DEVOPS EDITION

2020 STATE OF APPLICATION SERVICES REPORT

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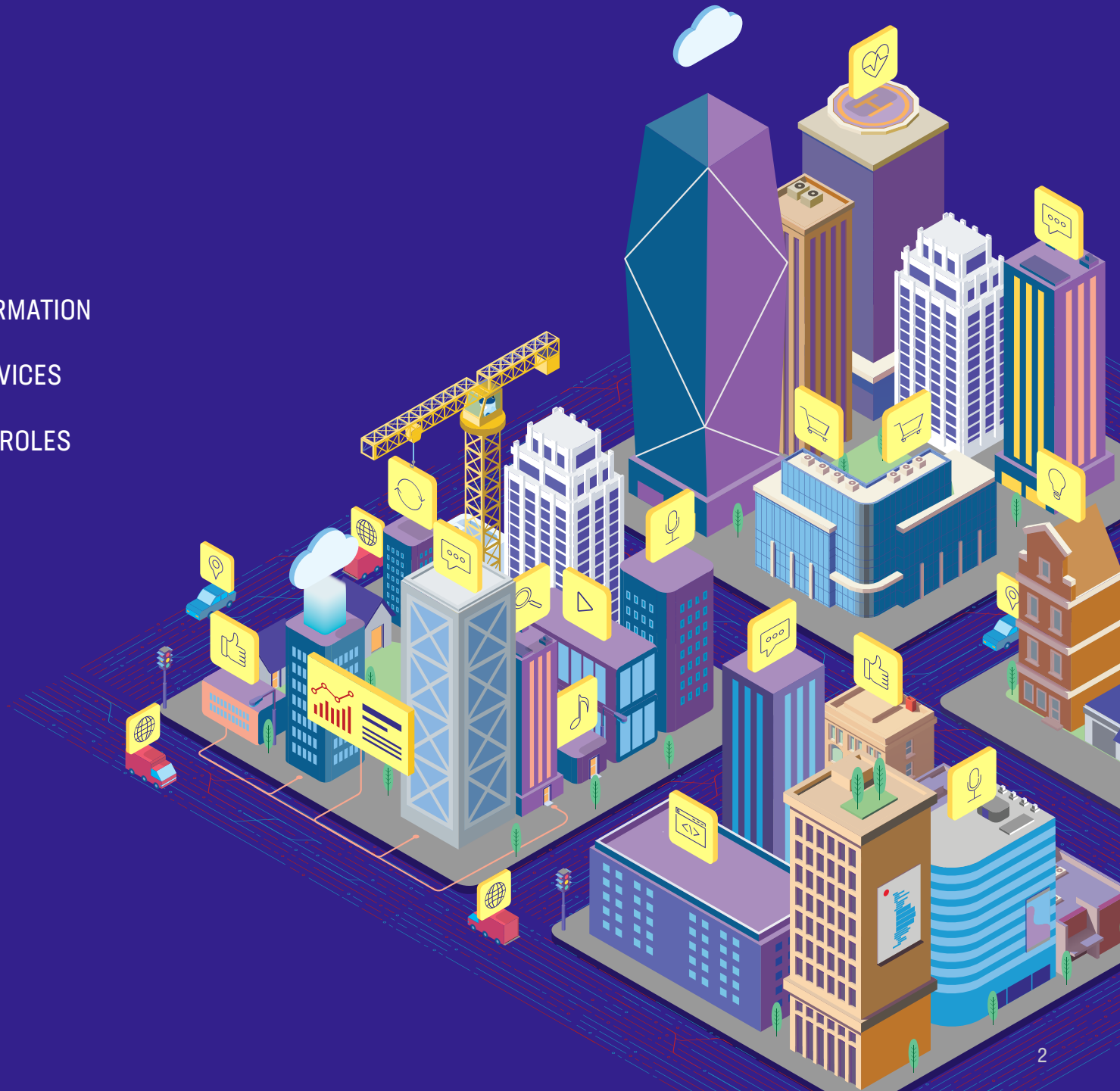

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INTRODUCTION

There's historically been some confusion about the attitudes and preferences of DevOps.

There's historically been some confusion about the attitudes and preferences of DevOps. The portmanteau created by the merging of *development and operations* has given rise to the tendency to lump these practitioners in with one or the other group.

It cannot be said often enough: DevOps is an approach, and its practitioners are focused on the successful delivery (build, test, release, operation) of applications and its infrastructure.

They are, in practice, experts at the mysterious art of continuous integration and delivery. They should not be confused with traditional ops, nor with developers. Instead, they combine elements and expertise from both domains to create a unique role within the organization. And based on responses to our 2020 State of Application Services survey, they are indeed unique. DevOps practitioners have their own perspectives on everything from automation and cloud strategy to applications and the services that support them.

Welcome to the DevOps edition of the 2020 State of Application Services Report!

2020 KEY FINDINGS

01

Nearly one-third of those in a DevOps role consider the app portfolio critical.

02

DevOps practitioners agree with their counterparts in other roles on the primacy of security when deploying an application.

03

Those in a DevOps role are more likely to have responsibility for selecting, deploying, and managing application services in cross-functional teams.

04

DevOps practitioners join their IT counterparts in citing a lack of skills as the biggest challenge to automating network infrastructure.

01

Nearly one-third of those in a DevOps role consider the app portfolio critical.

Applications and the digital economy

Applications are the engines of the digital economy. They collect, exchange, process, analyze, and store the data that fuels business in every industry. Attitudes toward the app portfolio reflect the value business places on those apps. Only 2% of respondents globally reported they do not need applications to operate—a group primarily composed of organizations with fewer than 100 employees.

Respondents across every role overwhelmingly placed some importance to the business on the app portfolio—and 55% of respondents in DevOps roles reported that applications are essential for business.

> **Respondents across every role overwhelmingly placed some importance to the business on the app portfolio—and 55% of respondents in DevOps roles reported that applications are essential for business.**

What's fascinating about this response is that while most DevOps respondents are, as one might think, in the technology industry (25%), just behind are financial services (19%) and telecommunications (12%). This valuation of applications by leaders in DevOps roles was also seen clearly in their answer to the ways in which digital transformation was influencing application decisions. While DevOps practitioners aligned with the global results in citing the implementation of automation and orchestration and the adoption of new app architectures as the number one and two impacts, respectively, they diverged slightly in one key area.

WE ASKED:

Please select the statement that represents how your organization views/treats its application portfolio. Select one.

WE LEARNED:

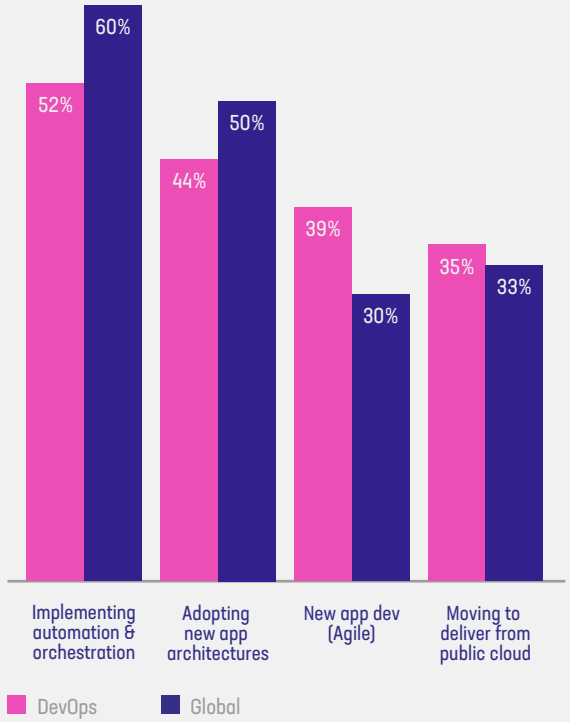
DevOps respondents agree that applications are critical for just about every organization.

FIGURE 01 : How organizations view their app portfolio

Slightly more than respondents in other roles, DevOps practitioners plan to take advantage of public cloud platforms. The difference here may be a continuing frustration with the state of automation of the deployment pipeline on premises, which continues to lag behind the continuous delivery pipeline primarily operated by DevOps. As might be expected because of their role in developing and delivering applications, DevOps practitioners are more likely to be adopting new methodologies like Agile than their counterparts in IT.

WE ASKED:

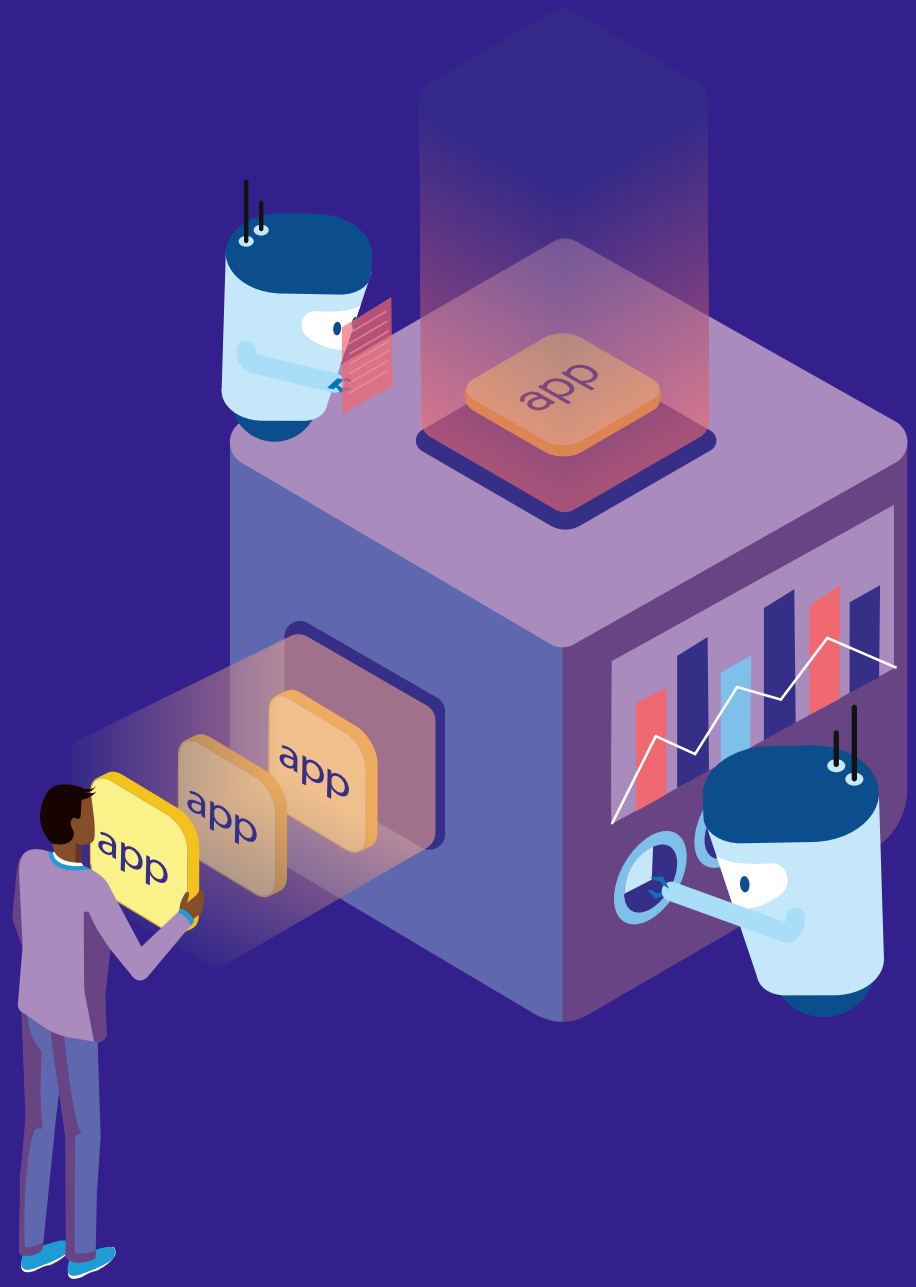
How is digital transformation affecting your application decisions? Select all that apply.



WE LEARNED:

DevOps practitioners are more likely to be considering new application development methodologies and moving their apps to the public cloud.

FIGURE 02: How is digital transformation influencing your application decisions?



02

DevOps practitioners agree with their counterparts in other roles on the primacy of security when deploying an application.

The evolution of app services

One of the most overlooked impacts of microservices and the rise of cloud-native apps is that of the gravitational pull the movement has on app services. Because you can't deploy and operate a cloud-native app without service discovery, and you can't really scale a cloud-native app without Ingress control. These cloud-native app services are growing right along with the percentage of modern applications, which this year made up 15% of the enterprise app portfolio.

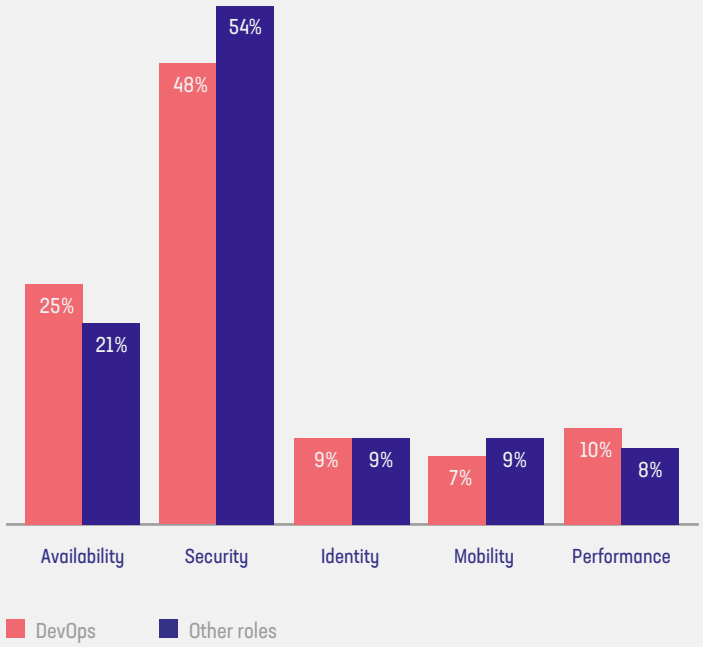
> **One of the most overlooked impacts of microservices and the rise of cloud-native apps is that of the gravitational pull the movement has on app services.**

Unsurprisingly, DevOps practitioners were more likely at 25% to prefer containers as a form factor for app services than their counterparts. A mere 7% preferred a hardware appliance, and just 10% chose "all of the above" compared to 20% of respondents in other roles.

Those in DevOps roles appear aligned with their counterparts across IT in terms of the app services they plan to deploy in 2020. Topping both the global and DevOps list for planned on-premises deployment of availability services was DDoS protection, followed by botnet protection. In the public cloud, service mesh topped both lists with service discovery a close second. Both of these application services are valuable in supporting the availability of cloud-native apps, so it makes some sense that complementary app services are planned for deployment by complementary roles. This alignment held true across all core categories of app services.

WE ASKED:

What's the application service you could least afford to deploy your app without?



WE LEARNED:

DevOps respondents agree that the worst thing they could do is deploy an application without security services.

FIGURE 03: The worst thing I could deploy an app without...

But while other roles stand on security (54%) as the worst thing they could leave out when deploying an app, fewer than half (48%) of DevOps respondents agree. While all roles agree security is most important, DevOps gave availability and performance greater weight than their counterparts.

Where we found distinctive differences was in the factors that go into the deployment decision for a web application firewall (WAF). We asked all respondents who indicated they have deployed a WAF how they decide which apps to protect with it. DevOps prefers to use the sensitivity of an app's data (30%), while 18% base their decision on the type of consumer (internal or external), and 23% tell us a centralized security team makes the decision.

Other roles had a somewhat different take on the decision-making criteria. Compliance was the number one criterion with 28%, followed by sensitivity of the data (27%) and the guidance of a centralized security team (27%).

The attitudes of DevOps toward app services—from the characteristics they prefer to the way in which they make decisions regarding deployment—are important because of an ongoing shift in responsibilities along with the deployment of modern app services.

03

Those in a DevOps roleare more likely to have responsibility for selecting, deploying, and managing application services in cross-functional teams.

Changing team structures and responsibilities

The impact of DevOps adoption in organizations has resulted in shifting team structures. We still see a significant percentage of companies organizing into single-function teams (41%), but that's slightly below last year's 46% of organizations. Combined operations teams now comprise 35% of organizations, while cross-functional teams make up 16%. We posited that as team structures morph toward more DevOps-friendly structures, it might have an impact on who is responsible for deploying and operating app services.

We found that team structure has some minor impact on responsibility for app services on premises, primarily for ops and DevOps. The former loses responsibility when moving from single-function teams (38%) to cross-functional (30%), while DevOps gains nearly 6% with the same shift.

Still, it leaves IT ops primarily responsible for app services—and it didn't seem to impact NetOps and SecOps responsibility at all.

> **Given that cloud-native app services like service mesh and Ingress control are inescapably tied to app infrastructure typically handled by DevOps, we were unsurprised to find a shift in responsibility for deploying and operating app services, with DevOps gaining responsibility and IT operations losing responsibility.**

WE ASKED:

Who is responsible for deploying and operating application services in your organization?

	Cross Functional	Combined Ops	Single Function
IT Ops	30%	37%	38%
NetOps	16%	14%	16%
DevOps	15%	9%	9%
SecOps	11%	11%	10%

WE LEARNED:

DevOps practitioners are more likely to have responsibility for application services in cross-functional teams.

FIGURE 04: Impact of team structure on responsibility for deploying & operating app services

Next, we examined responsibility based on the percentage of microservices/cloud-native apps in an app portfolio. Given that cloud-native app services like service mesh and Ingress control are inescapably tied to app infrastructure typically handled by DevOps, we were unsurprised to find a shift in responsibility for deploying and operating app services, with DevOps gaining responsibility and IT operations losing responsibility. Interestingly, the biggest gain in responsibility based on the presence of modern app architectures was security/SecOps. This would seem to indicate that organizations are "shifting security left" and becoming more active as apps move toward modern, nimble architectures.

Generally, however, our research indicates IT ops currently retains primary responsibility for deploying app services across both on premises and in the public cloud.

Interestingly, architects also gain responsibility for deploying and operating app services as the composition of the app portfolio shifts toward modern architectures. The complexity of managing multiple containerized applications no doubt contributes to the rise of architects' influence as it is generally their responsibility to provide oversight and guidance on application decisions that impact the operability and sustainability of applications.

WE ASKED:

Responsibility for deploying app services based on percentage of cloud-native apps in app portfolio.

	No Cloud Native Apps	Half Cloud Native Apps	All Cloud Native Apps
Architects	9%	8%	16%
Developers	8%	12%	5%
DevOps	11%	14%	16%
Infrastructure (NetOps)	13%	13%	11%
IT Operations	32%	30%	26%
Security/ SecOps	9%	18%	21%
SRE	2%	3%	--

WE LEARNED:

As the proportion of cloud-native apps grows, DevOps practitioners take more responsibility for application services.

FIGURE 05: Responsibility for deploying app services based on percentage of cloud-native apps in the app portfolio

04

DevOps practitioners join their IT counterparts in citing a lack of skills as the biggest challenge to automating network infrastructure.

The promises and challenges of automation

Perhaps no subject other than public cloud is as closely tied to DevOps as automation and orchestration. A significant amount of time is spent by DevOps practitioners implementing and operating a continuous delivery pipeline. That pipeline is integrated and automated using a variety of tools and services that span repositories, build systems, testing tools, and infrastructure.

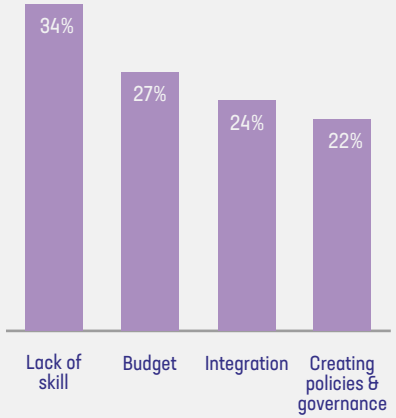
Some of that infrastructure is app services. Ingress control, service mesh, load balancing, and API gateways are based on proxies, which require network expertise to deploy. Modern app architectures, too, rely on container environments that require at least basic networking skills to operate properly.

DevOps practitioners, who often come from either a development or operations background, are rarely experts in networking. That is clearly seen in the just over one-third (34%) of DevOps respondents for whom “lack of skills” was cited as the top challenge for automating the network.

They aren’t alone. All other roles also cited lack of skills as their number one challenge in automating network operations. All roles also found integration across toolsets challenging. We suspect that frustration has more to do with inconsistent APIs and configuration models across networking for DevOps than the actual tools. When automating the network, 45% of DevOps practitioners use Jenkins, a toolset that should be familiar to them as it is a common component of the continuous delivery pipeline. VMware is used by 23% of DevOps teams to automate the network; that’s less than half the rate reported by other roles (47%). This disparity might offer an opportunity for collaboration to address frustration with network automation. NetOps certainly have the

WE ASKED:

What’s the most challenging part of automating the network? Select all that apply.



WE LEARNED:

A lack of skills is the most frustrating aspect of automating network operations for DevOps professionals.

FIGURE 06: What frustrates a DevOps practitioner about automating the network?

network expertise that DevOps may be lacking. With both making use of VMware, some cross-domain sharing of knowledge and expertise may be necessary to reduce friction and frustration across organizational lines.

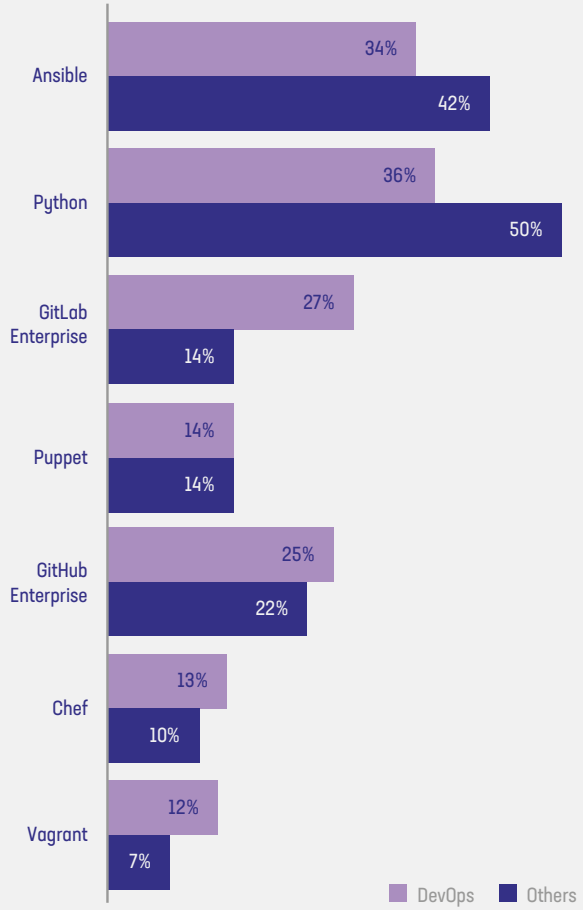
Opportunities to more fully exploit expertise across the organization by standardizing on a set of shared toolsets can be seen by responses to overall automation tools. We find that Ansible and Python are popular overall automation and orchestration tools across all roles, but there are also other common tools that can help bridge the gap between groups within organizations, as well as potentially address the frustrations all roles express with efforts to automate deployment pipelines.

> **Standardization will become imperative as organizations begin to stress their ability to scale delivery and deployment as they mature in their digital transformation efforts.**

GitHub Enterprise appears to be a shared toolset that could serve as the corporate repository standard for many organizations. Shared toolsets can produce baseline processes for pipeline automation that reduce friction through reuse. Standardization will become imperative as organizations begin to stress their ability to scale delivery and deployment as they mature in their digital transformation efforts.

WE ASKED:

What are your preferred tools for automation and orchestration?



WE LEARNED:

DevOps respondents agree with their counterparts in preferring Python and Ansible.

FIGURE 07: General automation and orchestration tool preferences

CONCLUSION

DevOps has grown from a movement to an established group in most enterprise organizations.

As organizations continue to expand their portfolio with modern cloud-native apps and migrate to the public cloud, we expect to see the influence of DevOps practitioners grow in every area of IT.

Whether it's seen in standardization of toolsets that draw from the continuous delivery pipelines or in the responsibility for automating the network and operating app services, DevOps methodology will propagate throughout the organization in the years to come.

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