IBM Cloud
White paper

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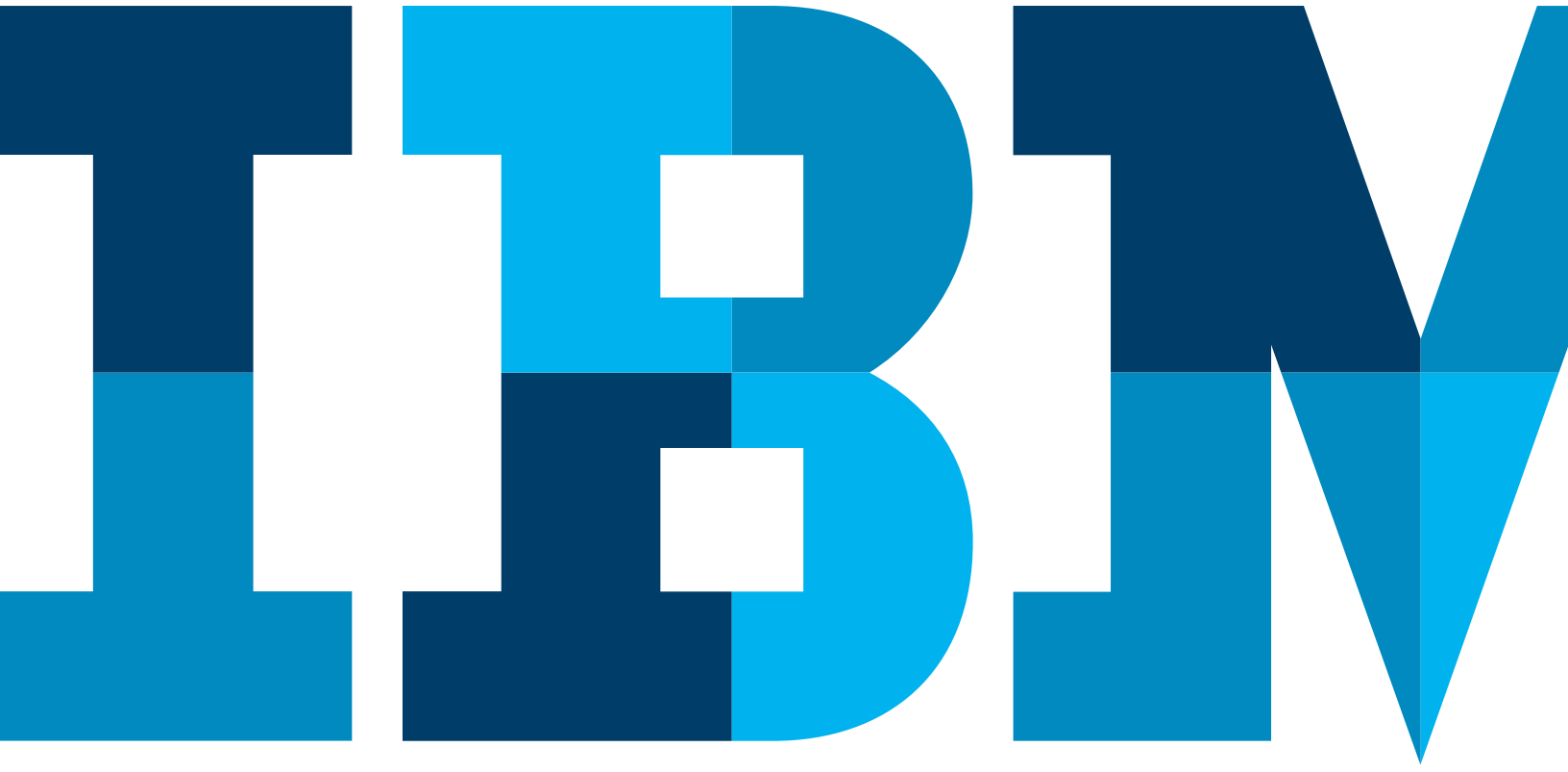
Cognitive IT service management

Unlock insights for more proactive operations



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Introduction

Consumers today expect engaging and responsive experiences, and they have no shortage of places to look for them. With the power firmly shifted to the consumer, it's no surprise that a recent survey showed that nearly 81% of global CEOs want to use technology to develop stronger customer relationships.[1]

Yet this very demand for innovative user experiences has created complex environments that are challenging to manage. Game-changing technologies like mobile and cloud are compounding these complexities, as they require integration with core systems, resulting in hybrid environments.

While these technologies are essential to business agility and innovation, they also increase the risk of downtime. If there's a bottleneck anywhere in an application or underlying infrastructure, the ripple effect can lead to outages and poor performance—and ultimately lost productivity, revenue and damage to reputation. In an age where customer experience is everything, every minute of downtime or degraded response is multiplied by the number of users impacted.

The mean time to repair (MTTR) for application-related problems is often 3 to 6 hours, while the average outage lasts 95 mins and cost more than USD$500k per hour.[2,3] Issues that go beyond Level 1 support often involve at least 3–4 people taking up an average of 5–7 total man hours—time that could be spent innovating.[4]

Clearly, monitoring and managing application performance is essential. End-to-end visibility is needed to understand what is happening, the potential for what could happen and the impact if it did happen. Yet the typical enterprise has multiple monitoring solutions, which means the need to set, maintain and react to performance thresholds manually can be both inefficient and costly.

In response to these requirements, the next phase of service management is coming into maturity. Cognitive capabilities have revolutionized service management, going beyond current monitoring tools to identify problems before they exist and detect service impacts fixed thresholds alone cannot identify. This paper explores some of the ways cognitive service management solutions from IBM can help proactively unlock timely, actionable insights to keep applications and systems up and running, and developers engaged in business-critical initiatives.

What is cognitive IT service management?

Moving to a more proactive operations posture can enable organizations to get in front of problems before they become an urgent fire-fight. But without the deep expertise needed to match the rise of IT operations complexity, diagnosing and fixing an issue can be time consuming and frustrating. Applying cognitive computing capabilities to service management can help accelerate diagnosis of events and patterns. The ability to extract deep insights from IT systems can provide early warnings of abnormal behavior that could cause service impact or poor performance.

There are three key areas that separate cognitive IT service management from traditional service management. Together, these capabilities form the foundation of a proactive, user-focused experience.

Continuously learn

Cognitive service management uses machine learning to learn the behavior of applications and resources and get a true understanding of normal across the enterprise. While traditional service management capabilities might enable you to identify seasonal activity, applying cognitive capabilities allows you to go deeper to identify *patterns* of seasonal activity—and then use those insights to set and manage thresholds for monitoring data. Cognitive goes beyond a single comprehensive view to monitor logs, metrics, events, support docs and tickets to understand the relationships across applications and resources to anticipate service impacts. With these deeper insights, organizations can more quickly and efficiently resolve problems, resulting in significant savings in operational costs and improved staff efficiency.

Anticipate and adjust

Behind every anomaly is a potential service disruption, which is precisely what monitoring solutions are designed to detect. Adding operations analytics can help uncover metrics to identify anomalies that recur *with regularity*. That information in turn can provide better forecasting for potential service degradations. And as environments continue to deepen in complexity, changes can occur faster than manual resources can keep pace. Cognitive capabilities can help organizations adjust to rapidly changing environments and intelligently prioritize problems.

Recommend action

While teams continuously strive to operate as efficiently as possible, efficiency is even more crucial when it comes to finding and fixing application and systems problems. Applying cognitive capabilities can accelerate the ability to find issues by rapidly searching across terabytes of structured and un-structured data in multiple detailed modes and views. This information can reveal previously undetectable patterns, along with intelligent recommendations for corrective repair actions.

How IBM can help

As a global leader in IT service management, IBM has the experience to help you move from reactive to proactive using advanced cognitive capabilities. Powered by IBM Watson™ capabilities, IBM offers a range of cognitive service management solutions.

A global banking and financial services company based in Europe identified an emerging user account access issue—7 hours after IBM Operations Analytics–Predictive Insights detected it.

IBM Operations Analytics–Predictive Insights applies advanced machine learning techniques to monitoring data to continuously learn application and infrastructure behavior. As it learns the baseline for behavior, it helps dynamically set and adjust performance thresholds for virtually all application and infrastructure monitoring data. Through analytics designed to detect flatlines, significant trends, decreased variance, abnormal bound and slow growth changes, IBM Operations Analytics–Predictive Insights helps proactively identify emerging problems, enabling a critical window to correct issues before they become service impacting.

Advanced analytics and a robust dashboard provide added context and an aggregated view for rapid diagnosis, including multivariate analytics and correlation of related metrics of historical anomalies and KPIs. Forecasting capabilities enable predictions on anomalies' likely behavior into the future to identify potential critical issues.

IBM Operations Analytics–Log Analysis helps diagnose service problems in applications and the infrastructure supporting them through the ability to perform a rapid search across structured and unstructured data. By searching across virtually all data—log formats, event data and trouble tickets—it can extract common patterns. Using text analytics to recognize appropriate content from support portals, tickets and documentation, it auto recommends solutions to known issues to help cut down mean time to resolution. IBM Operations Analytics–Log Analysis provides support for Apache Hadoop distribution for long-term data storage and historical analysis as well as support for integration with Cloudera. Additional capabilities can provide a catalog of applications to extract additional insights from domain-specific areas by defining the type of data to ingest, and how the data is annotated and indexed. In addition, service desk extensions can provide CIO insights with views of hotspots to aid with strategic IT planning and help reduce ticket changes by identifying the appropriate SME on first try.

Conclusion

Successful organizations are creating compelling consumer experiences that transform their interaction. Yet the complex technologies that support these experiences need to be continuously up and running in peak performance or even the most promising experience will ultimately fail. While traditional monitoring tools can help pinpoint problems to improve mean time to repair, cognitive capabilities can go deeper to improve mean time to *know*—to locate the root cause of a problem, to determine how it occurred and predict when it might occur again.

IBM provides a wide range of cognitive offerings powered by Watson that integrate with its broader IT service management portfolio. Together, these offerings cover all key areas of cognitive service management to help:

- Improve mean time to repair with ability to quickly search across terabytes of structured and unstructured data.
- Get expert advice for faster problem diagnosis and help reduce problem query cycle times.
- Avoid service outages by learning of anomalous behavior within your environment, and receive proactive notifications of emerging operational issues before services are interrupted.
- Increase IT operations efficiency with advanced ticket analytics, insights into hot spots and decision support for triaging tickets.

For more information

Learn how cognitive IT service management and IBM Operations Analytics can help your organization. Sign up and try it out now:
ibm.com/marketplace/cloud/it-operations-analytics/us/en-us

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1 IBM Institute for Business Value (IBV), "Digital reinvention in action: What to do and how to make it happen," 2015.

2 Application Performance Monitoring (APM) 2015, "Industry challenges, State of the Art, and the Case for Unified Monitoring," (http://ibm.co/IndustryChallenges)

3 Ponemon Institute, *Cost of Data Outages*, 2016. (http://ibm.co/PonemonOutages16)

4 Application Performance Monitoring (APM) 2015, "Industry challenges, State of the Art, and the Case for Unified Monitoring," (http://ibm.co/IndustryChallenges)

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