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Scaling Observability and Reliability in
the Era of Cloud-Native Delivery

Day 2 Operations Survey Research Report

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Executive Overview

In theCUBE Research's Application Development and Modernization Day 2 Operations research survey, we examined how enterprises are managing observability, application reliability, AI-powered operations, and future investment strategies. Results show strong momentum: nearly all organizations are giving cloud and application monitoring top priority, SLO tracking is now almost universal, and AIOps is quickly moving from experimental to necessary. Over 85% plan near- or mid-term investments in observability and AI-driven operations, with 61% already exploring new tools. The shift from reactive monitoring to proactive, AI-enhanced operations is evident.
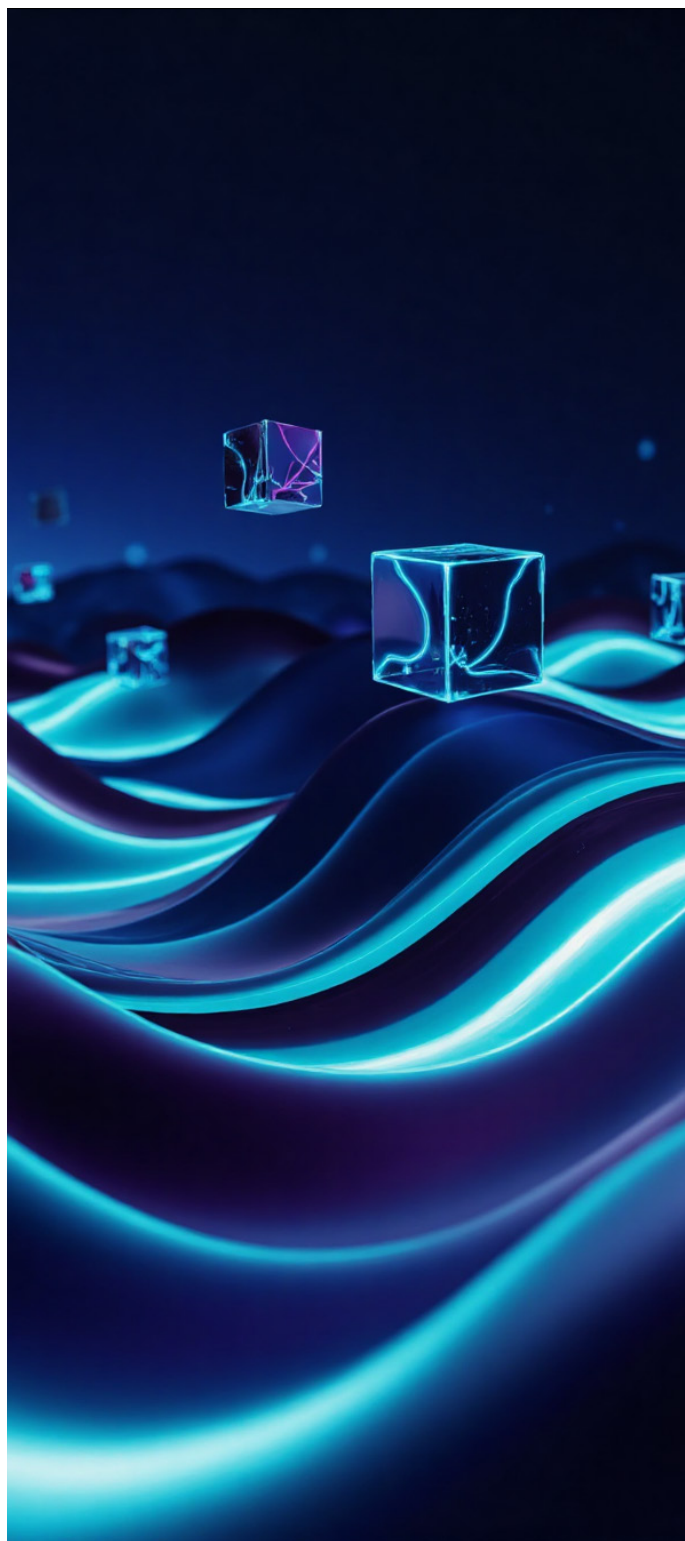
Observability

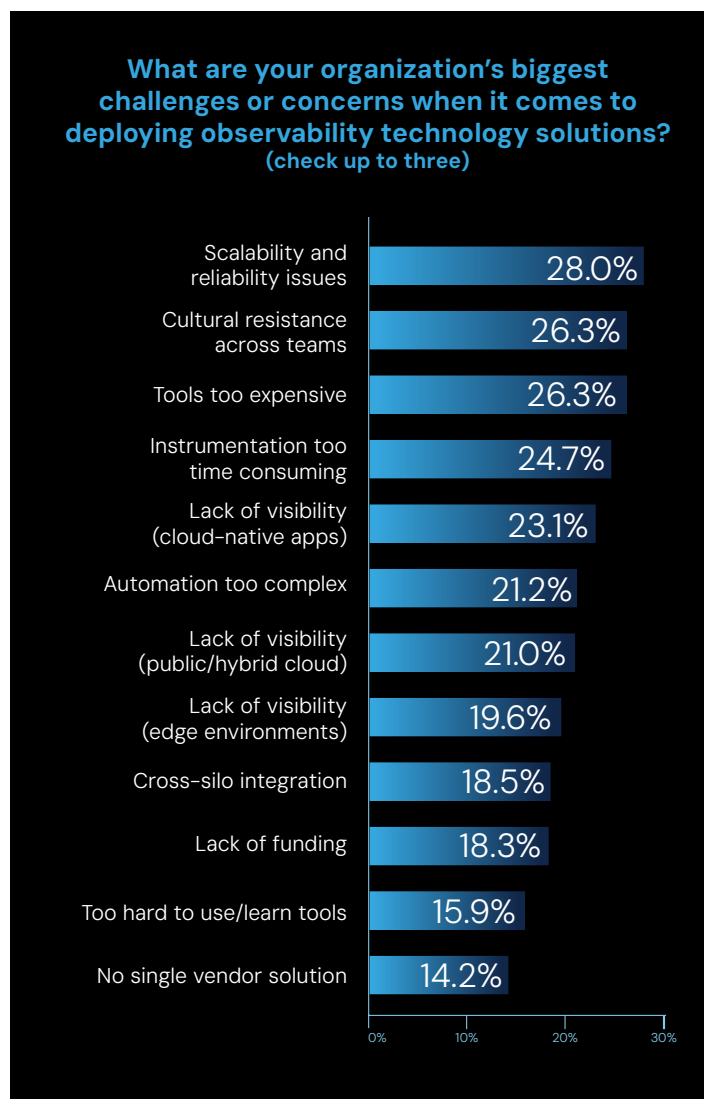## Cloud and Application Monitoring Lead

Cloud monitoring (14.5%) and application performance monitoring (13.7%) are the most common third-party observability capabilities. Security (10%) and network monitoring (9.1%) follow, while advanced functions, such as AIOps (4.3%) and distributed tracing (1.6%), remain relatively rare.
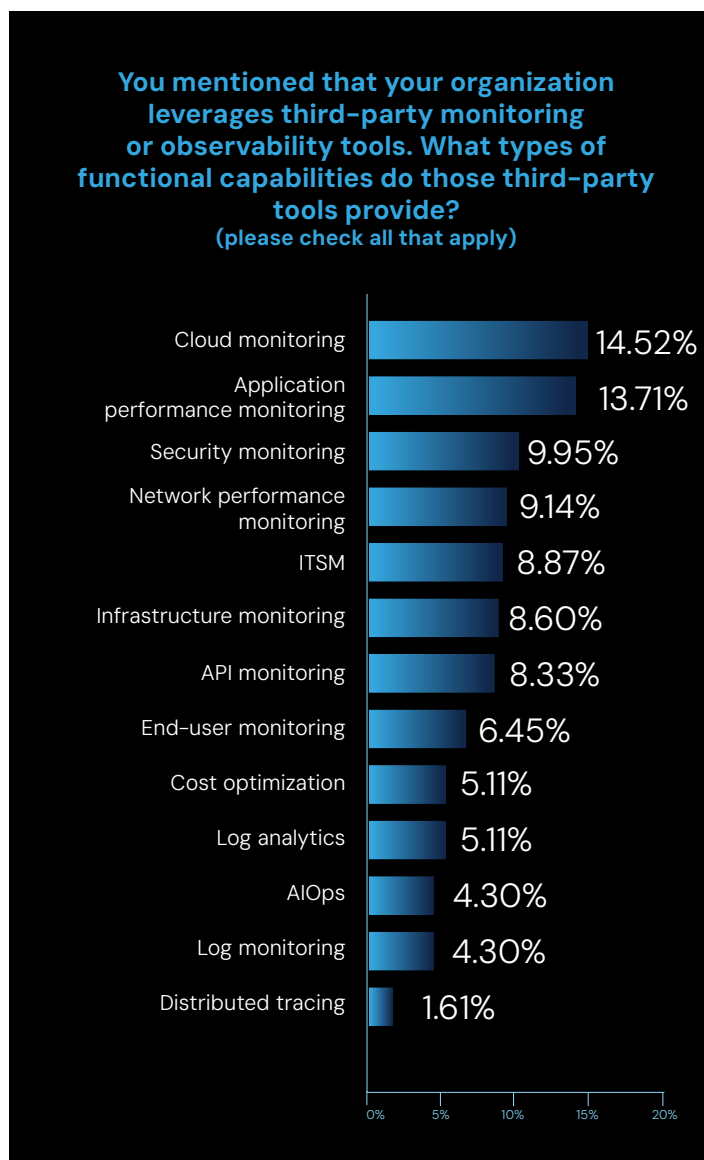
These problems highlight a fundamental conflict: observability is a strategic priority, but cost and complexity often hinder its execution. It will take both more effective tooling and cultural buy-in to scale without sacrificing reliability.

Challenges to Observability

The top challenges reflect a blend of technical and organizational hurdles with scalability and reliability (28%), tool costs (26%), and cultural resistance (26%) leading the list, followed by instrumentation complexity (25%) and visibility gaps in cloud-native environments (23%).

You mentioned that your organization leverages third-party monitoring or observability tools. What types of functional capabilities do those third-party tools provide?
(please check all that apply)

Capability	%
Cloud monitoring	14.52%
Application performance monitoring	13.71%
Security monitoring	9.95%
Network performance monitoring	9.14%
ITSM	8.87%
Infrastructure monitoring	8.60%
API monitoring	8.33%
End-user monitoring	6.45%
Cost optimization	5.11%
Log analytics	5.11%
AIOps	4.30%
Log monitoring	4.30%
Distributed tracing	1.61%

What are your organization's biggest challenges or concerns when it comes to deploying observability technology solutions?
(check up to three)

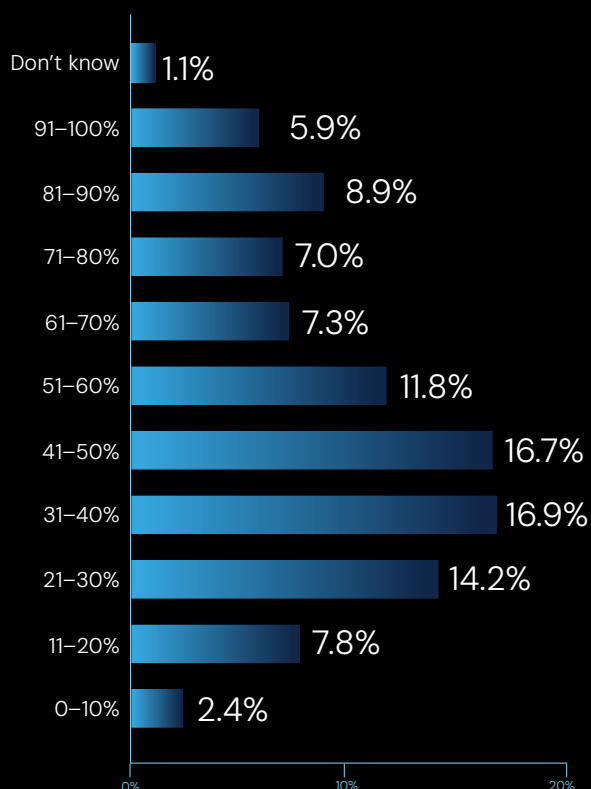| Challenge	%
Scalability and reliability issues	28.0%
Cultural resistance across teams	26.3%
Tools too expensive	26.3%
Instrumentation too time consuming	24.7%
Lack of visibility (cloud-native apps)	23.1%
Automation too complex	21.2%
Lack of visibility (public/hybrid cloud)	21.0%
Lack of visibility (edge environments)	19.6%
Cross-silo integration	18.5%
Lack of funding	18.3%
Too hard to use/learn tools	15.9%
No single vendor solution	14.2%

These problems highlight a fundamental conflict: observability is a strategic priority, but cost and complexity often hinder its execution. It will take both more effective tooling and cultural buy-in to scale without sacrificing reliability.

Container and Serverless Monitoring Coverage

Coverage for containerized and serverless workloads remains inconsistent, with most organizations reporting less than 50% visibility into these workloads. Digital-native companies lead the adoption, while traditional enterprises lag.

Considering your monitoring and organization's observability/practice, what percentage of your organization's production applications currently being monitored/observed run on containers or serverless environments?
(Please select one)

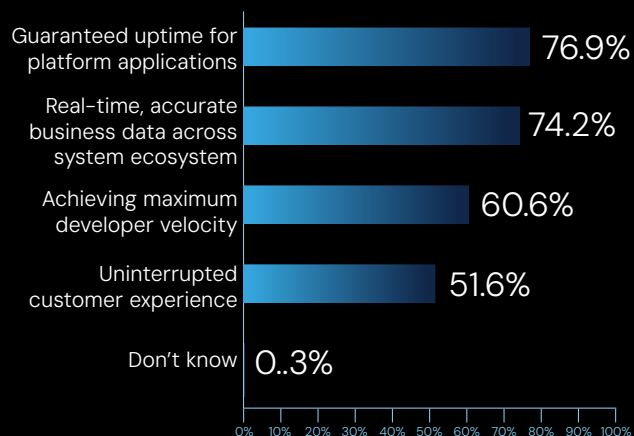|	
Don't know	1.1%
91–100%	5.9%
81–90%	8.9%
71–80%	7.0%
61–70%	7.3%
51–60%	11.8%
41–50%	16.7%
31–40%	16.9%
21–30%	14.2%
11–20%	7.8%
0–10%	2.4%

It's interesting to note that while 64% of respondents favor open source vendors, more than 80% also require enterprise-grade support for the same tools. These two expectations highlight the need for excellent, open-source, and commercially supported observability solutions.

Application Development Environment

Measuring Success in Meeting SLOs

Organizations are increasingly tying platform health to business outcomes. The top SLOs tracked include guaranteed uptime (76.9%), real-time business data accuracy (74.2%), and developer velocity (60.8%). More than half (51.6%) also measure uninterrupted customer experience.

You indicated your organization tracks service-level objective (SLO) for internally developed applications. What are your organization's measurements for successfully achieving your SLO?
(please check all that apply))

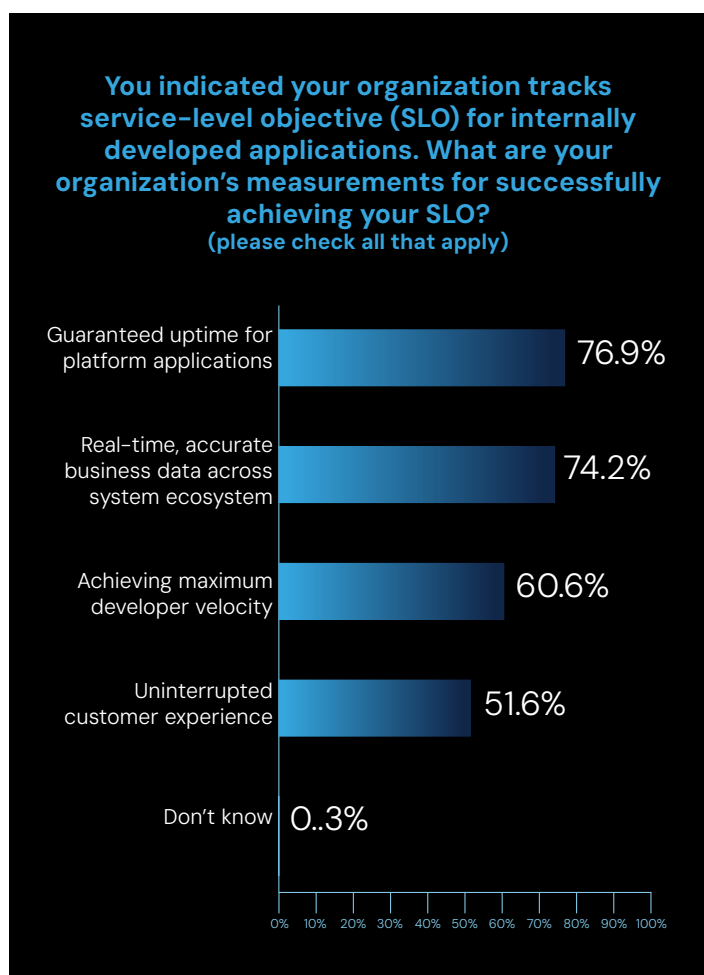|	
Guaranteed uptime for platform applications	76.9%
Real-time, accurate business data across system ecosystem	74.2%
Achieving maximum developer velocity	60.6%
Uninterrupted customer experience	51.6%
Don't know	0..3%

This mix of operational, technical, and customer-centric KPIs reflects a mature approach where reliability is measured not only by infrastructure uptime but also by user and business impact.

SLO Tracking for Internally Developed Applications

SLO tracking is nearly universal, with 93.3% applying it to internally developed applications, and just 5.7% abstaining. By contrast, SLAs are seen as less relevant, as infrastructure uptime doesn't always equate to application availability.
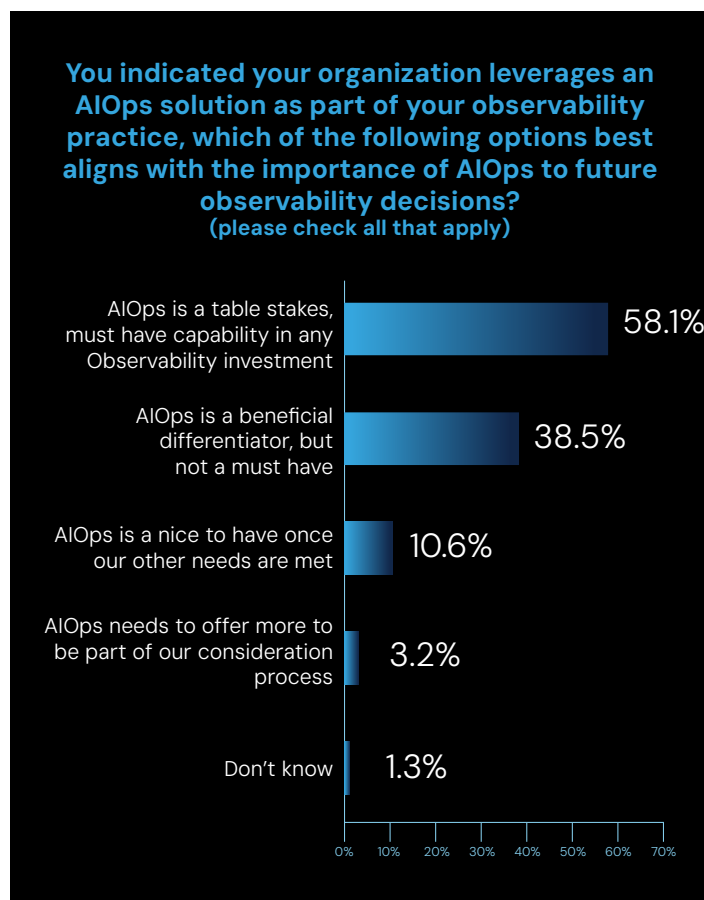
This change is indicative of a proactive, observability-driven mentality that prioritizes application dependability and service quality over conventional infrastructure assurances.

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Application Development Environment

AIOps in Observability Decisions

AIOps is no longer optional. Over half (58.1%) see it as a must-have for observability, while another 26.9% view it as a valuable differentiator. Just 10.8% still consider it optional.

You indicated your organization leverages an AIOps solution as part of your observability practice, which of the following options best aligns with the importance of AIOps to future observability decisions?
(please check all that apply)

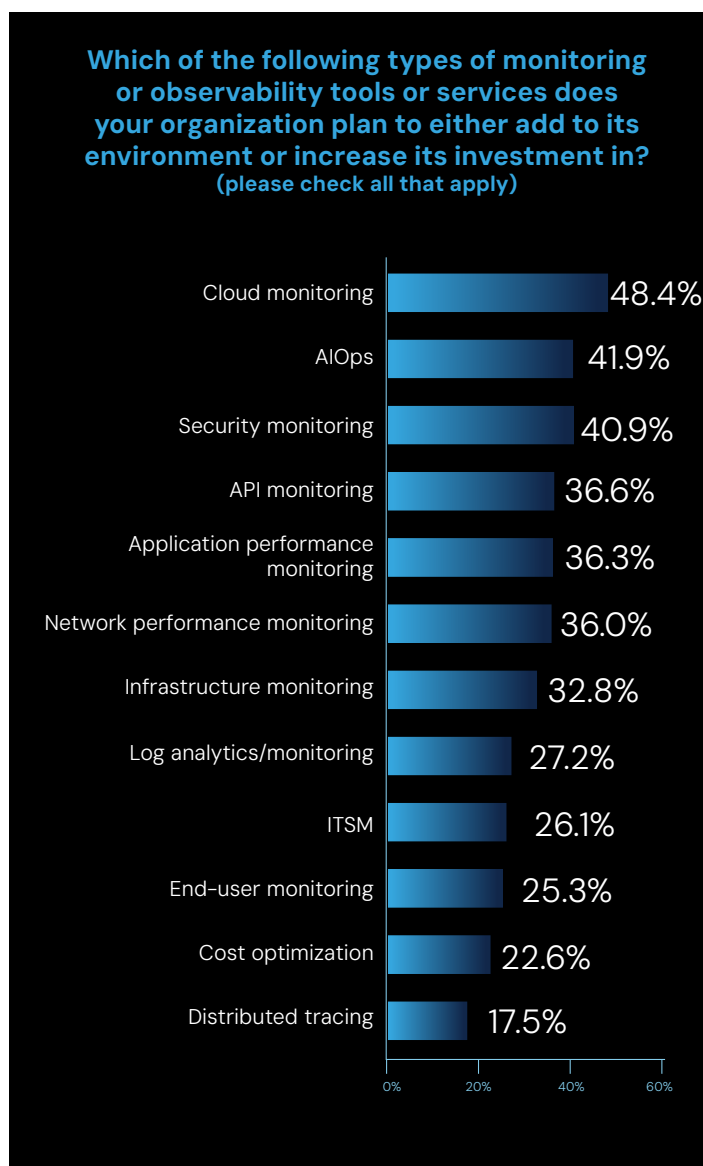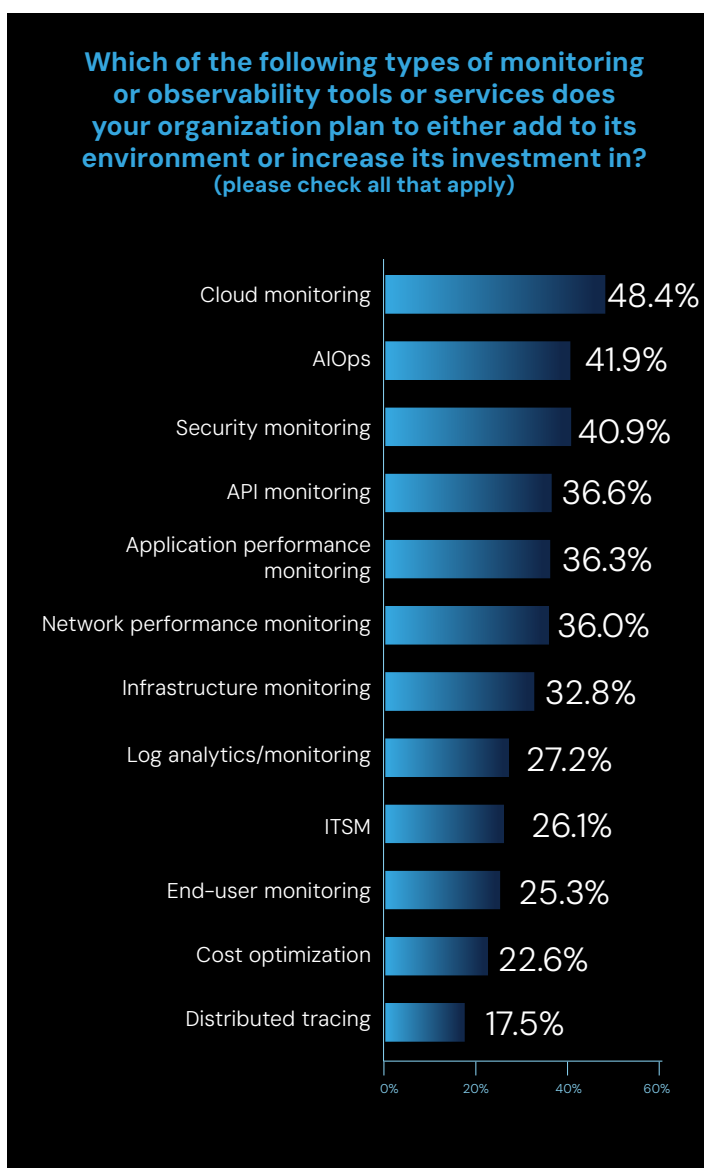|	
AIOps is a table stakes, must have capability in any Observability investment	58.1%
AIOps is a beneficial differentiator, but not a must have	38.5%
AIOps is a nice to have once our other needs are met	10.6%
AIOps needs to offer more to be part of our consideration process	3.2%
Don't know	1.3%

AIOps is becoming essential for reducing noise, accelerating root cause analysis, and enabling scalable, automated operations in increasingly complex observability environments. "Future nice-to-have" has given way to "table stakes."

Future Spending & Investment Areas

Planned investments cluster around cloud monitoring, distributed tracing, and integrated log analytics/monitoring, each cited by roughly 27% of respondents. The primary drivers are data volume growth, scalability challenges, cultural hurdles, and the cost/complexity of tools.

Over 85% of organizations anticipate investing in observability and AIOps in the near- or mid-term, and 61% of organizations are currently assessing new observability tools. This suggests that the industry is moving toward proactive, intelligence-driven operations that are intended to guarantee long-term scalability and dependability.

Which of the following types of monitoring or observability tools or services does your organization plan to either add to its environment or increase its investment in?
(please check all that apply)

Cloud monitoring	48.4%
AIOps	41.9%
Security monitoring	40.9%
API monitoring	36.6%
Application performance monitoring	36.3%
Network performance monitoring	36.0%
Infrastructure monitoring	32.8%
Log analytics/monitoring	27.2%
ITSM	26.1%
End-user monitoring	25.3%
Cost optimization	22.6%
Distributed tracing	17.5%

SLO-First Observability: Finding Clarity in Cloud-Native Complexity

For years, observability has promised understanding in the face of complexity. Yet for many teams running modern, containerized systems, that promise still feels just out of reach. Dashboards multiply, telemetry explodes, and costs climb faster than insights. The paradox is familiar: visibility grows while confidence shrinks.

The latest industry research paints a clear picture. Most organizations have made the leap to basic cloud monitoring and application performance tools, but few have achieved deep, causal observability. Less than half report visibility into containerized or serverless workloads. And while open-source instrumentation is widely favored, most still demand enterprise-grade support. This signals a maturing market—one that values openness, but also accountability.

From Data to Decisions

For cloud-native organizations, the next phase of observability isn't about collecting more data; it's about connecting data to decisions. Nearly every team surveyed now tracks service-level objectives (SLOs), a striking shift in how reliability is measured. SLOs act as the bridge between telemetry and business outcomes—linking uptime, latency, and data accuracy directly to customer experience and developer productivity.

This evolution matters. It reframes observability as a business discipline, not just an engineering one. The goal is no longer to explain every metric spike, but to understand whether user trust or revenue is at risk. When observability is SLO-driven, noise falls away, and focus returns to what matters most.

The Weight of Scale

Of course, reaching that state isn't easy. The top challenges identified by teams are familiar: scalability and reliability of their tools, rising data costs, cultural resistance to change, and the time required to instrument modern applications. These pain points reflect a broader truth—cloud-native observability is as much an organizational journey as a technical one.

Success hinges on three foundations: efficient data pipelines that prevent runaway growth, open telemetry standards that lower friction, and cross-team workflows that align Dev, Ops, and platform engineering. Visibility must scale with architecture, not fight against it.

AI with Accountability

AI is quickly becoming a standard expectation in observability. Nearly 60 percent of organizations now see AIOps as a must-have capability. But maturity means moving beyond hype. Effective AI in operations isn't about black-box automation; it's about signal quality, transparency, and trust. The most valuable applications today help engineers see patterns faster, surface likely root causes, and cut through alert fatigue—without taking control away.

As systems grow more dynamic, the balance between automation and human judgment becomes critical. Confidence must precede autonomy. Teams should expect to see guided, evidence-based workflows that help them reason about incidents before AI takes more active roles in remediation.

Looking Ahead

The direction is clear. Organizations are investing heavily in cloud monitoring, AIOps, and unified platforms that consolidate metrics, logs, and traces. The future of observability will be SLO-first, AI-assisted, and cost-aware. It will prioritize clarity over collection, context over correlation.

Ultimately, this transition isn't just about technology—it's about trust. In a world defined by containers, ephemeral workloads, and constant change, observability must evolve from a rear-view mirror into a compass: guiding teams from noise to understanding, and from data to decisive action.

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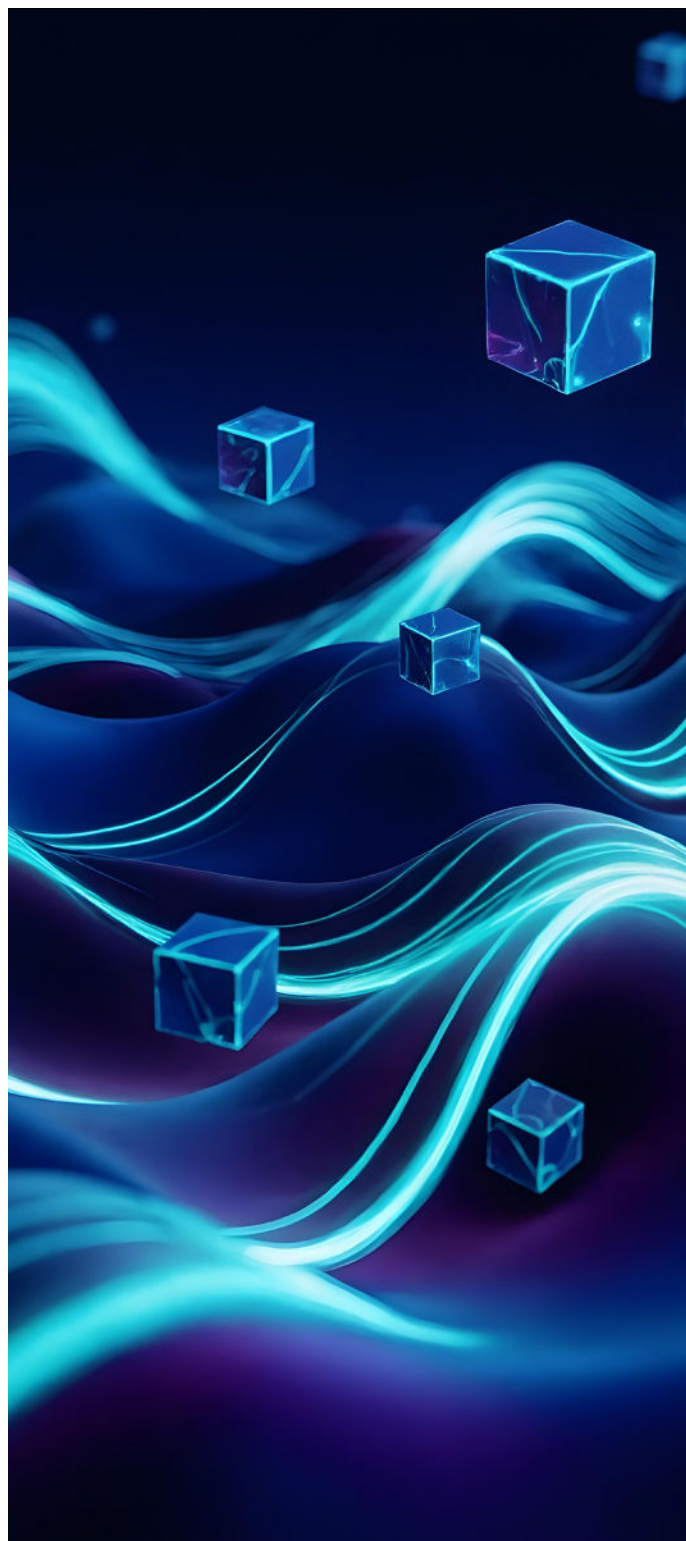
Conclusion

The 2025 Day 2 Operations survey highlights how enterprises are transitioning decisively from reactive monitoring to proactive, AI-enhanced operations. While cloud and application monitoring are well-established, advanced practices such as distributed tracing and full AIOps adoption are still emerging. Cultural resistance, tool complexity, and cost remain significant barriers, yet investment momentum is strong, with more than 85% of organizations planning near- or mid-term upgrades.

High-performing teams stand out by tying observability to business outcomes through SLO tracking, prioritizing reliability and customer experience as core metrics. The path forward for most organizations should focus on scaling AI-driven insights, consolidating observability stacks, and embedding operational intelligence into daily workflows to optimize resilience and long-term efficiency. To dive deeper into the full dataset, benchmarks, and practitioner insights behind this research, please reach out to theCUBE Research for direct access and tailored advisory services.
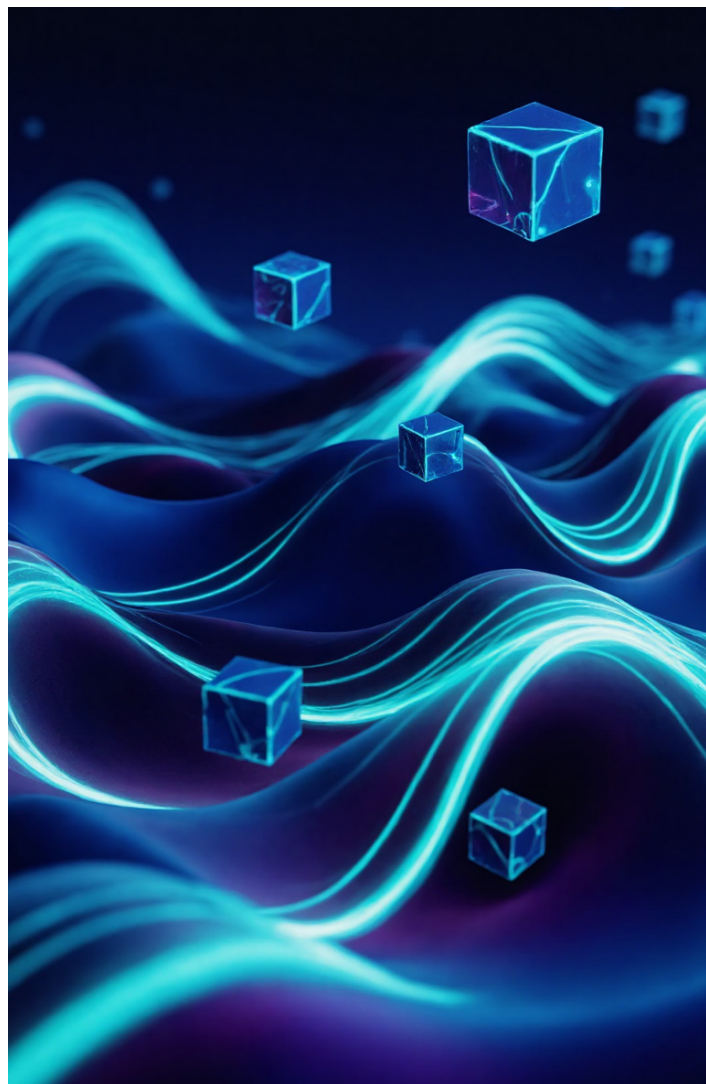
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