Listicle

5 Key Ways AI Can Supercharge Observability

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How AI will usher in a new era of observability.

Where were you when you first realized AI would be a big deal?

You may have been watching *Her*, by Spike Jonze, in a dark movie theater.

Or, were you binge-watching the first season of *Westworld*?

Pop culture is often where we first ponder the limits of technology. We do it through movies and video games, while our grandparents' generation did it through science fiction novels by Ray Bradbury and H.G. Wells. It's fun to ponder all the possibilities new tech advancements will bring. We're still patiently waiting for a Delorean to travel through time, though we're not holding our collective breath.

Pop culture often accurately predicts the future; sometimes, it exceeds even our most educated guesses.

What do we mean by AI?

We define AI as a superset of multiple disciplines, that include machine learning, deep learning, and generative AI. It's not just one thing. New use cases are emerging and disrupting the ways things have been done in the past.

One potential path forward will be AI assistants. You've maybe already noticed them on your favorite social media app or work tools. They are here now and will only continue growing in number and popularity. Organizations will build, train, and embed generative AI into user workflows to enhance investigation and response as a key part of a leading observability practice. Vendors who include AI assistants in their core offerings create streamlined opportunities for customers to address business-impacting issues in real time. These tools enable better answers and faster actions, improving MTTD and MTTR.

Core AI-driven detection services can be applied across different use cases — building for centralization, not silos. AI will allow us to understand time series, correlations, and anomalies, identify and analyze the root cause, and recommend ways to remediate the problem.

Organizations are likely wondering how they can best harness the power of AI to help create an even more robust observability practice. Machine learning is critical to building digital resilience — but simply incorporating AIOps into an observability platform is the minimum. Organizations with mature observability practices likely already use machine learning to quickly find, fix, and resolve issues. Those organizations gain immediate benefits and avoid the high costs of downtime.

AIOps is a subset of AI.

The goal of AIOps is to improve the performance, availability, and reliability of systems and applications, increase efficiency, and reduce costs through drastic reductions in MTTD and MTTR.

AIOps achieves this by applying AI/ML, statistical analysis, and analytics to large amounts of data used in observability to drive monitoring, troubleshooting, and remediation use cases.

An observability practice will evolve alongside rapid advances in AI and AIOps. For now, there are five important use cases that we will cover here:

- Anomaly detection
- Alert noise reduction
- Probable root cause and directed troubleshooting
- Automation and remediation
- Proactive outage prevention

What is artificial intelligence and machine learning?

The term machine learning (ML) is often used interchangeably with the term artificial intelligence (AI), but ML is a subfield of AI. ML is a field of computer science that develops computer systems that can autonomously learn from experience by processing the data they receive and improving the performance of specific tasks.

Machine learning is the ability for computer systems to use algorithms and statistical models to continuously improve the performance of specific tasks.

Deep learning is a specialized type of an ML algorithm designed to mimic a human brain's neural network, allowing machines to use massive amounts of data to learn from their own actions and improve future outcomes.

Generative AI, also known as GenAI, broadly falls under the category of machine learning. It simply refers to algorithms that can create content, including text, imagery, video, simulations, code, audio, and more. Examples of generative AI include tools such as ChatGPT, DALL-E, and Google Bard.

How can AIOps benefit my organization?

AIOps is the application of AI and machine learning.

AIOps is not a market by itself and is often considered a mature approach to observability, incident response, and — in some instances — IT service management markets. The definitions of each of these markets include:

- **Observability:** Activities performed to gain visibility into distributed systems/apps — allowing teams to get to the root cause of issues and improve the system's performance.
- **Incident response:** How an organization identifies an issue/incident, minimizes its effects, contains damage, and remediates the cause to reduce the risk of future incidents.
- **IT service management:** How an organization designs, builds, delivers, operates, tracks, and controls information technology services offered to customers.

AIOps improves the performance, availability, and reliability of systems and applications, increasing efficiency and reducing costs through drastic reductions in MTTA and MTTR.

Anomaly detection

Teams need to know something atypical is happening, which could be the precursor to an outage. The goal is always to avoid downtime, using machine learning to detect and alert teams on anomalies and outliers. An out-of-the-box solution should do the trick. Anomalies can be intelligently identified when data deviates from an expected pattern or threshold. Dynamic, adaptive thresholding can help reduce false positives by adjusting for seasonality and teams can be alerted of outliers when a signal significantly differs from its peers in the same period. Both anomaly and outlier detection can help teams reduce unplanned downtime.

Alert noise reduction

Finding a needle in a pile of needles is hard, and that's what many teams are trying to do when they have to sift through hundreds or thousands of alerts to figure out what's relevant. Your solution should help you group related alerts from all your tools and data sources. This grouping can be done through a combination of rules/policies and machine learning-based correlation. Grouping and prioritizing your alerts will help you make sense of what's happening across your environment so that you can find and fix problems faster.

Probable root cause and directed troubleshooting

When an incident occurs, machine learning can help you identify probable root causes and provide prescriptive guidance on where users should look next. Knowing how similar episodes were successfully resolved in the past means teams don't need to start from scratch and spend hours reinventing the wheel. Highlighting similar episodes based on historical data and surfacing what actions were taken to resolve the issue, any notes on how the problem was resolved, and any linked tickets for even more context about the episode will help teams quickly resolve an incident.

Automation and remediation

Automating common tasks can help teams reduce toil and improve accuracy. These tasks can range from intelligently automating ticketing and creating communication channels to executing a specific incident response workflow based on differentiating criteria. Additionally, your solution should offer trigger-based remediation for incident resolution, which saves users time fixing redundant issues and helps teams reduce errors.

Proactive outage prevention

To help customers prevent outages, machine learning can help organizations predict and prevent incidents before they occur. This can be done by assessing service performance and forecasting future near-term performance. With this forecasted performance, teams would have the opportunity to optimize their services and potentially prevent issues from occurring in the first place.

Where does AIOps fit in Observability? What is the connection to business objectives?

AIOps practices and capabilities enhance observability use cases. Specifically, AIOps capabilities enable ITOps and Engineering professionals to gain insights from large time series datasets to speed up mean time to detect (MTTD), root cause analysis (RCA), and mean time to resolve (MTTR). AIOps capabilities available within observability tools assist teams with automating or conducting large-scale analysis. These use cases augment teams' overall efficiency. Analysis is not fully automated, so humans are in the loop. Examples include applying predictive analytics and anomaly detection to get a head start and help avoid potential outages, reducing alert noise and helping teams prioritize what's important, and automating ticketing or the creation of communication channels.

Observability (ITOps and Platform Engineering)

- Improving signal-to-noise ratio
- Anomaly and outlier detection
- Adaptive thresholding
- Alert correlation and prioritization
- Code instrumentation
- Probable root cause analysis
- Assisted remediation

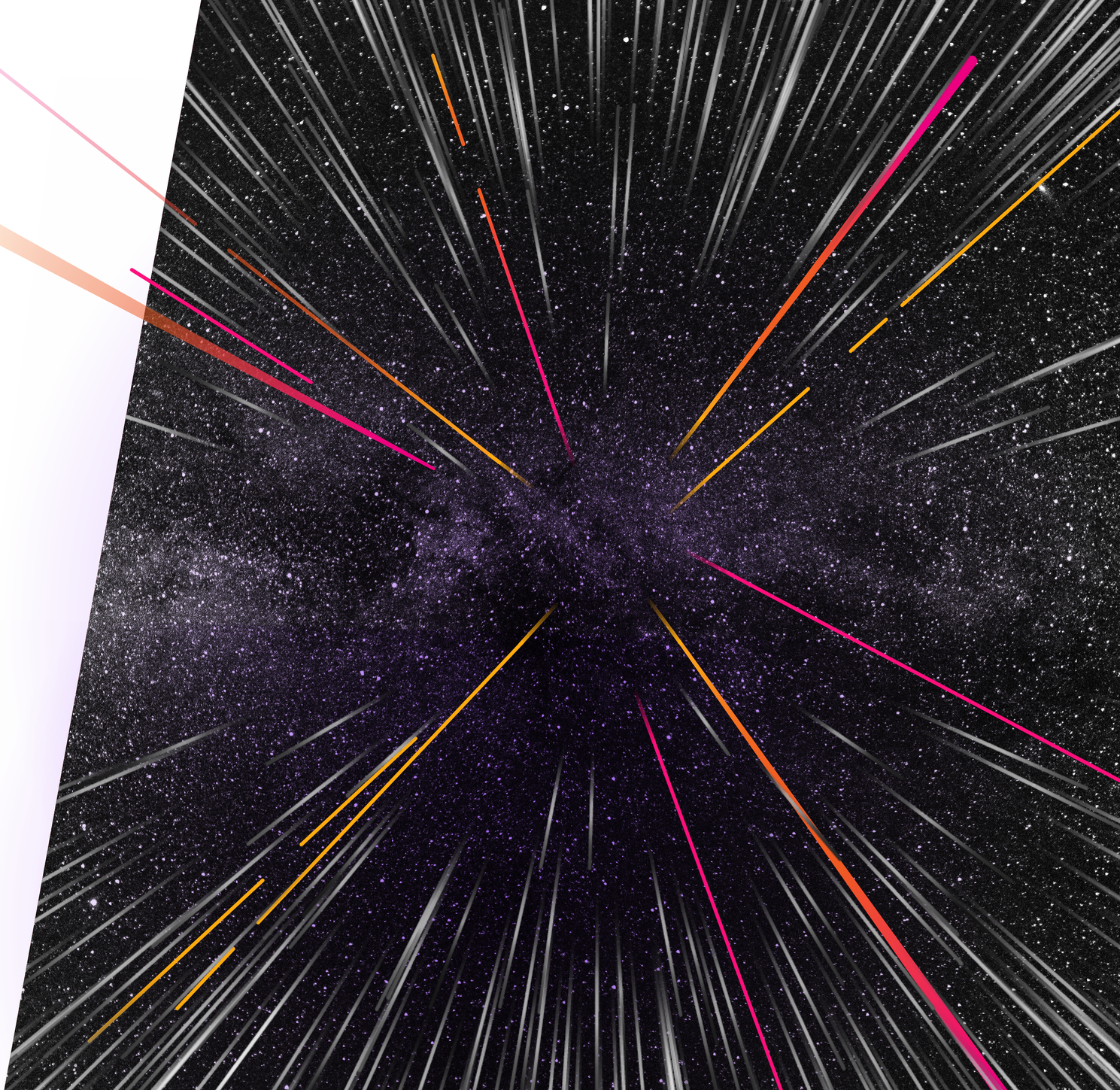
Where we're going, we don't need roads.

Michael J. Fox flies off into the future with that unforgettable line from Christopher Lloyd. If only predicting the future of AI was that easy.

As machine learning becomes more widely adopted, there will be increasing demand for "explainable AI." Clear and transparent explanations for how AI models arrive at their conclusions will be important. Organizations will look to build trust in AIOps solutions, which will lead to broader adoption and usage. It's a flywheel. One won't happen without the other, but they may happen in tandem.

As organizations adopt AI and look to supercharge their observability practice with AIOps, there will be an increased focus on prevention and automation. The north star for observability will remain the same — predicting and preventing issues before they occur. Find, fix, and resolve business-impacting issues before they impact customers.

When issues do occur, AI will assist with automated resolution. This will enable IT staff to focus on more strategic initiatives, such as optimizing IT systems and applications for business outcomes. AI will boost an organization's digital resilience and observability practice.



Artificial Intelligence (AI) and Machine Learning (ML) are among the most discussed topics in the IT industry today.

Despite the numbing buzz around AI and ML, it's more than just an abstract idea or hypothetical application. AI and ML are already powering tools that can give your business decision-making processes a massive upgrade. The technology is here; it's already proving itself in the market, and it's increasingly being built with business in mind.

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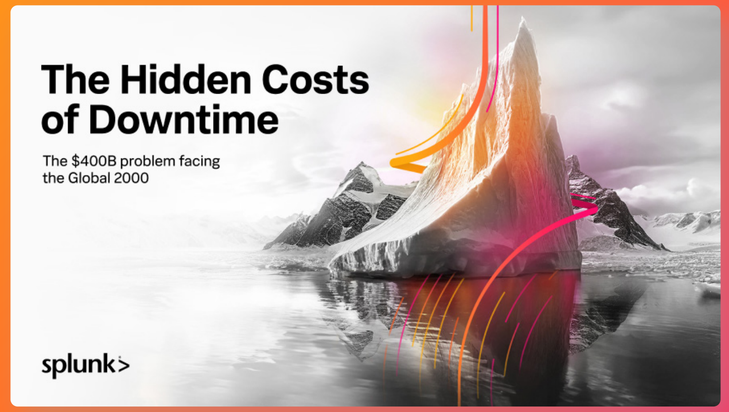
Read The Hidden Costs of Downtime to learn how to build resilience into a leading observability practice.



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