

Full Adoption of Automation for Full Value

Building Scalable Enterprise Benefits With Broader Automation

Vanguard Report

June 2022

Commissioned by



451 Research

S&P Global
Market Intelligence

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About the Author



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Jay Lyman is a Senior Research Analyst with the Cloud Native and Applied Infrastructure & DevOps Channels at 451 Research, a part of S&P Global Market Intelligence. He covers infrastructure software, primarily hybrid and multi-cloud environments, management and orchestration, and enterprise use cases that center on the confluence of software development and IT operations known as DevOps. Jay's analysis encompasses evolving IT operations and software release models, as well as the technology used to create, deploy and support infrastructure and applications in today's enterprise and service-provider markets. This includes running the semi-annual Voice of the Enterprise: DevOps survey of both IT decision-makers and practitioners. Key areas of research also include cloud native, open source software and enterprise end users.

Prior to joining 451 Research, Jay worked as a journalist for various media firms and publications including CMP Media, LinuxInsider, NewsForge, Time Magazine and the Associated Press.

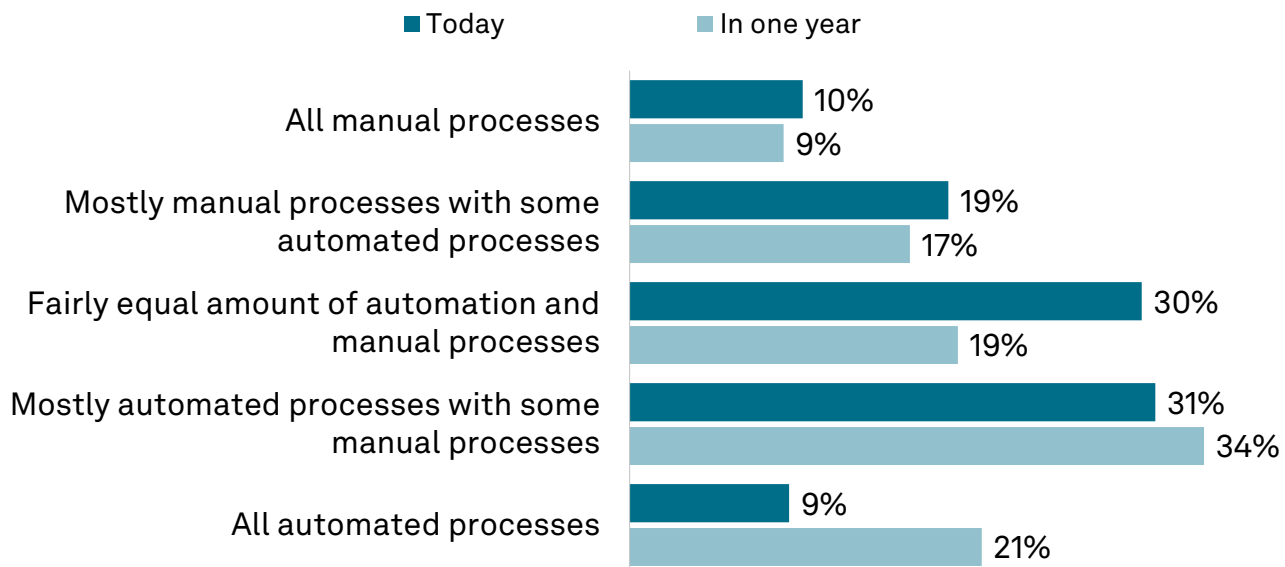
As a 451 Research analyst, Jay has been a speaker at numerous industry events, including IC3, DevOps Days, LinuxCon and OSCON, covering topics such as cloud computing, DevOps, open source software and enterprise case studies.

Introduction

IT automation for today’s software and infrastructure engineers is continually evolving because decentralized teams are tackling manual processes in silos without overarching strategy, common tooling or aligned objectives. Automation is a priority for enterprises, and it provides ample opportunity to further streamline, optimize and enhance software development and IT operations (see Figure 1), so there is also potential for greater value through collaboration, consistency and confidence as organizations expand and improve their use of automation.

To effectively deploy automation across more architects, developers, site reliability engineers and other stakeholders, organizations must move beyond a tactical focus on the manual tasks of individual teams. A strategic approach that can be applied more broadly across infrastructure and application portfolios can drive better developer experiences, more efficient IT operations, integrated DevOps, positive business outcomes and innovation. Many companies still have an array of processes that are mostly manual. They do not have to automate everything at once; they can start small while keeping the concept of broader automation in mind, including integration across numerous tasks and products and expanding automation to more complex processes and domains. With centralized and consistent automation, practitioners can focus on productivity and innovation and drive business benefits that help make the case for broader deployment and full adoption.

Figure 1: Automation Increasing



Q: Which of the following best describes the current level of IT automation in your organization? Base: All respondents (n=498)

Q: And one year from now, what level of IT automation do you expect there to be in your organization? Base: All respondents (n=494)

Source: 451 Research's Voice of the Enterprise: DevOps, Workloads & Key Projects 2022

The Take

Automation is critical not only to achieving IT modernization and digital transformation, but also to enabling developers and IT operations teams to effectively focus on challenges, productivity, learning and innovation. Thus, automation plays a key role in achieving business, technical and cultural objectives. It also spans datacenter, cloud and edge environments, where distributed infrastructure and applications mean more entry points and vulnerabilities that require automated management. By reducing manual tasks and toil, teams can spend their valuable time delivering better experiences to their internal users and external customers. Today's enterprise developers and IT operations teams are more connected than ever to end users, and thus have to prioritize user needs as much as elegant code and scripts. Our most recent Voice of the Enterprise: DevOps survey indicates that improving the experience for users of applications and services is the most desired outcome as organizations implement DevOps (see Figure 2).

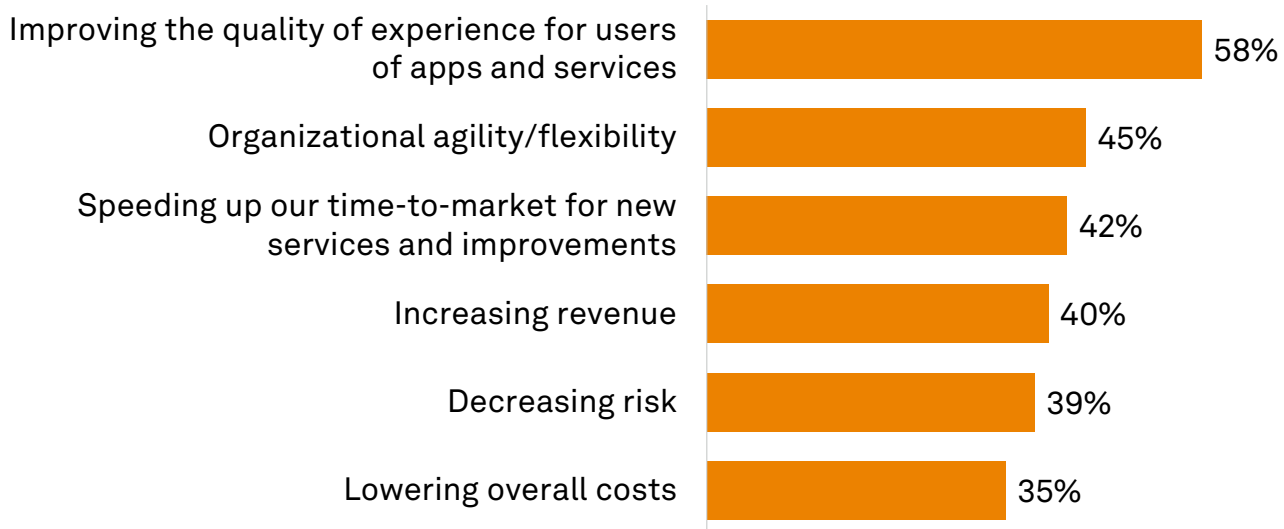
Broader automation also requires a centralized approach across teams, and the use of platforms and tools that enable automation that was not necessarily written by the teams deploying it. Open-source software can help enable automation. Advantages include flexibility with other software components and a broader development community. However, paid support is typically needed to ensure infrastructure and applications are still secure, compliant and consistently deployed. Organizations need not give up community benefits such as cross-company collaboration and a larger set of experts. They can retain these benefits and even enhance them when vendors and products help connect them to the right projects and contributors. Cloud-native technology such as containers, Kubernetes and serverless computing can also enable automation, but they come with their own challenges, such as complexity, security concerns, and lack of skills and experience. Broader automation can help organizations reduce errors and noise so DevOps teams can manage software development and IT operations more efficiently and effectively.

Other advantages of reducing manual tasks and leveraging automation more broadly include improved collaboration and communication and support for feedback loops that help identify and eliminate bottlenecks, as well as track business metrics such as customer satisfaction. To accomplish full automation in today's market, organizations must also support deployment across a variety of infrastructures, including on-premises, private cloud, public cloud and edge environments with repeatable, consistent processes.

Full Automation

IT automation is typically an evolution for companies that move beyond basic manual processes to a broader strategy, central management and optimization, to consistency and confidence. One key aspect of broader automation across an organization is the ability for teams to leverage automated processes that they did not necessarily write themselves. This can be challenging since many organizations are lacking platforms and tooling to unify self-contained automation efforts. It is also important to think about automation of more sophisticated and complex processes, even when starting with basic manual processes. Today's companies need an opinionated but flexible approach whereby templated and curated components and stacks can be simply and consistently deployed and automated. This can enable effective automation that also helps bring together different teams by codifying communication and collaboration to bridge silos.

Figure 2: Top Desired Outcomes of DevOps



Q: Which of the following outcomes is your organization attempting to achieve by adopting DevOps and its continuous integration/continuous delivery (CI/CD) tools and practices? Please select up to three.

Base: All respondents (n=498)

Source: 451 Research's Voice of the Enterprise: DevOps, Workloads & Key Projects 2022

Open-source software can also enable automation, with top benefits of flexibility with other components, developer speed and a broader community, according to our VotE: DevOps surveys. Organizations tend to want both open-source software fueled by vibrant communities and paid vendor support including certification, integration and security. There are significant advantages to paid, commercial open-source software that is integrated, certified, secure, supported and backed by a vendor. Another key enabler of automation is cloud-native software such as containers, Kubernetes and serverless; advantages of cloud-native software include lightweight packaging, portability and an ephemeral nature that makes it easier to rapidly spin up or tear down as needed. Still, cloud native presents its own challenges, including complexity, security and lack of skills and experience. Cloud and managed services are helping organizations to overcome these challenges with abstraction for simplicity, integration of security and enablement of existing skillsets in newer settings. Open-source and cloud-native implementations are also important to give technologists an opportunity for challenges, learning and advancement.

Automation must span the various environments that are part of today's hybrid and multicloud infrastructure, including on-premises, private cloud, multiple public cloud and edge deployments. Open-source software and cloud native can help promote application portability across these infrastructures, but organizations also need central management of processes and deployments to unify automation islands. There are many reasons for hybrid and multicloud deployment – e.g., price and performance, capabilities of different providers, data sovereignty and security, geographic location – and we expect this reality to continue even as more applications and workloads move to the cloud. On-premises and private cloud deployments will still be part of enterprise IT, even if they are made to look and feel more cloud native.

The automation of cloud infrastructure is among key use cases in today's market. To effectively leverage cloud computing resources, organizations must be able to automate configuration and support application lifecycle management, continuous integration/continuous delivery and self-service for developers and DevOps teams. Another use case centers on networking, which can be a point of friction for expanded DevOps and automation unless network provisioning, security, vulnerability remediation, and reporting and compliance are adequately addressed and automated as much as possible. Security is another automation use case, and while the DevSecOps trend of integrating security elements into software development and deployment processes is growing, there are still challenges such as persisting silos where integrated and automated tools can help. At the edge, automation can ensure that results of analytics, such as required maintenance updates, are reflected on many endpoints.

Conclusion

To achieve their DevOps and IT transformation goals in today's market, organizations must rely on automation, starting with manual, repetitive point tasks and working their way to more complex and comprehensive process automation. They must work toward broad implementation of automation across their teams, infrastructure and applications. It is critical to leverage automation and abstraction to create invisible infrastructure that does not get in the way of development, IT operations and combined DevOps teams focusing on speed and efficiency, as well as new applications, features, products and innovation.

Considering what's next, we expect to see more automation spanning a variety of infrastructures and initiatives. As more workloads move to the cloud, on-premises infrastructure and applications will remain relevant – mainly for data sensitivity, security and compliance requirements. Most organizations will thus have to support hybrid and multicloud infrastructures that include on-premises, private cloud and multiple public cloud environments. IoT and edge deployments – often a match for cloud-native technology such as containers and Kubernetes – are also growing and are emerging as another venue for hybrid approaches and automation. Increased end-to-end automation can also help organizations improve consistency between development and production environments. With the continued uptake of hybrid cloud and cloud-native technologies comes increased complexity. This is another area where organizations will likely lean on automation to simplify, drive efficiency and accelerate development.

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