USING AIOPS TO GAIN OBSERVABILITY AND INSIGHT

A Global Survey of Executives and IT Professionals

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Introduction

This paper reviews a global research survey focusing on observability for today's complex IT environments and the use of automation and artificial intelligence. A total of 321 participants directly involved with IT system operation and strategy completed the survey about their company's IT monitoring approach as well as the adoption of Artificial Intelligence in IT Operations (AIOps) and Intelligent Automation. Individuals surveyed were responsible for IT systems, monitoring, and strategic roadmaps, including front-line to executive roles.

Executive Summary

This report finds that nearly every company indicated that achieving end-to-end observability for modern applications and IT environments is challenging, citing hybrid applications, 3rd party cloud infrastructure and mobile applications as key contributors. To combat this lack of visibility, companies historically have employed numerous monitoring tools, with more than half using a half a dozen or more tools and generating a tremendous volume of data. More than 9 out of 10 participants shared they need analytics tools just to process all the incoming information.

Artificial Intelligence for IT Operations (AIOps) is a sophisticated approach, using machine learning algorithms and data science to establish proactive, automated remediation capabilities which 93% of companies stated they need to utilize the voluminous monitoring data created by their modern applications and complex environments. Companies expect numerous benefits from AIOps, such as faster issue resolution, automatic anomaly recognition, increased uptime, and pinpointing root causes. Participants strongly believe the AIOps will provide both development and operations teams a solution to facilitate fact-based discussion. AIOps can also predict pending application release quality and corresponding customer experience impact. These benefits are driving 83% of the companies surveyed to implement AIOps with 25% already in deployment. A large majority of participants indicated their company is adopting intelligent automation as a way to improve application management and operations with more than a quarter of them having already started.

Most companies (68%) surveyed plan to adopt Site Reliability Engineering (SRE) to augment the operations practice with software development skills needed to support the adoption of sophisticated automation and AI. The technologies of AIOps and Intelligent Automation are enabling end-to-end visibility and control while also providing a catalyst for IT teams and developers to work better to together in a collaborative fashion, not just on issue resolution but proactively to build better software and IT systems.

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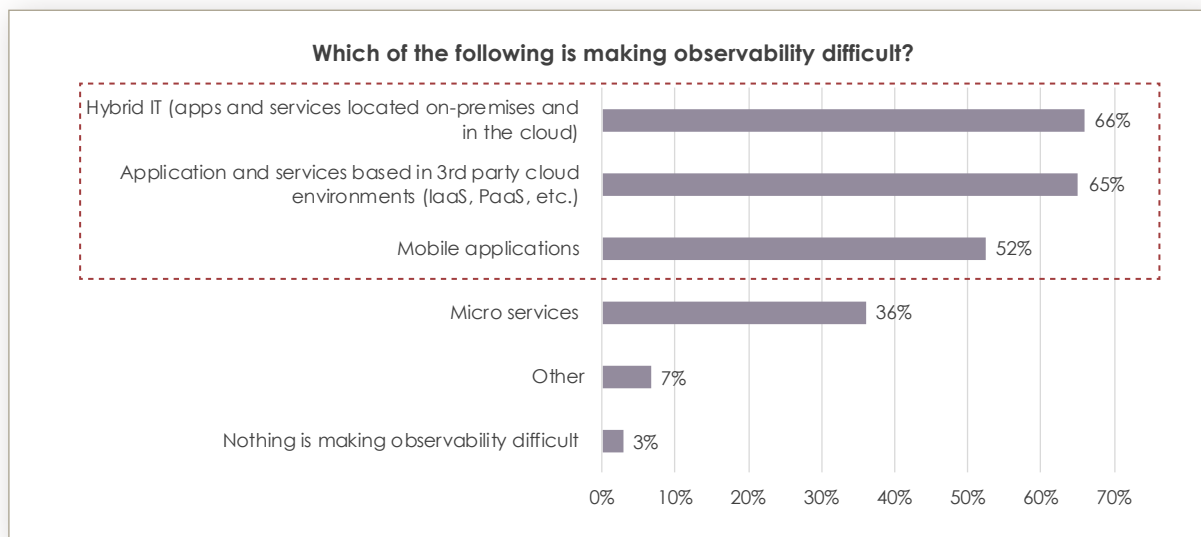
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Key Findings

- **Observability of Modern IT Environments is Increasingly Difficult**
  - More than 50% of companies indicate cloud and mobile devices makes observability challenging
  - More than half of companies are using 6 or more monitoring tools
  - 94% state analytics solutions are needed for correlating monitoring information but only 46% have tools today
- **AIOps Delivers Solutions to Managing Modern Complex IT Environments**
  - 93% stated AIOps can improve the management of complex IT applications and architectures
  - 99% of companies expect numerous benefits from AIOps adoption
  - 90% of companies want a solution that predicts the customer experience impact of an application release
- **IT Operations and Philosophy are Evolving**
  - 83% plan on implementing AIOps with 25% already starting deployments
  - 80% of companies plan on adopting Intelligent Automation and 26% have already started
  - 68% of company are adopting an SRE approach

Detailed Findings
Losing the War on Observability

IT environment observability has been a top challenge for years. The challenge of gaining visibility has always been a combination of disparate technologies including applications, servers, operating systems, databases, and more. Just as monitoring technologies developed visibility into a piece of software or hardware, new technologies were being released and adopted perpetuating the gap in system visibility. This research shows that this trend continues as more than half of all companies point to cloud utilization and mobile devices as top challenges in observability.

Which of the following is making observability difficult?

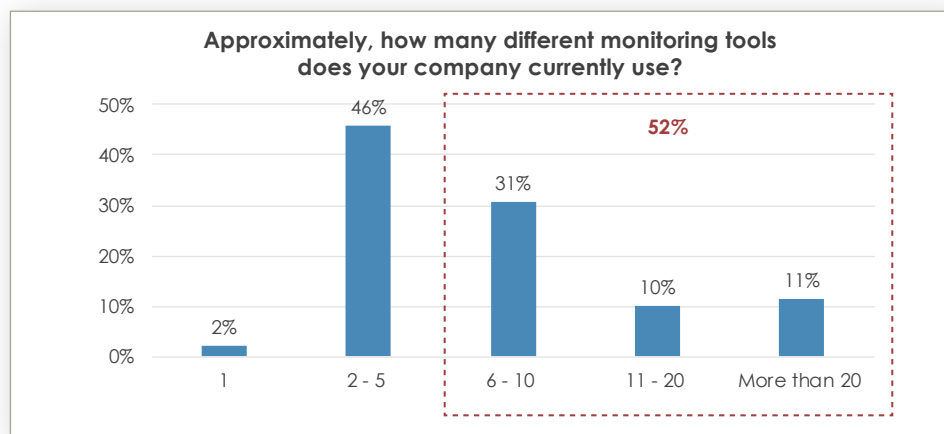| Category	Percentage
Hybrid IT (apps and services located on-premises and in the cloud)	66%
Application and services based in 3rd party cloud environments (IaaS, PaaS, etc.)	65%
Mobile applications	52%
Micro services	36%
Other	7%
Nothing is making observability difficult	3%

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Broadcom's users confirmed this trend citing they were constantly increasing the visibility within the IT environment; with a goal of full end-to-end observability. While new technologies like cloud and mobile devices create new visibility challenges, it is compounded by associated compliance requirements.
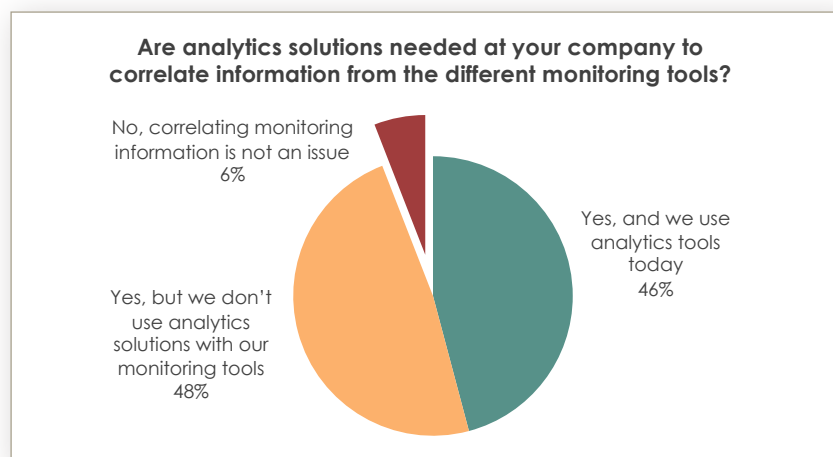
Multiple Monitoring Tool Adoption Spirals

This constant fight to establish visibility across the IT environment has often required point tools, or silo-centric solutions. It is not surprising that more than half (52%) of the companies surveyed are using 6 or more tools, with over 1 in 10 companies relying on 20 or more tools. Only 2% indicated that they are only using one solution today.

Approximately, how many different monitoring tools does your company currently use?

Category	Percentage
1	2%
2 - 5	46%
6 - 10	31%
11 - 20	10%
More than 20	11%

52% (for 6 or more tools)

Information Overload

Numerous monitoring tools used also creates additional costs with each tool's licensing and support fees. Different tools often require additional training and experience to operate them and contribute to the siloed information. Another key disadvantage to numerous tools is the amount of disaggregated data they generate. This research exposes the fact that 94% of companies stated they need analytic solutions to correlate all the information generated, but only 46% actually use analytics today. Analytics as well as AI is needed to process this volume of information and make it actionable.

Are analytics solutions needed at your company to correlate information from the different monitoring tools?

- No, correlating monitoring information is not an issue — 6%
- Yes, and we use analytics tools today — 46%
- Yes, but we don't use analytics solutions with our monitoring tools — 48%
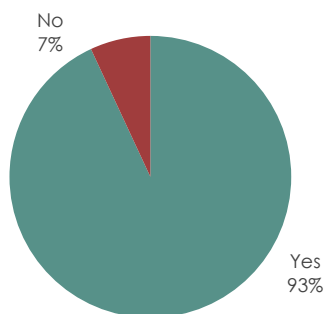
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AIOps Needed for Today's Complex IT Environments

Taking action today is often based on reaction to up/down monitoring and alarms. In todays' complex IT environments simply knowing something is down is not often enough to fully determine the cause. The information needed is end-to-end visibility and the history to determine why it failed. 93% of IT professionals surveyed indicated that AIOps is needed improve reliability, provide end to end observability, and enable automation. AIOps is the application of machine learning algorithms and data science to establish proactive, automated remediation capabilities. IT teams have been adopting automation for years but these findings indicate automation should also leverage monitoring data to deliver the needed reliability.

In your opinion could AIOps help mitigate observability, reliability and automation challenges for complex modern IT application and architectures?

No
7%

Yes
93%

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AIOps Delivers IT and Business Benefits

99% of IT pros stated AIOps could deliver numerous benefits to their company, with fast issue resolution (72%) topping the list. In the third position was the ability to pinpoint root causes of issues (68%). Thus, a key value is using end to end observability with analytics and AI is to derive the problem's source and enable faster remediation. The 2nd most selected benefit was automatic anomaly detection (69%) and as previously discussed, this has the AI looking for and learning operational patterns. These capabilities enable AIOps the ability to predict outages (60%), generating more uptime (64%). Improved uptime and faster issue resolution all contribute to an improved customer experience (47%).
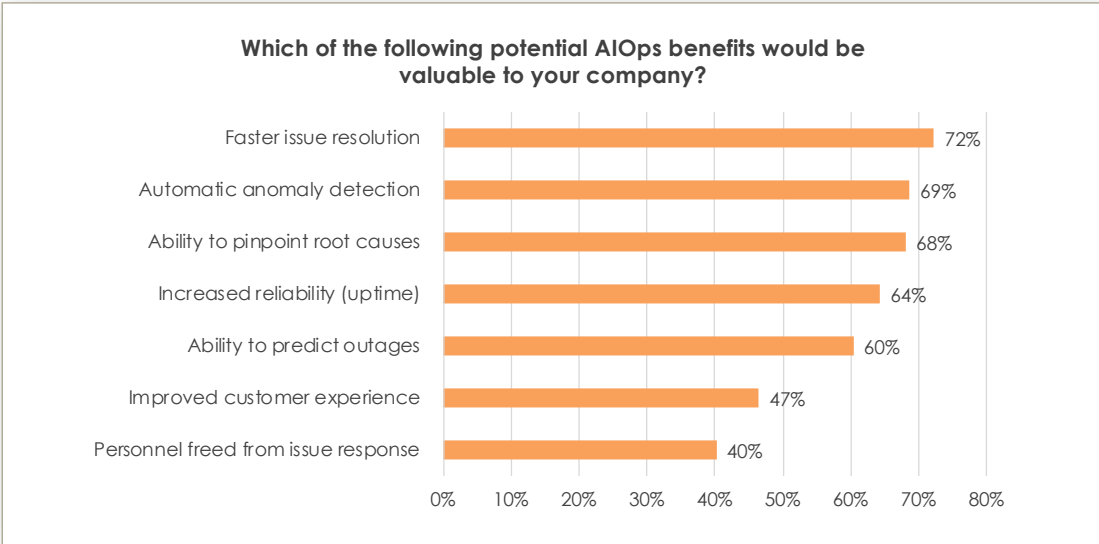
Which of the following potential AIOps benefits would be valuable to your company?

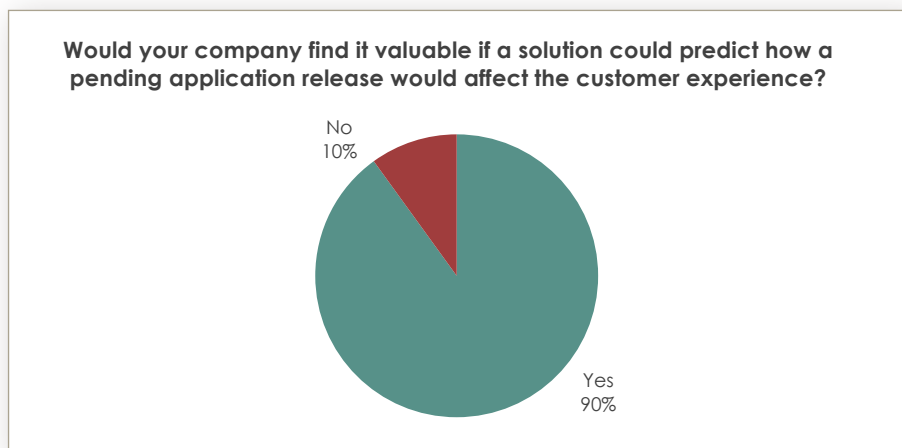| Benefit	Percentage
Faster issue resolution	72%
Automatic anomaly detection	69%
Ability to pinpoint root causes	68%
Increased reliability (uptime)	64%
Ability to predict outages	60%
Improved customer experience	47%
Personnel freed from issue response	40%

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AIOps Fostering Teamwork and Collaboration

While AIOps can deliver strong value to the operational, observability aspect of IT, perhaps one of the unexpected findings was that 89% of those surveyed stated that AIOps would increase collaboration between development and operations teams. This stems from moving from silo-based tools to the ability to look at all the information across the IT environment, including software and hardware. AIOps provides the platform to have a consistent end-to-end view and facilitate fact-based conversations.

In your opinion could AIOps increase collaboration between development and operations teams?

No
11%

Yes
89%
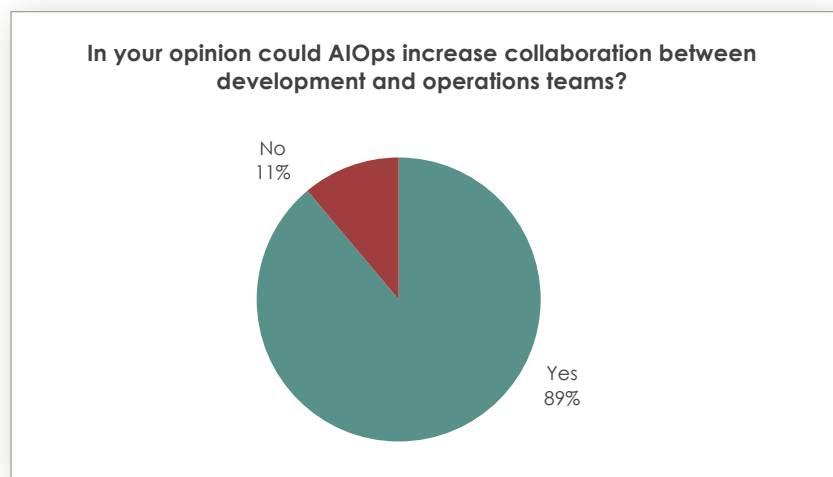
Ensuring A Positive User Experience

90% of the participants shared that a solution that could indicate how a pending application release would affect the customer experience was valuable. Per the previous findings, if AIOps could understand performance metrics and system hysteresis, incorporate new code quality metrics, and reference current releases service levels, then a sophisticated AIOps solution could indicate the impact of new application releases. This could provide fact-based go/no-go release decision making.

Would your company find it valuable if a solution could predict how a pending application release would affect the customer experience?

No
10%

Yes
90%

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SRE and AIOps are Synergistic

Many companies are implementing or considering a site reliability engineering (SRE) approach. When participants were asked about the benefits of utilizing AIOps with an SRE philosophy, 99% indicated there are strong benefits, with the top four being separated by just a few percentage points. The most frequently expected benefit was fewer production issues from improved application quality (63%). As indicated previously, the applications were expected to be more reliable and responsive yielding improved customer experience (61%). They also included improved overall system observability (59%) and reduced IT tasks through automation (56%). Further supporting the preceding section, it was also anticipated that release candidate quality can be better understood and thus predict the customer experience impact (49%).
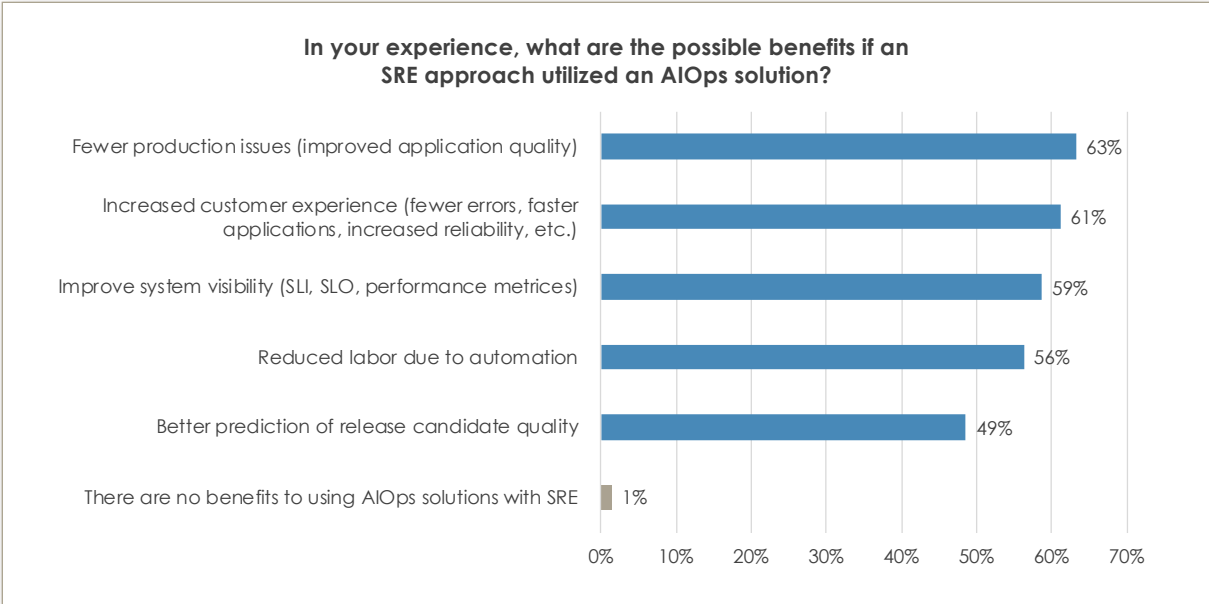
In your experience, what are the possible benefits if an SRE approach utilized an AIOps solution?

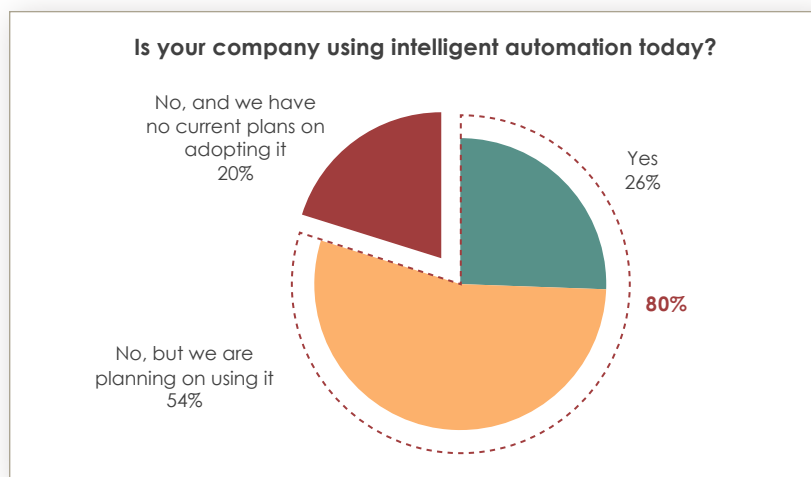| Benefit	Percentage
Fewer production issues (improved application quality)	63%
Increased customer experience (fewer errors, faster applications, increased reliability, etc.)	61%
Improve system visibility (SLI, SLO, performance metrices)	59%
Reduced labor due to automation	56%
Better prediction of release candidate quality	49%
There are no benefits to using AIOps solutions with SRE	1%

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AIOps, Intelligent Automation and SRE are the RoadMap for IT

This report's findings of strong business and IT benefits from AIOps has translated into 83% of the companies involved in this survey planning adoption of AIOps. In fact, 25% of those surveyed have already started their implementation.

Is your company planning on using an AIOps solution?

Have no plans to adopt AIOps
17%

Yes, already started implementing AIOps
25%

83%

Yes, plan to implement AIOps in the future
59%
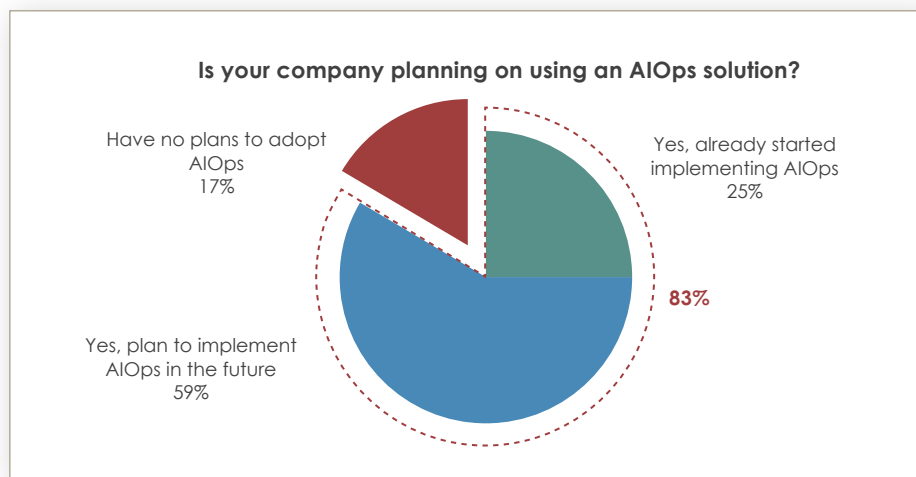
Participants were also asked about their companies' consideration of "intelligent automation," defined as the capability to automatically detect performance, reliability, or operational issues with an application and its environment, as well as provide remediation recommendations based on artificial intelligence (AI) and machine learning (ML) and, if desired, automatically implement fixes. 80% of companies indicated intelligent automation is part of their technology roadmap with more than a quarter (26%) already starting.
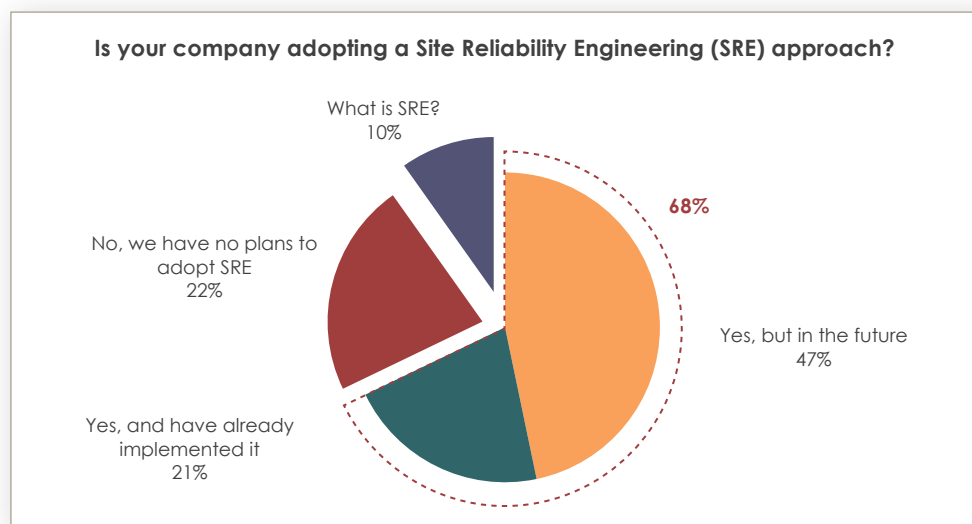
Is your company using intelligent automation today?

No, and we have no current plans on adopting it
20%

Yes
26%

80%

No, but we are planning on using it
54%

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Besides just adopting new technologies, a majority (68%) of those surveyed indicated their company is also changing the IT operations culture and philosophy by adopting an SRE methodology. This can provide a platform for creating and delivering increased quality applications into production, combined with the visibility and automation to adapt and maintain it.

Is your company adopting a Site Reliability Engineering (SRE) approach?

What is SRE?
10%

No, we have no plans to adopt SRE
22%

Yes, and have already implemented it
21%

68%

Yes, but in the future
47%

All 5 users interviewed strongly subscribed to the vision and value of AIOps. Regardless of their implementation level, all participants reported strong value and would again select Broadcom's AIOps solutions if given the choice.

Conclusion

This research finds that companies have been historically failing to achieve the visibility needed into highly complex IT environments and architectures. Constantly evolving technology has made this extremely difficult and resulted in most companies relying on numerous monitoring tools that are often siloed. AIOps solutions can help organizations achieve full observability. These solutions are also enabling intelligent automation from automated ticketing, predicting performance issue and outages, to automated remediation. These tools also provide the opportunity for an improved team approach with end-to-end system visibility to enable collaborative cross team issue resolution.

This is not technology for technology's sake. Those adopting AIOps, Intelligent Automation, and SRE are expecting strong business benefits, faster issue resolution, increased reliability, reduced outages, improved customer experience, personnel moved from mundane task to higher value work, automatic anomaly detection, ability to pinpoint root causes, and the ability to predict outages.
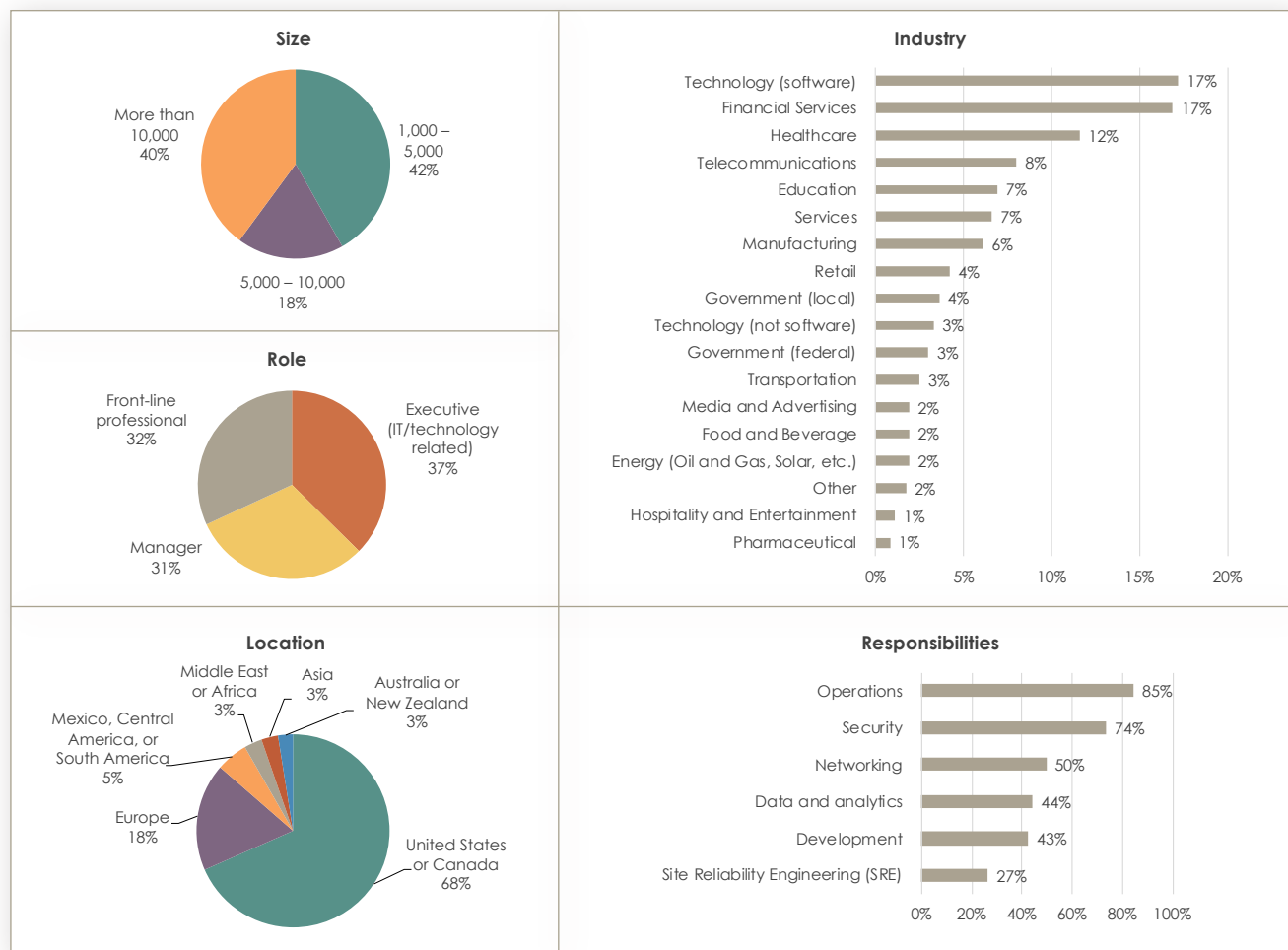
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Survey Methodology

IT professionals at enterprise companies representing all seniority levels were invited to participate in a survey on their company's IT monitoring, observability, and plans for AI driven tools for deployment and operations use. All participants were directly responsible for IT, operations, or strategy at enterprise companies.

A total of 361 qualified participants completed the global primary research survey to understand observability challenges in modern applications with complex environments. The research also investigated the adoption of intelligent automation, site reliability engineering (SRE), and AIOps to mitigate IT and business challenges. The survey was administered electronically, and participants were offered a token compensation for their participation. Participants were from all 5 continents.

Size

- 1,000 – 5,000: 42%
- More than 10,000: 40%
- 5,000 – 10,000: 18%

Role

- Executive (IT/technology related): 37%
- Front-line professional: 32%
- Manager: 31%

Location

- United States or Canada: 68%
- Europe: 18%
- Mexico, Central America, or South America: 5%
- Middle East or Africa: 3%
- Asia: 3%
- Australia or New Zealand: 3%

Industry

- Technology (software): 17%
- Financial Services: 17%
- Healthcare: 12%
- Telecommunications: 8%
- Education: 7%
- Services: 7%
- Manufacturing: 6%
- Retail: 4%
- Government (local): 4%
- Technology (not software): 3%
- Government (federal): 3%
- Transportation: 3%
- Media and Advertising: 2%
- Food and Beverage: 2%
- Energy (Oil and Gas, Solar, etc.): 2%
- Other: 2%
- Hospitality and Entertainment: 1%
- Pharmaceutical: 1%

Responsibilities

- Operations: 85%
- Security: 74%
- Networking: 50%
- Data and analytics: 44%
- Development: 43%
- Site Reliability Engineering (SRE): 27%

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