



REPORT

The State Of AIOps And Observability

Proliferation Of Data Pipelines Drives A Greater Need For AIOps Solutions

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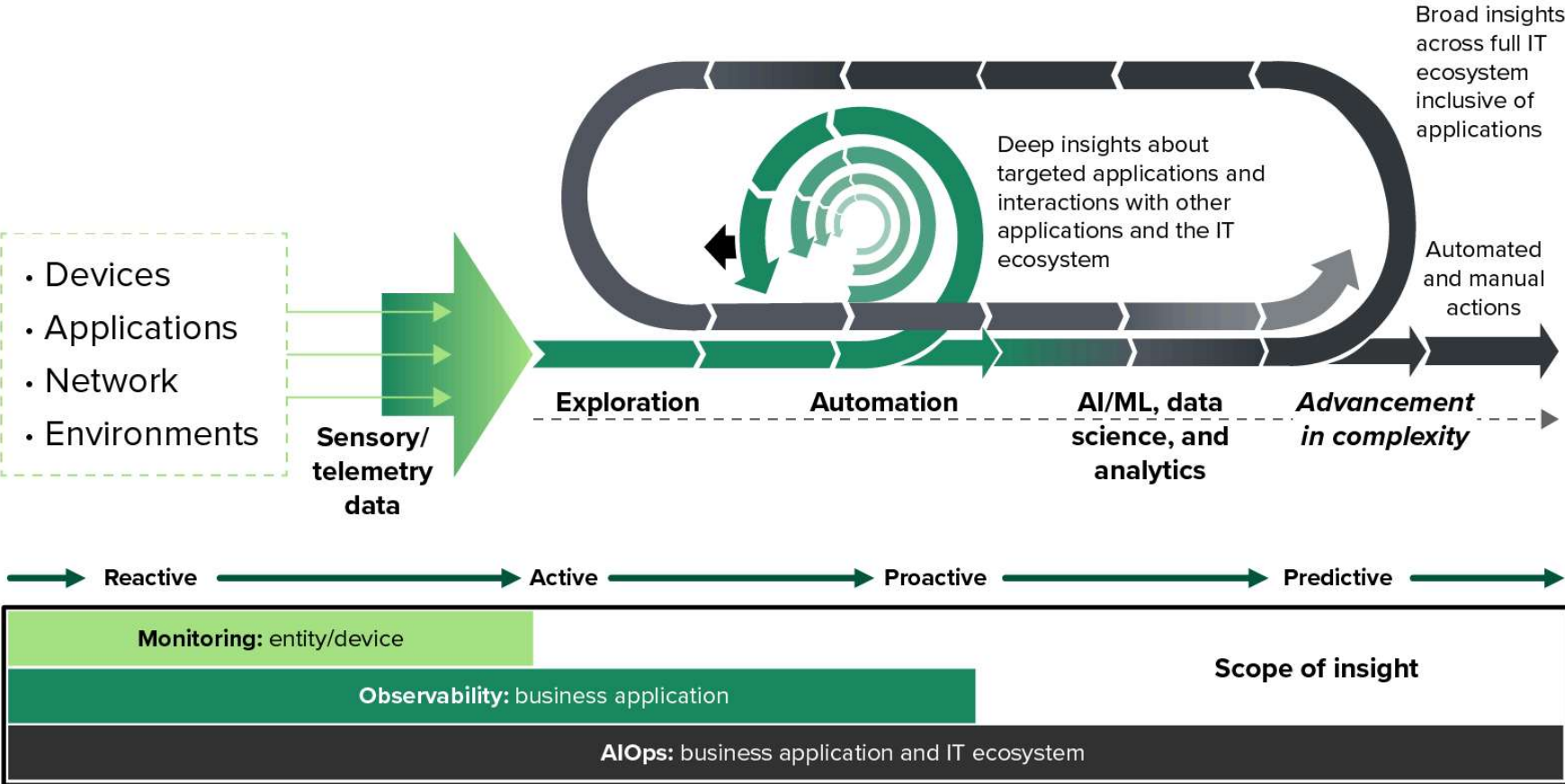


Hybrid cloud environments demand comprehensive real-time technologies that keep pace with the complexity and volumes of data that today's businesses generate. The practices of artificial intelligence for IT operations (AIOps) and observability are up to the task, as are the underpinning technologies. However, the overuse and misuse of the terms could produce false expectations that ultimately undermine these vital practices. This report describes AIOps and observability in context, their enablement of business, and their value to organizations struggling to manage complex IT environments.

AIOps Breadth And Observability Depth Deliver Real-World Insights

Leading organizations are driving the adoption of AIOps and adapting observability pipelines for insights that are both deep and wide. According to Forrester's Future Fit Survey, 2023, 73% of business and technology decision-makers at enterprises agreed that their organizations are building cross-functional insights teams, and 75% agreed that their enterprise technology is architected to form a system of insight. Both of these insights-driven business efforts increased from 71% in 2022. AIOps and observability are future fit technologies and vital practices for high-performing organizations. Forrester's reference architectures for AIOps and observability highlight the capabilities of each practice and provide comprehensive definitions to mitigate misuse of the terms.

The overlapping and complimentary value each provides is unquestionable, but their interrelationships are not always clearly understood (see Figure 1). They are not mutually exclusive and do not necessarily need to be on a joint maturity path. Forrester’s operational insights best practice series (e.g., part two) describes the different use cases and scenarios where monitoring, observability, and AIOps work together.



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Figure 1 - AIOps And Observability Have Overlapping And Additive Capabilities

High-Performing Organizations Need To Be Data Insights Driven

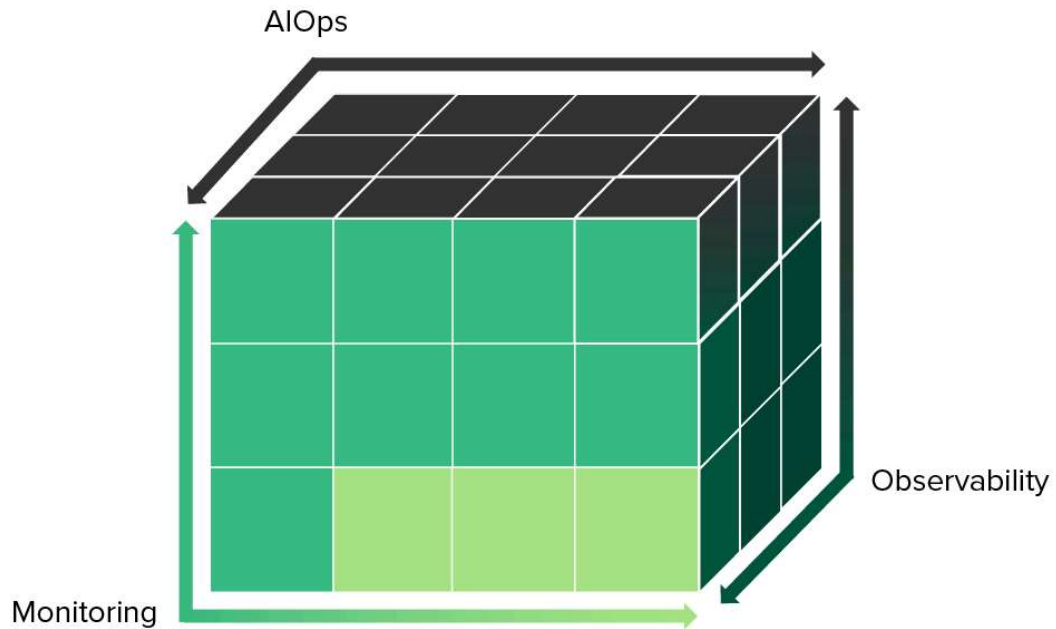
A digital business's engine is technology, but the fuel that it needs to operate is high-quality data. The data's scope must span the IT landscape, probe the depths of technology layers, and have a comprehensive real-time and historical viewpoint. Organizations struggle to conquer this three-dimensional challenge (see Figure 2). A clear understanding of how monitoring, observability, and AIOps work together to provide depth and breadth of insights continues to develop. Although various challenges remain, so do some promising aspects, such as:

1. **Insights-driven businesses are still in the minority, but there is hope.** Despite ongoing investment efforts to be data and insights driven, Forrester data shows some concerning metrics. According to Forrester's Data And Analytics Survey, 2023, only 3% of enterprises are advanced insights-driven businesses, and 61% are beginners in adopting organizational platform competencies. Forty-five percent stated that creating an insights center of excellence for business intelligence, digital intelligence, advanced analytics, data science, or AI is a focus for their organization, and 43% stated that it will be a focus in the coming two years. The same percentages applied to plans to change management culture to make more decisions with data.
2. **Investment in the underpinning skill sets for insights technologies is lacking.** Data and analytics decision-makers noted their plans to adopt customer-insights-related technologies. For example, consumer intelligence platforms and real-time interaction management systems were

in the plans of 73% and 70%, respectively. Forrester's Infrastructure Hardware Survey, 2022, showed that investment in the necessary skills was in line with adoption rates. However, future investment (in the next 12 months) in AIOps and observability skills represented only 24% of infrastructure hardware decision-makers at enterprises, demonstrating a potential lack of readiness.

3. **Trust in AI/ML capabilities lags skepticism.** Proliferation of data across pipelines continues, as does agreement that something needs to be done about it. However, 75% of enterprise security technology decisions-makers in Forrester's Security Survey, 2023, face challenges of trust in AI/ML of security tools, and 78%, of trust in analytics. Technology leaders are understandably listening to this healthy skepticism of security professionals, but it cannot stop their progress. So tread carefully and build trust to quickly capitalize on the potential.
4. **Siloed observability data pipelines pose challenges.** Data management is vital for data-intensive practices like AIOps and observability; it is the difference between success and failure. Data sprawl across tools and siloed data pipelines makes it that much more difficult (see Figures 3 and 4). According to the [New Relic 2023 Observability Forecast](#), 25% of survey respondents noted that too many monitoring tools are a primary challenge that prevents them from achieving full-stack observability. Complexity was also noted in the [Chronosphere 2023 Cloud Native Observability](#) report as a challenge. Eighty-seven percent of engineers said that using cloud-native architectures has increased the complexity of discovering and troubleshooting incidents.
5. **AI fuels, enhances, and automates operational insights.** The value of AI is spreading at breakneck speed throughout the IT landscape. It's not just in deep-technology areas but anyplace where humans perform tasks that can benefit from the assistance that AI brings. AI-in-

the-middle is quickly becoming the norm. Expect AI to become so ubiquitous that it becomes just another tool or capability in the value chain. According to Forrester's Modern Technology Operations Survey, 2023, 40% of digital and IT professionals in enterprises already use AI or machine learning to help identify and solve problems. Similarly, 75% of data and analytics leaders at enterprises leverage AI for intelligent automation and augmented analytics.



Monitoring

- Foundational data
- No real-time visibility
- Predefined metrics
- Lack of broad suitability (e.g., dynamic, cloud-native, and microservices environments)



Observability

- Narrow, deep real-time visibility
- Application-centric use
- Engineering-centric use
- Developer-driven insights
- Support for cloud-native, microservices, and dynamic environments

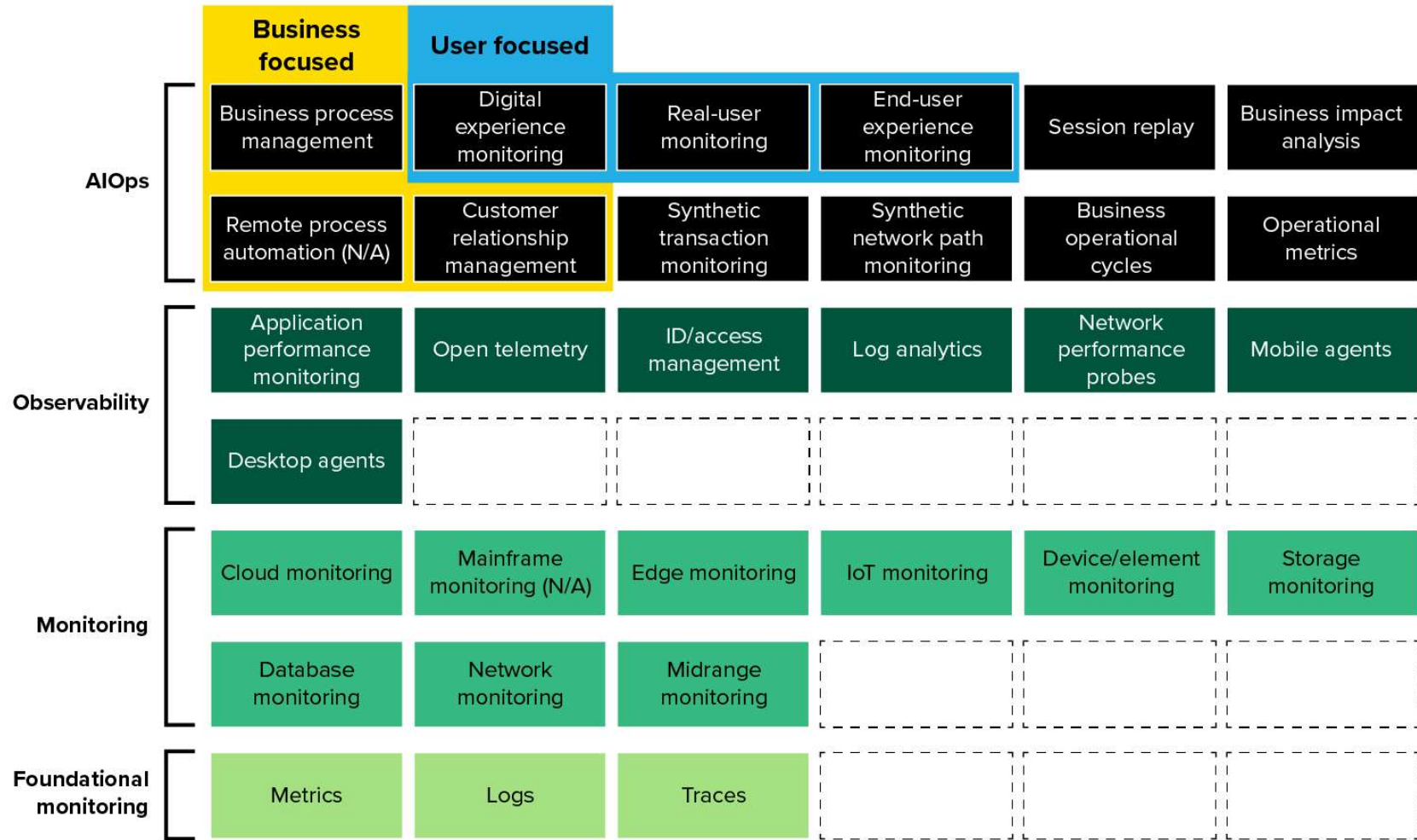


AIOps

- Broad historical real-time visibility
- Ecosystem awareness
- Depth and breadth in pipelines
- Enhanced automation
- Preventative self-healing
- Proactive remediation
- Predictive alerting and actions

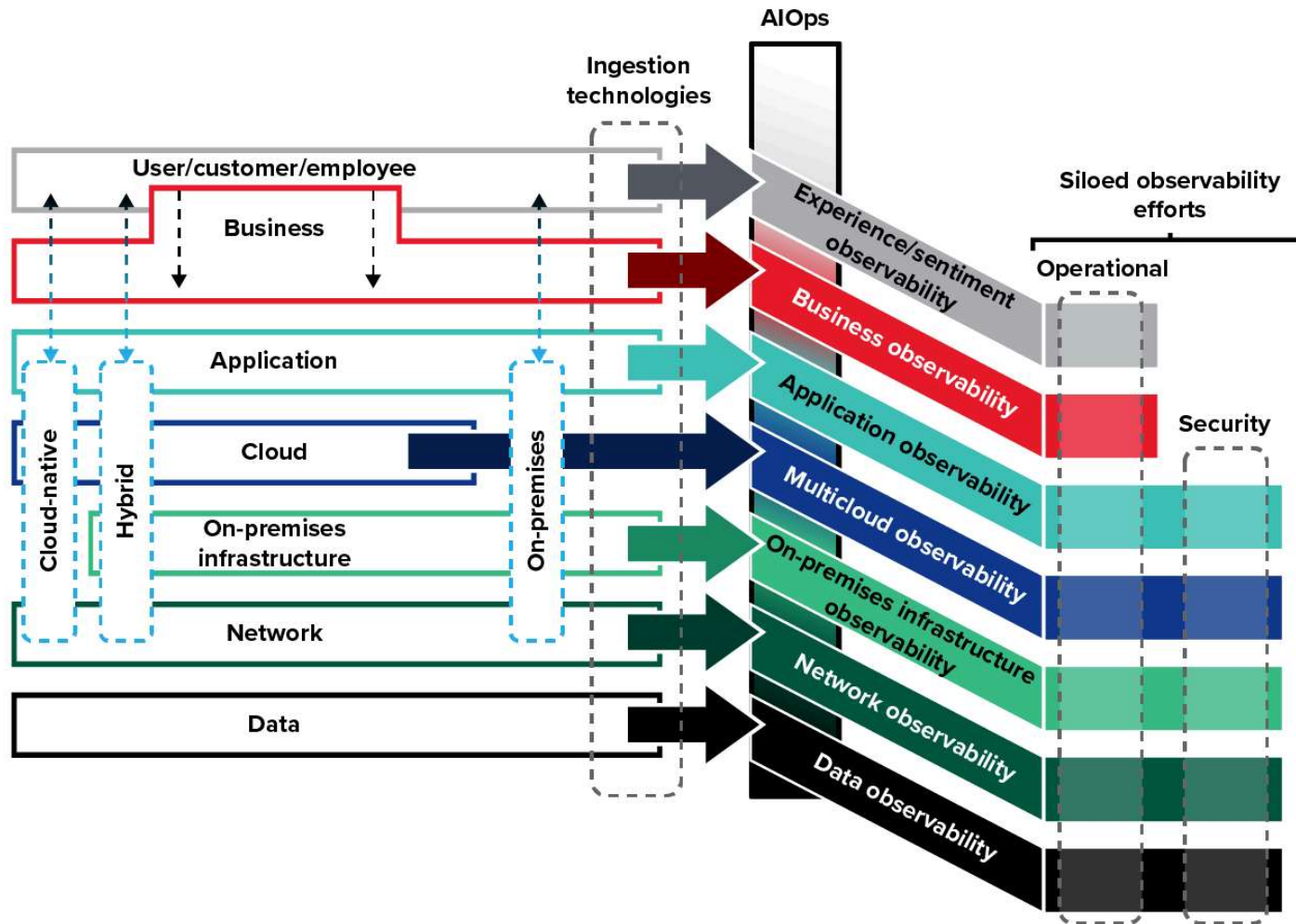
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Figure 2 - Building Insights Is A Three-Dimensional Challenge



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Figure 3 - Enable Insights With Both Depth And Breadth Of Data



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Figure 4 - Observability Data Pipelines Are Siloed

AIOps Is Neither The Beginning Nor The End; It's The Answer To IT Complexity

AIOps is not a new goal or objective. The vision has existed for decades, going back to the origins of ITIL's configuration management and configuration management databases (CMDBs). AIOps is the

modern-day vision of technological and organizational focus on business outcomes. Advanced capabilities of machine learning models, vector databases, and other new offerings work with established mathematical algorithms to power today's advancements to deliver insights. Service maps and CMDBs required massive amounts of manual effort, and most saw them as luxuries. However, the overwhelming complexity and continued sprawl that IT operational professionals face make full-stack insights essential to success. The level of complexity will only get worse because:

1. **Growth in microservices drives the need for observability.** More organizations are breaking down monolithic applications into right-sized components. Besides managing Zero Trust security, observability concerns rise significantly with distributed modules. Service-mesh proxies capture telemetry of every connection. Applications can include correlation IDs for deep distributed tracing. Developments in generative AI accelerate this catalyst by increasing the value of mesh telemetry data: training models for anomaly detection, predicting problems, acting proactively, predicting traffic to avoid cold starts, suggesting reliability patterns and security policies, determining when retry is more dangerous than failure, and more.
2. **Edge computing isn't monolithic, and its operational oversight can't be either.** Operations edge solutions power IoT-enabled applications and devices in many remote vertical locations (e.g., manufacturing, retail, healthcare, media, and entertainment). These solutions often demand connectivity, processing, and storage at the edge sensor or gateway level and connect back to the core using shared, and potentially intermittent, networks. Some IoT operations use cases (e.g., autonomous vehicles or real-time predictive analytics) require low-latency real-time analytics enabled by edge computing to process data locally before sending relevant data to the cloud for additional AI or machine learning analysis.

3. **Continued investment in cloud migration requires complementary analytics.** Cloud adoption and migration have been top of mind for organizations for years, and it is not changing. According to Forrester's Infrastructure Cloud Survey, 2023, adoption of cloud platform deployment models, including infrastructure and platform as a service, is continuing: 82% of enterprise cloud decision-makers reported adoption of public cloud; 80%, internal private cloud; and 76%, hosted private cloud. Data from Forrester's Priorities Survey, 2023, reveals that hybrid cloud strategies and cloud-native development are also high priorities for 65% of business and technology professionals at enterprises. As the percentage of cloud utilization grows, so does the need for visibility across the vast IT landscape.
4. **Advances in AWAs from IA and hyperautomation demand real-time oversight.** Intelligent automation (IA) and hyperautomation take over simple and repetitive tasks from humans without improving work patterns. Autonomous workplace assistants (AWAs) take on more human-like characteristics and give us entirely new ways of doing things. They weave together automations to build more connected end-to-end automations. Forrester describes this approach in our AWA and automation fabric research. Real-time data and modern edge applications make interoperability critical and inevitable. Ensure this with complementary real-time data-driven operational insights.
5. **Data-driven and AI-initiated activities to improve experience have just begun.** Automation and orchestration tools have been executing tasks and activities for years. However, anomalous behaviors and algorithms are driving the initiation of their efforts. Composite experiences across different personas warrant complex evaluations to ensure that users, employees, or customers have the best experience possible. Digital experience systems will attempt to step into the flow

of events to initiate the executing actions in a predictive manner to prevent negative experiences. Understanding why actions occurred and were initiated is important to not only operational purposes but also compliance, regulatory, and audit requirements.

AIOps Is Here — Use IT To Drive Value And Insights

Comprehensive insights are foundational to run a modern operations organization. The worn-out statement, “Do more with less,” elicits more bad feelings than good in most IT individuals on whom this demand gets dumped. The statement originated in cost-cutting environments and periods when technologies were not necessarily ready to make up the difference in headcount reductions. Technologies have advanced considerably, and this may no longer be the case in some organizations. But there’s a catch. You can in fact do more with less today. The issue is that there are magnitudes more to do today, so reduction of headcount is not necessarily feasible. But increased productivity and capability certainly are. You can improve quality of service, operational efficiencies, and business outcomes with existing resources via advanced AIOps technologies. Well-implemented AIOps technologies are ready and able to offset manual operational efforts with an AI-in-the-middle approach that elevates capabilities of all workers across the IT operational landscape. High-performance IT operations organizations are adopting AIOps by:

1. **Leveraging industry models like OTEL.** The Cloud Native Computing Foundation (CNCF) efforts to shepherd OpenTelemetry (OTEL) forward are proving to be incredibly successful as enterprises around the world continue broad adoption. The OTEL open standards, tools, and open source software development kits enable implementation of vendor-neutral solutions. The

community-driven project continues to grow with 1,419 authors as of October 2023, an increase of 286 authors from 2022. It also holds as the second-largest CNCF community behind Kubernetes and nearly 500 authors ahead of third place Argo at 440.

1. **Adopting common terminology to maximize value.** Consistent and clear terminology is key to success regardless of topic or industry — AIOps and observability are no exceptions. Unfortunately, the terms AIOps and observability are often used indiscriminately to describe everything from tools to activities and insights. If it continues, they will become meaningless due to further confusion about their intents. Observability in particular is becoming the all-inclusive term across domains and organizational hierarchies with often very different meanings or understanding. A common agreed-on understanding of the term, as defined in Forrester’s AIOps and observability reference architectures, is vital. Without common terminology, false expectations become entrenched, resulting in avoidable vulnerabilities and operational risks. New terms are also not the answer because full realization of value of the current terms has not occurred either. We need clarity, not more confusion.
1. **Focusing on business outcomes beyond technological execution.** Gone are the days when praising technologists for keeping servers, databases, and networks running is enough. Business outcomes — not technological accomplishments — must drive decisions and priorities. Core to positive business outcomes is experience, whether customer, employee, or user. Forrester data constantly reinforces this movement toward improving experience. In Forrester’s Software 1 Survey, 2023, it was clear how important experience was to software decision-makers at enterprises in their organizational adoption of customer experience software such as

customer analytics (75%), customer feedback management (70%), and experience research platforms (67%). Everything must drive from the context of experience and outcomes to ensure success.

1. **Addressing tool sprawl and focusing on singular platforms.** Nearly every organization faces challenges of technical debt and tool sprawl to some degree. Monitoring tools are also often a major challenge. The same is occurring with observability tools. Individual teams across all sizes of enterprises deploy solution-specific monitoring tools that become unmanageable over time. Worse, the degree of duplication adds operational complexity and could increase risk profiles. This places great pressure on AIOps tools that must coalesce data from this multitude of observability sources to develop deep insights.
1. **Moving steadily toward autonomous event detection and remediation.** Operational costs are too high and the velocity of business is too fast to continue running IT in a highly or mostly manual manner. Automation and data-driven remediation is no longer a luxury; it is a must. Eliminating mundane, repetitive tasks must be a high priority for every organization to alleviate workloads. Clearly identified and easily remediated issues need to be addressed in a fully autonomous stream of activity. However, a hesitation to adopt remains due to a lack of trust and transparency. Steps in this direction must start because business partners will not tolerate high-cost, low-throughput, high-friction IT operations.
1. **Improving visibility across the IT landscape for deep insights.** High-quality complete data is foundational for good visibility and deep insights. Visibility alone is only the first step because it

does not provide the level of context necessary to make smart, quick decisions. The data for good visibility must be processed to eliminate noise; cluster like events, activities, and actions; and then present it in a clear, easily consumed manner. It is vitally both deep and wide in its scope to capture anomalous behaviors and to avoid indiscriminately eliminating or wrongly including data. To ensure these deep insights, data that is both at rest and in motion must be utilized as applicable for each discrete scenario.

Supplemental Material

Companies We Interviewed For This Report

We would like to thank the individuals from the following companies who generously gave their time during the research for this report.

Chronosphere ([2023 Cloud Native Observability Report](#))

Gigamon ([2023 Hybrid Cloud Security Survey](#))

Grafana Labs ([Observability Survey 2023](#))

New Relic ([2023 Observability Forecast](#))

ScienceLogic (Mike Nappi, chief product officer)

Splunk

StackState (Observability Innovation Report 2023)

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