

An SRE journey to AIOps

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01 Challenges in incident resolution

Enterprises are in a can't lose race to deliver increasingly valuable digital experiences to their customers and employees to succeed in their markets and retain talent. To stay competitive, CIOs and their teams are shifting to the site reliability engineering (SRE) operating model to ensure the resiliency and robustness of applications while teams simultaneously and rapidly deliver innovative new features to customers.

But even the most mature SRE teams face challenges, especially with the rapidly proliferating data created by hybrid cloud and cloud-native technologies. Teams are responsible for dynamic and complex applications, often across multiple cloud environments. SREs have to build understanding from a myriad of different tools and signals as they work to proactively understand, resolve and prevent problems such as meeting service level metrics, downtime and outages.

The future of artificial intelligence for IT operations (AIOps) means a powerful pairing between human and machine intelligence to deliver insights where and when they're needed most. As formerly siloed teams converge to deliver business outcomes through innovative and resilient applications, SREs are poised to use a backbone of AI insights across disparate channels, and development, security, and operations (DevSecOps) processes to optimize cost, minimize risk and maximize value for their companies and users.

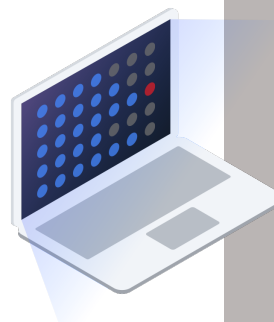
The challenge for SREs is to improve the stability, reliability and availability of SRE models across disparate systems in real-time while application teams are delivering innovative new features at greater and greater speed. To do so, they must intelligently distill insights and evidence out of the crush of surrounding data—and across the mix of on-premises, managed cloud, private cloud and public cloud environments. This environment can be stressful to the point of burnout for valuable and talented employees.

To truly succeed, SREs want to get ahead of application and IT outages and resolve incidents before they impact users. Yet, many teams are still blinded by unforeseen and—even more frustrating—repeat problems. Rather than acting quickly or even automating the resolution, they are overwhelmed by noise as they look to detect, isolate, diagnose and resolve the incident.

Often, SREs struggle to quickly identify resolution actions. Teams spend an excruciating amount of time sifting through multiple data sources such as metrics, topology, events, logs, tickets, alerts and chat conversations. As soon as the app is stable again, they're on to putting out the next fire. Teams don't have time to permanently fix and verify solutions, let alone get ahead of the next problem.

As a result, SRE teams are evaluating more intelligent IT operations to help address these challenges, including the adoption of AI and automation to help improve incident management and resolution. These questions can help explore the opportunities to exploit AI to automate your incident management:

- Does your SRE model use automation and tools to improve resiliency?
- Are your users satisfied with the speed of incident resolution and operational efficiencies?
- Are your SREs able to receive proactive alerts thereby reducing noise and incidents?
- Do your SREs have the intelligent tools to find hidden patterns and context to help isolate problems for faster resolution?
- Are your SREs able to receive insights and recommendations into existing ChatOps workflows to enhance collaboration and speed decision-making?



“By 2020, approximately 50% of enterprises will actively use AIOps technologies together with application performance monitoring (APM) to provide insight into both business execution and IT operations, up from fewer than 10% today.”¹

—Gartner

Explore how applying AI and automation to IT operations can help SREs ensure resiliency and robustness of enterprise applications and free valuable time and talent to support innovation.



02 Intelligent operations with AIOps

AI and machine learning (ML) have emerged as a means to relieve the manual toil associated with the challenging SRE role and free teams to focus on high-value work and innovation.

The initial promise of AI is fast becoming reality. SRE teams are starting to apply AI to create intelligent IT operations as ML models reliably detect patterns and build insight from past experience. AI and automation applied to operations, AIOps, helps teams manage the vast volumes of data and achieve proactive incident resolution.

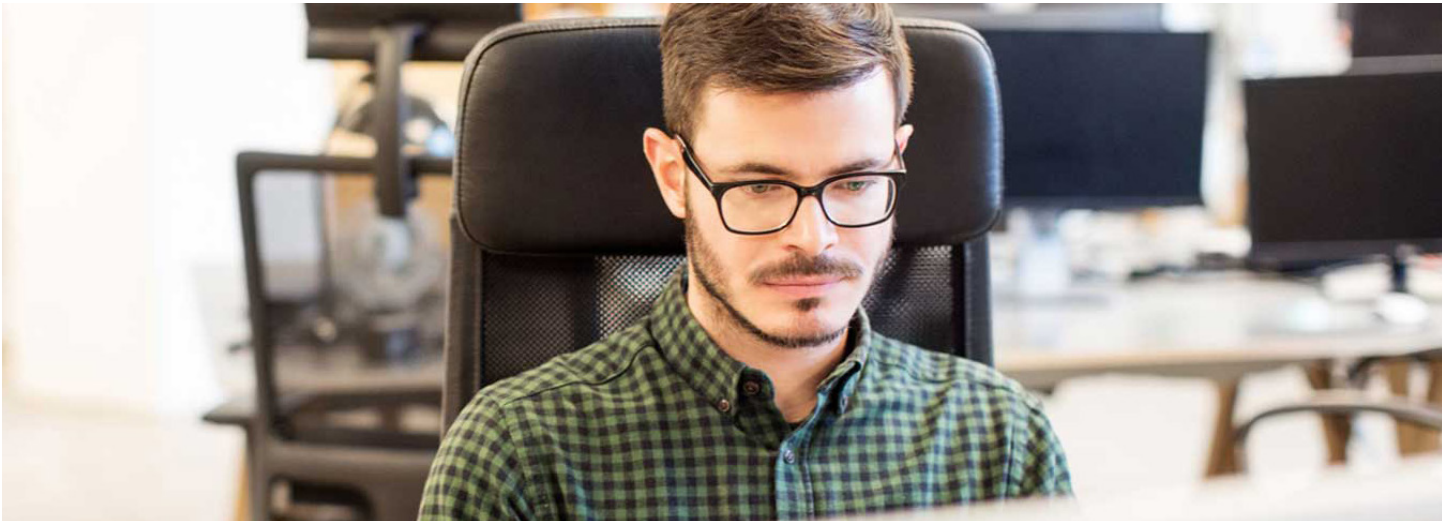
Enterprises across industries are excited about AIOps as a means to:

- Deliver a single, intelligent and automated layer of intelligence across IT operations.
- Collect and synthesize the ever-increasing volumes of operations data.
- Intelligently identify significant events and patterns based on real-time analysis and past experience.
- Diagnose incident causes for rapid response and remediation.
- Pinpoint affected application components to focus teams on stabilizing critical user experiences.
- Enable SREs to respond more quickly—even proactively—to incidents and outages.
- Meet user experience and service-level metrics.

03 AIOps for application-centric IT operations

A single, intelligent and automated IT operations platform infused with AI supports converging DevSecOps practices in an open, hybrid cloud environment so your teams can freely collaborate. An application-centric view accelerates effective collaboration across different roles responsible for a service, whether performed by a single person or multiple teams. AIOps powers shared context across user experiences with ChatOps dashboards and, by embracing a team's chosen tools for problem-solving and understanding the context of an incident, allows SREs to move faster and collaborate to diagnose, fix and prevent incidents.

An application-centric approach facilitates integrated security and compliance by design and across DevSecOps processes to meet client service level objectives (SLOs) or privacy rules. Enabling policy-driven deployments and integrated compliance assessments builds an automated governance, risk and compliance posture into your DevSecOps workflows.



AI at the core of your approach to application-centric IT enables your SRE teams to simplify, automate and prioritize work—and exploit opportunities to accelerate and automate incident management and resolution. This results in more opportunities and time to focus on valuable talent on delivering new initiatives and higher value to users.

04 IT incident resolution powered by AI

Powered by innovations from IBM Research, [IBM Cloud Pak® for Watson AIOps](#) empowers your SREs and IT operations teams to move from a reactive to proactive posture towards application-impacting incidents. It gives you the tools to place AI at the core of your IT operations. With the Cloud Pak for Watson AIOps, you can use AI across every aspect of your IT operations toolchain to improve resiliency and efficiency. It's consumable on your cloud of choice or preferred deployment option.

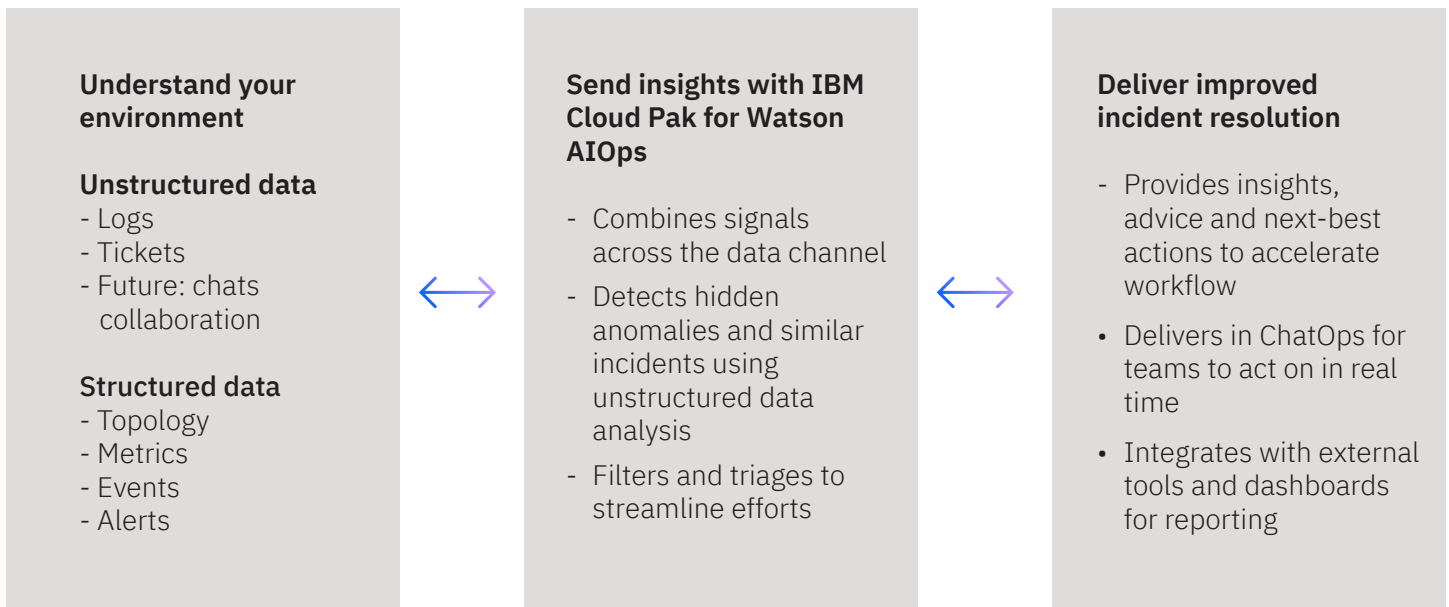
The Cloud Pak for Watson AIOps provides a holistic view of your applications and IT environments by synthesizing data across siloed IT stacks and tools so you can resolve complex issues. The solution uses ML and natural language processing (NLP) to correlate structured and unstructured data in real time, allowing SRES to uncover hidden insights, diagnose causes and identify resolutions faster.

Integrate with your toolchain

Augmenting your preferred toolchain with AI unlocks opportunities to use best-in-class monitoring, alerting and collaboration tools to work more efficiently and improve operational efficiencies.

The Cloud Pak for Watson AIOps uses pre-built AI models tuned by data from your applications to give valuable new insights specific to your environments. The solution identifies and gathers signals across a variety of structured and unstructured data channels and eliminates the need for time consuming context-switching between tools and dashboards. Insights and recommendations are proactively delivered within your team's existing ChatOps workflow or other preferred collaboration experience.

The Cloud Pak for Watson AIOps monitors incoming data feeds including logs, metrics, alerts, application topologies and tickets, highlighting potential problems by connecting the dots across data silos. It gives SREs the insights where they work, allowing them to understand the data, apply context across all workflows and automate problem resolution from a single source of truth.



Faster time to incident resolution

AIOps enables SREs to respond more quickly—even proactively—to slowdowns and outages, with a lot less effort and toil. They can diagnose causes for rapid response and remediation—or, in some cases, automatically resolve these issues without human intervention.

“50% of enterprises will be actively adopting AI to augment their application performance monitoring (APM) tools in order to catch incidents before they become critical. Most APM existing tools offer limited context, leaving site reliability engineers without a way to effectively leverage insights and improve revenue, risk and cost. AI’s ability to recognize patterns and made predictions set it up as the perfect tool to bridge the gap.”¹

—Gartner



IBM Cloud Pak for Watson AIOps capabilities can provide faster time to incident analysis, diagnosis, resolution and avoidance.

Incident analysis and intelligent diagnosis

Learning what's normal and building a baseline understanding to automatically detect anomalies can free up SRE's time from having to manually manage these rules. Incident analysis and intelligent diagnosis offers:

- Anomaly detection
- Root causes analysis
- Real-time historical topology
- Next-best-actions recommendations

Incident resolution

Insights, such as anomaly prediction, the grouping of events, the probable cause of the incident, and next-best-action recommendations are all delivered in a ChatOps environment, such as Slack, resulting in improved collaboration and decision-making. The Cloud Pak for Watson AIOps cuts through the noise and helps avoid notification fatigue with intelligent alert grouping and finding the source of the problem with topology insights. Incident resolution offers:

- Entity linking across data silos
- ChatOps tools
- Intelligence alerting and alert grouping
- Triaging
- Incident similarity
- Topology insights

Incident avoidance

IBM Cloud Pak for Watson AIOps can identify root causes and propose solutions faster and more accurately than humanly possible, as it anticipates and pulls insights from past incidents to recommend a solution. Incident avoidance offers:

- Automated runbooks for next-best-action recommendations
- Code vulnerability analysis
- Change and version management

It uses AI to harness the power of your data, giving SREs the actionable insights needed to proactively resolve incidents and outages.

IBM Cloud Pak for Watson AIOps benefits



Integration with preferred tools

Connects to any collaboration platform. Delivers alerts directly in your teams' preferred ChatOps experience such as Slack and Microsoft Teams.



Application-centric IT approach

Brings business context to disparate components. With IBM, applications and deployment policies are consistently and uniformly understood across on premises and cloud environments, providing a single source of truth. An application-centric IT approach allows teams to manage and bring processes together, creating more intelligent DevSecOps workflows.



Actionable insights

Delivers actionable insights to improve responsiveness. Uncover hidden insights and diagnose causes faster by correlating a vast amount of unstructured and structured data across silos and tools in real time. Build trust in correlation, causality and pattern identification for better reasoning with explainable AI and rationale behind insights. Deliver holistic insights that help prioritize issues and resolution efforts.



Intelligent synthesis

Connect the dots across data and diagnose problems faster. SREs can spend significant time sifting through data from topology, logs, tickets and alerts, but IBM Cloud Pak for Watson AIOps provides a clear view of anomalies, with linkages to sources for faster investigation and resolution. Teams across disciplines can access the same data and trust the recommendations.

Next steps



How SREs benefit from AIOps

Hear about IT incident resolution powered by AI

[Listen to the webinar](#)



AI is shaping the future of IT operations: Are you ready?

Take the assessment now

[Get started](#)



Respond to an outage

View the incident resolution simulation

[Watch the demo](#)

For more information

To learn more about IBM Cloud Pak® for Watson AIOps, please contact your IBM representative or IBM Business Partner, or visit the following website: ibm.com/cloud/cloud-pak-for-watson-aiops

¹ [“Artificial Intelligence for IT Operations Delivers Improved Business Outcomes”](#), *Gartner*, December 3, 2019.



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