Techstrong Research

AIOps-Driven Observability

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Principal

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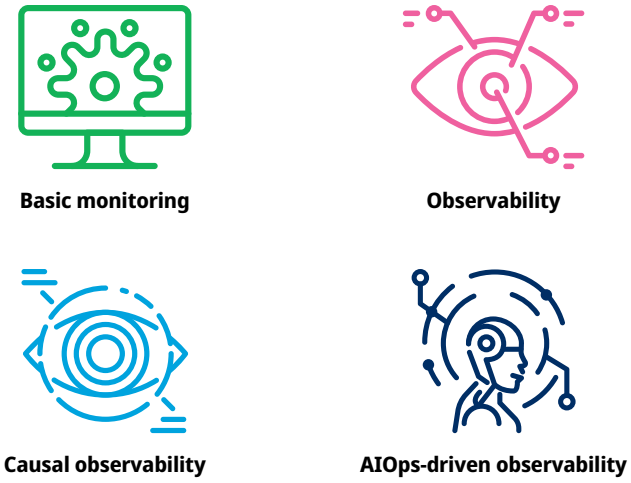
Executive Summary

ORGANIZATIONS CONTINUE TO SEEK greater visibility into how applications, services and infrastructure are meeting the demands of businesses. While 64% of respondents surveyed by Techstrong Research say traditional IT measurements like uptime and availability are important, technology organizations in and outside IT measure themselves against external factors like customer experience (31%) and business metrics (45%).

Our research sought to understand organizations' adoption of and maturity in the use of observability technologies, including determining the degree to which AIOps is aiding in managing their applications and systems across all platforms (cloud and on-premises, mobile and web-based) and cloud-native (microservices, Kubernetes). Techstrong Research analyzed the data from over 500 survey respondents globally across 20 industries. Participants included large enterprises and SMBs, and included a wide range of titles, from management to developers, SREs and operations.

Observability is commonly referred to as the system and application-wide view of data from logging, alerts and tracing utilized to gain insights into "...program execution, internal states of modules, and communication between components" (Wikipedia, https://en.wikipedia.org/wiki/Observability).

The Four Observability Maturity Levels



Our research measured organizations' maturity against four stages of observability adoption: Monitoring (no observability), observability, causal observability and AIOps-driven observability. Adoption is very strong, with 65% of organizations adopting observability, which 19% define as causal observability and 11% as AIOps-driven observability. This includes the growing adoption of OpenTelemetry, a vendor-neutral open source approach for collecting critical application and infrastructure telemetry data, as a key standard (14%) or selective use (22%) within organizations.

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AIOps is making slow inroads into organizations, with 13% already using AIOps and another 25% getting started. Earlier still is the use of AIOps in observability and automation, with respondents indicating AIOps is foundational (12%) or plays some role (11%) in those functions.

Even so, our research and analysis found encouraging measures where AIOps-driven observability brings additional benefits in correlating data and gaining insights across systems and applications. Where utilized, the measurable benefits of AIOps-driven observability were seen with:

- Improved ability to meet SLO goals (see page 11)
- Improved automation of alert assignments and routing (see page 12).
- Improved ability to handle alert storms by isolating the underlying alerts triggering the event (see page 13).
- Increased understanding of complex relationships between components as they change over time (see page 14).

While it is too early to claim sizable levels of adoption or widespread benefits gained, AIOps-driven observability demonstrates measurable benefits in specific scenarios. With its ability to leverage vast amounts of logging, alerts and tracing data and gain insights into complex data relationships, AI/ML holds promise in its ability to provide organizations an added lift in meeting business, customer and technology metrics and goals.

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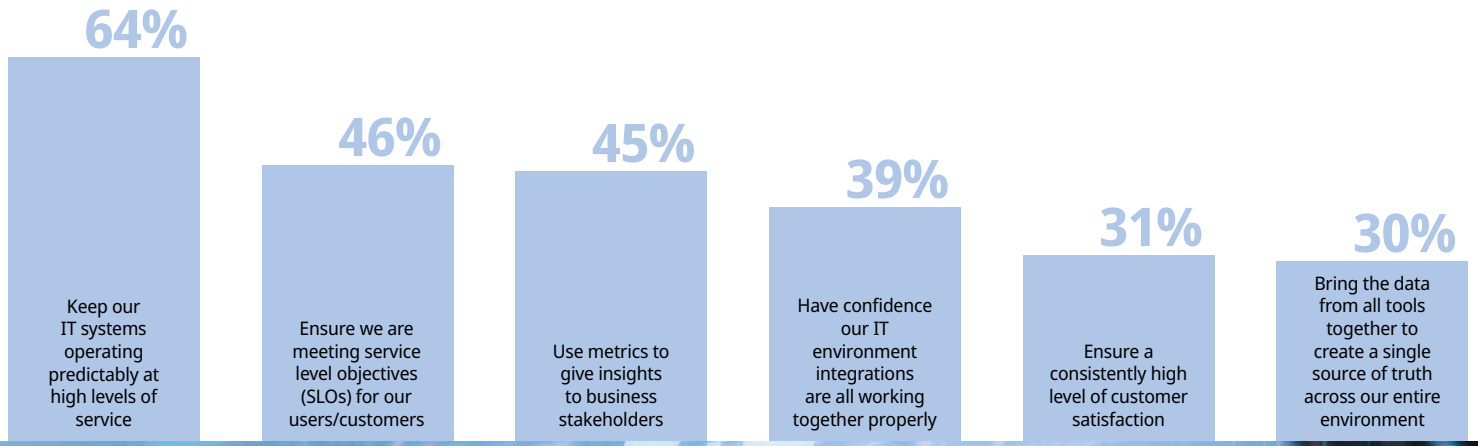
Business outcomes drive observability

What are organizations trying to achieve with observability? Predictably, the majority are trying to maintain high service levels (64%) and meet service level objectives (SLOs) (46%). What's notable is observability's focus on business outcomes outside of historical technology and operations norms, with roughly one-third of respondents focusing on positive customer experiences and the desire to increase confidence in IT's ability to deliver. It is also significant that approximately 45% of respondents focus on metrics to provide insights to business stakeholders.

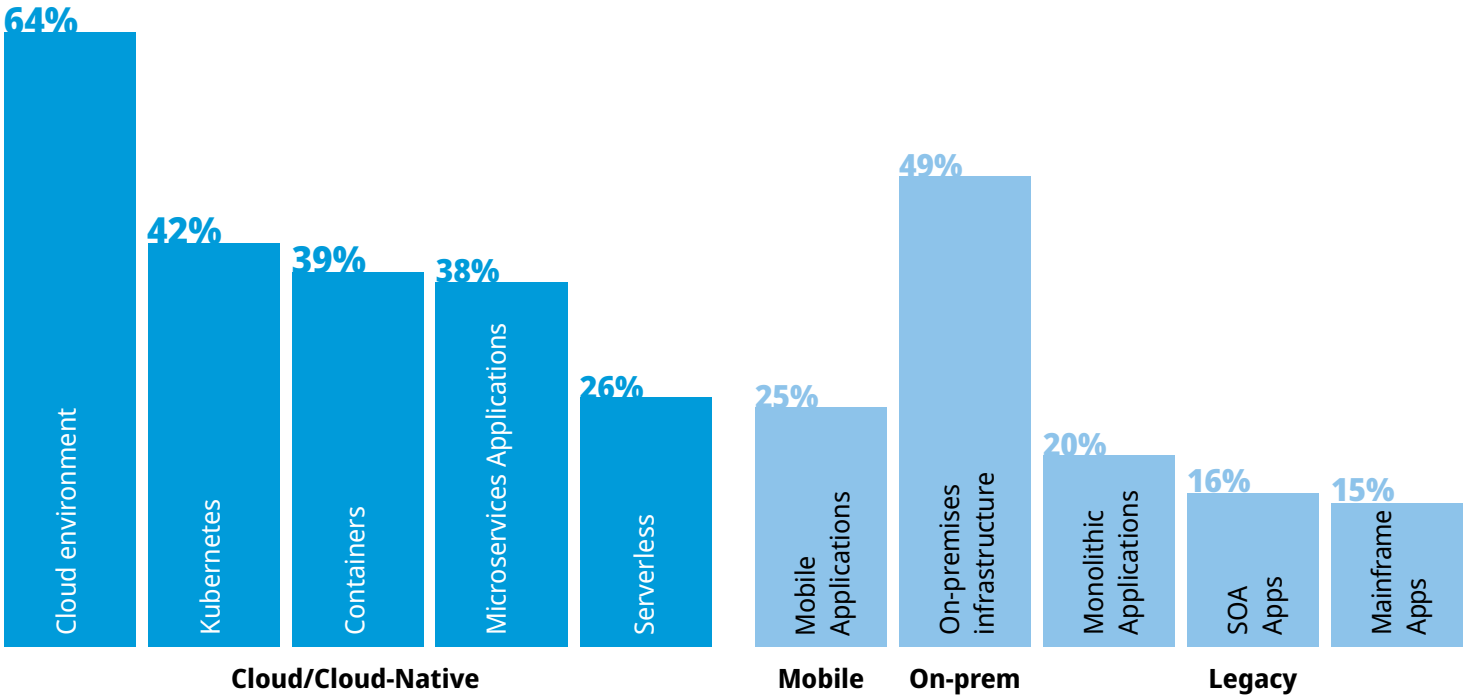
What are your business goals for observability?



Observability spans a broad landscape of current and legacy technologies and applications.

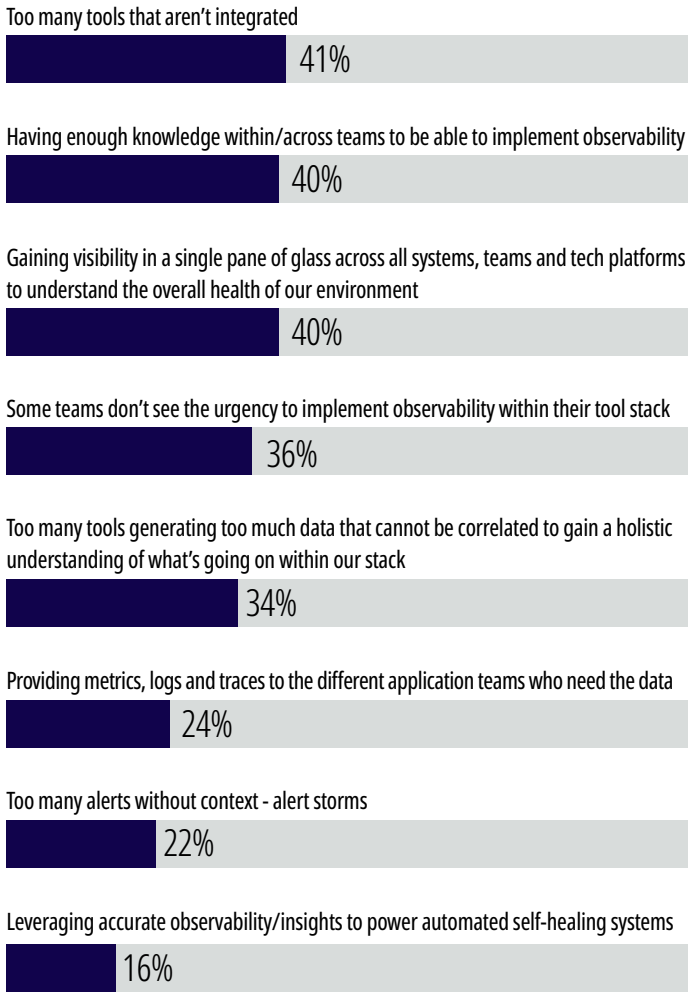
Microservices, Kubernetes, serverless and mobile deployments increase the complexity of cloud, infrastructure and application environments, making observability a necessity. For subset of respondents, adding legacy applications, SOA and on-premises to the mix forces these organizations to monitor multiple generations of technologies with disparate architectures.

For what kind(s) of environments do you use or are you planning to use observability tools/platforms?



Challenges: Teams struggle with integrating tools, building new skills and having visibility across their entire environment

In what areas does your team/company struggle the most as you try to implement observability?



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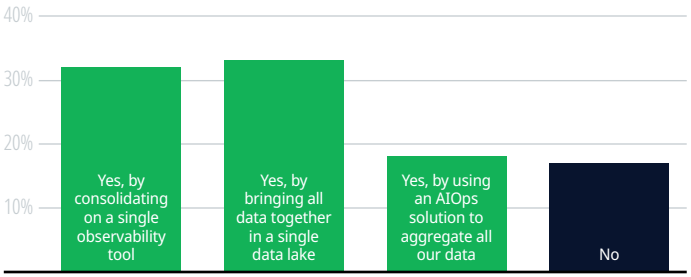
The fight to gain a unified view of operational data across IT continues

A majority of organizations (59%) are making progress in getting that unified view, having solved the problem for some applications and technologies, but they continue to struggle with multiple disparate tools.

Organizations are looking to use a single observability tool and are consolidating data in data lakes. AIOps solutions are early in their adoption.

Are you planning to consolidate and correlate the data in the near future?



Can you see component dependencies and automatically correlate data from multiple systems to get a unified view of your entire IT landscape?

No, our systems are siloed and self-contained. If I want to analyze data in one part of our stack I must access the applicable system and analyze the data it holds to triage incidents.

29%

Partially. Similar applications or technologies are monitored by the same tool so that data is more integrated and data analysis is less complicated. However, we still use a number of disparate monitoring tools.

58%

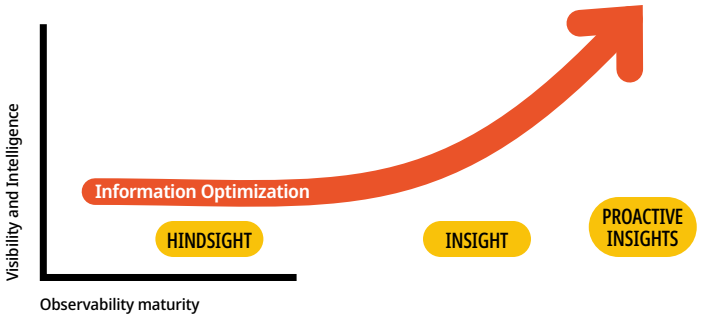
Yes, my observability solution provides me full visibility across our entire IT environment. If I have an outage, I can travel up and down the dependency path and readily find the root cause.

13%

Observability adoption is growing and maturing. AIOps adoption is on the rise.

To tackle increasing complexity in their tech stacks, organizations are adopting observability and maturing in its use. The majority (65%) of respondents use observability today, with 29% indicating they are at more mature stages of adoption. A promising 19% are using observability to connect the dots across components, applications and environments (causal observability), and an encouraging 11% are already using machine learning to understand the underlying causes of problems and proactively take steps to avoid future issues (AIOps-driven observability).

Most organizations are still starting their observability journey



The Four Observability Maturity Levels

35%
Basic monitoring: We only know if a component is up or down, but lack insights into the cause of problems.

34%
Observability: We monitor our systems from various angles to gain an overall perspective. When an incident occurs, we can infer why something isn't working

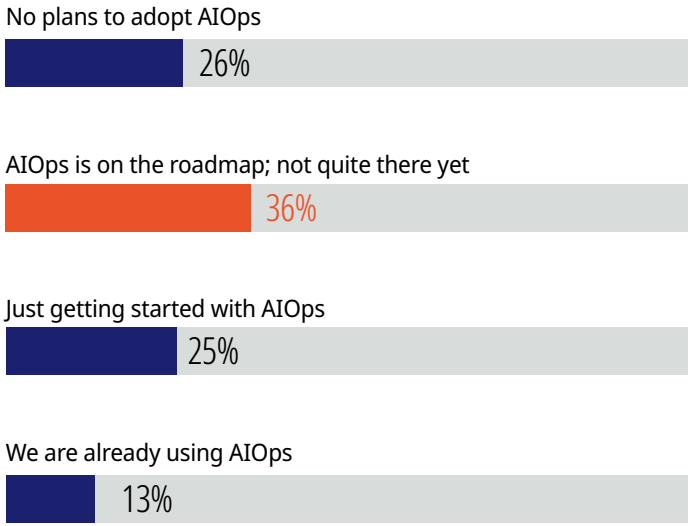
19%
Causal observability: We have advanced from component-oriented observability and focus on our entire IT environment. We observe business-critical services end-to-end to ensure, measure and optimize customer satisfaction.

11%
AIOps-driven observability: We understand cause and effect, and combine observability data with machine learning. We can predict potential incidents and automatically take steps to prevent them, thereby minimizing business impact.

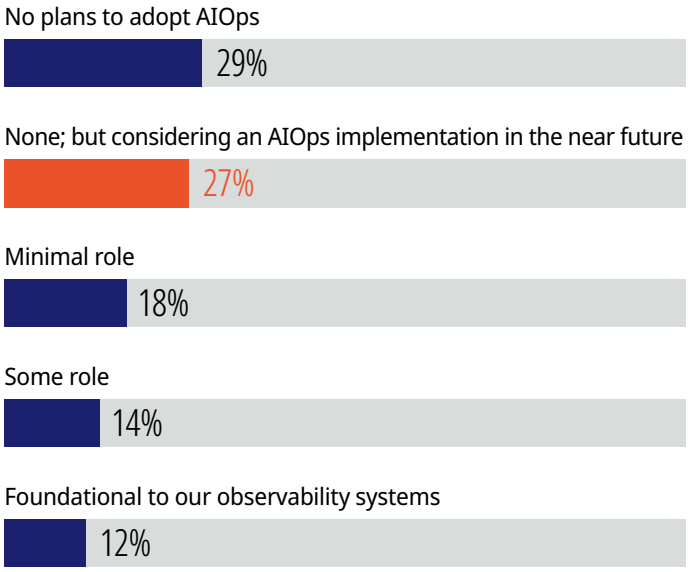
AIOps is (slowly) making inroads

A majority of enterprises surveyed by Techstrong Research (74%) indicated they intend to use AIOps, with more than a third getting started (25%) or already using AIOps (13%). Validating its early stage of adoption, 36% of respondents have AIOps on their roadmaps, yet only 26% view AIOps as playing a role (foundational or playing some role) in observability.

Where are you in the process of adoption of AIOps?



How much of a role does AIOps play in your observability and automation capabilities today?



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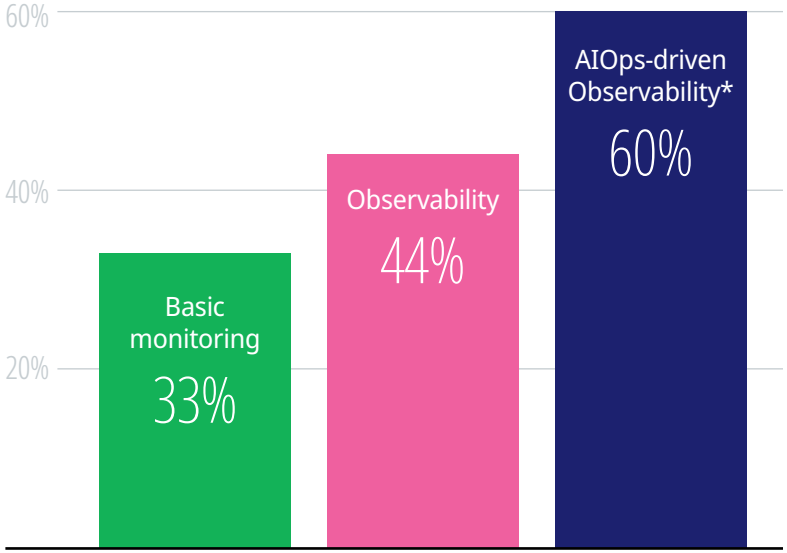
AIOps-driven observability helps teams better meet or exceed service goals

The business objective of better observability is to reduce downtime and deliver more reliable IT services. Businesses further along the observability maturity curve indicate increased success in achieving service level objectives.

The use of AIOps-driven observability will grow as it continues to deliver improvements in application and system uptime, reliability, metrics and resilience.

The percentage of respondents able to maintain or exceed SLO goals the majority of the time increases as observability maturity increases

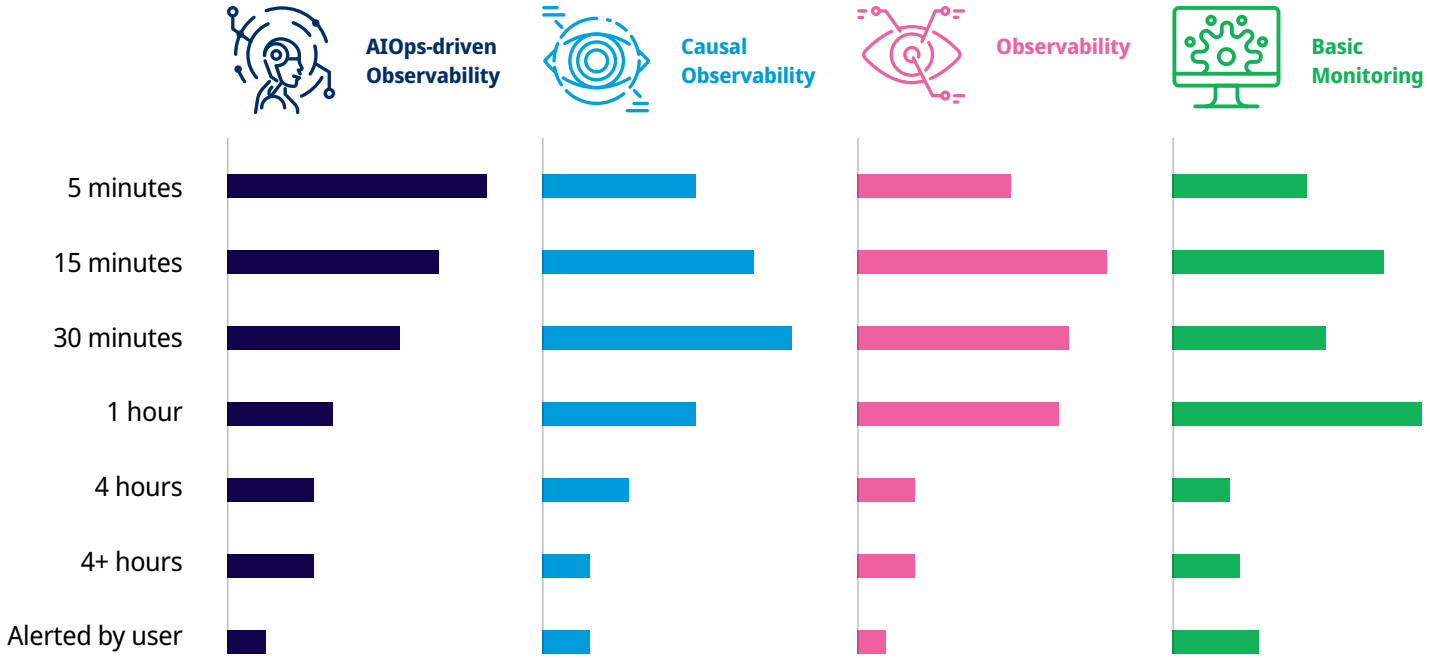


**11% of respondents indicated they are using AIOps*

Advanced observability is faster at spotting issues

Most respondents say they can identify emerging problems in less than 30 minutes. Organizations with AIOps-driven observability again reported the fastest times. This group also had the highest percentage of responses of more than four hours. This anomaly is likely the result of a larger, complex IT environment or from an improved ability to measure (rather than estimate or guess) response times. The most mature groups were generally faster in identifying root causes; least mature the slowest (see chart next page).

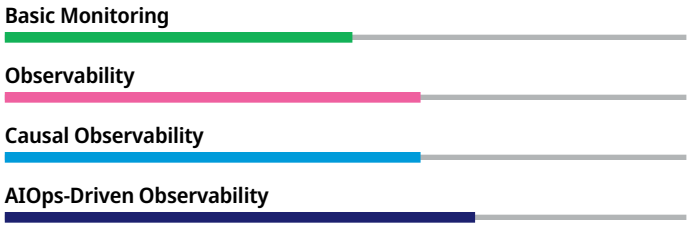
If something breaks, approximately how long does it take you to become aware of the problem?



AIOps improvements are situational; best during alert storms

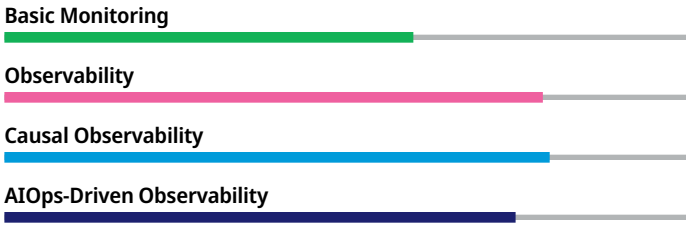
Enterprises further along in their observability journey predictably say they are better able to handle alerts. Using more data and analysis to handle alerts more intelligently provides critical scale. AIOps-driven observability makes the greatest impact during alert storms.

Automation of Alert Assignments: Does notification/routing to the right people happen automatically, based on the issue?

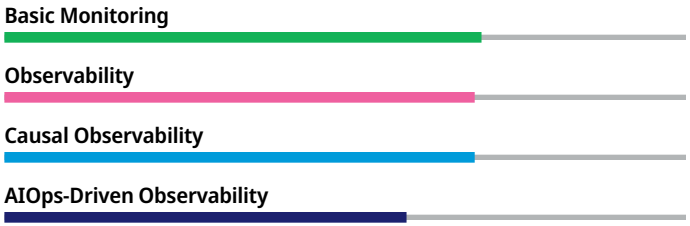


Alert Routing: Does the incident creation and assignment process occur automatically based on alert type?

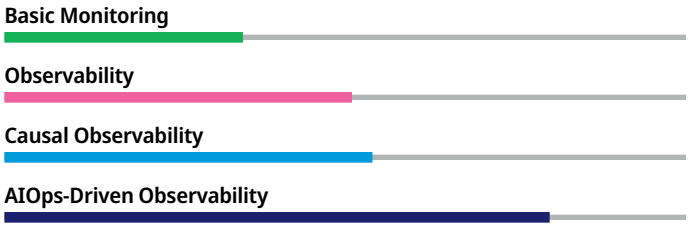
Context in Alerts: Do alerts contain the right information so they can be routed to the right team for resolution?



Too Many Alerts: Are you sometimes overwhelmed by the number of alerts you receive?



Alert Storms: In an alert storm, are you able to easily determine the original alert related to the underlying problem that triggered it?



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Businesses performing basic monitoring lag in tracking IT changes and their impact over time

Are you able to track the impact of changes throughout different IT components and dependencies?

Basic Monitoring

Observability

Causal Observability

AIOps-driven Observability

Are you able to see how relationships between components change over time?

Basic Monitoring

Observability

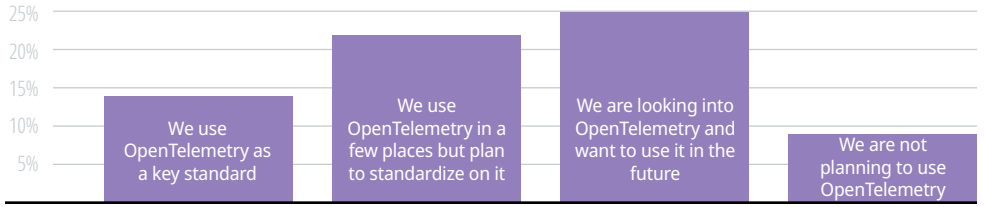
Causal Observability

AIOps-driven Observability

Open Telemetry is seen as key requirement for data collection

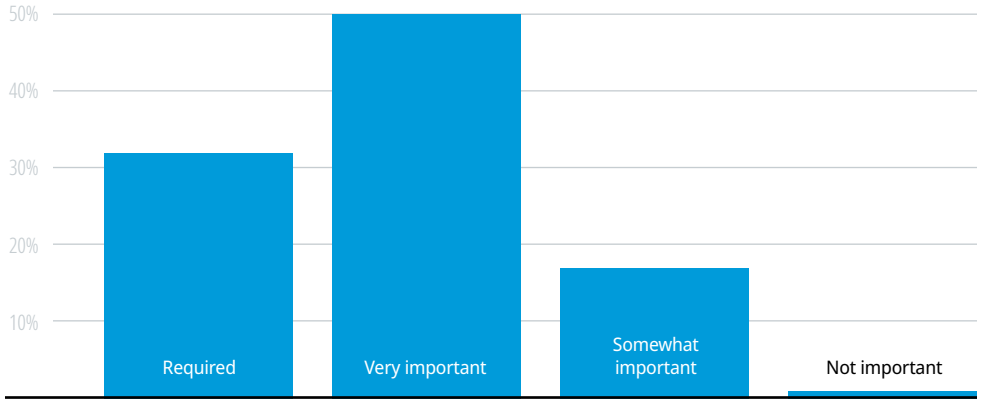
Open source technologies are a critical component of DevOps and cloud-native development. In observability, OpenTelemetry is a vendor-neutral, standard way to collect telemetry data for applications, supporting infrastructures, enterprises an easy way to incident management tools, hard drives and servers. Of the companies using OpenTelemetry, nearly half use it as part of their observability strategy, with another 25% considering it for future use.

Are you using OpenTelemetry as part of your observability strategy?



How important is it to have support for OpenTelemetry in an observability solution?

[Among respondents that report using OpenTelemetry]



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The Techstrong Research view

ADOPTION OF AIOPS-DRIVEN PLATFORMS to improve observability and service levels across complex modern IT environments is still at an early stage. Even so, Techstrong Research found clear evidence of numerous enterprise benefits. An improved ability to correlate data and gain a holistic view of the entire technology landscape provide the basis for improvements.

Early evidence is compelling. Our survey found many diferent proof-points of companies having better experiences and outcomes delivering IT services as they mature beyond basic monitoring to more sophisticated levels of observability.

AIOps-driven observability is more than "adding in" artificial intelligence or machine learning technologies to Operations' toolset. While we expect AI/ML to be critical to operations, data managing and observability, AIOps platforms bring together a complex array of contextual data across applications and infrastructure. To get there, we must first be effective at gathering telemetry data that keeps pace with the changes in business drivers and technology evolution.

We've seen vendors increasingly use OpenTelemetry as a "collector" for observability data, commoditizing collection. Product diferentiation now stems from the analysis of the data and the correlation of multiple data points. Given the growing interest expressed by survey respondents, this open standard now appears to be a foundational component for advanced observability.

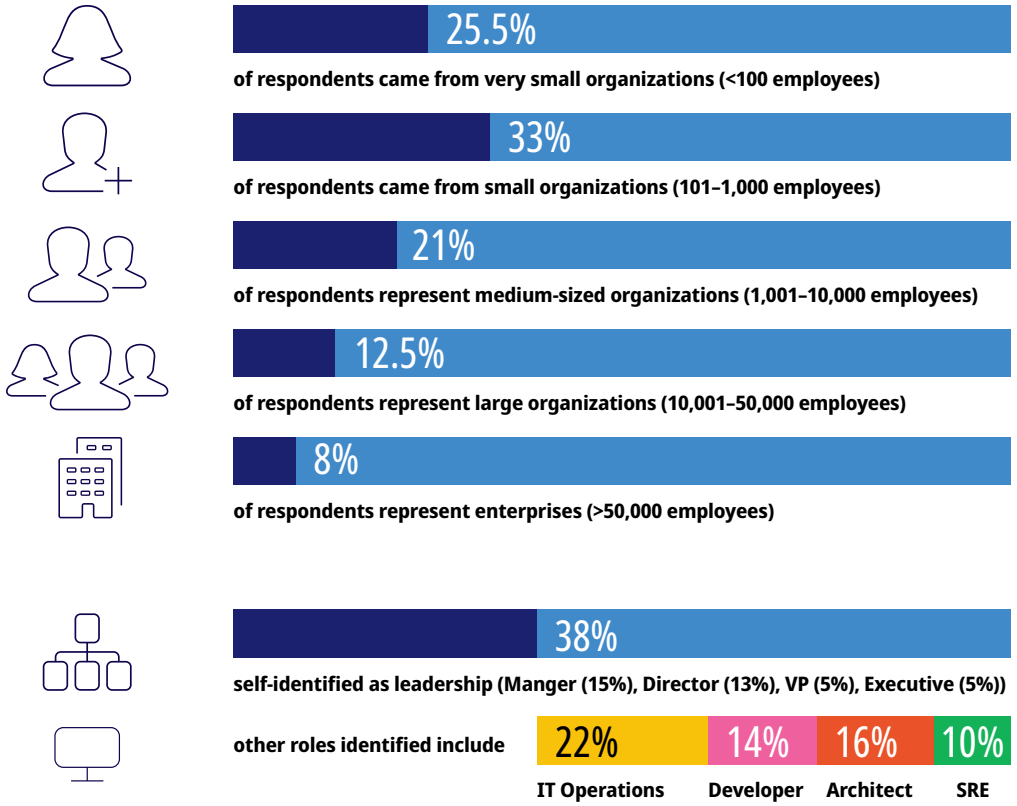
Businesses that are further along their AIOps-driven journey are clearly seeing positive business outcomes and better technical results. It's important to keep in mind that as you progress along the maturity model, new challenges will emerge as you uncover more data and gain more insights into your systems. Although that's really the point of observability, it is better to know about those problems and address them before customers experience disruptions and downtime.

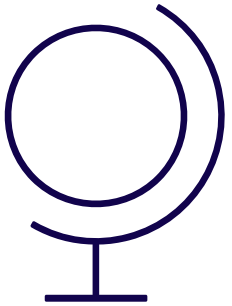
Keep in mind that adopting an AIOps platform is not a one-time event. Instead, it requires an iterative process to ensure currency in both data and AI/ML models. Like DevOps, Observability is not a destination or a technology. It's an entirely different way of monitoring and handling operations to continuously evolve a system. Given the early returns, AIOps-driven observability is an ongoing journey that appears worth taking.

Survey demographics

TechStrong Research conducted a global IT study, surveying monitoring, observability and AIOps-driven observability. The survey was conducted during May and June of 2022. A total of 543 respondents participated in the research.

Respondents hold a variety of roles and come from a broad range of organizational sizes:





Survey responses came from a global cross-section of 89 countries in three major regions: **North America (47%), Europe (31%), APAC (15%)** and **LATAM (6%).**

Twenty industries were surveyed, including:

Telecommunications, Technology, Internet and Electronics
28%

Finance and Financial Services
11%

Education
8%

Healthcare and Pharmceuticals
6%

About the author

MITCHELL ASHLEY serves as principal at Techstrong Research where he is part of a team of preeminent experts in digital transformation, DevOps, cloud-native and cybersecurity. In this role, he works with companies to align digital transformation and technology strategies to achieve disruptive goals and high-impact results. Mitch also serves as Techstrong Group CTO, is in demand as a speaker and is widely followed online on his podcasts, his *Analyst Corner* commentary and interviews on the highly popular Techstrong TV streaming video program where he engages with top digital and tech leaders from across the industry.

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About Techstrong Research

Techstrong Research accelerates the adoption of disruptive technologies that drive business outcomes and provide actionable strategies in rapidly changing markets. We are the only organization serving the needs of IT leaders, practitioners and the industry ecosystem with research, analysis, content, events and education. We bring deep knowledge about today's leading technologies such as DevOps, cloud, data and AI/ML, security/governance initiatives and supporting infrastructure. We offer our customers a holistic business perspective essential to adapt and thrive in the digital economy. The Techstrong Research team has the knowledge, experience and credibility earned by working with hundreds of businesses across many industries to provide consulting, thought leadership and research services.

Techstrong Research is relentlessly focused on the business outcomes of disruptive technologies.

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