The State of **Observability 2024**

Early promise but data and deployment challenges remain

OpsRamp

a Hewlett Packard Enterprise company

5 Key Takeaways

1. Observability deployments remain immature. Cloud and cloud-native observability is the best place to look for early wins.

2. Data management, storage and analytics are the biggest challenges holding back observability adoption.

3. Getting ahead of performance issues before users are impacted is a real benefit that organizations are seeing today from observability.

4. Observability can help you retire legacy tools though most organizations want to integrate observability with their existing monitoring stack to deliver a more holistic view of IT performance.

5. Observability is delivering value today but enterprises and MSPs will have to adopt modern application architectures to get the best ROI from observability.

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Early promise but data and deployment challenges remain

Introduction

Observability has emerged in the last decade as one of the hottest topics in IT operations management. Though still relatively new in the ITOps world, observability is an older concept borrowed from control theory in engineering, defined as a measure of how well a system's internal state can be inferred from its external outputs. Translated to IT operations, that means measuring a system's performance by the data it generates, typically metrics, events, logs, and traces (MELT).

As log file analysis tools found their way from security operations into IT operations, the concept of observability in IT operations took on a life of its own. The migrations of workloads from on-premises environments to the cloud also generated more demand for observability data as traditional monitoring tools provided less insights into cloud environments. Today, observability tools and platforms is a $2.4bn market, according to industry research firm MarketsandMarkets[1], and is forecast to grow to $4.1bn by 2028, driven by IT's move to DevOps and SRE practices and the growing complexity of IT infrastructure.

Observability relies on analyzing the data generated by systems to get a better and more holistic understanding of the health of that system that goes beyond simple up/down reporting and measuring response times. Patterns can eventually be detected in that data that can predict future issues and help IT get in front of those issues.

While traditional IT performance monitoring might tell you that there was a problem and where it was, observability tells you why there is a problem and what customers or business services are most affected. AIOps can then be used to eliminate alert noise through event correlation to really zero in on the problem, then take prescribed actions to respond to detected issues, whether through kicking off an IT process automatically to remediate the problem or notifying the right person to respond to the problem.

This survey, the first of its kind by OpsRamp, a Hewlett Packard Enterprise company, tries to understand what the reality of observability is for organizations today, how are they using it, what benefits they are seeing and what challenges, opportunities and concerns remain. We look at the similarities and differences in observability deployments among both enterprises and managed service providers (MSPs).

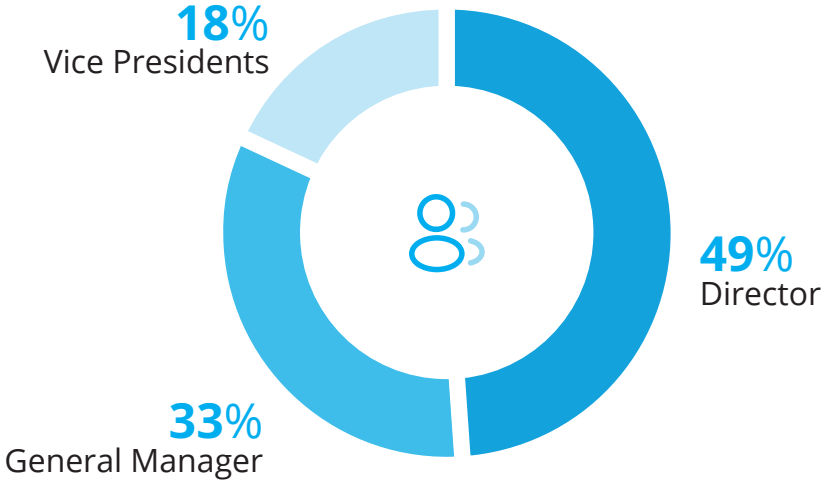
[1] Markets&Markets: "Observability Tools and Platforms Market Global Forecast to 2028"

Methodology

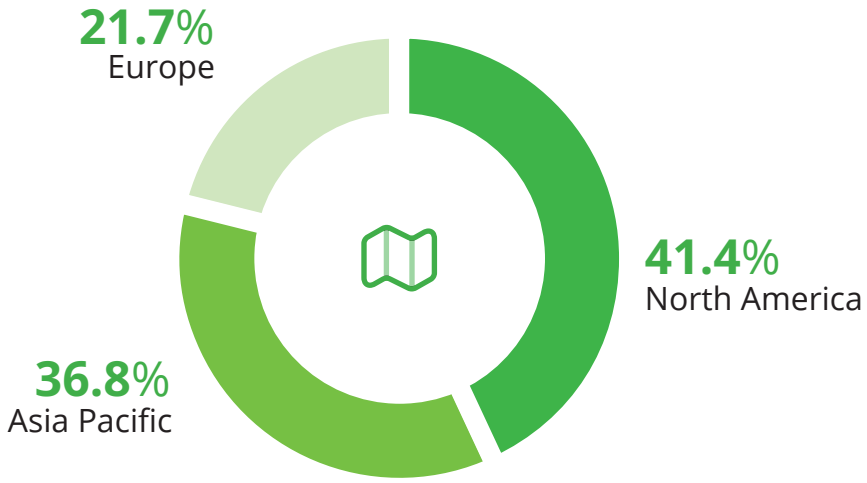
A third party surveyed a total of 603 respondents early in 2024. All respondents work at the general manager, director or vice president level in North America, Europe or Asia Pacific. All respondents are managers with budget-decision-making responsibilities for IT monitoring tools and work at firms with at least $25 million in annual revenue and more than 500 employees. All said they had deployed observability. Of the 603 respondents, 300 (49.8%) work at enterprise organizations and 303 (50.2%) work at MSPs.

Here is a quick snapshot of our survey respondents:

Role of respondents



Respondents based on regions



All make purchase decisions for observability tools and all claim to have deployed observability in their organizations.

I.

The Journey is Just Beginning

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The Journey is Just Beginning

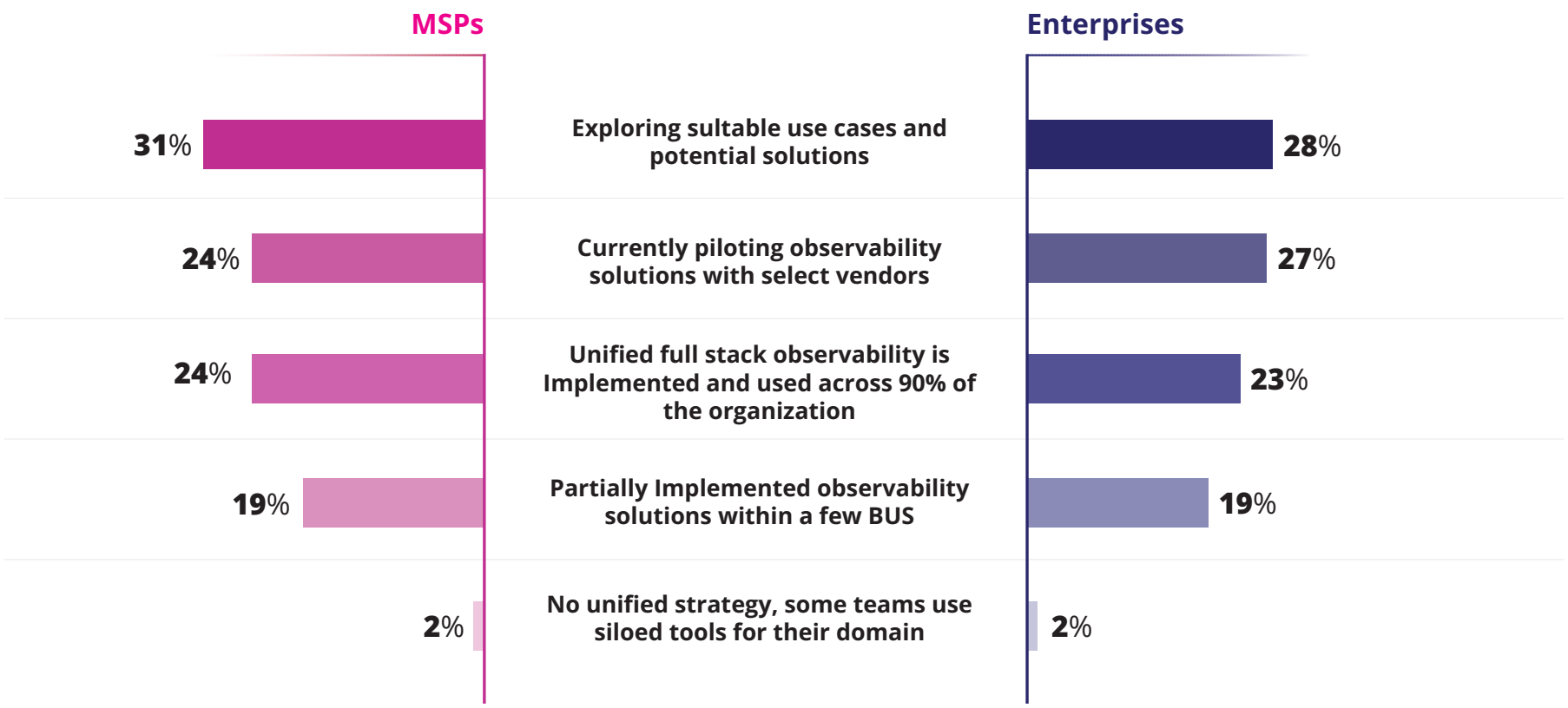
We started out by asking our respondents where they were on their observability journeys. The responses indicate that most organizations are still just getting started with observability.

A plurality of respondents, 30%, indicated that they are "exploring suitable use cases and potential solutions", or in other words at the very early stages of their observability journey, without deployed technology yet. The next most popular response, at 26%, was just slightly beyond that stage, with respondents indicating that they were "currently piloting observability solutions with select vendors." Just 24% indicated they had implemented unified, full-stack observability and were using it across 90% of the organization. Another 19% had only "partially implemented observability within a few business units."

There is clearly plenty of room for growth for observability at most IT organizations with more than half (56%) at the pilot or early exploration stages and more than three-quarters (76%) well short of full-stack enterprise observability.

Even when we broke down the survey data into enterprises vs. MSPs we saw virtually no change in the responses with just 43% of MSPs beyond the pilot stage of observability vs. 42% of enterprises.

Q: Where are you in your observability journey?



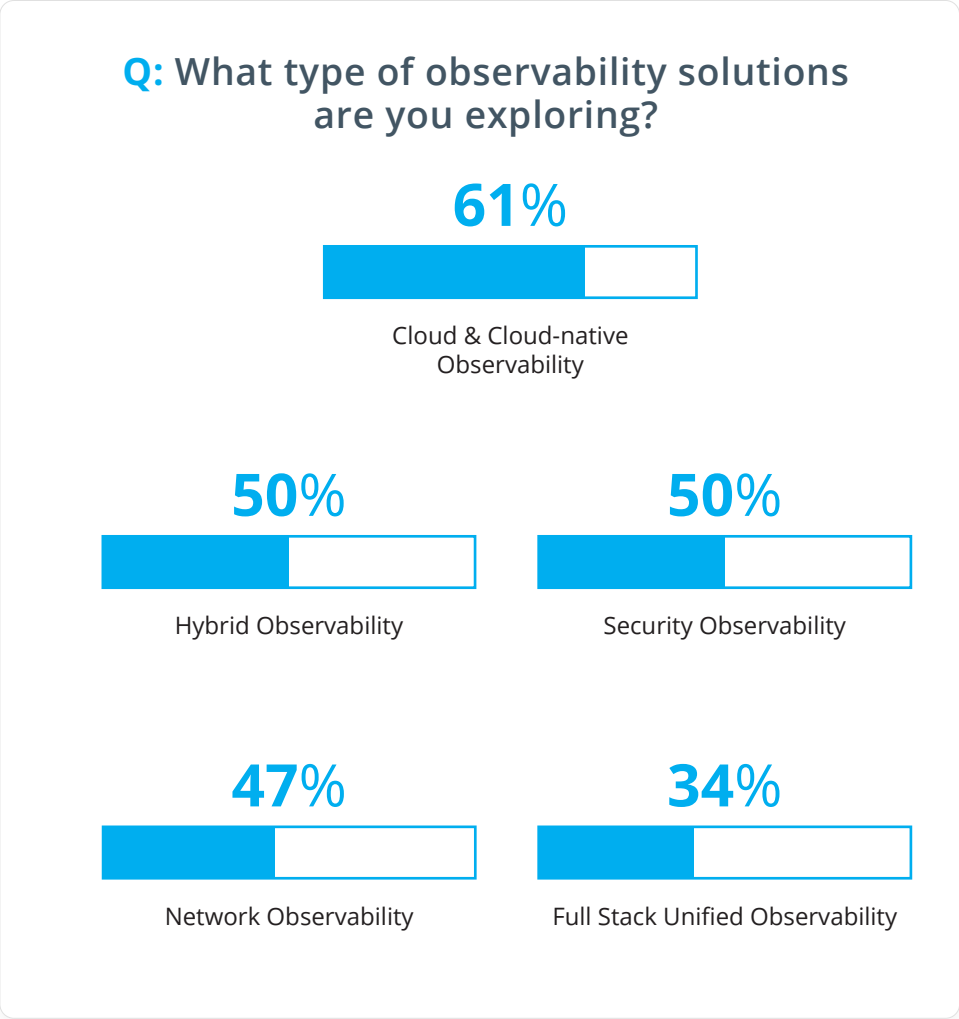
II.

Cloud/Cloud-Native Wins the Day

Cloud/Cloud-Native Wins the Day

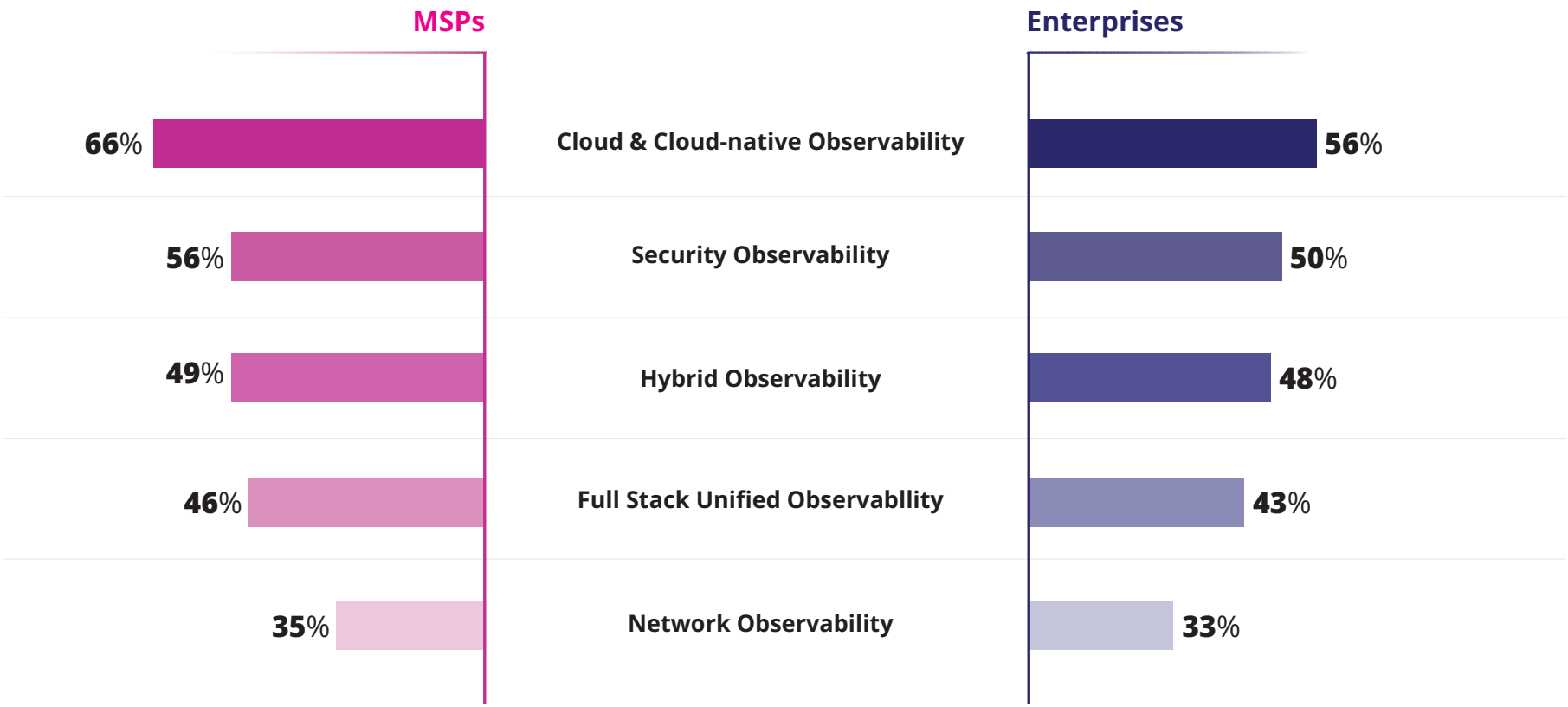
The next question we asked was what type of observability IT organizations were exploring, with respondents allowed to check off more than one response. The clear winner was cloud/cloud-native observability at 61%, easily outpacing hybrid and security observability (each 50%) and network observability (47%). Full-stack unified observability lagged the field at 34%.

Customers are still early on the observability journey and are looking to observability solutions, not necessarily for easy wins, but to solve their most pressing IT operations challenges. Gaining visibility into cloud and cloud-native environments, where traditional IT monitoring tools typically fall short, is organizations' top observability priority.



When we compared enterprises' responses to MSPs' for this question, we found that MSPs are much more bullish about cloud and cloud-native and hybrid observability than enterprises are.

Q: What type of observability solutions are you exploring?



III.

Cost Containment Drives Licensing

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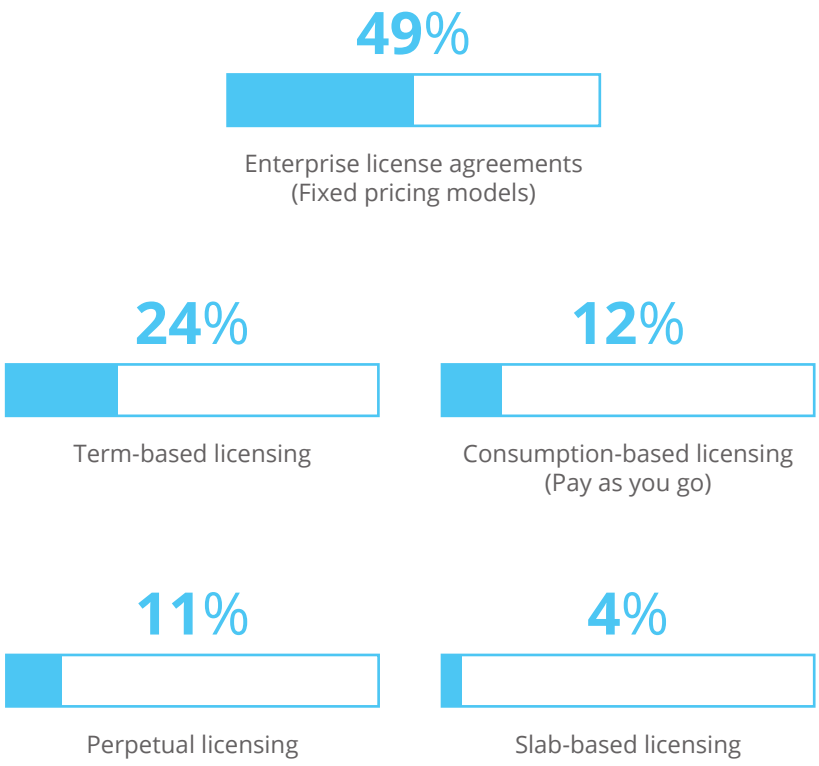
Cost Containment Drives Licensing

We've all heard the horror story about the company that got stuck with a $65m[2] bill for observability. Many observability software pricing models are based on the amount of data stored and costs can quickly and easily spiral out of control. Annual bills in the seven and low-eight figures are not uncommon for observability tools. So it's not surprising that when we asked our survey respondents what their preferred pricing model was, the overwhelming choice was an enterprise license agreement with fixed pricing model, at 49%. Another 24% opted for term-based licensing. Just 12% selected a pay-as-you-go consumption-based model. Buyers should be wary of runaway pricing with observability and build cost predictability into their purchase and license agreements.

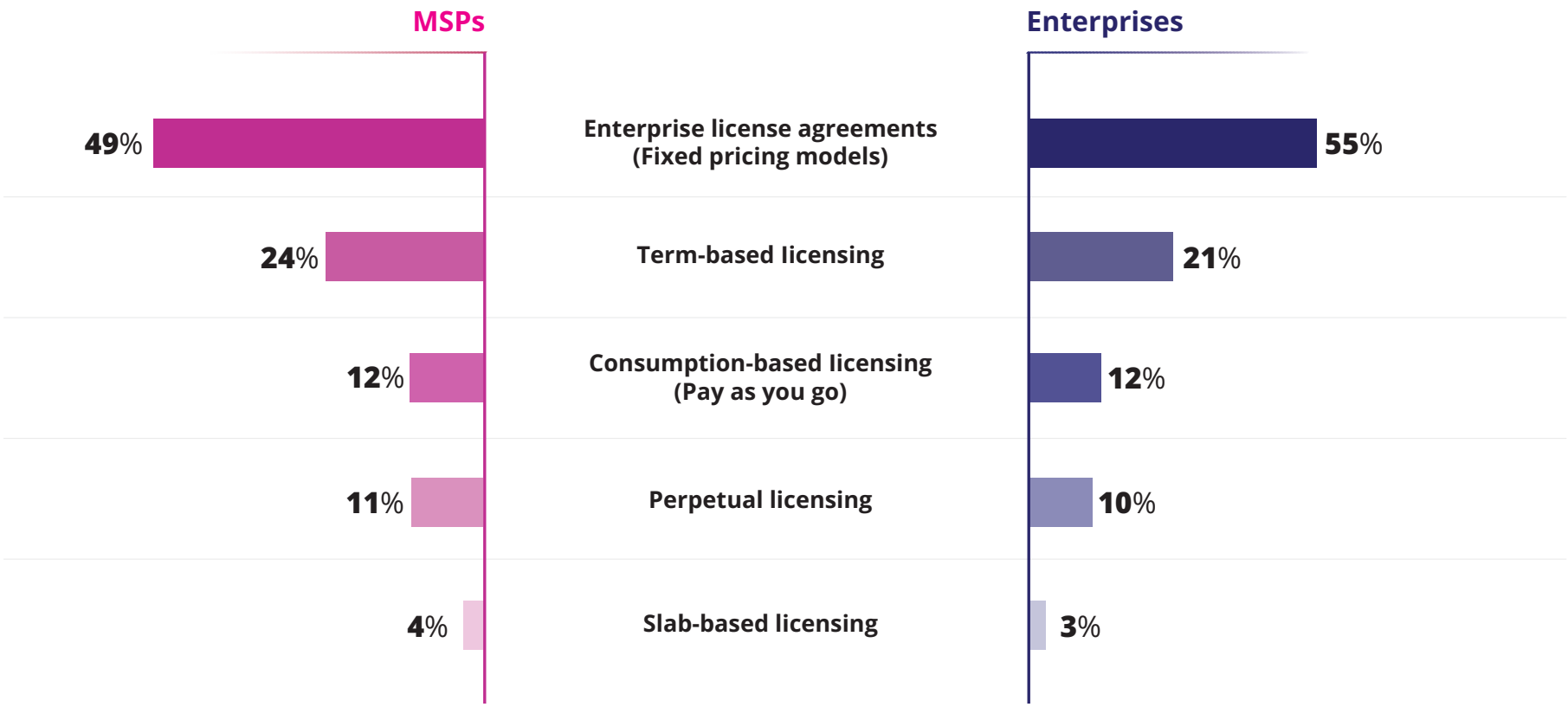
Q: What is your desired licensing approach for observability solutions?



[2] The New Stack: "Datadog's $65M Bill and Why Developers Should Care". Lorraine Lawson; May 17, 2023

Enterprise license agreements with fixed pricing models were even more popular among enterprises than MSPs, with MSPs showing more preference for term-based licensing and perpetual licensing models. Consumption-based and slab-based licensing—where per-unit pricing decreases as usage increases were a non-starter for both.

Q: What is your desired licensing approach for observability solutions?



IV.

Data and Cost Issues Drive Observability Concerns but Data is the Greater Challenge

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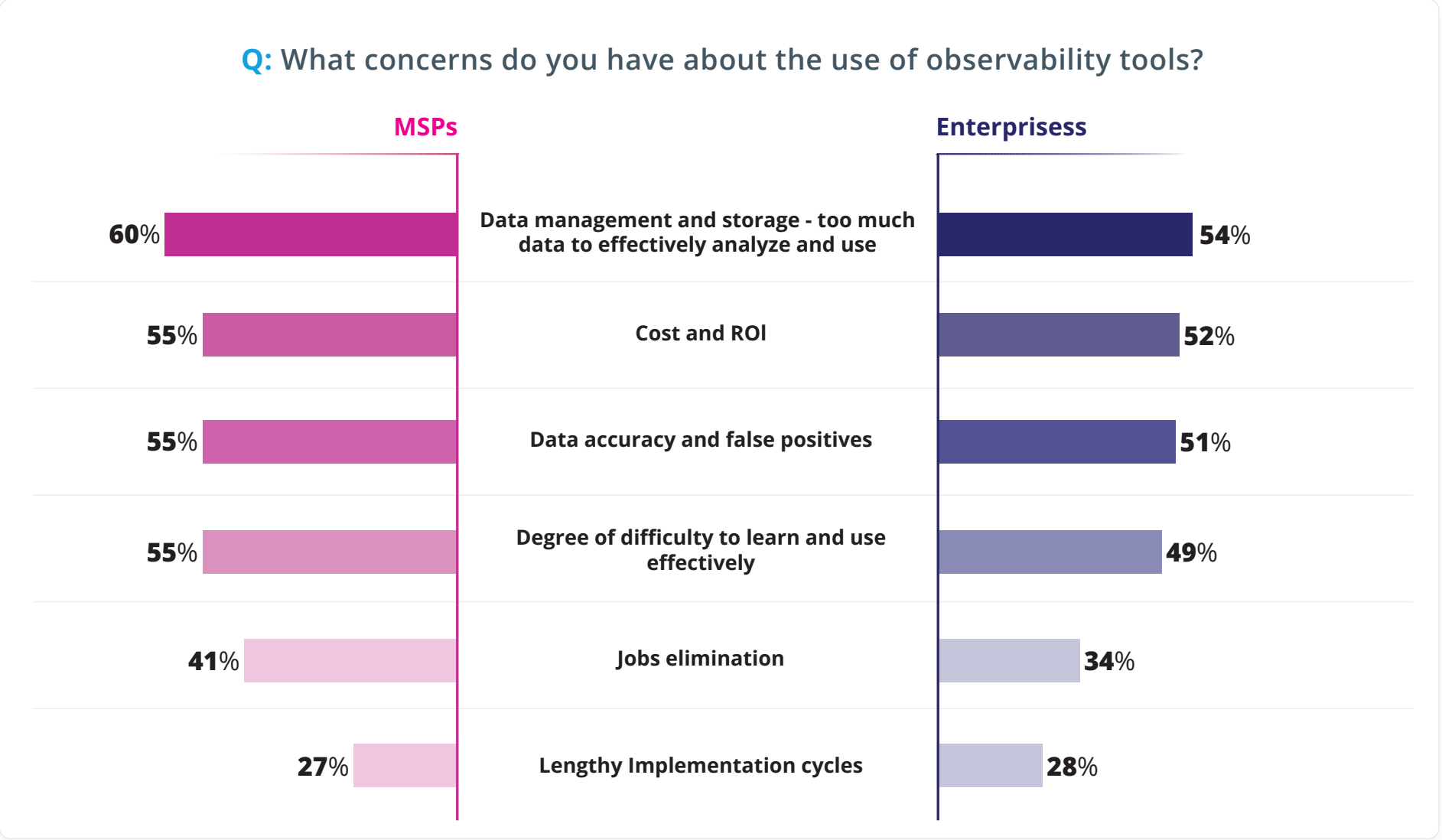
Data and Cost Issues Drive Observability Concerns but Data is the Greater Challenge

The cost issue came up again when we asked our survey respondents what concerns they had about the use of observability tools. Cost and ROI was cited by 53% of respondents, the same as data accuracy and false positives. However, the biggest concern was also the reason observability costs can get so high: data management and storage, at 57%. Degree of difficulty to learn and use effectively was also a top concern, at 52%. Jobs elimination (38%) and lengthy implementation cycles (28%) were farther down on the list of concerns.

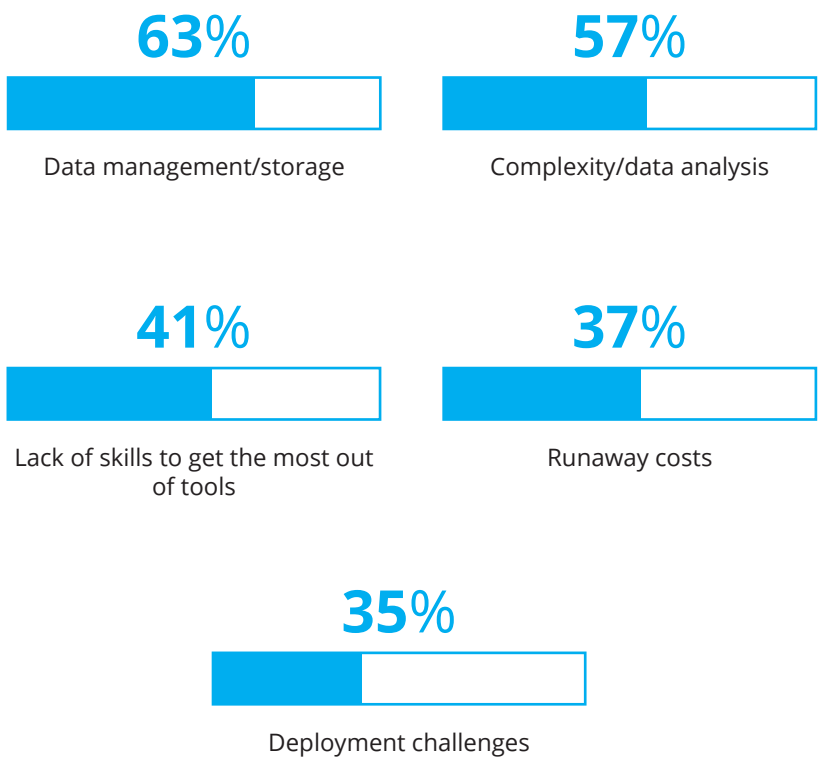
Storing the vast troves of observability data, making sense of that data, paying for storage and managing the complexity of observability tools are all obstacles to successful observability deployments.

Most concerns we asked about were even more acute for MSPs than enterprises except lengthy implementation cycles.



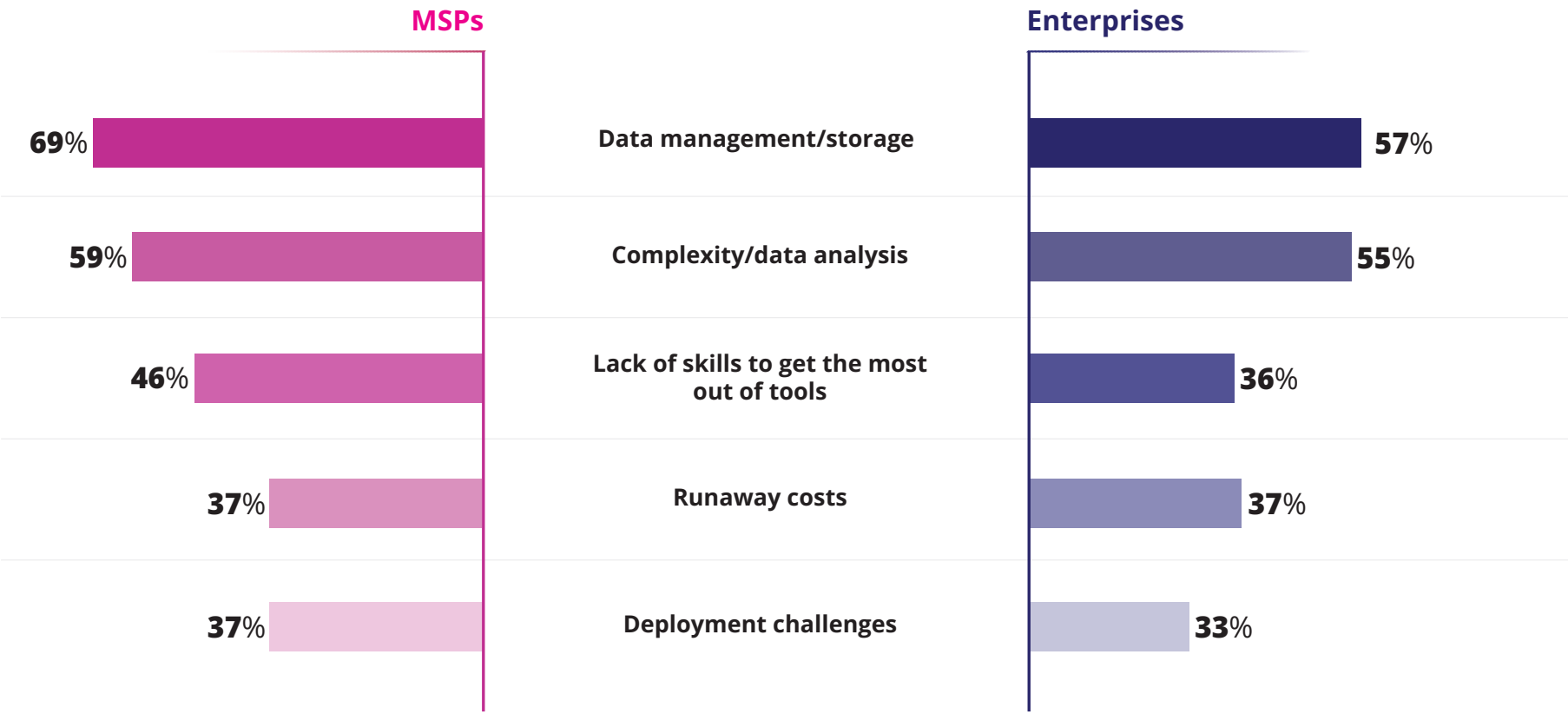
However, when we asked ITOps teams what challenges they've actually faced so far in their observability deployments, data issues clearly stood out the most, with 63% of respondents citing data management/storage and 57% naming complexity/data analysis. Just 37% pointed to runaway costs, which were in between lack of skills (41%) and deployment challenges (35%). While the fear of runaway observability costs isn't yet borne out by the experience of observability deployments, keep in mind that most of our respondents are still in the early stages of those deployments.

Q: What challenges have you faced so far in your observability deployment?



When it came to challenges faced so far in observability deployments, MSPs were again feeling the pain a bit more acutely than enterprises, especially for data management and storage and lack of skills

Q: What challenges have you faced so far in your observability deployment?



V.

Expected Outcomes and Realized Benefits Diverge

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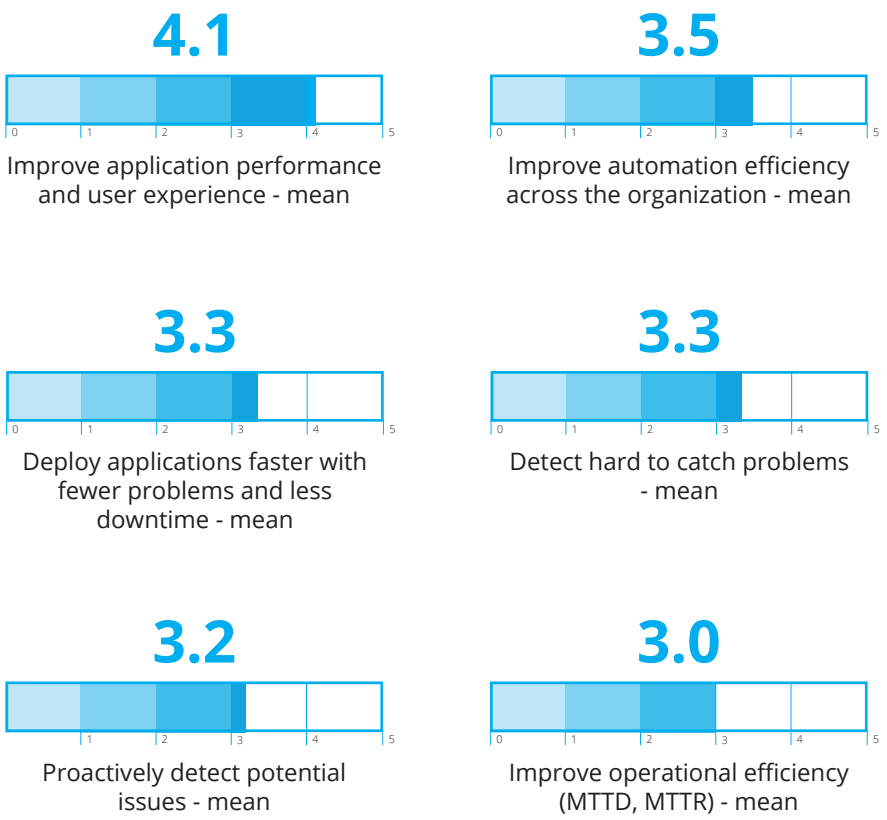
Expected Outcomes and Realized Benefits Diverge

We asked our survey respondents two other similar questions: what key outcomes did they expect to achieve from observability and what benefits have they realized so far from their observability solutions. Here again, the answers diverged. For the first one, we asked respondents to rate their key expected outcomes on a scale of 1 to 5. The clear top choice for our respondents was “improve application performance and user experience” at 4.1. As traditional code-level application performance management tools go by the wayside, ITOps teams are looking to observability tools to fill the gap, especially when it comes to managing modern microservices-based architectures with tracing and using log file analysis to gain new insights into applications and the infrastructure they depend on.

The other answers were all pretty close, ranging from “improve automation efficiency across the organization” at 3.5 down to “improve operational efficiency (MTTD/MTTR)” at 3.0.

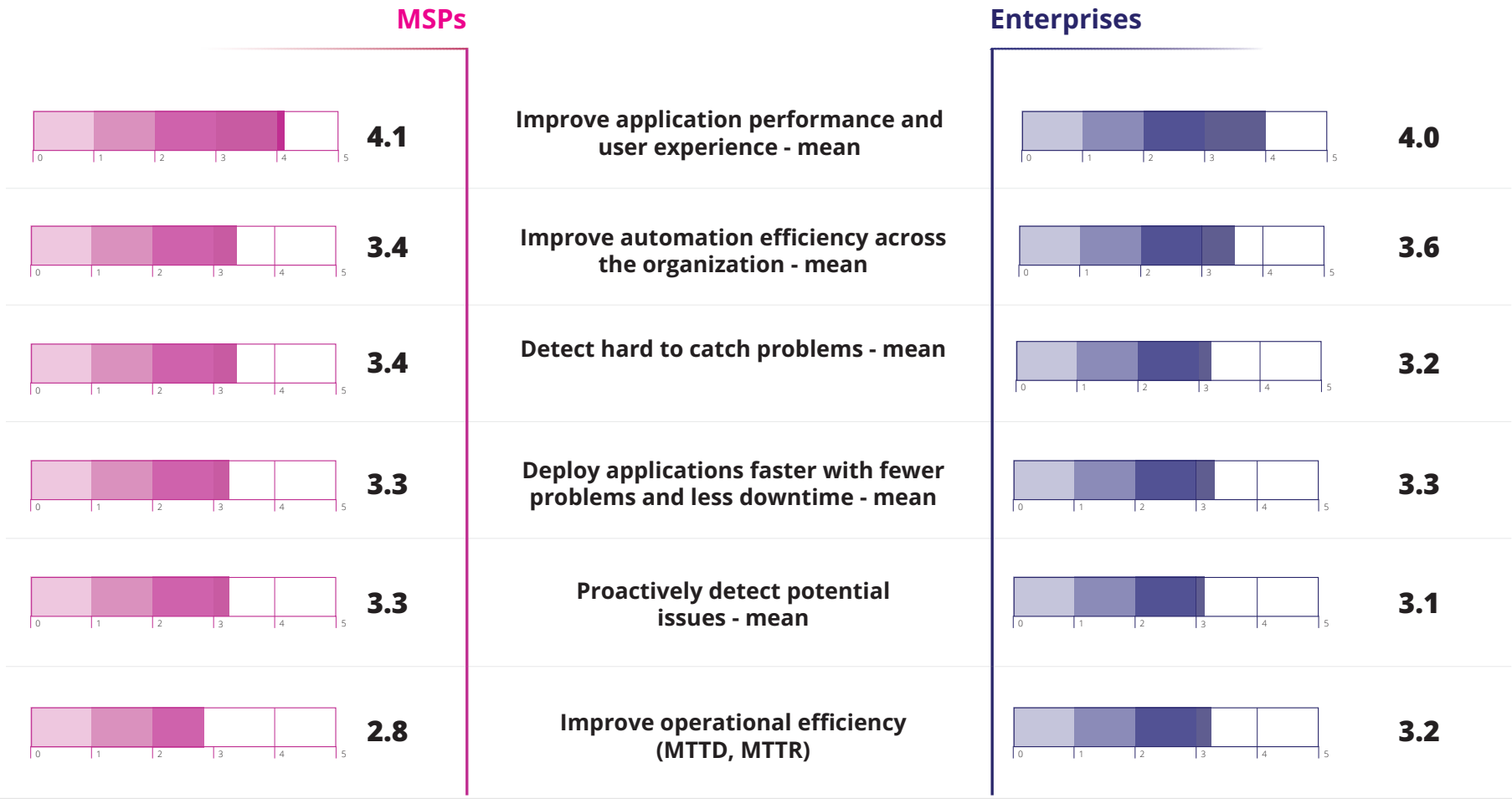
Q: What are the key outcomes you are expecting to achieve with an observability solution? (rate on scale of 1 to 5)



Key outcomes expected were nearly the same across enterprises and MSPs with only slight deviations.

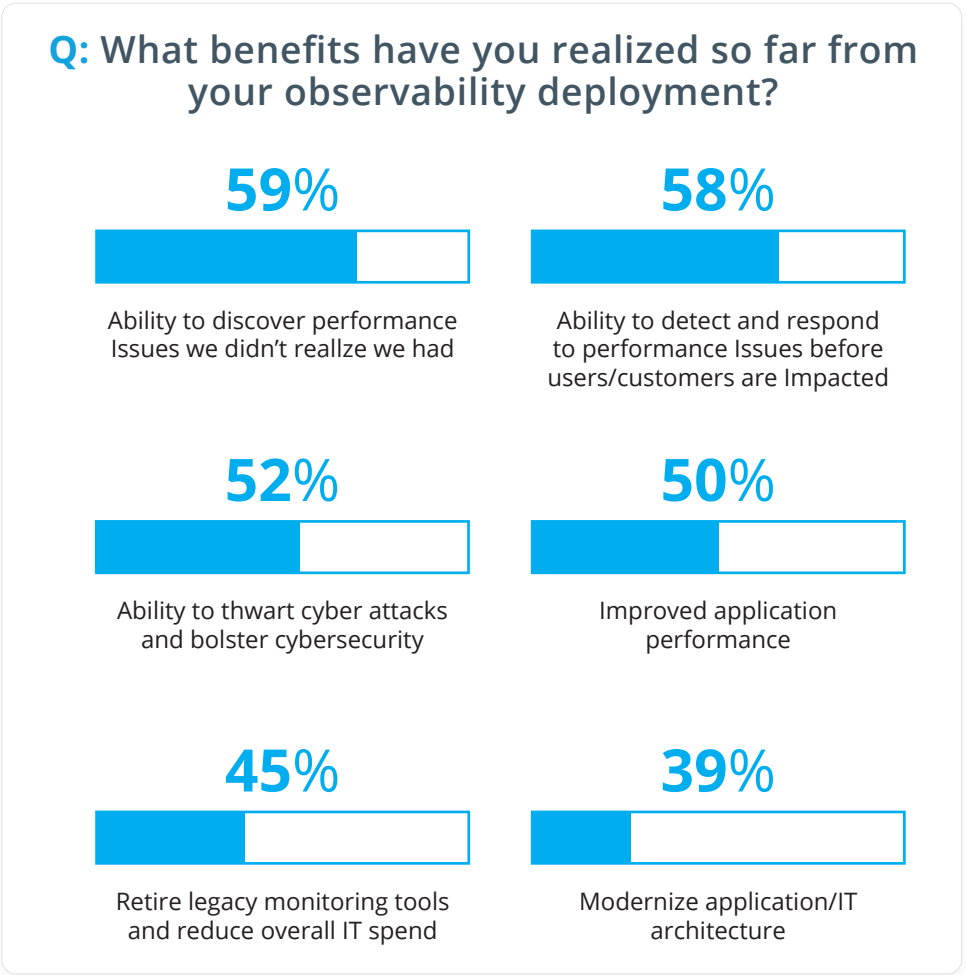
Q: What are the key outcomes you are expecting to achieve with an observability solution?

(rate on scale of 1 to 5)



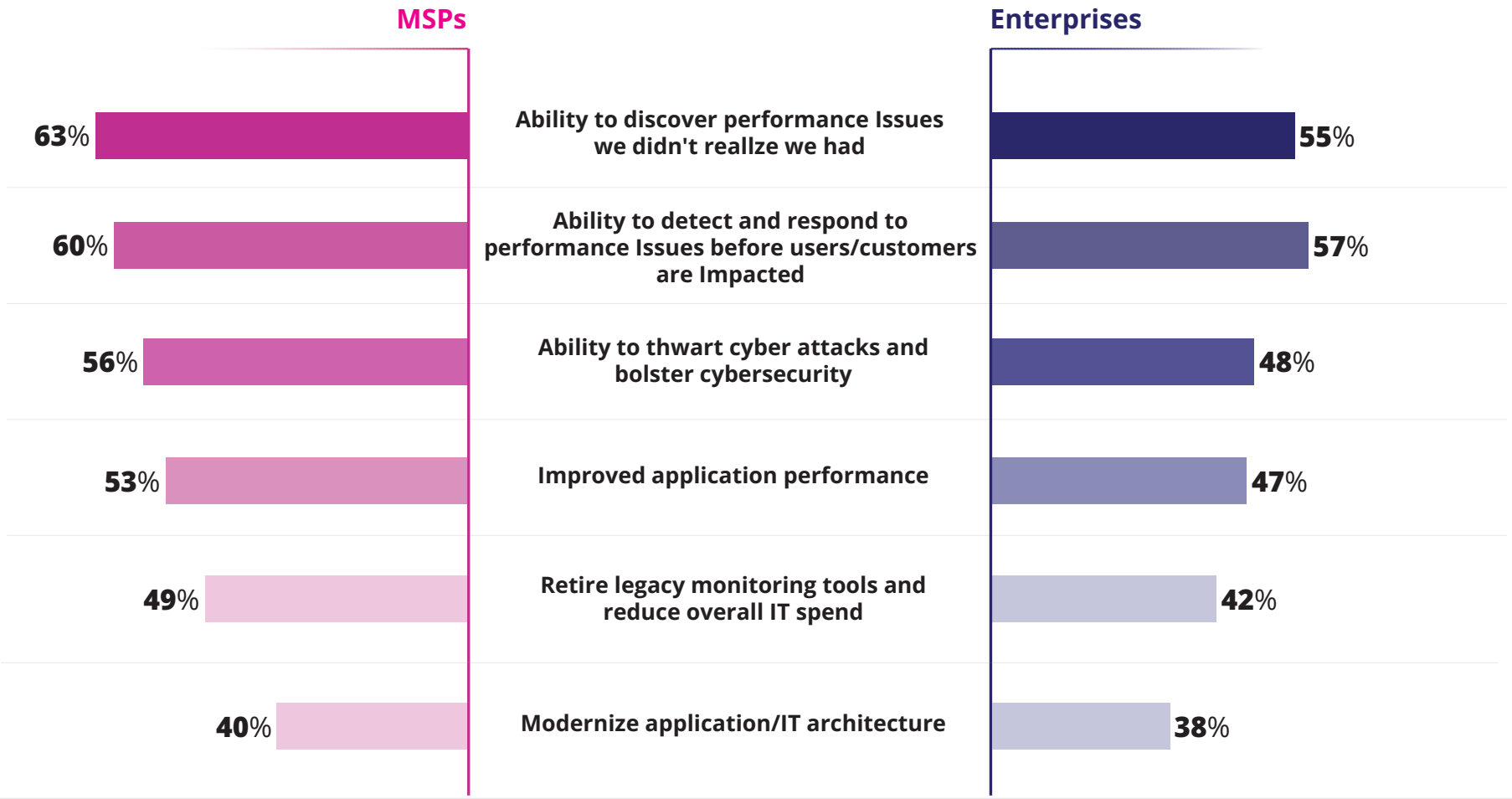
When we asked our respondents what benefits they've realized so far, the answers were much different. Here we let our respondents choose as many responses as applied. The top responses typically go hand-in-hand in ITOps: "Ability to discover performance issues we didn't realize we had" at 59% and "Ability to detect and respond to performance issues before users/customers are impacted" at 58%. These responses show the true power of a successful observability deployment: the ability to collect and analyze internal system data to detect performance issues before traditional monitoring tools do, which in turn is way before users are impacted.

The ability to thwart cyber attacks and bolster cybersecurity checked in next at 52%, then came improved application performance—the top expected outcome—at 50%. Retire legacy monitoring tools/reduce IT spend (45%) and modernize application/IT architecture (39%) came in well behind the others, but both would be more long-term benefits of observability and most of our respondents are still early in their observability journeys. Interestingly, despite the nascent state of most of our respondents' observability deployments, just 1% of respondents said they had not realized any benefits yet from observability.



Though our survey shows MSPs no further along in observability adoption than enterprises, on this question, MSPs indicated that they are realizing more benefits from observability than enterprises across the board.

Q: What benefits have you realized so far from your observability deployment?



VI.

Tools Consolidation: NPM is the First to Go

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As we just learned, most of our respondents are not yet at the point where they're using observability solutions to retire legacy tools and modernize their IT architectures. But that doesn't mean they haven't at least thought about it. We asked our survey respondents what solutions they were looking to replace or had already replaced with their observability tools. The clear "winner" was network performance monitoring (NPM) at 67%, easily outpacing application performance management or APM (the top expected outcome of observability) at 54%, infrastructure performance monitoring at 53% and cloud monitoring at 52%. Respondents seemed much less interested in retiring end user experience monitoring, which just 27% cited. Observability tools can and do provide insights into end user experience, but our respondents clearly aren't ready to let go of those tools and the validation they provide of what end users and customers are actually seeing.

Network performance monitoring, though an important tool in the ITOps arsenal, is a mostly reactive technology. It baselines normal network traffic levels then monitors that traffic for deviations from that norm using Simple Network Management Protocol (SNMP) polls and traps. It monitors network device health using Internet Control Message Protocol.

It sends alerts whenever problems are detected, or performance thresholds reached. It typically requires a lot of human intervention. Large corporate networks can send hundreds of alerts daily, leading to network management fatigue.

Network observability provides a much deeper view of network health, collecting and analyzing the data network devices generate, including logs and traces, and examining how those devices interact with each other. This more holistic view provides insights into the end user experience, helps get to the bottom of root cause faster and can enable a more proactive approach to network performance management, avoiding the alert fatigue so common with legacy NPM tools.

We would expect to see similar benefits for observability versus APM and cloud and infrastructure monitoring. But the network touches everything, on-premises and in the cloud. NPM tools tend to be older than other monitoring tools in the ITOps environment as well. Clearly our survey respondents see NPM as the first tool to be replaced by observability.

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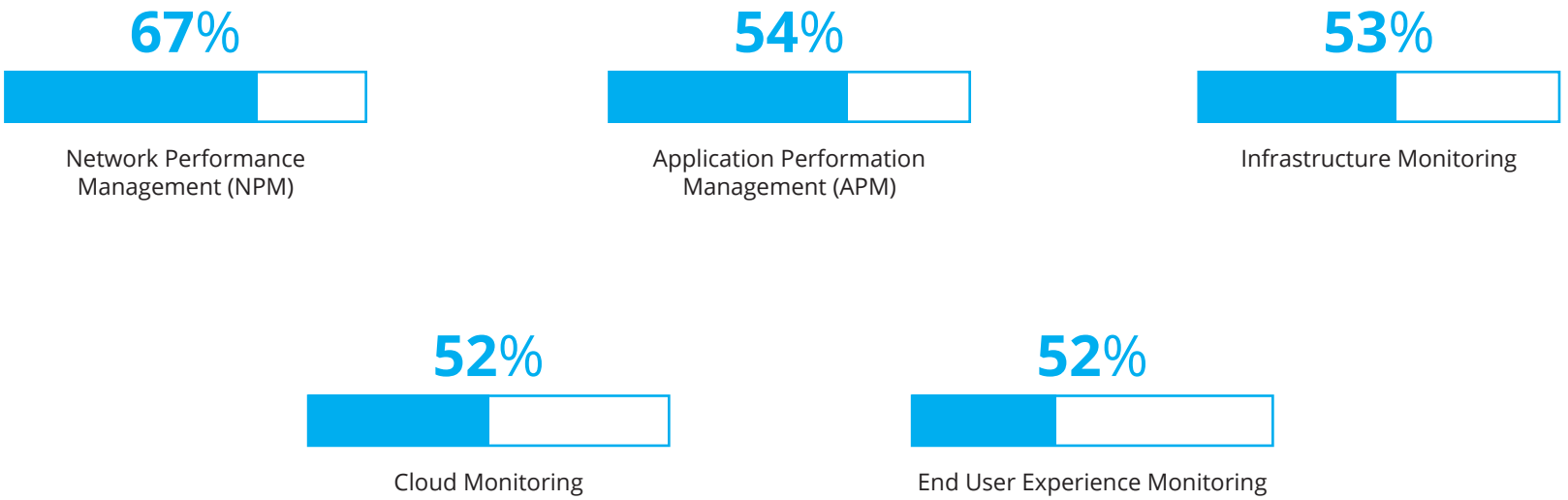
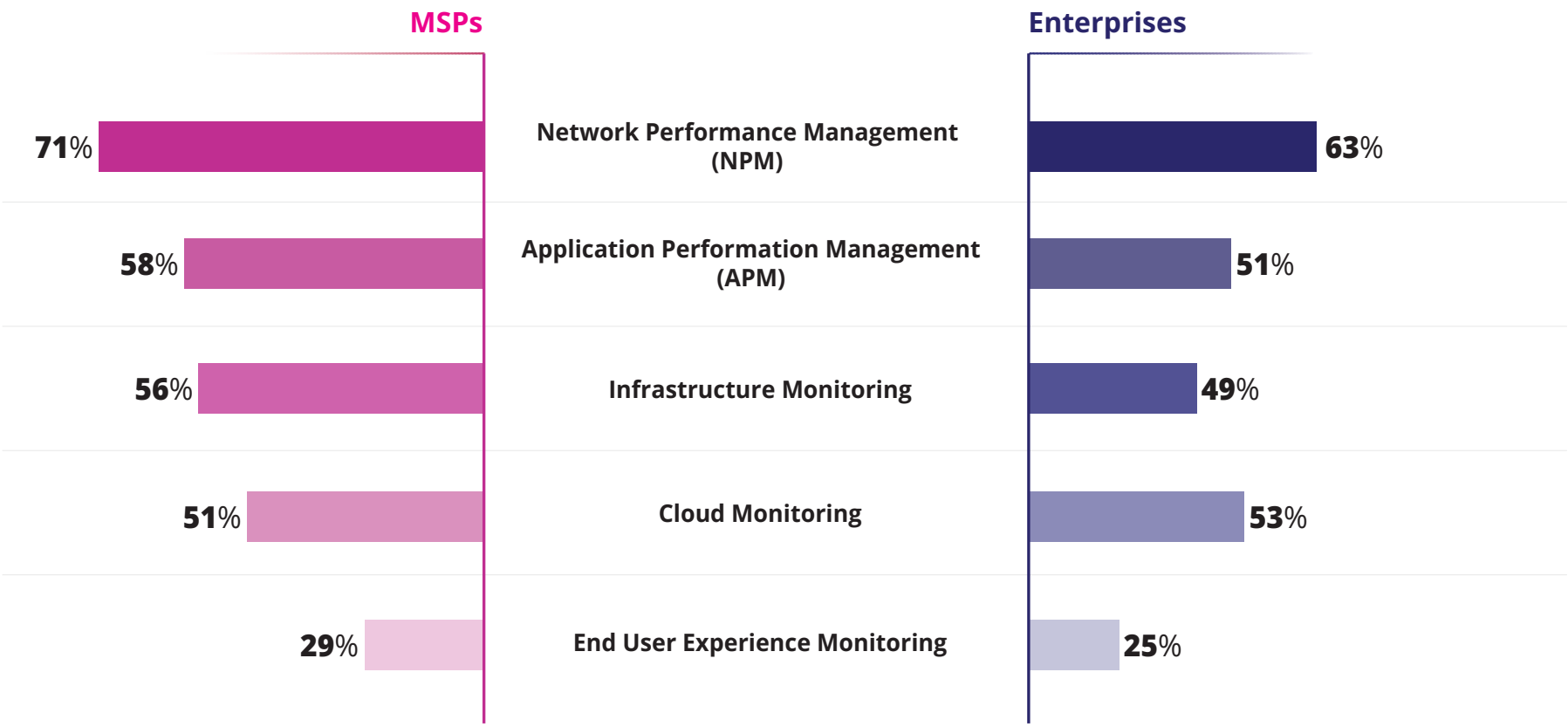
Tools Consolidation: NPM is the First to Go

Q: What solutions are you looking to replace or have you replaced with observability tools?



MSPs are even more inclined to consolidate other IT management tools with observability tools, with 71% of them looking to replace NPM tools vs. 63% of enterprises.

Q: What solutions are you looking to replace or have you replaced with observability tools?



VII.

Observability Doesn’t Replace Monitoring, it Makes it Better

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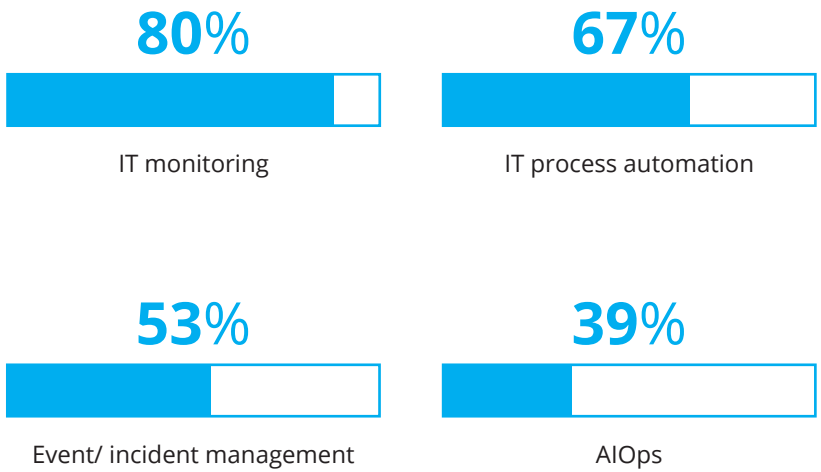
Observability Doesn't Replace Monitoring, it Makes it Better

The story of observability adoption isn't just about replacing legacy monitoring tools. It's also about integrating with monitoring to provide a complete picture of IT performance. That was an obvious conclusion when we asked our survey respondents what they have or plan to integrate with their observability tools. Again, respondents could make multiple choices and 80% checked off IT monitoring. This easily outpaced IT process automation (67%), event/incident management (53%) and AIOps (39%). Just 1% said observability was siloed in their organizations.

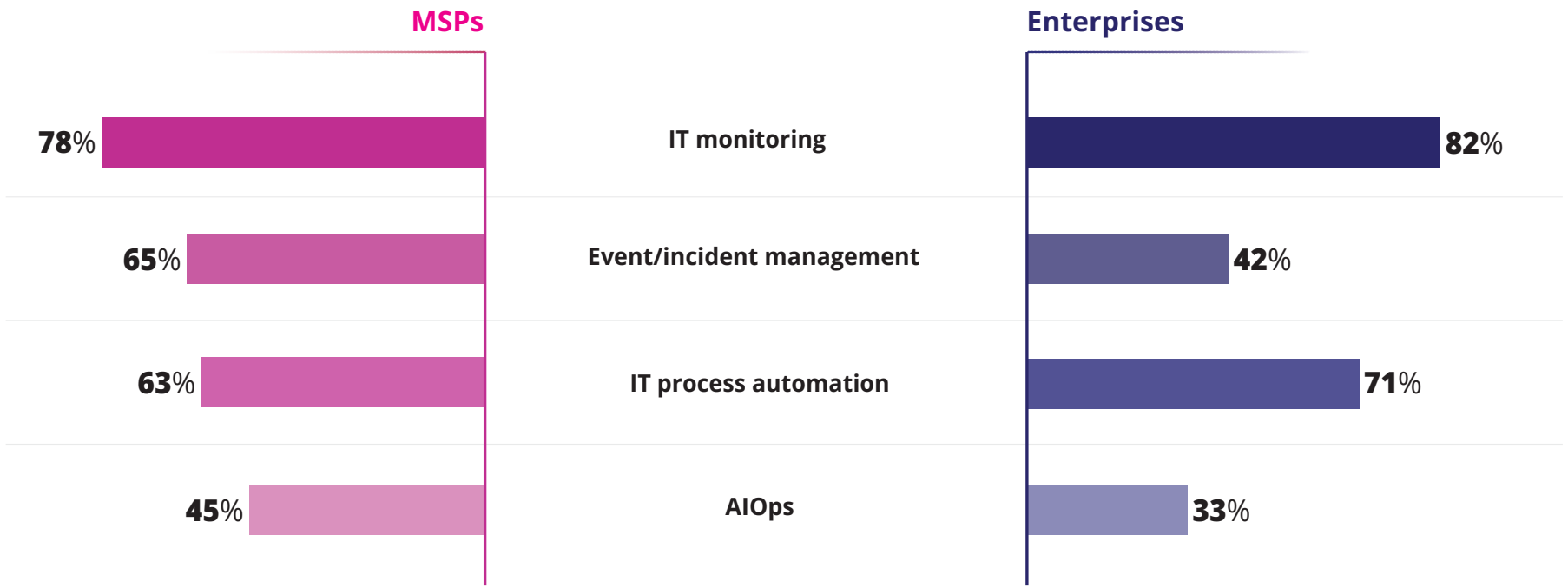
Observability may indeed replace monitoring, especially at the network level, but it's more likely to enhance monitoring by providing a more holistic view of system health and end user experience, improving root cause analysis and helping ITOps teams to get ahead of performance issues before customers and internal end users are impacted, rather than simply reacting to performance issues as they arise.

Q: What have you integrated or what do you plan to integrate with your observability tools?



There was quite a divergence in responses to this question between enterprises and MSPs, with enterprises more likely than MSPs to integrate IT monitoring and IT process automation with observability, but MSPs much more likely than enterprises to integrate AIOps and event/incident management with observability.

Q: What have you integrated or what do you plan to integrate with your observability tools?



VIII.

Observability Can Have Broad Internal Benefits

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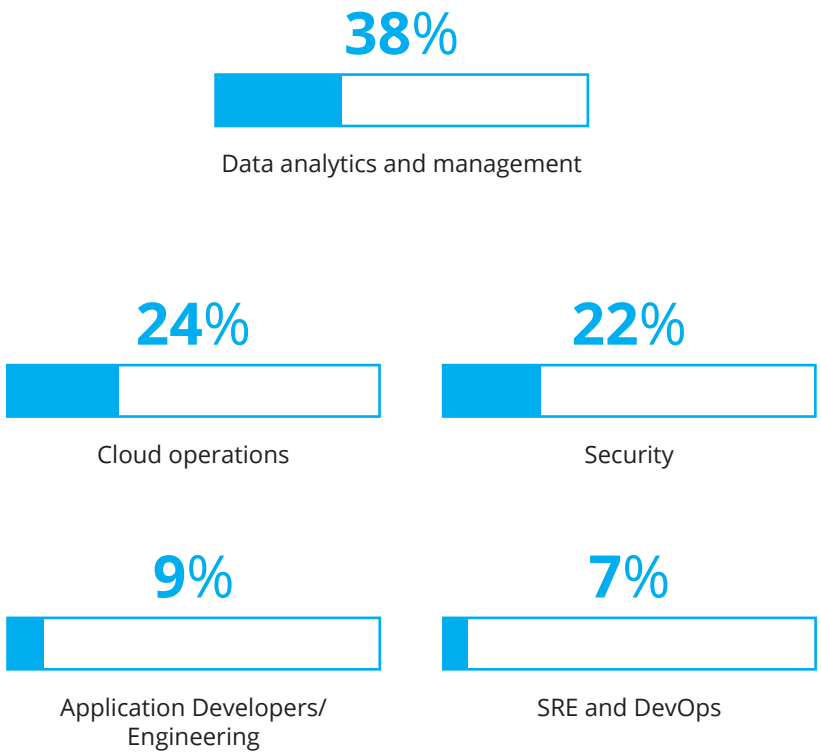
Observability Can Have Broad Internal Benefits

Next, we asked our survey respondents which internal team at their organization had or will benefit the most from adopting an observability strategy. The results were somewhat surprising as a clear plurality of 38% selected the "data analytics and management" team. Cloud operations was second, at 24%, no surprise there as observability is ideal for cloud environments that can't be managed with traditional monitoring tools. Next came security at 22%. Observability data, especially from logs, has long been used in security information and event management (SIEM) systems.

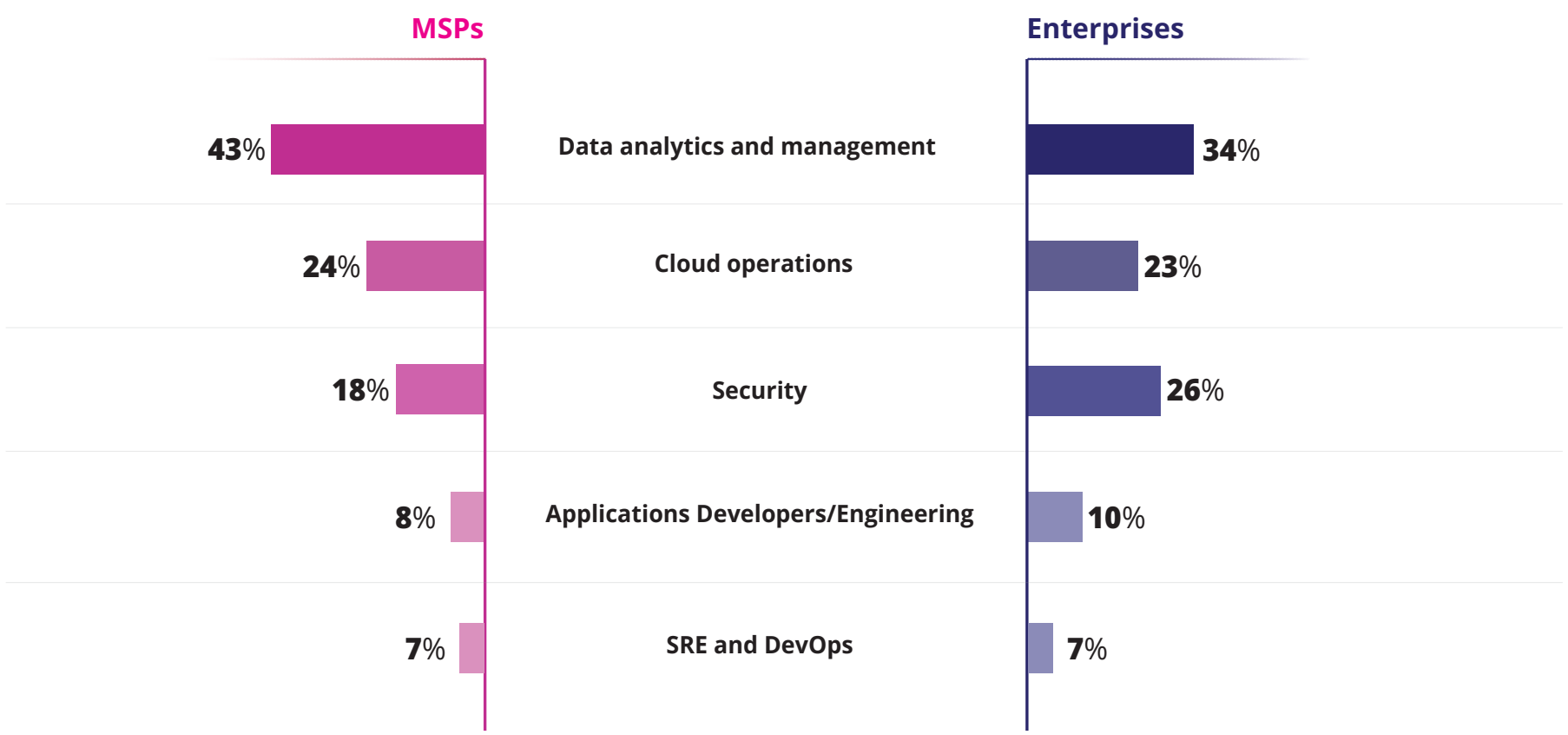
We were surprised to see SRE and DevOps dead last on the list, at 7%, even trailing application development and engineering, at 9%. Given the overall positive reviews that observability gets in this study and the fact that all 603 respondents work in similar roles, the takeaway here is that our respondents think there's a wealth of information in observability data that can have benefits well beyond IT operations.

Q: Which team has or will benefit the most from an observability strategy?



Here again, there were some differences in the responses to this question between enterprises and MSPs. While both cited data analytics and management as the teams that would benefit the most, MSPs were even more enthusiastic about those teams, by 9 percentage points. Enterprises on the other hand were decidedly more bullish about security than MSPs.

Q: Which team has or will benefit the most from an observability strategy?



IX.

Metrics Are the Most Critical Data Type in Observability

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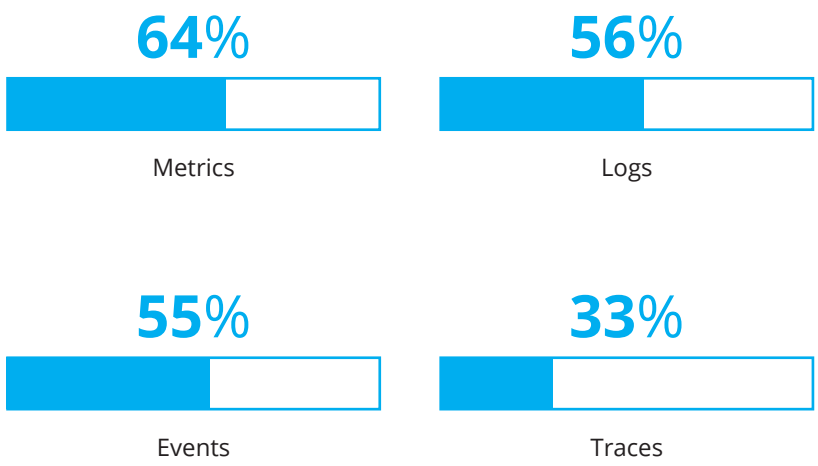
Metrics Are the Most Critical Data Type in Observability

We know by now that observability data typically includes data generated from metrics, events, logs and, traces. But of the observability data types, which do users find most critical? The clear winner for our survey respondents was the most established observability data type: metrics, at 64% of respondents. Metrics in observability means traditional key performance indicators such as CPU and memory usage, system error rate, or application or service request rate. More advanced metrics that are becoming increasingly popular include cloud cost calculations, power consumption and sustainability measurements. Anything that can be measured or calculated with a numerical value can be a metric.

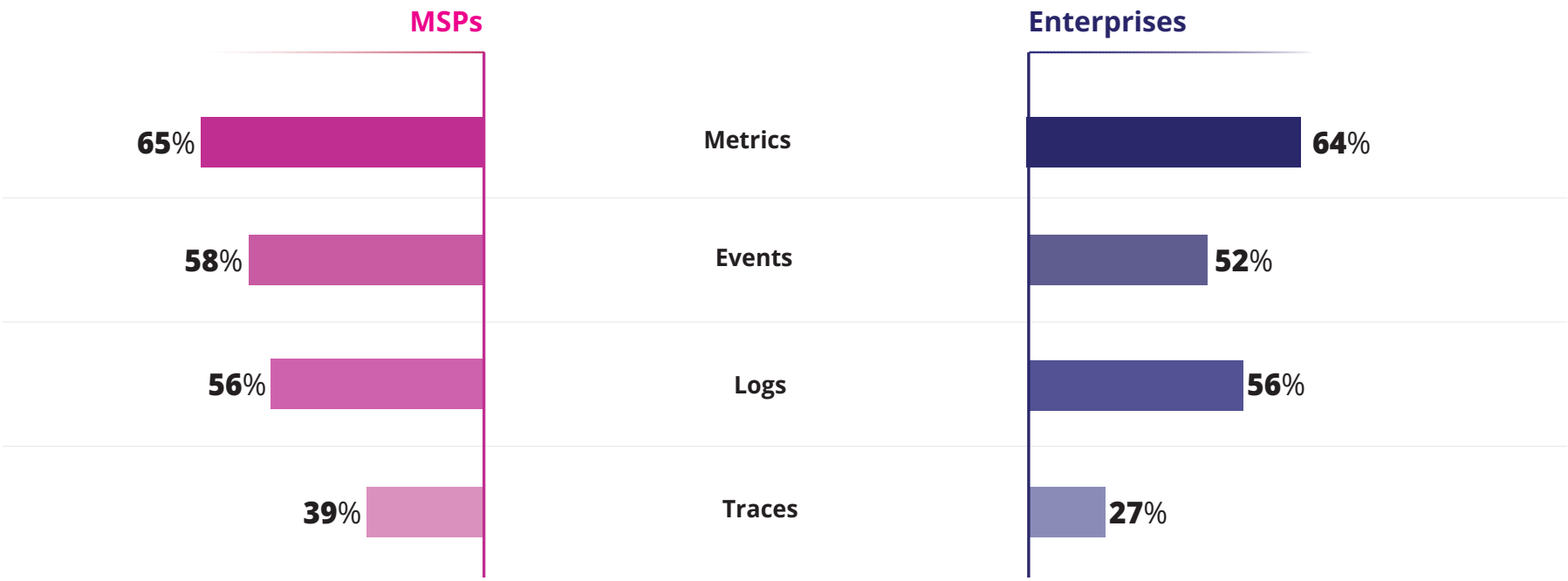
Logs came in second at 56%, followed closely by events at 55%. Traces, the newest observability data type, lagged the rest of the field at just 33%. Again, our respondents are still early on their observability journeys. Also, traces are used for modern microservices-based architectures that many organizations have yet to adopt.

Q: Which data types are most critical in your observability strategy?



MSPs cited more data types than enterprises across the board but were especially farther along in traces, by 39 to 27%.

Q: Which data types are most critical in your observability strategy?



X.

Integrations are Key to Observability Solutions

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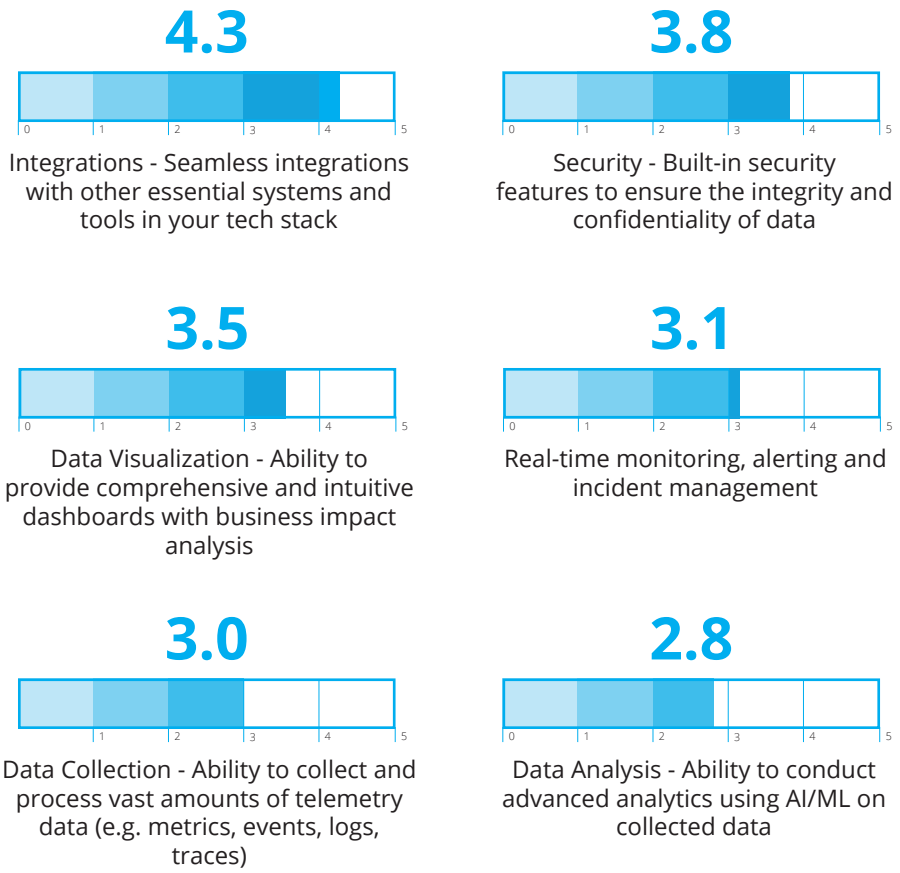
Integrations are Key to Observability Solutions

Observability doesn't happen in a vacuum or in siloes. Our survey respondents reinforced that message when we asked what critical capabilities they were looking for in an observability solution. Once again, we asked them to rate these capabilities on a scale of 1 (least critical) to 5 (most critical). The clear winner, with a score of 4.3, was Integrations, which we defined as "seamless integrations with other essential systems and tools in your tech stack." Recall that earlier in the survey, we asked respondents what tools they were looking to integrate with observability solutions. The top choice was IT monitoring at 80%. This question reinforced that IT organizations and MSPs see observability as another tool to deliver a holistic view of IT performance, that will be more complementary to their existing tool stack.

Real-time monitoring, alerting and incident management scored just a 3.1 on this question, well behind security (3.8) and data visualization (3.5) but ahead of data collection (3.0) and data analysis (2.8). While users still value the traditional ITOps domains of monitoring, alerting and incident management, they want their observability tools to integrate with the other IT management tools in their environments.

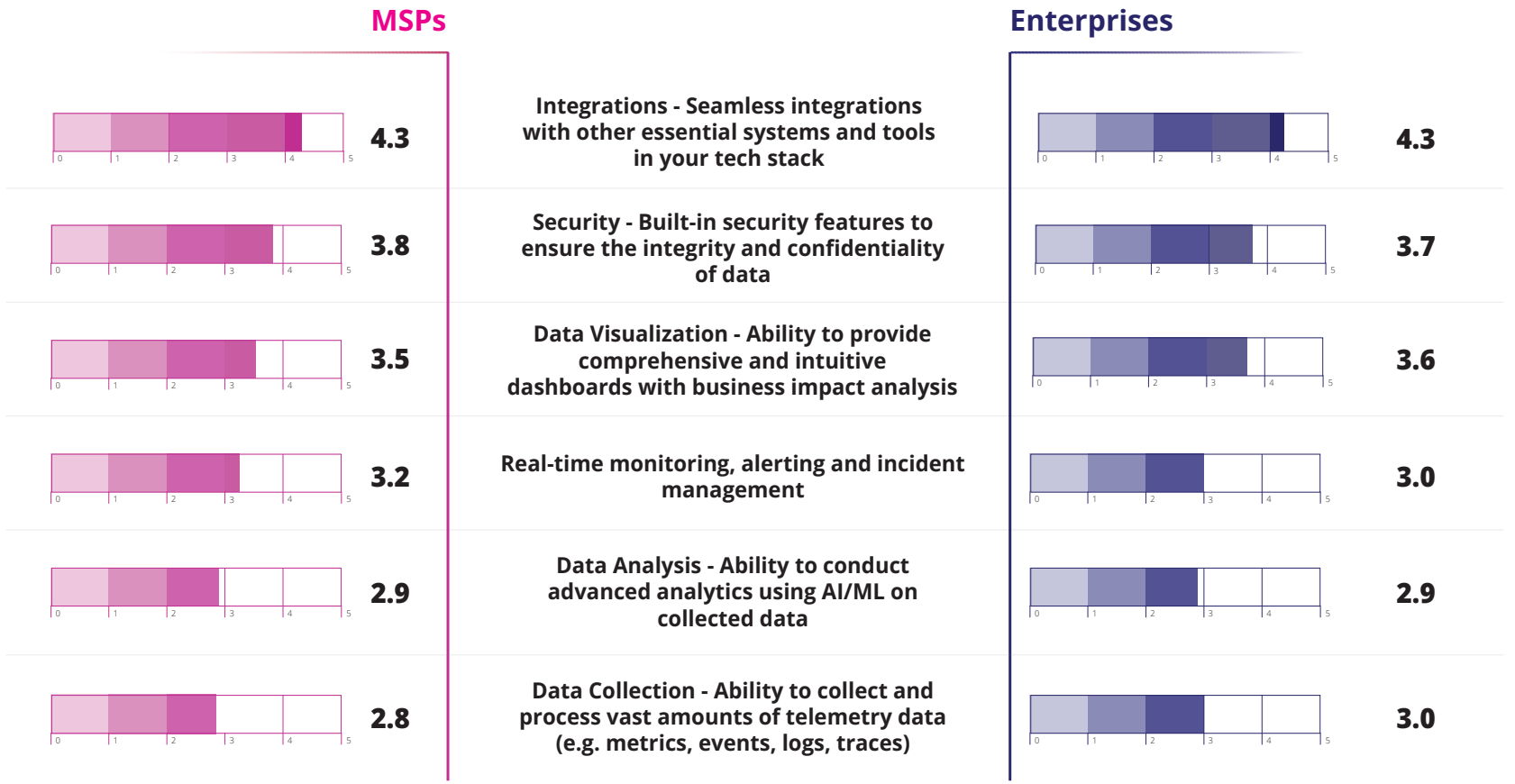
Q: Which capabilities are critical to have in an observability solution? (rate on scale of 1 to 5)



Enterprises and MSPs' responses to this question nearly mirrored each other with only very subtle differences.

Q: Which data types are most critical in your observability strategy?

(rate on scale of 1 to 5)



XI.

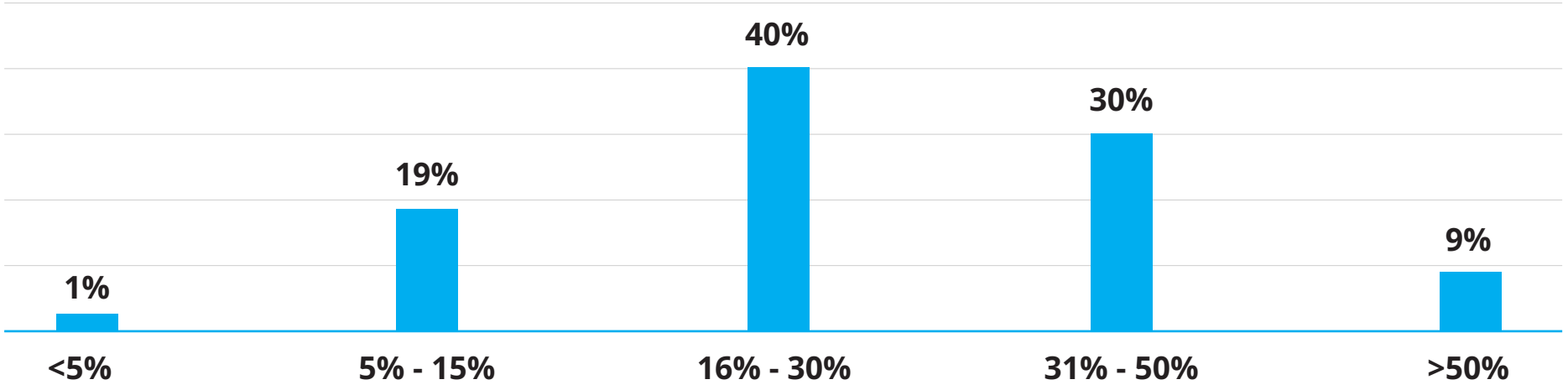
Most Organizations Aren’t Ready for Tracing

Most Organizations Aren't Ready for Tracing

As we noted above, tracing lags the other types of observability data by a wide margin. This next question explains the reason why. We asked our survey respondents what percentage of their business-critical applications were built to generate "trace" data. These would typically be microservices-based or serverless applications, where an application request would traverse multiple services in a distributed system.

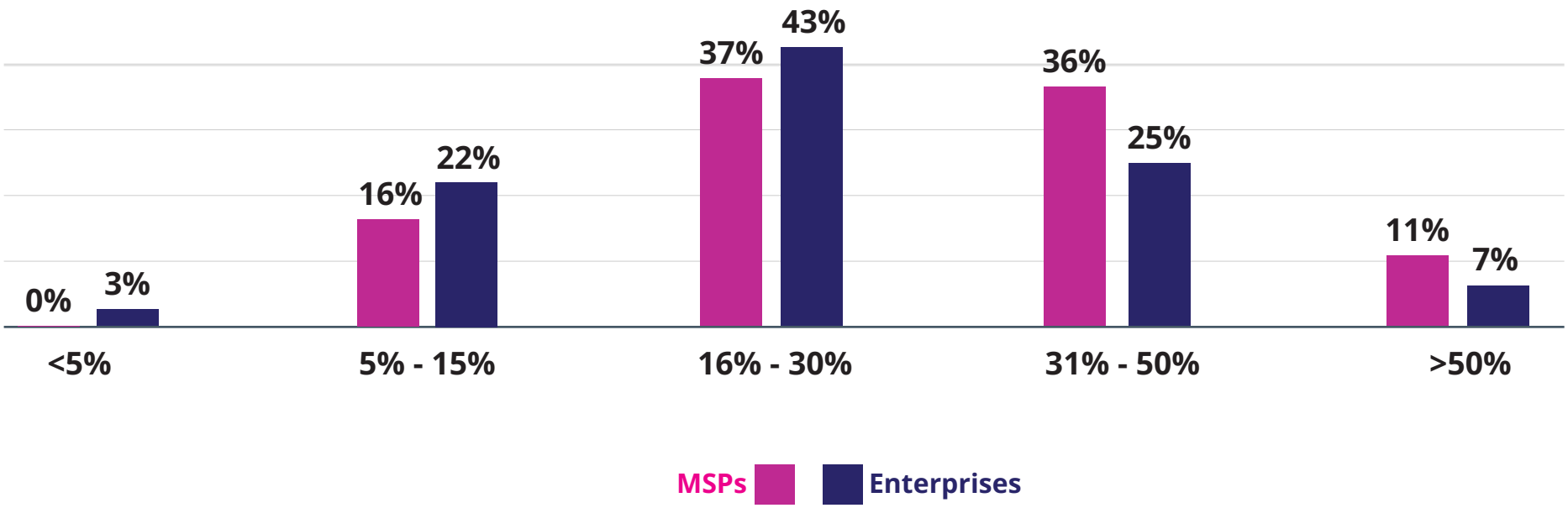
Altogether 91% of our survey respondents said that less than half of their business-critical applications were built this way, with the largest percentage—40%-- saying that 16-30% of their business-critical applications generated trace data. While microservices and serverless may be the wave of the future, organizations we surveyed are still adopting them slowly and for now have less need for distributed tracing vs. other observability data types.

Q: What percentage of your business-critical applications are built to generate "trace" data?



Since MSPs told us earlier that they were farther along in using tracing than enterprises, we would expect them to have more business-critical applications generating trace data than enterprises. The numbers bear this out. Nearly half of MSPs (47%) said that more than 30% of their business-critical applications were built to generate trace data vs. just 32% of enterprises reaching that level.

Q: What percentage of your business-critical applications are built to generate "trace" data?



Conclusion

Here are five key takeaways from this report for both enterprises and MSPs to consider as they assess their observability strategies:

1. **It's not too late to get started.** Despite all the hype around observability in the last few years, it's still early days yet for the technology. Most of our survey respondents have yet to move past the pilot stage and few have achieved "full stack" observability. If you're looking for early wins, cloud and cloud-native observability is a good place to start and is probably your largest visibility gap.

2. **Be wary of high costs and data challenges.** Our survey respondents overwhelmingly preferred enterprise license agreements with fixed costs and are steering clear of consumption-based pricing models, which can get expensive fast. But managing, storing and analyzing all of that data has so far been more of a challenge for our survey respondents than paying for it.

3. **Observability is about getting ahead of problems before your users are impacted.** Dealing with and making sense of all that observability data is challenging but has its rewards. The top two realized benefits of observability cited by our survey respondents were discovering performance issues they didn't know they had and being able to get ahead of those performance issues before end users were impacted. In other words, observability tools are finding problems that traditional monitoring tools may have missed on their own.

4. **Don't just replace, integrate!** Successful deployment of observability tools can allow you to retire legacy monitoring tools from your environment. Our survey respondents found the greatest opportunity for tools consolidation in network performance monitoring. But our survey respondents were even more bullish about integrating with their existing tools, especially IT monitoring, to deliver a more holistic view of their IT estate.

5. **Metrics are still king.** Logs and traces may be newer and sexier but metrics are still the top observability data type in deployment. Look for opportunities to advance beyond more basic metrics like CPU and memory usage to more advanced metrics like cloud cost monitoring and power consumption. You'll need to modernize your application architectures to support microservices and serverless computing to be able to take advantage of distributed tracing.

Fortunately, enterprises and MSPs don't have to go it alone in capitalizing on the observability opportunity. The OpsRamp SaaS-based digital operations management platform now supports full-stack hybrid observability, bringing together server, storage, network, virtualized, cloud, containerized, and application metrics together in one place along with events, logs and traces. With hybrid discovery and observability, proactive event management, and intelligent automation on a single platform, OpsRamp can pinpoint the root cause of incidents and automate incident response, helping you to get ahead of performance issues before your end users and customers are impacted.

The OpsRamp integrations ecosystem ensures bi-directional collaboration across your existing tools for monitoring, IT service management, collaboration, security, and more, supporting your integration initiatives and helping you to deliver a holistic view of your IT infrastructure wherever it resides.

To learn more about OpsRamp's hybrid, full-stack observability, visit OpsRamp.com

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