

As enterprises migrate more mission-critical applications to public cloud providers, IT automation opportunities and challenges increase.

Cloud Automation Delivers Business Value

June 2022

Written by: Jevin Jensen, Research Vice President, Intelligent CloudOps Markets

Introduction

The growth of the public cloud continues unabated after over a decade of rapid expansion and is likely to remain strong: IDC research shows that 52% of production transactions are still performed on premises for large enterprises. However, this percentage is declining every quarter. As companies move new and existing applications to the cloud, there is a greater need to manage and automate these cloud resources. IDC defines IT automation as the capabilities to automatically provision, deploy, and manage IT resources across private datacenters and public cloud environments. This functionality includes day-to-day operations of servers, containers, network, security, and storage infrastructure. In addition, configuration management, analytics, and artificial intelligence (AI) are necessary elements for a future of autonomous operations.

Situational Overview

Drivers of Cloud Automation

In the competitive global environment, the themes of speed and agility have been commonplace for over a decade. DevOps created a modern collaborative organization. Businesses benefited from the rapid, incremental application changes and the rise of the digital-first organization. The pandemic amplified the need for speed as IT groups rushed to the cloud to provide services to a now remote workforce. The lockdowns forced IT to be more agile than ever while migrating countless workloads to the cloud and provisioning new resources faster than ever due to the unlimited capacity of the public cloud providers. In year two of the pandemic, challenges to the supply chain pushed IT to adapt to dynamic business models and new business partners. These models often involved engaging with multiple cloud providers and implementing new web services. Furthermore, the increased use of containers and Kubernetes orchestration for new cloud-native applications has increased complexity for IT shops. Container provisioning and the ongoing cost management can be challenging for even the most mature IT teams. Major hyperscalers reported >30% growth on large install bases in recent public disclosures, demonstrating the continued growth of the cloud.

AT A GLANCE

KEY STATS

IDC forecasts the intelligent CloudOps market to exceed \$27.1 billion by 2025 with a compound annual growth rate of 24.6%. This market includes software and software as a service used to manage and automate cloud resources.

The rapid migration to public cloud hyperscalers will continue as recent IDC research shows 52% of large enterprise transactions are still on premises.

While the technology of IT and the cloud has changed the way business operates, full automation has been slower to take hold. Adoption of IT automation was slowed in the past by a lack of acceptance from frontline operations employees. They feared being replaced by automation tools, just as many in IT feared outsourcing in prior decades. Upper management failed to effectively explain the benefits of automation to infrastructure and operation teams; thus, adoption rates were low.

Equally challenging is that many IT automation solutions have long and expensive implementations. For example, some automation frameworks require dedicated, on-premises environments that must be maintained and operated by staff on a daily basis. This significant up-front investment gives pause to many small and medium-sized businesses. Large enterprises may have the resources for these large investments, but the extended lead times negatively impact return on investment (ROI) and payback time.

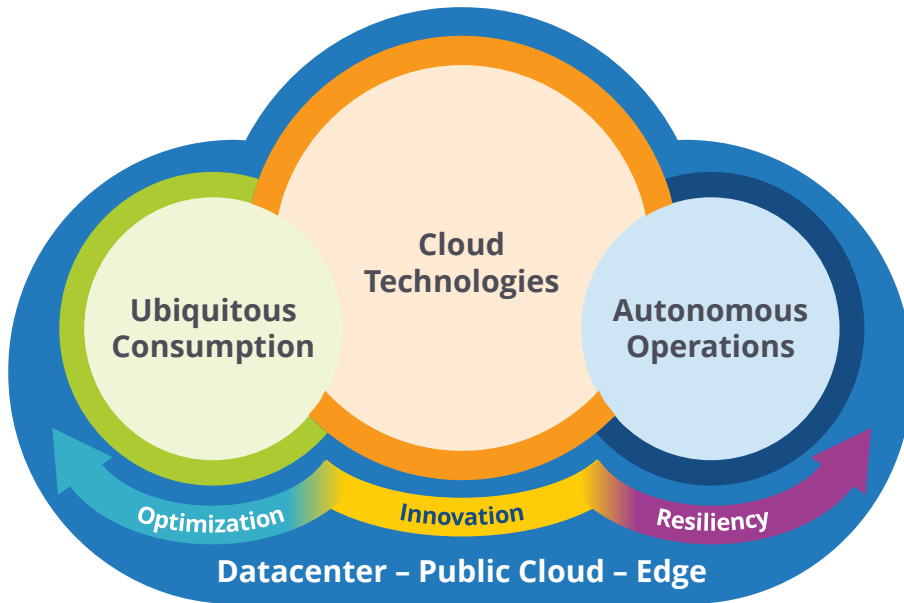
Today, IT faces skills issues and problems filling IT job openings. The long lead times to fill open positions burden the remaining workforce. In addition, the latest technologies such as data analytics and automation have significant skill set gaps among current employees. The concern about being replaced with automation gives way to the need to manage growing complexity with fewer trained engineers. Cybersecurity is also driving the need for automation, as seen with software supply chain issues such as Log4j, which requires IT to drop everything to identify and remediate the vulnerability or risk a breach.

Further, the move by major IT automation vendors to shift their products to the cloud in the form of software as a service (SaaS) has been a lifeline to many enterprises. The SaaS model leaves the heavy lifting of installation and standing up new environments to the vendor. In addition, enterprises can enjoy reduced "time to benefit" by reducing start-up times from weeks or months to just a day in many cases. SaaS delivery gives enterprises access to features faster by leaving upgrades and maintenance to the vendor. IT teams can focus on using the tool and sharpening their delivery of business value rather than day-to-day maintenance.

IDC believes these factors of cloud complexity, workforce challenges, cybersecurity, and more accessible SaaS deployment models will combine to make the next 12–18 months a period of tremendous interest in and adoption of IT automation.

Autonomous Operations

IDC envisions cloud operations management and automation working together to deliver autonomous operations. IT automation is necessary for the rapid and consistent provisioning of the "day 1" infrastructure needed to support new projects. In addition, automation is essential to deploy fixes and cybersecurity vulnerability patches promptly. Cloud operations management solutions provide that critical "day 2" reporting and monitoring of the environment's health. Continuous monitoring of logs, traces, and metrics is the next evolution beyond monitoring, called observability. Observability focuses on the resiliency and performance of applications, which is critical in a digital-first world. Autonomous operations enable highly resilient and scalable infrastructure management, security, and control using automation and artificial intelligence and machine learning (AI/ML) analytics across an all-digital infrastructure. Digital infrastructure is the foundation to empower intelligent self-driving and self-healing operations, including on-premises software, cloud services, and functionality embedded in hardware, infrastructure-as-a-service solutions, and public cloud service platforms. Figure 1 illustrates IDC's vision for the intersection of public cloud infrastructure with the adoption of cloud-native technologies by many digital-first enterprises.

FIGURE 1: *IDC's Autonomous Operations Vision (Future of Digital Infrastructure)*

Source: IDC, 2022

This intersection requires that operations teams build out autonomous operations capabilities. These autonomous operations typically include the following components:

- » Improved governance via workflow and automation can provide better resiliency and scaling. Infrastructure as code and fully digital infrastructure bring standardization with quicker recovery times. Policy-driven controls increase standardization and break down silos.
- » Observability and dashboards allow visibility into the entire application stack to find performance issues and get to root causes quicker. AI/ML brings improved analytics and automation in tuning and optimizing cloud infrastructure.
- » FinOps teams and cloud cost transparency tools help companies continuously optimize their cloud spending while improving forecasts and prioritizing future projects with a single source of truth when reviewing return on investment. Continual improvement and ongoing optimization are the chief benefits.
- » Secure infrastructure monitors for intrusion, alerts on configuration changes and drift, and ensures secure data. Patching is automated and done in hours, not days or weeks. In addition, AI is used to detect new or zero-day threats by learning anomalous behaviors.

Benefits

As the increasing demand for and ease of use of IT automation software intersect, it is essential to understand the benefits enterprises can expect from an automation project. Additionally, IT automation solutions can be valuable as operation teams attempt to keep up with the continuous flow from DevOps teams. IDC found the following additional benefits of IT automation:

- » IT can better meet the needs of the business with agility and automation. Faster provisioning of new resources means delivering business value sooner. Operations can partner fully with development to provide business results when adequately equipped with automation tools. Fewer repetitive manual tasks mean fewer errors.
- » As enterprises increasingly move to cloud-native applications built on containers, IT automation solutions can reduce the complexity of provisioning and managing the hundreds of associated parameters.
- » The payback period of new cloud automation projects can be rapid. For example, according to a November 2021 IDC survey, large enterprises reported that most IT automation projects had ROI of less than one year (59.1%) and no organizations reported a negative ROI. Some automation solutions are agentless, reducing the initial implementation time and associated costs and increasing ROI further.
- » Multicloud and hybrid cloud can specifically benefit from automation. The complexity of learning tools and processes from each public cloud provider can be extensive. Using a single automation platform to configure all public and private cloud infrastructure means IT professionals learn once and apply the same skill everywhere.
- » Research shows that IT automation reduces cybersecurity risks. Additionally, it minimizes configuration drift. Enterprises that standardize and fully implement IT automation can quickly identify and remediate security vulnerabilities.

Trends in ITOps Automation

Many businesses see spikes in transactions due to business seasonality, end-of-quarter shipping pressures, or new product rollouts. AI has been successfully applied to handle this volume and improve the customer experience. IDC believes IT operations teams also need AI combined with ML for their solutions to allow for a more robust analysis of large data sets, including software and infrastructure logs, traces, and metrics, commonly referred to as observability. Comprehensive observability and automation strategy allow operation teams to be more proactive in day 2 support. Operations teams can become enablers for digital transformation and the move to event-driven architectures. Adding AI to the existing automation foundation and native cloud application operations can drive these modern architectures and move closer to autonomous IT operations.

Infrastructure as code is another significant advancement for operations teams. IT automation vendors have been adding this capability, which first gained popularity in the open source world, to their existing licensed products. By defining infrastructure in human-readable "code" stored with version control in Git-style repositories, operations can fully participate and benefit from a DevOps approach. Reusable infrastructure as code gives enterprises the ability to build new environments in minutes. Multiple cloud support means operations teams can learn one domain-specific language (DSL) and use infrastructure as code with any public hyperscaler. Infrastructure as code reduces the learning curve and silos associated with multiple cloud support.

IT leaders are increasingly looking for more platform solutions in their IT automation products. A platform allows a more comprehensive approach where development and operations can more easily benefit from the same tool. In addition, by combining a complete platform solution with SaaS delivery models, vendors can help an enterprise achieve a better return on investment in a shorter time frame. As a result, IDC sees the SaaS delivery model rapidly becoming enterprises' preferred method for cloud automation solutions. Enterprises would then be able to consolidate their cloud operation tools. IDC expects all vendors to adopt this model of delivering automation.

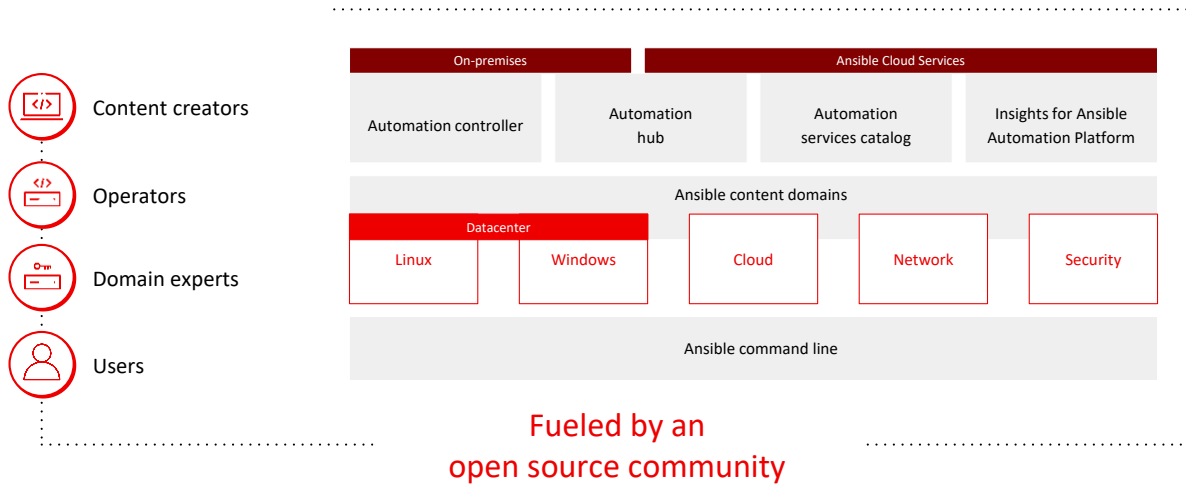
Considering Red Hat

IBM acquired Red Hat in 2019 for a reported \$34 billion. Red Hat's long history of leadership in open source innovation combined with the company's investment in hybrid cloud solutions were the critical drivers for IBM at that time. Since the acquisition, IBM has operated Red Hat as an independent business unit. This approach seems to be working, as the most recent public quarterly report shows Red Hat's revenue is up 21% over the prior year. In addition, AIOps and automation partnerships were growth areas in the latest earnings release.

Ansible Automation Platform is Red Hat's enterprise-class automation offering. It provides a complete framework for building and operating IT automation at scale. Enterprises can centralize and control their infrastructure with a visual dashboard, role-based access control, and automation tools, including analytics and certified reusable content. In addition, the Ansible Automation Platform's human-readable YAML automation language makes it possible for users across an organization to share, vet, and manage automation content via Red Hat's popular Ansible Playbooks. Playbooks act as a blueprint for enterprise infrastructure and how to automate it either as standalone tasks or in concert with multiple Playbooks. Examples include infrastructure provisioning and orchestration, updating and patching systems, installing software, and onboarding users.

Red Hat is a supporter and contributor to the open source community. As application supply chain concerns grow, open source applications can provide the increased security and better provenance enterprises need. Additionally, an open hybrid cloud approach offers the flexibility to run applications anywhere. The Ansible Automation Platform builds on the open source foundation provided by Red Hat Enterprise Linux and Red Hat OpenShift containers. This well-known foundation means enterprises have many implementation partners available to assist with their automation projects. For example, Red Hat recently partnered with a major hyperscaler to provide a managed version of the Ansible Automation Platform spun up in minutes within the customer's public cloud environment, all with full Red Hat support and capabilities. Providing Ansible Automation Platform in an easier-to-implement managed application significantly reduces the implementation time of the solution and gives enterprise customers new deployment options. Additionally, precertified content collections found in the Ansible Automation Platform may help jump-start new IT automation projects. Red Hat Insights now provides analytics across a customer's entire organization. It should provide actionable recommendations and reduce efforts around audits and compliance.

Operations teams can focus on building Playbooks and automating their cloud environment instead of supporting the tool itself. Figure 2 shows how enterprises can use the Red Hat Ansible Automation Platform throughout their IT architecture.

FIGURE 2: **Red Hat Ansible Automation Platform**

Source: Red Hat, 2022

Challenges

IDC projects that more than 500 million new business applications will be created by 2023. Most will be cloud native. As these applications grow in scope and complexity, developers and the IT operations teams that support them will need to better manage and reduce application delivery cycles. Accordingly, advanced capabilities and tools that foster developer productivity are rapidly gaining acceptance in the marketplace. Ansible Automation Platform is designed to address these cloud challenges by providing the tools to implement enterprisewide automation at scale. Red Hat added tools in the latest releases to assist developers in being part of the solution by allowing automation content to be easily created on the left side of the DevOps equation. This "shift left" concept provides a single tool for developers and operations to utilize. Developers can set up automation to provision, deploy, and manage the compute infrastructure across environments. Operations can create and run reusable infrastructure to automate more comprehensive workflows, such as full application deployments to production. Combining automation with security vulnerability remediation, policy and governance, and content management tools benefits developers and operations.

Every vendor faces challenges in its marketplace. Red Hat must continue to grow and justify the premium IBM paid for the firm. IBM struggled with revenue growth for many years leading up to the Red Hat acquisition, so the pressure on Red Hat to turn this around could be significant. IBM seems to be honoring its hands-off approach with Red Hat. However, this may change in the future if growth slows or executive leadership changes. IDC believes IBM should maintain the current independent operating model for Red Hat.

Customers tell us that IT automation projects often face roadblocks on the product front due to expensive implementations and steep learning curves for IT staff. Red Hat needs to continue to improve ease of use and better promote its Ansible content collections to new clients. The precomposed modules and roles defined in Red Hat's content collections can help address these roadblocks. As IT faces growing skill and staffing shortages, automation can help fill this gap, but only if adoption rates are improved.

Further, Red Hat faces large and capable competitors in the IT automation market. Established vendors offer a suite of products for cloud and on-premises customers. Some provide additional modules to optimize cloud costs. As a result, Red Hat should consider partnering with a cloud cost optimization vendor, including IBM's Turbonomic. In addition, start-ups and smaller companies offer different approaches to automation that Red Hat should closely monitor.

Conclusion

IT automation is more relevant than ever before. Companies face growing complexity in managing multiple clouds, dynamic new digital business models, and a growing IT skills shortage. IDC believes IT automation's growth will dramatically increase to keep up with these changes while maintaining a secure application environment. Additionally, as companies face the headwinds of higher inflation and other economic challenges, they need to consider an IT automation solution to provide a buffer from this rising storm.

As companies face the headwinds of higher inflation and other economic challenges, they need to consider an IT automation solution to provide a buffer from this rising storm.

About the Analyst



Jevin Jensen, Research Vice President, Intelligent CloudOps Markets

Jevin Jensen is Research Vice President, Intelligent CloudOps Market service at IDC where he covers infrastructure as code/GitOps infrastructure automation, cloud cost transparency, DevOps, hybrid/public/multicloud management platforms, and edge management.

MESSAGE FROM THE SPONSOR

Red Hat Ansible Automation Platform enables cloud automation use cases that span public cloud, cloud-native, and private cloud technologies, as well as the automation required to bridge across cloud management, release engineering, network, and security operations. It enables customers with foundational use cases, such as provisioning, deprovisioning, configuration, and management of workloads, to become productive faster. At the same time, it offers the flexibility of the Ansible Automation Platform to create custom automation workflows focused on individual cloud technologies.

Learn more: [Red Hat Ansible Cloud Automation](#)

You can run the Red Hat Ansible Automation Platform on-prem, in your private, public cloud or hybrid cloud, and now you can deploy it faster in your Azure cloud with Red Hat Ansible Automation Platform on Microsoft Azure, a new offering that Microsoft Azure users can deploy directly from the Azure Marketplace portal.

Learn more: [Red Hat Ansible Automation Platform on Azure](#)



The content in this paper was adapted from existing IDC research published on www.idc.com.

This publication was produced by IDC Custom Solutions. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Custom Solutions makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2022 IDC. Reproduction without written permission is completely forbidden.

IDC Research, Inc.
140 Kendrick Street
Building B
Needham, MA 02494, USA
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com