



Azure Virtual Desktop (AVD) Adoption Trends

**SURVEY
REPORT**



Virtual Desktop Technologies

Virtual desktop technologies have been in existence for several years. Mostly deployed on-premises, these technologies offer secure access to corporate desktops for remote users. Virtual desktop infrastructures (VDIs) have garnered more attention of late as organizations have had to support remote and hybrid work requirements. According to a recent study, over 82% of organizations had some changes to their digital workspace deployments in the last year.



Virtual Desktops on Azure Cloud

Technology advancements have now made it possible for organizations to adopt virtual desktop technologies in a hassle-free manner, from the cloud. Microsoft's multi-session Windows desktop technologies supported on Azure cloud allow admins to provision virtual desktops on-demand. Integration with Azure Active Directory and FSLogix ensure secure access with efficient profile management. Recently, there has been a lot of interest around Azure virtual desktop technologies to support users working from home, to scale VDI capacity dynamically, and even as backup for VDI deployments on-prem.

About This Survey

eG Innovations and AVD Tech conducted this survey between February and March 2022 to shed light on various topics:

- Understand the state of virtual desktop technologies on Azure today
- Determine what technology choices organizations are making
- Where are organizations in terms of managing the performance of AVD deployments
- What are the areas where organizations deploying AVD need help



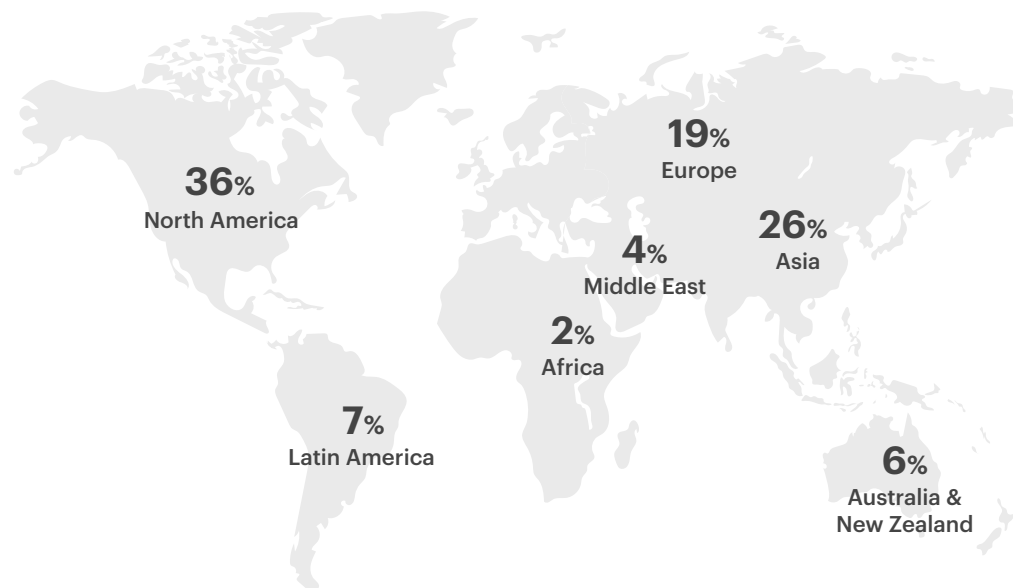
About This Report

This report is a compilation of the responses of 500+ IT professionals from across the world and includes learnings, analysis and trends. This is intended to be useful for any IT professional working with digital workspace technologies and VDI in particular.

Our thanks to everyone who participated in our survey.

How The Survey was Conducted

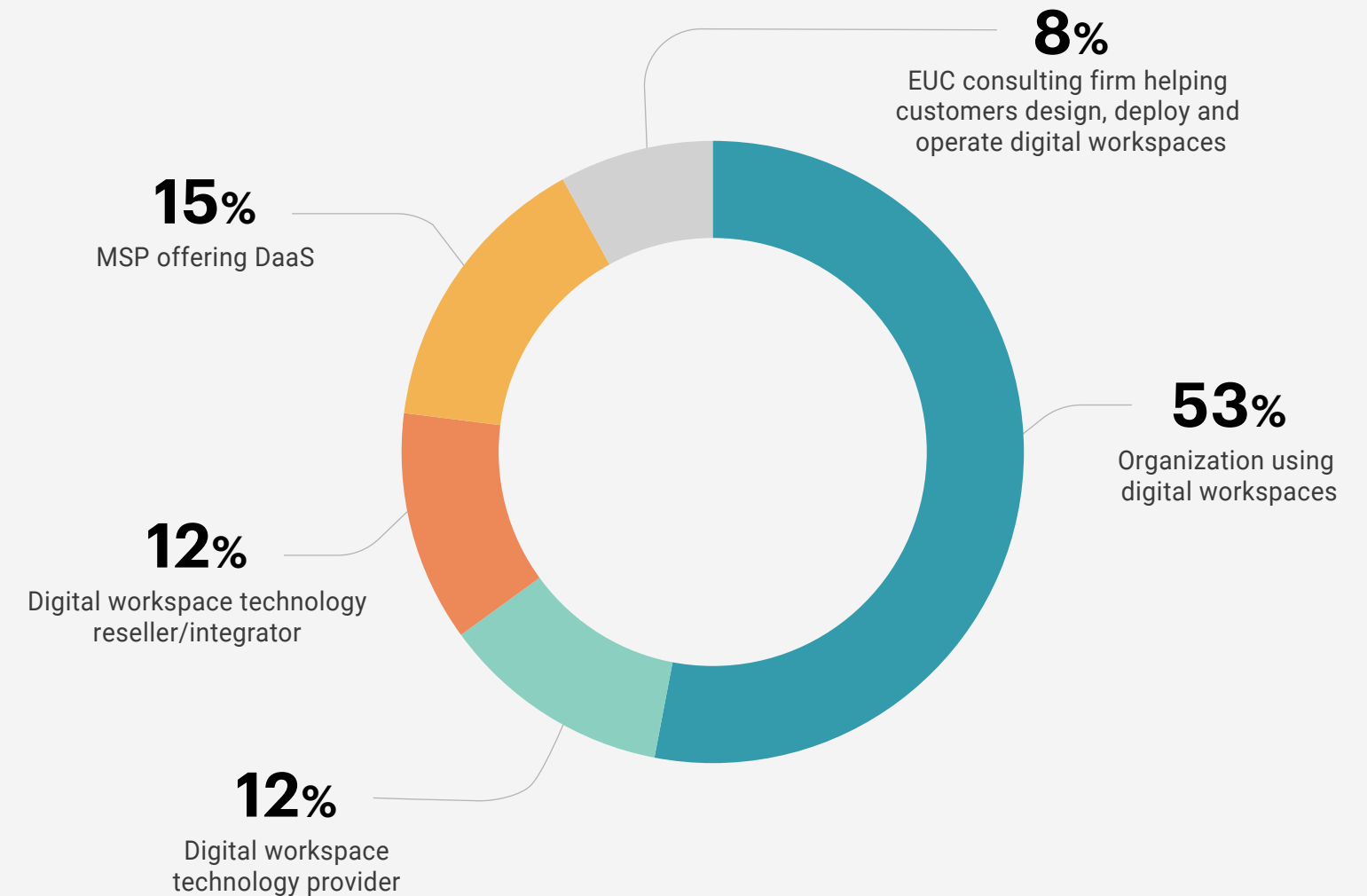
- The survey was conducted online. IT professionals were contacted over email, Twitter, LinkedIn, etc.
- 500+ respondents make this one of the largest surveys of digital workspace deployments conducted in recent years.
- Respondents spanned all the key geographies.
- Professionals performing several different roles participated in the survey.



Geographical distribution of survey respondents

A team of professionals with expertise in digital workspace technologies culled through all the data collected to glean insights into the results.

All the responses have been analyzed for consistency. Incomplete responses and suspected fraudulent responses were not considered when compiling the results.



Focus Areas of the Survey



**Current status of
AVD adoption**



**Choices being made by
customers deploying AVD**



**Likely trends on
AVD adoption**

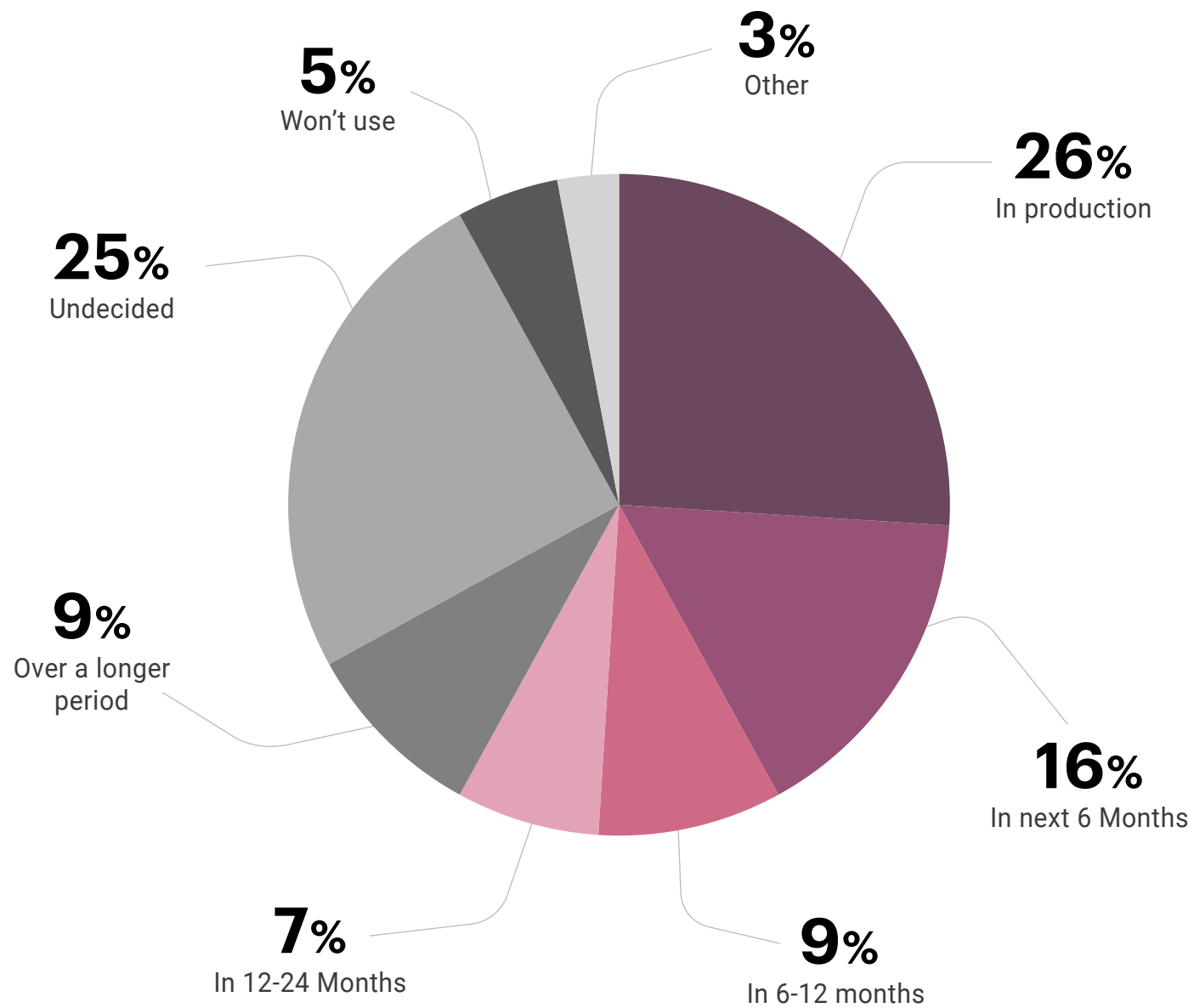
Key Findings

- Organizations are looking to deploy Azure Virtual Desktop technologies. 26% already have AVD deployed in production.
- AVD adoption is likely to grow fast. 58% expect to have AVD technology in production within 2 years.
- Currently, AVD deployments are mostly small. 73% of deployments have less than 1000 users.
- Secure architecture, pay as you go model and easy deployment are key reasons why organizations are adopting AVD.
- Organizations adopting AVD are using industry best practices such as GPUs, image optimization, profile management, etc. to enhance user experience.
- More than half the organizations deploying AVD are reliant on Azure native tools for monitoring and management.
- Cost and inability to predict these costs are main challenges for organizations with Azure Monitor.
- For AVD technology to be effective, organizations see end-to-end monitoring of AVD as a key requirement.
- Despite its many benefits, 80% of organizations expect to use other digital workspace technologies in conjunction with AVD.
- A single pane of glass to monitor all the different digital workspace technologies is seen as being very important.

Current Usage of Azure Virtual Desktops



How widely is AVD deployed?



Over 1/4th of respondents already have AVD deployed.

In 24 months

58% of organizations will have AVD deployed.

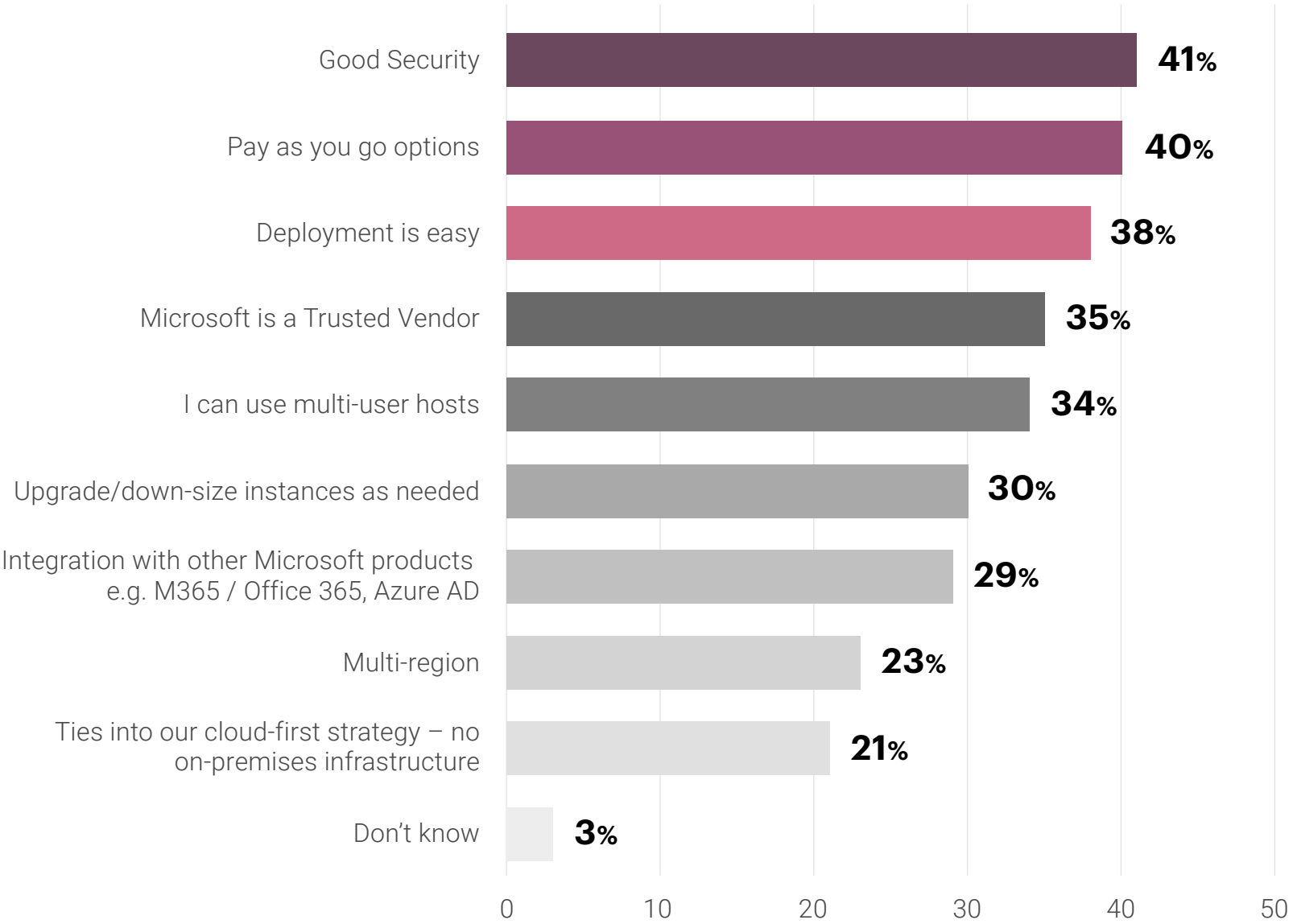
Only

5% do not see a need for AVD technology.

Greatest Benefits of AVD



Why do organizations adopt AVD?

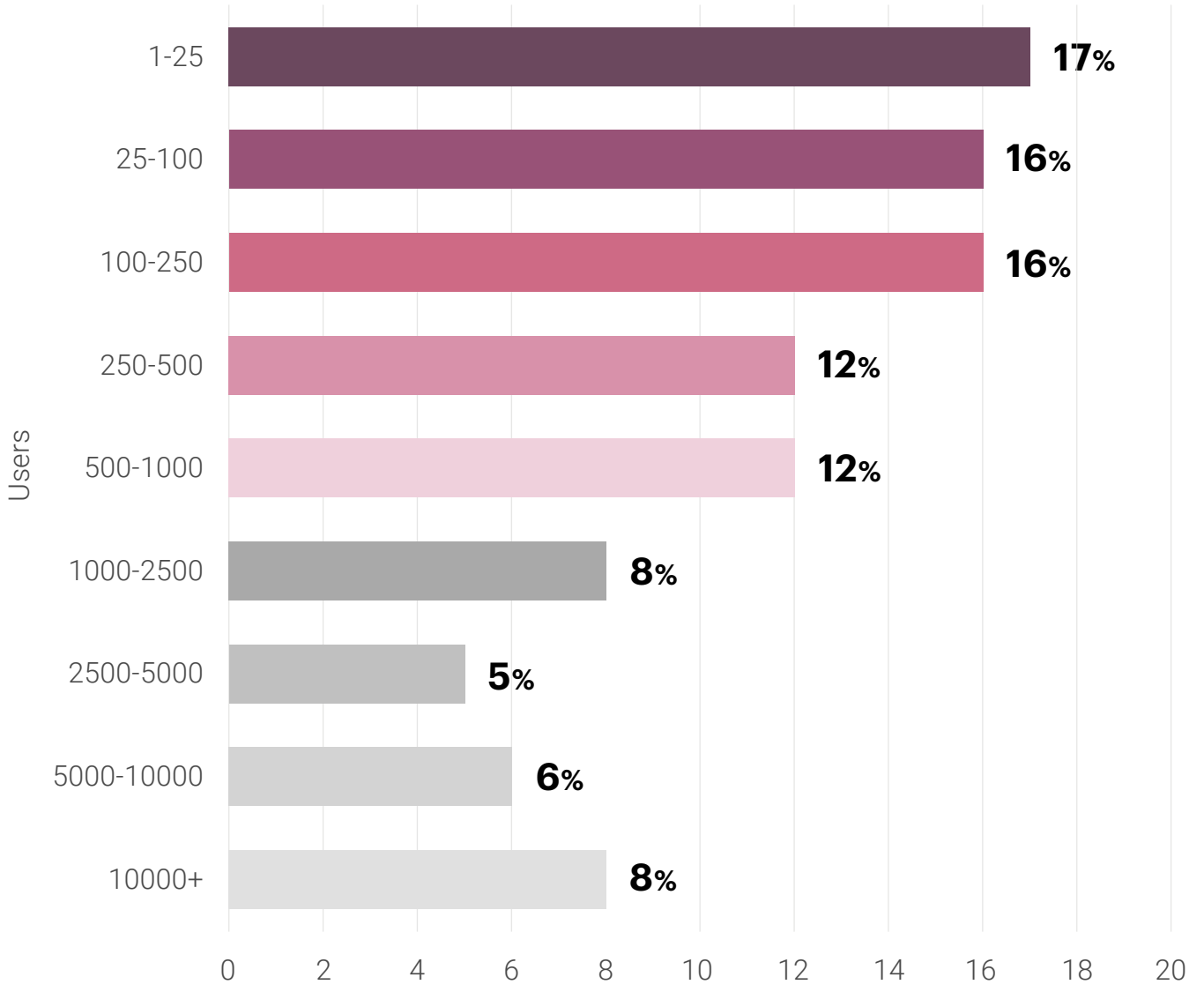


- Historically, security concerns relating to the cloud have been an obstacle to adoption. Confidence in cloud technologies has grown over the years. Increasingly the greater security focus of CSPs such as Microsoft is an important reason for public cloud adoption.
- Pay as you go flexibility and ease of deployment are top features attracting customers to Azure.
- Multi-user hosts (essentially an Azure cloud only feature) is attracting customers to AVD.

Scale of AVD Deployments



How large are AVD deployments today?



Overall, we are early in the AVD adoption cycle.

49% of deployments have less than 250 users.

73% of deployments have less than 1000 users.

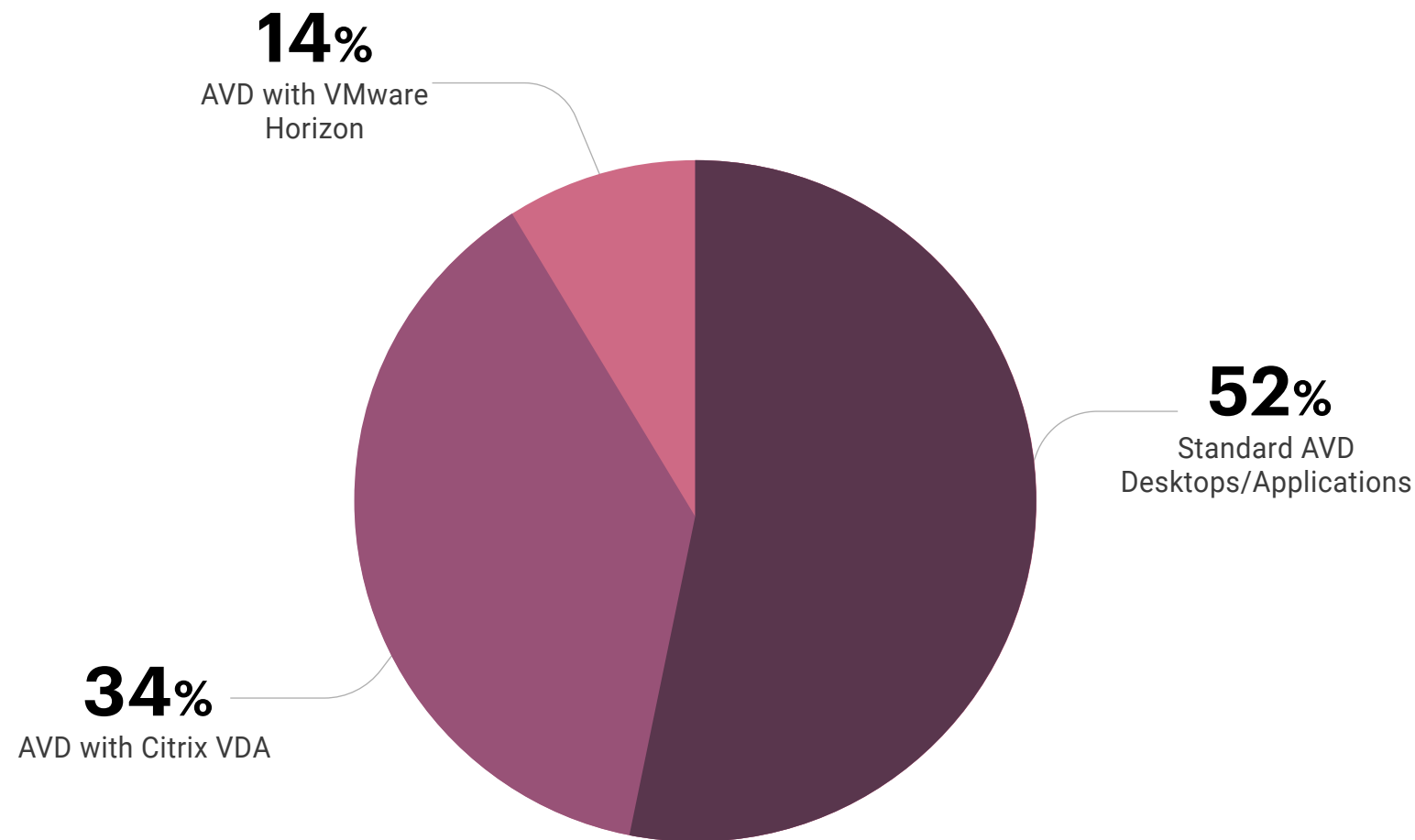
With 1/3rd of deployments having less than 100 users, AVD is probably appealing and accessible to organizations which traditionally are considered too small to adopt on-premises Citrix/VMware VDI.

- Small deployments may also be larger organizations exploring AVD as an option for the future.
- In the medium-sized business market, AVD is competition for Citrix and VMware digital workspace offerings.

How AVD is being Deployed



What VDI Stack is used?



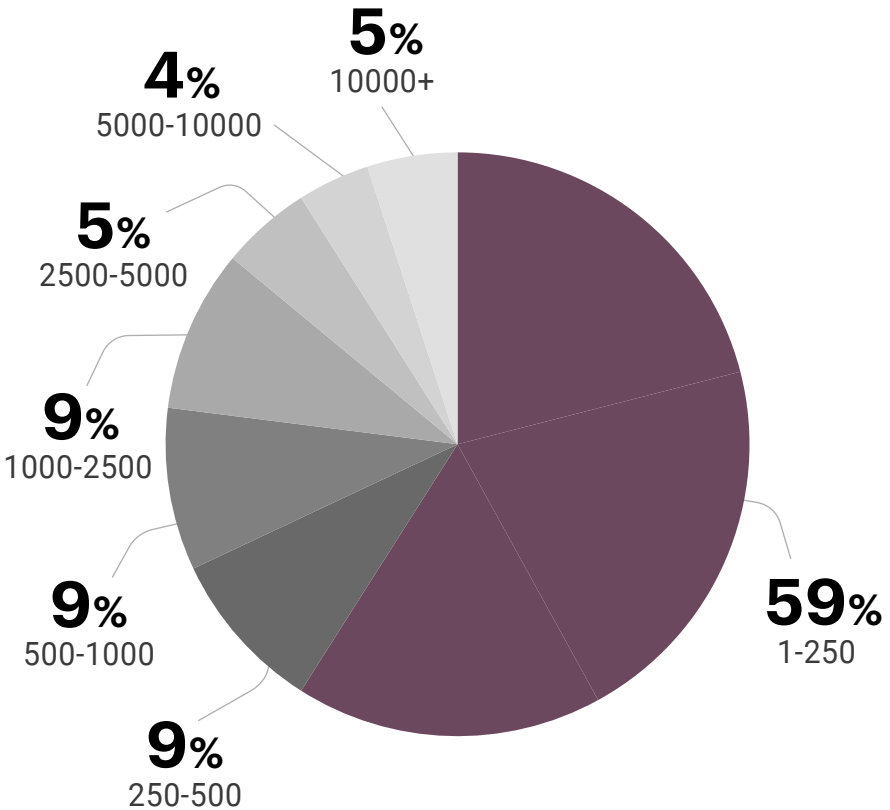
52% of AVD deployments use the native Microsoft Azure stack.

34% are using Citrix VDAs on Azure - i.e., with Citrix brokering and HDX as the communication protocol.

Scale of Deployment by VDI Stack

Standard AVD

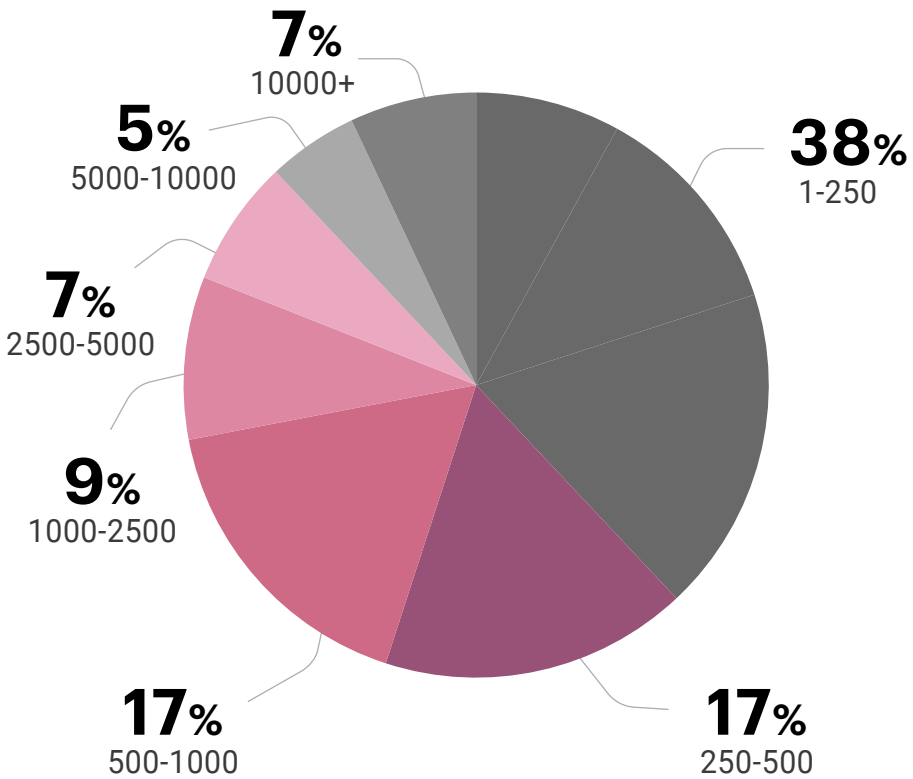
(Distribution by users)



59% of standard AVD deployments have less than 250 users

Citrix

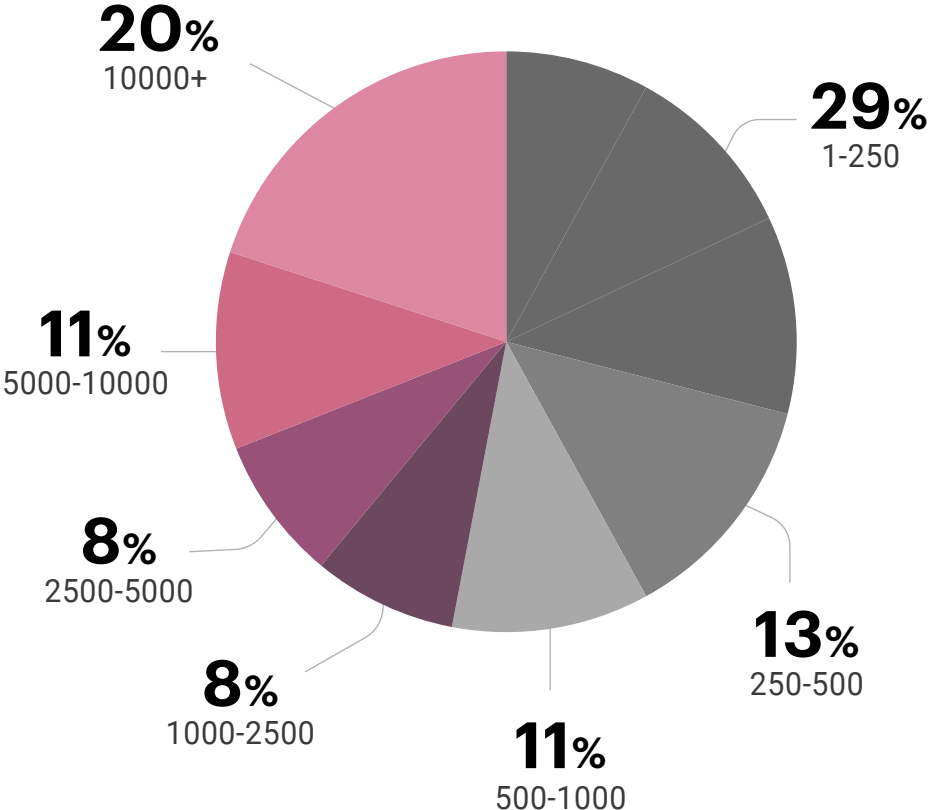
(Distribution by users)



50% of Citrix deployments have 250 to 5000 users.

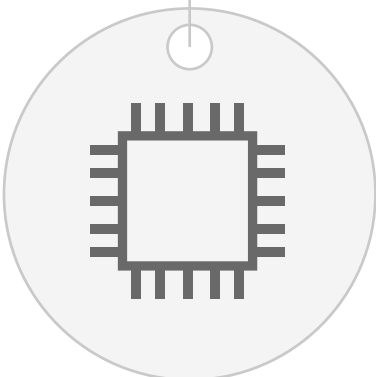
VMware Horizon

(Distribution by users)

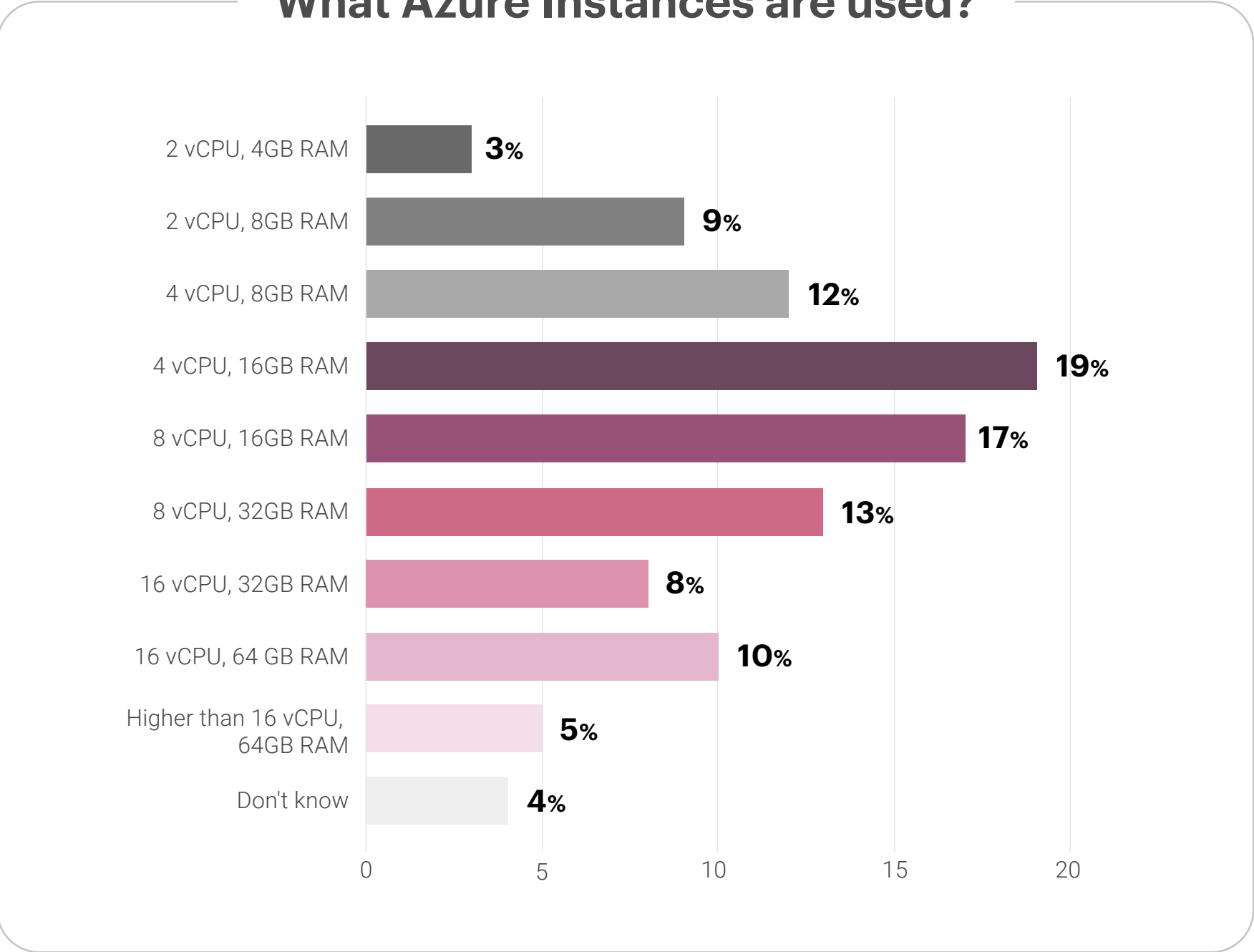


47% of VMware Horizon deployments have more than 1000 users.

AVD Deployment Choices



What Azure Instances are used?



72% are using 16GB RAM or more for Azure instances.

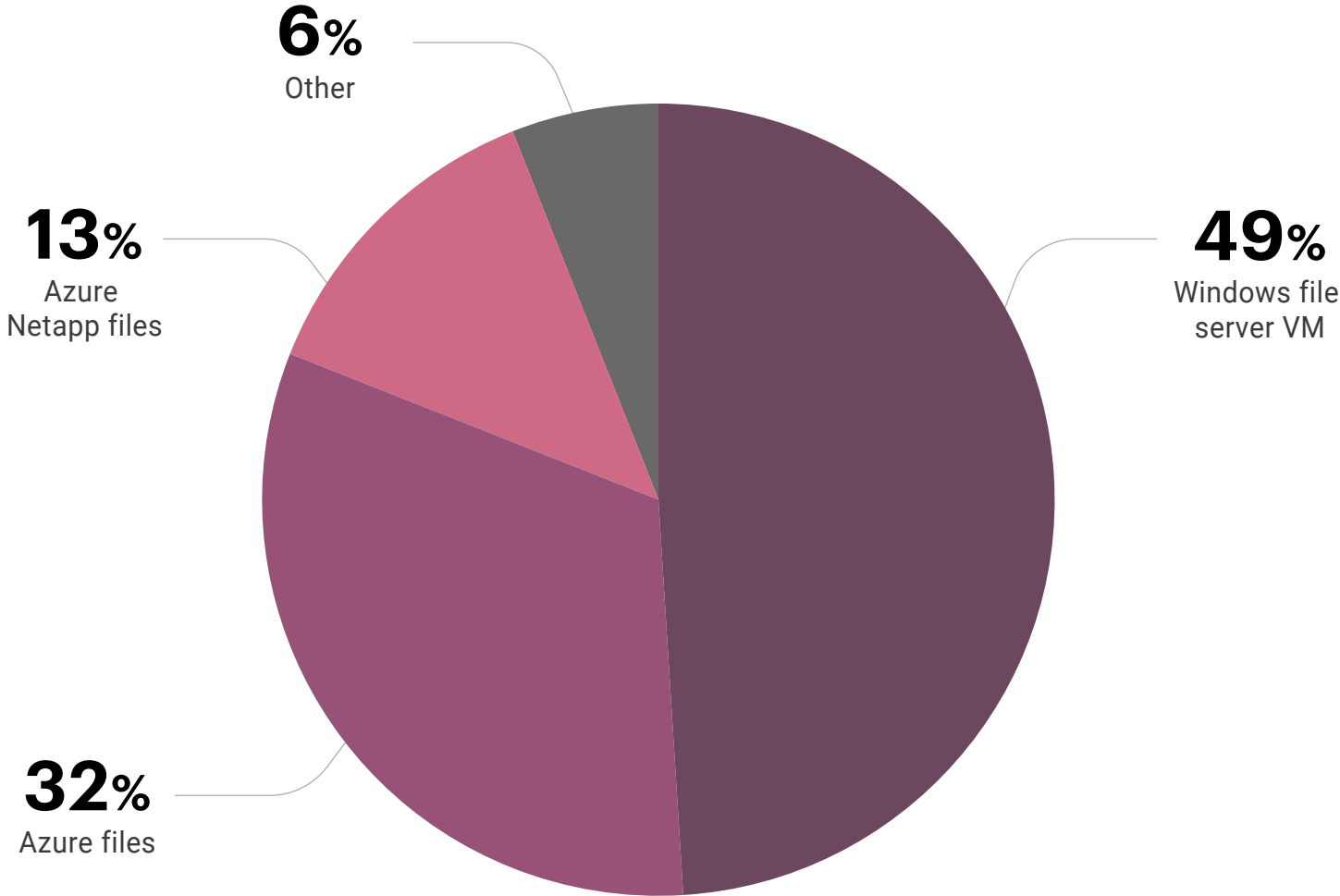
84% are using 4 vCPUs or more for Azure instances.

- 4 vCPU, 16 GB RAM (Standard_D4s_v5 PAYG instance) is the most popular instance type used for AVD.
- 8 vCPUs, 16 GB RAM (Standard_F8s_v2) is the 2nd most popular.

AVD Deployment Choices

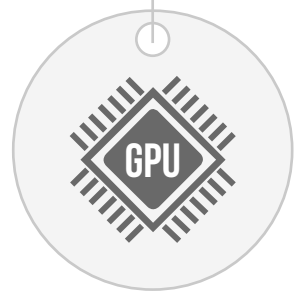


What storage solution is preferred for AVD?

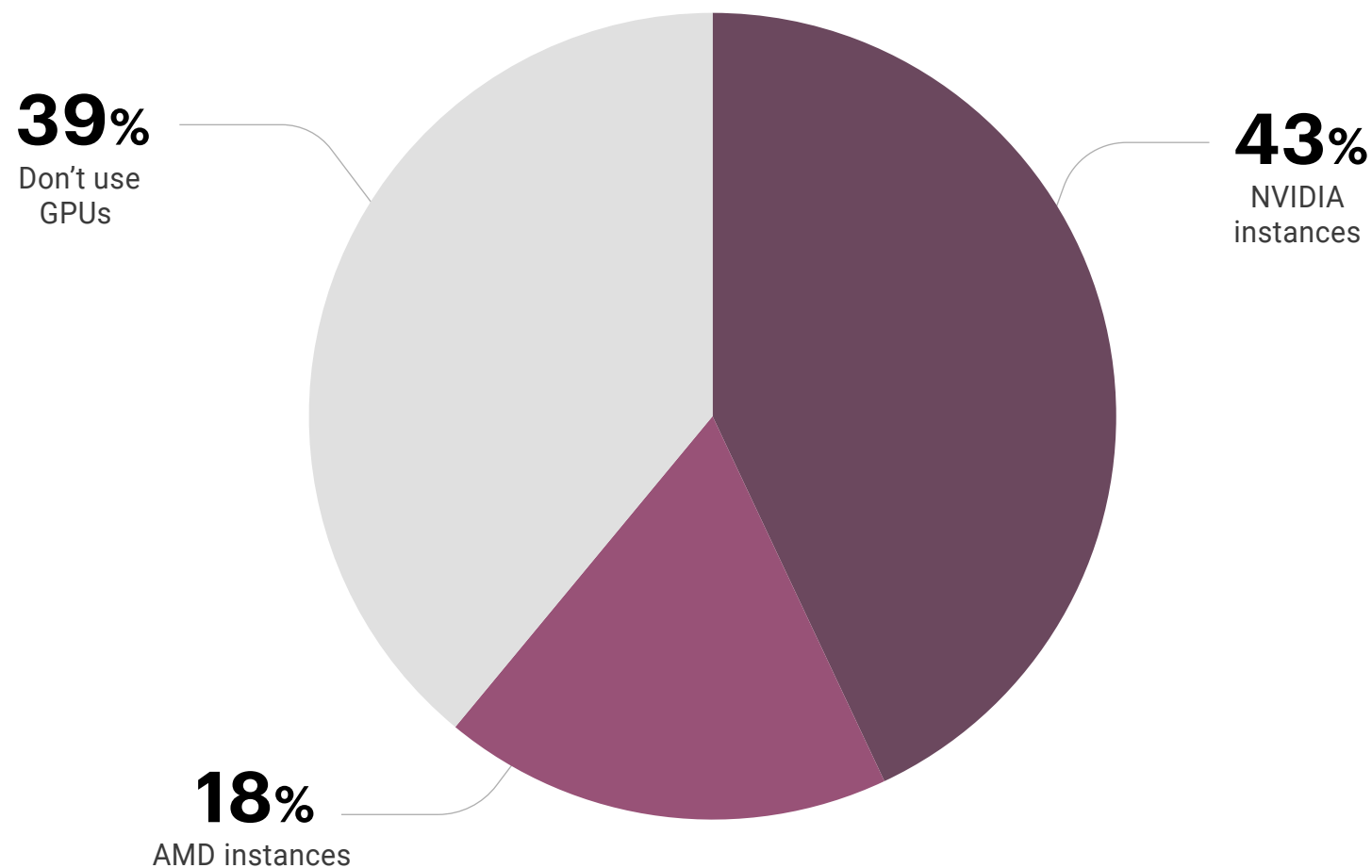


- Windows File Server is the preferred storage solution for AVD.
- NetApp is gaining traction as a third-party premium solution.

AVD Deployment Choices



How popular are GPU technologies?

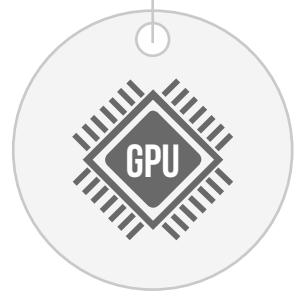


AVD supports GPU-accelerated rendering and encoding for improved app performance and scalability. GPU acceleration is particularly crucial for graphics-intensive apps.

61% of organizations are using GPU technologies. This is very high considering the small percent of overall Azure instance types with GPU support. We suspect that organizations have some VMs that are GPU enabled, but not all.

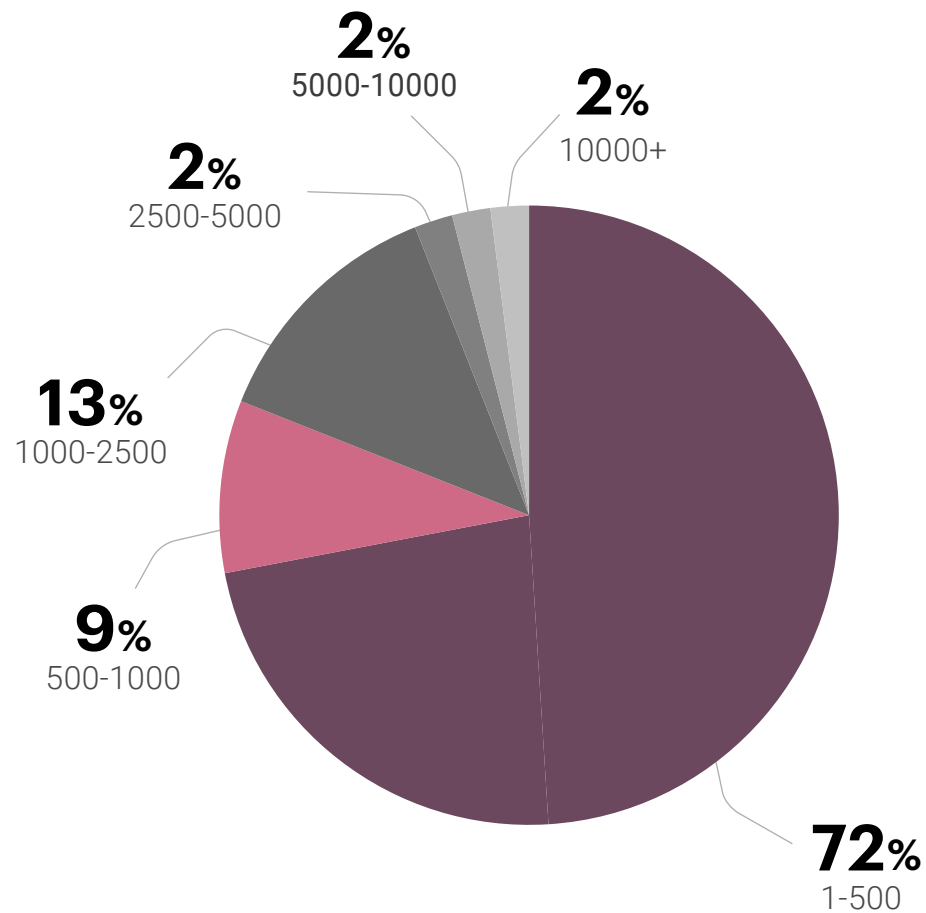
NVIDIA GPUs are twice as popular as AMD GPU technologies. AMD entered the market later and with fewer instances available, so their increased share is still significant.

AVD Deployment Choices

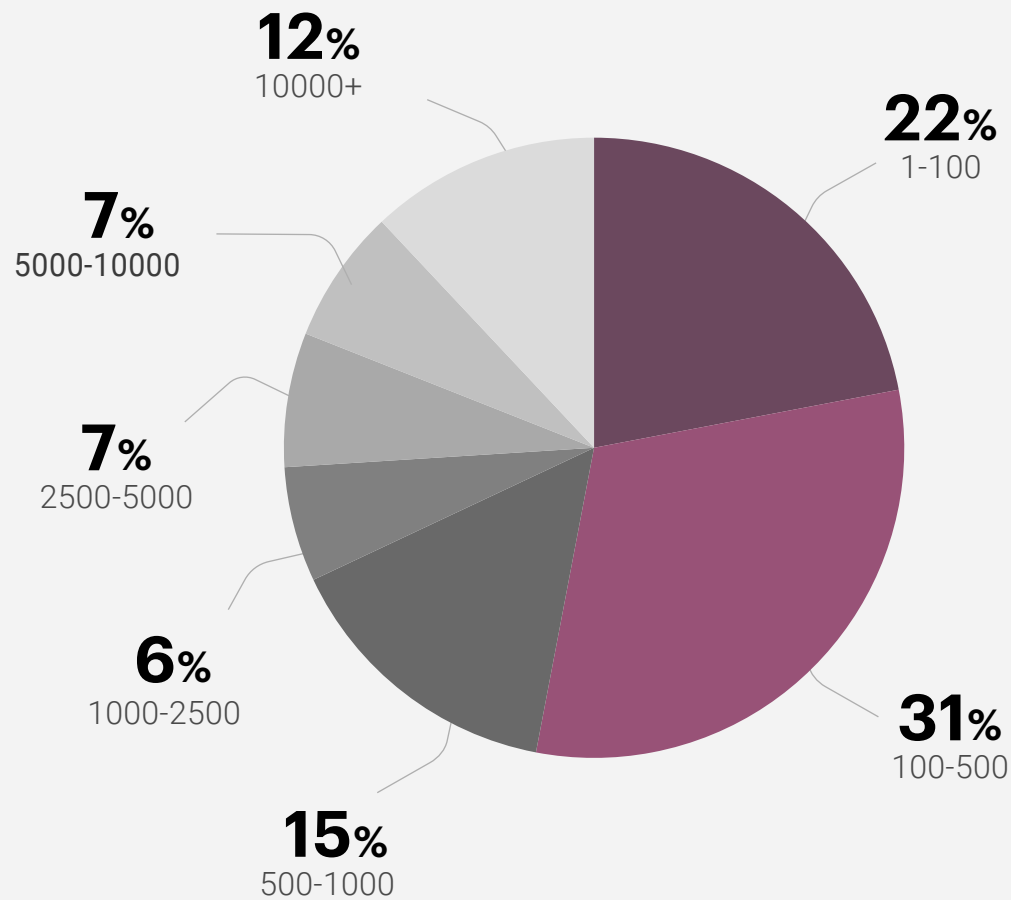


Which organizations are using GPUs?

Organizations not using GPUs
(Distribution by users)



Organizations using GPUs
(Distribution by users)



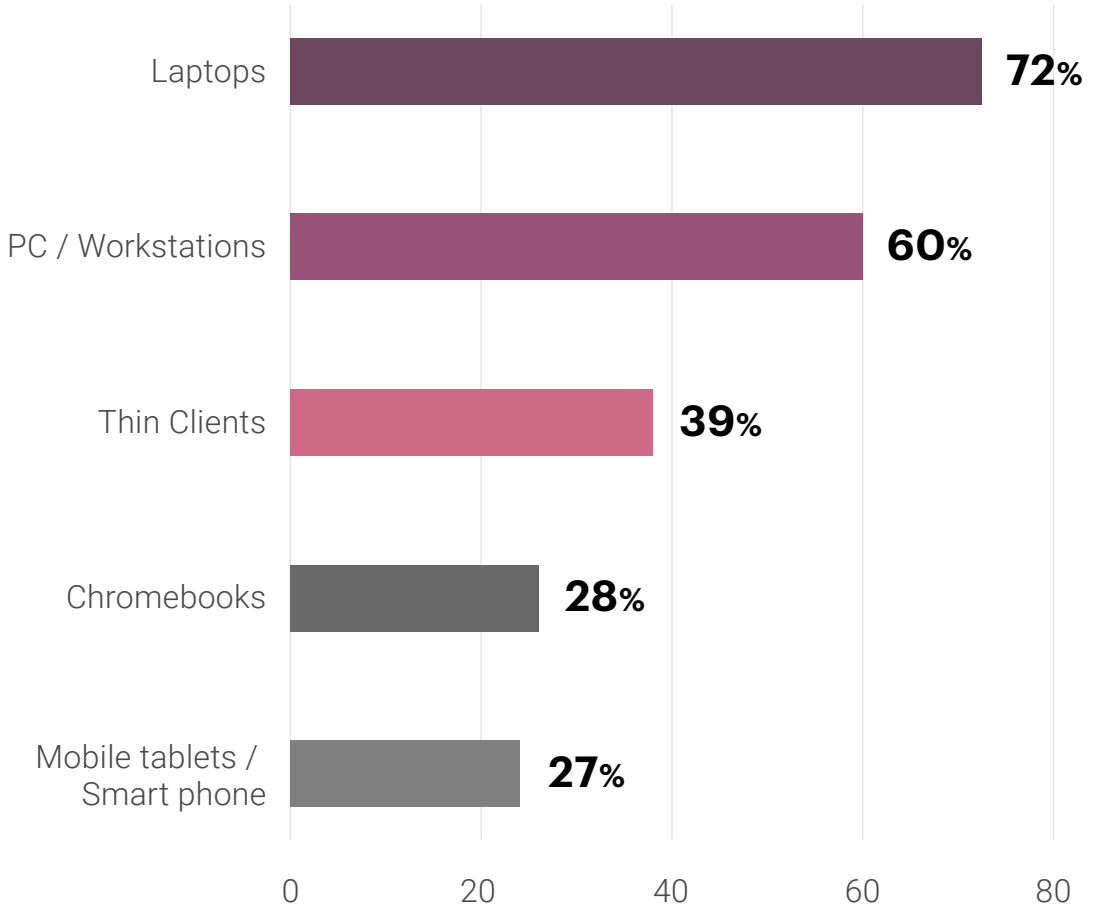
72% of organizations not using GPU have less than 500 users.

47% of organizations using GPU have more than 500 users. So the larger the organization, greater the chance they are using GPU technologies.

AVD Deployment Choices

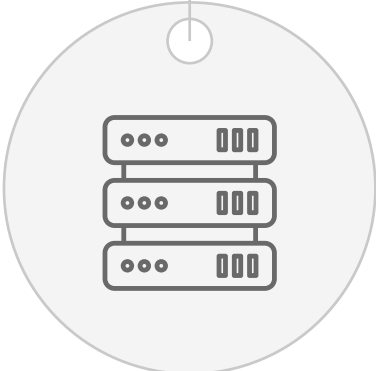


What endpoints are used to access AVD?

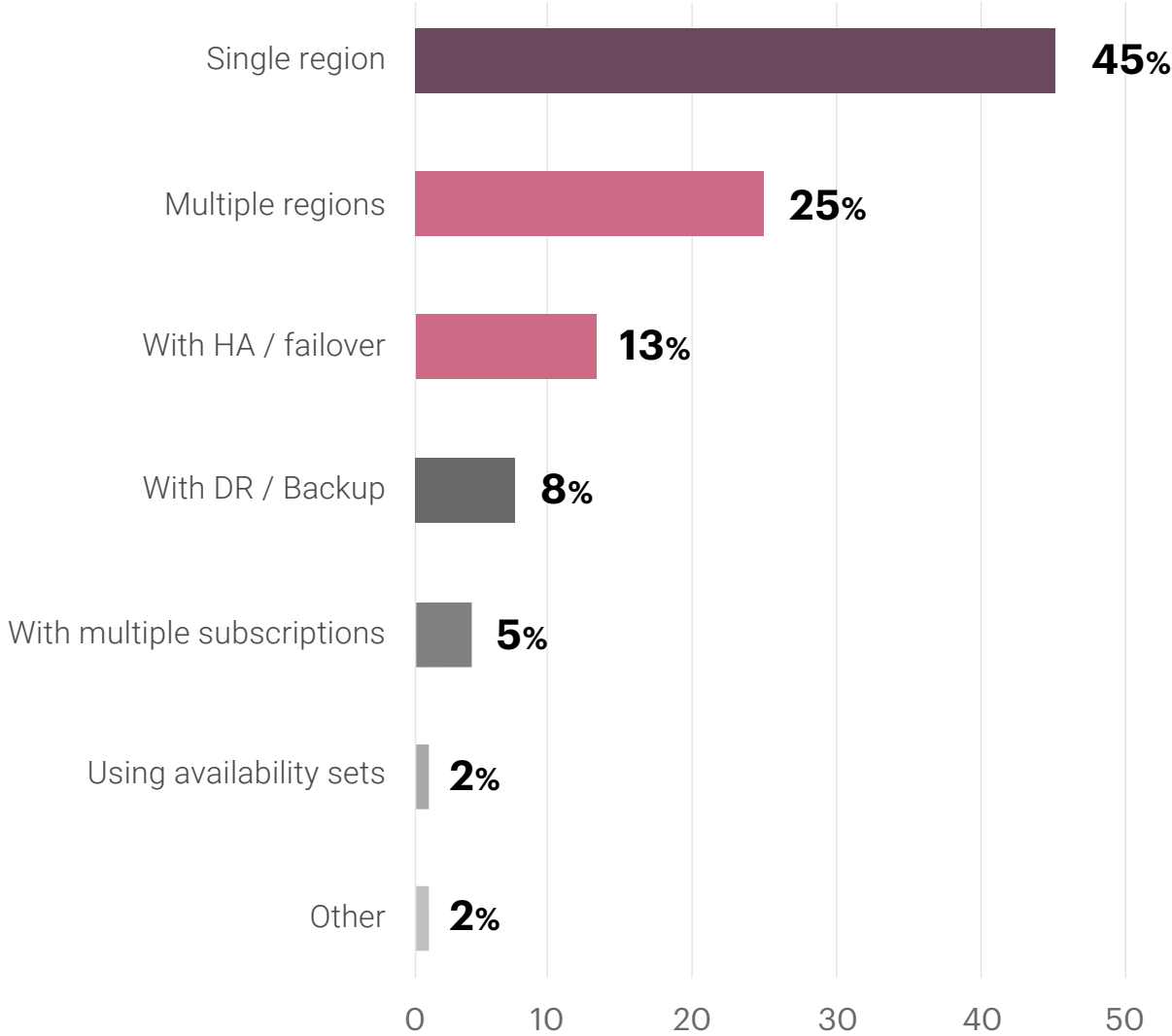


- Laptops and workstations are the most popular end points for accessing AVD.
- Adoption of mobile devices and Chromebooks is lower.
- The lower use of thin clients is surprising. This may indicate that the use case of AVD may be different from those of standard virtual desktops.

AVD Deployment Choices



Which advanced AVD features are used?



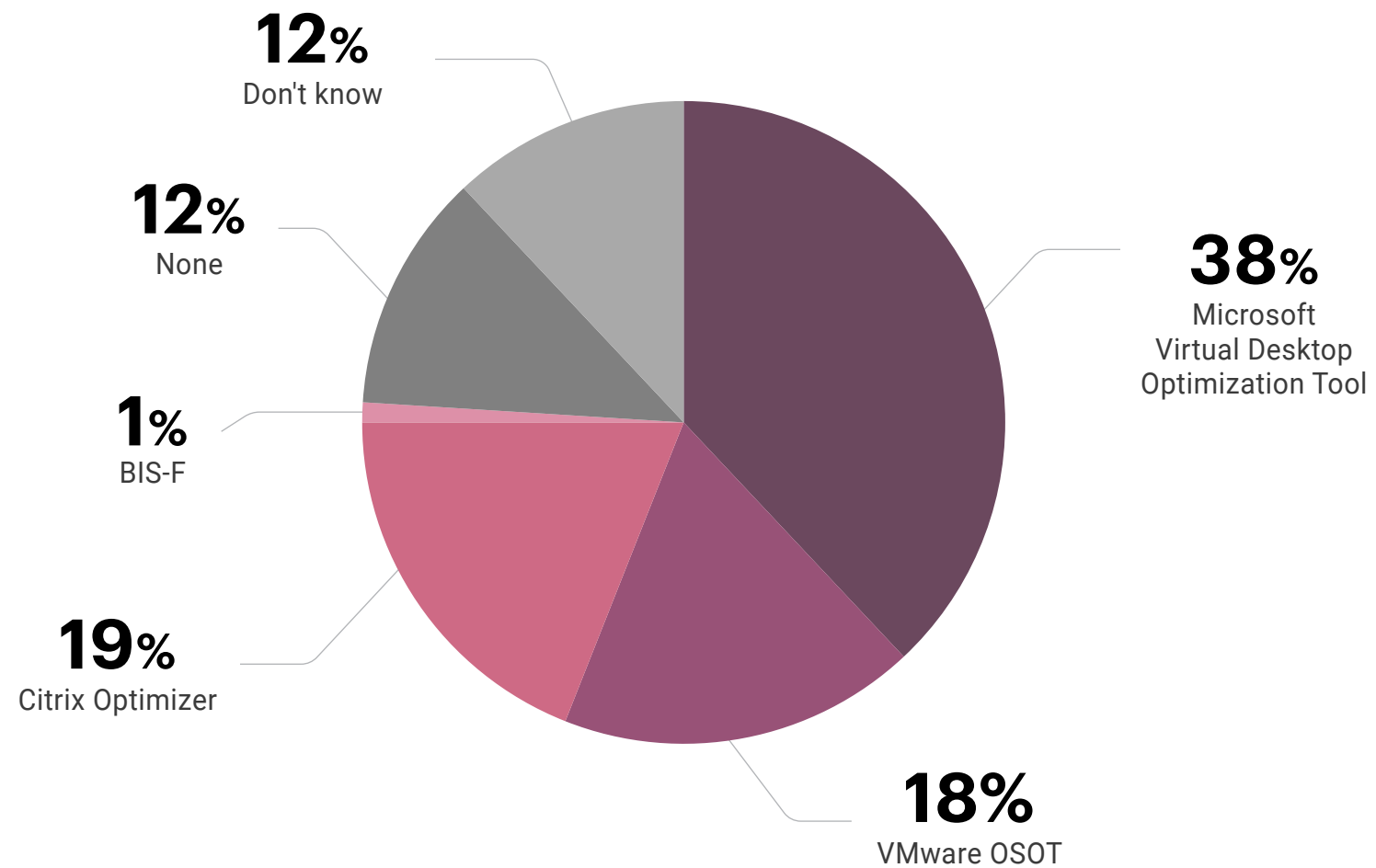
45% of deployments are based in a single region.

- Overall, these responses probably reflect the fact that AVD deployments are still on average relatively small and simple.
- Multiple subscriptions are often used in large enterprise deployments to overcome Azure API limits.
- Low adoption of HA / Backup indicate many are happy to lower costs for simplicity and rely on restoring from golden image with data protected in Office 365 or similar.

AVD Deployment Choices



What image optimization tool is preferred?



Whether you are building your AVD gold image via Image builder or configuring a virtual machine, optimizing the image and installing any pre-requisites will make the experience much better for the end users.

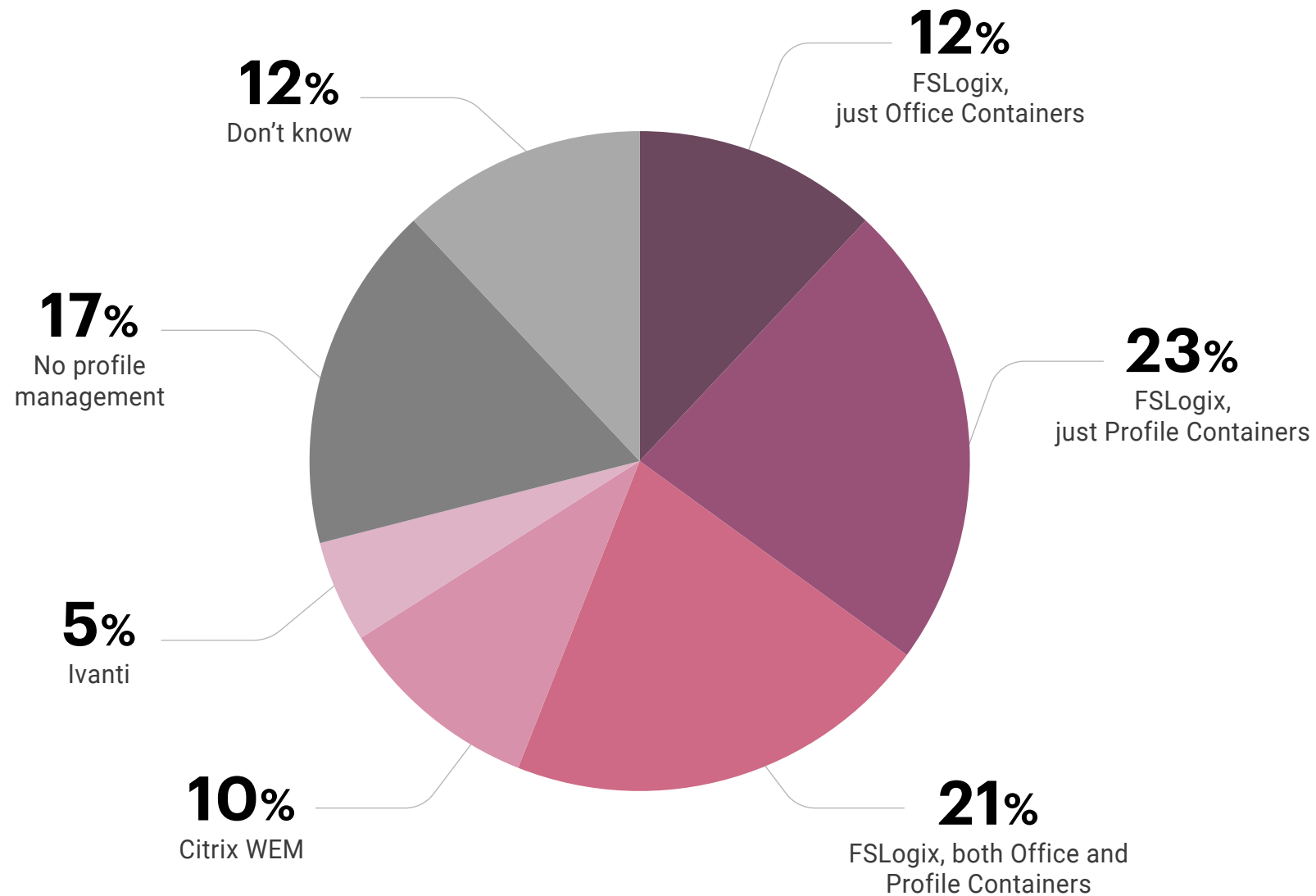
76% are aware of the benefits of adopting image optimization. This indicates a maturity of knowledge and a focus on user-experience.

Microsoft Virtual Desktop Optimization tool is the most popular, at 38%.

AVD Deployment Choices



What profile management tool is preferred?



Profile Container redirects the full user profile in non-persistent, virtual environments. The entire user profile, except for specifically excluded data, is included in the profile container. Office Container improves the performance of Microsoft Office in non-persistent environments. It redirects only the local user files for Microsoft Office.

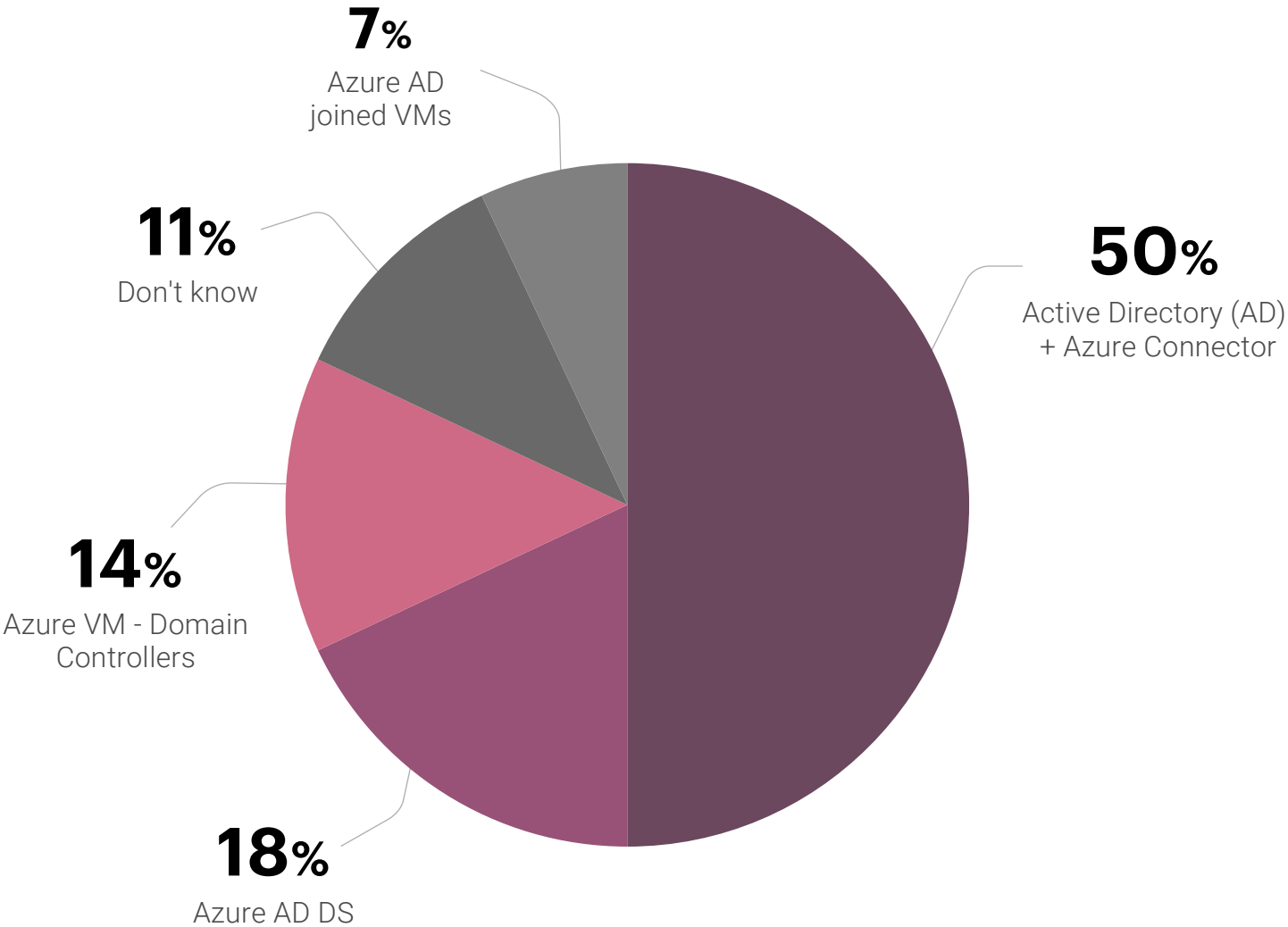
71% are aware and leveraging profile management. Again, indicates a maturity of the solution and focus on user-experience.

FSLogix is included with Azure subscriptions and is naturally becoming the dominant technology.

AVD Deployment Choices



What authentication method is used for AVD?



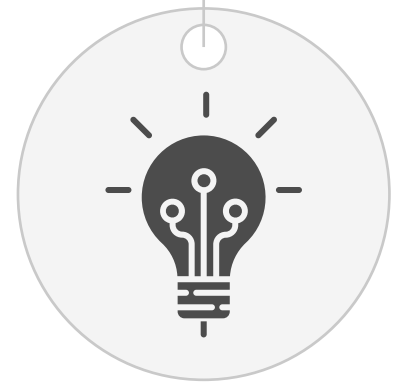
Azure Active Directory is an Identity and Access Management cloud solution that extends your on-premises directories to the cloud and provides single sign-on to cloud (SaaS) apps and access to web apps you run on-premises.

An Azure AD DS managed domain lets you run legacy applications in the cloud that can't use modern authentication methods, or where you don't want directory lookups to always go back to an on-premises AD DS environment.

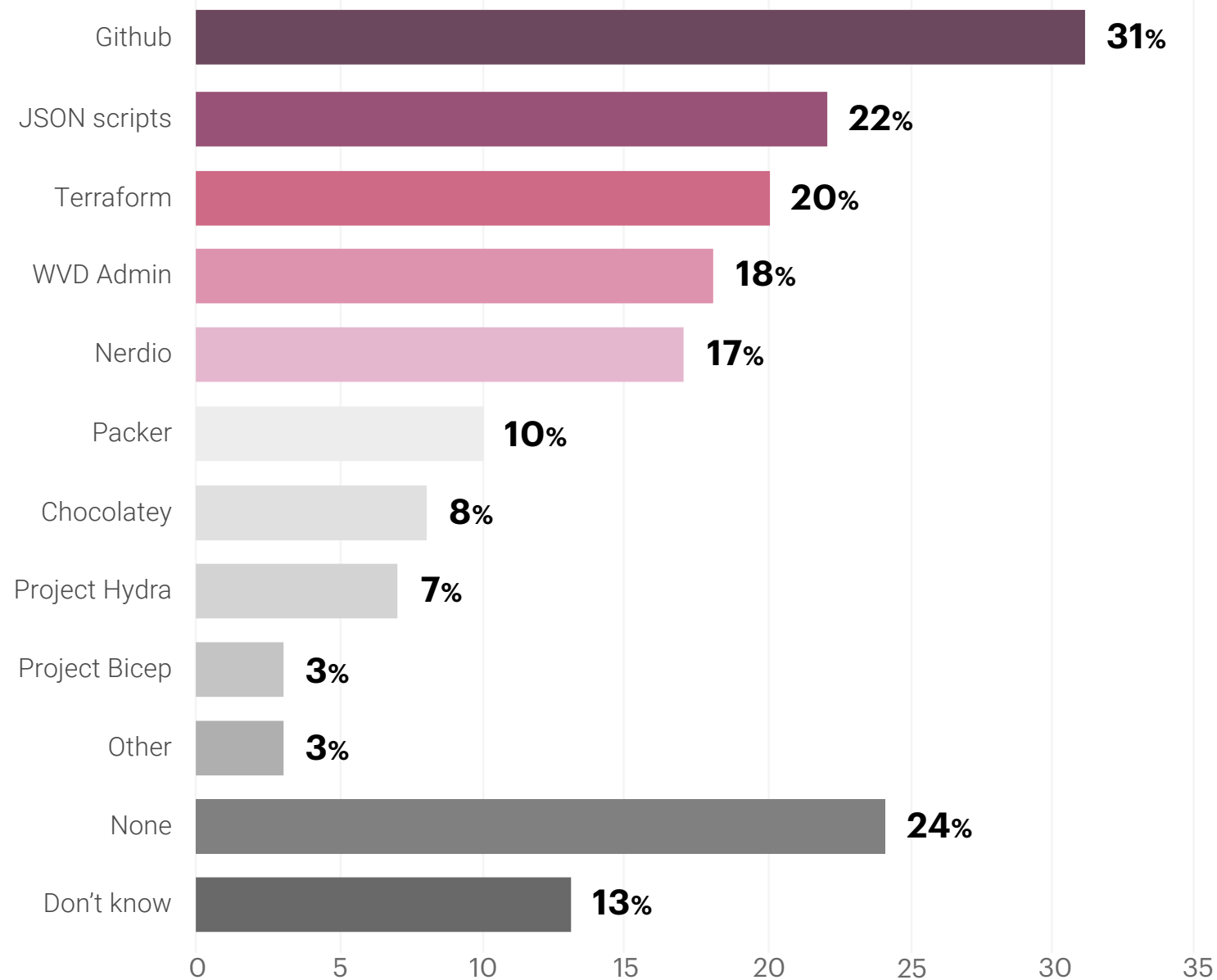
50% are using on-premises AD + Azure Connector. These are key components that must be monitored to optimize user logon times.

18% are using Azure AD DS for authentication.

Automation/IaC Technologies used for AVD



What automation technologies are used?



60%

of respondents are using some sort of automation/scripting or IaC capability. This reflects the general industry trend of adopting DevOps like workflows.

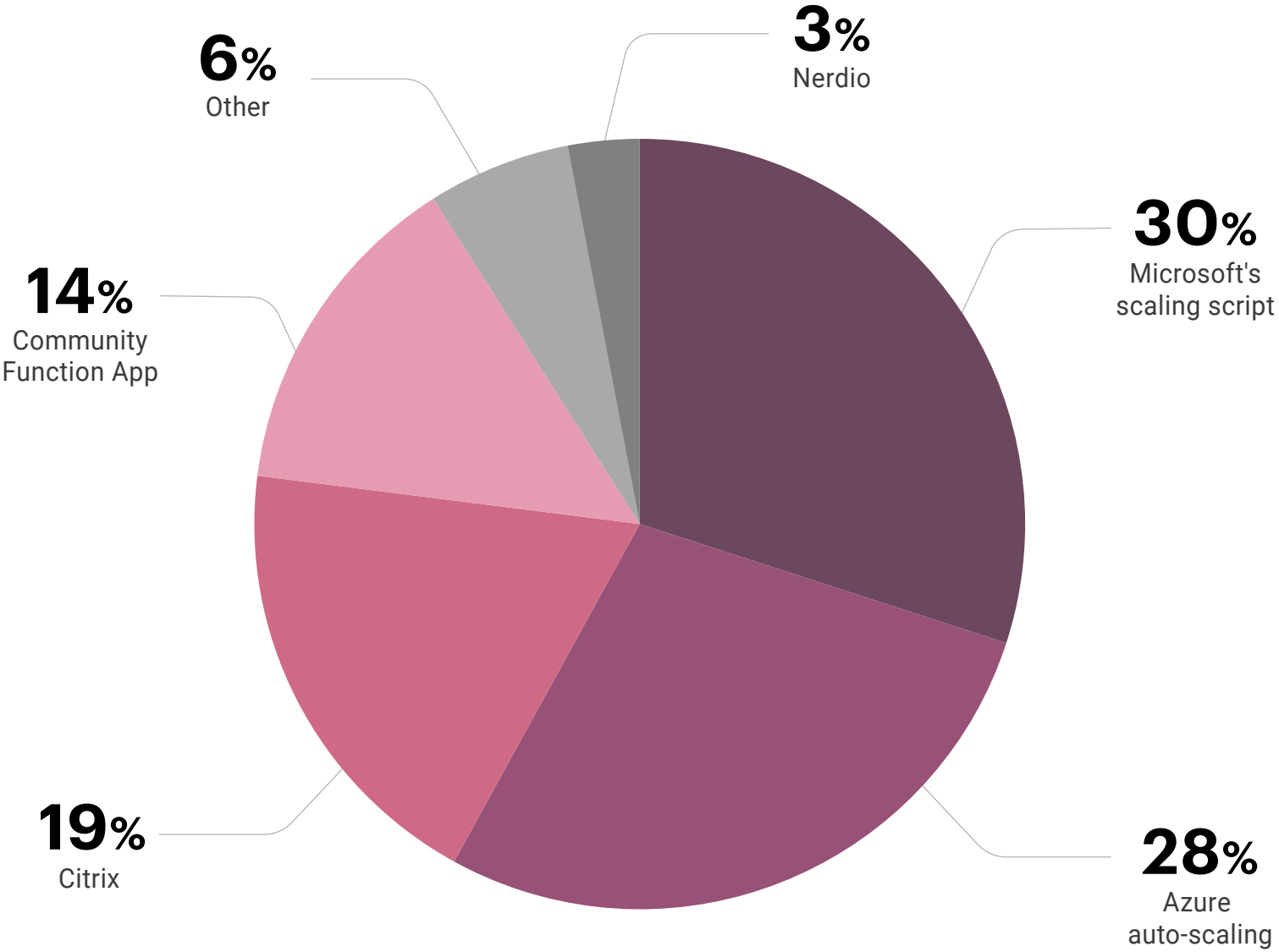
Uptake of generic technologies, transferable to other clouds such as Amazon AWS or hybrid infrastructures spanning on-premises and cloud is the highest, e.g., JSON, Terraform, Packer. In contrast, adoption of the Microsoft-specific Project BICEP is very low.

There is significant usage of turnkey solutions that remove the need for scripting and coding, e.g., Nerdio and WVD Admin.

Scaling AVD Workloads



What scaling technologies are used?



Auto-scaling is one of the big value-additions of cloud technologies.

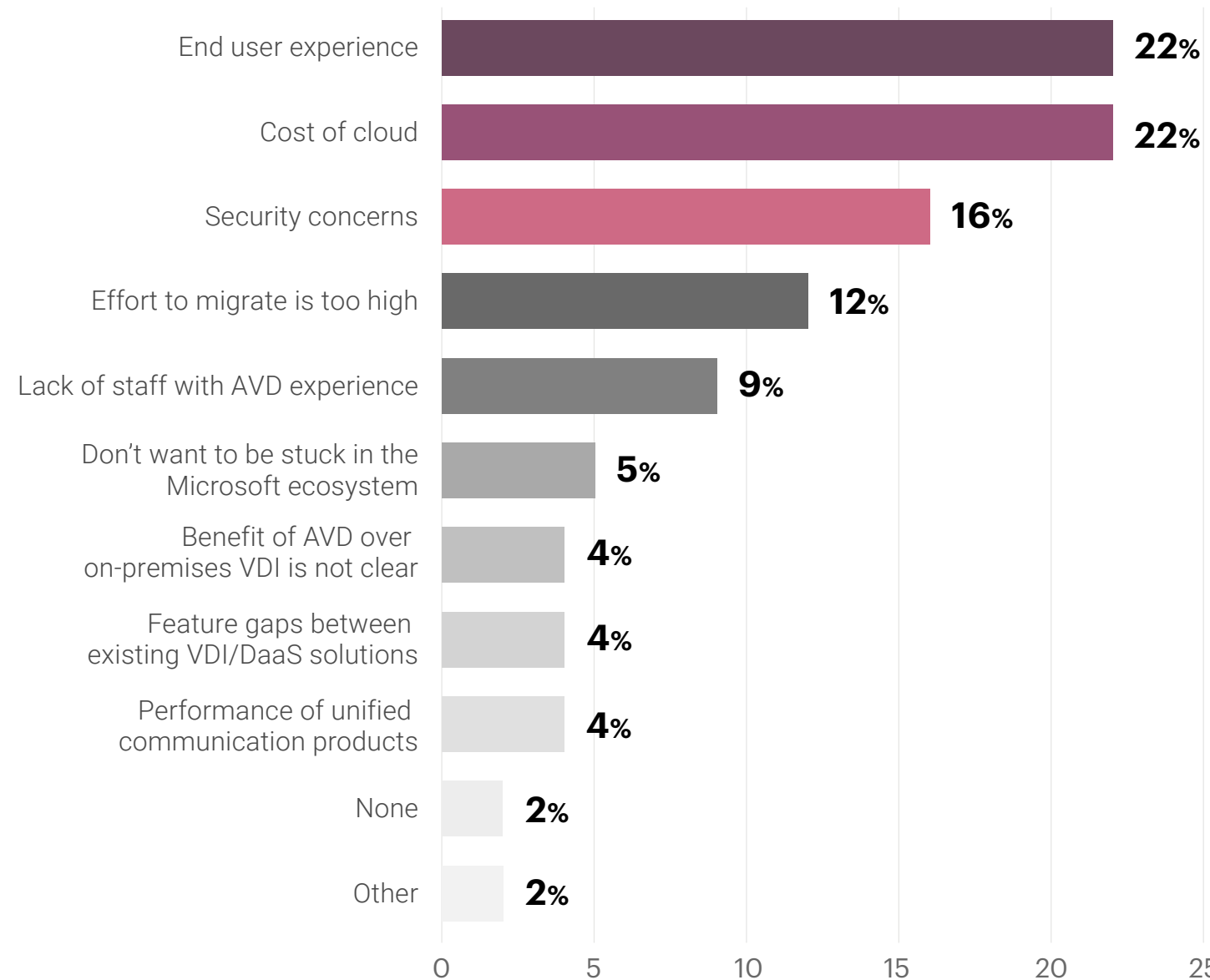
58% are using Microsoft's scaling techniques.

Monitoring tools for AVD should be able to handle auto-scaling technologies. Auto-discovery becomes important as session hosts are added and removed.

Biggest Pain Point when Deploying AVD



What is the biggest challenge in an AVD deployment?



End user experience and cloud costs are equal top concerns.

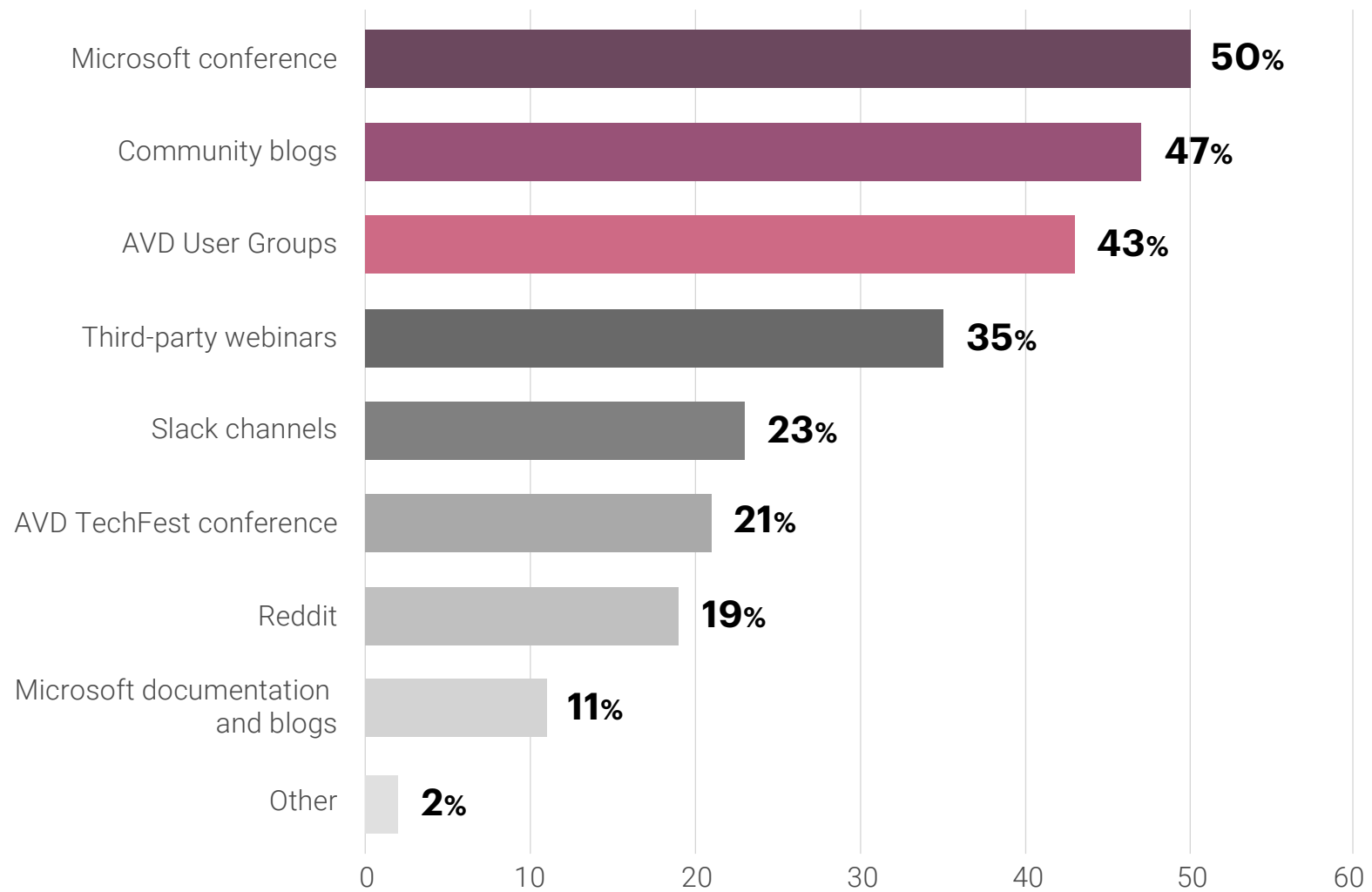
The percentage of users citing security concerns is relatively low. Customers broadly seem to have confidence in Microsoft Azure.

Feature gaps between VDI/DaaS are surprisingly not a significant concern.

Getting Information on AVD Updates



Where do users go for updates on AVD?

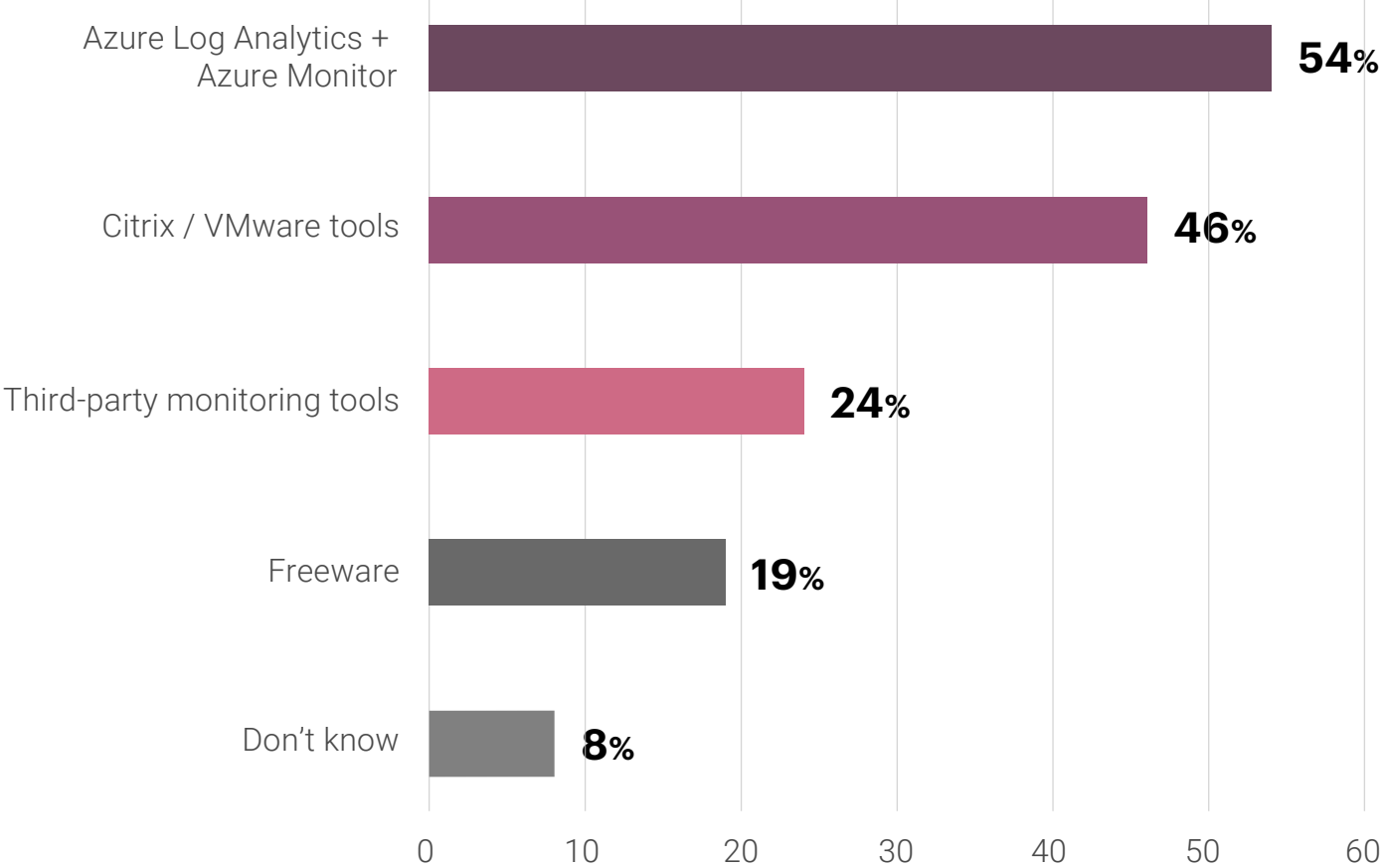


- There is a growing ecosystem and community around AVD.
- Microsoft conferences, community blogs and AVD user groups are the best sources of new AVD updates.

Monitoring AVD



What tools are used for monitoring AVD?



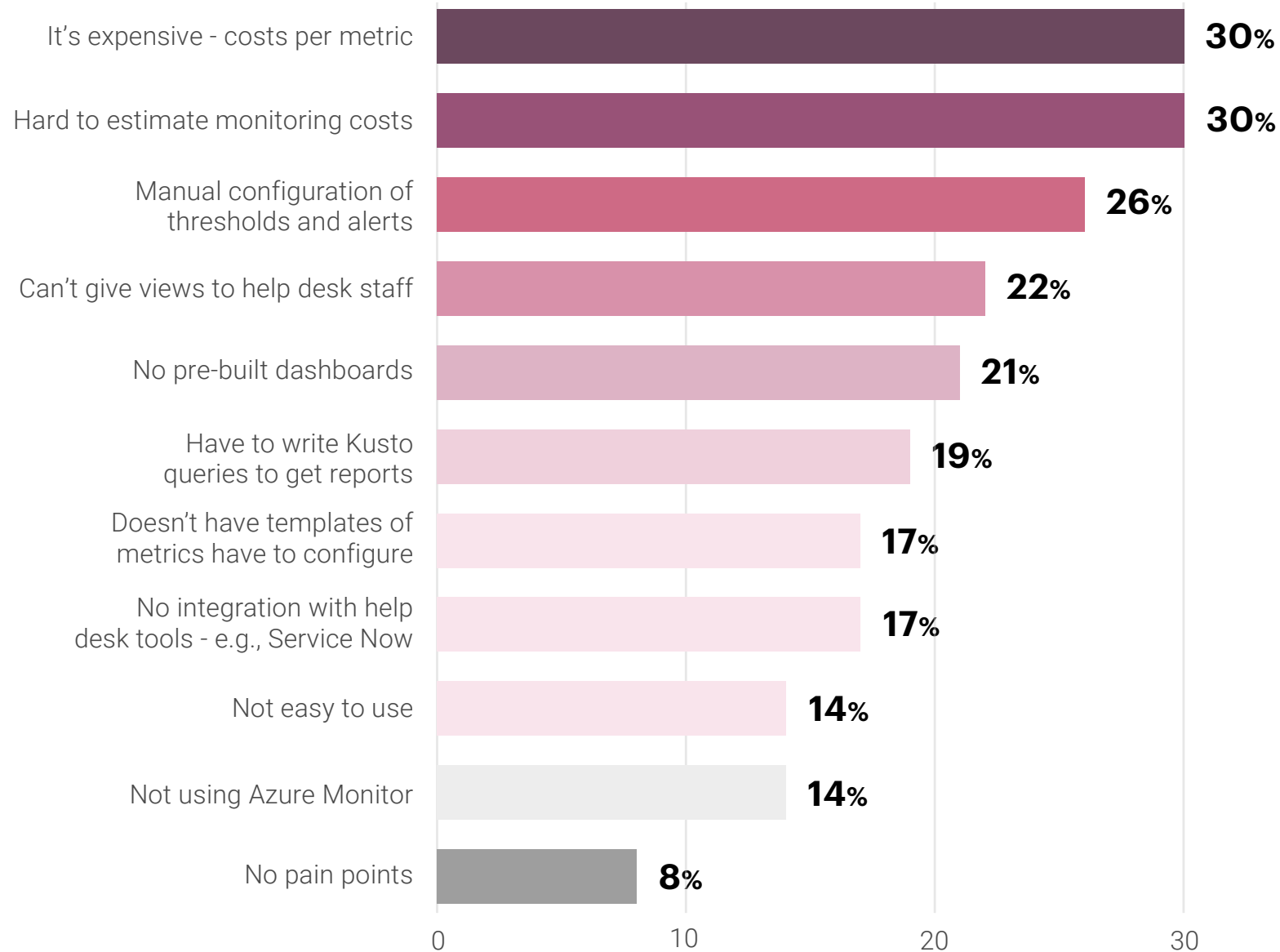
54% More than half the respondents are reliant on native Azure tools.

When Citrix/VMware desktops are deployed, users are relying on Citrix / VMware tooling because Azure tools do not monitor these technologies.

Challenges with Azure Monitor for Monitoring AVD



What are the main challenges with Azure Monitor?



Cost concerns both the expense (30%) but also the uncertainty (30%) as to what those costs will be are the top concerns.

Manual configuration and the lack of out-of-the-box features are significant issues.

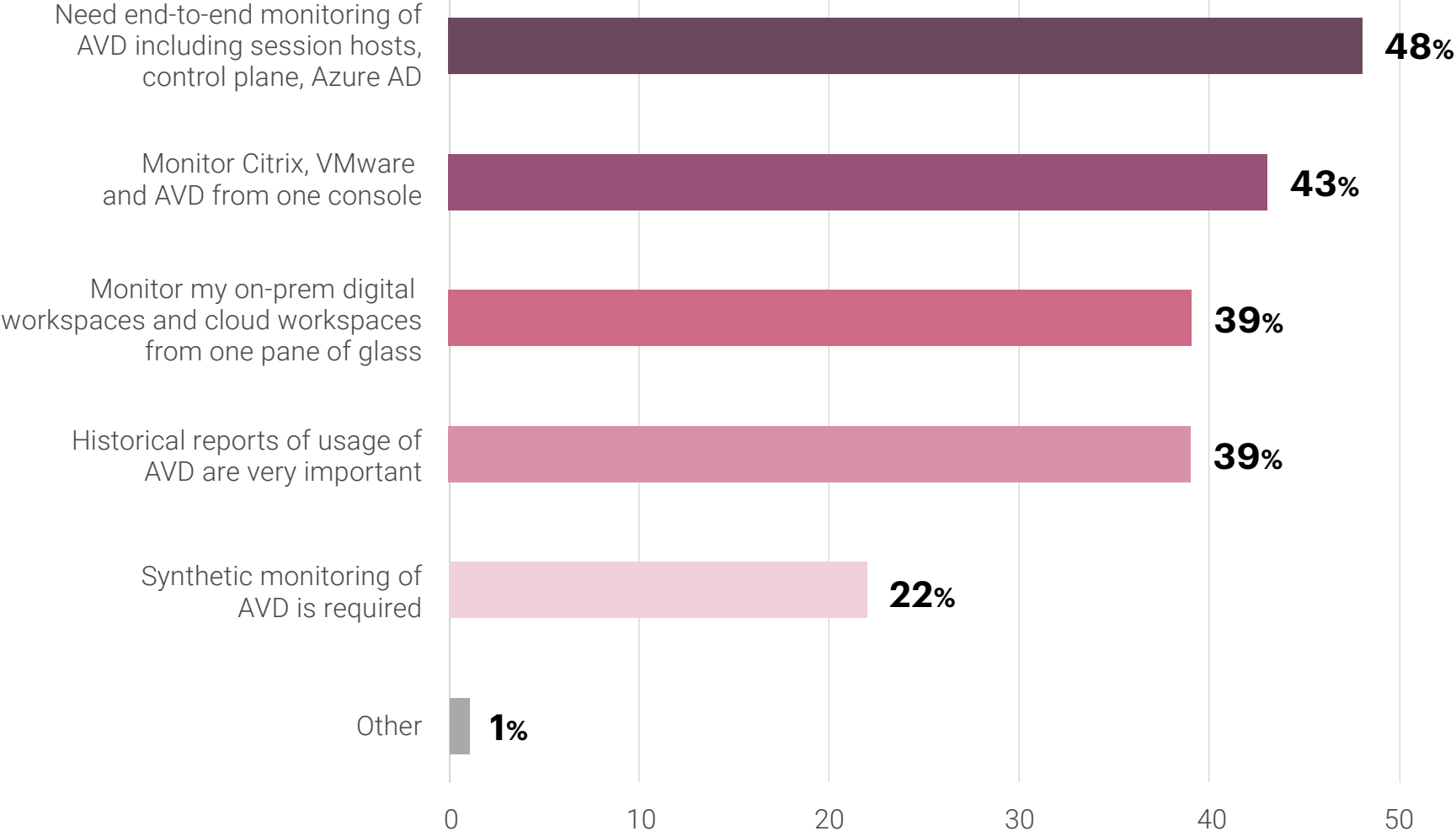
Limitations around dashboard visualizations, reports and ITSM ticketing integrations are common pain points.

8% Of those using Azure Monitor, only 8% have no pain points.

AVD Monitoring Needs



What are the key needs for AVD monitoring?



An end-to-end monitoring solution is the top requirement. Monitoring of the session hosts is not enough. Azure AD and the control plane have to be monitored as well.

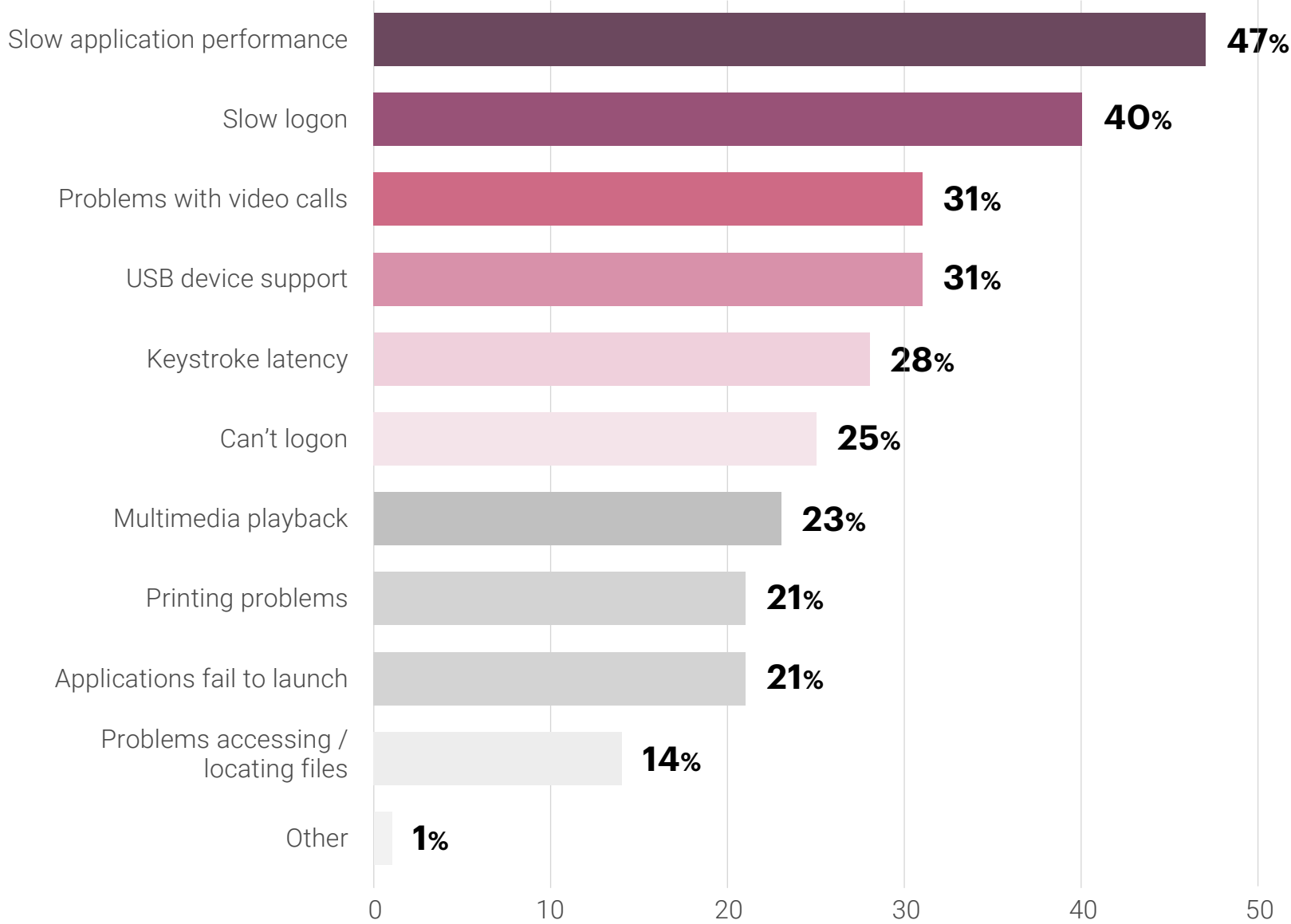
A monitoring solution that supports all the digital workspace technologies in use is a common need.

39% see a need to monitor on-prem and digital workspaces from a single pane of glass.

AVD Monitoring Issues



What are the common AVD performance complaints?



47% are struggling with “my application is slow” complaints.

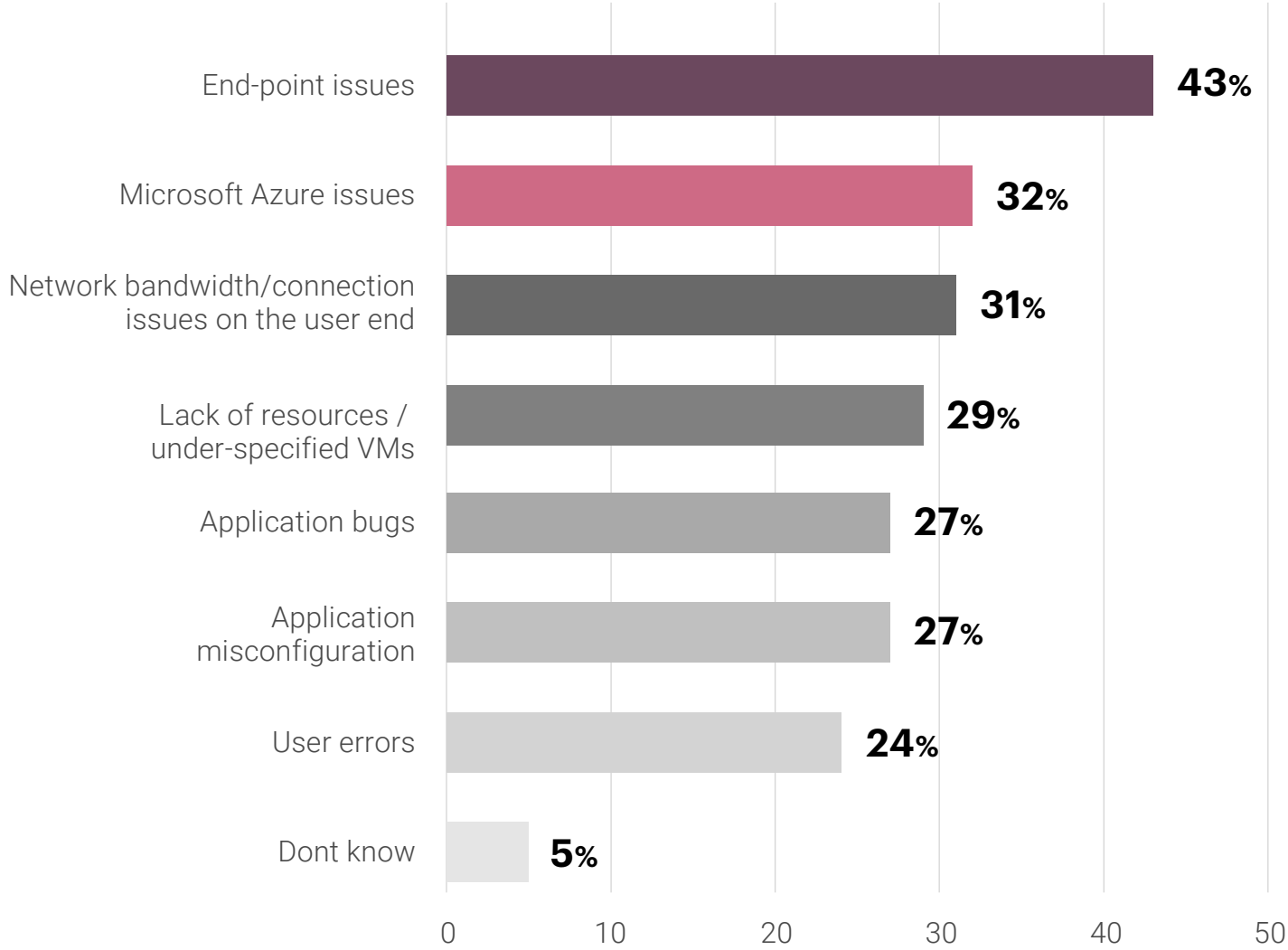
Slow logons and issues with video calls are the next two issues impacting user productivity.

Latency, logon, multimedia playback and other issues maybe caused by infrastructure tiers, not the digital workspace itself. End-to-end monitoring covering the entire service delivery chain is therefore very important.

AVD Monitoring Issues



Where do AVD problems originate from?



43% Issues at the users end are common reasons for AVD problems.

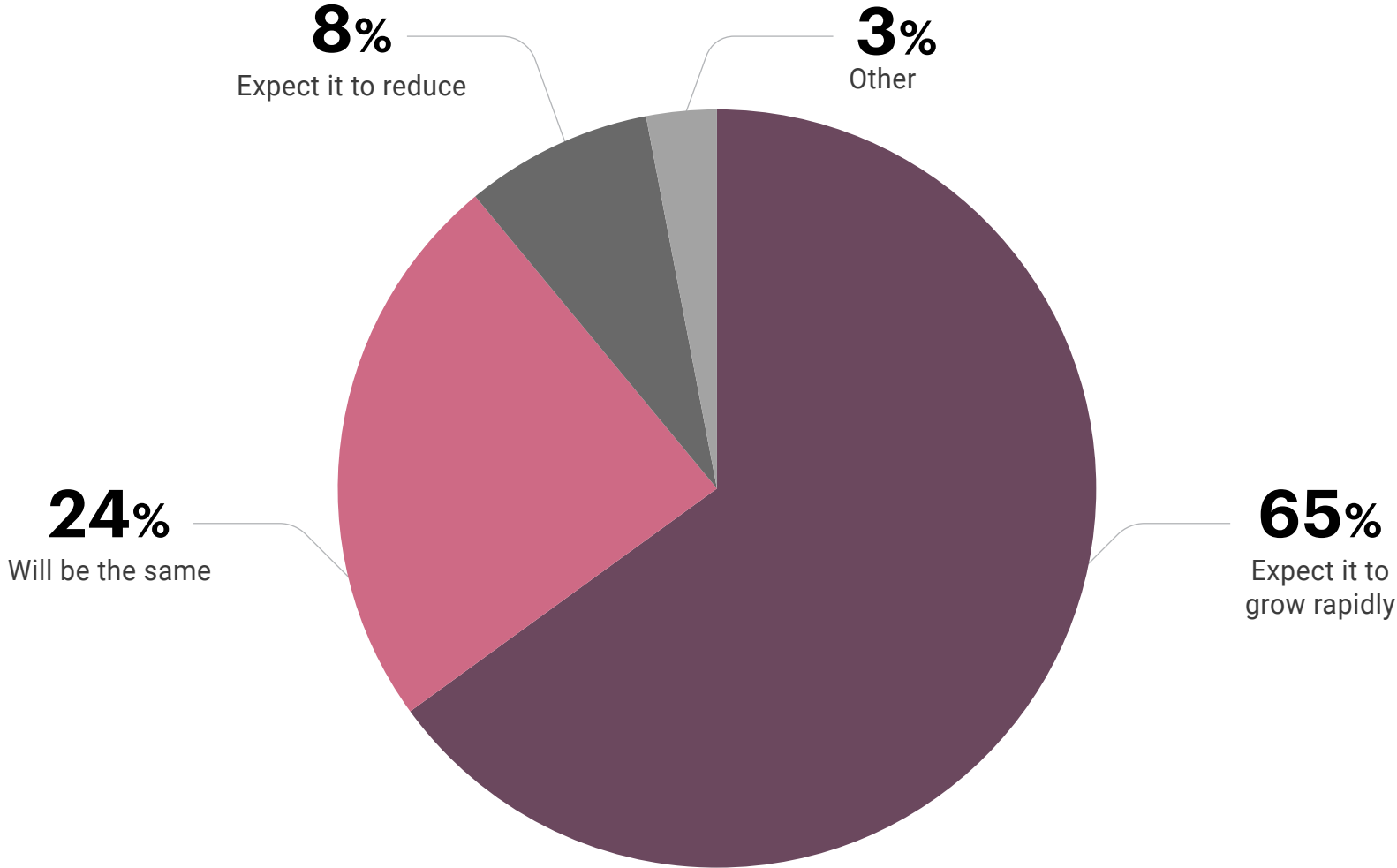
Nearly a third of respondents feel that issues in Microsoft Azure itself cause AVD problems. This highlights the challenge in relying solely on monitoring capabilities within Azure itself.

The majority of these issues remain the responsibility of the respondent's organization and are not covered by Microsoft SLAs and are external to Azure.

AVD Adoption Trend



How fast will AVD adoption grow?



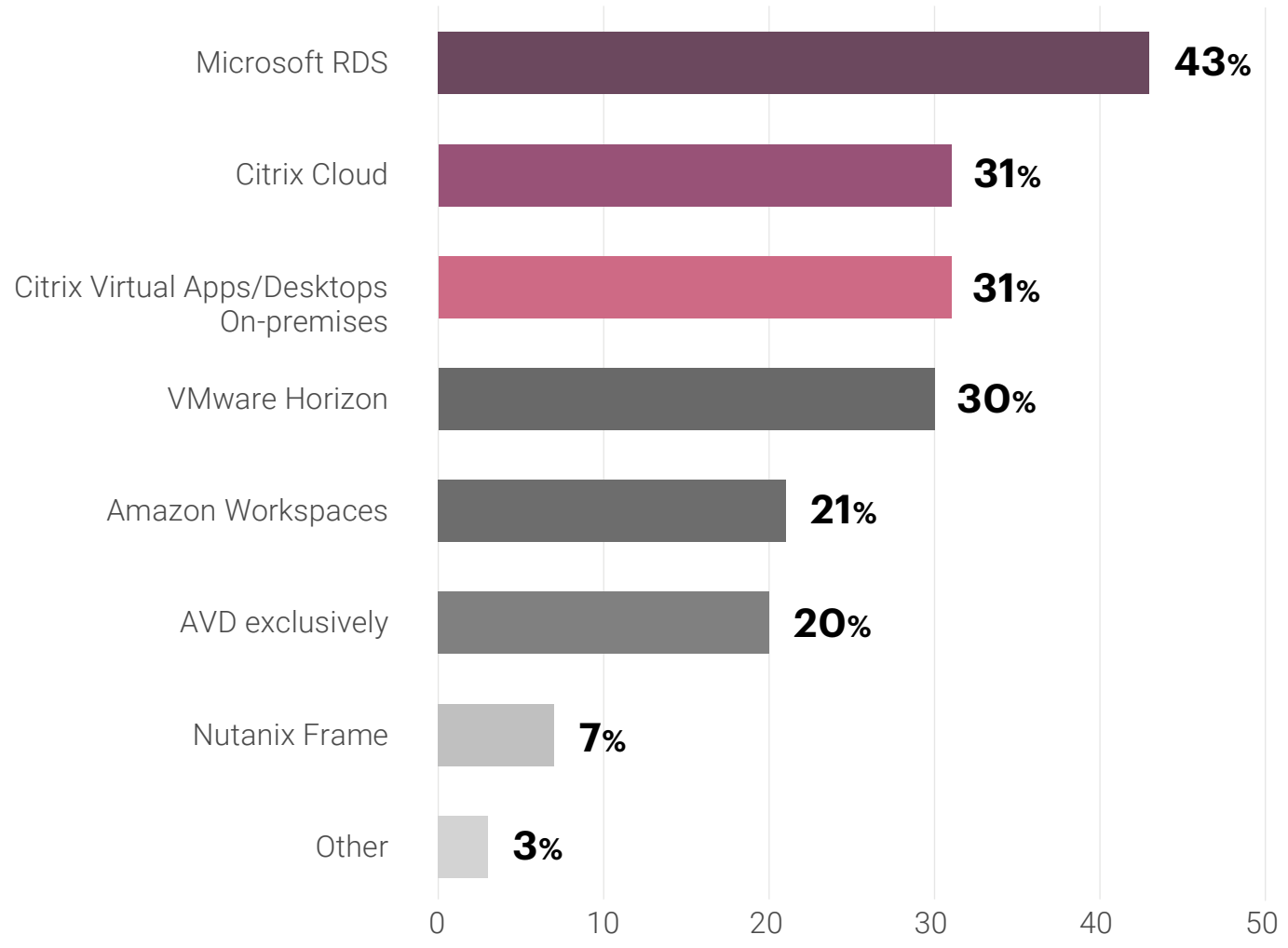
65% The majority of users expect to grow their AVD deployments rapidly in the future.

21% expect AVD to become their primary digital workspace technology in 12-24 months.

AVD Adoption Trend



What other digital workspaces are in use?



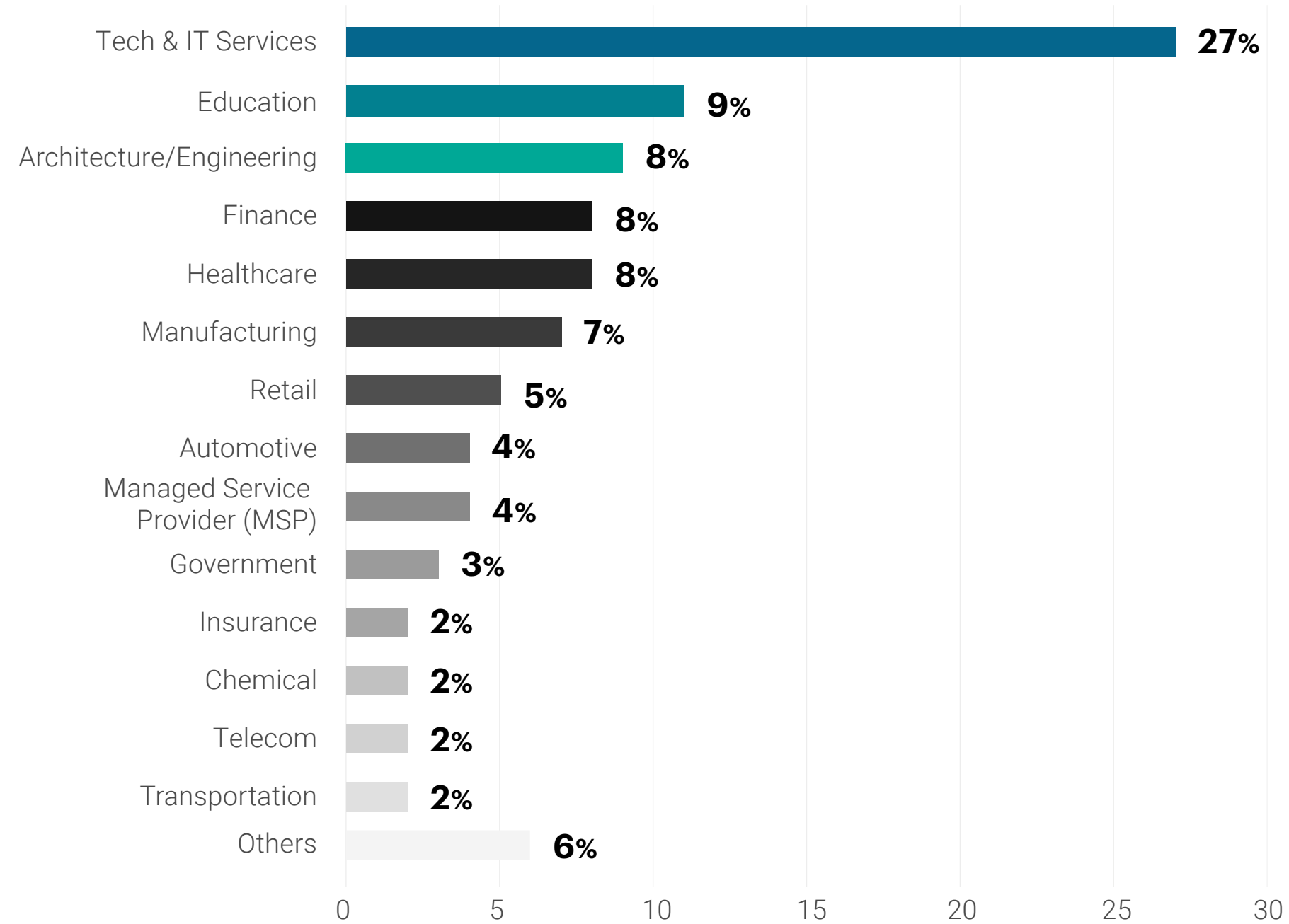
80% of respondents do not see AVD as being their only digital workspace technology. AVD will probably be deployed to complement other (existing) digital workspace technologies.

Interestingly, CVAD and Citrix Cloud seem to have similar adoption numbers, pointing to an increasing use of Citrix in the cloud, probably driven by their licensing.

Demographics of Survey Respondents

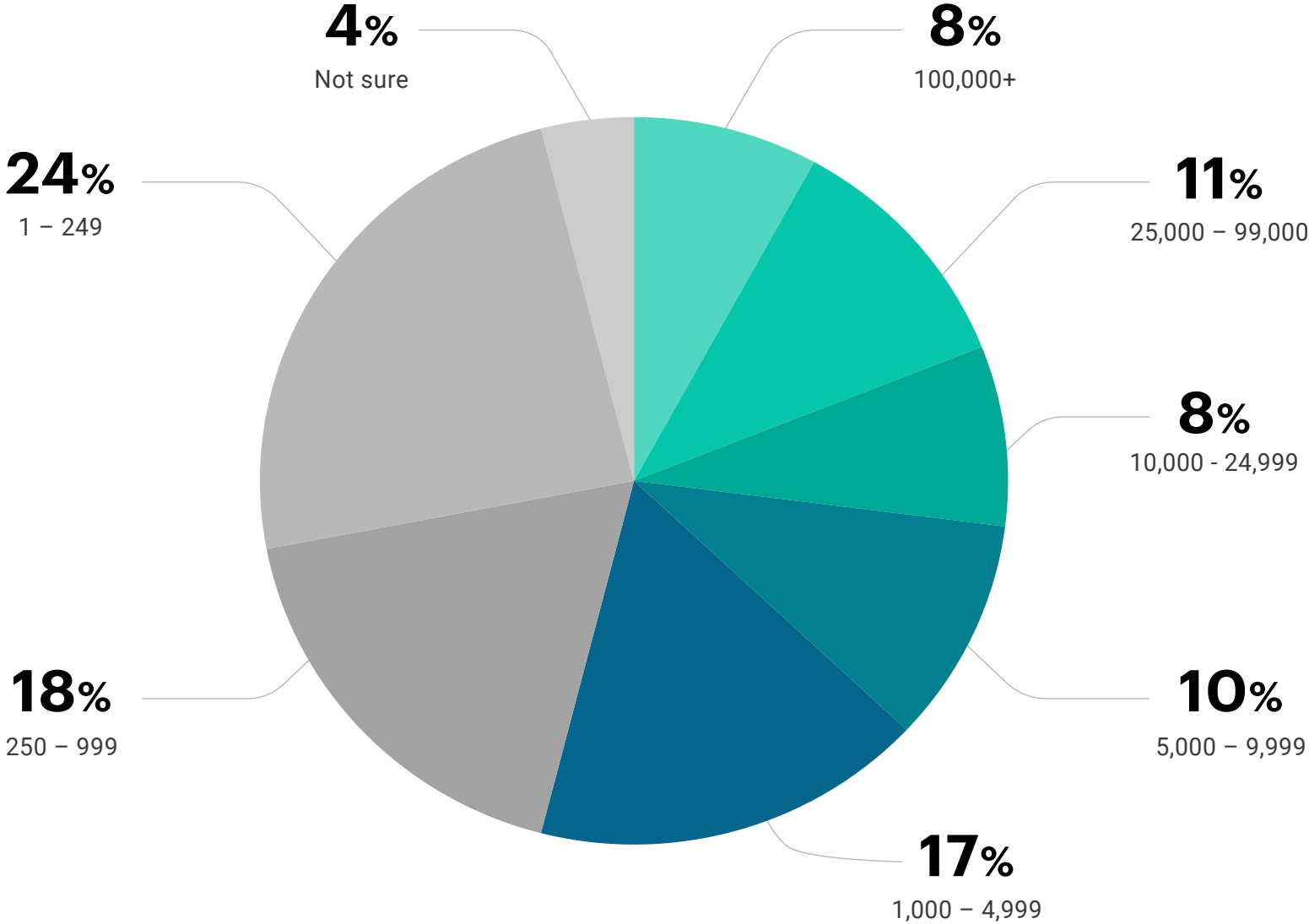


Verticals Represented by Respondents



Number of Employees Using Digital Workspaces in Respondents' Organizations

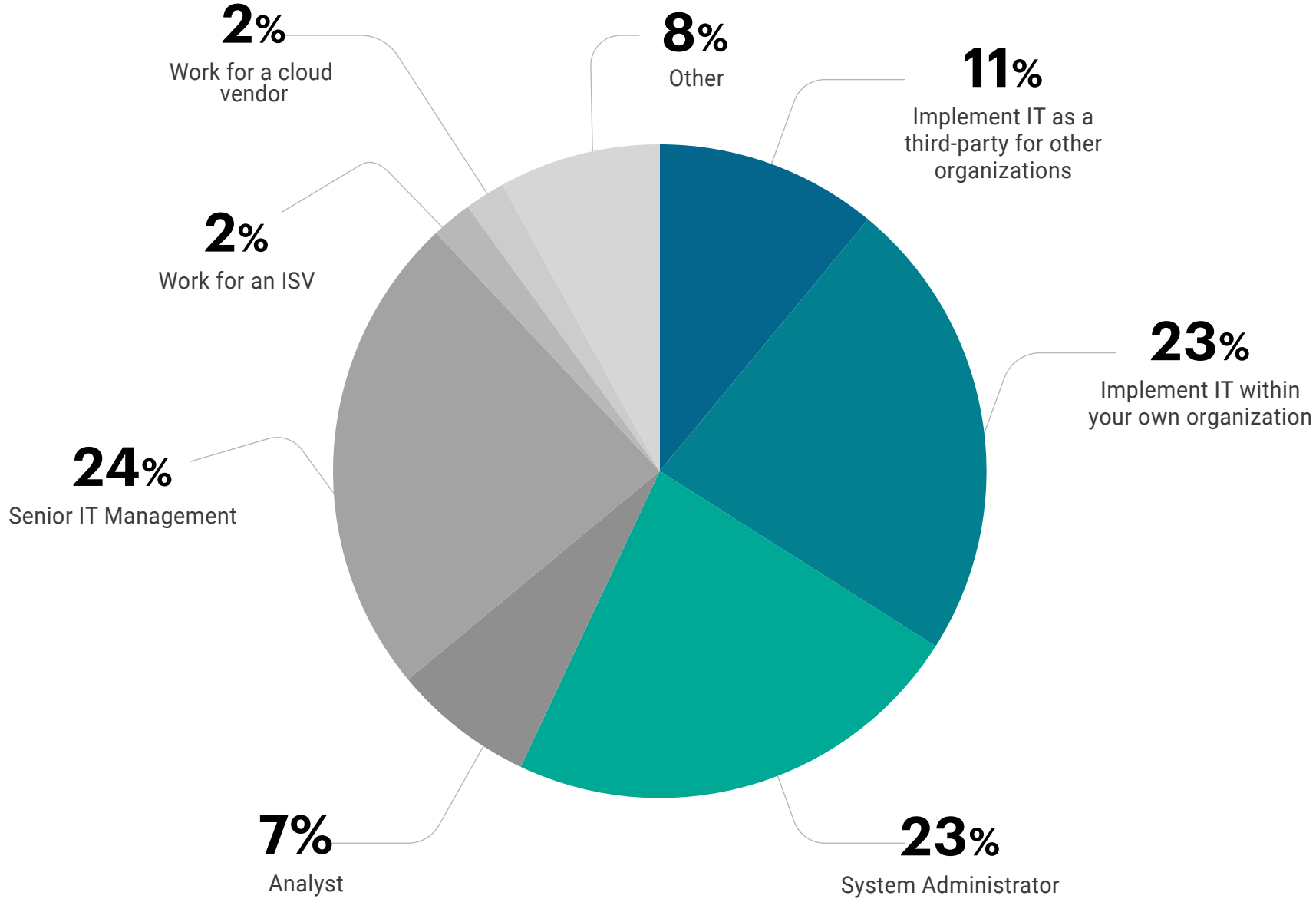
54% of organizations have over 1000 users using digital workspaces.



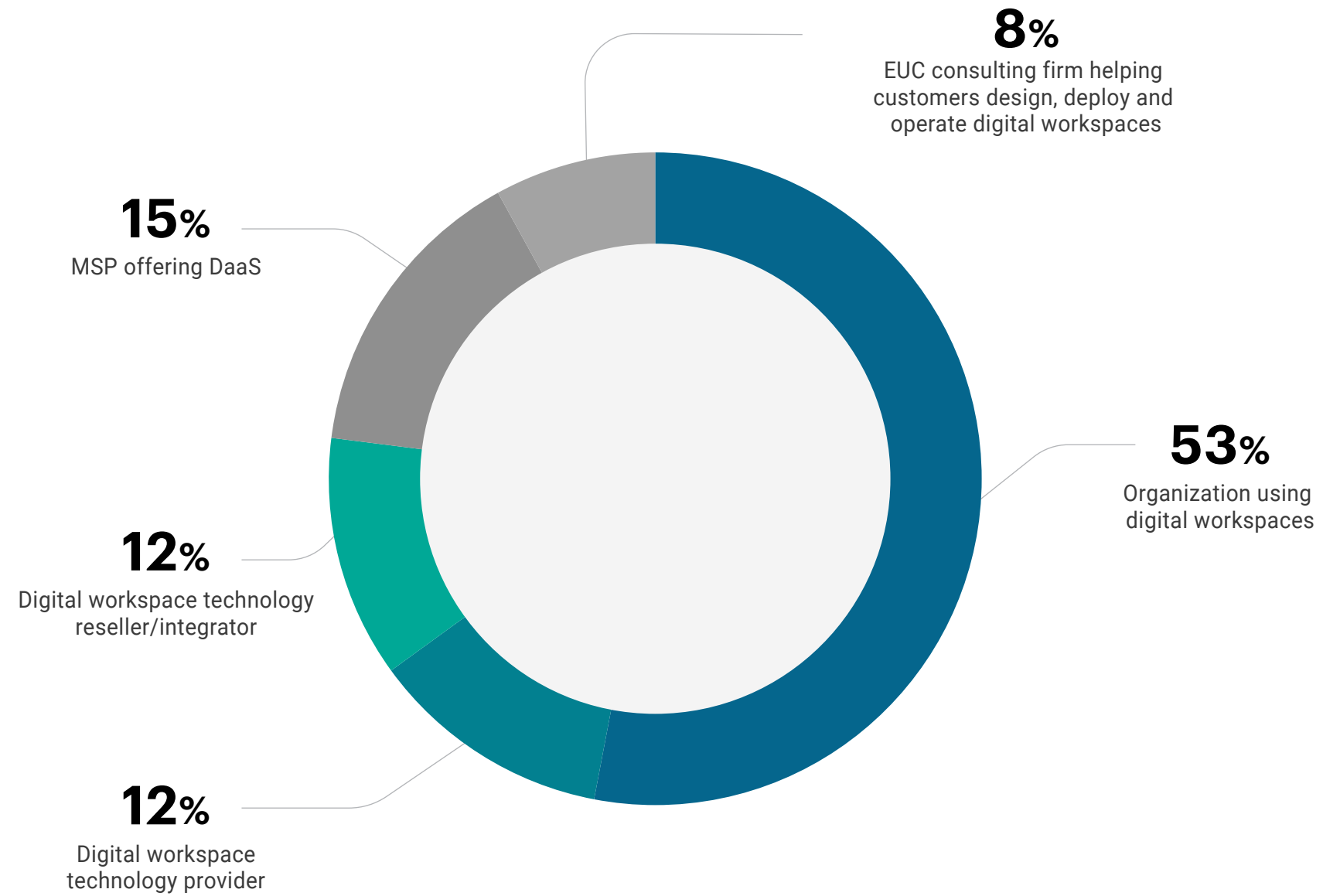
*Distribution by users

Role of Respondents

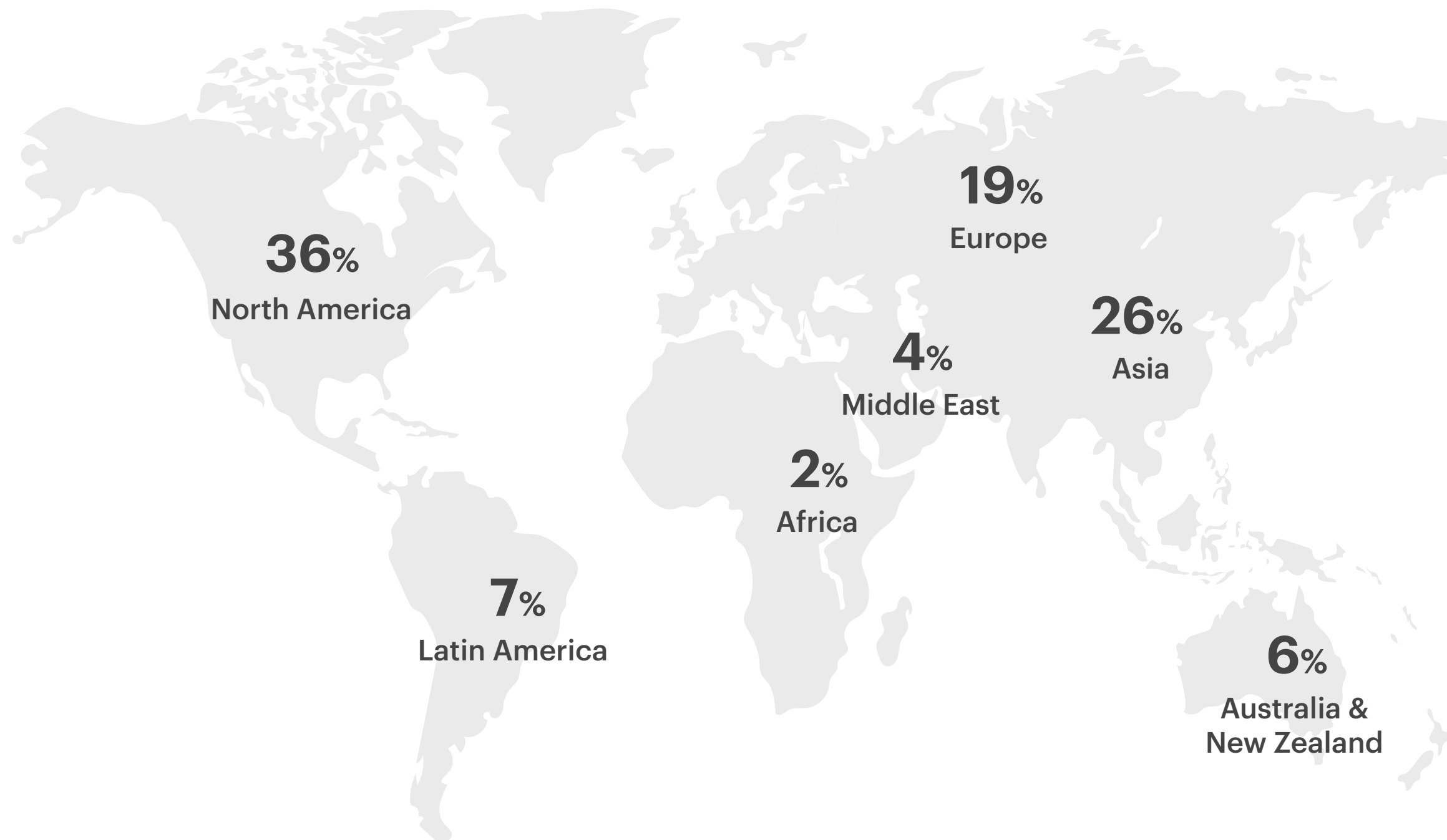
57% of respondents are deploying, administering and managing digital workspace technologies.



Respondent Organization's Connections with Digital Workspaces



Region-wise Distribution of Respondents



About Us

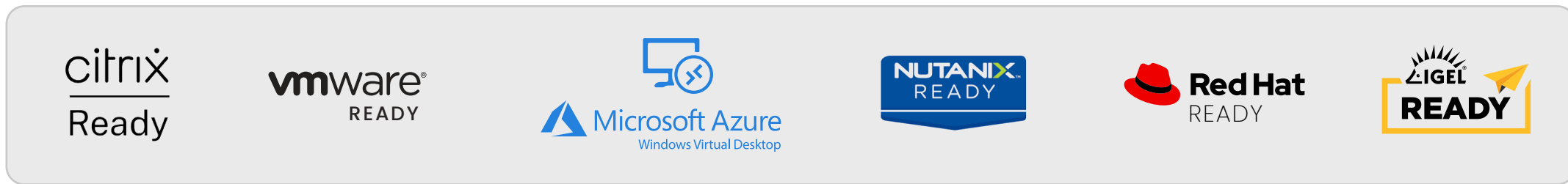


eG Innovations' Digital Workspace Monitoring solutions help ensure high-performing applications and desktops and stellar user experience across physical, virtual, and cloud infrastructures.

eG Enterprise makes user experience a center piece of its monitoring strategy. A combination of real user and synthetic monitoring provides 360° visibility into digital user experience.

- 01 Measure All Aspects of AVD User Experience Synthetic and Real User Experience
- 02 Monitor Every Layer, Every Tier AVD and Supporting Infrastructure
- 03 Pinpoint Root Cause of Problems End-to-End Performance Correlation
- 04 Right-size & Optimize for Max Performance Reports, Analytics, Machine Learning

With eG Enterprise, you can monitor any digital workspace from one console:



www.eginnovations.com



AVD TechFest is an organization that brings industry experts, vendors, and community speakers together to learn and exchange best practices around Windows Virtual Desktop technologies.

www.avdtechfest.com

Thank You!!!



A big thanks to all the 500+ IT pros who responded to our survey!

Your inputs have helped us compile this informative report.
Hope these industry insights were useful to you. Please do share this report with your
colleagues and friends.



For more information on Azure Virtual Desktop Monitoring:
Visit www.eginnovations.com | Contact info@eginnovations.com