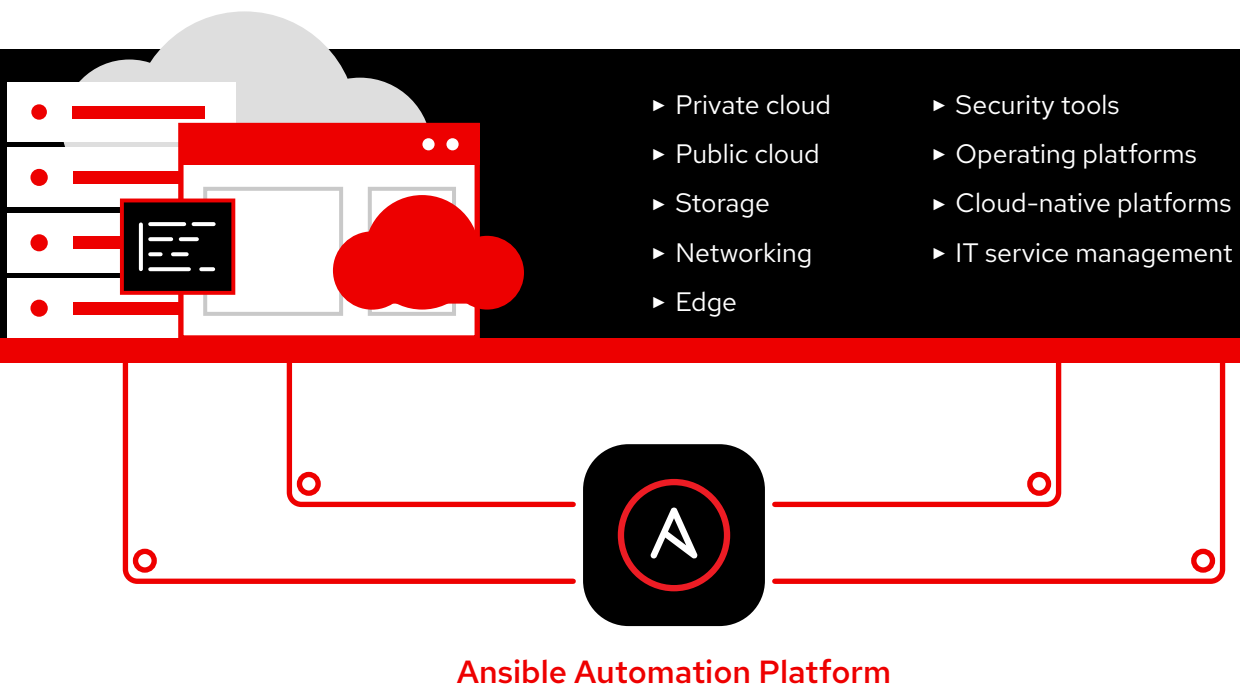
## Automate across your entire organization

Read these e-books to learn more about automating across your entire organization with Ansible Automation Platform:

- ▶ **The automated enterprise**
- ▶ **Network automation for everyone**
- ▶ **Simplify your security operations center**
- ▶ **Automate your hybrid cloud at scale**

## Connect and orchestrate your entire infrastructure

Ansible Automation Platform works across your entire infrastructure, so you can orchestrate complete workflows that incorporate the components and technologies you use today and those you plan to adopt in the future. Some examples of popular components are shown below—click on a logo to learn more about **integrations** with Ansible Automation Platform.



# Ready to automate your infrastructure?

Your business relies on your IT infrastructure and applications. IT automation can save time, improve employee satisfaction, and reduce costs. Red Hat offers a unified automation platform that connects your IT infrastructure, processes, and teams to deliver more business value.

Automate your infrastructure at [redhat.com/ansible](https://redhat.com/ansible).



## Access IT automation expertise

Red Hat offers resources, training, and more to help you get started with automation:

- ▶ Get started with **self-paced labs**.
- ▶ Learn the basics with our free **Automation Technical Overview course**.
- ▶ Learn more and certify with **Red Hat Training courses**.
- ▶ **Try Ansible Automation Platform** free for 60 days.