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Cloud Detection and Response: Market Growth as an Enterprise Requirement

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Research Objectives

Increasingly dynamic cloud environments are presenting visibility challenges for security. Indeed, the majority of organizations claim that lack of access to physical networks, the dynamic nature of cloud-native applications, and elastic cloud infrastructure create blind spots, making security monitoring challenging. SOC teams need to address this cloud visibility gap by collecting, processing, monitoring, and acting upon information from an assortment of cloud security telemetry sources.

Additionally, nearly all organizations experienced a cloud security incident in the last year, resulting in application downtime, unauthorized access, data loss, and compliance fines. Thus, cloud security limitations can impact the business. Understanding this risk, executives and corporate boards are demanding measurable progress. Given the rise of digital transformation applications and cloud-native software development, CISOs must align threat detection and response spending with an increasing array of cloud-based business-critical workloads.

To gain further insight into these trends, TechTarget's Enterprise Strategy Group (ESG) surveyed 393 IT and cybersecurity professionals at organizations in North America (US and Canada) responsible for evaluating or purchasing cloud security technology products and services.

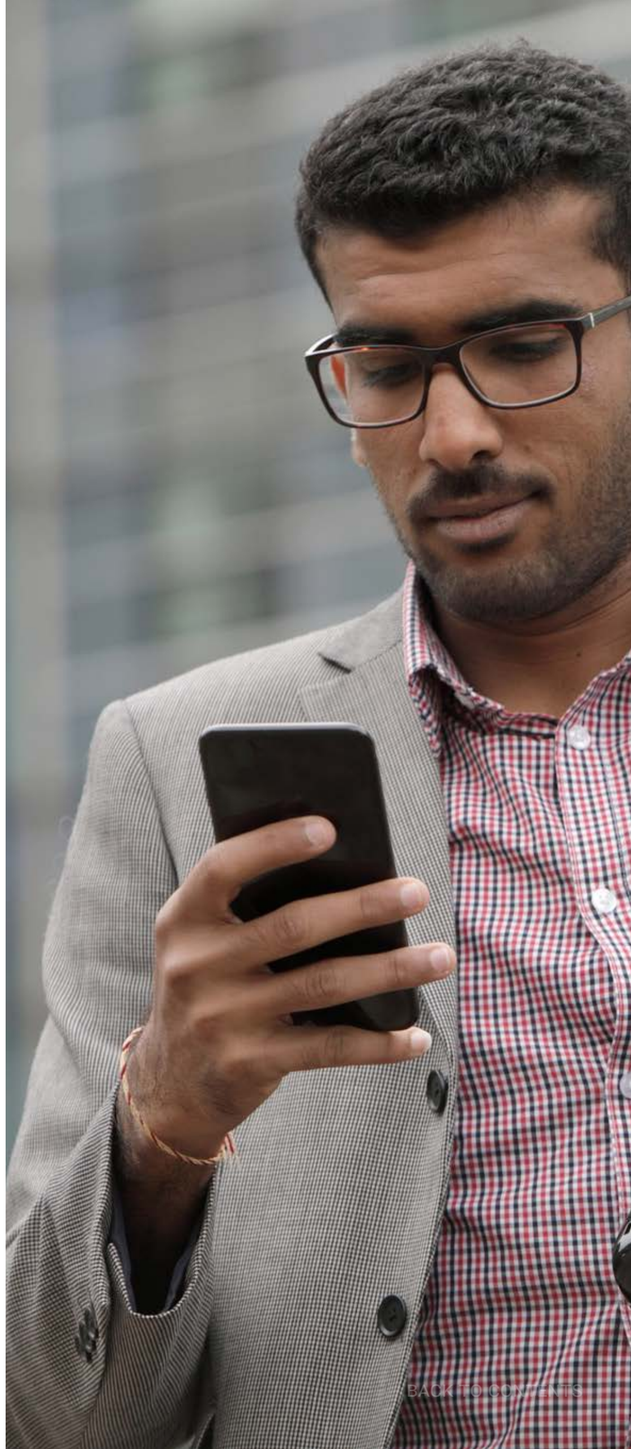
This study sought to:

Determine the challenges security teams face resulting from threats to cloud workloads, identities, and application development processes.

Assess the state of cloud detection and response (CDR) skills, processes, and technologies.

Establish how CDR tools are used today and where they fit into the broader security plans, strategies, and established security operations technologies.

Understand why security teams are prioritizing CDR and the benefits they are seeing from these tools and services.



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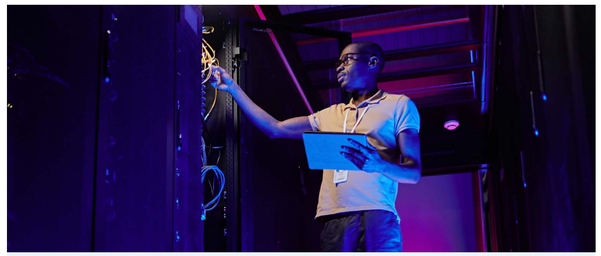

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Production Workloads Are Migrating to Multiple CSPs at an Accelerating Pace

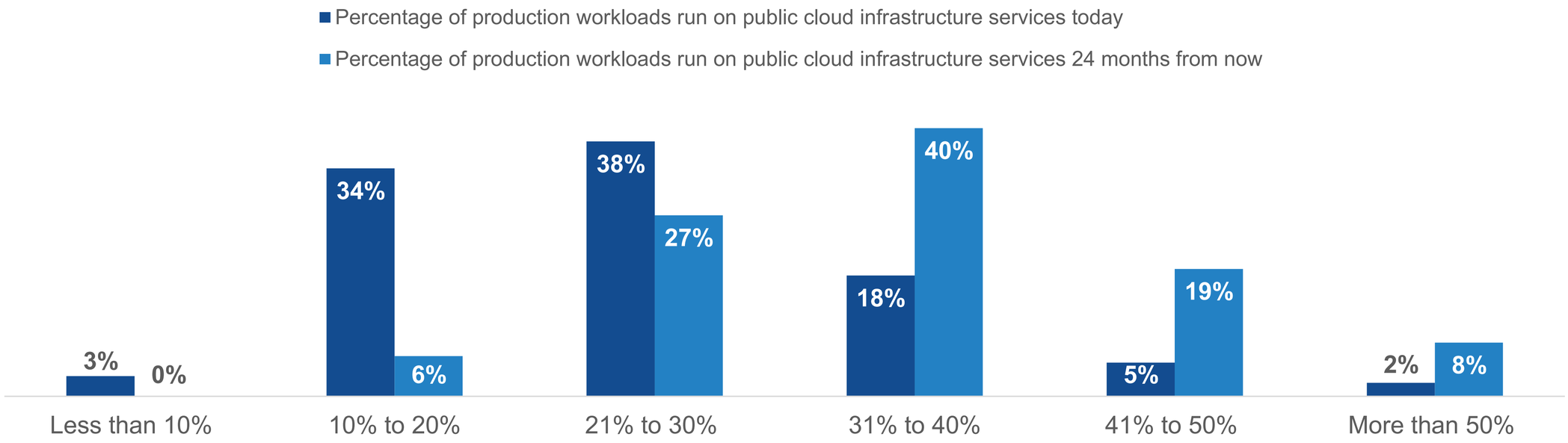
Production Workloads Moving to the Cloud

A majority (83%) of organizations have “lifted and shifted” applications to the public cloud. Today, one-quarter of organizations run more than 30% of their production workloads on public cloud infrastructure, but this is expected to increase dramatically over the next two years. Specifically, by 2025, nearly six in ten anticipate that more than 30% of their production workloads will run on public cloud infrastructure. To prepare for this shift, security teams will need CDR solutions that support scale and process automation.

83%

have lifted and shifted existing production applications and server workloads to run on cloud infrastructure and/or platform services.

Percentage of production applications that are cloud-hosted.



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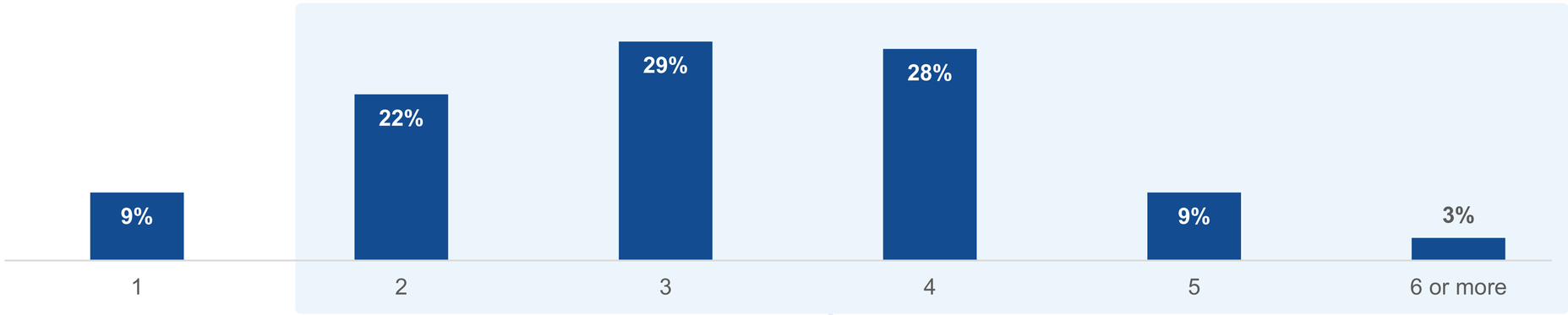
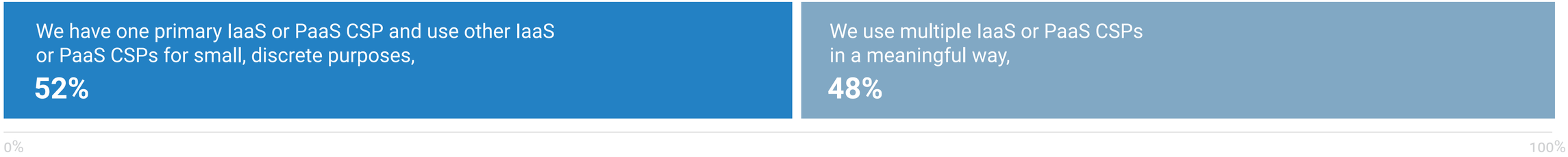
Drivers of Multi-cloud Strategies

Many (69%) organizations utilize at least 3 different cloud service providers. More than half (52%) of organizations claim to have a primary CSP, while 48% use multiple CSPs in a meaningful way. Firms choose different CSPs for business units or applications using CSP products or product suites, based on software developer skills and relationships, or based on the existing relationships of business units or acquired companies. Using multiple CSPs poses several challenges for cybersecurity. Security teams must be well versed in each CSP's technology, with a strong understanding of services, security tooling, log sources, and hosted applications. Additionally, they must understand the interrelationships between CSPs, while maintaining visibility across all public clouds to manage risk and detect/respond to threats.

Number of unique CSPs in use.



How multiple CSPs are being used.



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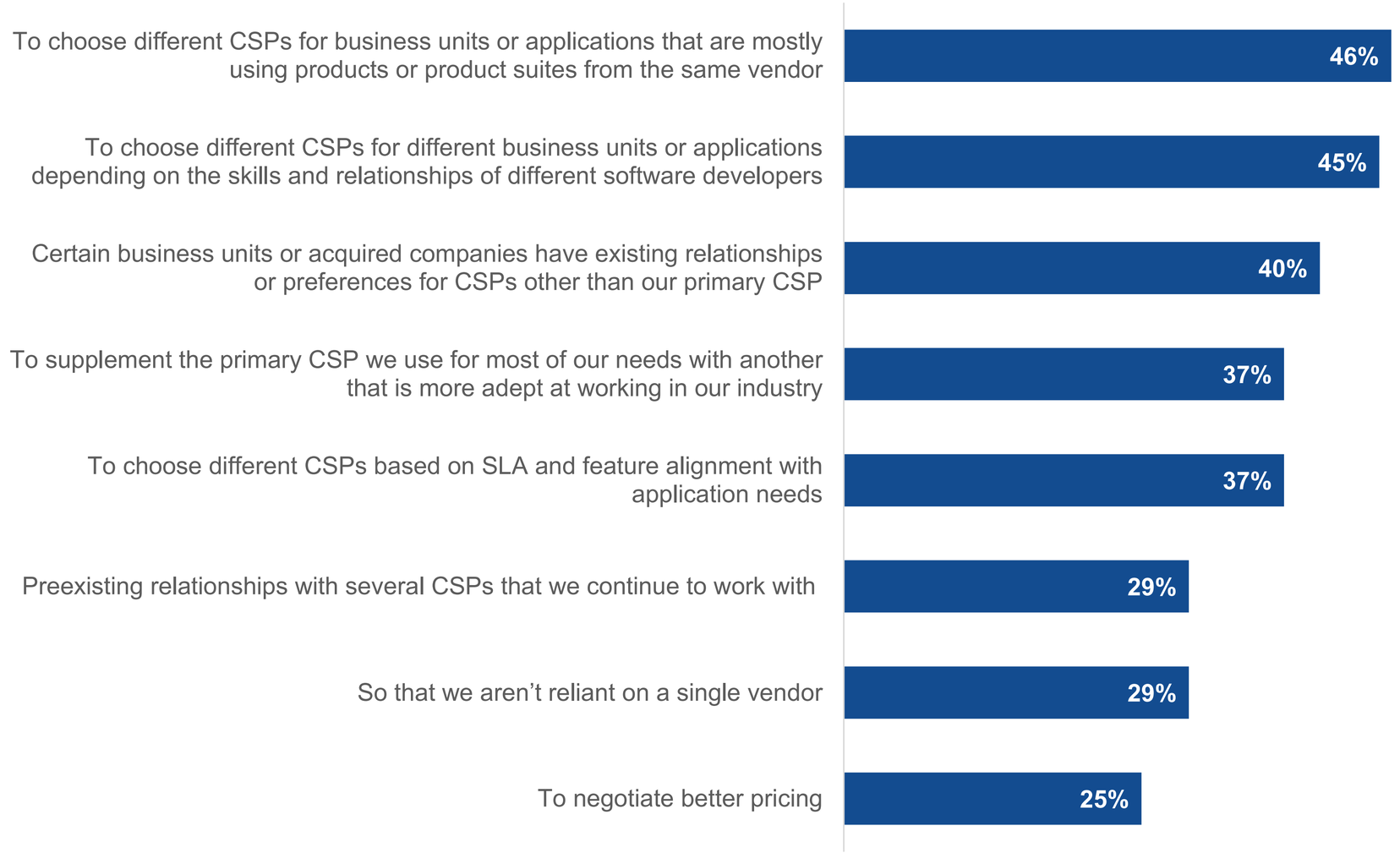
Reasons for using multiple unique CSPs.



“**Using multiple CSPs poses several challenges for cybersecurity.** Security teams must be well versed in each CSP's technology.”

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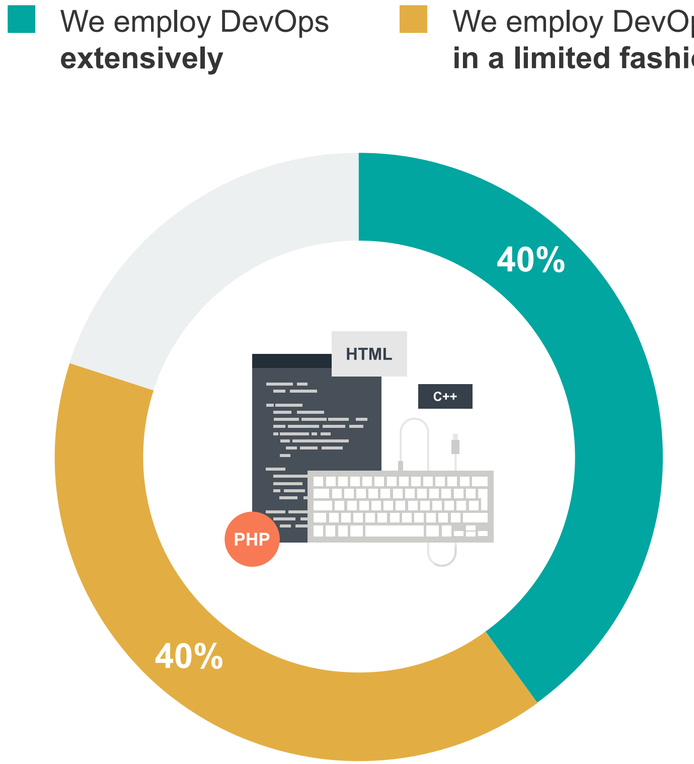
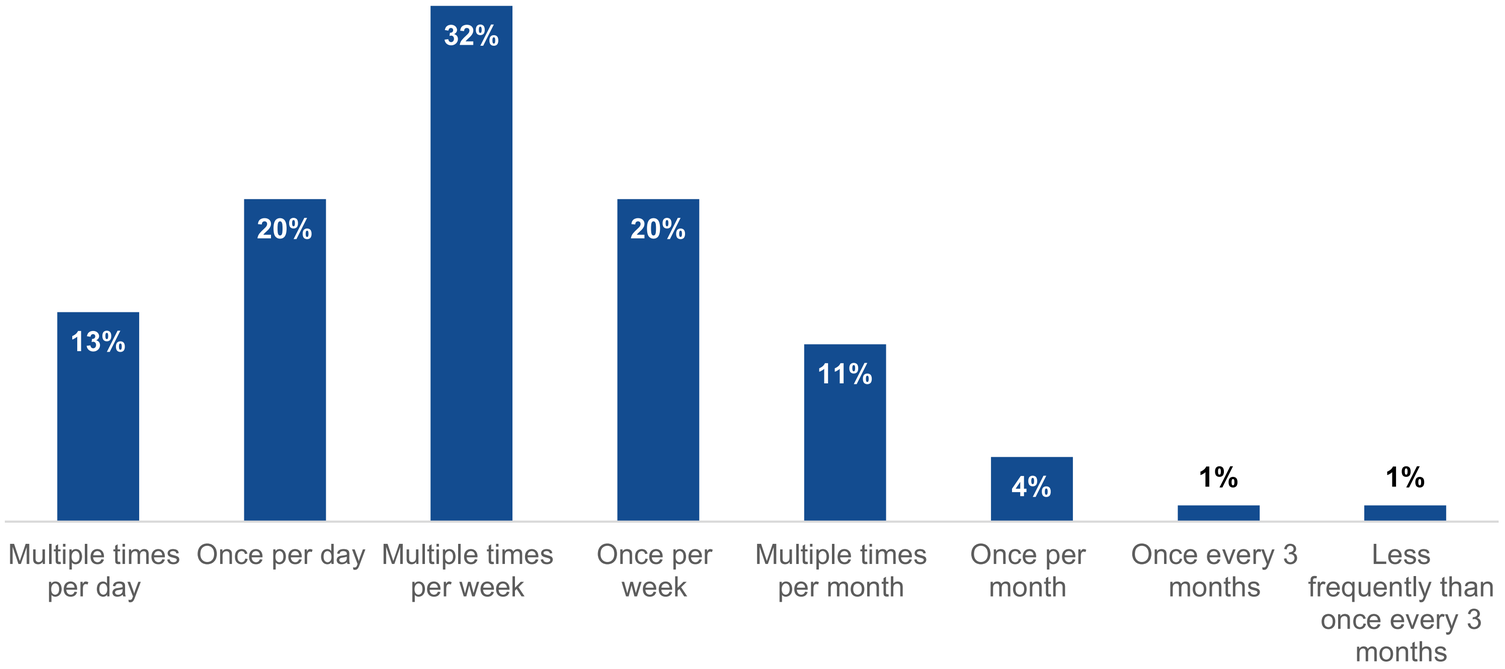
DevOps Is Pervasive While DevSecOps Lags Behind

Faster Software Release Cycles Cause Security Challenges

The majority of organizations employ a DevOps model extensively (40%) or at least on a limited basis (40%). This embrace of DevOps has led to a rapid cadence of software pushed to production, with 85% of organizations deploying new builds to production at least once per week. From a security perspective, rapid application changes introduce many challenges such as a lack of visibility and control in development processes, software being released without going through security checks and testing, and a lack of security process consistency. Alarmingly, one-third (33%) of survey respondents claim they are challenged because developers are skipping security processes in order to meet deadlines.



Frequency with which new software builds are delivered to production.



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Security challenges caused by faster development cycles of CI/CD.

“From a security perspective, **rapid application changes introduce many challenges.**”

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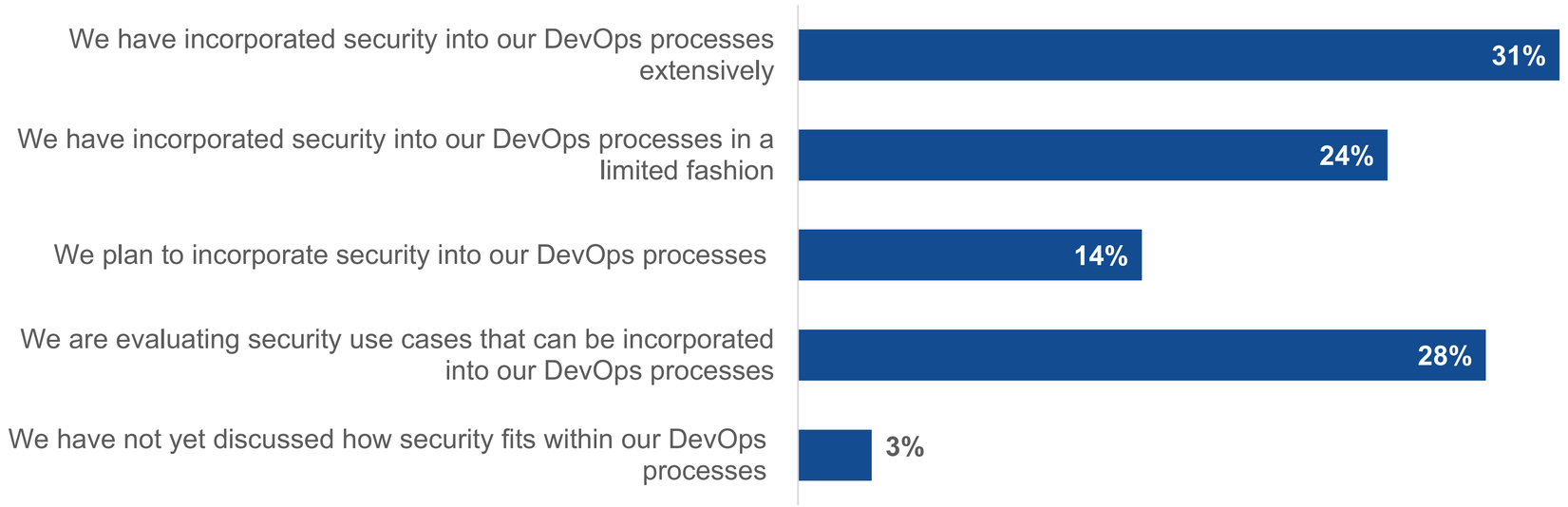
The good news is that 31% of security pros claim their organization has **incorporated security into their DevOps process** extensively, while another 24% have done so on a limited basis.

Incorporating Security into DevOps

To keep up with the pace of software “pushes” to production, security teams must continually scan the entire cloud application environment, integrate tooling and testing into CI/CD pipelines, and work with cloud operations teams to automate remediation actions. This equates to DevSecOps. The good news is that 31% of security pros claim their organization has incorporated security into their DevOps process extensively, while another 24% have done so on a limited basis. The bad news is that 31% are still evaluating how security can be incorporated into DevOps processes or haven’t even begun a discussion on DevSecOps.

Extent to which organizations plan to incorporate security processes and controls into DevOps processes.



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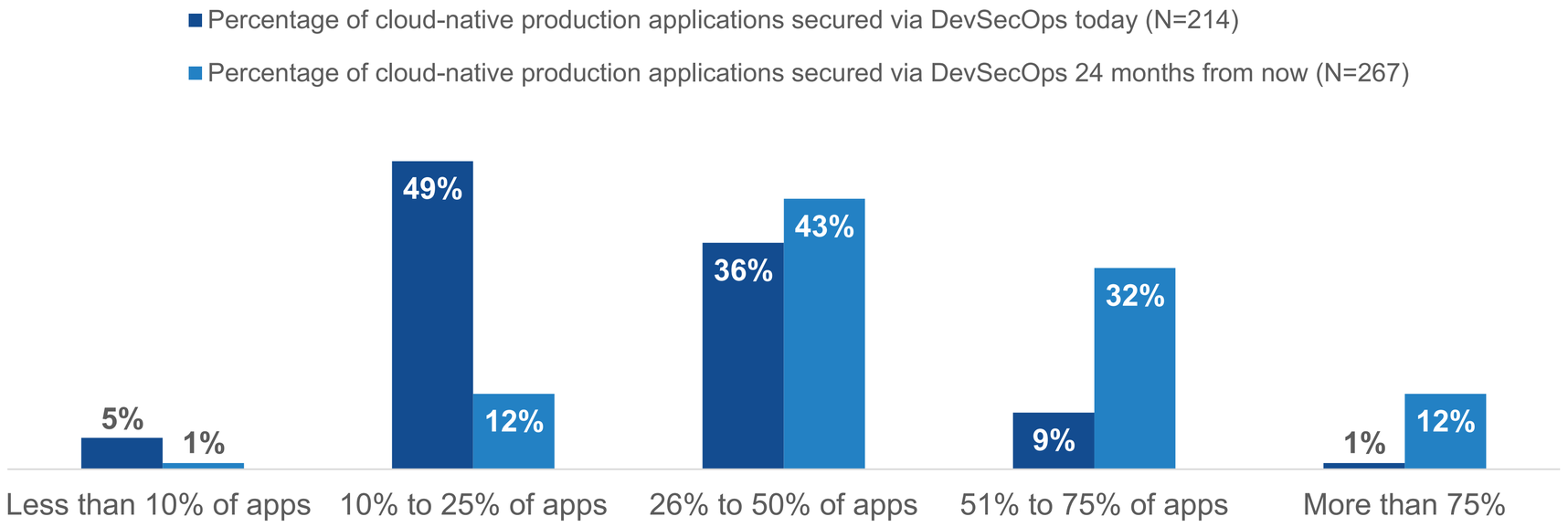
“CISOs must drive the creation and maturity of DevSecOps **as soon as possible.”**

Increasing Percentages of Workloads with DevSecOps

With 83% of organizations pushing software builds to production at least once per week, the proverbial clock is ticking. To maximize protection of business-critical cloud-native applications, CISOs must drive the creation and maturity of DevSecOps as soon as possible. Fortunately, ESG’s data indicates that things are trending in this direction: While 46% of organizations claim that more than one-quarter of their applications are secured via DevSecOps practices today, this percentage is expected to nearly double (to 87%) over the next two years.

Percentage of production cloud-native applications secured via DevSecOps practices.



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Organizations Recognize How DevSecOps Helps with CDR

Aside from adding security to the development process, security professionals agree that DevSecOps can bolster cloud detection and response in several ways. For example, DevSecOps includes threat modeling, introducing an adversary perspective and countermeasures to the development process. DevSecOps also requires advanced security training for developers and cloud operations groups, accelerates remediation activities amid a cyber-attack, and drives improved collaboration.

How DevSecOps processes align with cloud detection and response.

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Cloud Security Operations Are Increasingly Automated But Remain Challenging

Is Cloud Easing Traditional Security Operations Issues?

As cloud adoption and usage evolves, some see improvements with security operations. Cloud security operations are typically more comprehensive than traditional security operations, with opportunities to ease the burden on security teams. It follows then that half of survey respondents believe that security operations are easier today than they were two years ago. These individuals are focused on cloud security, so these results could be related to factors like organizations' adoption of DevSecOps, security automation through CI/CD pipelining, and the tight integration between CDR and CSPM.

31%

believe that security operations are **more difficult** than they were two years ago.

While this is a net positive, nearly one-third (31%) believe that security operations are *more difficult* than they were two years ago, due to factors like the inability to automate processes, a growing attack surface, and monitoring gaps. This could be from trying to manage cloud security with traditional tools that aren't made for the complexity of how the applications run in the cloud. Since these issues greatly increase cybersecurity risk and ultimately business risk, rectifying them should be a high priority across the organization.

Top 10 reasons security operations have become more difficult.

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Biggest SecOps Challenges for Cloud Applications

Similarly, SecOps is challenged with the complexity of securing cloud-native applications because of the higher speed and volume of releases, plus highly distributed applications with microservices-based architectures using dynamic, ephemeral resources. While some organizations have improved security operations, all firms still face a number of SecOps challenges like keeping up with accelerated application change velocity, dealing with attack surface complexity, collaborating with new/more stakeholders, and an increasing volume of cloud application vulnerabilities. Clearly, cloud security demands greater scale, rapid data analysis, and more process automation.

Biggest SecOps challenges for organizations' cloud applications.

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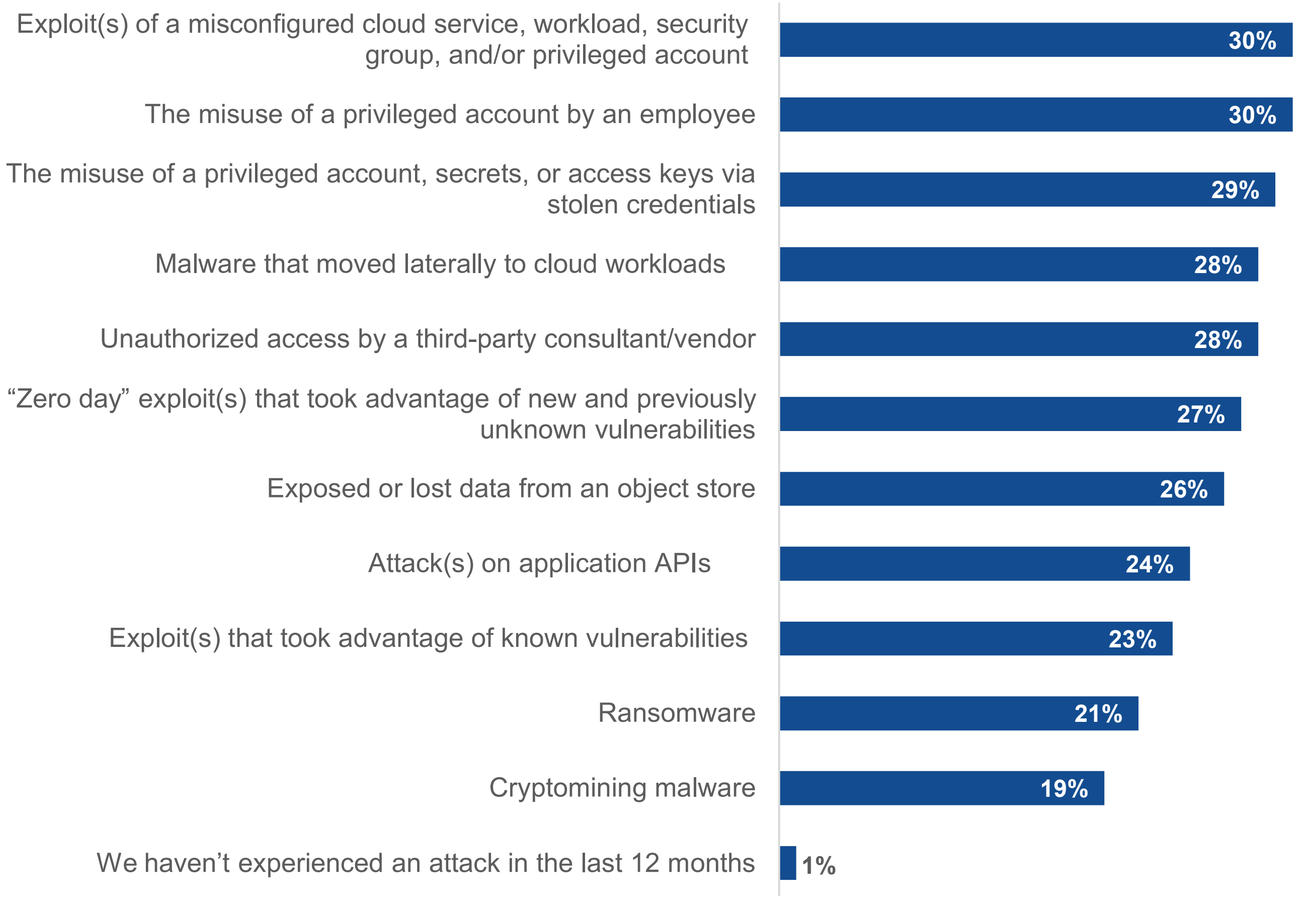
Cloud Detection and Response Is a Work in Progress

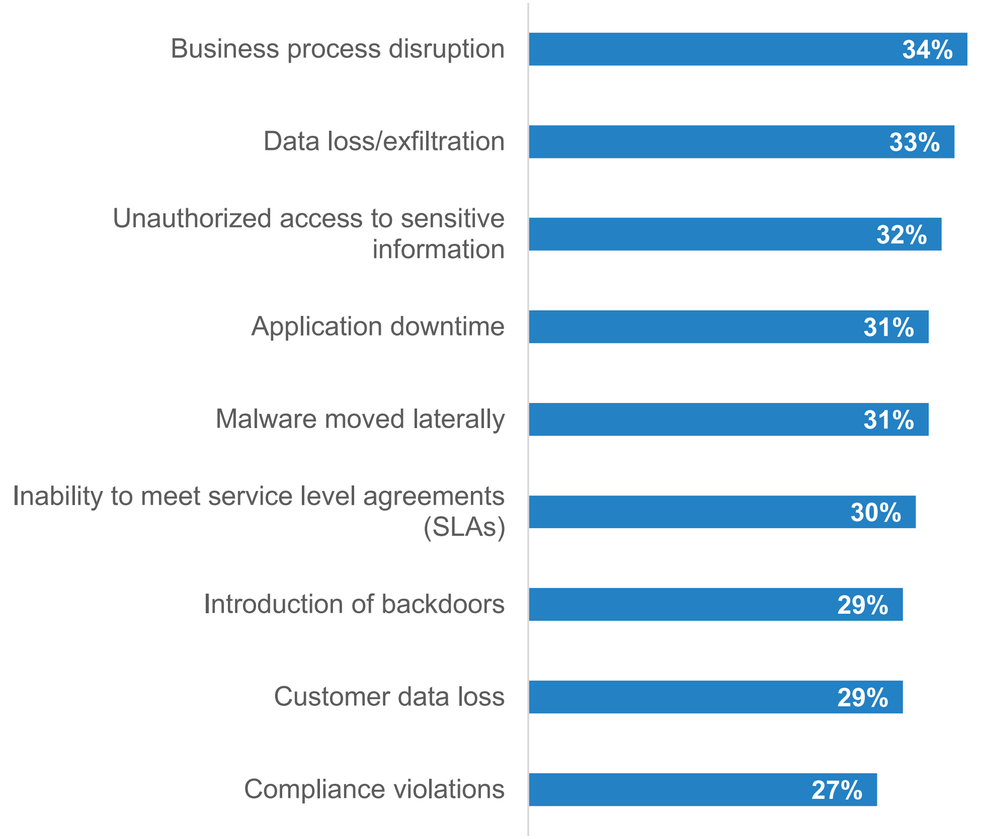
Impacts of Cybersecurity Attacks Occurring During Response Time

Nearly all organizations have suffered at least one cyber-attack over the past 12 months, including those caused by exploitation of a misconfigured cloud service; the misuse of a privileged account by an employee; the misuse of a privileged account, secrets, or access keys via stolen credentials; and unauthorized access by a third party. These incidents can be costly, resulting in business process disruption, data loss or exfiltration, unauthorized access to sensitive data, or application downtime.

Cyber-attacks tied to cloud-hosted applications and infrastructure over the past year.



Issues organizations have experienced due to cybersecurity attacks over the past year.



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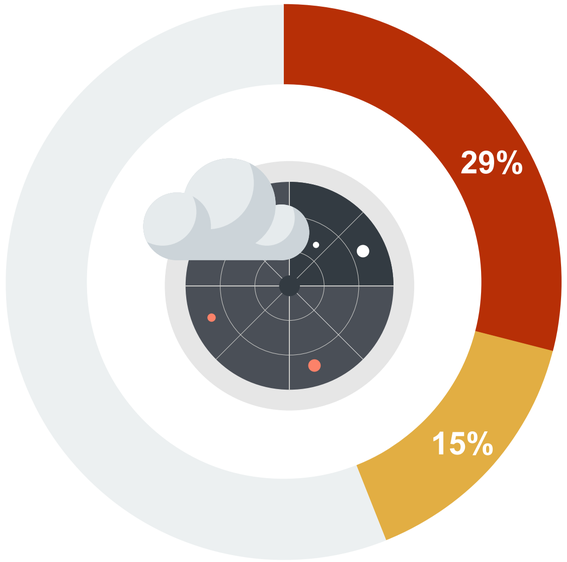
Areas Lacking for CDR

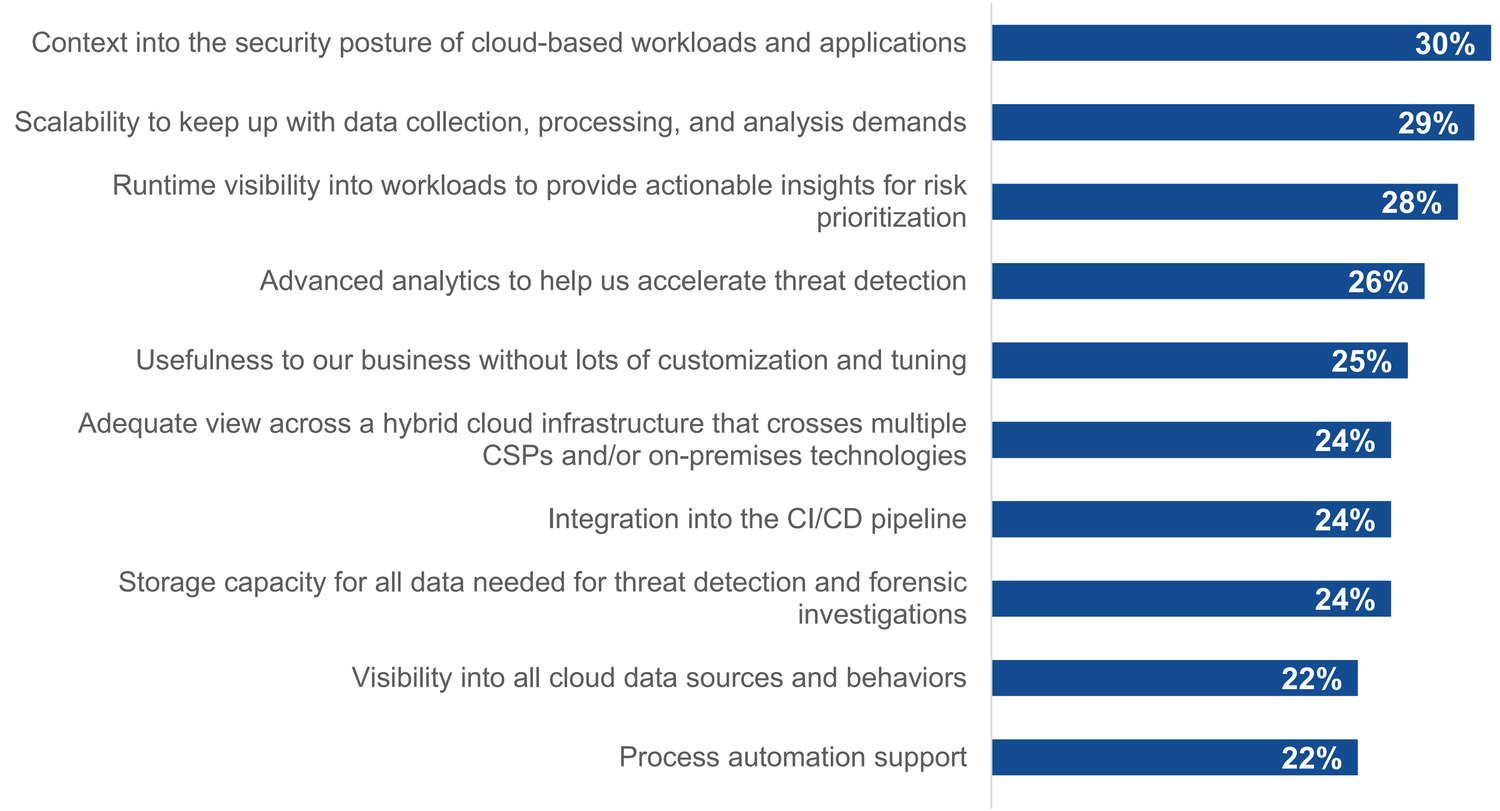
Combating cyber-attacks requires strong CDR, but it's worth noting that 44% of respondents claim that threat detection and response is more difficult for their organizations to conduct in cloud environments. Why? Aside from the use of a multitude of different tools, cloud security professionals identified specific areas where their current CDR tools are lacking. The list includes cloud-based security posture context, scalability, runtime visibility into risk prioritization, advanced analytics, and intuitive business value.

To address these deficiencies, CISOs should make them requirements for all RFIs and RFPs. Alternatively, CDR vendors should address every lacking area as part of marketing communications and sales presentations.

- Threat detection and response is **much more difficult** to conduct in cloud environments
- Threat detection and response is **somewhat more difficult** to conduct in cloud environments



Top ten areas in which current technologies for cloud detection and response are lacking.



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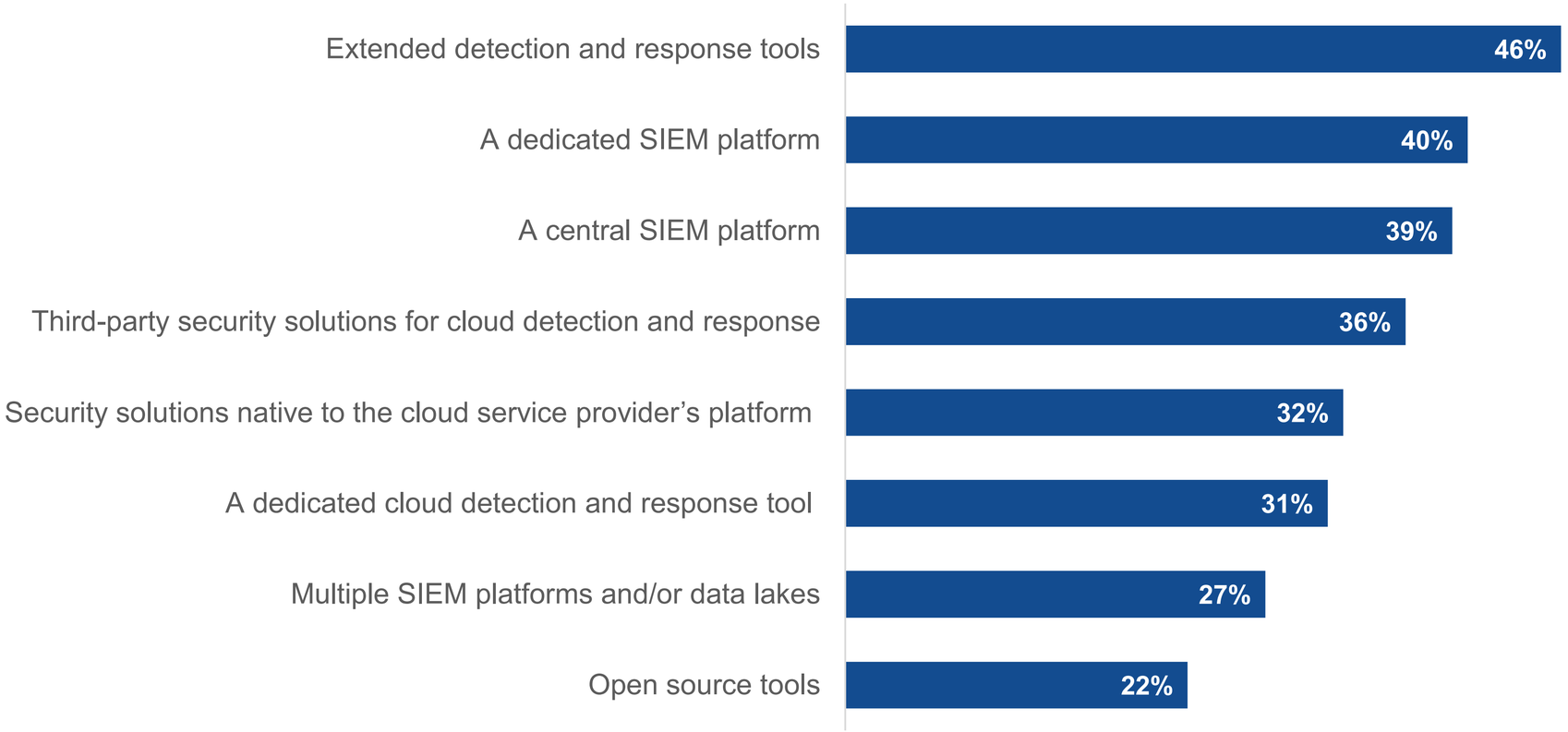
“**Organizations are using a plethora of tools for cloud threat detection and response today,** such as XDR, a dedicated SIEM (i.e., one dedicated to cloud security operations), a central SIEM (i.e., a SIEM with coverage that spans hybrid IT), third-party tools, CSP security tools, and dedicated CDR tools.”

Organizations Use a Variety of Tools for Cloud Threat Detection and Response

Tools used for cloud threat detection and response.



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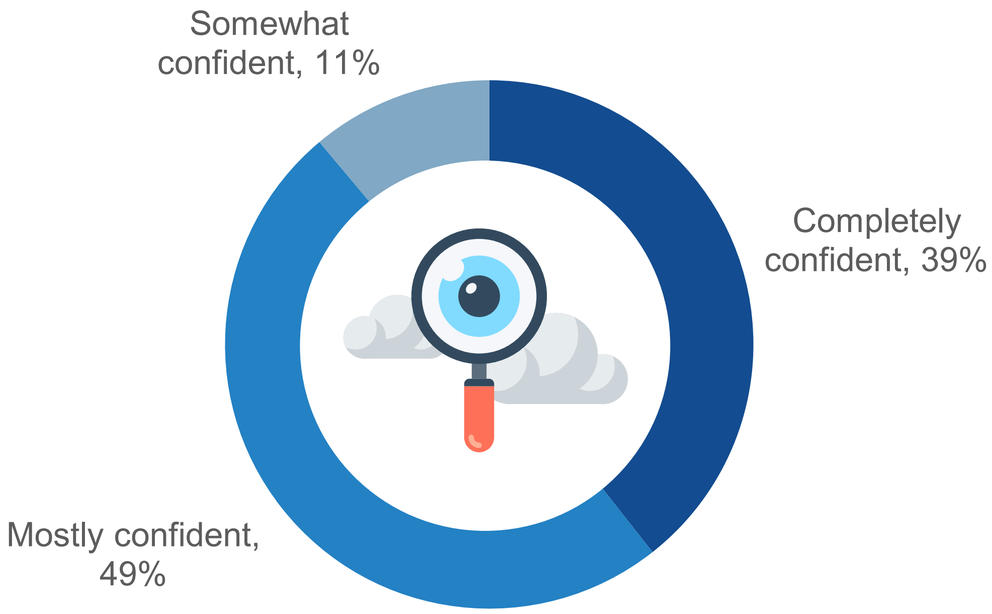
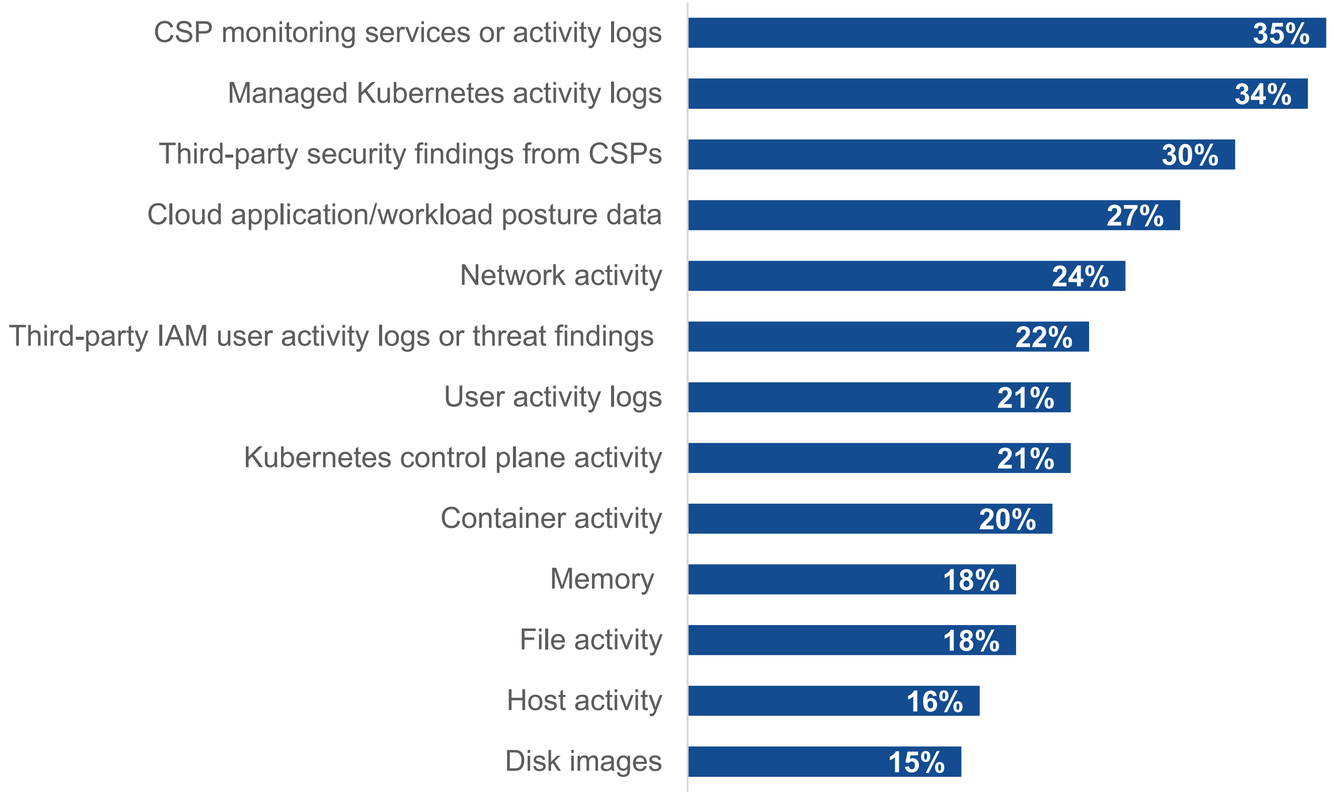
Data Sources with the Most Insight for CDR

The majority of organizations are only mostly (49%) or somewhat (11%) confident in their ability to investigate a cloud-focused cyber-attack, demonstrating that they likely have some issues with data sources. The most common of these include CSP monitoring services/logs, managed Kubernetes activity logs, third-party findings from CSPs, CSPM, network activity, IAM logs, and user activity logs.

Confidence in visibility to investigate malicious threats in cloud application environment.



Data sources that provide additional data and context to efficiently respond to threats in cloud environments.



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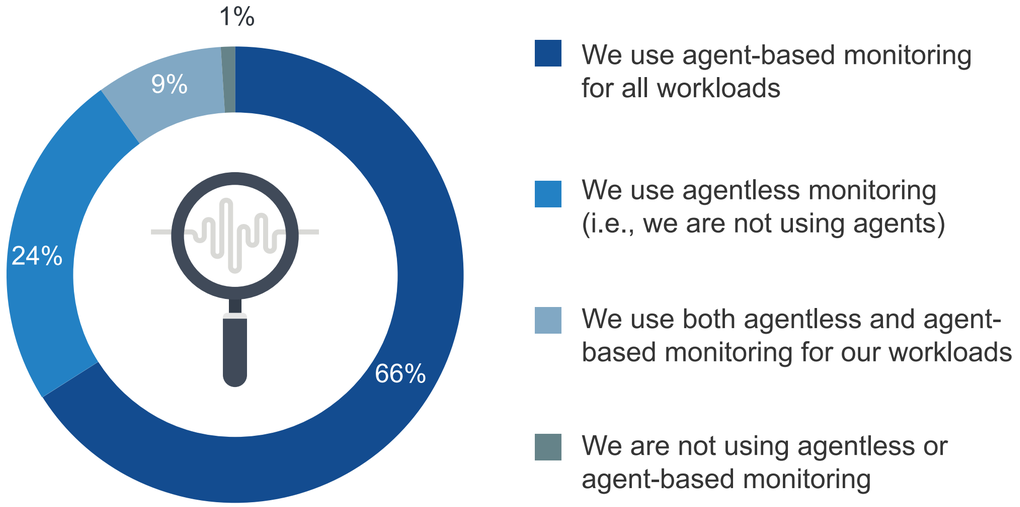
Monitoring Cloud Environments with Agents

Most organizations are using agent-based monitoring for their cloud applications. Specifically, two-thirds take an agent-based approach for all applications/workloads, while 9% use a combination of agent-based and agentless monitoring. For organizations using agents, the majority find them mostly (39%) or completely (57%) effective in helping with detection, investigation, and response. Agent technology can certainly provide deep and specific visibility into cloud workloads, but using agents comes with some compromises. Cloud security professionals should use them prudently to gain strong visibility but understand that they may require extra care and feeding.

Use of agent-based or agentless approaches to monitor and/or detect security issues in cloud applications/workloads.



Effectiveness of *agent-based* detection and monitoring in cloud applications/workloads.

An additional 3% said it is somewhat effective.

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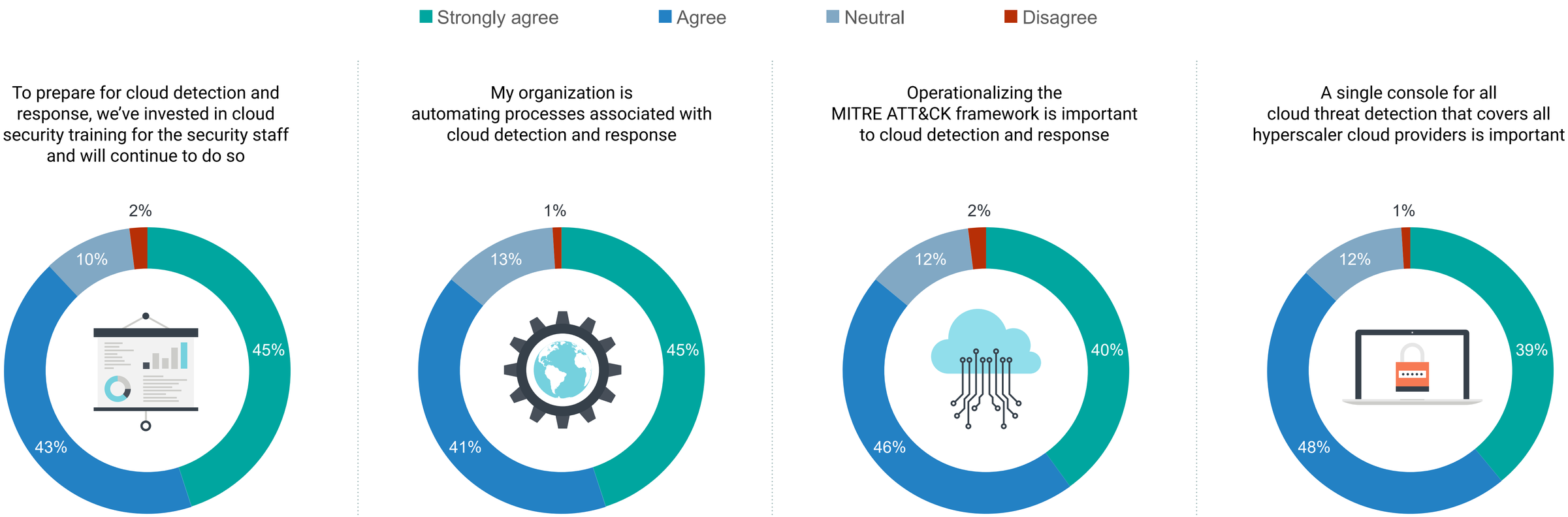
Opinions on Improving CDR

Cloud security professionals have strong opinions on what their organizations are doing and need to do to improve cloud detection and response. For example, organizations have increased cloud security training and automated CDR processes, and they also believe it is important to operationalize the MITRE ATT&CK framework and move to a single CDR console that can span multiple hyperscale cloud providers. CDR tools will need strong support of these requirements.



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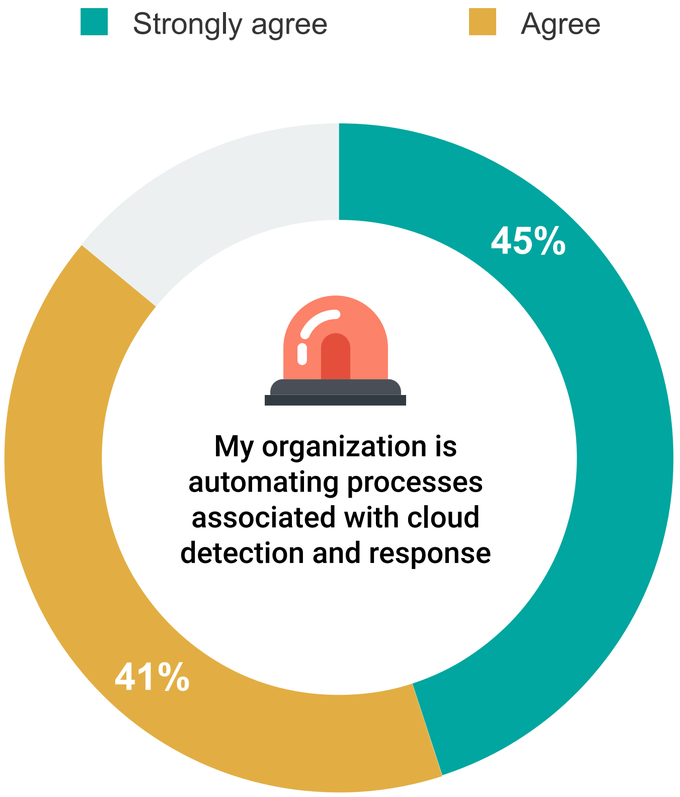
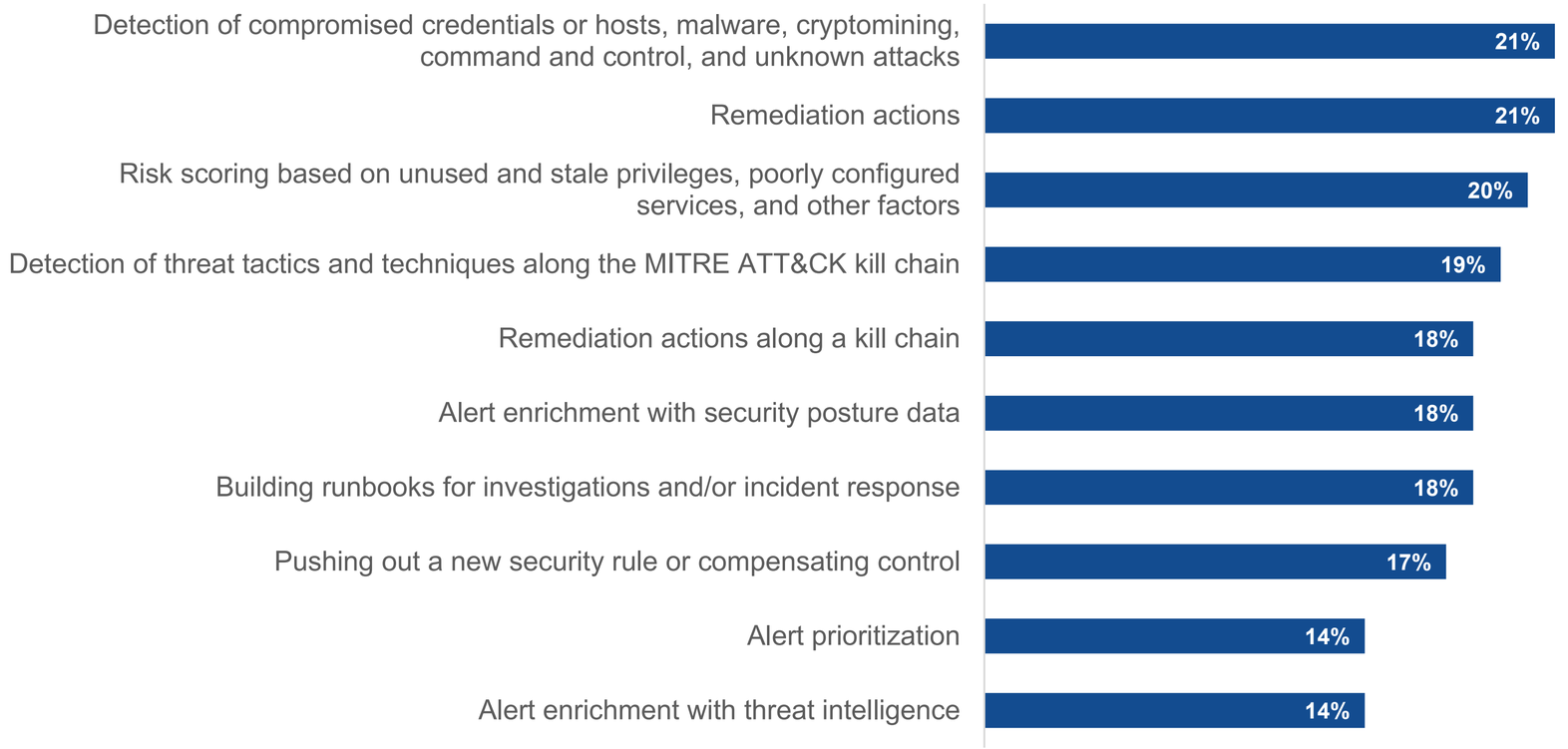
Using Automation for CDR

Eighty-six percent of cloud security professionals say that their organizations are automating processes for CDR. Processes being automated include detection of compromised assets, remediation actions, risk scoring, and threat detection based on the MITRE ATT&CK framework.

Process automation is already well established in DevSecOps in an effort to “shift left,” but that is not enough on its own. Security operations should plan for inevitable cyber-attacks by automating CDR activities like data enrichment, alert correlation, and incident response. It appears cloud security operations teams have begun this endeavor.



Top ten tasks and processes that have been automated for CDR.



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Cloud Detection and Response Is a Shared Responsibility That Requires Continuous Training

CDR Responsibilities Are Commonly Shared by Cloud Engineering and SOC Teams

Just who owns cloud detection and response processes? The data shows an assortment of models in which SOC teams and cloud teams share responsibility evenly, where cloud engineering and security teams take the lead, and where SOC teams have primary responsibility. In some cases, CDR is ceded to security engineering or application owners.

Responsibility for CDR processes and activities.

45%
Our SOC team and cloud engineering and security teams share responsibility evenly

45%
Our cloud engineering and security teams with some help from the SOC team

39%
Our SOC team with some help from cloud engineering and security teams

37%
Our security engineering and security teams

33%
Cloud application owners

27%
Our SOC team

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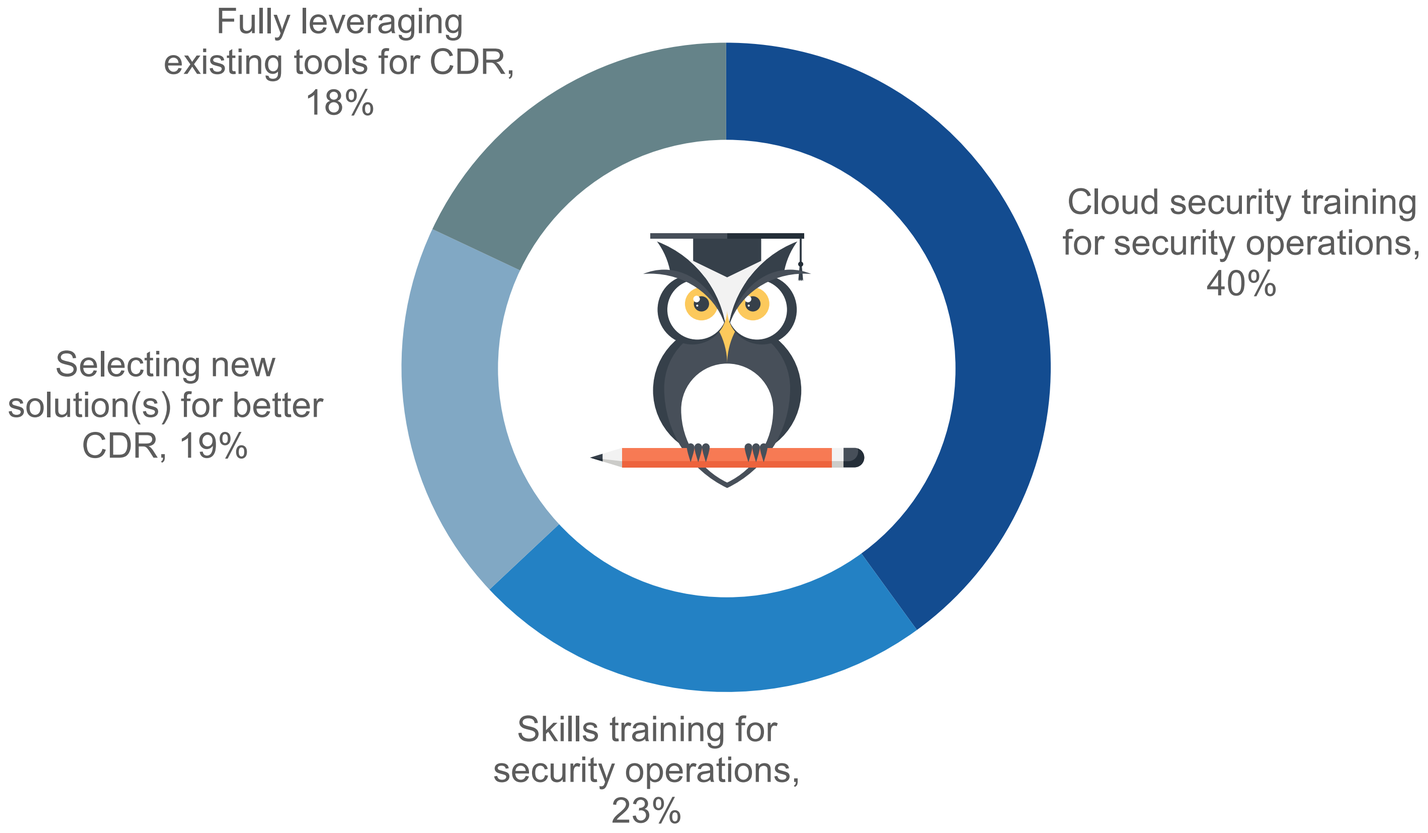
Highest Priority for CDR Is Training

Highest priority task for cloud detection and response.



When asked to identify their organization's highest priority for CDR, respondents pivoted sharply to skills improvement, with 40% saying cloud security training for security operations and 23% citing skills training for security operations."

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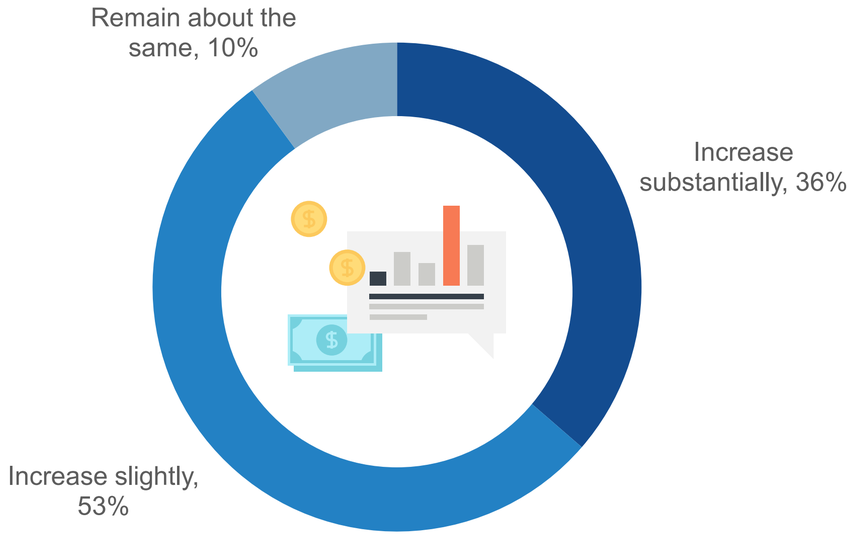
CDR Spending Is Growing as Cloud Security Professionals' List of Technology Requirements Expands

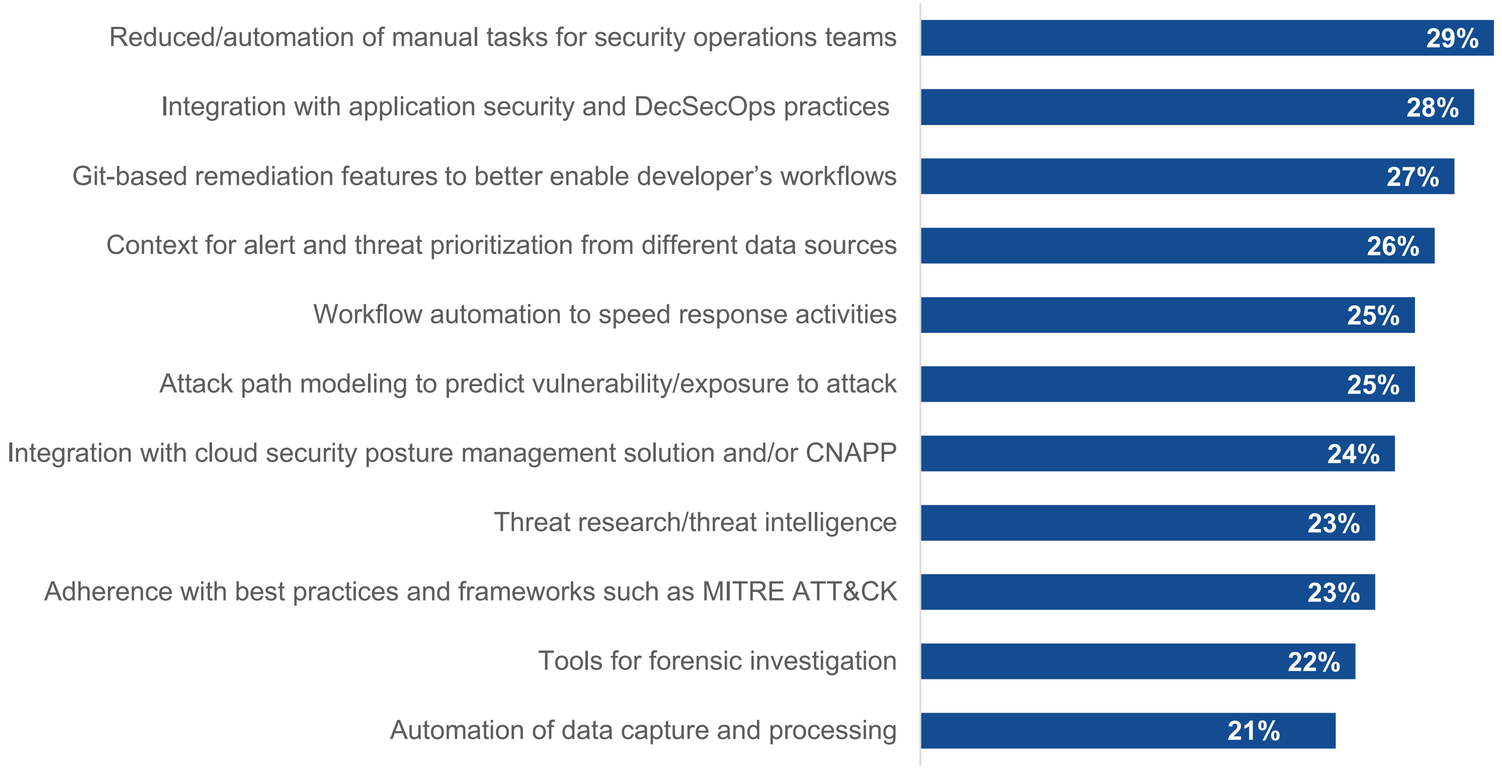
Most Organizations Are Increasing CDR Spending for Features Driving Increased Efficiency and Speed

The majority of organizations plan to increase CDR spending in the next 12 months either substantially (36%) or at least slightly (53%). As they do, they will look for CDR solutions that can automate manual tasks, integrate with application security and DevSecOps practices, offer git-based remediation features, and provide context for alerts and threat prioritization, among other needs.

Expected change in CDR spending over the next 12 months.



Top features and capabilities needed to improve CDR.



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Sysdig helps companies secure and accelerate innovation in the cloud. Powered by runtime insights, the cloud security platform stops threats in real time and reduces vulnerabilities by up to 95%. Rooted in runtime, the company created Falco, the open source solution for cloud threat detection. By knowing what is running in production, Dev and security teams can focus on the risks that matter most. From shift left to shield right, the most innovative companies around the world rely on Sysdig to prevent, detect, and respond at cloud speed.

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ABOUT ENTERPRISE STRATEGY GROUP

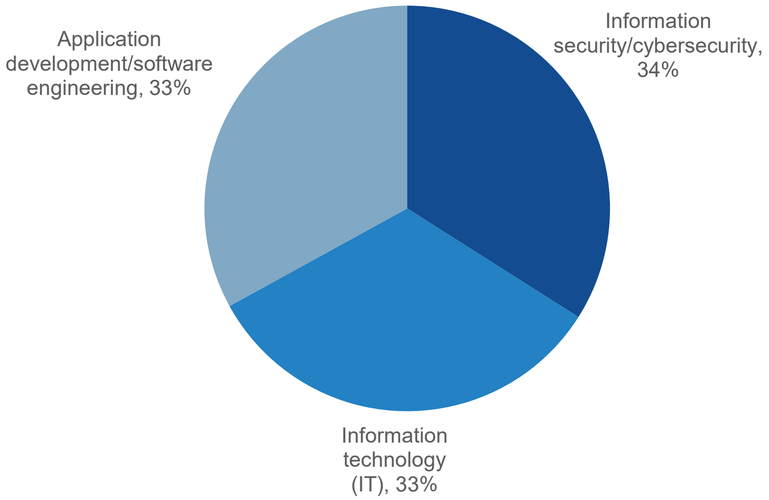
TechTarget's Enterprise Strategy Group is an integrated technology analysis, research, and strategy firm providing market intelligence, actionable insight, and go-to-market content services to the global technology community.

Research Methodology and Demographics

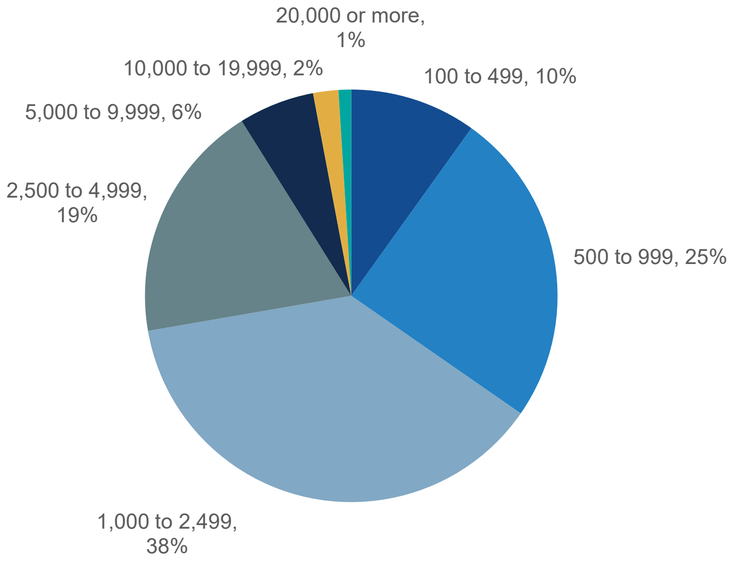
To gather data for this report, TechTarget's Enterprise Strategy Group conducted a comprehensive online survey of IT and cybersecurity professionals from private- and public-sector organizations in North America between May 23, 2023 and June 2, 2023. To qualify for this survey, respondents were required to be responsible for evaluating or purchasing cloud security technology products and services. All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on a number of criteria) for data integrity, we were left with a final total sample of 393 IT and cybersecurity professionals.

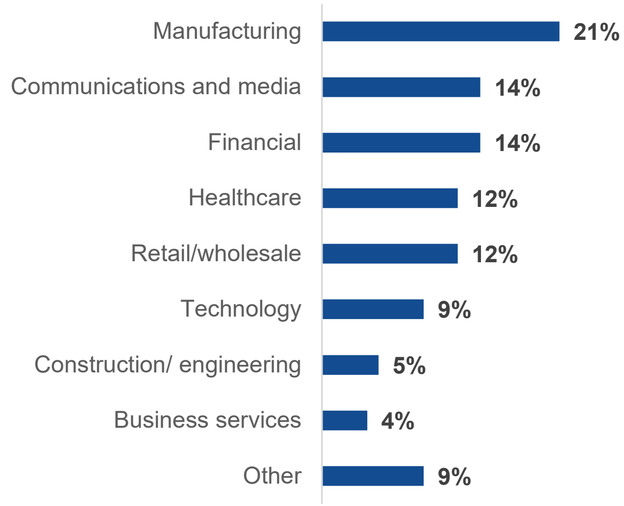
RESPONDENTS BY JOB FUNCTION.



RESPONDENTS BY NUMBER OF EMPLOYEES.



RESPONDENTS BY INDUSTRY.



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